Appendix A

Bedrock Survey Data

Appendix A
Summary of Mill Pond Top of Bedrock Survey Points
Georgia-Pacific - Mill Pond
Fort Bragg, California

SURVEY POINT	NORTHING	EASTING	ELEVATION (ft NAVD88)	DESCRIPTION
1	2,291,726.9	6,049,644.0	14.6	TOPBEDROCK
2	2,291,726.5	6,049,642.7	14.8	TOPBEDROCK
3	2,291,724.8	6,049,644.1	14.6	TOPBEDROCK
6001	2,291,865.1	6,049,851.2	14.1	TOP BEDROCK
6002	2,291,864.5	6,049,849.6	17.9	TOP BEDROCK
6003	2,291,863.7	6,049,846.6	21.0	TOP BEDROCK
6004	2,291,862.5	6,049,845.2	21.3	TOP BEDROCK
6005	2,291,859.0	6,049,844.4	23.5	TOP BEDROCK
6006	2,291,855.6	6,049,842.7	22.7	TOP BEDROCK
6007	2,291,853.1	6,049,843.0	23.8	TOP BEDROCK
6008	2,291,850.5	6,049,843.3	24.3	TOP BEDROCK
6009	2,291,849.4	6,049,842.5	24.0	TOP BEDROCK D/L
6010	2,291,844.3	6,049,817.0	14.8	TOP BEDROCK D/L
6011	2,291,843.3	6,049,815.5	24.1	TOP BEDROCK
6012	2,291,844.1	6,049,810.1	24.8	TOP BEDROCK
6013	2,291,842.0	6,049,804.3	23.2	TOP BEDROCK
6014	2,291,838.4	6,049,805.1	24.3	TOP BEDROCK
6015	2,291,834.7	6,049,805.2	26.3	TOP BEDROCK
6016	2,291,831.9	6,049,801.2	26.5	TOP BEDROCK
6017	2,291,830.3	6,049,799.0	27.4	TOP BEDROCK
6018	2,291,829.4	6,049,796.1	26.7	TOP BEDROCK
6019	2,291,829.0	6,049,788.7	27.0	TOP BEDROCK
6020	2,291,828.9	6,049,785.9	25.8	TOP BEDROCK
6021	2,291,827.3	6,049,781.7	23.3	TOP BEDROCK
6022	2,291,826.7	6,049,778.9	20.9	TOP BEDROCK
6023	2,291,824.9	6,049,778.0	24.7	TOP BEDROCK
6024	2,291,824.3	6,049,776.5	26.7	TOP BEDROCK
6025	2,291,824.5	6,049,774.2	26.4	TOP BEDROCK
6026	2,291,825.0	6,049,772.4	25.7	TOP BEDROCK
6027	2,291,825.7	6,049,771.4	24.8	TOP BEDROCK
6028	2,291,825.2	6,049,769.3	25.4	TOPBEDROCK@RIP
6029	2,291,822.1	6,049,752.4	21.4	TOPBEDROCK
6030	2,291,823.7	6,049,751.2	20.8	TOPBEDROCK
6031	2,291,822.2	6,049,748.5	23.5	TOPBEDROCK
6032	2,291,819.8	6,049,748.8	25.3	TOPBEDROCK
6033	2,291,816.1	6,049,744.6	23.0	TOPBEDROCK
6034	2,291,814.4	6,049,741.0	27.2	TOPBEDROCK
6035	2,291,815.5	6,049,739.0	28.3	TOPBEDROCK
6036	2,291,816.6	6,049,738.4	28.8	TOPBEDROCK
6037	2,291,812.7	6,049,729.4	27.5	TOPBEDROCK
6038	2,291,808.4	6,049,730.7	24.4	TOPBEDROCK

Appendix A
Summary of Mill Pond Top of Bedrock Survey Points
Georgia-Pacific - Mill Pond
Fort Bragg, California

SURVEY POINT	NORTHING	EASTING	ELEVATION (ft NAVD88)	DESCRIPTION
6039	2,291,803.9	6,049,731.9	24.4	TOPBEDROCK
6040	2,291,802.3	6,049,730.1	24.0	TOPBEDROCK
6041	2,291,801.6	6,049,728.5	23.8	TOPBEDROCK
6042	2,291,801.0	6,049,727.3	23.7	TOPBEDROCK@DAM
6043	2,291,773.4	6,049,706.2	23.0	TOPBEDROCK@DAM
6044	2,291,770.9	6,049,706.8	22.4	TOPBEDROCK
6045	2,291,764.9	6,049,707.6	24.3	TOPBEDROCK
6046	2,291,762.7	6,049,699.6	23.8	TOPBEDROCK
6047	2,291,759.7	6,049,696.6	24.9	TOPBEDROCK
6048	2,291,759.6	6,049,691.8	24.1	TOPBEDROCK
6049	2,291,756.0	6,049,687.5	22.6	TOPBEDROCK
6050	2,291,753.2	6,049,685.6	22.0	TOPBEDROCK
6051	2,291,749.1	6,049,687.0	23.5	TOPBEDROCK
6052	2,291,746.6	6,049,686.7	23.4	TOPBEDROCK
6053	2,291,745.0	6,049,683.3	21.7	TOPBEDROCK
6054	2,291,743.2	6,049,682.7	21.9	TOPBEDROCK
6055	2,291,740.4	6,049,676.9	21.2	TOPBEDROCK
6056	2,291,741.8	6,049,673.2	20.1	TOPBEDROCK
6057	2,291,742.6	6,049,671.6	17.9	TOPBEDROCK
6058	2,291,741.3	6,049,671.0	17.6	TOPBEDROCK
6059	2,291,738.0	6,049,670.1	17.1	TOPBEDROCK
6060	2,291,734.1	6,049,667.8	15.1	TOPBEDROCK
6061	2,291,730.7	6,049,668.6	15.6	TOPBEDROCK
6062	2,291,726.1	6,049,668.2	13.9	TOPBEDROCK D/L
6063	2,291,729.7	6,049,647.1	12.5	TOPBEDROCK
6064	2,291,728.1	6,049,645.6	14.3	TOPBEDROCK
6065	2,291,726.9	6,049,644.0	14.6	TOPBEDROCK
6066	2,291,726.5	6,049,642.7	14.8	TOPBEDROCK
6067	2,291,724.8	6,049,644.1	14.6	TOPBEDROCK
6068	2,291,722.1	6,049,644.2	14.5	TOPBEDROCK
6069	2,291,719.3	6,049,646.3	15.4	TOPBEDROCK
6070	2,291,717.6	6,049,645.5	15.9	TOPBEDROCK
6071	2,291,716.5	6,049,644.1	15.5	TOPBEDROCK
6072	2,291,717.0	6,049,642.2	15.2	TOPBEDROCK
6073	2,291,716.9	6,049,641.2	14.7	TOPBEDROCK D/L

Appendix C

Permits

CITY OF FORT BRAGG

Incorporated August 5, 1889
416 N. Franklin Street, Fort Bragg, CA 95437
Phone: (707) 961-2827
Fax: (707) 961-2802

NOTICE OF FINAL ACTION
ON ADMINISTRATIVE COASTAL DEVELOPMENT PERMIT

On October 9, 2014, final action was taken by the City on the following Administrative Coastal Development Permit application:

APPLICATION NO.:	Administrative Coastal Development Permit, CDP 6-14 (9-11-2014)
APPLICANT:	Georgia-Pacific
PROPERTY OWNER:	Georgia-Pacific
AGENT:	David Massengill, Georgia-Pacific West LLC
REQUEST:	Administrative Coastal Development Permit for Mill Pond Dam Supplemental Site Investigation Work Plan. The field investigation will obtain geophysical and hydrologic information at the Mill Pond Dam including the crib wall, spillway and north wall. The investigation work along the crest of the dam and toe of the north wall includes geophysical exploration, cone penetration tests, soil borings, and installation of groundwater piezometers. A limited borrow material study consisting of two small test pits will be conducted in the former log deck area. The field work will require approximately one week to complete.
LOCATION:	90 W. Redwood Ave.
APN:	008-010-26
ZONING:	Timber Resources Industrial (IT)
ENVIRONMENTAL DETERMINATION:	15301 (m) Minor repairs and alterations to existing dams and appurtenant structures under the supervision of the Department of Water Resources.

SURROUNDING LAND USES:	NORTH:	Residential, vacant Timber Resources Industrial (IT)
	EAST:	Central Business District, vacant IT
	SOUTH:	Vacant IT
	WEST:	Ocean

DATE OF ACTION: October 9, 2014

ACTION BY:
___ Fort Bragg Planning Commission
___ Fort Bragg City Council
_XX City of Fort Bragg Community Development Director

ACTION TAKEN:
_XX Approved (See attached Findings and Conditions)
___ Denied (See attached Findings)

THIS PROJECT IS:
____ Not appealable to the Coastal Commission.

_XX Appealable to Coastal Commission pursuant to Public Resources Code Section 30603. An aggrieved person may appeal this decision to the Coastal Commission within ten working days of Commission receipt of this notice. Appeals must be in writing to the appropriate Coastal Commission District office.

Marie Jones
Community Development Director

10-14-2014
Date

cc: California Coastal Commission
Permit File
City Manager

GENERAL FINDINGS

1. The proposed project is consistent with the purpose and intent of the zoning district, as well as all other provisions of the Coastal General Plan, Coastal Land Use and Development Code (CLUDC) and the Fort Bragg Municipal Code in general;
2. The design, location, size, and operating characteristics of the proposed activity are compatible with the existing and future land uses in the vicinity;
3. The site is physically suitable in terms of design, location, shape, size, operating characteristics, and the provision of public and emergency vehicle (e.g., fire and medical) access and public services and utilities (e.g., fire protection, police protection, potable water, schools, solid waste collection and disposal, storm drainage, wastewater collection, treatment, and disposal, etc.), to ensure that the type, density, and intensity of use being proposed would not endanger, jeopardize, or otherwise constitute a hazard to the public interest, health, safety, convenience, or welfare, or be materially injurious to the improvements, persons, property, or uses in the vicinity and zoning district in which the property is located;
4. The project complies with Specific Use Regulations established for the project
5. For the purposes of the environmental determination, the project is considered exempt from further environmental review pursuant to the California Environmental Quality Act (CEQA Guidelines Section 15301 (m) – Minor repairs and alterations to existing dams and appurtenant structures under the supervision of the Department of Water Resources.

COASTAL DEVELOPMENT PERMIT FINDINGS

1. The proposed development as described in the application and accompanying materials, as modified by any conditions of approval, is in conformity with the City of Fort Bragg's certified Local Coastal Program and will not adversely affect coastal resources;
2. The project is in conformity with the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Sections 30200 of the Public Resources Code);
3. Feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment;
4. The proposed use is consistent with the purposes of the zone in which the site is located;
5. The proposed development is in conformance with the City of Fort Bragg's Coastal General Plan;
6. The proposed location of the use and conditions under which it may be operated or maintained will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity;
7. Services, including but not limited to, water supply, sewage disposal, solid waste, and public roadway capacity have been considered and are adequate to serve the proposed development;

8. The project, as proposed, will neither be subject to nor increase instability of the site or structural integrity from geologic, flood, or fire hazards due to project design, location on the site, or other reasons;
9. The project, as conditioned, will not have significant adverse impacts on site stability or structural integrity from geologic, flood, or fire hazards due to required project modifications, landscaping, or other conditions;
10. There are no alternatives to development that would avoid or substantially lessen impacts on site stability or structural integrity;
11. The resource as identified will not be significantly degraded by the proposed development;
12. There is no feasible less environmentally damaging alternative; and
13. All feasible mitigation measures capable of reducing or eliminating project related impacts have been adopted.

SPECIAL CONDITIONS

1. Native American monitors shall be present during all ground disturbing work activities on the south side of the spillway.
2. Orange construction fencing will be installed, under the direction of a biologist, to define ESHA features adjacent to the work areas and prevent disturbance. The orange fencing will be removed at the completion of the field work. The project will avoid impacting any seasonal wetlands, ponds or seeps with heavy equipment, while completing the borings. The disturbance footprint at each boring location and the concrete coring locations on the spillway, shall be limited to the drilling equipment and secondary containment. Secondary containment shall be established to restrict drill cuttings and fluids from entering the adjacent water bodies. Cuttings and fluids shall be captured and placed in drums for proper disposal. If needed, silt fence or other Best Management Practices (BMPs) will be installed to restrict sediment and drilling materials from entering adjacent water features. All equipment shall be inspected for fuel and hydraulic fluid leaks prior to use on the site. All equipment refueling and maintenance shall be conducted at least 100 feet away ESHAs. All trash and debris shall be picked up and disposed of daily.
3. The applicant will install storm water BMPS (e.g., fiber rolls or gravel bags) prior to the wet season, if the City Water Project Manager determines that BMP's are necessary. All vegetated areas that are disturbed during the work will be reseeded using a coastal California native seed mix and allowed to passively re-vegetate during the wet season.

STANDARD CONDITIONS

1. This action shall become final on the 11th day following the decision unless an appeal to the City Council is filed pursuant to CLUDC Chapter 17.92 - Appeals.
2. The use and occupancy of the premises shall be established and maintained in conformance with the requirements of this permit and all applicable provisions of the CLUDC.

3. The application, along with supplemental exhibits and related material, shall be considered elements of this permit, and compliance therewith is mandatory, unless an amendment has been approved by the City.
4. This permit shall be subject to the securing of all necessary permits for the proposed development from City, County, State, and Federal agencies having jurisdiction. All plans submitted with the required permit applications shall be consistent with this approval. All construction shall be consistent with all Building, Fire, and Health code considerations as well as other applicable agency codes.
5. The applicant shall secure all required building permits for the proposed project as required by the Mendocino County Building Department.
6. If any person excavating or otherwise disturbing the earth discovers any archaeological site during project construction, the following actions shall be taken: 1) cease and desist from all further excavation and disturbances within 100 feet of the discovery; and 2) notify the Director of Public Works within 24 hours of the discovery. Evidence of an archaeological site may include, but is not necessarily limited to shellfish, bones, flaked and ground stone tools, stone flakes produced during tool production, historic artifacts, and historic features such as trash-filled pits and buried foundations. A professional archaeologist on the list maintained by the Northwest Information Center of the California Historical Resources Information System or Listed by the Register of Professional Archaeologists shall be consulted to determine necessary actions.
7. This permit shall be subject to revocation or modification upon a finding of any one or more of the following:
    (a) That such permit was obtained or extended by fraud.
    (b) That one or more of the conditions upon which such permit was granted have been violated.
    (c) That the use for which the permit was granted is so conducted as to be detrimental to the public health, welfare, or safety or as to be a nuisance.
    (d) A final judgment of a court of competent jurisdiction has declared one or more conditions to be void or ineffective, or has enjoined or otherwise prohibited the enforcement or operation of one or more conditions.
8. Unless a condition of approval or other provision of the Coastal Land Use and Development Code establishes a different time limit, any permit or approval not exercised within 24 months of approval shall expire and become void, except where an extension of time is approved in compliance with CLUDC Subsection 17.76.070 (B).

Health and Human Services Agency
Environmental Health, Hazardous Materials

RECEIVED
UKIAH 860 N Bush Street, Ukiah, CA, 95482 707-234-6625

OCT 09 2014
MENDOCINO COUNTY
ENVIRONMENTAL HEALTH

MONITORING WELL APPLICATION

To Construct, Destroy, Repair, or Alter: Monitoring Wells, Cathodic Wells, Remediation Wells or Borings

(For Official Use Only)

Date Paid: 12/10/14
Fee Paid $ 1238.00
Payment # UP32292

PERMIT

Number: H2235233
Rec'd By: tbc

Application is hereby made to the Mendocino County Division of Environmental Health for a permit to perform the work as indicated below at the following site location:

Site Name: Georgia-Pacific Fort Bragg Phone: _____
Site Address: 90 West Redwood Ave City: Fort Bragg
Property Owner Address: 133 Peachtree Street
City: Atlanta State: Georgia Zip: 30303

Work Information:

Indicate below the total number of wells already **existing** on the site:

Domestic Water Wells 0 Monitoring Wells 79

Type of Work Proposed: Construction X Destruction _____
Repair _____ Alteration/Conversion _____

Indicate below the total number of **proposed** wells or borings for each type listed:

Monitoring Wells 6 Cathodic Wells _____ Borings/hydropunches 9

Consultant and Contractor Information:

Consulting Firm: ARCADIS U.S. Inc.
Address: 101 Creekside Ridge Court City: Roseville Zip: 95678
Contact Name: Marilyn Morrow Phone #: 916-778-7307

Driller/Contractor: Gregg Drilling & Testing, Inc.
C-57 License #: 485165 expires 1/31/2016 Phone #: 925-313-5800
Address: 950 Howe Road City: Martinez Zip: 94553

Permit Terms and Conditions provide that the contractor will:

- Secure the authorization of the property owner.
- Submit written authorization(s) from the off-site property owner(s) for all off-site work.
- Complete the Site Plot Sketch according to the instructions on the back of this application.
- Consult with the inspector for an available inspection date a minimum of 5 days **prior** to scheduling field activities.
- Schedule field work to commence after a permit has been issued.
- Place seals by "free fall" (without a tremie pipe) only in dry intervals of less than 30 feet BGS.
- Construct surface seal/cover to prevent physical damage, unauthorized access,& contamination.
- Submit a State of California Well Completion Report/Log or an "As Constructed" Well Log, or a Destruction Log of the Soil Boring within 15 days of completion as a requirement for final approval [Mendocino County Code Section 16.04.060 (c)]. **(Final approval will not be given without the log(s) or sketch.)**

Permit Agreement:

I hereby agree to construct, destroy, repair or alter all wells or borings on this permit application in accordance with the **"Permit Terms And Conditions"** as stated above and in compliance with the Mendocino County Well Ordinance (County Code Chapter 16.04) and the California Well Standards Bulletin 74-81 & 74-90 as they are amended from time to time.

I understand that this permit expires one year from the date of issuance (Mendocino County Code Section 16.04.090).

For Known Contaminated Sites: I understand that the **North Coast Regional Water Quality Control Board** requires an approved **Work Plan** prior to the start of any field work under this permit. [Please call (707) 576-2220 for questions regarding work plan approval.]

For Sites within the Coastal Zone: I understand that the Department of Planning and Building requires a Coastal Zone Permit prior to the start of any field work under this permit, and that they may require additional permit fees.

C-57 Contractor: **Wet signatures required; faxes will not be accepted.**

Chris Pruner (Print Name) _____ (Signature)
Date: 10-3-2014

Coastal Zone Approval:

Per Marie Jones (Signature)
Date: 8/27/14

Permit Approval:

This application is deemed as approved and issued when signed and dated by a Mendocino County Health Officer in the space provided on the lines below:

Issued by: _____ (Health Officer's Signature) 10/21/14 Date

Work completed satisfactorily:

Final Approval by: _____ (Health Officer's Signature) Date:

Date Boring and Well Logs were received: _____

Distribution: Original to EH; Copy to well driller; Copy to Consultant; Copy to Water Quality Control

U:\Hazmat Staff\Monwell Info\Monwell Application3-2013.doc

Appendix D

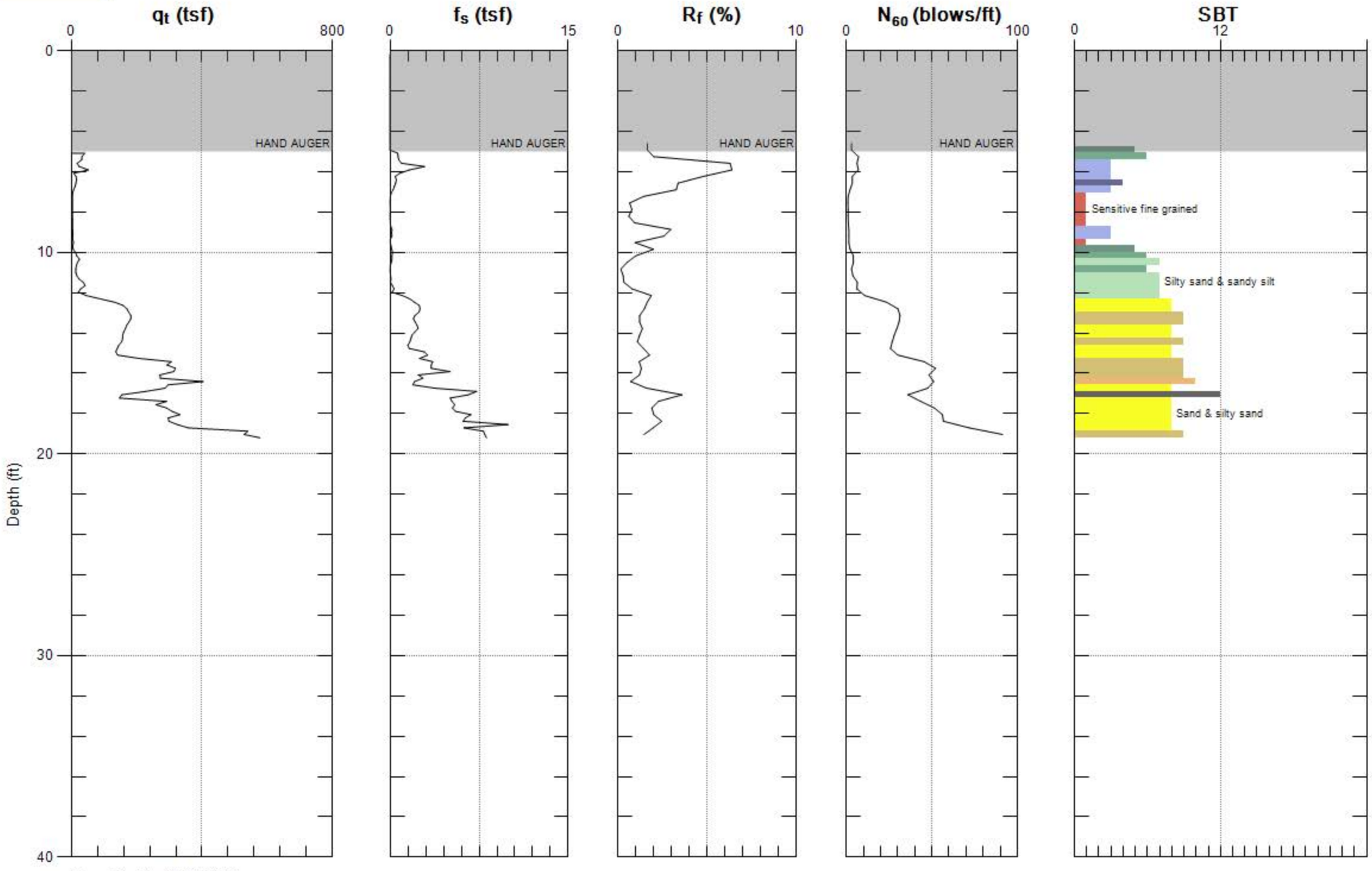
CPT Data

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-1

Engineer: M.MORROW
Date: 10/24/2014 01:44



Max. Depth: 19.193 (ft)
Avg. Interval: 0.328 (ft)

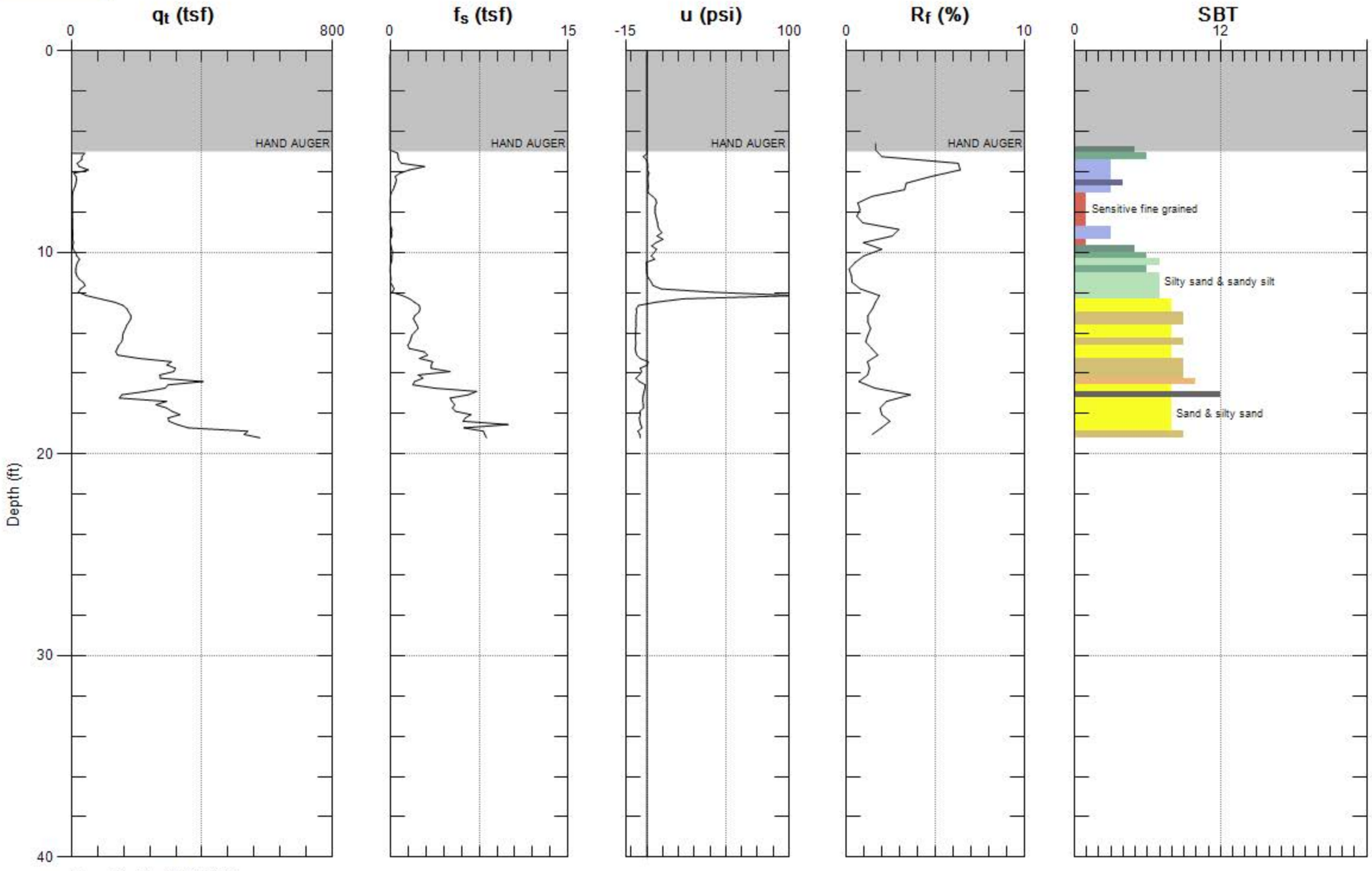
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-1

Engineer: M.MORROW
Date: 10/24/2014 01:44



Max. Depth: 19.193 (ft)
Avg. Interval: 0.328 (ft)

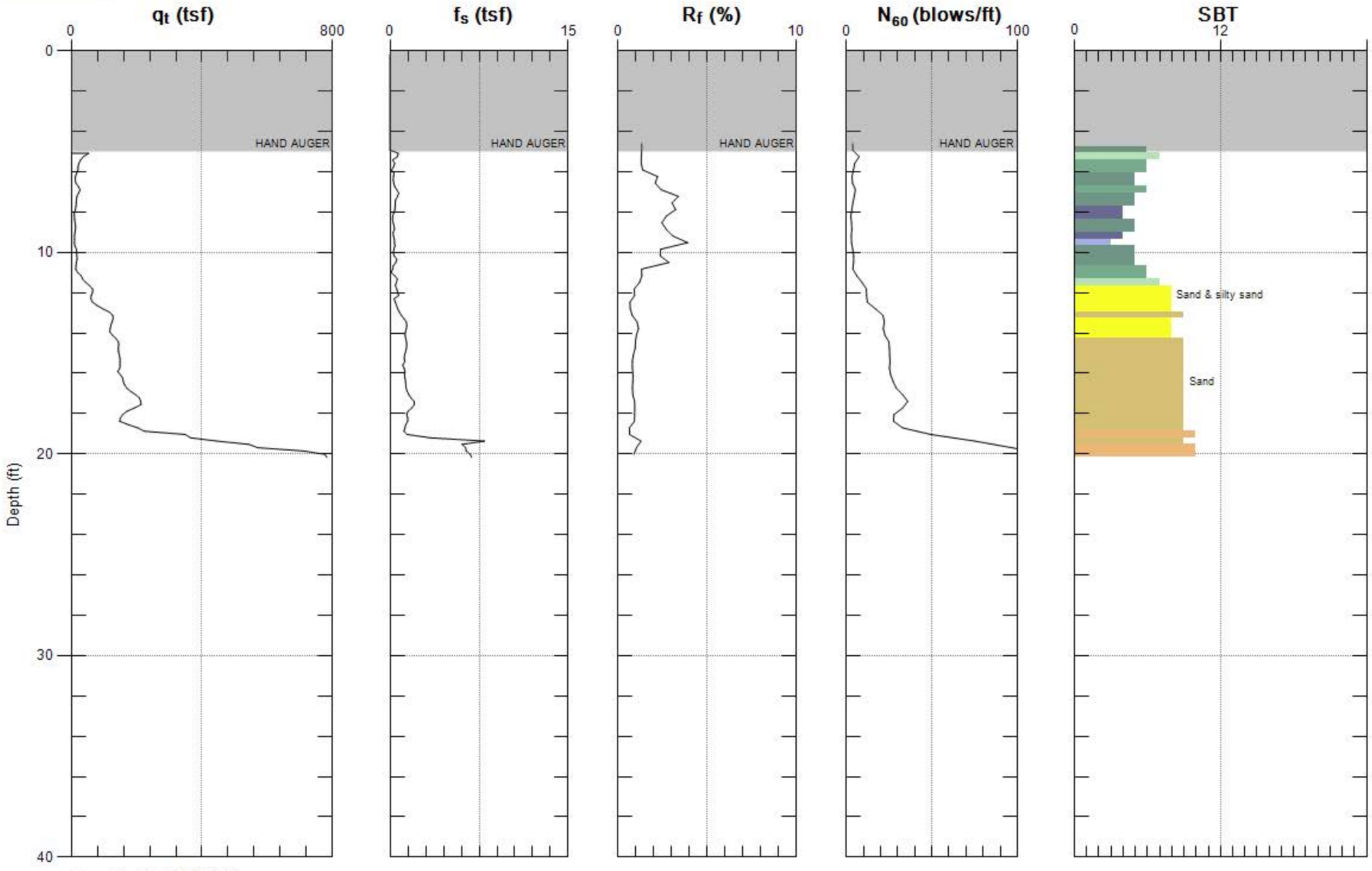
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-2

Engineer: M.MORROW
Date: 10/24/2014 11:40



Max. Depth: 20.177 (ft)
Avg. Interval: 0.328 (ft)

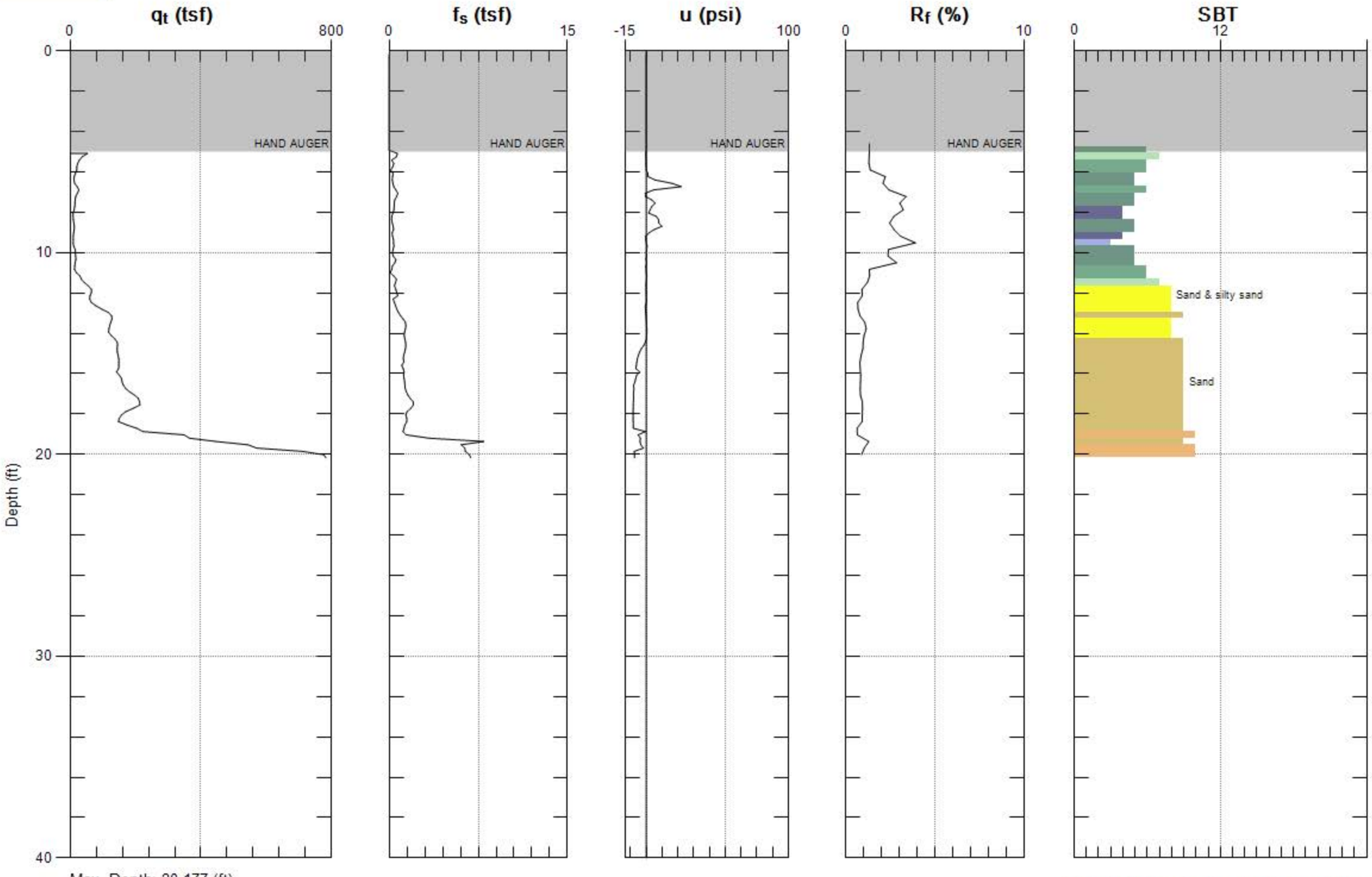
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-2

Engineer: M.MORROW
Date: 10/24/2014 11:40



Max. Depth: 20.177 (ft)
Avg. Interval: 0.328 (ft)

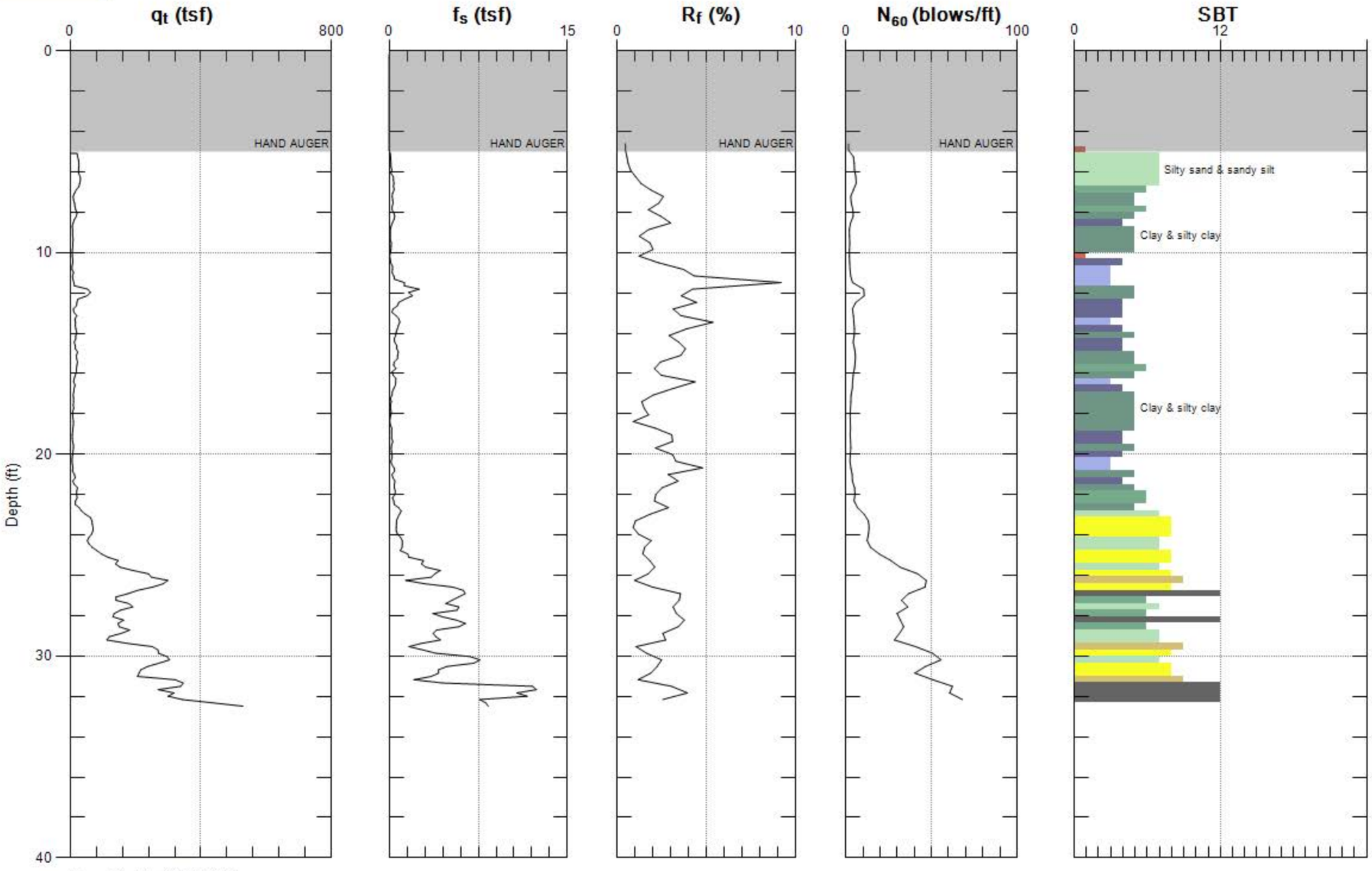
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-3

Engineer: M.MORROW
Date: 10/24/2014 10:27



Max. Depth: 32.480 (ft)
Avg. Interval: 0.328 (ft)

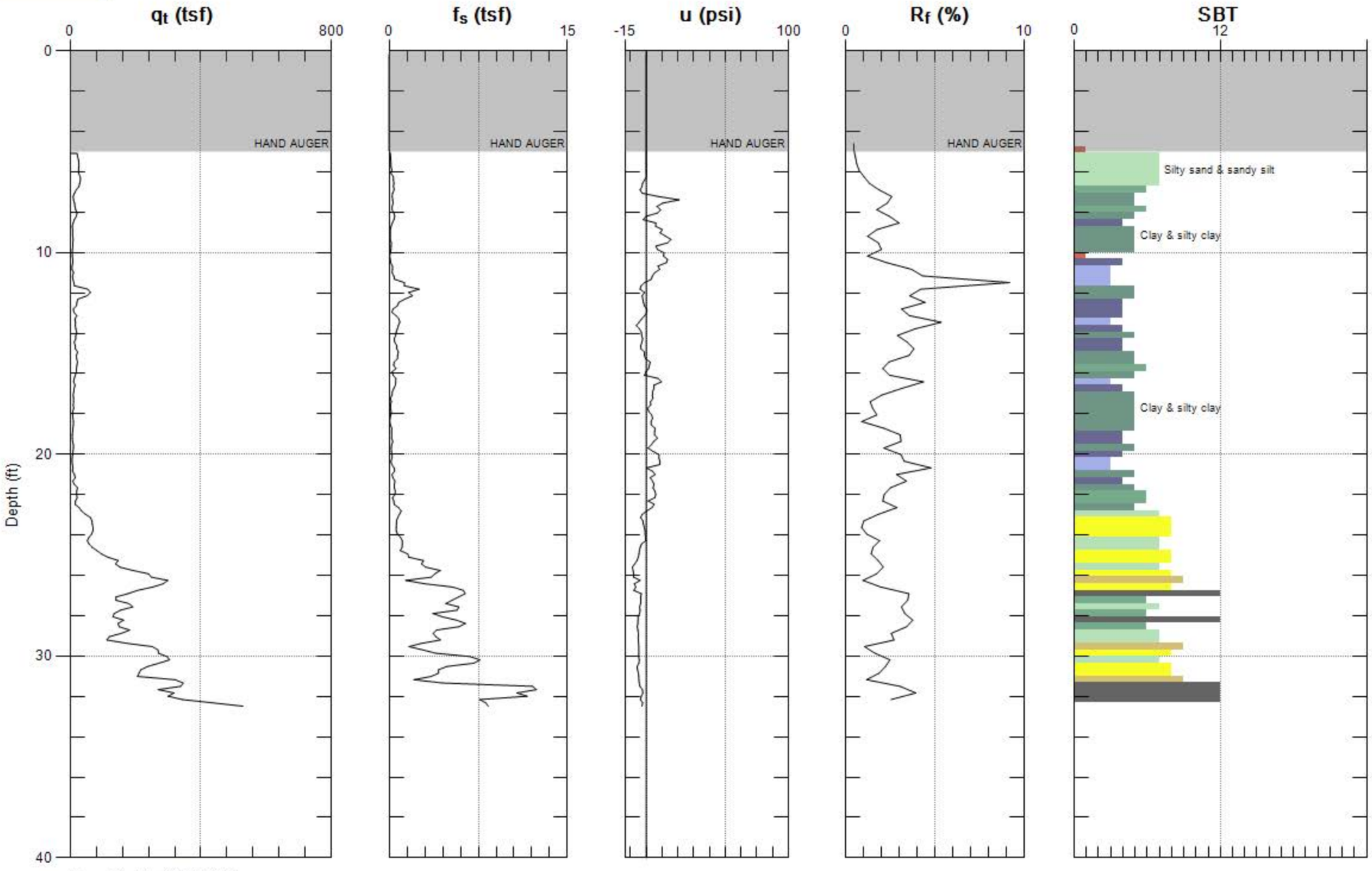
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-3

Engineer: M.MORROW
Date: 10/24/2014 10:27



Max. Depth: 32.480 (ft)
Avg. Interval: 0.328 (ft)

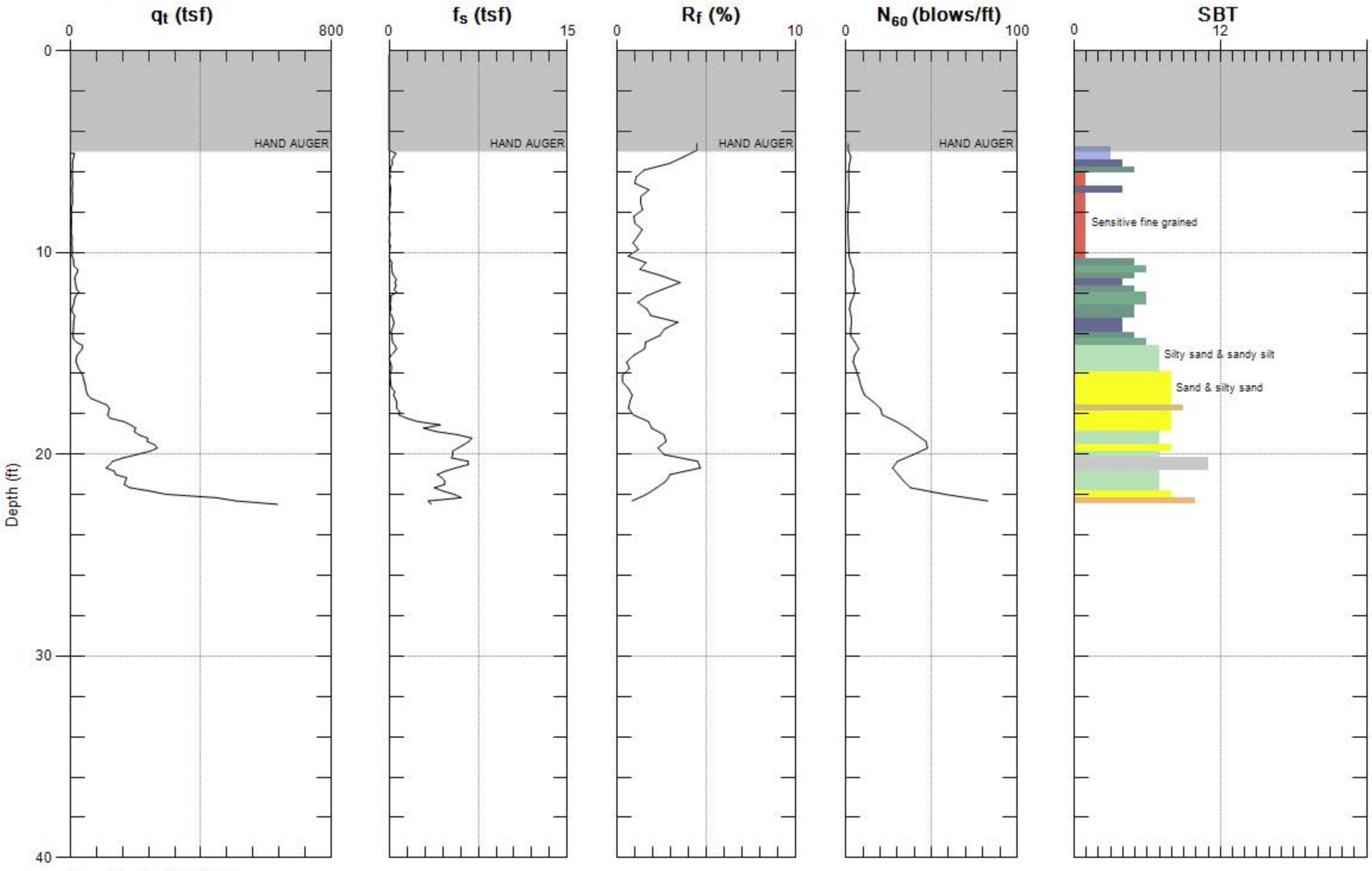
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-4

Engineer: M.MORROW
Date: 10/24/2014 09:00



Max. Depth: 22.474 (ft)
Avg. Interval: 0.328 (ft)

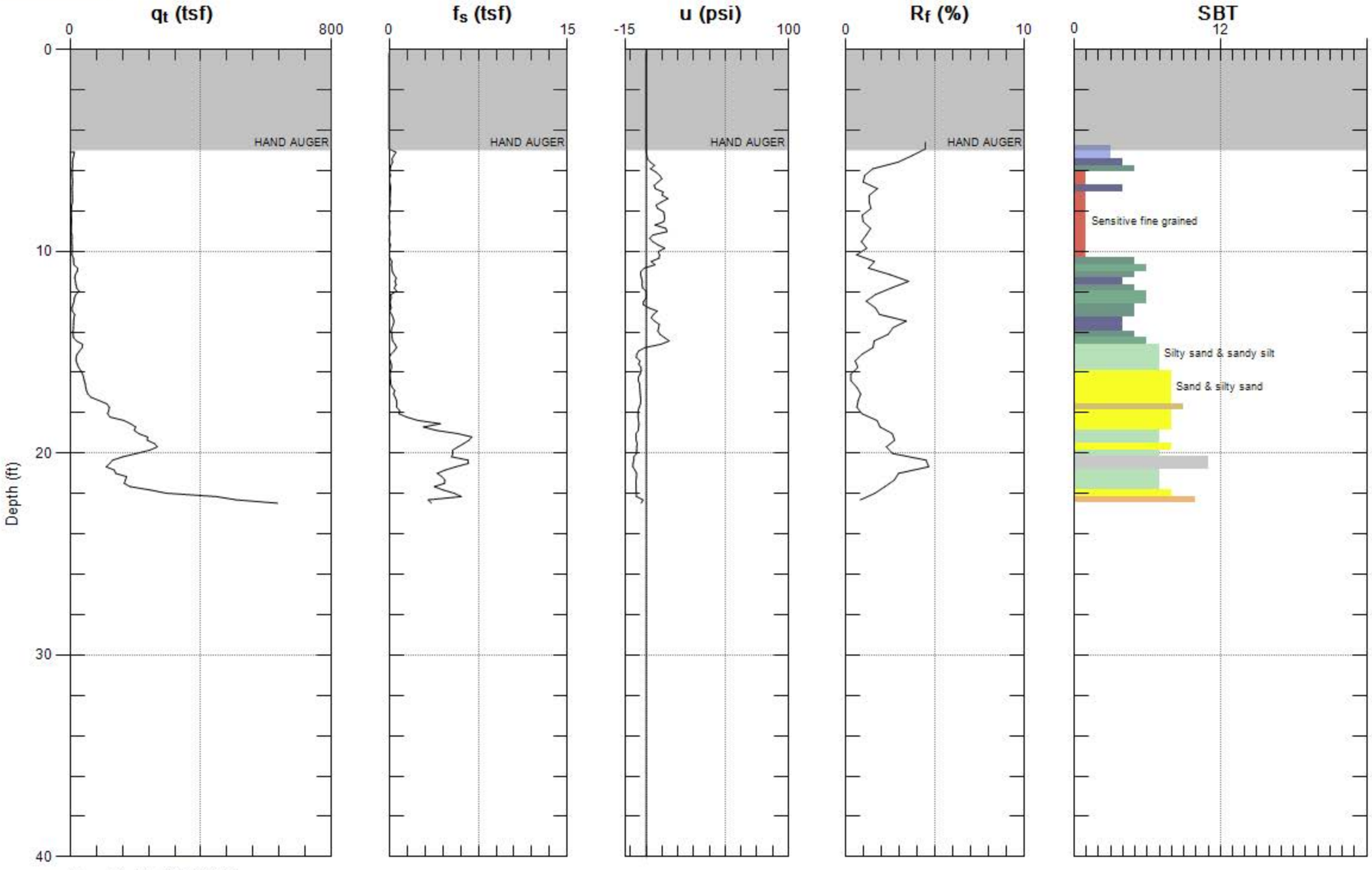
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-4

Engineer: M.MORROW
Date: 10/24/2014 09:00



Max. Depth: 22.474 (ft)
Avg. Interval: 0.328 (ft)

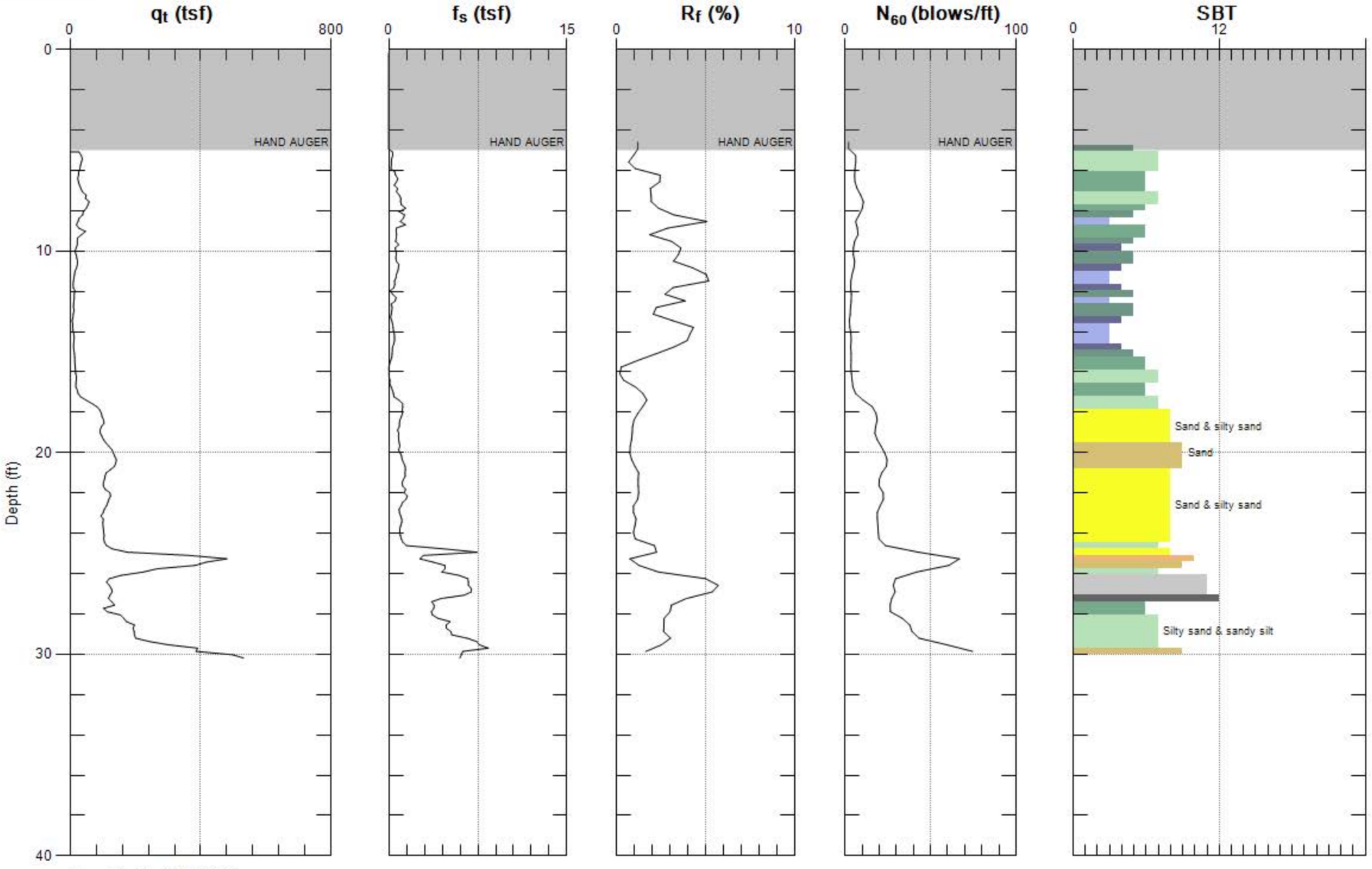
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-5

Engineer: M.MORROW
Date: 10/23/2014 05:01



Max. Depth: 30.184 (ft)
Avg. Interval: 0.328 (ft)

