Clover Creek Solar Project LLC d/b/a New Frontiers Solar Park
Responses to Siting Board Staff's Post-Hearing Request for Information
Case No. 2024-00253

Request No. 1:

Provide information on the specifications, model number, and cutsheets of the photovoltaic (PV) cell/solar panels to be used.

Response No. 1:

The Applicant anticipates using a combination of Elite Solar and First Solar panels for the Project. Please refer to Elite Solar's panel data sheet attached to the Supplemental Response to Request No. 80 filed on February 2, 2025. The Applicant also anticipates utilizing First Solar panels. Please see the attached First Solar panel data sheet regarding the anticipated panel model to be used.

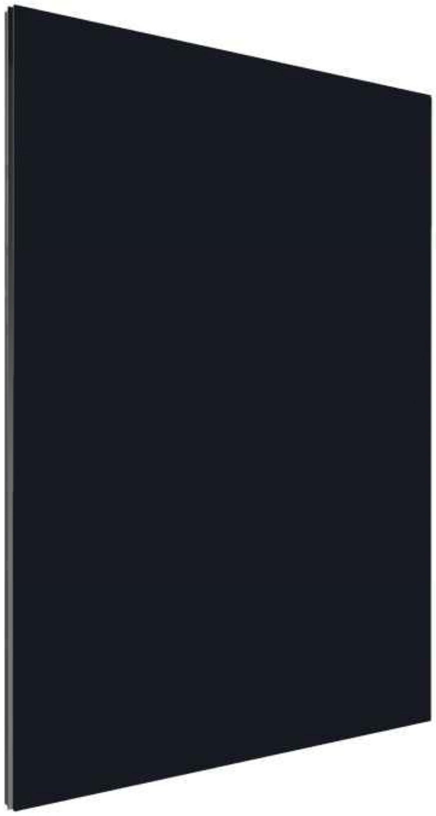
Responding Witnesses: Jesse Eick

First Solar

Series 6 *Plus* Bifacial.

455-480 Watt Thin Film Solar Module

First Solar is once again setting the industry benchmark for reliable energy production, optimized design and environmental performance with Series 6 *Plus* Bifacial - the world's first bifacial thin film CdTe module. The advanced design signficantly reduces balance of system, shipping, and operating costs while delivering more energy per nameplate watt.



More Lifetime Energy per Nameplate Watt

- Industry's best (0.3%) warranted degradation rate
- Superior temperature coefficient, spectral response and shading behavior
- Unlike crystalline silicon modules, First Solar's thin film technology does not experience losses from LID or LeTID
- Anti-reflective coated glass enhances energy production
- Added bifacial energy yield

Innovative Module Design

- Under-mount frame provides the cleaning and snowshedding benefits of a frameless module while protecting edges against breakage
- Innovative SpeedSlots combine the robustness of bottom mounting with the speed of top clamping while utilizing fewer fasteners to achieve the industry's fastest installation times and lowest mounting hardware costs
- Dual junction box design reduces wire management complexity and cost

Best In-Class Reliability & Durability

- Manufactured under one roof with 100% traceable QA/QC
- Independently tested and certified for reliable performance that exceeds IEC standards in high temperature, high humidity, extreme desert and coastal applications
- Inherently immune to and warranted against power loss from cell cracking
- Durable glass/glass construction

Best Environmental Profile

- Fastest energy payback time in the industry
- Carbon footprint that is 2.5X lower and a water footprint that is 3X lower than mono crystalline silicon panels on a life cycle basis
- Global PV module recycling services available through First Solar or customer-selected third-party

19.0%
HIGH BIN EFFICIENCY

30YR
LINEAR PERFORMANCE WARRANTY

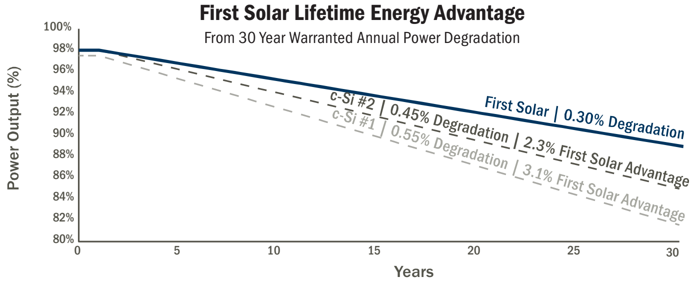
98%
WARRANTY START POINT

0.3%
WARRANTED ANNUAL DEGRADATION RATE[1]

Learn more about First Solar and Series 6 *Plus* Bifacial at firstsolar.com/S6

First Solar Lifetime Energy Advantage

From 30 Year Warranted Annual Power Degradation



Series 6 *Plus* Bifacial.

First Solar

Electrical Specifications

RATINGS AT STANDARD TEST CONDITIONS (1000W/m^2, AM 1.5, 25°C)[2]

SERIES 6 PLUS BIFACIAL MODEL TYPES: FS-6XXX-P-B / FS-6XXXA-P-B (XXX = NOMINAL POWER)

Nominal Power[3] (-0/+5%)	P_{MAX} (W)	455		460		465		470		475		480	
		STC[4]	BNPI[5]	STC	BNPI	STC	BNPI	STC	BNPI	STC	BNPI	STC	BNPI
Nominal Power	P_{MAX} (W)	455	464	460	469	465	474	470	479	475	485	480	490
Voltage at P_{MAX}	V_{MAX} (V)	187.8	187.8	188.8	188.8	189.8	189.8	191.1	191.1	191.5	191.5	192.8	192.8
Current at P_{MAX}	I_{MAX} (A)	2.42	2.47	2.44	2.49	2.45	2.50	2.46	2.50	2.48	2.53	2.49	2.54
Open Circuit Voltage	V_{OC} (V)	222.0	222.0	222.9	222.9	223.8	223.8	224.3	224.3	224.8	224.8	225.4	225.4
Short Circuit Current	I_{SC} (A)	2.58	2.63	2.59	2.64	2.60	2.65	2.61	2.66	2.61	2.66	2.62	2.67
Efficiency (%)	%	18.1		18.3		18.5		18.7		18.9		19.0	
Maximum System Voltage	V_{SYS} (V)	1500[6]											
Limiting Reverse Current	I_R (A)	5.0											
Maximum Series Fuse	I_{CF} (A)	5.0											

TEMPERATURE CHARACTERISTICS

Module Operating Temperature Range	°C	-40 to +85
Temperature Coefficient of P_{MAX}	T_K (P_{MAX})	-0.32%/°C [Temperature Range: 25°C to 75°C]
Temperature Coefficient of V_{OC}	T_K (V_{OC})	-0.28%/°C
Temperature Coefficient of I_{SC}	T_K (I_{SC})	+0.04%/°C
Nominal Operating Cell Temperature	°C	43
Bifaciality Factor	%	15±5

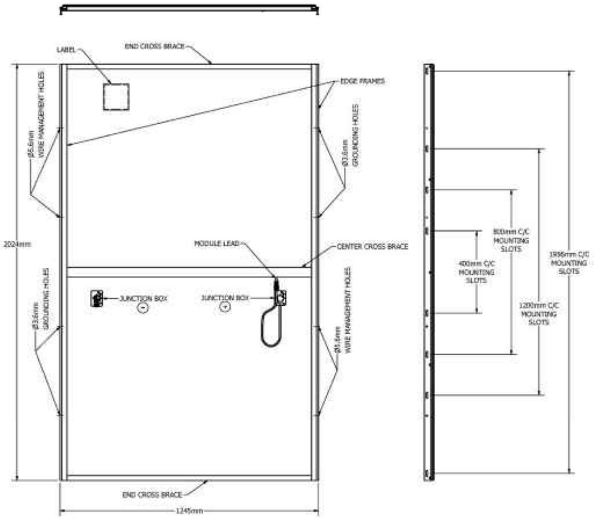
PACKAGING INFORMATION

Model Type	Modules Per Pack	Packs per 40' Container
FS-6XXX-P-B / FS-6XXXA-P-B	27	18

MECHANICAL DESCRIPTION

Module/Glass Length	2024mm/2016mm
Module/Glass Width	1245mm/1216mm
Module/Glass Area	2.52m^2/2.45m^2
Module Weight	34.0kg
Leadwire[7]	2.5mm^2, 733mm (+) & Bulkhead (-)
Connectors	TE Connectivity PV4-S, or alternate
Junction Box	IP68 Rated
Bypass Diode	N/A
Cell Type	Thin film CdTe semiconductor, up to 268 cells
Frame Material	Anodized Aluminum
Front Glass	Heat strengthened
Back Glass	Heat strengthened
Encapsulation	Laminate material with edge seal
Frame to Glass Adhesive	Silicone
Load Rating[8]	+/-2400Pa

Mechanical Specifications



Certifications & Tests[9]

CERTIFICATIONS AND LISTINGS	REGIONAL CERTIFICATIONS	EXTENDED DURABILITY TESTS	QUALITY & EHS
IEC 61215:2021 & 61730-1:2016[6], CE IEC 61701 Salt Mist Corrosion IEC 60068-2-68 Dust and Sand Resistance UL 61730	InMetro SII MyHijau RETIE	IEC TS 63209-1 Extended Stress Test Long-Term Sequential Thresher Test PID Resistant	ISO 9001:2015 ISO 14001:2015 ISO 45001:2018 ISO 14064-3:2006 EPEAT Silver Registered

Install in portrait only

1. Limited power output and product warranties subject to warranty terms and conditions
2. All ratings ±10%, unless specified otherwise. Specifications are subject to change
3. Measurement uncertainty applies
4. Frontside electrical ratings
5. Bifacial Name Plate Irradiance, as per IEC 61215:2021
6. IEC 61730-1: 2016 Class II
7. Leadwire length from junction box exit to connector mating surface
8. 1500Pa tentative load rating for 1956mm mounting slots. Higher loads may be acceptable,subject to testing
9. Testing Certifications/Listings pending

Disclaimer

All images shown are provided for illustrative purposes only and may not be an exact representation of the product. First Solar, Inc. reserves the right to change product images at any time without notice.

The information included in this Module Datasheet is subject to change without notice and is provided for informational purposes only. No contractual rights are established or should be inferred because of user's reliance on the information contained in this Module Datasheet. Please refer to the appropriate Module User Guide and Module Product Specification document for more detailed technical information regarding module performance, installation and use.

Request No. 2:

Provide any geotechnical reports that have not been provided to the Siting Board through a filing in this matter, including the updated Phase 3 of the KARST assessment.

Response No. 2:

Please find the Project's geotechnical report attached. Also, please refer to the Phase 3 Karst assessment contained in the Geophysical Investigation attached to Response No. 26 in the Project's Second Set of Supplemental Responses to Siting Board Staff's First Request for Information, filed February 14, 2025.

Responding Witnesses: Jesse Eick

Geotechnical Investigation Report

New Frontiers Solar Project

Breckinridge County, Kentucky

March 27, 2025

PREPARED FOR:

PCL

PREPARED BY:

Westwood

Westwood

Geotechnical Investigation Report

New Frontiers Solar Project

Breckinridge County, Kentucky

Prepared For:

PCL Construction

2000 S. Colorado Blvd. Suite 2-500

Denver, CO 80222

Prepared By:

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DAVID
KELEHER
35445
03/27/25

David Keleher
2025.03.27
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Project Number: R0041704.00

Date: March 27, 2025

Table of Contents

Attachments

Exhibits

Exhibit 1:	Project Overview Map
Exhibit 2:	USGS Topography Map
Exhibit 3:	Surficial Soils Map
Exhibit 4:	Local Geology Map
Exhibit 5:	Karst Map
Exhibit 6:	Depth to Pile/Auger Refusal Map

Appendices

Appendix A:	Soil Boring Logs
Appendix B:	Electrical Resistivity Test Results
Appendix C:	Laboratory Testing Reports
Appendix D:	Pile Load Testing Data
Appendix E:	Test Pit Logs
Appendix F:	LPile Calibration Curves

Executive Summary

Westwood Professional Services, Inc. (Westwood) is pleased to present this Geotechnical Investigation Report to PCL Construction for the proposed New Frontiers Solar Project (Project) located in Breckinridge County, Kentucky. The Project is planned to have a nameplate capacity of 100 MW_{AC}. The scope of work for this investigation included subsurface exploration, field and laboratory testing, pile load testing, engineering analysis, and preparation of this report. In general, the geotechnical investigation has revealed no subsurface conditions that would preclude development of the proposed Project; however, shallow bedrock was encountered throughout portions of both the northern and southern Project areas that may cause difficult pile driving conditions and may require alternative foundation installation methods, such as pre-drilling.

The Project is located on agricultural land with light to moderately sloping topography. Based on the information obtained from soil borings and test pits performed on site, the subsurface conditions within the project area consist of medium stiff to very stiff lean clay that typically extended to sandstone bedrock. Sand with varying amounts of silt was occasionally interbedded within the clay. Auger refusal was encountered on suspected bedrock throughout the PV array areas between depths of 8.2 and 18.2 feet. Groundwater was observed as shallow as 14 feet on site. Seasonal fluctuations in groundwater are expected.

Driven pile foundations are generally feasible to support the photovoltaic (PV) racking systems in portions of the site, although shallow bedrock and very dense soil may cause shallow pile refusal across some areas on site. Where driven piles do encounter refusal, pre-drilled holes may be used to install pile foundations. Driven test piles were installed throughout the site with and without pre-drilling. Where piles were directly driven into undisturbed native soil (not pre-drilled), shallow refusal occurred at 17 of Westwood's 36 test pile locations. Test piles were also driven into pre-drilled holes backfilled with native soil cuttings or granular backfill, and although no shallow refusals were encountered, the piles exhibited reduced axial and lateral capacity unless embedded a minimum 2 feet into bedrock. Design recommendations for driven wide-flange (W-section) piles are provided for both direct driven and pre-drilled piles. Additional mapping of depths to bedrock across the site is recommended prior to procurement and construction.

Shallow spread footings and mat foundations at the proposed substation and O&M building shall bear a minimum 1 foot below the ground surface and on structural fill extending to the design frost depth of 24 inches to minimize the effects of differential movement. Shallow foundations for ancillary structures within the PV areas, such as large slab-on-grade equipment foundations (i.e., 10 to 20 feet wide) and conventional spread and strip footing foundations (i.e., 4 feet wide), bearing on properly compacted structural fill as defined in this report may be designed for an allowable bearing capacity of 1,600 and 2,500 pounds per square foot (psf) respectively.

The shallow lean clay subgrade is generally considered poor subgrade for access roads. A minimum of 10 inches of aggregate is recommended on access roads constructed on properly prepared subgrade, and consideration should be given to incorporating geosynthetic reinforcement to improve performance and limit rutting when saturated.

This executive summary should be read in the context of the entire report for a full understanding of the conclusions and recommendations.

1.0 Introduction

This report presents the findings of the geotechnical investigation conducted by Westwood for the proposed New Frontiers Solar Project (Project). The Project will consist of photovoltaic (PV) modules, and associated civil and electrical infrastructure. The primary focus of this report are earthwork considerations and foundations for the PV racking. This investigation scope does not address the proposed Project substation and transmission line, and separate geotechnical investigations are recommended. A Geotechnical Exploration Report was prepared for the Project by RRC Power & Energy, LLC dated September 13, 2022 (RRC, 2022). At Westwood's discretion, data from the RRC investigation was considered in the preparation of this report, where applicable. The services provided by Westwood were in general conformance with the scope of work and assumptions outlined in Westwood's proposals, dated October 16, 2024 and January 29, 2025. This report is intended for exclusive use by PCL Construction to support foundation, civil, and electrical design efforts for the proposed New Frontiers Solar Project.

The proposed Project is located in Breckinridge County, Kentucky, approximately 2 miles west of Hardinsburg, Kentucky (Exhibit 1). The proposed Project is understood to have a nameplate capacity of 100 MW_{AC}. The project area primarily consists of agricultural fields with light to moderate topographic relief. See Exhibit 2 for local topography.

2.0 Methods

A geotechnical exploration program consisting of soil borings, field electrical resistivity tests, pile load testing, and laboratory tests was performed by Westwood. SSL Geotechnical was retained by Westwood to perform soil borings with standard penetration tests (SPT). Westwood performed the laboratory testing. A Westwood geotechnical representative coordinated the field work, conducted electrical resistivity tests, logged the soil borings, performed pile load tests, and collected samples for laboratory testing. The geotechnical field investigation was performed October 28th through October 30th, 2024, and the pile load testing investigation was performed between October 31st and November 15th, 2024. This field investigation consisted of the following:

- Conducting soil borings with SPT sampling at 14 PV-array locations (PV-01 through PV-14) to a target depth of 20 feet below ground surface (bgs) or auger refusal, whichever was shallower.
- Classifying and collecting soil samples from the soil borings for laboratory testing.
- Conducting electrical resistivity tests at 5 locations.
- Observing the installation of 84 direct driven and pre-drilled test piles.
- Performing 40 axial tensile load tests, 40 lateral load tests, and 20 axial compression load tests.
- Excavating 16 test pits at pile refusal locations.

Geotechnical test locations are shown on Exhibit 1. Test locations were selected by Westwood based on land control at time of the investigation and a review of the site accessibility, constraints, layout, and local geologic mapping to provide spatial coverage of the proposed site and anticipated subsurface variation. Test locations also considered previous tests that were performed on site (RRC, 2022).

All test locations were surveyed and staked with a hand-held GPS, and as-built coordinates are provided on the associated boring logs (Appendix A) and electrical resistivity test reports (Appendix B). Laboratory testing reports are included in Appendix C.

2.1 Soil Borings

Soil borings were drilled using hollow stem auger drilling techniques, and soil samples were obtained using an automatic hammer and split-spoon samplers in general accordance with ASTM D1586 (Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils). Standard penetration test (SPT) N-values are recorded on boring logs. Relatively undisturbed samples of fine-grained soil were also periodically collected using thin-walled (Shelby) tubes. In general, soil samples were collected every 2.5 feet in the upper 15 feet and every 5 feet thereafter. A Westwood geotechnical representative logged the borings and collected the soil samples. Bulk soil samples were also collected from shallow auger cuttings for laboratory testing. Soil samples were shipped to Westwood's geotechnical laboratory for testing. Soil boring logs are included in Appendix A and laboratory test data sheets are included in Appendix C.

2.2 Test Pits

Test pits were conducted at each pile refusal location. Test pits were excavated using a JCB 131X excavator to a target depth of 10 feet. The excavated pits were observed for general soil stratigraphy, presence of cobbles and boulders, bedrock, and groundwater. Photos were taken of each test pit, which are presented in the test pit logs in Appendix D.

2.3 Laboratory Testing

Laboratory tests were conducted on representative soil samples to aid in classification and evaluation of the physical properties and engineering characteristics of the material. Soil samples were sent to Westwood's geotechnical laboratory for testing, which included the following:

Moisture content (ASTM D2216)
Sieve analysis (ASTM D6913 and D7928)
Hydrometer (ASTM D7928)
Atterberg limits (ASTM D4318)
Standard Proctor moisture-density relationship (ASTM D698)
Unconfined compression (ASTM D2166)
Density (ASTM D7263)
pH (ASTM D4972)
Sulfates (EPA Method 300.0)
Chlorides (EPA Method 9056)
Soil Box Resistivity (ASTM G187)
Oxidation Reduction Potential (RedOx) (ASTM G200)
Thermal resistivity with dry-out curves (ASTM D5334)

Bulk samples collected for thermal resistivity tests were prepared near the as-received moisture contents and compacted to 85% and 90% of the standard Proctor maximum dry density (MDD), representing the compaction conditions typical of a backfilled utility trench, and subsequently dried out to zero moisture. Thermal resistivity measurements were taken at the compacted moisture content, zero moisture, and at several intermediate moisture contents during drying. Results of the thermal resistivity tests are included in Appendix C, along with a summary of laboratory testing results.

2.4 Electrical Resistivity Testing

Electrical resistivity measurements were taken at 5 test locations shown on Exhibit 1 and were collected using the Wenner Four-Electrode Method and an AEMC Instruments Model 6472 Multi-Function Digital Ground Resistance Tester, in general accordance with ASTM G57. Resistivity tests were performed at 1 location along two perpendicular profiles with an electrode spacing of 2, 4, 6, 8, 10, 20, 30, 50, 100, and 200 feet, and at 4 locations to a maximum a-spacing of 20 ft. Results are presented in Appendix B.

2.5 Pile Load Testing

A total of 56 W6x9 prototype test piles were installed between October 31st and November 4th, 2024 at 35 test locations to correlate direct driven load testing results with the soil borings as well as to gain spatial coverage across the project site. A total of 28 W6x9 prototype test piles were installed between February 17th to 26th, 2025 at 7 test locations to correlate pre-drilled load testing results with the soil borings in areas with shallow bedrock where pre-drilling may be required. Table 2.4.1 below summarizes piles installed at each of the test locations. Pile locations are displayed in Exhibit 7.

Table 2.4.1 Pile Installation Summary

Number of Locations	Pile #	Backfill Material	Pile Section	Pile Length (ft)	Target Embedment Depth (ft)	Test Performed
13	1	-	W6x9	12	10	Drivability
9	1	-	W6x9	17	15	Drivability
8	1	-	W6x9	11	6	Axial Tensile & Lateral
	2	-	W6x9	15	10	Axial Tensile & Lateral
6	1	-	W6x9	10	6	Axial Tensile & Lateral
	2	-	W6x9	15	10	Axial Tensile & Lateral
	3	-	W6x9	10	6	Axial Compressive
7 (Pre-drilled)	1	Native	W6x9	10	5	Axial Tensile & Lateral
	2	Native	W6x9	12	7	Axial Tensile & Lateral
	3	Native	W6x9	10	5	Axial Compressive
	4	Imported	W6x9	12	5	Axial Tensile & Lateral
	5	Imported	W6x9	10	7	Axial Tensile & Lateral
	6	Imported	W6x9	12	5	Axial Compressive

Direct driven piles were installed by Geosolutions Inc. of New Richmond, WI using a Vermeer PD-10 pile driver. Pre-drilled piles were installed by Frattalone of Little Canada, MN.A skid-steer mounted hammer drill was used to pre-drill 6-inch diameter holes, and holes were subsequently backfilled with native soil cuttings and/or imported granular backfill mechanically compacted in lifts using a post driver with a fabricated steel pipe and base plate (or similar) placed in 2 to 3 ft lifts. A Vermeer PD-10 pile driver was used to drive the test piles into the backfilled pre-drilled holes. A Westwood representative was present during pile installation and recorded the install date, pile location, test post type/length, pile embedment, pile stick-up height, and total pile drive time. This data is summarized in Table 1 in Appendix D. Detailed data for drive time recorded by foot is available in Appendix D.

During Westwood's pile installation, 17 direct driven piles encountered refusal before reaching their planned embedment depths. For the purposes of this report, refusal is defined as 1-minute of drive time with less than 2-inch of advancement of the pile. A summary of the refusal depths is included in Table 2.4.2 below. This drive time data is summarized in Table 1 in Appendix D.

Table 2.4.2 Pile Refusal Summary

Pile Location	**Target Embedment (ft)**	**Refusal Depth (ft)**	**Pile Location**	**Target Embedment (ft)**	**Refusal Depth (ft)**
PLT-101	10	8.6	PLT-D15	15	10.25
PLT-PV-04	10	9.7	PLT-D16	15	8.75
PLT-D02	10	7.5	PLT-D18	15	14.2
PLT-D03	10	8.2	PLT-D19	10	3.3
PLT-D04	10	7.75	PLT-D20	10	3.9
PLT-D08	10	8.75	PLT-D21	15	10.1
PLT-D09	10	8.6	PLT-D22	15	6.5
PLT-D11	15	12.9	PLT-D23	15	7.3
PLT-D13	15	14.0			

A minimum of 24 hours after installation, piles were tested per ASTM standards (D3689, D3966, D1143) modified for solar pile load testing. All apparatuses used for applying and measuring loads, including all struts and structural members, were of sufficient size, strength, and stiffness to safely prevent excessive deflection and instability up to 125% of the maximum applied test load. Table 2.4.3 outlines the general procedures and sequencing for each testing type performed and the time frame for data recording. A summary of the results, as well as detailed load test results, can be found in Appendix D.

Table 2.4.3 Pile Load Testing Details

Pile Test	**Max. Testing Displacement**	**Load Height Application**	**Loading Increment (lbs.)**	**Max Loading (lbs.)**
Tensile	1 inch	Top of Pile	1,000	15,000
Compression	1 inch	Top of Pile	1,000	20,000
Lateral	1 inch at grade/ 4 inches at load height	4.5 feet	750	4,500

3.0 Site Conditions

3.1 Regional Geology

The New Frontiers Solar Project is located in the Highland Rim section of the Interior Low Plateaus province within the Interior Plains physiographic region (USGS, 2013). The Interior Low Plateaus is located at the southeastern extent of the Central Lowlands where the maximum extent of Pleistocene glaciers reached (NPS, 2018). The Interior Low Plateaus are comprised of sandstone, shale, and limestone.

Based on Web Soil Survey data available through the United States Department of Agriculture (USDA, 2024), there are two primary soil units mapped across the site in addition to a number of other minor and incidental units. The primary soil units are as follows:

> **Sadler silt loam:** Covering approximately 54% of the project area, classified as lean clay and silt (CL, ML, CL-ML) in the upper 60 inches transitioning to clayey and silty gravel (GC-GM, GC) and lean clay (CL) overlying bedrock at approximately 76 inches bgs, and described as thin fine-silty noncalcareous loess over loamy residuum weathered from sandstone and shale.
>
> **Zanesville silt loam:** Covering approximately 26% of the project area, classified as lean clay (CL) in the upper approximately 36 inches overlying lean clay (CL) and clayey sand (SC) overlying bedrock at approximately 60 inches bgs, and described as thin fine-silty noncalcareous loess over loamy residuum weathered from sandstone and siltstone.

The minor and incidental units are generally described as alluvium, loess, and limestone residuum. These units are generally classified as lean clay and/or silt (CL, ML, CL-ML), fat clay (CH), silty and/or clayey gravel (GC, GM, GC-GM), clayey or silty sand (SC, SM). Mapped surficial soils are shown in Exhibit 3.

Publicly available water well construction data (KGS, 2024) generally reports bedrock observed as shallow as 4.5 feet bgs and as deep as 262 ft bgs. The USGS maps the Project within the Rocks of Chesterian age (USGS, 2020a). The Rocks of Chesterian age are described as major units of limestone and sandstone. Geologic formations are shown in Exhibit 4. According to the Geologic Map of the Hardinsburg Quadrangle (Amos, 1975), the project is mapped within Hardinsburg Sandstone and Haney Limestone formations.

3.2 Geohazards

3.2.1 Soil Expansion

Expansive soils have the potential to undergo volume change due to changes in environmental moisture content such as rainfall after a period of drought. Expansive soil shrinks when dry and may pull away from foundations, reducing the load resistance provided by the soil the foundation is relying on for stability. When moisture returns, soil expands and creates an upward load on foundations that should be accounted for in foundation design. The differential movement caused by the cyclic expansion-contraction can increase the risk of foundation instability and localized tension zones where cracking may occur.

The shallow soils encountered on site are typically low to moderate plasticity clays. The project site is mapped in an area with low occurrence of expansive materials by the U.S. Army Corps of Engineers (USACE, 1983). The USGS Swelling Clays Map of the Conterminous United States rates the project site as having part of the soil unit, generally less than 50 percent, consists of clay having slight to moderate swelling potential (USGS, 1989). The USDA classifies the majority of soil on the site as having low potential for soil expansion (USDA, 2024). Due to the temperate climate in Kentucky, moderate plasticity of observed soils, and low swell test results in the RRC report (RRC, 2022), the risk for expansive soils on site is low. Subgrade preparation, compaction recommendations, and settlement considerations in Section 4.0 should be followed to mitigate the risks associated with fine-grained soils.

3.2.2 Soil Collapse

Soil collapse occurs when a relatively loose, dry, low-density material is inundated with water and subjected to a load, which can lead to settlement of shallow foundations. Loess and alluvially deposited silt are particularly prone to collapse, as their depositional environment facilitates a loose, low-density profile. Lightly cemented sand and silt can also be prone to collapse when inundated causing dissolution of the cementing agents or particle infilling (Coduto et al., 2016). The amount of collapse or settlement depends on soil particle properties, stress history of the soil, thickness of the soil unit, and magnitude of the foundation pressure exerted on the soil. Vibration inducing activities at the ground surface, such as pile driving during construction, may also increase the risk of soil collapse.

Although large portions of the shallow soil on site are mapped as loess, the relatively high moisture content, humid environment, and primarily clayey nature of the surficial soil is expected to generally limit collapse. The overall collapse potential is considered low. Subgrade preparation, compaction recommendations, and settlement considerations in Section 4.0 should be followed to mitigate the risks associated with compressible soils.

3.2.3 Seismicity, Liquefaction, and Cyclic Softening

Seismic activity can cause bearing capacity failure, failure by sliding or overturning, soil liquefaction, and/or softening or failure of the ground due to the change in pore water pressure. Seismic design considerations should be taken to avoid excessive settlement or failure of site infrastructure. Liquefaction is the loss of soil strength from a rapid change in stress condition (most commonly earthquake seismicity), causing the soil to lose shear strength and behave like a liquid. Soils that are coarse-grained, loose, saturated, and poorly graded are most susceptible to densification under cyclic seismic loading.

The Project is mapped as having potentially damaging earthquake shaking occurrences once every 500 to 1,000 years, which may be considered a low to moderate seismic hazard (USGS, 2022a). According to the USGS Earthquake Hazards Program (USGS, 2024, Exhibit 5), approximately 14 earthquakes with a magnitude (M) greater than 2.5 on the Richter scale occurred within 50 miles the Project site within the past 100 years, with none of those earthquakes rated at or above a M4.0. The nearest earthquake was a M3.3 event located approximately 15 miles southwest of the Project site in 1980.

In order for liquefaction to occur, several conditions need to be present: loose to medium dense poorly graded sands with low fines content, saturated soil conditions (typically due to a shallow groundwater table), and large seismic shaking events (generally greater than magnitude 6.5). The project area contains predominately clayey soil and has not experienced large seismic events in the past 100 years. In general, the potential for liquefaction to occur is considered low, although some differential settlement of shallow foundations may be expected due to seismically induced settlement if a large earthquake event occurs over the lifespan of the Project.

During periods of seismic activity, the subsurface may be subjected to repeated deformations and stresses that may lead to a degradation in soil capacity through liquefaction or cyclic softening (Mitchell, 2005). While liquefaction hazards are typically limited to coarse grained soil deposits, cyclic softening occurs in sensitive fine-grained deposits like those encountered within the project site. Cyclic softening occurs when repeated loading gradually increases the deformation (strain) and pore water pressure which can cause reductions in the shear strength of the fine-grained soil (LeBoeuf, 2016). This, accompanied by loading from structure foundations, may lead to excessive soil deformation or even failure. Due to the predominately relatively stiff clay, shallow bedrock, and the low to moderate risk of seismic hazard, the risk of cyclic softening is considered moderate.

3.2.4 Karst Features

Karst features develop in areas with wet subsurface conditions and soluble bedrock including carbonate rock (limestone and dolomite) or evaporite rock (e.g., gypsum, anhydrite, and halite minerals) that may dissolve over time to form underground caves and create ground instability. Karst geology can be particularly hazardous as caves develop slowly while failures are rapid, often causing several feet of subsidence and sinkholes at the surface.

According to the USGS Karst Map of the Conterminous United States (2020b, Exhibit 6), the Project Area is mapped within an area of karst potential described as carbonate rocks at or near the surface in humid climate. Based on information from the Kentucky Open Data Portal (KyGovMaps, 2023), one sinkhole is mapped within the northern project boundary. As discussed in Section 3.1, bedrock across the project area may be composed of both sandstone and limestone. A detailed karst investigation may be performed prior to final design to better delineate the risk. Overall karst potential is considered moderate.

3.2.5 Mine Subsidence

Coal has been commercially mined through surface and underground mines in Kentucky for over two centuries (KY EEC, 2017). Kentucky coal mines are predominately found in the eastern and the northwestern regions of the state and no mines are mapped in the project area; however, there is one mapped quarry in Breckinridge County (KY EEC, 2022; USGS, 2003). In general, the potential for mine subsidence is considered low.

3.3 Subsurface Stratigraphy

Based on the conditions encountered at the soil boring locations, the general stratigraphic units found across the site can be described as follows:

Topsoil. A 4 to 12-inch-thick topsoil layer was evident throughout the site and was generally brown to dark brown, moist, and contained moderate to high organics and trace roots. Topsoil depths could be greater in some portions of the site, particularly in agricultural or low areas.

Overburden

Lean Clay, Lean Clay w/ Sand, Sandy Lean Clay, Fat Clay, Silty Clay, and Silt (CL, CH, CL-ML, ML). Underlying the topsoil, the primary soil unit was lean to fat clay, silty clay, and silt with varying amounts of sand. The silt and clay were various shades of brown, yellow, red, olive, and gray, medium stiff to hard, and dry to moist. This unit ranged in thickness between approximately 2.5 and 20 ft. Fat clay was encountered in TP-PV-001 and TP-PV-003 during the RRC investigation and in PV-07 during the Westwood investigation (RRC, 2022).

Poorly Graded Sand, Silty Sand, Clayey Sand, and Sand with Clay (SP, SM, SC, SP-SC). Occasionally interbedded within the clay on site was sand with varying amounts of silt. This unit ranged in thickness between 1 and 5 feet. These layers were encountered in two borings (PV-02 and PV-03), were brown to yellow, loose to very dense, and dry to moist.

Bedrock

Sandstone, Limestone, Mudstone, Shale: During the RRC investigation in the northern array area, auger refusal was encountered at 30 of the 44 borings ranging from 4.5 ft to 19.5 ft on suspected sandstone, limestone, mudstone, or shale (RRC, 2022). During Westwood's investigation within the southern array area, auger refusal was encountered at all but one boring between depths of 8.2 of 18.2 feet on suspected sandstone or limestone. The southern array is mapped within the Rocks of Chesterian age group which is predominately sandstone and limestone units.

More detailed descriptions of the subsurface conditions are provided on the boring logs found in Appendix A.

3.4 Groundwater

Boreholes were observed during and shortly after drilling for the presence and level of groundwater. During Westwood's investigation, groundwater was not encountered within the drilled depths. According to local water well logs, groundwater may be as shallow as 8 feet bgs (Kentucky Geological Survey, 2024.). During the RRC's investigation, groundwater was encountered in 3 of the 34 borings between depths of 14 to 19 feet bgs (RRC, 2022).

It should be noted that short term observations in clayey soil typically do not accurately reflect the long-term water levels, and fluctuations from noted water levels should be expected. Auger drilling techniques can seal the borehole sidewalls in clayey soil preventing groundwater infiltration and accurate measurements from being made following completion of the borehole. Groundwater level fluctuations and perched groundwater may also occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed; therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than those observed during the investigation. Refer to Section 4.1.3 for recommendations regarding water control.

4.0 Discussion and Recommendations

4.1 General Earthwork Considerations

General earthwork includes activities such as mass grading, electrical trenching, and site preparation for future activities. Subgrade preparation and fill recommendations specific to foundations and access roads are provided in Section 4.4.1 and Section 4.5.1.

4.1.1 Clearing and Grubbing

Clearing and grubbing should be performed prior to site grading activities within the PV array, concrete foundation footprints, and areas to receive fill. Clearing and grubbing activities include the removal all existing vegetation, trees, stumps, brush, large roots, boulders, cobbles, old structures/foundations, uncontrolled fill, and abandoned underground utilities. Grassy vegetation may remain in PV array areas. Areas disturbed during clearing and grubbing should be properly backfilled and compacted as described in sections 4.1.4 and 4.1.5.

Topsoil, frozen soil, or other organic material, encountered should not be used for general or structural fill, and shall be stockpiled away from native excavated suitable soil. This material may be used as fill in non-structural areas outside of the array area where soil strength and compressibility would not impact site infrastructure.

4.1.2 Excavation Safety

Shallow soil at the site can be excavated with conventional excavation equipment, such as backhoes, dozers, loaders, or scrapers, although specialized equipment may be required where bedrock is very shallow. All excavation equipment should be track-mounted due to the slopes on site and potential for muddy conditions. Excavations should be constructed using safe side slopes unless adequately shored and/or braced as necessary for construction and safety. Per Occupational Safety and Health Administration (OSHA) Part 1926, the soil at the site may generally be inferred to be a Type C soil. It is the responsibility of the competent field personnel to verify in situ conditions during construction. Excavations should be constructed in conformance with applicable federal, state, and local standards.

4.1.3 Water and Erosion Control

It is not anticipated that groundwater will accumulate in the shallow excavations on site outside periods of significant rainfall; however, should any heavy or sustained rainfall, fluctuating ground water, or surface water collect in deeper excavations, the water should be removed prior to the placement of fill or foundations. Temporary sumps and pumps may be required to remove any collected water. The foundation subgrade should be inspected by the construction-phase geotechnical engineer, or their representative, after excavation and before placement of materials to verify water control.

After clearing and grubbing activities, portions of the site may have little to no vegetation remaining and disturbed surface soils will be susceptible to erosion, particularly in areas with slopes or where the soil has been tilled for previous agricultural uses. Site-specific erosion control measures will be dictated by local regulations associated with storm water pollution prevention requirements. Throughout earthwork activities the ground surface may be tracked or roughened to slow down sheet flow and promote the infiltration of surface water. Disturbed areas may need to be temporarily stabilized with wood mulch, hydromulch, straw, or hay before proceeding with construction activities. Perimeter sediment control, such as silt fence or mulch berm, will also be needed during clearing activities. Additional erosion control measures, such as temporary sediment basins and check dams, may also be needed to limit sediment transport off site depending on site-specific requirements and characteristics.

4.1.4 Subgrade Preparation

After clearing and grubbing, exposed areas to receive general fill should be scarified, moisture conditioned to within 3% of optimum moisture content, and compacted to 90% of the standard Proctor maximum dry density (ASTM D698). The depth of subgrade compaction should extend at least 12 inches below fill areas. Where possible, subgrade below general fill areas should be proof-rolled prior to placing fill to identify soft areas. Proof-rolling can be performed with a fully loaded dump truck. Soft areas with rutting greater than 1.5 inches should be removed or re-compacted prior to placing fill. Refer to Section 4.4.1 and Section 4.5.1 for more information on shallow foundations and access road subgrade preparation.

Disturbance to areas prepared for subgrade fill should be minimized. Repeated traffic loading and excessive moisture due to precipitation may degrade subgrade soil. Native clayey soils are expected to be sensitive to the addition of water and may become unstable if not carefully monitored. Repeated traffic loading and excessive moisture due to precipitation may degrade subgrade soil. Where unsuitable subgrade, such as soft clay, is encountered, the subgrade should be moisture conditioned and re-compacted as described above, or unsuitable subgrade should be over-excavated as recommended by the construction-phase geotechnical engineer and replaced with structural fill in accordance with Section 4.1.5.

4.1.5 Fill Placement and Compaction

The native clay and sand soil encountered throughout the site may be used as general fill in array areas and may be suitable for backfilling around and above foundations, provided that all compaction requirements are met. Native clay and sand material used as general fill or foundation backfill should be free of foreign debris, topsoil, organics, frozen material, and particles or clods larger than 3 inches. General fill shall be placed in maximum loose lifts of 9 inches thick and compacted to a minimum 90% of the standard Proctor maximum dry density (ASTM D698) and within 3% of optimum moisture content.

Trenches may be backfilled using native material, provided that it is screened of particles larger than 3/8” and moisture conditioned within 3% of optimum moisture content and compacted to a minimum of 90% of the standard Proctor maximum dry density (ASTM D698) in non-structural areas and 95% of the maximum dry density in structural areas (i.e., within 5 feet of pile foundations and below access roads).

4.1.6 Cut and Fill Slopes

Although significant cut and fill slopes are not anticipated on site, any slopes constructed using native non-organic soil may be designed at an inclination of 4H:1V or flatter. Peat and organic soil should not be used to construct fill slopes. Fill slopes should be constructed in horizontal lifts in accordance with the recommendations in Section 4.1.5. Any fill slopes greater than 5 feet in height and placed on slopes steeper than 5H:1V should be benched into the existing slope to prevent movement between the fill and native soils. Benches should be approved by the construction-phase geotechnical engineer prior to placement of fill. Appropriate erosion control measures (e.g., vegetation or erosion control matting) should be implemented immediately after cut and fill slopes are constructed to reduce the potential for erosion. Steeper slopes may be allowed pending validation with detailed slope stability analyses, which was beyond the scope of this investigation.

4.2 General Foundation Considerations

4.2.1 Frost Depth

Frost action can result in differential heaving and a reduction in soil strength during periods of thaw. The degree of frost action ranges from low to high based on frost depth, availability of water, and frost-susceptibility of shallow soil. The most severe effects of frost heave occur when ice lenses form in the voids of soil containing fine particles (i.e., silt and clay). Three conditions must be present to cause frost heaving:

1. Frost-susceptible soils
2. Soil temperatures below freezing
3. Subsurface water

Differential heaving occurs when these conditions occur non-uniformly. Shallow foundations (or the structures they support) can be damaged if the foundations bear above soils that experience frost heave. Frozen soil can also bond (adfreeze) to pile foundations and the subsequent formation of ice lenses and associated heaving can incrementally “jack” the pile up, potentially causing damage to the structure they support, especially if the heaving is non-uniform. The bearing capacity of soil is also reduced during periods of thaw, which can reduce the lateral capacity of pile foundations and cause bearing capacity and/or settlement issues for foundations bearing above the frost depth.

The potential for growth of significant ice lenses within the frost zone is generally considered low on this site due to deep groundwater and the relatively warm climate of Kentucky . Shallow foundation designs should consider the potential effects of frost heave and thaw on their design, and critical foundations that cannot tolerate the potential for differential movement should be designed to resist or prevent frost heave.

The recommended design frost depth for shallow foundations according to the Kentucky Residential Code (2018) is 24 inches. Critical foundations and pipes should be placed a minimum of 24 inches below final grade or on non-frost susceptible soil extending to a depth of 24 inches for protection against frost unless they are designed to accommodate the effects of frost heave. Pile foundations do not need to consider adfreeze bond due to low potential for signficant ice lens development. Care should be taken during construction to quickly establish vegetation within the PV array areas to provide an insulating sod layer that will limit infiltration of the freezing front.

4.2.2 Soil Corrosivity

The chemical constituent test results indicate that the soil contains up to 56.7 mg/kg of soluble sulfates and up to 41 mg/kg soluble chlorides. The soils on site have pH's ranging from 4.6 to 5.6, which is considered strongly acidic. Test results are provided in Appendix C. These values, along with other soil properties such as moisture content, soil type, pH, and electrical resistivity, indicate that the subsurface conditions are moderately to highly corrosive to steel piles (Robinson, 2005). Sulfate levels in substation borings may be classified as exposure category S0, indicating low exposure to concrete (ACI, 2019). The foundation engineer should take these results into consideration when evaluating corrosion rates. Laboratory test results are presented in Appendix C.

4.2.3 Seismic Considerations

Foundations should be designed to accommodate seismic shaking activity in accordance with ground acceleration parameters defined by the adapted building code. Based on the conditions encountered on site and in accordance with ASCE-7 definitions, the following inputs may be used by the structural engineer to determine the site-specific seismic acceleration parameters:

Building Code Referenced: 2018 International Building Code
Seismic Site Class: C
Approximate Coordinates of maximum acceleration on site (to be confirmed by the structural engineer): 37.816293°N, -86.508180°W

Risk category for structures should be determined in accordance with the local building code. Acceleration parameters may be looked up using the ASCE 7 hazard tool: https://asce7hazardtool.online/. Refer to section 3.2.3 for discussion on additional seismic hazards, such as liquefaction and ground rupture, as it may pertain to the project site.

4.3 Driven Pile Foundations

It is expected that PV modules will be supported by steel racking systems mounted on driven steel wide-flange (W-section) pile foundations, which generally appears feasible in portions of the site, although shallow bedrock and very dense soil may cause shallow pile refusal across some areas on site (Exhibit 6). Where driven piles do encounter refusal, pre-drilled holes may be used to install pile foundations, discussed in further detail below.

The axial and lateral capacity recommendations provided in this section are based on results of this investigation and the pile load testing programs. Recommendations apply to piles driven into undisturbed ground (not pre-drilled) with a minimum embedment depth of 6 feet. Piles driven into pre-drilled pilot holes backfilled with compacted native soil cuttings or imported granular fill should achieve a minimum 2 feet of embedment into bedrock. The discussion and recommendations may also be used for design of W-section pile foundations for inverter skids on site.

Consideration should also be given to scour potential due to surface water runoff on un-stabilized surficial soil, in particular where agricultural activities have disturbed the ground surface. The detailed hydrologic study better quantifies the hydrologic scour potential on site.

4.3.1 Constructability

4.3.1.1 Direct Driven Pile Foundations

A total of 56 direct driven test piles were installed by Westwood at 36 locations across the project area for pile load tests and drivability tests. A total of 30 direct driven test piles were also installed by RRC (2020) at 17 locations across the northern project area for pile load tests. These test piles were directly driven into the ground without pre-drilling. A detailed discussion on test pile installation and load testing are included in Section 2.4. Results and pile load testing reports are provided in Appendix D. Drive times ranged between approximately 38 to 824 seconds, with an average drive time of approximately 821 seconds.

A total of 17 of the 36 Westwood direct driven pile load test locations encountered refusal before target embedment depths of 10 and 15 feet. Of these, 12 locations encountered refusal shallower than 10 feet bgs and 6 locations encountered refusal shallower than 8 feet bgs. It should be noted that the drivability tests performed by Westwood generally targeted areas at higher risk of shallow refusal to better delineate those zones, so the pile refusal frequency observed during this investigation may be higher than the typical conditions on site. During the RRC investigation, 2 of the 30 piles installed encountered refusal in the northern region of the project site (RRC, 2022). Pile refusal depths between both investigations ranged between 3.4 feet and 14.2 feet bgs.

It appears that direct driven piles will be feasible across large portions of the site, although the frequency of shallow refusals will ultimately depend on the final design embedment depths. Pre-drilling will likely be required in some portions of the site to achieve sufficient embedment of the piles, discussed in more detail in Section 4.3.1.2.

Westwood analyzed the borings and pile installation data on site to assess the potential for zones at higher risk of shallow pile refusal. In general, there were three primary areas where shallow (<10 feet bgs) refusals are likely to be more prevalent, shown in Exhibit 6:

1. The northernmost parcel in the northern project area.
2. The areas west of US-60 in the northern project area.
3. The southeastern region of the southern project area.

Although the areas above are more likely to encounter shallow refusals, scattered refusals will likely be encountered throughout the entire project area. A grid of targeted auger probes, test pits, and/or pile drivability tests are recommended across the site to provide a more comprehensive map of depth to bedrock. The resolution of the map will largely be determined by the spacing of the tests within the grid. Alternative methods may also be used to evaluate depth to rock across the site, such as geophysical tests (e.g. seismic refraction, TCM), although the somewhat weathered nature of the top of bedrock may limit the ability of some geophysical methods to accurately distinguish the soil-bedrock transition.

4.3.1.2 Pre-drilled Pile Foundations

Pre-drilling pile locations will likely be required during construction in areas with shallow bedrock. Pre-drilling consists of drilling undersized holes at pile locations and backfilling with either compacted native soil cuttings (with oversized particles removed or crushed), imported sand/gravel, lean concrete, or controlled low strength material (CLSM). Pre-drilled piles backfilled with granular sand or gravel should maintain positive drainage away from the piles or be capped with fine-grained native soil to prevent preferential infiltration of surface runoff into the granular backfill, which can increase the frost heave loads and decrease pile capacity (Section 4.2.3). A grid of targeted auger probes, test pits, and/or pile drivability tests is recommended to provide a more comprehensive map of depth to bedrock, as discussed in Section 4.3.1.1.

A total of 28 piles were installed by Westwood in pre-drilled holes at 7 locations across the project area for pile load tests. Test piles were driven into 6” diameter pilot holes drilled 12” deeper than the target embedment depth and backfilled with either compacted native cuttings or imported granular backfill. Mechanical compaction should be performed using a post driver with a fabricated steel pipe and base plate (or similar) on backfill placed in 2 to 3 ft lifts compacted for a minimum of 15 seconds per lift. For pre-drilled locations where bedrock is not encountered within the design embedment depth (including minimum 2 feet into bedrock), the following remediation options are recommended:

1. Continue drilling until sufficient bedrock is encountered, which will require a longer pile to achieve a minimum 2 feet into bedrock.
2. Terminate drilling at the design driven pile embedment depth and backfill with flowable fill.

Pre-drilled piles bearing in soil only (i.e. above bedrock) exhibited extremely low axial and lateral capacity. **Pre-drilled piles should not bear solely in soil unless remediation option 2 above is used.**

A detailed discussion on test pile installation and load testing are included in Section 2.4. Results and pile load testing reports are provided in Appendix D. Drive times ranged between approximately 5 to 370 seconds, with an average drive time of approximately 41 seconds. No distinct or observable difference in drivability was observed between pile locations backfilled with native vs. imported granular backfill. The pre-drilled hole diameters for various pile sizes are stated in Table 4.3.1.2 below. Contact Westwood if alternative pre-drill hole diameters are proposed.

Table 4.3.1.2 Predrill Hole Diameter for Various Pile Sizes

Pile Size	Maximum Pre-Drill Hole Diameter[1]
W6x9	6 inches
W6x10.5	6 inches
W6x12	6 inches
W6x16	7 inches
W6x15	8 inches
W6x20	8 inches
W6x25	8 inches

(1) Mechanical compaction should be performed using a post driver with a fabricated steel pipe and base plate (or similar) on backfill placed in 2 to 3 ft lifts compacted for a minimum of 15 seconds per lift.

One of the pre-drilled pile load test locations encountered refusal at approximately 5 feet bgs before reaching the target embedment depth. Bedrock was observed at this location at a depth of approximately 3 feet during geotechnical drilling, which suggests the piles were wedged approximately 2 feet into rock before encountering refusal. After cross-referencing depth to bedrock with the installation depths, it appears feasible to embed driven steel piles sufficiently deep into undersized pilot holes to achieve adequate capacity.

It should also be noted that the pre-drilled pile load testing investigation occurred during a period of heavy precipitation, resulting in extremely soft, muddy ground conditions. The wet soil inhibited effective and efficient compaction of the backfill materials, as well as limited the volume of cuttings available for backfilling. Westwood's load testing crew occasionally utilized native borrow material below topsoil from the area surrounding load test locations to backfill the pile locations up to existing grade. Production rates during construction will likely be impacted if conditions are similarly wet during pile installation. A borrow source for native material should also be identified/stockpiled in the event that the native cuttings are insufficient to fill pre-drilled holes back up to grade, or imported granular backfill material may be used. Significant disturbance of the overburden during pre-drilling and backfilling should be avoided to limit the risk of poor lateral resistance.

4.3.2 Axial Capacity

Driven pile foundations will develop their capacity through a combination of skin friction and end bearing when in compression and skin friction alone when in uplift. The recommended skin friction and end bearing values for design of the photovoltaic array foundations are based on a minimum direct driven pile embedment depth of 6 feet using either W6 or W8 sections. The recommendations for pre-drilled piles only apply to piles driven a minimum of 2 feet into bedrock. Westwood recommends performing a comprehensive bedrock mapping investigation (see Section 4.3.1) to more reliably zone the depth to rock and afford additional confidence in the pre-drilling depths.

Skin friction and end bearing values provided below are ultimate and do not include a safety factor. A safety factor of 2.0 is recommended when determining load bearing and uplift capacity, unless the controlling load case is due to wind or seismic loading, in which case a safety factor of 1.5 should be applied. Skin friction should be applied to the surface area of a wide-flange beam based on the “rectangular” perimeter of the pile, taken as twice the sum of the flange width and web depth. End bearing should be applied to the full “rectangular” area at the bottom of piles in compression (i.e. flange width times web depth).

Table 4.3.2 Axial Pile Capacity Parameters – Direct Driven Piles

Depth (ft)	**Ultimate Skin Friction (psf)**	**Ultimate End Bearing (psf)**
0 – 1	Ignore due to scour/erosion	
1 – 6	825	-
6 – 20	1,000	27,000

Table 4.3.3 Axial Pile Capacity Parameters – Pre-Drilled Piles(1)

Depth (ft)	**Ultimate Skin Friction (psf)**	**Ultimate End Bearing (psf)**
0 – 1	Ignore due to scour/erosion	
Soil(2)	-	-
Bedrock(2)	800	10,000

(1) Applies only to piles embedded in undersized pilot holes backfilled with either compacted native cuttings or imported granular backfill. See Section 4.3.1.2 for further details.

(2) Depth to bedrock varies throughout the site. Piles should be embedded a minimum of 2 feet into bedrock and 5 feet bgs.

Consideration should be given to neglecting skin friction within the upper 12 inches of embedment to account for the potential for erosion/scour; however, alternative scour depths may be applied based on results of a final hydrologic study.

The recommendations in Tables 4.3.2 and 4.3.3 are for piles installed at the existing grade at the time of the field investigation. If final grades are raised or lowered by more than 1 feet where driven piles are proposed, Westwood should be contacted to provide guidance on the design parameter impacts.

4.3.3 Lateral Capacity

The lateral capacity of driven and pre-drilled pile foundations was evaluated based on the results of the pile load test program performed by Westwood. The lateral response of the piles may be modeled using the software program LPile by Ensoft, Inc. The recommended LPile soil model input parameters and p-y multipliers for design of driven wide-flange beam foundations are provided in Tables 4.3.4 and 4.3.5. The recommendations for pre-drilled piles only apply to piles driven a minimum of 2 feet into bedrock with undersized pilot holes. If oversized pre-drill holes are desired, additional load testing should be performed to assess pile capacity.

Table 4.3.4 LPile Soil Input Parameters – Direct Driven Piles

Depth (ft)	LPile Soil Model	Effective Unit Weight (pcf)	Undrained Cohesion (psf)	p-, y-Multipliers
0 – 1	Ignore due to scour/erosion			
1 – 2	Stiff Clay w/o Free Water	130	1,000	1, 1
2 – 6	Stiff Clay w/o Free Water	130	1,500	1.5, 1
6 – 15	Stiff Clay w/o Free Water	130	2,500	1.5, 1

Table 4.3.5 LPile Soil Input Parameters – Pre-Drilled Piles[1]

Depth (ft)	LPile Soil Model	Effective Unit Weight (pcf)	Undrained Cohesion (psf)	Unconfined Compression Strength (psi)	p-, y - Multipliers
0 – 1	Ignore due to scour/erosion				
1 – Varies[2]	Soft Clay (Matlock)	130	600	-	1, 1
Varies[2] – 20	Vuggy Limestone	170	-	3,000	1, 1

(1) Applies only to piles embedded in undersized pilot holes backfilled with either compacted native cuttings or imported granular backfill.

(2) Depth to bedrock varies throughout the site. Piles should be embedded a minimum of 2 feet into bedrock.

Consideration should be given to neglecting lateral capacity within the upper 12 inches of embedment to account for the potential for erosion/scour; however, alternative scour depths may be applied based on results of a final hydrologic study.

4.4 Shallow Foundations

Results of the geotechnical investigations performed suggest that shallow spread/strip footings and mat foundations are feasible to support various structures.

4.4.1 Subgrade Preparation

After clearing and grubbing, the subgrade below shallow foundation over-excavations should be scarified, moisture conditioned to within 3% of optimum moisture content and compacted to 95% of the standard Proctor maximum dry density (ASTM D698). Subgrade below shallow foundations should have the native soil over-excavated to a minimum depth of 2 feet below final grade or 1 foot below the bottom of the foundation, whichever is deeper, and replaced with non-frost susceptible structural fill to minimize differential heave/movement.

Disturbance to subgrades prepared for foundations should be minimized. Repeated traffic loading and excessive moisture due to precipitation may degrade subgrade soil. Native clayey soils are expected to be sensitive to the addition of water and may become unstable if not carefully monitored. Where unsuitable subgrade is encountered, such as soft clay, the subgrade should be moisture conditioned and re-compacted as described above, or over-excavated as recommended by the construction-phase geotechnical engineer and replaced with structural fill in accordance with Section 4.1.5.

4.4.2 Fill Placement and Compaction

Native soil should not be used as structural fill for supporting shallow foundations. Imported structural fill should consist of sand or gravel with less than 70% passing the No. 40 sieve and less than 5% passing the No. 200 sieve. The fill should be sampled and tested prior to use on site. Structural fill placed beneath foundations and slabs shall be moisture conditioned within 3% of optimum moisture content, placed in loose lifts of 12 inches thick, and compacted to a minimum 98% of the standard Proctor maximum dry density (ASTM D698).

4.4.3 Bearing Capacity and Settlement

Results of the investigation suggest that shallow spread/strip footings and mat foundations are generally feasible within the PV array areas. It is assumed that the pads and mat foundations supporting ancillary equipment will bear at least 1 foot below grade and on select structural fill extending at least 2 feet below the final grade. Provided the recommendations in this report are followed, the recommended bearing capacities provided in Table 4.4.3 may be used. These bearing capacities include a safety factor of 3.0 applied to the ultimate bearing capacity. Deep foundation systems may be considered as an alternative to shallow foundations.

Table 4.4.3 Shallow Foundation Bearing Capacity Summary Table

Foundation Type	Approximate Dimensions	Allowable Gross Bearing Capacity (psf)
Large pad/slab-on-grade	10 feet x 20 feet	1,600
Continuous strip	4 feet wide	2,400

A total estimated settlement of less than 1 inch is anticipated for shallow foundations, provided the subgrade preparation recommendations in Section 4.6.1 are followed. Differential settlement can generally be assumed to be ½ to ¾ of the total settlement.

Proper drainage should be provided around foundations to minimize the potential for foundation movement. Shallow foundations should be reinforced as necessary to reduce the potential for damage caused by differential movement.

A friction factor of 0.50 may be used for the ultimate frictional resistance to lateral sliding along the base of footings founded on compacted select non-frost susceptible structural fill. A minimum factor of safety of 1.5 is recommended to determine the allowable frictional resistance to lateral sliding. A vertical modulus of subgrade reaction of 100pounds per cubic inch (pci) may be used for mat foundations bearing on a minimum of 1 foot of compacted non-frost susceptible structural fill. This vertical modulus of subgrade reaction represents a 1-foot square foundation and should be modified as needed for larger foundation sizes.

4.5 Access Roads

Access roads will be required during construction to accommodate construction equipment and deliveries. The access roads will also facilitate long-term operation and maintenance of the facility. These roads will be subjected to heavy loads, but only for limited duration and frequency. The suitability of the shallow site soil for use as access roads will depend primarily on the strength and moisture condition of the soil at the time the traffic occurs. The shallow soil on site below the root zone is generally considered poor to adequate subgrade for gravel access roads. Access roads should have an aggregate surface to help ensure accessibility during wet conditions.

4.5.1 Subgrade Preparation

Surface vegetation root zones and other soft or otherwise unsuitable material should be stripped from access roadways and the surface graded to provide positive drainage. In order to identify potentially unsuitable soil, the road subgrade should be compacted and subsequently proof-rolled with a fully loaded tandem axle or tri-axle truck with a minimum gross weight of 25 tons and minimum axle loading of 10 tons. Subgrade preparation should be monitored by a representative of the construction-phase geotechnical engineer at the time of construction. At locations where pumping or unacceptable rutting of the subgrade occurs, the soft soil should be removed and replaced with properly compacted fill in accordance with Section 4.1.5.

For areas on site with non-organic lean clay, silt, or sand, clearing and grubbing of the topsoil should be performed. Exposed areas for access road construction should be scarified, moisture conditioned to within 3% of optimum moisture content and compacted to 95% of the standard Proctor maximum dry density (MDD) (ASTM D698). The depth of subgrade compaction should extend at least 12 inches below access road areas. Subgrade below access roads areas should be proof-rolled prior to placing fill to identify soft areas. Proof-rolling can be performed with a fully loaded dump truck. Soft areas with rutting greater than 1.5 inches should be removed or re-compacted prior to placing fill. Where unsuitable subgrade is encountered, the subgrade should be moisture conditioned and re-compacted as described above, or over-excavated as recommended by the construction-phase geotechnical engineer and replaced with structural fill in accordance with Section 4.1.5.

Disturbance to subgrades prepared for access roads should be minimized. Repeated traffic loading and excessive moisture due to precipitation may degrade subgrade soil. Native clayey soils are expected to be sensitive to the addition of water and may become unstable if not carefully monitored.

4.5.2 Aggregate Section

Access road design criteria, such as traffic loads, were not known at the time of this report. The project geotechnical/civil engineer should be contacted for road section design once final design criteria are known. An assumed subgrade CBR of 2.2 depending on subgrade moisture, strength, compaction effort, and soil type is recommended for the design of aggregate-surfaced roads. In general, at least 10 inches of aggregate may be required to support construction traffic, although conditions vary with subgrade moisture, strength, compaction effort, and soil type. Less aggregate, such as 6 to 8 inches, may be used if the subgrade is stabilized (e.g., with a mid-strength geotextile reinforcement, lime, or cement).

Loose, saturated, and highly organic subgrade material are typically the limiting conditions for access roads. Strengthening the subgrade with crushed rock, geosynthetics, or other suitable material, and/or mixing the base material with additives such as cement will minimize damage to the subgrade. Project specific tests are recommended to more accurately define the mix design and access road cross section. Establishing adequate side ditches and other surface water control features will help to reduce damage caused by surface water and saturated road subgrade conditions.

4.5.3 Maintenance

It is expected that aggregate-surfaced access roads will require ongoing maintenance to keep them in a serviceable condition, regardless of the aggregate thickness and subgrade preparation. It is not practical to design an aggregate section of adequate thickness that prevents ongoing maintenance. Ruts, depressions, and soft/loose subgrade should be repaired as needed to facilitate traffic. Additional aggregate may be placed in ruts and depressions, or the entire aggregate section and soft subgrade may be removed and replaced with a new aggregate section.

4.6 Construction Considerations

To a large degree, satisfactory foundation and earthwork performance depends on construction quality control; therefore, subgrade preparation, subgrade compaction, proof-rolling, and placement and compaction of fill and backfill material should be observed and tested by qualified personnel. In addition, qualified staff who are experienced with the foundation design requirements should monitor and document foundation preparation and construction activities.

5.0 Limitations

This report has been prepared in accordance with generally accepted geotechnical engineering practice for the exclusive use of PCL Construction Enterprises, Inc. for the New Frontiers Solar Project. The primary focus of this report are the typical site grading activities, pile foundations for PV racking and inverters, shallow foundations for ancillary structures, and access roads. Additional investigations and analyses may be necessary for other site infrastructure. Supplemental load testing on pre-drilled piles is recommended prior to final design.

The borings are representative of the subsurface conditions at the sampled locations and intervals, and therefore do not necessarily reflect strata variations that may exist between sampled locations and intervals. If variations from the subsurface conditions described in this study are noted during construction, recommendations in this report must be re-evaluated. Any user of this report should verify all borings locations against the final location of the respective infrastructure to determine if infrastructure has moved prior to using the recommendations provided by Westwood. In the event that any changes in the nature, design, or location of the facilities are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed, and the conclusions of this report are modified or verified in writing by Westwood. Westwood is not responsible for any claims, damages, or liability associated with the interpretation of subsurface data by others.

After plans for the facility are completed in sufficient detail, a geotechnical engineer should be consulted regarding any additional subsurface information that may be required to arrive at additional recommendations for design and construction.

6.0 References

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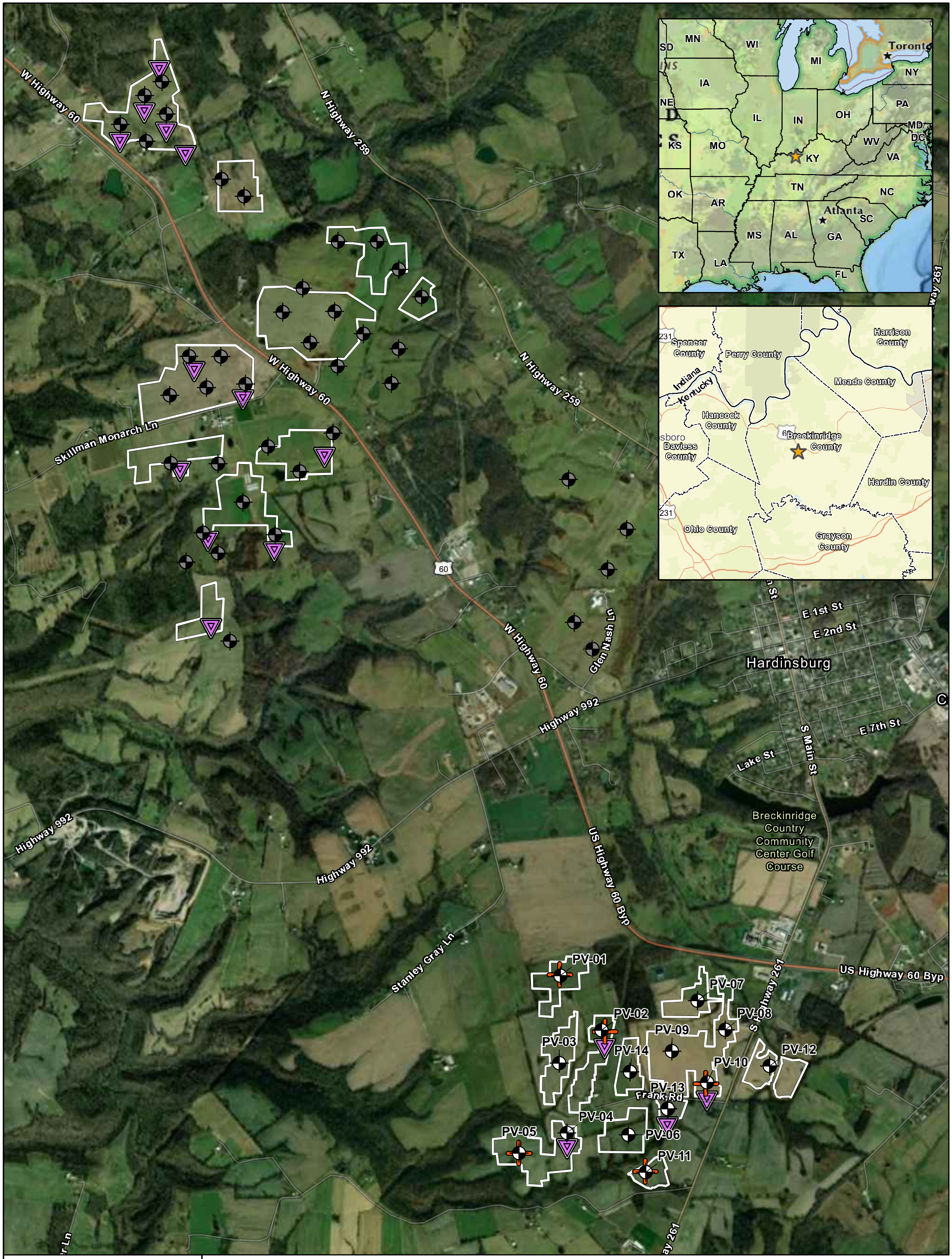
Exhibits



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Data Source(s): Westwood (2025); ESRI WMS National Geographic & World Streets Basemaps (Accessed 2021); Census Bureau (2020).

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Legend

- ★ Project Location
- ⊕ Boring Location
- ⊕ RRC Boring Location
- ✚ Electrical Resistivity Location
- ▽ Test Pit Location
- ▭ Project Boundary
- ▭ County Boundary
- ▭ State Boundary

New Frontiers Solar

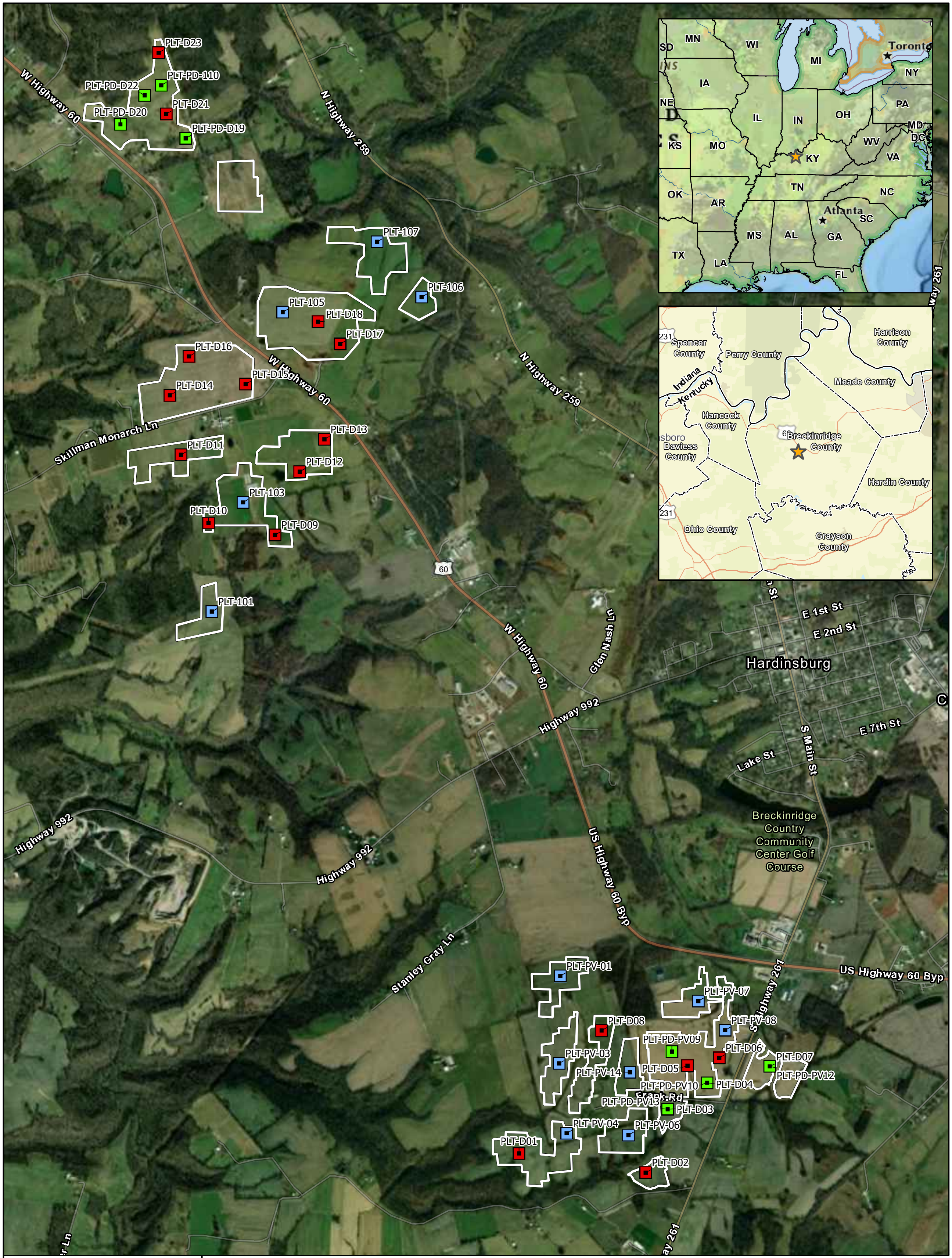
Breckenridge County, KY

Geotechnical Investigation Overview Map

EXHIBIT 1A

December 13, 2024

Map Document: \\westwoodps.local\Global\Projects\0041704.00_GIS_ArcPro\R0041704.00.080_CloverCreekSolar_Geotech\R0041704.00.080_CloverCreekSolar_Geotech.aprx 3/21/2025 10:26 AM AHarmon



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Data Source(s): Westwood (2025); ESRI WMS National Geographic & World Streets Basemaps (Accessed 2021); Census Bureau (2020).

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Legend

Pile Location

- 🟥 Drivability Location
- 🟦 Driven Pile Location
- 🟩 Driven and Predrill Pile Location
- ★ Project Location
- ▭ Project Boundary
- ⬚ County Boundary
- ▭ State Boundary

New Frontiers Solar

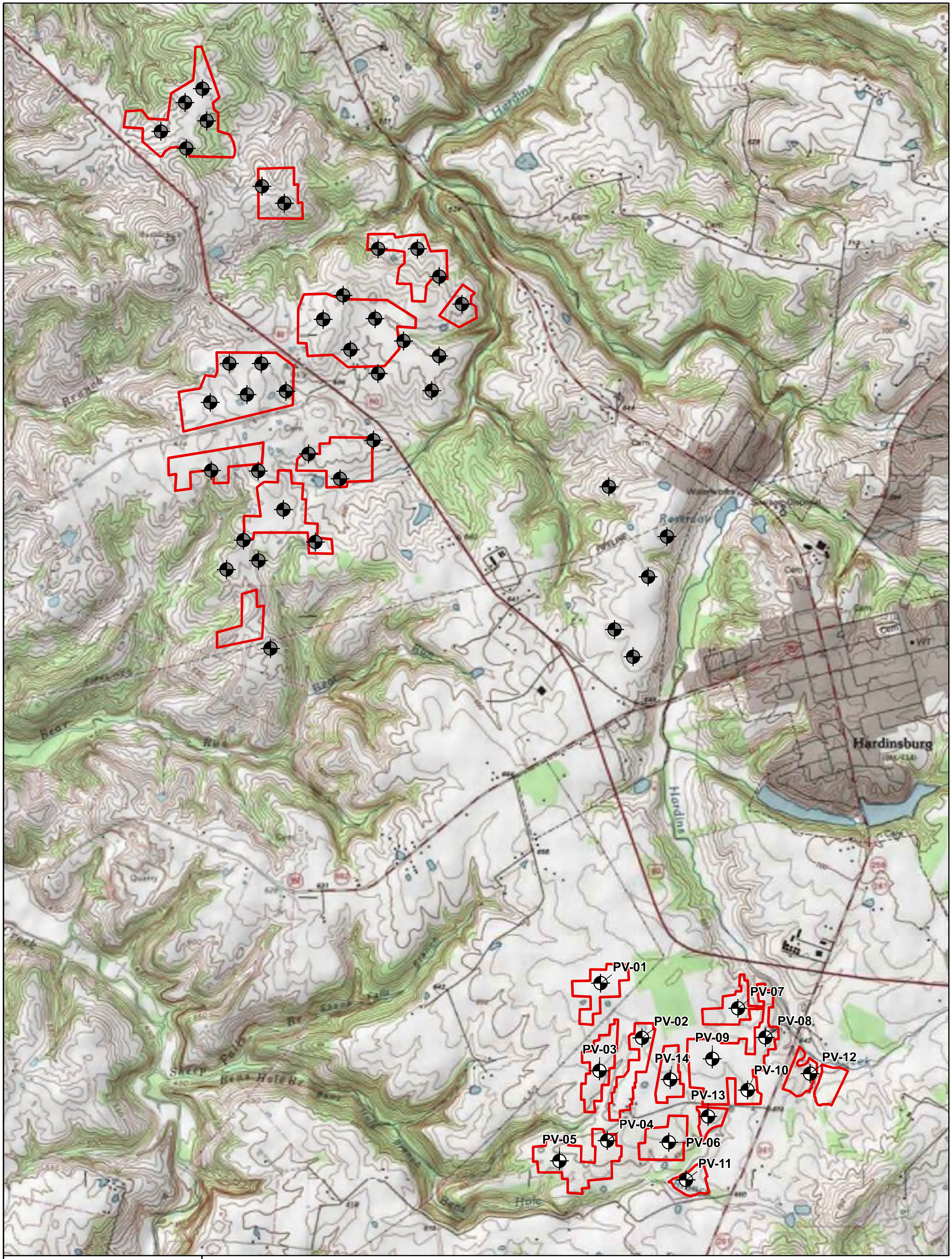
Breckenridge County, KY

PLT Overview Map

EXHIBIT 1B

December 13, 2024

Map Document: \\westwoodps.local\Global Projects\0041704.00_GIS_ArcPro\R0041704.00_080_CloverCreekSolar_Geotech\R0041704.00_080_CloverCreekSolar_Geotech.aprx 3/21/2025 10:54 AM AHarmon



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Data Source(s): Westwood (2024); ESRI WMS National Geographic & World Streets Basemaps (Accessed 2021); Census Bureau (2020).

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Legend

- ⯐ Boring Location
- ⯐ RRC Boring Location
- 🟥 Project Boundary

New Frontiers Solar

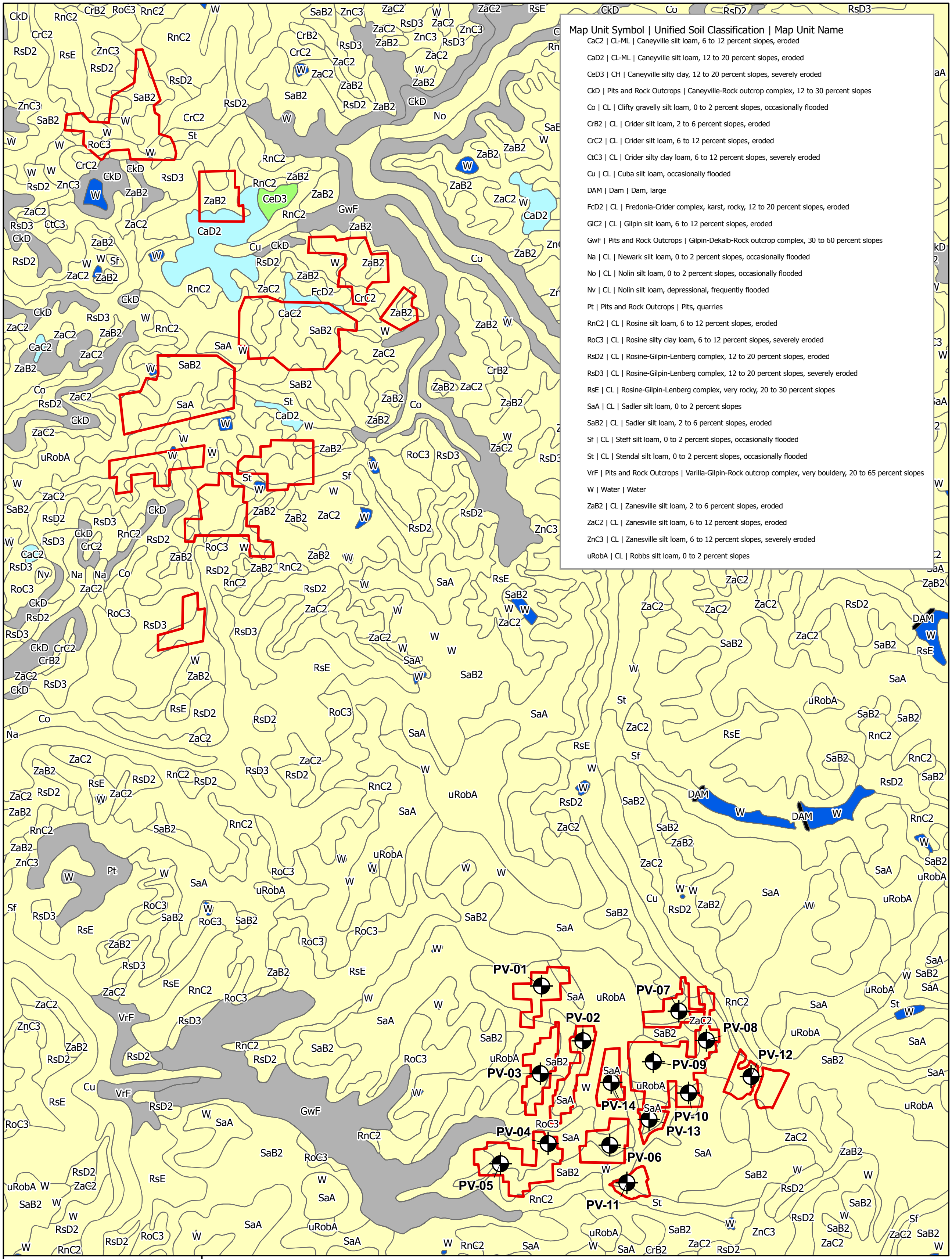
Breckenridge County, KY

USGS Topography Map

EXHIBIT 2

December 13, 2024

Map Document: \\westwoodps.local\Global Projects\0041704.00_GIS_ArcPro\R0041704.00.080_CloverCreekSolar_Geotech\R0041704.00.080_CloverCreekSolar_Geotech.aprx 12/13/2024 12:22 PM AHarmon



Map Unit Symbol | Unified Soil Classification | Map Unit Name
CaC2 | CL-ML | Caneyville silt loam, 6 to 12 percent slopes, eroded
CaD2 | CL-ML | Caneyville silt loam, 12 to 20 percent slopes, eroded
CeD3 | CH | Caneyville silty clay, 12 to 20 percent slopes, severely eroded
CkD | Pits and Rock Outcrops | Caneyville-Rock outcrop complex, 12 to 30 percent slopes
Co | CL | Clifty gravelly silt loam, 0 to 2 percent slopes, occasionally flooded
CrB2 | CL | Crider silt loam, 2 to 6 percent slopes, eroded
CrC2 | CL | Crider silt loam, 6 to 12 percent slopes, eroded
CtC3 | CL | Crider silty clay loam, 6 to 12 percent slopes, severely eroded
Cu | CL | Cuba silt loam, occasionally flooded
DAM | Dam | Dam, large
FcD2 | CL | Fredonia-Crider complex, karst, rocky, 12 to 20 percent slopes, eroded
GlC2 | CL | Gilpin silt loam, 6 to 12 percent slopes, eroded
GwF | Pits and Rock Outcrops | Gilpin-Dekalb-Rock outcrop complex, 30 to 60 percent slopes
Na | CL | Newark silt loam, 0 to 2 percent slopes, occasionally flooded
No | CL | Nolin silt loam, 0 to 2 percent slopes, occasionally flooded
Nv | CL | Nolin silt loam, depressional, frequently flooded
Pt | Pits and Rock Outcrops | Pits, quarries
RnC2 | CL | Rosine silt loam, 6 to 12 percent slopes, eroded
RoC3 | CL | Rosine silty clay loam, 6 to 12 percent slopes, severely eroded
RsD2 | CL | Rosine-Gilpin-Lenberg complex, 12 to 20 percent slopes, eroded
RsD3 | CL | Rosine-Gilpin-Lenberg complex, 12 to 20 percent slopes, severely eroded
RsE | CL | Rosine-Gilpin-Lenberg complex, very rocky, 20 to 30 percent slopes
SaA | CL | Sadler silt loam, 0 to 2 percent slopes
SaB2 | CL | Sadler silt loam, 2 to 6 percent slopes, eroded
Sf | CL | Steff silt loam, 0 to 2 percent slopes, occasionally flooded
St | CL | Stendal silt loam, 0 to 2 percent slopes, occasionally flooded
VrF | Pits and Rock Outcrops | Varilla-Gilpin-Rock outcrop complex, very bouldery, 20 to 65 percent slopes
W | Water | Water
ZaB2 | CL | Zanesville silt loam, 2 to 6 percent slopes, eroded
ZaC2 | CL | Zanesville silt loam, 6 to 12 percent slopes, eroded
ZnC3 | CL | Zanesville silt loam, 6 to 12 percent slopes, severely eroded
uRobA | CL | Robbs silt loam, 0 to 2 percent slopes

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Feet

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Data Source(s): Westwood (2024); ESRI WMS National Geographic & World Streets Basemaps (Accessed 2021); Census Bureau (2020).

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Legend

⊕ Boring Location

USCS Rating

🟩 CH

▨ CL

▨ CL-ML

■ Dam

▨ Pits and Rock Outcrops

■ Water

New Frontiers Solar

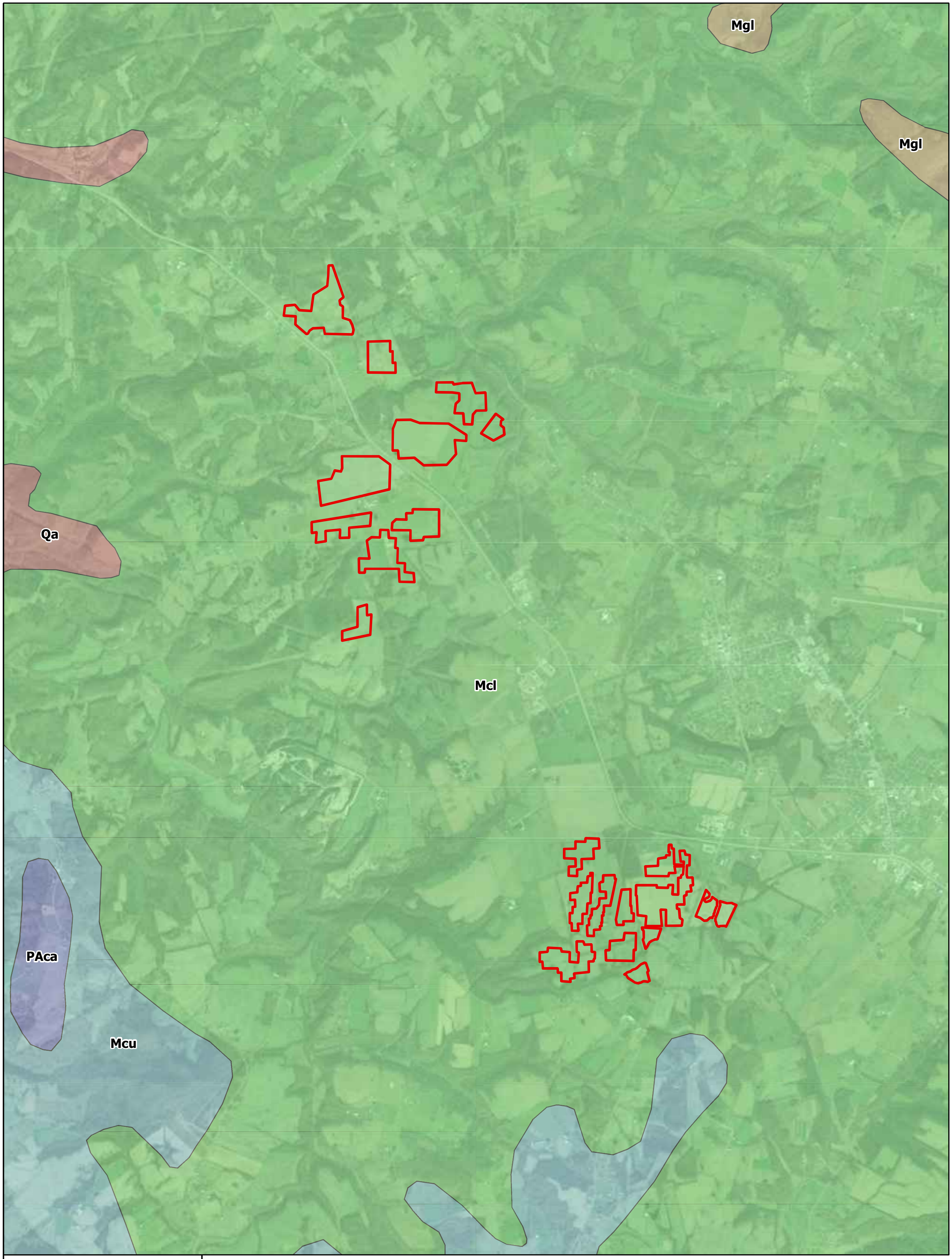
Breckenridge County, KY

Surficial Soils Map

EXHIBIT 3

December 13, 2024

Map Document: \\westwoodps.local\Global Projects\0041704.00_GIS_ArcPro\R0041704.00_080_CloverCreekSolar_Geotech\R0041704.00_080_CloverCreekSolar_Geotech.aprx 12/13/2024 12:39 PM AHarmon



Legend

🟥 Project Boundary

Geologic Unit Symbol | Geologic Unit Name | Geologic Unit Age

🟩 Mcl | Rocks of Chesterian age, lower part | Phanerozoic - Paleozoic - Carboniferous - Mississippian

🟦 Mcu | Rocks of Chesterian age, upper part | Phanerozoic - Paleozoic - Carboniferous - Mississippian

🟧 Mgl | Ste. Genevieve and St. Louis Limestones, undivided | Phanerozoic - Paleozoic - Carboniferous - Mississippian

🟪 PAca | Caseyville Formation | Phanerozoic - Paleozoic - Carboniferous - Pennsylvanian

🟥 Qa | Alluvium | Phanerozoic - Cenozoic - Quaternary - Holocene

Data Source(s): Westwood (2024); ESRI WMS National Geographic & World Streets Basemaps (Accessed 2021); Census Bureau (2020).

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New Frontiers Solar

Breckenridge County, KY

Local Geology Map

EXHIBIT 4

December 13, 2024

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Data Source(s): Westwood (2024); ESRI WMS National Geographic & World Streets Basemaps (Accessed 2021); Census Bureau (2020).

Legend

- 🟥 Project Boundary
- 🟨 Sinkhole
- 🟦 Carbonate rocks at or near the land surface in a humid climate

New Frontiers Solar

Breckenridge County, KY

Karst Map

EXHIBIT 5

December 13, 2024

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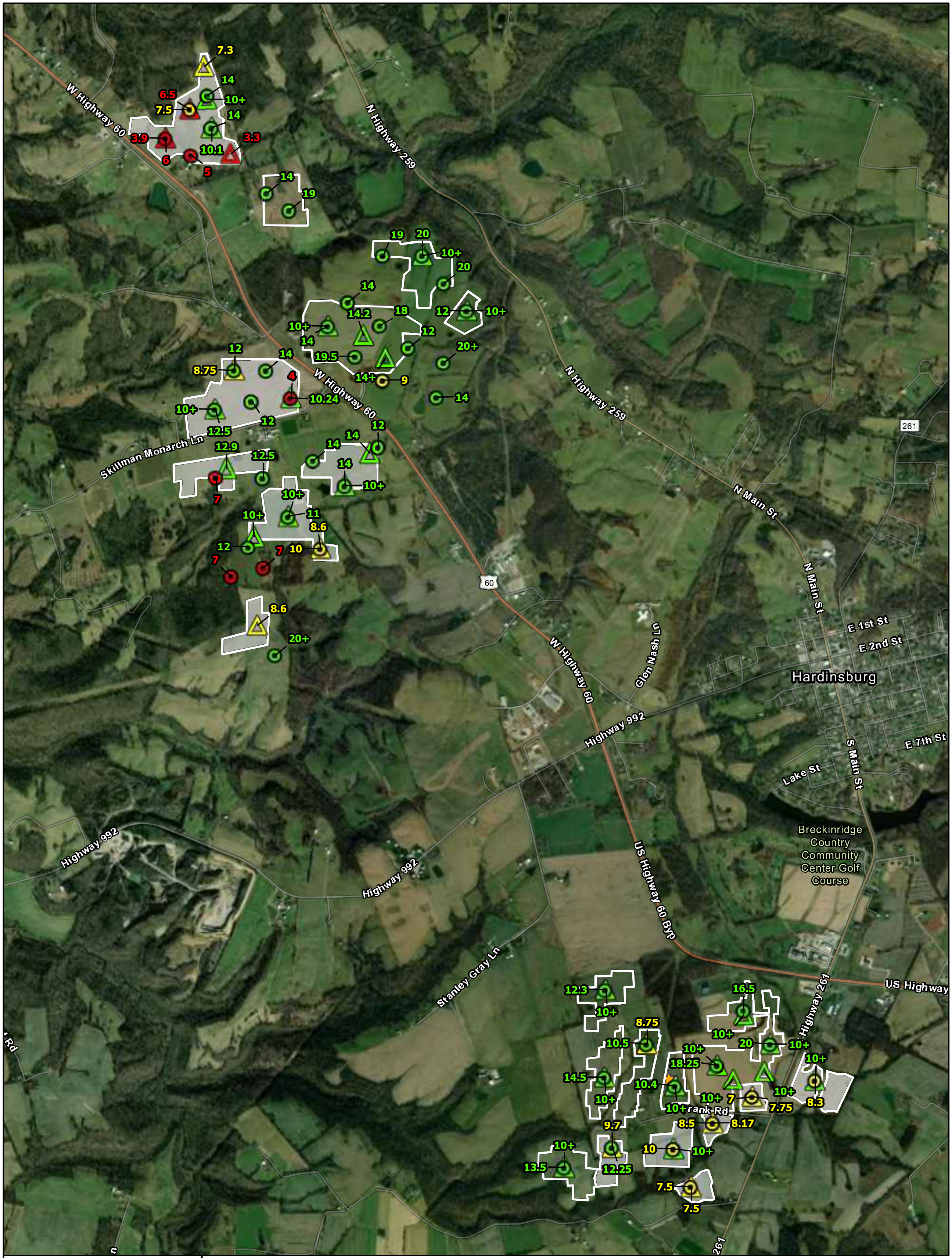

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Data Source(s): Westwood (2024); ESRI WMS National Geographic & World Streets Basemaps (Accessed 2021); Census Bureau (2020).

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Legend

Boring Locations Boring Refusal Depth	PLT Locations PLT Refusal Depth
🟢 10+ ft	△ 10+ ft
🟡 7-10 ft	△ 7-10 ft
🔴 <7 ft	△ <7 ft

▭ Project Boundary
▭ Zones of Increased Shallow Refusal Risk

New Frontiers Solar

Breckenridge County, KY

Depth to Pile/Auger Refusal Map

EXHIBIT 6

December 13, 2024

Map Document: \\westwoodps.local\GlobalProjects\0041704.00_GIS_ArcPro\R0041704.00.080_CloverCreekSolar_Geotech\R0041704.00.080_CloverCreekSolar_Geotech.aprx 12/13/2024 2:42 PM AHarmon

Appendix A

Soil Boring Logs

Westwood

SOIL BORING LOG

BORING NO. PV-01

Page 1 of 1

Facility/Project Name:	Boring Location:	Surface Elev. (ft):	Total Depth (ft bgs):	Borehole Dia. (in):
New Frontiers Solar Project Breckinridge County, Kentucky	Lat: 37.76159 Long: -86.47807	---	12.3	6

Drilling Firm:	Drilling Method:	Personnel:	Date Started:	Date Completed:	Water Depth (ft bgs):
SSL Geotechnical	Auto-Hammer SPT Geoprobe 7822DT	Logger - J. Full Driller - C. Goff	10/29/24	10/29/24	DNE

SAMPLE NUMBER AND TYPE	RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS) 0 10 20 30 40 50	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	94	4 4 5		**Lean Clay w/ Sand (CL)** - yellow and gray, moist, stiff to very stiff	CL		9	2.5 2.75						
2 SS	100	3 2 3	5	**Lean Clay (CL)** - yellow and gray, moist, medium to very stiff	CL		5	2.5						
3 SS	100	2 2 5					7	1.5 2.0		20.2				
4 SS	100	2 3 5	10				8	2.0 2.5						
5 SS	92	13 26 50/1		**Sandy Lean Clay (CL)** - yellow and gray, moist, hard	CL			0.75 1.0 1.5						
			15 20	**Boring Terminated due to Auger Refusal.**										

Checked By:	Date:	Approved By:	Date:	Firm:
D. Welch	12/11/24	C. Enos	12/12/24	Westwood Professional Services (952) 937-5150 12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343

Westwood

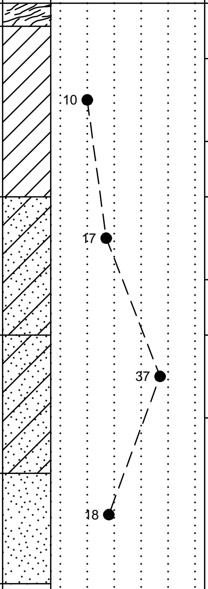
SOIL BORING LOG

BORING NO. PV-02

Page 1 of 1

Facility/Project Name:	Boring Location:	Surface Elev. (ft):	Total Depth (ft bgs):	Borehole Dia. (in):
New Frontiers Solar Project Breckinridge County, Kentucky	Lat: 37.75835 Long: -86.47498	---	10.5	6

Drilling Firm:	Drilling Method:	Personnel:	Date Started:	Date Completed:	Water Depth (ft bgs):
SSL Geotechnical	Auto-Hammer SPT Geoprobe 7822DT	Logger - J. Full Driller - C. Goff	10/28/24	10/28/24	DNE



SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS)	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 5 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	100	3 5 5		**Lean Clay (CL)** - light brown and yellow, moist, stiff to very stiff	CL		10	2.5 2.5 3.0						
AU										15.2	34	15	89	Bulk sample taken from auger cuttings between 1-5 ft bgs.
2 SS	100	4 8 9	5	**Lean Clay w/ Sand (CL)** - brown and yellow, moist, very stiff	CL		17	2.25 2.5 3.0						
3 SS	100	4 5 32		**Sandy Lean Clay (CL)** - brown and yellow, moist, very stiff	CL		37	3.5 3.75						
4 SS	94	7 8 10	10	**Poorly-Graded Sand (SP)** - brown and yellow, moist, medium dense	SP		18							Initial cave in after drilling at 8.9 ft bgs.
				Boring Terminated due to Auger Refusal.										
			15											
			20											

Checked By:	Date:	Approved By:	Date:	Firm:
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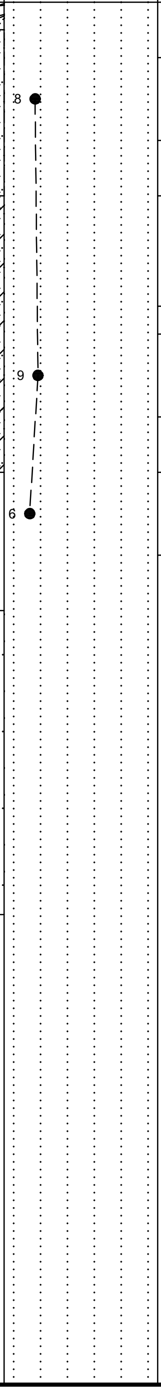
SOIL BORING LOG

BORING NO. PV-03

Page 1 of 1

Facility/Project Name:	Boring Location:	Surface Elev. (ft):	Total Depth (ft bgs):	Borehole Dia. (in):
New Frontiers Solar Project Breckinridge County, Kentucky	Lat: 37.75639 Long: -86.47816	---	16.5	6

Drilling Firm:	Drilling Method:	Personnel:	Date Started:	Date Completed:	Water Depth (ft bgs):
SSL Geotechnical	Auto-Hammer SPT Geoprobe 7822DT	Logger - J. Full Driller - C. Goff	10/28/24	10/28/24	DNE



SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS)	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, dark brown, silty, organics										Coordinates are WGS 1984 Datum.
1 SS	83	1 3 5		**Silty Sand (SM)** - brown, moist, loose	SM		8	1.75 2.0 2.02						
2 ST	46		5	**Lean Clay w/ Sand (CL)** - brown and gray, moist, stiff to very stiff	CL			3.0 3.25 3.5	1.12	16.5	37	18	83	
3 SS	100	4 4 5					9	2.0 2.0 2.5		19.6	29	14	82	
4 SS	100	3 2 4	10	**Silt (ML)** - brown, moist, medium to very stiff	ML		6	2.0 2.0 2.25						
5 SS	100	5 27 50/4		**Sandstone** - yellow, moist, weathered										
6 SS	100	25 50/5	15											Initial cave in after drilling at 14.3 ft bgs.
			20	**Boring Terminated due to Auger Refusal.**										

Checked By:	Date:	Approved By:	Date:	Firm:
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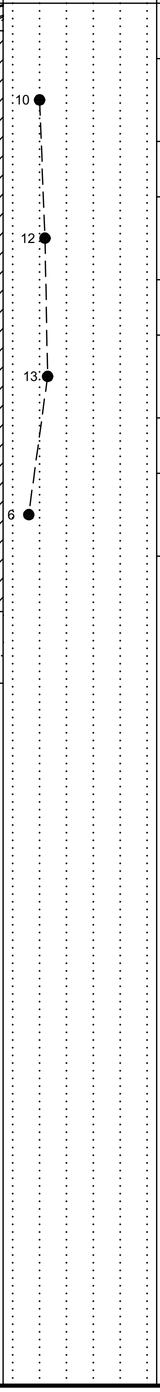
SOIL BORING LOG

BORING NO. PV-04

Page 1 of 1

Facility/Project Name: New Frontiers Solar Project Breckinridge County, Kentucky		Boring Location: Lat: 37.75226 Long: -86.47759	Surface Elev. (ft): ---	Total Depth (ft bgs): 12.3	Borehole Dia. (in): 6
Drilling Firm: SSL Geotechnical	Drilling Method: Auto-Hammer SPT Geoprobe 7822DT	Personnel: Logger - J. Full Driller - C. Goff	Date Started: 10/29/24	Date Completed: 10/29/24	Water Depth (ft bgs): DNE



SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS)	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	100	2 4 6		**Lean Clay (CL)** - yellow and brown, moist, medium to very stiff	CL		10	2.5 3.0						
2 SS	100	3 5 7	5	- yellow and gray			12	2.5 2.5 3.0						
3 SS	100	5 6 7					13	2.0 2.5 2.5						
4 SS	100	2 3 3	10	- yellow and brown			6	3.0 3.0 3.25		32.3				
5 SS	100	25 50/3		**Sandstone** - yellow and red, moist										Initial cave in after drilling at 12 ft bgs.
			15 20	**Boring Terminated due to Auger Refusal.**										

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Westwood

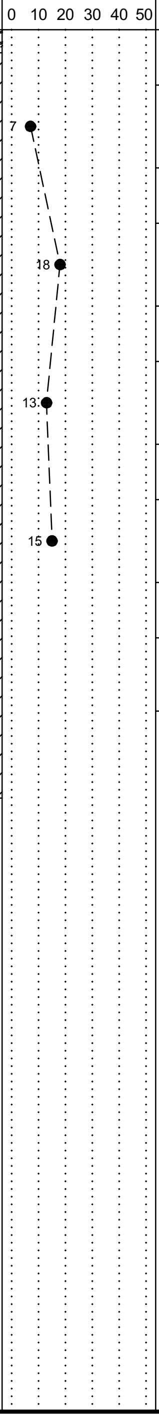
SOIL BORING LOG

BORING NO. PV-05

Page 1 of 1

Facility/Project Name: New Frontiers Solar Project Breckinridge County, Kentucky		Boring Location: Lat: 37.75106 Long: -86.48117	Surface Elev. (ft): ---	Total Depth (ft bgs): 13.9	Borehole Dia. (in): 6
Drilling Firm: SSL Geotechnical	Drilling Method: Auto-Hammer SPT Geoprobe 7822DT	Personnel: Logger - J. Full Driller - C. Goff	Date Started: 10/28/24	Date Completed: 10/28/24	Water Depth (ft bgs): DNE

SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS)	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 5 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	92	2 3 4		**Lean Clay (CL)** - light brown, medium to very stiff			7	2.5 3.0						
2 SS	100	4 8 10	5	- light brown and gray			18	3.0 4.0						
3 SS	100	5 6 7			CL		13	3.5 3.5		18.0	32	17	87	Initial cave in after drilling at 7.6 ft.
4 SS	97	3 5 10	10				15	1.5 2.5						
5 SS	100	7 50 50/4						2.0						
			15	**Boring Terminated due to Auger Refusal.**										
			20											



WW_BORING LOG_PP NEW FRONTIERS_SOIL BORING LOGS.GPJ RMT_CORP.GDT 0041704.00 12/13/24

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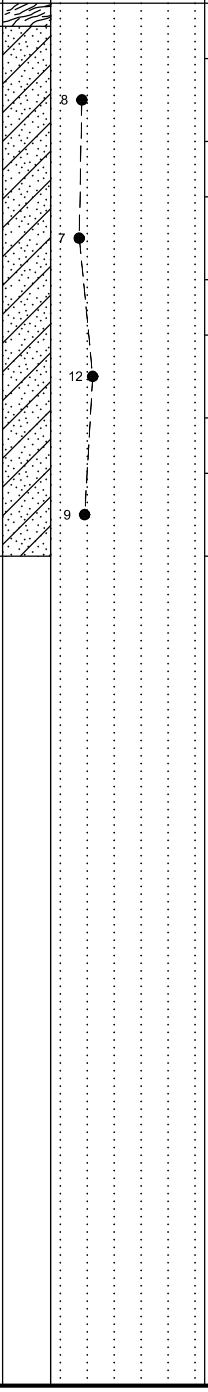
SOIL BORING LOG

BORING NO. PV-06

Page 1 of 1

Facility/Project Name:	Boring Location:	Surface Elev. (ft):	Total Depth (ft bgs):	Borehole Dia. (in):
New Frontiers Solar Project Breckinridge County, Kentucky	Lat: 37.75215 Long: -86.47296	---	10.0	6

Drilling Firm:	Drilling Method:	Personnel:	Date Started:	Date Completed:	Water Depth (ft bgs):
SSL Geotechnical	Auto-Hammer SPT Geoprobe 7822DT	Logger - J. Full Driller - C. Goff	10/28/24	10/28/24	DNE



SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	N VALUE (BLOWS)	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 5 inches, dark brown, clayey, organics									Coordinates are WGS 1984 Datum.
1 SS	100	1 4 4		**Lean Clay (CL)** - brown and gray, moist, medium to very stiff		8	3.0 3.25						
AU									18.4	33	13	92	Bulk sample taken from auger cuttings between 1-5 ft bgs.
2 SS	100	3 3 4	5		CL	7	2.5 3.0 3.0						
3 SS	100	3 5 7		- gray		12	1.25 1.5 2.25		21.4	39	22	92	
4 SS	100	2 4 5	10	- brown and gray		9	1.25 1.5 2.0						
			15	**Boring Terminated due to Auger Refusal.**									
			20										

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SOIL BORING LOG

BORING NO. PV-07

Page 1 of 1

Facility/Project Name: New Frontiers Solar Project Breckinridge County, Kentucky	Boring Location: Lat: 37.76036 Long: -86.46773	Surface Elev. (ft): ---	Total Depth (ft bgs): 16.5	Borehole Dia. (in): 6
Drilling Firm: SSL Geotechnical Drilling Method: Auto-Hammer SPT Geoprobe 7822DT	Personnel: Logger - J. Full Driller - C. Goff	Date Started: 10/29/24	Date Completed: 10/29/24	Water Depth (ft bgs): DNE

SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS) 0 10 20 30 40 50	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	78	5 8 9		**Sandy Lean Clay (CL)** - light brown, moist, very stiff to hard	CL	▨	17	4.5 4.5						
2 SS	100	6 8 7	5			▨	15	3.75 4.0 4.5						
3 SS	100	6 8 12		**Fat Clay (CH)** - gray, moist, stiff to hard	CH	▨	20	4.5 4.5		19.5	52	30		
4 SS	100	4 6 11	10	- yellowish brown		▨	17	4.0 4.5 4.5						
5 SS	100	8 12 14		**Sandy Lean Clay (CL)** - yellowish brown, moist, very stiff to hard	CL	▨	26	4.0 4.5 4.5						Initial cave in after drilling at 12 ft bgs.
6 SS	100	7 9 23	15	- gray		▨	32	4.5 4.5						
				Boring Terminated due to Auger Refusal.										
			20											

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SOIL BORING LOG

BORING NO. PV-08

Page 1 of 1

Facility/Project Name:	Boring Location:	Surface Elev. (ft):	Total Depth (ft bgs):	Borehole Dia. (in):
New Frontiers Solar Project Breckinridge County, Kentucky	Lat: 37.75837 Long: -86.46572	---	20.0	6

Drilling Firm:	Drilling Method:	Personnel:	Date Started:	Date Completed:	Water Depth (ft bgs):
SSL Geotechnical	Auto-Hammer SPT Geoprobe 7822DT	Logger - J. Full Driller - C. Goff	10/29/24	10/29/24	DNE

SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS) 0 10 20 30 40 50	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, dark brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	56	2 3 3		**Lean Clay (CL)** - brown, moist, medium stiff to stiff			6	2.0 2.0						
AU										19.5	39	19	94	Bulk sample taken from auger cuttings between 1-5 ft bgs.
2 SS	100	2 4 8	5				12	1.5 1.5 2.0						
3 SS	100	5 5 7		- yellowish brown and gray	CL		12	2.0 2.5 2.5						
4 SS	100	2 3 3	10	- yellowish brown			6	1.75 1.75 2.25						
5 SS	100	7 13 25					38	1.5 1.5 1.75						
6 SS	100	7 11 12	15	**Lean Clay w/ Sand (CL)** - gray, moist, very stiff to hard	CL		23	4.5 4.5		16.3				
7 SS	100	11 25 27	20	**Lean Clay (CL)** - gray, moist, hard	CL		52	4.5 4.5						
				Boring Terminated. Target Depth Reached.										

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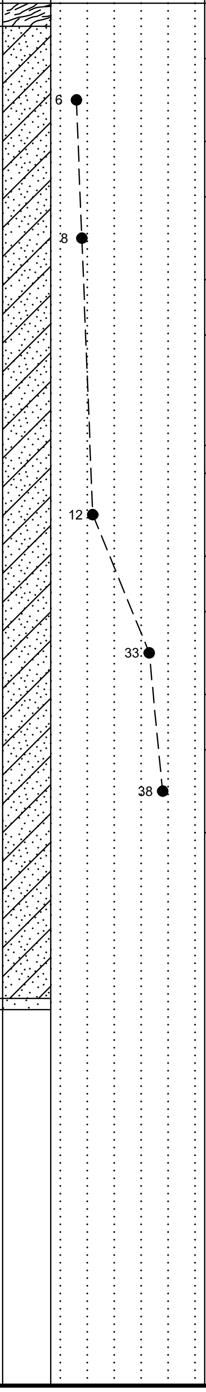
SOIL BORING LOG

BORING NO. PV-09

Page 1 of 1

Facility/Project Name: New Frontiers Solar Project Breckinridge County, Kentucky		Boring Location: Lat: 37.75711 Long: -86.469711	Surface Elev. (ft): ---	Total Depth (ft bgs): 18.2	Borehole Dia. (in): 6
Drilling Firm: SSL Geotechnical	Drilling Method: Auto-Hammer SPT Geoprobe 7822DT	Personnel: Logger - J. Full Driller - C. Goff	Date Started: 10/29/24	Date Completed: 10/29/24	Water Depth (ft bgs): DNE



SAMPLE NUMBER AND TYPE	RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	N VALUE (BLOWS)	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 5 inches, dark brown, clayey, organics									Coordinates are WGS 1984 Datum.
1 SS	100	2 2 4		**Lean Clay w/ Sand (CL)** - brown and yellow, moist, medium stiff to very stiff		6	2.0 2.5 2.75						
2 SS	100	2 3 5	5			8	2.25 2.5 2.5						
3 ST	92						1.5 1.5 2.0	1.96	19.2	40	22	82	
4 SS	100	1 4 8	10	- dark brown	CL	12	1.5 1.5						
5 SS	100	7 11 22		- yellow and gray, hard		33	4.5 4.5						
6 SS	100	7 15 23	15			38	4.5 4.5						
7 SS	100	50/2		**Sandstone** - yellow, moist									
			20	**Boring Terminated due to Auger Refusal.**									

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SOIL BORING LOG

Westwood

BORING NO. PV-10

Page 1 of 1

Facility/Project Name: New Frontiers Solar Project Breckinridge County, Kentucky	Boring Location: Lat: 37.75525 Long: -86.46707	Surface Elev. (ft): ---	Total Depth (ft bgs): 9.3	Borehole Dia. (in): 6
Drilling Firm: SSL Geotechnical Drilling Method: Auto-Hammer SPT Geoprobe 7822DT	Personnel: Logger - J. Full Driller - C. Goff	Date Started: 10/29/24	Date Completed: 10/29/24	Water Depth (ft bgs): DNE

SAMPLE NUMBER AND TYPE	RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS) 0 10 20 30 40 50	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	89	3 5 7		**Lean Clay w/ Sand (CL)** - light brown, moist, stiff to very stiff	CL		12	3.0 3.0 3.25						
2 SS	100	3 5 6	5	**Lean Clay (CL)** - brown and gray, moist, stiff to hard	CL		11	3.75 3.75 4.0		18.5				
3 SS	100	4 5 50/5						2.5 2.75 3.0						
				Sandstone - light yellow, moist										
4 SS	0	5 50/3												
			10	**Boring Terminated due to Auger Refusal.**										
			15											
			20											

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SOIL BORING LOG

BORING NO. PV-11

Page 1 of 1

Facility/Project Name:	Boring Location:	Surface Elev. (ft):	Total Depth (ft bgs):	Borehole Dia. (in):
New Frontiers Solar Project Breckinridge County, Kentucky	Lat: 37.74992 Long: -86.47167	---	8.2	6

Drilling Firm:	Drilling Method:	Personnel:	Date Started:	Date Completed:	Water Depth (ft bgs):
SSL Geotechnical	Auto-Hammer SPT Geoprobe 7822DT	Logger - J. Full Driller - C. Goff	10/28/24	10/28/24	DNE

SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS) 0 10 20 30 40 50	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 4 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	78	2 2 3		**Sandy Lean Clay (CL)** - brown and yellow, moist, medium to very stiff			5	1.0 1.25 1.25						
2 SS	94	6 4 10	5		CL		14	3.0 3.5 3.5		16.6				
3 SS	100	4 23 50/5						3.0 4.0						
			10	**Boring Terminated due to Auger Refusal.**										
			15											
			20											

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SOIL BORING LOG

BORING NO. PV-12

Page 1 of 1

Facility/Project Name:	Boring Location:	Surface Elev. (ft):	Total Depth (ft bgs):	Borehole Dia. (in):
New Frontiers Solar Project Breckinridge County, Kentucky	Lat: 37.75623 Long: -86.46238	---	9.0	6

Drilling Firm:	Drilling Method:	Personnel:	Date Started:	Date Completed:	Water Depth (ft bgs):
SSL Geotechnical	Auto-Hammer SPT Geoprobe 7822DT	Logger - J. Full Driller - C. Goff	10/29/24	10/29/24	DNE

SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS) 0 10 20 30 40 50	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 4 inches, dark brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	100	3 4 5		**Lean Clay (CL)** - dark brown, moist, stiff to very stiff			9	3.0 3.25 4.5						
AU					CL					17.8	37	18	92	Bulk sample taken from auger cuttings between 1-5 ft bgs.
2 SS	100	3 5 7		- brown and gray			12	2.5 3.0 3.25						
			5											Initial cave in after drilling at 5.5 ft bgs.
3 SS	100	2 3 9		**Sandy Silt (ML)** - gray, moist, medium dense to stiff	ML		12	1.0 1.25 1.5						
4 SS	100	50/4		**Sandstone** - gray, moist										
			10	**Boring Terminated due to Auger Refusal.**										
			15											
			20											

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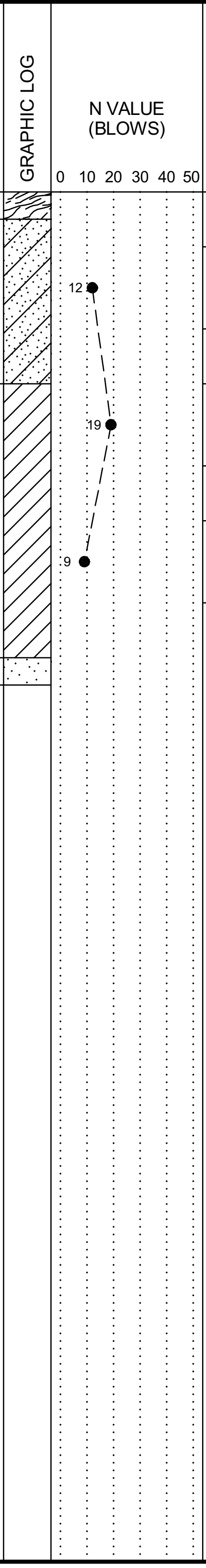
SOIL BORING LOG

BORING NO. PV-13

Page 1 of 1

Facility/Project Name: New Frontiers Solar Project Breckinridge County, Kentucky	Boring Location: Lat: 37.75369 Long: -86.47003	Surface Elev. (ft): ---	Total Depth (ft bgs): 8.9	Borehole Dia. (in): 6	
Drilling Firm: SSL Geotechnical	Drilling Method: Auto-Hammer SPT Geoprobe 7822DT	Personnel: Logger - J. Full Driller - C. Goff	Date Started: 10/29/24	Date Completed: 10/29/24	Water Depth (ft bgs): DNE



SAMPLE NUMBER AND TYPE	RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	N VALUE (BLOWS)	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, strong brown, clayey, organics									Coordinates are WGS 1984 Datum.
1 SS	100	3 5 7		**Lean Clay w/ Sand (CL)** - light brown, moist, stiff to hard	CL	12	4.5 4.5						
2 SS	100	5 7 12	5	**Lean Clay (CL)** - brown and gray, moist, stiff to very stiff	CL	19	2.75 3.5 4.0		15.9	31	13		
3 SS	100	4 3 6		- brown and yellow		9	1.5 1.75 2.0						Initial cave in after drilling at 7.9 ft bgs.
4 SS	100	50/5		**Sandstone** - brown and gray, moist									
			10	**Boring Terminated due to Auger Refusal.**									
			15										
			20										

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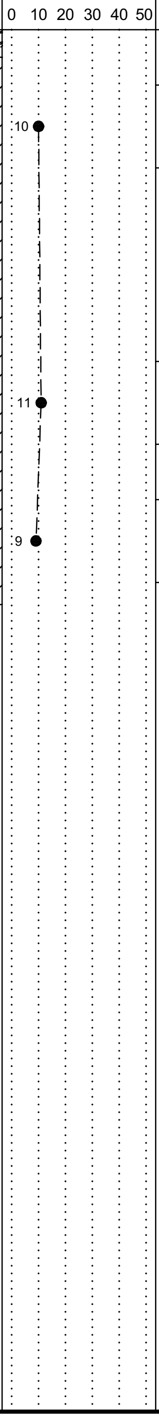
SOIL BORING LOG

BORING NO. PV-14

Page 1 of 1

Facility/Project Name: New Frontiers Solar Project Breckinridge County, Kentucky	Boring Location: Lat: 37.75587 Long: -86.47285	Surface Elev. (ft): ---	Total Depth (ft bgs): 10.4	Borehole Dia. (in): 6
Drilling Firm: SSL Geotechnical Drilling Method: Auto-Hammer SPT Geoprobe 7822DT	Personnel: Logger - J. Full Driller - C. Goff	Date Started: 10/28/24	Date Completed: 10/28/24	Water Depth (ft bgs): DNE

SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	USCS	GRAPHIC LOG	N VALUE (BLOWS) 0 10 20 30 40 50	POCKET PEN (TSF) (x = brittle failure)	COMPRESSIVE STRENGTH (TSF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	P 200 (%)	COMMENTS
				Topsoil - 6 inches, strong brown, clayey, organics										Coordinates are WGS 1984 Datum.
1 SS	94	3 4 6		**Lean Clay (CL)** - brown and yellow, moist, stiff to hard	CL		10	3.5 4.0 4.25						
														Bulk sample taken from auger cuttings between 1 to 5 ft bgs.
2 ST	42		5						5	15.5	33	14	92	
3 SS	100	4 5 6					11	3.25 3.5 4.5						
4 SS	100	3 4 5		- yellow and gray			9	1.0 2.5 2.5						Initial cave in after drilling at 8.3 ft bgs.
			10	**Boring Terminated due to Auger Refusal.**										
			15											
			20											



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General Notes – Boring Log
Unified Soil Classification System (USCS)

Sample Description Format

Group Name (Group Symbol), Percent and Range of Particle Sizes, Plasticity, Color, Density/Consistency, Moisture, Additional Comments, Geologic Origin (Stratigraphic Unit)

Grain Size Terminology

Soil Fraction		Particle Size	U.S. Standard Sieve Size
Boulders		Larger than 12”	Larger than 12”
Cobbles		3” to 12”	3” to 12”
Gravel:	Coarse	¾” to 3”	3/4” to 3”
	Fine	4.75mm to ¾”	no. 4 to ¾”
Sand:	Coarse	2.00 mm to 4.75 mm	no. 10 to no. 4
	Medium	0.42 mm to 2.00 mm	no. 40 to no. 10
	Fine	0.075 mm to 0.42 mm	no. 200 to no 40.
Silt		0.005 mm to 0.075 mm	Smaller than no. 200
Clay		Smaller than 0.005 mm	Smaller than no. 200

Plasticity characteristics differentiate between silt and clay

Percentages of Gravel Relative Proportions of Cohesionless Soils

Sand and Fines (Optional)

Proportional Term	Defining Range By Percentage of Weight
Trace	0% - 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

Relative Density and Consistency

Noncohesive		Cohesive		
Relative Density	N-Value	N-Value	Consistency	Pp-tons/sq.ft
		< 2	Very Soft	0.0 to 0.25
Very Loose	0-4	2-4	Soft	0.25 to 0.50
Loose	4-10	4-8	Medium Stiff	0.50 to 1.0
Medium Dense	10-30	8-15	Stiff	1.0 to 2.0
Dense	30-50	15-30	Very Stiff	2.0 to 4.0
Very Dense	Over 50	Over 30	Hard	Over 4.0

The penetration resistance, N, is the summation of the number of blows required to advance two successive 6” penetrations of the 2” split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30” and is seated to a depth of 6” before commencing the standard penetration test.

Abbreviations

Drilling and Sampling

HSA	Hollow-Stem Auger
SSA	Solid-Stem Auger
HA	Hand Auger
CWR	Clear-Water Rotary
MR	Mud Rotary
AR	Air Rotary
SC	Spin-Casing
DC	Drive-Casing
SS	2” Split-Barrel Sampler
MC	Modified California Ring Sampler
ST	2” Thin-Walled Tube Sampler
ST 3	3” Thin-Walled Tube Sampler
PS	Piston Sampler
AS	Auger Cuttings Sample
RS	Rotary Cuttings Sample
SC	Soil Core
RC	Rock Core

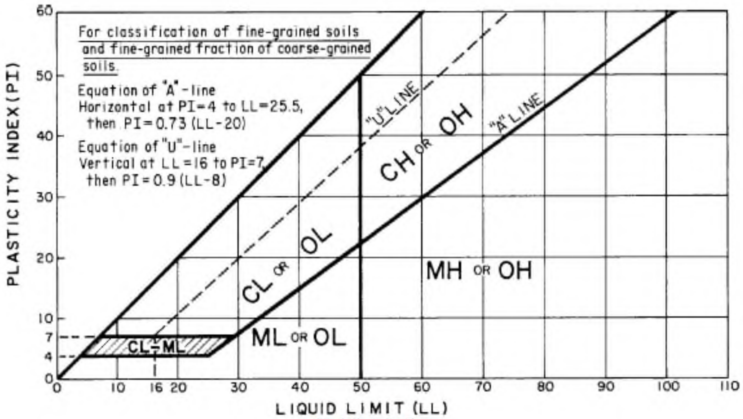


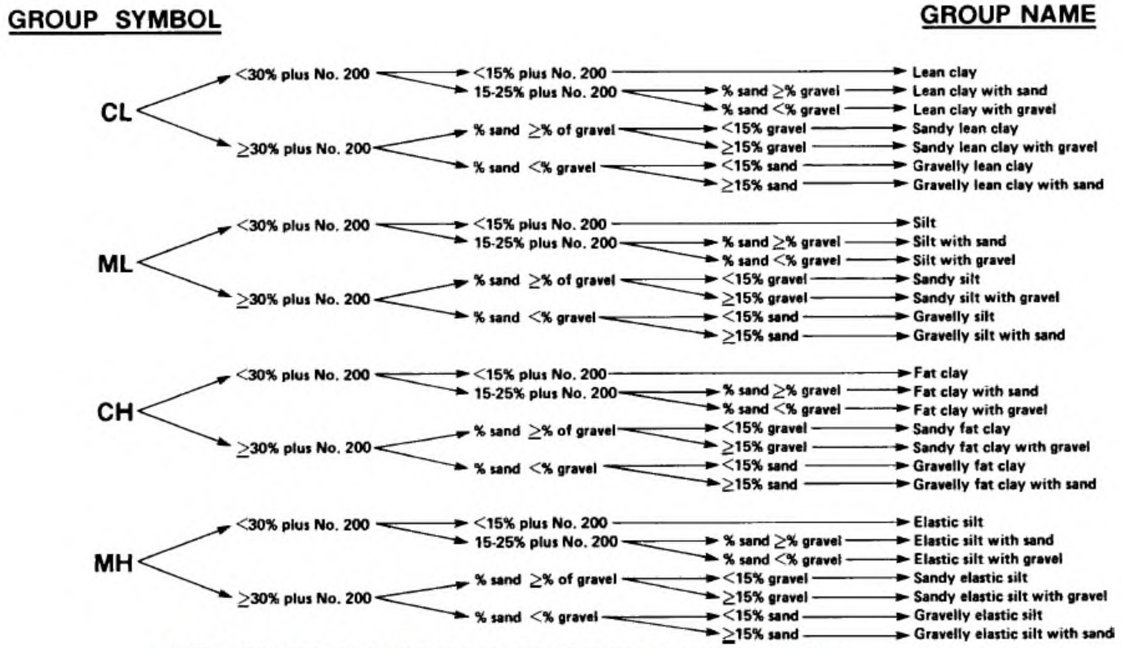
FIG. 4 Plasticity Chart

(from ASTM D 2487)

Sample Description Abbreviations

br.	Brown	tr.	Trace
gr.	Gray	ltl.	Little
yel.	Yellow	ls.	Limestone
lt.	Light	sh.	Shale
dk.	Dark	qtz.	Quartz
blk.	Black	dol.	Dolomite
gvl.	Gravel	ss.	Sandstone
sd.	Sand	lg.	Igneous
si.	Silt	meta.	Metamorphic
cl.	Clay		
f.	Fine	PP	Pocket
m.	Medium		Penetrometer
c.	Coarse		
v.	Very	Tv	Torvane

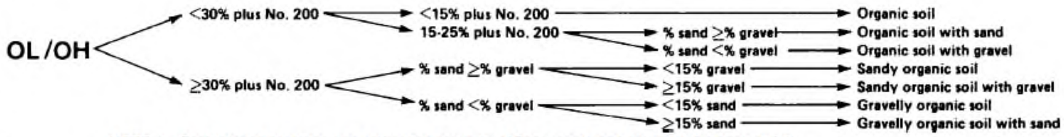
Unified Soil Classification System
(Visual-Manual Procedure)



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1a Flow Chart for Identifying Inorganic Fine-Grained Soil (50 % or more fines)

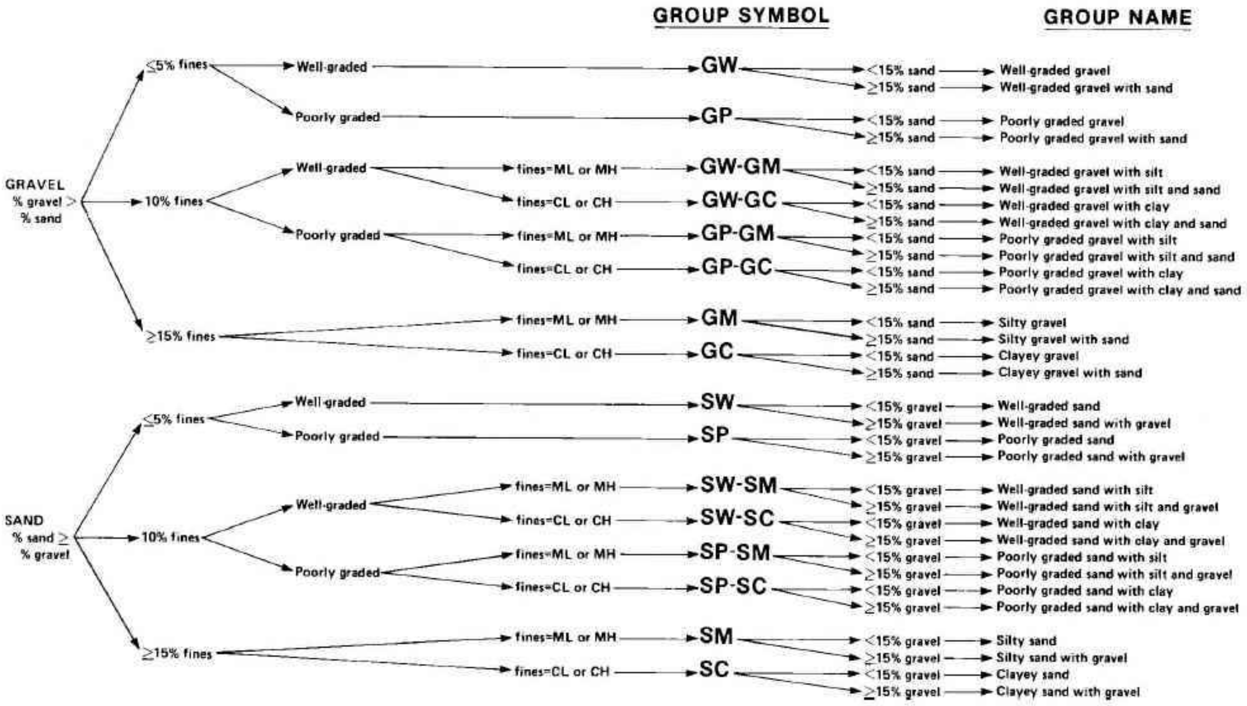
(From ASTM 2488)



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1 b Flow Chart for Identifying Organic Fine-Grained Soil (50 % or more fines)

(From ASTM 2488)



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 2 Flow Chart for Identifying Coarse-Grained Soils (less than 50 % fines)

(From ASTM 2488)

Appendix B

Electrical Resistivity Test Results

Electrical Resistivity Test Results
Wenner 4-Electrode Method
New Frontiers Solar Project - Breckinridge County, Kentucky

ER-PV-01

Location: 37.76166°, -86.47810°

Site Description: 61°, sunny, flat, clay, dry to moist

Date: 10/29/2024

North-South Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	16.0	201	61.4
4	1.2	6.84	174	52.9
6	1.8	3.88	146	44.6
8	2.4	2.81	141	43.0
10	3.0	2.18	132	40.3
20	6.1	1.17	145	44.2

East-West Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	17.2	216	65.9
4	1.2	6.74	170	51.9
6	1.8	3.82	144	43.9
8	2.4	2.89	142	43.4
10	3.0	2.29	144	43.8
20	6.1	1.12	138	42.0

ER-PV-05

Location: 37.75105°, -86.48117°

Site Description: 70°, sunny, flat, clay, dry to moist

Date: 10/30/2024

North-South Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	41.8	551	168
4	1.2	19.1	480	146
6	1.8	12.2	460	140
8	2.4	8.56	430	131
10	3.0	6.42	403	123
20	6.1	3.36	422	129

East-West Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	37.5	471	144
4	1.2	20.6	518	158
6	1.8	12.8	482	147
8	2.4	8.64	434	132
10	3.0	6.62	416	127
20	6.1	3.27	411	125

ER-PV-10

Location: 37.75519°, -86.46715°

Site Description: 65°, sunny, flat, clay, dry to moist

Date: 10/30/2024

North-South Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	22.4	281	85.7
4	1.2	7.78	195	59.6
6	1.8	4.07	153	46.8
8	2.4	2.75	138	42.2
10	3.0	2.34	145	44.3
20	6.1	1.65	208	63.3

East-West Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	23.3	293	89.3
4	1.2	7.80	196	59.7
6	1.8	4.03	152	46.3
8	2.4	2.93	147	44.8
10	3.0	2.47	155	47.3
20	6.1	1.80	226	68.8

Westwood

Electrical Resistivity Test Results
Wenner 4-Electrode Method
New Frontiers Solar Project - Breckinridge County, Kentucky

ER-PV-11

Location: 37.74998°, -86.47169°

Site Description: 65°, sunny, slight relief, clay, dry to moist

Date: 10/30/2024

North-South Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	48.5	607	185
4	1.2	23.4	588	179
6	1.8	11.3	426	130
8	2.4	6.87	345	105
10	3.0	5.48	344	105
20	6.1	2.80	352	107

East-West Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	53.6	673	205
4	1.2	20.3	510	156
6	1.8	9.85	371	113
8	2.4	6.98	351	107
10	3.0	5.20	327	99.6
20	6.1	2.70	339	103

ER-PV-02

Location: 37.75828°, -86.47470°

Site Description: 62°, sunny, flat, clay, dry to moist

Date: 10/30/2024

North-South Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	17.7	222	67.6
4	1.2	6.05	152	46.3
6	1.8	4.08	154	46.9
8	2.4	2.95	148	45.2
10	3.0	2.46	155	47.2
20	6.1	1.49	187	57.0
30	9.1	1.08	203	61.8
50	15	0.68	215	65.5
100	30	0.35	217	66.1
200	61	0.31	384	117

East-West Transect

ELECTRODE SPACING		Measured Resistance (Ω)	APPARENT RESISTIVITY	
(feet)	(meters)		ohm-feet	ohm-meters
2	0.6	16.7	210	63.9
4	1.2	6.69	168	51.2
6	1.8	4.24	160	48.7
8	2.4	3.27	165	50.2
10	3.0	2.68	169	51.4
20	6.1	1.45	182	55.5
30	9.1	1.09	205	62.5
50	15	0.70	220	67.0
100	30	0.38	241	73.4
200	61	0.28	358	109

Appendix C

Laboratory Testing Reports

Westwood

Laboratory Soil Test Data Summary
New Frontiers Solar Project - Breckinridge County, Kentucky

BORING ID	SAMPLE DEPTH (ft)	SAMPLE ID	USCS CLASSIFICATION(2)(3)(4)	NATURAL MOISTURE CONTENT (%)	GRAIN-SIZE DISTRIBUTION(1)(4)				ATTERBERG LIMITS (5)		IN-SITU UNIT WEIGHT (pcf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	CHEMICAL CONSTITUENTS (6)			RED-OX POTENTIAL (mV)	SOIL BOX ELECTRICAL RESISTIVITY (Ω-cm)		STANDARD PROCTOR		THERMAL RESISTIVITY (°C-cm/W)	
					% Gravel	% Sand	% Silt	% Clay	LL	PI			pH	CHLORIDE (mg/kg)	SULFATES (mg/kg)		As-Received	Saturated	MAX DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	NATURAL MOISTURE	DRY
PV-01	6-7.5	SS-03	Lean Clay (CL)	20.2																		
PV-03	3.5-5.5	ST-02	**Lean Clay w/ Sand (CL)**	16.5	0	17	83		37	18	126.1	1.12										
PV-03	6-7.5	SS-03	**Lean Clay w/ Sand (CL)**	19.6	0	18	82		29	14												
PV-04	8.5-10	SS-04	Lean Clay (CL)	32.3																		
PV-05	6-7.5	SS-03	**Lean Clay (CL)**	18.0	0	13	87		32	17												
PV-06	6-7.5	SS-03	**Lean Clay (CL)**	21.4	0	8	92		39	22												
PV-07	6-7.5	SS-03	Fat Clay (CH)	19.5					52	30												
PV-08	13.5-15	SS-06	Lean Clay (CL)	16.3																		
PV-09	6-8	ST-03	**Lean Clay w/ Sand (CL)**	19.2	6	18	82		40	22	127.5	1.96										
PV-10	3.5-5	SS-02	Lean Clay (CL)	18.5																		
PV-11	3.5-5	SS-02	Lean Clay (CL)	16.6																		
PV-13	3.5-5	SS-02	Lean Clay (CL)	15.9					31	13												
PV-14	3.5-5.5	ST-02	**Lean Clay (CL)**	15.5	0	8	92		33	14	127.4	5.00										
PV-02	1-4	Bulk	**Lean Clay (CL)**	15.2	0	11	73	16	34	15			4.6	41(6)	56.7(6)	445.0	8700	4200	108.5	17.2	78	261
PV-06	1-4	Bulk	**Lean Clay (CL)**	18.4	0	8	76	17	33	13			5.1	<31	56.7(6)	378.0	9300	6300	109.2	16.2	69	227
PV-08	1-4	Bulk	**Lean Clay (CL)**	19.5	0	6	75	19	39	19									106.1	17.7	73	246
PV-12	1-4	Bulk	**Lean Clay (CL)**	17.8	0	8	72	20	37	18			5.6	<31	44(6)	365.0	7300	4600	109.3	16.4	73	235
PLT-103	1-4	Bulk	**Lean Clay (CL)**	20.5	0	4	77	19	38	17									105.5	18.0	71	222
PLT-107	1-4	Bulk	**Lean Clay (CL)**	23.0	0	3	77	20	41	17									107.3	17.9	71	231

Footnotes:

(1) % Gravel = part. greater than 4.75 mm (#4 sieve); % Sand = part. between 0.075 mm (#200 sieve) and 4.75 mm (#4 sieve); % Silt = part. between 0.002 mm and 0.075 mm (#200 sieve); % Clay = part. smaller than 0.002 mm.

(2) Some samples were combined to achieve sufficient volume and were taken from same soil stratum.

(3) Visual classification, informed where possible by laboratory testing. Bold font indicates sufficient lab data for precise USCS classification

(4) Represents soil fraction captured in split spoon, does not include cobbles/large gravel that may have been in profile.

(5) "NC" = Non-Cohesive and "NP" = Non-Plastic

(6) "J" Flat: Analyte detected between Limit of Detection and Limit of Quantitation.

Created by: H. Thomas
Checked by: D. Welch

1 Systems Drive
Appleton, WI 54914

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LABORATORY TESTS OF SOILS

ASTM: D2216, D4318, D6913

Project: New Frontiers Solar - Breckenridge County, KY
Report To: PCL Construction Services, Inc. **Date:** 11/27/2024

Westwood Prj. No. R0041704.00

Boring	Depth (ft)	Sample	Moisture Content (%)	Atterberg Limits (%) *			Gradation Passing (%)		USCS Classification
				LL	PL	PI	#4	#200	
PV-01	6-7.5	SS-03	20.2	-	-	-	-	-	-
PV-03	3.5-5.5	ST-02	16.5	36.9	18.9	18.1	100	83	CL
PV-03	6-7.5	SS-03	19.6	29.1	14.7	14.4	100	82	CL
PV-04	8.5-10	SS-04	32.3	-	-	-	-	-	-
PV-05	6-7.5	SS-03	18.0	32.1	15.3	16.7	100	87	CL
PV-06	6-7.5	SS-03	21.4	38.7	16.3	22.4	100	92	CL
PV-07	6-7.5	SS-03	19.5	52.1	21.9	30.2	-	-	CH (fines only)
PV-08	13.5-15	SS-06	16.3	-	-	-	-	-	-
PV-09	6-8	ST-03	19.2	40.0	17.8	22.2	94	82	CL
PV-10	3.5-5	SS-02	18.5	-	-	-	-	-	-
PV-11	3.5-5	SS-02	16.6	-	-	-	-	-	-
PV-13	3.5-5	SS-02	15.9	30.9	18.1	12.8	-	-	CL (fines only)
PV-14	3.5-5.5	ST-02	15.5	33.1	18.7	14.4	100	92	CL

* NC = Non-cohesive NP = Non-plastic

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REPORT OF: LABORATORY TESTS OF SOILS

Project: New Frontiers Solar - Breckenridge County, KY
Client: PCL Construction Services, Inc. **DATE:** 11/27/2024

Westwood Prj. No. R0041704.00

Boring Number:	PV-03	PV-09	PV-14
Sample Depth:	3.5-5.5	6-8'	3.5-5.5
mple Number:	ST-02	ST-03	ST-02
Soil Description:	LEAN CLAY, yellowish brown with light gray (CL)	LEAN CLAY, yellowish brown with light gray (CL)	LEAN CLAY, yellowish brown with light gray (CL)
Tests Performed:	Unconfined Compression, Moisture/Density		

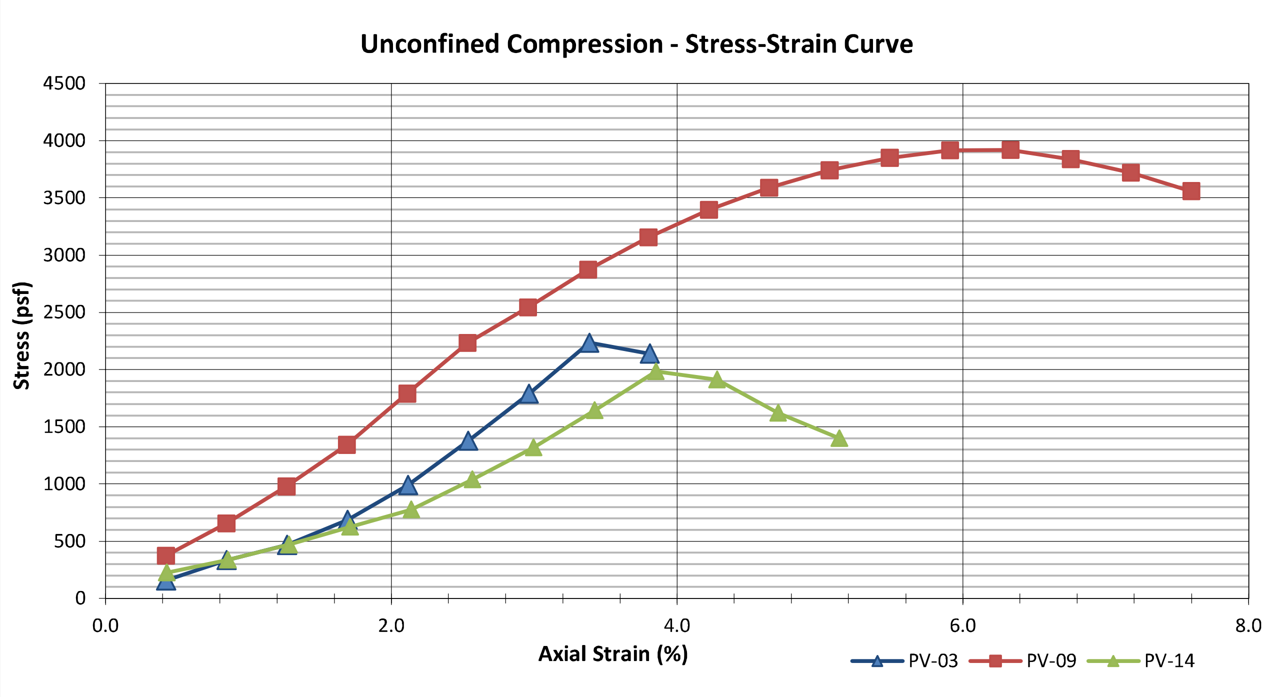
TEST RESULTS:

Unconfined Compressive Strength (ASTM:D2166):

Maximum Value:	2234 psf	3918 psf	1985 psf
	1.12 tsf	1.96 tsf	5.00 tsf

Moisture/Density Determination of Cohesive Soils (ASTM: D2216)

Dry Density:	108.9 pcf	107.1 pcf	110.4 pcf
Moisture Content:	15.8 %	19.1 %	15.5 %
In-Situ Density	126.1 pcf	127.5 pcf	127.4 pcf



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REPORT OF: LABORATORY TESTS OF SOILS

Project: New Frontiers Solar - Breckenridge County, KY
Client: PCL Construction Services, Inc. **DATE:** 11/27/2024

Westwood Prj. No. R0041704.00

Boring Number:	PV-03	PV-09	PV-14
Sample Depth:	3.5-5.5	6-8'	3.5-5.5
mple Number:	ST-02	ST-03	ST-02
Soil Description:	LEAN CLAY, yellowish brown with light gray (CL)	LEAN CLAY, yellowish brown with light gray (CL)	LEAN CLAY, yellowish brown with light gray (CL)

REMARKS: The above sample was obtained during soil boring operations.

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REPORT OF: LABORATORY TESTS OF SOILS

Project: New Frontiers Solar - Breckenridge County, KY
Report To: PCL Construction Services, Inc.
Date: 11/27/2024

Westwood Prj. No.: R0041704.00
Tests Performed: Grain Size Analysis, Atterberg Limits

Boring No.	PV-02	PV-06
Sample No.	BULK	BULK
Depth	1-5'	1-5'
USCS Classification:	LEAN CLAY, yellowish brown (CL)	LEAN CLAY, yellowish brown (CL)
USDA/ NRCS Classification:	silt loam	silt loam

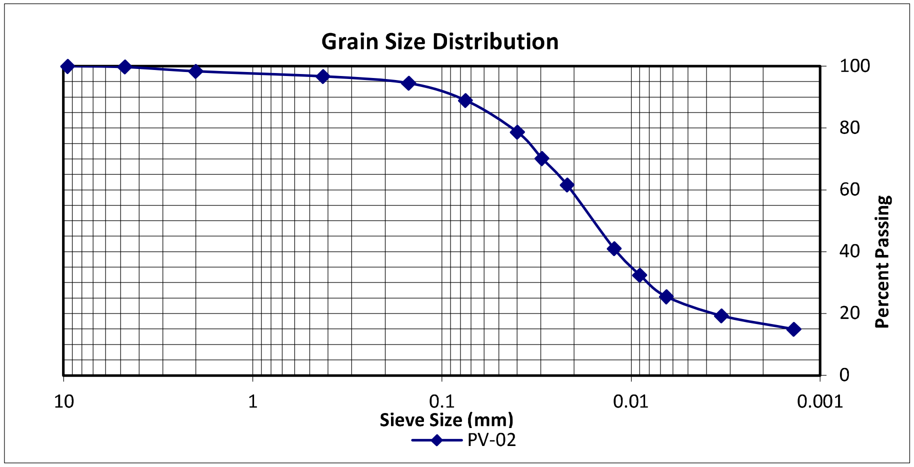
TEST RESULTS;

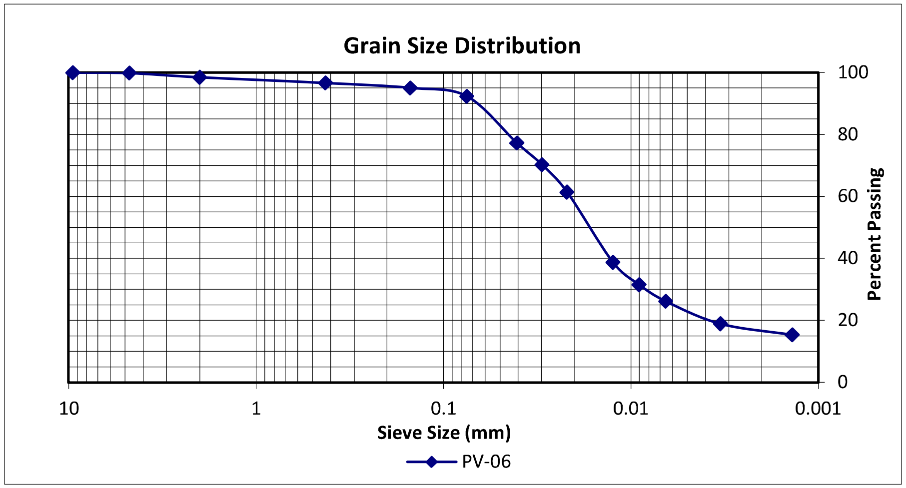
Grain Size Analysis (ASTM:D6913 & D7928)

SIEVE SIZE	% PASSING	
#4 (4.75 mm)	100	100
#10 (2.0 mm)	98	98
#40 (.425 mm)	97	97
#100 (.15 mm)	95	95
#200 (.075 mm)	89	92
.050 mm	81.7	81.4
.020 mm	57.8	56.8
.005 mm	22.5	22.7
.002 mm	16.3	16.5

Atterberg Limits (ASTM: D4318)

Liquid Limit, LL (%)	34.1	33.2
Plastic Limit, PL (%)	19.3	20.4
Plasticity Index (%)	14.8	12.8





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REPORT OF: LABORATORY TESTS OF SOILS

Project: New Frontiers Solar - Breckenridge County, KY
Report To: PCL Construction Services, Inc. **Date:** 11/27/2024

Westwood Prj. No.: R0041704.00
Tests Performed: Grain Size Analysis, Atterberg Limits

Boring No.	PV-08	PV-12
Sample No.	BULK	BULK
Depth	1-5'	1-5'
USCS Classification:	LEAN CLAY, dark yellowish brown (CL)	LEAN CLAY, yellowish brown (CL)
USDA/ NRCS Classification:	silt loam	silt loam

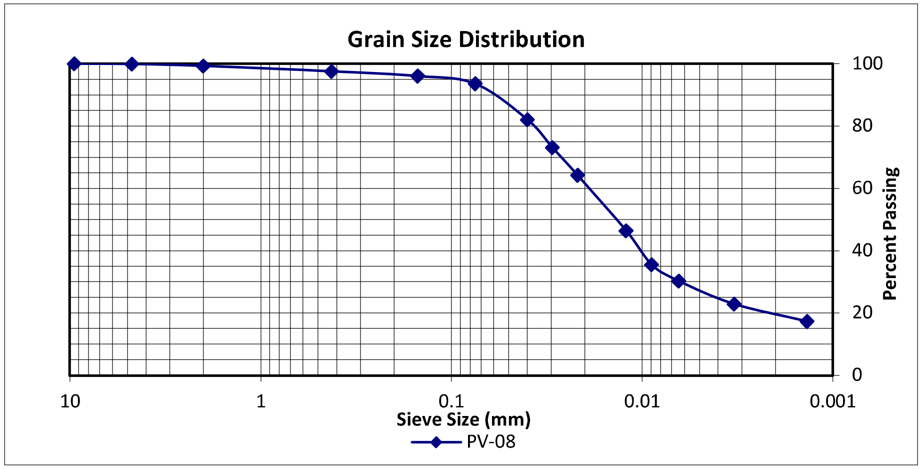
TEST RESULTS;

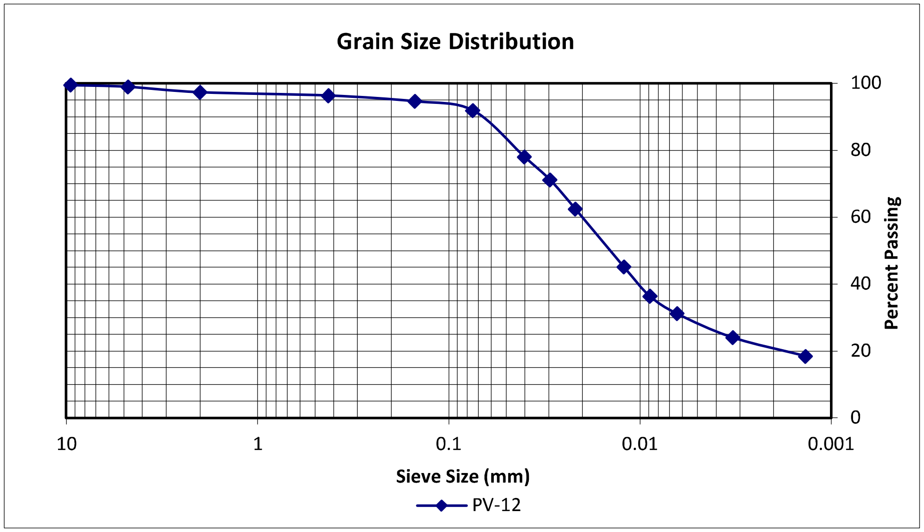
Grain Size Analysis (ASTM:D6913 & D7928)

<u>SIEVE SIZE</u>	<u>% PASSING</u>	
3/4" (19 mm)	100	100
3/8" (9.5 mm)	100	99
#4 (4.75 mm)	100	99
#10 (2.0 mm)	99	97
#40 (.425 mm)	98	96
#100 (.15 mm)	96	95
#200 (.075 mm)	94	92
.050 mm	85.4	82.0
.020 mm	60.9	59.3
.005 mm	26.9	28.0
.002 mm	19.2	20.3

Atterberg Limits (ASTM: D4318)

Liquid Limit, LL (%)	38.6	37.4
Plastic Limit, PL (%)	19.7	19.1
Plasticity Index (%)	18.9	18.3

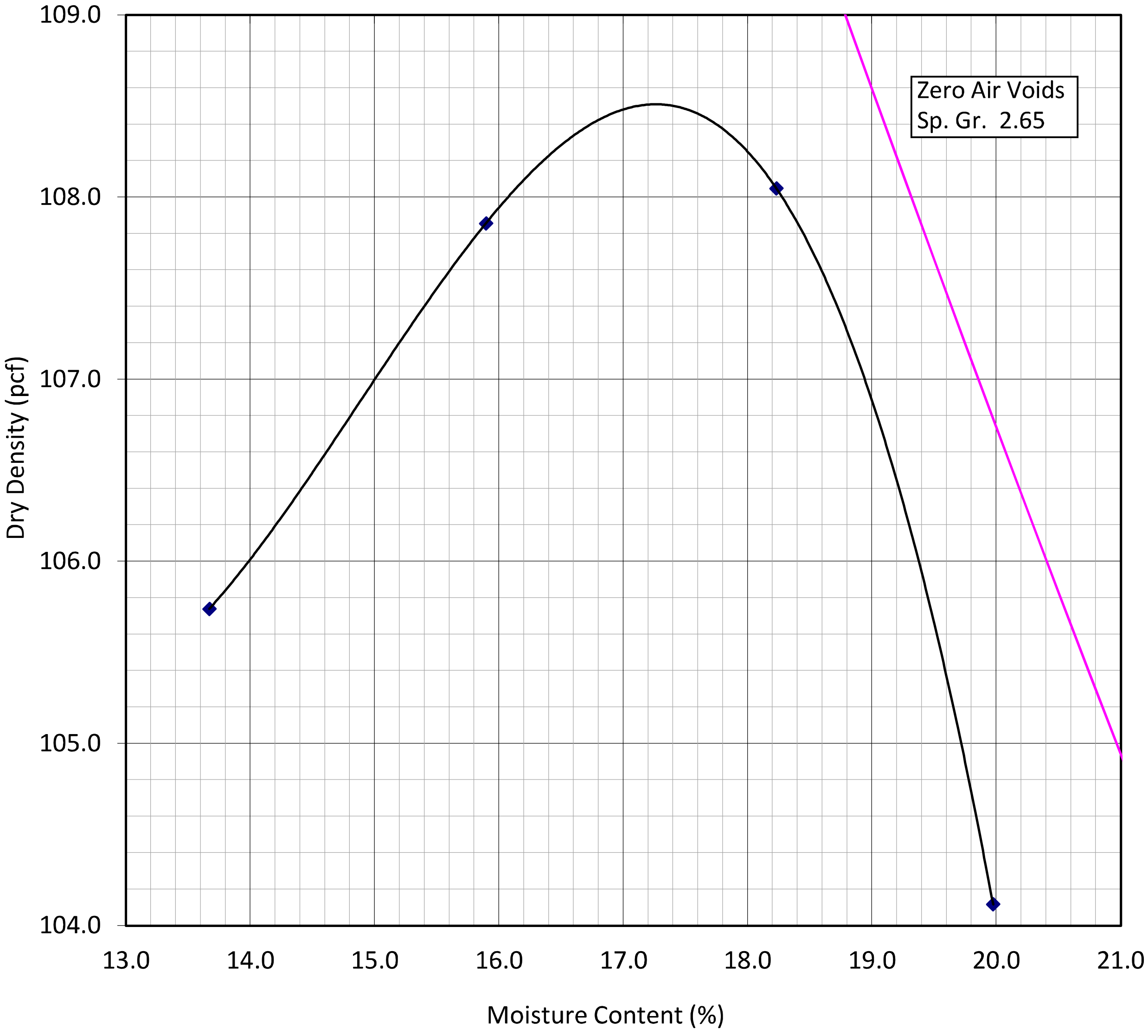




MOISTURE-DENSITY CURVE

Project: New Frontiers Solar - Breckenridge County, KY
Report To: PCL Construction Services, Inc.
Westwood Prj. No.: R0041704.00
Date: 11/27/2024

Boring Number: PV-02
Depth: 1-5'
Unified Soils Classification (ASTM:D2487): LEAN CLAY, yellowish brown (CL)
Tests Method: Standard ASTM:D698, Method B
Preparation: Wet
Automatic Hammer
Max. Dry Density (pcf): 108.5
Optimum Moisture (%): 17.2
Gravel Content (%): < 5
As-received Moisture (%): 15.2



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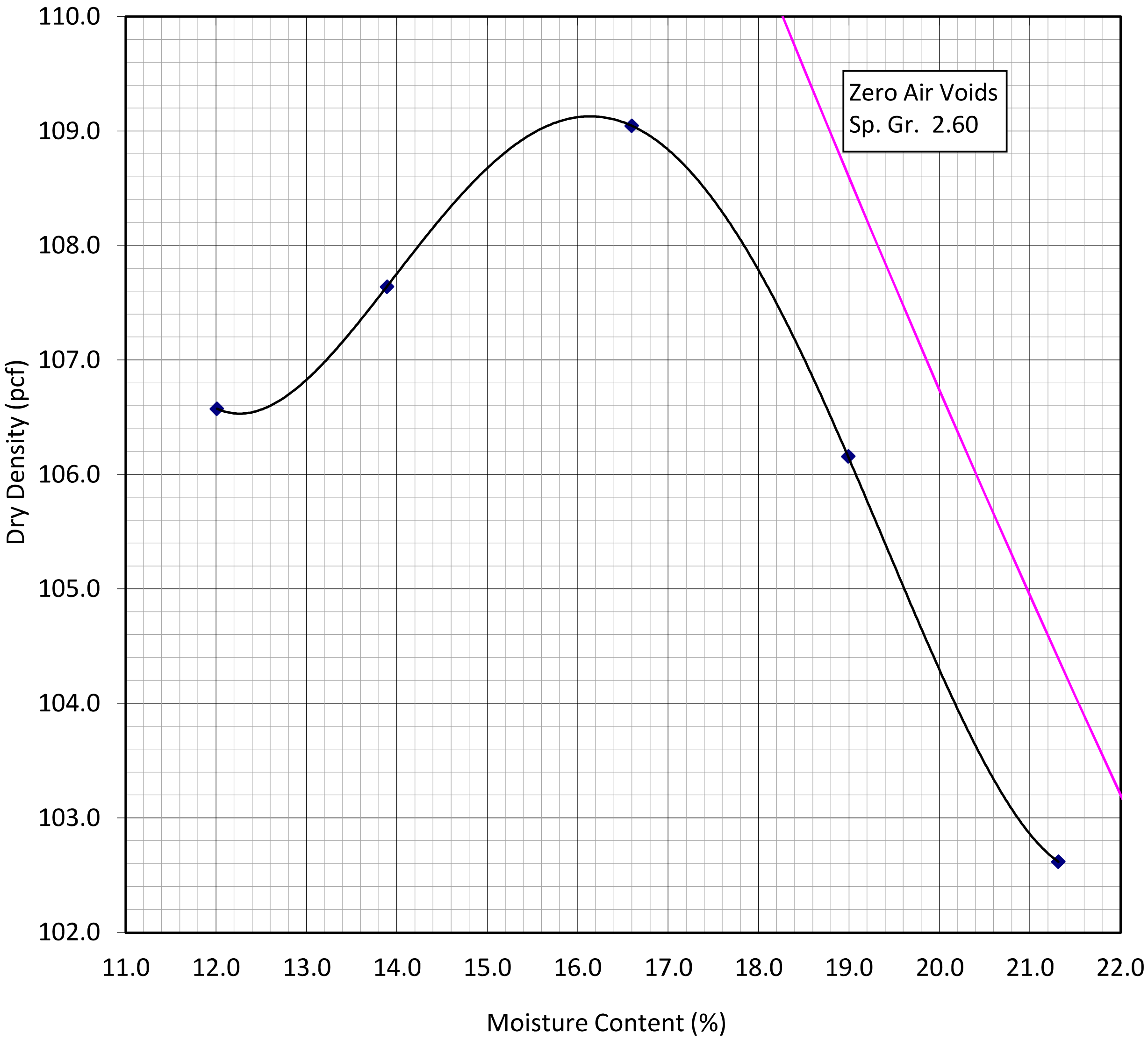
MOISTURE-DENSITY CURVE

Project: New Frontiers Solar - Breckenridge County, KY **Westwood Prj. No.:** R0041704.00
Report To: PCL Construction Services, Inc. **Date:** 11/27/2024

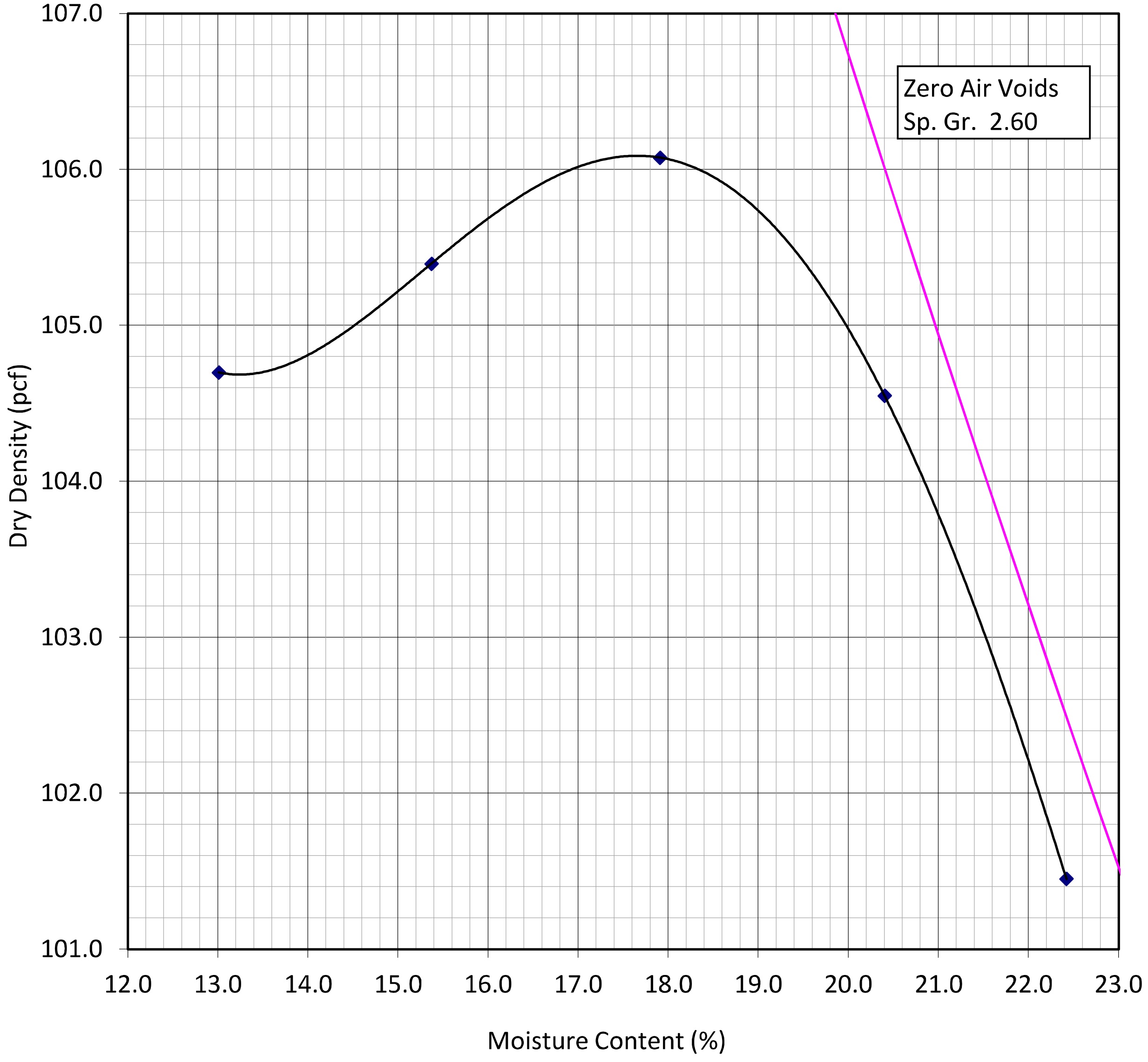
Boring Number: PV-06 **Depth:** 1-5'
Unified Soils Classification (ASTM:D2487): LEAN CLAY, yellowish brown (CL)
Tests Method: Standard ASTM:D698, Method B
Preparation: Wet **Automatic Hammer**
Max. Dry Density (pcf): 109.2 **Optimum Moisture (%):** 16.2
Gravel Content (%): < 5 **As-received Moisture (%):** 18.4



MOISTURE-DENSITY CURVE

Project: New Frontiers Solar - Breckenridge County, KY **Westwood Prj. No.:** R0041704.00
Report To: PCL Construction Services, Inc. **Date:** 11/27/2024

Boring Number: PV-08 **Depth:** 1-5'
Unified Soils Classification (ASTM:D2487): LEAN CLAY, dark yellowish brown (CL)
Tests Method: Standard ASTM:D698, Method B
Preparation: Wet **Automatic Hammer**
Max. Dry Density (pcf): 106.1 **Optimum Moisture (%):** 17.7
Gravel Content (%): < 5 **As-received Moisture (%):** 19.5



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REPORT OF: THERMAL RESISTIVITY

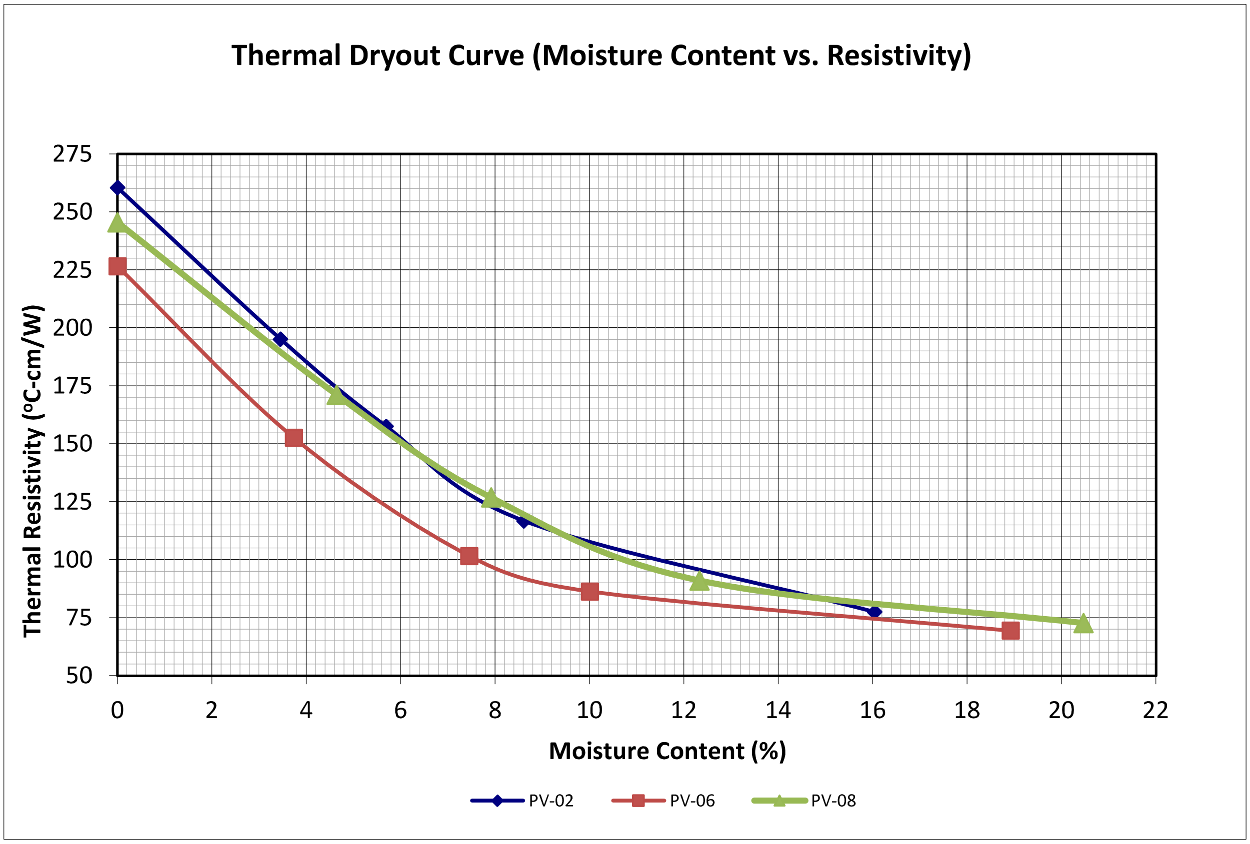
ASTM; D5334

Project: New Frontiers Solar - Breckenridge County, KY

Report To: PCL Construction Services, Inc.