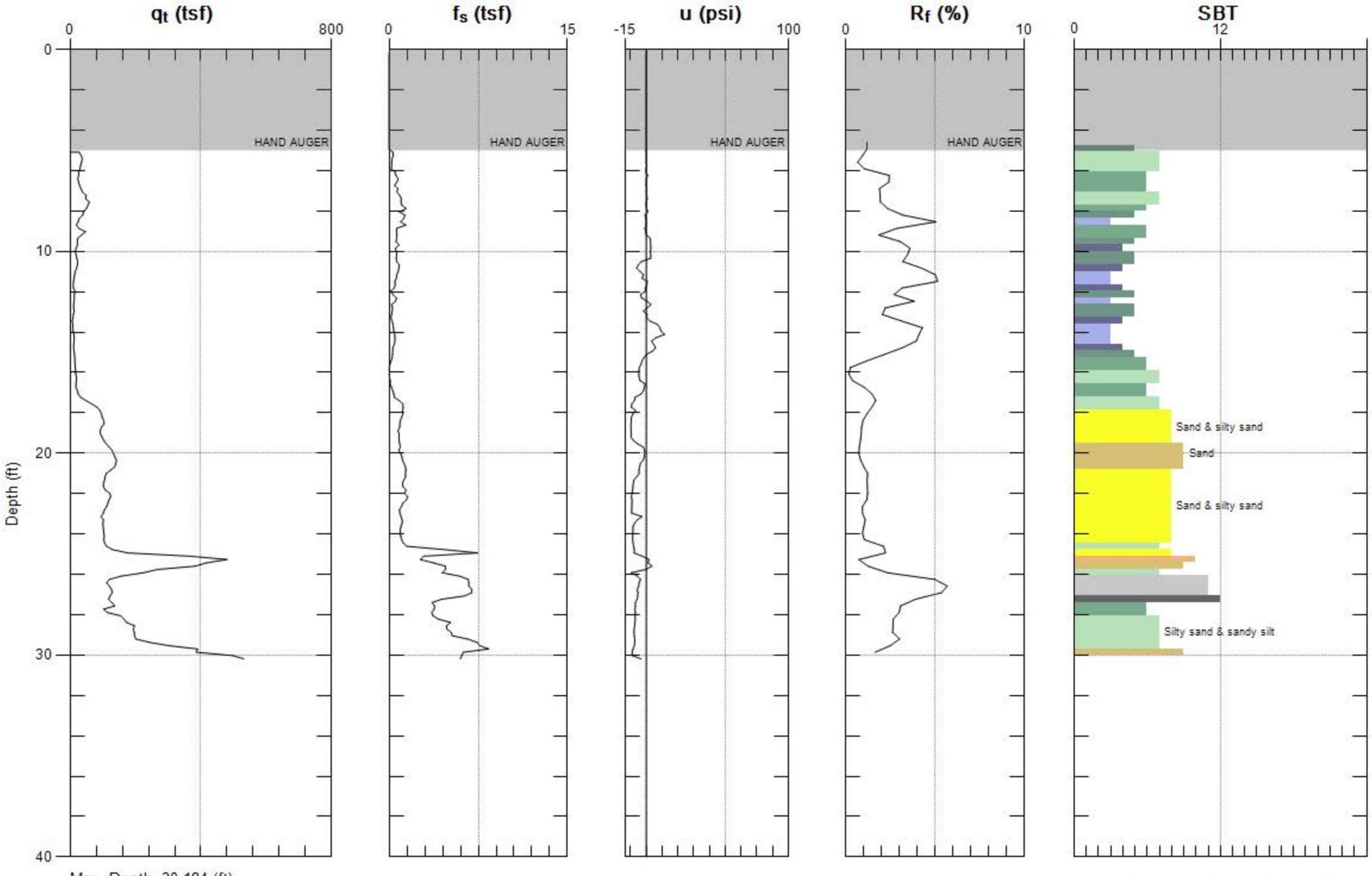
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-5

Engineer: M.MORROW
Date: 10/23/2014 05:01



Max. Depth: 30.184 (ft)
Avg. Interval: 0.328 (ft)

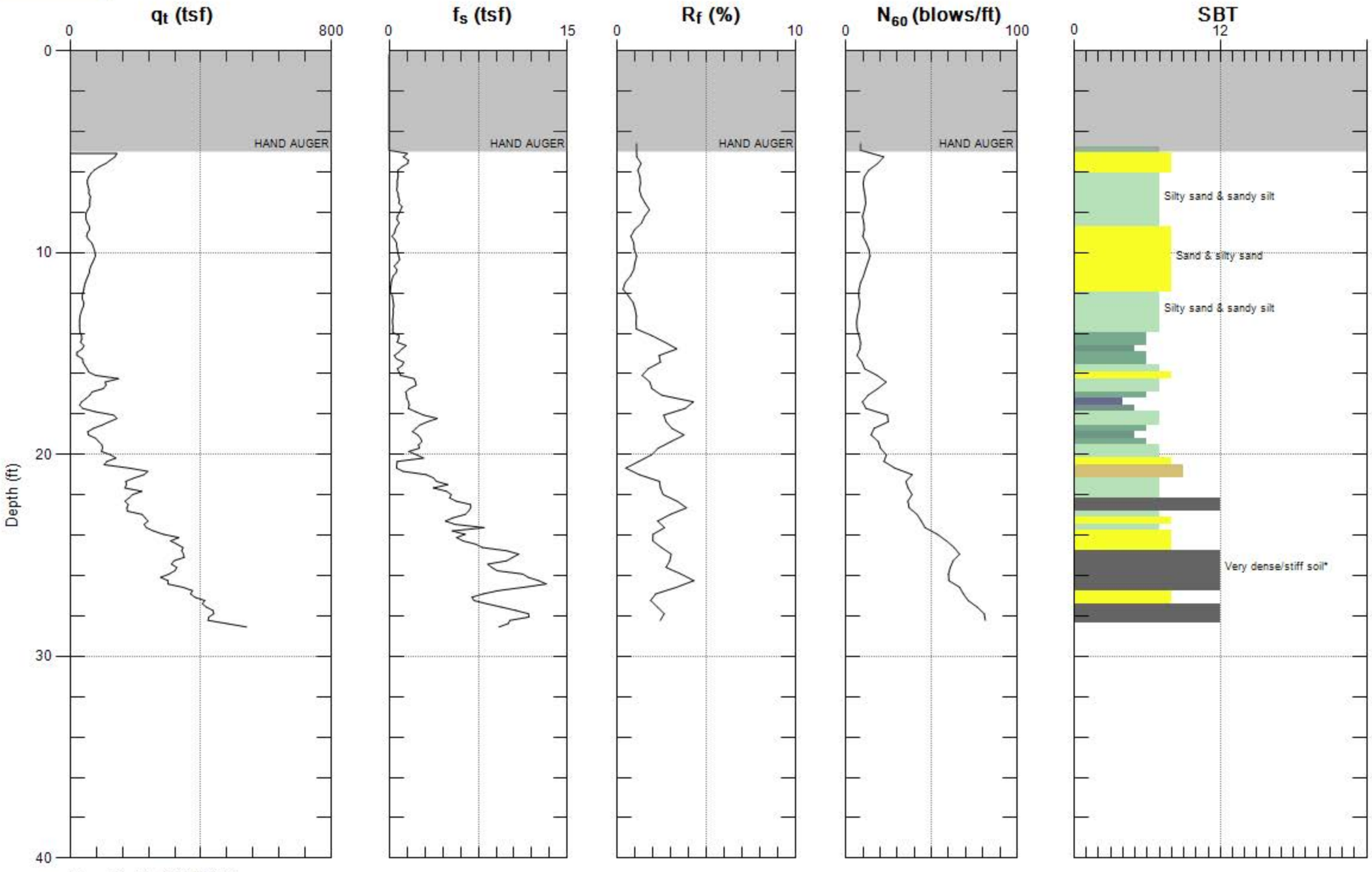
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-6

Engineer: M.MORROW
Date: 10/23/2014 02:58



Max. Depth: 28.543 (ft)
Avg. Interval: 0.328 (ft)

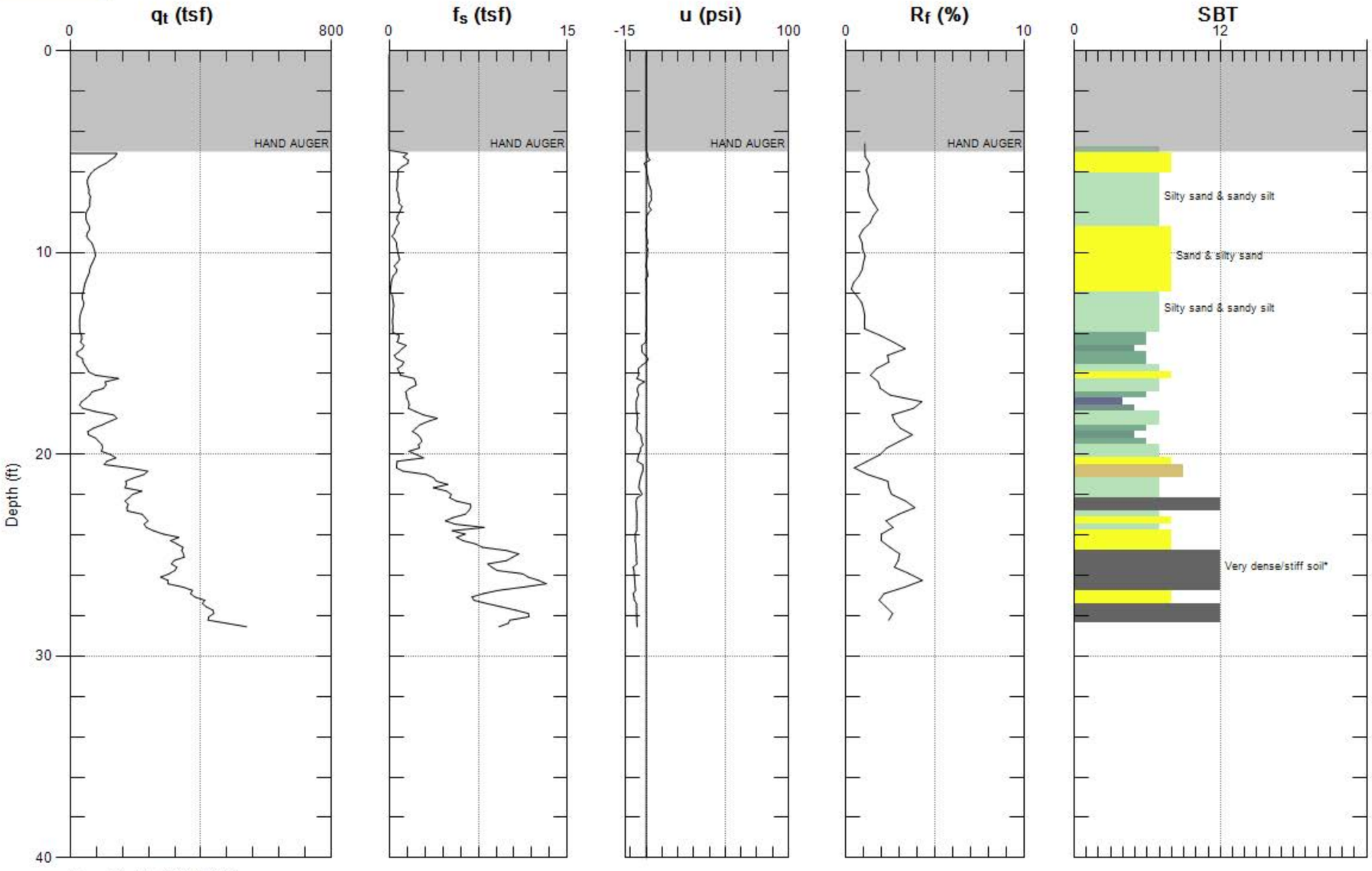
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-6

Engineer: M.MORROW
Date: 10/23/2014 02:58



Max. Depth: 28.543 (ft)
Avg. Interval: 0.328 (ft)

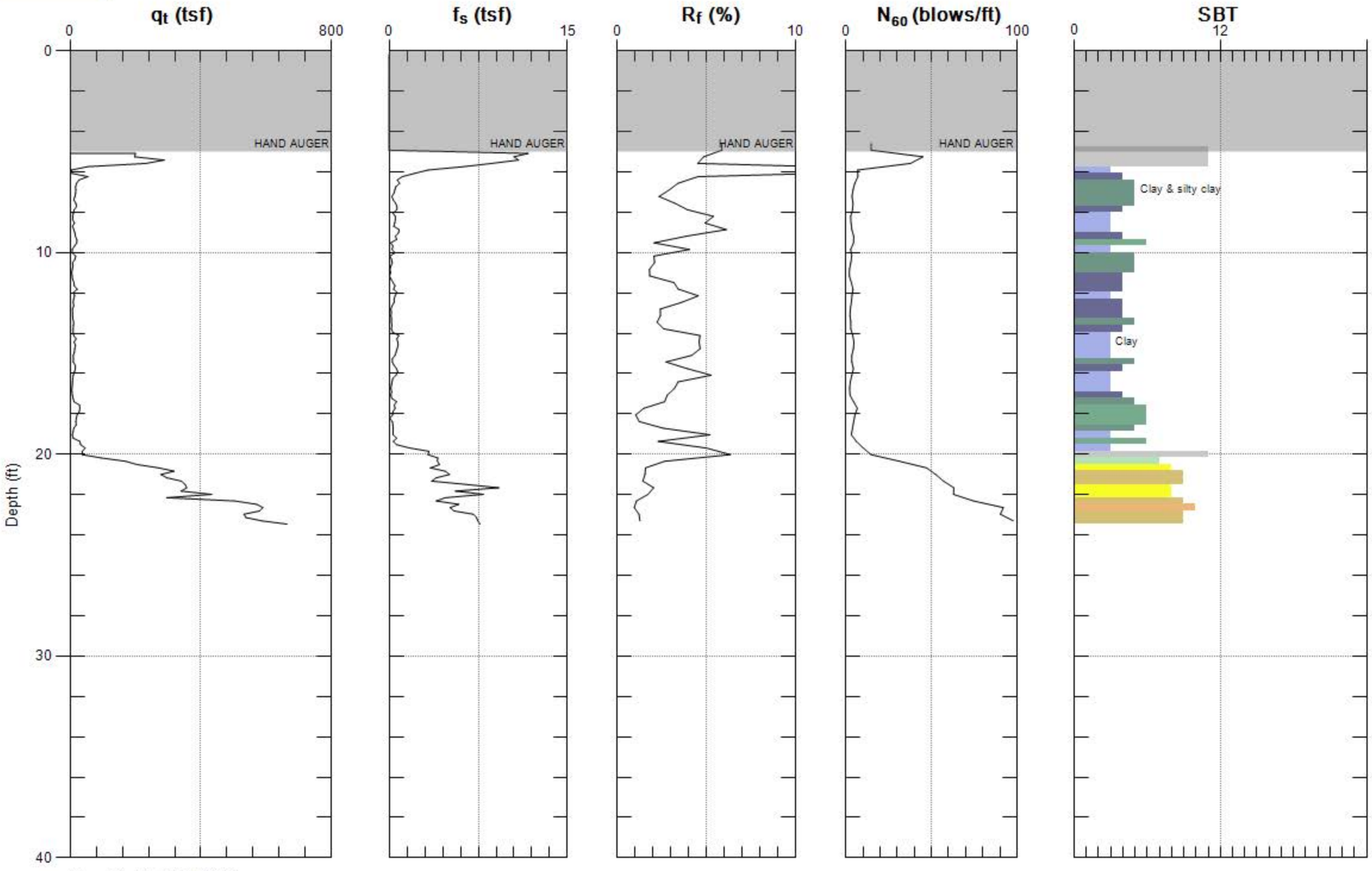
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-7

Engineer: M.MORROW
Date: 10/23/2014 01:30



Max. Depth: 23.458 (ft)
Avg. Interval: 0.328 (ft)

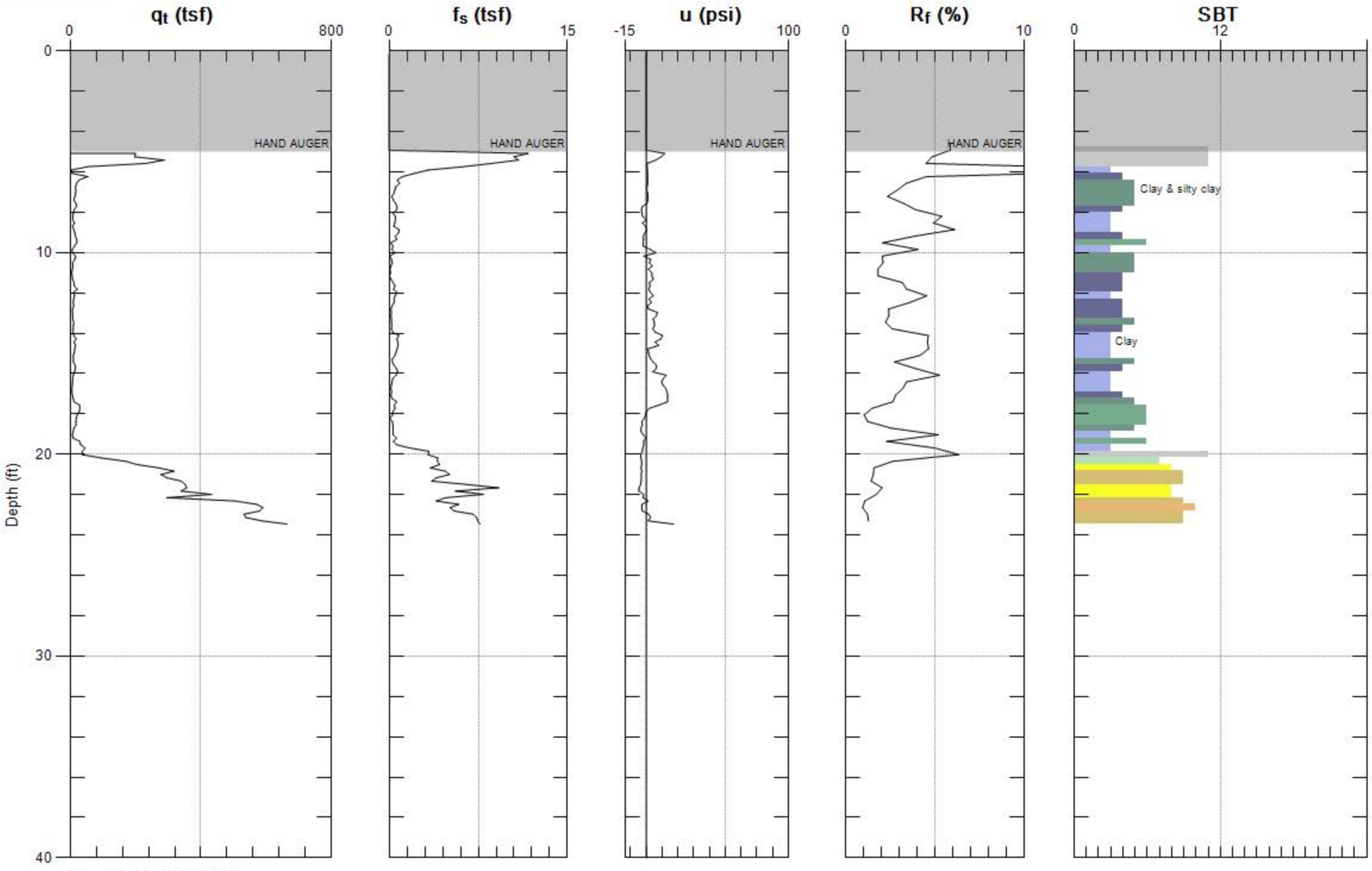
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-7

Engineer: M.MORROW
Date: 10/23/2014 01:30



Max. Depth: 23.458 (ft)
Avg. Interval: 0.328 (ft)

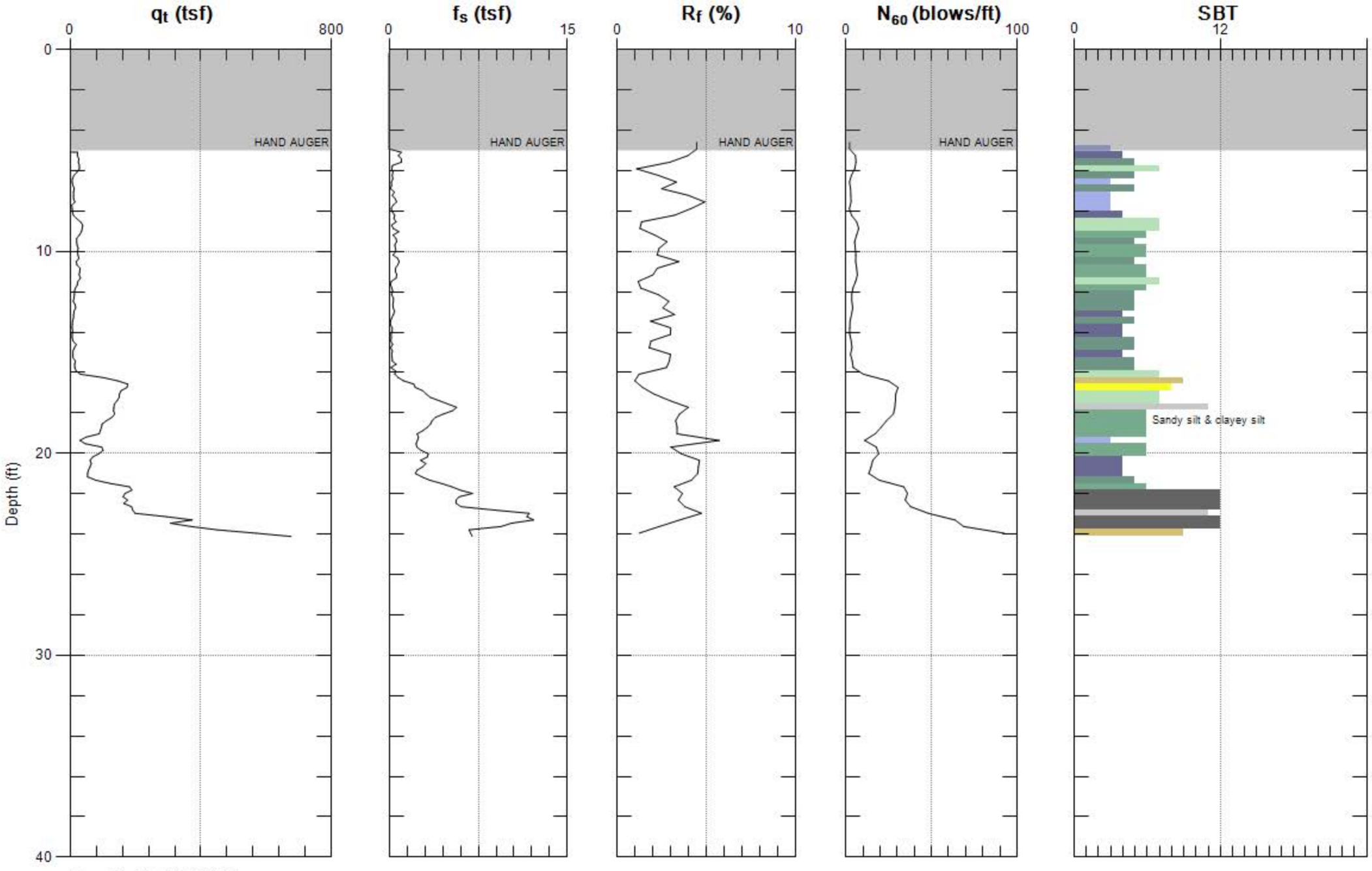
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-8

Engineer: M.MORROW
Date: 10/23/2014 10:22



Max. Depth: 24.114 (ft)
Avg. Interval: 0.328 (ft)

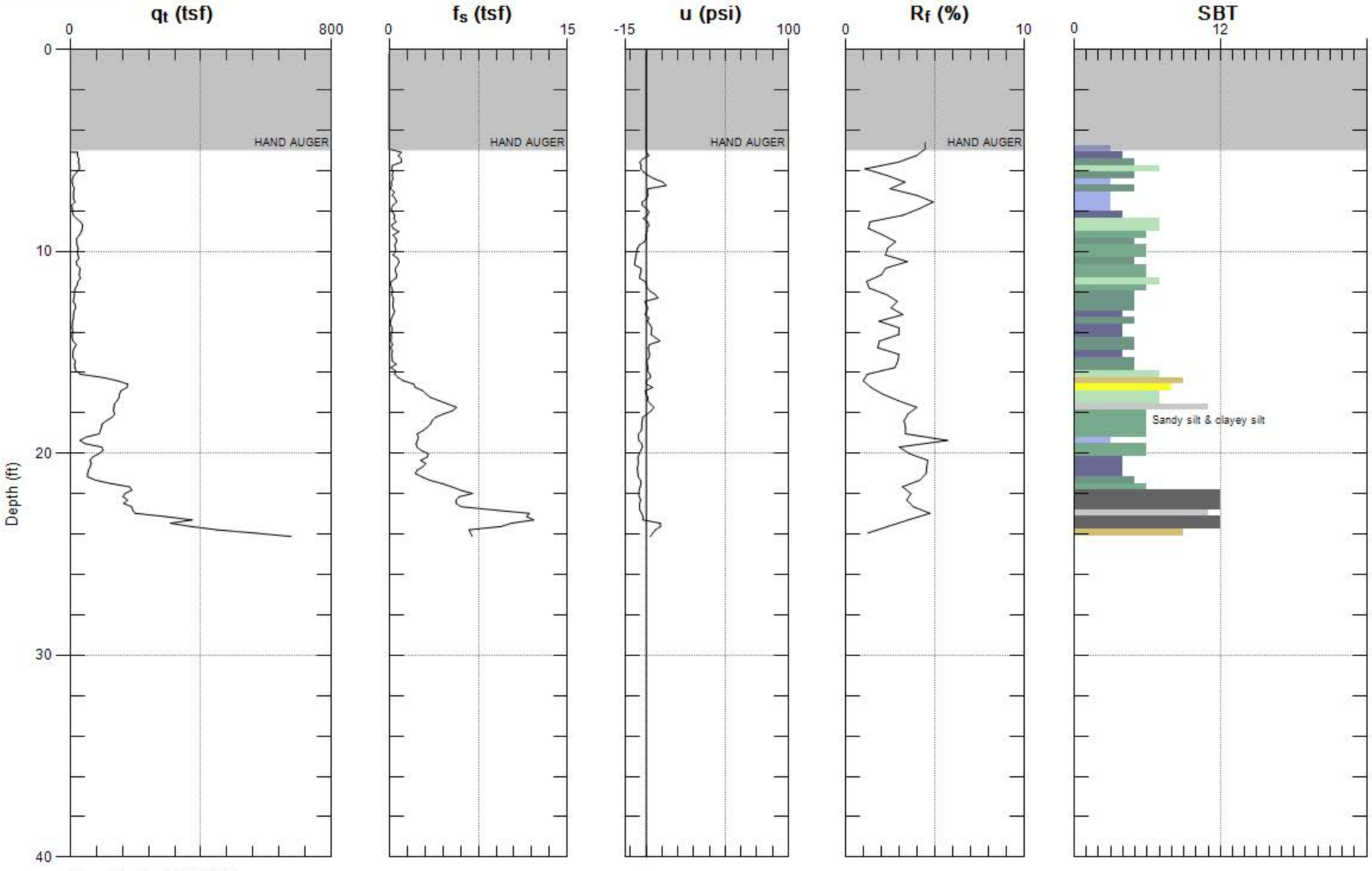
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-8

Engineer: M.MORROW
Date: 10/23/2014 10:22



Max. Depth: 24.114 (ft)
Avg. Interval: 0.328 (ft)

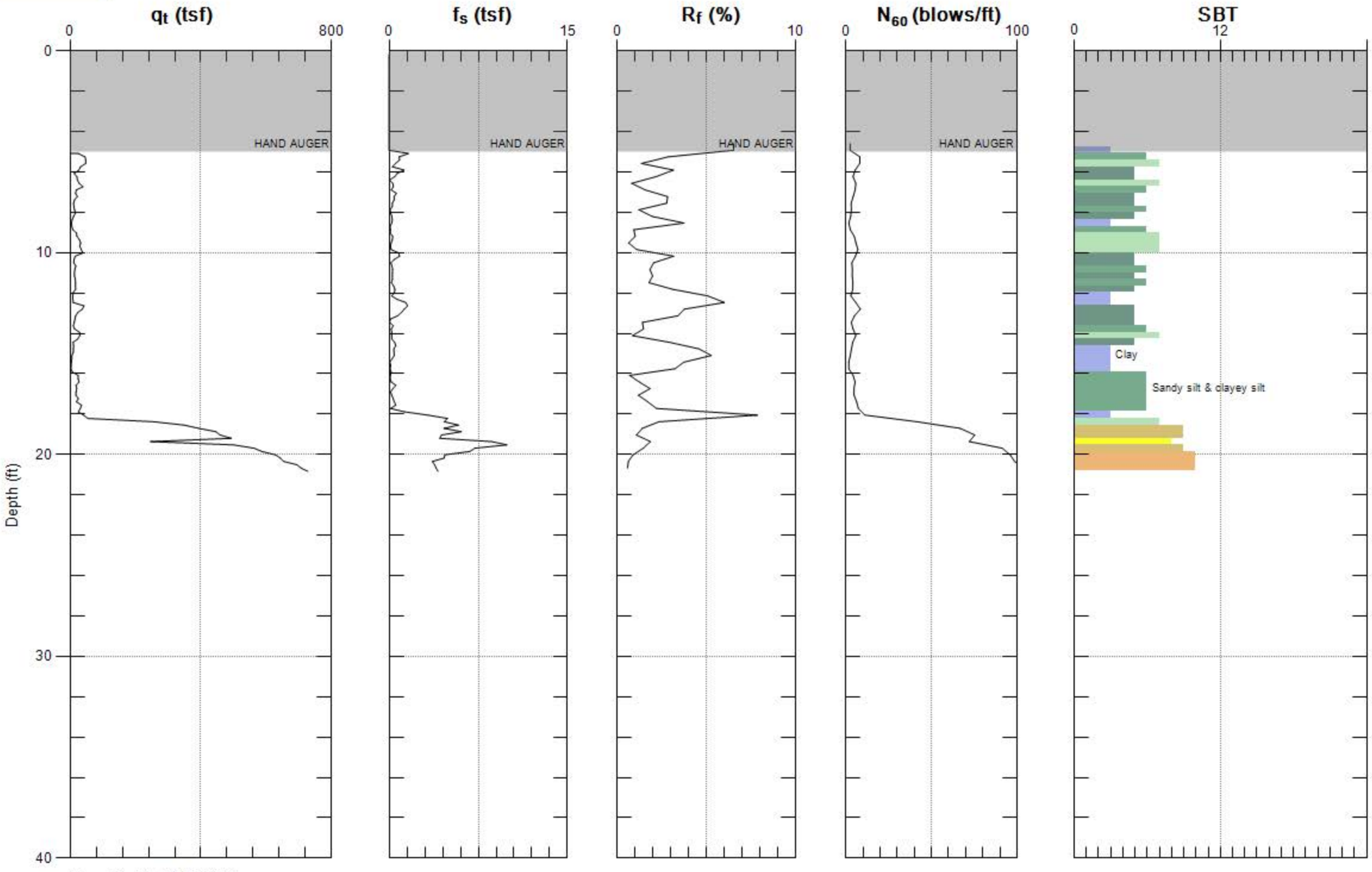
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-9

Engineer: M.MORROW
Date: 10/23/2014 08:02



Max. Depth: 20.833 (ft)
Avg. Interval: 0.328 (ft)

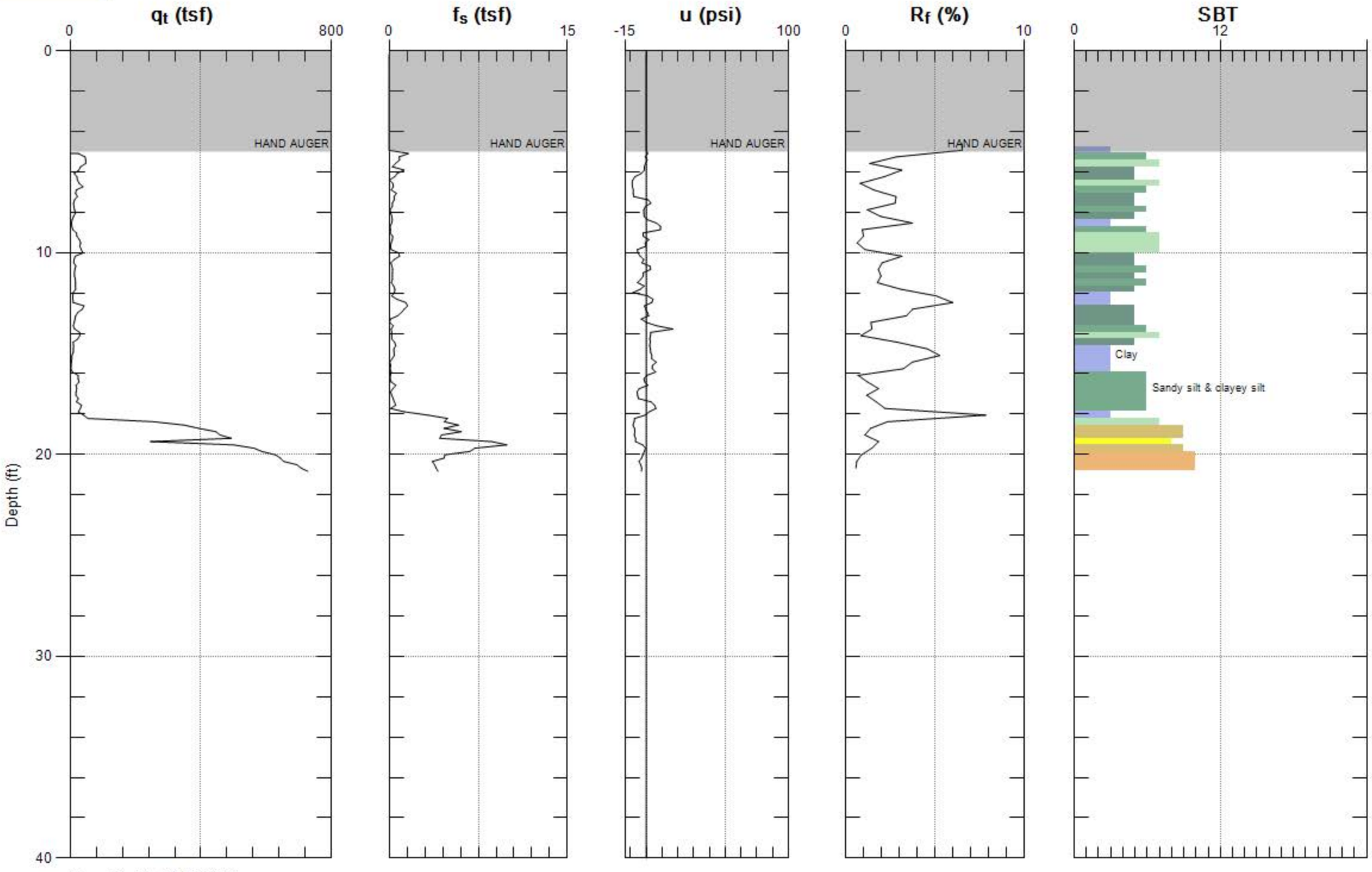
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-9

Engineer: M.MORROW
Date: 10/23/2014 08:02



Max. Depth: 20.833 (ft)
Avg. Interval: 0.328 (ft)

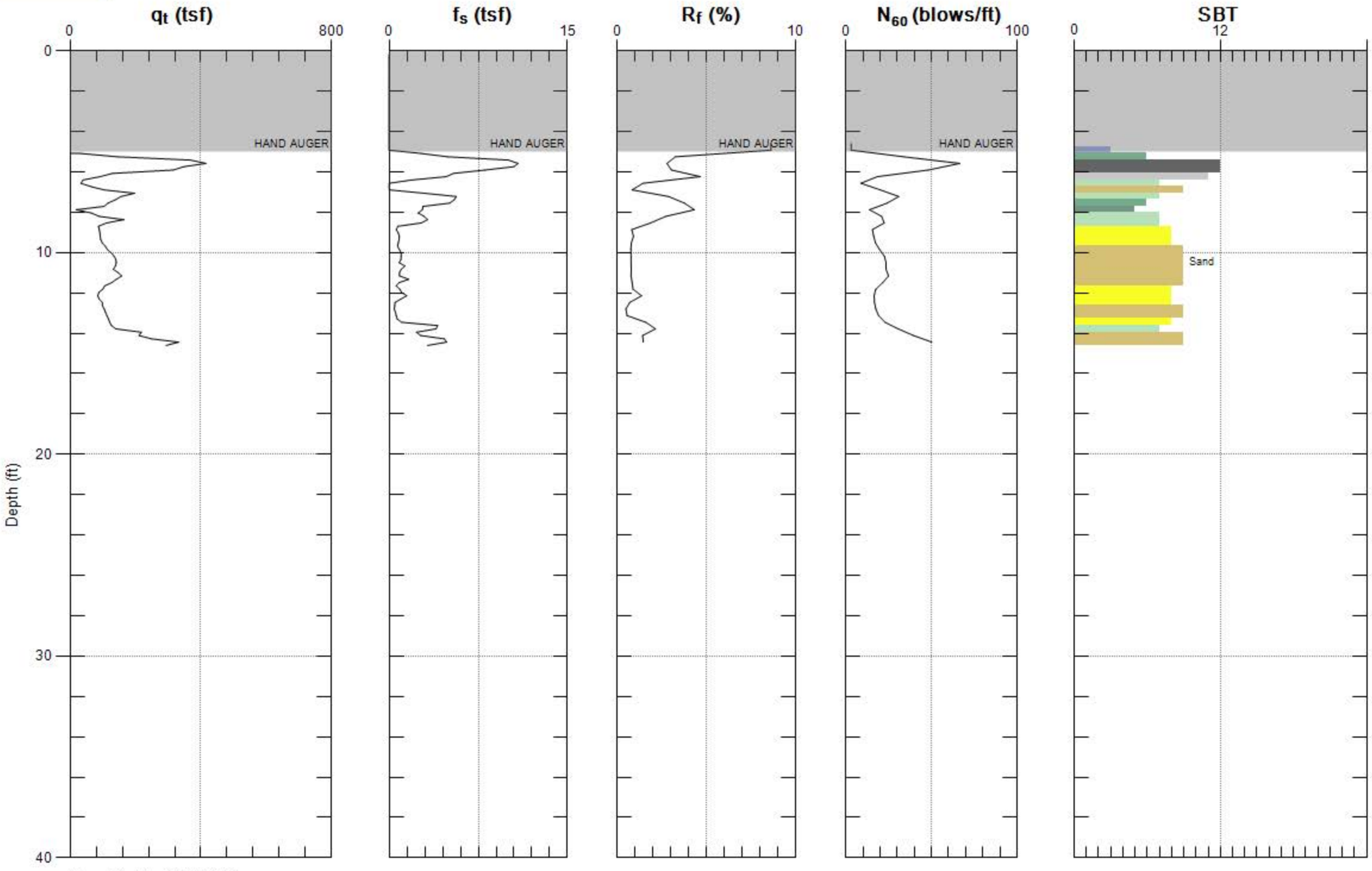
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-10

Engineer: M.MORROW
Date: 10/22/2014 01:21



Max. Depth: 14.600 (ft)
Avg. Interval: 0.328 (ft)

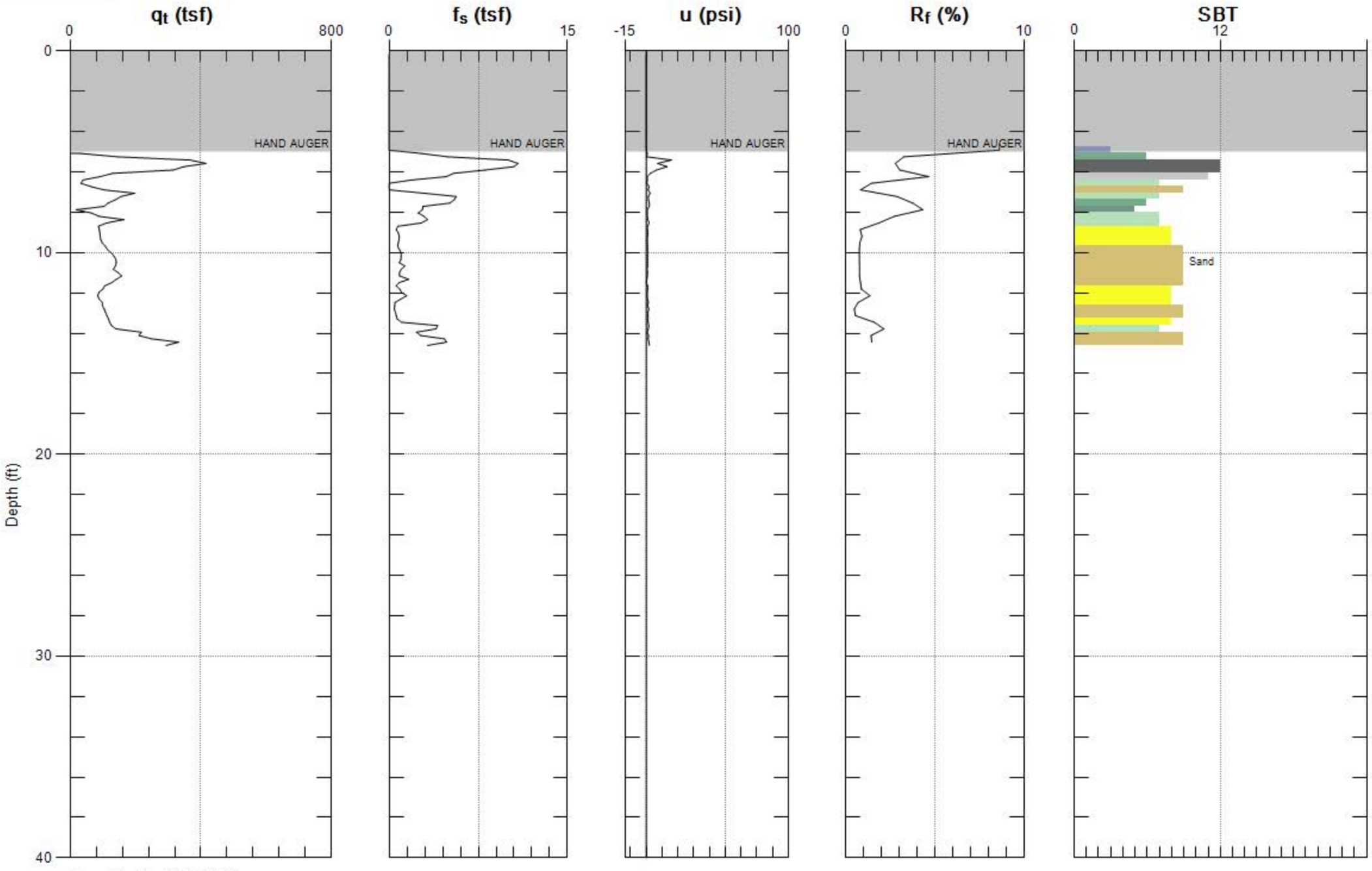
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-10

Engineer: M.MORROW
Date: 10/22/2014 01:21



Max. Depth: 14.600 (ft)
Avg. Interval: 0.328 (ft)

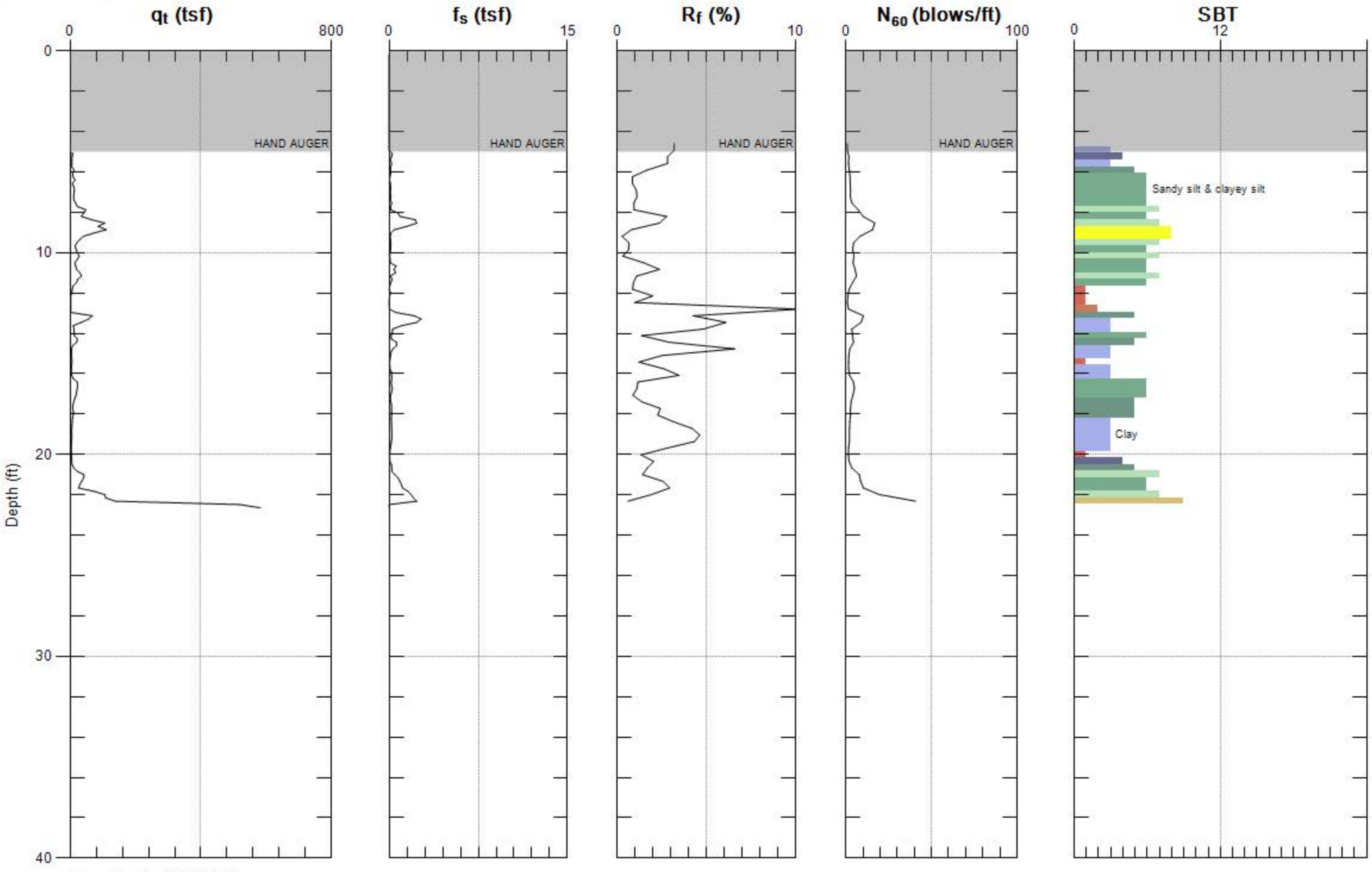
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-12

Engineer: M.MORROW
Date: 10/22/2014 05:26



Max. Depth: 22.638 (ft)
Avg. Interval: 0.328 (ft)

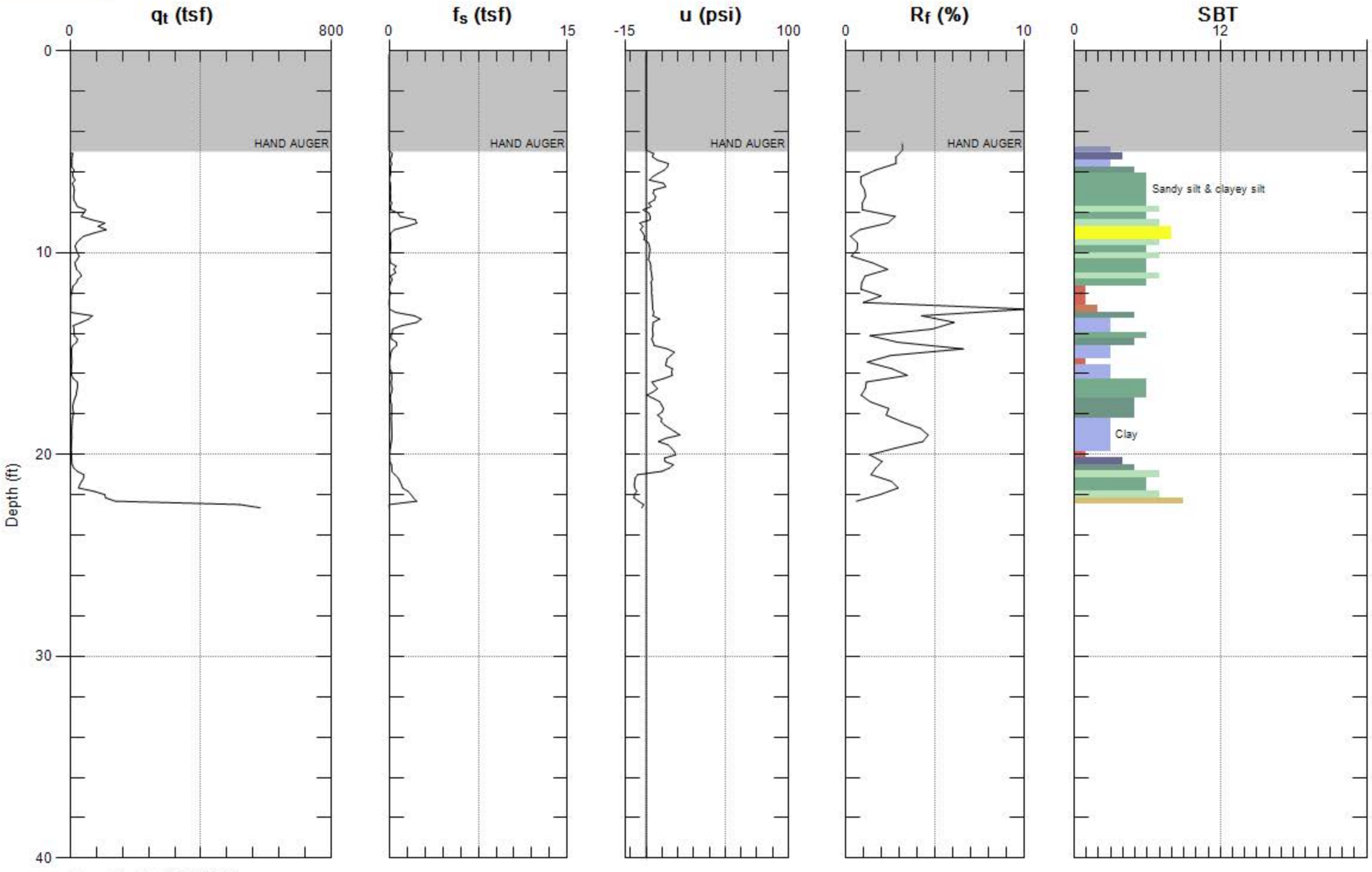
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ARCADIS

Site: GP MILL POND
Sounding: OUE-CPT12-12

Engineer: M.MORROW
Date: 10/22/2014 05:26



Max. Depth: 22.638 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG DRILLING & TESTING, INC.
GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

October 27, 2014

Arcadis
Attn: Marilyn Morrow

Subject: CPT Site Investigation
GP Mill Pond
Fort Bragg, California
GREGG Project Number: 14-168MA

Dear Ms. Morrow:

The following report presents the results of GREGG Drilling & Testing's Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	☒
2	Pore Pressure Dissipation Tests	(PPD)	☒
3	Seismic Cone Penetration Tests	(SCPTU)	☐
4	UVOST Laser Induced Fluorescence	(UVOST)	☐
5	Groundwater Sampling	(GWS)	☐
6	Soil Sampling	(SS)	☐
7	Vapor Sampling	(VS)	☐
8	Pressuremeter Testing	(PMT)	☐
9	Vane Shear Testing	(VST)	☐
10	Dilatometer Testing	(DMT)	☐

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (925) 313-5800.

Sincerely,
GREGG Drilling & Testing, Inc.

Mary Walden
Operations Manager

Cone Penetration Test Sounding Summary

-Table 1-

CPT Sounding Identification	Date	Termination Depth (feet)	Depth of Groundwater Samples (feet)	Depth of Soil Samples (feet)	Depth of Pore Pressure Dissipation Tests (feet)
OUE-CPT-1	10/24/14	19	-	-	16.4
OUE-CPT-2	10/24/14	20	-	-	19.7
OUE-CPT-3	10/24/14	32	-	-	25.1
OUE-CPT-4	10/24/14	22	-	-	18.9
OUE-CPT-5	10/23/14	30	-	-	23.0
OUE-CPT-6	10/23/14	29	-	-	20.5, 21.8
OUE-CPT-7	10/23/14	23	-	-	20.8
OUE-CPT-8	10/23/14	24	-	-	23.3, 24.1
OUE-CPT-9	10/23/14	21	-	-	18.9
OUE-CPT-10	10/22/14	15	-	-	14.6
OUE-CPT-12	10/22/14	23	-	-	-

Bibliography

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Campanella, R.G. and I. Weemees, "Development and Use of An Electrical Resistivity Cone for Groundwater Contamination Studies", Canadian Geotechnical Journal, Vol. 27 No. 5, 1990 pp. 557-567.

DeGroot, D.J. and A.J. Lutenegger, "Reliability of Soil Gas Sampling and Characterization Techniques", International Site Characterization Conference - Atlanta, 1998.

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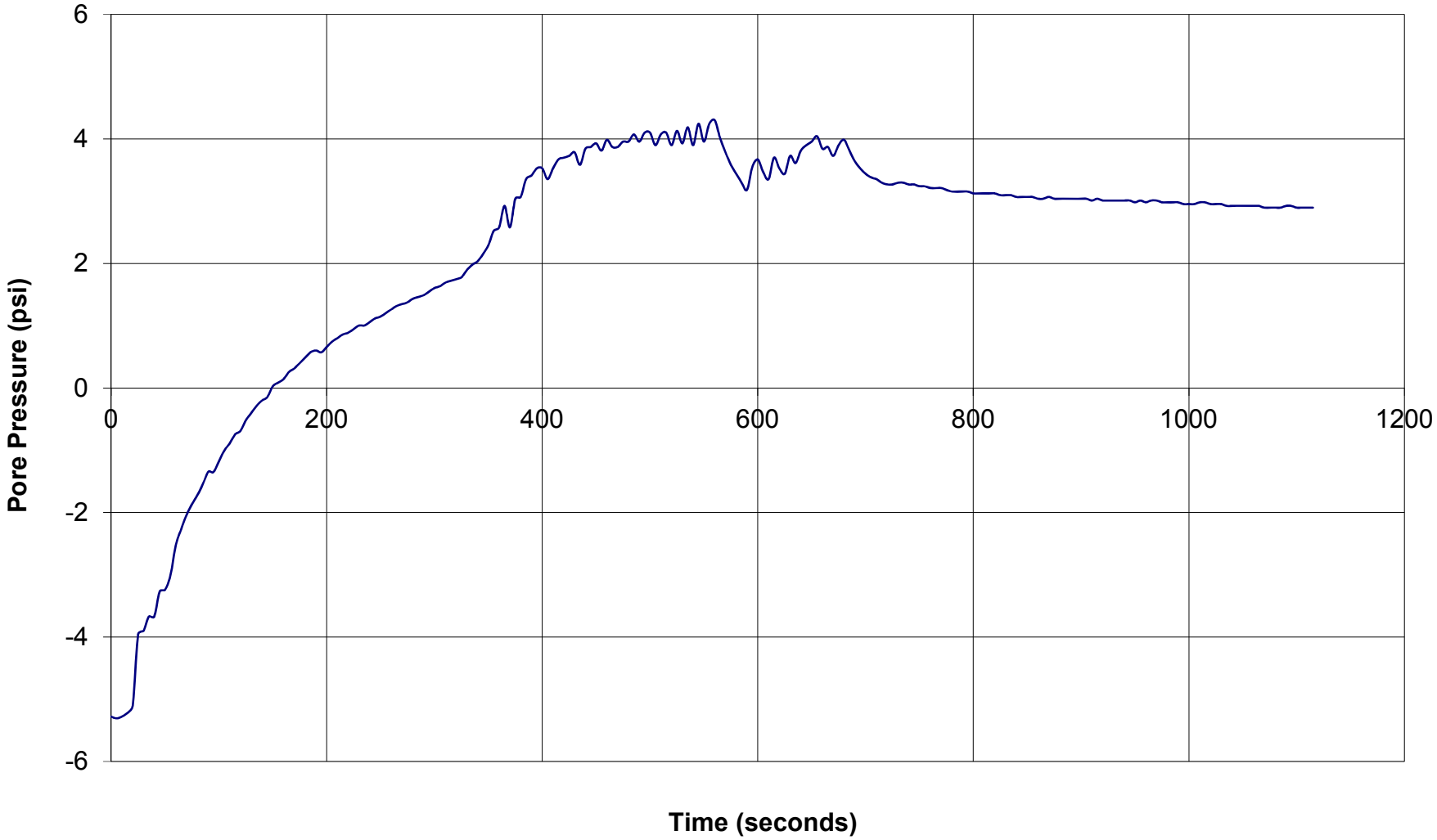
Zemo, D.A., T.A. Delfino, J.D. Gallinatti, V.A. Baker and L.R. Hilpert, "Field Comparison of Analytical Results from Discrete-Depth Groundwater Samplers" BAT EnviroProbe and QED HydroPunch, Sixth national Outdoor Action Conference, Las Vegas, Nevada Proceedings, 1992, pp 299-312.