Westwood Project No.: R0041704.00 **Date:** 11/27/2024

					Initial Condition			Thermal Resistivity Results	
Reconstiuted Specimen	**Boring**	**Depth**	**Soil Type**	**Proctor Method**	**Sample Comp. (%)**	**Dry Density (pcf)**	**Moisture Content (%)**	**Moisture Content (%)**	**Thermal Resistivity (°C-cm/W)**
PV-02	PV-02	1-5'	CL	ASTM: D698, B	85	92.1	16.0	0	261
								3.5	195
								5.7	158
								8.6	117
								16.0	78
PV-06	PV-06	1-5'	CL	ASTM: D698, B	85	92.7	18.9	0	227
								3.7	153
								7.5	102
								10.0	86
								18.9	69
PV-08	PV-08	1-5'	CL	ASTM: D698, B	85	90.2	20.5	0.0	246
								4.6	171
								7.9	127
								12.3	91
								20.5	73



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REPORT OF: THERMAL RESISTIVITY

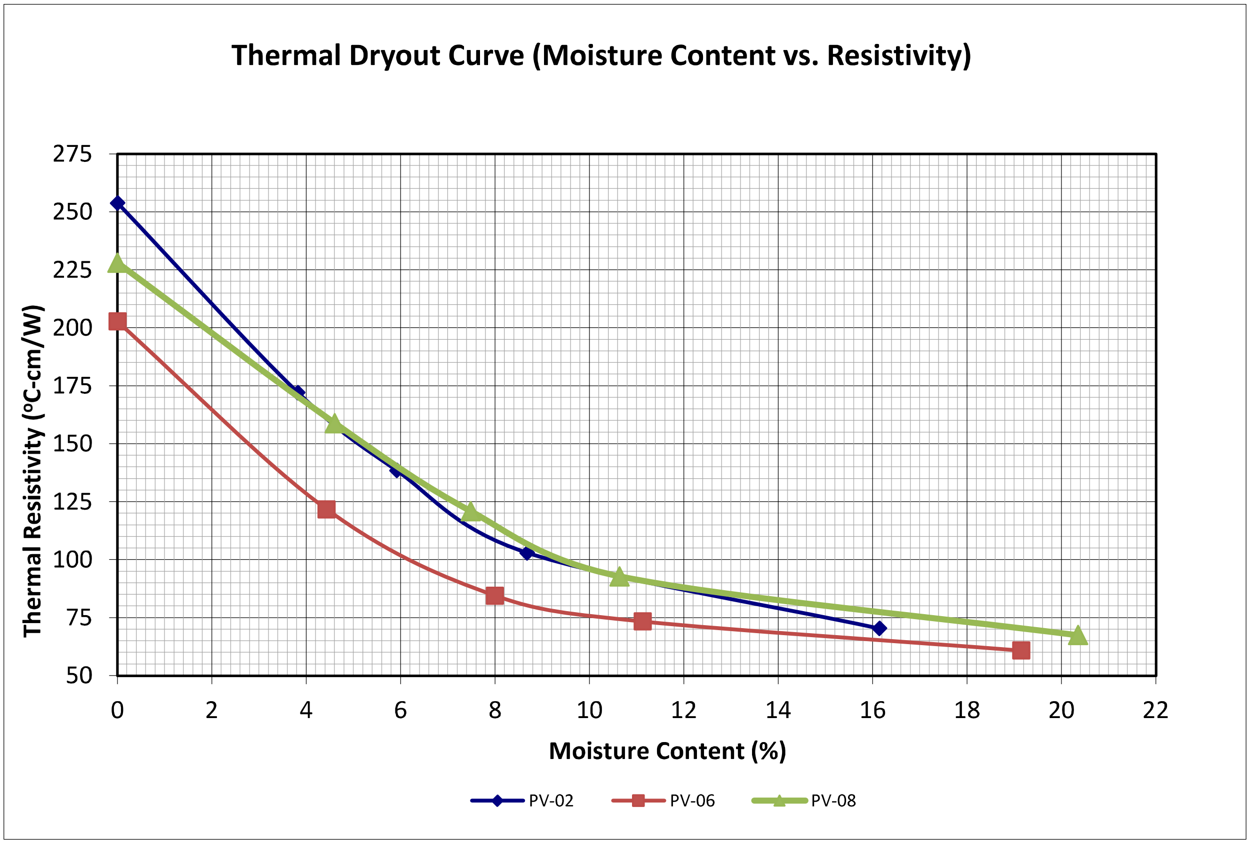
ASTM; D5334

Project: New Frontiers Solar - Breckenridge County, KY

Report To: PCL Construction Services, Inc.

Westwood Project No.: R0041704.00 **Date:** 11/27/2024

					Initial Condition			Thermal Resistivity Results	
Reconstiuted Specimen	**Boring**	**Depth**	**Soil Type**	**Proctor Method**	**Sample Comp. (%)**	**Dry Density (pcf)**	**Moisture Content (%)**	**Moisture Content (%)**	**Thermal Resistivity (°C-cm/W)**
PV-02	PV-02	1-5'	CL	ASTM: D698, B	90	97.3	16.1	0 3.8 5.9 8.7 16.1	254 172 139 103 70
PV-06	PV-06	1-5'	CL	ASTM: D698, B	90	98.0	19.1	0 4.4 8.0 11.1 19.1	203 122 85 73 61
PV-08	PV-08	1-5'	CL	ASTM: D698, B	90	95.2	20.4	0.0 4.6 7.5 10.6 20.4	228 159 121 93 67



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Appleton, WI 54914
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REPORT OF: LABORATORY TESTS OF SOILS

Project: New Frontiers Solar - Breckenridge County, KY
Report To: PCL Construction Services, Inc.
Date: 11/27/2024

Westwood Prj. No.: R0041704.00
Tests Performed: Grain Size Analysis, Attenberg Limits

Boring No.	PLT-103	PLT-107
Sample No.	BULK	BULK
Depth	1-3'	1-3.5'
USCS Classification:	LEAN CLAY, yellowish brown (CL)	LEAN CLAY, yellowish brown (CL)
USDA/ NRCS Classification:	silt loam	silt loam

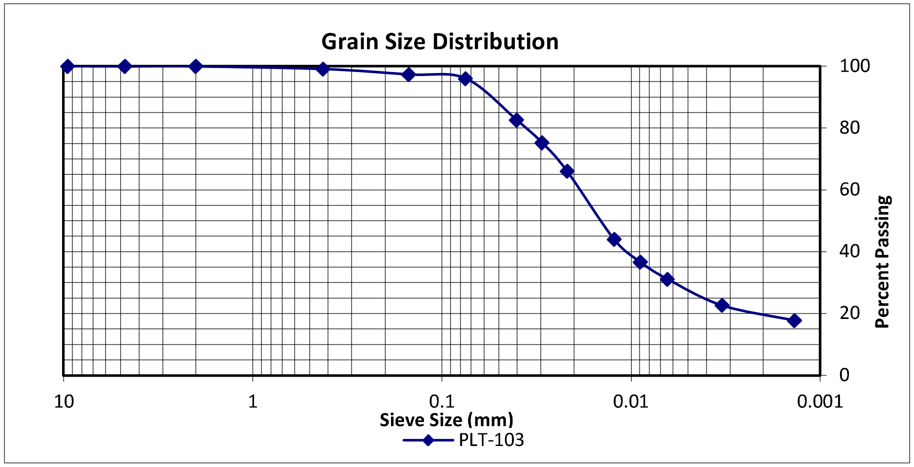
TEST RESULTS;

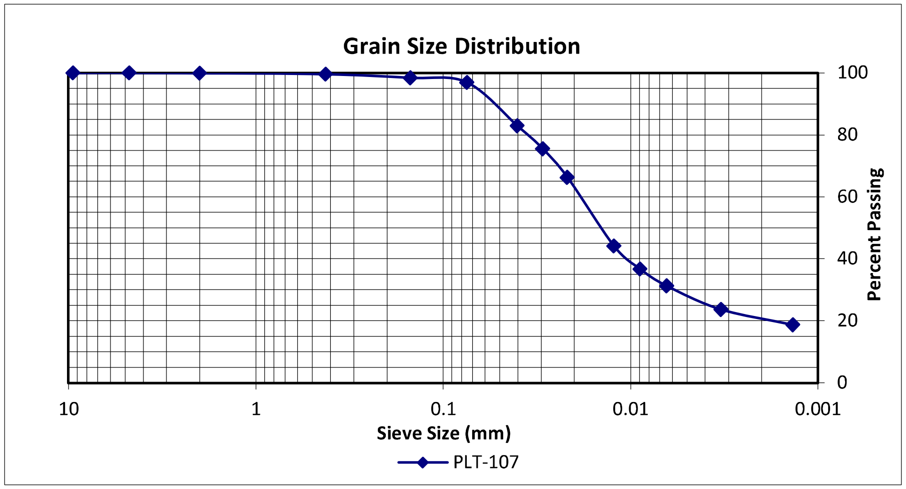
Grain Size Analysis (ASTM:D6913 & D7928)

SIEVE SIZE	% PASSING	
#4 (4.75 mm)	100	100
#10 (2.0 mm)	100	100
#40 (.425 mm)	99	100
#100 (.15 mm)	97	98
#200 (.075 mm)	96	97
.050 mm	86.4	86.9
.020 mm	62.0	62.2
.005 mm	27.3	27.8
.002 mm	19.3	20.4

Atterberg Limits (ASTM: D4318)

Liquid Limit, LL (%)	37.7	40.8
Plastic Limit, PL (%)	21.2	24.4
Plasticity Index (%)	16.5	16.5



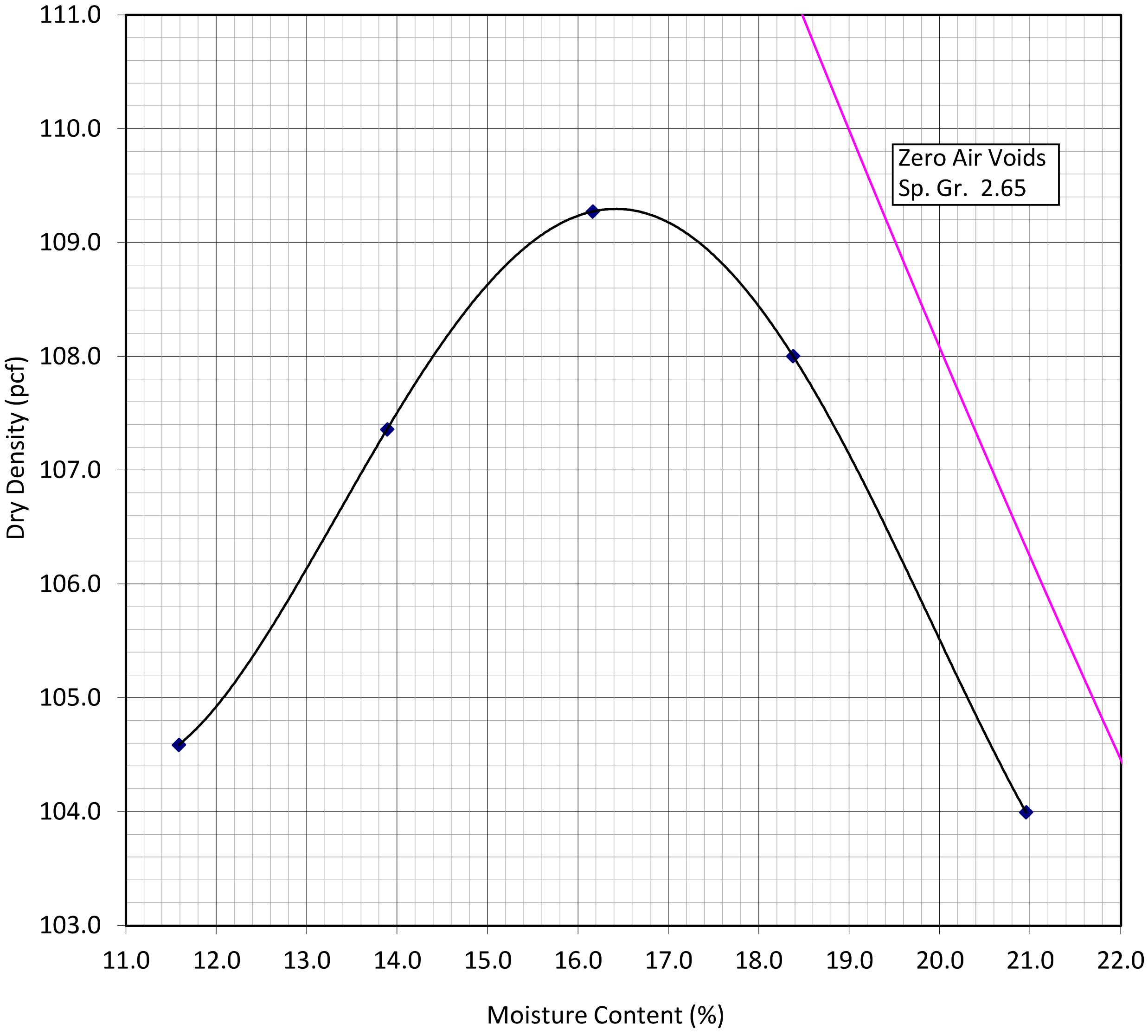


Westwood

MOISTURE-DENSITY CURVE

Project: New Frontiers Solar - Breckenridge County, KY **Westwood Prj. No.:** R0041704.00
Report To: PCL Construction Services, Inc. **Date:** 11/27/2024

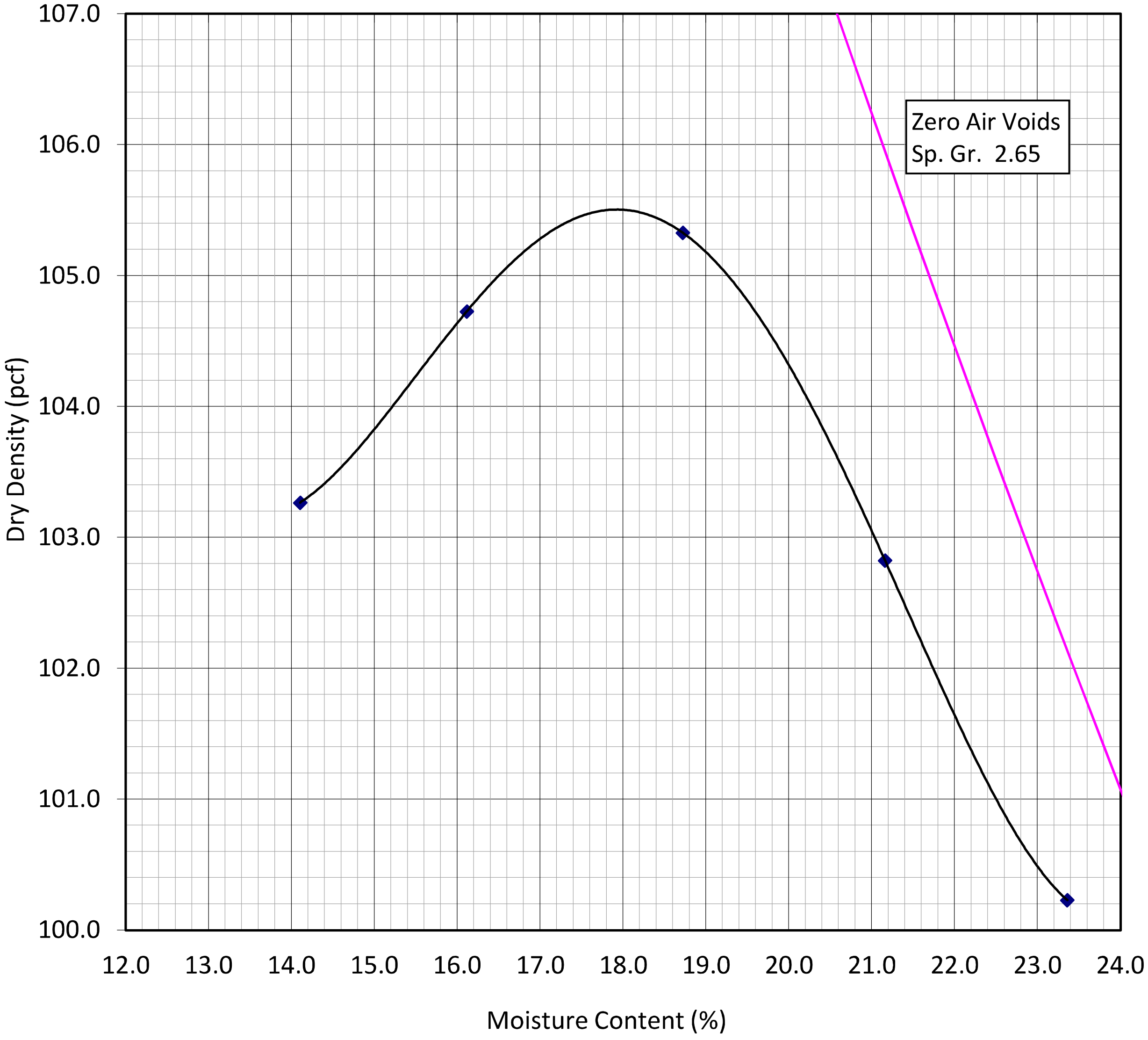
Boring Number: PV-12 **Depth:** 1-5'
Unified Soils Classification (ASTM:D2487): LEAN CLAY, yellowish brown (CL)
Tests Method: Standard ASTM:D698, Method B
Preparation: Wet **Automatic Hammer**
Max. Dry Density (pcf): 109.3 **Optimum Moisture (%):** 16.4
Gravel Content (%): < 5 **As-received Moisture (%):** 17.8



MOISTURE-DENSITY CURVE

Project: New Frontiers Solar - Breckenridge County, KY **Westwood Prj. No.:** R0041704.00
Report To: PCL Construction Services, Inc. **Date:** 11/27/2024

Boring Number: PLT-103 **Depth:** 1-3'
Unified Soils Classification (ASTM:D2487): LEAN CLAY, yellowish brown (CL)
Tests Method: Standard ASTM:D698, Method B
Preparation: Wet **Automatic Hammer**
Max. Dry Density (pcf): 105.5 **Optimum Moisture (%):** 18.0
Gravel Content (%): < 5 **As-received Moisture (%):** 20.5



Westwood

MOISTURE-DENSITY CURVE

Project:	New Frontiers Solar - Breckenridge County, KY	**Westwood Prj. No.:**	R0041704.00
Report To:	PCL Construction Services, Inc.	**Date:**	11/27/2024

Boring Number: PLT-107 **Depth:** 1-3.5'

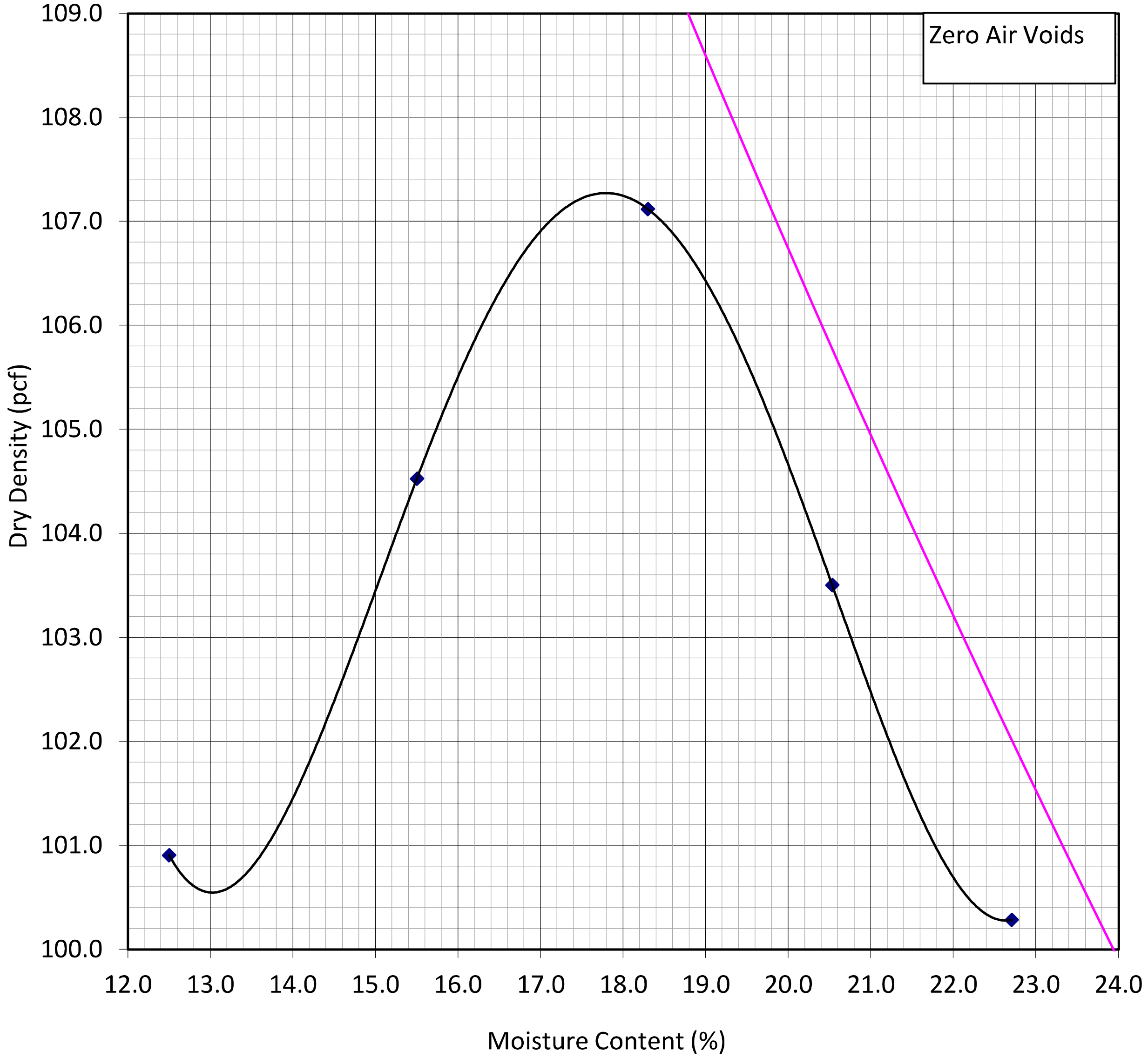
Unified Soils Classification (ASTM:D2487): LEAN CLAY, yellowish brown (CL)

Tests Method: Standard ASTM:D698, Method B

Preparation: Wet **Automatic Hammer**

Max. Dry Density (pcf): 107.3 **Optimum Moisture (%):** 17.9

Gravel Content (%): < 5 **As-received Moisture (%):** 23.0



Westwood

1 Systems Drive
Appleton, WI 54914

main (920) 735-6900

REPORT OF: THERMAL RESISTIVITY

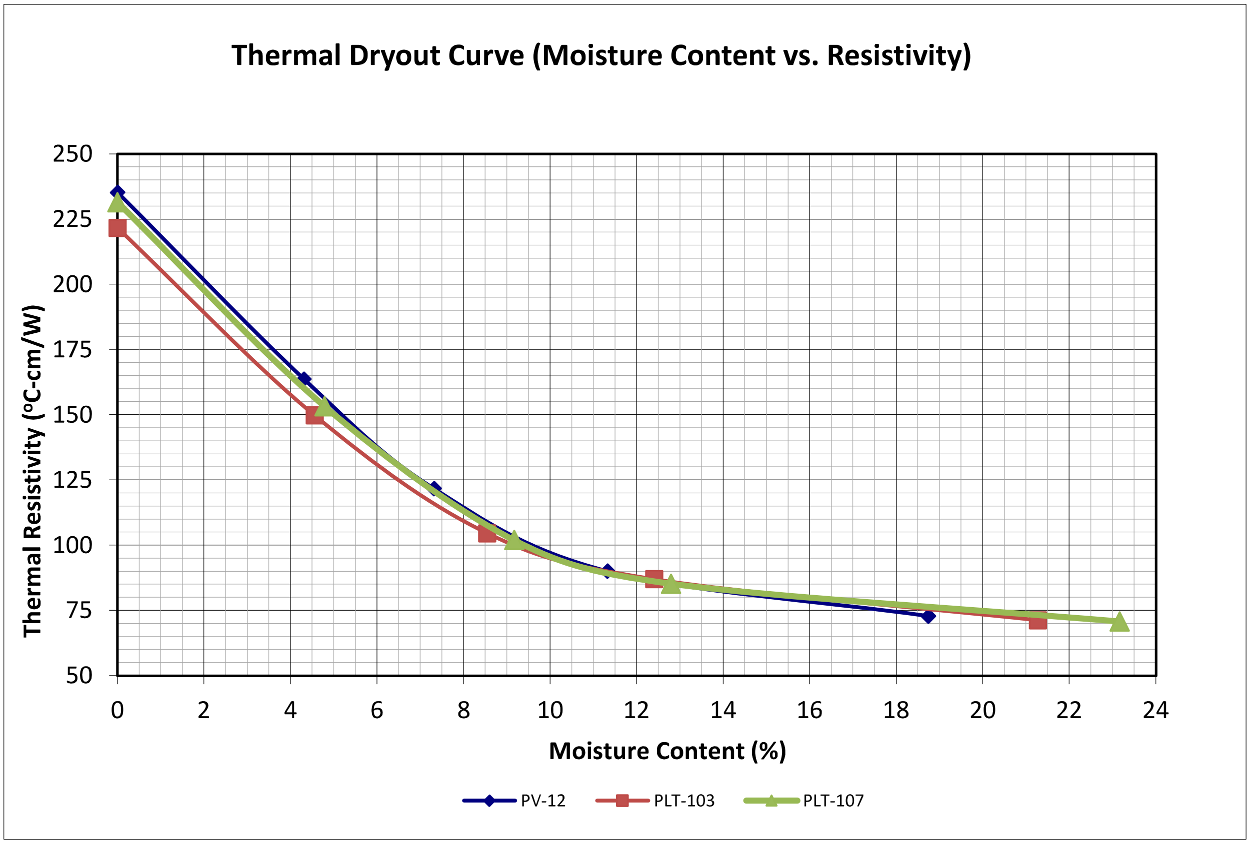
ASTM; D5334

Project: New Frontiers Solar - Breckenridge County, KY

Report To: PCL Construction Services, Inc.

Westwood Project No.: R0041704.00 **Date:** 12/2/2024

Reconstiuted Specimen	Boring	Depth	Soil Type	Proctor Method	Initial Condition Sample Comp. (%)	Initial Condition Dry Density (pcf)	Initial Condition Moisture Content (%)	Thermal Resistivity Results Moisture Content (%)	Thermal Resistivity Results Thermal Resistivity (°C-cm/W)
PV-12	PV-12	1-5'	CL	ASTM: D698, B	85	92.8	18.7	0 4.3 7.3 11.3 18.7	235 164 122 90 73
PLT-103	PLT-103	1-3'	CL	ASTM: D698, B	85	89.9	21.3	0 4.6 8.5 12.4 21.3	222 150 105 87 71
PLT-107	PLT-107	1-3.5'	CL	ASTM: D698, B	85	91.1	23.2	0.0 4.8 9.2 12.8 23.2	231 153 102 85 71



Westwood

1 Systems Drive
Appleton, WI 54914

main (920) 735-6900

REPORT OF: THERMAL RESISTIVITY

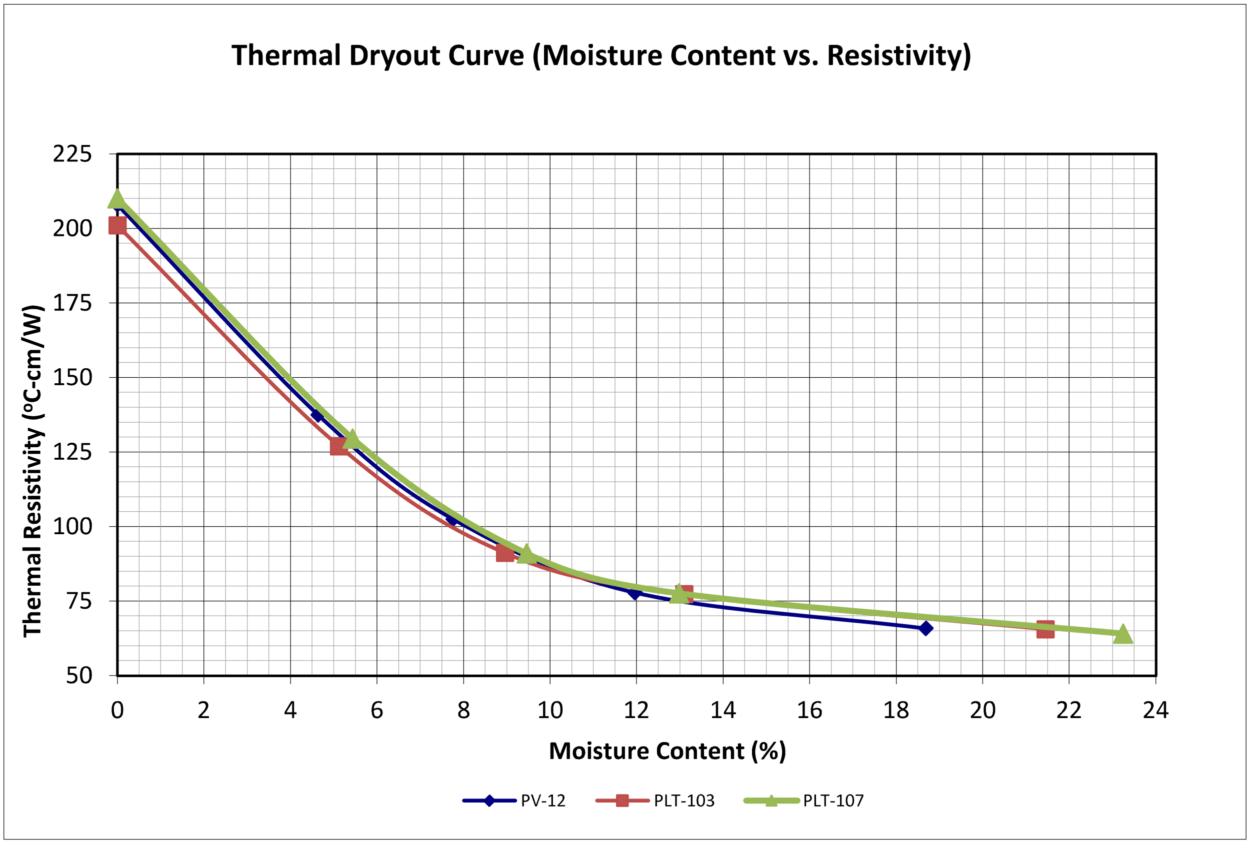
ASTM; D5334

Project: New Frontiers Solar - Breckenridge County, KY

Report To: PCL Construction Services, Inc.

Westwood Project No.: R0041704.00 **Date:** 12/2/2024

					Initial Condition			Thermal Resistivity Results	
Reconstiuted Specimen	**Boring**	**Depth**	**Soil Type**	**Proctor Method**	**Sample Comp. (%)**	**Dry Density (pcf)**	**Moisture Content (%)**	**Moisture Content (%)**	**Thermal Resistivity (°C-cm/W)**
PV-12	PV-12	1-5'	CL	ASTM: D698, B	90	98.1	18.7	0	208
								4.6	138
								7.8	103
								12.0	78
								18.7	66
PLT-103	PLT-103	1-3'	CL	ASTM: D698, B	90	94.7	21.4	0	201
								5.1	127
								9.0	91
								13.1	77
								21.4	66
PLT-107	PLT-107	1-3.5'	CL	ASTM: D698, B	90	96.3	23.2	0.0	210
								5.4	129
								9.5	91
								13.0	78
								23.2	64



Westwood

1 Systems Drive
Appleton, WI 54914

main (920) 735-6900

LABORATORY TESTS OF SOILS

ASTM: G187

Project: New Frontiers Solar - Breckenridge County, KY
Report To: PCL Construction Services, Inc. **Date:** 11/27/2024

Westwood Prj. No. R0041704.00

			Electrical Resistivity							
			As-Received				**Saturated**			
Boring	**Depth**	**Sample**	**Moist%**	**Temp. °C**	**Resistance (Ohms)**	**Resistivity (Ohms-cm)***	**Moist%**	**Temp. °C**	**Resistance (Ohms)**	**Resistivity (Ohms-cm)***
PV-02	1-4	Bulk	15.2	23.8	13,000	8,700	28.3	22.9	6,300	4,200
PV-06	1-4	Bulk	18.4	23.3	14,000	9,300	31.4	22.4	9,500	6,300
PV-12	1-4	Bulk	17.8	23.4	11,000	7,300	31.9	22.9	6,900	4,600

* Soil box factor = 0.67

** Temperature corrected.

Westwood

1 Systems Drive
Appleton, WI 54914
main   (920) 735-6900

LABORATORY TESTS OF SOILS

ASTM: G51,G200

Project: New Frontiers Solar - Breckenridge County, KY
Report To: PCL Construction Services, Inc.
Date: 11/27/2024

Westwood Prj. No.   R0041704.00

				Oxidation-Reduction Potential* (mV)				
Boring	**Depth**	**Sample**	**pH**	**Rdg. 1**	**Rdg. 2**	**Rdg. 3**	**Avg. Rdg.**	**Air Temp °C**
PV-02	1-4	Bulk	4.6	471	447	417	445	23.1
PV-06	1-4	Bulk	5.1	391	369	373	378	23.8
PV-12	1-4	Bulk	5.6	369	352	374	365	24.2

* Meter - Oakton pH 150 meter; s/n3029654

*Probe - Oakton OPRELECT, DSJSE, 12x110; s/n 35805-15

Calibraton Standard - Themos Scientific, Orion 967901 (215 mV)

METIRI

1950 S Batavia Ave, Suite 150,
Geneva, IL 60134 - Phone (800)
783-5227 - www.metirigroup.com

December 09, 2024

Paul Eggen
WESTWOOD PROFESSIONAL SERVICES
ONE SYSTEMS DRIVE
APPLETON WI 54914-1654, WI 54914-1654

RE: Westwood Sulfate Chloride
AAK0938

Metiri Analytical Group Inc, - Appleton received sample(s) on 11/19/2024 for the analyses presented in the following report.

All data for the associated quality control (QC) met EPA, method, or internal laboratory specifications except where noted in the case narrative. If you are comparing these results to external QC specifications or compliance limits and have any questions, please contact us.

This final report of laboratory analysis consists of this cover letter, case narrative, analytical report, dates report, and any accompanying documentation including, but not limited to, chain of custody records, raw data, and letters of explanation or reliance. This report may not be reproduced, except in full, without the prior written approval of Suburban Laboratories, Inc.

If you have any questions regarding these test results, please call me at (920) 830-2455.

Sincerely,

Christopher J. Rotar

Christopher Rotar
Project Manager

Table of Contents

Analysis Case Narrative

jSulfate:
Sample AAK0938-01, AAK0938-02, AAK0938-03: H=Sample received past the holding time for this test.

Samples in this Report

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
AAK0938-01	PV-02 Bulk	Solid		10/28/2024 00:00	11/19/2024
AAK0938-02	PV-06 Bulk	Solid		10/28/2024 12:00	11/19/2024
AAK0938-03	PV-12 Bulk	Solid		10/29/2024 12:00	11/19/2024

WESTWOOD PROFESSIONAL SERVICES	Project: Westwood Sulfate Chloride	
ONE SYSTEMS DRIVE	Project Number: New Frontiers Solar	
APPLETON WI 54914-1654, WI 54914-1654	Project Manager: Paul Eggen	Reported: 12/09/2024 13:54

Sample Results

Sample: PV-02 Bulk

AAK0938-01 (Solid)

Analyte	Result	Qual	LOD	LOQ	Units	Date Analyzed	DF	Method	Prep Batch
Wet Chemistry									
Percent Moisture	1.3		1.0	1.0	%	11/20/24	1	ASTM-D2216	BAK0557
Sulfate	56.7	H, J, D,H	28.9	97.2	mg/kg dry	12/02/24	1	ASTM-D516	BAL0011

Analyte	Result	Qual	LOD	LOQ	Units	Date Analyzed	DF	Method	Prep Batch
Wet Chemistry Solid									
Chloride	41	J	30	100	mg/kg Dry dry	11/25/24	1	SM 4500-Cl- E	BAK0855

Sample Results

(Continued)

Sample: PV-06 Bulk

AAK0938-02 (Solid)

Analyte	Result	Qual	LOD	LOQ	Units	Date Analyzed	DF	Method	Prep Batch
Wet Chemistry									
Percent Moisture	1.4		1.0	1.0	%	11/20/24	1	ASTM-D2216	BAK0557
Sulfate	56.7	H, J,H	28.4	95.3	mg/kg dry	12/02/24	1	ASTM-D516	BAL0011

Analyte	Result	Qual	LOD	LOQ	Units	Date Analyzed	DF	Method	Prep Batch
Wet Chemistry Solid									
Chloride	<31		31	100	mg/kg Dry dry	11/25/24	1	SM 4500-Cl- E	BAK0855

Sample Results

(Continued)

Sample: PV-12 Bulk

AAK0938-03 (Solid)

Analyte	Result /Qual	LOD	LOQ	Units	Date Analyzed	DF	Method	Prep Batch
Wet Chemistry								
Percent Moisture	2.0	1.0	1.0	%	11/20/24	1	ASTM-D2216	BAK0557
Sulfate	44.0 H, J, D,H	29.7	99.9	mg/kg dry	12/02/24	1	ASTM-D516	BAL0011

Analyte	Result /Qual	LOD	LOQ	Units	Date Analyzed	DF	Method	Prep Batch
Wet Chemistry Solid								
Chloride	<31	31	100	mg/kg Dry dry	11/25/24	1	SM 4500-Cl- E	BAK0855

Quality Control

Wet Chemistry

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Method: ASTM-D2216										
Batch: BAK0557 - Gravimetric										
Duplicate (BAK0557-DUP1)	**Source: AAK0938-01**				Prepared & Analyzed: 11/20/24 14:40					
Percent Moisture	1.3			%		1.3			0.147	20
Method: ASTM-D516										
Batch: BAL0011 - Sulfate Prep										
Blank (BAL0011-BLK1)					Prepared & Analyzed: 12/02/24 14:26					
Sulfate	ND	94.0	28.0	mg/kg wet						
LCS (BAL0011-BS1)					Prepared & Analyzed: 12/02/24 14:27					
Sulfate	19.5			mg/L	20.0		97	80-120		

Quality Control

(Continued)

Wet Chemistry Solid

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Method: SM 4500-Cl- E

Batch: BAK0855 - Chloride Prep

Blank (BAK0855-BLK1) Prepared & Analyzed: 11/25/24 14:05

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chloride	ND	100	30	mg/kg Dry wet						

LCS (BAK0855-BS1) Prepared & Analyzed: 11/25/24 14:06

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chloride	95			mg/L	100		95	85-115		

Notes and Definitions

Item	Definition
D	Data reported from a dilution
H	Holding time for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)
U	Analyte included in the analysis, but not detected

General Comments:
- All results reported in wet weight unless otherwise indicated. (dry = Dry Weight)
- Sample results relate only to the analytes of interest tested and to sample as received by the laboratory.
- Environmental compliance sample results meet the requirements of 35 IAC Part 186 unless otherwise indicated.
- Waste water analysis follows the rules set forth in 40 CFR part 136 except where otherwise noted.
- All radiological results are reported to the 95% confidence level.

Abbreviations:
- Reporting Limit: The concentration at which an analyte can be routinely detected on a day to day basis, and which also meets regulatory and client needs.
- Quantitation Limit: The lowest concentration at which results can be accurately quantitated.
- J: The analyte was positively identified above our Method Detection Limit and is considered detectable and usable; however, the associated numerical value is the approximate concentration of the analyte in the sample.
- ATC: Automatic Temperature Correction. - TNTC: Too Numerous To Count
- TIC: Tentatively Identified Compound (GCMS library search identification, concentration estimated to nearest internal standard).
- SS: (Surrogate Standard): Quality control compound added to the sample by the lab.

-LA: Lab Accident - No valid data to report.
-VO: Insufficient Volume provided
-BR: Received broken
-IP: Invalid Sampling

Method References:
For a complete list of method references please contact us.
- E: USEPA Reference methods
- SW: USEPA, Test Methods for Evaluating Solid Waste (SW-846)
- M: Standard Methods for the Examination of Water and Wastewater
- USP: Latest version of United States Pharmacopeia

Illinois Department of Public Health Accredited #17585

Illinois Environmental Protection Agency Accredited #100225

CHAIN OF CUSTODY RECORD

Synergy
Environmental Lab, LLC
www.synergy-lab.net
1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • mrsynergy@wi.twcbc.com

Chain # 50116
Page 1 of 1

Lab I.D. #
QUOTE # :
Project #: 20041704.00
Sampler: (signature)

Sample Handling Request
____ Rush Analysis Date Required: ______
(Rushes accepted only with prior authorization)
X Normal Turn Around

Project (Name / Location): Clover Creek Solar - Breckenridge County, KY

Reports To:	Paul Eggen	Invoice To:	Accounts Payable
Company	Westwood	Company	Westwood Professional Services
Address	1N Systems Drive	Address	12701 Whitewater Dr. Suite 300
City State Zip	Appleton, WI 54914	City State Zip	Minnetonka, MN 55343
Phone	920-830-6151	Phone	952-937-5151
Email	Paul.Eggen@Westwoodps.com	Email	AP@westwoodps.com

Analysis Requested / Other Analysis

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation	DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 524.2)	VOC (EPA 8260)	VOC AIR (TO - 15)	8-RCRA METALS	Chloride Concentration	Sulfate Concentration					PID/ FID
	PV-02, BULK	10/28	AM		1	Soil	none																X	X					
	PV-06, BULK	10/28	PM		1	Soil	none																X	X					
	PV-12, BULK	10/29	PM		1	soil	none																X	X					

AAK0938
WESTWOOD PROFESSIONAL SERVICES

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge, etc.)

939

Sample Integrity - To be completed by receiving lab.
T0107 Method of Shipment: Speedee
Temp. of Temp. Blank: 6.9 °C On Ice: ✓
Cooler seal intact upon receipt: ✓ Yes ____ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
K. WEEKS	8:15	11-18-24		8:15	11-18-24

Received in Laboratory By: Time: 11/19/24 2:39 Date:

CHAIN OF CUSTODY RECORD

Synergy
Environmental Lab, LLC

www.synergy-lab.net
1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • mrsynergy@wi.twcbc.com

Chain # 50116
Page 1 of 1

Sample Handling Request
____ Rush Analysis Date Required: ______
(Rushes accepted only with prior authorization)
X Normal Turn Around

Lab I.D. #
QUOTE # :
Project #: R00041704.00
Sampler: (signature)

Project (Name / Location): Clover Creek Solar - Breckenridge County, KY

Reports To:	Paul Eggen	Invoice To:	Accounts Payable
Company	Westwood	Company	Westwood Professional Services
Address	1N Systems Drive	Address	12701 Whitewater Dr. Suite 300
City State Zip	Appleton, WI 54914	City State Zip	Minnetonka, MN 55343
Phone	920-830-6151	Phone	952-937-5151
Email	Paul.Eggen@Westwoodps.com	Email	AP@westwoodps.com

Analysis Requested / **Other Analysis**

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation	DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 524.2)	VOC (EPA 8260)	VOC AIR (TO - 15)	8-RCRA METALS	Chloride Concentration	Sulfate Concentration	PID/FID
	PV-02, BULK	10/28	AM		1	Soil	none																X	X	
	PV-06, BULK	10/28	PM		1	Soil	none																X	X	
	PV-12, BULK	10/29	PM		1	Soil	none																X	X	

AAK0938
WESTWOOD PROFESSIONAL SERVICES

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge, etc.)

938

Sample Integrity - To be completed by receiving lab.
T0107
Method of Shipment: Speedee
Temp. of Temp. Blank: 6.9 °C On Ice: ✓
Cooler seal intact upon receipt: ✓ Yes ____ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
K. WEEKS	8:15	11-18-24		8:15	11-18-24

Received in Laboratory By: Time: 11/19/24 2:38 Date:

Appendix D

Pile Load Testing Report

Appendix D1

PLT Summary Tables

Table 1: Summary of Install Drive Times and Depth

Pile ID	Latitude	Longitude	Post Length (ft)	Stick-Up Height (ft)	Embedment Depth (ft)	Drive Time (s)
PLT-101-6	37.78318	-86.50418	11	5	6	38.48
PLT-101-10 (R8.6)	37.78318	-86.50418	15	6.4	8.6	183.58
PLT-103-6	37.78965	-86.50185	11	5	6	60.68
PLT-103-6C	37.78965	-86.50185	11	5	6	85.24
PLT-103-10	37.78965	-86.50185	15	5	10	196.80
PLT-105-6	37.80092	-86.49888	11	5	6	71.57
PLT-105-10	37.80092	-86.49888	15	5	10	205.51
PLT-107-6	37.80509	-86.4918	11	5	6	64.24
PLT-107-6C	37.80509	-86.49180	11	5	6	81.19
PLT-107-10	37.80509	-86.4918	15	5	10	232.38
PLT-110-6	37.81435	-86.50798	11	5	6	78.91
PLT-110-6C	37.81435	-86.50798	11	5	6	78.48
PLT-110-10	37.81435	-86.50798	15	5	10	303.64
PLT-D01-10	37.75106	-86.48117	12	2.0	10	201.98
PLT-D02-10 (R7.5')	37.74992	-86.47167	12	4.5	7.5	204.45
PLT-D03-10 (R8.17')	37.75369	-86.47003	12	3.8	8.17	158.86
PLT-D04-10 (R7.75')	37.75525	-86.46707	12	4.3	7.75	218.05
PLT-D05-10	37.75627	-86.46853	12	2.0	10	169.13
PLT-D06-10	37.75673	-86.46616	12	2.0	10	112.49
PLT-D07-10	37.75623	-86.46238	12	2.0	10	301.15
PLT-D08-10 (R8.75')	37.75835	-86.47498	12	3.3	8.75	272.66
PLT-D09-10 (R8.6')	37.78772	-86.49945	12	3.4	8.6	190.28
PLT-D11-15 (R12.9')	37.78843	-86.50444	17	4.1	12.9	824.10
PLT-D12-10	37.79247	-86.50651	12	2.0	10	203.54
PLT-D13-15 (R14')	37.79147	-86.49761	17	3.0	14	769.46
PLT-D14-10	37.79339	-86.49576	12	2.0	10	182.96
PLT-D15-15 (R10.24')	37.79599	-86.50734	17	6.8	10.24	400.49
PLT-D16-15 (R8.75')	37.79666	-86.50166	17	8.3	8.75	181.26
PLT-D17-15	37.79830	-86.50591	17	2.0	15	597.77
PLT-D18-15 (R14.2')	37.79904	-86.49458	17	2.8	14.2	405.48
PLT-D19-10 (R3.3')	37.80035	-86.49623	12	6.7	3.3	78.50
PLT-D20-10 (R3.9')	37.81112	-86.50618	12	8.1	3.9	169.27
PLT-D21-15 (R10.1')	37.81205	-86.51104	17	6.9	10.1	414.84
PLT-D22-15 (R6.5')	37.81266	-86.50761	17	10.5	6.5	138.78
PLT-D23-15 (R7.3')	37.81376	-86.50923	17	9.7	7.3	210.32
PLT-PV-01-6	37.76158	-86.47807	11	5	6	46.19
PLT-PV-01-6C	37.76158	-86.47807	11	5	6	49.97
PLT-PV-01-10	37.81629	-86.50818	15	5	10	136.41
PLT-PV-03-6	37.75639	-86.47816	11	5	6	68.30
PLT-PV-03-6C	37.75639	-86.47816	11	5	6	67.78
PLT-PV-03-10	37.75639	-86.47816	15	5	10	144.92
PLT-PV-04-6	37.75225	-86.47759	11	5	6	62.54
PLT-PV-04-10 (R9.7')	37.75225	-86.47759	15	5.3	9.7	314.23
PLT-PV-06-6	37.75215	-86.47296	11	5	6	59.34
PLT-PV-06-10	37.75215	-86.47296	15	5	10	228.17
PLT-PV-07-6	37.76009	-86.46773	11	5	6	61.28
PLT-PV-07-10	37.76009	-86.46773	15	5	10	168.05
PLT-PV-08-6	37.75837	-86.46572	11	5	6	53.78
PLT-PV-08-10	37.75837	-86.46572	15	5	10	173.31
PLT-PV-09-6	37.7571	-86.4697	11	5	6	66.59
PLT-PV-09-6C	37.7571	-86.4697	11	5	6	64.91
PLT-PV-09-10	37.7571	-86.4697	15	5	10	201.65

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Table 1: Summary of Install Drive Times and Depth

Pile ID	Latitude	Longitude	Post Length (ft)	Stick-Up Height (ft)	Embedment Depth (ft)	Drive Time (s)
PLT-PV-106-6	37.75215	-86.472964	11	5	6	57.51
PLT-PV-106-10	37.75215	-86.472964	15	5	10	211.29
PLT-PV-14-6	37.75587	-86.47285	11	5	6	69.30
PLT-PV-14-10	37.75587	-86.47285	15	5	10	203.83

Table 1: Summary of Install Drive Times and Depth

Pile ID	Latitude	Longitude	Post Length (ft)	Stick-Up Height (ft)	Embedment Depth (ft)	Drive Time (s)
PLT-PDA-D19-5 (R4.5')	37.81111	-86.50798	11	6.5	4.5	158.68
PLT-PDA-D19-5C	37.81111	-86.50798	11	6	5	12.94
PLT-PDA-D19-7 (R5.3')	37.81111	-86.50798	13	7.7	5.3	260.01
PLT-PDA-D20-5	37.81204	-86.50617	11	6	5	10.82
PLT-PDA-D20-5C	37.81204	-86.50617	11	6	5	8.52
PLT-PDA-D20-7	37.81204	-86.50617	13	6	7	18.77
PLT-PDA-D22-5	37.81435	-86.46361	11	6	5	7.63
PLT-PDA-D22-5C	37.81435	-86.46361	11	6	5	6.81
PLT-PDA-D22-7	37.81435	-86.46361	13	6	7	6.03
PLT-PDA-PV09-5	37.7571	-86.50922	11	6	5	8.28
PLT-PDA-PV09-5C	37.7571	-86.50922	11	6	5	12.85
PLT-PDA-PV09-7	37.7571	-86.50922	13	6	7	35.52
PLT-PDA-PV10-5	37.75525	-86.4697	11	6	5	16.11
PLT-PDA-PV10-5C	37.75525	-86.4697	11	6	5	13.50
PLT-PDA-PV10-7	37.75525	-86.4697	13	6	7	19.91
PLT-PDA-PV110-5	37.81435	-86.46361	11	6	5	5.82
PLT-PDA-PV110-5C	37.81435	-86.46361	11	6	5	5.23
PLT-PDA-PV110-7	37.81435	-86.46361	13	6	7	16.57
PLT-PDA-PV13-5	37.75368	-86.47002	11	6	5	11.37
PLT-PDA-PV13-5C	37.75368	-86.47002	11	6	5	9.52
PLT-PDA-PV13-7	37.75368	-86.47002	13	6	7	9.41
PLT-PDB-D19-5	37.81111	-86.50798	11	6	5	40.32
PLT-PDB-D19-5C	37.81111	-86.50798	11	6	5	80.10
PLT-PDB-D19-7	37.81111	-86.50798	13	6	7	369.45
PLT-PDB-D20-5	37.81204	-86.50617	11	6	5	10.17
PLT-PDB-D20-5C	37.81204	-86.50617	11	6	5	10.67
PLT-PDB-D20-7	37.81204	-86.50617	13	6	7	25.60
PLT-PDB-D22-5	37.81435	-86.46361	11	6	5	5.28
PLT-PDB-D22-5C	37.81435	-86.46361	11	6	5	5.94
PLT-PDB-D22-7	37.81435	-86.46361	13	6	7	8.53
PLT-PDB-PV09-5	37.7571	-86.50922	11	6	5	9.29
PLT-PDB-PV09-5C	37.7571	-86.50922	11	6	5	7.19
PLT-PDB-PV09-7	37.7571	-86.50922	13	6	7	11.56
PLT-PDB-PV10-5	37.75525	-86.4697	11	6	5	19.77
PLT-PDB-PV10-5C	37.75525	-86.4697	11	6	5	13.95
PLT-PDB-PV10-7	37.75525	-86.4697	13	6	7	14.34
PLT-PDB-PV110-5	37.81435	-86.46361	11	6	5	6.18
PLT-PDB-PV110-5C	37.81435	-86.46361	11	6	5	8.18
PLT-PDB-PV110-7	37.81435	-86.46361	13	6	7	7.60
PLT-PDB-PV13-5	37.75368	-86.47002	11	6	5	5.50
PLT-PDB-PV13-5C	37.75368	-86.47002	11	6	5	6.43
PLT-PDB-PV13-7	37.75368	-86.47002	13	6	7	21.80

Table 2: Summary of Axial Load Test Results

Pile ID	Post Type	Embedment Depth (ft)	Total Drive Time (sec)	Axial Load Test Type	Axial Test Load (lbs) at 0.25" Displacement	Maximum Axial Test Load* (lbs)	Displacement at Maximum Test Load (inches)	
							1-Min Disp 1	1-Min Disp 2
PLT-101-6T	W6x9	6	38.48	Tensile	5744	8000	0.695	0.705
PLT-101-10T (R8.6)	W6x9	8.6	183.58	Tensile	13930	15000	0.440	0.418
PLT-103-6T	W6x9	6	60.68	Tensile	13387	15000	0.358	0.338
PLT-103-6C	W6x9	6	85.24	Compression	-	20000	0.235	0.113
PLT-103-10T	W6x9	10	196.80	Tensile	-	15000	0.174	0.148
PLT-105-6T	W6x9	6	71.57	Tensile	10047	12000	0.700	0.700
PLT-105-10T	W6x9	10	205.51	Tensile	-	15000	0.217	0.213
PLT-107-6T	W6x9	6	64.24	Tensile	12521	15000	1.000	1.000
PLT-107-6C	W6x9	6	81.19	Compression	-	20000	0.069	0.176
PLT-107-10T	W6x9	10	232.38	Tensile	-	15000	0.116	0.120
PLT-110-6T	W6x9	6	78.91	Tensile	11816	15000	1.000	1.000
PLT-110-6C	W6x9	6	78.48	Compression	12485	15000	0.740	0.733
PLT-110-10T	W6x9	10	303.64	Tensile	-	15000	0.095	0.088
PLT-PV-01-6T	W6x9	6	46.19	Tensile	10797	13000	1.000	1.000
PLT-PV-01-6C	W6x9	6	49.97	Compression	-	20000	0.085	0.087
PLT-PV-01-10T	W6x9	10	136.41	Tensile	15000	15000	0.250	0.221
PLT-PV-03-6T	W6x9	6	68.30	Tensile	13789	15000	0.306	0.340
PLT-PV-03-6C	W6x9	6	67.78	Compression	-	20000	0.054	0.052
PLT-PV-03-10T	W6x9	10	144.92	Tensile	14835	15000	0.268	0.251
PLT-PV-04-6T	W6x9	6	62.54	Tensile	12128	15000	0.535	0.537
PLT-PV-04-10T (R9.7')	W6x9	9.7	314.23	Tensile	-	15000	0.042	0.057
PLT-PV-06-6T	W6x9	6	59.34	Tensile	10056	12000	0.530	0.530
PLT-PV-06-10T	W6x9	10	228.17	Tensile	-	15000	0.067	0.073
PLT-PV-07-6T	W6x9	6	61.28	Tensile	10612	14000	0.983	0.969
PLT-PV-07-10T	W6x9	10	168.05	Tensile	-	15000	0.108	0.112
PLT-PV-08-6T	W6x9	6	53.78	Tensile	10016	11000	0.550	0.540
PLT-PV-08-10T	W6x9	10	173.31	Tensile	-	15000	0.201	0.192
PLT-PV-09-6T	W6x9	6	66.59	Tensile	12588	15000	1.000	1.000
PLT-PV-09-6C	W6x9	6	64.91	Compression	-	20000	0.132	0.078
PLT-PV-14-6T	W6x9	6	69.30	Tensile	13846	15000	0.342	0.345
PLT-PV-14-10T	W6x9	10	203.83	Tensile	-	15000	0.084	0.100

*Maximum load applied before continuous displacement of up to 1-inch of displacement was recorded, or maximum load (Tensile, 15,000lbs and Compression, 20,000lbs)

Table 2: Summary of Axial Load Test Results

Pile ID	Post Type	Embedment Depth (ft)	Total Drive Time (sec)	Axial Load Test Type	Axial Test Load (lbs) at 0.25" Displacement	Maximum Axial Test Load* (lbs)	Displacement at Maximum Test Load (inches)	
							1-Min Disp 1	1-Min Disp 2
PLT-PDA-D19-5C	W6x9	5	12.94	Compression	7195	8000	1.000	1.000
PLT-PDA-D19-5T (R4.5')	W6x9	4.5	158.68	Tensile	4598	5000	0.323	0.349
PLT-PDA-D19-7T (R5.3')	W6x9	5.3	260.01	Tensile	11706	15000	0.439	0.390
PLT-PDA-D20-5C	W6x9	5	8.52	Compression	3439	3000	0.103	0.141
PLT-PDA-D20-5T	W6x9	5	10.82	Tensile	3350	4000	0.577	0.585
PLT-PDA-D20-7T	W6x9	7	18.77	Tensile	4207	5000	1.000	1.000
PLT-PDA-D22-5C	W6x9	5	6.81	Compression	2319	4000	0.883	0.868
PLT-PDA-D22-5T	W6x9	5	7.63	Tensile	1255	2000	0.818	0.842
PLT-PDA-D22-7T	W6x9	7	6.03	Tensile	1026	1000	0.036	0.042
PLT-PDA-PV09-5C	W6x9	5	12.85	Compression	2131	2000	0.042	0.049
PLT-PDA-PV09-5T	W6x9	5	8.28	Tensile	2136	2000	0.092	0.084
PLT-PDA-PV09-7T	W6x9	7	35.52	Tensile	6226	7000	1.000	1.000
PLT-PDA-PV10-5C	W6x9	5	13.50	Compression	1407	2000	0.480	0.430
PLT-PDA-PV10-5T	W6x9	5	16.11	Tensile	1154	1000	0.041	0.025
PLT-PDA-PV10-7T	W6x9	7	19.91	Tensile	2085	2000	0.113	0.123
PLT-PDA-PV110-5C	W6x9	5	5.23	Compression	1160	2000	1.000	1.000
PLT-PDA-PV110-5T	W6x9	5	5.82	Tensile	1105	1000	0.037	0.045
PLT-PDA-PV110-7T	W6x9	7	16.57	Tensile	3214	3000	0.192	0.181
PLT-PDA-PV13-5C	W6x9	5	9.52	Compression	4027	4000	0.245	0.094
PLT-PDA-PV13-5T	W6x9	5	11.37	Tensile	2159	2000	0.209	0.212
PLT-PDA-PV13-7T	W6x9	7	9.41	Tensile	1184	1000	0.044	0.048
PLT-PDB-D19-5C	W6x9	5	80.10	Compression	19182	19000	0.115	0.042
PLT-PDB-D19-5T	W6x9	5	40.32	Tensile	4257	4000	0.208	0.223
PLT-PDB-D19-7T	W6x9	7	369.45	Tensile	-	15000	0.098	0.103
PLT-PDB-D20-5C	W6x9	5	10.67	Compression	5149	5000	0.125	0.160
PLT-PDB-D20-5T	W6x9	5	10.17	Tensile	2136	2000	0.062	0.081
PLT-PDB-D20-7T	W6x9	7	25.60	Tensile	5269	5000	0.195	0.229
PLT-PDB-D22-5C	W6x9	5	5.94	Compression	1287	2000	0.674	0.679
PLT-PDB-D22-5T	W6x9	5	5.28	Tensile	2848	3000	0.357	0.376
PLT-PDB-D22-7T	W6x9	7	8.53	Tensile	1250	2000	1.000	1.000
PLT-PDB-PV09-5C	W6x9	5	7.19	Compression	3234	4000	1.000	1.000
PLT-PDB-PV09-5T	W6x9	5	9.29	Tensile	1256	2000	1.000	1.000
PLT-PDB-PV09-7T	W6x9	7	11.56	Tensile	4146	4000	0.141	0.147
PLT-PDB-PV10-5C	W6x9	5	13.95	Compression	2182	2000	0.069	0.041
PLT-PDB-PV10-5T	W6x9	5	19.77	Tensile	2110	2000	0.094	0.090
PLT-PDB-PV10-7T	W6x9	7	14.34	Tensile	1127	1000	0.016	0.015
PLT-PDB-PV110-5C	W6x9	5	8.18	Compression	3031	3000	0.180	0.198
PLT-PDB-PV110-5T	W6x9	5	6.18	Tensile	175	700	1.000	1.000
PLT-PDB-PV110-7T	W6x9	7	7.60	Tensile	741	1000	0.325	0.351
PLT-PDB-PV13-5C	W6x9	5	6.43	Compression	175	700	1.000	1.000
PLT-PDB-PV13-5T	W6x9	5	5.50	Tensile	125	500	1.000	1.000
PLT-PDB-PV13-7T	W6x9	7	21.80	Tensile	2558	3000	0.278	0.285

*Maximum load applied before continuous displacement of up to 1-inch of displacement was recorded, or maximum load (Tensile, 15,000lbs and Compression, 20,000lbs)

Table 3: Summary of Lateral Load Testing Results

Pile ID	Post Type	Embedment Depth (ft)	Total Drive Time (sec)	Maximum Sustained Lateral Test Load* (lbs)	Displacement at Maximum Test Load (inches)	
					Grade (6")	Load Height (4.5')
PLT-101-6L	W6x9	6	38.48	3000	1.290	3.348
PLT-101-10L (R8.6)	W6x9	8.6	183.58	3750	1.414	4.000
PLT-103-6L	W6x9	6	60.68	4500	1.881	4.000
PLT-103-10L	W6x9	10	196.8	4500	1.355	4.000
PLT-105-6L	W6x9	6	71.57	3000	0.765	2.172
PLT-105-10L	W6x9	10	205.51	3750	1.469	4.000
PLT-107-6L	W6x9	6	64.24	3000	0.894	2.520
PLT-107-10L	W6x9	10	232.38	4500	1.185	4.000
PLT-110-6L	W6x9	6	78.91	3000	0.670	2.343
PLT-110-10L	W6x9	10	303.64	3750	1.578	4.000
PLT-PV-01-6L	W6x9	6	46.19	4500	1.555	4.000
PLT-PV-01-10L	W6x9	10	136.41	4500	1.134	2.971
PLT-PV-03-6L	W6x9	6	68.30	4500	1.008	2.662
PLT-PV-03-10L	W6x9	10	144.92	4500	1.510	4.000
PLT-PV-04-6L	W6x9	6	62.54	4500	1.050	2.882
PLT-PV-04-10L (R9.7)	W6x9	9.7	314.23	4500	0.939	2.696
PLT-PV-06-6L	W6x9	6	59.34	3000	1.574	4.000
PLT-PV-06-10L	W6x9	10	228.17	3750	1.398	4.000
PLT-PV-07-6L	W6x9	6	61.28	3750	1.030	2.133
PLT-PV-07-10L	W6x9	10	168.05	3750	1.035	2.350
PLT-PV-08-6L	W6x9	6	53.78	4500	0.920	2.784
PLT-PV-08-10L	W6x9	10	173.31	4500	2.038	4.000
PLT-PV-09-6L	W6x9	6	66.59	4500	1.020	3.008
PLT-PV-09-10L	W6x9	10	201.65	4500	0.825	2.040
PLT-PV-14-6L	W6x9	6	69.3	4500	1.369	4.000
PLT-PV-14-10L	W6x9	10	203.83	4500	0.782	2.444

*Maximum load applied before continuous displacement of up to 4-inch of displacement was recorded, or maximum load (4,500lbs)

Table 3: Summary of Lateral Load Testing Results

Pile ID	Post Type	Embedment Depth (ft)	Total Drive Time (sec)	Maximum Sustained Lateral Test Load* (lbs)	Displacement at Maximum Test Load (inches)	
					Grade (6")	Load Height (4.5')
PLT-PDA-D19-5L (R4.5')	W6x9	4.5	158.68	1500	0.730	1.823
PLT-PDA-D19-7L (R5.3')	W6x9	5.3	260.01	3750	1.536	3.459
PLT-PDA-D20-5L	W6x9	5	10.82	2250	1.494	3.592
PLT-PDA-D20-7L	W6x9	7	18.77	3000	1.175	3.040
PLT-PDA-D22-5L	W6x9	5	7.63	1500	1.953	4.000
PLT-PDA-D22-7L	W6x9	7	6.03	2250	1.515	3.007
PLT-PDA-PV09-5L	W6x9	5	8.28	3000	0.746	2.242
PLT-PDA-PV09-7L	W6x9	7	35.52	4500	0.416	1.931
PLT-PDA-PV10-5L	W6x9	5	16.11	2250	0.635	3.786
PLT-PDA-PV10-7L	W6x9	7	19.91	3750	1.035	4.000
PLT-PDA-PV110-5L	W6x9	5	5.82	1500	1.126	2.854
PLT-PDA-PV110-7L	W6x9	7	16.57	3000	1.313	3.455
PLT-PDA-PV13-5L	W6x9	5	11.37	2250	1.994	2.914
PLT-PDA-PV13-7L	W6x9	7	9.41	3000	1.801	4.000
PLT-PDB-D19-5L	W6x9	5	40.32	2250	1.428	3.521
PLT-PDB-D19-7L	W6x9	7	369.45	4500	1.255	3.547
PLT-PDB-D20-5L	W6x9	5	10.17	1500	0.873	2.317
PLT-PDB-D20-7L	W6x9	7	25.60	3000	1.475	3.547
PLT-PDB-D22-5L	W6x9	5	5.28	750	1.090	2.418
PLT-PDB-D22-7L	W6x9	7	8.53	3000	1.477	3.498
PLT-PDB-PV09-5L	W6x9	5	9.29	4500	0.458	1.461
PLT-PDB-PV09-7L	W6x9	7	11.56	4500	0.101	1.279
PLT-PDB-PV10-5L	W6x9	5	19.77	3750	0.436	3.205
PLT-PDB-PV10-7L	W6x9	7	14.34	4500	0.423	2.566
PLT-PDB-PV110-5L	W6x9	5	6.18	1500	0.967	2.461
PLT-PDB-PV110-7L	W6x9	7	7.60	2250	1.988	4.000
PLT-PDB-PV13-5L	W6x9	5	5.50	2250	1.874	4.000
PLT-PDB-PV13-7L	W6x9	7	21.80	2250	2.612	4.000

*Maximum load applied before continuous displacement of up to 4-inch of displacement was recorded, or maximum load (4,500lbs)

Appendix D2

Pile Installation Drive Time Data

Project:	New Frontiers	Test Weather:	Clear, 60-80 degrees
Install Date:	10/31/2024 - 11/4/2024	Installer:	GeoSolutions, Inc.- Vermeer PD-10

Pile Install Data - Drive Time By Foot (seconds)

Pile ID	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	Total Seconds
PLT-101-6	0.00	1.04	2.56	4.17	7.27	10.48	12.96										*38.48*
PLT-101-10 (R8.6')	0.00	1.11	2.89	5.10	8.15	11.56	16.60	22.62	29.43	86.12							*183.58*
PLT-103-6	0.00	1.78	2.77	5.69	10.65	16.98	22.81										*60.68*
PLT-103-6C	0.00	1.64	2.81	7.17	19.14	25.17	29.31										*85.24*
PLT-103-10	0.00	1.26	1.51	5.64	18.70	18.87	22.28	27.03	31.72	33.88	35.91						*196.80*
PLT-105-6	0.00	0.88	4.10	8.79	15.66	19.57	22.57										*71.57*
PLT-105-10	0.00	1.64	1.68	9.07	14.95	15.67	18.45	20.99	27.74	39.82	55.50						*205.51*
PLT-106-6	0.00	1.06	3.77	6.71	9.99	14.57	21.41										*57.51*
PLT-106-10	0.00	1.82	4.00	8.91	12.44	16.54	19.42	22.04	28.20	30.86	67.06						*211.29*
PLT-107-6	0.00	2.71	1.57	7.24	11.36	18.44	22.92										*64.24*
PLT-107-6C	0.00	2.46	2.62	8.84	16.26	22.77	28.24										*81.19*
PLT-107-10	0.00	2.76	2.21	10.92	15.54	22.19	27.62	31.35	36.35	39.85	43.59						*232.38*
PLT-110-6	0.00	2.09	3.57	8.73	15.87	23.34	25.31										*78.91*
PLT-110-6C	0.00	1.91	3.52	10.54	15.29	21.09	26.13										*78.48*
PLT-110-10	0.00	1.98	3.30	9.19	15.44	19.07	22.16	25.27	37.32	67.61	102.30						*303.64*
PLT-D01-10	0.00	2.19	3.78	5.93	7.65	16.39	25.42	29.37	30.53	36.66	44.06						*201.98*
PLT-D02-10 (R7.5')	0.00	2.21	2.46	4.72	7.02	12.64	18.42	20.28	136.70								*204.45*
PLT-D03-10 (R8.17')	0.00	3.38	1.49	2.91	4.66	11.83	15.40	17.62	36.82	66.24							*158.86*
PLT-D04-10 (R7.75')	0.00	1.06	4.01	6.57	9.24	12.54	15.77	16.54	152.32								*218.05*
PLT-D05-10	0.00	1.33	2.25	5.67	8.20	11.52	18.08	23.14	21.12	23.60	54.22						*169.13*
PLT-D06-10	0.00	1.14	2.12	4.40	4.52	6.72	11.14	16.20	18.67	20.20	27.38						*112.49*
PLT-D07-10	0.00	0.98	1.82	8.62	17.82	16.40	22.11	30.53	41.31	61.81	99.75						*301.15*
PLT-D08-10 (R8.75')	0.00	1.29	2.89	6.24	11.32	16.07	19.75	24.39	32.74	157.97							*272.66*
PLT-D09-10 (R8.6')	0.00	1.09	1.31	3.96	7.02	13.00	16.42	20.82	25.79	100.87							*190.28*
PLT-D11-15 (R12.9')	0.00	1.09	2.83	7.88	10.67	15.54	19.50	28.76	36.82	71.50	98.23	148.03	252.02	131.23			*824.10*
PLT-D12-10	0.00	1.53	1.24	2.72	5.11	6.62	11.45	15.75	26.14	44.52	88.46						*203.54*
PLT-D13-15 (R14')	0.00	1.62	3.64	7.02	12.15	19.82	28.02	34.90	48.31	51.93	53.14	52.25	66.50	106.03	221.86	62.27	*769.46*
PLT-D14-10	0.00	PUSH	0.86	1.37	4.68	11.97	16.65	19.38	21.49	27.06	79.50						*182.96*
PLT-D15-15 (R10.24')	0.00	0.78	2.95	11.36	12.44	28.99	25.43	39.78	78.76	28.66	107.13	64.21					*400.49*
PLT-D16-15 (R8.75')	0.00	1.08	0.79	2.97	7.54	11.29	13.22	16.11	23.98	104.28							*181.26*
PLT-D17-15	0.00	1.93	3.25	4.50	5.54	16.69	20.69	26.45	30.88	36.64	40.97	47.55	52.25	54.67	57.77	198.09	*597.77*
PLT-D18-15 (R14.2')	0.00	1.28	0.05	2.08	3.67	5.55	7.92	12.70	18.29	28.06	34.00	36.31	37.63	37.70	38.70	141.54	*405.48*
PLT-D19-10 (R3.3')	0.00	1.49	1.80	30.90	44.31												*78.50*
PLT-D20-10 (R3.9')	0.00	2.23	3.02	7.12	156.90												*169.27*
PLT-D21-15 (R10.1')	0.00	1.51	3.47	6.16	13.34	17.32	27.57	37.11	37.73	72.51	167.79	30.33					*414.84*
PLT-D22-15 (R6.5')	0.00	1.38	2.32	1.47	5.51	6.59	31.37	90.14									*138.78*
PLT-D23-15 (R7.3')	0.00	2.28	4.60	4.36	7.60	14.60	28.52	52.89	95.47								*210.32*
PLT-PV-01-6	0.00	0.88	1.94	3.50	8.32	13.32	18.23										*46.19*
PLT-PV-01-6C	0.00	1.23	2.70	3.24	8.32	15.40	19.08										*49.97*
PLT-PV-01-10	0.00	0.93	2.39	4.29	7.55	10.47	15.60	20.26	22.42	24.49	28.01						*136.41*
PLT-PV-03-6	0.00	0.94	2.49	5.09	12.66	20.84	26.28										*68.30*

Project:	New Frontiers	Test Weather:	Clear, 60-80 degrees
Install Date:	10/31/2024 - 11/4/2024	Installer:	GeoSolutions, Inc.- Vermeer PD-10

Pile Install Data - Drive Time By Foot (seconds)

Pile ID	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	Total Seconds
PLT-PV-03-6C	0.00	0.68	2.32	6.01	11.05	21.86	25.86										*67.78*
PLT-PV-03-10	0.00	0.99	1.44	4.19	7.89	16.37	19.87	22.42	21.50	24.32	25.93						*144.92*
PLT-PV-04-6	0.00	0.51	1.94	7.31	13.40	18.14	21.24										*62.54*
PLT-PV-04-10 (R9.7')	0.00	1.56	0.67	6.14	12.44	17.04	20.71	23.67	26.42	41.15	164.43						*314.23*
PLT-PV-06-6	0.00	1.84	3.11	4.80	9.73	16.63	23.23										*59.34*
PLT-PV-06-10	0.00	4.49	4.11	6.39	14.44	22.25	28.41	33.43	36.87	36.72	41.06						*228.17*
PLT-PV-07-6	0.00	1.06	1.84	7.14	12.55	18.28	20.41										*61.28*
PLT-PV-07-10	0.00	1.69	0.98	2.07	3.96	6.90	14.76	19.12	22.80	35.58	60.19						*168.05*
PLT-PV-08-6	0.00	1.71	2.29	5.02	9.84	15.54	19.38										*53.78*
PLT-PV-08-10	0.00	1.64	2.43	6.10	10.57	15.82	19.17	23.67	27.86	32.07	33.98						*173.31*
PLT-PV-09-6	0.00	0.99	2.38	7.10	12.99	19.47	23.66										*66.59*
PLT-PV-09-6C	0.00	0.91	2.94	6.64	12.54	18.05	23.83										*64.91*
PLT-PV-09-10	0.00	1.14	1.74	7.09	12.92	18.37	23.52	26.79	29.44	33.60	47.04						*201.65*
PLT-PV-14-6	0.00	0.59	2.61	5.77	13.17	20.48	26.68										*69.30*
PLT-PV-14-10	0.00	1.18	3.00	7.47	14.17	20.84	26.48	27.03	29.58	34.84	39.24						*203.83*

*A "Push" denotes the weight of hammer of the pile driver pushed the pile into the ground before installation. Prior to the pile load testing field work, multiple fields had been plowed which may have attributed to loose soils within the upper 2 feet of the soil profile

Project:	New Frontiers Solar	Test Weather:	Clear, 40-60 Degrees
Install Date:	2/17/2025 - 2/25/2025	Installer:	Frattalone Companies- Vermeer PD-10

Pile Install Data - Drive Time By Foot (seconds)

Pile ID	0'	1'	2'	3'	4'	5'	6'	7'	Total Seconds
PLT-PDA-PD-D19-5 (R4.5')	0.00	1.54	2.03	4.22	9.64	141.25			*158.68*
PLT-PDA-PD-D19-5C	0.00	0.33	1.69	1.40	3.72	5.80			*12.94*
PLT-PDA-PD-D19-7 (R5.3')	0.00	PUSH	0.56	1.46	4.67	11.25	36.08	205.99	*260.01*
PLT-PDA-PD-D20-5	0.00	0.31	1.44	1.71	2.83	4.53			*10.82*
PLT-PDA-PD-D20-5C	0.00	PUSH	1.51	1.42	2.47	3.12			*8.52*
PLT-PDA-PD-D20-7	0.00	0.86	1.26	1.32	1.70	3.03	3.88	6.72	*18.77*
PLT-PDA-PD-D22-5	0.00	0.59	1.24	1.09	1.36	3.35			*7.63*
PLT-PDA-PD-D22-5C	0.00	PUSH	PUSH	PUSH	0.81	6.00			*6.81*
PLT-PDA-PD-D22-7	0.00	PUSH	PUSH	0.44	1.44	1.19	0.99	1.97	*6.03*
PLT-PDA-PV09-5	0.00	0.71	1.89	1.69	1.87	2.12			*8.28*
PLT-PDA-PV09-5C	0.00	1.14	1.73	2.57	2.89	4.52			*12.85*
PLT-PDA-PV09-7	0.00	PUSH	1.24	1.38	4.70	10.01	8.92	9.27	*35.52*
PLT-PDA-PV10-5	0.00	0.89	2.64	3.91	3.44	2.62			*13.50*
PLT-PDA-PV10-5C	0.00	1.54	3.52	2.95	3.82	4.28			*16.11*
PLT-PDA-PV10-7	0.00	0.81	3.29	3.39	3.80	2.67	2.80	3.15	*19.91*
PLT-PDA-PV110-5	0.00	0.84	0.81	1.27	1.17	1.73			*5.82*
PLT-PDA-PV110-5C	0.00	PUSH	1.34	0.99	1.41	1.49			*5.23*
PLT-PDA-PV110-7	0.00	0.71	1.52	1.72	1.72	2.72	3.21	4.97	*16.57*
PLT-PDA-PV13-5	0.00	0.73	1.69	1.35	1.49	6.11			*11.37*
PLT-PDA-PV13-5C	0.00	1.06	1.56	1.35	3.21	2.34			*9.52*
PLT-PDA-PV13-7	0.00	PUSH	PUSH	PUSH	2.02	2.70	2.15	2.54	*9.41*
PLT-PDB-PD-D19-5	0.00	1.51	2.75	2.87	2.07	31.12			*40.32*
PLT-PDB-PD-D19-5C	0.00	2.01	3.60	4.40	12.66	57.43			*80.10*
PLT-PDB-PD-D19-7	0.00	1.23	2.22	2.89	7.32	176.18	53.00	126.61	*369.45*
PLT-PDB-PD-D20-5	0.00	0.73	2.35	2.29	2.09	2.71			*10.17*
PLT-PDB-PD-D20-5C	0.00	1.23	2.37	1.85	2.22	3.00			*10.67*
PLT-PDB-PD-D20-7	0.00	1.09	1.58	2.35	3.07	4.20	6.19	7.12	*25.60*
PLT-PDB-PD-D22-5	0.00	PUSH	0.49	0.91	1.07	2.81			*5.28*
PLT-PDB-PD-D22-5C	0.00	PUSH	1.08	1.85	1.33	1.68			*5.94*
PLT-PDB-PD-D22-7	0.00	0.51	1.19	1.17	1.13	1.25	1.86	1.42	*8.53*
PLT-PDB-PV09-5	0.00	2.89	1.54	1.57	1.47	1.82			*9.29*
PLT-PDB-PV09-5C	0.00	PUSH	PUSH	4.34	1.47	1.38			*7.19*
PLT-PDB-PV09-7	0.00	PUSH	PUSH	PUSH	1.27	4.58	1.37	4.34	*11.56*
PLT-PDB-PV10-5	0.00	0.51	2.61	5.57	6.44	4.64			*19.77*
PLT-PDB-PV10-5C	0.00	1.93	4.37	3.47	2.14	2.04			*13.95*
PLT-PDB-PV10-7	0.00	0.39	3.44	2.67	1.80	2.14	1.94	1.96	*14.34*
PLT-PDB-PV110-5	0.00	1.21	1.67	1.01	1.07	1.22			*6.18*
PLT-PDB-PV110-5C	0.00	0.61	1.76	1.90	1.84	2.07			*8.18*
PLT-PDB-PV110-7	0.00	0.89	1.49	0.86	1.09	0.82	1.24	1.21	*7.60*
PLT-PDB-PV13-5	0.00	PUSH	PUSH	1.59	2.03	1.88			*5.50*
PLT-PDB-PV13-5C	0.00	1.49	1.08	1.14	1.27	1.45			*6.43*
PLT-PDB-PV13-7	0.00	1.14	0.74	1.57	3.42	5.04	3.90	5.99	*21.80*

*A "Push" denotes the weight of hammer of the pile driver pushed the pile into the ground before installation.