Copies of ASTM Standards are available through www.astm.org

GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

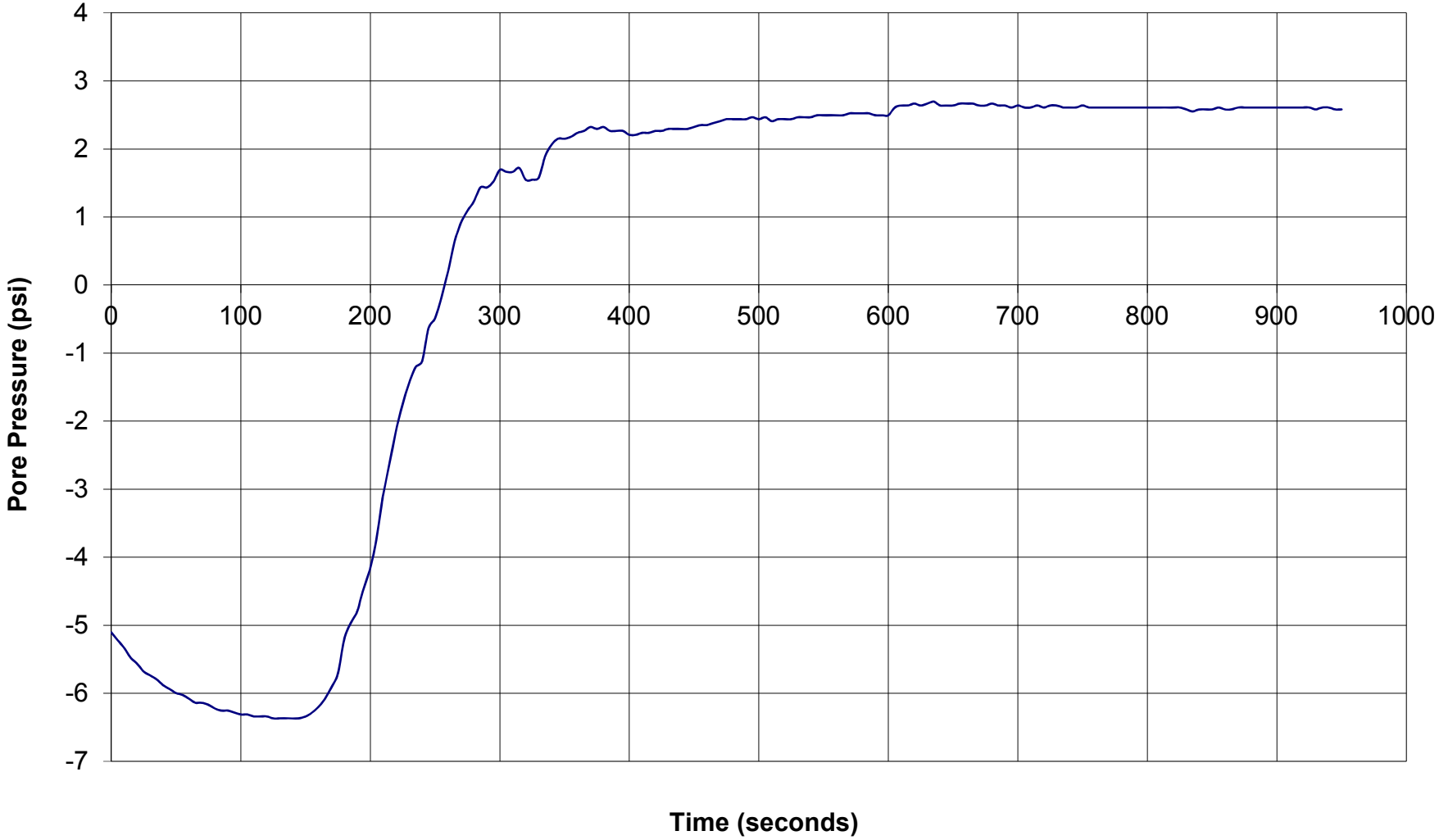
Sounding: OUE-CPT-12-1
Depth: 16.40415
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

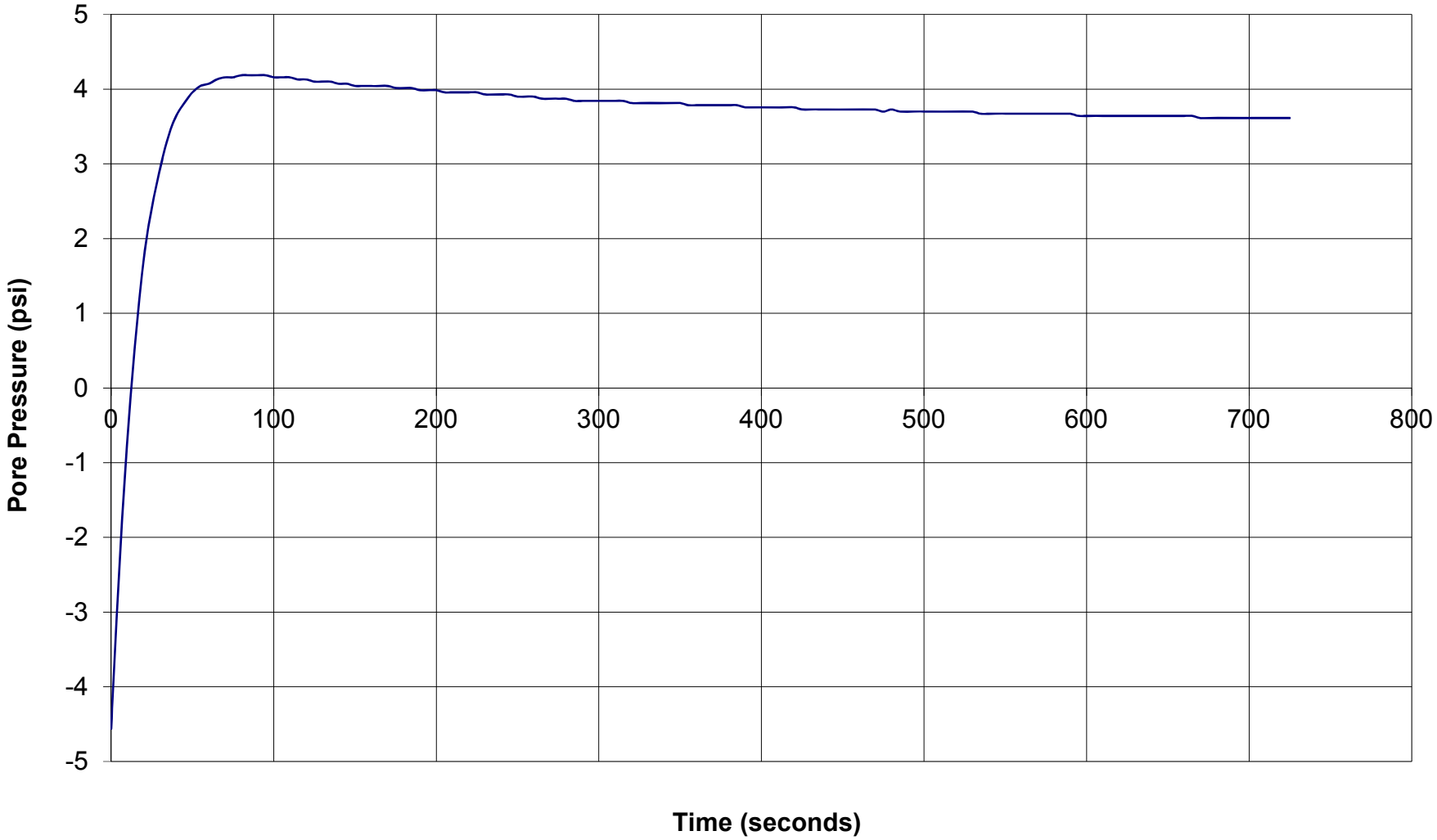
Sounding: OUE-CPT-12-2
Depth: 19.68498
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

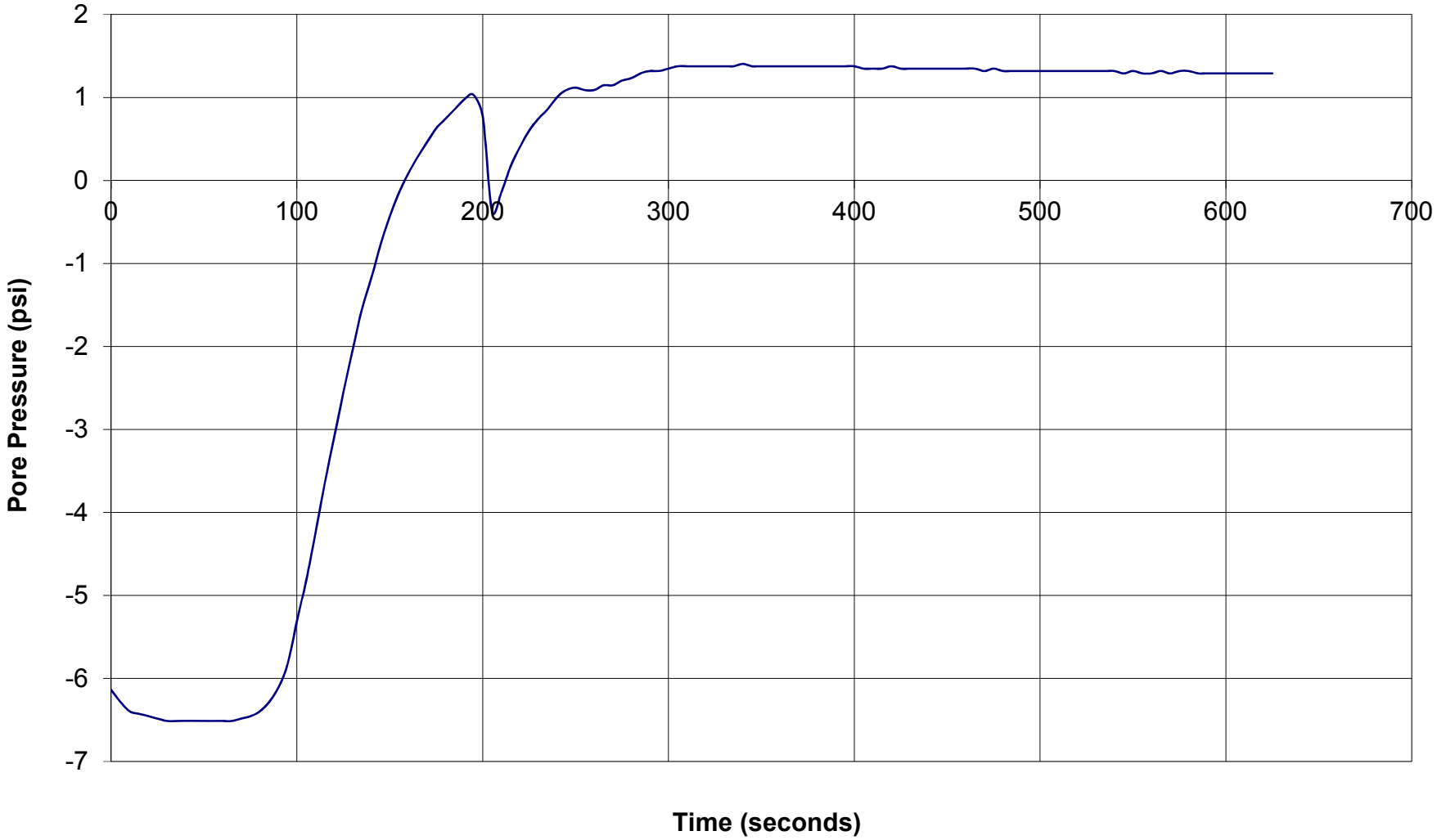
Sounding: OUE-CPT-12-3
Depth: 25.0983495
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

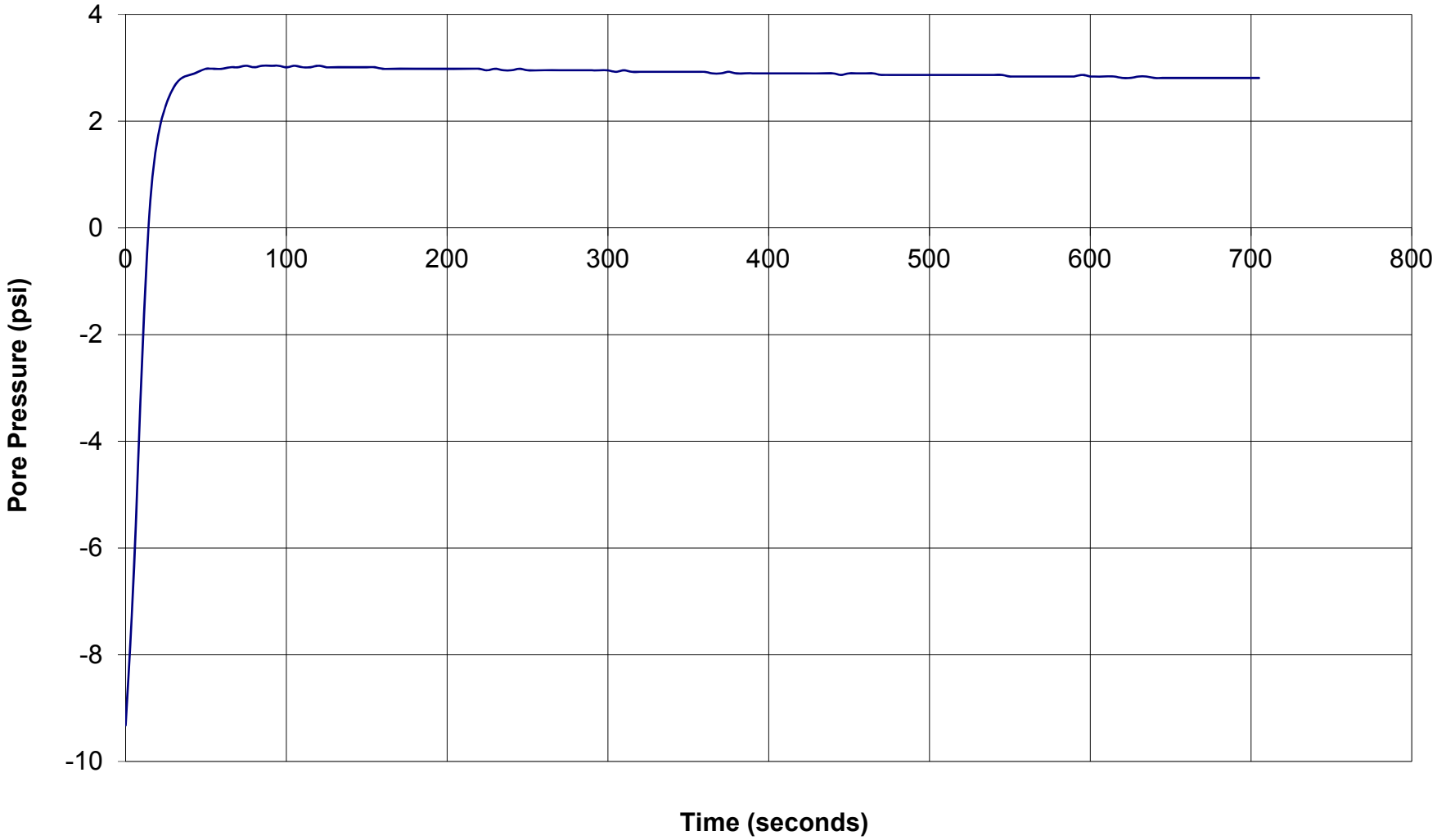
Sounding: OUE-CPT-12-4
Depth: 18.8647725
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

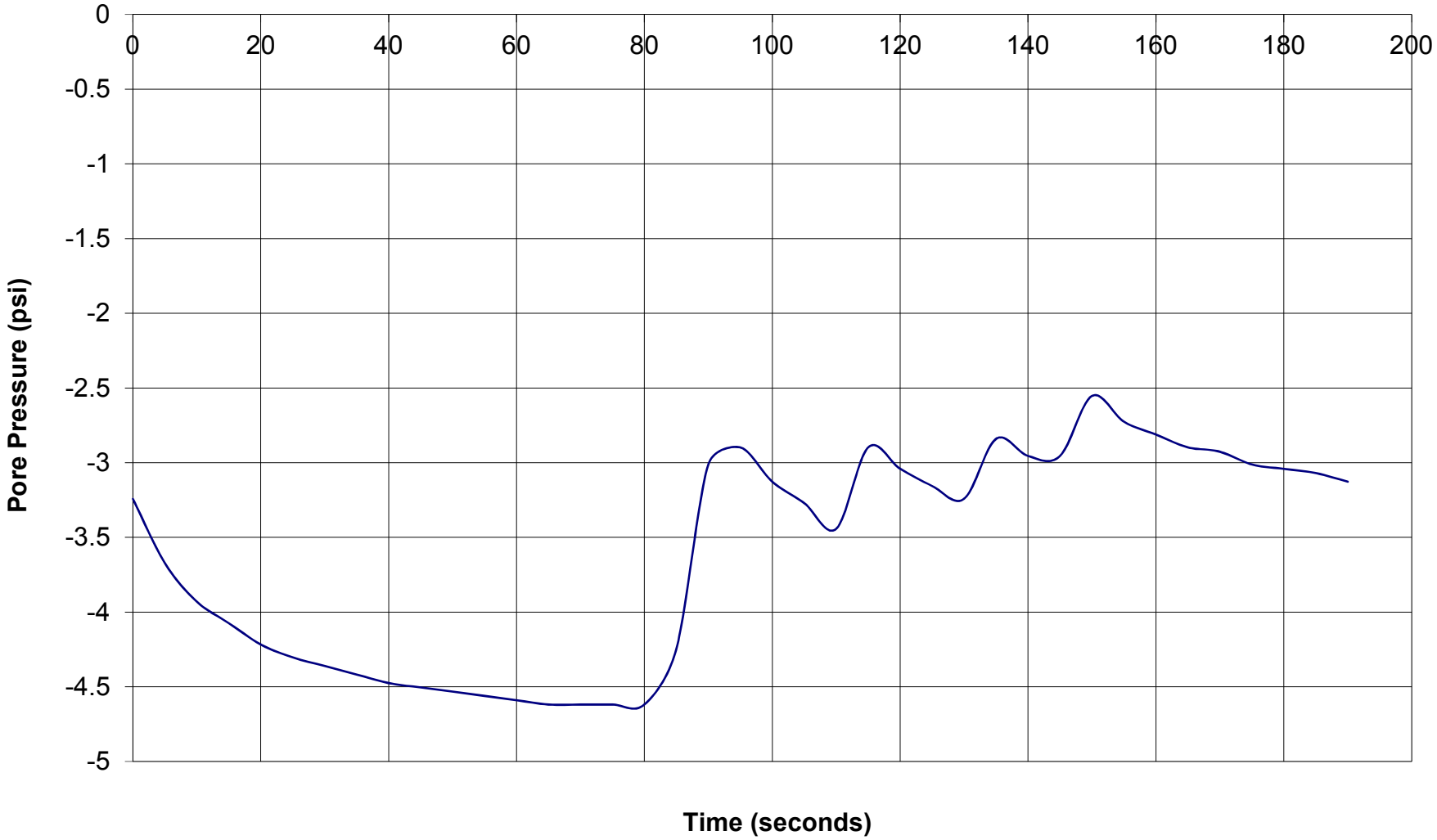
Sounding: OUE-CPT-12-5
Depth: 22.96581
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

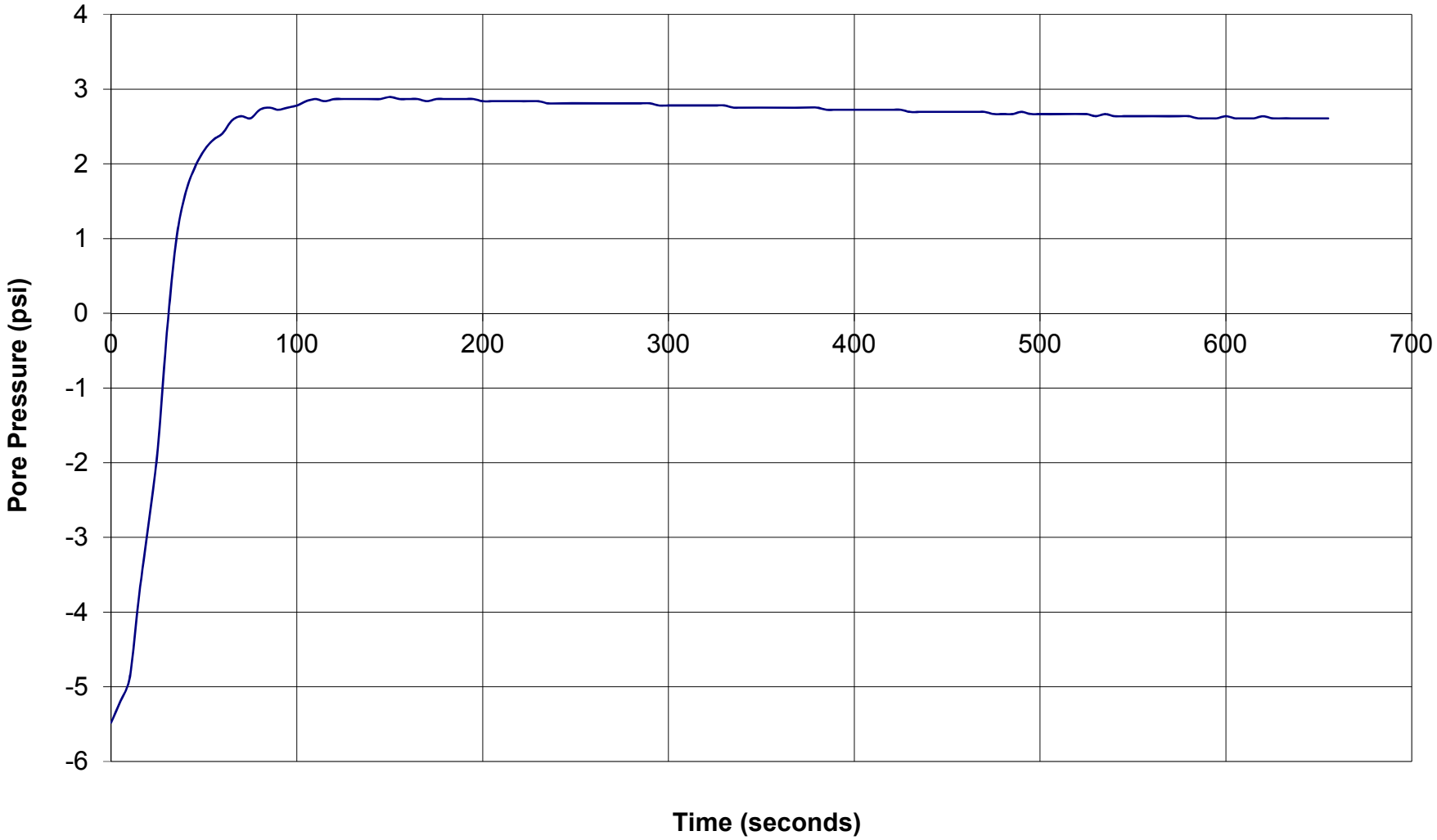
Sounding: OUE-CPT-12-6
Depth: 20.5051875
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

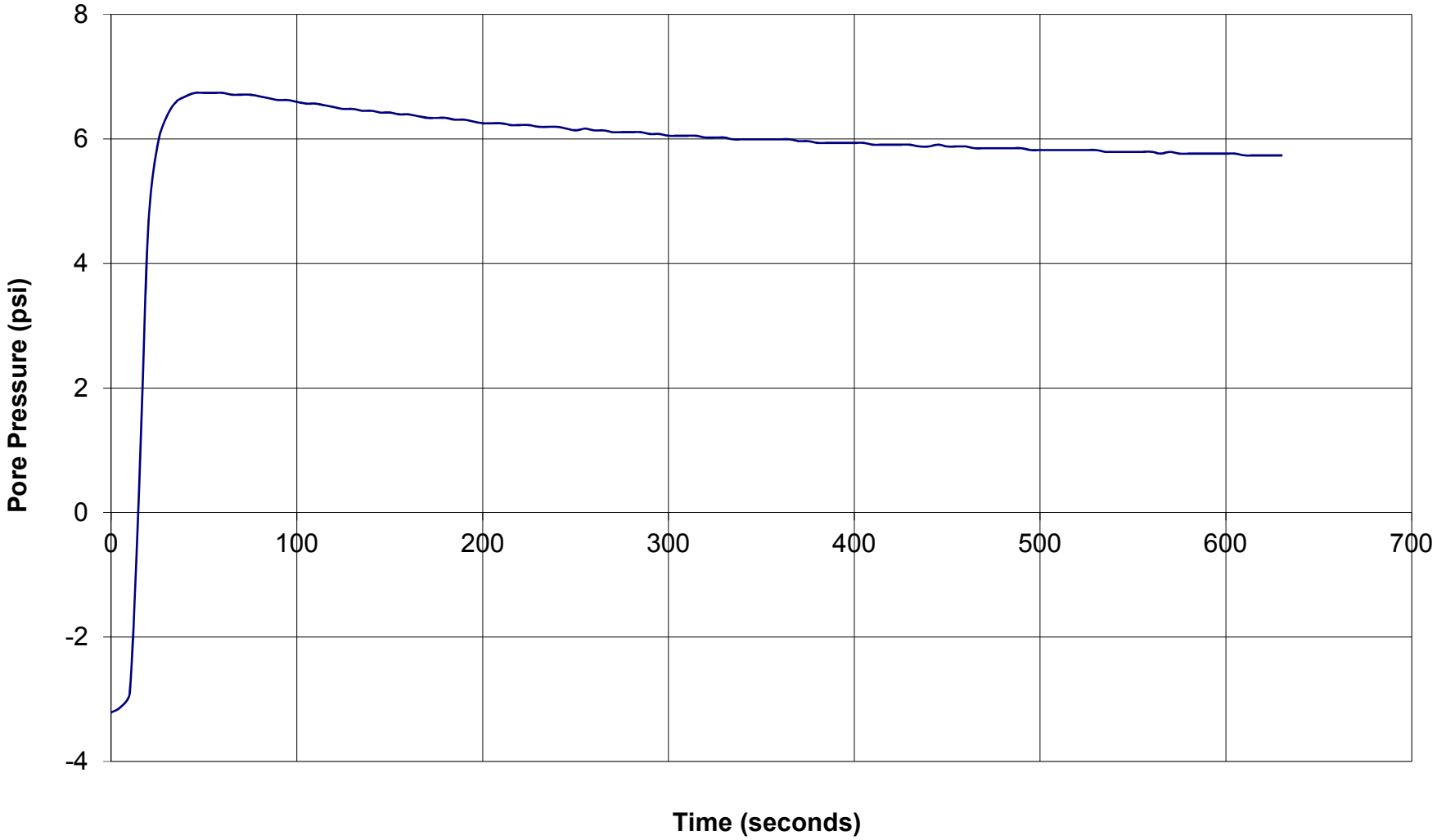
Sounding: OUE-CPT-12-6
Depth: 21.8175195
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

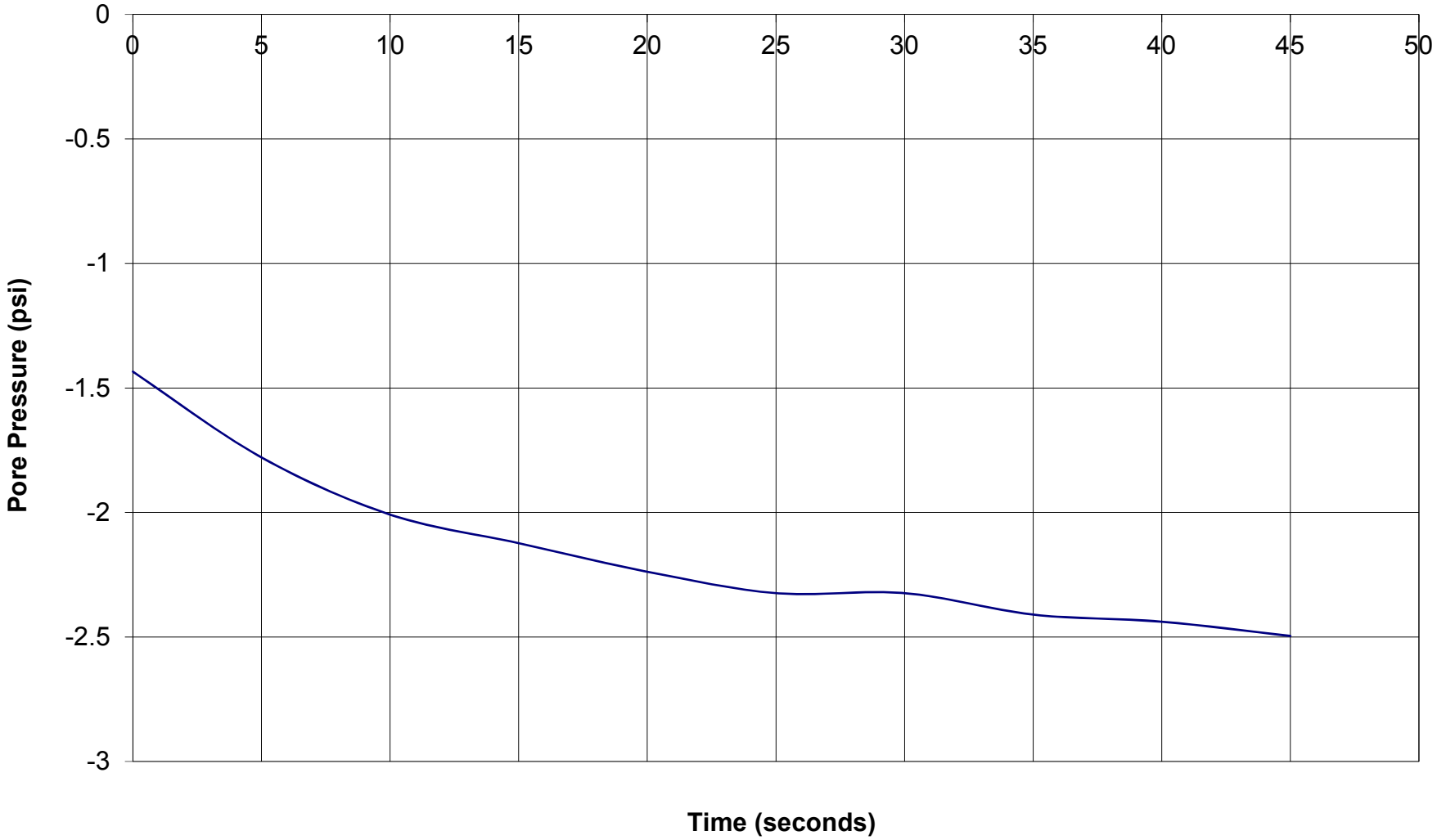
Sounding: OUE-CPT-12-7
Depth: 20.8332705
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

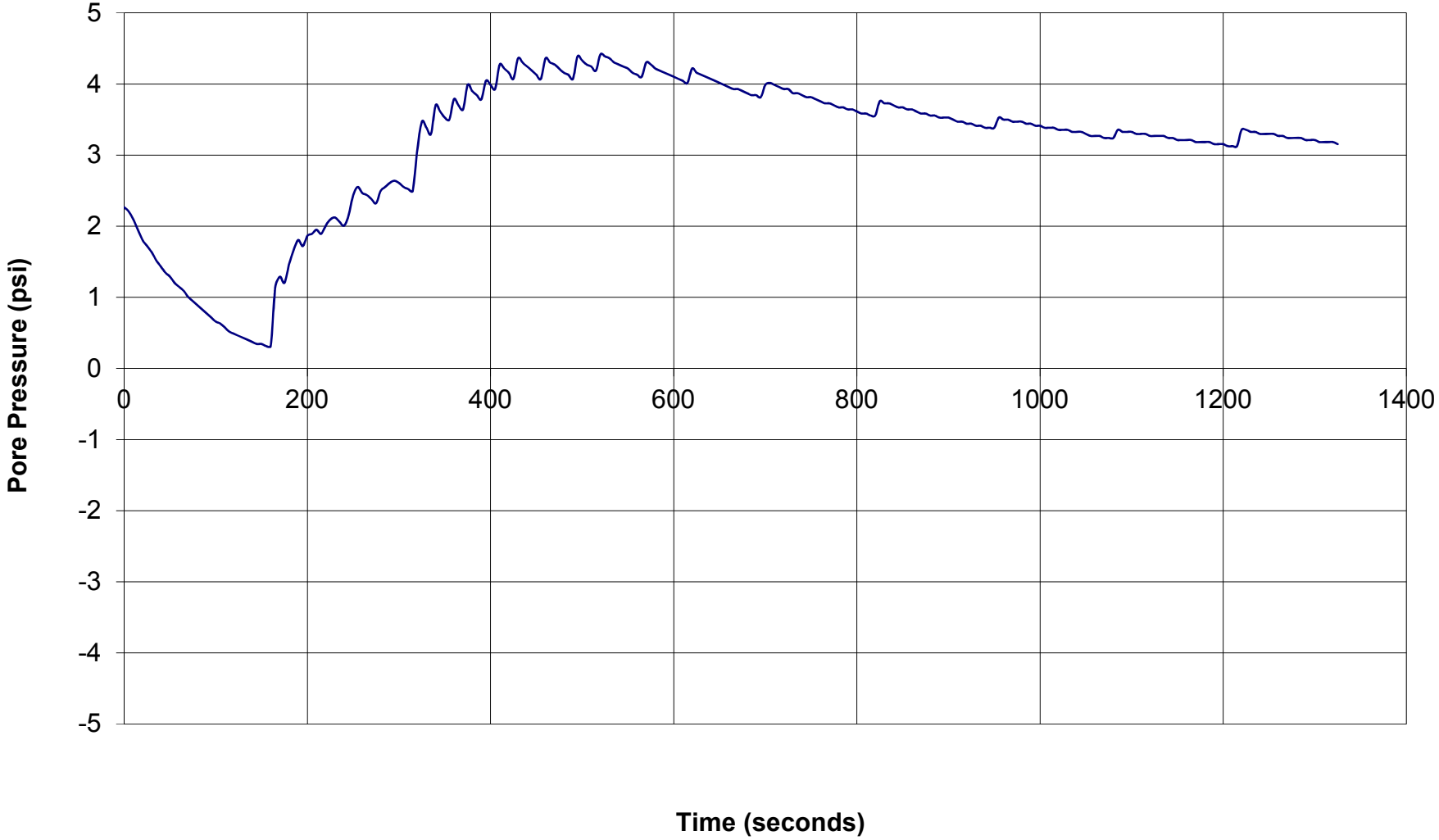
Sounding: OUE-CPT-12-8
Depth: 23.293893
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

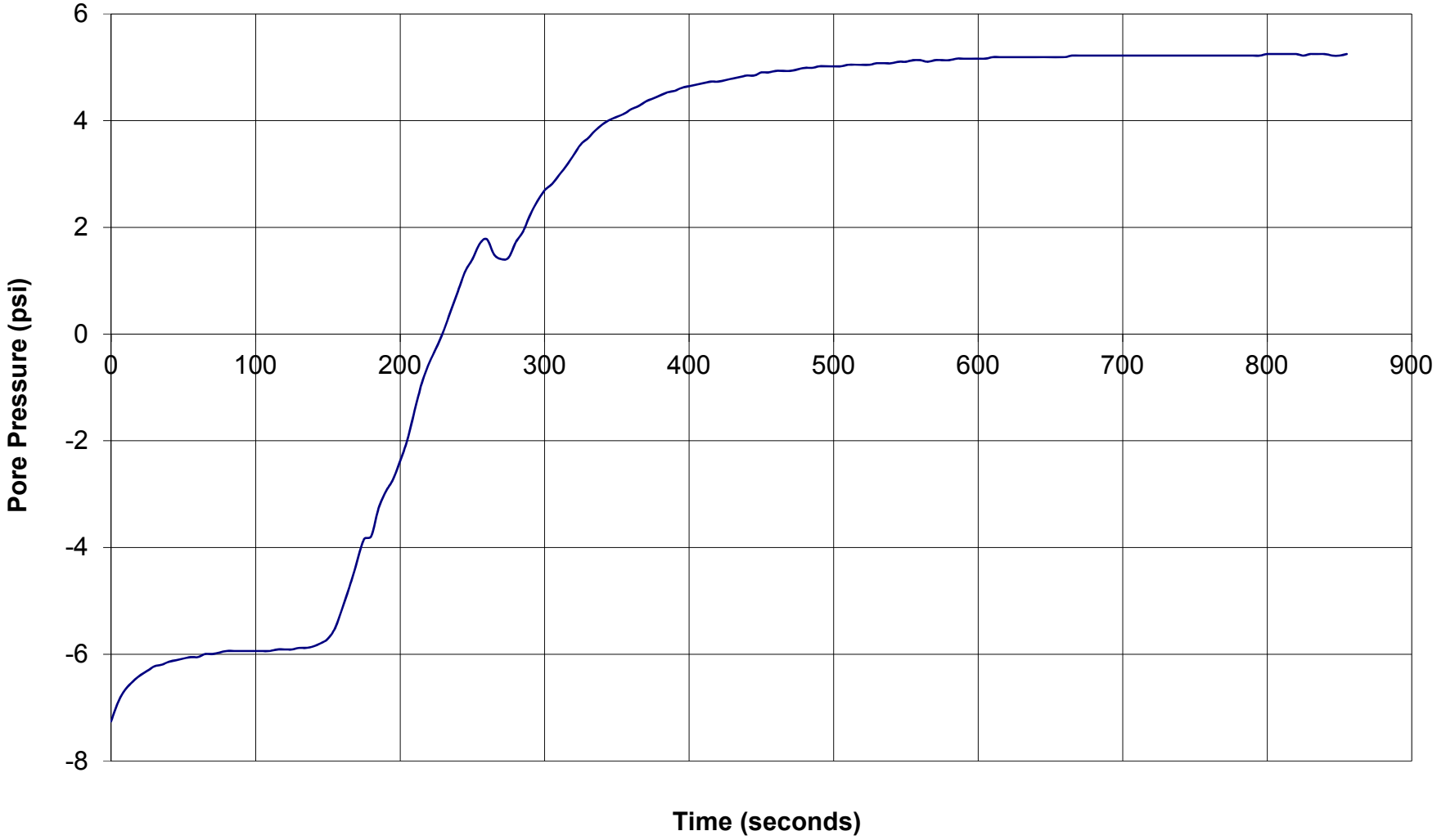
Sounding: OUE-CPT-12-8
Depth: 24.1141005
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

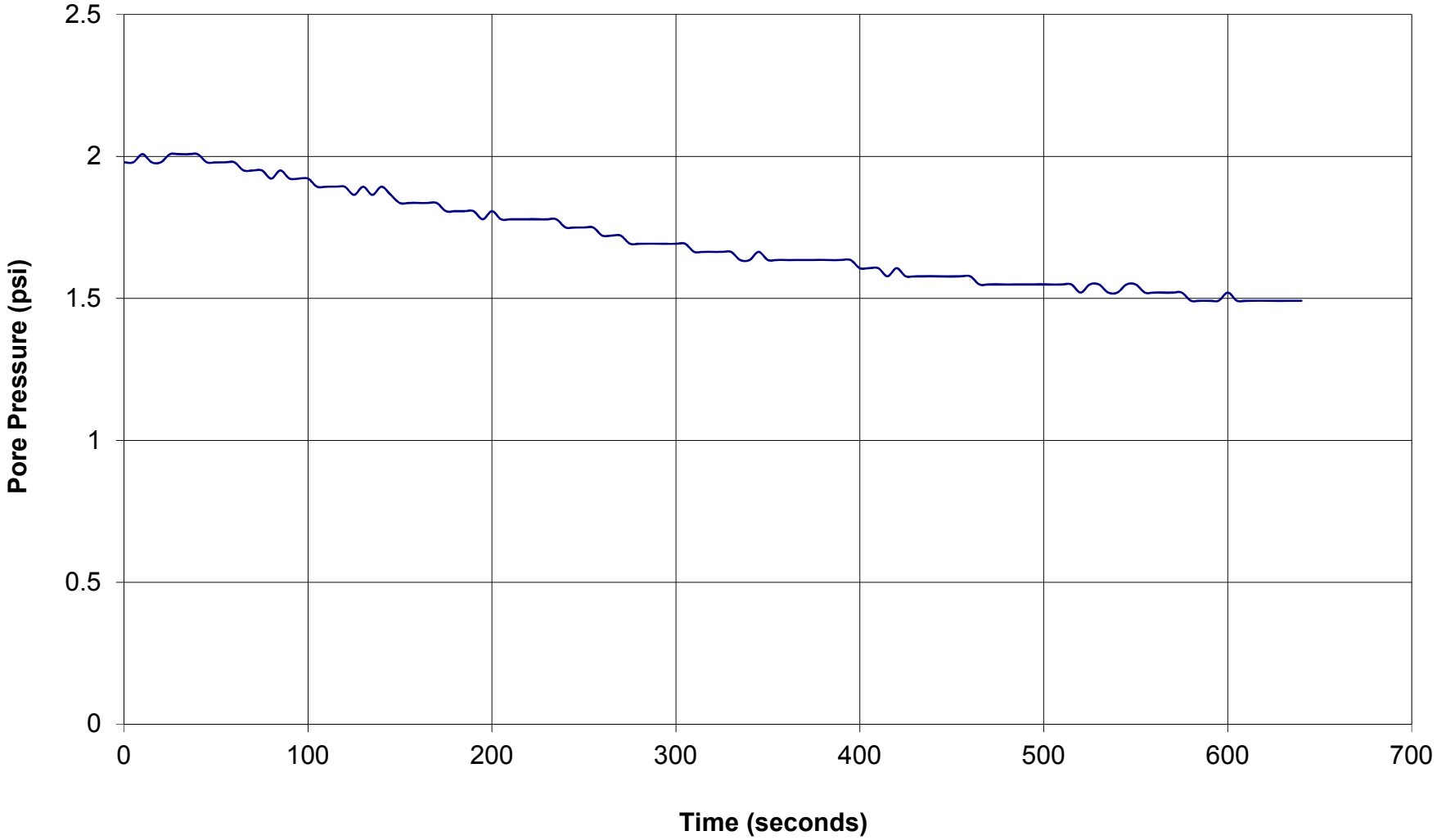
Sounding: OUE-CPT-12-9
Depth: 18.8647725
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

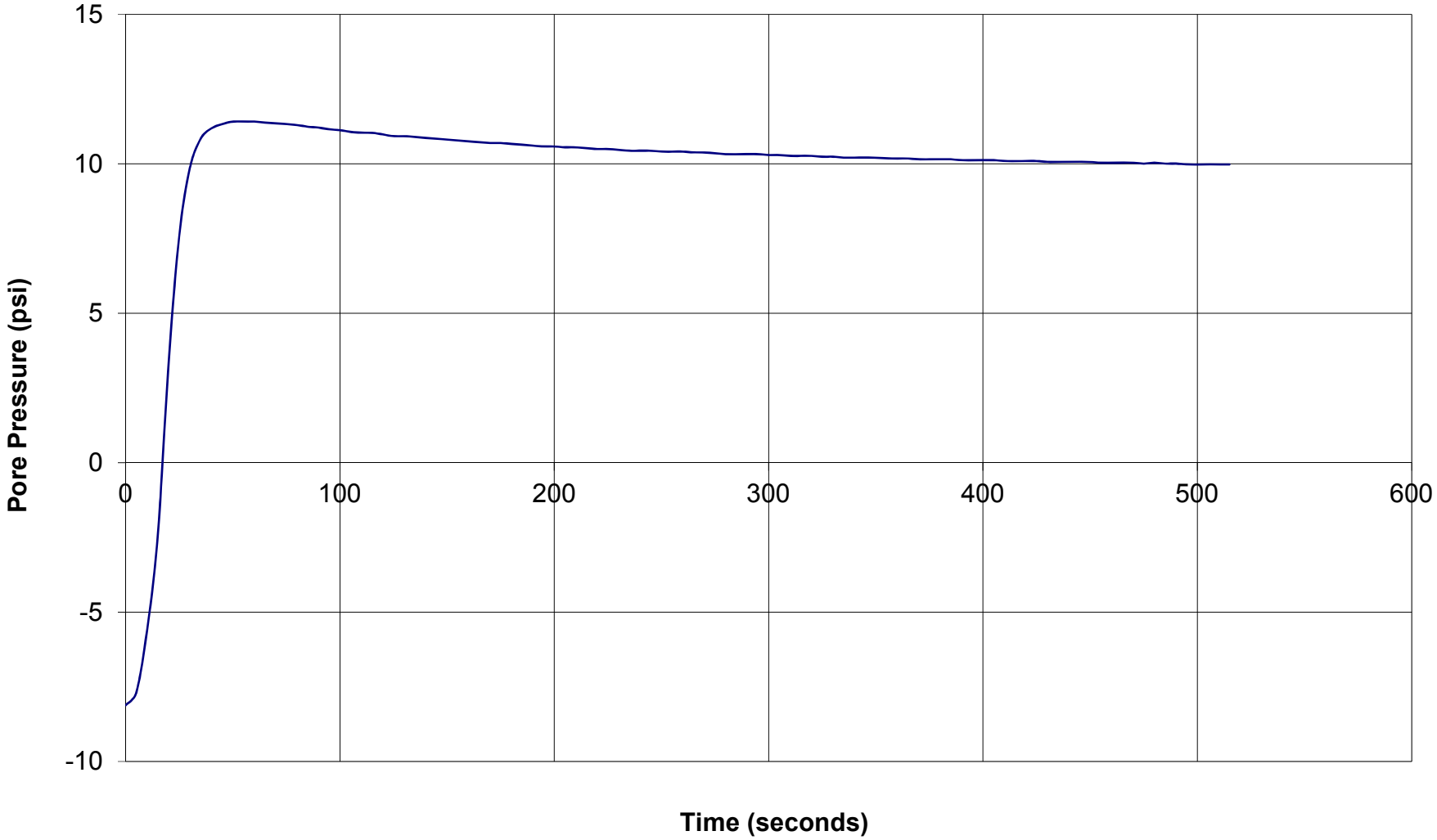
Sounding: OUE-CPT-12-10
Depth: 14.5996935
Site: GP MILL POND
Engineer: M.MORROW



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

Sounding: OUE-CPT-12-12A
Depth: 22.1456025
Site: GP MILL POND
Engineer: M.MORROW



Appendix E

Soil Boring Logs

& Test Pit Logs

Date Start/Finish: 10/29/2014 - 10/30/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: Rick Ryan
Drilling Method: Mud Rotary
Sampling Method:
Split Spoon and Shelby Tube

Latitude: 2291734.090
Longitude: 6049721.365
Surface Elevation: 43.600
Top of Casing: 43.500
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 45ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-4 / OUE-GT-005**
Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 40					SM		Silty SAND, fine to medium grained, subrounded; some silt, non plastic; trace gravel, small to medium, angular; poorly sorted, moist, dark reddish brown (2.5Y 2.5/4)	Wellbox; Locking Cap; Bentonite Chips; 1.5-inch, Sch 80 PVC Riser
5 / 35		0	3 1 1				No Recovery (5-6.5), very soft, gravel in mud cuttings	
	OUE-GT-005 -7.5-10						(7.5-10) Shelby Tube sample	
10 / 30		0	3 3 2				No Recovery (11-12.5), very soft, gravel in mud cuttings	#3 Sand Filter Pack; 1.5-inch, 0.020 slot PVC Screen
	OUE-GT-005 -14-14.5	12	2 4		GP SP		GRAVEL, small to medium, angular; trace silt; well sorted, wet, loose, dark reddish brown (2.5YR 2.5/4)	
15 / 25	OUE-GT-005 -14.5-15		7				SAND, fine to medium grained, subrounded; trace silt, non plastic; well sorted, wet, loose, brown (10YR 4/3)	
		0	1 1 1				No Recovery (16-17.5), very soft	
	OUE-GT-005 -18-18.5	12	30 50/ 4in		GP SP		GRAVEL, small to medium, subangular; trace silt; well sorted, wet, very dark brown (10YR 2/2) SAND, very fine to fine grained, rounded; little silt, non plastic; moist, dense, dark olive gray (5Y 3/2)	
20 / 20		24	CORE				BEDROCK, sandstone, fine to medium grained; well sorted, wet, very dense, dark olive gray (5Y 3/2), moderate cementation, orange mottling Core bedrock in 5ft intervals	Coated Bentonite Pellets

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

Date Start/Finish: 10/29/2014 - 10/30/2014 **Drilling Company:** Gregg Drilling and Testing, Inc. **Driller's Name:** Rick Ryan **Drilling Method:** Mud Rotary **Sampling Method:** Split Spoon and Shelby Tube	**Latitude:** 2291734.090 **Longitude:** 6049721.365 **Surface Elevation:** 43.600 **Top of Casing:** 43.500 **Survey Data:** NAVD88; CA SPC Z2 **Borehole Depth:** 45ft bgs **Descriptions By:** M. Morrow	**Well/Boring ID:** **PZ-4 / OUE-GT-005** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
25 / 15		24					Very weathered, weak cementation	
30 / 10							No Recovery (30-35), heavily weathered sandstone in mud cuttings	
35 / 5		6					No Recovery (35-39.5), heavily weathered sandstone in mud cuttings	Coated Bentonite Pellets
40 / 0		36						
45							End boring at 45ft bgs	

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Infrastructure · Water · Environment · Buildings

Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

Date Start/Finish: 10/27/2014 - 10/28/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: Rick Ryan
Drilling Method: Mud Rotary
Sampling Method:
Modified California Sampler and Shelby Tube

Latitude: 2291814.310
Longitude: 6049913.885
Surface Elevation: 43.337
Top of Casing: 43.370
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 45ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-5 / OUE-GT-006**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 40					SM		Silty SAND, medium grained, subrounded; some silt, non plastic; poorly sorted, moist, loose, brown (10YR 4/3)	8-inch Well Box; Locking Cap; Bentonite Chips; 1.5-inch, Sch 80 PVC Riser
5 / 35							Some gravel, small to medium, subangular	
10 / 30	OUE-GT-006 -9-11.5						(9-11.5) Shelby Tube sample	
	OUE-GT-006 -12.5-14	18	3 2 3		SW SP		SAND, medium to coarse grained, subangular; some gravel, small, angular; poorly sorted, wet, loose, very dark brown (10YR 2/2) Coarsening to medium gravel	
15 / 25	OUE-GT-006 -15-16.5	18	7 10 12		GP SP		SAND, fine grained, subrounded; well sorted, wet, loose, very dark brown (10YR 2/2) GRAVEL, small to medium, subangular; well sorted, wet, loose, very dark brown (10YR 2/2)	#3 Sand Filter Pack; 1.5-inch, 0.020 slot PVC Screen
							SAND, fine grained, subrounded; well sorted, wet, loose, brown (10YR 4/3)	
	OUE-GT-006 -17.9-19	18	12 21 22		GP SP		GRAVEL, small to medium, subangular; well sorted, wet, very loose, very dark brown (10YR 2/2) SAND, fine to medium grained, subrounded; trace gravel, large, subangular; well sorted, wet, loose, brown (10YR 4/3)	
20 / 20	OUE-GT-006 -20-21.5	18	22 16 19		GP SP		GRAVEL, small to medium, subangular; well sorted, wet, very loose, very dark brown (10YR 2/2) SAND, very fine to fine grained, rounded; trace gravel, large, angular; well sorted, wet, dense, light gray (N7)	
	OUE-GT-006 -22.5-24	18	18 36 29				Gravel slough in sampler	

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Remarks: Borehole cleared to 5ft using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

Date Start/Finish: 10/27/2014 - 10/28/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: Rick Ryan
Drilling Method: Mud Rotary
Sampling Method:
Modified California Sampler and Shelby Tube

Latitude: 2291814.310
Longitude: 6049913.885
Surface Elevation: 43.337
Top of Casing: 43.370
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 45ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-5 / OUE-GT-006**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
25		12	26 50/ 4"				Trace bedrock, friable, dark olive gray (5Y 3/2) Gravel slough in sampler	
			CORE				No Recovery (26-28), rock chips in mud cuttings	
15		24					BEDROCK, Shale, silty, friable, fractured, white and orange mottling, black (N2.5) White veins, strong	
30								
10		24					Weathered, some fractures, white veins	
35								Coated Bentonite Pellets
		42						
5								
40							Silty	
		36					Weathered, some fractures, white veins	
0								
45							End boring at 45ft bgs	

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Remarks: Borehole cleared to 5ft using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

Date Start/Finish: 10/28/14
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: Rick Ryan
Drilling Method: Mud Rotary
Sampling Method:
Split Spoon and Shelby Tube

Latitude: 2291789.776
Longitude: 6050172.682
Surface Elevation: 43.896
Top of Casing: 43.841
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 24.5ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-7 / OUE-GT-007**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH	ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0						SM		Silty SAND, medium grained, subrounded; some silt, non plastic; poorly sorted, moist, loose, brown (10YR 4/3)	8-inch Well Box; Locking Cap; Bentonite Chips; 1.5-inch, Sch 80 PVC Riser
	40								
5		OUE-GT-007 -5-6.5	12	3 2 3		GP		Sandy GRAVEL; medium to coarse grained sand, subangular; medium gravel, angular; poorly sorted, wet, loose, very dark brown (10YR 2/2) Coarsening	
		OUE-GT-007 -7.5-10						(7.5-10) Shelby Tube sample	
	35								
10									
		OUE-GT-007 -11-12.5	14	1 2 3		SP		SAND, medium to coarse grained, subangular; trace gravel, small, subangular; well sorted, wet, loose, very dark brown (10YR 2/2) 2in black organic/wood debris	#3 Sand Filter Pack; 1.5-inch, 0.020 slot PVC Screen
						GP		GRAVEL, small to medium, subangular; well sorted, wet, loose, no fines, very dark brown (10YR 2/2)	
	30		0	2				No Recovery (13.5-15), very small gravel falling out of the sampler	

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

Date Start/Finish: 10/28/14 **Drilling Company:** Gregg Drilling and Testing, Inc. **Driller's Name:** Rick Ryan **Drilling Method:** Mud Rotary **Sampling Method:** Split Spoon and Shelby Tube	**Latitude:** 2291789.776 **Longitude:** 6050172.682 **Surface Elevation:** 43.896 **Top of Casing:** 43.841 **Survey Data:** NAVD88; CA SPC Z2 **Borehole Depth:** 24.5ft bgs **Descriptions By:** M. Morrow	**Well/Boring ID:** **PZ-7 / OUE-GT-007** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH	ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
	30			1					
15				2				SAND, medium grained, subrounded; well sorted, wet, loose, very dark brown (10YR 2/2)	
		OUE-GT-007 16-16.5	14			SP			#3 Sand Filter Pack
		OUE-GT-007 -16.5-17.5		2		GP		GRAVEL, small to medium, subangular; wet, loose, very dark brown (10YR 2/2)	
				2					1.5-inch, 0.020 slot PVC Screen
				2					
		OUE-GT-007 -18.5-19	12	33				Some coarse sand	
25		OUE-GT-007 -19-19.5		50/ 3in		ML		Silt, non plastic; some sand, very fine to fine grained; trace gravel, medium, subangular; moist, hard, very dark brown (10YR 2/2)	
				CORE				Large cobble in sampler	
20								BEDROCK, Shale, weathered, white veins, very dark gray to black (N2.5)	
			24						Coated Bentonite Pellets
	20							End boring at 24.5ft bgs	