Appendix D3

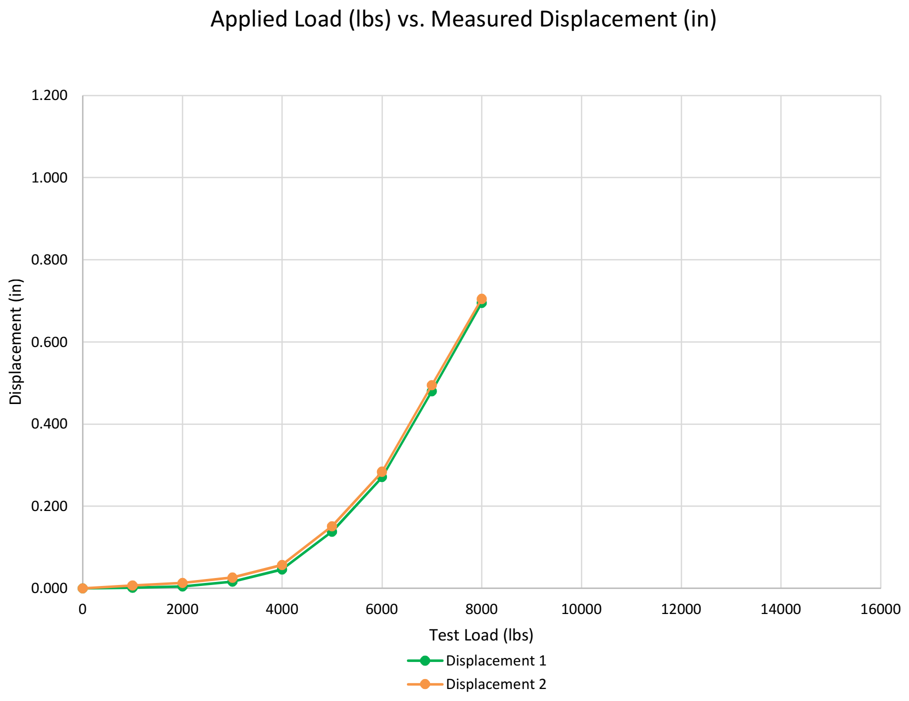
Axial Tensile Pile Load Testing Data

Project:	New Frontiers	Pile ID:	PLT-101-6T		
Test Date:	11/9/2024	Pile GPS Location:	37.78318 , -86.50418		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	38.5 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	9,000	Load Height:	5.0 *feet*		
Notes:	Continuous displacement at 9,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.002	0.007	0.002	0.007
2000	0.005	0.013	0.005	0.013
3000	0.010	0.020	0.017	0.026
4000	0.032	0.043	0.046	0.057
5000	0.118	0.131	0.138	0.151
6000	0.190	0.210	0.271	0.284
7000	0.364	0.384	0.480	0.495
8000	0.575	0.620	0.695	0.705
9000				
10000				
11000				
12000				
13000				
14000				
15000				



Westwood
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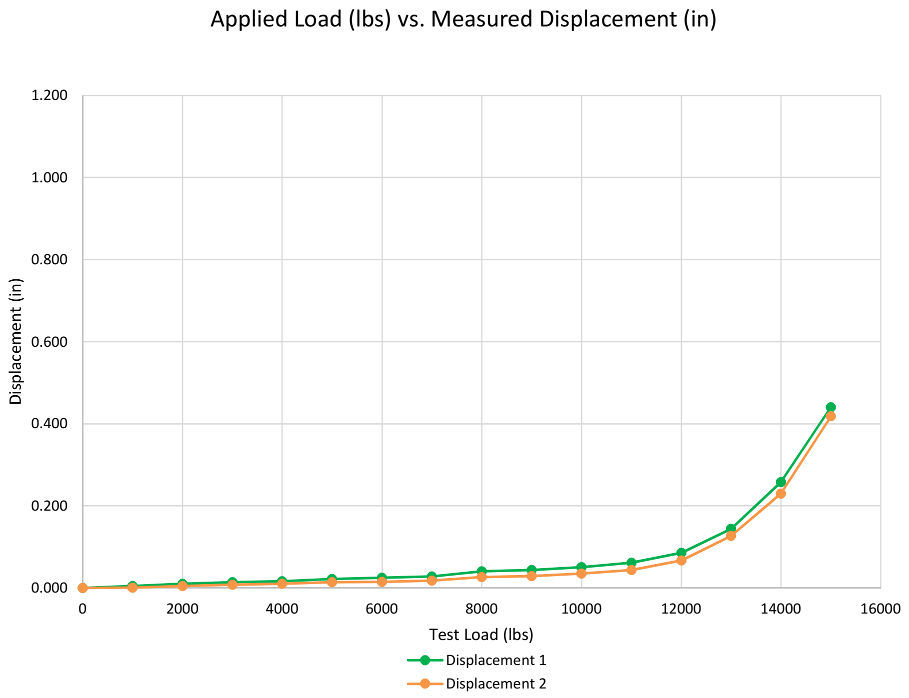
Project:	New Frontiers	Pile ID:	PLT-101-10T		
Test Date:	11/9/2024	Pile GPS Location:	37.78318 , -86.50418		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	183.6 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	8.6 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.004	0.001	0.005	0.001
2000	0.007	0.002	0.010	0.005
3000	0.014	0.008	0.014	0.008
4000	0.016	0.010	0.017	0.010
5000	0.022	0.014	0.022	0.014
6000	0.024	0.014	0.025	0.015
7000	0.028	0.017	0.028	0.018
8000	0.041	0.025	0.041	0.027
9000	0.043	0.028	0.044	0.029
10000	0.050	0.033	0.051	0.035
11000	0.057	0.039	0.062	0.044
12000	0.073	0.054	0.086	0.067
13000	0.100	0.087	0.144	0.127
14000	0.190	0.180	0.258	0.230
15000	0.306	0.310	0.440	0.418



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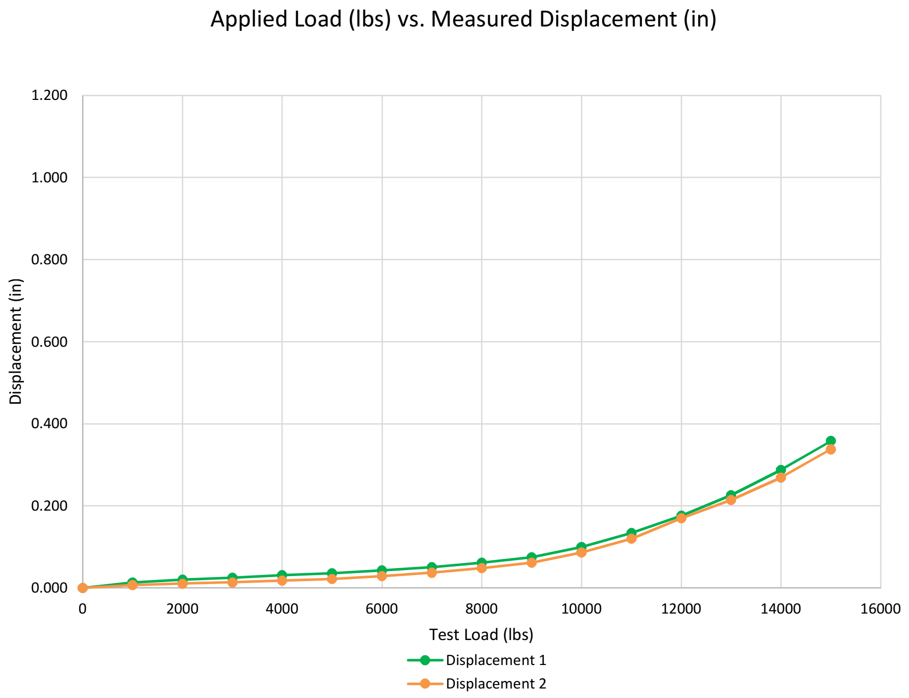
Project:	New Frontiers	Pile ID:	PLT-103-6T		
Test Date:	11/9/2024	Pile GPS Location:	37.78965 , -86.50185		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	60.7 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.011	0.005	0.013	0.007
2000	0.019	0.009	0.020	0.011
3000	0.024	0.012	0.025	0.014
4000	0.029	0.016	0.031	0.018
5000	0.035	0.021	0.036	0.022
6000	0.040	0.026	0.043	0.029
7000	0.048	0.034	0.051	0.037
8000	0.060	0.046	0.062	0.048
9000	0.069	0.057	0.075	0.062
10000	0.091	0.083	0.100	0.087
11000	0.124	0.116	0.134	0.120
12000	0.150	0.147	0.176	0.170
13000	0.190	0.195	0.226	0.214
14000	0.271	0.265	0.288	0.269
15000	0.331	0.334	0.358	0.338



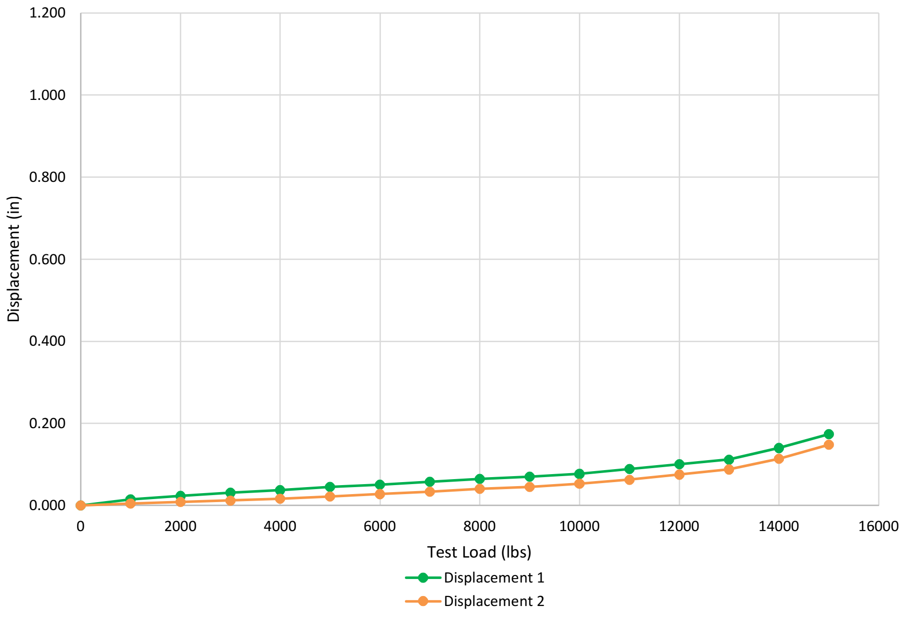
Project:	New Frontiers	Pile ID:	PLT-103-10T		
Test Date:	11/9/2024	Pile GPS Location:	37.78965 , -86.50185		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	196.8 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.012	0.002	0.015	0.005
2000	0.021	0.006	0.023	0.009
3000	0.030	0.012	0.031	0.012
4000	0.036	0.015	0.037	0.017
5000	0.043	0.021	0.045	0.022
6000	0.050	0.027	0.051	0.028
7000	0.057	0.033	0.058	0.034
8000	0.064	0.040	0.065	0.041
9000	0.070	0.045	0.070	0.046
10000	0.074	0.050	0.077	0.053
11000	0.084	0.060	0.089	0.063
12000	0.098	0.073	0.101	0.076
13000	0.106	0.083	0.112	0.088
14000	0.134	0.108	0.140	0.114
15000	0.157	0.139	0.174	0.148

Applied Load (lbs) vs. Measured Displacement (in)



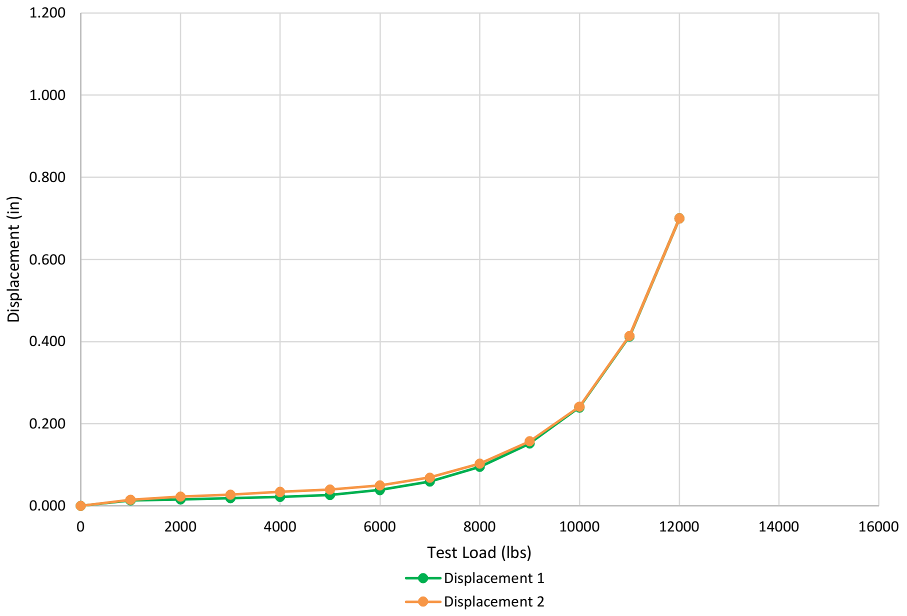
Project:	New Frontiers	Pile ID:	PLT-105-6T		
Test Date:	11/12/2024	Pile GPS Location:	37.80092 , -86.49888		
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024		
Test Weather:	Clear	Pile Drive Time:	71.6 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	13,000	Load Height:	5.0 *feet*		
Notes:	Continuous displacement at 13,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.013	0.015	0.013	0.015
2000	0.016	0.023	0.016	0.023
3000	0.019	0.028	0.019	0.028
4000	0.022	0.034	0.022	0.034
5000	0.026	0.039	0.027	0.040
6000	0.036	0.049	0.039	0.050
7000	0.053	0.066	0.059	0.069
8000	0.085	0.096	0.095	0.103
9000	0.135	0.149	0.152	0.158
10000	0.224	0.232	0.240	0.242
11000	0.316	0.340	0.412	0.414
12000	0.602	0.650	0.700	0.700
13000				
14000				
15000				

Applied Load (lbs) vs. Measured Displacement (in)

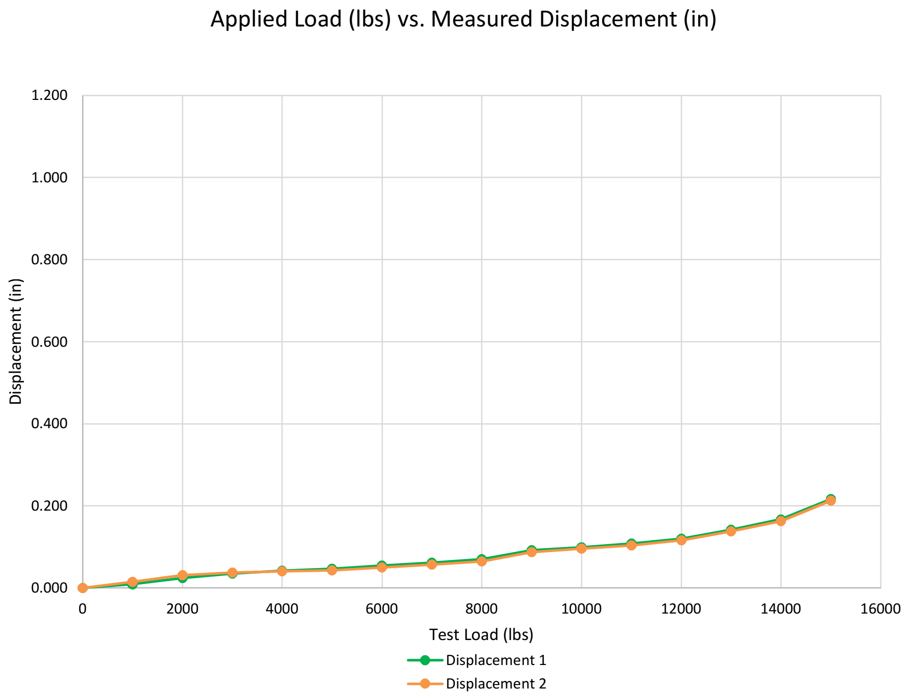


Project:	New Frontiers	Pile ID:	PLT-105-10T		
Test Date:	11/12/2024	Pile GPS Location:	37.80092 , -86.49888		
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024		
Test Weather:	Clear	Pile Drive Time:	205.5 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.009	0.009	0.009	0.015
2000	0.022	0.030	0.024	0.032
3000	0.035	0.038	0.035	0.038
4000	0.042	0.041	0.042	0.041
5000	0.047	0.043	0.047	0.043
6000	0.055	0.050	0.055	0.050
7000	0.062	0.057	0.062	0.057
8000	0.070	0.065	0.070	0.065
9000	0.077	0.073	0.092	0.088
10000	0.099	0.096	0.099	0.096
11000	0.107	0.103	0.108	0.104
12000	0.116	0.113	0.120	0.116
13000	0.128	0.125	0.142	0.138
14000	0.154	0.153	0.167	0.163
15000	0.198	0.198	0.217	0.213

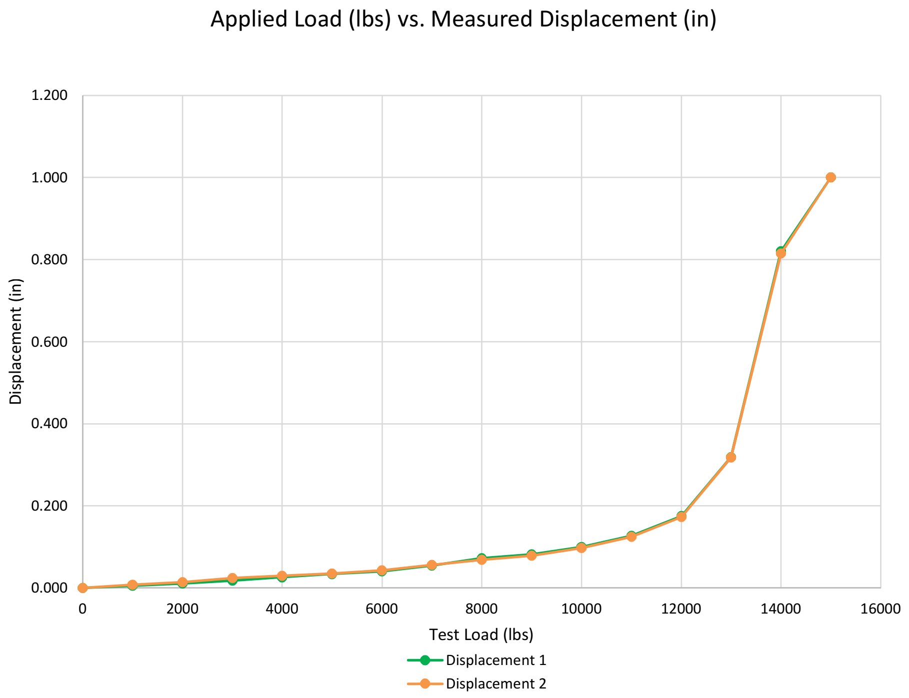


Project:	New Frontiers	Pile ID:	PLT-107-6T		
Test Date:	11/11/2024	Pile GPS Location:	37.80509 , -86.4918		
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024		
Test Weather:	Clear	Pile Drive Time:	64.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	15,000	Load Height:	5.0 *feet*		
Notes:	1 inch displacement at 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.003	0.005	0.006	0.008
2000	0.010	0.013	0.011	0.014
3000	0.018	0.024	0.018	0.024
4000	0.025	0.030	0.026	0.030
5000	0.032	0.035	0.034	0.035
6000	0.040	0.043	0.041	0.043
7000	0.050	0.055	0.055	0.057
8000	0.067	0.067	0.072	0.069
9000	0.077	0.077	0.082	0.079
10000	0.095	0.095	0.100	0.098
11000	0.115	0.114	0.127	0.125
12000	0.147	0.150	0.175	0.173
13000	0.220	0.220	0.319	0.318
14000	0.540	0.550	0.820	0.815
15000	0.990	0.990	1.000	1.000



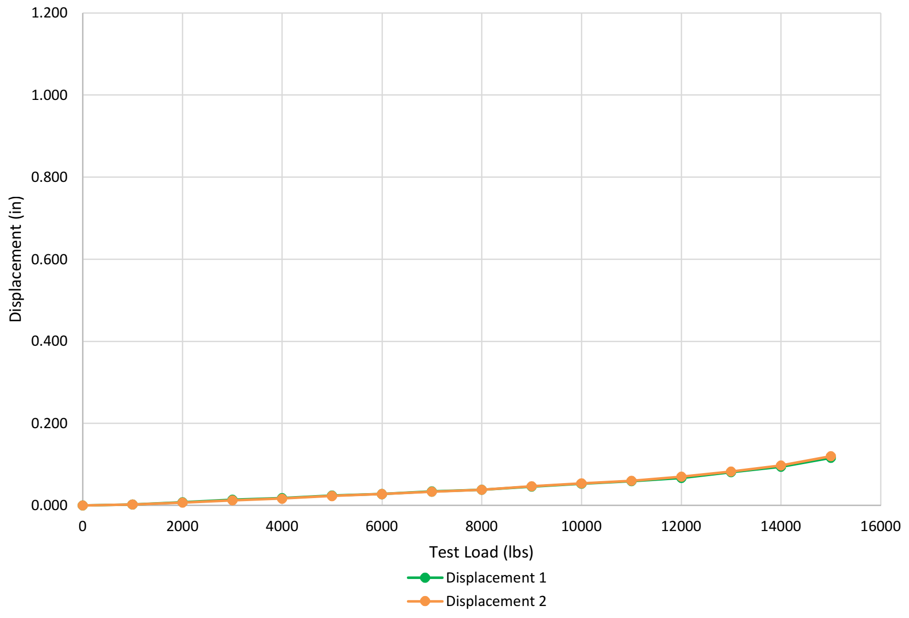
Project:	New Frontiers	Pile ID:	PLT-107-10T				
Test Date:	11/11/2024	Pile GPS Location:	37.80509 , -86.4918				
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024				
Test Weather:	Clear	Pile Drive Time:	232.4	*seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9				
Load ID:	51191	Pile Length:	15.0	*feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0	*feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	10.0	*feet*	*Pre-Drill Depth*	*N/A*	
CD* Load:	N/A	Load Height:	5.0	*feet*			
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile				

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.002	0.003	0.003
2000	0.007	0.006	0.008	0.007
3000	0.011	0.010	0.014	0.013
4000	0.017	0.016	0.018	0.017
5000	0.022	0.021	0.024	0.023
6000	0.026	0.026	0.028	0.028
7000	0.031	0.031	0.034	0.034
8000	0.036	0.037	0.038	0.038
9000	0.044	0.044	0.046	0.047
10000	0.050	0.051	0.053	0.054
11000	0.057	0.057	0.059	0.060
12000	0.064	0.065	0.067	0.070
13000	0.072	0.074	0.081	0.083
14000	0.086	0.090	0.094	0.097
15000	0.106	0.107	0.116	0.120

Applied Load (lbs) vs. Measured Displacement (in)



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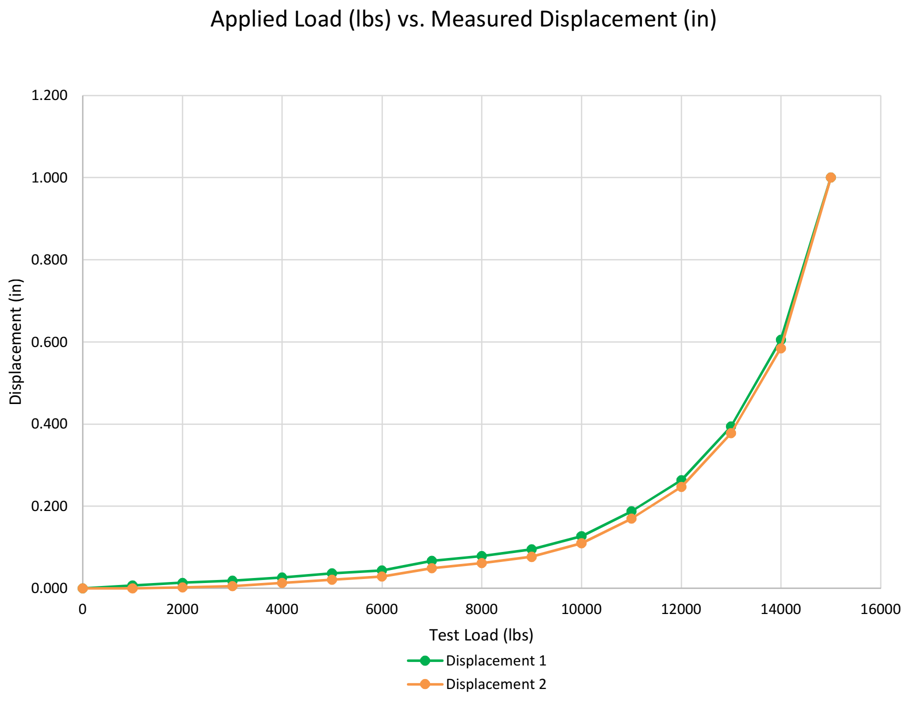
Project:	New Frontiers	Pile ID:	PLT-110-6T
Test Date:	11/12/2024	Pile GPS Location:	37.81435 , -86.50798
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024
Test Weather:	Clear	Pile Drive Time:	78.9 *seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	51191	Pile Length:	11.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet* *Pre-Drill Depth* *N/A*
CD* Load:	15,000	Load Height:	5.0 *feet*
Notes:	1 inch displacement at 15,000 lbs.	Load Test Type:	Tensile

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.007	0.000	0.007	0.000
2000	0.014	0.003	0.014	0.003
3000	0.019	0.006	0.019	0.006
4000	0.026	0.011	0.026	0.013
5000	0.035	0.020	0.037	0.021
6000	0.042	0.025	0.044	0.029
7000	0.064	0.047	0.067	0.049
8000	0.076	0.060	0.079	0.062
9000	0.089	0.073	0.095	0.077
10000	0.119	0.104	0.127	0.110
11000	0.140	0.130	0.188	0.170
12000	0.228	0.222	0.264	0.247
13000	0.330	0.320	0.394	0.378
14000	0.470	0.450	0.605	0.585
15000	0.680	0.720	1.000	1.000

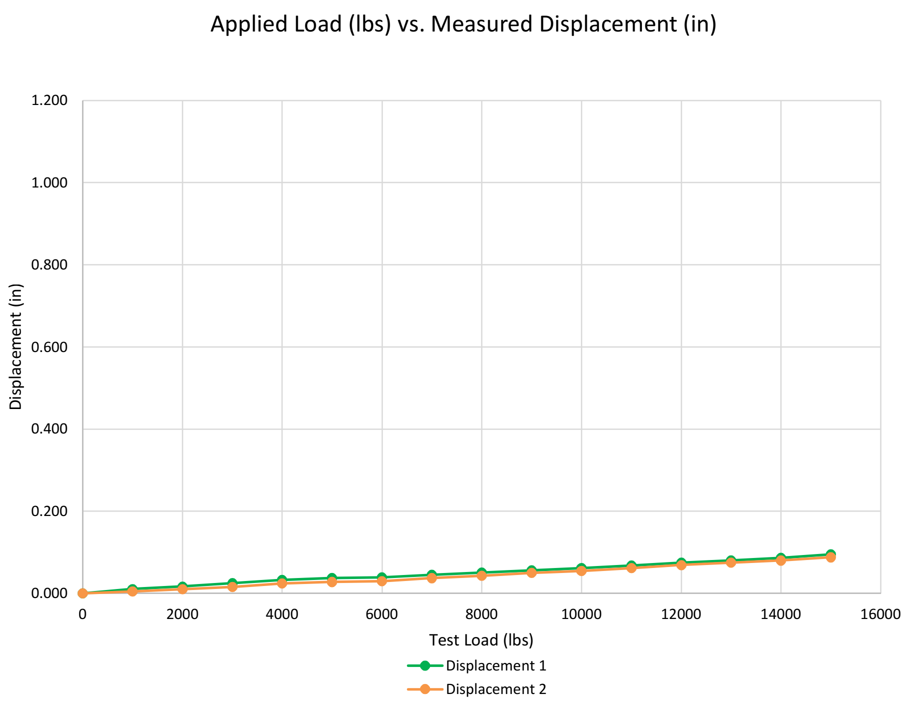


Project:	New Frontiers	Pile ID:	PLT-110-10T			
Test Date:	11/12/2024	Pile GPS Location:	37.81435 , -86.50798			
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024			
Test Weather:	Clear	Pile Drive Time:	303.6 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	15.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*	
CD* Load:	N/A	Load Height:	5.0 *feet*			
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile			

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.011	0.005	0.011	0.005
2000	0.017	0.010	0.017	0.010
3000	0.024	0.016	0.025	0.016
4000	0.033	0.024	0.033	0.024
5000	0.037	0.028	0.037	0.028
6000	0.039	0.030	0.039	0.030
7000	0.046	0.037	0.046	0.037
8000	0.051	0.043	0.051	0.043
9000	0.057	0.049	0.057	0.050
10000	0.060	0.053	0.062	0.055
11000	0.068	0.061	0.068	0.062
12000	0.074	0.067	0.075	0.069
13000	0.081	0.074	0.081	0.075
14000	0.086	0.080	0.087	0.080
15000	0.093	0.087	0.095	0.088



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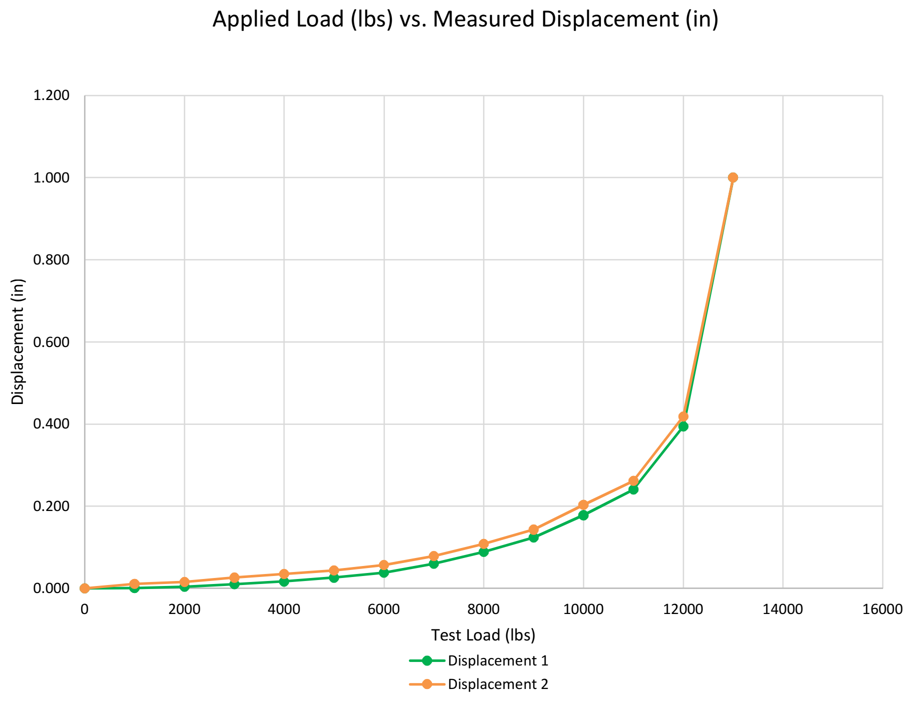
Project:	New Frontiers	Pile ID:	PLT-PV-01-6T		
Test Date:	11/7/2024	Pile GPS Location:	37.76158 , -86.47807		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	46.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	13,000	Load Height:	5.0 *feet*		
Notes:	1 inch displacement at 13,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.010	0.001	0.011
2000	0.004	0.016	0.004	0.016
3000	0.010	0.026	0.010	0.026
4000	0.016	0.034	0.017	0.035
5000	0.025	0.044	0.026	0.044
6000	0.033	0.052	0.038	0.057
7000	0.055	0.074	0.060	0.079
8000	0.080	0.102	0.089	0.108
9000	0.109	0.133	0.124	0.143
10000	0.150	0.170	0.178	0.203
11000	0.210	0.235	0.241	0.262
12000	0.350	0.380	0.394	0.418
13000	0.690	0.732	1.000	1.000
14000				
15000				



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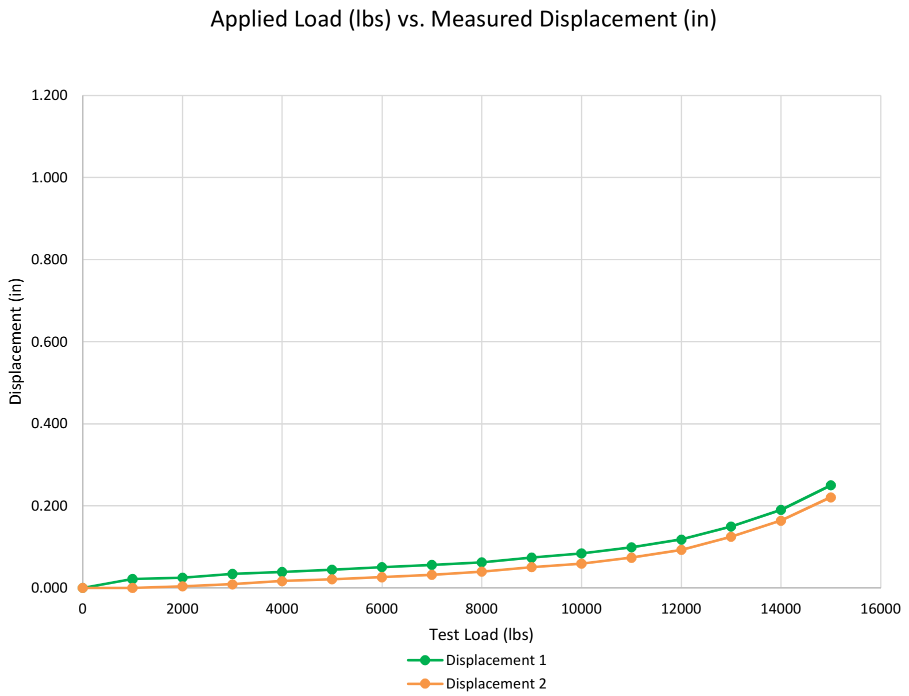
Project:	New Frontiers	Pile ID:	PLT-PV-01-10T		
Test Date:	11/7/2024	Pile GPS Location:	37.76158 , -86.47807		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Rainy	Pile Drive Time:	136.4 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.020	0.000	0.022	0.000
2000	0.022	0.001	0.025	0.004
3000	0.033	0.008	0.034	0.009
4000	0.039	0.016	0.039	0.017
5000	0.045	0.021	0.045	0.021
6000	0.050	0.026	0.051	0.026
7000	0.054	0.031	0.056	0.032
8000	0.061	0.038	0.063	0.040
9000	0.071	0.047	0.074	0.051
10000	0.080	0.056	0.084	0.059
11000	0.092	0.068	0.099	0.074
12000	0.109	0.084	0.118	0.093
13000	0.134	0.109	0.150	0.125
14000	0.160	0.145	0.190	0.164
15000	0.214	0.195	0.250	0.221



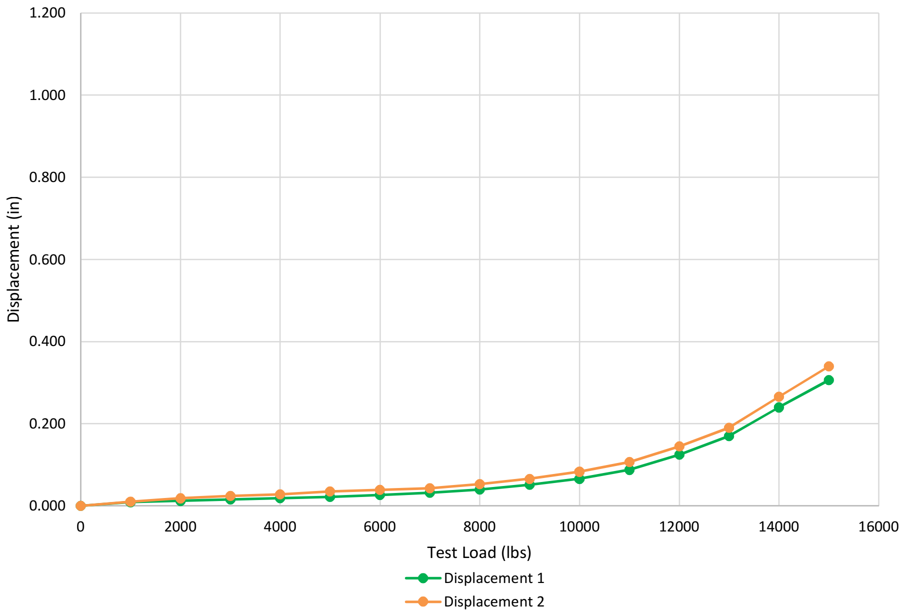
Project:	New Frontiers	Pile ID:	PLT-PV-03-6T		
Test Date:	11/7/2024	Pile GPS Location:	37.75639 , -86.47816		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	*seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.006	0.009	0.010
2000	0.010	0.016	0.012	0.019
3000	0.014	0.022	0.016	0.024
4000	0.018	0.027	0.019	0.029
5000	0.021	0.032	0.022	0.035
6000	0.025	0.039	0.027	0.040
7000	0.029	0.041	0.032	0.043
8000	0.035	0.048	0.040	0.053
9000	0.045	0.060	0.052	0.066
10000	0.059	0.076	0.066	0.083
11000	0.073	0.094	0.088	0.107
12000	0.100	0.125	0.125	0.145
13000	0.150	0.174	0.170	0.190
14000	0.205	0.237	0.240	0.266
15000	0.275	0.303	0.306	0.340

Applied Load (lbs) vs. Measured Displacement (in)



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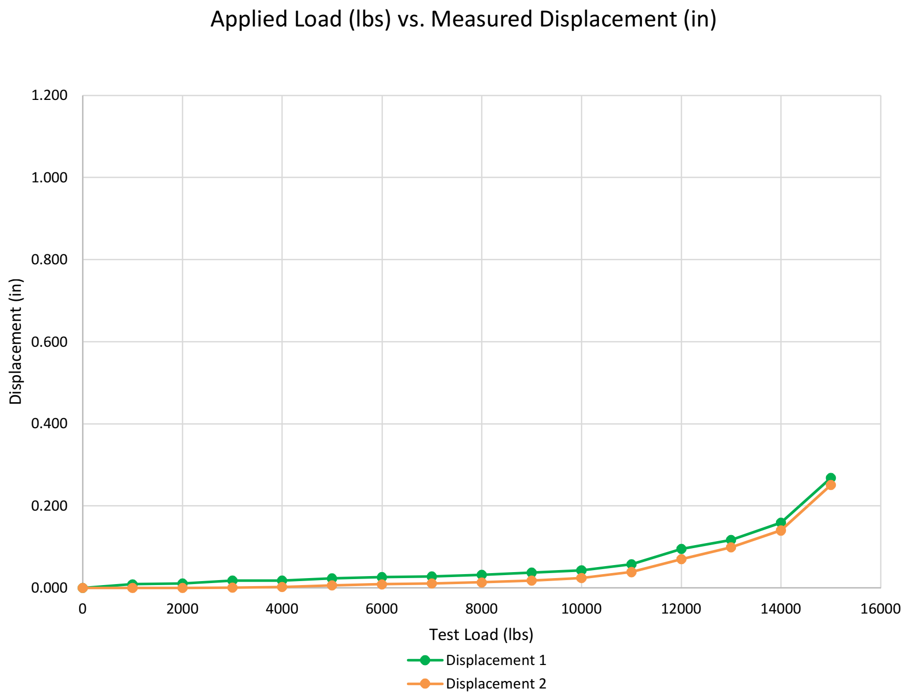
Project:	New Frontiers	Pile ID:	PLT-PV-03-10T
Test Date:	11/7/2024	Pile GPS Location:	37.75639 , -86.47816
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024
Test Weather:	Cloudy	Pile Drive Time:	144.9 *seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	51191	Pile Length:	15.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet* *Pre-Drill Depth* *N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.008	0.000	0.009	0.000
2000	0.011	0.000	0.011	0.000
3000	0.014	0.000	0.018	0.001
4000	0.018	0.003	0.018	0.003
5000	0.023	0.007	0.023	0.007
6000	0.026	0.009	0.026	0.009
7000	0.027	0.011	0.028	0.011
8000	0.031	0.013	0.032	0.014
9000	0.035	0.017	0.037	0.018
10000	0.041	0.023	0.043	0.024
11000	0.051	0.035	0.058	0.039
12000	0.078	0.059	0.095	0.070
13000	0.106	0.094	0.117	0.100
14000	0.135	0.124	0.159	0.140
15000	0.193	0.240	0.268	0.251



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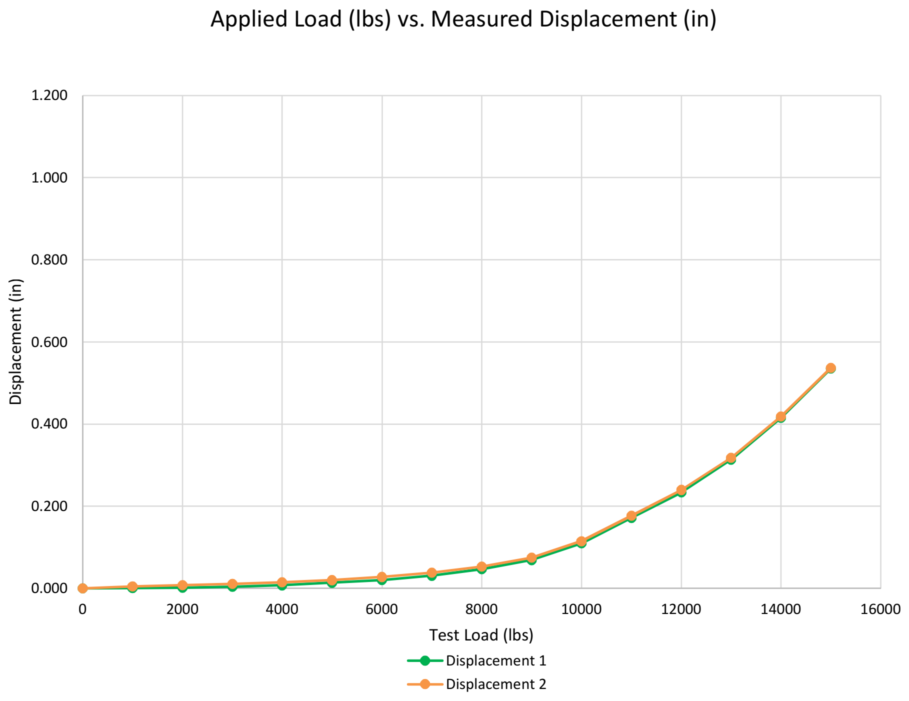
Project:	New Frontiers	Pile ID:	PLT-PV-04-6T		
Test Date:	11/8/2024	Pile GPS Location:	37.75225 , -86.47759		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Clear	Pile Drive Time:	62.5 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.005	0.001	0.005
2000	0.002	0.008	0.002	0.008
3000	0.004	0.011	0.004	0.011
4000	0.008	0.015	0.008	0.015
5000	0.013	0.020	0.014	0.020
6000	0.019	0.026	0.021	0.028
7000	0.025	0.032	0.031	0.038
8000	0.038	0.047	0.047	0.053
9000	0.058	0.067	0.069	0.075
10000	0.098	0.104	0.110	0.115
11000	0.144	0.164	0.172	0.177
12000	0.210	0.215	0.234	0.240
13000	0.279	0.293	0.314	0.318
14000	0.380	0.387	0.415	0.418
15000	0.476	0.480	0.535	0.537



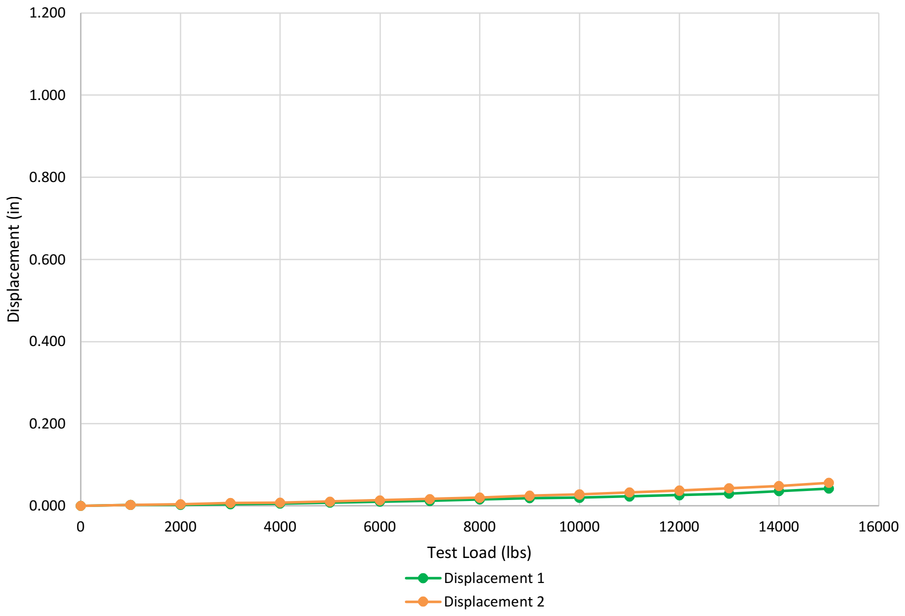
Project:	New Frontiers	Pile ID:	PLT-PV-04-10T(R9.7)		
Test Date:	11/8/2024	Pile GPS Location:	37.75225 , -86.47759		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Clear	Pile Drive Time:	314.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.3 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	9.7 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.002	0.002	0.002	0.002
2000	0.003	0.004	0.003	0.004
3000	0.004	0.006	0.004	0.007
4000	0.006	0.008	0.006	0.008
5000	0.007	0.010	0.008	0.011
6000	0.010	0.014	0.010	0.014
7000	0.011	0.016	0.012	0.017
8000	0.015	0.020	0.016	0.020
9000	0.018	0.024	0.019	0.025
10000	0.020	0.028	0.020	0.028
11000	0.023	0.033	0.023	0.033
12000	0.026	0.037	0.026	0.037
13000	0.030	0.043	0.030	0.043
14000	0.035	0.049	0.036	0.049
15000	0.042	0.057	0.042	0.057

Applied Load (lbs) vs. Measured Displacement (in)

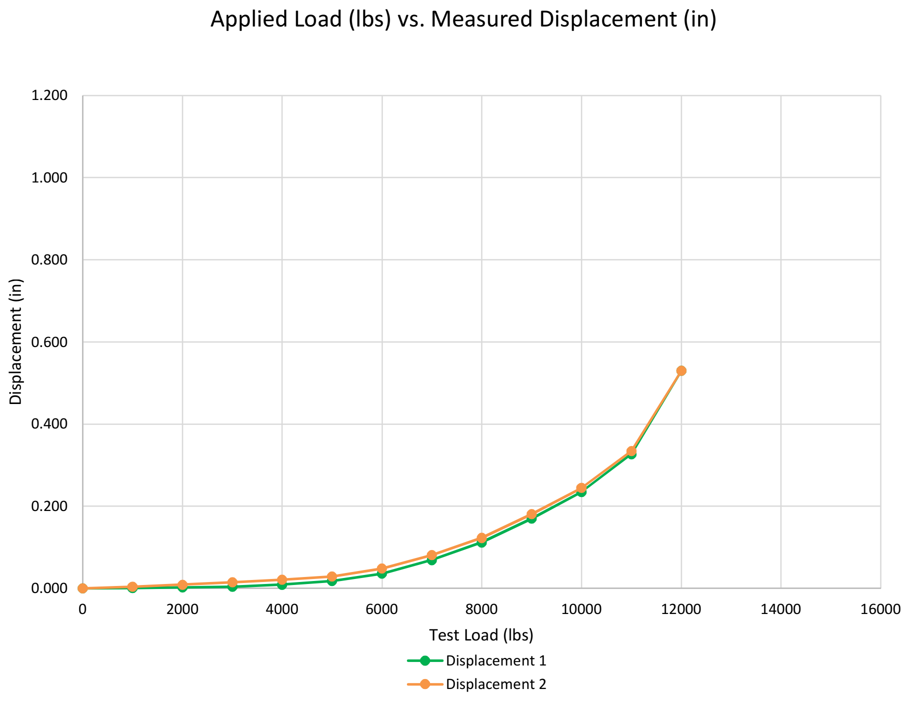


Project:	New Frontiers	Pile ID:	PLT-PV-06-6T			
Test Date:	11/13/2024	Pile GPS Location:	37.75215 , -86.47296			
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024			
Test Weather:	Cloudy	Pile Drive Time:	59.3 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	11.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*	
CD* Load:	13,000	Load Height:	5.0 *feet*			
Notes:	Continuous displacement at 13,000 lbs.	Load Test Type:	Tensile			

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.004	0.001	0.004
2000	0.002	0.008	0.002	0.009
3000	0.003	0.013	0.004	0.015
4000	0.008	0.019	0.009	0.021
5000	0.016	0.028	0.018	0.029
6000	0.035	0.046	0.036	0.048
7000	0.052	0.068	0.069	0.081
8000	0.100	0.112	0.112	0.123
9000	0.160	0.172	0.170	0.181
10000	0.210	0.222	0.235	0.245
11000	0.290	0.320	0.327	0.334
12000	0.410	0.420	0.530	0.530
13000				
14000				
15000				

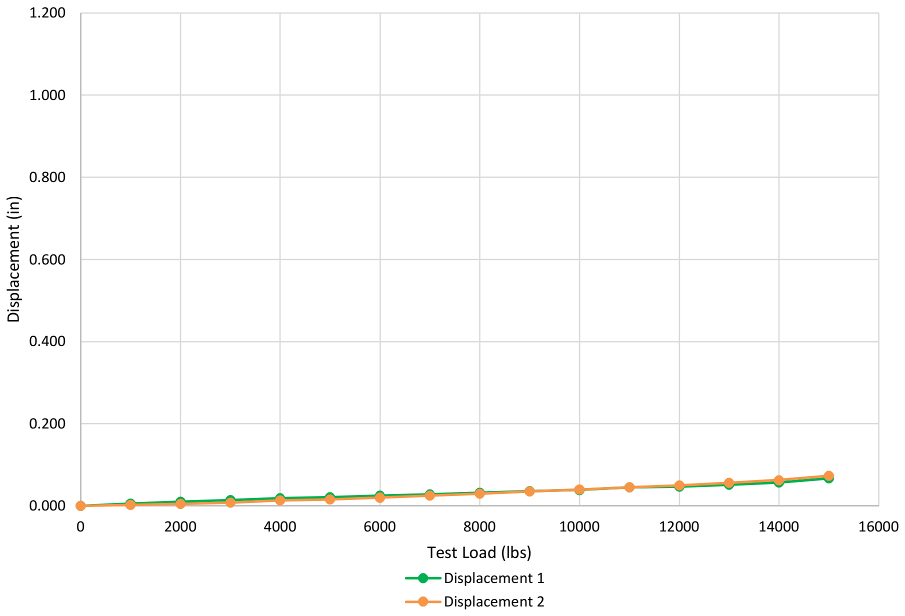


Project:	New Frontiers	Pile ID:	PLT-PV-06-10T		
Test Date:	11/13/2024	Pile GPS Location:	37.75215 , -86.47296		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	228.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.001	0.006	0.002
2000	0.010	0.004	0.010	0.005
3000	0.014	0.008	0.014	0.008
4000	0.017	0.011	0.019	0.013
5000	0.021	0.016	0.021	0.016
6000	0.024	0.019	0.025	0.020
7000	0.027	0.024	0.028	0.025
8000	0.032	0.030	0.032	0.030
9000	0.035	0.034	0.036	0.035
10000	0.039	0.040	0.039	0.040
11000	0.043	0.045	0.045	0.045
12000	0.046	0.049	0.047	0.050
13000	0.051	0.055	0.052	0.056
14000	0.056	0.061	0.057	0.063
15000	0.063	0.071	0.067	0.073


Applied Load (lbs) vs. Measured Displacement (in)

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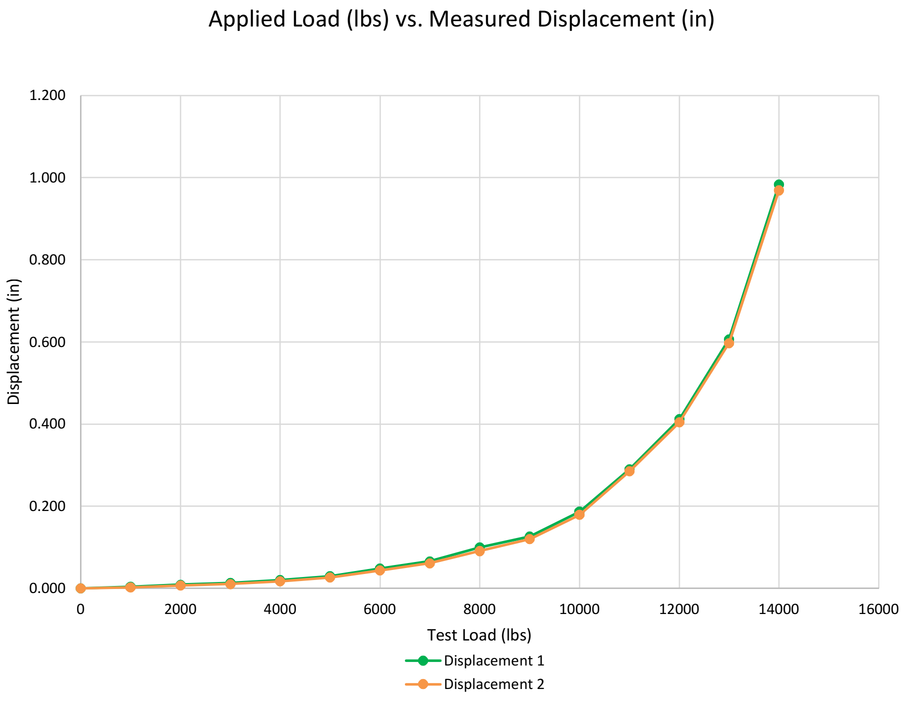
Project:	New Frontiers	Pile ID:	PLT-PV-07-6T		
Test Date:	11/5/2024	Pile GPS Location:	37.76009 , -86.46773		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Partly Cloudy	Pile Drive Time:	61.3 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	15,000	Load Height:	5.0 *feet*		
Notes:	Continuous displacement at 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.003	0.001	0.004	0.002
2000	0.007	0.004	0.009	0.007
3000	0.012	0.010	0.013	0.011
4000	0.017	0.016	0.020	0.018
5000	0.029	0.026	0.030	0.027
6000	0.043	0.041	0.048	0.044
7000	0.060	0.058	0.066	0.061
8000	0.086	0.084	0.100	0.091
9000	0.117	0.115	0.126	0.120
10000	0.148	0.155	0.187	0.179
11000	0.224	0.240	0.290	0.285
12000	0.350	0.365	0.412	0.405
13000	0.480	0.520	0.606	0.597
14000	0.670	0.650	0.983	0.969
15000				

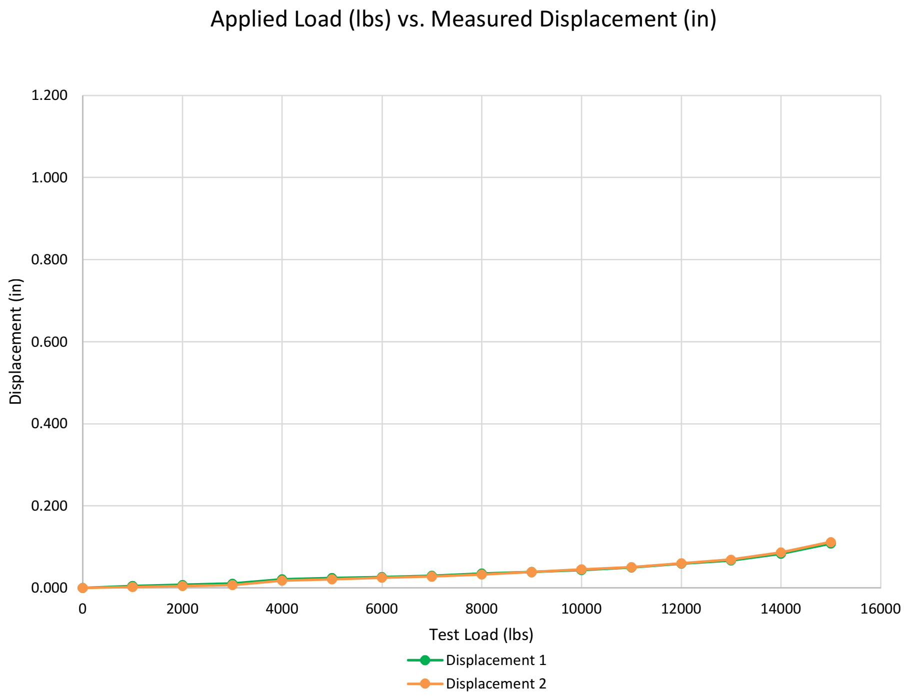


Project:	New Frontiers	Pile ID:	PLT-PV-07-10T		
Test Date:	11/5/2024	Pile GPS Location:	37.76009 , -86.46773		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Partly Cloudy	Pile Drive Time:	168.1 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.002	0.005	0.003
2000	0.007	0.005	0.008	0.005
3000	0.011	0.007	0.011	0.007
4000	0.014	0.012	0.021	0.018
5000	0.024	0.021	0.024	0.021
6000	0.027	0.024	0.027	0.025
7000	0.030	0.027	0.030	0.028
8000	0.033	0.032	0.035	0.033
9000	0.039	0.039	0.039	0.039
10000	0.044	0.044	0.044	0.045
11000	0.048	0.049	0.050	0.051
12000	0.055	0.058	0.059	0.060
13000	0.064	0.068	0.067	0.069
14000	0.077	0.082	0.084	0.087
15000	0.105	0.110	0.108	0.112

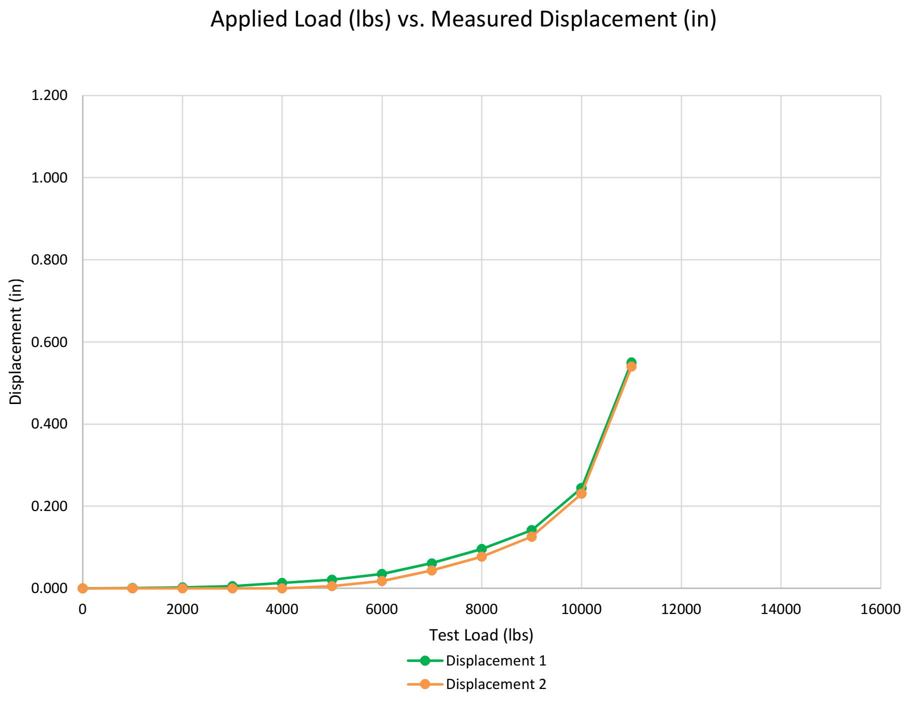


Project:	New Frontiers	Pile ID:	PLT-PV-08-6T			
Test Date:	11/5/2024	Pile GPS Location:	37.75837 , -86.46572			
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024			
Test Weather:	Cloudy	Pile Drive Time:	53.8 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	11.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*	
CD* Load:	12,000	Load Height:	5.0 *feet*			
Notes:	Continuous displacement at 12,000 lbs.	Load Test Type:	Tensile			

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.000	0.001	0.000
2000	0.002	0.000	0.002	0.000
3000	0.005	0.000	0.006	0.000
4000	0.010	0.000	0.013	0.000
5000	0.019	0.004	0.021	0.006
6000	0.032	0.016	0.035	0.018
7000	0.049	0.033	0.061	0.044
8000	0.082	0.066	0.096	0.077
9000	0.125	0.110	0.142	0.126
10000	0.196	0.189	0.245	0.231
11000	0.475	0.485	0.550	0.540
12000				
13000				
14000				
15000				

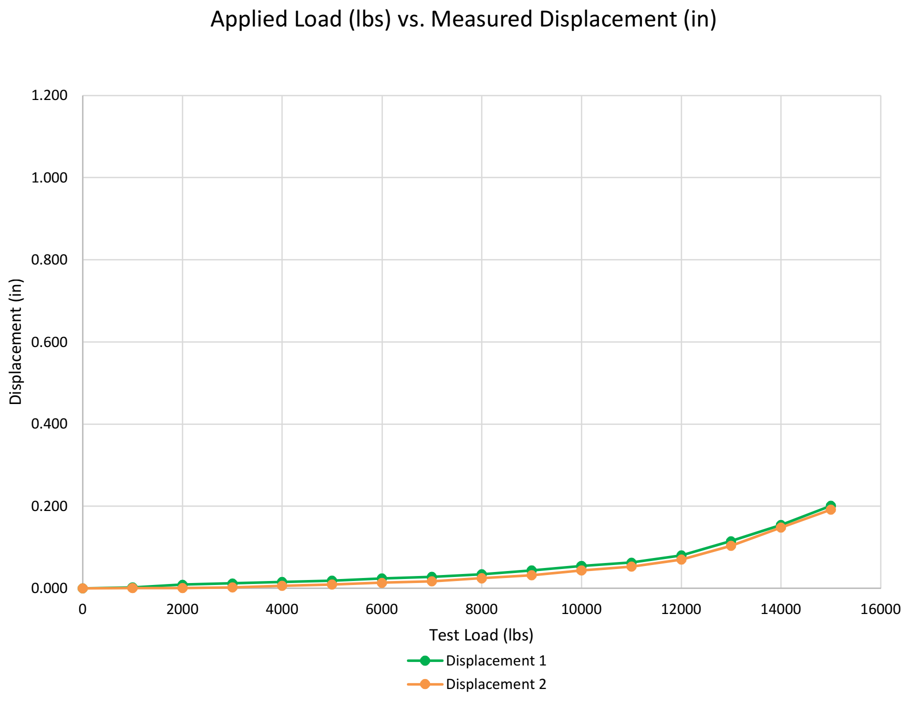


Project:	New Frontiers	Pile ID:	PLT-PV-08-10T
Test Date:	11/5/2024	Pile GPS Location:	37.75837 , -86.46572
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024
Test Weather:	Cloudy	Pile Drive Time:	173.3 *seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	51191	Pile Length:	15.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet* *Pre-Drill Depth* *N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.003	0.001	0.003	0.001
2000	0.009	0.001	0.009	0.001
3000	0.012	0.003	0.012	0.003
4000	0.015	0.006	0.016	0.007
5000	0.019	0.010	0.019	0.010
6000	0.023	0.014	0.024	0.014
7000	0.027	0.016	0.028	0.018
8000	0.031	0.025	0.034	0.025
9000	0.041	0.031	0.044	0.032
10000	0.052	0.043	0.055	0.044
11000	0.058	0.050	0.063	0.053
12000	0.070	0.065	0.080	0.070
13000	0.094	0.093	0.115	0.104
14000	0.134	0.129	0.154	0.148
15000	0.170	0.170	0.201	0.192



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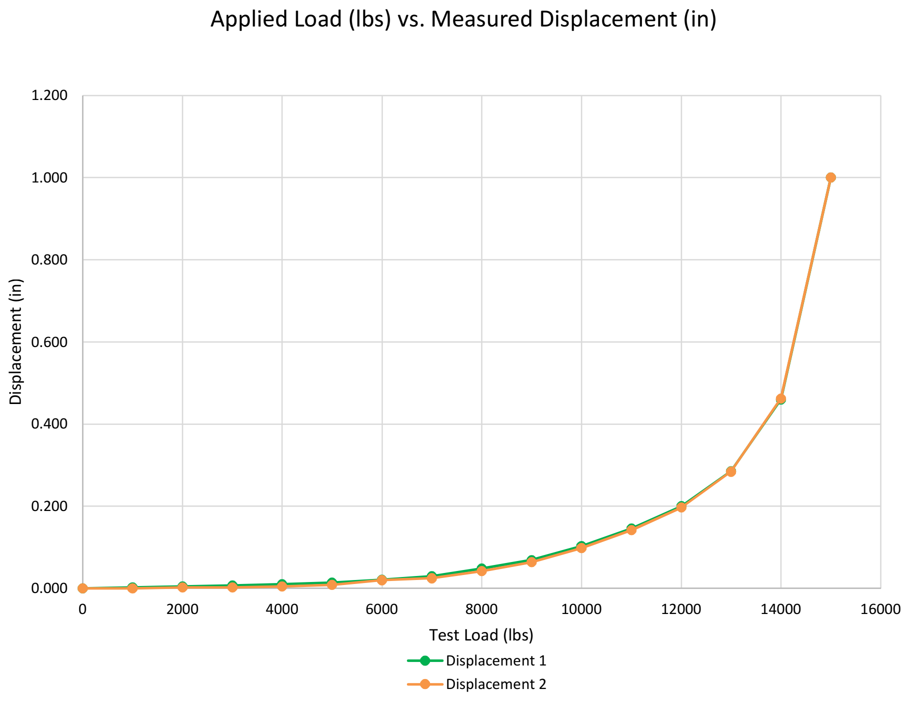
Project:	New Frontiers	Pile ID:	PLT-PV-09-6T		
Test Date:	11/5/2024	Pile GPS Location:	37.7571 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024		
Test Weather:	Partly Cloudy	Pile Drive Time:	66.6 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	15,000	Load Height:	5.0 *feet*		
Notes:	1 inch displacement at 15,000 lbs,	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.003	0.000	0.003	0.000
2000	0.004	0.001	0.005	0.002
3000	0.007	0.003	0.007	0.003
4000	0.009	0.005	0.010	0.005
5000	0.013	0.009	0.014	0.009
6000	0.018	0.010	0.021	0.020
7000	0.024	0.020	0.030	0.025
8000	0.040	0.038	0.048	0.043
9000	0.059	0.057	0.069	0.064
10000	0.083	0.087	0.103	0.099
11000	0.130	0.134	0.146	0.142
12000	0.178	0.178	0.200	0.197
13000	0.258	0.267	0.285	0.284
14000	0.358	0.358	0.460	0.462
15000	0.825	0.836	1.000	1.000



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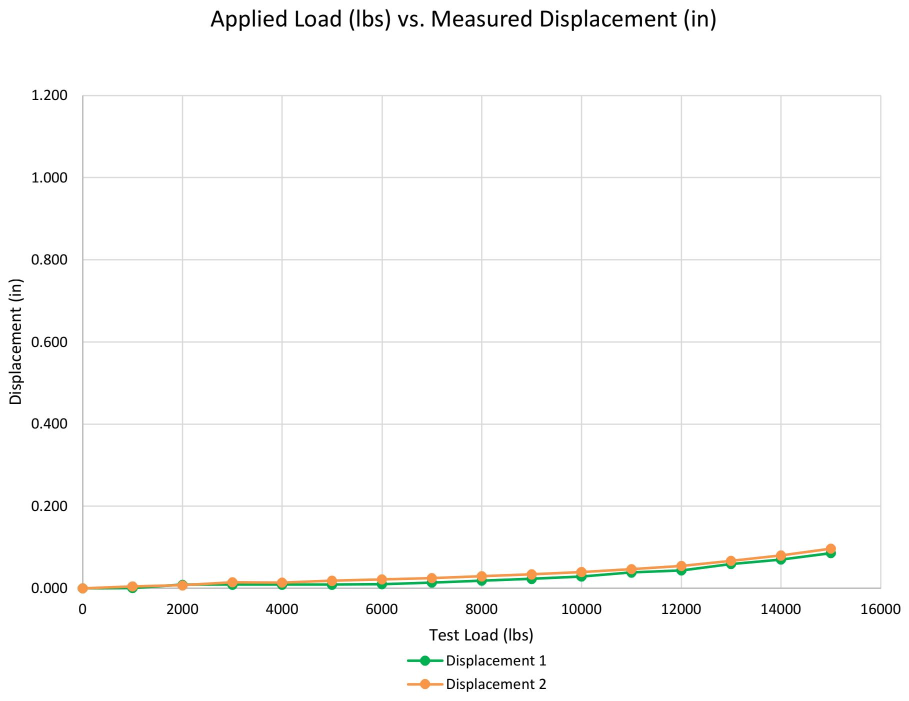
Project:	New Frontiers	Pile ID:	PLT-PV-09-10T		
Test Date:	11/9/2024	Pile GPS Location:	37.75639 , -86.47816		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	144.9 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.005	0.001	0.005
2000	0.009	0.008	0.009	0.008
3000	0.009	0.012	0.009	0.015
4000	0.009	0.015	0.009	0.015
5000	0.009	0.019	0.009	0.019
6000	0.010	0.022	0.010	0.022
7000	0.013	0.025	0.014	0.025
8000	0.017	0.028	0.019	0.030
9000	0.022	0.034	0.023	0.034
10000	0.028	0.038	0.029	0.040
11000	0.033	0.045	0.039	0.047
12000	0.039	0.051	0.044	0.055
13000	0.048	0.063	0.059	0.067
14000	0.060	0.074	0.070	0.080
15000	0.078	0.090	0.086	0.097

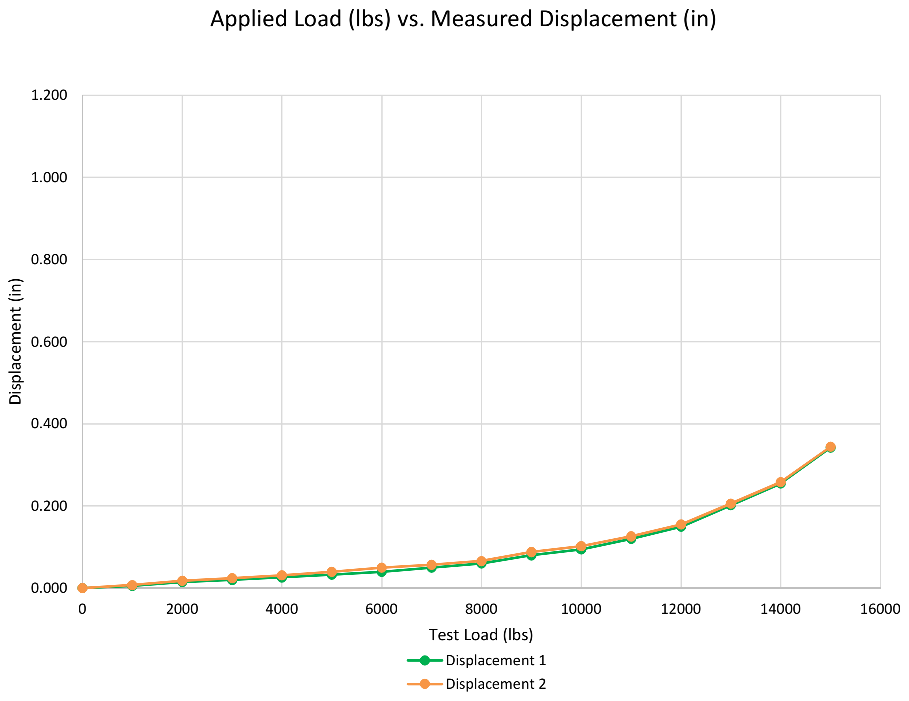


Project:	New Frontiers	Pile ID:	PLT-PV-14-6T		
Test Date:	11/8/2024	Pile GPS Location:	37.75587 , -86.47285		
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024		
Test Weather:	Clear	Pile Drive Time:	69.3 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.007	0.006	0.008
2000	0.012	0.015	0.015	0.018
3000	0.017	0.022	0.020	0.024
4000	0.024	0.031	0.026	0.032
5000	0.031	0.038	0.033	0.040
6000	0.037	0.045	0.040	0.050
7000	0.044	0.053	0.050	0.057
8000	0.055	0.063	0.060	0.066
9000	0.073	0.084	0.080	0.088
10000	0.087	0.096	0.094	0.102
11000	0.109	0.119	0.120	0.126
12000	0.140	0.149	0.150	0.155
13000	0.170	0.190	0.202	0.206
14000	0.231	0.240	0.255	0.258
15000	0.312	0.319	0.342	0.345



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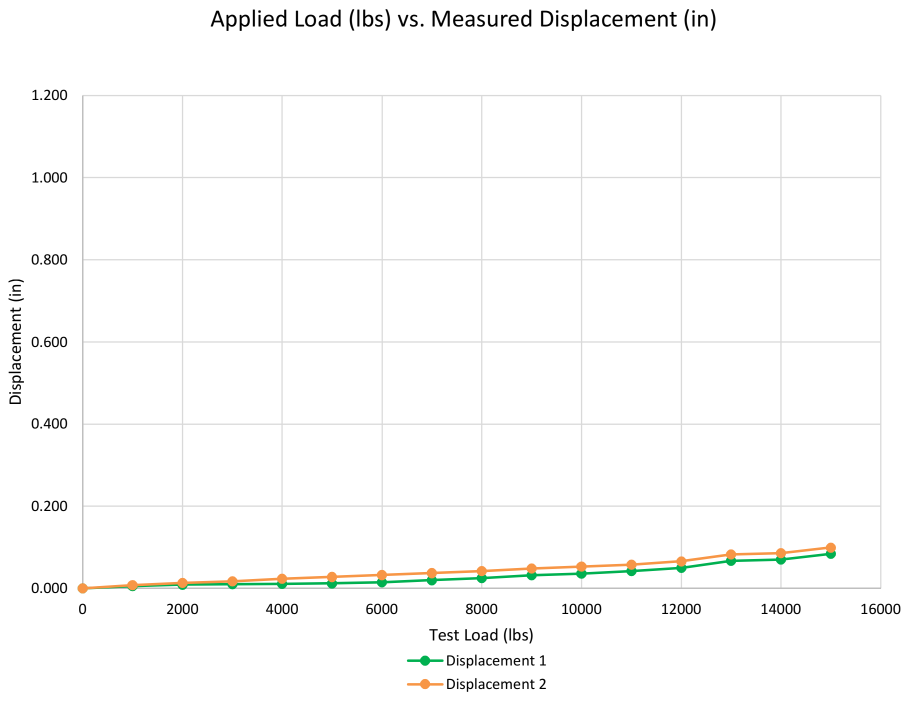
Project:	New Frontiers	Pile ID:	PLT-PV-14-10T		
Test Date:	11/8/2024	Pile GPS Location:	37.75587 , -86.47285		
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024		
Test Weather:	Clear	Pile Drive Time:	203.8 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.004	0.006	0.006	0.008
2000	0.008	0.013	0.009	0.013
3000	0.010	0.018	0.010	0.018
4000	0.011	0.024	0.011	0.024
5000	0.012	0.028	0.012	0.028
6000	0.014	0.032	0.015	0.033
7000	0.020	0.037	0.020	0.037
8000	0.025	0.042	0.025	0.043
9000	0.030	0.047	0.032	0.049
10000	0.036	0.053	0.036	0.053
11000	0.040	0.057	0.042	0.058
12000	0.047	0.065	0.050	0.066
13000	0.059	0.079	0.067	0.083
14000	0.070	0.086	0.070	0.086
15000	0.082	0.098	0.084	0.100



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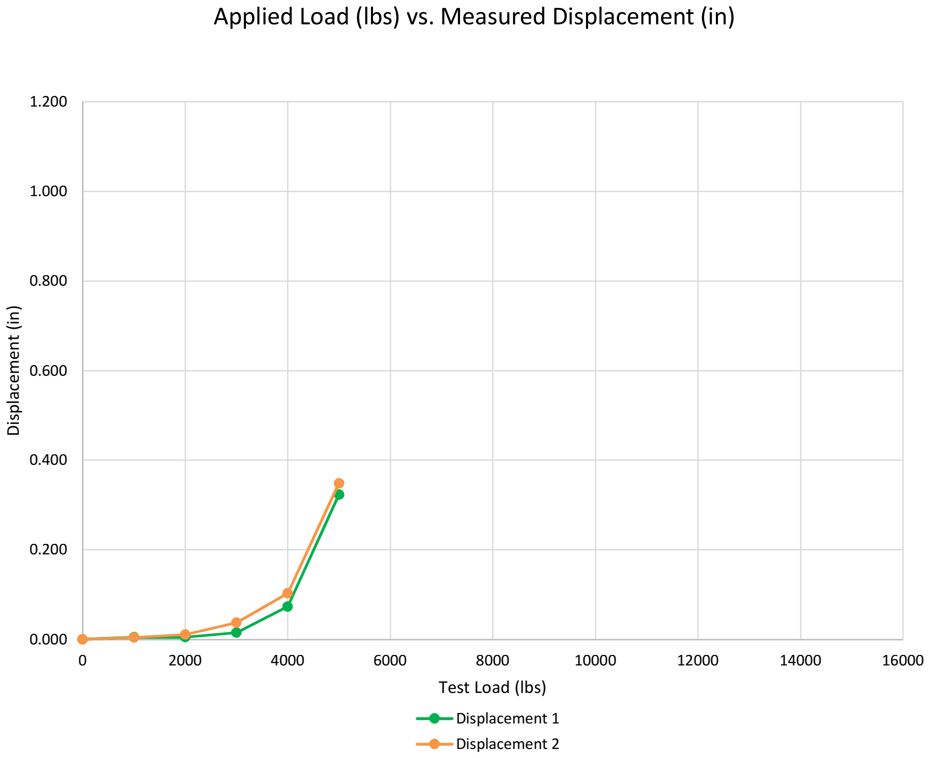
Project:	New Frontiers	Pile ID:	PLT-PDA-D19-5T(R4.5)		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Partly Cloudy	Pile Drive Time:	158.7 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.5 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	4.5 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	5,800	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 5,800 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.005	0.005	0.005
2000	0.005	0.009	0.005	0.011
3000	0.005	0.027	0.016	0.038
4000	0.040	0.065	0.074	0.103
5000	0.165	0.198	0.323	0.349
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



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Project:	New Frontiers	Pile ID:	PLT-PDA-D19-7T(R5.3)		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Partly Cloudy	Pile Drive Time:	260.0 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	7.7 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.3 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	N/A	Load Height:	4.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