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

Date Start/Finish: 12/29/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: Rick Ryan
Drilling Method: Mud Rotary
Sampling Method:
Split Spoon and Shelby Tube

Latitude: 2291838.787
Longitude: 6050316.949
Surface Elevation: 44.024
Top of Casing: 43.910
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 31ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-8 / OUE-GT-008**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH	ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0	45					SM		Silty SAND, medium grained, subrounded; some silt, non plastic; poorly sorted, moist, brown (10YR 4/3)	8-inch Well Box Locking Cap Bentonite Chips 1.5-inch, Sch 80 PVC Riser
5	40	OUE-GT-008 -5-6.5		4 3 5		SP		SAND, medium to coarse grained, subangular; trace gravel, small, subangular; poorly sorted, wett, loose, very dark brown (10YR 2/2) Sidewalls caving - thickening drilling mud to hold back formation	
10	35	OUE-GT-008 -9-11.5						Unable to hold back formation, drill down to 9ft to advance Shelby Tube Add 10ft 4-inch casing as conductor (9-11.5) Shelby Tube sample	
15	30		18	3 2 1				*Begin engergy measurement recording No Recovery (12.5-14), SPT sampler used; gravel in mud cuttings, small, subangular	#3 Sand Filter Pack 1.5-inch, 0.020 slot PVC Screen
			18	2 2 2				No Recovery (15-16.5), SPT and mod CA sampler used	
			18	26 39		GP		GRAVEL, small to large, angular; trace silt, non plastic; poorly sorted, wet, very loose, very dark brown (10YR 2/2)	
20	25	OUE-GT-008 -18.5-19		44		SM		Silty SAND and GRAVEL, very fine to fine grained, subrounded; little silt, non plastic; some gravel, small to large, angular, very dark brown (10YR 2/2)	
			18	9 14					
		OUE-GT-008 -21-21.5		43				Silty SAND, very fine to fine grained, rounded; some silt, low plasticity; poorly sorted, wet, dense, greenish gray (5GY 5/1)	
			18	16				Silty SAND, very fine grained; some silt, non plastic; poorly sorted, wet, dense, greenish gray (5GY 5/1)	
		OUE-GT-008 -23.5-34		47 20					

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

Date Start/Finish: 12/29/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: Rick Ryan
Drilling Method: Mud Rotary
Sampling Method:
Split Spoon and Shelby Tube

Latitude: 2291838.787
Longitude: 6050316.949
Surface Elevation: 44.024
Top of Casing: 43.910
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 31ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-8 / OUE-GT-008**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
20 / 25		12	50/ 5in				Moderate cementation in sample shoe	
			CORE				BEDROCK, Sandstone, moderate cementation, very dense, some fracturing, orange and white mottling, dark gray (N4)	Coated Bentonite Pellets
15 / 30		24					End Boring at 31ft bgs	

Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Bedrock cored in 5ft intervals

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Date Start/Finish: 10/30/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: Rick Ryan
Drilling Method: Hollow Stem Auguer
Sampling Method: Split Spoon

Latitude: 2291909.258
Longitude: 6050232.031
Surface Elevation: 22.657
Top of Casing: NA
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 11.5ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **OUE-GT-009**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0					SM		Fill Material; Silty SAND, fine to medium grained, subrounded; some silt, non plastic; trace small gravel, subangular; trace wood chips; poorly sorted, moist, soft, dark reddish brown (2.5YR 5/4)	Fill
20								
5		0	2 1 2				No Recovery (5-6.5), very soft	
							Silty SAND, fine to medium grained, subrounded; some silt, non plastic; trace small gravel, angular; trace wood chips; brown (10YR 4/3)	
15		12	3 2 2					
10		6	2 3 2				6-inches of wood in split spoon sampler Unable to continue hollow stem auger through wood debris	
							End boring at 11.5ft bgs	

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

OUE-GT-009 advanced at proposed OUE-CPT-12-11 location

Date Start/Finish: 10/22/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: German
Drilling Method: CPT
Sampling Method: --

Latitude: 2292052.694
Longitude: 6049929.235
Surface Elevation: 19.35
Top of Casing: 20.01
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 14.6ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-10**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 40							Boring advanced by CPT probe Piezometer well set in 2in borehole	Locking Cap Bentonite Chips 0.75-in, Sch 80 PVC Riser #3 Sand Filter Pack/Native Collapse 0.75-in, 0.020 slot PVC Screen
5 / 35								
10 / 30								
15 / 25							End CPT boring at 14.6ft bgs	

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Date Start/Finish: 10/22/2014 **Drilling Company:** Gregg Drilling and Testing, Inc. **Driller's Name:** German **Drilling Method:** CPT **Sampling Method:** --	**Latitude:** 2291983.118 **Longitude:** 6050450.254 **Surface Elevation:** 28.66 **Top of Casing:** 28.82 **Survey Data:** NAVD88; CA SPC Z2 **Borehole Depth:** 22.6ft bgs **Descriptions By:** M. Morrow	**Well/Boring ID:** **PZ-12** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 40							Boring advanced by CPT probe Piezometer well set in 2in borehole	Locking Cap Bentonite Chips 0.75-in, Sch 80 PVC Riser #3 Sand Filter Pack/Native Collapse 0.75-in, 0.020 slot PVC Screen
5 / 35								
10 / 30								
15 / 25								

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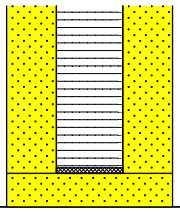
Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Date Start/Finish: 10/22/2014 **Drilling Company:** Gregg Drilling and Testing, Inc. **Driller's Name:** German **Drilling Method:** CPT **Sampling Method:** --	**Latitude:** 2291983.118 **Longitude:** 6050450.254 **Surface Elevation:** 28.66 **Top of Casing:** 28.82 **Survey Data:** NAVD88; CA SPC Z2 **Borehole Depth:** 22.6ft bgs **Descriptions By:** M. Morrow	**Well/Boring ID:** **PZ-12** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH	ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
20									
	20							End CPT boring at 22.6ft bgs	
25									
	15								
30									
	10								
35									
	5								

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Date Start/Finish: 10/23/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: German
Drilling Method: CPT
Sampling Method: --

Latitude: 2291789.181
Longitude: 6050041.940
Surface Elevation: 43.92
Top of Casing: 44.24
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 28.5ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-6**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 40							Boring advanced by CPT probe Piezometer well set in 2in borehole	Wellbox Locking Cap Bentonite Chips 0.75-in, Sch 80 PVC Riser #3 Sand Filter Pack/Native Collapse 0.75-in, 0.020 slot PVC Screen
5 / 35								
10 / 30								
15 / 25								

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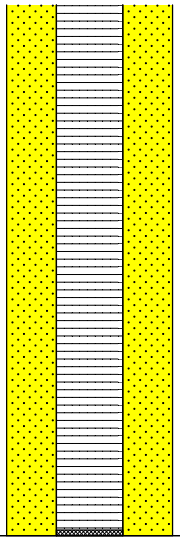
Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Date Start/Finish: 10/23/2014 **Drilling Company:** Gregg Drilling and Testing, Inc. **Driller's Name:** German **Drilling Method:** CPT **Sampling Method:** --	**Latitude:** 2291789.181 **Longitude:** 6050041.940 **Surface Elevation:** 43.92 **Top of Casing:** 44.24 **Survey Data:** NAVD88; CA SPC Z2 **Borehole Depth:** 28.5ft bgs **Descriptions By:** M. Morrow	**Well/Boring ID:** **PZ-6** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
20 / 25								
15 / 30							End CPT boring at 28.5ft bgs	
10 / 35								
5								

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Date Start/Finish: 10/23/2014
Drilling Company: Gregg Drilling and Testing, Inc.
Driller's Name: German
Drilling Method: CPT
Sampling Method: --

Latitude: 2291910.640
Longitude: 6050553.166
Surface Elevation: 43.71
Top of Casing: 43.70
Survey Data: NAVD88; CA SPC Z2

Borehole Depth: 20.8ft bgs
Descriptions By: M. Morrow

Well/Boring ID: **PZ-9**

Client: Georgia-Pacific LLC

Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 40							Boring advanced by CPT probe Piezometer well set in 2in borehole	Wellbox Locking Cap Bentonite Chips 0.75-in, Sch 80 PVC Riser #3 Sand Filter Pack/Native Collapse 0.75-in, 0.020 slot PVC Screen
5 / 35								
10 / 30								
15 / 25								

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Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Date Start/Finish: 10/23/2014 **Drilling Company:** Gregg Drilling and Testing, Inc. **Driller's Name:** German **Drilling Method:** CPT **Sampling Method:** --	**Latitude:** 2291910.640 **Longitude:** 6050553.166 **Surface Elevation:** 43.71 **Top of Casing:** 43.70 **Survey Data:** NAVD88; CA SPC Z2 **Borehole Depth:** 20.8ft bgs **Descriptions By:** M. Morrow	**Well/Boring ID:** **PZ-9** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Recovery (inches)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
20								
20 / 25 / 15 / 30 / 10 / 35 / 5							End CPT boring at 20.8ft bgs	

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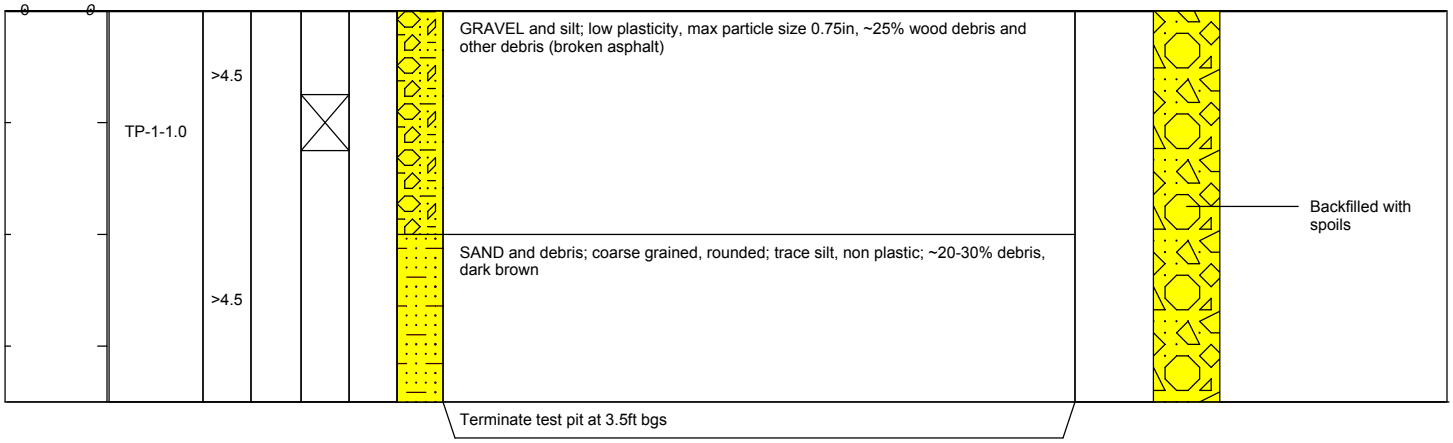
Remarks: Borehole cleared to 5ft bgs using a hand auger

bgs = below ground surface
ft = feet
in = inches

Date Start/Finish: 10/22/2014 **Drilling Company:** Gary A. Swanson Co. **Driller's Name:** Gary Swanson **Drilling Method:** Backhoe **Sampling Method:** Bucket and Sidewalls	**Latitude/Longitude:** See attached location map **Borehole Depth:** 3.5ft bgs **Descriptions By:** N. Trimble	**Well/Boring ID:** **TP-1** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg,CA



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Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

Shallow gravel is much different than other test pit locations

Date Start/Finish: 10/22/2014
Drilling Company: Gary A. Swanson Co.
Driller's Name: Gary Swanson
Drilling Method: Backhoe
Sampling Method:
Bucket and Sidewalls

Latitude/Longitude:
See attached location map

Borehole Depth: 4ft bgs
Descriptions By: N. Trimble

Well/Boring ID: **TP-10**
Client: Georgia-Pacific LLC
Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Penetrometer (tsf)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 0	TP-10-0.5	>4.5		X			GRAVEL, coarse, 4in minus, few 6-10in clasts, angular, well graded; trace fines	Backfilled with spoils
		>4.5					SAND, medium grained; some gravel, 1in minus; trace silt; dark red	
	TP-10-2.0			X			SAND, coarse grained, subrounded; trace silt; very dense, dark brown	
		1.75					SAND, coarse grained, rounded, loose, reddish yellow	
							Terminate test pit at 4ft bgs	

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Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

Date Start/Finish: 10/22/2014 **Drilling Company:** Gary A. Swanson Co. **Driller's Name:** Gary Swanson **Drilling Method:** Backhoe **Sampling Method:** Bucket and Sidewalls	**Latitude/Longitude:** See attached location map **Borehole Depth:** 4ft bgs **Descriptions By:** N. Trimble	**Well/Boring ID:** **TP-2** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH	ELEVATION	Sample ID	Penetrometer (tsf)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0	0	TP-2	>4.5					GRAVEL, coarse, angular, very dense, well graded, max particle size ~8-12in (primarily 3- to 4-inch-minus), dark brown grades to dark gray Terminate test pit at 4ft bgs	Backfilled with spoils

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Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

TP-2 is a composite sample

Date Start/Finish: 10/22/2014 **Drilling Company:** Gary A. Swanson Co. **Driller's Name:** Gary Swanson **Drilling Method:** Backhoe **Sampling Method:** Bucket and Sidewalls	**Latitude/Longitude:** See attached location map **Borehole Depth:** 4ft bgs **Descriptions By:** N. Trimble	**Well/Boring ID:** **TP-3** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA

DEPTH	ELEVATION	Sample ID	Penetrometer (tsf)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0	0							SILT with some gravel, rounded (~0.5in minus), some asphalt debris	Backfilled with spoils
								Terminate test pit at 4ft bgs	

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Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

No samples collected
TP-3 is located on the shoulder of the ramp. Does not appear to be engineered fill. Appears loamy.

Date Start/Finish: 10/22/2014
Drilling Company: Gary A. Swanson Co.
Driller's Name: Gary Swanson
Drilling Method: Backhoe
Sampling Method:
Bucket and Sidewalls

Latitude/Longitude:
See attached location map

Borehole Depth: 4ft bgs
Descriptions By: N. Trimble

Well/Boring ID: **TP-4**
Client: Georgia-Pacific LLC
Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH	ELEVATION	Sample ID	Penetrometer (tsf)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0	0		>4.5					GRAVEL, coarse, very dense, max particle size 4in, well graded grades to dark gray SAND, medium grained, subrounded, very dense, poorly graded, dark brown Terminate test pit at 4ft bgs	Backfilled with spoils

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Remarks: bgs= below ground surface
ft = feet
in = inches
tsf = tons per square foot

No samples collected

Date Start/Finish: 10/22/2014
Drilling Company: Gary A. Swanson Co.
Driller's Name: Gary Swanson
Drilling Method: Backhoe
Sampling Method:
Bucket and Sidewalls

Latitude/Longitude:
See attached location map

Borehole Depth: 4ft bgs
Descriptions By: N. Trimble

Well/Boring ID: **TP-5**
Client: Georgia-Pacific LLC
Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Penetrometer (tsf)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 0	TP-5-1.0	>4.5		X			GRAVEL, coarse, 2- to 3-inch-minus, well graded; trace fines; trace 6in cobbles	Backfilled with spoils
	TP-5-2.5	>4.5		X			SAND, medium grained; some gravel, ~0.75in, rounded; some wood debris; very dense, greenish gray	
		>4.5					SAND with silt, fine grained, well graded, very dense, dark brown	
							Terminate test pit at 4ft bgs	

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Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

Date Start/Finish: 10/22/2014
Drilling Company: Gary A. Swanson Co.
Driller's Name: Gary Swanson
Drilling Method: Backhoe
Sampling Method:
Bucket and Sidewalls

Latitude/Longitude:
See attached location map

Borehole Depth: 4.5ft bgs
Descriptions By: N. Trimble

Well/Boring ID: **TP-6**
Client: Georgia-Pacific LLC
Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH / ELEVATION	Sample ID	Penetrometer (tsf)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 / 0	TP-6-1.0	>4.5		X			GRAVEL, coarse, max particle size ~4in, well graded; some silt, low plasticity; very dense, brown	Backfilled with spoils
							GRAVEL, coarse, max particle size ~4in, well graded; trace fines, non plastic; very dense, dark gray	
	TP-6-2.5			X			GRAVEL, coarse, max particle size ~3in, well graded; very dense, brown	
		>4.5					SAND, coarse grained; trace silt; dense, dark brown	
	TP-6-4.0			X			Terminate test pit at 4.5ft bgs	

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Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

Project: B0066142.2014 Template: G:\Projects\logplot\GP Mill Pond\boring_well geoprobe2007_GP Mill PondTP
Data File:TP-6.dat
Date: 1/21/2015
Created/Edited by: M. Morrow

Date Start/Finish: 10/22/2014
Drilling Company: Gary A. Swanson Co.
Driller's Name: Gary Swanson
Drilling Method: Backhoe
Sampling Method:
Bucket and Sidewalls

Latitude/Longitude:
See attached location map

Borehole Depth: 3ft bgs
Descriptions By: N. Trimble

Well/Boring ID: **TP-7**
Client: Georgia-Pacific LLC
Location: Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA

DEPTH ELEVATION	Sample ID	Penetrometer (tsf)	Raw Blow Counts	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Boring Construction
0 0	TP-7-1.0	>4.5					GRAVEL, coarse, angular, well graded, very dense, brown	
							SAND, coarse grained, subrounded; trace silt; very dense, dark brown	Backfilled with spoils
		>4.5					Terminate test pit at 3ft bgs	

Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

ARCADIS
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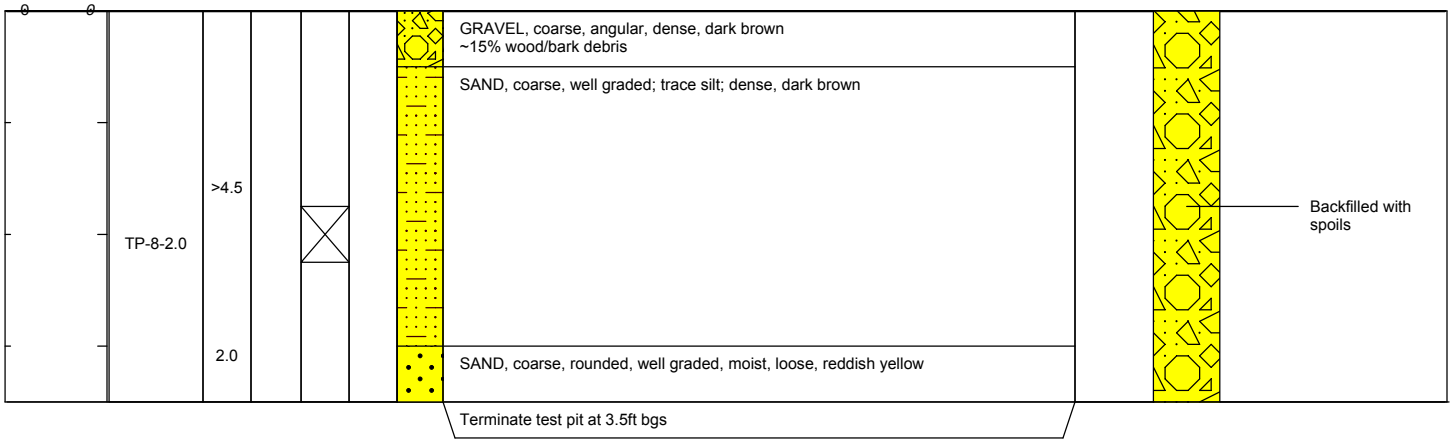
Project: B0066142.2014 Template: G:\Projects\logplot\GP Mill Pond\boring_well geoprobe2007_GP Mill PondTP
Data File:TP-7.dat
Date: 1/21/2015
Created/Edited by: M. Morrow

Date Start/Finish: 10/22/2014 **Drilling Company:** Gary A. Swanson Co. **Driller's Name:** Gary Swanson **Drilling Method:** Backhoe **Sampling Method:** Bucket and Sidewalls	**Latitude/Longitude:** See attached location map **Borehole Depth:** 3.5ft bgs **Descriptions By:** N. Trimble	**Well/Boring ID:** **TP-8** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA



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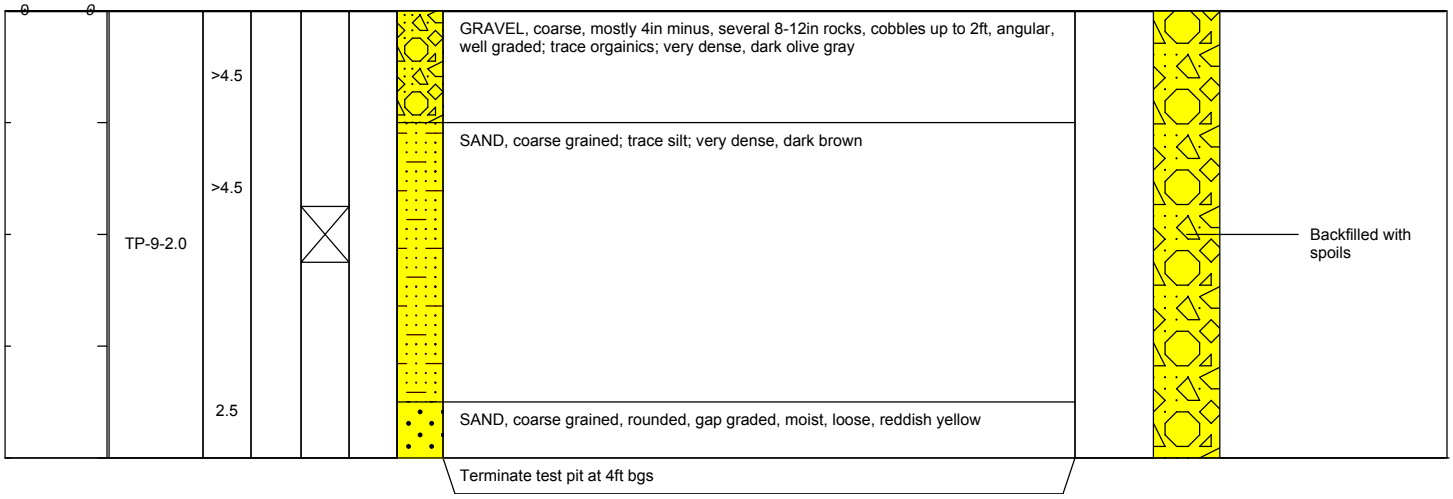
Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

Date Start/Finish: 10/22/2014 **Drilling Company:** Gary A. Swanson Co. **Driller's Name:** Gary Swanson **Drilling Method:** Backhoe **Sampling Method:** Bucket and Sidewalls	**Latitude/Longitude:** See attached location map **Borehole Depth:** 4ft bgs **Descriptions By:** N. Trimble	**Well/Boring ID:** **TP-9** **Client:** Georgia-Pacific LLC **Location:** Former Georgia-Pacific Wood Products Facility Fort Bragg, CA



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Remarks: bgs = below ground surface
ft = feet
in = inches
tsf = tons per square foot

Appendix F

Greg Drilling

Energy Measurements

October 30, 2014

Arcadis
Attn: Marilyn Morrow

Re: Standard Penetration Energy Measurements
Automatic Hammer on Mud Rotary Drill Rig, D-26
GP Mill Pond Project Area, Fort Bragg, CA

Dear Ms. Morrow,

This report offers results of energy measurements and related calculations made on October 29, 2014 during Standard Penetration Testing (SPT) on Gregg Drilling's mud rotary drill rig. Dynamic tests were performed on an instrumented section of NWJ drill rod attached to the sampler rod string. All dynamic measurements were obtained and recorded using a Pile Driving Analyzer®.

Equipment:

SPT energy measurements were made on SPT samplers driven by the hammer/anvil system on the Gregg Drilling drill rig on October 29, 2014. The rig was tested on the GP Mill Pond Project area, borings OUE-GT-005 and 008. In total, 4 energy measurements were collected corresponding to 4 different samples at increasing depth for boring OUE-GT-005. In addition, 6 energy measurements were collected corresponding to 6 different samples at increasing depth for boring OUE-GT-008

Gregg used a Model PAK Pile Driving Analyzer (PDA) to acquire and process measurements of force and velocity with every impact of the automatic hammer on the sample rods. Gregg follows the procedure outlined in ASTM D4633. Two strain gauges mounted on a two foot section of NWJ rod measured force, while two piezoresistive accelerometers bolted on the same rod measured acceleration. The gauges were mounted approximately 6" from the top of the rod.
Analog signals from the gauges and accelerometers were collected, digitized, displayed in real-time, and stored by the PDA. Selected output from the PDA for each recorded impact of the hammer included:

- Maximum force in the rod (FMX)
- Maximum velocity in the rod (VMX)
- Maximum calculated transferred energy (EMX)
- Blows per minute (BPM)
- Energy transferred to the rods (ETR)

Data and Calculations:

The purpose of testing was to measure the energy transferred from the hammer to the drill rod and to calculate the energy efficiency of the hammer. The PDA measurements of force and velocity were reviewed after field testing and analyzed to calculate the transferred energy (EMX).

The maximum energy transferred past the gauge location, EMX, is computed by the PDA using force (F) and velocity (V) records as follows:

$$EMX = \int_a^b F(t)\, V(t)\, dt$$

The time "a" corresponds to the start of the record when the energy transfer begins and "b" is the time at which energy transferred to the rod reaches a maximum value. The energy transferred is defined as ETR, and is usually used to define the efficiency of the hammer/anvil system.

Results:

Table 1 summarizes the average calculated energies for each sample tested as well as the type of sample and depth. It is shown that the overall average (ETR) energy for this system on boring OUE-GT-005 was 79%, and for boring OUE-GT-008 it was 76%. Appendix A provides plots and tables of PDA results for all hammer blows at each sampling depth. The plots and tables present selected measured and calculated results as a function of blow number. The results include:

- the blow number
- depth
- BLC (blow count in blows per foot)
- FMX (maximum rod force)
- VMX (maximum rod velocity)
- EMX (maximum transferred energy)
- BPM (blows per minute)
- ETR (energy transferred in percent of maximum)

At the end of each table is a statistical evaluation of the results for each variable including the average, standard deviation, maximum, and what blow number this maximum occurred.

If you have any questions or comments on this report, please do not hesitate to call our office at (562) 427-6899.

Sincerely,

Peter Robertson
Technical Advisor
Gregg Drilling & Testing

GREGG DRILLING

SPT ENERGY ANALYSIS

Client:	Arcadis
Project:	GP Mill Pond
Date:	10/29/2014
Boring:	OUE-GT-005
Rig:	D26

Table 1 - SPT Sample Summary

Sample #	Sampler	Length of Sample Rod (ft)	Sampler Length (ft)	Total Rod Length* (ft)	Depth of Sample (below Mudline, ft)	Total Blows Analyzed by PDA	Average Energy Transferred to Rods (% of Theoretical Max.)	Maximum Efficiency Recorded (%)	Standard Deviation
1	SPT	12	5.08	17.08	11	8	76.2	78.8	1
2	SPT	15	5.08	20.08	13.5	13	78.4	79.8	1
3	SPT	17	5.08	22.08	16	2	80.7	82	1
4	SPT	20	5.08	25.08	18.5	80	80.6	82.2	1
						Average	**79.0**		

* Total rod length includes, sampler, rod, adaptors, and instrumented section below gauges

GREGG DRILLING

SPT ENERGY ANALYSIS

Client:	Arcadis
Project:	GP Mill Pond
Date:	10/29/2014
Boring:	OUE-GT-008
Rig:	D26

Table 1 - SPT Sample Summary

Sample #	Sampler	Length of Sample Rod (ft)	Sampler Length (ft)	Total Rod Length* (ft)	Depth of Sample (below Mudline, ft)	Total Blows Analyzed by PDA	Average Energy Transferred to Rods (% of Theoretical Max.)	Maximum Efficiency Recorded (%)	Standard Deviation
1	SPT	12	5.08	17.08	12.5	7	72.4	74.1	2
2	SPT	15	5.08	20.08	15	2	73.7	74.8	1
3	SPT	17	5.08	22.08	17.5	99	75.3	80	2
4	SPT	20	5.08	25.08	20	66	78.5	80.2	1
5	SPT	22	5.08	27.08	22.5	63	80.3	84.3	1
6	SPT	27	5.08	32.08	25	50	76.6	78.7	1
						Average	**76.1**		

* Total rod length includes, sampler, rod, adaptors, and instrumented section below gauges

Appendix A

D26 - OUE-GT-005 @ 11ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 17.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
1	0.00	0.3	0.0	0.3	12.1	75.1
2	0.00	0.3	0.0	0.3	12.3	78.8
3	0.00	0.3	41.2	0.3	11.6	75.3
4	0.00	0.3	41.0	0.3	12.5	77.4
5	0.00	0.3	41.4	0.3	12.5	76.4
6	0.00	0.3	41.8	0.3	12.5	74.9
7	0.00	0.3	41.8	0.3	11.8	75.2
8	0.00	0.3	41.6	0.3	12.6	76.3
	Average	0.3	41.5	0.3	12.2	76.2
	Std. Dev.	0.0	0.3	0.0	0.3	1.3
	Maximum	0.3	41.8	0.3	12.6	78.8
	@ Blow#	2	6	2	8	2

Total number of blows analyzed: 8

Time Summary

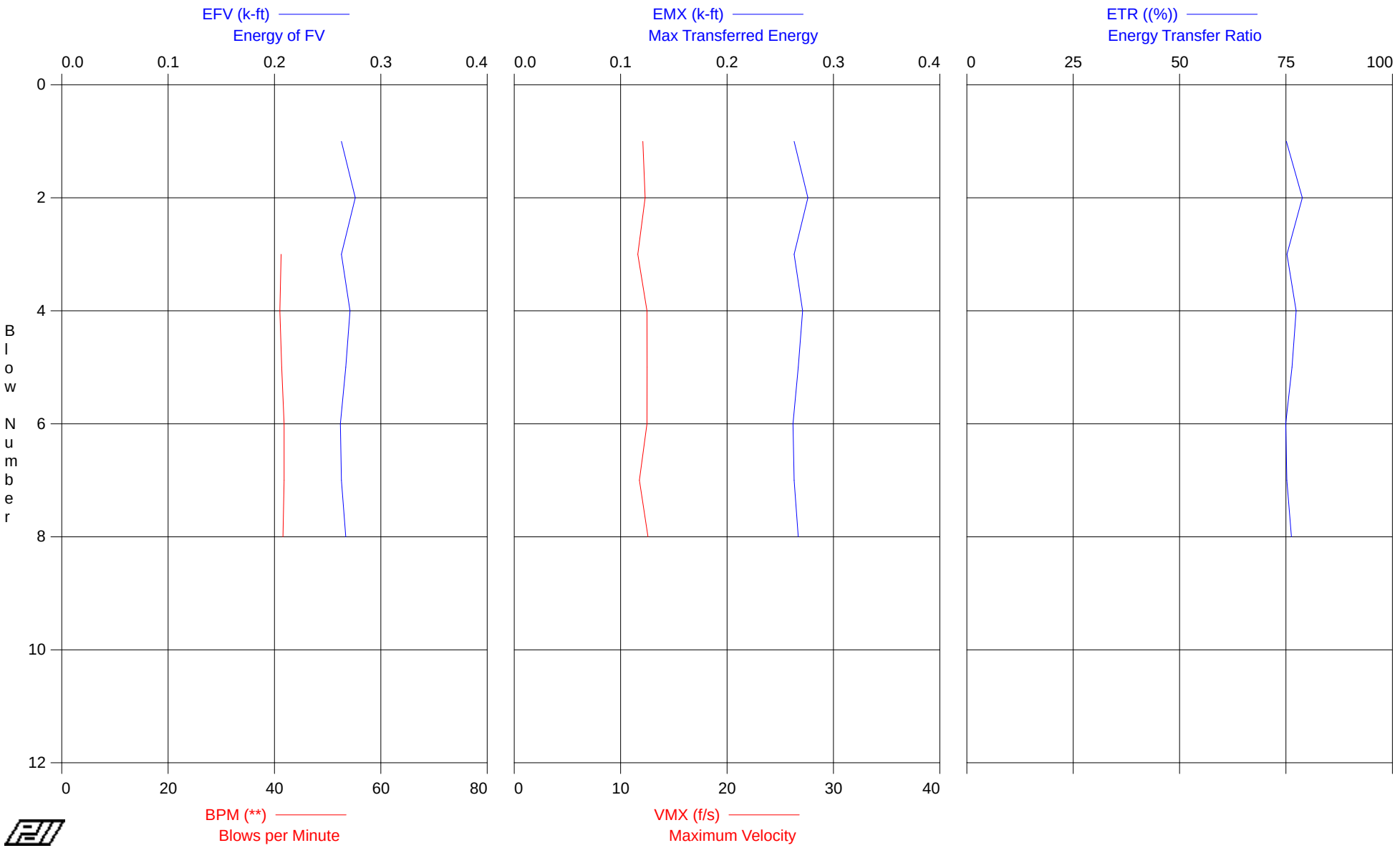
Drive 14 seconds 9:03:56 PM - 9:04:10 PM (9/18/2014) BN 1 - 8

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-005 @ 11ft



D26 - OUE-GT-005 @ 13.5ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 20.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
1	0.00	0.3	0.0	0.3	12.3	78.1
2	0.00	0.3	20.3	0.3	11.9	78.6
3	0.00	0.3	41.3	0.3	12.4	79.8
4	0.00	0.3	41.6	0.3	12.6	76.3
5	0.00	0.3	41.8	0.3	11.8	78.8
6	0.00	0.3	41.6	0.3	12.5	79.1
7	0.00	0.3	42.1	0.3	11.6	77.9
8	0.00	0.3	41.8	0.3	12.7	78.2
9	0.00	0.3	41.8	0.3	11.6	79.5
10	0.00	0.3	42.2	0.3	12.8	78.0
11	0.00	0.3	41.8	0.3	12.6	78.2
12	0.00	0.3	42.1	0.3	11.7	79.1
13	0.00	0.3	42.1	0.3	11.8	76.9
	Average	0.3	40.0	0.3	12.2	78.4
	Std. Dev.	0.0	6.0	0.0	0.4	0.9
	Maximum	0.3	42.2	0.3	12.8	79.8
	@ Blow#	3	10	3	10	3

Total number of blows analyzed: 13

Time Summary

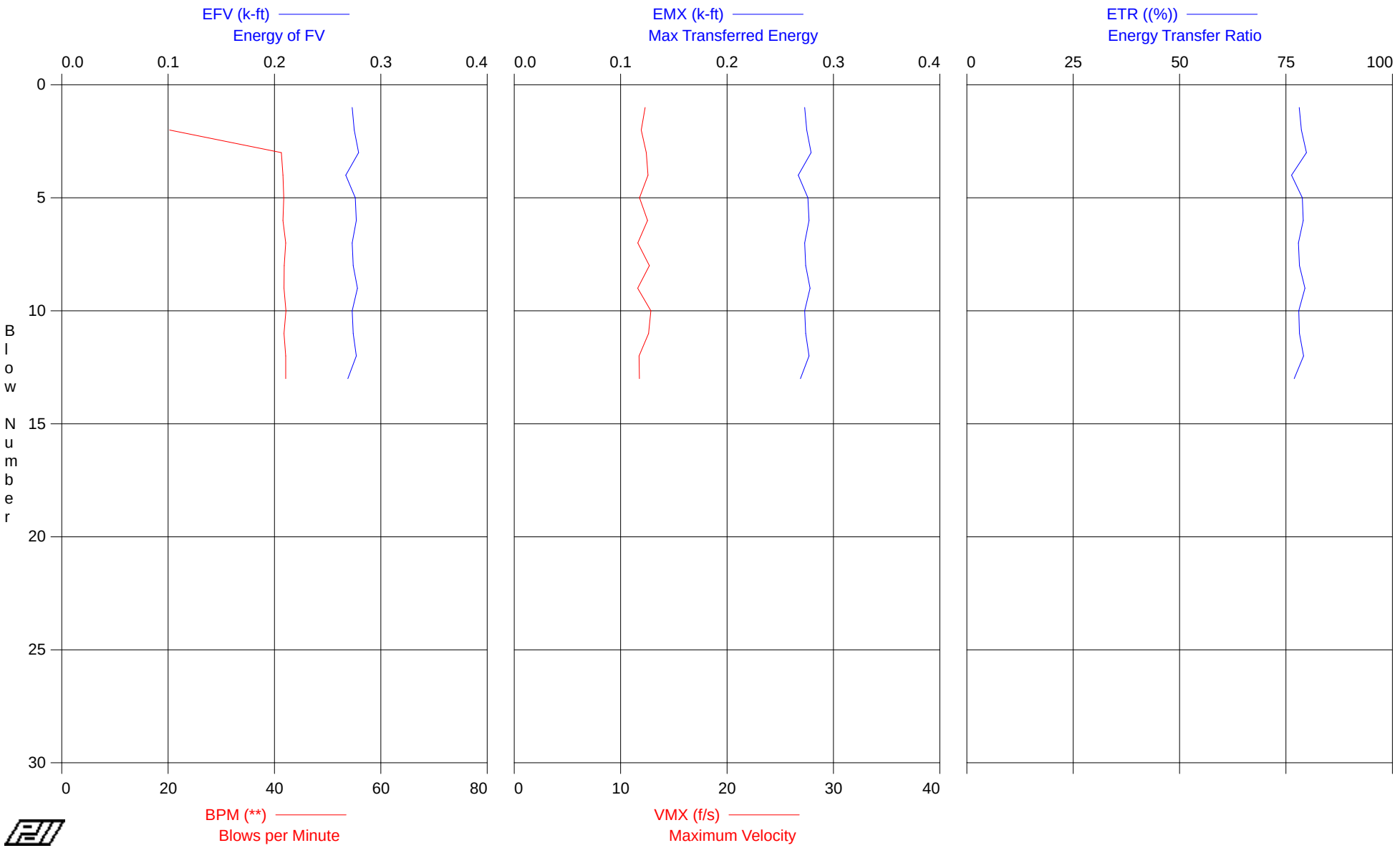
Drive 19 seconds 9:16:33 PM - 9:16:52 PM (9/18/2014) BN 1 - 13

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-005 @ 13.5ft



D26 - OUE-GT-005 @ 16ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 22.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
1	0.00	0.3	0.0	0.3	14.7	79.5
2	0.00	0.3	20.0	0.3	14.4	82.0
	Average	0.3	20.0	0.3	14.6	80.7
	Std. Dev.	0.0	0.0	0.0	0.1	1.2
	Maximum	0.3	20.0	0.3	14.7	82.0
	@ Blow#	2	2	2	1	2

Total number of blows analyzed: 2

Time Summary

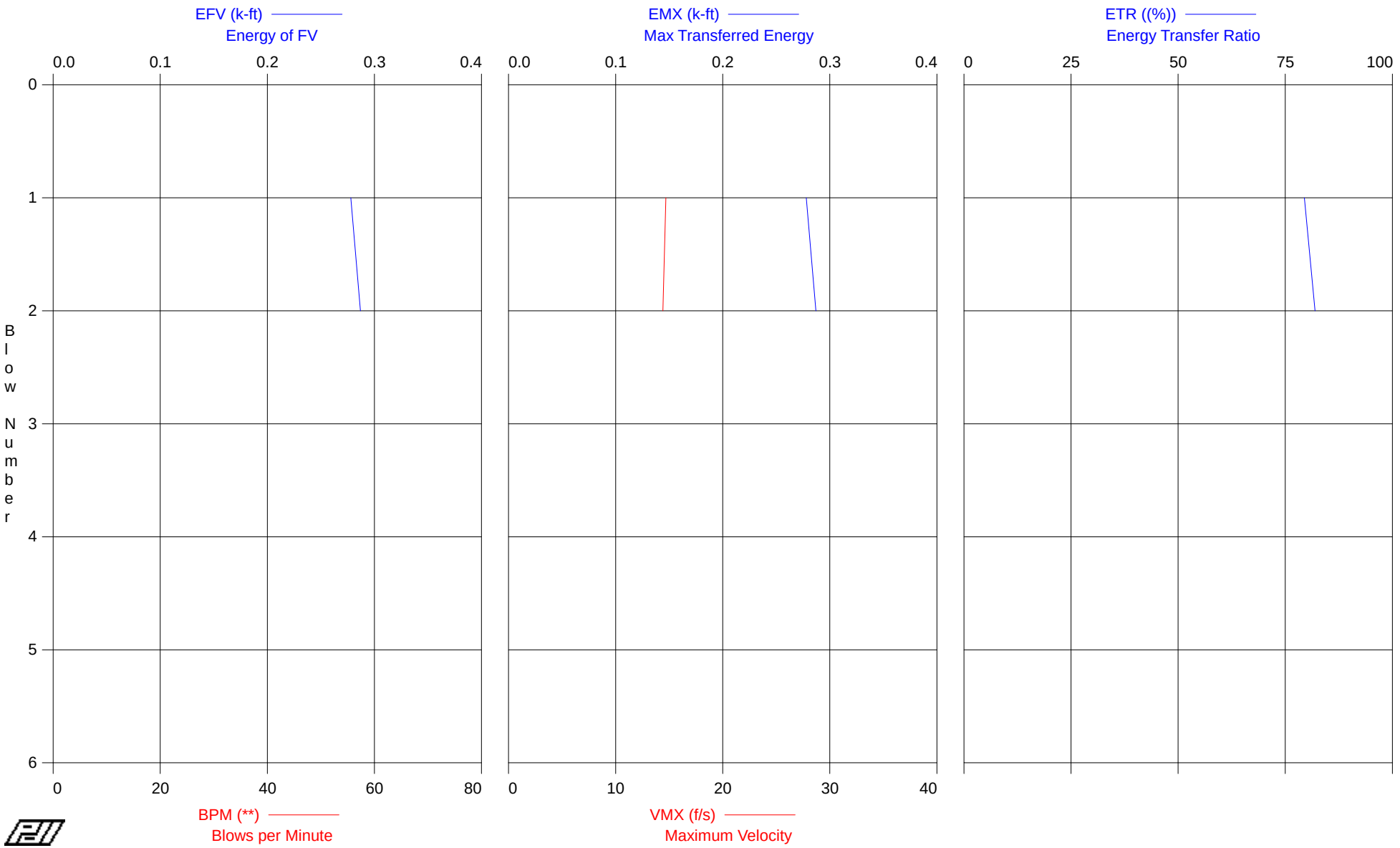
Drive 3 seconds 9:29:46 PM - 9:29:49 PM (9/18/2014) BN 1 - 2

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-005 @ 16ft



D26 - OUE-GT-005 @ 18.5ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 25.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
1	0.00	0.3	0.0	0.3	12.4	79.3
2	0.00	0.3	22.3	0.3	12.0	81.3
3	0.00	0.3	41.0	0.3	11.9	80.7
4	0.00	0.3	41.1	0.3	12.3	79.5
5	0.00	0.3	41.6	0.3	12.4	80.1
6	0.00	0.3	41.9	0.3	11.4	80.9
7	0.00	0.3	42.0	0.3	12.4	78.6
8	0.00	0.3	41.9	0.3	12.7	80.3
9	0.00	0.3	41.9	0.3	12.5	80.3
10	0.00	0.3	41.9	0.3	12.9	81.9
11	0.00	0.3	42.1	0.3	12.1	80.7
12	0.00	0.3	42.1	0.3	12.5	81.2
13	0.00	0.3	41.9	0.3	12.4	81.3
14	0.00	0.3	42.0	0.3	12.6	80.7
15	0.00	0.3	42.2	0.3	12.4	79.0
16	0.00	0.3	42.0	0.3	11.5	79.3
17	0.00	0.3	42.1	0.3	11.5	79.7
18	0.00	0.3	42.2	0.3	12.2	79.4
19	0.00	0.3	42.1	0.3	12.2	79.4
20	0.00	0.3	42.0	0.3	11.7	81.3
21	0.00	0.3	42.3	0.3	11.8	80.7
22	0.00	0.3	42.2	0.3	12.6	80.9
23	0.00	0.3	42.1	0.3	11.9	81.6
24	0.00	0.3	42.1	0.3	11.9	79.6
25	0.00	0.3	42.3	0.3	11.6	80.4
26	0.00	0.3	42.1	0.3	11.4	80.0
27	0.00	0.3	42.2	0.3	12.3	81.7
28	0.00	0.3	42.0	0.3	11.9	81.7
29	0.00	0.3	42.3	0.3	12.1	81.7
30	0.00	0.3	42.3	0.3	12.4	80.9
31	0.00	0.3	42.2	0.3	12.5	81.1
32	0.00	0.3	42.1	0.3	12.4	81.2
33	0.00	0.3	42.2	0.3	12.3	80.7
34	0.00	0.3	42.3	0.3	12.1	80.5
35	0.00	0.3	42.2	0.3	12.0	80.6
36	0.00	0.3	42.1	0.3	12.1	80.6
37	0.00	0.3	42.4	0.3	12.6	80.1
38	0.00	0.3	42.3	0.3	12.2	79.4
39	0.00	0.3	42.0	0.3	12.4	81.0
40	0.00	0.3	42.5	0.3	11.8	81.7
41	0.00	0.3	42.0	0.3	11.8	80.6
42	0.00	0.3	42.3	0.3	11.9	80.9
43	0.00	0.3	42.3	0.3	12.1	80.1
44	0.00	0.3	42.1	0.3	12.1	80.2
45	0.00	0.3	42.4	0.3	12.0	81.8
46	0.00	0.3	42.3	0.3	11.9	80.0
47	0.00	0.3	42.1	0.3	12.8	81.8
48	0.00	0.3	42.4	0.3	12.4	80.6
49	0.00	0.3	42.3	0.3	13.2	81.7
50	0.00	0.3	42.1	0.3	11.6	81.6
51	0.00	0.3	42.4	0.3	12.0	79.6
52	0.00	0.3	42.3	0.3	12.4	81.1
53	0.00	0.3	42.1	0.3	12.3	82.0
54	0.00	0.3	42.4	0.3	12.4	80.9
55	0.00	0.3	42.4	0.3	11.9	80.8
56	0.00	0.3	42.2	0.3	12.1	82.2
57	0.00	0.3	42.3	0.3	11.8	79.5
58	0.00	0.3	42.4	0.3	11.5	77.9
59	0.00	0.3	42.1	0.3	13.2	82.0
60	0.00	0.3	42.3	0.3	11.9	80.5
61	0.00	0.3	42.4	0.3	11.9	81.3
62	0.00	0.3	42.2	0.3	12.3	79.8
63	0.00	0.3	42.3	0.3	12.1	80.7
64	0.00	0.3	42.4	0.3	11.7	80.7
65	0.00	0.3	42.4	0.3	12.0	79.6
66	0.00	0.3	42.2	0.3	12.4	80.2
67	0.00	0.3	42.3	0.3	12.0	80.9

D26 - OUE-GT-005 @ 18.5ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
68	0.00	0.3	42.5	0.3	12.0	80.2
69	0.00	0.3	42.2	0.3	11.7	81.5
70	0.00	0.3	42.4	0.3	12.2	77.8
71	0.00	0.3	42.3	0.3	11.7	80.5
72	0.00	0.3	42.3	0.3	11.7	80.7
73	0.00	0.3	42.3	0.3	11.5	80.8
74	0.00	0.3	42.4	0.3	11.9	81.2
75	0.00	0.3	42.3	0.3	11.9	81.7
76	0.00	0.3	42.2	0.3	12.2	80.6
77	0.00	0.3	42.4	0.3	11.8	78.3
78	0.00	0.3	42.1	0.3	12.1	81.3
79	0.00	0.3	42.4	0.3	13.0	80.8
80	0.00	0.3	42.4	0.3	12.3	80.5
	Average	0.3	41.9	0.3	12.1	80.6
	Std. Dev.	0.0	2.2	0.0	0.4	0.9
	Maximum	0.3	42.5	0.3	13.2	82.2
	@ Blow#	56	40	56	49	56

Total number of blows analyzed: 80

Time Summary

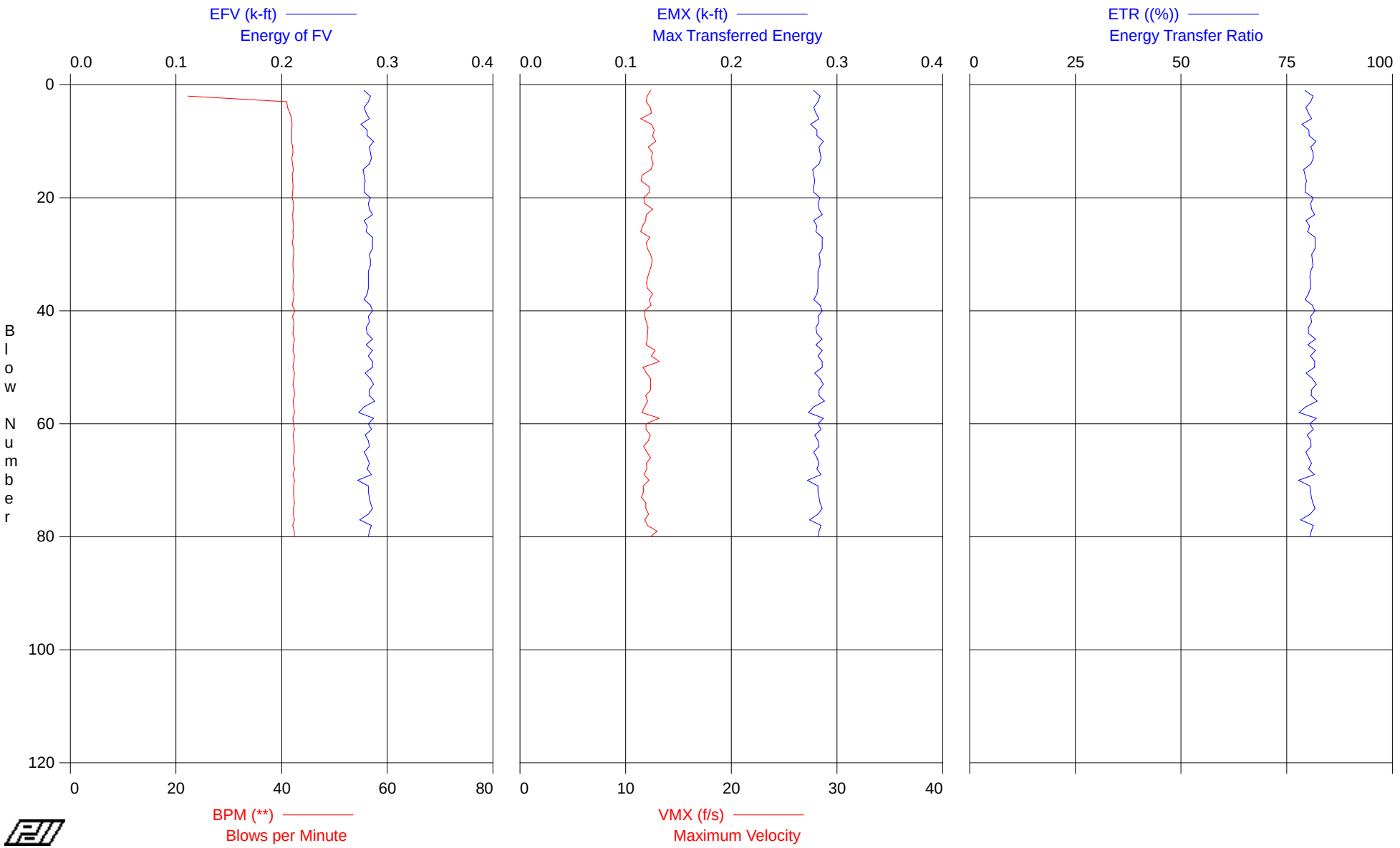
Drive 1 minute 54 seconds 9:46:27 PM - 9:48:21 PM (9/18/2014) BN 1 - 80

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-005 @ 18.5ft



D26 - OUE-GT-008 @ 12.5ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 17.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
3	0.00	0.3	0.0	0.3	11.8	73.9
4	0.00	0.3	0.0	0.3	11.4	71.7
5	0.00	0.3	40.5	0.3	12.0	74.1
6	0.00	0.3	40.2	0.3	11.7	71.6
7	0.00	0.3	41.0	0.3	12.7	73.3
8	0.00	0.2	41.2	0.2	10.8	68.9
9	0.00	0.3	38.4	0.3	11.4	73.0
	Average	0.3	40.3	0.3	11.7	72.4
	Std. Dev.	0.0	1.0	0.0	0.5	1.7
	Maximum	0.3	41.2	0.3	12.7	74.1
	@ Blow#	3	8	3	7	5

Total number of blows analyzed: 7

Time Summary

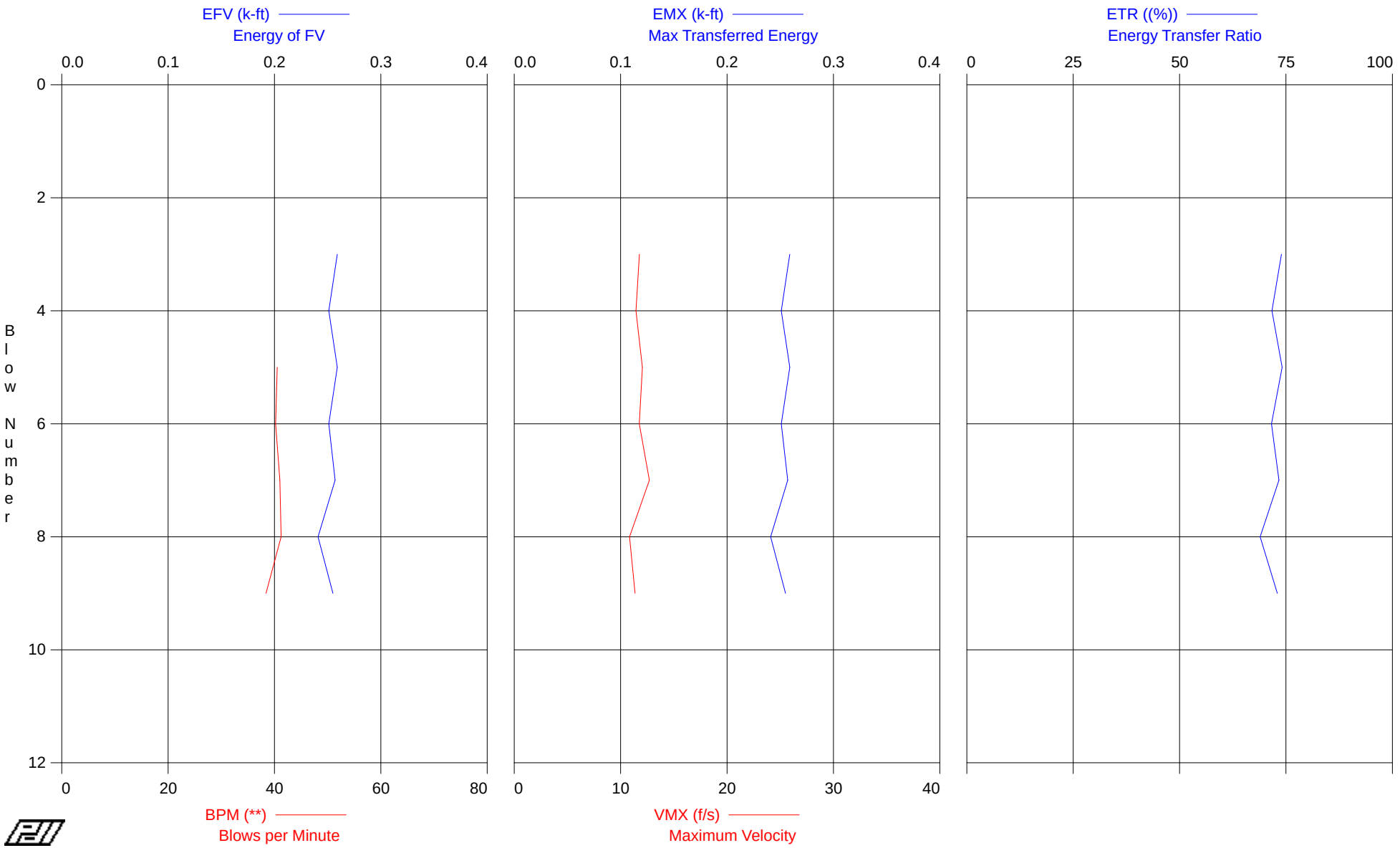
Drive 12 seconds 6:24:29 PM - 6:24:41 PM (9/18/2014) BN 3 - 9

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-008 @ 12.5ft



D26 - OUE-GT-008 @ 15ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 20.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
2	0.00	0.3	0.0	0.3	11.8	72.6
3	0.00	0.3	0.0	0.3	12.7	74.8
	Average	0.3	**	0.3	12.3	73.7
	Std. Dev.	0.0	**	0.0	0.5	1.1
	Maximum	0.3	**	0.3	12.7	74.8
	@ Blow#	3	**	3	3	3

Total number of blows analyzed: 2

Time Summary

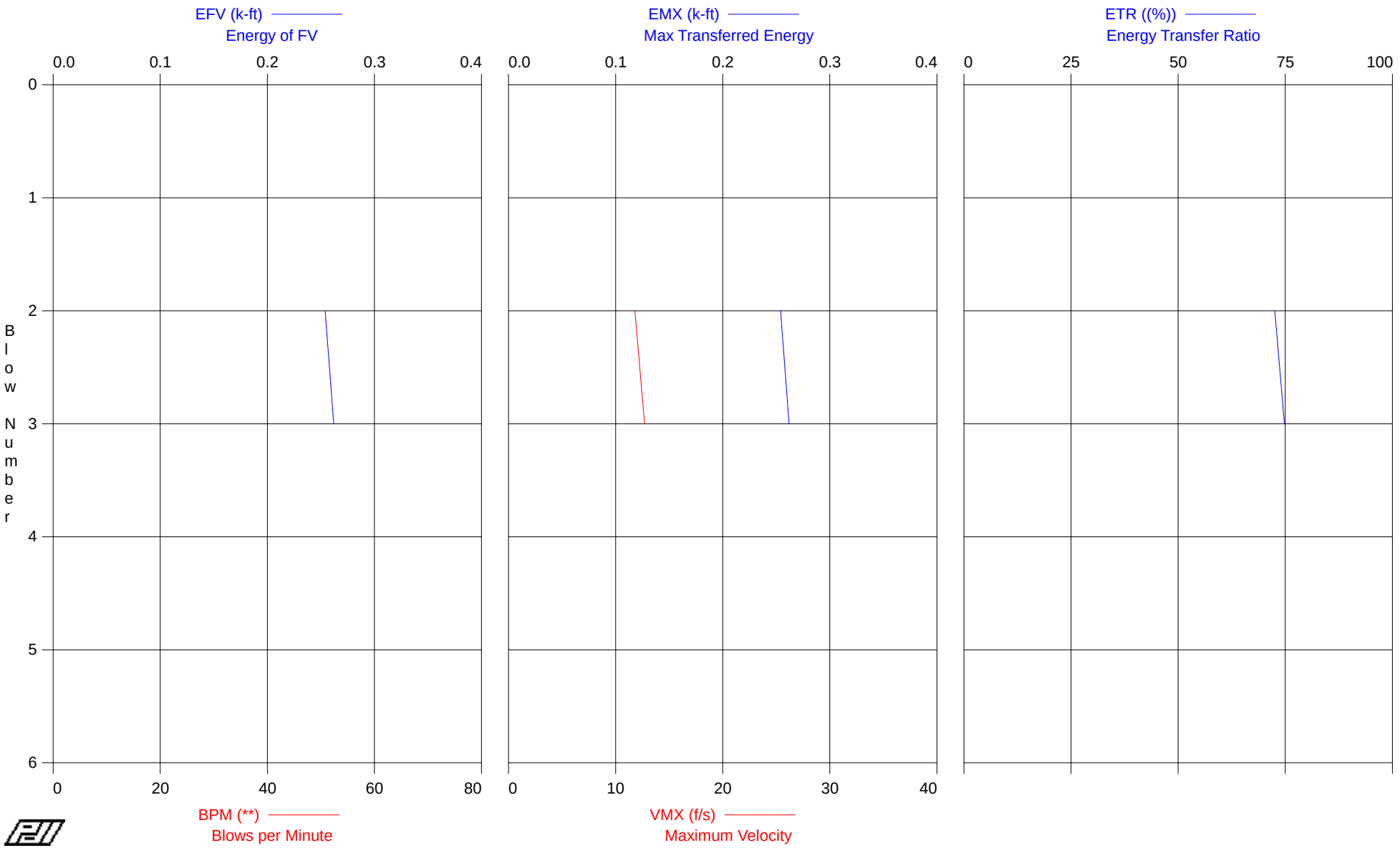
Drive 5 seconds 6:36:49 PM - 6:36:54 PM (9/18/2014) BN 2 - 3

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-008 @ 15ft



D26 - OUE-GT-008 @ 17.5ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 22.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
1	0.00	0.3	0.0	0.3	11.9	75.2
2	0.00	0.3	0.0	0.3	12.2	76.1
3	0.00	0.3	40.8	0.3	13.0	76.1
4	0.00	0.3	40.7	0.3	12.4	74.7
5	0.00	0.3	41.0	0.3	11.9	75.2
6	0.00	0.3	41.4	0.3	12.7	75.4
7	0.00	0.3	41.5	0.3	12.6	78.4
8	0.00	0.3	41.1	0.3	12.4	75.6
9	0.00	0.3	41.7	0.3	11.9	79.3
10	0.00	0.3	41.6	0.3	11.8	76.3
11	0.00	0.3	41.5	0.3	11.6	76.4
12	0.00	0.3	41.3	0.3	12.6	74.9
13	0.00	0.3	41.7	0.3	12.0	75.0
14	0.00	0.3	41.7	0.3	12.8	76.3
15	0.00	0.3	41.4	0.3	13.0	75.6
16	0.00	0.3	41.6	0.3	12.5	75.3
17	0.00	0.3	41.8	0.3	12.4	75.4
18	0.00	0.3	41.4	0.3	12.2	75.9
19	0.00	0.3	41.5	0.3	12.0	74.6
20	0.00	0.3	41.9	0.3	12.5	74.2
21	0.00	0.3	41.5	0.3	12.6	75.4
22	0.00	0.3	41.4	0.3	12.6	73.9
23	0.00	0.3	41.7	0.3	12.6	73.4
24	0.00	0.3	41.8	0.3	12.9	73.0
25	0.00	0.3	41.5	0.3	12.9	76.2
26	0.00	0.3	41.4	0.3	13.2	76.8
27	0.00	0.3	41.8	0.3	13.4	74.7
28	0.00	0.3	41.7	0.3	12.6	75.0
29	0.00	0.3	41.6	0.3	12.2	71.6
30	0.00	0.3	41.4	0.3	11.5	73.7
31	0.00	0.3	41.8	0.3	11.7	74.9
32	0.00	0.3	41.7	0.3	11.9	73.7
33	0.00	0.3	41.4	0.3	12.1	74.2
34	0.00	0.3	41.8	0.3	13.1	75.0
35	0.00	0.3	41.7	0.3	12.9	78.6
36	0.00	0.3	41.4	0.3	13.1	74.4
37	0.00	0.3	41.8	0.3	12.4	72.8
38	0.00	0.3	41.7	0.3	12.6	75.0
39	0.00	0.3	41.5	0.3	12.9	73.9
40	0.00	0.3	41.8	0.3	13.3	75.0
41	0.00	0.3	41.8	0.3	11.4	74.1
42	0.00	0.3	41.4	0.3	12.2	76.1
43	0.00	0.3	41.8	0.3	12.0	73.5
44	0.00	0.3	41.8	0.3	12.4	73.7
45	0.00	0.3	41.5	0.3	12.8	75.1
46	0.00	0.3	41.7	0.3	12.3	73.2
47	0.00	0.3	41.8	0.3	12.7	72.5
48	0.00	0.3	41.6	0.3	12.3	74.8
49	0.00	0.3	41.6	0.3	12.3	73.8
50	0.00	0.3	41.8	0.3	12.5	73.0
51	0.00	0.3	41.5	0.3	11.6	73.8
52	0.00	0.3	41.6	0.3	12.4	74.3
53	0.00	0.3	41.8	0.3	12.7	76.7
54	0.00	0.3	41.6	0.3	12.6	74.2
55	0.00	0.3	41.6	0.3	12.1	73.8
56	0.00	0.3	41.9	0.3	12.5	73.3
57	0.00	0.3	41.6	0.3	11.8	75.5
58	0.00	0.3	41.6	0.3	12.1	73.8
59	0.00	0.3	42.0	0.3	12.0	75.0
60	0.00	0.3	41.6	0.3	12.3	75.1
61	0.00	0.3	41.6	0.3	12.6	73.0
62	0.00	0.3	41.9	0.3	12.3	74.0
63	0.00	0.3	41.6	0.3	13.0	76.4
64	0.00	0.3	41.6	0.3	12.8	76.0
65	0.00	0.3	41.9	0.3	11.9	72.0
66	0.00	0.3	41.6	0.3	12.0	73.3
67	0.00	0.3	41.6	0.3	12.6	72.1

D26 - OUE-GT-008 @ 17.5ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
68	0.00	0.3	41.9	0.3	11.9	72.3
69	0.00	0.3	41.5	0.3	12.5	75.1
70	0.00	0.3	41.7	0.3	12.4	73.0
71	0.00	0.3	41.9	0.3	12.9	74.2
72	0.00	0.3	41.4	0.3	12.9	75.6
73	0.00	0.3	41.8	0.3	11.9	79.0
74	0.00	0.3	41.8	0.3	12.5	75.5
75	0.00	0.3	41.5	0.3	12.4	73.4
76	0.00	0.3	41.8	0.3	12.9	73.7
77	0.00	0.3	41.8	0.3	13.1	74.0
78	0.00	0.3	41.5	0.3	12.8	78.3
79	0.00	0.3	41.8	0.3	12.1	76.6
80	0.00	0.3	41.9	0.3	11.8	76.8
81	0.00	0.3	41.5	0.3	12.6	77.7
82	0.00	0.3	41.9	0.3	12.9	76.4
83	0.00	0.3	41.8	0.3	12.5	76.1
84	0.00	0.3	41.6	0.3	13.1	75.3
85	0.00	0.3	41.6	0.3	11.6	76.8
86	0.00	0.3	41.9	0.3	12.4	78.3
87	0.00	0.3	41.7	0.3	12.0	76.7
88	0.00	0.3	41.5	0.3	11.4	78.5
89	0.00	0.3	41.9	0.3	12.5	77.1
90	0.00	0.3	41.7	0.3	13.0	76.7
91	0.00	0.3	41.6	0.3	13.0	78.3
92	0.00	0.3	41.9	0.3	13.1	77.5
93	0.00	0.3	41.6	0.3	12.6	78.5
94	0.00	0.3	41.7	0.3	12.9	77.2
95	0.00	0.3	41.9	0.3	12.9	79.4
96	0.00	0.3	41.6	0.3	12.6	76.4
97	0.00	0.3	41.6	0.3	12.9	76.3
98	0.00	0.3	41.9	0.3	12.7	80.0
99	0.00	0.3	41.6	0.3	11.8	76.7
	Average	0.3	41.6	0.3	12.4	75.3
	Std. Dev.	0.0	0.2	0.0	0.5	1.8
	Maximum	0.3	42.0	0.3	13.4	80.0
	@ Blow#	98	59	98	27	98

Total number of blows analyzed: 99

Time Summary

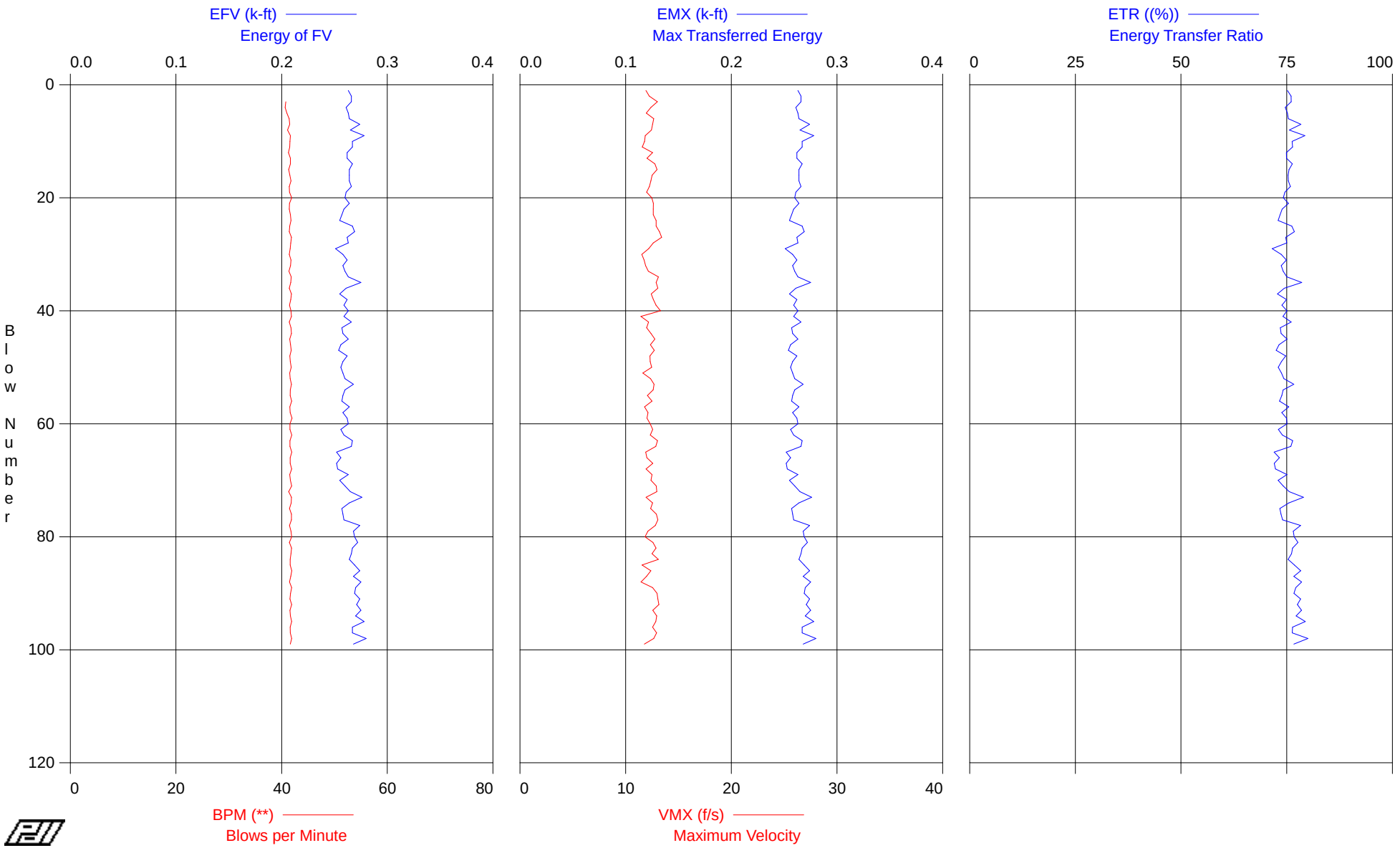
Drive 2 minutes 24 seconds 6:53:50 PM - 6:56:14 PM (9/18/2014) BN 1 - 99

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-008 @ 17.5ft



D26 - OUE-GT-008 @ 20ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 25.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
1	0.00	0.3	0.0	0.3	11.1	79.2
2	0.00	0.3	0.0	0.3	10.9	77.9
3	0.00	0.3	41.0	0.3	11.3	80.1
4	0.00	0.3	40.8	0.3	11.6	78.4
5	0.00	0.3	41.3	0.3	11.7	74.8
6	0.00	0.3	41.2	0.3	12.0	75.7
7	0.00	0.3	41.4	0.3	10.9	79.1
8	0.00	0.3	41.7	0.3	11.1	77.6
9	0.00	0.3	41.5	0.3	11.1	77.9
10	0.00	0.3	41.5	0.3	11.5	78.8
11	0.00	0.3	41.5	0.3	11.6	79.0
12	0.00	0.3	41.8	0.3	11.3	77.9
13	0.00	0.3	41.6	0.3	11.4	77.8
14	0.00	0.3	41.6	0.3	11.2	78.4
15	0.00	0.3	41.5	0.3	11.6	78.9
16	0.00	0.3	41.8	0.3	11.2	77.0
17	0.00	0.3	41.7	0.3	11.7	77.8
18	0.00	0.3	41.7	0.3	11.4	78.9
19	0.00	0.3	41.6	0.3	11.4	78.9
20	0.00	0.3	41.7	0.3	11.5	78.0
21	0.00	0.3	41.7	0.3	11.3	78.3
22	0.00	0.3	41.8	0.3	11.7	78.8
23	0.00	0.3	41.8	0.3	11.8	77.3
24	0.00	0.3	41.7	0.3	12.6	78.2
25	0.00	0.3	41.7	0.3	11.9	78.8
26	0.00	0.3	41.8	0.3	11.1	78.2
27	0.00	0.3	41.9	0.3	12.1	77.8
28	0.00	0.3	41.8	0.3	11.5	78.2
29	0.00	0.3	41.6	0.3	11.5	78.9
30	0.00	0.3	41.8	0.3	11.8	78.4
31	0.00	0.3	41.9	0.3	11.9	77.9
32	0.00	0.3	41.8	0.3	11.4	78.8
33	0.00	0.3	41.6	0.3	11.6	78.6
34	0.00	0.3	41.6	0.3	11.3	80.1
35	0.00	0.3	41.9	0.3	11.7	79.7
36	0.00	0.3	41.8	0.3	11.4	78.8
37	0.00	0.3	41.7	0.3	11.7	79.5
38	0.00	0.3	41.7	0.3	11.5	78.6
39	0.00	0.3	41.9	0.3	12.6	77.5
40	0.00	0.3	41.8	0.3	11.9	78.1
41	0.00	0.3	41.8	0.3	12.0	78.2
42	0.00	0.3	41.8	0.3	11.5	77.5
43	0.00	0.3	41.5	0.3	11.7	78.5
44	0.00	0.3	41.8	0.3	11.6	79.5
45	0.00	0.3	41.9	0.3	11.4	77.5
46	0.00	0.3	41.9	0.3	12.2	78.8
47	0.00	0.3	41.8	0.3	11.7	79.2
48	0.00	0.3	41.7	0.3	12.0	78.9
49	0.00	0.3	41.8	0.3	11.5	78.8
50	0.00	0.3	42.0	0.3	11.9	79.2
51	0.00	0.3	41.8	0.3	11.9	77.8
52	0.00	0.3	41.8	0.3	11.7	78.5
53	0.00	0.3	41.7	0.3	11.5	78.5
54	0.00	0.3	41.8	0.3	12.3	78.6
55	0.00	0.3	42.0	0.3	11.3	76.0
56	0.00	0.3	41.7	0.3	11.8	78.4
57	0.00	0.3	41.7	0.3	11.8	79.0
58	0.00	0.3	41.8	0.3	12.4	79.7
59	0.00	0.3	42.0	0.3	11.8	79.4
60	0.00	0.3	41.9	0.3	11.6	79.2
61	0.00	0.3	41.8	0.3	12.2	80.1
62	0.00	0.3	41.7	0.3	12.2	79.6
63	0.00	0.3	41.8	0.3	12.5	80.0
64	0.00	0.3	41.9	0.3	12.0	79.4
65	0.00	0.3	42.0	0.3	12.9	78.0
66	0.00	0.3	41.8	0.3	12.2	80.2

D26 - OUE-GT-008 @ 20ft
OP: JGUEVARA
140LB AUTO HAMMER
Test date: 18-Sep-2014

	EFV	BPM	EMX	VMX	ETR
	k-ft	**	k-ft	f/s	(%)
Average	0.3	41.7	0.3	11.7	78.5
Std. Dev.	0.0	0.2	0.0	0.4	1.0
Maximum	0.3	42.0	0.3	12.9	80.2
@ Blow#	66	55	66	65	66

Total number of blows analyzed: 66

Time Summary

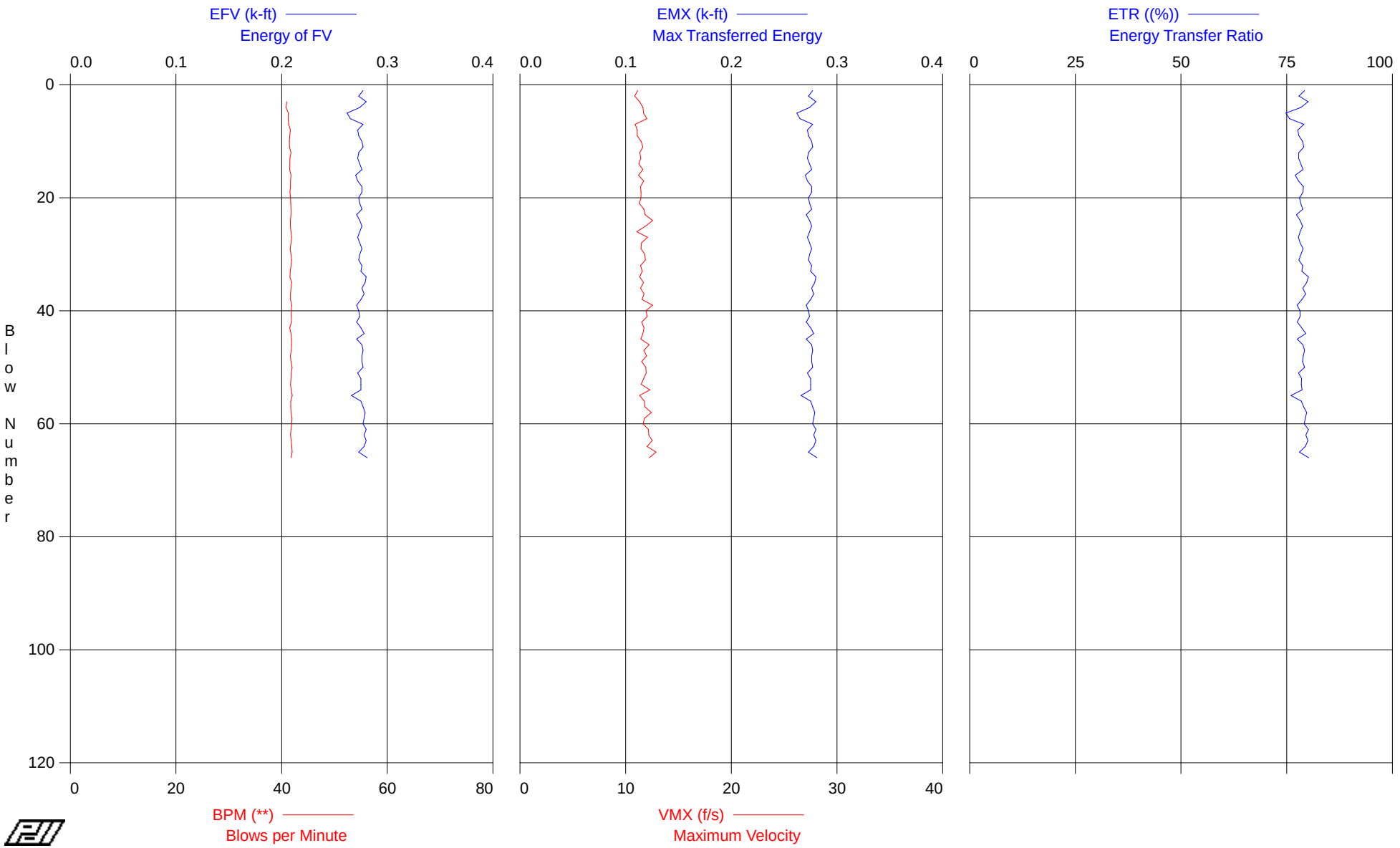
Drive	1 minute 37 seconds	7:15:38 PM - 7:17:15 PM (9/18/2014) BN 1 - 66

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-008 @ 20ft



D26 - OUE-GT-008 @ 22.5ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 27.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
6	0.00	0.3	22.4	0.3	12.2	78.9
7	0.00	0.3	0.0	0.3	12.1	82.1
8	0.00	0.3	41.7	0.3	11.8	80.9
9	0.00	0.3	41.6	0.3	12.3	81.2
10	0.00	0.3	41.8	0.3	11.9	80.5
11	0.00	0.3	42.0	0.3	12.1	80.6
12	0.00	0.3	41.9	0.3	11.8	81.1
13	0.00	0.3	41.9	0.3	12.1	80.8
14	0.00	0.3	42.1	0.3	11.9	80.2
15	0.00	0.3	42.2	0.3	12.2	79.9
16	0.00	0.3	42.1	0.3	11.8	80.1
17	0.00	0.3	42.0	0.3	11.9	81.0
18	0.00	0.3	42.0	0.3	12.1	80.3
19	0.00	0.3	42.2	0.3	12.6	80.5
20	0.00	0.3	42.2	0.3	12.7	80.7
21	0.00	0.3	42.1	0.3	11.7	82.7
22	0.00	0.3	42.1	0.3	11.8	81.1
23	0.00	0.3	42.3	0.3	11.9	80.8
24	0.00	0.3	42.0	0.3	12.1	81.2
25	0.00	0.3	42.2	0.3	12.4	79.4
26	0.00	0.3	42.3	0.3	12.2	81.2
27	0.00	0.3	42.1	0.3	11.4	81.6
28	0.00	0.3	42.1	0.3	12.1	84.3
29	0.00	0.3	42.4	0.3	12.1	80.3
30	0.00	0.3	42.1	0.3	12.1	79.9
31	0.00	0.3	42.0	0.3	11.5	79.8
32	0.00	0.3	42.5	0.3	12.0	78.9
33	0.00	0.3	42.0	0.3	12.1	82.3
34	0.00	0.3	42.2	0.3	12.3	80.5
35	0.00	0.3	42.4	0.3	12.2	78.0
36	0.00	0.3	42.1	0.3	12.0	81.5
37	0.00	0.3	42.1	0.3	12.2	81.4
38	0.00	0.3	42.4	0.3	12.2	78.4
39	0.00	0.3	42.2	0.3	12.8	79.8
40	0.00	0.3	42.1	0.3	12.6	80.7
41	0.00	0.3	42.3	0.3	12.0	79.0
42	0.00	0.3	42.2	0.3	12.4	80.9
43	0.00	0.3	42.2	0.3	12.8	79.9
44	0.00	0.3	42.4	0.3	11.8	79.0
45	0.00	0.3	42.3	0.3	11.8	79.5
46	0.00	0.3	42.1	0.3	12.2	79.3
47	0.00	0.3	42.3	0.3	12.4	78.8
48	0.00	0.3	42.3	0.3	11.6	78.9
49	0.00	0.3	42.1	0.3	11.3	82.1
50	0.00	0.3	42.3	0.3	12.1	80.6
51	0.00	0.3	42.4	0.3	12.2	81.1
52	0.00	0.3	42.1	0.3	11.4	80.6
53	0.00	0.3	42.3	0.3	11.4	79.6
54	0.00	0.3	42.5	0.3	11.5	80.9
55	0.00	0.3	42.2	0.3	12.1	80.7
56	0.00	0.3	42.2	0.3	11.7	81.2
57	0.00	0.3	42.4	0.3	11.4	79.6
58	0.00	0.3	42.2	0.3	11.2	80.1
59	0.00	0.3	42.0	0.3	12.1	79.4
60	0.00	0.3	42.4	0.3	12.1	78.6
61	0.00	0.3	42.3	0.3	12.3	79.0
62	0.00	0.3	42.1	0.3	12.5	80.0
63	0.00	0.3	42.3	0.3	11.8	78.5
64	0.00	0.3	42.5	0.3	11.4	78.4
65	0.00	0.3	42.1	0.3	12.5	80.1
66	0.00	0.3	42.3	0.3	11.5	79.1
67	0.00	0.3	42.4	0.3	12.0	79.0
68	0.00	0.3	42.1	0.3	12.7	80.4

D26 - OUE-GT-008 @ 22.5ft
OP: JGUEVARA
140LB AUTO HAMMER
Test date: 18-Sep-2014

	EFV	BPM	EMX	VMX	ETR
	k-ft	**	k-ft	f/s	(%)
Average	0.3	41.9	0.3	12.0	80.3
Std. Dev.	0.0	2.5	0.0	0.4	1.2
Maximum	0.3	42.5	0.3	12.8	84.3
@ Blow#	28	64	28	39	28

Total number of blows analyzed: 63

Time Summary

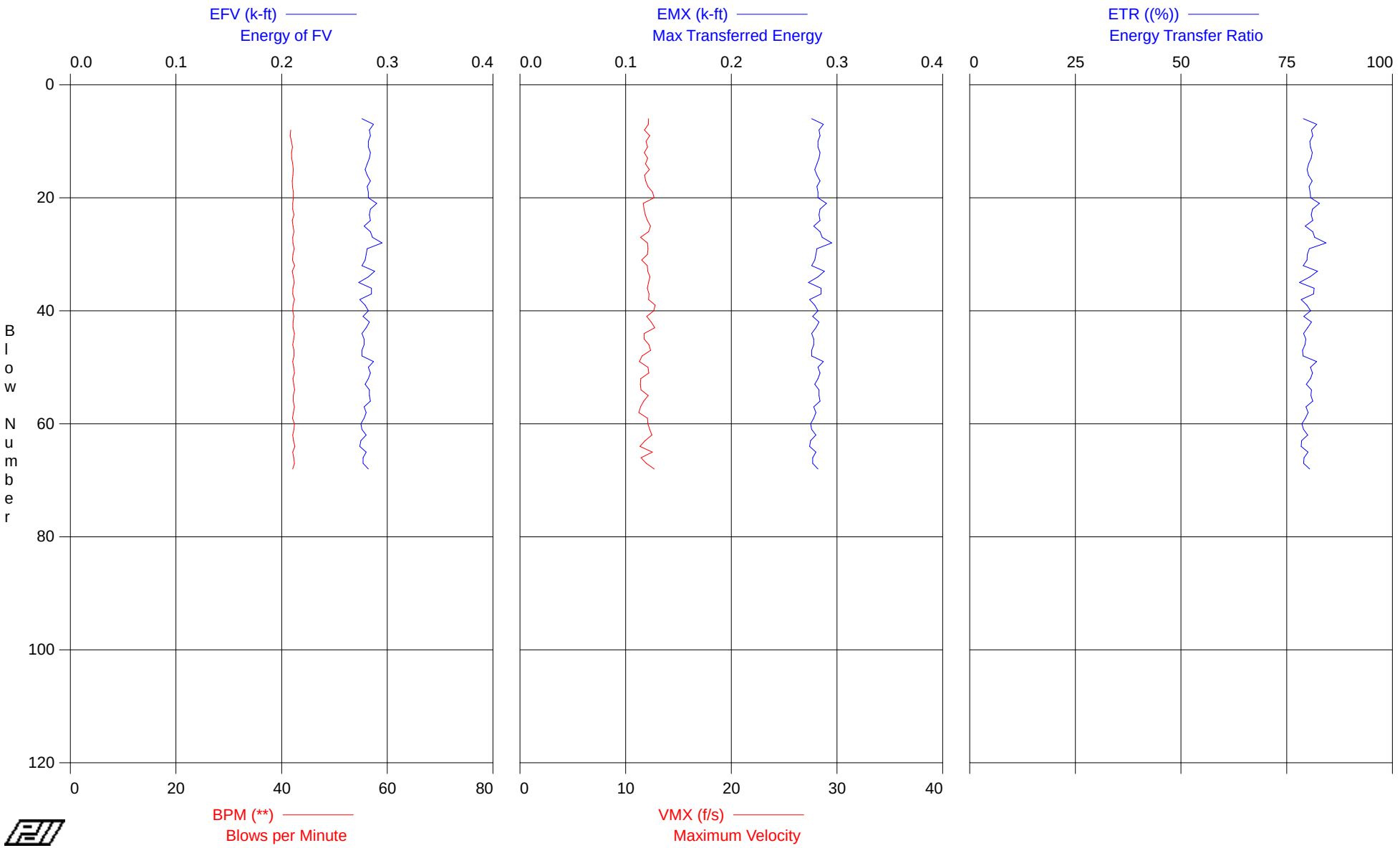
Drive	1 minute 31 seconds	7:28:32 PM - 7:30:03 PM (9/18/2014) BN 6 - 68

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-008 @ 22.5ft



D26 - OUE-GT-008 @ 25ft
OP: JGUEVARA

140LB AUTO HAMMER
Test date: 18-Sep-2014

AR: 1.45 in^2
LE: 32.08 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.35

EFV: Energy of FV
BPM: Blows per Minute
EMX: Max Transferred Energy

VMX: Maximum Velocity
ETR: Energy Transfer Ratio

BL#	depth	EFV	BPM	EMX	VMX	ETR
	ft	k-ft	**	k-ft	f/s	(%)
1	0.00	0.3	0.0	0.3	11.8	74.6
2	0.00	0.3	21.5	0.3	11.5	78.7
3	0.00	0.3	41.3	0.3	12.5	76.9
4	0.00	0.3	41.3	0.3	12.0	78.6
5	0.00	0.3	41.9	0.3	12.3	76.5
6	0.00	0.3	41.9	0.3	11.9	78.1
7	0.00	0.3	41.8	0.3	11.6	78.5
8	0.00	0.3	42.2	0.3	11.9	75.6
9	0.00	0.3	41.9	0.3	11.9	77.6
10	0.00	0.3	42.0	0.3	11.0	76.2
11	0.00	0.3	42.2	0.3	11.2	77.1
12	0.00	0.3	41.9	0.3	11.2	77.4
13	0.00	0.3	42.3	0.3	11.2	76.2
14	0.00	0.3	41.9	0.3	11.7	77.4
15	0.00	0.3	42.2	0.3	12.4	76.9
16	0.00	0.3	42.1	0.3	11.7	76.1
17	0.00	0.3	42.0	0.3	11.6	77.1
18	0.00	0.3	42.1	0.3	11.7	76.4
19	0.00	0.3	42.3	0.3	12.5	76.2
20	0.00	0.3	41.9	0.3	11.4	76.4
21	0.00	0.3	42.3	0.3	11.6	76.2
22	0.00	0.3	42.0	0.3	11.8	76.6
23	0.00	0.3	42.2	0.3	11.5	78.0
24	0.00	0.3	42.3	0.3	11.0	76.0
25	0.00	0.3	42.0	0.3	11.3	78.3
26	0.00	0.3	42.2	0.3	11.8	77.1
27	0.00	0.3	42.3	0.3	12.3	75.8
28	0.00	0.3	42.0	0.3	11.4	77.5
29	0.00	0.3	42.3	0.3	12.1	76.7
30	0.00	0.3	42.1	0.3	11.7	76.6
31	0.00	0.3	42.0	0.3	12.4	76.0
32	0.00	0.3	42.4	0.3	11.7	77.5
33	0.00	0.3	42.0	0.3	11.6	75.5
34	0.00	0.3	42.3	0.3	12.0	76.3
35	0.00	0.3	42.1	0.3	12.8	72.7
36	0.00	0.3	42.1	0.3	11.9	75.7
37	0.00	0.3	42.4	0.3	12.6	75.3
38	0.00	0.3	42.0	0.3	11.8	75.7
39	0.00	0.3	42.3	0.3	12.6	77.3
40	0.00	0.3	42.2	0.3	11.4	76.5
41	0.00	0.3	42.1	0.3	11.9	76.1
42	0.00	0.3	42.0	0.3	12.2	76.0
43	0.00	0.3	42.4	0.3	11.4	75.8
44	0.00	0.3	42.0	0.3	12.2	77.8
45	0.00	0.3	42.2	0.3	12.2	75.7
46	0.00	0.3	42.4	0.3	11.3	76.1
47	0.00	0.3	42.0	0.3	11.4	77.4
48	0.00	0.3	42.2	0.3	11.6	74.9
49	0.00	0.3	42.3	0.3	11.9	75.2
50	0.00	0.3	42.1	0.3	11.7	77.6
	Average	0.3	41.7	0.3	11.8	76.6
	Std. Dev.	0.0	2.9	0.0	0.4	1.1
	Maximum	0.3	42.4	0.3	12.8	78.7
	@ Blow#	2	32	2	35	2

Total number of blows analyzed: 50

Time Summary

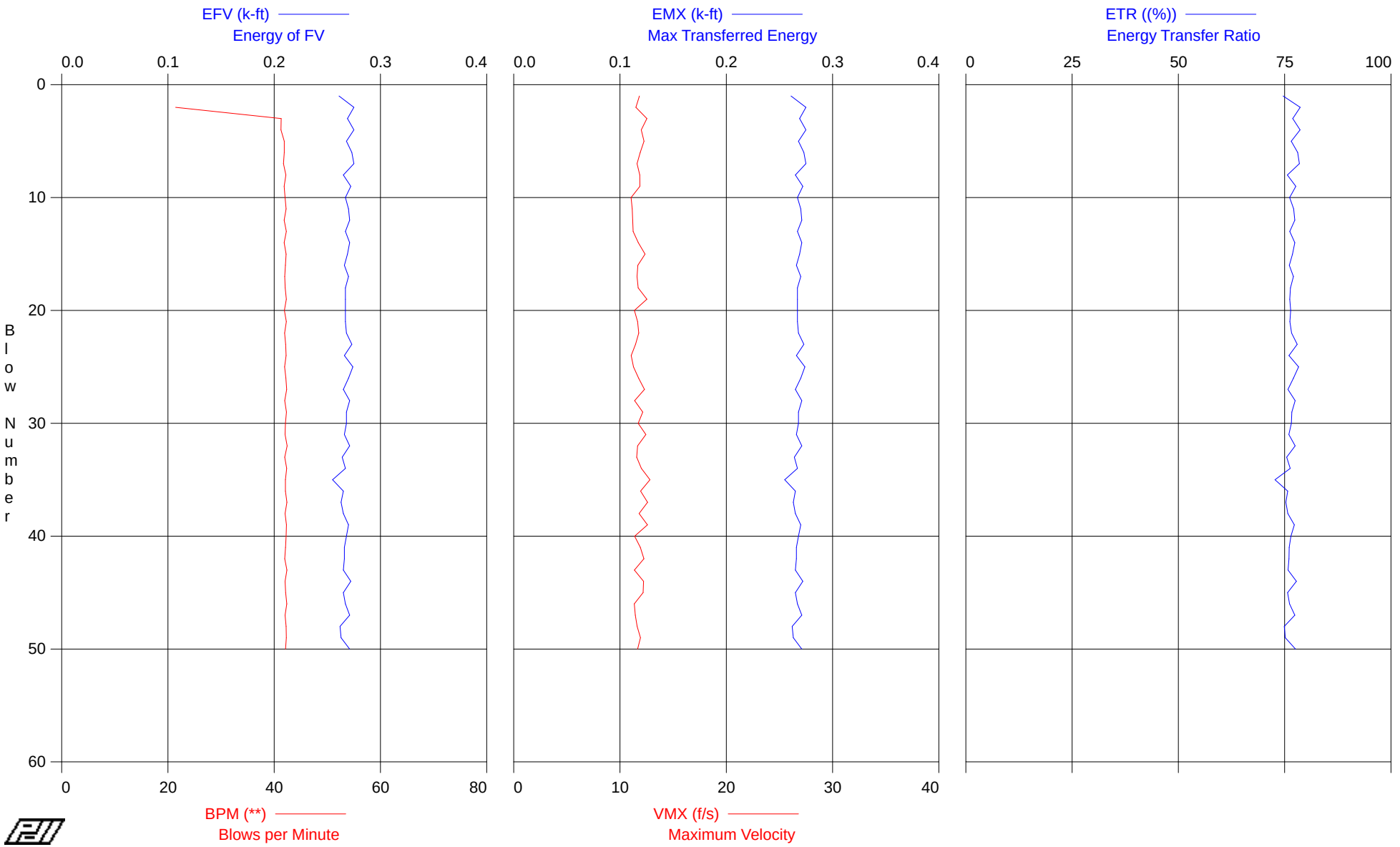
Drive 1 minute 11 seconds 7:41:25 PM - 7:42:36 PM (9/18/2014) BN 1 - 50

Gregg Drilling & Testing - Case Method & iCAP® Results

PDIPLOT Ver. 2014.1 - Printed: 30-Oct-2014

Test date: 18-Sep-2014

D26 - OUE-GT-008 @ 25ft



Appendix G

(N1)60 Summary

Appendix G
$(N_1)_{60}$ Calculations
Georgia-Pacific - Mill Pond Dam
Fort Bragg, California

Boring	Start Depth Interval	End Depth Interval	Effective Depth	Sampler	Mod Cal Blow Count	SPT N-value[a]	Unit Weight[e]	Depth to Water[d]	σ_v	σ_v'	Energy Ratio, ER[f]	Borehole Correction Factor, η_B	Sampler Correction Factor, η_S	Rod Length - Hammer to Ground	Rod Length - Total	Rod Length Correction Factor, η_R	N_{60}[b]	C_N[c]	$(N_1)_{60}$[c]
	feet	*feet*	*feet*	*(type)*	*blows/ foot*	*blows/ foot*	*pcf*	*feet bgs*	*psf*	*psf*	*%*			*feet*	*feet*		*blows/foot*		
GT-005	5.5	6.5	6.0	Split-Spoon	--	2	105		630	630	79.0	1	1	5	11	0.75	2	1.54	**3**
	11.5	12.5	12.0	Split-Spoon	--	5	105		1,260	1,260	76.2	1	1	5	17	0.85	5	1.25	**7**
	14.0	15.0	14.5	Split-Spoon	--	11	105	14.42	1,523	1,518	78.4	1	1	5	20	0.95	14	1.16	**16**
	16.5	17.5	17.0	Split-Spoon	--	2	105		1,785	1,624	80.7	1	1	5	22	0.95	3	1.13	**3**
	19.0	19.5	19.3	Split-Spoon	--	50	105		2,021	1,720	80.6	1	1	5	24	0.95	64	1.10	**70**
GT-006	13.0	14.0	13.5	Mod Cal	5	3	105		1,418	1,418	77.5	1	1	5	19	0.85	3	1.20	**4**
	15.5	16.5	16.0	Mod Cal	22	12	105		1,680	1,581	77.5	1	1	5	21	0.95	15	1.14	**17**
	18.0	19.0	18.5	Mod Cal	43	24	105	11.54	1,943	1,688	77.5	1	1	5	24	0.95	29	1.11	**32**
	20.5	21.5	21.0	Mod Cal	35	19	105		2,205	1,794	77.5	1	1	5	26	0.95	24	1.08	**26**
	23.0	24.0	23.5	Mod Cal	65	36	105		2,468	1,901	77.5	1	1	5	29	0.95	44	1.05	**46**
	25.5	26.0	25.8	Mod Cal	50	28	105		2,704	1,997	77.5	1	1	5	31	1.00	36	1.03	**37**
GT-007	5.5	6.5	6.0	Split-Spoon	--	5	105		630	630	77.5	1	1	5	11	0.75	5	1.54	**7**
	11.5	12.5	12.0	Split-Spoon	--	5	105		1,260	1,260	77.5	1	1	5	17	0.85	5	1.25	**7**
	14.0	15.0	14.5	Split-Spoon	--	3	105	5.24	1,523	1,518	77.5	1	1	5	20	0.95	4	1.16	**4**
	16.5	17.5	17.0	Split-Spoon	--	4	105		1,785	1,624	77.5	1	1	5	22	0.95	5	1.13	**6**
	19.0	19.5	19.3	Split-Spoon	--	50	105		2,021	1,720	77.5	1	1	5	24	0.95	61	1.10	**68**
GT-008	5.5	6.5	6.0	Split-Spoon	--	8	105		630	630	76.1	1	1	5	11	0.75	8	1.54	**12**
	13.0	14.0	13.5	Split-Spoon	--	3	105		1,418	1,418	72.4	1	1	5	19	0.85	3	1.20	**4**
	15.5	16.5	16.0	Split-Spoon	--	4	105		1,680	1,581	73.7	1	1	5	21	0.95	5	1.14	**5**
	18.0	19.0	18.5	Split-Spoon	--	83	105	5.50	1,943	1,688	75.3	1	1	5	24	0.95	99	1.11	**110**
	20.5	21.5	21.0	Split-Spoon	--	57	105		2,205	1,794	78.5	1	1	5	26	0.95	71	1.08	**77**
	23.0	24.0	23.5	Split-Spoon	--	67	105		2,468	1,901	80.3	1	1	5	29	0.95	85	1.05	**90**
	25.5	25.5	25.5	Split-Spoon	--	50	105		2,678	1,986	76.6	1	1	5	31	1.00	64	1.03	**66**
GT-009	5.5	6.5	6.0	Split-Spoon	--	3	105		630	630	77.5	1	1	5	11	0.75	3	1.54	**4**
	8.0	9.0	8.5	Split-Spoon	--	4	105	6.00	893	893	77.5	1	1	5	14	0.85	4	1.41	**6**
	10.5	11.5	11.0	Split-Spoon	--	5	105		1,155	1,155	77.5	1	1	5	16	0.85	5	1.29	**7**

Notes:

= Measured or assumed value

SPT = standard penetration test
bgs = below ground surface
pcf = pounds per cubic foot
psf = pounds per square foot
Mod Cal = Modified California sampler

a = Mod Cal blow counts are corrected to SPT blow counts using a correction factor of SPT = 0.55 Mod Cal, after Rogers (2006)

b = $N\_60=□(64\&(N*⟦Ei$ after Seed et al. (1985) and Skempton (1986)

where,

N = SPT N-value, as measured in the field.

ER = Energy measurements provided by Gregg Drilling. Actual measurements shown for GT-005 and GT-009. Average energy ratio used for GT-006, GT-007, and GT-009.
n_B, n_S, n_R = based on recommendations from Seed et al. (1985) and Skempton (1986)

c = $⟦(N\_1)⟧\_60=N\_60$ where C_N is $C\_N=2/(1+$ after Skempton (1986)

d = Depth to water measured on October 31, 2014

e = Unit weight taken from the average of laboratory-measured in-situ dry unit weights measured during the October 2014 investigation.

f = The average ER measured at borings GT-005 and GT-008 was used for borings GT-006, GT-007, and GT-009.

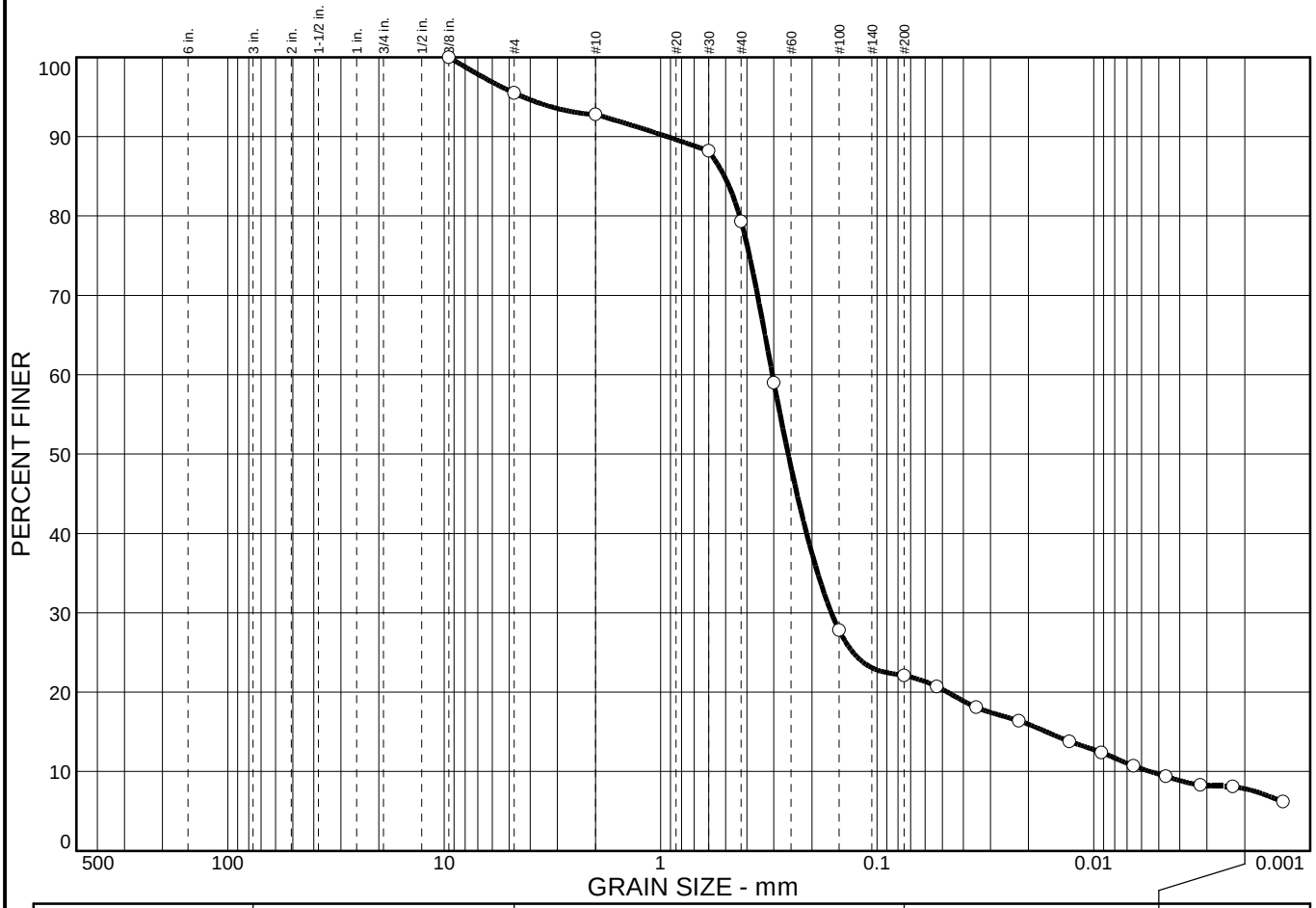
References:

Rogers (2006). Subsurface Exploration Using the Standard Penetration Test and the Cone Penetrometer Test. Environmental & Engineering Geoscience. Vol 12, No 2, May, pp 161-179.
Seed et al. (1985). The Influence of SPT procedures in Soil Liquefaction Resistance Evaluations. Journal of Geotechnical Engineering. ASCE. Vol 111, No 12, pp 1425-1445.
Skempton (1986). Standard Penetration Test Procedures and the Effects in Sands of Overburden Pressure, Relative Density, Particle Size, Aging, and Overconsolidation. Geotechnique. London. Vol 36, No 3, pp 425-447.