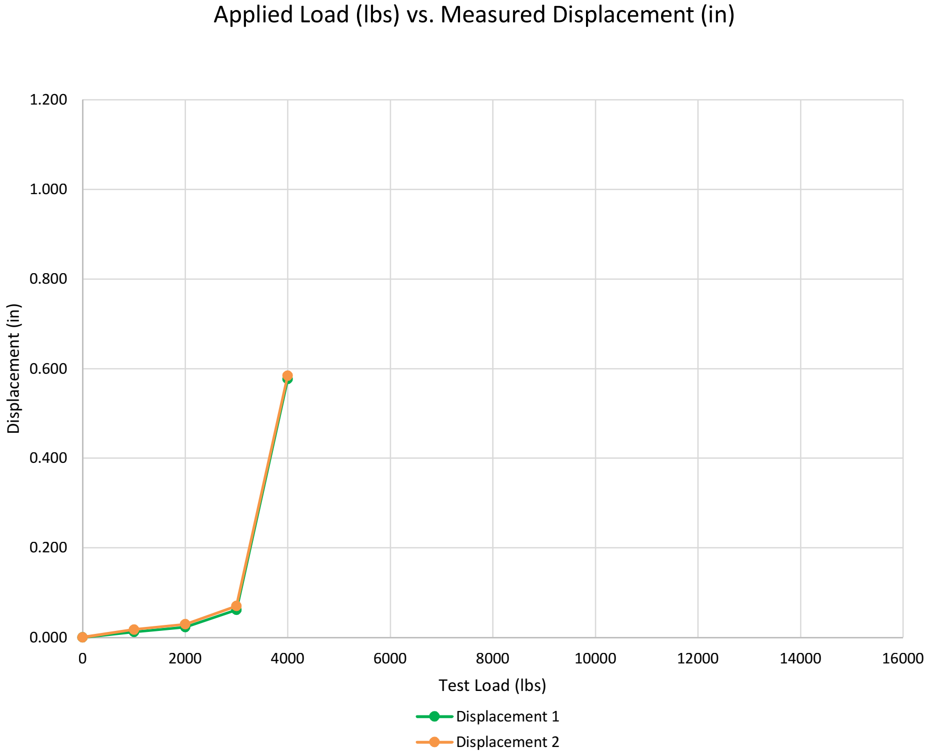
Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.006	0.013	0.009	0.015
2000	0.016	0.018	0.017	0.019
3000	0.023	0.022	0.026	0.025
4000	0.037	0.031	0.042	0.035
5000	0.050	0.040	0.056	0.046
6000	0.066	0.054	0.072	0.059
7000	0.073	0.067	0.080	0.069
8000	0.081	0.073	0.125	0.094
9000	0.155	0.103	0.165	0.117
10000	0.188	0.142	0.195	0.147
11000	0.212	0.165	0.226	0.178
12000	0.248	0.201	0.260	0.212
13000	0.283	0.235	0.303	0.256
14000	0.343	0.292	0.389	0.337
15000	0.404	0.362	0.439	0.390

Project:	New Frontiers	Pile ID:	PLT-PDA-D20-5T		
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	10.8 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	4,200	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 4,200 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.009	0.015	0.013	0.018
2000	0.018	0.025	0.024	0.030
3000	0.052	0.059	0.062	0.070
4000	0.244	0.254	0.577	0.585
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



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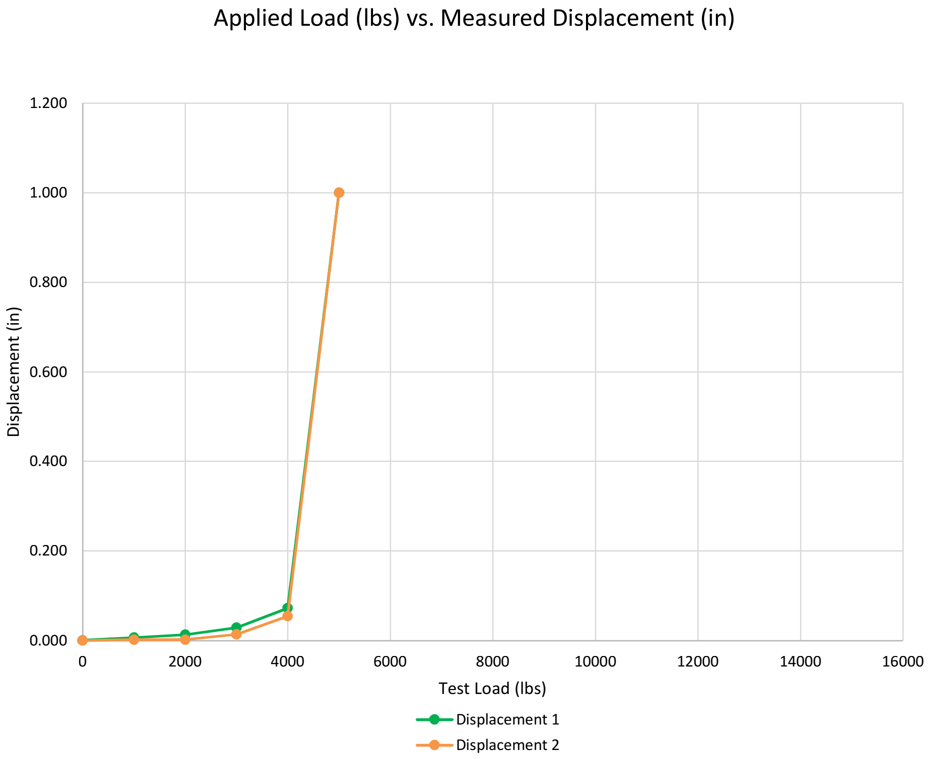
Project:	New Frontiers	Pile ID:	PLT-PDA-D20-7T		
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	18.8 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	5,000	Load Height:	4.0 *feet*		
Notes:	1 inch displacement at 5,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.006	0.002	0.007	0.002
2000	0.011	0.002	0.013	0.002
3000	0.021	0.006	0.029	0.014
4000	0.045	0.028	0.073	0.055
5000	0.146	0.132	1.000	1.000
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



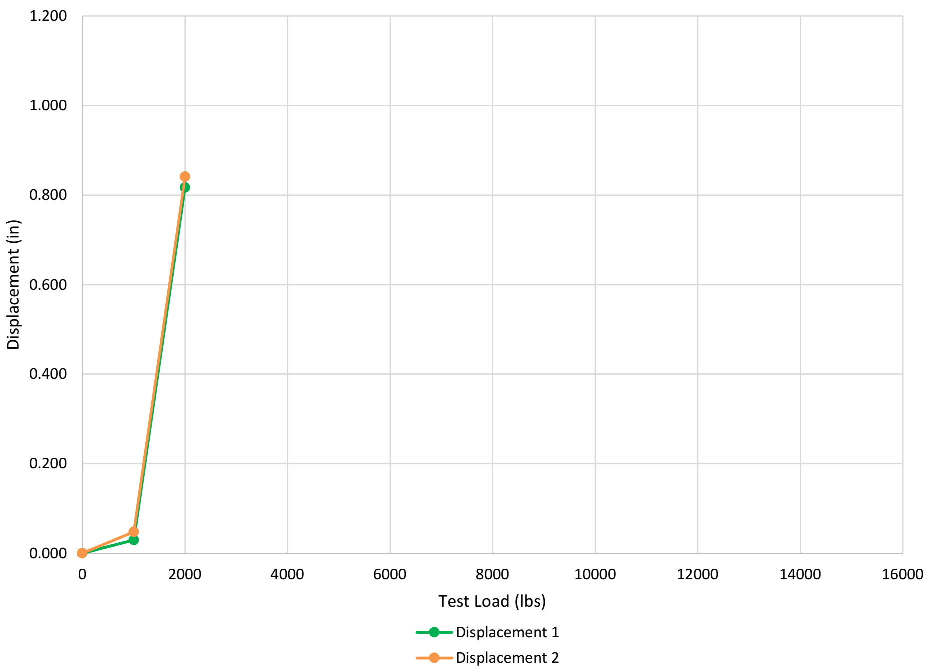
Project:	New Frontiers	Pile ID:	PLT-PDA-D22-5T		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Partly Cloudy	Pile Drive Time:	7.6 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,200	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 2,200 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.013	0.028	0.030	0.048
2000	0.609	0.635	0.818	0.842
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

Applied Load (lbs) vs. Measured Displacement (in)

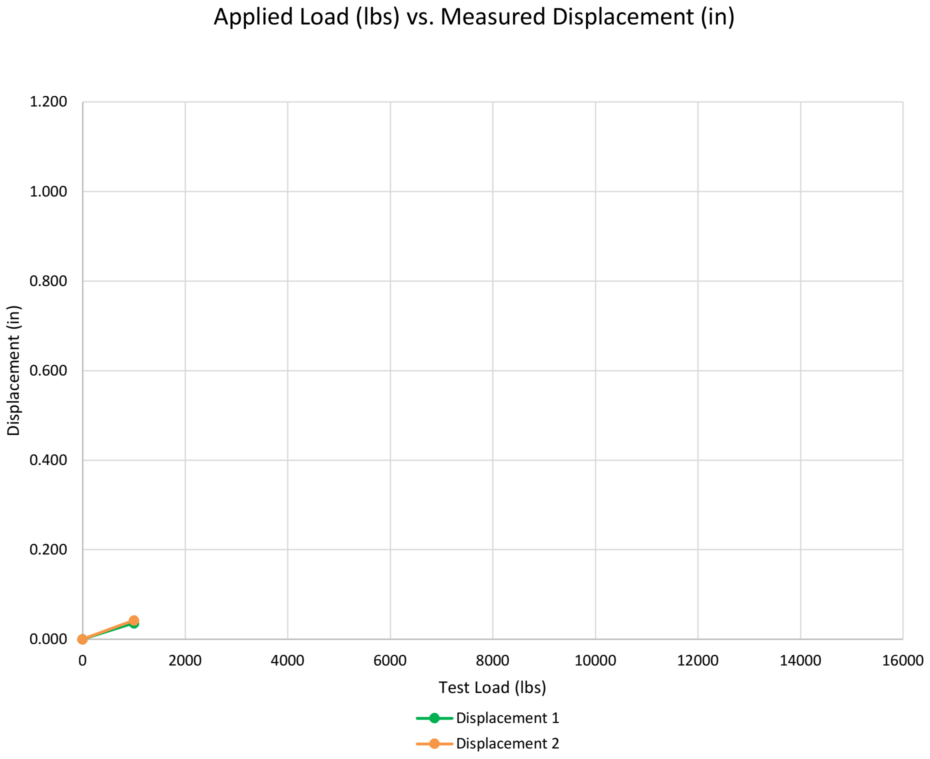


Project:	New Frontiers	Pile ID:	PLT-PDA-D22-7T		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	6.0 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	1,100	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 1,100 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.030	0.039	0.036	0.042
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



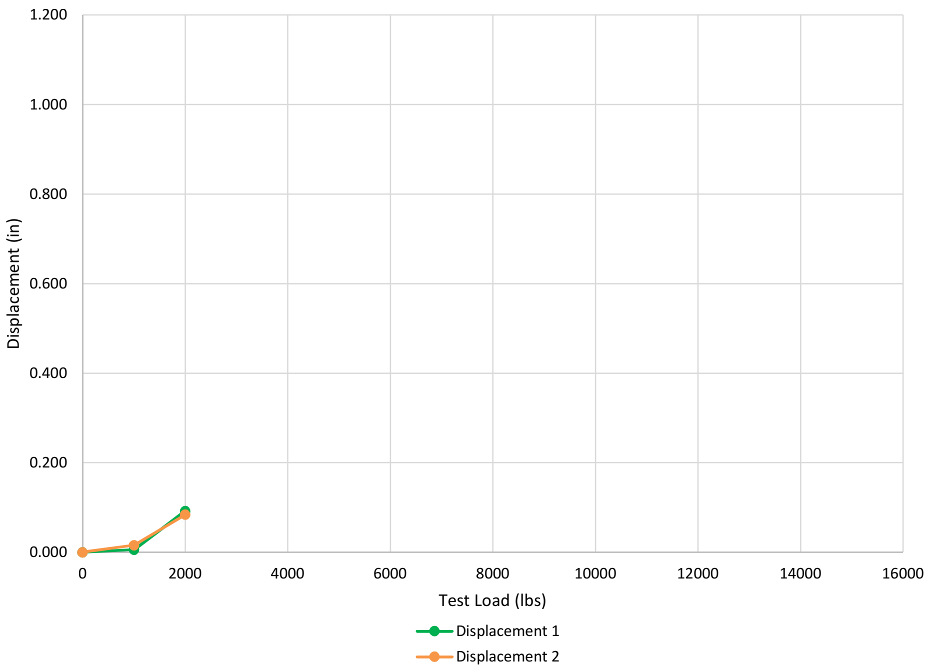
Project:	New Frontiers	Pile ID:	PLT-PDA-PV09-5T		
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	8.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,500	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 2,500 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.006	0.012	0.006	0.016
2000	0.073	0.049	0.092	0.084
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

Applied Load (lbs) vs. Measured Displacement (in)



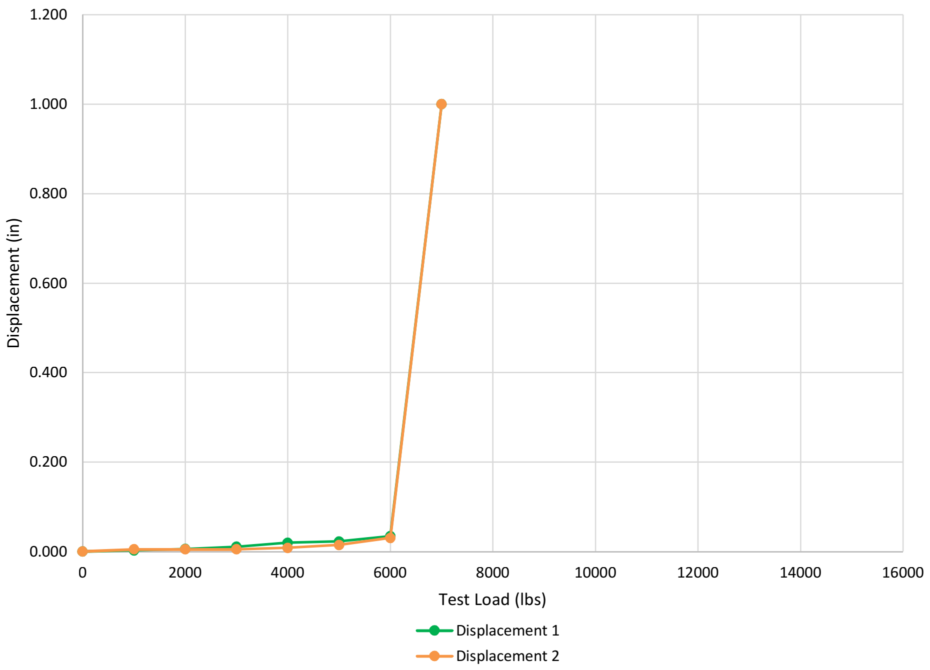
Project:	New Frontiers	Pile ID:	PLT-PDA-PV09-7T		
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	35.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	7,000	Load Height:	4.0 *feet*		
Notes:	1 inch displacement at 7,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.003	0.005	0.003	0.005
2000	0.006	0.005	0.006	0.005
3000	0.009	0.005	0.011	0.005
4000	0.017	0.005	0.020	0.009
5000	0.023	0.015	0.023	0.015
6000	0.027	0.021	0.035	0.031
7000	0.076	0.086	1.000	1.000
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

Applied Load (lbs) vs. Measured Displacement (in)

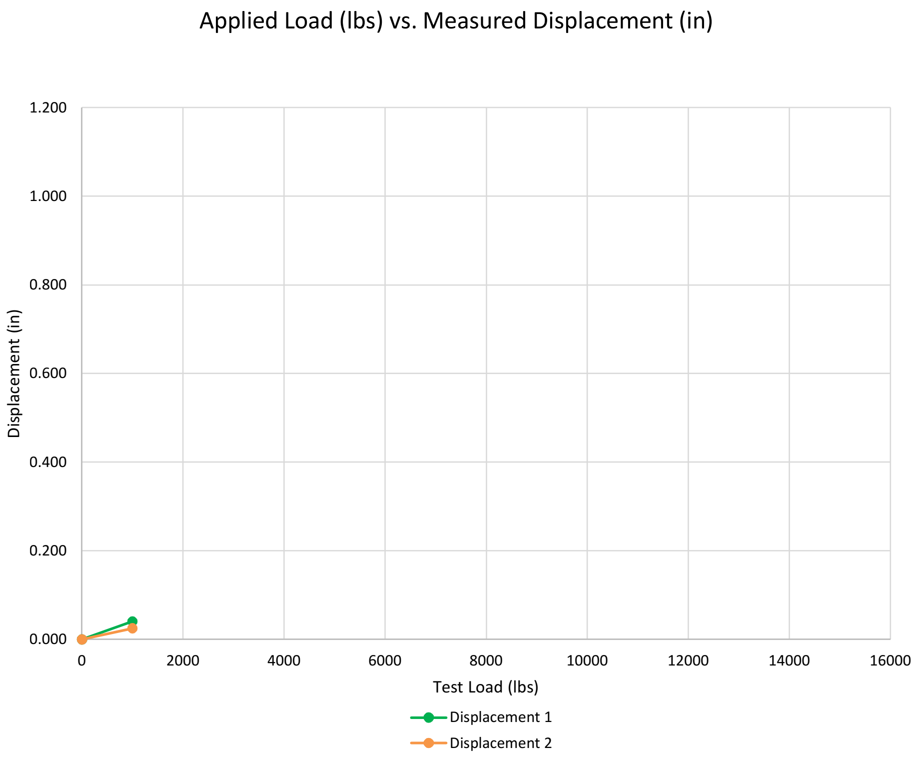


Project:	New Frontiers	Pile ID:	PLT-PDA-PV10-5T		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	16.1 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	1,600	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 1,600 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.037	0.022	0.041	0.025
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

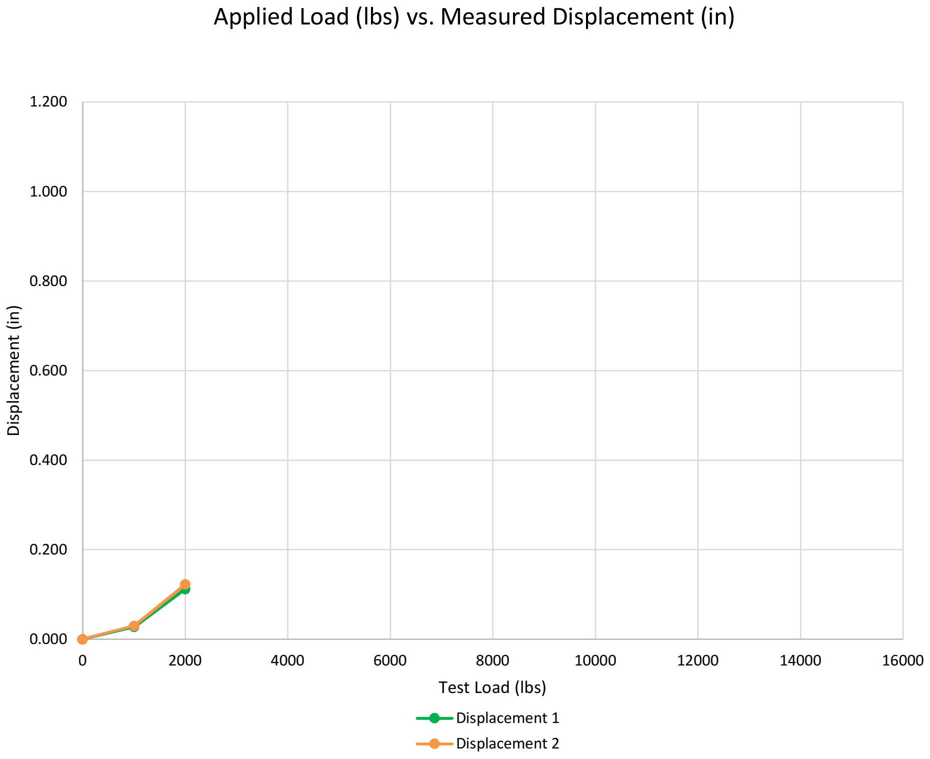


Project:	New Frontiers	Pile ID:	PLT-PDA-PV10-7T		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	19.9 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	4.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	2,300	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 2,300 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.025	0.029	0.028	0.030
2000	0.079	0.091	0.113	0.123
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

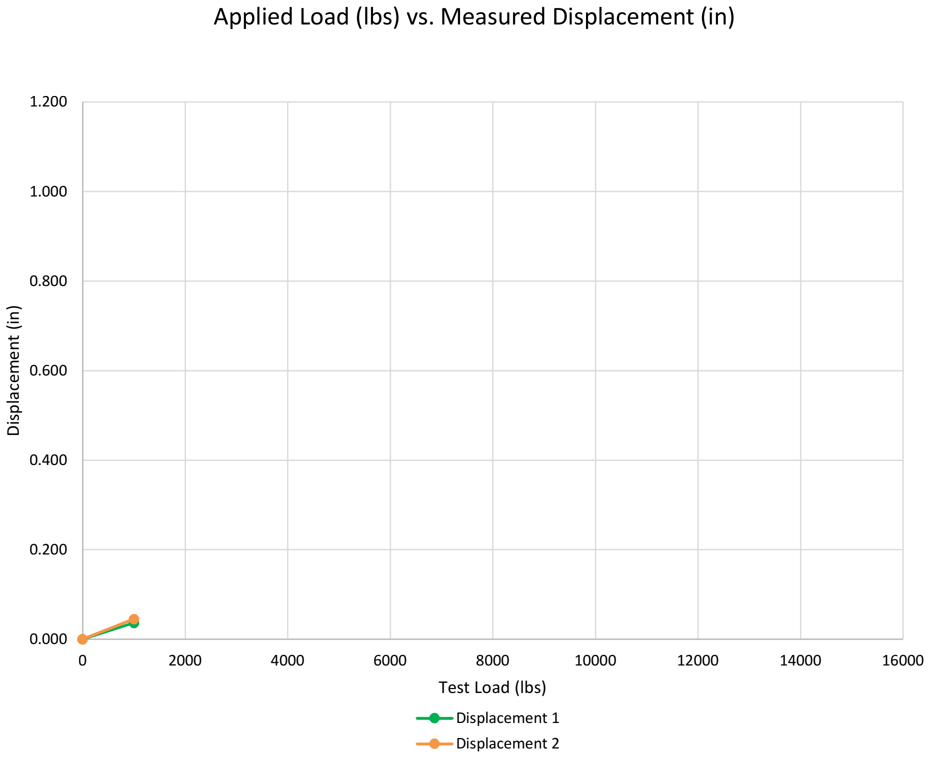


Project:	New Frontiers	Pile ID:	PLT-PDA-PV110-5T		
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025		
Test Weather:	Cloudy	Pile Drive Time:	5.8 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	1,400	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 1,400 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.027	0.037	0.037	0.045
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

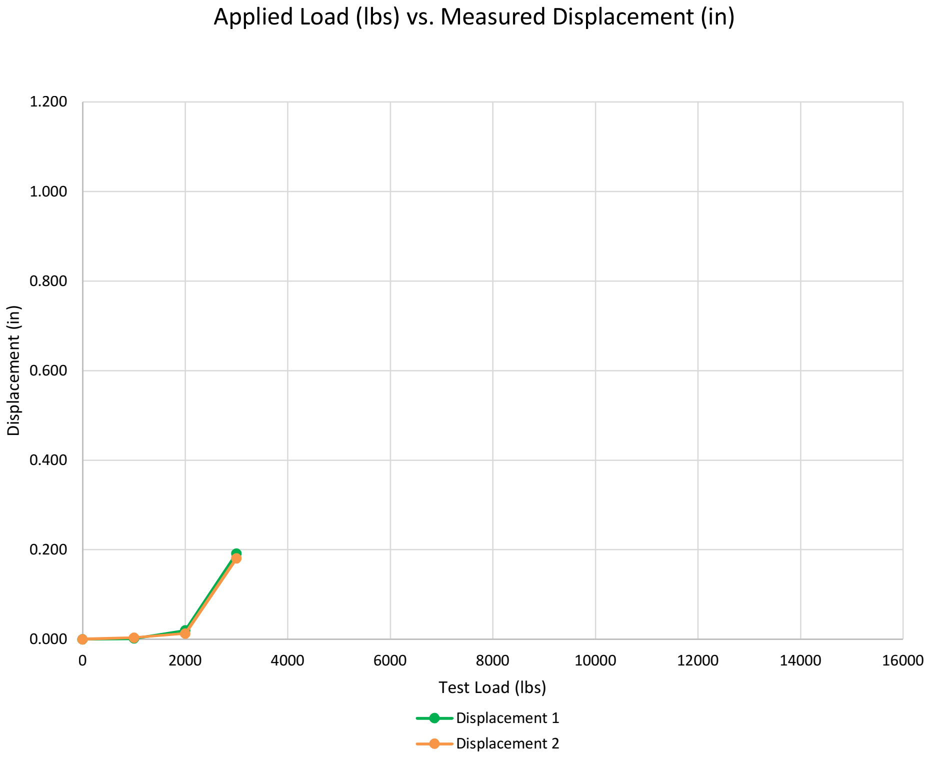


Project:	New Frontiers	Pile ID:	PLT-PDA-PV110-7T		
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025		
Test Weather:	Cloudy	Pile Drive Time:	16.6 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	3,700	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 3,700 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.000	0.003	0.002	0.004
2000	0.015	0.009	0.020	0.013
3000	0.102	0.093	0.192	0.181
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

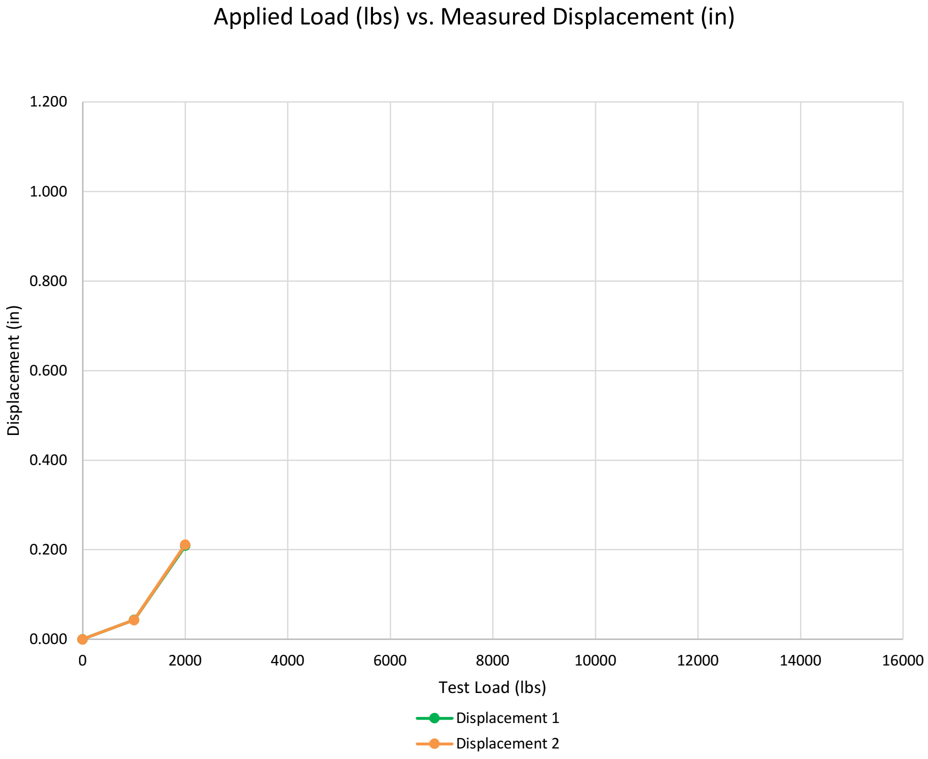


Project:	New Frontiers	Pile ID:	PLT-PDA-PV13-5T		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	11.4 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,500	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 2,500 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.030	0.031	0.044	0.043
2000	0.162	0.168	0.209	0.212
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

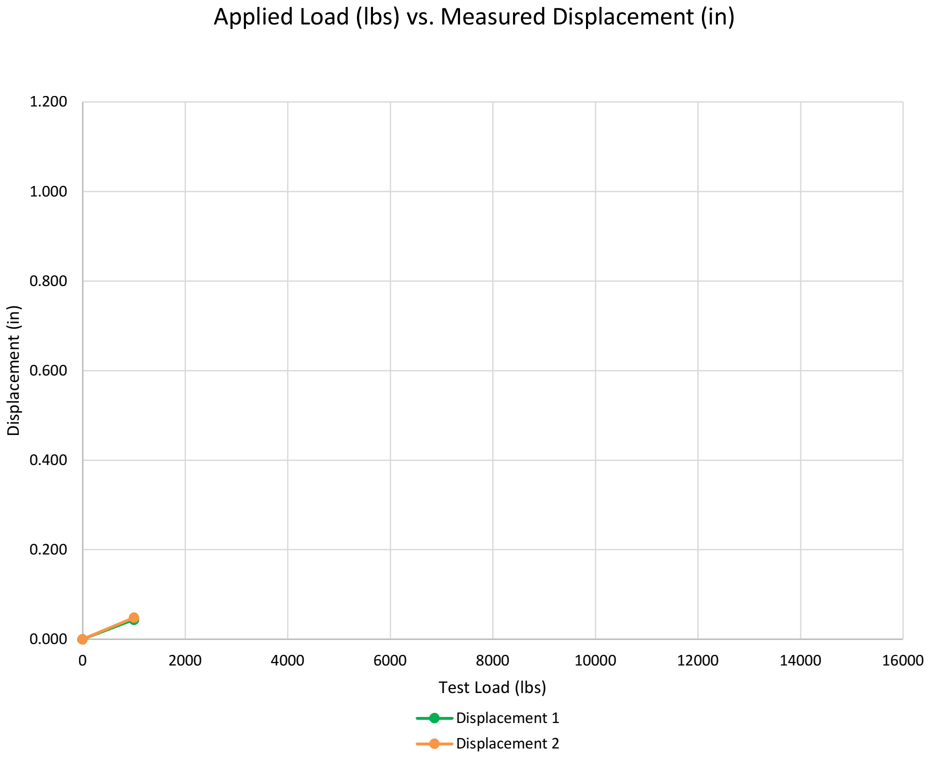


Project:	New Frontiers	Pile ID:	PLT-PDA-PV13-7T		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	9.4 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	1,700	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 1,700 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.025	0.032	0.044	0.048
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



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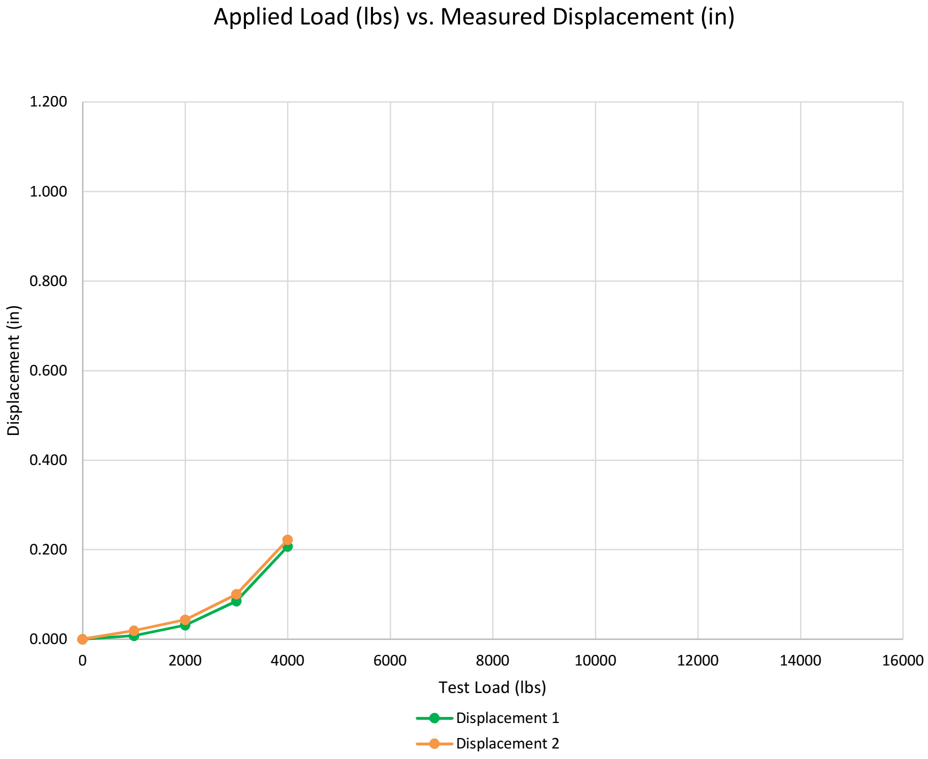
Project:	New Frontiers	Pile ID:	PLT-PDB-D19-5T		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	40.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	4,800	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 4,800 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.006	0.017	0.008	0.019
2000	0.027	0.041	0.032	0.044
3000	0.078	0.092	0.085	0.101
4000	0.174	0.191	0.208	0.223
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



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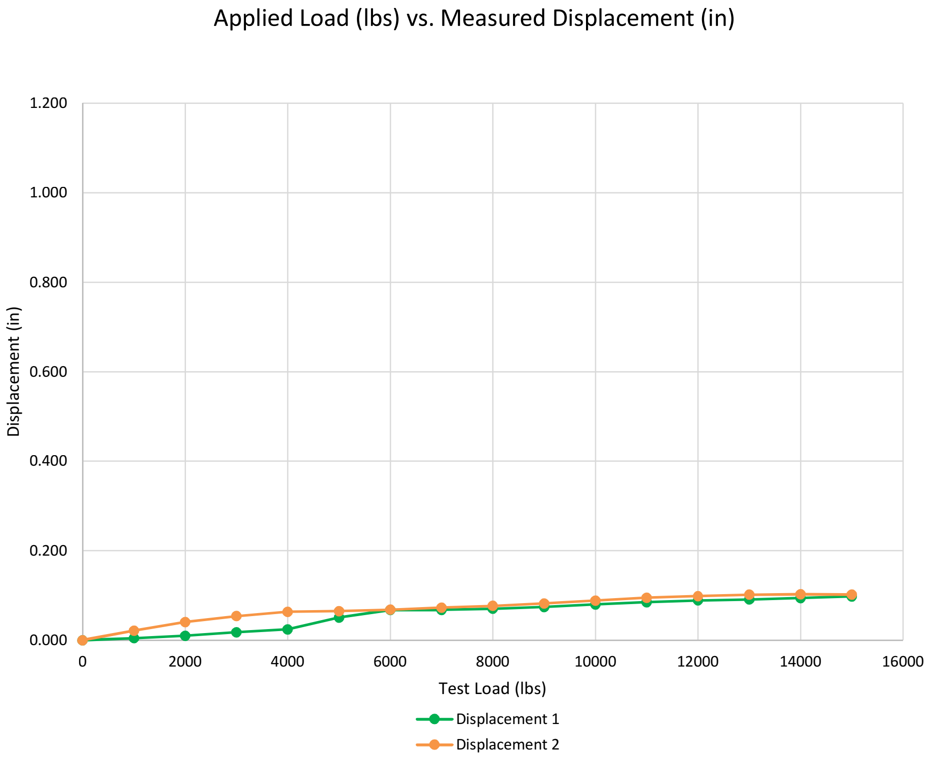
Project:	New Frontiers	Pile ID:	PLT-PDB-D19-7T		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	369.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	N/A	Load Height:	4.0 *feet*		
Notes:	Load test completed to 15,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.003	0.021	0.005	0.022
2000	0.009	0.038	0.010	0.041
3000	0.016	0.052	0.018	0.054
4000	0.023	0.063	0.025	0.064
5000	0.037	0.064	0.051	0.065
6000	0.068	0.069	0.068	0.069
7000	0.068	0.072	0.068	0.073
8000	0.070	0.076	0.071	0.077
9000	0.073	0.080	0.074	0.082
10000	0.078	0.087	0.080	0.089
11000	0.083	0.094	0.085	0.095
12000	0.088	0.097	0.089	0.099
13000	0.091	0.100	0.091	0.102
14000	0.094	0.103	0.095	0.103
15000	0.097	0.103	0.098	0.103



Project:	New Frontiers	Pile ID:	PLT-PDB-D20-5T		
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	10.2 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,500	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 2,500 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.001	0.002	0.003
2000	0.038	0.056	0.062	0.081
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
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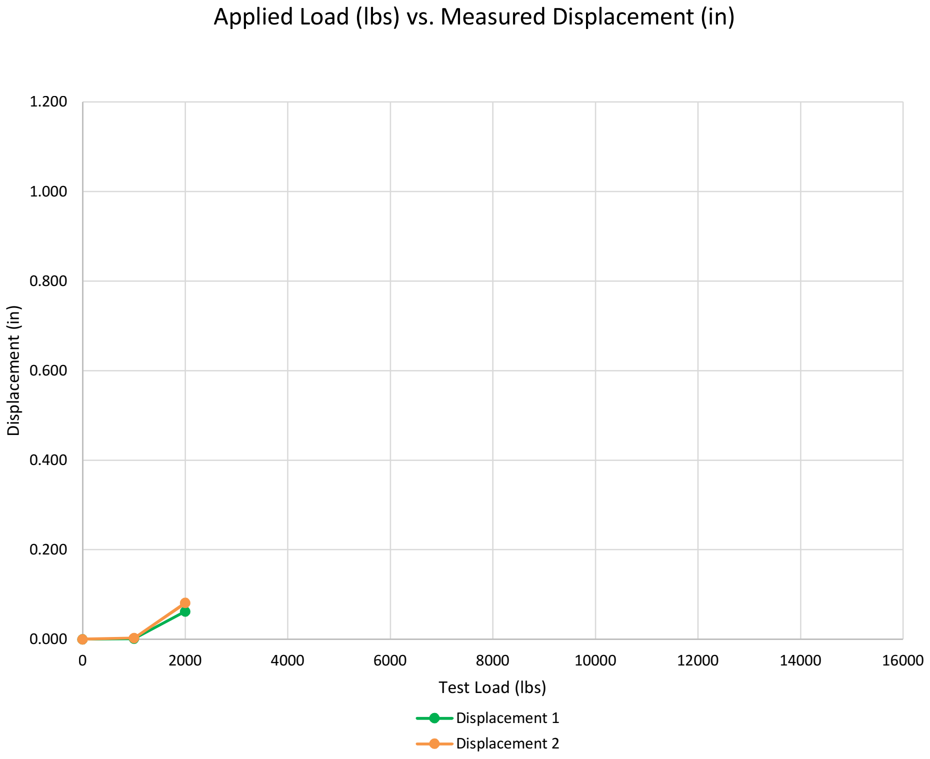
12000				
13000				
14000				
15000				

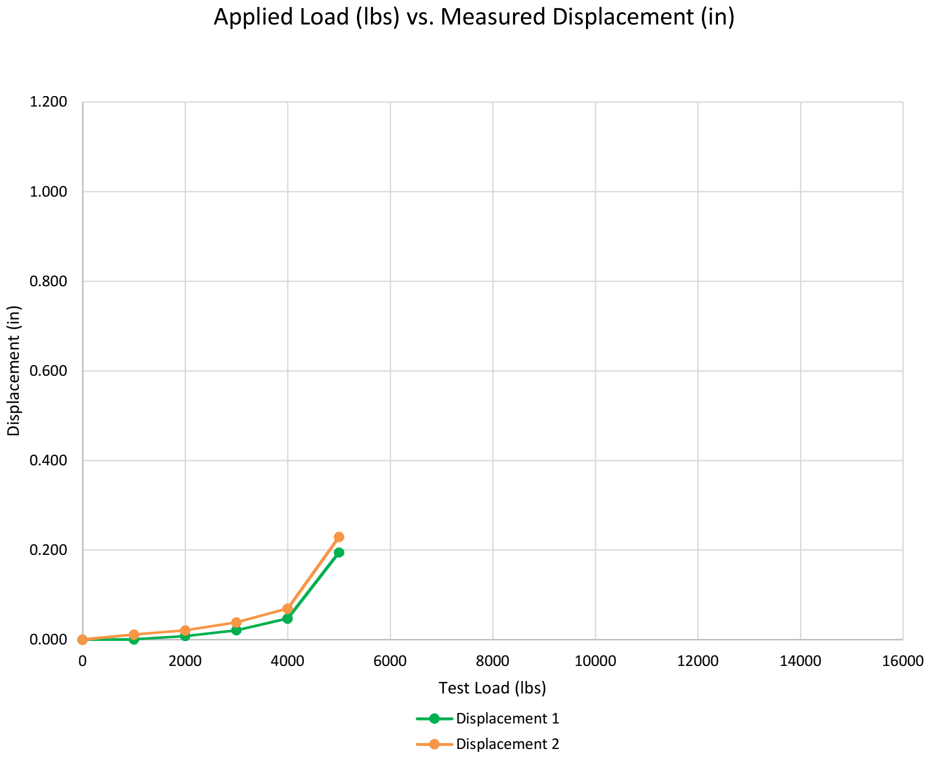


Project:	New Frontiers	Pile ID:	PLT-PDB-D20-7T		
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	25.6 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	5,900	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 5,900 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.000	0.009	0.001	0.011
2000	0.007	0.018	0.009	0.021
3000	0.016	0.034	0.021	0.039
4000	0.034	0.068	0.047	0.070
5000	0.111	0.148	0.195	0.229
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

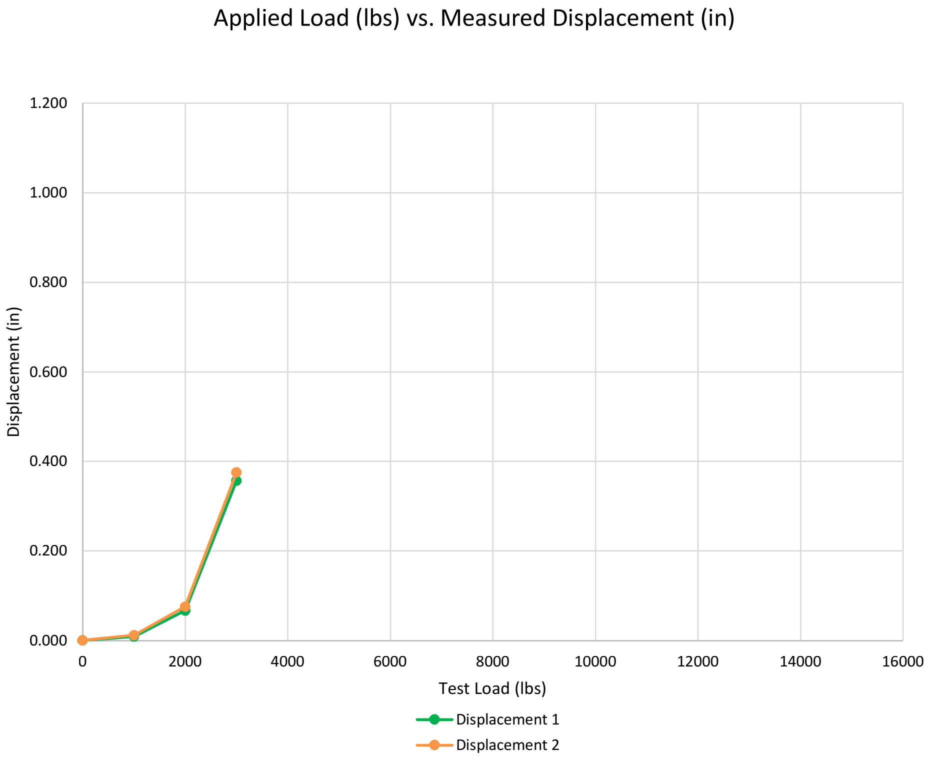


Project:	New Frontiers	Pile ID:	PLT-PDB-D22-5T		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Partly Cloudy	Pile Drive Time:	5.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	3,400	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 3,400 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.007	0.010	0.009	0.012
2000	0.035	0.044	0.067	0.076
3000	0.264	0.287	0.357	0.376
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

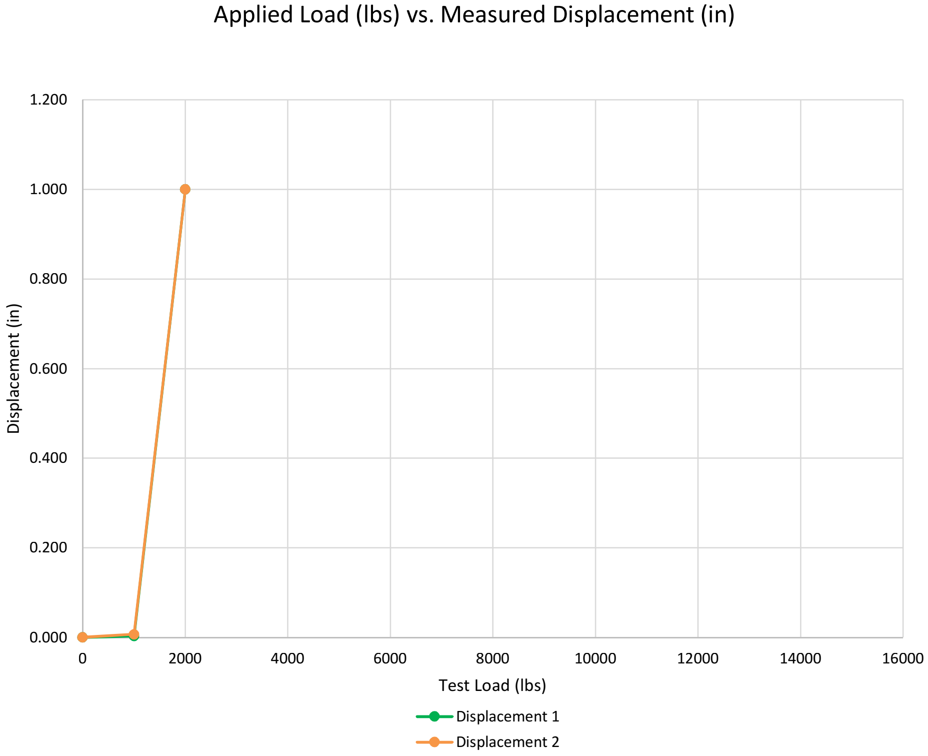


Project:	New Frontiers	Pile ID:	PLT-PDB-D22-7T		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Partly Cloudy	Pile Drive Time:	8.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	2,000	Load Height:	4.0 *feet*		
Notes:	1 inch displacement at 2,000 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.002	0.004	0.003	0.007
2000	0.142	0.153	1.000	1.000
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



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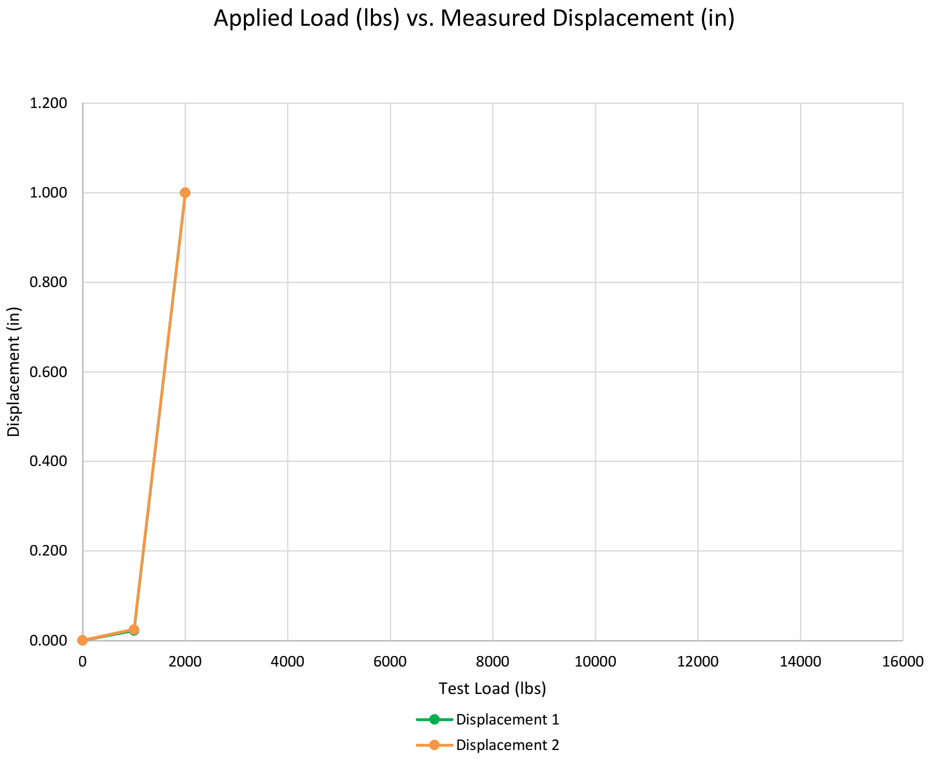
Project:	New Frontiers	Pile ID:	PLT-PDB-PV09-5T			
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922			
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025			
Test Weather:	Clear	Pile Drive Time:	9.3 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	11.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*	
CD* Load:	2,000	Load Height:	4.0 *feet*			
Notes:	1 inch displacement at 2,000 lbs.	Load Test Type:	Tensile			

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.012	0.010	0.023	0.025
2000	0.054	0.057	1.000	1.000
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



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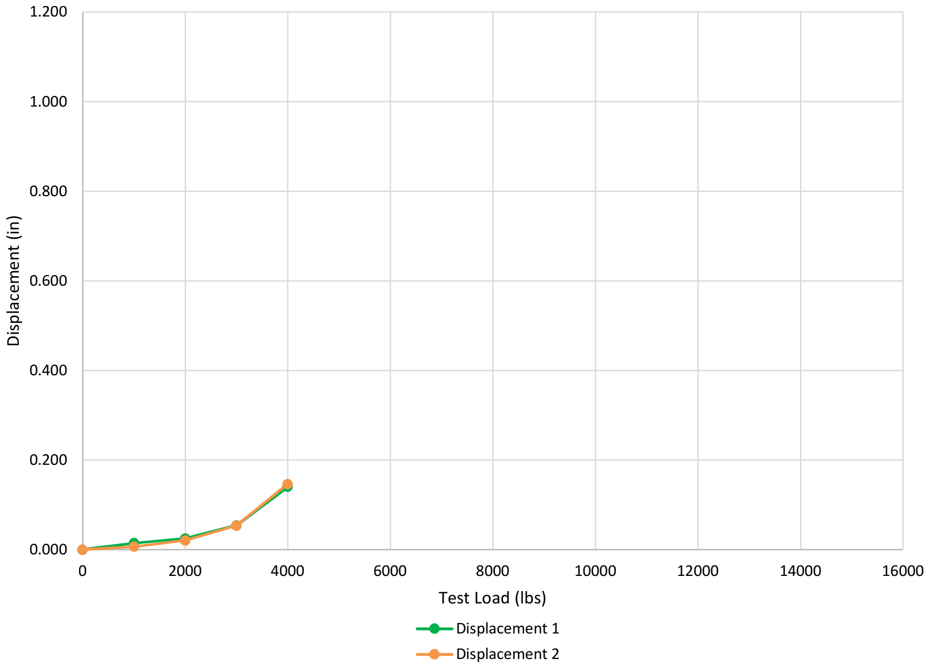
Project:	New Frontiers	Pile ID:	PLT-PDB-PV09-7T		
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	11.6 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	4.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	4,500	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 4,500 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.013	0.007	0.015	0.007
2000	0.022	0.020	0.025	0.021
3000	0.044	0.046	0.054	0.054
4000	0.097	0.103	0.141	0.147
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

Applied Load (lbs) vs. Measured Displacement (in)

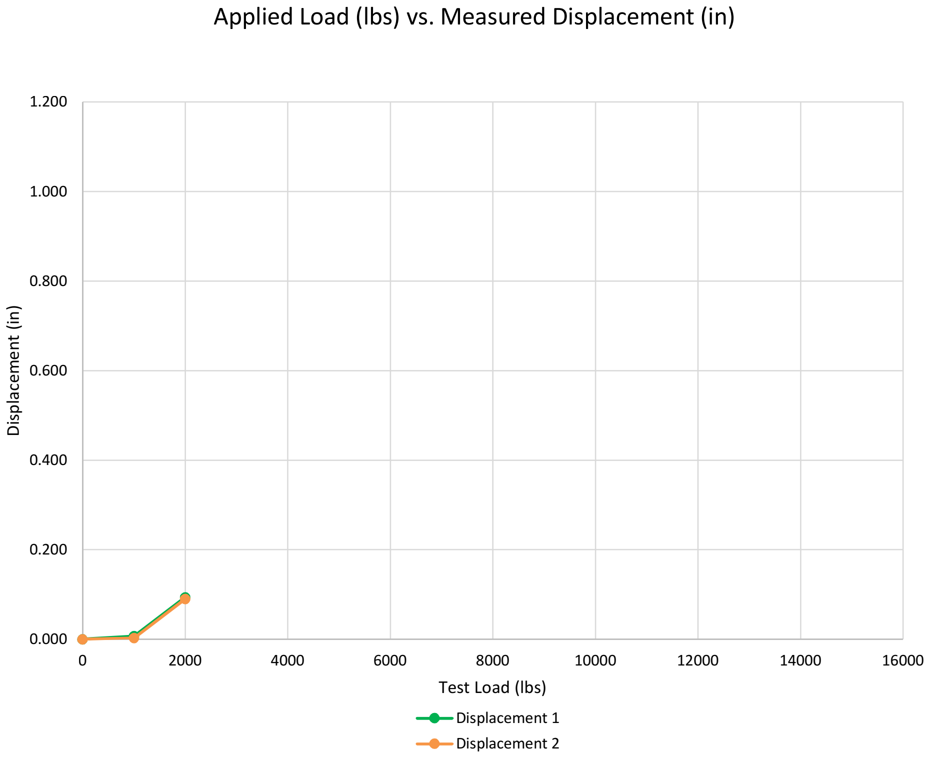


Project:	New Frontiers	Pile ID:	PLT-PDB-PV10-5T			
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697			
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025			
Test Weather:	Clear	Pile Drive Time:	19.8 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	11.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*	
CD* Load:	2,400	Load Height:	4.0 *feet*			
Notes:	Continuous displacement at 2,400 lbs.	Load Test Type:	Tensile			

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.006	0.002	0.008	0.003
2000	0.063	0.059	0.094	0.090
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

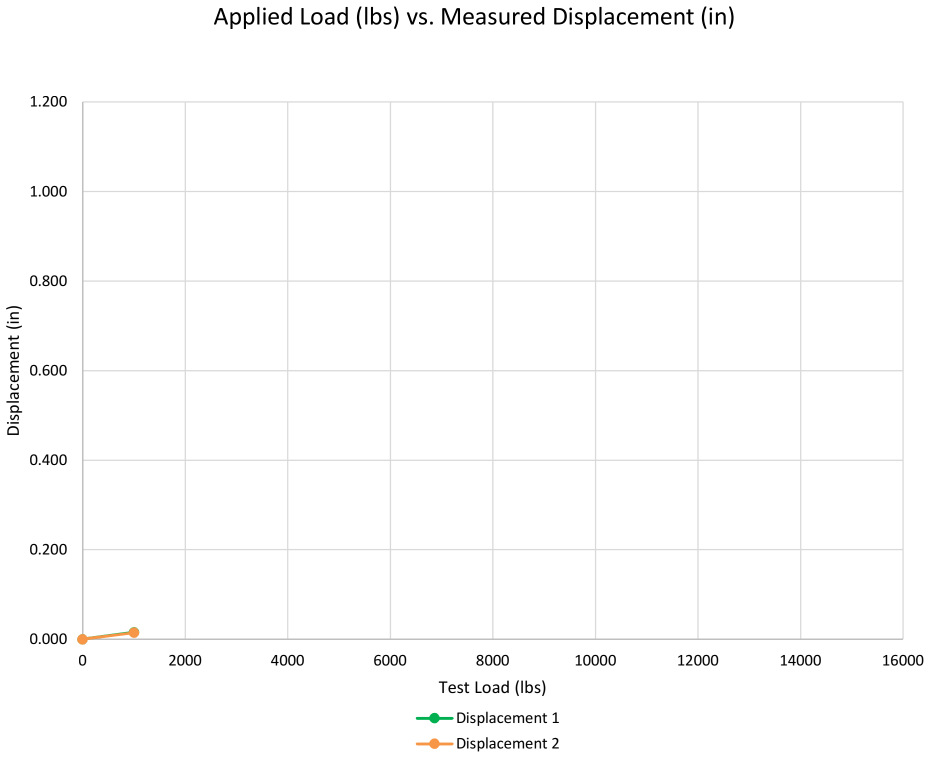


Project:	New Frontiers	Pile ID:	PLT-PDB-PV10-7T		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	14.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	4.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	1,500	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 1,500 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.013	0.011	0.016	0.015
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

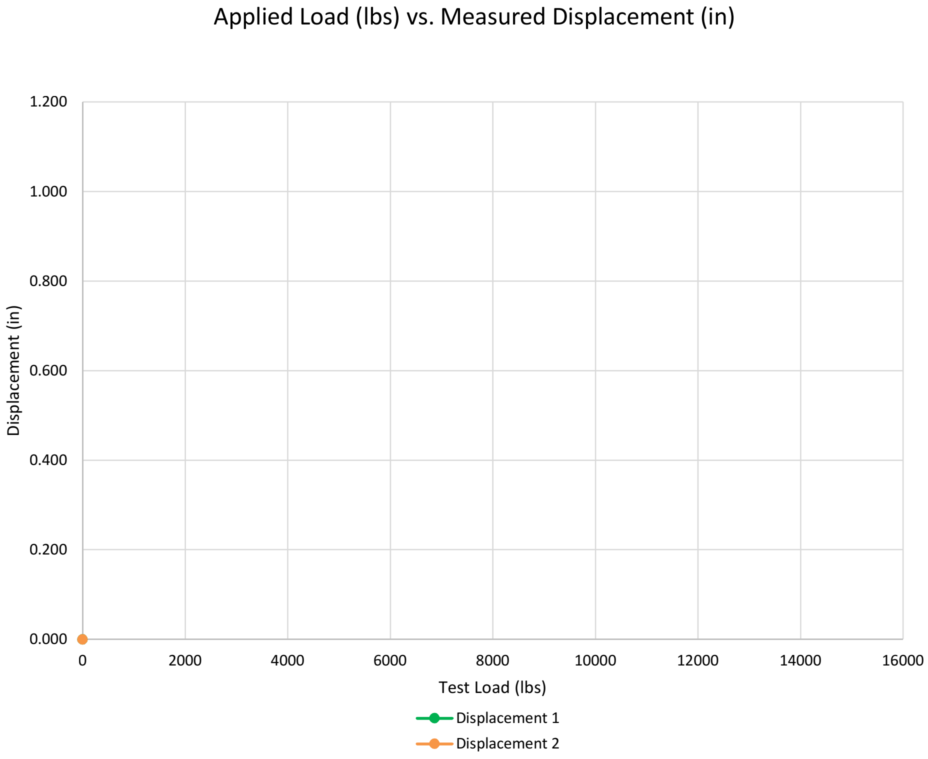


Project:	New Frontiers	Pile ID:	PLT-PDB-PV110-5T
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025
Test Weather:	Cloudy	Pile Drive Time:	6.2 *seconds*
Technician:	Austin Donaldson	Pile Type:	W6x9
Load ID:	44737	Pile Length:	11.0 *feet*
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet* *Pre-Drill Diameter* *6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet* *Pre-Drill Depth* *6 feet*
CD* Load:	700	Load Height:	4.0 *feet*
Notes:	Continuous displacement at 700 lbs.	Load Test Type:	Tensile

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000				
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

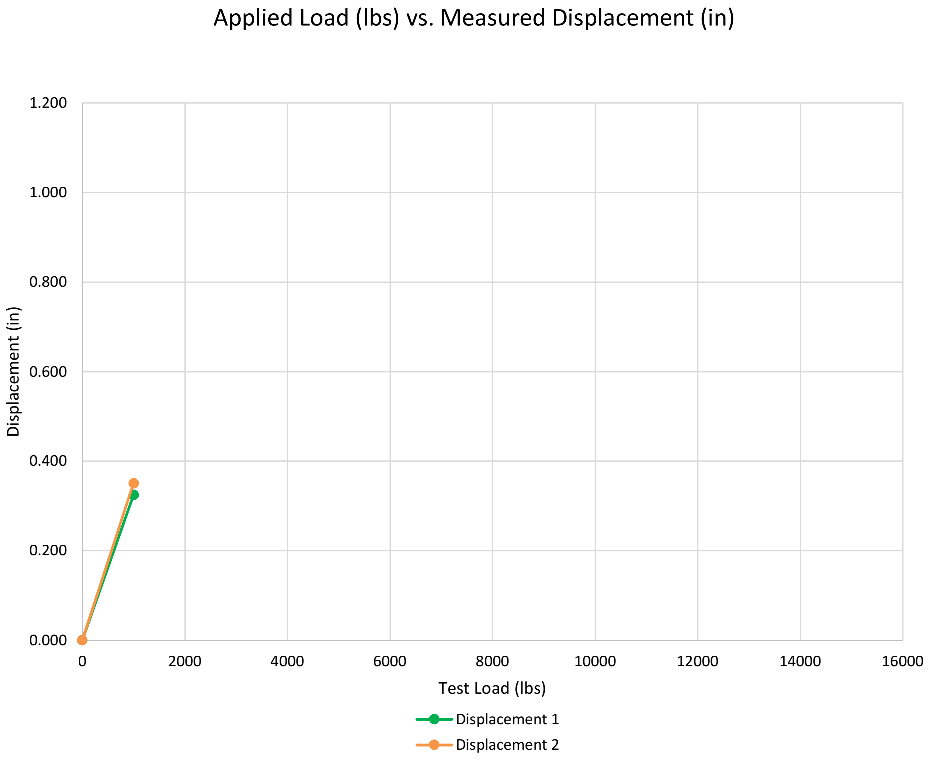


Project:	New Frontiers	Pile ID:	PLT-PDB-PV110-7T		
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025		
Test Weather:	Cloudy	Pile Drive Time:	7.6 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	1,100	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 1,100 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.193	0.190	0.325	0.351
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



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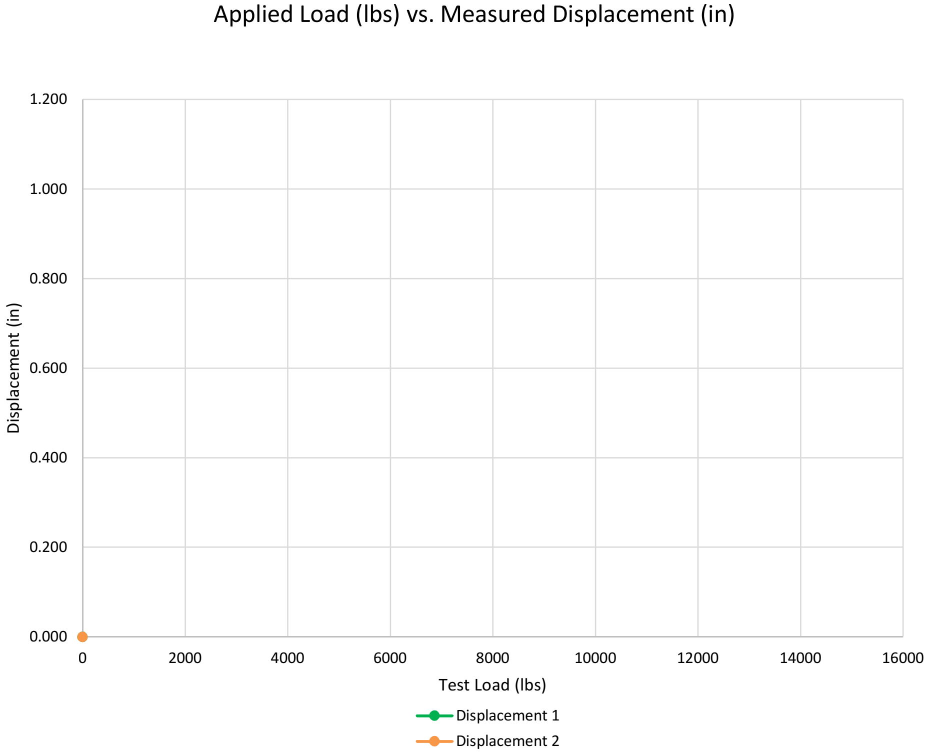
Project:	New Frontiers	Pile ID:	PLT-PDB-PV13-5T		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	5.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	500	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 500 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000				
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				

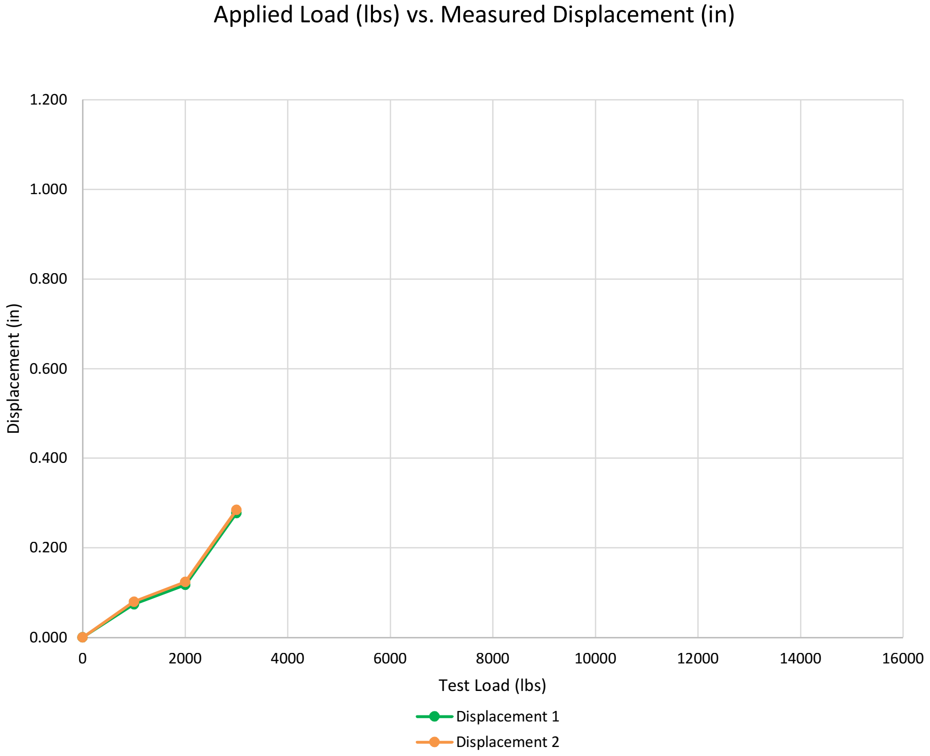


Project:	New Frontiers	Pile ID:	PLT-PDB-PV13-7T		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	21.8 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
CD* Load:	3,800	Load Height:	4.0 *feet*		
Notes:	Continuous displacement at 3,800 lbs.	Load Test Type:	Tensile		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.060	0.063	0.074	0.080
2000	0.106	0.112	0.118	0.124
3000	0.246	0.253	0.278	0.285
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				



Appendix D4

Lateral Pile Load Testing Data

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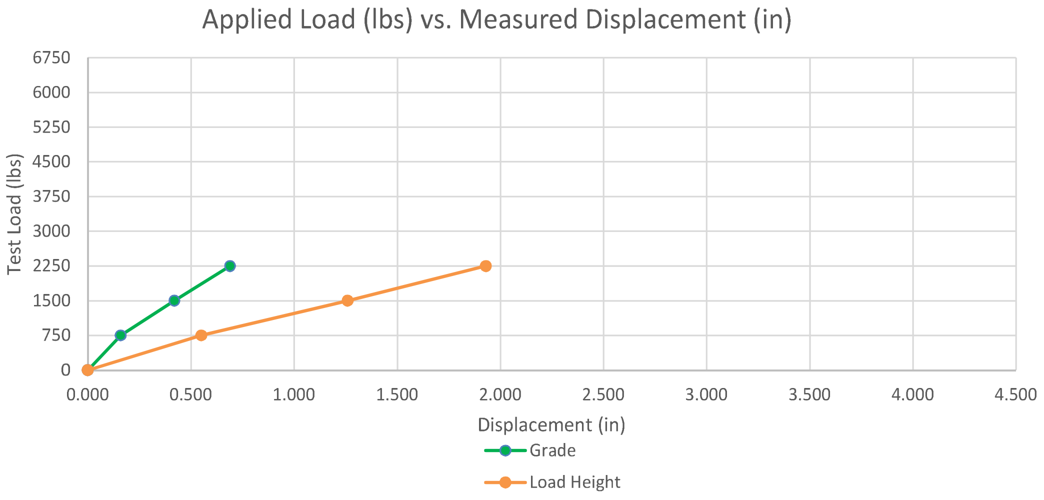
Project:	New Frontiers	Pile ID:	PLT-101-6L		
Test Date:	11/9/2024	Pile GPS Location:	37.78318 , -86.50418		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	38.5 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	3,000	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 3,000 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.152	0.530	0.160	0.550
1500	0.368	1.132	0.373	1.140
0	0.046	0.125	-	-
1500	0.418	1.220	0.420	1.260
2250	0.615	1.769	0.690	1.930
3000	0.900	2.450	1.290	3.348
0			-	-
3000				
3750				
4500				
0	0.099	0.216	-	-



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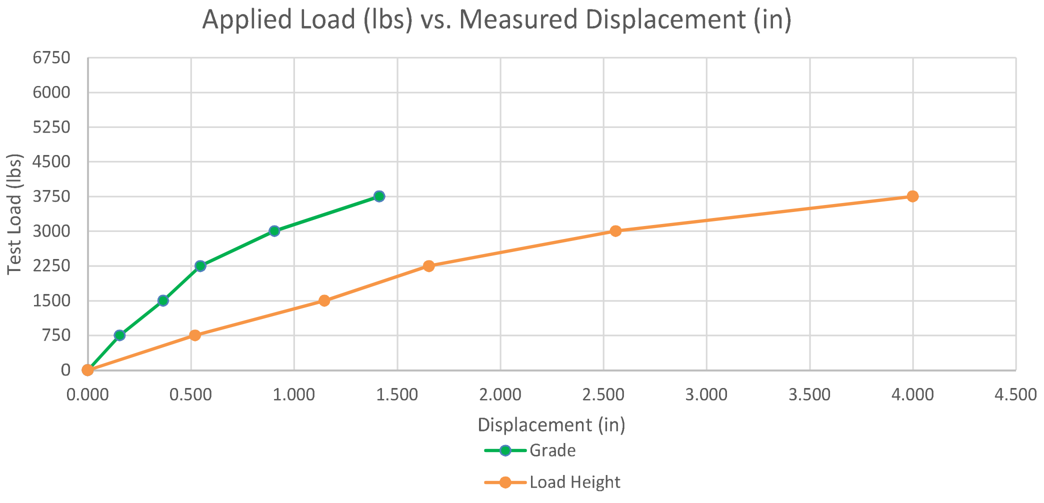
Project:	New Frontiers	Pile ID:	PLT-101-10L		
Test Date:	11/9/2024	Pile GPS Location:	37.78318 , -86.50418		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	183.6 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	8.6 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	3,750	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 3,750 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.152	0.510	0.155	0.520
1500	0.300	0.993	0.314	1.018
0	0.002	0.018	-	-
1500	0.360	1.128	0.365	1.147
2250	0.537	1.630	0.546	1.654
3000	0.734	2.174	0.770	2.250
0	0.010	0.071	-	-
3000	0.896	2.535	0.905	2.560
3750	1.030	2.912	1.414	4.000
4500				
0	0.320	0.785	-	-



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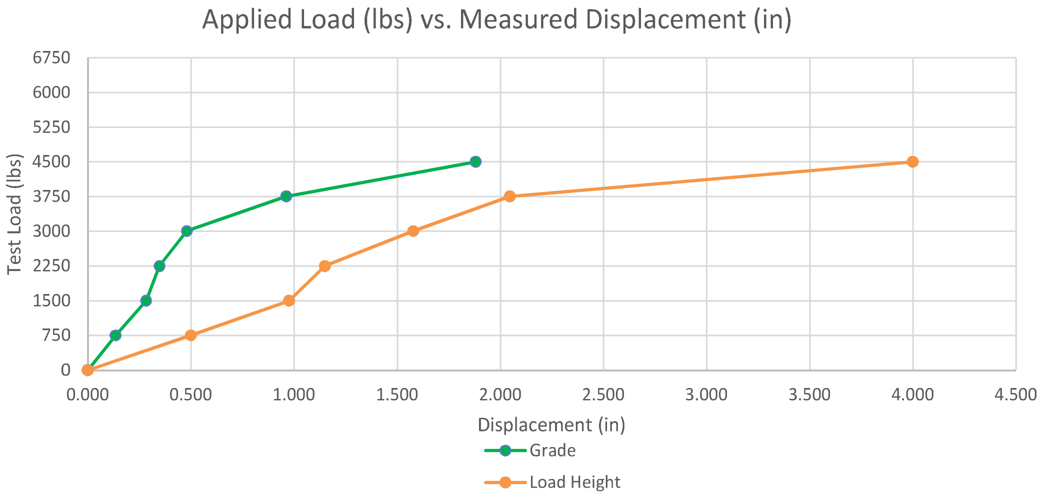
Project:	New Frontiers	Pile ID:	PLT-103-6L		
Test Date:	11/9/2024	Pile GPS Location:	37.78965 , -86.50185		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	60.7 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,500	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.129	0.480	0.136	0.500
1500	0.258	0.870	0.258	0.915
0	0.021	0.021	-	-
1500	0.283	0.950	0.283	0.975
2250	0.337	1.125	0.348	1.150
3000	0.468	1.492	0.480	1.530
0	0.042	0.044	-	-
3000	0.462	1.572	0.480	1.578
3750	0.962	2.040	0.962	2.046
4500	1.039	2.247	1.881	4.000
0	0.103	0.386	-	-

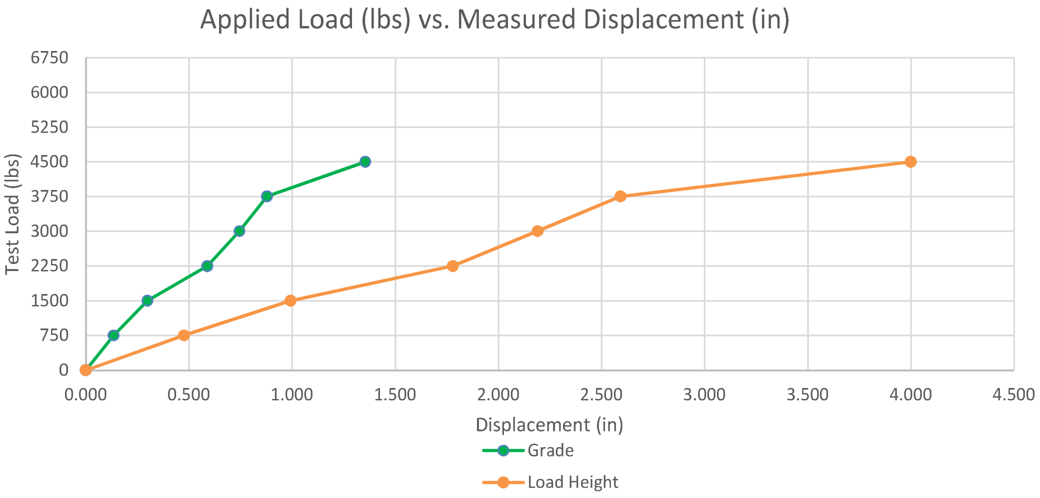


Project:	New Frontiers	Pile ID:	PLT-103-10L		
Test Date:	11/9/2024	Pile GPS Location:	37.78965 , -86.50185		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	196.8 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,500	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.135	0.460	0.135	0.477
1500	0.261	0.855	0.262	0.876
0	0.003	0.069	-	-
1500	0.298	0.970	0.299	0.993
2250	0.569	1.744	0.589	1.780
3000	0.651	1.963	0.651	1.975
0	0.009	0.179	-	-
3000	0.743	2.172	0.745	2.190
3750	0.864	2.568	0.878	2.592
4500	1.070	3.176	1.355	4.000
0	0.056	0.425	-	-



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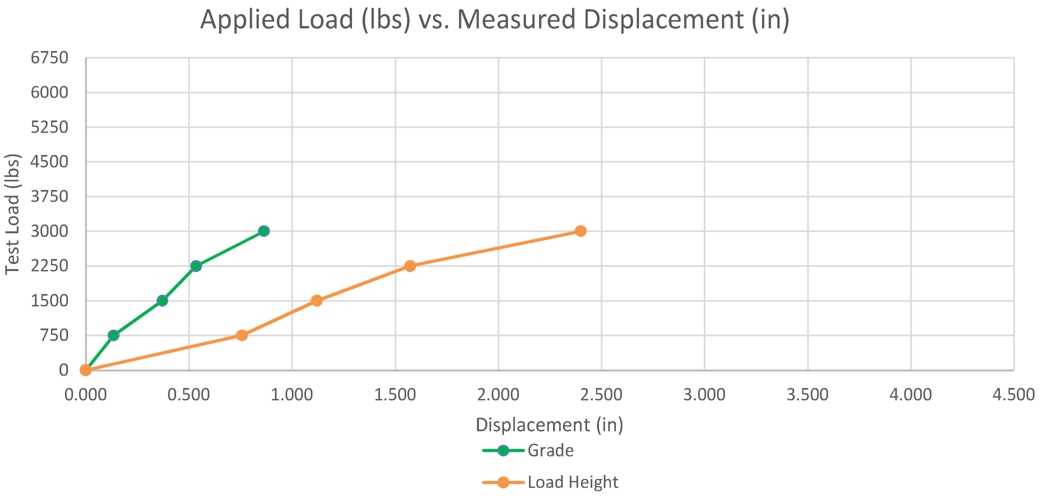
Project:	New Frontiers	Pile ID:	PLT-105-6L			
Test Date:	11/12/2024	Pile GPS Location:	37.80092 , -86.49888			
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024			
Test Weather:	Clear	Pile Drive Time:	71.6 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	11.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*	
Failure Load*:	3,750	Load Height:	4.5 *feet*			
Notes:	Continuous displacement at 3,750 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.133	0.758	0.136	0.758
1500	0.313	0.968	0.315	0.969
0	0.003	0.010	-	-
1500	0.369	1.115	0.371	1.120
2250	0.520	1.568	0.535	1.573
3000	0.750	2.170	0.765	2.172
0	0.008	0.108	-	-
3000	0.859	2.392	0.864	2.400
3750				
4500				
0	0.021	0.195	-	-

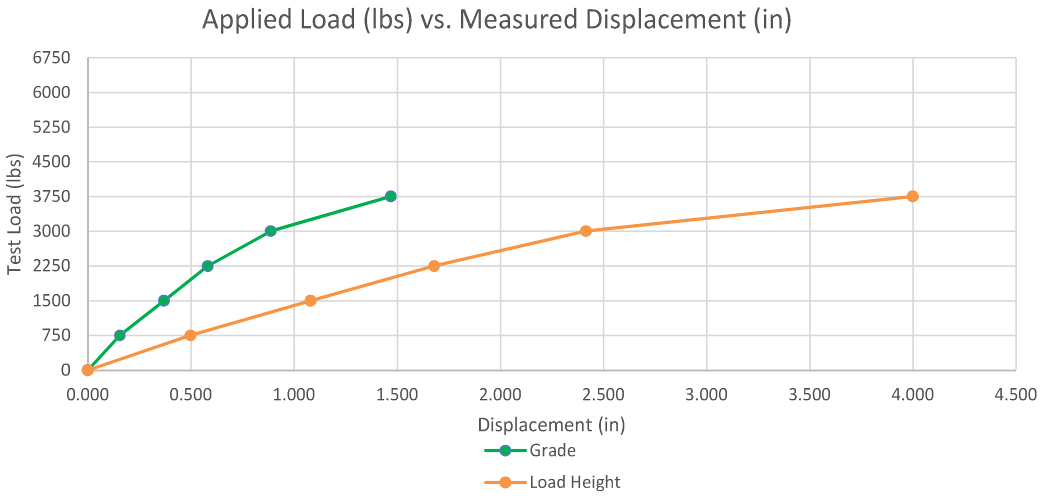


Project:	New Frontiers	Pile ID:	PLT-105-10L			
Test Date:	11/12/2024	Pile GPS Location:	37.80092 , -86.49888			
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024			
Test Weather:	Clear	Pile Drive Time:	205.5 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	15.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*	
Failure Load*:	3,750	Load Height:	4.5 *feet*			
Notes:	4 inch displacement at 3,750 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.144	0.439	0.156	0.499
1500	0.309	0.992	0.330	1.030
0	0.015	0.012	-	-
1500	0.360	1.048	0.369	1.080
2250	0.577	1.637	0.582	1.680
3000	0.796	2.237	0.823	2.290
0	0.060	0.080	-	-
3000	0.880	2.393	0.887	2.416
3750	1.040	2.833	1.469	4.000
4500				
0	0.173	0.220	-	-