Appendix H

Laboratory Reports

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.5	73.4	14.3	7.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	95.5		
#10	92.8		
#30	88.2		
#40	79.3		
#50	59.0		
#100	27.8		
#200	22.1		
#270	20.7		
0.0349 mm.	18.1		
0.0222 mm.	16.4		
0.0129 mm.	13.8		
0.0092 mm.	12.4		
0.0065 mm.	10.7		
0.0046 mm.	9.4		
0.0032 mm.	8.3		
0.0023 mm.	8.1		
0.0013 mm.	6.2		

* (no specification provided)

Soil Description

Black Silty SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.508 D_{60}= 0.305 D_{50}= 0.258
D_{30}= 0.163 D_{15}= 0.0165 D_{10}= 0.0055
C_u= 55.49 C_c= 15.85

Classification

USCS= AASHTO=

Remarks

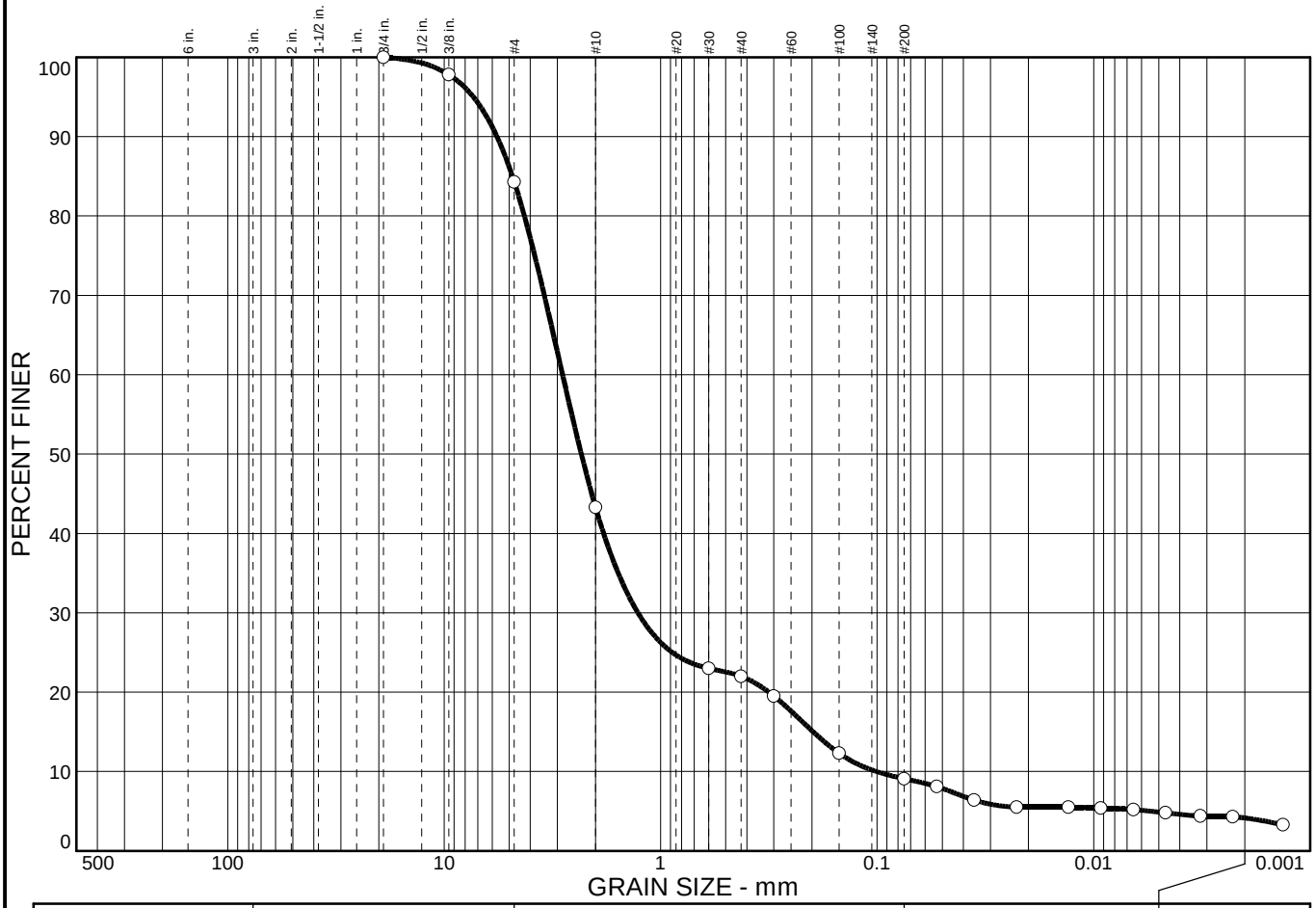
Sample No.: **Source of Sample:** GT-005 (CPT 12-4) **Date:** 12/11/14
Location: **Elev./Depth:** 14.5-15'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	15.7	75.2	4.9	4.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	97.8		
#4	84.3		
#10	43.3		
#30	23.0		
#40	22.0		
#50	19.5		
#100	12.3		
#200	9.1		
#270	8.1		
0.0356 mm.	6.4		
0.0226 mm.	5.5		
0.0131 mm.	5.5		
0.0093 mm.	5.4		
0.0066 mm.	5.2		
0.0046 mm.	4.8		
0.0032 mm.	4.4		
0.0023 mm.	4.3		
0.0013 mm.	3.3		

* (no specification provided)

Soil Description

Gray Poorly Graded SAND w/ Silt & Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.84 D_{60}= 2.84 D_{50}= 2.33
D_{30}= 1.27 D_{15}= 0.197 D_{10}= 0.101
C_u= 28.20 C_c= 5.68

Classification

USCS= AASHTO=

Remarks

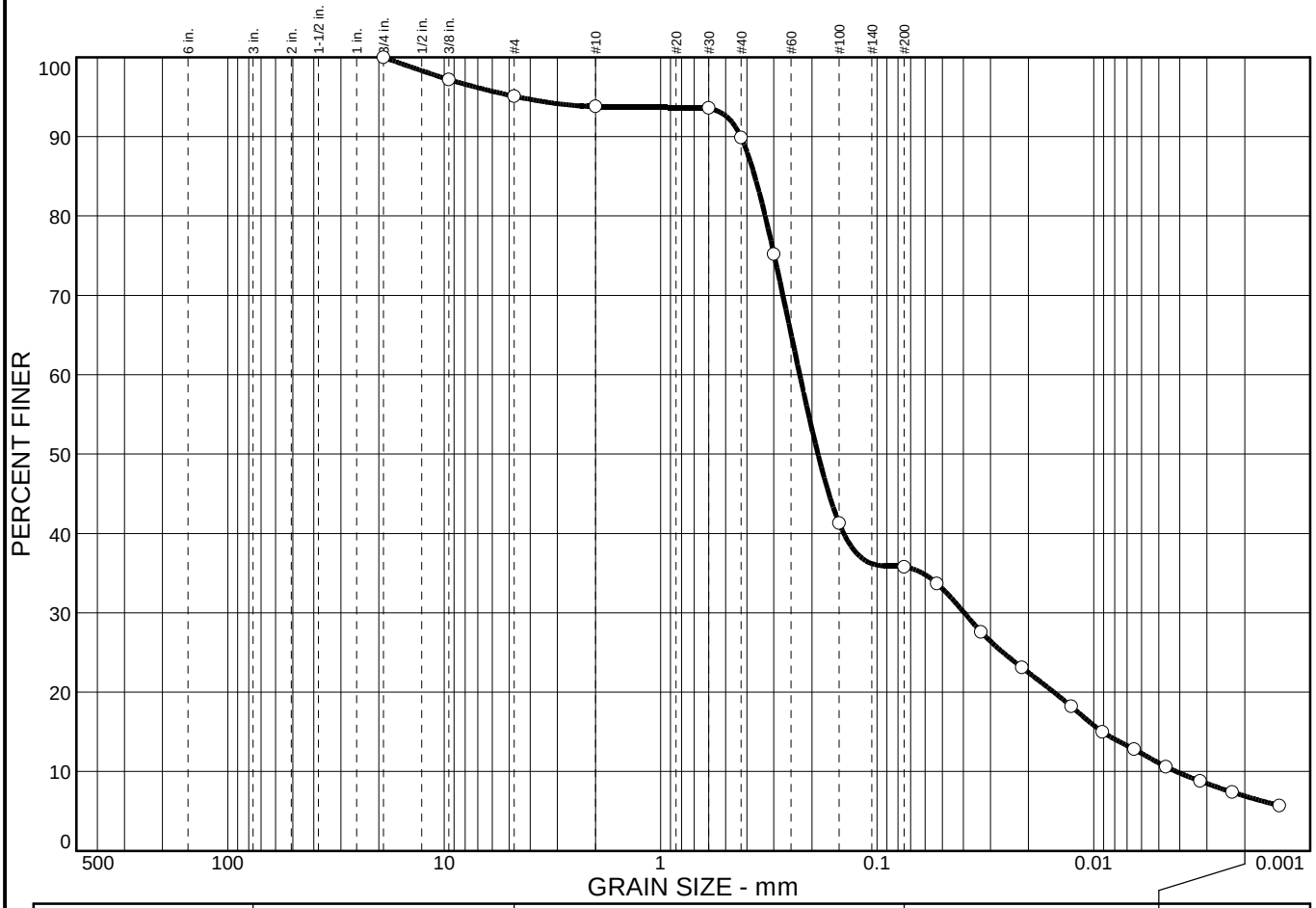
Sample No.: **Source of Sample:** GT-005 (CPT 12-4) **Date:** 12/11/14
Location: **Elev./Depth:** 18-18.5'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.9	59.3	28.9	6.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	97.2		
#4	95.1		
#10	93.8		
#30	93.6		
#40	89.9		
#50	75.2		
#100	41.3		
#200	35.8		
#270	33.7		
0.0331 mm.	27.6		
0.0215 mm.	23.1		
0.0127 mm.	18.2		
0.0091 mm.	15.0		
0.0065 mm.	12.8		
0.0046 mm.	10.6		
0.0032 mm.	8.8		
0.0023 mm.	7.4		
0.0014 mm.	5.7		

* (no specification provided)

Soil Description

Black Clayey SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.368 D_{60}= 0.228 D_{50}= 0.188
D_{30}= 0.0396 D_{15}= 0.0091 D_{10}= 0.0042
C_u= 54.78 C_c= 1.65

Classification

USCS= AASHTO=

Remarks

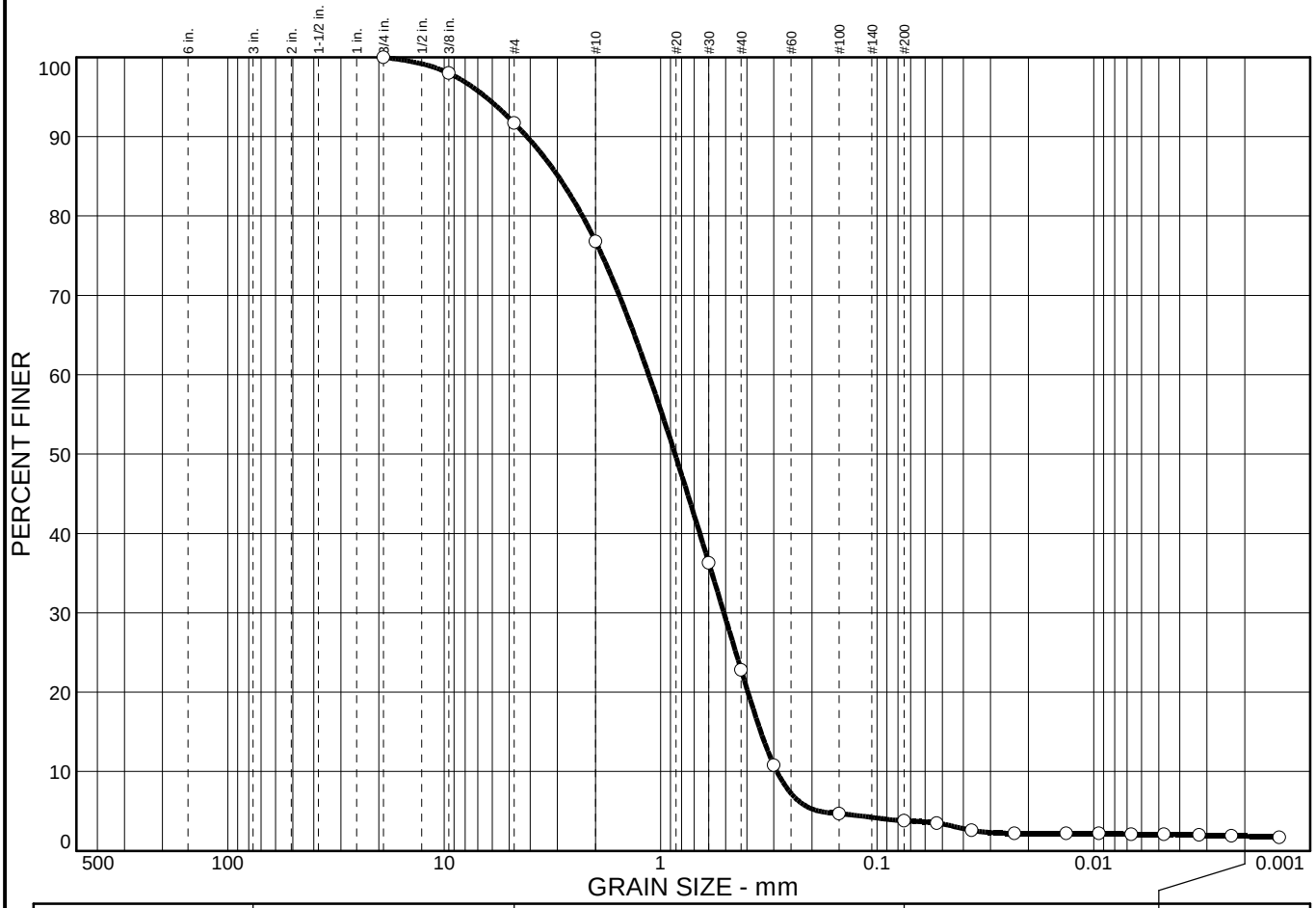
Sample No.: **Source of Sample:** GT-005 (CPT 12-4) **Date:** 12/12/14
Location: **Elev./Depth:** 7.5-10'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	8.3	87.9	2.0	1.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	98.0		
#4	91.7		
#10	76.8		
#30	36.3		
#40	22.8		
#50	10.8		
#100	4.7		
#200	3.8		
#270	3.5		
0.0366 mm.	2.6		
0.0232 mm.	2.2		
0.0134 mm.	2.2		
0.0095 mm.	2.2		
0.0067 mm.	2.1		
0.0047 mm.	2.1		
0.0033 mm.	2.0		
0.0023 mm.	1.9		
0.0014 mm.	1.7		

* (no specification provided)

Soil Description

Gray Poorly Graded SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 2.98 D_{60}= 1.14 D_{50}= 0.859
D_{30}= 0.511 D_{15}= 0.345 D_{10}= 0.290
C_u= 3.91 C_c= 0.79

Classification

USCS= AASHTO=

Remarks

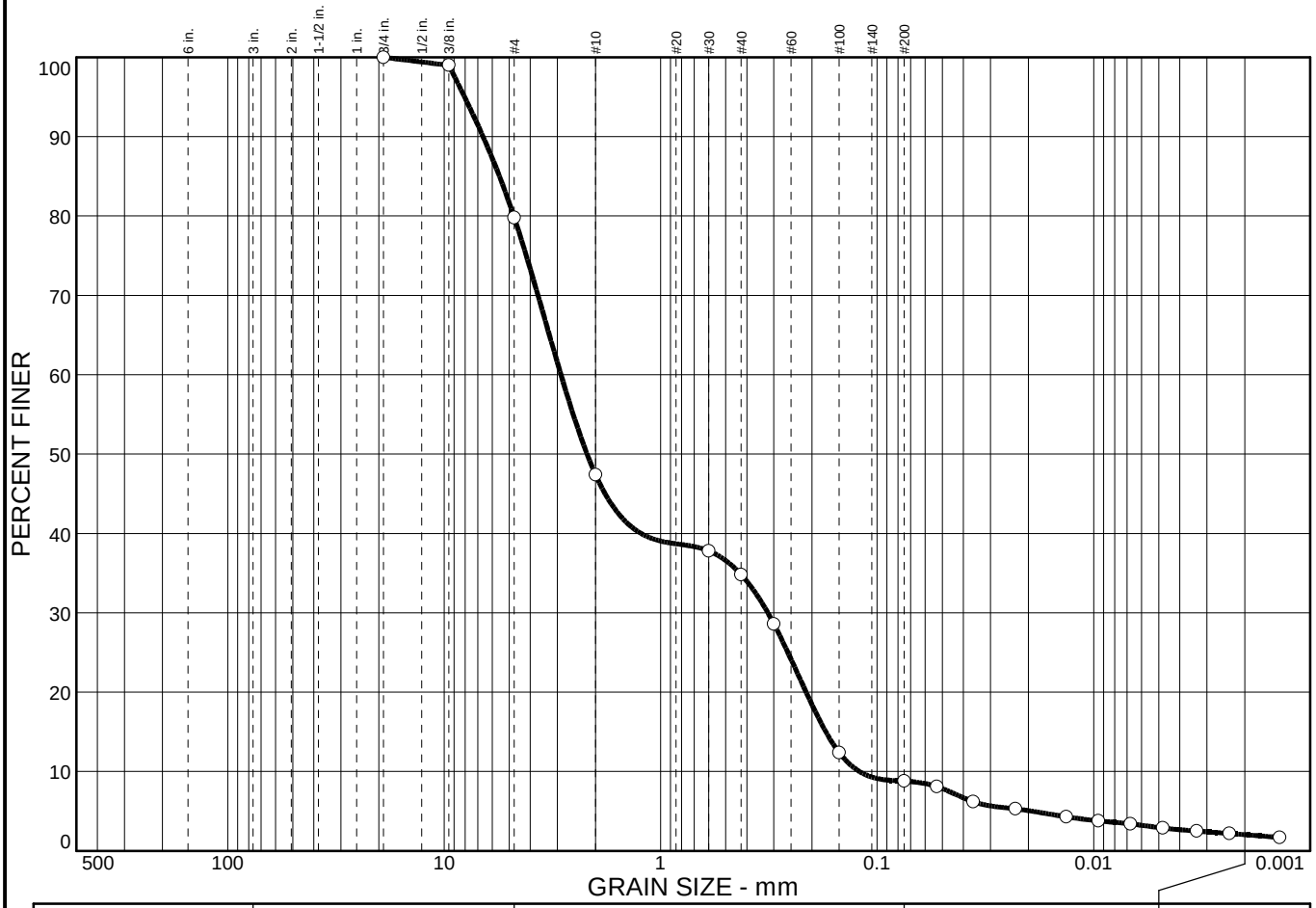
Sample No.: **Source of Sample:** GT-006 (CPT 12-5) **Date:** 12/12/14
Location: **Elev./Depth:** 12.5-14'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	20.2	71.0	6.7	2.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	99.0		
#4	79.8		
#10	47.4		
#30	37.8		
#40	34.8		
#50	28.6		
#100	12.4		
#200	8.8		
#270	8.1		
0.0360 mm.	6.2		
0.0229 mm.	5.3		
0.0134 mm.	4.3		
0.0095 mm.	3.8		
0.0068 mm.	3.4		
0.0048 mm.	2.9		
0.0033 mm.	2.5		
0.0024 mm.	2.2		
0.0014 mm.	1.7		

* (no specification provided)

Soil Description

Olive Poorly Graded SAND w/ Silt & Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 5.56 D_{60}= 2.89 D_{50}= 2.19
D_{30}= 0.320 D_{15}= 0.173 D_{10}= 0.121
C_u= 23.92 C_c= 0.29

Classification

USCS= AASHTO=

Remarks

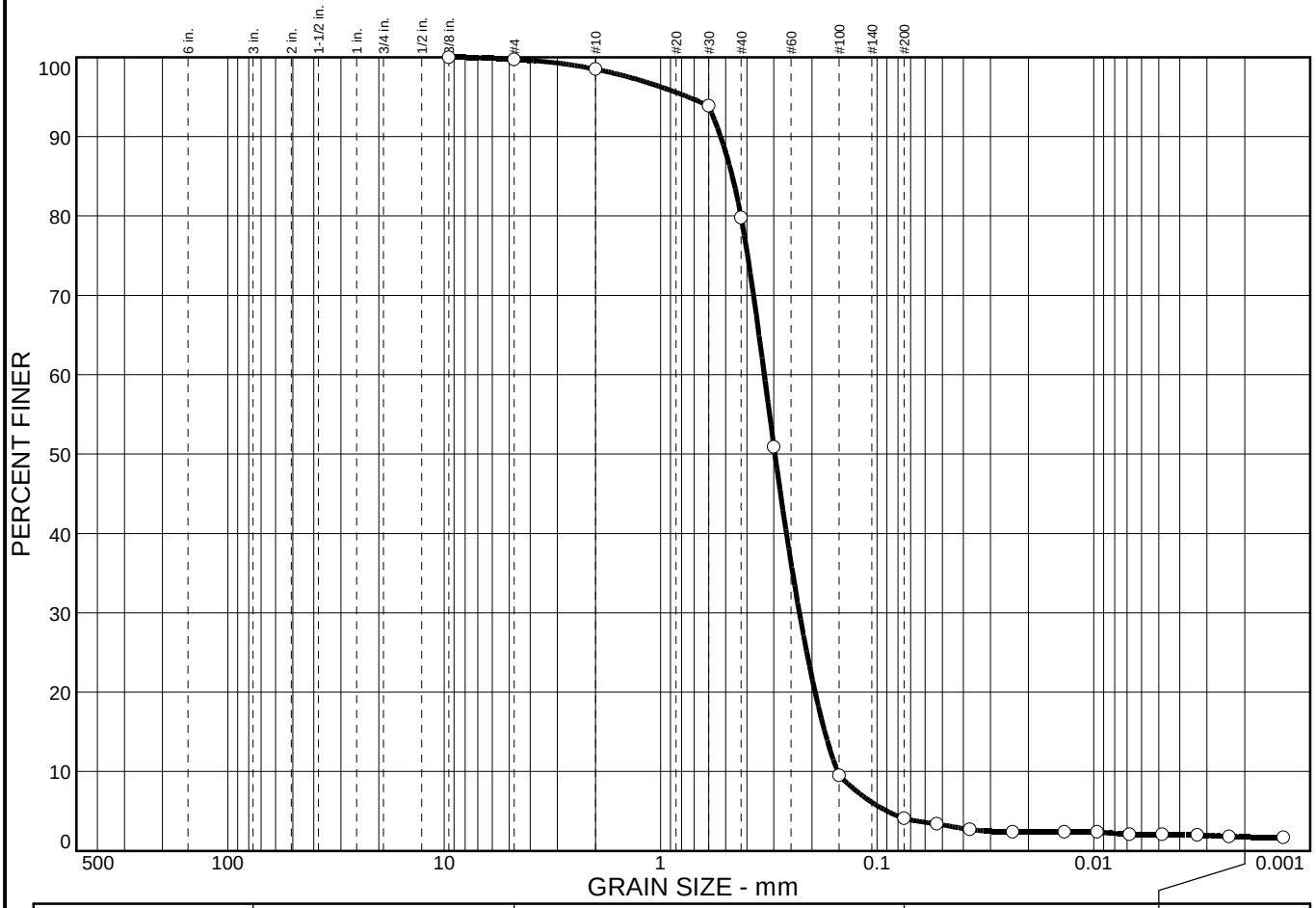
Sample No.: **Source of Sample:** GT-006 (CPT 12-5) **Date:** 12/11/14
Location: **Elev./Depth:** 15-16.5'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.3	95.6	2.4	1.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.7		
#10	98.5		
#30	93.9		
#40	79.8		
#50	50.9		
#100	9.5		
#200	4.1		
#270	3.4		
0.0373 mm.	2.7		
0.0236 mm.	2.4		
0.0136 mm.	2.4		
0.0096 mm.	2.4		
0.0068 mm.	2.1		
0.0048 mm.	2.1		
0.0033 mm.	2.0		
0.0024 mm.	1.8		
0.0013 mm.	1.7		

* (no specification provided)

Soil Description

Greenish Gray grading to Brown Poorly Graded SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.467 D_{60}= 0.332 D_{50}= 0.297
D_{30}= 0.229 D_{15}= 0.175 D_{10}= 0.153
C_u= 2.18 C_c= 1.03

Classification

USCS= AASHTO=

Remarks

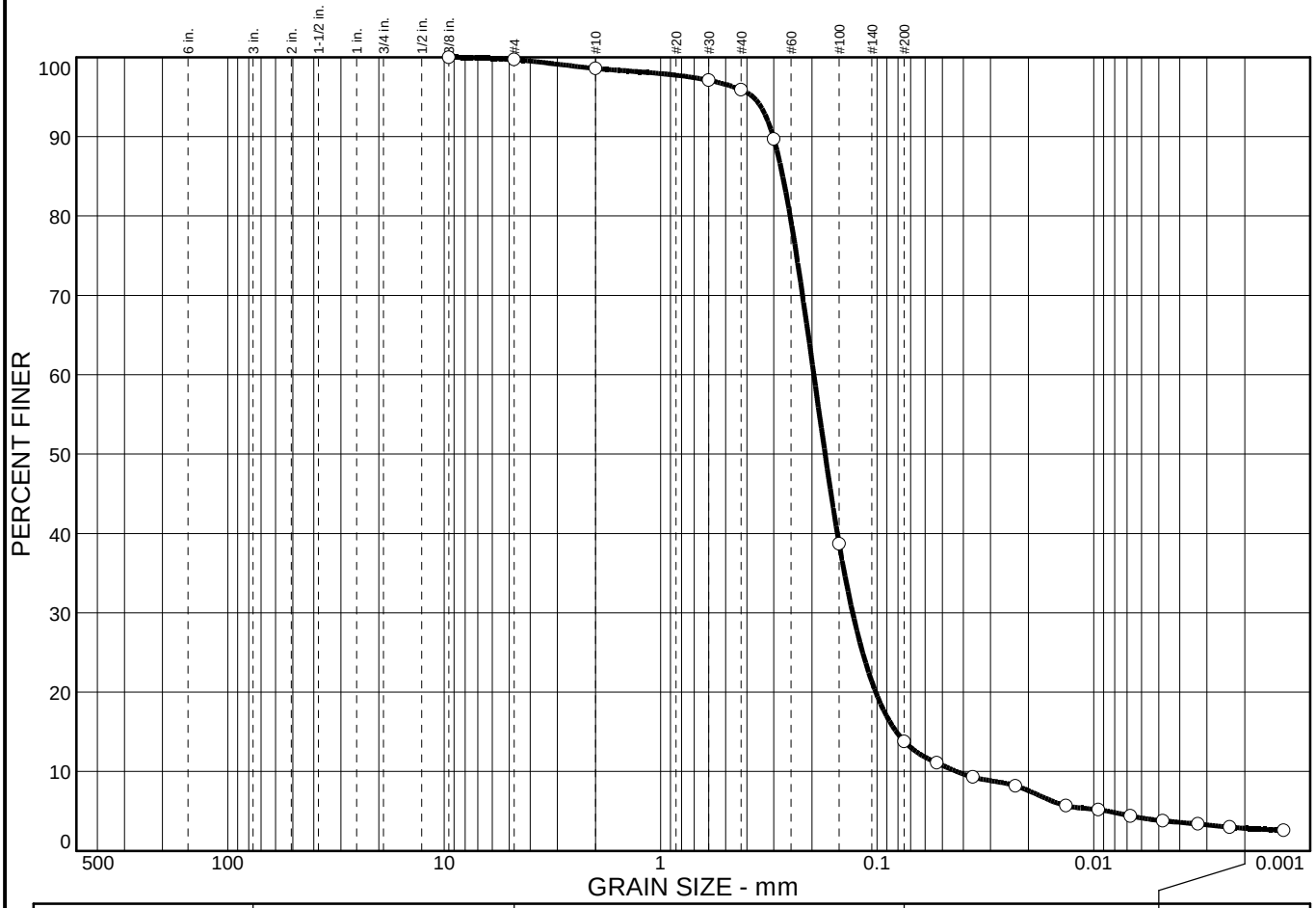
Sample No.: **Source of Sample:** GT-006 (CPT 12-5) **Date:** 12/16/14
Location: **Elev./Depth:** 17.5-19'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.3	85.9	10.9	2.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.7		
#10	98.6		
#30	97.1		
#40	95.9		
#50	89.7		
#100	38.7		
#200	13.8		
#270	11.1		
0.0361 mm.	9.3		
0.0229 mm.	8.2		
0.0134 mm.	5.7		
0.0095 mm.	5.2		
0.0068 mm.	4.4		
0.0048 mm.	3.8		
0.0033 mm.	3.4		
0.0024 mm.	3.0		
0.0013 mm.	2.6		

* (no specification provided)

Soil Description

Greenish Gray Silty SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.273 D_{60}= 0.196 D_{50}= 0.174
D_{30}= 0.130 D_{15}= 0.0815 D_{10}= 0.0429
C_u= 4.57 C_c= 2.00

Classification

USCS= AASHTO=

Remarks

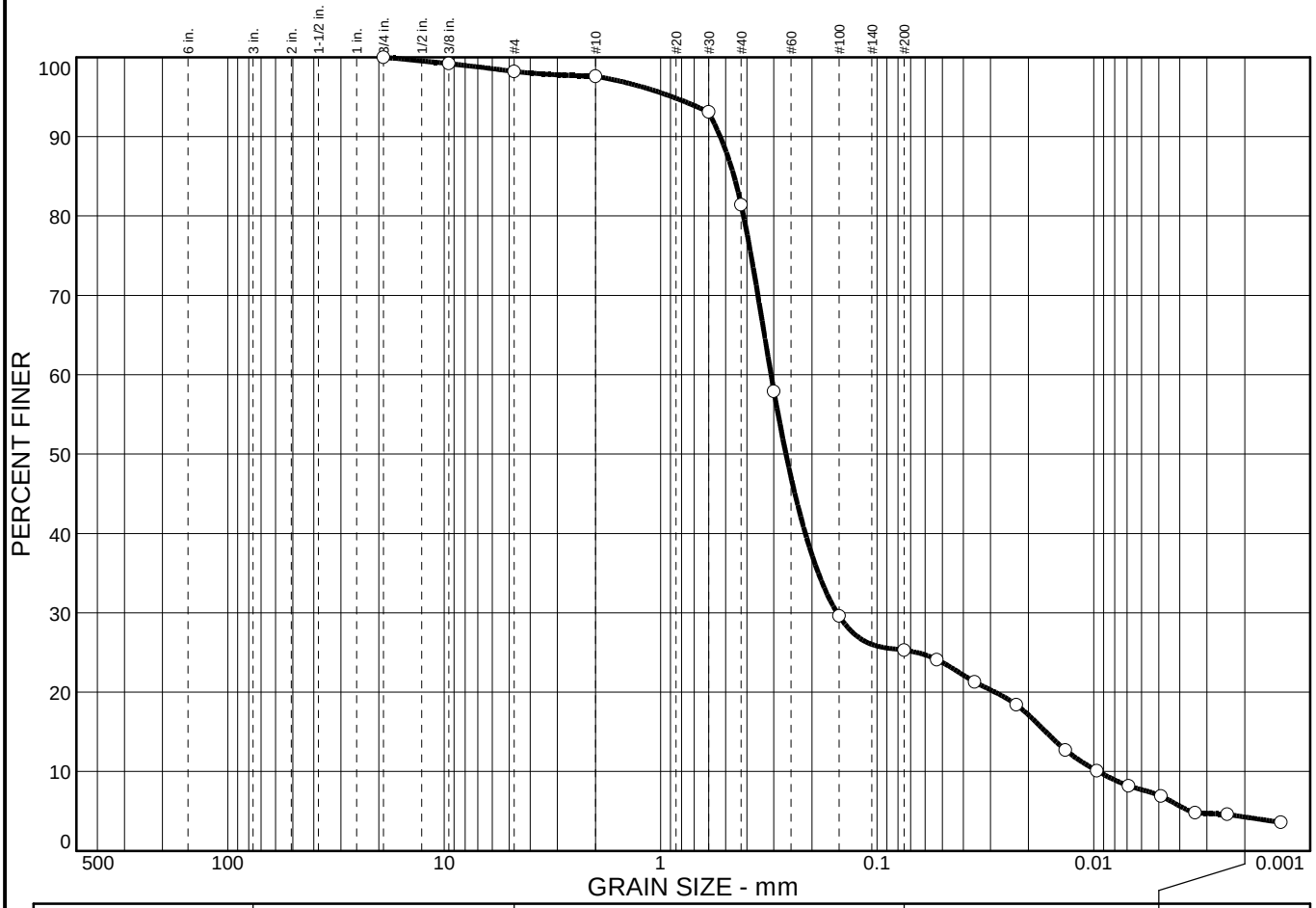
Sample No.: **Source of Sample:** GT-006 (CPT 12-5) **Date:** 12/16/14
Location: **Elev./Depth:** 22.5-24'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.8	72.9	21.0	4.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	99.2		
#4	98.2		
#10	97.6		
#30	93.1		
#40	81.4		
#50	57.9		
#100	29.6		
#200	25.3		
#270	24.1		
0.0355 mm.	21.3		
0.0228 mm.	18.4		
0.0135 mm.	12.7		
0.0097 mm.	10.1		
0.0069 mm.	8.2		
0.0049 mm.	6.9		
0.0034 mm.	4.8		
0.0024 mm.	4.6		
0.0014 mm.	3.6		

* (no specification provided)

Soil Description

Dark Brown Silty SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.459 D_{60}= 0.309 D_{50}= 0.264
D_{30}= 0.153 D_{15}= 0.0166 D_{10}= 0.0095
C_u= 32.53 C_c= 7.98

Classification

USCS= AASHTO=

Remarks

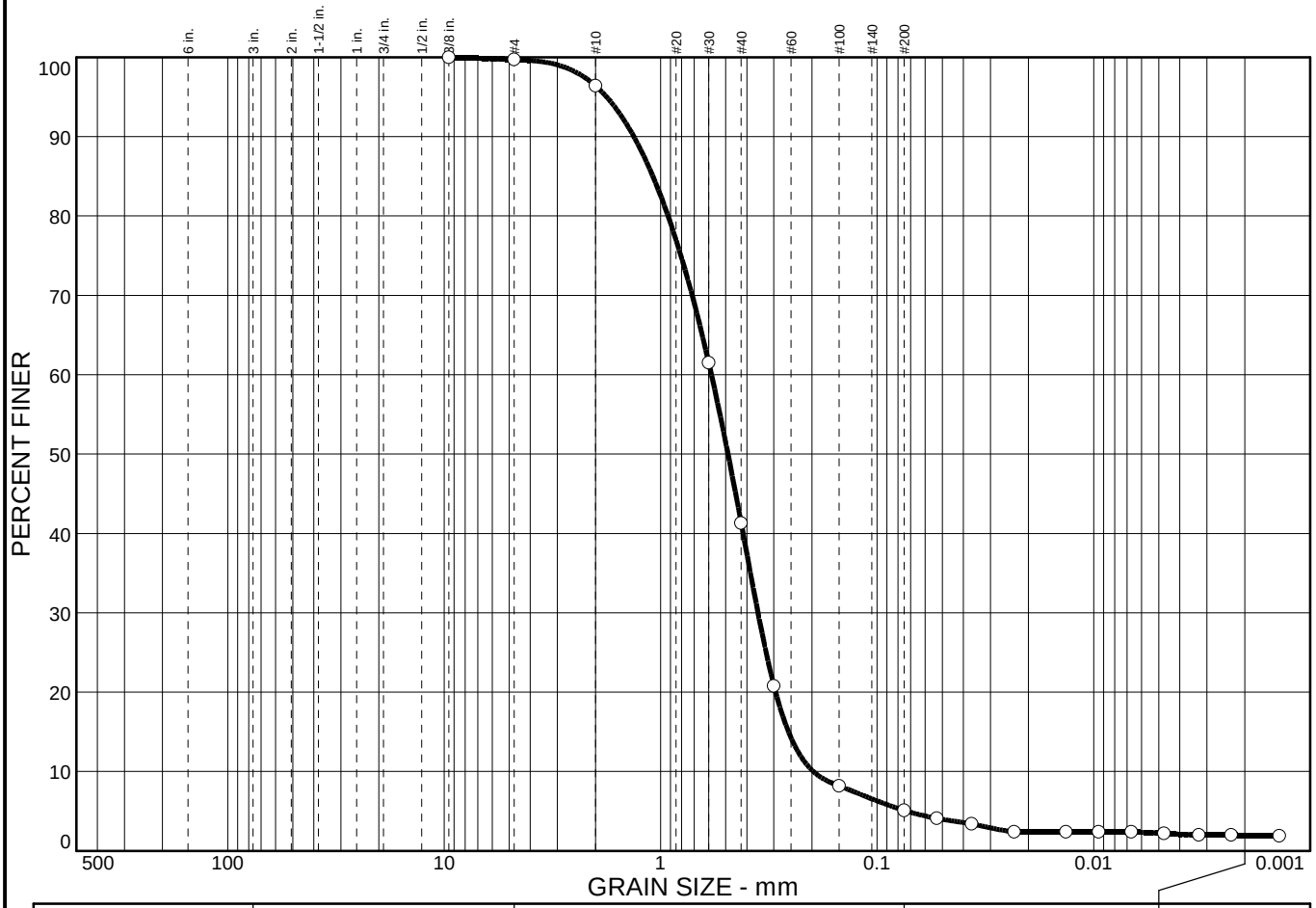
Sample No.: **Source of Sample:** GT-006 (CPT 12-5) **Date:** 12/16/14
Location: **Elev./Depth:** 9.5-11'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.3	94.6	3.1	2.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.7		
#10	96.4		
#30	61.5		
#40	41.3		
#50	20.8		
#100	8.2		
#200	5.1		
#270	4.1		
0.0366 mm.	3.4		
0.0233 mm.	2.4		
0.0134 mm.	2.4		
0.0095 mm.	2.4		
0.0067 mm.	2.4		
0.0047 mm.	2.2		
0.0033 mm.	2.0		
0.0023 mm.	2.0		
0.0014 mm.	1.9		

* (no specification provided)

Soil Description

Dark Gray Poorly Graded SAND w/ Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.09 D_{60}= 0.583 D_{50}= 0.489
D_{30}= 0.355 D_{15}= 0.257 D_{10}= 0.197
C_u= 2.96 C_c= 1.10

Classification

USCS= AASHTO=

Remarks

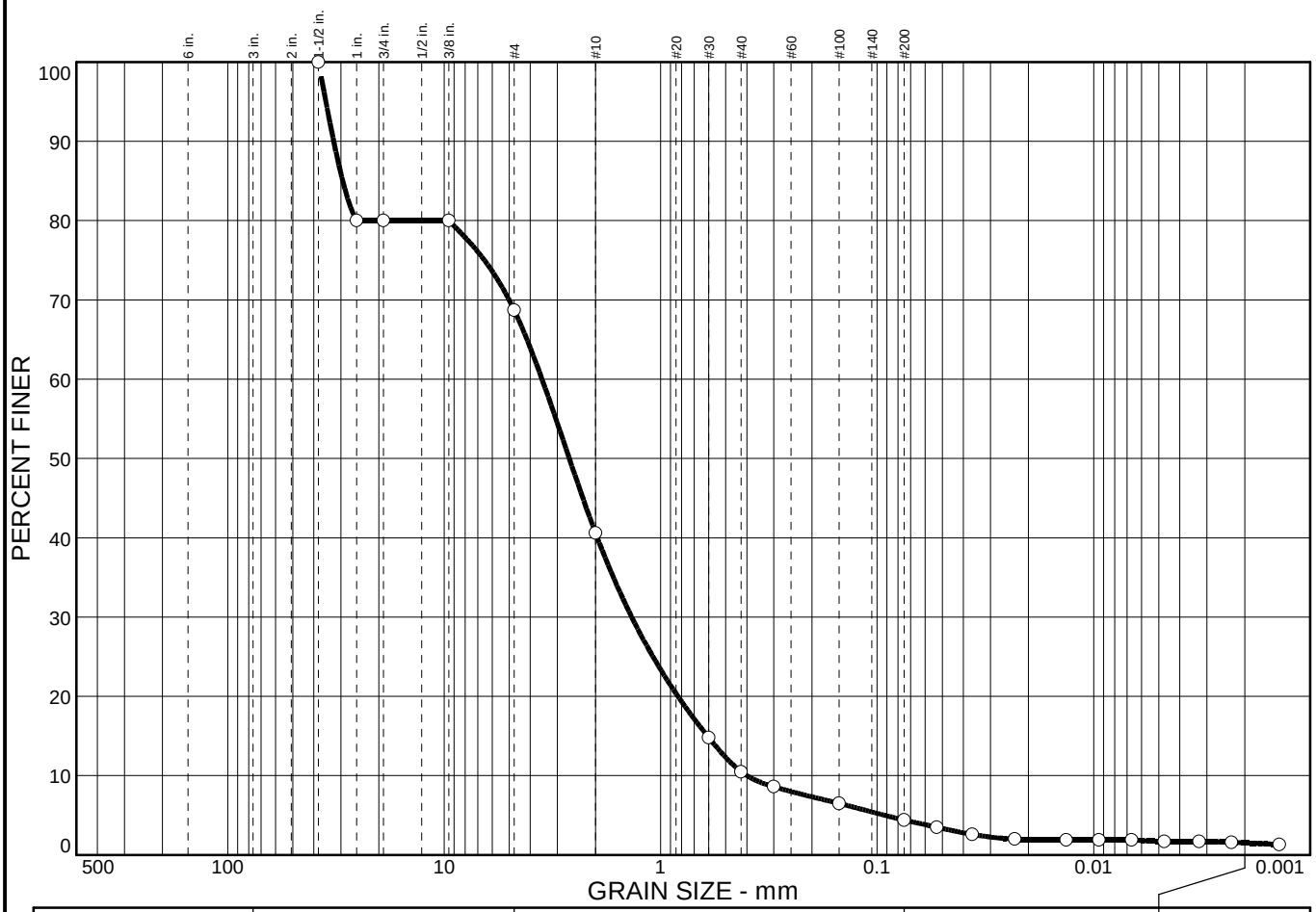
Sample No.: **Source of Sample:** GT-007 (CPT 12-7) **Date:** 12/12/14
Location: **Elev./Depth:** 16-16.5'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	31.3	64.3	2.9	1.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	80.0		
3/4 in.	80.0		
3/8 in.	80.0		
#4	68.7		
#10	40.6		
#30	14.8		
#40	10.5		
#50	8.6		
#100	6.5		
#200	4.4		
#270	3.5		
0.0364 mm.	2.6		
0.0231 mm.	2.0		
0.0134 mm.	1.9		
0.0094 mm.	1.9		
0.0067 mm.	1.9		
0.0047 mm.	1.7		
0.0033 mm.	1.7		
0.0023 mm.	1.6		
0.0014 mm.	1.3		

* (no specification provided)

Soil Description

Very Dark Gray Well-Graded SAND w/ Gravel

Atterberg Limits

PL= NP LL= PI= NP

Coefficients

D_{85}= 29.4 D_{60}= 3.53 D_{50}= 2.64
D_{30}= 1.36 D_{15}= 0.608 D_{10}= 0.399
C_u= 8.85 C_c= 1.31

Classification

USCS= SW AASHTO=

Remarks

Due to the small sample size relative to the largest particle size these results should be considered to be approximate.

Sample No.: **Source of Sample:** GT-007 (CPT 12-7) **Date:** 12/12/14

Location: **Elev./Depth:** 18.5-19'

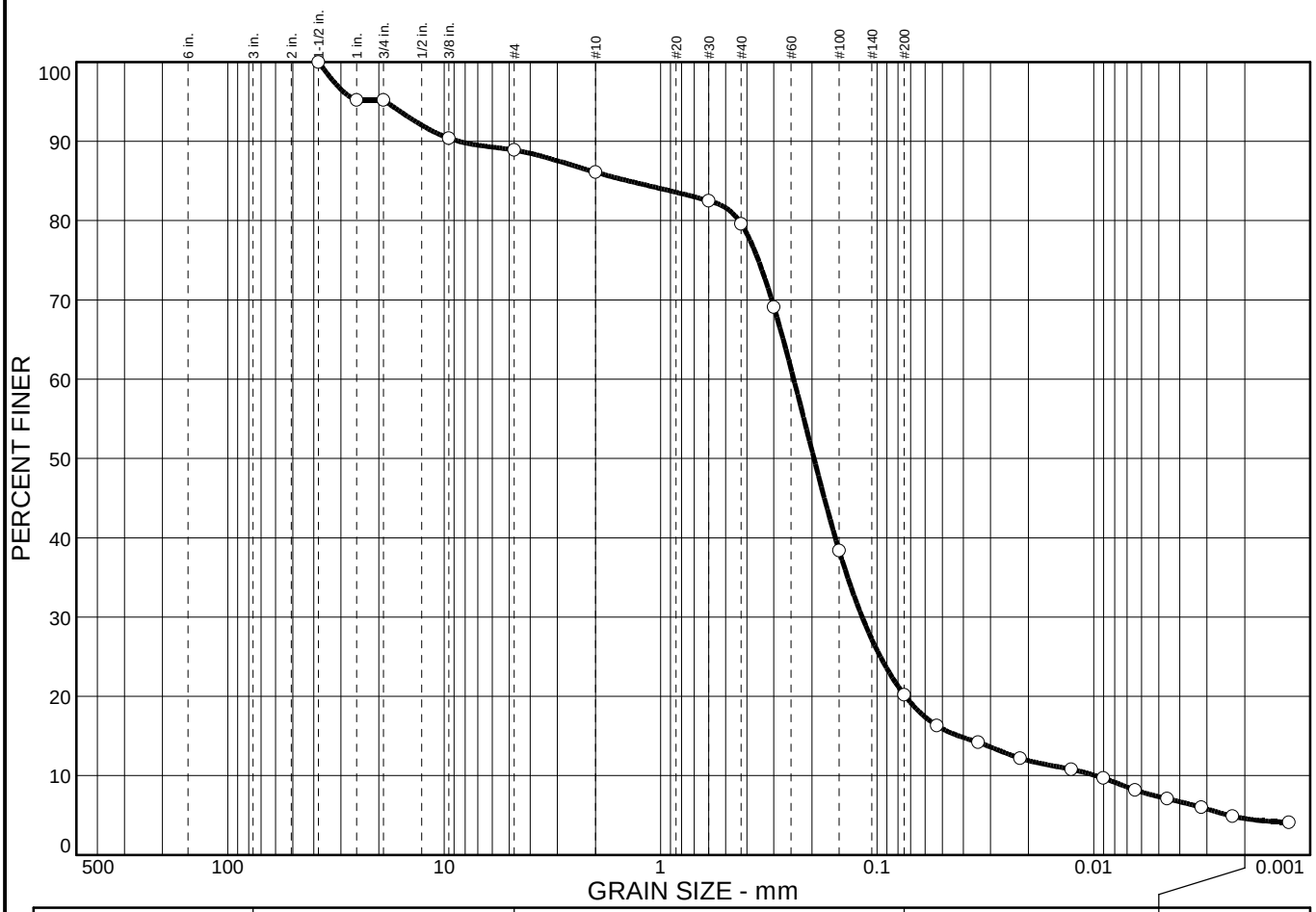
COOPER TESTING LABORATORY

Client: Arcadis

Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	11.1	68.7	15.6	4.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	95.2		
3/4 in.	95.2		
3/8 in.	90.4		
#4	88.9		
#10	86.1		
#30	82.5		
#40	79.6		
#50	69.1		
#100	38.4		
#200	20.2		
#270	16.3		
0.0342 mm.	14.2		
0.0218 mm.	12.2		
0.0127 mm.	10.8		
0.0090 mm.	9.7		
0.0064 mm.	8.2		
0.0046 mm.	7.1		
0.0032 mm.	6.0		
0.0023 mm.	4.9		
0.0013 mm.	4.1		

* (no specification provided)

Soil Description

Dark Gray Silty SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.40 D_{60}= 0.243 D_{50}= 0.196
D_{30}= 0.117 D_{15}= 0.0418 D_{10}= 0.0098
C_u= 24.90 C_c= 5.80

Classification

USCS= AASHTO=

Remarks

Due to the small sample size relative to the largest particle size these results should be considered to be approximate.

Sample No.: Bottom **Source of Sample:** GT-007 (CPT 12-7) **Date:** 12/10/14

Location: **Elev./Depth:** 7.5-10(Tip-

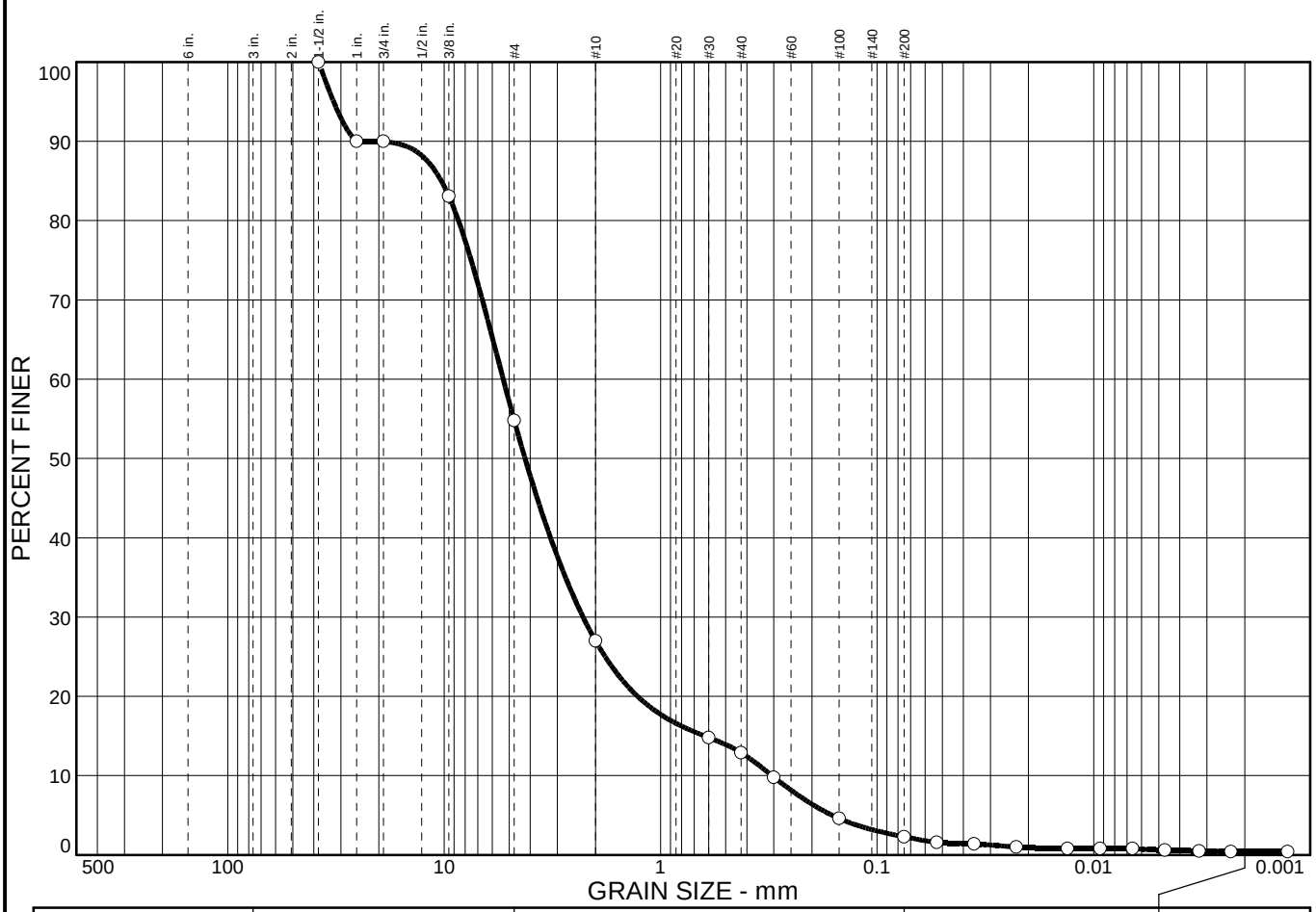
COOPER TESTING LABORATORY

Client: Arcadis

Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	45.2	52.5	1.9	0.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	90.0		
3/4 in.	90.0		
3/8 in.	83.1		
#4	54.8		
#10	27.0		
#30	14.8		
#40	12.9		
#50	9.8		
#100	4.6		
#200	2.3		
#270	1.6		
0.0357 mm.	1.4		
0.0228 mm.	1.0		
0.0132 mm.	0.8		
0.0093 mm.	0.8		
0.0066 mm.	0.8		
0.0047 mm.	0.6		
0.0032 mm.	0.5		
0.0023 mm.	0.4		
0.0013 mm.	0.4		

* (no specification provided)

Soil Description

Gray Poorly Graded SAND w/ Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 10.3 D_{60}= 5.34 D_{50}= 4.23
D_{30}= 2.28 D_{15}= 0.626 D_{10}= 0.306
C_u= 17.43 C_c= 3.19

Classification

USCS= AASHTO=

Remarks

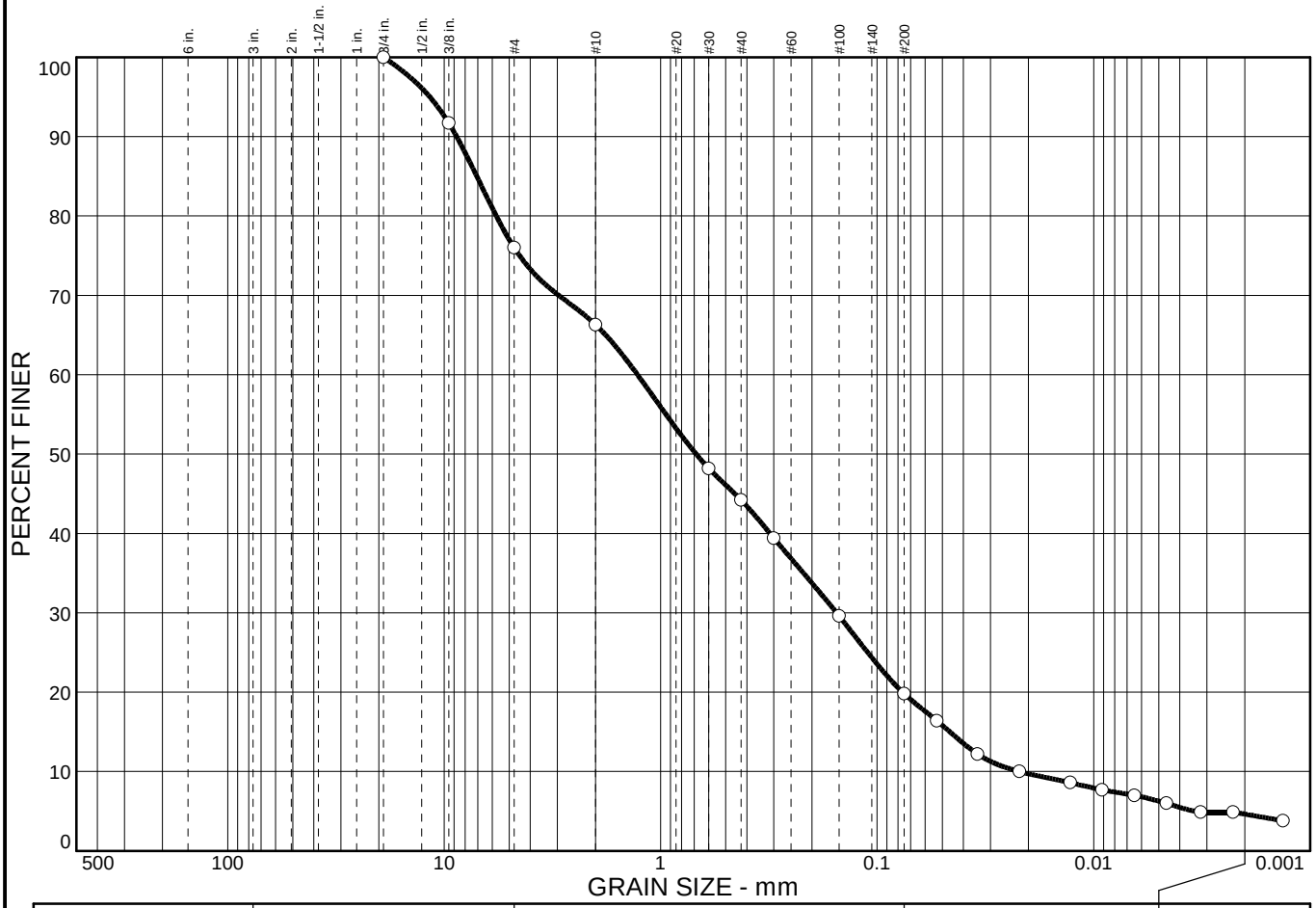
Due to the small sample sizr relative to the largest particle size these results should be considered to be approximate.