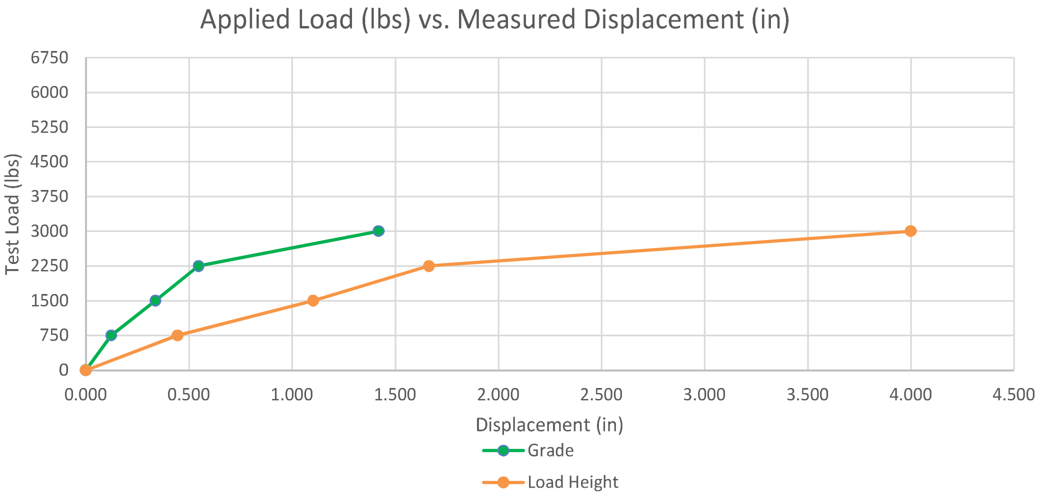


Project:	New Frontiers	Pile ID:	PLT-107-6L			
Test Date:	11/11/2024	Pile GPS Location:	37.80509 , -86.4918			
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024			
Test Weather:	Clear	Pile Drive Time:	64.2 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	11.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*		*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*		*Pre-Drill Depth*	*N/A*
Failure Load*:	3,000	Load Height:	4.5 *feet*			
Notes:	4 inch displacement at 3,000 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.120	0.440	0.123	0.445
1500	0.282	0.946	0.301	0.990
0	0.002	0.006	-	-
1500	0.332	1.070	0.338	1.102
2250	0.530	1.643	0.547	1.664
3000	0.843	2.516	0.894	2.520
0	0.178	0.346	-	-
3000	1.070	3.090	1.419	4.000
3750				
4500				
0	0.199	0.424	-	-



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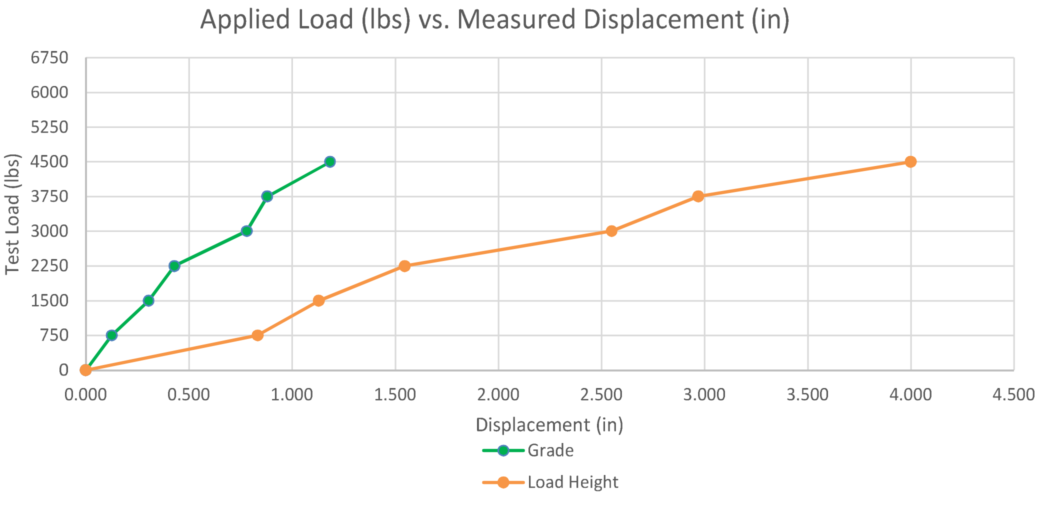
Project:	New Frontiers	Pile ID:	PLT-107-10L		
Test Date:	11/11/2024	Pile GPS Location:	37.80509 , -86.4918		
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024		
Test Weather:	Clear	Pile Drive Time:	232.4 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,500	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.125	0.515	0.126	0.834
1500	0.256	0.990	0.267	1.070
0	0.024	0.073	-	-
1500	0.304	1.110	0.305	1.129
2250	0.400	1.524	0.429	1.546
3000	0.570	2.090	0.614	2.120
0	0.047	0.133	-	-
3000	0.773	2.519	0.781	2.550
3750	0.875	2.915	0.880	2.970
4500	1.046	3.550	1.185	4.000
0	0.082	0.201	-	-

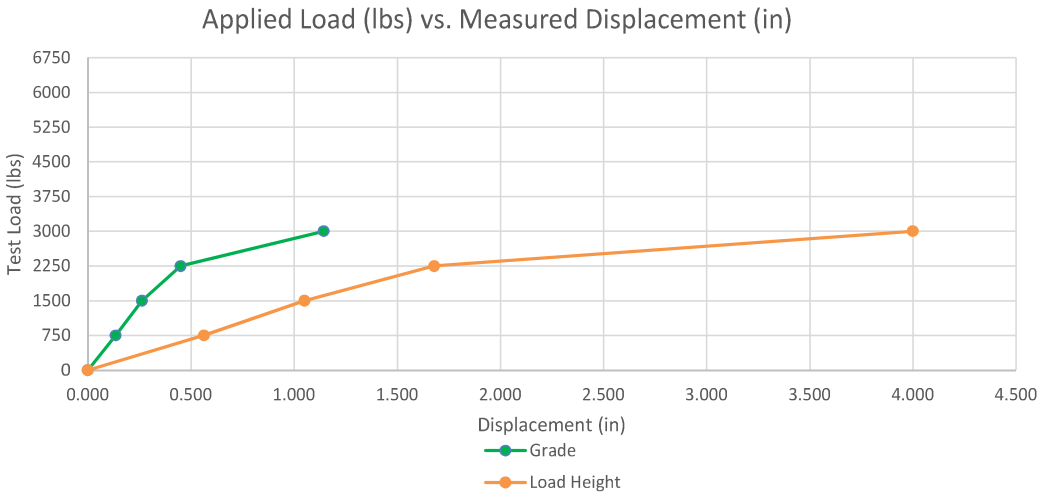


Project:	New Frontiers	Pile ID:	PLT-110-6L		
Test Date:	11/12/2024	Pile GPS Location:	37.81435 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024		
Test Weather:	Clear	Pile Drive Time:	78.9 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,000	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 4,000 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.136	0.555	0.136	0.563
1500	0.245	0.974	0.245	0.997
0	0.025	0.085	-	-
1500	0.262	1.020	0.263	1.050
2250	0.450	1.650	0.450	1.680
3000	0.670	2.320	0.670	2.343
0	0.128	0.320	-	-
3000	1.066	2.490	1.144	4.000
3750				
4500				
0	0.259	0.417	-	-

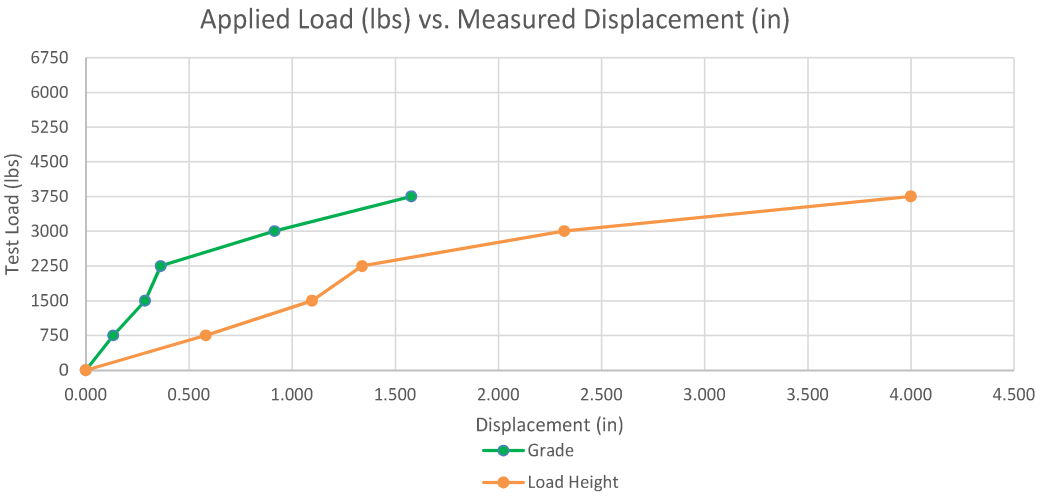


Project:	New Frontiers	Pile ID:	PLT-110-10L			
Test Date:	11/12/2024	Pile GPS Location:	37.81435 , -86.50798			
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024			
Test Weather:	Clear	Pile Drive Time:	303.6 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	15.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*	
Failure Load*:	3,750	Load Height:	4.5 *feet*			
Notes:	4 inch displacement at 3,750 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.133	0.565	0.133	0.582
1500	0.229	0.896	0.229	0.910
0	0.005	0.050	-	-
1500	0.249	1.073	0.287	1.096
2250	0.360	1.320	0.363	1.340
3000	0.540	1.861	0.540	1.879
0	0.027	0.110	-	-
3000	0.915	1.980	0.915	2.320
3750	1.010	2.320	1.578	4.000
4500				
0	0.062	0.196	-	-

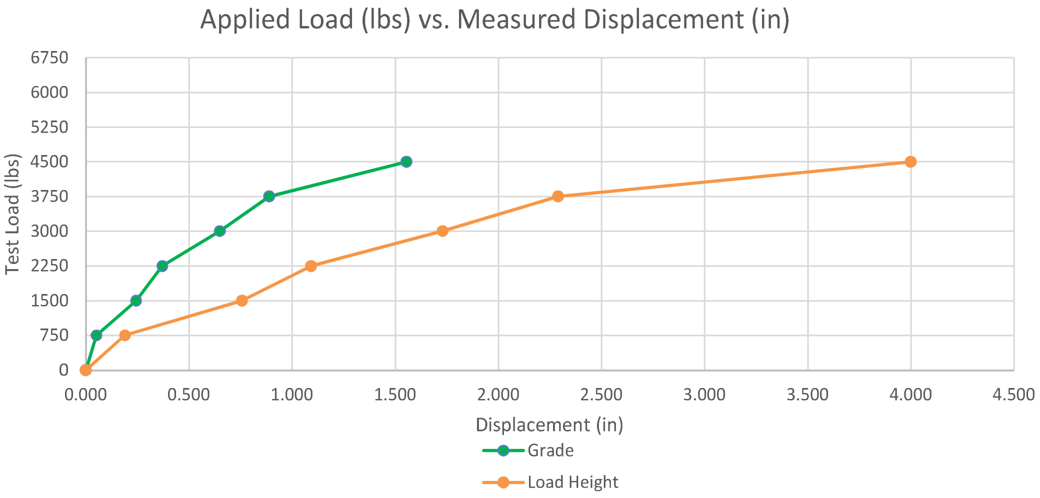


Project:	New Frontiers	Pile ID:	PLT-PV-01-6L		
Test Date:	11/7/2024	Pile GPS Location:	37.76158 , -86.47807		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	46.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,500	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.051	0.184	0.052	0.190
1500	0.189	0.604	0.189	0.608
0	0.013	0.059	-	-
1500	0.237	0.721	0.244	0.758
2250	0.366	1.083	0.372	1.093
3000	0.604	1.620	0.609	1.675
0	0.074	0.165	-	-
3000	0.641	1.700	0.650	1.730
3750	0.885	2.289	0.890	2.290
4500	1.078	2.683	1.555	4.000
0	0.450	0.970	-	-



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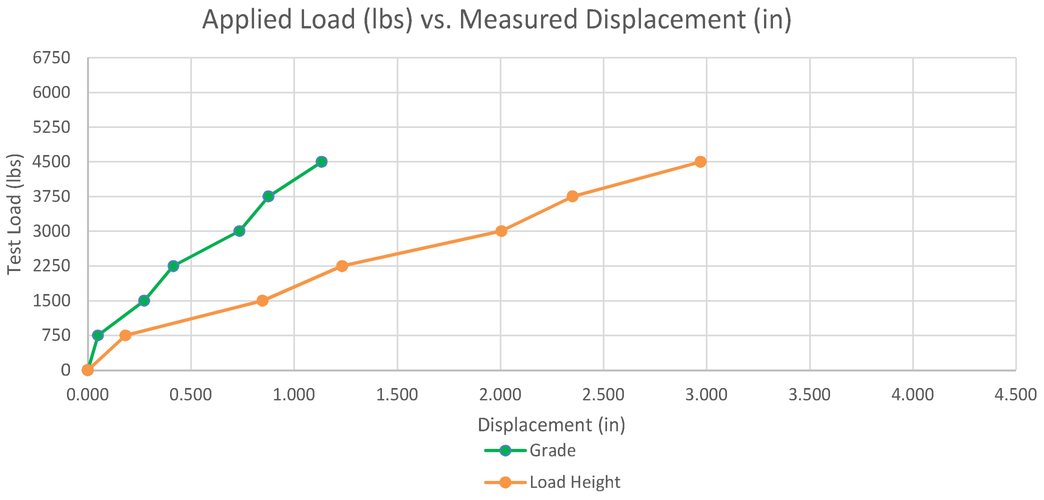
Project:	New Frontiers	Pile ID:	PLT-PV-01-10L		
Test Date:	11/7/2024	Pile GPS Location:	37.76158 , -86.47807		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	136.4 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	N/A	Load Height:	4.5 *feet*		
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.048	0.181	0.050	0.183
1500	0.216	0.686	0.217	0.696
0	0.004	0.103	-	-
1500	0.270	0.836	0.274	0.847
2250	0.414	1.210	0.415	1.233
3000	0.603	1.689	0.604	1.704
0	0.087	0.204	-	-
3000	0.730	1.992	0.736	2.006
3750	0.865	2.343	0.876	2.350
4500	1.114	2.960	1.134	2.971
0	0.146	0.303	-	-



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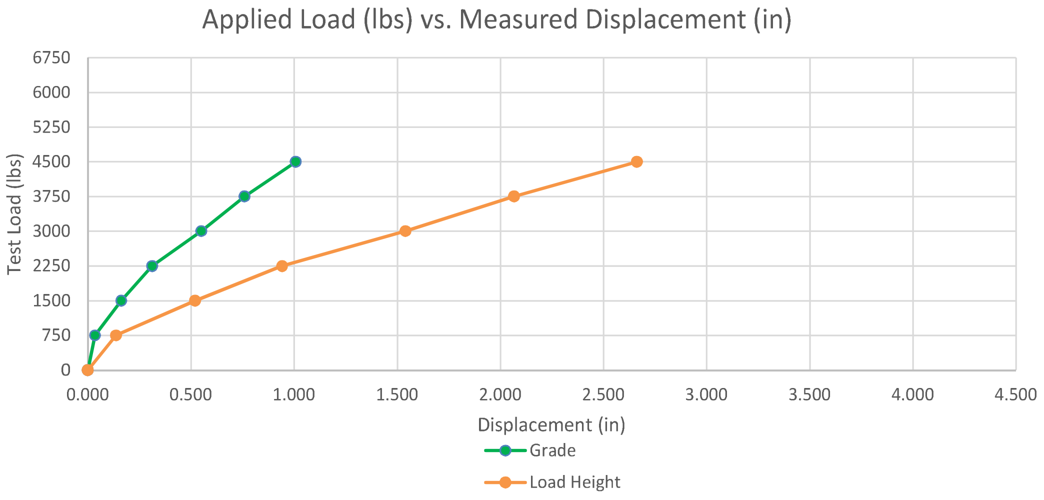
Project:	New Frontiers	Pile ID:	PLT-PV-03-6L
Test Date:	11/7/2024	Pile GPS Location:	37.75639 , -86.47816
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024
Test Weather:	Cloudy	Pile Drive Time:	*seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	51191	Pile Length:	11.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet* *Pre-Drill Depth* *N/A*
Failure Load*:	N/A	Load Height:	4.5 *feet*
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.032	0.113	0.035	0.137
1500	0.143	0.492	0.155	0.496
0	0.016	0.016	-	-
1500	0.160	0.520	0.162	0.520
2250	0.294	0.908	0.312	0.943
3000	0.478	1.423	0.515	1.450
0	0.053	0.076	-	-
3000	0.538	1.520	0.550	1.540
3750	0.732	2.001	0.760	2.067
4500	0.980	2.660	1.008	2.662
0	0.377	0.803	-	-

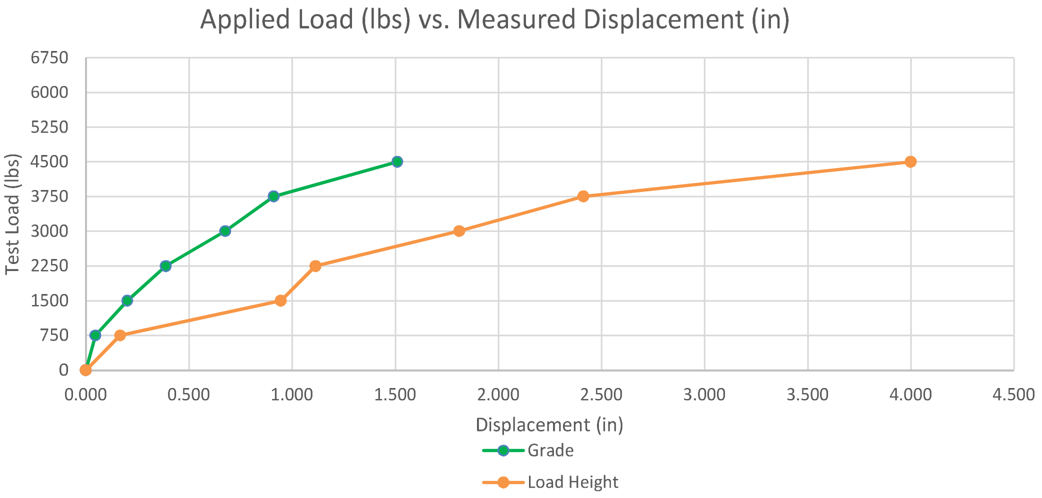


Project:	New Frontiers	Pile ID:	PLT-PV-03-10L
Test Date:	11/7/2024	Pile GPS Location:	37.75639 , -86.47816
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024
Test Weather:	Cloudy	Pile Drive Time:	144.9 *seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	51191	Pile Length:	15.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet* *Pre-Drill Depth* *N/A*
Failure Load*:	4,500	Load Height:	4.5 *feet*
Notes:	4 inch displacement at 4,500 lbs.	Load Test Type:	Lateral

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.042	0.130	0.047	0.167
1500	0.185	0.896	0.194	0.915
0	0.003	0.045	-	-
1500	0.194	0.916	0.201	0.945
2250	0.368	1.071	0.389	1.114
3000	0.594	1.710	0.634	1.754
0	0.027	0.911	-	-
3000	0.659	1.780	0.676	1.810
3750	0.873	2.352	0.911	2.413
4500	1.030	2.680	1.510	4.000
0	0.465	1.073	-	-

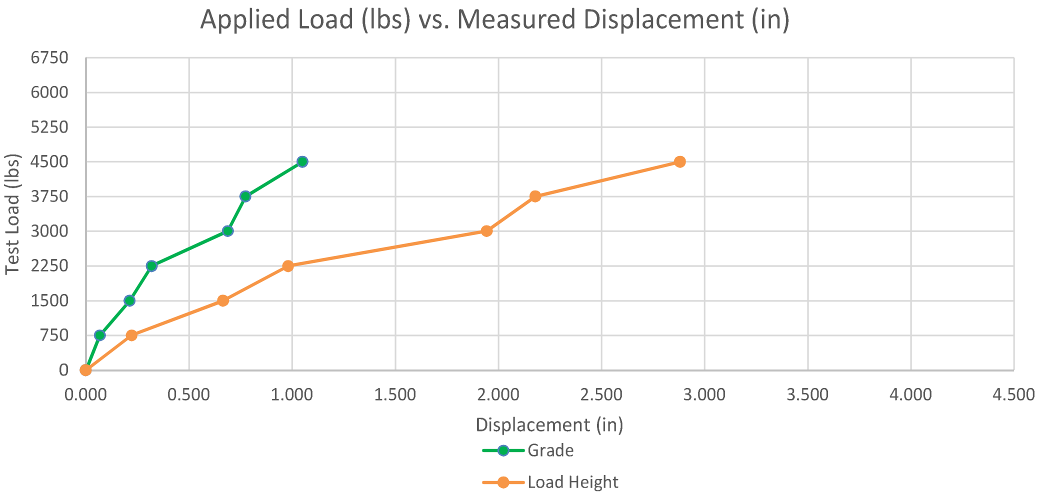


Project:	New Frontiers	Pile ID:	PLT-PV-04-6L		
Test Date:	11/8/2024	Pile GPS Location:	37.75225 , -86.47759		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Clear	Pile Drive Time:	62.5 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	N/A	Load Height:	4.5 *feet*		
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.066	0.216	0.068	0.222
1500	0.208	0.648	0.211	0.662
0	0.001	0.008	-	-
1500	0.206	0.625	0.213	0.665
2250	0.320	0.975	0.320	0.982
3000	0.508	1.490	0.530	1.510
0	0.004	0.032	-	-
3000	0.683	1.910	0.689	1.944
3750	0.772	2.166	0.775	2.180
4500	0.990	2.870	1.050	2.882
0	0.160	0.220	-	-



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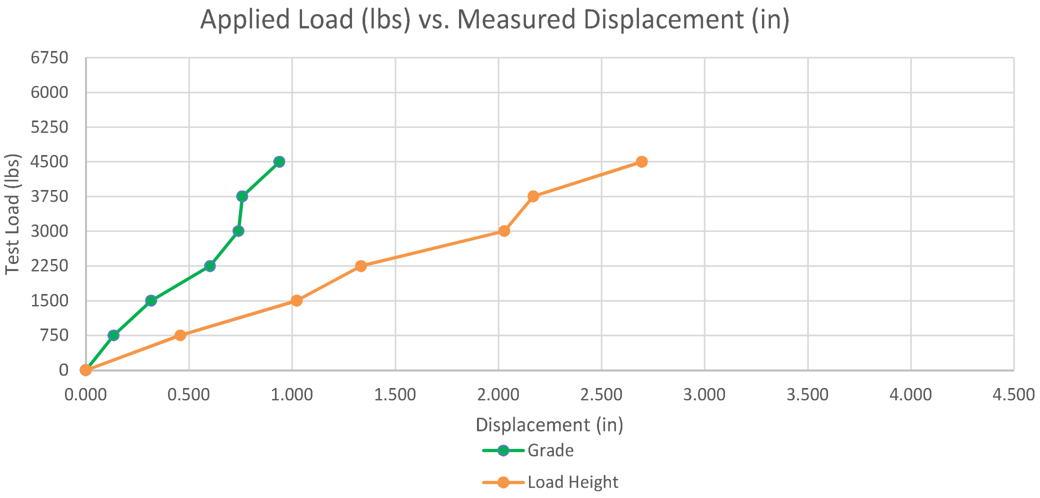
Project:	New Frontiers	Pile ID:	PLT-PV-04-10L		
Test Date:	11/8/2024	Pile GPS Location:	37.75225 , -86.47759		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Clear	Pile Drive Time:	314.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	9.7 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	N/A	Load Height:	4.5 *feet*		
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.126	0.445	0.135	0.459
1500	0.258	0.820	0.261	0.854
0	0.001	0.041	-	-
1500	0.314	0.980	0.317	1.023
2250	0.590	1.320	0.603	1.335
3000	0.690	1.780	0.700	1.800
0	0.004	0.068	-	-
3000	0.737	1.976	0.740	2.030
3750	0.750	2.124	0.759	2.170
4500	0.930	2.600	0.939	2.696
0	0.067	0.102	-	-

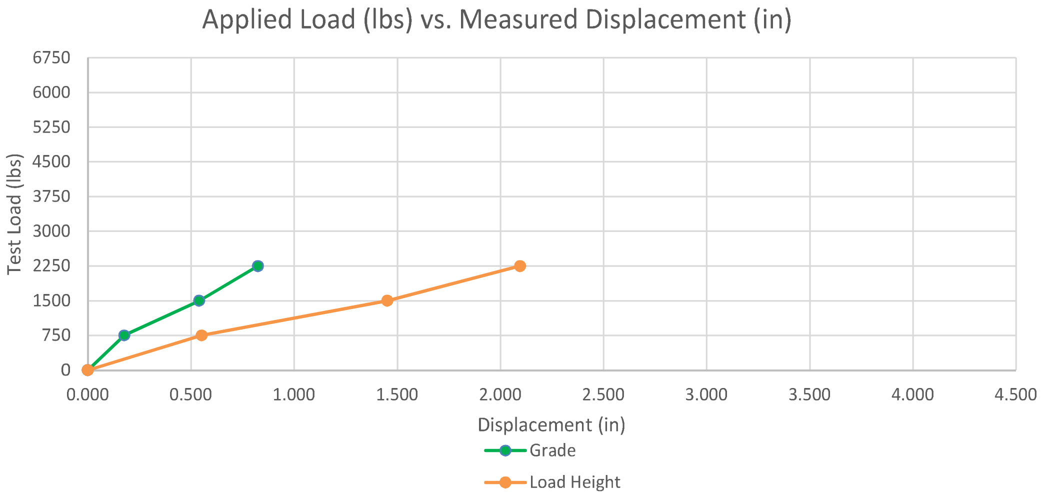


Project:	New Frontiers	Pile ID:	PLT-PV-06-6L		
Test Date:	11/13/2024	Pile GPS Location:	37.75215 , -86.47296		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	59.3 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	3,000	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 3,000 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.162	0.515	0.177	0.552
1500	0.422	1.216	0.467	1.300
0	0.100	0.169	-	-
1500	0.540	1.436	0.540	1.452
2250	0.809	2.093	0.825	2.096
3000	1.060	2.650	1.574	4.000
0			-	-
3000				
3750				
4500				
0	0.241	0.338	-	-

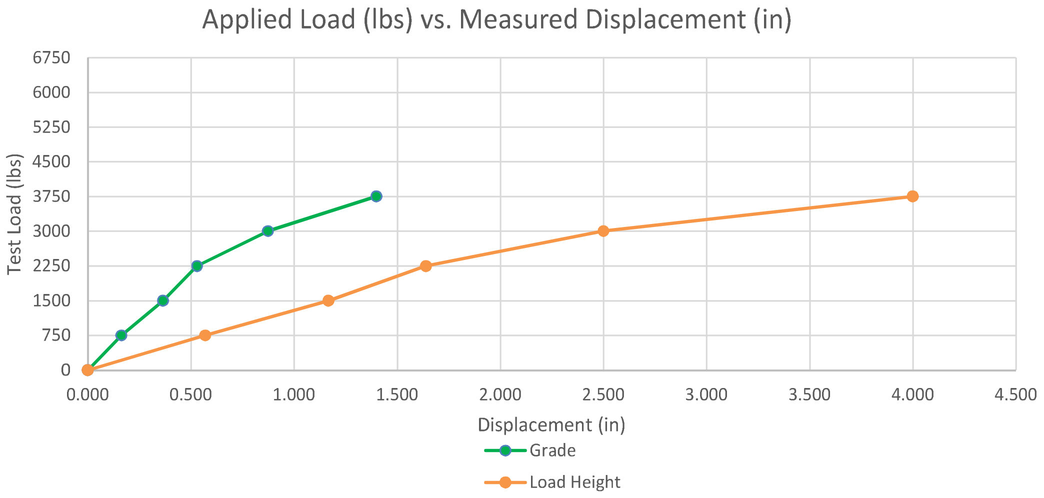


Project:	New Frontiers	Pile ID:	PLT-PV-06-10L		
Test Date:	11/13/2024	Pile GPS Location:	37.75215 , -86.47296		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	228.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	3,750	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 3,750 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.163	0.550	0.163	0.570
1500	0.305	0.985	0.306	1.013
0	0.037	0.054	-	-
1500	0.362	1.130	0.364	1.167
2250	0.527	1.638	0.530	1.640
3000	0.768	2.214	0.773	2.290
0	0.100	0.160	-	-
3000	0.873	2.480	0.874	2.500
3750	1.030	2.970	1.398	4.000
4500				
0	0.172	0.227	-	-



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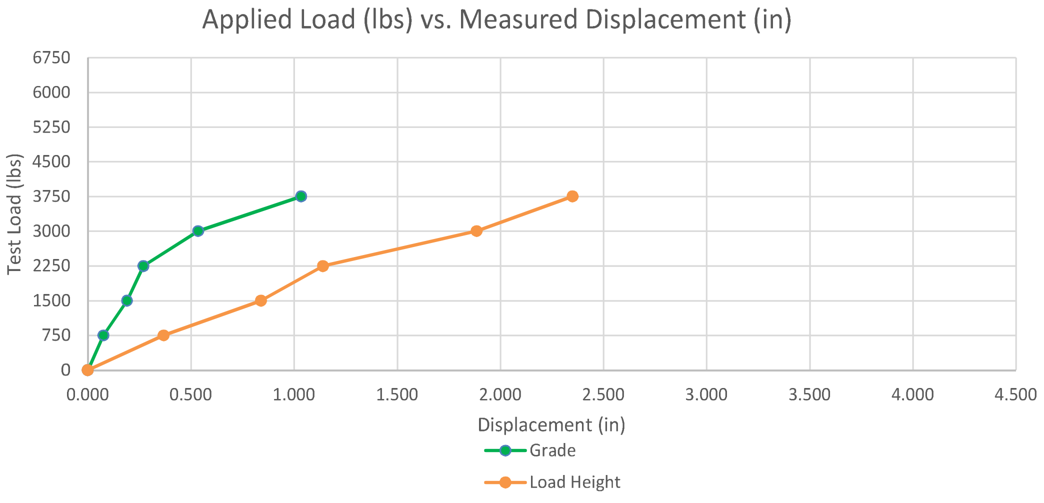
Project:	New Frontiers	Pile ID:	PLT-PV-07-10L		
Test Date:	11/5/2024	Pile GPS Location:	37.76009 , -86.46773		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Partly Cloudy	Pile Drive Time:	168.1 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	3,900	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 3,900 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.074	0.350	0.076	0.368
1500	0.180	0.795	0.190	0.820
0	0.000	0.039	-	-
1500	0.190	0.800	0.190	0.840
2250	0.270	1.111	0.270	1.140
3000	0.530	1.800	0.530	1.830
0	0.030	0.167	-	-
3000	0.520	1.840	0.535	1.885
3750	1.034	2.345	1.035	2.350
4500				
0	0.055	0.218	-	-

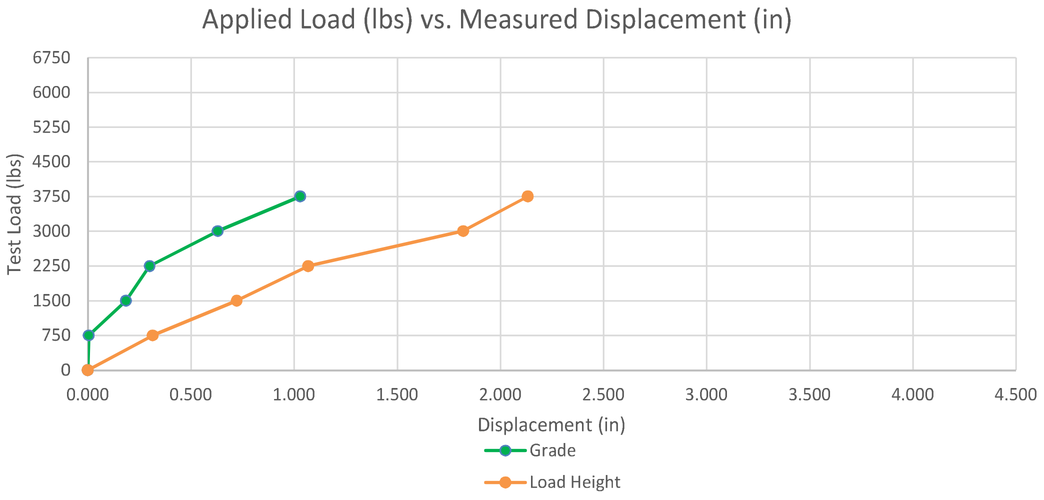


Project:	New Frontiers	Pile ID:	PLT-PV-07-6L		
Test Date:	11/5/2024	Pile GPS Location:	37.76009 , -86.46773		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Partly Cloudy	Pile Drive Time:	61.3 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,000	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 4,000 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.005	0.306	0.005	0.315
1500	0.180	0.708	0.180	0.713
0	0.000	0.061	-	-
1500	0.185	0.711	0.185	0.723
2250	0.280	1.058	0.300	1.068
3000	0.446	1.470	0.450	1.487
0	0.020	0.100	-	-
3000	0.610	1.765	0.630	1.820
3750	1.020	2.110	1.030	2.133
4500				
0	0.051	0.166	-	-



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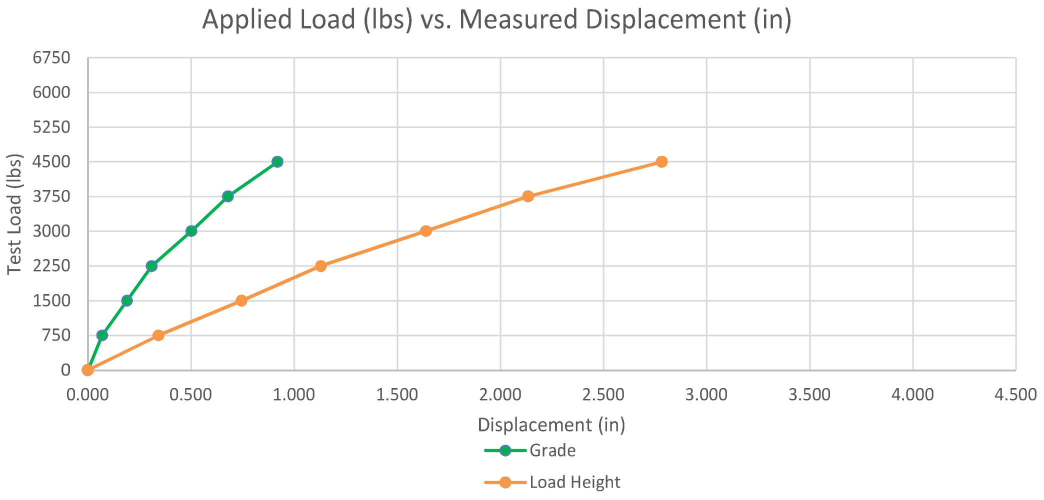
Project:	New Frontiers	Pile ID:	PLT-PV-08-6L
Test Date:	11/5/2024	Pile GPS Location:	37.75837 , -86.46572
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024
Test Weather:	Cloudy	Pile Drive Time:	53.8 *seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	51191	Pile Length:	11.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet* *Pre-Drill Depth* *N/A*
Failure Load*:	N/A	Load Height:	4.5 *feet*
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.040	0.323	0.070	0.342
1500	0.170	0.680	0.180	0.695
0	0.000	0.047	-	-
1500	0.190	0.730	0.190	0.746
2250	0.310	1.121	0.310	1.130
3000	0.459	1.578	0.470	1.595
0	0.036	0.130	-	-
3000	0.494	1.610	0.502	1.640
3750	0.660	2.130	0.680	2.135
4500	0.886	2.717	0.920	2.784
0	0.150	0.300	-	-

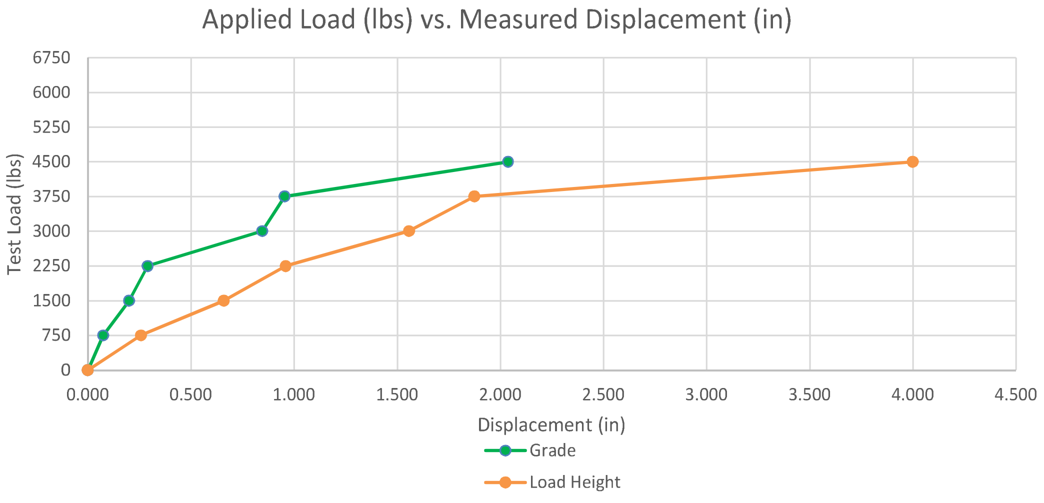


Project:	New Frontiers	Pile ID:	PLT-PV-08-10L		
Test Date:	11/5/2024	Pile GPS Location:	37.75837 , -86.46572		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	173.3 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,500	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.075	0.255	0.075	0.258
1500	0.188	0.619	0.188	0.620
0	0.000	0.025	-	-
1500	0.200	0.630	0.200	0.659
2250	0.290	0.930	0.290	0.960
3000	0.465	1.410	0.468	1.432
0	0.004	0.017	-	-
3000	0.530	1.520	0.846	1.557
3750	0.950	1.870	0.955	1.874
4500	1.020	2.060	2.038	4.000
0	0.012	0.067	-	-

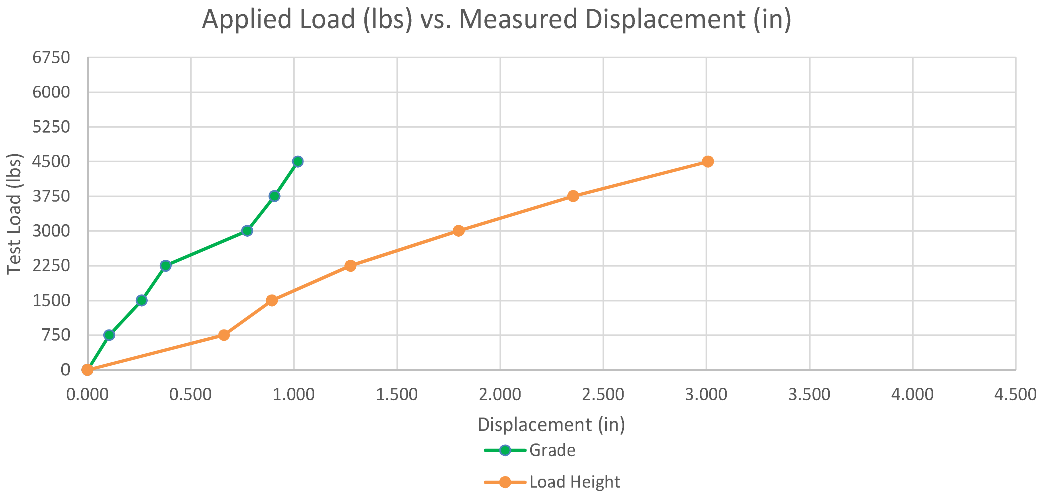


Project:	New Frontiers	Pile ID:	PLT-PV-09-6L			
Test Date:	11/5/2024	Pile GPS Location:	37.7571 , -86.4697			
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024			
Test Weather:	Partly Cloudy	Pile Drive Time:	66.6 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	11.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*	
Failure Load*:	N/A	Load Height:	4.5 *feet*			
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.102	0.373	0.105	0.662
1500	0.231	0.797	0.232	0.812
0	0.004	0.010	-	-
1500	0.261	0.883	0.262	0.894
2250	0.379	1.244	0.379	1.275
3000	0.545	1.753	0.560	1.780
0	0.037	0.055	-	-
3000	0.755	1.791	0.775	1.800
3750	0.906	2.305	0.906	2.355
4500	0.979	2.968	1.020	3.008
0	0.588	1.417	-	-

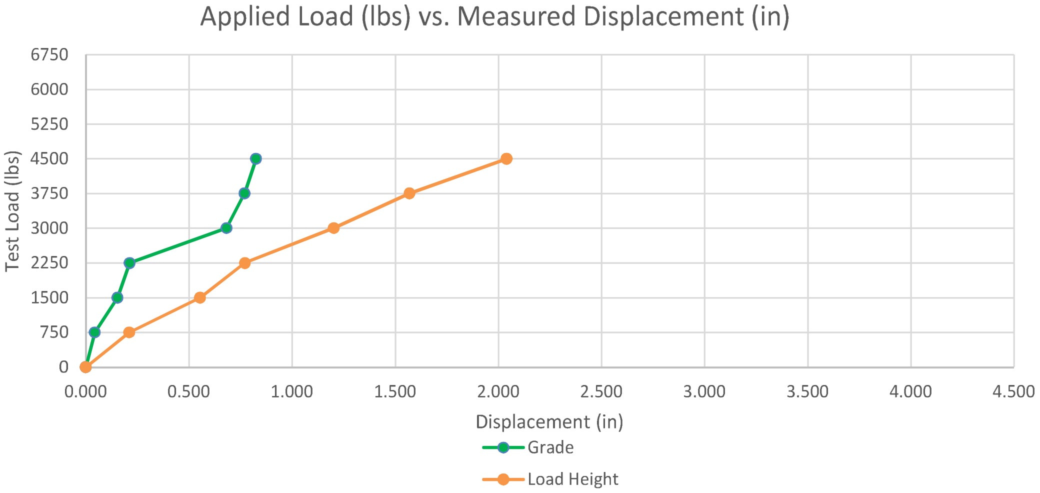


Project:	New Frontiers	Pile ID:	PLT-PV-09-10L		
Test Date:	11/5/2024	Pile GPS Location:	37.7571 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024		
Test Weather:	Partly Cloudy	Pile Drive Time:	201.7 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	15.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	N/A	Load Height:	4.5 *feet*		
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.041	0.204	0.043	0.211
1500	0.046	0.346	0.047	0.352
0	0.001	0.000	-	-
1500	0.152	0.538	0.154	0.554
2250	0.212	0.760	0.213	0.772
3000	0.335	1.175	0.340	1.176
0	0.005	0.002	-	-
3000	0.681	1.200	0.682	1.203
3750	0.770	1.150	0.770	1.570
4500	0.820	2.024	0.825	2.040
0	0.241	0.640	-	-

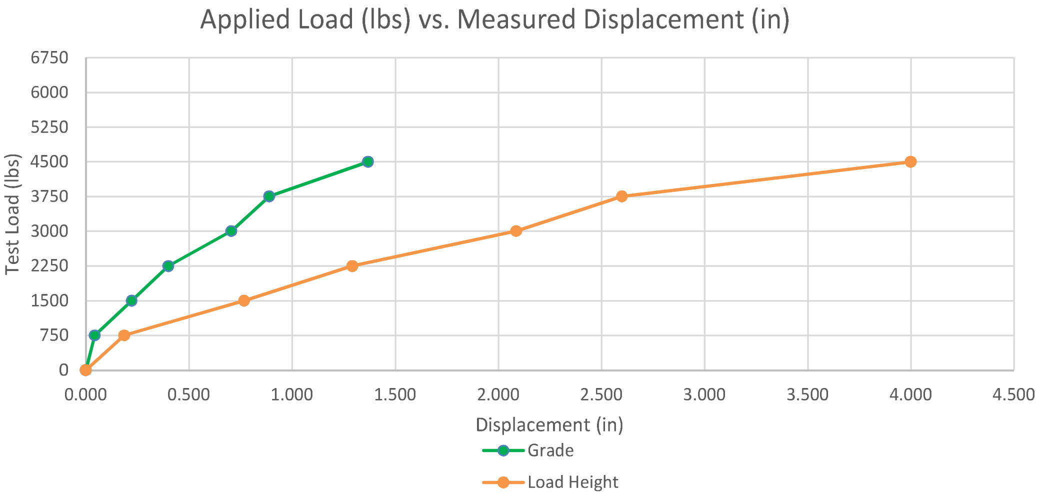


Project:	New Frontiers	Pile ID:	PLT-PV-14-6L		
Test Date:	11/8/2024	Pile GPS Location:	37.75587 , -86.47285		
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024		
Test Weather:	Clear	Pile Drive Time:	69.3 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	51191	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
Failure Load*:	4,500	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.043	0.185	0.043	0.186
1500	0.214	0.736	0.215	0.737
0	0.030	0.128	-	-
1500	0.221	0.758	0.222	0.767
2250	0.395	1.284	0.400	1.293
3000	0.633	1.905	0.637	1.917
0	0.078	0.566	-	-
3000	0.706	2.085	0.706	2.086
3750	0.865	2.532	0.890	2.600
4500	1.130	3.187	1.369	4.000
0	0.136	0.892	-	-

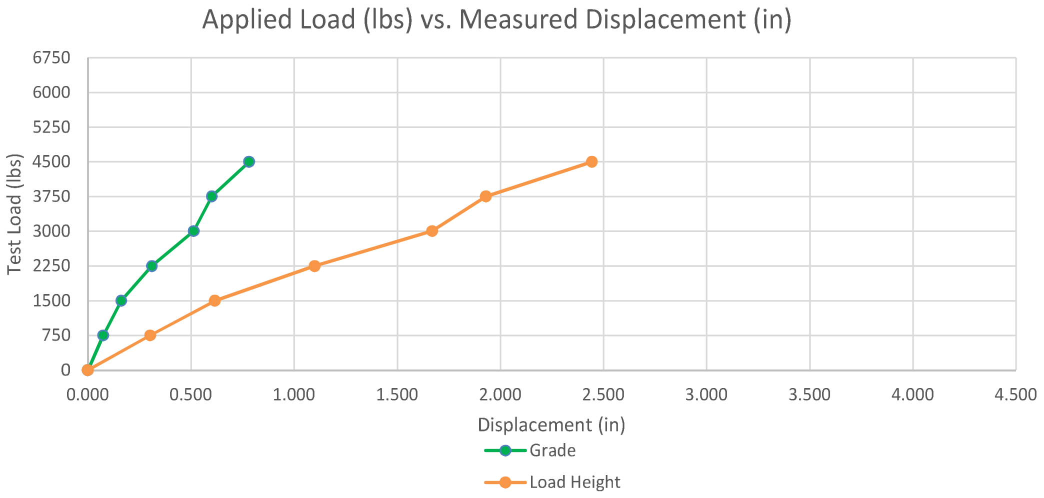


Project:	New Frontiers	Pile ID:	PLT-PV-14-10L			
Test Date:	11/8/2024	Pile GPS Location:	37.75587 , -86.47285			
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024			
Test Weather:	Clear	Pile Drive Time:	203.8 *seconds*			
Technician:	Douglas Riedemann	Pile Type:	W6x9			
Load ID:	51191	Pile Length:	15.0 *feet*			
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*	
Disp #2 ID:	F07754	Pile Embedment:	10.0 *feet*	*Pre-Drill Depth*	*N/A*	
Failure Load*:	N/A	Load Height:	4.5 *feet*			
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.072	0.297	0.075	0.303
1500	0.141	0.540	0.148	0.575
0	0.007	0.370	-	-
1500	0.159	0.599	0.162	0.616
2250	0.310	1.079	0.311	1.100
3000	0.421	1.424	0.426	1.445
0	0.003	0.424	-	-
3000	0.510	1.630	0.513	1.670
3750	0.588	1.889	0.602	1.930
4500	0.775	2.420	0.782	2.444
0	0.080	0.500	-	-



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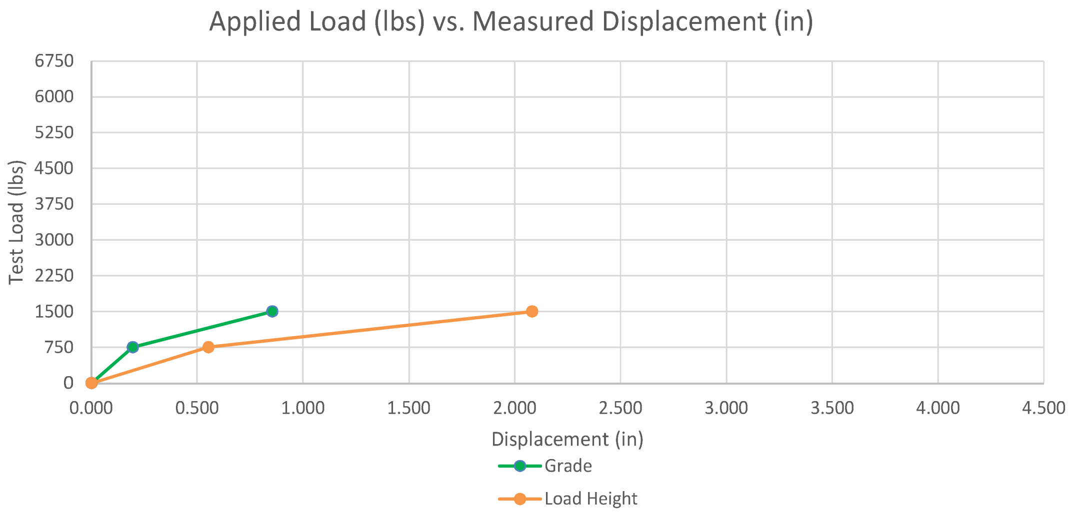
Project:	New Frontiers	Pile ID:	PLT-PDA-D19-5L(R4.5)		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Cloudy	Pile Drive Time:	158.7 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.5 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	4.5 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	2,100	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 2,100 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.155	0.455	0.195	0.553
1500	0.642	1.647	0.730	1.823
0	0.374	0.741	-	-
1500	0.819	2.003	0.854	2.082
2250				
3000				
0			-	-
3000				
3750				
4500				
0	1.142	2.399	-	-

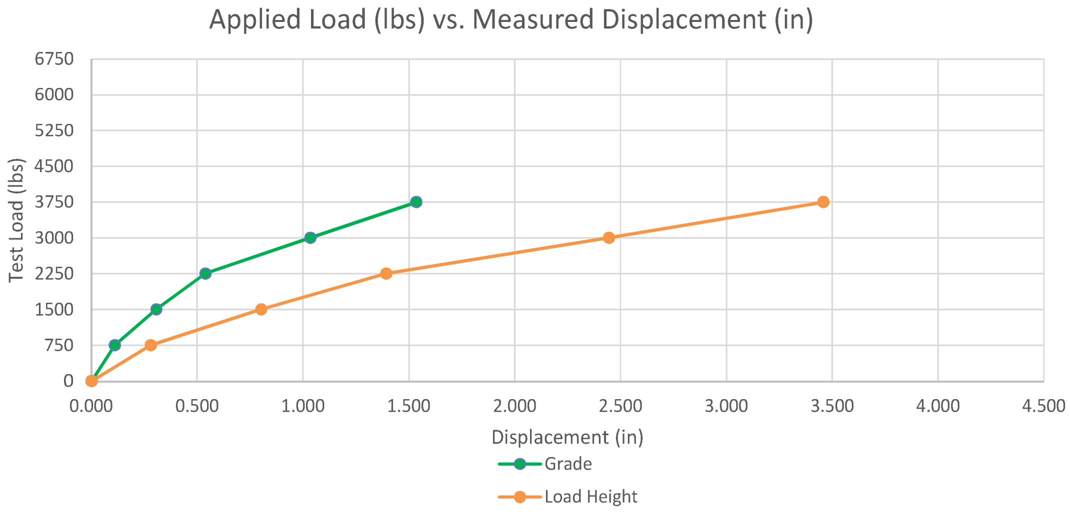


Project:	New Frontiers	Pile ID:	PLT-PDA-D19-7L(R5.3)		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Cloudy	Pile Drive Time:	260.0 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	7.7 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.3 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	4,300	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 4,300 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.101	0.267	0.110	0.280
1500	0.258	0.700	0.260	0.720
0	0.053	0.001	-	-
1500	0.301	0.793	0.307	0.802
2250	0.509	1.327	0.539	1.393
3000	0.855	2.130	0.902	2.222
0	0.292	0.433	-	-
3000	0.992	2.393	1.035	2.445
3750	1.346	3.165	1.536	3.459
4500				
0	0.827	1.403	-	-



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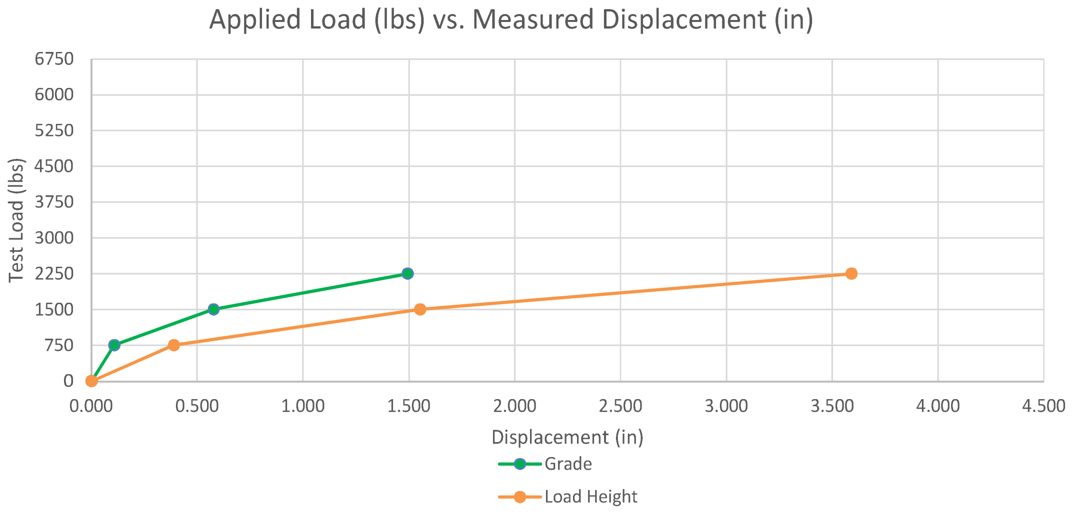
Project:	New Frontiers	Pile ID:	PLT-PDA-D20-5L			
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617			
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025			
Test Weather:	Clear	Pile Drive Time:	10.8	*seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	11.0	*feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0	*feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0	*feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	2,300	Load Height:	4.5	*feet*		
Notes:	Continuous displacement at 2,300 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.107	0.379	0.108	0.390
1500	0.395	1.148	0.451	1.265
0	0.142	0.318	-	-
1500	0.563	1.533	0.577	1.553
2250	1.370	3.339	1.494	3.592
3000				
0			-	-
3000				
3750				
4500				
0	1.125	2.368	-	-

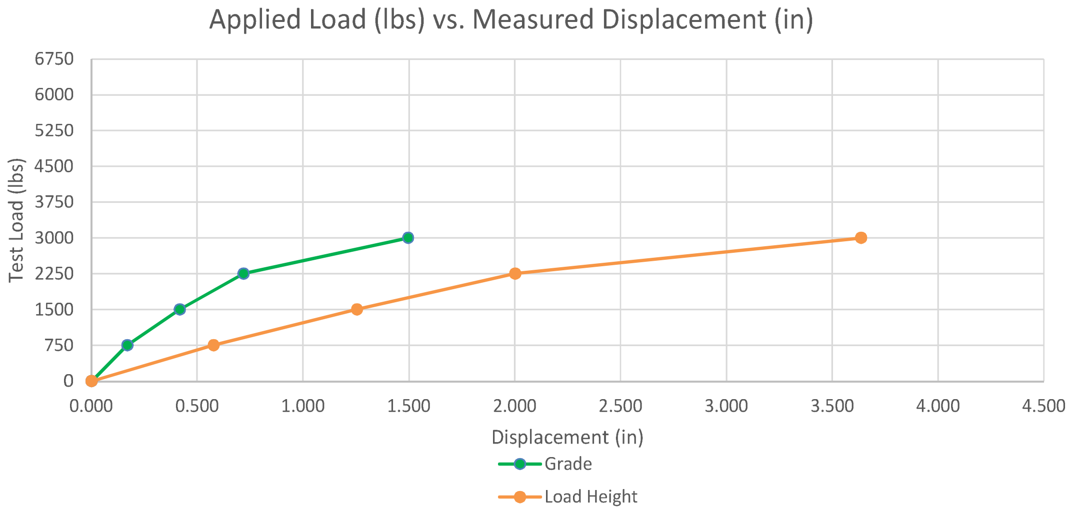


Project:	New Frontiers	Pile ID:	PLT-PDA-D20-7L		
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	18.8 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	3,200	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 3,200 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.168	0.558	0.169	0.577
1500	0.349	1.099	0.384	1.194
0	0.065	0.138	-	-
1500	0.417	1.251	0.418	1.255
2250	0.679	1.949	0.719	2.002
3000	1.017	2.721	1.175	3.040
0	0.315	0.617	-	-
3000	1.302	3.255	1.496	3.636
3750				
4500				
0	0.787	1.486	-	-



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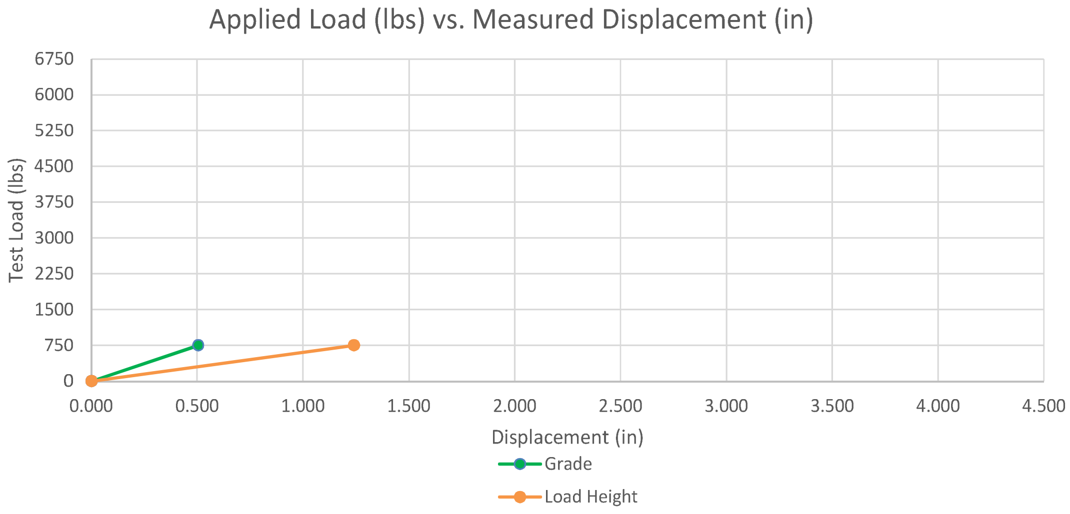
Project:	New Frontiers	Pile ID:	PLT-PDA-D22-5L		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	7.6 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	1,500	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 1,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.437	1.102	0.505	1.240
1500	1.710	3.771	1.953	4.000
0			-	-
1500				
2250				
3000				
0			-	-
3000				
3750				
4500				
0	1.338	2.616	-	-



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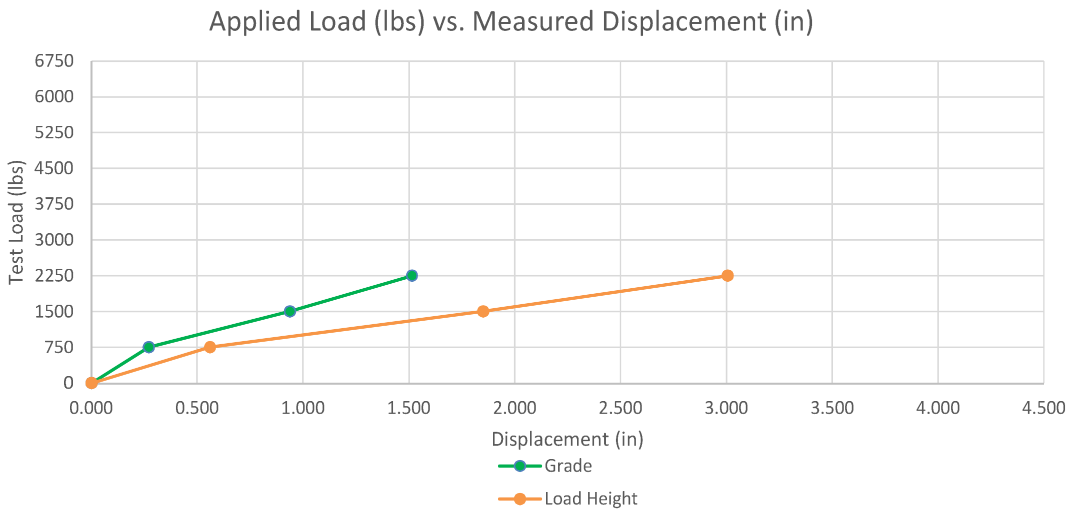
Project:	New Frontiers	Pile ID:	PLT-PDA-D22-7L			
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361			
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025			
Test Weather:	Clear	Pile Drive Time:	6.0 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	13.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*	
Failure Load*:	2,800	Load Height:	4.5 *feet*			
Notes:	Continuous diplacement at 2,800 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.230	0.501	0.271	0.560
1500	0.762	1.620	0.808	1.675
0	0.237	0.345	-	-
1500	0.905	1.835	0.937	1.851
2250	1.444	2.900	1.515	3.007
3000				
0			-	-
3000				
3750				
4500				
0	0.963	1.452	-	-



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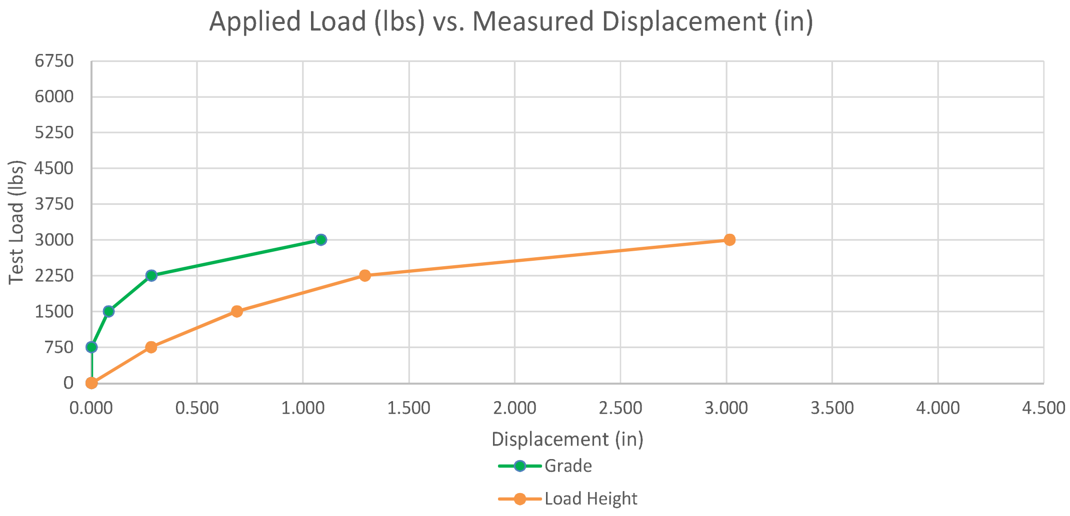
Project:	New Frontiers	Pile ID:	PLT-PDA-PV09-5L		
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	8.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	3,600	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 3,600 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.001	0.276	0.001	0.282
1500	0.019	0.537	0.049	0.635
0	0.004	0.290	-	-
1500	0.065	0.686	0.082	0.688
2250	0.214	1.125	0.283	1.292
3000	0.644	2.153	0.746	2.242
0	0.636	1.543	-	-
3000	0.940	2.709	1.084	3.016
3750				
4500				
0	1.369	2.925	-	-



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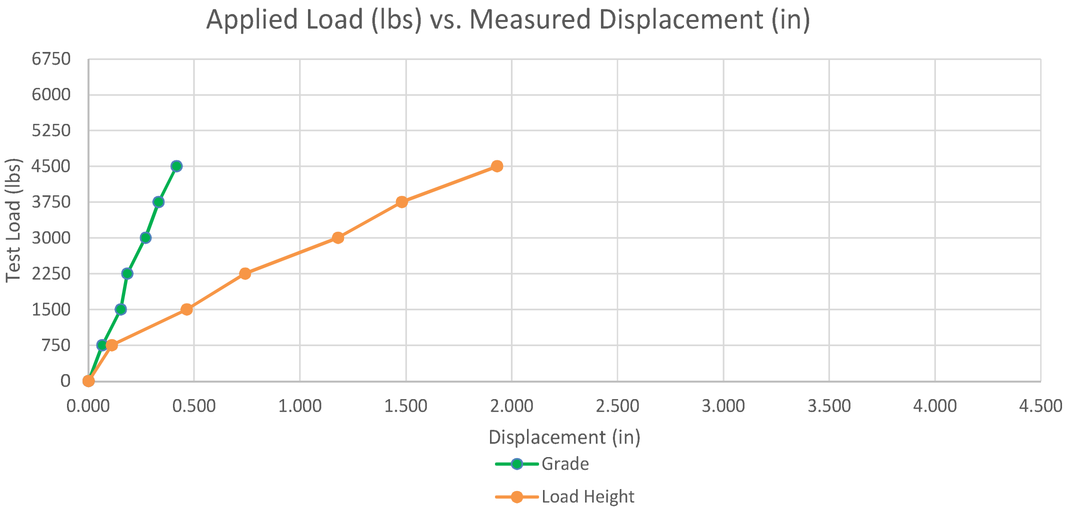
Project:	New Frontiers	Pile ID:	PLT-PDA-PV09-7L		
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	35.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	N/A	Load Height:	4.5 *feet*		
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.060	0.085	0.066	0.110
1500	0.121	0.414	0.126	0.415
0	0.044	0.025	-	-
1500	0.148	0.457	0.152	0.464
2250	0.166	0.724	0.183	0.740
3000	0.235	1.060	0.254	1.062
0	0.063	0.315	-	-
3000	0.258	1.146	0.270	1.180
3750	0.306	1.410	0.332	1.481
4500	0.384	1.815	0.416	1.931
0	0.093	0.459	-	-



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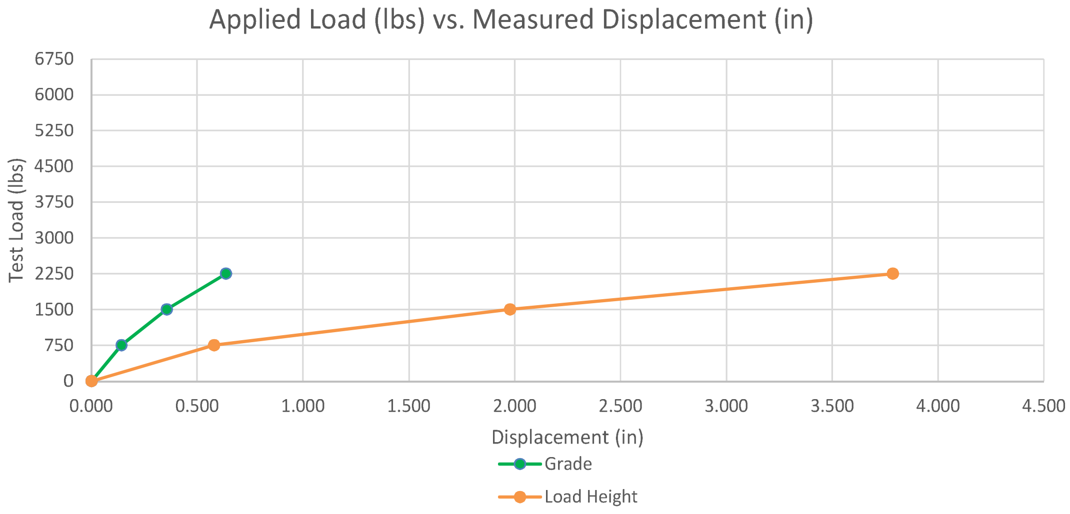
Project:	New Frontiers	Pile ID:	PLT-PDA-PV10-5L		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	16.1 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	2,300	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 2,300 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.100	0.379	0.142	0.579
1500	0.262	1.446	0.305	1.715
0	0.228	1.204	-	-
1500	0.345	1.933	0.356	1.978
2250	0.565	3.317	0.635	3.786
3000				
0			-	-
3000				
3750				
4500				
0	0.531	2.970	-	-



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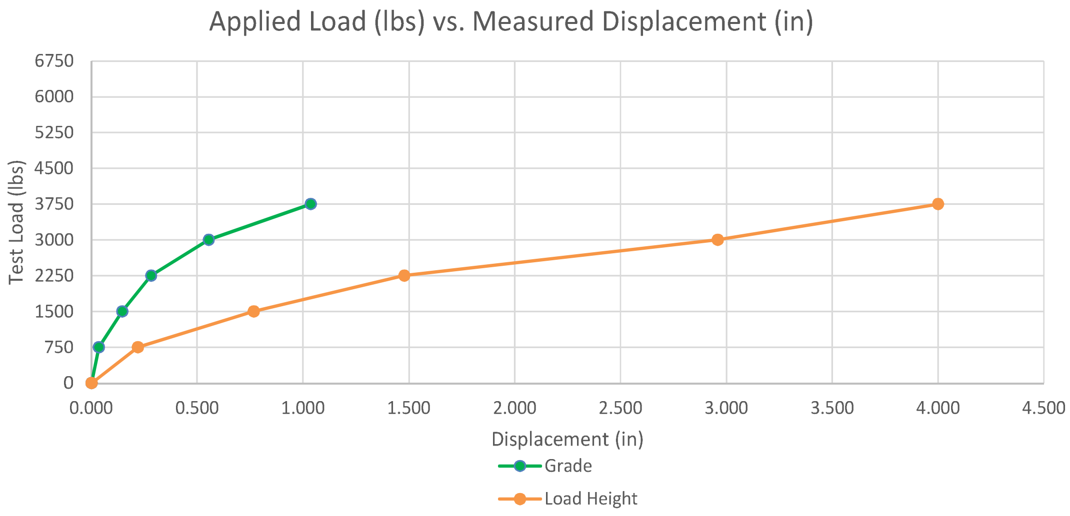
Project:	New Frontiers	Pile ID:	PLT-PDA-PV10-7L		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	19.9 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	3,750	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 3,750 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.030	0.195	0.035	0.220
1500	0.121	0.711	0.129	0.712
0	0.054	0.255	-	-
1500	0.140	0.766	0.146	0.767
2250	0.227	1.236	0.282	1.479
3000	0.403	2.167	0.463	2.481
0	0.272	1.245	-	-
3000	0.512	2.733	0.554	2.959
3750	0.684	3.796	1.035	4.000
4500				
0	0.613	1.753	-	-

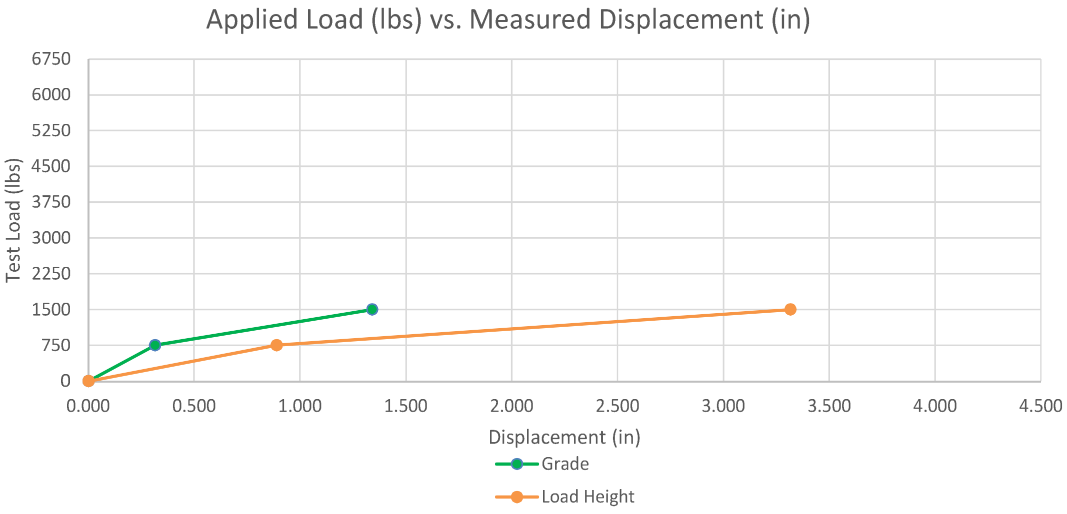


Project:	New Frontiers	Pile ID:	PLT-PDA-PV110-5L			
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361			
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025			
Test Weather:	Cloudy	Pile Drive Time:	5.8 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	11.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*	
Failure Load*:	1,800	Load Height:	4.5 *feet*			
Notes:	Continuous displacement at 1,800 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.264	0.768	0.314	0.890
1500	0.993	2.582	1.126	2.854
0	0.677	1.520	-	-
1500	1.330	3.310	1.340	3.317
2250				
3000				
0			-	-
3000				
3750				
4500				
0	1.103	2.467	-	-

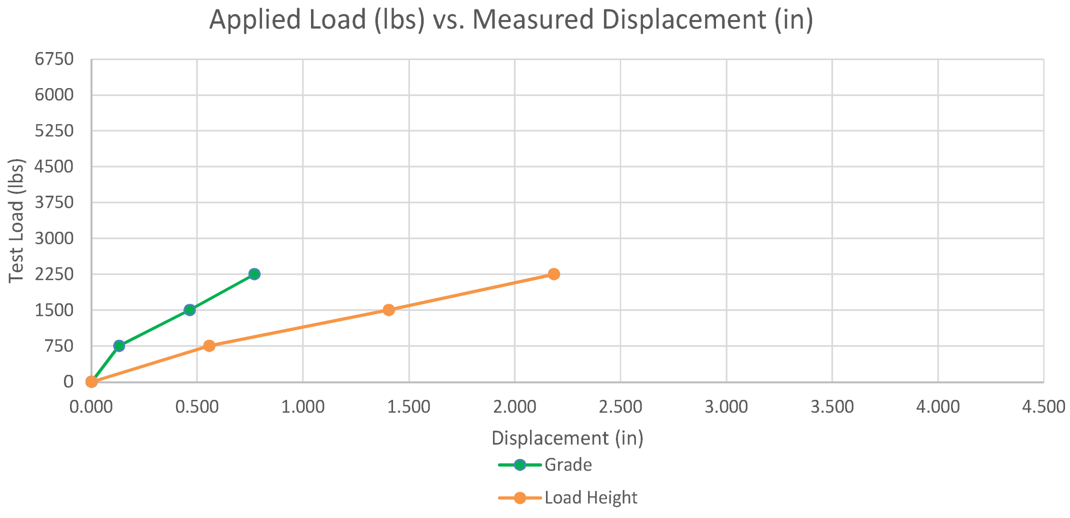


Project:	New Frontiers	Pile ID:	PLT-PDA-PV110-7L			
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361			
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025			
Test Weather:	Cloudy	Pile Drive Time:	16.6 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	13.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*	
Failure Load*:	3,000	Load Height:	4.5 *feet*			
Notes:	Continuous displacement at 3,000 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.126	0.453	0.131	0.556
1500	0.354	1.135	0.373	1.145
0	0.071	0.165	-	-
1500	0.464	1.373	0.465	1.405
2250	0.707	2.050	0.770	2.185
3000	1.243	3.292	1.313	3.455
0	0.397	0.869	-	-
3000				
3750				
4500				
0	0.647	1.372	-	-

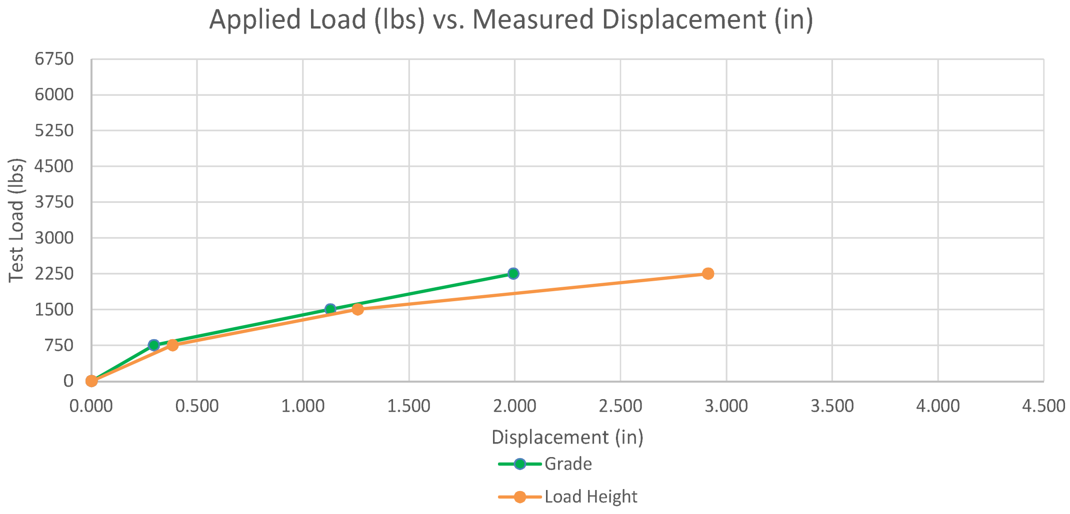


Project:	New Frontiers	Pile ID:	PLT-PDA-PV13-5L		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	11.4 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	2,900	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 2,900 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.197	0.368	0.296	0.383
1500	0.667	0.911	0.732	0.922
0	0.581	0.323	-	-
1500	1.035	1.236	1.128	1.258
2250	1.659	2.385	1.994	2.914
3000				
0			-	-
3000				
3750				
4500				
0	1.959	2.410	-	-

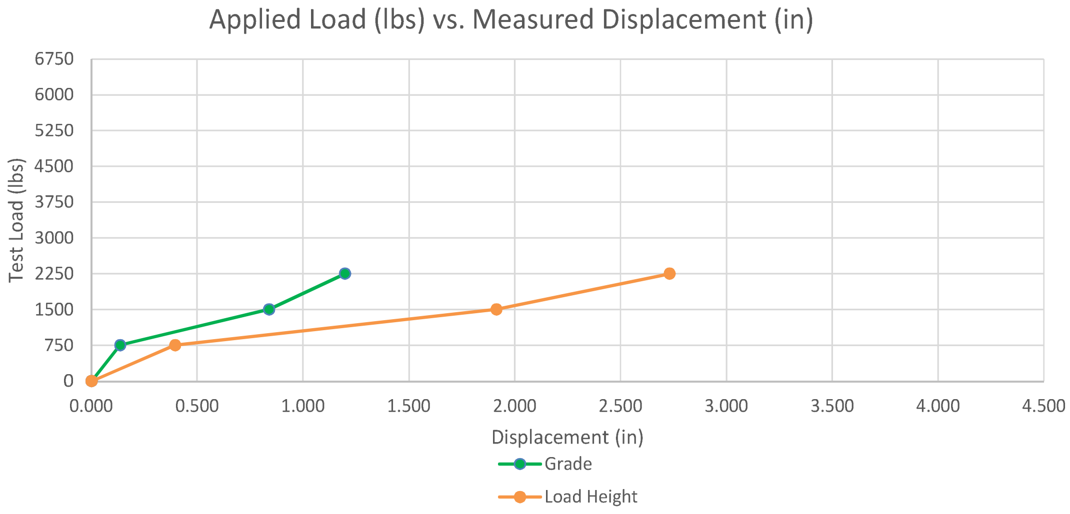


Project:	New Frontiers	Pile ID:	PLT-PDA-PV13-7L			
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002			
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025			
Test Weather:	Clear	Pile Drive Time:	9.4 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	13.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*	
Failure Load*:	3,000	Load Height:	4.5 *feet*			
Notes:	4 inch displacement at 3,000 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.079	0.291	0.135	0.395
1500	0.432	1.075	0.537	1.210
0	0.437	0.853	-	-
1500	0.779	1.829	0.839	1.914
2250	1.025	2.385	1.198	2.732
3000	1.543	3.540	1.801	4.000
0			-	-
3000				
3750				
4500				
0	2.309	1.224	-	-



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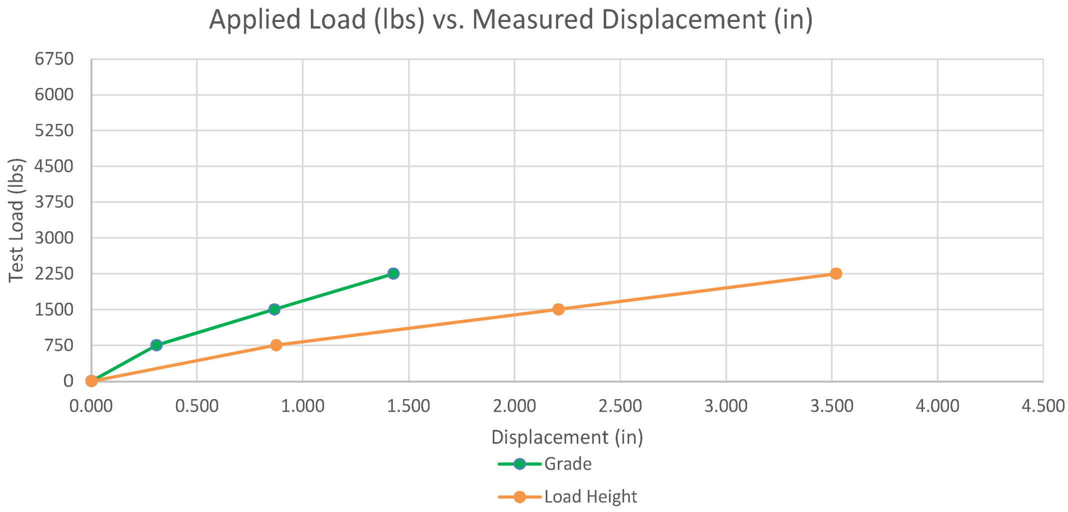
Project:	New Frontiers	Pile ID:	PLT-PDB-D19-5L		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Partly Cloudy	Pile Drive Time:	40.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	2,600	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 2,600 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.285	0.830	0.308	0.874
1500	0.644	1.741	0.734	1.943
0	0.338	0.738	-	-
1500	0.833	2.167	0.865	2.208
2250	1.259	3.181	1.428	3.521
3000				
0			-	-
3000				
3750				
4500				
0	1.114	2.237	-	-



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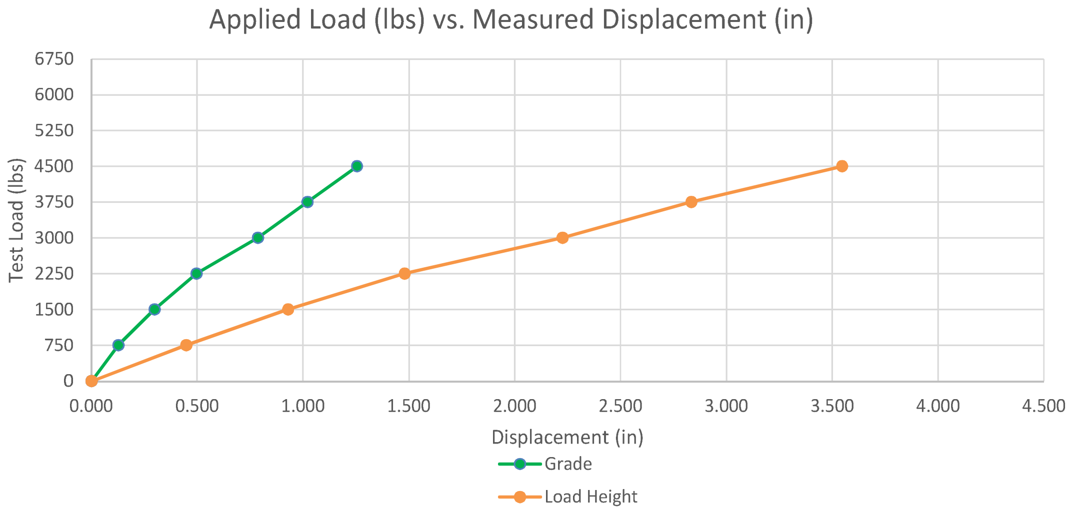
Project:	New Frontiers	Pile ID:	PLT-PDB-D19-7L		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Partly Cloudy	Pile Drive Time:	369.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	N/A	Load Height:	4.5 *feet*		
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.125	0.442	0.127	0.448
1500	0.255	0.830	0.270	0.854
0	0.059	0.152	-	-
1500	0.290	0.925	0.298	0.929
2250	0.466	1.446	0.497	1.480
3000	0.687	1.994	0.723	2.069
0	0.175	0.390	-	-
3000	0.768	2.190	0.786	2.226
3750	0.974	2.751	1.022	2.834
4500	1.247	3.458	1.255	3.547
0	0.366	0.799	-	-



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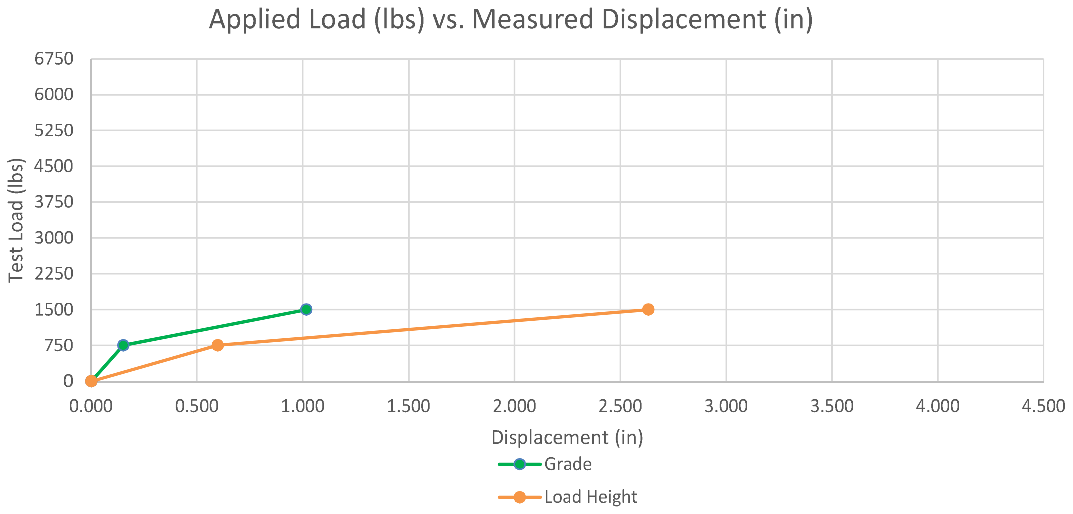
Project:	New Frontiers	Pile ID:	PLT-PDB-D20-5L			
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617			
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025			
Test Weather:	Clear	Pile Drive Time:	10.2 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	11.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*	
Failure Load*:	2,000	Load Height:	4.5 *feet*			
Notes:	Continuous displacement at 2,000 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.144	0.596	0.151	0.598
1500	0.721	2.087	0.873	2.317
0	0.555	1.231	-	-
1500	0.987	2.574	1.017	2.632
2250				
3000				
0			-	-
3000				
3750				
4500				
0	1.073	2.414	-	-



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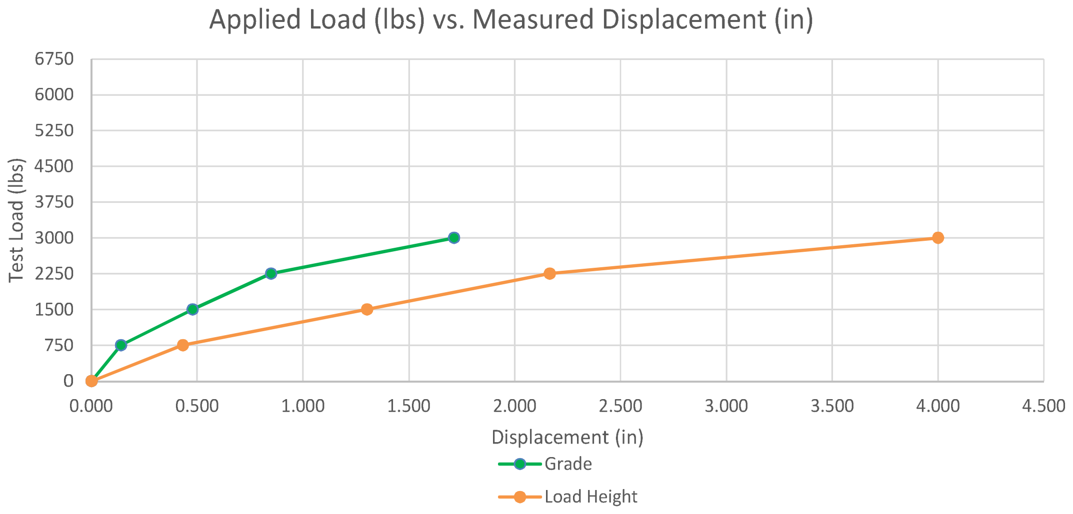
Project:	New Frontiers	Pile ID:	PLT-PDB-D20-7L			
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617			
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025			
Test Weather:	Clear	Pile Drive Time:	25.6 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	13.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*	
Failure Load*:	3,000	Load Height:	4.5 *feet*			
Notes:	4 inch displacement at 3,000 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.137	0.408	0.139	0.432
1500	0.347	1.000	0.418	1.159
0	0.130	0.234	-	-
1500	0.474	1.260	0.478	1.302
2250	0.774	2.043	0.848	2.166
3000	1.315	3.227	1.475	3.547
0	0.756	1.444	-	-
3000	1.656	3.884	1.713	4.000
3750				
4500				
0	0.847	1.797	-	-



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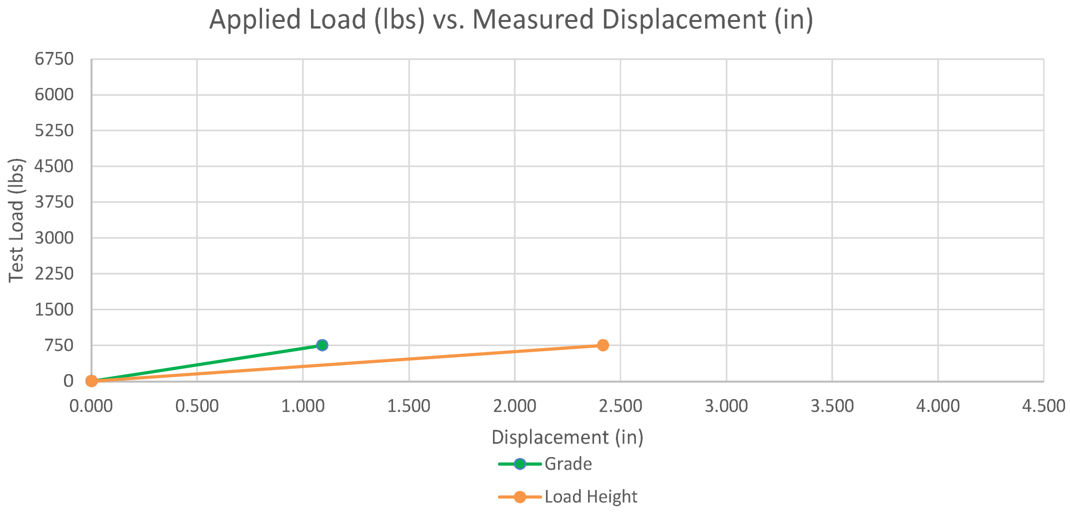
Project:	New Frontiers	Pile ID:	PLT-PDB-D22-5L		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	5.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	1,000	Load Height:	4.5 *feet*		
Notes:	Continuous displacement at 1,000 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.813	1.802	1.090	2.418
1500				
0			-	-
1500				
2250				
3000				
0			-	-
3000				
3750				
4500				
0	1.244	2.555	-	-



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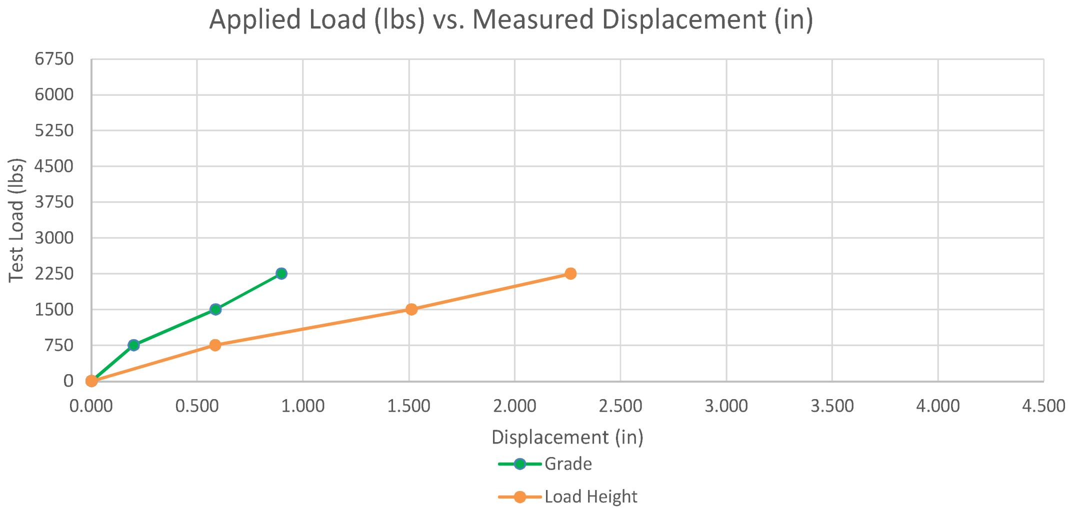
Project:	New Frontiers	Pile ID:	PLT-PDB-D22-7L			
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361			
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025			
Test Weather:	Clear	Pile Drive Time:	8.5 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	13.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*	
Failure Load*:	3,000	Load Height:	4.5 *feet*			
Notes:	Continuous displacement at 3,000 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.198	0.563	0.200	0.584
1500	0.442	1.277	0.487	1.294
0	0.192	0.324	-	-
1500	0.581	1.492	0.587	1.512
2250	0.820	2.118	0.897	2.265
3000	1.342	3.276	1.477	3.498
0	0.585	1.060	-	-
3000				
3750				
4500				
0	0.917	1.648	-	-



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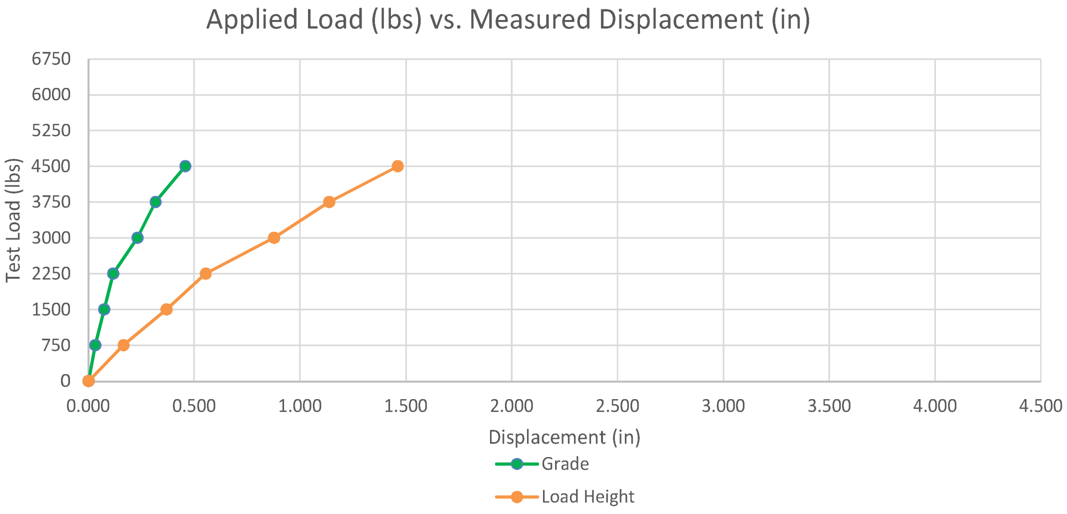
Project:	New Frontiers	Pile ID:	PLT-PDB-PV09-5L
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025
Test Weather:	Clear	Pile Drive Time:	9.3 *seconds*
Technician:	Austin Donaldson	Pile Type:	W6x9
Load ID:	44737	Pile Length:	11.0 *feet*
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet* *Pre-Drill Diameter* *6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet* *Pre-Drill Depth* *6 feet*
Failure Load*:	N/A	Load Height:	4.5 *feet*
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.029	0.142	0.032	0.166
1500	0.058	0.313	0.064	0.324
0	0.020	0.075	-	-
1500	0.069	0.360	0.074	0.369
2250	0.109	0.532	0.117	0.554
3000	0.162	0.769	0.197	0.822
0	0.088	0.215	-	-
3000	0.213	0.859	0.232	0.878
3750	0.279	1.055	0.317	1.137
4500	0.385	1.374	0.458	1.461
0	0.377	0.790	-	-

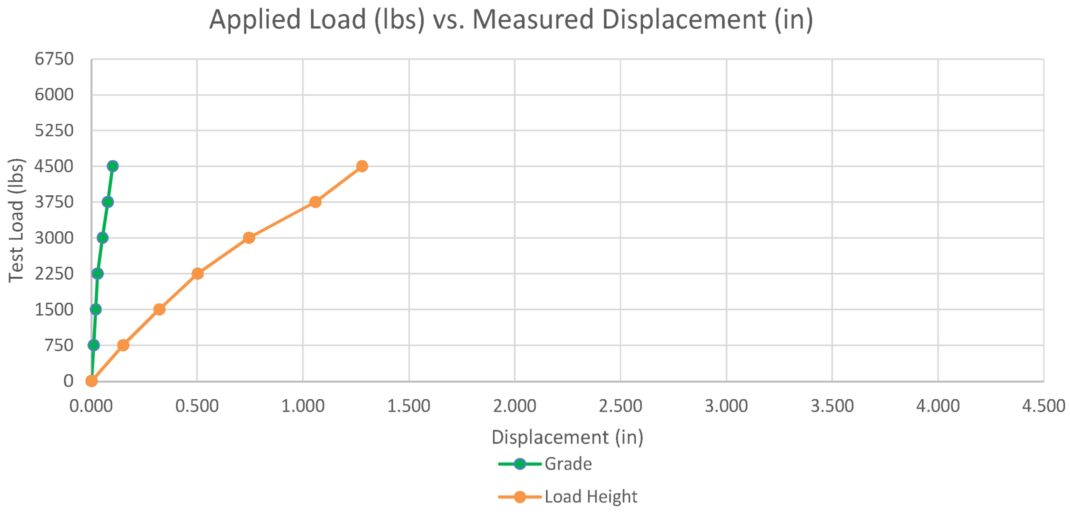


Project:	New Frontiers	Pile ID:	PLT-PDB-PV09-7L			
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922			
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025			
Test Weather:	Clear	Pile Drive Time:	11.6 *seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	13.0 *feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*	
Failure Load*:	N/A	Load Height:	4.5 *feet*			
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.009	0.148	0.011	0.150
1500	0.015	0.239	0.017	0.267
0	0.003	0.000	-	-
1500	0.017	0.255	0.021	0.321
2250	0.029	0.478	0.029	0.502
3000	0.039	0.680	0.045	0.724
0	0.011	0.011	-	-
3000	0.048	0.692	0.052	0.744
3750	0.062	0.899	0.078	1.058
4500	0.089	1.193	0.101	1.279
0	0.025	0.151	-	-

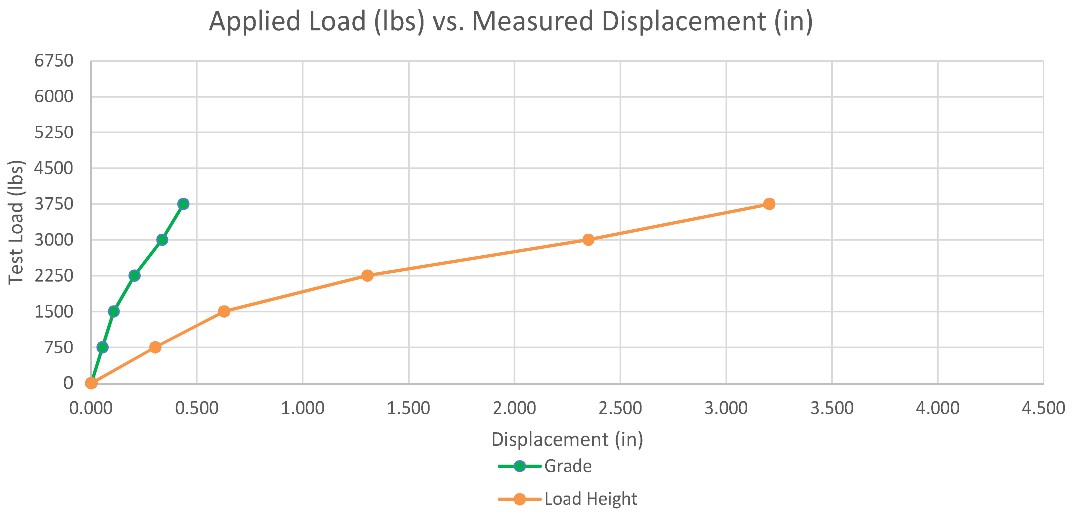


Project:	New Frontiers	Pile ID:	PLT-PDB-PV10-5L				
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697				
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025				
Test Weather:	Clear	Pile Drive Time:	19.8	*seconds*			
Technician:	Austin Donaldson	Pile Type:	W6x9				
Load ID:	44737	Pile Length:	11.0	*feet*			
Disp #1 ID:	F07787	Pile Stick-up:	6.0	*feet*	*Pre-Drill Diameter*	*6 inches*	
Disp #2 ID:	F13308	Pile Embedment:	5.0	*feet*	*Pre-Drill Depth*	*6 feet*	
Failure Load*:	4,300	Load Height:	4.5	*feet*			
Notes:	Continuous displacement at 4,300 lbs.	Load Test Type:	Lateral				

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.049	0.303	0.053	0.303
1500	0.086	0.540	0.094	0.561
0	0.018	0.123	-	-
1500	0.103	0.619	0.107	0.628
2250	0.170	1.019	0.205	1.305
3000	0.261	1.788	0.296	2.025
0	0.124	0.809	-	-
3000	0.314	2.189	0.335	2.350
3750	0.395	2.910	0.436	3.205
4500				
0	0.288	2.003	-	-



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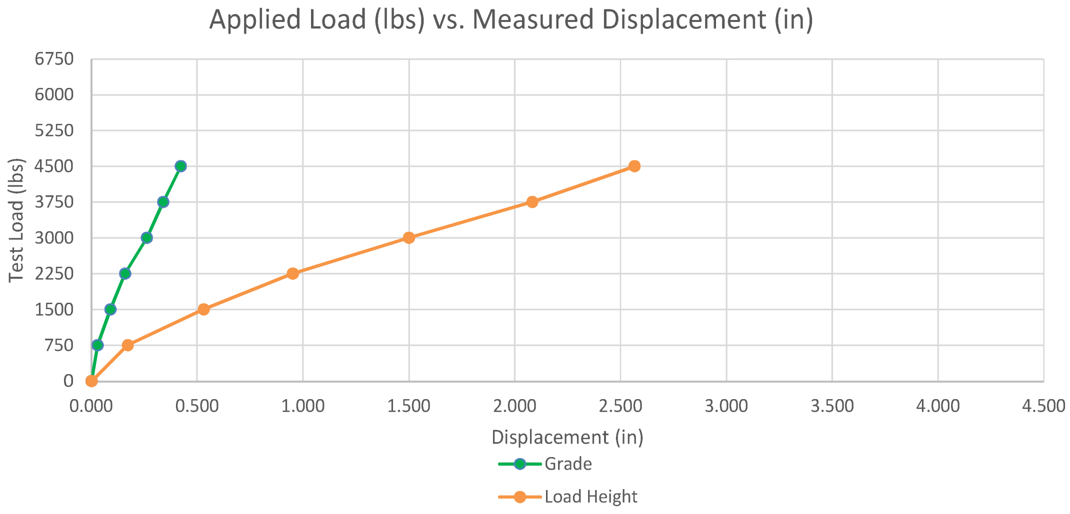
Project:	New Frontiers	Pile ID:	PLT-PDB-PV10-7L		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	14.3 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	N/A	Load Height:	4.5 *feet*		
Notes:	Load test completed to 4,500 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.027	0.170	0.030	0.172
1500	0.063	0.439	0.072	0.439
0	0.016	0.056	-	-
1500	0.083	0.529	0.090	0.530
2250	0.133	0.844	0.159	0.951
3000	0.196	1.257	0.225	1.364
0	0.065	0.276	-	-
3000	0.242	1.427	0.261	1.500
3750	0.308	1.887	0.339	2.083
4500	0.406	2.557	0.423	2.566
0	0.172	0.746	-	-

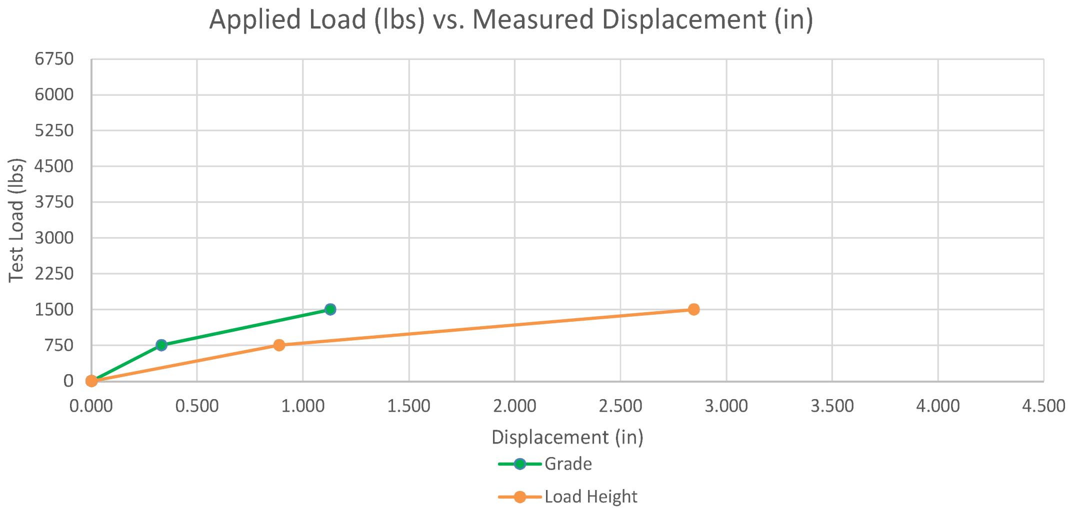


Project:	New Frontiers	Pile ID:	PLT-PDB-PV110-5L			
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361			
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025			
Test Weather:	Cloudy	Pile Drive Time:	6.2	*seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9			
Load ID:	44737	Pile Length:	11.0	*feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0	*feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0	*feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	2,000	Load Height:	4.5	*feet*		
Notes:	Continuous displacement at 2,000 lbs.	Load Test Type:	Lateral			

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.311	0.843	0.331	0.887
1500	0.886	2.280	0.967	2.461
0	0.620	1.388	-	-
1500	1.090	2.769	1.129	2.846
2250				
3000				
0			-	-
3000				
3750				
4500				
0	1.191	2.620	-	-



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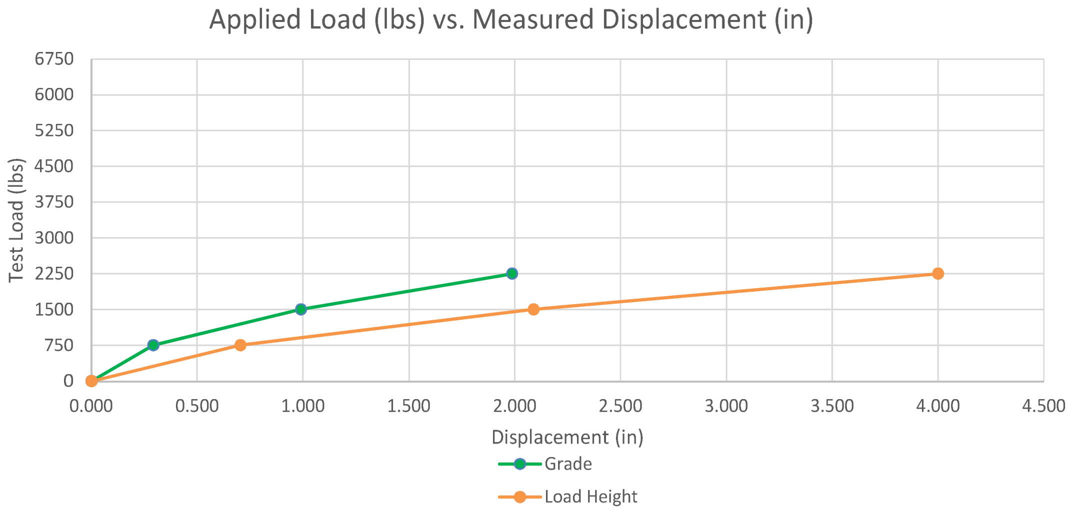
Project:	New Frontiers	Pile ID:	PLT-PDB-PV110-7L		
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025		
Test Weather:	Cloudy	Pile Drive Time:	7.6 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	2,250	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 2,250 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.262	0.644	0.292	0.704
1500	0.777	1.788	0.836	1.817
0	0.493	0.774	-	-
1500	0.952	2.022	0.989	2.090
2250	1.966	3.999	1.988	4.000
3000				
0			-	-
3000				
3750				
4500				
0	1.349	2.225	-	-

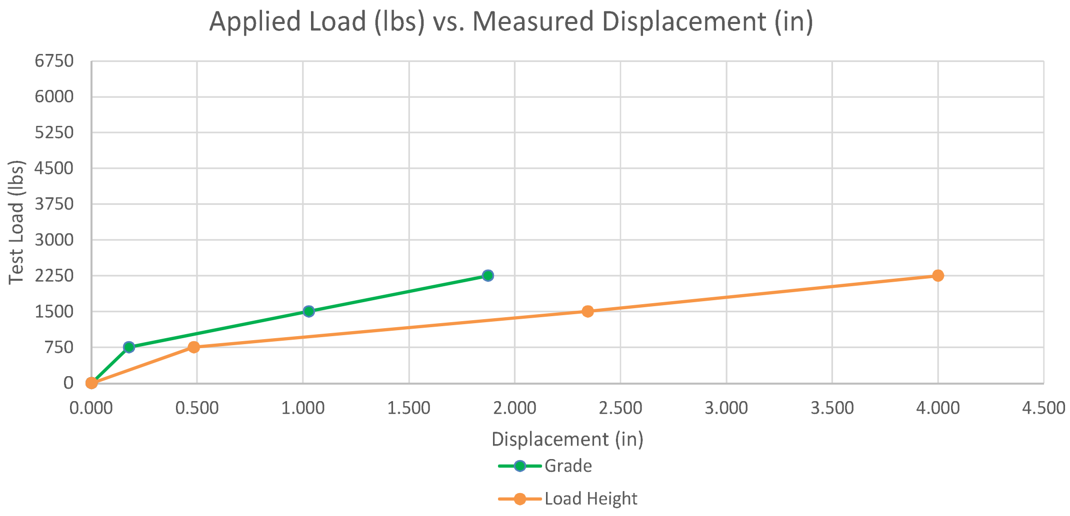


Project:	New Frontiers	Pile ID:	PLT-PDB-PV13-5L		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	5.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
Failure Load*:	2,250	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 2,250 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.160	0.458	0.177	0.484
1500	0.478	1.221	0.744	1.719
0	0.567	1.156	-	-
1500	0.890	2.051	1.027	2.346
2250	1.615	3.645	1.874	4.000
3000				
0			-	-
3000				
3750				
4500				
0	1.457	2.851	-	-



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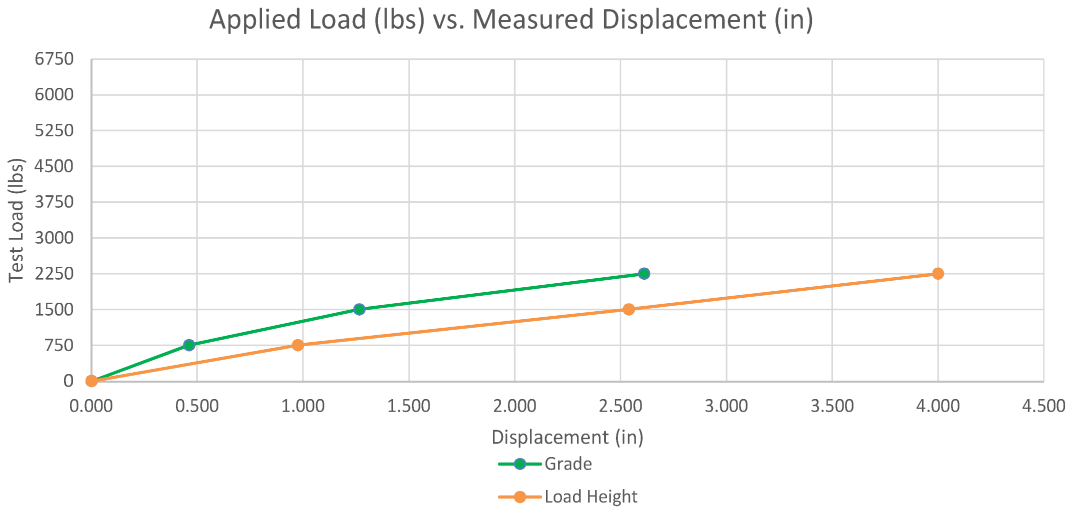
Project:	New Frontiers	Pile ID:	PLT-PDB-PV13-7L		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	21.8 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	44737	Pile Length:	13.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	7.0 *feet*	*Pre-Drill Depth*	*8 feet*
Failure Load*:	2,250	Load Height:	4.5 *feet*		
Notes:	4 inch displacement at 2,250 lbs.	Load Test Type:	Lateral		

*Failure Load is load at which displacement exceeds capacity of gauge (4 in)

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Grade	Load Height	Grade	Load Height
0	0.000	0.000	0.000	0.000
750	0.351	0.765	0.461	0.976
1500	0.832	1.796	1.040	2.222
0	0.547	0.914	-	-
1500	1.183	2.445	1.265	2.539
2250	1.985	3.977	2.612	4.000
3000				
0			-	-
3000				
3750				
4500				
0	1.302	2.155	-	-



Appendix D5

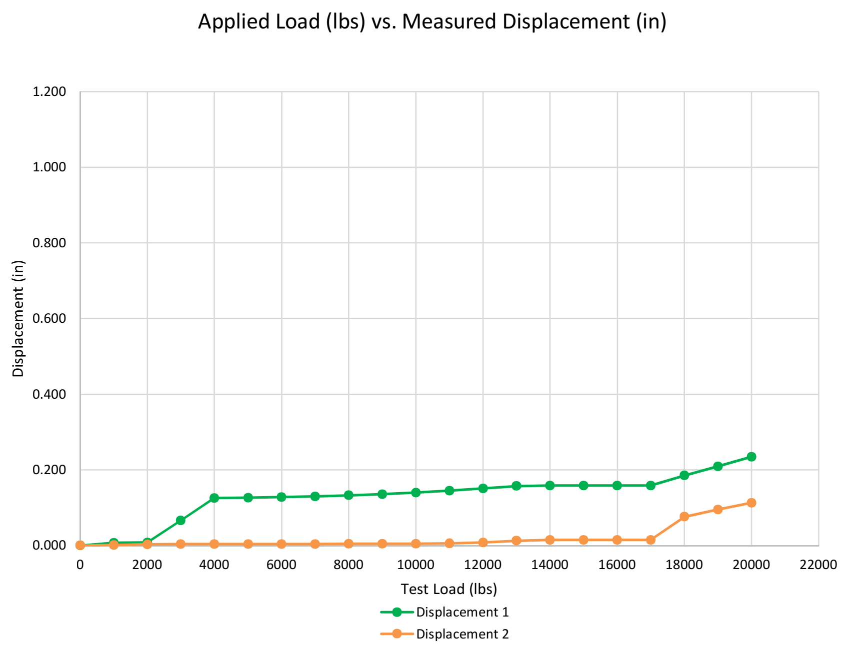
Axial Compression Pile Load Testing Data

Project:	New Frontiers	Pile ID:	PLT-103-6C		
Test Date:	11/9/2024	Pile GPS Location:	37.78965 , -86.50185		
Testing Phase:	Pre-Design	Pile Install Date:	11/2/2024		
Test Weather:	Cloudy	Pile Drive Time:	85.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	30845	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	2.0 *feet*		
Notes:	Load test completed to 20,000 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.008	0.001	0.008	0.001
2000	0.008	0.003	0.008	0.003
3000	0.066	0.003	0.066	0.004
4000	0.126	0.004	0.126	0.004
5000	0.127	0.004	0.127	0.004
6000	0.128	0.004	0.128	0.004
7000	0.130	0.004	0.130	0.004
8000	0.133	0.005	0.133	0.005
9000	0.136	0.005	0.136	0.005
10000	0.139	0.005	0.140	0.005
11000	0.144	0.006	0.145	0.006
12000	0.151	0.008	0.151	0.008
13000	0.158	0.012	0.158	0.013
14000	0.159	0.015	0.159	0.015
15000	0.159	0.015	0.159	0.015
16000	0.159	0.015	0.159	0.015
17000	0.159	0.015	0.159	0.015
18000	0.184	0.070	0.185	0.076
19000	0.205	0.076	0.209	0.095
20000	0.210	0.103	0.235	0.113



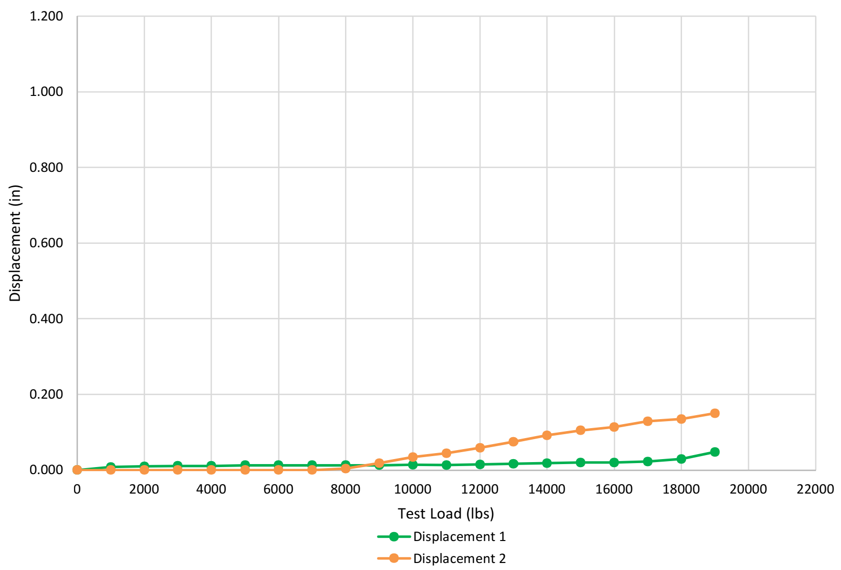
Project:	New Frontiers	Pile ID:	PLT-107-6C		
Test Date:	11/11/2024	Pile GPS Location:	37.80509 , -86.4918		
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024		
Test Weather:	Clear	Pile Drive Time:	81.2 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	30845	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	2.0 *feet*		
Notes:	Test stopped at 20,000 lbs. due to equipment malfunction	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.008	0.000	0.008	0.000
2000	0.010	0.000	0.010	0.000
3000	0.011	0.000	0.011	0.000
4000	0.011	0.000	0.011	0.000
5000	0.013	0.000	0.013	0.000
6000	0.013	0.000	0.013	0.000
7000	0.013	0.000	0.013	0.000
8000	0.013	0.004	0.013	0.004
9000	0.013	0.015	0.013	0.018
10000	0.014	0.030	0.014	0.034
11000	0.014	0.043	0.014	0.044
12000	0.015	0.058	0.015	0.059
13000	0.017	0.073	0.017	0.075
14000	0.019	0.089	0.019	0.092
15000	0.020	0.099	0.020	0.105
16000	0.020	0.113	0.020	0.114
17000	0.021	0.126	0.022	0.129
18000	0.026	0.132	0.029	0.135
19000	0.033	0.137	0.048	0.150
20000	0.069	0.176		

Applied Load (lbs) vs. Measured Displacement (in)



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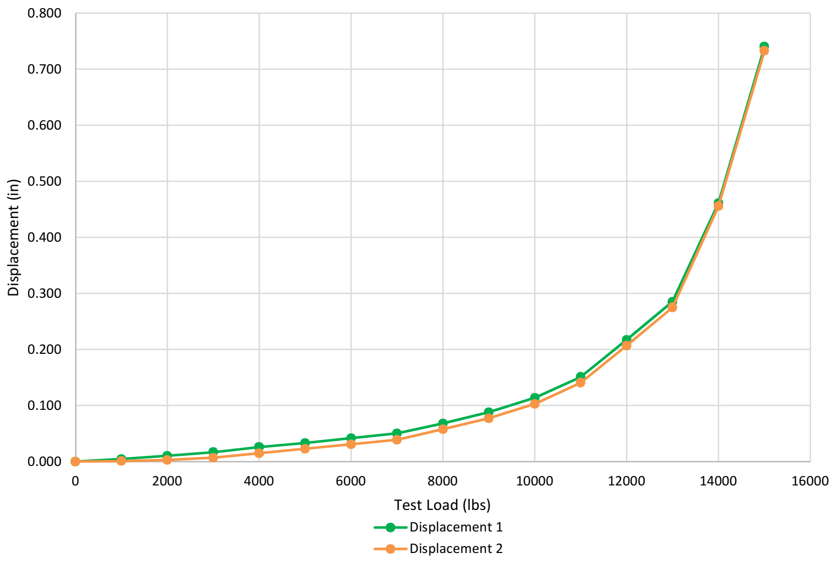
Project:	New Frontiers	Pile ID:	PLT-110-6C
Test Date:	11/12/2024	Pile GPS Location:	37.81435 , -86.50798
Testing Phase:	Pre-Design	Pile Install Date:	11/3/2024
Test Weather:	Clear	Pile Drive Time:	78.5 *seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	30845	Pile Length:	11.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet* *Pre-Drill Depth* *N/A*
CD* Load:	N/A	Load Height:	5.0 *feet*
Notes:	Test stopped at 15,500 lbs. due to equipment malfunction	Load Test Type:	Compression

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.004	0.001	0.005	0.001
2000	0.009	0.001	0.010	0.003
3000	0.016	0.006	0.017	0.007
4000	0.023	0.012	0.026	0.015
5000	0.031	0.020	0.033	0.023
6000	0.039	0.028	0.042	0.031
7000	0.047	0.037	0.050	0.039
8000	0.060	0.053	0.068	0.058
9000	0.080	0.070	0.088	0.077
10000	0.105	0.096	0.114	0.103
11000	0.137	0.130	0.151	0.141
12000	0.160	0.160	0.217	0.207
13000	0.239	0.232	0.285	0.275
14000	0.370	0.380	0.461	0.456
15000	0.580	0.590	0.740	0.733
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)

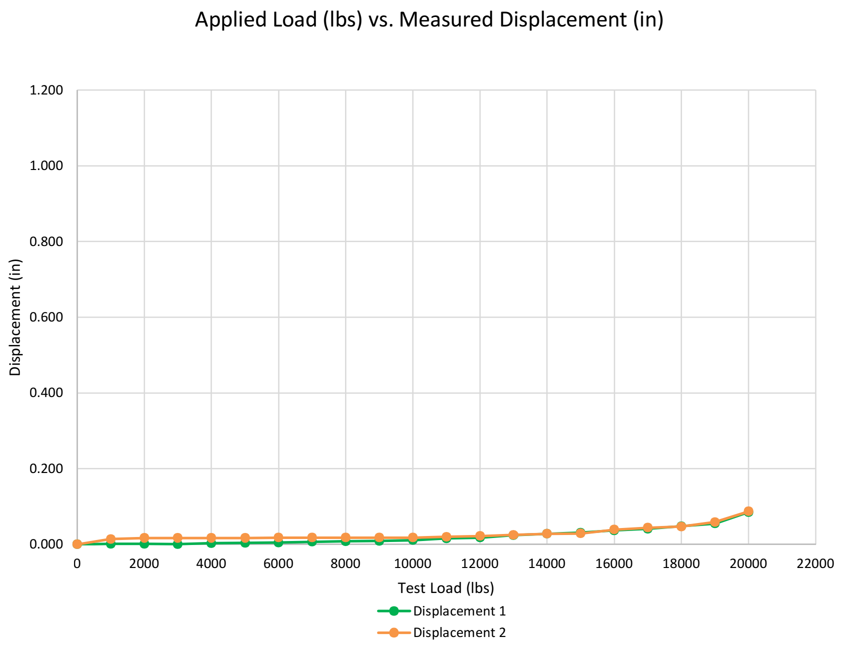


Project:	New Frontiers	Pile ID:	PLT-PV-01-6C
Test Date:	11/7/2024	Pile GPS Location:	37.76158 , -86.47807
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024
Test Weather:	Cloudy	Pile Drive Time:	50.0 *seconds*
Technician:	Douglas Riedemann	Pile Type:	W6x9
Load ID:	30845	Pile Length:	11.0 *feet*
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet* *Pre-Drill Diameter* *N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet* *Pre-Drill Depth* *N/A*
CD* Load:	N/A	Load Height:	2.0 *feet*
Notes:	Load test completed to 20,000 lbs.	Load Test Type:	Compression

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.014	0.001	0.014
2000	0.001	0.017	0.001	0.017
3000	0.001	0.017	0.001	0.017
4000	0.003	0.017	0.003	0.017
5000	0.004	0.017	0.004	0.017
6000	0.005	0.018	0.005	0.018
7000	0.007	0.018	0.007	0.018
8000	0.008	0.018	0.008	0.018
9000	0.009	0.018	0.009	0.018
10000	0.011	0.018	0.011	0.018
11000	0.016	0.020	0.016	0.020
12000	0.018	0.022	0.018	0.022
13000	0.024	0.025	0.024	0.025
14000	0.028	0.028	0.028	0.028
15000	0.030	0.029	0.031	0.029
16000	0.036	0.039	0.037	0.039
17000	0.038	0.043	0.041	0.044
18000	0.044	0.046	0.048	0.047
19000	0.051	0.055	0.055	0.059
20000	0.065	0.069	0.085	0.087



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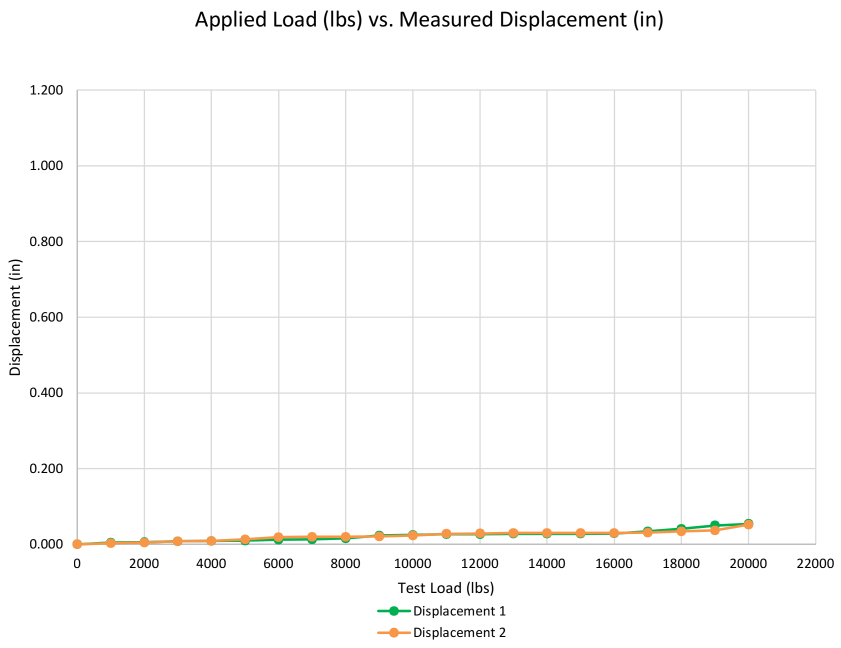
Project:	New Frontiers	Pile ID:	PLT-PV-03-6C		
Test Date:	11/7/2024	Pile GPS Location:	37.75639 , -86.47816		
Testing Phase:	Pre-Design	Pile Install Date:	11/1/2024		
Test Weather:	Cloudy	Pile Drive Time:	67.8 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	30845	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	2.0 *feet*		
Notes:	Load test completed to 20,000 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.003	0.005	0.003
2000	0.006	0.005	0.006	0.005
3000	0.006	0.007	0.008	0.008
4000	0.008	0.009	0.009	0.009
5000	0.010	0.013	0.010	0.013
6000	0.012	0.019	0.012	0.019
7000	0.013	0.020	0.013	0.020
8000	0.016	0.020	0.016	0.020
9000	0.023	0.021	0.023	0.021
10000	0.025	0.023	0.025	0.023
11000	0.027	0.028	0.027	0.028
12000	0.027	0.029	0.027	0.029
13000	0.028	0.030	0.028	0.030
14000	0.028	0.030	0.028	0.030
15000	0.028	0.030	0.028	0.030
16000	0.029	0.030	0.029	0.030
17000	0.031	0.031	0.034	0.031
18000	0.039	0.034	0.041	0.034
19000	0.046	0.037	0.050	0.037
20000	0.054	0.052	0.054	0.052



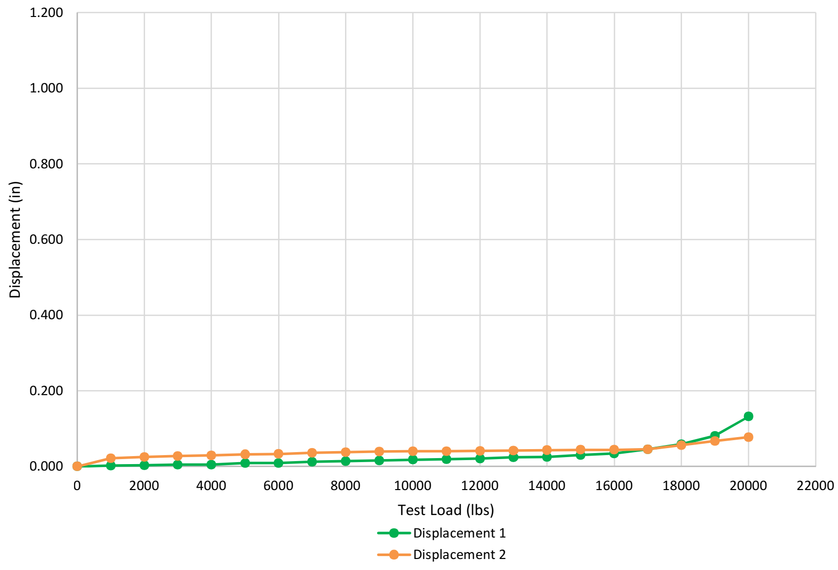
Project:	New Frontiers	Pile ID:	PLT-PV-09-6C		
Test Date:	11/5/2024	Pile GPS Location:	37.7571 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	10/31/2024		
Test Weather:	Partly Cloudy	Pile Drive Time:	64.9 *seconds*		
Technician:	Douglas Riedemann	Pile Type:	W6x9		
Load ID:	30845	Pile Length:	11.0 *feet*		
Disp #1 ID:	17B0320	Pile Stick-up:	5.0 *feet*	*Pre-Drill Diameter*	*N/A*
Disp #2 ID:	F07754	Pile Embedment:	6.0 *feet*	*Pre-Drill Depth*	*N/A*
CD* Load:	N/A	Load Height:	2.0 *feet*		
Notes:	Load test completed to 20,000 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.001	0.022	0.002	0.022
2000	0.003	0.025	0.003	0.025
3000	0.004	0.028	0.005	0.028
4000	0.005	0.030	0.005	0.030
5000	0.007	0.032	0.009	0.032
6000	0.009	0.033	0.009	0.033
7000	0.012	0.037	0.012	0.037
8000	0.013	0.038	0.014	0.038
9000	0.015	0.039	0.016	0.040
10000	0.017	0.040	0.018	0.041
11000	0.019	0.041	0.019	0.041
12000	0.020	0.041	0.021	0.041
13000	0.023	0.042	0.024	0.042
14000	0.024	0.043	0.025	0.043
15000	0.026	0.043	0.030	0.044
16000	0.031	0.044	0.034	0.044
17000	0.042	0.044	0.045	0.045
18000	0.053	0.054	0.059	0.056
19000	0.070	0.067	0.081	0.067
20000	0.123	0.072	0.132	0.078

Applied Load (lbs) vs. Measured Displacement (in)



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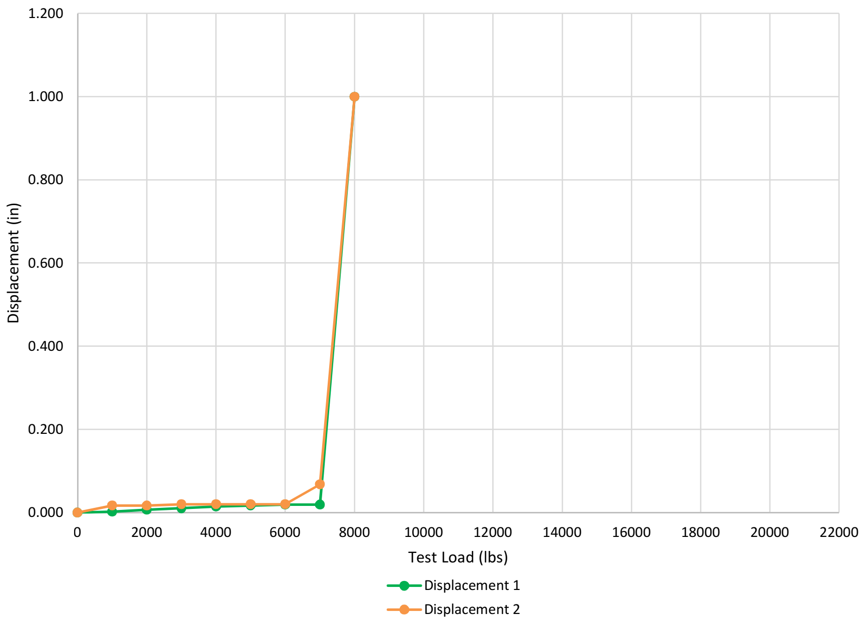
Project:	New Frontiers	Pile ID:	PLT-PDA-D19-5C		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Cloudy	Pile Drive Time:	12.9 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	8,000	Load Height:	2.0 *feet*		
Notes:	1 inch displacement at 8,000 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.002	0.017	0.002	0.017
2000	0.006	0.017	0.007	0.017
3000	0.010	0.020	0.010	0.020
4000	0.014	0.020	0.014	0.020
5000	0.017	0.020	0.017	0.020
6000	0.019	0.020	0.019	0.020
7000	0.019	0.052	0.019	0.068
8000	0.218	0.285	1.000	1.000
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)



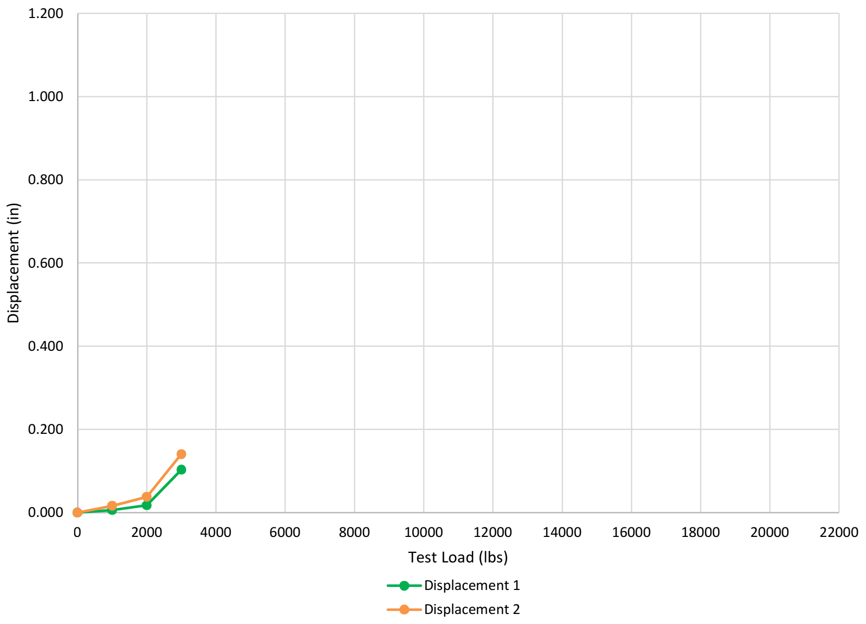
Project:	New Frontiers	Pile ID:	PLT-PDA-D20-5C
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025
Test Weather:	Clear	Pile Drive Time:	8.5 *seconds*
Technician:	Austin Donaldson	Pile Type:	W6x9
Load ID:	41944	Pile Length:	11.0 *feet*
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet* *Pre-Drill Diameter* *6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet* *Pre-Drill Depth* *6 feet*
CD* Load:	3,600	Load Height:	2.0 *feet*
Notes:	Continuous displacement at 3,600 lbs.	Load Test Type:	Compression

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.015	0.006	0.016
2000	0.014	0.034	0.018	0.038
3000	0.058	0.084	0.103	0.141
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)



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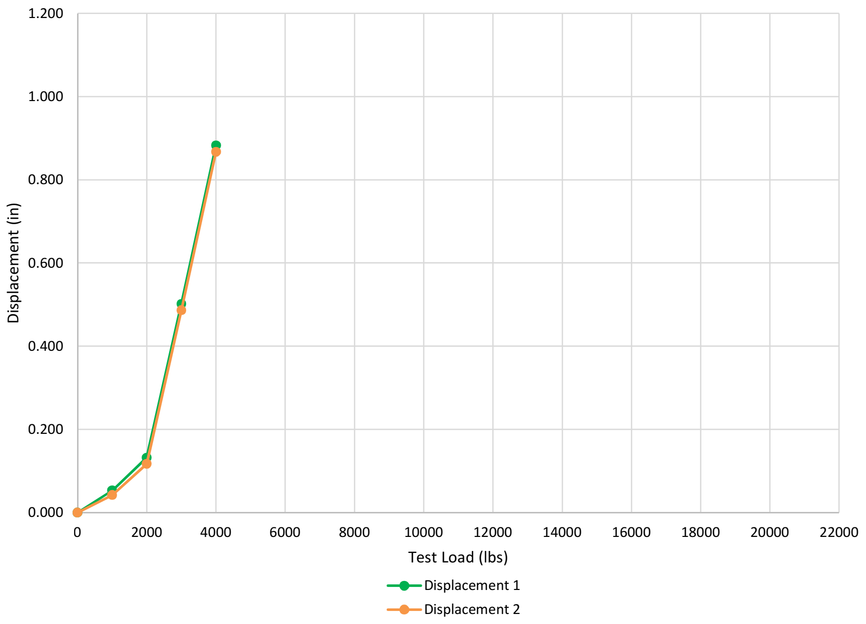
Project:	New Frontiers	Pile ID:	PLT-PDA-D22-5C		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	6.8 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	4,700	Load Height:	2.0 *feet*		
Notes:	Continous displacement at 4,700 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.045	0.035	0.053	0.042
2000	0.092	0.081	0.132	0.117
3000	0.412	0.398	0.502	0.487
4000	0.709	0.697	0.883	0.868
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)



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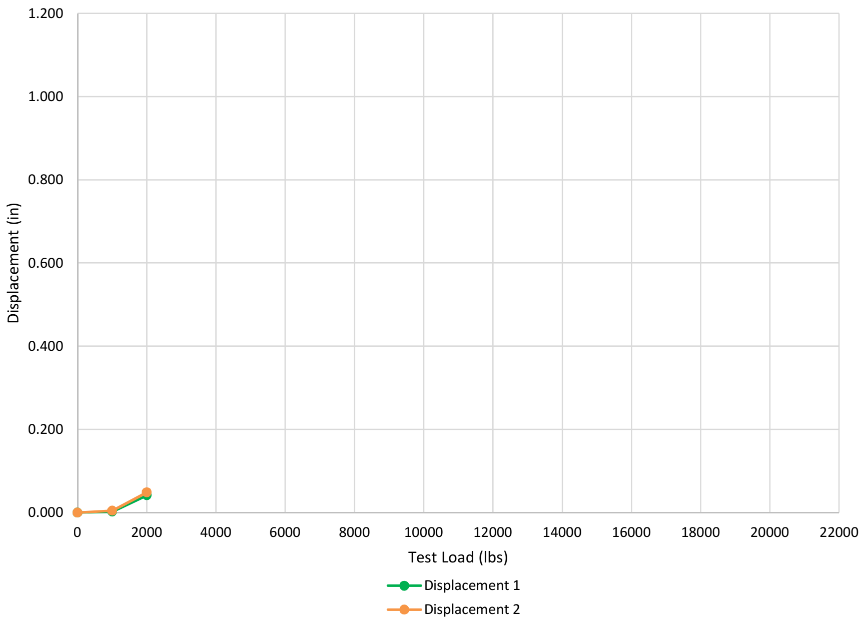
Project:	New Frontiers	Pile ID:	PLT-PDA-PV09-5C		
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	12.9 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,500	Load Height:	2.0 *feet*		
Notes:	Continuous displacement at 2,500 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.002	0.005	0.003	0.005
2000	0.030	0.044	0.042	0.049
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)



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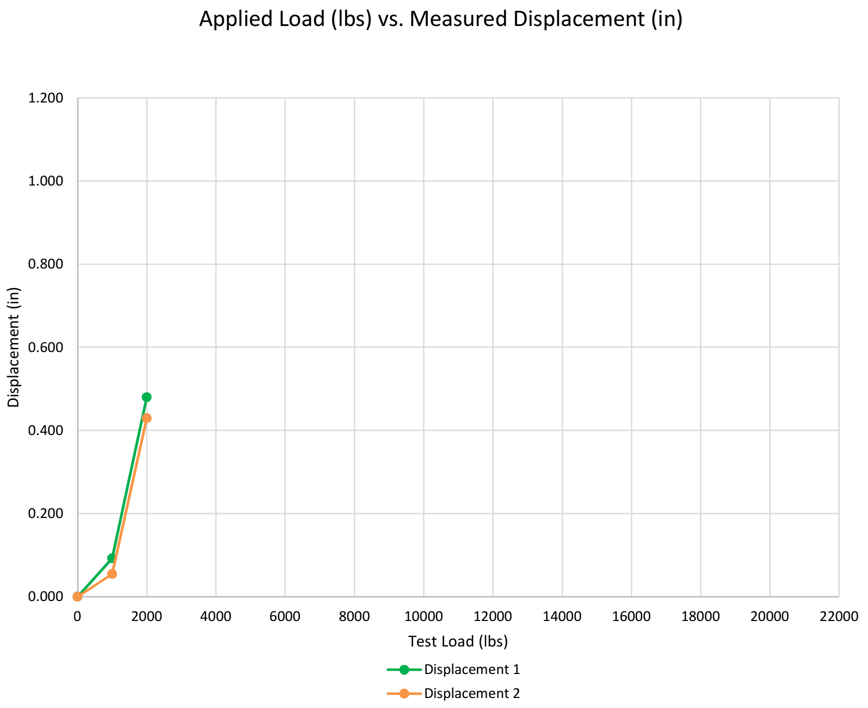
Project:	New Frontiers	Pile ID:	PLT-PDA-PV10-5C		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	13.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,100	Load Height:	2.0 *feet*		
Notes:	Continuous displacement at 2,100 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.074	0.040	0.092	0.055
2000	0.409	0.368	0.480	0.430
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				



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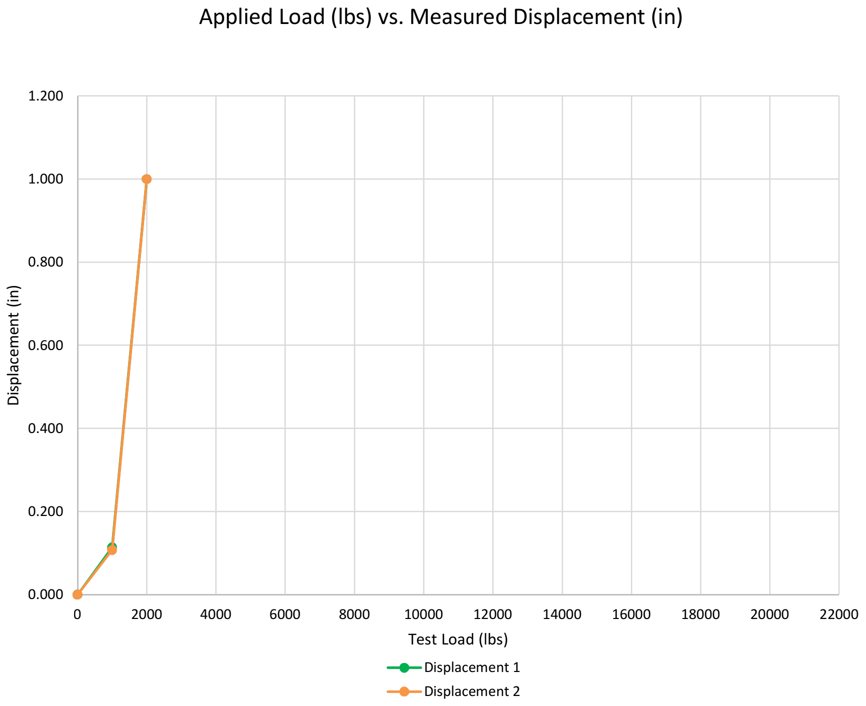
Project:	New Frontiers	Pile ID:	PLT-PDA-PV110-5C		
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025		
Test Weather:	Cloudy	Pile Drive Time:	5.2 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,000	Load Height:	2.0 *feet*		
Notes:	1 inch displacement at 2,000 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.073	0.069	0.114	0.108
2000	0.505	0.515	1.000	1.000
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				



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Project:	New Frontiers	Pile ID:	PLT-PDA-PV13-5C		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	9.5 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	4,100	Load Height:	2.0 *feet*		
Notes:	Continuous displacement at 4,100 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.035	0.027	0.036	0.028
2000	0.055	0.034	0.057	0.041
3000	0.074	0.042	0.120	0.043
4000	0.178	0.063	0.245	0.094
5000				
6000				
7000				
8000				
9000				
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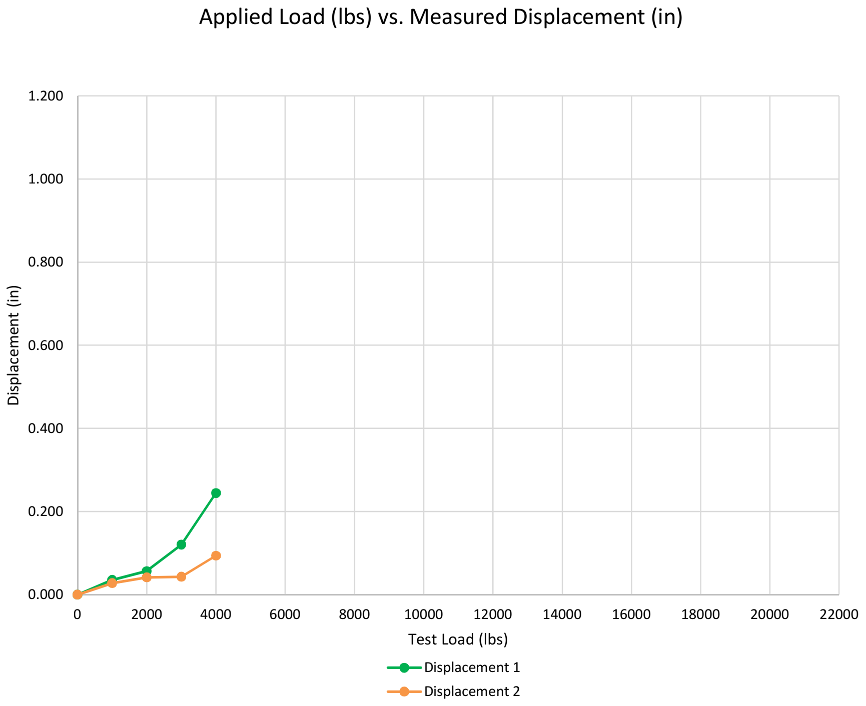
14000				
15000				
16000				
17000				
18000				
19000				
20000				



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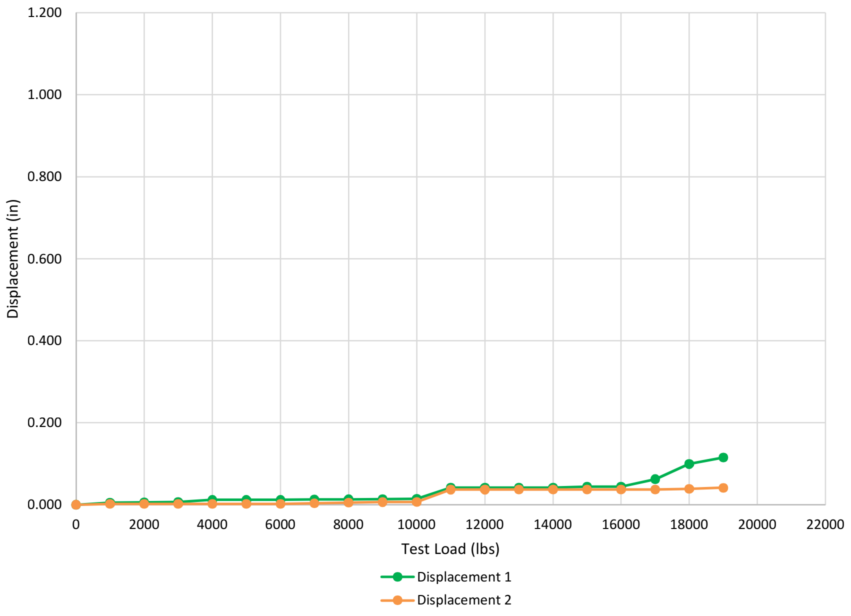
Project:	New Frontiers	Pile ID:	PLT-PDB-D19-5C		
Test Date:	2/26/2025	Pile GPS Location:	37.81111 , -86.50798		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	80.1 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	N/A	Load Height:	2.0 *feet*		
Notes:	Test stopped at 19,700 lbs. due to equipment malfunction.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.002	0.005	0.002
2000	0.006	0.002	0.006	0.002
3000	0.007	0.002	0.007	0.002
4000	0.012	0.002	0.012	0.002
5000	0.012	0.002	0.012	0.002
6000	0.012	0.002	0.012	0.002
7000	0.013	0.004	0.013	0.004
8000	0.014	0.005	0.014	0.006
9000	0.014	0.006	0.014	0.007
10000	0.015	0.007	0.015	0.007
11000	0.042	0.037	0.042	0.037
12000	0.042	0.037	0.042	0.037
13000	0.042	0.038	0.042	0.038
14000	0.042	0.038	0.042	0.038
15000	0.045	0.038	0.045	0.038
16000	0.045	0.038	0.045	0.038
17000	0.062	0.038	0.063	0.038
18000	0.100	0.039	0.100	0.039
19000	0.110	0.041	0.115	0.042
20000				

Applied Load (lbs) vs. Measured Displacement (in)



Westwood
Multi-Disciplined Surveying & Engineering

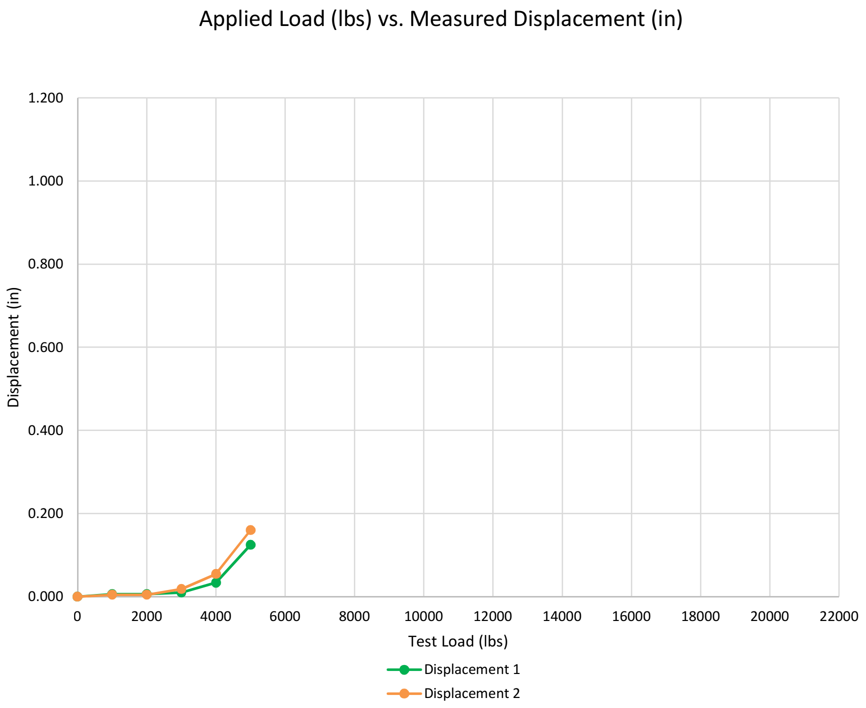
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
westwoodps.com
(888) 937-5150

Project:	New Frontiers	Pile ID:	PLT-PDB-D20-5C
Test Date:	2/27/2025	Pile GPS Location:	37.81204 , -86.50617
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025
Test Weather:	Clear	Pile Drive Time:	10.7 *seconds*
Technician:	Austin Donaldson	Pile Type:	W6x9
Load ID:	41944	Pile Length:	11.0 *feet*
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet* *Pre-Drill Diameter* *6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet* *Pre-Drill Depth* *6 feet*
CD* Load:	5,500	Load Height:	2.0 *feet*
Notes:	Continuous displacement at 5,500 lbs.	Load Test Type:	Compression

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.006	0.005	0.006	0.005
2000	0.006	0.005	0.006	0.005
3000	0.007	0.016	0.010	0.018
4000	0.022	0.049	0.034	0.055
5000	0.065	0.103	0.125	0.160
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				



Westwood
Multi-Disciplined Surveying & Engineering

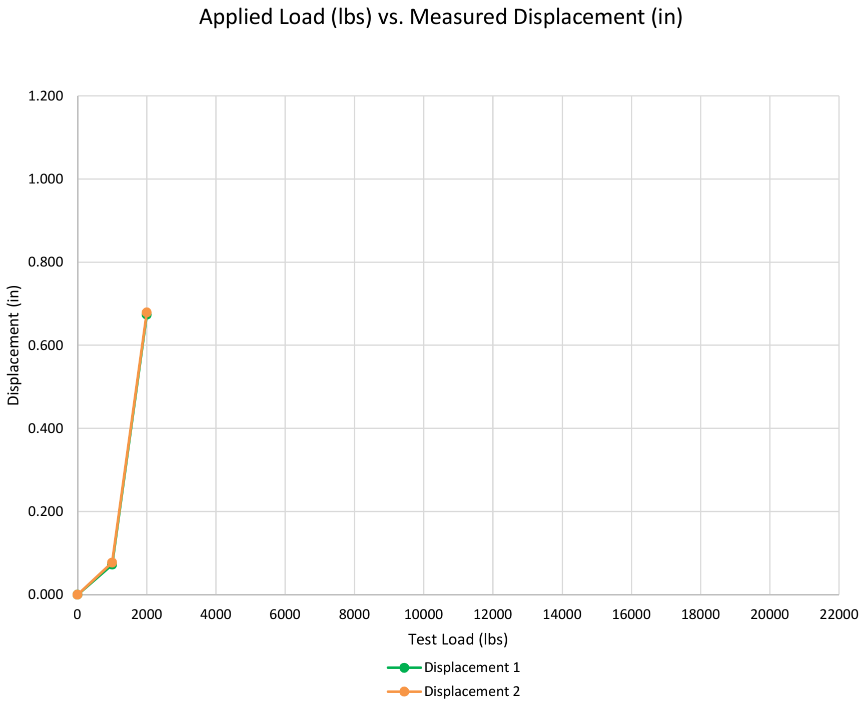
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
westwoodps.com
(888) 937-5150

Project:	New Frontiers	Pile ID:	PLT-PDB-D22-5C		
Test Date:	2/27/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/25/2025		
Test Weather:	Clear	Pile Drive Time:	5.9 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,700	Load Height:	2.0 *feet*		
Notes:	Continuous displacement at 2,700 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.023	0.023	0.073	0.077
2000	0.503	0.506	0.674	0.679
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				



Westwood
Multi-Disciplined Surveying & Engineering

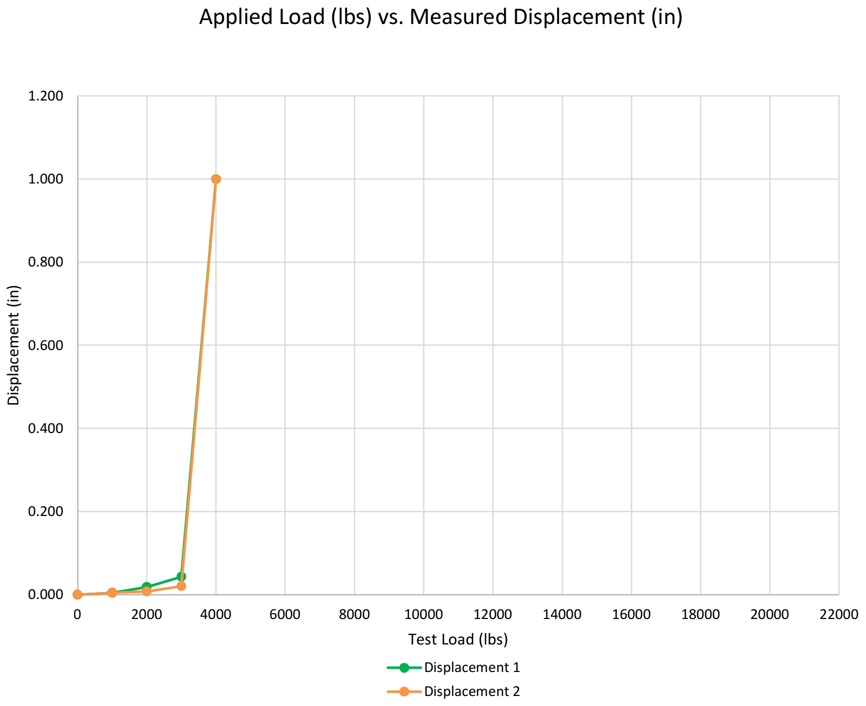
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
westwoodps.com
(888) 937-5150

Project:	New Frontiers	Pile ID:	PLT-PDB-PV09-5C		
Test Date:	2/21/2025	Pile GPS Location:	37.7571 , -86.50922		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	7.2 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	4,000	Load Height:	2.0 *feet*		
Notes:	1 inch displacement at 4,000 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.005	0.005	0.005	0.005
2000	0.015	0.006	0.019	0.008
3000	0.037	0.017	0.043	0.021
4000	0.056	0.029	1.000	1.000
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				



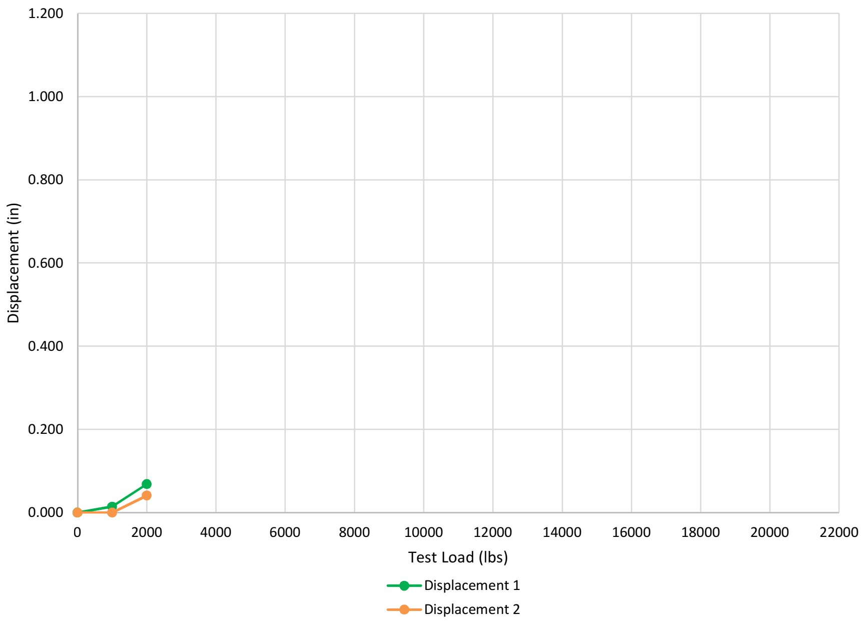
Project:	New Frontiers	Pile ID:	PLT-PDB-PV10-5C		
Test Date:	2/20/2025	Pile GPS Location:	37.75525 , -86.4697		
Testing Phase:	Pre-Design	Pile Install Date:	2/18/2025		
Test Weather:	Clear	Pile Drive Time:	14.0 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	2,700	Load Height:	2.0 *feet*		
Notes:	Continuous displacement at 2,700 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.014	0.000	0.014	0.000
2000	0.057	0.030	0.069	0.041
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)



Westwood
Multi-Disciplined Surveying & Engineering

12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
westwoodps.com
(888) 937-5150

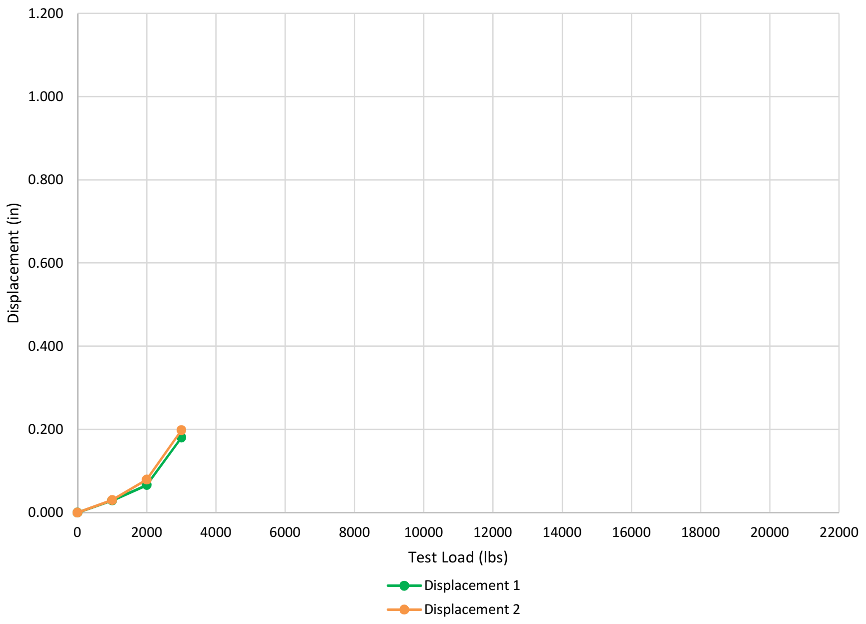
Project:	New Frontiers	Pile ID:	PLT-PDB-PV110-5C		
Test Date:	2/26/2025	Pile GPS Location:	37.81435 , -86.46361		
Testing Phase:	Pre-Design	Pile Install Date:	2/17/2025		
Test Weather:	Cloudy	Pile Drive Time:	8.2 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	3,100	Load Height:	2.0 *feet*		
Notes:	Continuous displacement at 3,100 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000	0.025	0.027	0.029	0.030
2000	0.060	0.074	0.067	0.079
3000	0.102	0.120	0.180	0.198
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)



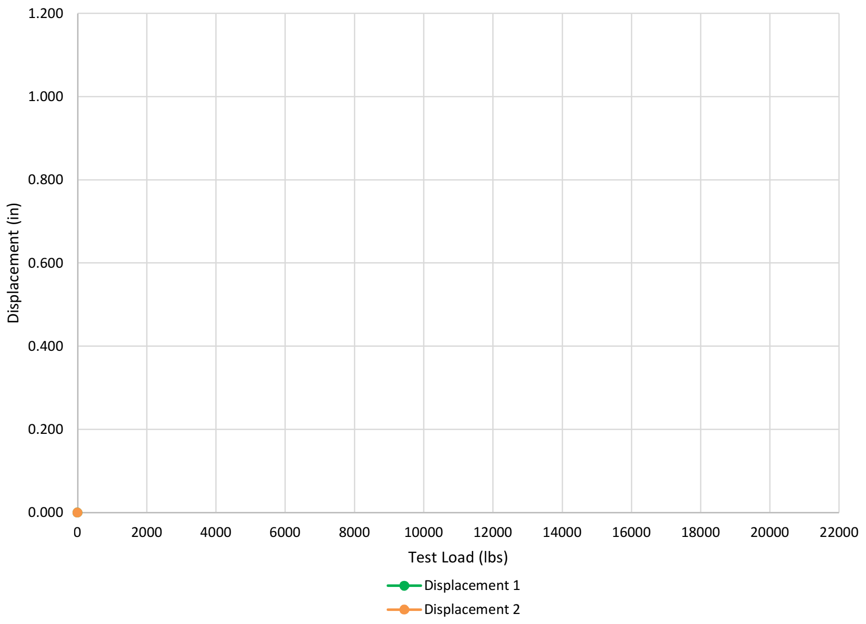
Project:	New Frontiers	Pile ID:	PLT-PDB-PV13-5C		
Test Date:	2/21/2025	Pile GPS Location:	37.75368 , -86.47002		
Testing Phase:	Pre-Design	Pile Install Date:	2/19/2025		
Test Weather:	Clear	Pile Drive Time:	6.4 *seconds*		
Technician:	Austin Donaldson	Pile Type:	W6x9		
Load ID:	41944	Pile Length:	11.0 *feet*		
Disp #1 ID:	F07787	Pile Stick-up:	6.0 *feet*	*Pre-Drill Diameter*	*6 inches*
Disp #2 ID:	F13308	Pile Embedment:	5.0 *feet*	*Pre-Drill Depth*	*6 feet*
CD* Load:	700	Load Height:	2.0 *feet*		
Notes:	Continuous displacement at 700 lbs.	Load Test Type:	Compression		

*Continuous displacement defined as continuous movement under a certain load until pile exceeds 1 inch or greater of displacement.