Sample No.: Top **Source of Sample:** GT-007 (CPT 12-7) **Date:** 12/10/14
Location: **Elev./Depth:** 7.5-10(tip-

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg
Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	24.0	56.2	15.2	4.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	91.7		
#4	76.0		
#10	66.3		
#30	48.2		
#40	44.2		
#50	39.4		
#100	29.6		
#200	19.8		
#270	16.4		
0.0344 mm.	12.2		
0.0220 mm.	10.0		
0.0128 mm.	8.6		
0.0091 mm.	7.7		
0.0065 mm.	7.0		
0.0046 mm.	6.0		
0.0032 mm.	4.9		
0.0023 mm.	4.9		
0.0013 mm.	3.8		

* (no specification provided)

Soil Description

Olive Silty SAND w/ Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 7.07 D_{60}= 1.28 D_{50}= 0.686
D_{30}= 0.154 D_{15}= 0.0462 D_{10}= 0.0220
C_u= 58.12 C_c= 0.84

Classification

USCS= AASHTO=

Remarks

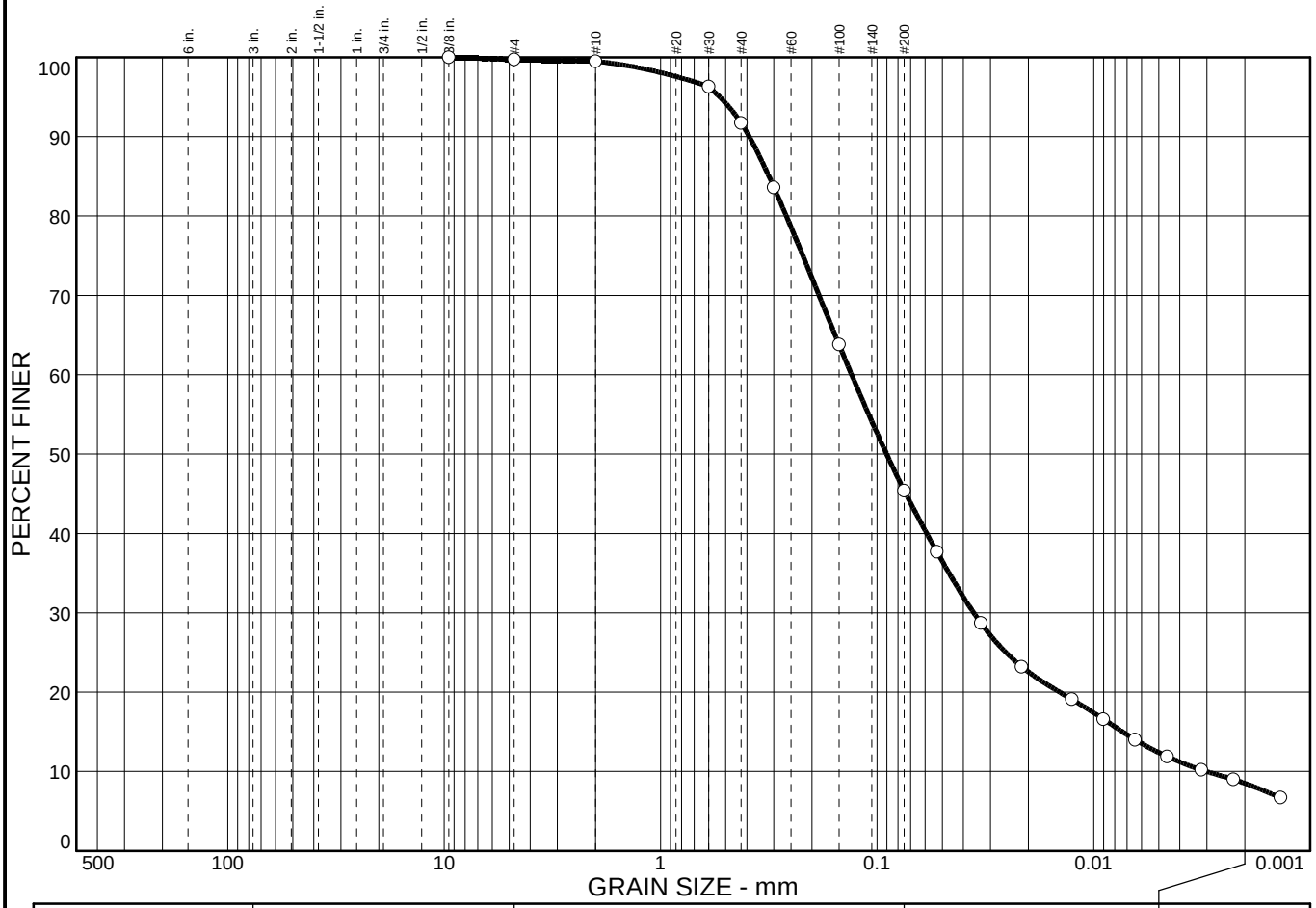
Sample No.: **Source of Sample:** GT-008 (CPT 12-8) **Date:** 12/11/14
Location: **Elev./Depth:** 18.5-19'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.3	54.3	36.9	8.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.7		
#10	99.5		
#30	96.3		
#40	91.7		
#50	83.6		
#100	63.8		
#200	45.4		
#270	37.7		
0.0332 mm.	28.7		
0.0215 mm.	23.2		
0.0126 mm.	19.1		
0.0090 mm.	16.6		
0.0064 mm.	14.0		
0.0046 mm.	11.9		
0.0032 mm.	10.2		
0.0023 mm.	9.0		
0.0014 mm.	6.7		

* (no specification provided)

Soil Description

Olive Silty SAND

Atterberg Limits

PL= NP LL= PI= NP

Coefficients

D_{85}= 0.316 D_{60}= 0.131 D_{50}= 0.0905
D_{30}= 0.0358 D_{15}= 0.0073 D_{10}= 0.0030
C_u= 43.62 C_c= 3.25

Classification

USCS= SM AASHTO=

Remarks

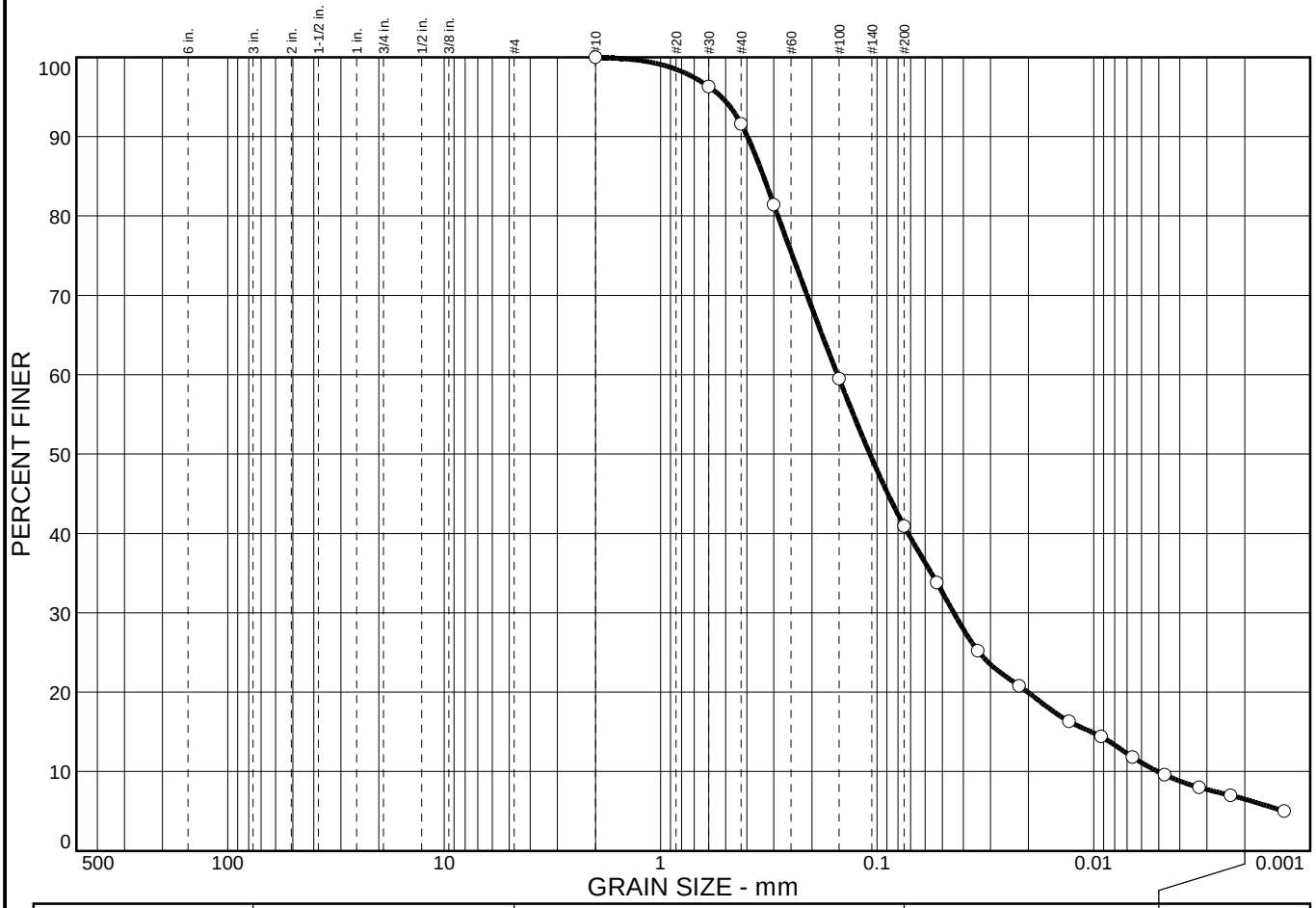
Sample No.: **Source of Sample:** GT-008 (CPT 12-8) **Date:** 12/12/14
Location: **Elev./Depth:** 21-21.5'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	59.1	34.4	6.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	96.3		
#40	91.6		
#50	81.4		
#100	59.5		
#200	40.9		
#270	33.8		
0.0342 mm.	25.2		
0.0221 mm.	20.8		
0.0130 mm.	16.3		
0.0092 mm.	14.4		
0.0066 mm.	11.8		
0.0047 mm.	9.6		
0.0033 mm.	8.0		
0.0023 mm.	7.0		
0.0013 mm.	5.0		

* (no specification provided)

Soil Description

Olive Silty, Clayey SAND

Atterberg Limits

PL= 12 LL= 18 PI= 6

Coefficients

D_{85}= 0.335 D_{60}= 0.153 D_{50}= 0.108
D_{30}= 0.0443 D_{15}= 0.0102 D_{10}= 0.0051
C_u= 30.18 C_c= 2.55

Classification

USCS= SC-SM AASHTO=

Remarks

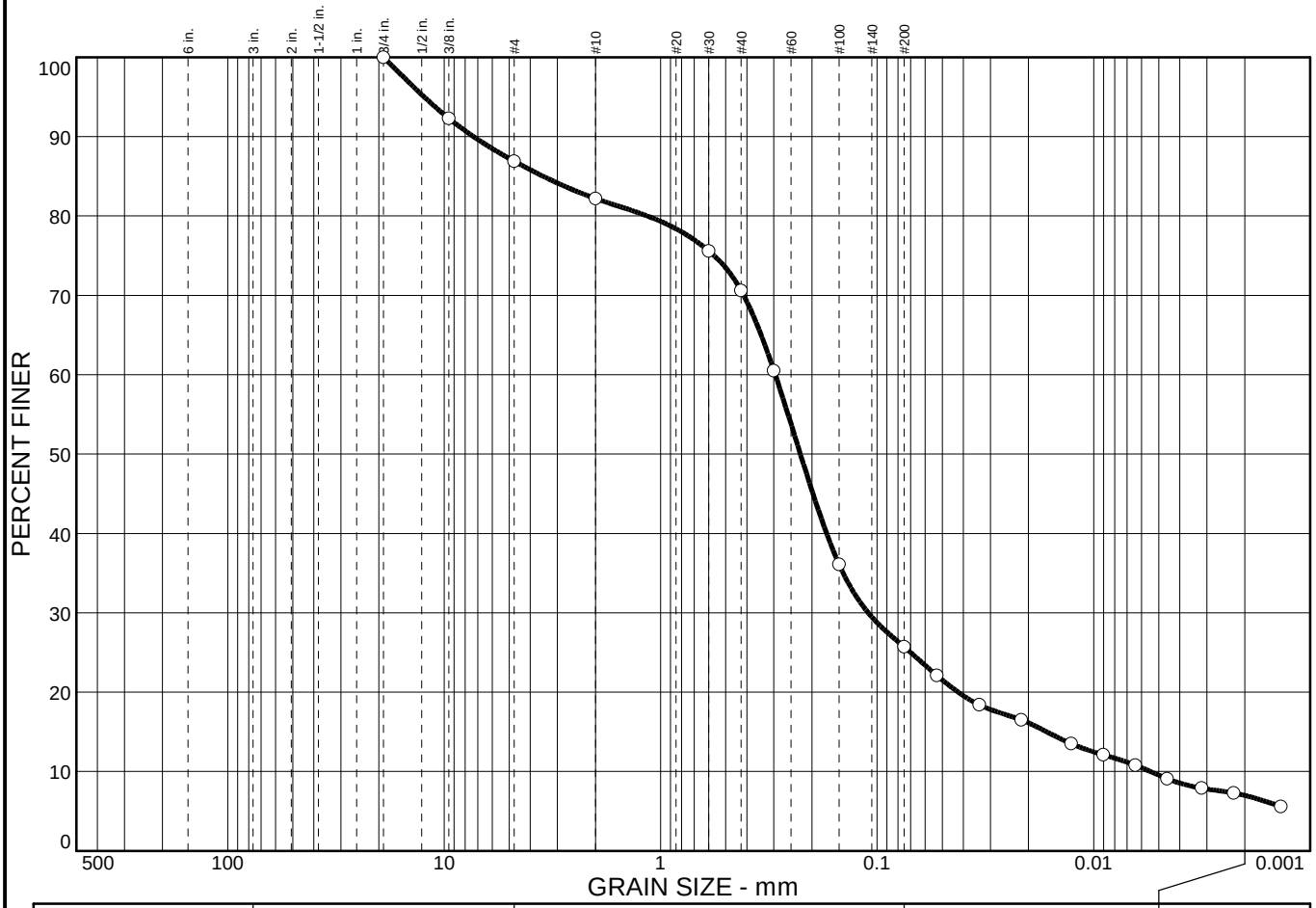
Sample No.: **Source of Sample:** GT-008 (CPT 12-8) **Date:** 12/16/14
Location: **Elev./Depth:** 23.5-24'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	13.1	61.2	18.7	7.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	92.3		
#4	86.9		
#10	82.2		
#30	75.6		
#40	70.6		
#50	60.5		
#100	36.1		
#200	25.7		
#270	22.1		
0.0338 mm.	18.4		
0.0216 mm.	16.5		
0.0127 mm.	13.5		
0.0090 mm.	12.1		
0.0064 mm.	10.8		
0.0046 mm.	9.1		
0.0032 mm.	7.9		
0.0023 mm.	7.3		
0.0014 mm.	5.6		

* (no specification provided)

Soil Description

Dark Greenish Gray Clayey SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 3.49 D_{60}= 0.296 D_{50}= 0.226
D_{30}= 0.110 D_{15}= 0.0165 D_{10}= 0.0055
C_u= 54.07 C_c= 7.48

Classification

USCS= AASHTO=

Remarks

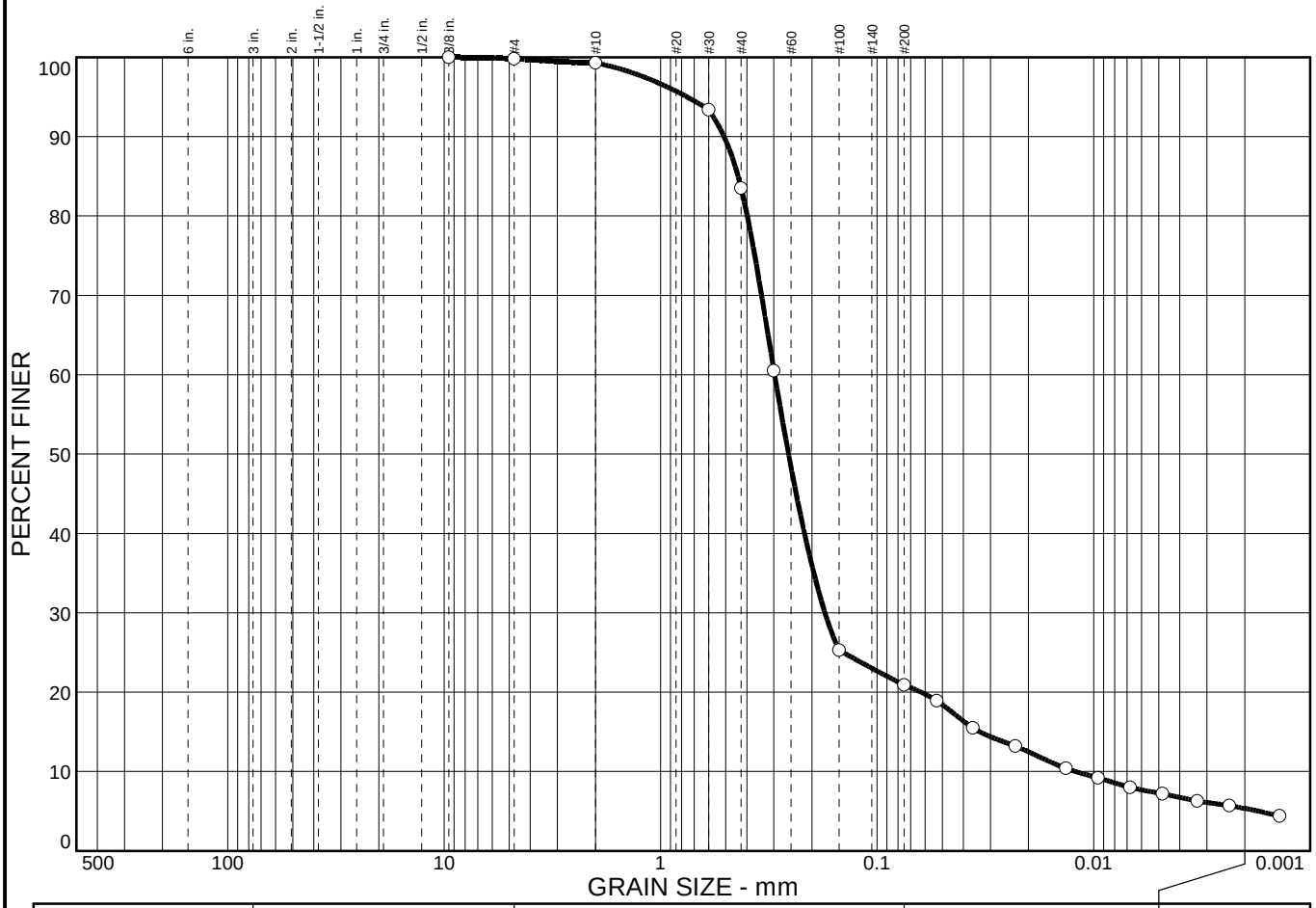
Sample No.: **Source of Sample:** GT-008 (CPT 12-8) **Date:** 12/12/14
Location: **Elev./Depth:** 9-11.5'

COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.2	78.9	15.5	5.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.8		
#10	99.3		
#30	93.4		
#40	83.5		
#50	60.5		
#100	25.3		
#200	20.9		
#270	18.9		
0.0361 mm.	15.5		
0.0230 mm.	13.2		
0.0134 mm.	10.4		
0.0095 mm.	9.2		
0.0068 mm.	8.0		
0.0048 mm.	7.2		
0.0033 mm.	6.3		
0.0024 mm.	5.7		
0.0014 mm.	4.4		

* (no specification provided)

Soil Description

Very Dark Brown Silty SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.439 D_{60}= 0.298 D_{50}= 0.257
D_{30}= 0.174 D_{15}= 0.0335 D_{10}= 0.0121
C_u= 24.60 C_c= 8.43

Classification

USCS= AASHTO=

Remarks

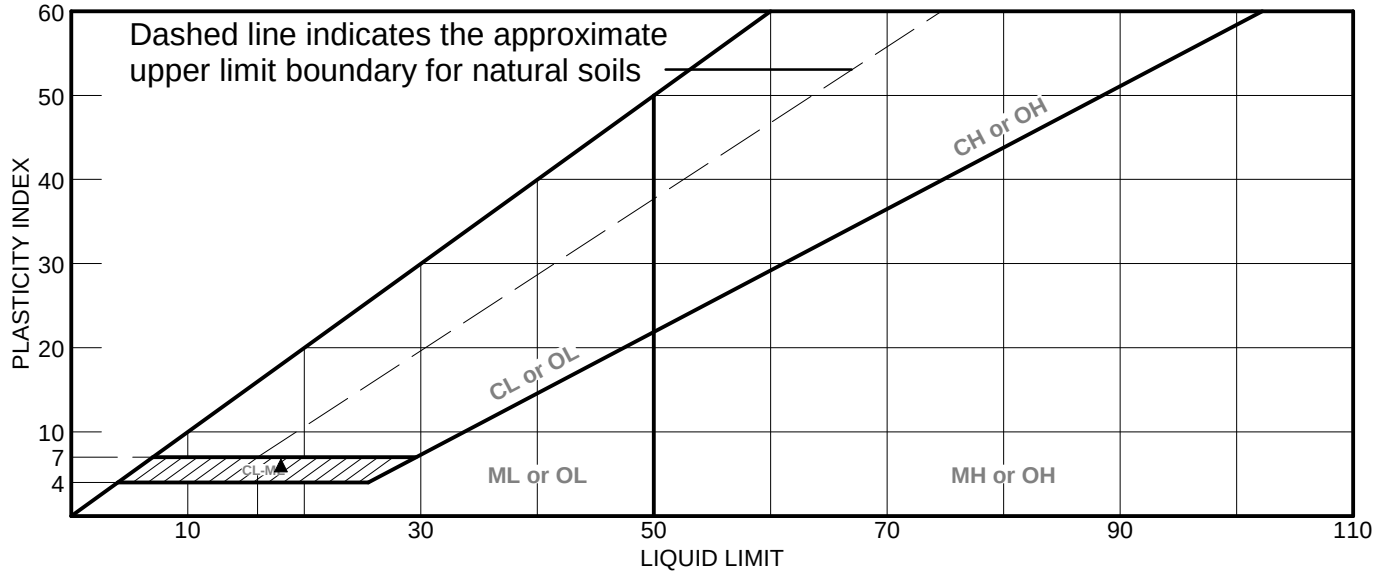
Sample No.: **Source of Sample:** TP-4 **Date:** 12/11/14
Location: **Elev./Depth:** 4-4.0'

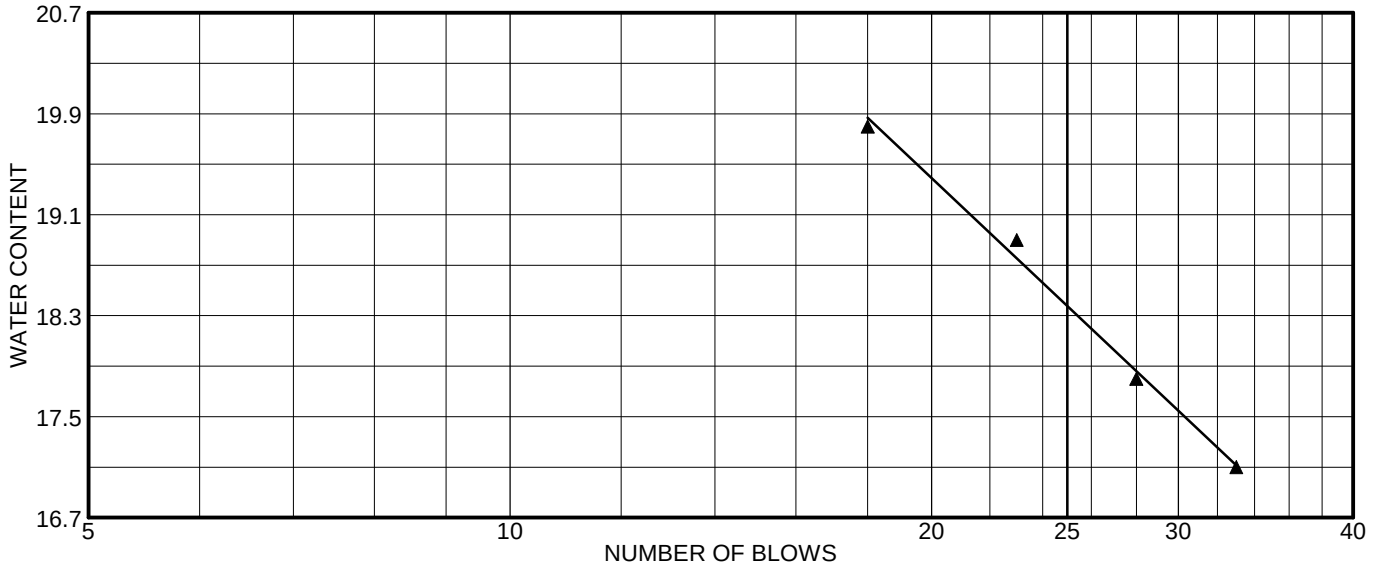
COOPER TESTING LABORATORY

Client: Arcadis
Project: Georgia-Pacific Fort Bragg

Project No: 477-021 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very Dark Gray Well-Graded SAND w/ Gravel		NP	NP	10.5	4.4	SW
■	Olive Silty SAND		NP	NP	91.7	45.4	SM
▲	Olive Silty, Clayey SAND	18	12	6	91.6	40.9	SC-SM

Project No. 477-021 **Client:** Arcadis

Project: Georgia-Pacific Fort Bragg

● **Source:** GT-007 (CPT 12-7) **Elev./Depth:** 18.5-19'

■ **Source:** GT-008 (CPT 12-8) **Elev./Depth:** 21-21.5'

▲ **Source:** GT-008 (CPT 12-8) **Elev./Depth:** 23.5-24'

Remarks:

● Could not roll out. Sample slides in bowl. Non-plastic.

■ Could not roll out. Sample slides in bowl. Non-plastic.

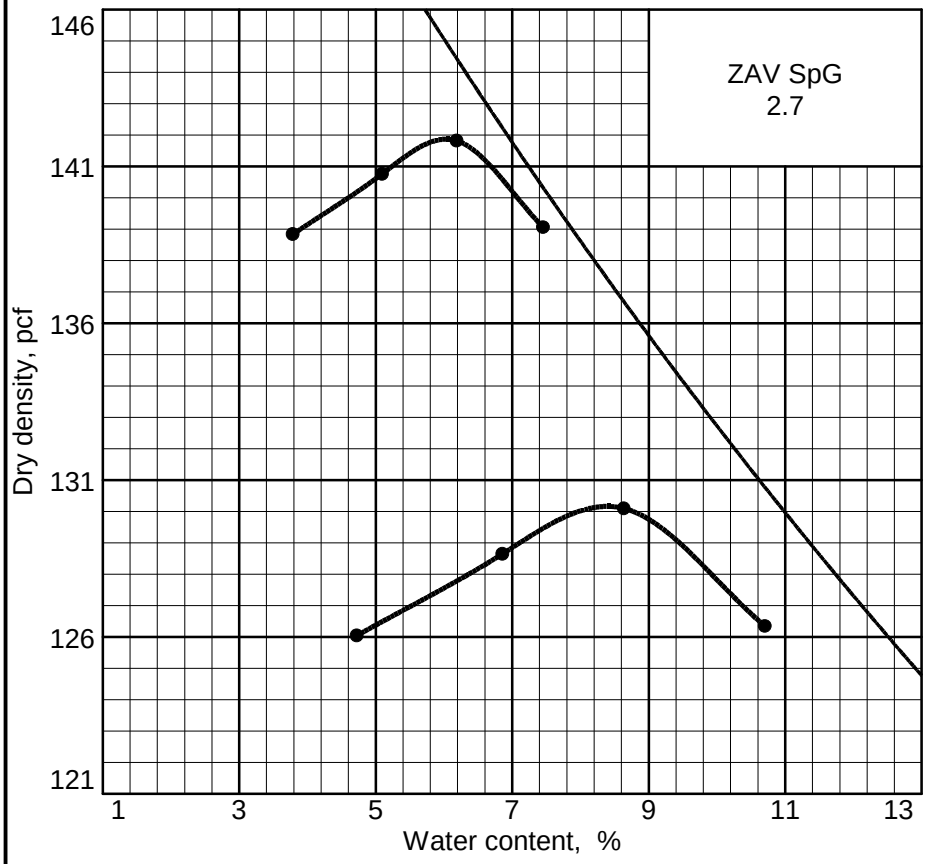
▲

LIQUID AND PLASTIC LIMITS TEST REPORT

COOPER TESTING LABORATORY

Figure

COMPACTION TEST REPORT



Curve No.

Test Specification:
ASTM D 1557-00 Method C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.

Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM _____ **Sp.G.** 2.7
LL _____ **PI** _____
%>3/4 in. 38.7 **%<#200** 7.7
USCS _____ **AASHTO** _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	16.34	16.63	15.93	16.52		
WM	6.03	6.03	6.03	6.03		
WW + T #1	1213.20	1184.00	1285.70	1408.20		
WD + T #1	1156.30	1115.70	1240.90	1302.80		
TARE #1	326.30	324.90	292.60	318.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.1	6.2	3.8	7.5		
DRY DENSITY	140.8	141.8	138.8	139.1		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 141.9 pcf	130.2 pcf	Dark Gray Well-Graded GRAVEL w/ Silt & Sand
Optimum moisture = 6.0 %	8.4 %	

Project No. 477-021 **Client:** Arcadis
Project: Georgia-Pacific Fort Bragg

● **Source:** TP-10 **Elev./Depth:** 0.5'

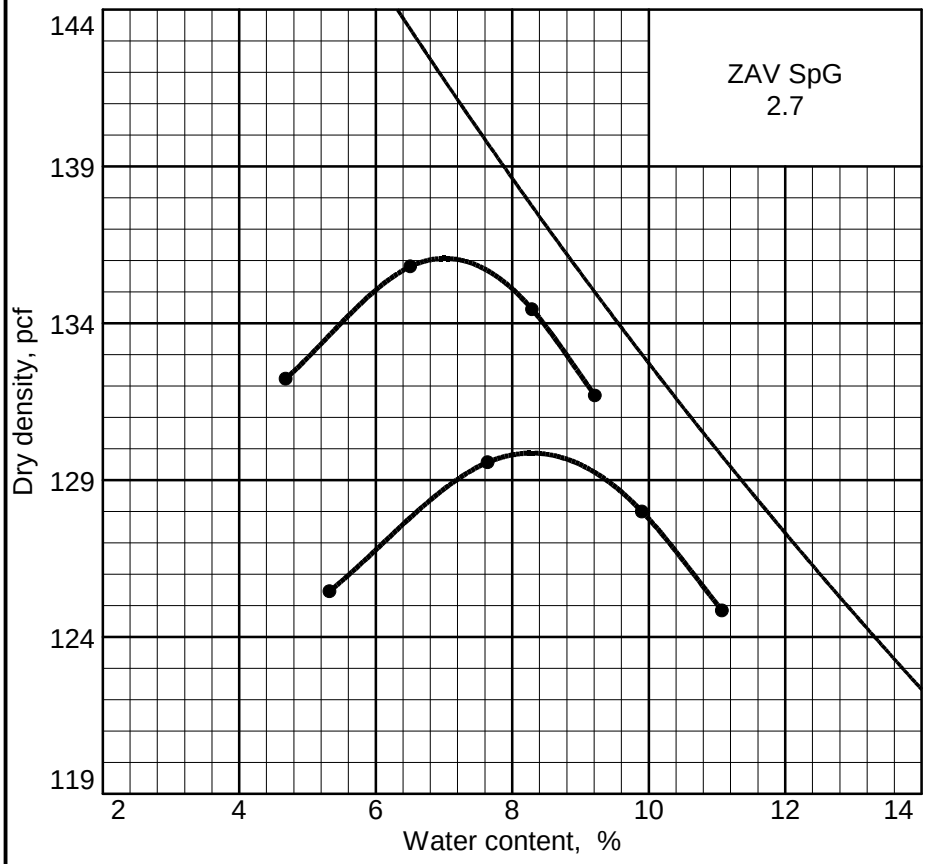
Remarks:
Due to small sample size the wettest point was run with reused material. As requested, method C run even w/ >30% +3/4".

COMPACTION TEST REPORT

COOPER TESTING LABORATORY

Figure

COMPACTION TEST REPORT



Curve No.

Test Specification:
ASTM D 1557-00 Method C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.

Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM _____ **Sp.G.** 2.7
LL _____ **PI** _____
%>3/4 in. 21.2 **%<#200** 14.4
USCS _____ **AASHTO** _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	16.49	16.58	15.94	16.43		
WM	6.03	6.03	6.03	6.03		
WW + T #1	1079.70	1029.00	1232.00	1106.00		
WD + T #1	1024.00	962.90	1184.70	1028.30		
TARE #1	295.00	295.40	296.00	326.60		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.5	8.3	4.7	9.2		
DRY DENSITY	135.8	134.4	132.2	131.7		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 136.1 pcf	129.9 pcf	Dark Brown Silty GRAVEL w/ Sand
Optimum moisture = 7.0 %	8.3 %	

Project No. 477-021 **Client:** Arcadis
Project: Georgia-Pacific Fort Bragg

● **Source:** TP-2

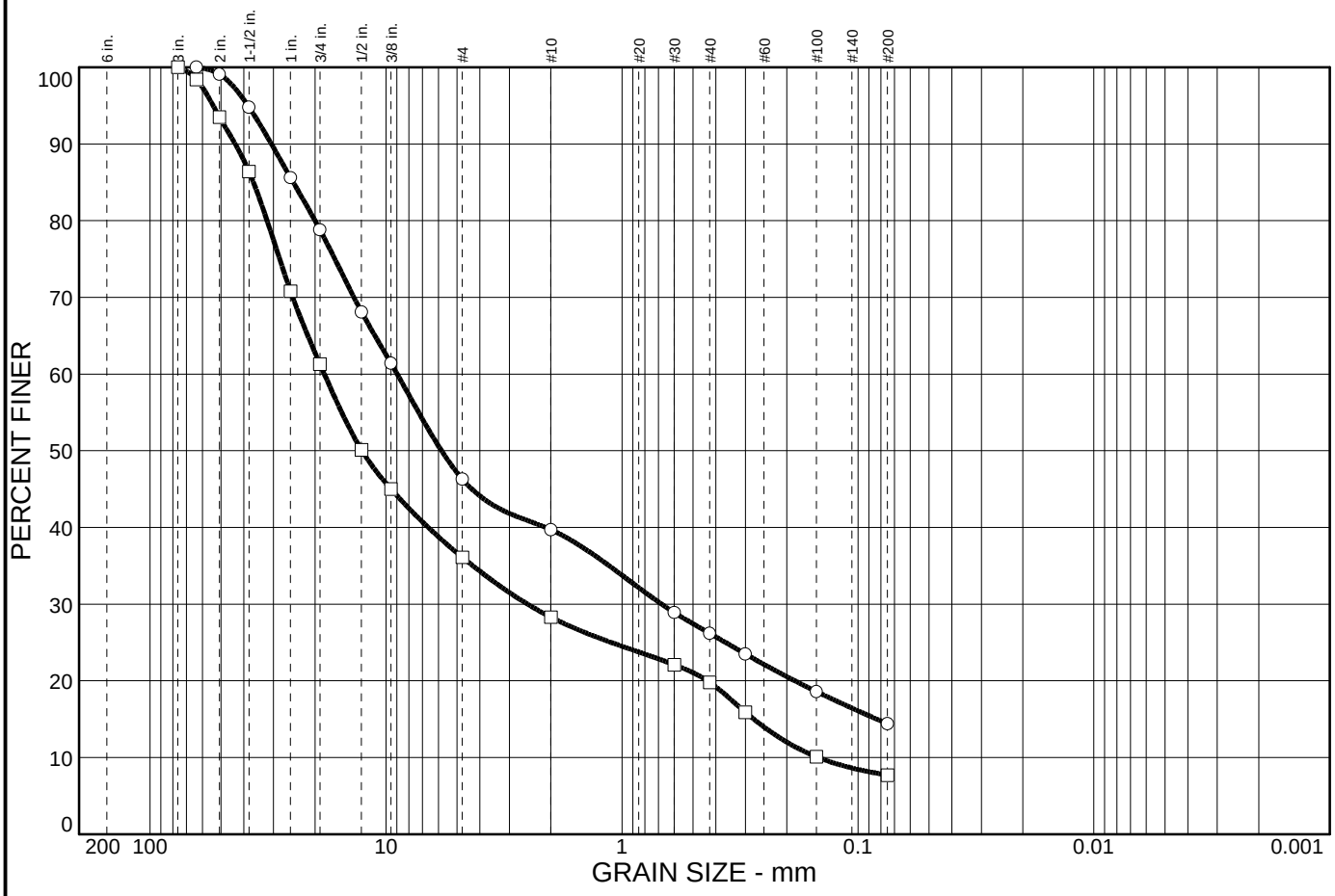
Remarks:
Due to small sample size available the wettest point was run with reused material.

COMPACTION TEST REPORT

COOPER TESTING LABORATORY

Figure

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		53.7	31.9	14.4					
□		63.9	28.4	7.7					

SIEVE inches size	PERCENT FINER ○	□
3		100.0
2.5	100.0	98.4
2	99.1	93.5
1.5"	94.8	86.4
1"	85.6	70.8
3/4"	78.8	61.3
1/2"	68.1	50.1
3/8"	61.4	45.0
GRAIN SIZE		
D_{60}	8.97	18.3
D_{30}	0.679	2.51
D_{10}		0.147
COEFFICIENTS		
C_c		2.35
C_u		124.02

SIEVE number size	PERCENT FINER ○	□
#4	46.3	36.1
#10	39.7	28.3
#30	28.9	22.1
#40	26.2	19.8
#50	23.5	15.9
#100	18.6	10.1
#200	14.4	7.7

SOIL DESCRIPTION

○ Dark Brown Silty GRAVEL w/ Sand

□ Dark Gray Well-Graded GRAVEL w/ Silt & Sand

REMARKS:

○

□ Due to the small sample size, relative to the largest particle size, this data should be considered to be approximate.

○ Source: TP-2

□ Source: TP-10

Elev./Depth: 0.5'

COOPER TESTING LABORATORY

Client: Arcadis

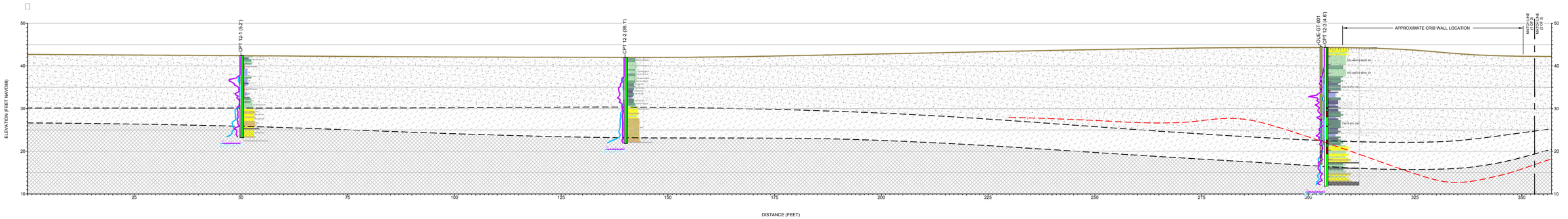
Project: Georgia-Pacific Fort Bragg

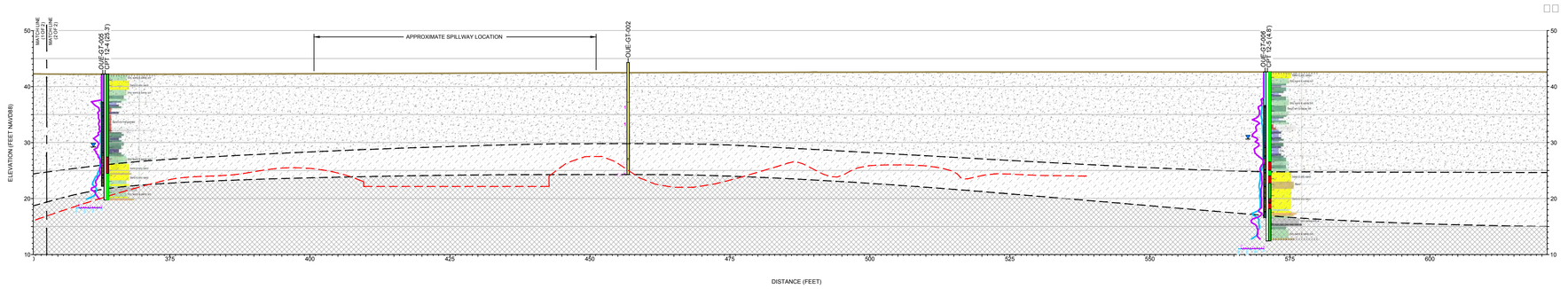
Project No.: 477-021

Figure

Appendix I

Geologic Cross Sections





0 6' 12' 18' 24'
HORIZONTAL SCALE

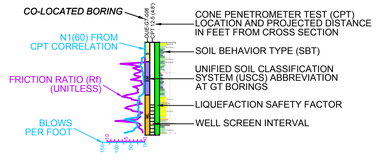
0 6' 12' 18' 24'
VERTICAL SCALE

LEGEND

SOIL BEHAVIOR TYPE:

- SENSITIVE, FINE GRAINED
- ORGANIC MATERIALS
- CLAY
- SILTY CLAY TO CLAY
- CLAYEY SILT TO SILTY CLAY
- SANDY SILT TO CLAYEY SILT
- SILTY SAND TO SANDY SILT
- SAND TO SILTY SAND
- SAND
- GRAVELY SAND TO SAND
- VERY STIFF FINE GRAINED
- SAND TO CLAYEY SAND

- FILL MATERIAL
- MARINE TERRACE DEPOSITS
- BEDROCK
- LIQUEFACTION SAFETY FACTOR ≤1
- LIQUEFACTION SAFETY FACTOR >1
- GROUNDWATER ELEVATION ON 2/5/15 (FEET NAVD88)
- SPT BLOW COUNT
- BEDROCK OUTCROPPING SURVEY



USCS ABBREVIATIONS:

- SM
- SP
- SW
- ML
- GP

NOTES:

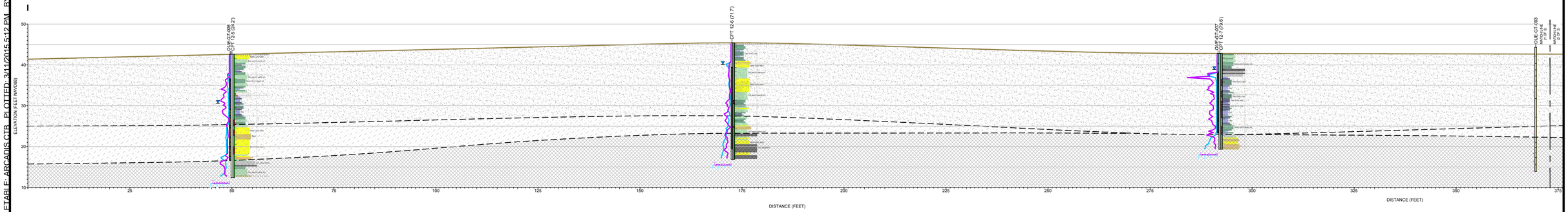
1. CPT BORINGS CLEARED TO 5 FEET BELOW GROUND SURFACE WITH A HAND AUGER.
2. CONTACTS INFERRED BETWEEN BORING LOCATIONS.
3. THE BEDROCK OUTCROPPING SURVEY WAS PERFORMED ON THE FACE (OCEAN SIDE) OF THE DAM. THE OFFSET FROM THE BEDROCK OUTCROPPING SURVEY TO THE SECTION LINE IS APPROXIMATELY 40 FEET.

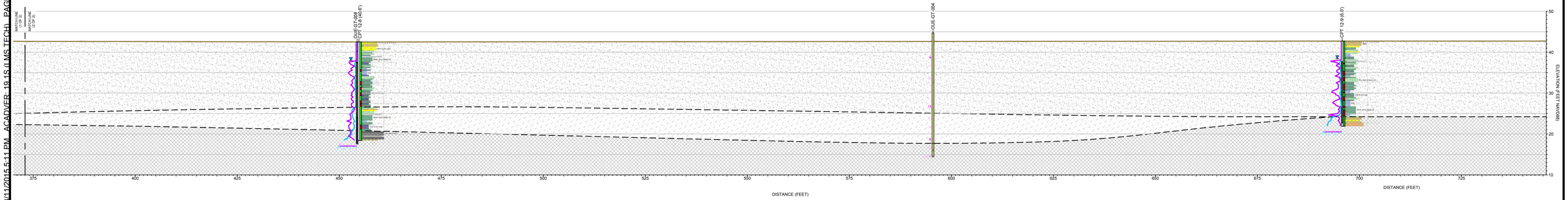
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

GEOLOGIC CROSS SECTION H-H'
CRIB WALL AND SPILLWAY

ARCADIS

FIGURE
I-1



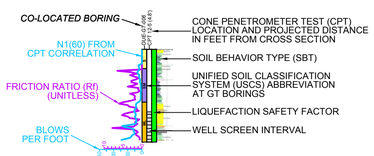


LEGEND

SOIL BEHAVIOR TYPE:

- SENSITIVE, FINE GRAINED
- ORGANIC MATERIALS
- CLAY
- SILTY CLAY TO CLAY
- CLAYEY SILT TO SILTY CLAY
- SANDY SILT TO CLAYEY SILT
- SILTY SAND TO SANDY SILT
- SAND TO SILTY SAND
- SAND
- GRAVELY SAND TO SAND
- VERY STIFF FINE GRAINED
- SAND TO CLAYEY SAND

- FILL MATERIAL
- MARINE TERRACE DEPOSITS
- BEDROCK
- LIQUEFACTION SAFETY FACTOR ≤1
- LIQUEFACTION SAFETY FACTOR >1
- GROUNDWATER ELEVATION ON 2/5/15 (FEET NAVD88)
- SPT BLOW COUNT
- BEDROCK OUTCROPPING SURVEY



USCS ABBREVIATIONS:

- SM
- SP
- SW
- ML
- GP

NOTES:

1. CPT BORINGS CLEARED TO 5 FEET BELOW GROUND SURFACE WITH A HAND AUGER.
2. CONTACTS INFERRED BETWEEN BORING LOCATIONS.

0 4' 8' 12' 16'
HORIZONTAL SCALE

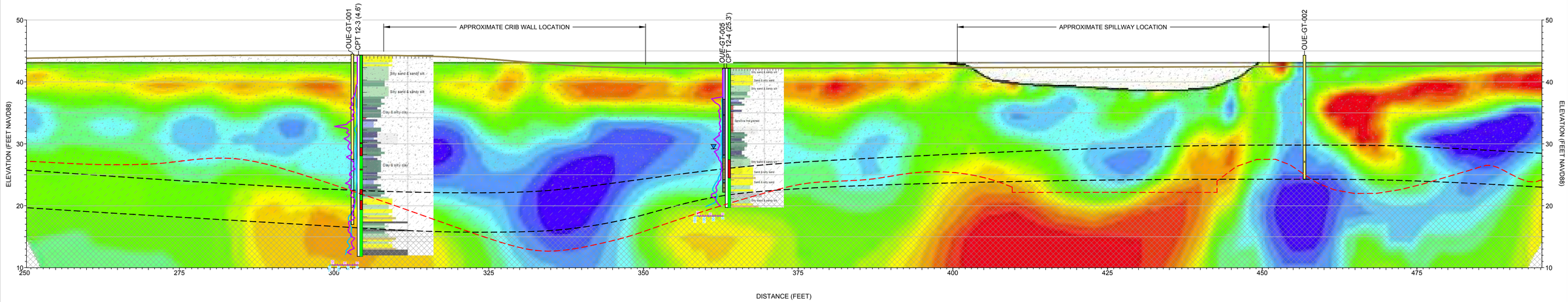
0 4' 8' 12' 16'
VERTICAL SCALE

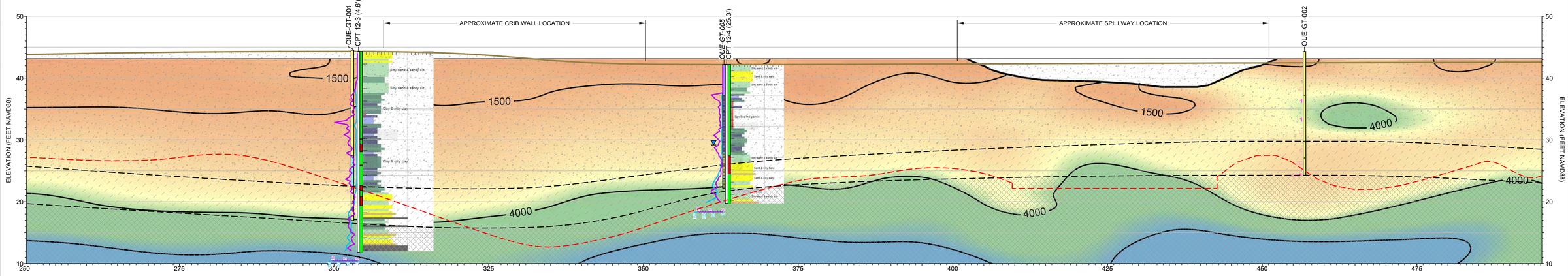
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

GEOLOGIC CROSS SECTION I-I'
NORTHERN EMBANKMENT

ARCADIS

FIGURE
I-2





0 4' 8' 12' 16'
HORIZONTAL SCALE

0 4' 8' 12' 16'
VERTICAL SCALE

LEGEND

SOIL BEHAVIOR TYPE:
- SENSITIVE, FINE GRAINED
- ORGANIC MATERIALS
- CLAY
- SILTY CLAY TO CLAY
- CLAYEY SILT TO SILTY CLAY
- SANDY SILT TO CLAYEY SILT
- SILTY SAND TO SANDY SILT
- SAND TO SILTY SAND
- SAND
- GRAVELY SAND TO SAND
- VERY STIFF FINE GRAINED
- SAND TO CLAYEY SAND

- FILL MATERIAL
- MARINE TERRACE DEPOSITS
- BEDROCK
- LIQUEFACTION SAFETY FACTOR ≤1
- LIQUEFACTION SAFETY FACTOR >1
- GROUNDWATER ELEVATION ON 2/5/15 (FEET NAVD88)
- SPT BLOW COUNT
- BEDROCK OUTCROPPING SURVEY

CO-LOCATED BORING
- CONE PENETROMETER TEST (CPT) LOCATION AND PROJECTED DISTANCE IN FEET FROM CROSS SECTION
- N1(60) FROM CPT CORRELATION
- SOIL BEHAVIOR TYPE (SBT)
- FRICTION RATIO (Rf) (UNITLESS)
- UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) ABBREVIATION AT GT BORINGS
- LIQUEFACTION SAFETY FACTOR
- BLOWS PER FOOT
- WELL SCREEN INTERVAL

USCS ABBREVIATIONS:
- SM
- SP
- SW
- ML
- GP

ELECTRICAL RESISTIVITY PROFILE
V1 | V2 | V3 | V4
5 10 19 36 71 100 265 515 1,000
ELECTRICAL RESISTIVITY (OHM-FT)

SEISMIC REFRACTION PROFILE
V1 | V2 | V3 | V4
2,000 4,000 6,000 8,000 10,000 12,000
VELOCITY (FEET PER SECOND)

NOTES:
1. CPT BORINGS CLEARED TO 5 FEET BELOW GROUND SURFACE WITH A HAND AUGER.
2. CONTACTS INFERRED BETWEEN BORING LOCATIONS.
3. THE BEDROCK OUTCROPPING SURVEY WAS PERFORMED ON THE FACE (OCEAN SIDE) OF THE DAM. THE OFFSET FROM THE BEDROCK OUTCROPPING SURVEY TO THE SECTION LINE IS APPROXIMATELY 40 FEET.

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

GEOLOGIC CROSS SECTION H-H'
CRIB WALL AND SPILLWAY
ER AND SM PROFILES

ARCADIS

FIGURE
I-3

ARCADIS

Appendix J

Seismic Hazard Results

Deterministic Spectra Results using EZ-FRISK 7.65 Build 004

Largest Amplitudes of Ground Motions Considering All Sources Calculated using Weighted Mean of Attenuation Equations

Amplitude Units: Acceleration (g)

Fractile: 0.5

Period	Amplitude	Magnitude	Closest Distance(km)	Region	Controlling Source
PGA	3.406e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.05	4.784e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.1	6.688e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.2	7.481e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.3	6.386e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.4	5.515e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.5	4.800e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.75	3.465e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
1	2.683e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
2	1.403e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
3	9.883e-002	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
4	7.890e-002	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

Largest Amplitudes of Ground Motions Considering Sources Calculated with Abrahamson-et al (2014) NGA West 2

Amplitude Units: Acceleration (g)

Fractile: 0.5

Period	Amplitude	Magnitude	Closest Distance(km)	Region	Controlling Source
PGA	3.312e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

0.05	4.112e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.1	6.365e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.2	8.123e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.3	6.519e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.4	5.202e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.5	4.438e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.75	3.253e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
1	2.503e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
2	1.218e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
3	8.074e-002	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
4	6.218e-002	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

Largest Amplitudes of Ground Motions Considering Sources Calculated with Boore-et al (2014) NGA West 2
Amplitude Units: Acceleration (g)

Fractile: 0.5

Period	Amplitude	Magnitude	Closest Distance(km)	Region	Controlling Source
PGA	3.323e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.05	4.311e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.1	5.946e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.2	6.901e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.3	6.131e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.4	5.427e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.5	4.790e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.75	3.538e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
1	2.754e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
2	1.506e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
3	1.149e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

4	9.856e-002	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

Largest Amplitudes of Ground Motions Considering Sources Calculated with Campbell-Bozorgnia (2014) NGA West 2
Amplitude Units: Acceleration (g)

Fractile: 0.5

Period	Amplitude	Magnitude	Closest Distance(km)	Region	Controlling Source
PGA	3.327e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.05	5.397e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.1	6.550e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.2	6.320e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.3	5.377e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.4	4.935e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.5	4.306e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.75	3.023e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
1	2.522e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
2	1.604e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
3	1.210e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
4	1.008e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

Largest Amplitudes of Ground Motions Considering Sources Calculated with Chiou-Youngs (2014) NGA West 2
Amplitude Units: Acceleration (g)

Fractile: 0.5

Period	Amplitude	Magnitude	Closest Distance(km)	Region	Controlling Source
PGA	3.663e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

0.05	5.318e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.1	7.891e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.2	8.578e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.3	7.517e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.4	6.496e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.5	5.668e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
0.75	4.043e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
1	2.951e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
2	1.285e-001	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
3	7.873e-002	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas
4	5.410e-002	8.05 Mw	10.22	USGS 2008 California	Northern San Andreas

Largest Amplitudes of Ground Motions for Each Source

Source: Northern San Andreas
Region: USGS 2008 California
Closest Distance: 10.22 km
Amplitude Units: Acceleration (g)
Magnitude: 8.05 Mw
Fractile: 0.50
Column 1: Spectral Period
Column 2: Acceleration (g) for: Weighted Mean of Attenuation Equations
Column 3: Acceleration (g) for: Abrahamson-et al (2014) NGA West 2
Column 4: Acceleration (g) for: Boore-et al (2014) NGA West 2
Column 5: Acceleration (g) for: Campbell-Bozorgnia (2014) NGA West 2
Column 6: Acceleration (g) for: Chiou-Youngs (2014) NGA West 2

1	2	3	4	5	6

PGA	3.406e-001	3.312e-001	3.323e-001	3.327e-001	3.663e-001
0.05	4.784e-001	4.112e-001	4.311e-001	5.397e-001	5.318e-001
0.1	6.688e-001	6.365e-001	5.946e-001	6.550e-001	7.891e-001
0.2	7.481e-001	8.123e-001	6.901e-001	6.320e-001	8.578e-001
0.3	6.386e-001	6.519e-001	6.131e-001	5.377e-001	7.517e-001
0.4	5.515e-001	5.202e-001	5.427e-001	4.935e-001	6.496e-001
0.5	4.800e-001	4.438e-001	4.790e-001	4.306e-001	5.668e-001
0.75	3.465e-001	3.253e-001	3.538e-001	3.023e-001	4.043e-001
1	2.683e-001	2.503e-001	2.754e-001	2.522e-001	2.951e-001
2	1.403e-001	1.218e-001	1.506e-001	1.604e-001	1.285e-001
3	9.883e-002	8.074e-002	1.149e-001	1.210e-001	7.873e-002
4	7.890e-002	6.218e-002	9.856e-002	1.008e-001	5.410e-002

Source: Bartlett Springs
Region: USGS 2008 California
  Closest Distance: 61.43 km
  Amplitude Units: Acceleration (g)
  Magnitude: 7.30 Mw
  Fractile: 0.50
  Column 1: Spectral Period
  Column 2: Acceleration (g) for: Weighted Mean of Attenuation Equations
  Column 3: Acceleration (g) for: Abrahamson-et al (2014) NGA West 2
  Column 4: Acceleration (g) for: Boore-et al (2014) NGA West 2
  Column 5: Acceleration (g) for: Campbell-Bozorgnia (2014) NGA West 2
  Column 6: Acceleration (g) for: Chiou-Youngs (2014) NGA West 2

1	2	3	4	5	6
PGA	6.916e-002	7.615e-002	6.396e-002	6.596e-002	7.056e-002

0.05	9.250e-002	9.417e-002	7.787e-002	9.612e-002	1.018e-001
0.1	1.265e-001	1.371e-001	1.112e-001	1.155e-001	1.422e-001
0.2	1.415e-001	1.706e-001	1.332e-001	1.138e-001	1.482e-001
0.3	1.254e-001	1.486e-001	1.160e-001	1.106e-001	1.265e-001
0.4	1.072e-001	1.278e-001	9.767e-002	9.771e-002	1.058e-001
0.5	9.227e-002	1.123e-001	8.256e-002	8.431e-002	8.987e-002
0.75	6.519e-002	7.991e-002	5.700e-002	6.091e-002	6.292e-002
1	4.807e-002	5.916e-002	4.176e-002	4.501e-002	4.634e-002
2	2.293e-002	2.736e-002	1.931e-002	2.342e-002	2.164e-002
3	1.444e-002	1.672e-002	1.307e-002	1.535e-002	1.260e-002
4	1.051e-002	1.198e-002	1.040e-002	1.155e-002	8.115e-003

Source: Collayomi
Region: USGS 2008 California
Closest Distance: 95.82 km
Amplitude Units: Acceleration (g)
Magnitude: 6.70 Mw
Fractile: 0.50
Column 1: Spectral Period
Column 2: Acceleration (g) for: Weighted Mean of Attenuation Equations
Column 3: Acceleration (g) for: Abrahamson-et al (2014) NGA West 2
Column 4: Acceleration (g) for: Boore-et al (2014) NGA West 2
Column 5: Acceleration (g) for: Campbell-Bozorgnia (2014) NGA West 2
Column 6: Acceleration (g) for: Chiou-Youngs (2014) NGA West 2

1	2	3	4	5	6
PGA	2.318e-002	2.098e-002	2.426e-002	2.605e-002	2.141e-002
0.05	3.009e-002	2.547e-002	2.850e-002	3.680e-002	2.959e-002

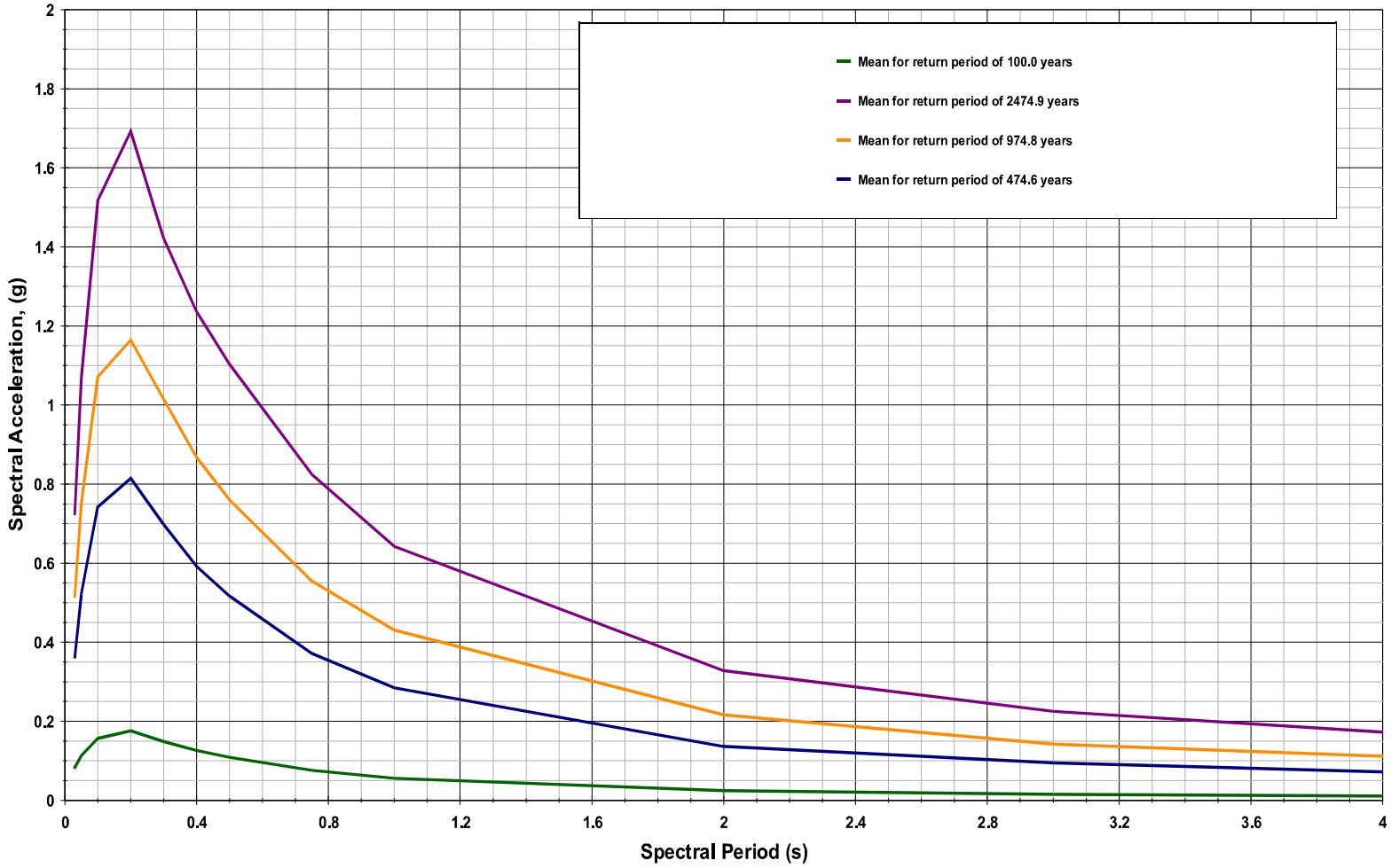
0.1	4.059e-002	3.532e-002	4.247e-002	4.521e-002	3.934e-002
0.2	4.730e-002	4.361e-002	5.645e-002	4.742e-002	4.171e-002
0.3	4.397e-002	4.040e-002	5.115e-002	4.727e-002	3.708e-002
0.4	3.875e-002	3.747e-002	4.337e-002	4.222e-002	3.195e-002
0.5	3.370e-002	3.410e-002	3.648e-002	3.645e-002	2.776e-002
0.75	2.405e-002	2.427e-002	2.512e-002	2.677e-002	2.006e-002
1	1.762e-002	1.786e-002	1.818e-002	1.941e-002	1.505e-002
2	8.005e-003	8.424e-003	7.456e-003	9.001e-003	7.139e-003
3	4.796e-003	4.901e-003	4.520e-003	5.426e-003	4.336e-003
4	3.303e-003	3.340e-003	3.289e-003	3.852e-003	2.731e-003

Source: Maacama-Garberville
Region: USGS 2008 California
  Closest Distance: 34.59 km
  Amplitude Units: Acceleration (g)
  Magnitude: 7.40 Mw
  Fractile: 0.50
  Column 1: Spectral Period
  Column 2: Acceleration (g) for: Weighted Mean of Attenuation Equations
  Column 3: Acceleration (g) for: Abrahamson-et al (2014) NGA West 2
  Column 4: Acceleration (g) for: Boore-et al (2014) NGA West 2
  Column 5: Acceleration (g) for: Campbell-Bozorgnia (2014) NGA West 2
  Column 6: Acceleration (g) for: Chiou-Youngs (2014) NGA West 2

1	2	3	4	5	6
PGA	1.218e-001	1.306e-001	1.174e-001	1.143e-001	1.248e-001
0.05	1.677e-001	1.636e-001	1.488e-001	1.735e-001	1.848e-001
0.1	2.344e-001	2.469e-001	2.121e-001	2.119e-001	2.665e-001

0.2	2.592e-001	3.049e-001	2.460e-001	2.068e-001	2.791e-001
0.3	2.211e-001	2.524e-001	2.099e-001	1.871e-001	2.349e-001
0.4	1.862e-001	2.073e-001	1.760e-001	1.669e-001	1.948e-001
0.5	1.588e-001	1.783e-001	1.489e-001	1.438e-001	1.644e-001
0.75	1.110e-001	1.267e-001	1.031e-001	1.009e-001	1.132e-001
1	8.247e-002	9.488e-002	7.600e-002	7.694e-002	8.208e-002
2	3.963e-002	4.426e-002	3.560e-002	4.201e-002	3.666e-002
3	2.546e-002	2.755e-002	2.448e-002	2.826e-002	2.153e-002
4	1.894e-002	2.005e-002	1.962e-002	2.199e-002	1.408e-002

Uniform Hazard Spectra
Spectral Response @ 5% Damping - Average Horizontal Component



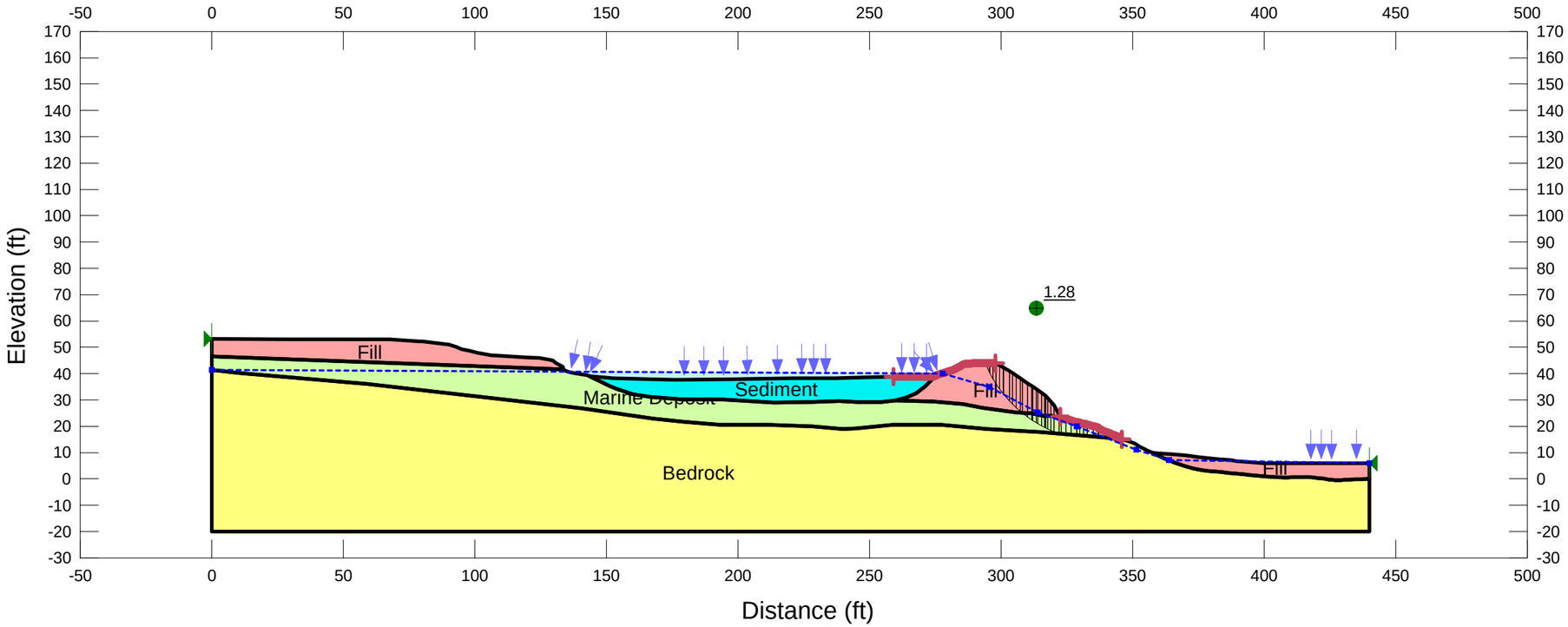
Appendix K

Slope Stability Results

File Name: A-A'_static.gsz
Last Saved Date: 1/21/2015
Analysis Type: Spencer
Cross Section A-A'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Cohesion: 0 psf; Friction Angle: 26 degrees

A **A'**



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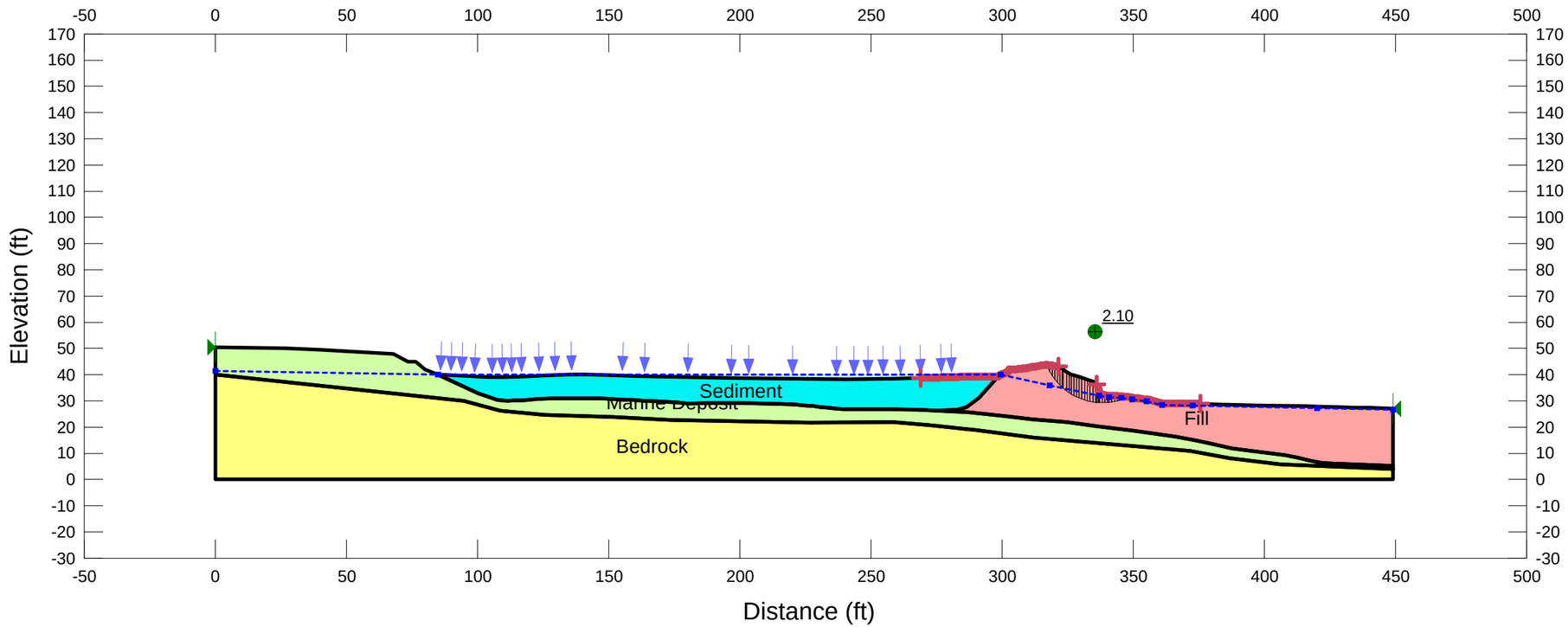
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015 / Date 1/21/2015	Analyzed J. Hu / Checked N. Trimble	**Mill Pond Dam Fort Bragg, California**	Cross Section A-A'	**Slope Stability Analysis Result**	**Attachment 1 Figure 1**

File Name: F-F'_static.gsz
Last Saved Date: 1/22/2015
Analysis Type: Spencer
Cross Section F-F'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Cohesion: 0 psf; Friction Angle: 26 degrees

F **F'**



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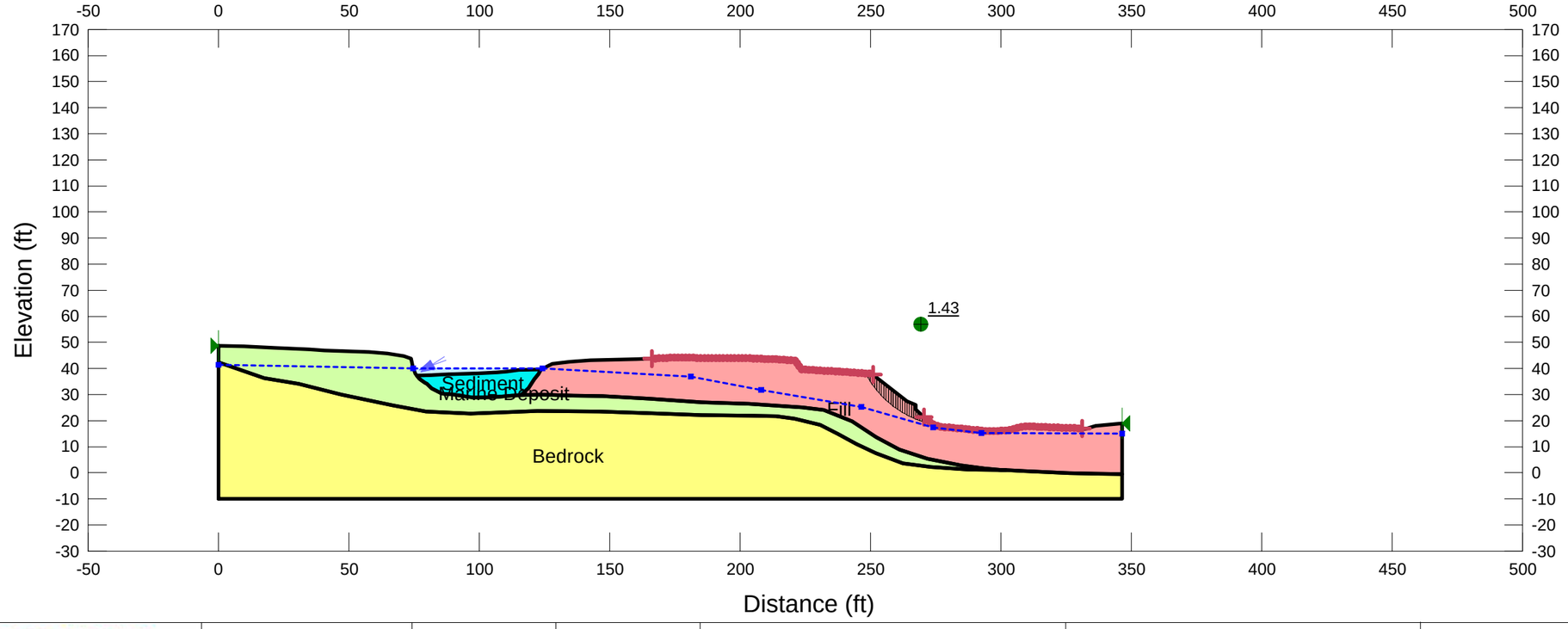
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section F-F'	**Slope Stability Analysis Result**	**Attachment 1 Figure 2**
		Date 1/22/2015	Checked N. Trimble				

File Name: G-G'_static.gsz
Last Saved Date: 1/22/2015
Analysis Type: Spencer
Cross Section G-G'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Cohesion: 0 psf; Friction Angle: 26 degrees

G **G'**



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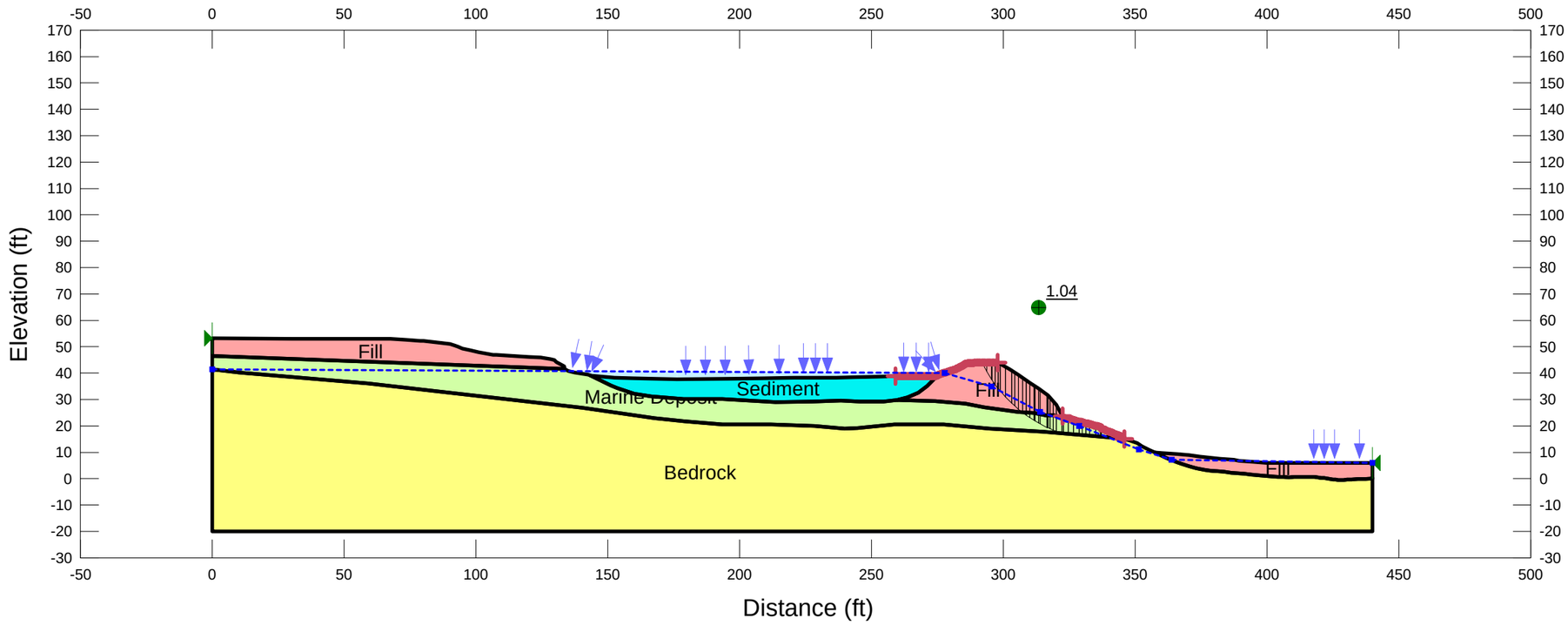
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section G-G'	**Slope Stability Analysis Result**	**Attachment 1 Figure 3**
		Date 1/22/2015	Checked N. Trimble				

File Name: A-A'_pseudostatic.gsz
Last Saved Date: 1/25/2015
Analysis Type: Spencer
Cross Section A-A'
Seismic Load: 0.15g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22

A **A'**



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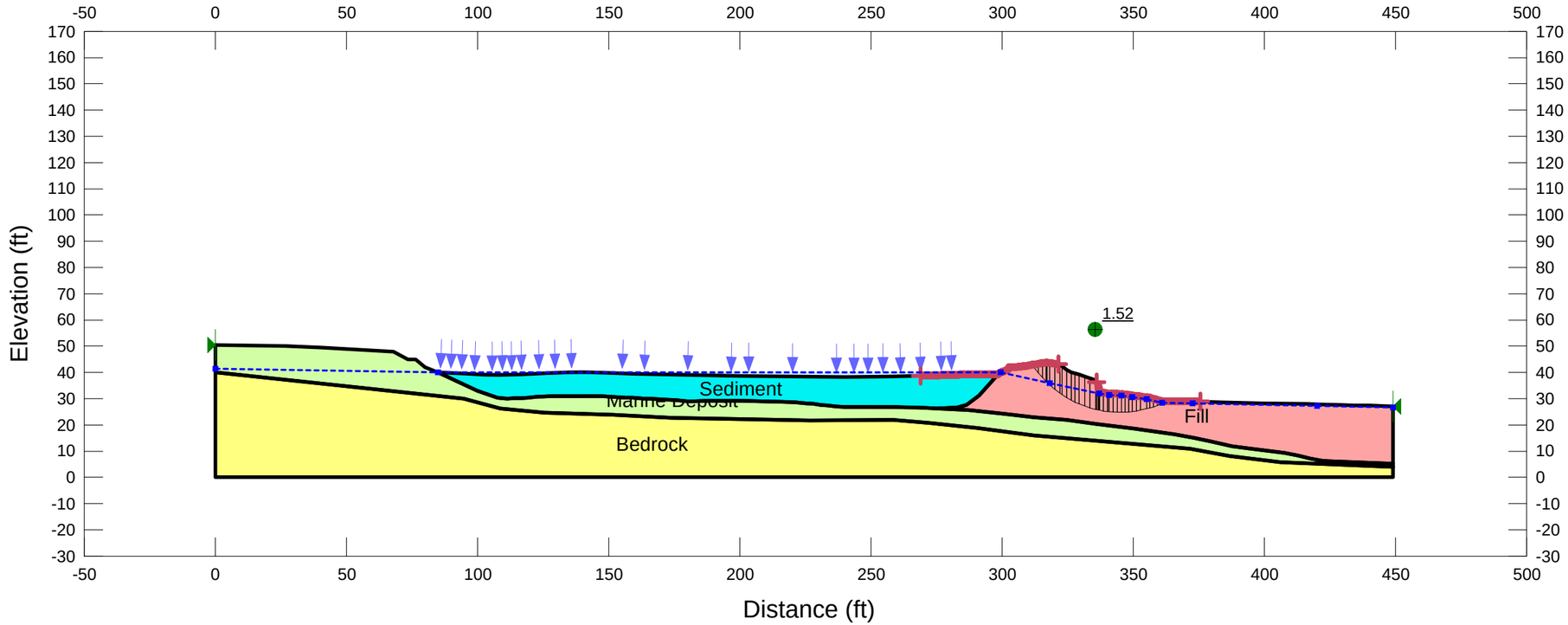
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section A-A'	**Slope Stability Analysis Result**	**Attachment 1 Figure 4**
		Date 1/25/2015	Checked N. Trimble				

File Name: F-F'_pseudostatic.gsz
Last Saved Date: 1/25/2015
Analysis Type: Spencer
Cross Section F-F'
Seismic Load: 0.15g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22

F **F'**



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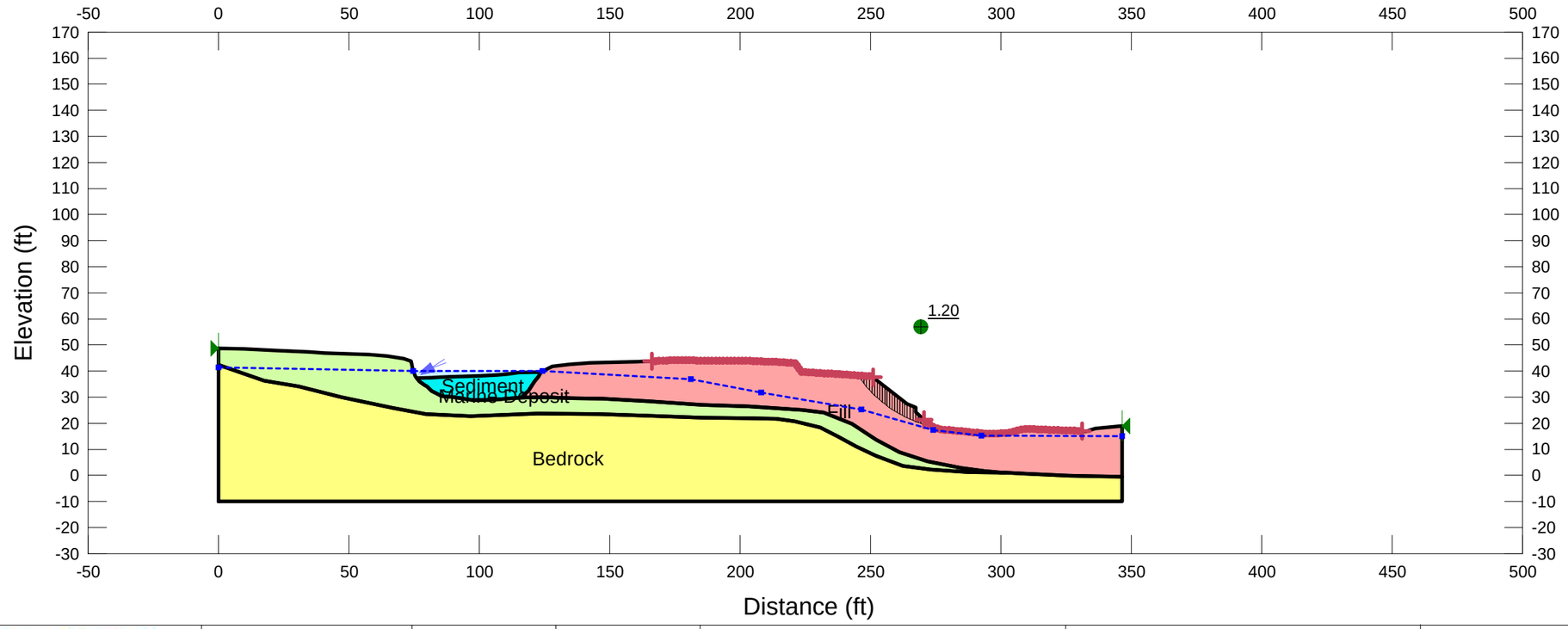
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section F-F'	**Slope Stability Analysis Result**	**Attachment 1 Figure 5**
		Date 1/25/2015	Checked N. Trimble				

File Name: G-G'_pseudostatic.gsz
Last Saved Date: 1/25/2015
Analysis Type: Spencer
Cross Section G-G'
Seismic Load: 0.15g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22

G **G'**



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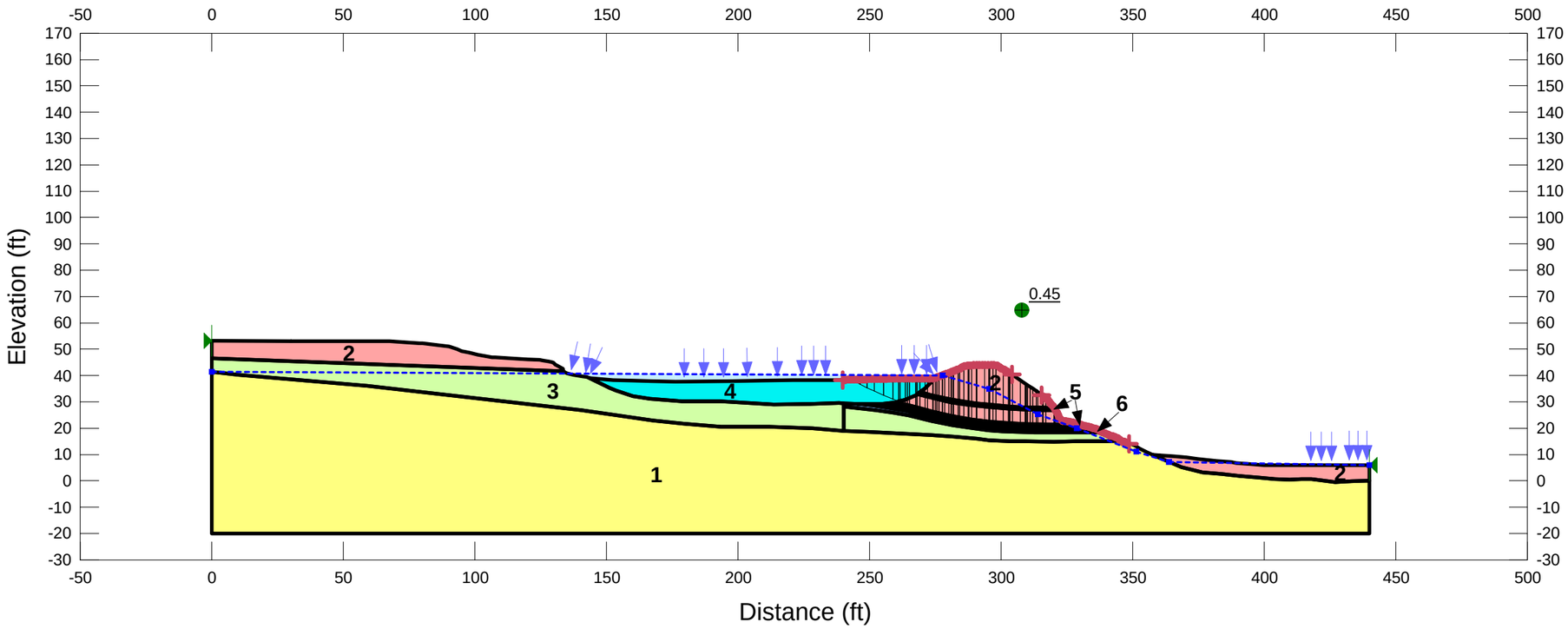
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section G-G'	**Slope Stability Analysis Result**
		Date 1/25/2015	Checked N. Trimble			**Attachment 1 Figure 6**

File Name: A-A'_post-earthquake.gsz
Last Saved Date: 3/5/2015
Analysis Type: Spencer
Cross Section A-A'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22
Material #5: Fill_Liquefied; Unit Weight: 115 pcf; Model: S=f(overburden); Value: 0.1
Material #6: Marine Deposit_Liquefied; Unit Weight: 120 pcf; Model: S=f(overburden); Value: 0.24

A **A'**



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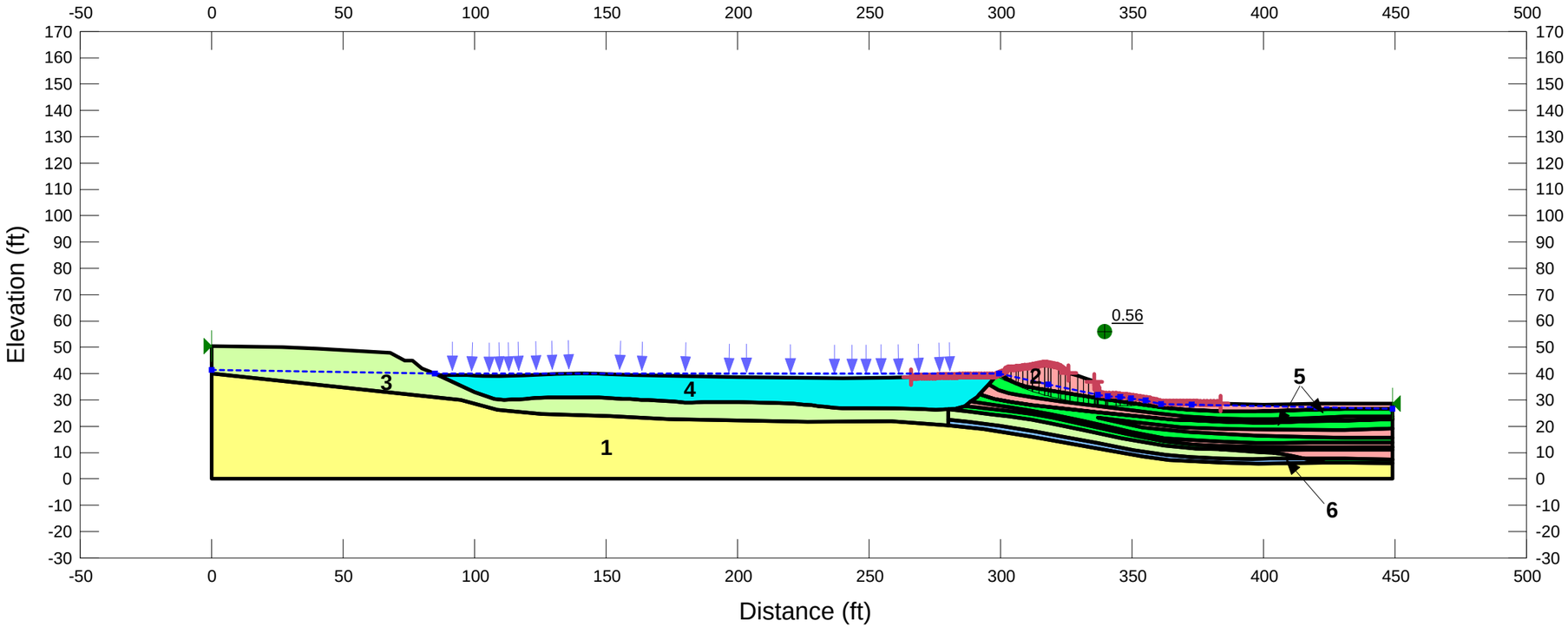
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section A-A'	**Slope Stability Analysis Result**
		Date 3/5/2015	Checked N. Trimble			**Attachment 1 Figure 7**

File Name: F-F'_post-earthquake.gsz
Last Saved Date: 3/5/2015
Analysis Type: Spencer
Cross Section F-F'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22
Material #5: Fill_Liquefied; Unit Weight: 115 pcf; Model: S=f(overburden); Value: 0.1
Material #6: Marine Deposit_Liquefied; Unit Weight: 120 pcf; Model: S=f(overburden); Value: 0.24

F **F'**



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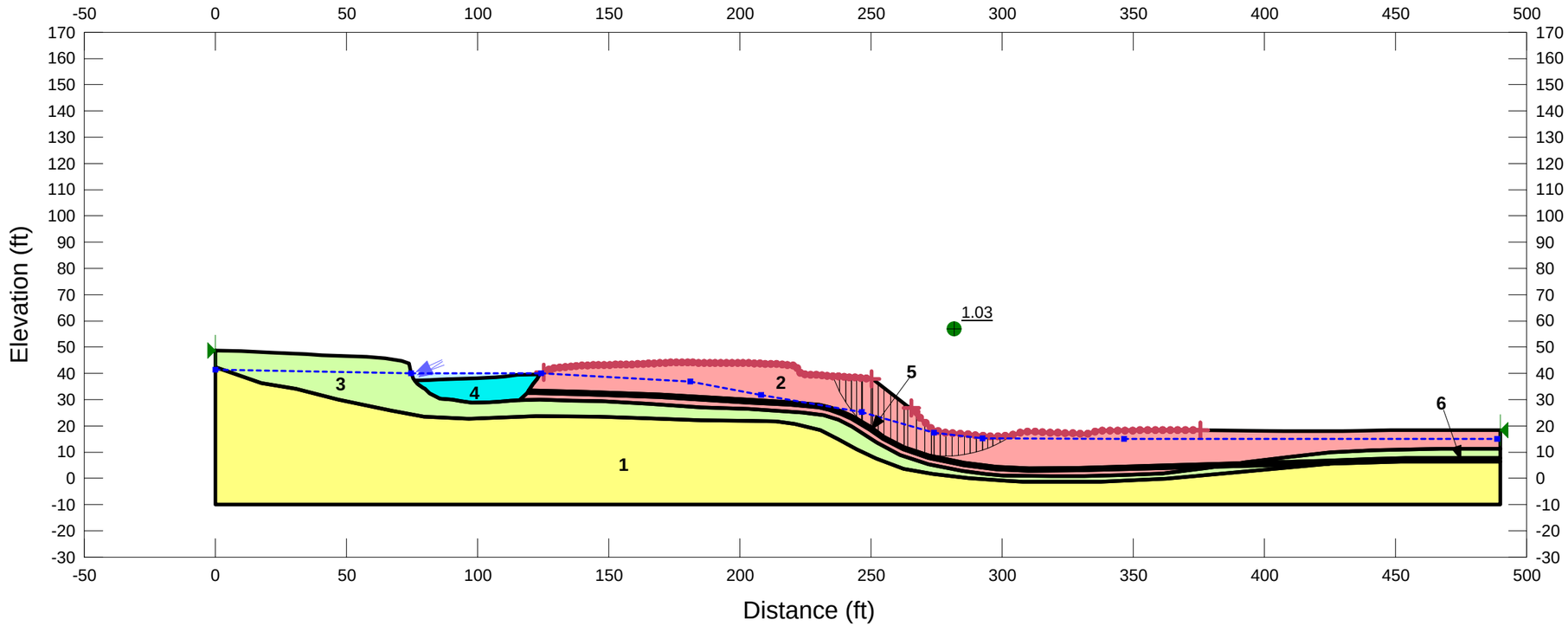
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section F-F'	**Slope Stability Analysis Result**	**Attachment 1 Figure 8**
		Date 3/5/2015	Checked N. Trimble				

File Name: G-G'_post-earthquake.gsz
Last Saved Date: 3/5/2015
Analysis Type: Spencer
Cross Section G-G'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22
Material #5: Fill_Liquefied; Unit Weight: 115 pcf; Model: S=f(overburden); Value: 0.1
Material #6: Marine Deposit_Liquefied; Unit Weight: 120 pcf; Model: S=f(overburden); Value: 0.24

G **G'**



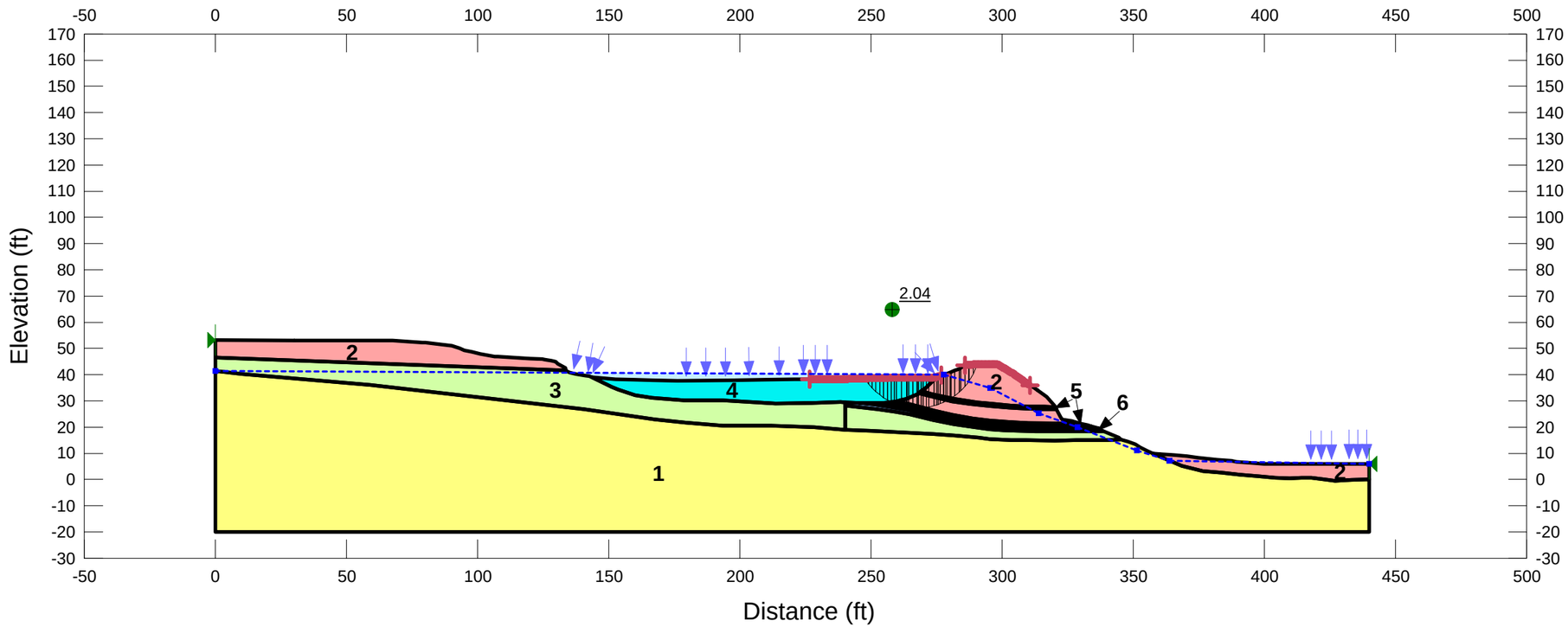
Directory: C:\Users\JhuDesktop\Mill Pond Dam\SlopeStability\ G-G'_post-earthquake.gsz Date: 3/5/2015 Time: 12:51:53 PM Last Edited By: Hu, Jian

ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section G-G'	**Slope Stability Analysis Result**	**Attachment 1 Figure 9**
		Date 3/5/2015	Checked N. Trimble				

File Name: A-A'_post-earthquake - reservoir.gsz
Last Saved Date: 3/11/2015
Analysis Type: Spencer
Cross Section A-A'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22
Material #5: Fill_Liquefied; Unit Weight: 115 pcf; Model: S=f(overburden); Value: 0.1
Material #6: Marine Deposit_Liquefied; Unit Weight: 120 pcf; Model: S=f(overburden); Value: 0.24

A **A'**



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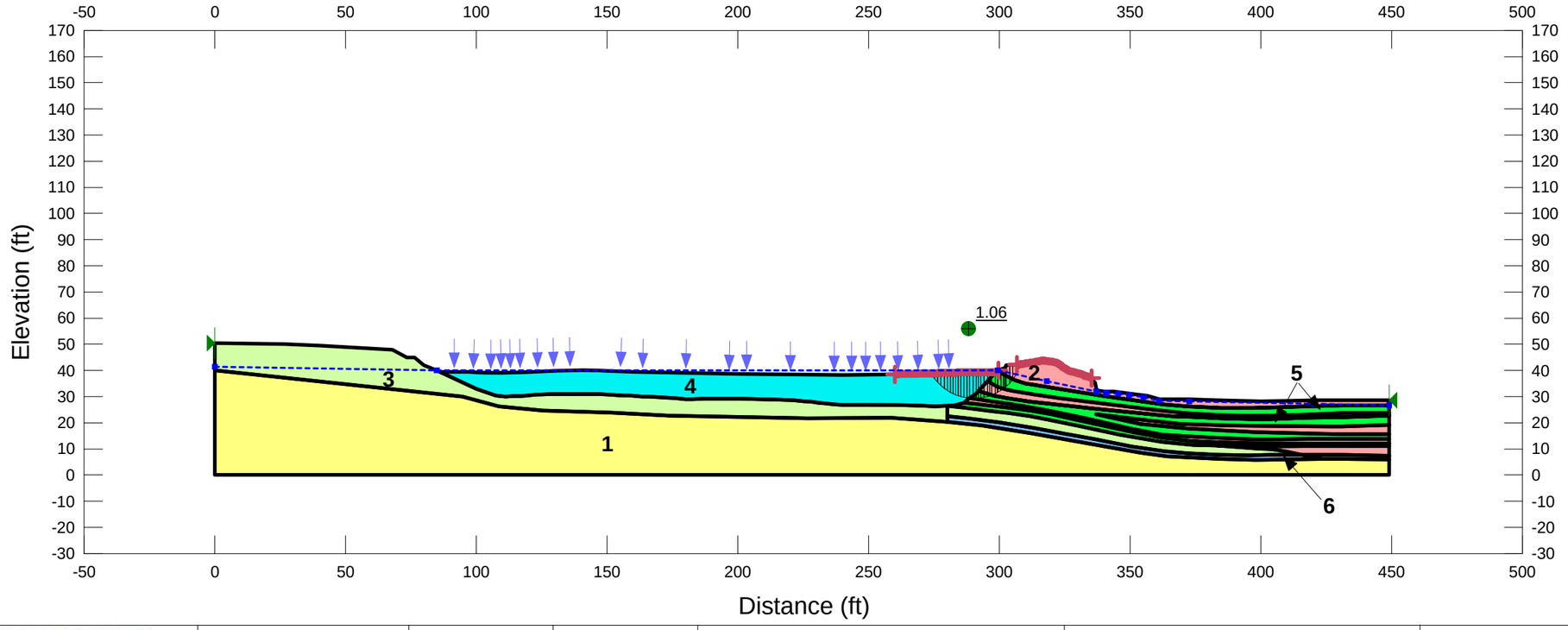
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section A-A'	**Slope Stability Analysis Result**	**Attachment 1 Figure 10**
		Date 3/11/2015	Checked N. Trimble				

File Name: F-F'_post-earthquake - reservoir.gsz
Last Saved Date: 3/11/2015
Analysis Type: Spencer
Cross Section F-F'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22
Material #5: Fill_Liquefied; Unit Weight: 115 pcf; Model: S=f(overburden); Value: 0.1
Material #6: Marine Deposit_Liquefied; Unit Weight: 120 pcf; Model: S=f(overburden); Value: 0.24

F **F'**



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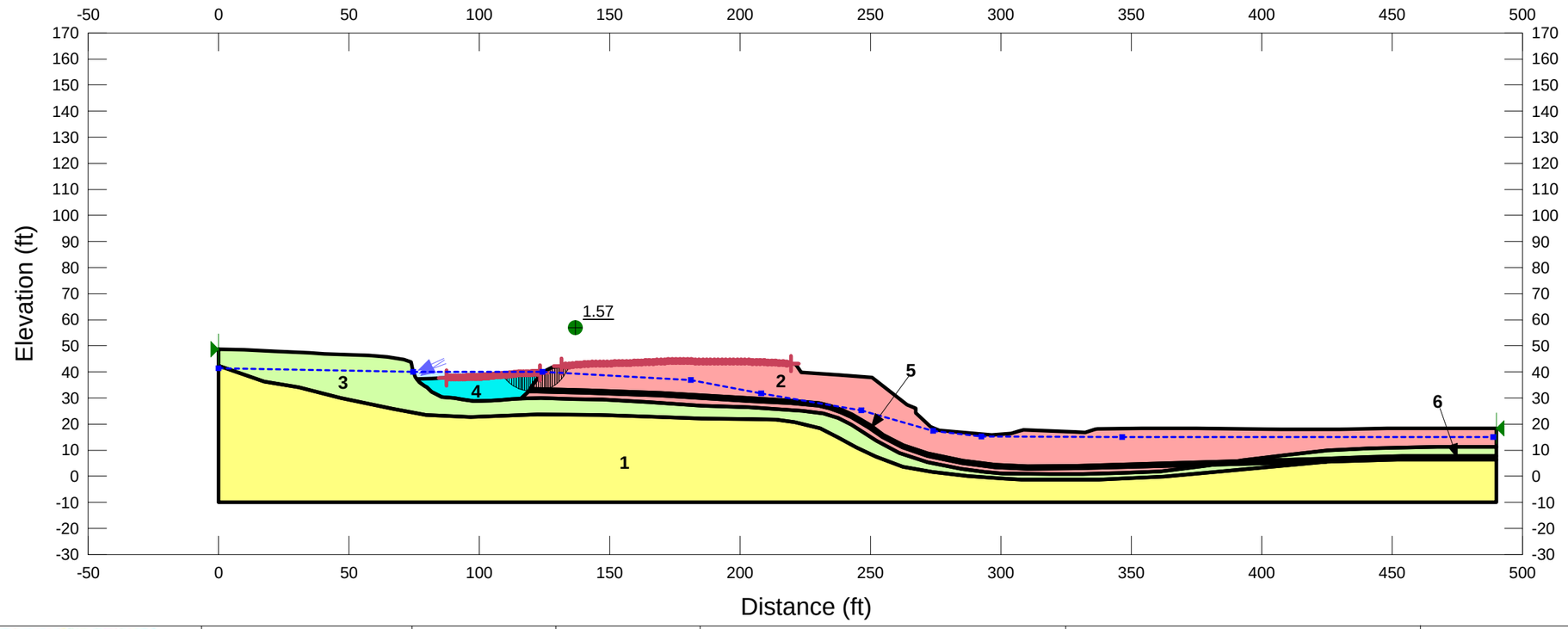
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section F-F'	**Slope Stability Analysis Result**	**Attachment 1 Figure 11**
		Date 3/11/2015	Checked N. Trimble				

File Name: G-G'_post-earthquake - reservoir.gsz
Last Saved Date: 3/11/2015
Analysis Type: Spencer
Cross Section G-G'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22
Material #5: Fill_Liquefied; Unit Weight: 115 pcf; Model: S=f(overburden); Value: 0.1
Material #6: Marine Deposit_Liquefied; Unit Weight: 120 pcf; Model: S=f(overburden); Value: 0.24

G **G'**



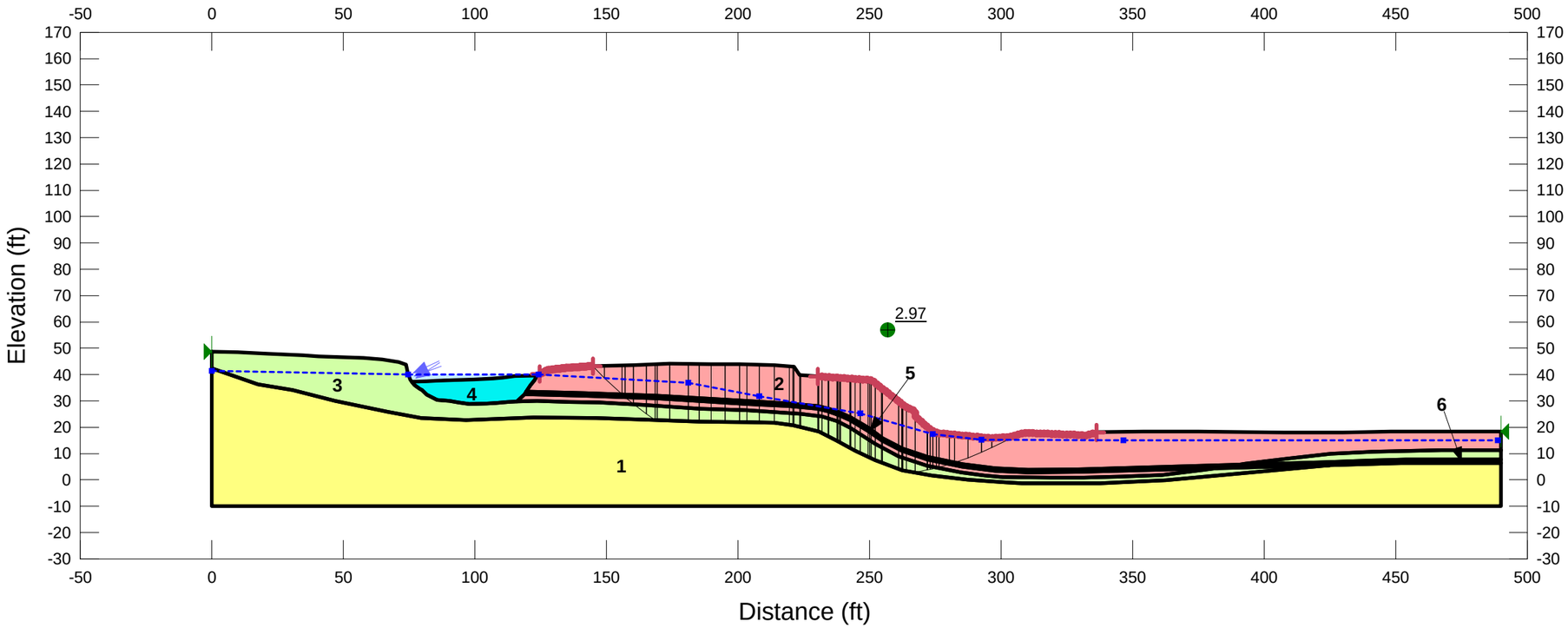
ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section G-G'	**Slope Stability Analysis Result**	**Attachment 1 Figure 12**
		Date 3/11/2015	Checked N. Trimble				

Directory: C:\Users\JHu\Desktop\Mill Pond Dam\SlopeStability\ G-G'_post-earthquake - reservoir.gsz Date: 3/11/2015 Time: 2:05:52 PM Last Edited By: Hu, Jian

File Name: G-G'_post-earthquake - 20feet.gsz
Last Saved Date: 3/11/2015
Analysis Type: Spencer
Cross Section G-G'
Seismic Load: 0g
Analysis View: 2D

Material Number, Description, Unit Weight, Cohesion, Friction Angle
Material #1: Bedrock; Model: Bedrock (Impenetrable)
Material #2: Fill; Unit Weight: 115 pcf; Cohesion: 100 psf; Friction Angle: 34 degrees
Material #3: Marine Deposit; Unit Weight: 120 pcf; Cohesion: 0 psf; Friction Angle: 38 degrees
Material #4: Sediment; Unit Weight: 70 pcf; Model: S=f(overburden); Value: 0.22
Material #5: Fill_Liquefied; Unit Weight: 115 pcf; Model: S=f(overburden); Value: 0.1
Material #6: Marine Deposit_Liquefied; Unit Weight: 120 pcf; Model: S=f(overburden); Value: 0.24

G **G'**



Directory: C:\Users\JhuDesktop\Mill Pond Dam\SlopeStability\ G-G'_post-earthquake - 20feet.gsz Date: 3/11/2015 Time: 2:20:44 PM Last Edited By: Hu, Jian

ARCADIS Infrastructure · Water · Environment · Buildings	**Scale** 1 inch = 50 feet	Project Number B0066142.2015	Analyzed J. Hu	**Mill Pond Dam Fort Bragg, California**	Cross Section G-G'	**Slope Stability Analysis Result**
		Date 3/11/2015	Checked N. Trimble			**Attachment 1 Figure 13**