Applied Load (lbs) vs. Measured Displacement (in)

Test Load (lbs)	Disp @ 0 min (in)		Disp @ 1 min (in)	
	Disp #1	Disp #2	Disp #1	Disp #2
0	0.000	0.000	0.000	0.000
1000				
2000				
3000				
4000				
5000				
6000				
7000				
8000				
9000				
10000				
11000				
12000				
13000				
14000				
15000				
16000				
17000				
18000				
19000				
20000				

Applied Load (lbs) vs. Measured Displacement (in)



Appendix D6

Pile Load Testing Equipment Calibrations

17025 CALIBRATION CERTIFICATE

Certificate Number: 127523

Customer:

WESTWOOD PROFESSIONAL SERVICES
10170 CHURCH RANCH WAY, STE 201
WESTMINSTER, CO 80021

ACCREDITED
CERT #3104.01

BHD
TEST AND MEASUREMENT
2100 W. 6th Ave.
Broomfield, CO 80020, USA
303.469.5335 | sevice@bhdtm.com

PO Number	N/A	***Work Order***	16073
Procedure	ASME B40.100 PRESSURE GAUGES	***Customer ID***	ASH-DIG-03
Procedure Rev	1	***Description***	PRESSURE GAUGE
Technician	ALEX COFFEY	***Manufacturer***	ASHCROFT
Temperature	20°C	***Model Number***	N/A
Humidity	30%	***Serial Number***	23102421016
As-Found	IN TOLERANCE	***Size/Resolution***	10000 PSI
As-Left	IN TOLERANCE	***Grade/Class***	3A
Cal. Location	IN HOUSE	***Form***	DIGITAL
Report Issue Date	15-Feb-2024	***Calibration Date***	15-Feb-2024
		Due Date	15-Feb-2025

The calibration results published in this certificate were obtained using equipment which is traceable through the National Institute of Standards and Technology / NMI to SI Units. BHD Test & Measurement, is accredited to ISO/IEC 17025:2017 and ANSI Z540-1-1994 as applicable. Since the frequencies of calibrations are determined by the customer, the degree of usage is out of our control, BHD Test & Measurement cannot imply conformance to the accuracies and tolerances throughout that duration. BHD Test & Measurement will not accept responsibility for any liability beyond the replacement price of the calibrated item listed on the certificate of calibration. This certificate applies only to the item and item dimensions listed. This certificate may not be reproduced, except in full, without the written permission of BHD Test & Measurement. Whenever statements of conformance are made, measurement uncertainty will be taken into account. If the measurement result, plus or minus the expanded uncertainty, overlaps the specification limit, then the statement of compliance will be "Indeterminate" on the report. In this case BHD will not state compliance.

Measurement Uncertainty (k=2): 0.013 % FS

Calibration Standards Used

Barcode	Manufacturer	Model Number	Serial Number	Description	Due Date
BHD0109	FLUKE	RPM4-E-DWT A70ME-L/A7ME2	1730	ELECTRONIC DEADWEIGHT TEST	8-Mar-2025

Test Description	Test Value	Lower Limit	Upper Limit	As-Found	As-Left	Unit of Measure
Pressure	2000	1975	2025	1982	1982	psi
Pressure	4000	3975	4025	3980	3980	psi
Pressure	6000	5975	6025	5982	5982	psi
Pressure	8000	7975	8025	7982	7982	psi
Pressure	10000	9975	10025	9999	9999	psi
Decreasing Pressure	6000	5975	6025	6003	6003	psi

Calibration Notes:

Device Notes:

Alex U. Coffey
ALEX COFFEY
Calibration Technician

Janey Aamodt
JANEY AAMODT
Approved by

17025 CALIBRATION CERTIFICATE

Certificate Number: 129401

ilac-MRA
ACCREDITED
CERT #3104.01

BHD
TEST AND MEASUREMENT
2100 W. 6th Ave.
Broomfield, CO 80020, USA
303.469.5335 | sevice@bhdtm.com

Customer:

WESTWOOD PROFESSIONAL SERVICES
10170 CHURCH RANCH WAY, STE 201
WESTMINSTER, CO 80021

PO Number	N/A	***Work Order***	16296
Procedure	ASME B89.1.10M INDICATORS	***Customer ID***	F07754
Procedure Rev	2	***Description***	INDICATOR PROBE
Technician	BRIANNA CARPINELLI	***Manufacturer***	IGAGING
Temperature	20°C	***Model Number***	N/A
Humidity	23%	***Serial Number***	F 07754
As-Found	IN TOLERANCE	***Size/Resolution***	0 - 4 IN X 0.0005 IN
As-Left	IN TOLERANCE	***Grade/Class***	N/A
Cal. Location	IN HOUSE	***Form***	DIGITAL
Report Issue Date	11-Mar-2024	***Calibration Date***	11-Mar-2024
		Due Date	11-Mar-2025

The calibration results published in this certificate were obtained using equipment which is traceable through the National Institute of Standards and Technology / NMI to SI Units. BHD Test & Measurement, is accredited to ISO/IEC 17025:2017 and ANSI Z540-1-1994 as applicable. Since the frequencies of calibrations are determined by the customer, the degree of usage is out of our control, BHD Test & Measurement cannot imply conformance to the accuracies and tolerances throughout that duration. BHD Test & Measurement will not accept responsibility for any liability beyond the replacement price of the calibrated item listed on the certificate of calibration. This certificate applies only to the item and item dimensions listed. This certificate may not be reproduced, except in full, without the written permission of BHD Test & Measurement. Whenever statements of conformance are made, measurement uncertainty will be taken into account. If the measurement result, plus or minus the expanded uncertainty, overlaps the specification limit, then the statement of compliance will be `Indeterminate_on the report. In this case BHD will not state compliance.

Measurement Uncertainty (k=2): (13 + 7.1L) µIN

Calibration Standards Used

Barcode	Manufacturer	Model Number	Serial Number	Description	Due Date
PG-800	FOWLER	LABCONCEPTS 1000	1231	TRIMOS TULM	30-Apr-2024

Test Description	Test Value	Lower Limit	Upper Limit	As-Found	As-Left	Unit of Measure
Length	0.2500	0.2490	0.2510	0.2500	0.2500	in
Length	0.5000	0.4990	0.5010	0.5001	0.5001	in
Length	0.7500	0.7490	0.7510	0.7500	0.7500	in
Length	1.0000	0.9990	1.0010	1.0001	1.0001	in
Length	1.2500	1.2490	1.2510	1.2500	1.2500	in
Length	1.5000	1.4990	1.5010	1.5001	1.5001	in
Length	1.7500	1.7490	1.7510	1.7500	1.7500	in
Length	2.0000	1.9990	2.0010	2.0000	2.0000	in
Length	2.2500	2.2490	2.2510	2.2501	2.2501	in
Length	2.5000	2.4990	2.5010	2.4998	2.4998	in
Length	2.7500	2.7490	2.7510	2.7500	2.7500	in
Length	3.0000	2.9990	3.0010	2.9998	2.9998	in
Length	3.2500	3.2490	3.2510	3.2497	3.2497	in
Length	3.5000	3.4990	3.5010	3.4997	3.4997	in
Length	3.7500	3.7490	3.7510	3.7493	3.7493	in
Length	4.0000	3.9990	4.0010	3.9996	3.9996	in

Calibration Notes: Calibrated Using BHDs Contact Point.

Device Notes:

BRIANNA CARPINELLI
Calibration Technician

Janey Aamodt
JANEY AAMODT
Approved by

17025 CALIBRATION CERTIFICATE

Certificate Number: 132642

ilac-MRA

ACCREDITED
CERT #3104.01

BHD
TEST AND MEASUREMENT
2100 W. 6th Ave.
Broomfield, CO 80020, USA
303.469.5335 | sevice@bhdtm.com

Customer:

WESTWOOD PROFESSIONAL SERVICES
10170 CHURCH RANCH WAY, STE 201
WESTMINSTER, CO 80021

PO Number	N/A	***Work Order***	16665-1
Procedure	ASME B89.1.10M INDICATORS	***Customer ID***	17B0320
Procedure Rev	2	***Description***	INDICATOR PROBE
Technician	Cimmaron Mestas	***Manufacturer***	IGAGING
Temperature	20°C	***Model Number***	N/A
Humidity	39%	***Serial Number***	N/A
As-Found	IN TOLERANCE	***Size/Resolution***	0 - 4 IN X 0.0005 IN
As-Left	IN TOLERANCE	***Grade/Class***	N/A
Cal. Location	IN HOUSE	***Form***	DIGITAL
Report Issue Date	25-Apr-2024	***Calibration Date***	25-Apr-2024
		Due Date	25-Apr-2025

The calibration results published in this certificate were obtained using equipment which is traceable through the National Institute of Standards and Technology / NMI to SI Units. BHD Test & Measurement, is accredited to ISO/IEC 17025:2017 and ANSI Z540-1-1994 as applicable. Since the frequencies of calibrations are determined by the customer, the degree of usage is out of our control, BHD Test & Measurement cannot imply conformance to the accuracies and tolerances throughout that duration. BHD Test & Measurement will not accept responsibility for any liability beyond the replacement price of the calibrated item listed on the certificate of calibration. This certificate applies only to the item and item dimensions listed. This certificate may not be reproduced, except in full, without the written permission of BHD Test & Measurement. Whenever statements of conformance are made, measurement uncertainty will be taken into account. If the measurement result, plus or minus the expanded uncertainty, overlaps the specification limit, then the statement of compliance will be "Indeterminate" on the report. In this case BHD will not state compliance.

Measurement Uncertainty (k=2): (13 + 7.1L) µIN

Calibration Standards Used

Barcode	Manufacturer	Model Number	Serial Number	Description	Due Date
PG-800	FOWLER	LABCONCEPTS 1000	1231	TRIMOS TULM	30-Apr-2024

Test Description	Test Value	Lower Limit	Upper Limit	As-Found	As-Left	Unit of Measure
Length	0.25000	0.24900	2.51000	0.24977	0.24977	in
Length	0.50000	0.49900	0.50100	0.49965	0.49965	in
Length	0.75000	0.74900	0.75100	0.74960	0.74960	in
Length	1.00000	0.99900	1.00100	0.99963	0.99963	in
Length	1.25000	1.24900	1.25100	1.24952	1.24952	in
Length	1.50000	1.49900	1.50100	1.49950	1.49950	in
Length	1.75000	1.74900	1.75100	1.74958	1.74958	in
Length	2.00000	1.99900	2.00100	1.99954	1.99954	in
Length	2.25000	2.24900	2.25100	2.24952	2.24952	in
Length	2.50000	2.49900	2.50100	2.49969	2.49969	in
Length	2.75000	2.74900	2.75100	2.74946	2.74946	in
Length	3.00000	2.99900	3.00100	2.99954	2.99954	in
Length	3.25000	3.24900	3.25100	3.24901	3.24901	in
Length	3.50000	3.49900	3.50100	3.49951	3.49951	in
Length	3.75000	3.74900	3.75100	3.74958	3.74958	in
Length	4.00000	3.99900	4.00100	3.99961	3.99961	in

Calibration Notes:

Device Notes:

Cimmaron Mestas
Cimmaron Mestas
Calibration Technician

Janey Aamodt
JANEY AAMODT
Approved by

BHD

TEST AND MEASUREMENT

Calibration Certificate

Customer: Westwood Professional Service
10170 Church Ranch Way, Ste. 201
Westminster, CO 80021

P.O. #: N/A
Job #: 17229

I.D. #: 30845
S/N: 30845
Model: WNI10TCU-R

Description: **Load Cell**
Size: 22000 lbs
Mfg: Straightpoint
Page: 1 of 2

Certificate #: 070324OE
Date: 7/3/2024
Date Due: 7/3/2025

Calibration Data

The above gage has been calibrated by a 17025 approved vendor.
Calibration Data on following sheets.

Subcontractor: Data Weighing Systems
Report Date: 07/03/24
Report Number: 454764083
Traceability: 454764083
Technician: Manny Sosa

Tolerance Condition: See attached certificate
As Found: Pass
As Left: Pass

Crosby | SP know the load

ANAB ANSI National Accreditation Board ACCREDITED CALIBRATION LABORATORY LAB# L1114-1

DWS DATA WEIGHING SYSTEMS BEYOND MEASURE.

Crane / Force Calibration Certificate

Certificate Number: 454764083
Customer Name: BHD Test and Measurement
Customer Address: 2100 W. 6th Ave
Broomfield CO 80020
Customer Code: 9871471
DWS Work Order: 73401

Test Location: DWS Lab
Calibration Procedure: A30
Date Received: 06/25/24
Calibration Date: 07/03/24
Due Date: 07/03/25

Customer Equipment Under Test

	Identification	Manufacturer	Model	Serial Number	Capacity
UUT:	30845	Crosby Straightpoint	WNI10TCU-BLE	30845	22000 x 10 lbf
Display:					

COMPRESSION

≈ Nominal	As Found	Status	As Left	Status
0 lbf	0 lbf	PASS	0 lbf	PASS
2200 lbf	2210 lbf	PASS	2190 lbf	PASS
4400 lbf	4420 lbf	PASS	4390 lbf	PASS
6600 lbf	6620 lbf	PASS	6595 lbf	PASS
8800 lbf	8630 lbf	PASS	8800 lbf	PASS
11000 lbf	11040 lbf	PASS	11000 lbf	PASS
13200 lbf	13250 lbf	PASS	13200 lbf	PASS
15400 lbf	15450 lbf	PASS	15400 lbf	PASS
17600 lbf	17670 lbf	PASS	17590 lbf	PASS
19800 lbf	19880 lbf	PASS	19810 lbf	PASS
22000 lbf	22110 lbf	PASS	22010 lbf	PASS

Measurement Uc: ≈ +/- 18 lbf
≈ +/- 0.084 % of Full Scale

Applied Tolerance: ≈ +/- 220 lbf
≈ +/- 1 % of Full Scale

	As Found (Low / High)	As Left (Low / High)
Temperature:	75.1 F / 76 F	75.1 F / 76 F
Humidity:	63 % / 64 %	63 % / 64 %

DWS Standards:

Serial Number	Description	Capacity	Certificate Number	Last Cal	Next Cal	Display Serial
115370A	Tovey	60000 lbf	115370AJ0423	10/04/23	10/30/25	PC

Data Weighing Systems certifies equipment tested and calibrated with standards traceable to the International System of Units (SI). Subject standards meet tolerance requirements of ASTM, NIST, E74 or as otherwise applicable. Client approves and accepts DWS test procedures, reporting methods including measurement results, tolerances, test loads, calibration in existing environmental conditions, and applicable subcontracted services. DWS decision rules as opinion of DWS based on experience and established procedures, related to ISO/IEC 17025:2017 (7.8.6.1); as applicable, measurement uncertainty will not be utilized in pass/fail statements and level of risk will not be calculated or reported. Measurement Uc (K=2) ≈ 95%. Form not to be duplicated without written permission of DWS.

Special Comments:

DWS seeks your feedback: quality@dataweigh.com

DWS Calibration Technician: Manny Sosa

DWS Quality Manager or deligate, review, approval, and Issue Date: 07/03/24

Page 1 of 1

*** Uncontrolled Blank Printed Copies Only Valid Within 30-Days From Date: 7/3/2024***

BHD
TEST AND MEASUREMENT

Calibration Certificate

Customer: Westwood Professional Service
10170 Church Ranch Way, Ste. 201
Westminster, CO 80021

P.O. #: N/A
Job #: 17229

2100 W. 6th Ave. Broomfield, CO 80020 Phone: 303-469-5335 www.bhdtm.com

I.D. #: 51191
S/N: 51191
Model: RLP12T-TS

Description: **Load Cell**
Size: 26455 lbs
Mfg: Straightpoint
Page: 1 of 2

Certificate #: 070324OF
Date: 7/3/2024
Date Due: 7/3/2025

Calibration Data

The above gage has been calibrated by a 17025 approved vendor.
Calibration Data on following sheets.

Subcontractor: Data Weighing Systems
Report Date: 07/03/24
Report Number: 454763594
Traceability: 454763594
Technician: Manny Sosa

Tolerance Condition: See attached certificate
As Found: Pass
As Left: Pass

Crosby | SP know the load

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY LAB# L1114-1

DWS DATA WEIGHING SYSTEMS BEYOND MEASURE.

Crane / Force Calibration Certificate

Certificate Number: 454763594

Customer Name: BHD Test and Measurement

Customer Address: 2100 W. 6th Ave
Broomfield CO 80020

Customer Code: 9871471

DWS Work Order: 73401

Test Location: DWS Lab

Calibration Procedure: A30

Date Received: 06/25/24

Calibration Date: 07/03/24

Due Date: 07/03/25

Customer Equipment Under Test

	Identification	Manufacturer	Model	Serial Number	Capacity
UUT:	51191	Crosby Straightpoint	RLP12T-TS	51191	26000 x 5 lbf
Display:	47237	Crosby Straightpoint	SW-HHP	47237	

TENSION

≈ Nominal	As Found	Status	As Left	Status
0 lbf	0. lbf	PASS	0. lbf	PASS
2600 lbf	2635. lbf	PASS	2595. lbf	PASS
5200 lbf	5260. lbf	PASS	5190. lbf	PASS
7800 lbf	7875. lbf	PASS	7790. lbf	PASS
10400 lbf	10490. lbf	PASS	10390. lbf	PASS
13000 lbf	13100. lbf	PASS	12990. lbf	PASS
15600 lbf	15710. lbf	PASS	15585. lbf	PASS
18200 lbf	18325. lbf	PASS	18185. lbf	PASS
20800 lbf	20935. lbf	PASS	20795. lbf	PASS
23400 lbf	23550. lbf	PASS	23395. lbf	PASS
26000 lbf	26165. lbf	PASS	25990. lbf	PASS

Measurement Uc: ≈ +/- 16 lbf
≈ +/- 0.061 % of Full Scale

Applied Tolerance: ≈ +/- 260 lbf
≈ +/- 1 % of Full Scale

	As Found (Low / High)	As Left (Low / High)
Temperature:	75.1 F / 76 F	75.1 F / 76 F
Humidity:	63 % / 64 %	63 % / 64 %

DWS Standards:

Serial Number	Description	Capacity	Certificate Number	Last Cal	Next Cal	Display Serial
115370A	Tovey	60000 lbf	115370AJ0423	10/04/23	10/30/25	PC

Data Weighing Systems certifies equipment tested and calibrated with standards traceable to the International System of Units (SI). Subject standards meet tolerance requirements of ASTM, NIST, E74 or as otherwise applicable. Client approves and accepts DWS test procedures, reporting methods including measurement results, tolerances, test loads, calibration in existing environmental conditions, and applicable subcontracted services. DWS decision rules as opinion of DWS based on experience and established procedures, related to ISO/IEC 17025:2017 (7.8.6.1); as applicable, measurement uncertainly will not be utilized in pass/fail statements and level of risk will not be calculated or reported. Measurement Uc (K=2) ≈ 95%. Form not to be duplicated without written permission of DWS.

Special Comments:

DWS seeks your feedback: quality@dataweigh.com

DWS Calibration Technician: Manny Sosa

DWS Quality Manager or deligate, review, approval, and Issue Date: 07/03/24

Page 1 of 1

Appendix E

Test Pit Logs

Westwood **TEST PIT LOG**

Project Name:	New Frontiers	**Date:**	11-07-2024	**PLT-D03**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.753685 °	**Longitude:**	-86.470028 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick		0
0.5–8	**Lean Clay** - brown, moist	DNE	1–8
8	**Test Pit Terminated. Rock Encountered**		8
9			9
10			10

Westwood TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-05-2024	**PLT-D04**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.755251 °	**Longitude:**	-86.467067 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick	DNE	0
0.5–2	**Lean Clay** - pale brown, moist		1
2–8	**Lean Clay** - brown, moist		2–8
8–10	**Test Pit Terminated. Rock Encountered**		9, 10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-11-2024	**PLT-D08**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.758349 °	**Longitude:**	-86.474968 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick	DNE	0
0.5–7.5	**Lean Clay** - brown, moist		
7.5	**Test Pit Terminated. Rock Encountered**		
10			10

Westwood **TEST PIT LOG**

Project Name:	New Frontiers	**Date:**	11-11-2024	**PLT-D09**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.787736 °	**Longitude:**	-86.499474 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0 – 0.5	**Root Zone** - 6 inches thick	DNE	0 – 0.5
0.5 – 7.5	**Lean Clay** - brown, moist		0.5 – 7.5
7.5 – 10	**Test Pit Terminated. Rock Encountered**		7.5 – 10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-09-2024	**PLT-D10**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.788456 °	**Longitude:**	-86.504484 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick		0
1	**Lean Clay** - brown and grey, moist		1
2			2
3			3
4	**Test Pit Terminated. Rock Encountered**		4
5		DNE	5
6			6
7			7
8			8
9			9
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-11-2024	**PLT-D11**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.792463 °	**Longitude:**	-86.506230 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0 – 0.5	**Root Zone** - 6 inches thick	DNE	0 – 0.5
0.5 – 8.5	**Lean Clay** - brown, moist		0.5 – 8.5
8.5 – 10	**Test Pit Terminated. Rock Encountered**		8.5 – 10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-08-2024	**PLT-D13**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.793399 °	**Longitude:**	-86.495762 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick		0
	Lean Clay - brown, moist		
1			1
2			2
3			3
4	**Lean Clay with Gravel** - reddish brown, moist, cobbles		4
5		DNE	5
6			6
7			7
8			8
9			9
10			10

Test Pit Terminated. Target Depth Reached

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-09-2024	**PLT-D15**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.796782 °	**Longitude:**	-86.501888 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick	DNE	0
0.5	**Lean Clay** - brown, moist		
8	**Test Pit Terminated. Rock Encountered**		8
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	01-00-1900	**PLT-D16**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.798317 °	**Longitude:**	-86.505911 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick		0
	Lean Clay - pale brown, moist		
1			1
2			2
3			3
4			4
5		DNE	5
6			6
7			7
	Test Pit Terminated. Rock Encountered		
8			8
9			9
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-12-2024	**PLT-D19**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.811218 °	**Longitude:**	-86.506103 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick		0
	Lean Clay - reddish brown, moist		
1			1
2			2
3	**Test Pit Terminated. Rock Encountered**		3
4			4
5		DNE	5
6			6
7			7
8			8
9			9
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-13-2024	**PLT-D20**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.812045 °	**Longitude:**	-86.511406 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick		0
0.5	**Lean Clay** - brown, moist		
2	**Lean Clay** - grey, moist		2
4	**Test Pit Terminated. Rock Encountered**	DNE	4
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-12-2024	**PLT-D21**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.812664 °	**Longitude:**	-86.507610 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0		DNE	0
	Root Zone - 6 inches thick		
	Lean Clay - brown, moist		
1			1
2			2
	Lean Clay - pale brown, moist		
3			3
4			4
5			5
	Test Pit Terminated. Rock Encountered		
6			6
7			7
8			8
9			9
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-12-2024	**PLT-D22**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.813761 °	**Longitude:**	-86.509227 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick		0
0.5	**Lean Clay** - brown, moist		
1			1
2			2
3			3
4			4
4.5	**Lean Clay** - grey, moist		
5		DNE	5
5.5	**Test Pit Terminated. Rock Encountered**		
6			6
7			7
8			8
9			9
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-08-2024	**PLT-D23**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.816293 °	**Longitude:**	-86.508180 °	

Depth (ft)	**LITHOLOGIC DESCRIPTION**	**WATER LEVEL**	Depth (ft)
0	**Root Zone** - 2 inches thick **Lean Clay** - brown, moist		0
1	**Lean Clay** - pale brown, moist		1
2			2
3	**Test Pit Terminated. Rock Encountered**		3
4			4
5		DNE	5
6			6
7			7
8			8
9			9
10			10

Westwood

TEST PIT LOG

Project Name:	New Frontiers	**Date:**	11-09-2024	**PLT-PV-04**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	37.752261 °	**Longitude:**	-86.477600 °	

Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone** - 6 inches thick **Lean Clay** - pale brown, moist		0
1			1
2			2
3			3
4			4
5		DNE	5
6			6
7			7
8			8
9	**Test Pit Terminated. Rock Encountered**		9
10			10

Westwood

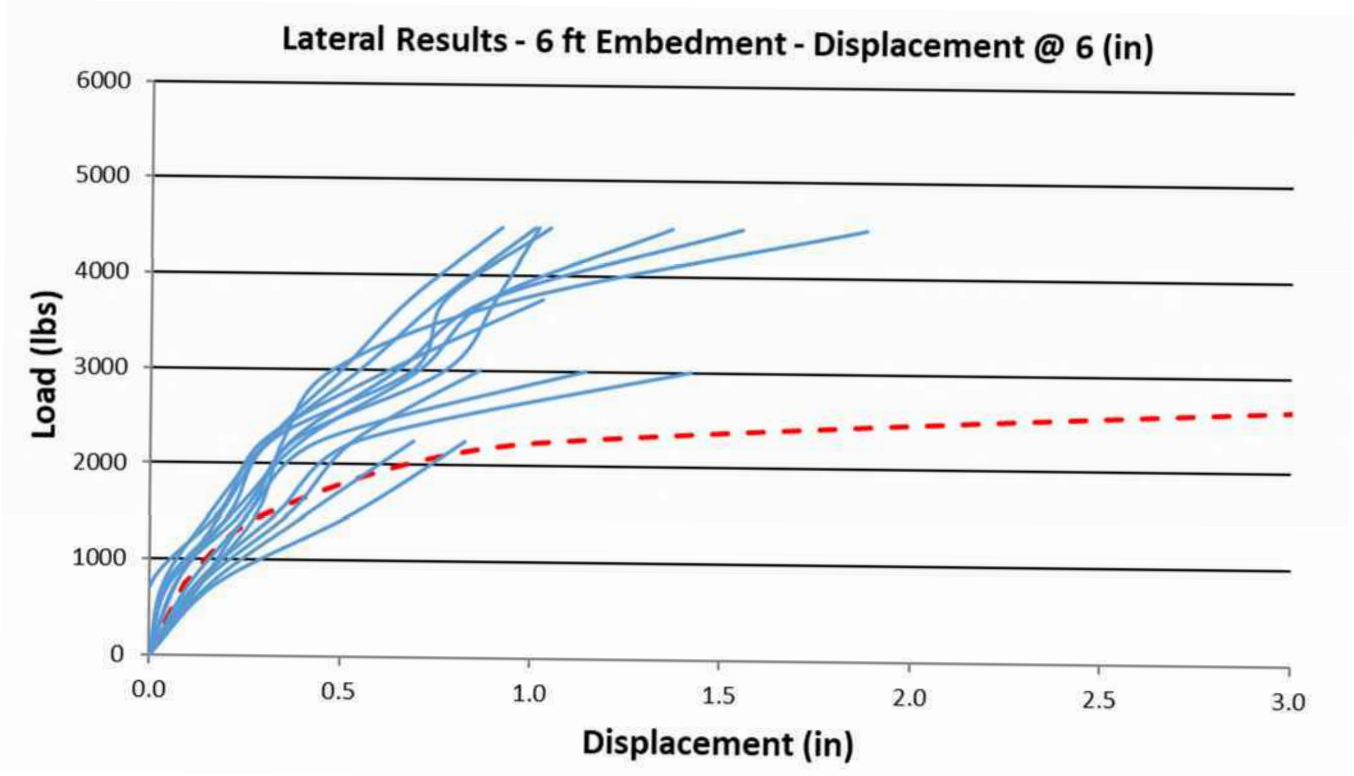
TEST PIT LOG

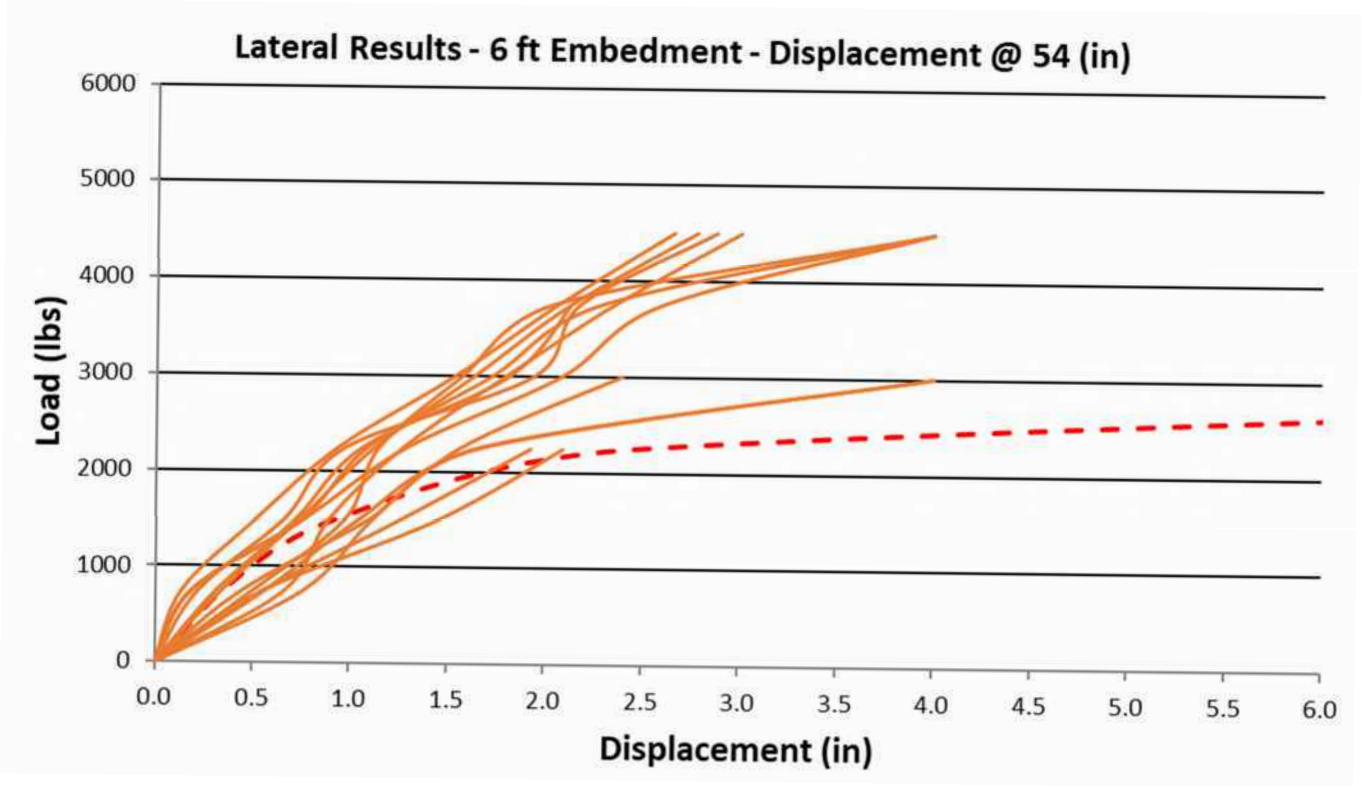
Project Name:	New Frontiers	**Date:**	01-00-1900	**PLT-101**
Location:	Breckenridge County, KY	**Logged By:**	D. Riedemann	
Latitude:	0.000000 °	**Longitude:**	0.000000 °	

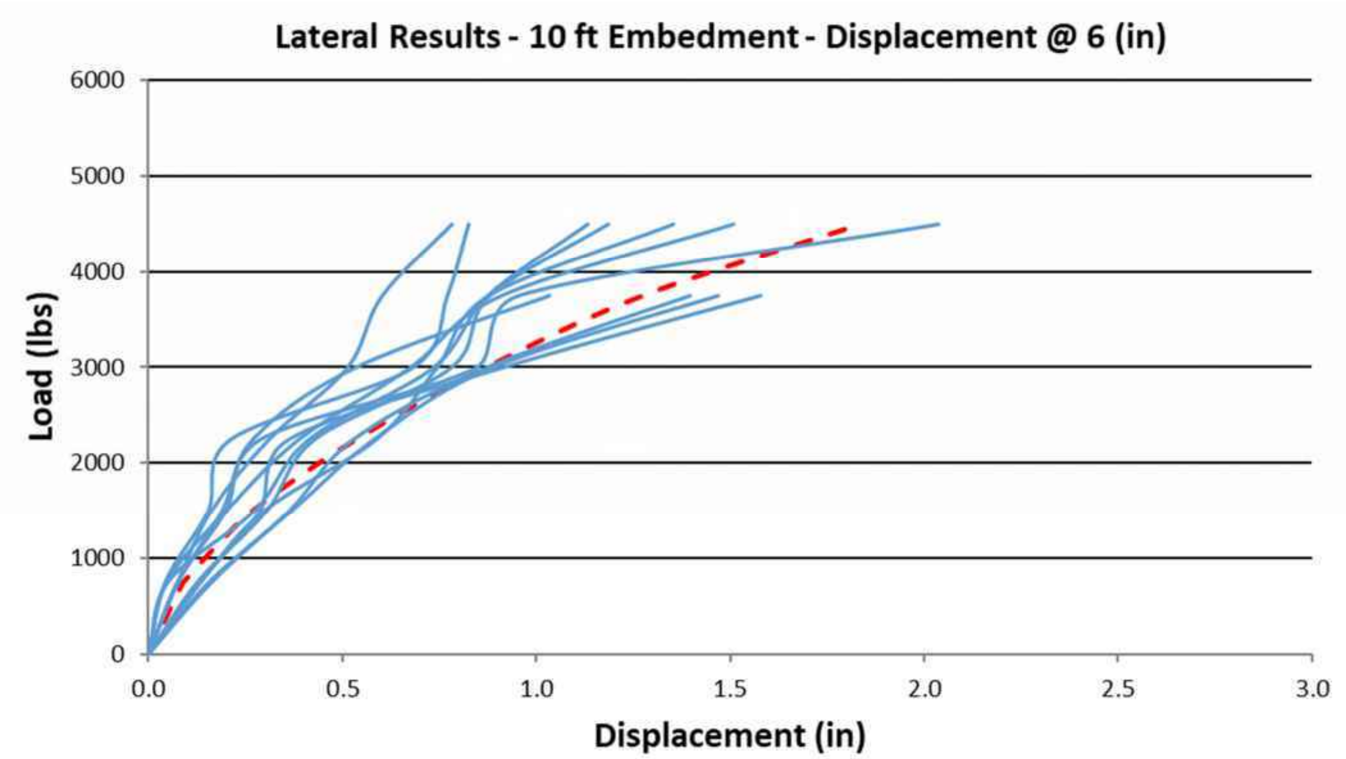
Depth (ft)	LITHOLOGIC DESCRIPTION	WATER LEVEL	Depth (ft)
0	**Root Zone -** 6 inches thick	DNE	0
0.5–9	**Lean Clay** - pale brown, moist		1–9
9–10	**Test Pit Terminated. Rock Encountered**		10

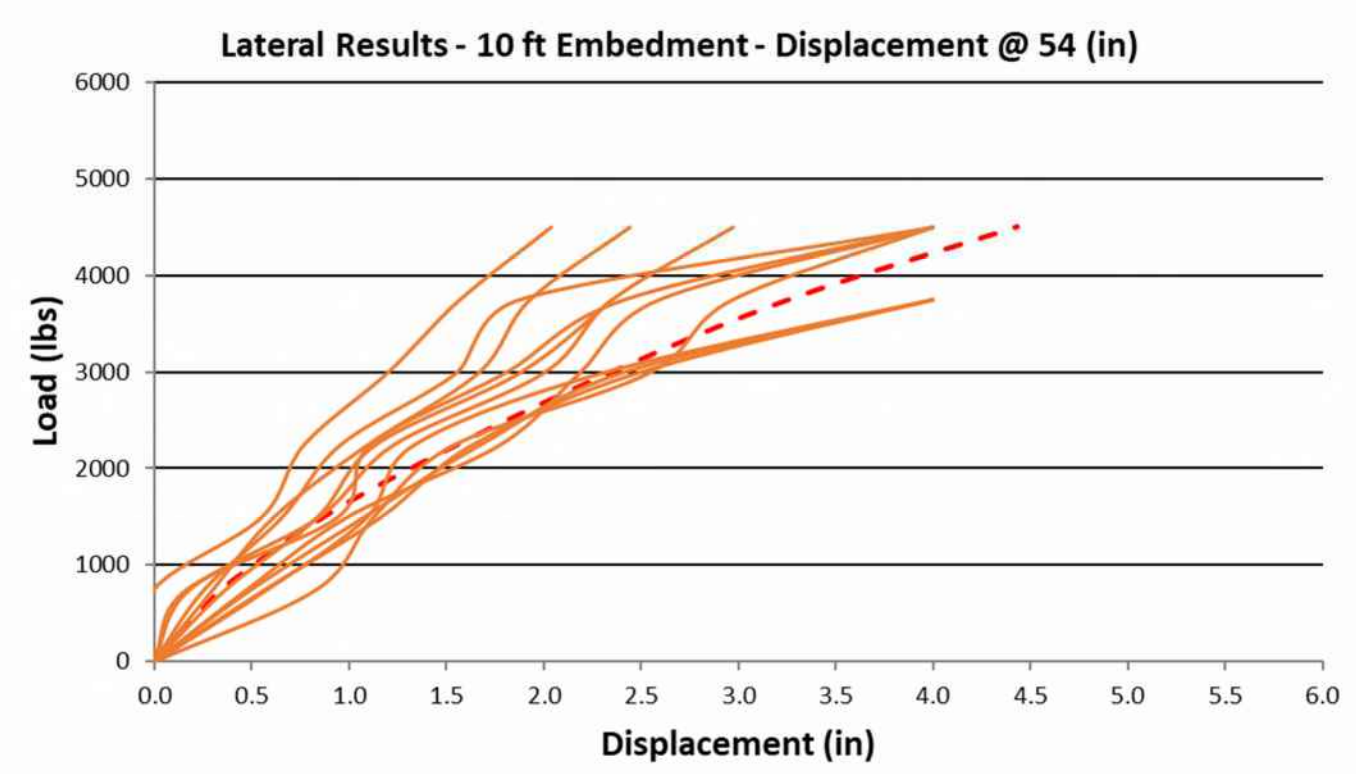
Appendix F

LPile Calibration Curves


Lateral Results - 6 ft Embedment - Displacement @ 6 (in)
6000
5000
4000
3000
2000
1000
0
Load (lbs)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Displacement (in)

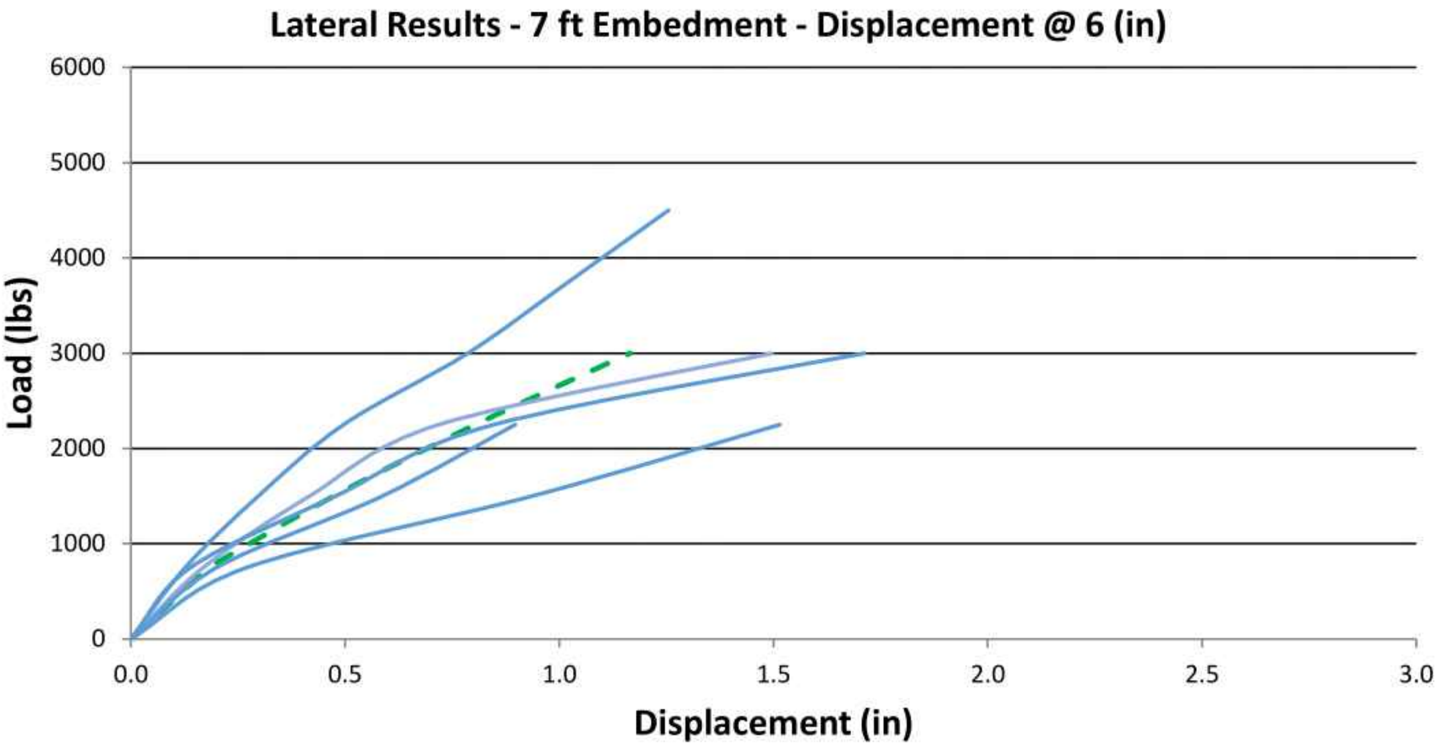

Lateral Results - 6 ft Embedment - Displacement @ 54 (in)
6000
5000
4000
3000
2000
1000
0
Load (lbs)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
Displacement (in)

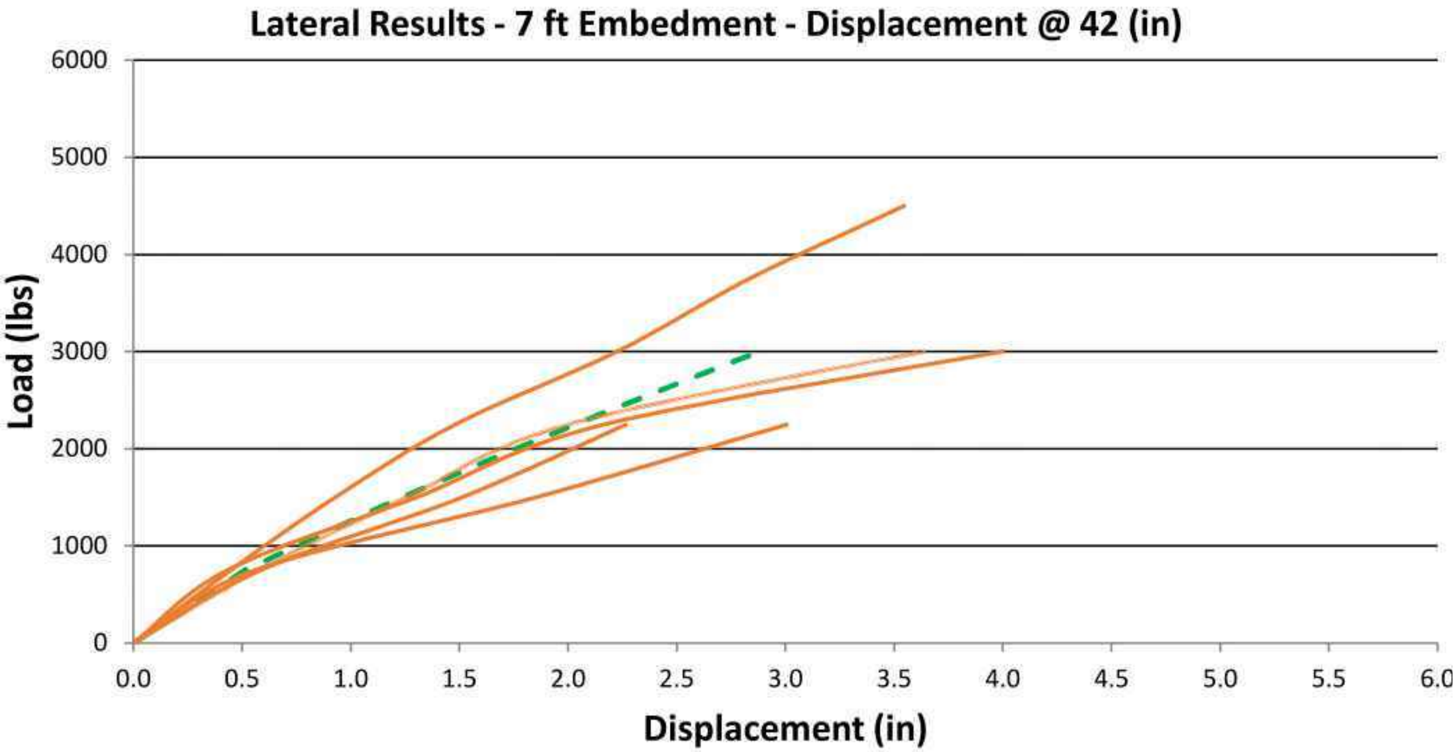

Lateral Results - 10 ft Embedment - Displacement @ 6 (in)
Load (lbs)
6000
5000
4000
3000
2000
1000
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Displacement (in)


Lateral Results - 10 ft Embedment - Displacement @ 54 (in)
Load (lbs)
6000
5000
4000
3000
2000
1000
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
Displacement (in)

LPile Calibration Curves

Pre-Drilled Piles





Request No. 3:

Provide any data from other solar projects that EDP Renewables have gathered, utilized, and relied upon that indicates the number of local workers that have been hired in those projects.

Response No. 3:

Please see attached.

Responding Witnesses: Jesse Eick

Blue Harvest Project

Employee Hours & Ohio Certification of Residency

Acceptable OH Hours	199204.93	**65.59%**
Other Hours	104516.74	
Total Hours	303721.67	

Last Name	First Name	State	Control	Company
Al-Hawaz	Ali	OH	Major Contractor	Atwell
March	Charles	OH	Major Contractor	Atwell
Schofield	Paul	OH	Major Contractor	Atwell
Spangler	Brett	OH	Major Contractor	Atwell
Anderson	Nathan	WI	Major Contractor	Borrego
Baca	Joseph	OH	Major Contractor	Borrego
Baca	Joseph	OH	Major Contractor	Borrego
Brooks	Ian	OH	Major Contractor	Borrego
Brooks Jr	Gary	OH	Major Contractor	Borrego
Bunkley	Shawn	OH	Major Contractor	Borrego
Callaway	Shane	OH	Major Contractor	Borrego
Callaway	Tina	OH	Major Contractor	Borrego
Caudell	Steven	OK	Major Contractor	Borrego
Chang	Allen	OH	Major Contractor	Borrego
Christen	Anna	OH	Major Contractor	Borrego
Cota	Eduardo	CA	Major Contractor	Borrego
Cox	Deborah	OH	Major Contractor	Borrego
Cox	Deborah	MI	Major Contractor	Borrego
Davis	George	FL	Major Contractor	Borrego
Dunckley	Jamie	OH	Major Contractor	Borrego
Dunckley	Jamie	OH-X	Major Contractor	Borrego
Gardner	Nicholas	OH	Major Contractor	Borrego
Gardner	Zachary	OH	Major Contractor	Borrego
Gill	Ronald	OH	Major Contractor	Borrego
Godwin	Emma	OH	Major Contractor	Borrego
Godwin	Kevin	OH	Major Contractor	Borrego
Godwin	Kevin	OH	Major Contractor	Borrego
Hamp	Keyshawn	OH-X	Major Contractor	Borrego
Hamp	Keyshawn	OH	Major Contractor	Borrego
Harris	Rayse	KY	Major Contractor	Borrego
Hermosillo - T	Sandra	OH	Major Contractor	Borrego
Hernandez	Kaleb	OH	Major Contractor	Borrego
Houston	Trinton	OH	Major Contractor	Borrego
Jay	Timothy	NY	Major Contractor	Borrego
Kessler	Carter	OH	Major Contractor	Borrego
Lee	Brent	OH	Major Contractor	Borrego

Liberatore	Chris	OH	Major Contractor	Borrego
Melwing	Max	OH	Major Contractor	Borrego
Melwing	Max	OH	Major Contractor	Borrego
Messer	Devin	OH	Major Contractor	Borrego
Miller	Richard	OH	Major Contractor	Borrego
Morton	Clifford	OH	Major Contractor	Borrego
Padilla	Andrea	OH	Major Contractor	Borrego
Powell	Angela	OH	Major Contractor	Borrego
Powell	Brent	OH	Major Contractor	Borrego
Price	Tyler	OH	Major Contractor	Borrego
Purk	Joshua	OH	Major Contractor	Borrego
Rivas	Ivan	OH	Major Contractor	Borrego
Rivas	Ivan	OH	Major Contractor	Borrego
Rodriguez	Diana	OH	Major Contractor	Borrego
Rodriguez	Diana	OH	Major Contractor	Borrego
Ross Jr.	James	OH	Major Contractor	Borrego
Sevitz	Ryan	OH	Major Contractor	Borrego
Solis	Kasandra	OH-X	Major Contractor	Borrego
Solis	Kasandra	OH	Major Contractor	Borrego
Talley	Kendrick	OH-X	Major Contractor	Borrego
Torres - Barba	Sandra	OH	Major Contractor	Borrego
Tyner	Ethan	AZ	Major Contractor	Borrego
Vyhnan	Oleksiy	OH	Major Contractor	Borrego
Watts	Corey	OH	Major Contractor	Borrego
West	Matthew	MI	Major Contractor	Borrego
Acosta	Gabino	OH-X	Major Contractor	CIC
Acosta	Ubaldo	OH-X	Major Contractor	CIC
Acosta Jr	Gabino	OH-X	Major Contractor	CIC
Akers	Riley	IL	Major Contractor	CIC
Blake	Christian	OH	Major Contractor	CIC
Brown	Earl	PA	Major Contractor	CIC
Cortes	Elias	OH-X	Major Contractor	CIC
Delgado	Amalio	OH-X	Major Contractor	CIC
DeVoe	Evan	OH	Major Contractor	CIC
Duvault	Dylan	OH	Major Contractor	CIC
Ferguson	Aza	OH	Major Contractor	CIC
Hill Jr	Michael	OH-X	Major Contractor	CIC
Kessler	Marty	OH	Major Contractor	CIC
Millan	Jose	OH-X	Major Contractor	CIC
Musta	James	PA	Major Contractor	CIC
Nichols	Logan	OH	Major Contractor	CIC
Nochta	Curtis	OH	Major Contractor	CIC
Nochta	Ronald	OH	Major Contractor	CIC
Rightnour	Patrick	OH-X	Major Contractor	CIC

Rosebrock	Dyllan	OH	Major Contractor	CIC
Sanchez	Alberto	OH-X	Major Contractor	CIC
Sanchez	Timoteo	OH-X	Major Contractor	CIC
Short	Jaylyn	OH	Major Contractor	CIC
Smith	Joseph	PA	Major Contractor	CIC
Stack	Joshua	OH	Major Contractor	CIC
Osting	Easton	OH	Major Contractor	County Electric
Rosengarten	Joshua	OH	Major Contractor	County Electric
Russell	Brent	OH	Major Contractor	County Electric
Schroeder	Michael	OH	Major Contractor	County Electric
Youngpeter	Anthony	OH-X	Major Contractor	County Electric
Alexis	Issac	OH-X	Major Contractor	Fosler
Allen	Austen	OH	Major Contractor	Fosler
Allen	Devyn	OH	Major Contractor	Fosler
Allen	Tremain	OH	Major Contractor	Fosler
Alonos-Leano	Josue	OH-X	Major Contractor	Fosler
Alphonse	Louis	OH	Major Contractor	Fosler
Alvarado	Brandon	OH-X	Major Contractor	Fosler
Anderson	Antoinette	OH	Major Contractor	Fosler
Anderson	Cleshaun	OH	Major Contractor	Fosler
Andre	Ludie	OH-X	Major Contractor	Fosler
Anite	Marie	OH-X	Major Contractor	Fosler
Ansari	Ajani	OH	Major Contractor	Fosler
Arallanes	Moises	NV	Major Contractor	Fosler
Arellano	Claudia	FL	Major Contractor	Fosler
Arellano	Isabel	FL	Major Contractor	Fosler
Auguste	Kenny	OH-X	Major Contractor	Fosler
Austin	Braden	OH-X	Major Contractor	Fosler
Avitia	Jose	OH-X	Major Contractor	Fosler
Avril	Frantzy	OH-X	Major Contractor	Fosler
Baker	Logan	OH	Major Contractor	Fosler
Balch	Brian	OH	Major Contractor	Fosler
Baltazar	Dave	OH-X	Major Contractor	Fosler
Baptiste	Franot-Jean	OH-X	Major Contractor	Fosler
Barbour	Lisa	OH	Major Contractor	Fosler
Bartley	Draven	OH	Major Contractor	Fosler
Bartley	Taiann	OH	Major Contractor	Fosler
Bartley	Zane	OH-X	Major Contractor	Fosler
Beaubanois	Andre	OH	Major Contractor	Fosler
Beauplan	Patrick	OH-X	Major Contractor	Fosler
Beckes	Christopher	OH-X	Major Contractor	Fosler
Beers	Dyllan	OH-X	Major Contractor	Fosler
Benitez-R	Angel	OH-X	Major Contractor	Fosler
Berrier	Amanda	OH-X	Major Contractor	Fosler

Berry	Toby	OH-X	Major Contractor	Fosler
Bicknese	Brian	IN	Major Contractor	Fosler
Bidlack	Kolby	OH	Major Contractor	Fosler
Bishop	Ethan	OH	Major Contractor	Fosler
Blair	Clifford	OH	Major Contractor	Fosler
Blosxon	Jamie	OH	Major Contractor	Fosler
Boggs	Buddy	OH	Major Contractor	Fosler
Booth	Tyvon	OH	Major Contractor	Fosler
Bosquez	Daniel	OH	Major Contractor	Fosler
Boswell	Carl	OH-X	Major Contractor	Fosler
Boswell	Kurtis	OH-X	Major Contractor	Fosler
Bowen	Caden	OH	Major Contractor	Fosler
Breland	Garth	MS	Major Contractor	Fosler
Brigman	Michael	TX	Major Contractor	Fosler
Brignol	Jean-Phillip	OH	Major Contractor	Fosler
Brogdon	Kristian	FL	Major Contractor	Fosler
Brown	Christian	OH-X	Major Contractor	Fosler
Brown	Kenneth	OH-X	Major Contractor	Fosler
Brown	Kennie	OH	Major Contractor	Fosler
Brown III	Arthur	OH	Major Contractor	Fosler
Buchanan	Terrance	OH	Major Contractor	Fosler
Bulton	James	OH-X	Major Contractor	Fosler
Burgess	Sylvia	FL	Major Contractor	Fosler
Burrell	Scott	OH	Major Contractor	Fosler
Buss	Jacob	OH	Major Contractor	Fosler
Butler	Noah	OH	Major Contractor	Fosler
Byryan	Jacob	OH	Major Contractor	Fosler
Caceres-	Julio	TX	Major Contractor	Fosler
Cadet	Wilner	OH-X	Major Contractor	Fosler
Calhoun	Michael	OH	Major Contractor	Fosler
Calob (Gerard	Gerard	OH	Major Contractor	Fosler
Cameleau	Joseph	OH-X	Major Contractor	Fosler
Campbell	Clayton	OH	Major Contractor	Fosler
Campbell	Zaria	OH-X	Major Contractor	Fosler
Canales	Amaro	TX	Major Contractor	Fosler
Cantero	Jose	OH-X	Major Contractor	Fosler
Cantu-Arellan	Jaciel	OH-X	Major Contractor	Fosler
Capetillo	Kassandra	OH	Major Contractor	Fosler
Capetillo	Viviana	OH	Major Contractor	Fosler
Carballo	Francisco	TX	Major Contractor	Fosler
Cardenas	Elizabeth	TX	Major Contractor	Fosler
Cardenas	Luis	OH-X	Major Contractor	Fosler
Carpenter	Stephen	MI	Major Contractor	Fosler
Carrasquillo	Zulma	OH-X	Major Contractor	Fosler

Carrion-Torre	Juan	OH-X	Major Contractor	Fosler
Cartwright	Jenna	MI	Major Contractor	Fosler
Caserta	Charlton	WV	Major Contractor	Fosler
Cassel	Angie	OH	Major Contractor	Fosler
Castillo	Marco	TX	Major Contractor	Fosler
Ceant	Josue	OH	Major Contractor	Fosler
Cebellos	Anthony	OH-X	Major Contractor	Fosler
Cepero	Dianelys	OH-X	Major Contractor	Fosler
Cerritos	Joshua	OH	Major Contractor	Fosler
Cesar Hilarie	Marie Ferna	OH	Major Contractor	Fosler
Charles	Judith	OH	Major Contractor	Fosler
Charles	Junior	OH	Major Contractor	Fosler
Chavis	William	TX	Major Contractor	Fosler
Cheaib	Rame	OH-X	Major Contractor	Fosler
Chery	Jacques	OH	Major Contractor	Fosler
Chery	Marie	OH-X	Major Contractor	Fosler
Chilcoat	Kody	OH-X	Major Contractor	Fosler
Christian	Deonte	OH	Major Contractor	Fosler
Christine (Jos	Joseph	OH-X	Major Contractor	Fosler
Cleonard	Jean Jacques	OH-X	Major Contractor	Fosler
Coats	Tammy	MS	Major Contractor	Fosler
Coker	Terry	GA	Major Contractor	Fosler
Cole	Maleek	OH	Major Contractor	Fosler
Coleman	Antonio	OH-X	Major Contractor	Fosler
Collins	Nathan	OH	Major Contractor	Fosler
Cooper	Timothy	OH	Major Contractor	Fosler
Cordle	Mackenzie	OH	Major Contractor	Fosler
Cotto	Luis	OH-X	Major Contractor	Fosler
Cox	Peyton	OH	Major Contractor	Fosler
Cozart	Teddy	AL	Major Contractor	Fosler
Crosby	Khaalis	OH-X	Major Contractor	Fosler
Culp	Michael	OH-X	Major Contractor	Fosler
Culp	Shaun	OH	Major Contractor	Fosler
Curry	John	OH-X	Major Contractor	Fosler
Daniels	Dareion	GA	Major Contractor	Fosler
Dayton	Chris	OH	Major Contractor	Fosler
DeAnda	Juan-Carlos	TX	Major Contractor	Fosler
DeBreus	Bernard	OH	Major Contractor	Fosler
Decembre	Katia	OH-X	Major Contractor	Fosler
DeFoe	Austin	OH-X	Major Contractor	Fosler
Delasancha-N	Jennifer	OH-X	Major Contractor	Fosler
Delgado	Frank	TX	Major Contractor	Fosler
Delgado	Raul	CA	Major Contractor	Fosler
Delgado	Zabdiel	OH-X	Major Contractor	Fosler

Dennard	Dimitri	OH-X	Major Contractor	Fosler
Dennis	Elizabeth	OH-X	Major Contractor	Fosler
Dennis	Elizabeth	OH-X	Major Contractor	Fosler
Deppen	Logan	OH	Major Contractor	Fosler
Derilus	Charles	OH-X	Major Contractor	Fosler
Destine	Gary	OH	Major Contractor	Fosler
Devoe	Evan	OH	Major Contractor	Fosler
Diaz	Frorentino	OH	Major Contractor	Fosler
Diaz	Noberto	OH-X	Major Contractor	Fosler
Dickerson	Cody	OH	Major Contractor	Fosler
Dickerson	Nigel	OH	Major Contractor	Fosler
Dido	Dave	OH	Major Contractor	Fosler
Dieter	Jacob	OH	Major Contractor	Fosler
Dilley	Jared	OH	Major Contractor	Fosler
Dilley	Nicholas	OH	Major Contractor	Fosler
Dominguez	Valeria	FL	Major Contractor	Fosler
Dongervil	JeanMarc	OH-X	Major Contractor	Fosler
Dorelus	Markenzy	OH-X	Major Contractor	Fosler
Dorissaint	James	OH-X	Major Contractor	Fosler
Dorvil	Frantz	OH-X	Major Contractor	Fosler
Dorvil-Jean	Margarette	OH-X	Major Contractor	Fosler
Dossous	Danicien	OH-X	Major Contractor	Fosler
Drew	David	OH	Major Contractor	Fosler
Dumentz	Jerome	OH-X	Major Contractor	Fosler
Dunn	Dontae	OH-X	Major Contractor	Fosler
Dunne	Jenna	OH-X	Major Contractor	Fosler
Duperlie	Dory	OH-X	Major Contractor	Fosler
Duran-O	Eidelis	TX	Major Contractor	Fosler
Edge	Frankie	OH	Major Contractor	Fosler
Edge	Melvin	OH-X	Major Contractor	Fosler
Edge	Ronrika	TX	Major Contractor	Fosler
Eduardo-Palor	Eric	OH	Major Contractor	Fosler
Edwards	Savannah	OH	Major Contractor	Fosler
Emilcar	Ricardo	OH-X	Major Contractor	Fosler
Engard	Alec	OH-X	Major Contractor	Fosler
England	Debra	OH	Major Contractor	Fosler
Ervin-Temple	David	OH	Major Contractor	Fosler
Esparza	Hector	VA	Major Contractor	Fosler
Esparza	Phillir	OH	Major Contractor	Fosler
Excellent	Saintal	OH-X	Major Contractor	Fosler
Fackler	Narissa	OH	Major Contractor	Fosler
Fagan	Tristan	OH	Major Contractor	Fosler
Fair	Jacob	OH-X	Major Contractor	Fosler
Ferdinand	Fritz	OH	Major Contractor	Fosler

Ferguson	Cairia	GA	Major Contractor	Fosler
Finn	Tracy	OH	Major Contractor	Fosler
Finn	Tyzelle	OH	Major Contractor	Fosler
Fleming	Tolby	OH	Major Contractor	Fosler
Floeuirmond	Elange	OH-X	Major Contractor	Fosler
Flores	Zulma	OH	Major Contractor	Fosler
Foland	Cha	OH	Major Contractor	Fosler
Forbes	Dayvon	OH	Major Contractor	Fosler
Foster	Jaida	OH-X	Major Contractor	Fosler
Foust	Christopher	OH	Major Contractor	Fosler
Fox	Adonis	OH	Major Contractor	Fosler
Fraley Jr	Tracy	OH	Major Contractor	Fosler
Francois	Larochel	OH-X	Major Contractor	Fosler
Francois	Wilson	OH-X	Major Contractor	Fosler
Fraticelli	Omar	OH-X	Major Contractor	Fosler
Frazier	Simone	OH-X	Major Contractor	Fosler
Frederic	Wilbens	OH-X	Major Contractor	Fosler
Fuerst	William	OH-X	Major Contractor	Fosler
Galiher	Audrey	OH-X	Major Contractor	Fosler
Gallenstein	Christian	OH	Major Contractor	Fosler
Galvan	Crystal	TX	Major Contractor	Fosler
Gamble	Moses	OH	Major Contractor	Fosler
Garcia	Anthony	OH-X	Major Contractor	Fosler
Garcia	David	TX	Major Contractor	Fosler
Garcia	Jonathan	OH	Major Contractor	Fosler
Garcia	Vivian	OH	Major Contractor	Fosler
Garcia-A	Socorro	TX	Major Contractor	Fosler
Garcia-C	Luis	TX	Major Contractor	Fosler
Garcon	Raymond	OH-X	Major Contractor	Fosler
Garza	Anna	TX	Major Contractor	Fosler
Garza	Jesus	VA	Major Contractor	Fosler
Garza	Richard	OH-X	Major Contractor	Fosler
Garza	Mayra	OH-X	Major Contractor	Fosler
Garza	Jose	TX	Major Contractor	Fosler
Garza Jr.	Jose	TX	Major Contractor	Fosler
Gatling	Nateris	GA	Major Contractor	Fosler
Gavin	Kyle	OH-X	Major Contractor	Fosler
Georges	Joinel	OH	Major Contractor	Fosler
Germain	Dava	OH	Major Contractor	Fosler
Gibbs	Guy Serge	OH-X	Major Contractor	Fosler
Gillette	Mark	OH	Major Contractor	Fosler
Glass	Matthew	OH-X	Major Contractor	Fosler
Glover	Lawrence	OH	Major Contractor	Fosler
Gomez	Abinador	OH-X	Major Contractor	Fosler

Gomez-T	Geovanis	TX	Major Contractor	Fosler
Gonzales	Christian	OH	Major Contractor	Fosler
Gonzales	Michael	OH	Major Contractor	Fosler
Gonzales	Ralph	OH-X	Major Contractor	Fosler
Good	Carson	OH	Major Contractor	Fosler
Goosby	Ajaye	OH	Major Contractor	Fosler
Gordillo-More	Josue	OH-X	Major Contractor	Fosler
Grooms	Barry	TN	Major Contractor	Fosler
Guerra	Julio	TX	Major Contractor	Fosler
Guitaud	Ferdinand	OH-X	Major Contractor	Fosler
Guitierrez	Josue	TX	Major Contractor	Fosler
Gutierrez	Miguel	VA	Major Contractor	Fosler
Hall	Kavarea	GA	Major Contractor	Fosler
Hall	Louis	OH	Major Contractor	Fosler
Ham	Brandon	OH	Major Contractor	Fosler
Hamby	Daniel	TX	Major Contractor	Fosler
Harris	Carlos	OH	Major Contractor	Fosler
Harris	Charles	OH	Major Contractor	Fosler
Harris Jr	Joseph	OH	Major Contractor	Fosler
Hefner Jr	Ben	OH	Major Contractor	Fosler
Henderson	Gage	OH	Major Contractor	Fosler
Hernandez	Adian	OH-X	Major Contractor	Fosler
Hernandez	Jaime	OH-X	Major Contractor	Fosler
Hernandez	Leslie	OH-X	Major Contractor	Fosler
Hernandez	Marcos	OH	Major Contractor	Fosler
Hernandez	Samuel	OH	Major Contractor	Fosler
Herrera	Karen	OH	Major Contractor	Fosler
Hill	Angelo	GA	Major Contractor	Fosler
Hill	Martice	OH-X	Major Contractor	Fosler
Hines II	Chattos	OH	Major Contractor	Fosler
Hinojosa	Julian	VA	Major Contractor	Fosler
Hoard	Michelle	OH	Major Contractor	Fosler
Hopkins	Jeff	OH-X	Major Contractor	Fosler
Hord	Jerome	GA	Major Contractor	Fosler
Howard	Nathan	OH-X	Major Contractor	Fosler
Hughes	Demetrius	OH	Major Contractor	Fosler
Hull	Michael	OH-X	Major Contractor	Fosler
Hunt	Jared	OH	Major Contractor	Fosler
Hutchinson	Claud	FL	Major Contractor	Fosler
Ingol	Savion	OH	Major Contractor	Fosler
Ivy	Shianne	TX	Major Contractor	Fosler
Jackson	Stephen	IN	Major Contractor	Fosler
Jackson	Warren	OH-X	Major Contractor	Fosler
Jacques	Andrise	FL	Major Contractor	Fosler

Jacques	Dachine	OH	Major Contractor	Fosler
Jacques	Daniel	OH-X	Major Contractor	Fosler
Jacques	Noel	OH-X	Major Contractor	Fosler
Jacques Louis	Romial	OH-X	Major Contractor	Fosler
Jadys	Ronel Junior	OH	Major Contractor	Fosler
Jame-Childs	Joshua	VA	Major Contractor	Fosler
Jansen	Sean	FL	Major Contractor	Fosler
Jean	Babylor	OH-X	Major Contractor	Fosler
Jean	Margarette	OH-X	Major Contractor	Fosler
Jean	Olin	OH	Major Contractor	Fosler
Jean Eddy	Paul	OH	Major Contractor	Fosler
Jean Marie	Junior	OH-X	Major Contractor	Fosler
Jean Pierre	Ernst	OH-X	Major Contractor	Fosler
Jeanty	Wills Wood	OH	Major Contractor	Fosler
Jenkins	Gerald	OH	Major Contractor	Fosler
Jernigan	Charles	NC	Major Contractor	Fosler
Johns	Randy	OH	Major Contractor	Fosler
Johnson	Alexander	OH-X	Major Contractor	Fosler
Johnson	Baesten	OH-X	Major Contractor	Fosler
Johnson	Basi	OH-X	Major Contractor	Fosler
Johnson	Elijah	OH	Major Contractor	Fosler
Jolibois	Gilner	OH-X	Major Contractor	Fosler
Jones	Anthony	OH	Major Contractor	Fosler
Jones	Daymond	AL	Major Contractor	Fosler
Jones	Drake	OH-X	Major Contractor	Fosler
Jones	Ke-Shawn	OH	Major Contractor	Fosler
Jones	Robert	OH	Major Contractor	Fosler
Jordan	DeAngelo	OH	Major Contractor	Fosler
Jordan	Jennetta	NC	Major Contractor	Fosler
Jordan	Marcus	OH	Major Contractor	Fosler
Jordan	Marquis	OH	Major Contractor	Fosler
Jose	Rony	OH-X	Major Contractor	Fosler
Joseph	Enoch	OH-X	Major Contractor	Fosler
Joseph	Renel	OH-X	Major Contractor	Fosler
Joseph	Sony	OH-X	Major Contractor	Fosler
Joseph	Sylvio	OH	Major Contractor	Fosler
Joseph	Yves	OH-X	Major Contractor	Fosler
Joubert	Adrien	OH-X	Major Contractor	Fosler
Kazee	Virece	OH	Major Contractor	Fosler
Keegan	Kameron	OH	Major Contractor	Fosler
Keeling	Andrew	OH	Major Contractor	Fosler
Keller	Christian	OH	Major Contractor	Fosler
Kelly	Glenn	OH-X	Major Contractor	Fosler
Kennard	Roshia	OH-X	Major Contractor	Fosler

Kennerly	Blair	OH-X	Major Contractor	Fosler
King	Dajuan	OH	Major Contractor	Fosler
King	De'Marco	OH-X	Major Contractor	Fosler
King	Najja	OH-X	Major Contractor	Fosler
King	Zachery	OH-X	Major Contractor	Fosler
Kreh	William	OH	Major Contractor	Fosler
Kwiatkowski	Luke	OH	Major Contractor	Fosler
Lafargue	Evens	OH	Major Contractor	Fosler
LaFleur	Jean-Hilare	OH-X	Major Contractor	Fosler
Lamb	Reneur	OH-X	Major Contractor	Fosler
Lammers	Justin	OH	Major Contractor	Fosler
Lamond	Alexis	OH	Major Contractor	Fosler
Lampkin	Troy	OH	Major Contractor	Fosler
Laney	Dylan	OH	Major Contractor	Fosler
Lapaix	Ricardi	OH-X	Major Contractor	Fosler
Laplume	Michael	OH	Major Contractor	Fosler
LaRoche	Jakeb	OH	Major Contractor	Fosler
LaRoche	Michel	OH-X	Major Contractor	Fosler
Laroque	David	OH-X	Major Contractor	Fosler
Larralde	Raul	OH-X	Major Contractor	Fosler
Launder	Jason	OH	Major Contractor	Fosler
Lause	Carson	OH	Major Contractor	Fosler
Lawrence	Anthony	OH	Major Contractor	Fosler
Lawrence	Chrishawn	OH-X	Major Contractor	Fosler
Lawrence	Colten	OH	Major Contractor	Fosler
Lebon	William	OH-X	Major Contractor	Fosler
Leger	Steven	OH-X	Major Contractor	Fosler
Leger	Woodnor	OH-X	Major Contractor	Fosler
Legg	John	OH	Major Contractor	Fosler
Leon	Gamalier	OH-X	Major Contractor	Fosler
Leslie (Garcia	Garcia (Lesl	OH-X	Major Contractor	Fosler
Levron	Grant Micha	OH	Major Contractor	Fosler
Lewis	Aaron	OH	Major Contractor	Fosler
Lewis	Matthew	OH	Major Contractor	Fosler
Limpreaux	Cham	OH	Major Contractor	Fosler
Lindsey	Lee (Jason)	GA	Major Contractor	Fosler
Little	Mahkail	OH	Major Contractor	Fosler
Lockhart	Theodore	OH	Major Contractor	Fosler
Logan	Eric	OH-X	Major Contractor	Fosler
Long	David	OH	Major Contractor	Fosler
Lopez	Conrado	OH-X	Major Contractor	Fosler
Lopez	Daniel	GA	Major Contractor	Fosler
Lopez	Jesus	OH-X	Major Contractor	Fosler
Lopez	Julian	OH	Major Contractor	Fosler

Louidon	Michelet	OH	Major Contractor	Fosler
Louima	Clodette	OH	Major Contractor	Fosler
Louis	Jonathan	OH-X	Major Contractor	Fosler
Low	Heath	OH-X	Major Contractor	Fosler
Lozinski	Austin	OH	Major Contractor	Fosler
Lucius	Trevor	OH-X	Major Contractor	Fosler
Lucnord	Ceus	OH	Major Contractor	Fosler
Lujan	Ilyas	OH	Major Contractor	Fosler
Lunce	Roger	OH	Major Contractor	Fosler
Magdarig	Yordelis	TX	Major Contractor	Fosler
Maiden	Chance	KY	Major Contractor	Fosler
Maitre	Yvon	OH-X	Major Contractor	Fosler
Maldonado	Demian	OH-X	Major Contractor	Fosler
Malherbe	Louis	OH-X	Major Contractor	Fosler
Malone	John	OH-X	Major Contractor	Fosler
Mamuscia	Anthony	OH-X	Major Contractor	Fosler
Manley	Tierre	OH	Major Contractor	Fosler
Marceline	Onorable	OH-X	Major Contractor	Fosler
Mares	Jennifer	OH	Major Contractor	Fosler
Martin	James	OH	Major Contractor	Fosler
Martin	Omar	OH	Major Contractor	Fosler
Martin	Rhea	OH	Major Contractor	Fosler
Martin	Tyler A	OH	Major Contractor	Fosler
Martinez	Leonardo	TX	Major Contractor	Fosler
Martinez	Oziel	OH-X	Major Contractor	Fosler
Martinez-Ban	Juan-Carlos	OH	Major Contractor	Fosler
Mathes	Kenneth	OH	Major Contractor	Fosler
Mathis	Giovanni	OH	Major Contractor	Fosler
Matte	Cody	OH	Major Contractor	Fosler
Mazard	Roda	OH	Major Contractor	Fosler
McCoy	Tyler	OH-X	Major Contractor	Fosler
McCullough	Bret	OH-X	Major Contractor	Fosler
McCurdy	Ayres	OH-X	Major Contractor	Fosler
McGhee	Demario	OH-X	Major Contractor	Fosler
McGlathery	Daniel	OH-X	Major Contractor	Fosler
McHugh	Michael	OH	Major Contractor	Fosler
McKenna	Jason	OH	Major Contractor	Fosler
McLaughlin	Anthony	OH	Major Contractor	Fosler
McLaughlin	Samuel	OH	Major Contractor	Fosler
Medy	Michael	OH	Major Contractor	Fosler
Mefford	Grant	OH	Major Contractor	Fosler
Mendez-	Jose	OH-X	Major Contractor	Fosler
Mendez-Soto	Joseph	OH	Major Contractor	Fosler
Merzilien	Merzilier	OH-X	Major Contractor	Fosler

Mesidor	Jussica	TX	Major Contractor	Fosler
Messer	Devin	OH	Major Contractor	Fosler
Methelus	Gizel	OH-X	Major Contractor	Fosler
Michelin	Jean	OH-X	Major Contractor	Fosler
Milien	Garaudy	OH-X	Major Contractor	Fosler
Miller	Charles	OH	Major Contractor	Fosler
Miller	Michael	NC	Major Contractor	Fosler
Milliken	Samantha	GA	Major Contractor	Fosler
Mireles	Kimberly	OH	Major Contractor	Fosler
Mirla	Michel	OH-X	Major Contractor	Fosler
Mitchell	Bodaron	OH-X	Major Contractor	Fosler
Moise	Nicholas	OH	Major Contractor	Fosler
Monteiz	Scott	FL	Major Contractor	Fosler
Montelah I	Kalaysha	OH-X	Major Contractor	Fosler
Montes	Pamela	OH-X	Major Contractor	Fosler
Moore	Alize	TX	Major Contractor	Fosler
Moore	Shavon	OH-X	Major Contractor	Fosler
Morales	Kevin	OH-X	Major Contractor	Fosler
Moran	Jewel	OH	Major Contractor	Fosler
Moreau	John Faniel	OH-X	Major Contractor	Fosler
Moreno	Ruben	TX	Major Contractor	Fosler
Morgan	Kameron	OH-X	Major Contractor	Fosler
Mosier	Collin	OH	Major Contractor	Fosler
Muler Cajuste	Joseph	OH-X	Major Contractor	Fosler
Murphy	Stanley	OH-X	Major Contractor	Fosler
Nelson	John	OH-X	Major Contractor	Fosler
Nelson	Travis	GA	Major Contractor	Fosler
Nichols	Xavier	OH	Major Contractor	Fosler
Nieves-Romer	Jesus	OH	Major Contractor	Fosler
Noel	James	OH-X	Major Contractor	Fosler
Nordman	Alexander	OH-X	Major Contractor	Fosler
Nunez	Jaime	OH-X	Major Contractor	Fosler
Nunez-Betanc	Surizana	OH-X	Major Contractor	Fosler
Nunez-Vasque	Elias	OH	Major Contractor	Fosler
Okuly	Kristy	OH	Major Contractor	Fosler
Olivas	Daniel	OH	Major Contractor	Fosler
Olivia-Sandov	Joel	MD	Major Contractor	Fosler
Ortega	Luis	OH	Major Contractor	Fosler
Ortiz	Ezequiel	OH-X	Major Contractor	Fosler
Oshodin	Owen	OH	Major Contractor	Fosler
Ovenmeyer	Kyle	OH	Major Contractor	Fosler
Ovenmyer	Miranda	OH	Major Contractor	Fosler
Ovilmar	Jean	OH-X	Major Contractor	Fosler
Paddock	Jacob	AK	Major Contractor	Fosler

Pardon	Gabriel	OH-X	Major Contractor	Fosler
Parish	Jerry	OH-X	Major Contractor	Fosler
Parsons JR	Steven	OH	Major Contractor	Fosler
Pascal	Rodney	OH-X	Major Contractor	Fosler
Patrick	Shaquille	OH	Major Contractor	Fosler
Payen	Jacob	OH-X	Major Contractor	Fosler
Pearson	Marcus	OH-X	Major Contractor	Fosler
Pedigo Jr	Richard	OH	Major Contractor	Fosler
Pena	Ezequiel	OH-X	Major Contractor	Fosler
Pena	Ezequiel	OH-X	Major Contractor	Fosler
Perez	Alejandro	VA	Major Contractor	Fosler
Perez	Wilfredo	OH-X	Major Contractor	Fosler
Perez-Alica	Janiel-Amau	OH	Major Contractor	Fosler
Philistin	Roseline	OH-X	Major Contractor	Fosler
Philogene	Bernard	OH-X	Major Contractor	Fosler
Philogene	Lerzuis	OH	Major Contractor	Fosler
Picklesmier	Stephen	OH	Major Contractor	Fosler
Pierre	Erick	OH	Major Contractor	Fosler
Pierre	Michael	OH-X	Major Contractor	Fosler
Pierre	Rosemy	OH-X	Major Contractor	Fosler
Pierre Louis	Franky	OH	Major Contractor	Fosler
Pierre Saint	Richardson	OH-X	Major Contractor	Fosler
Pina-Val	Carlos	TX	Major Contractor	Fosler
Pineda	Manuel	OH-X	Major Contractor	Fosler
Pitts	Daniel	GA	Major Contractor	Fosler
Plata	Eliseo	TX	Major Contractor	Fosler
Prall	Chase	OH	Major Contractor	Fosler
Prats-Be	Ranses	TX	Major Contractor	Fosler
Pratt	John	TX	Major Contractor	Fosler
Prickett	Matthew	NC	Major Contractor	Fosler
Puerto	Cesar	OH-X	Major Contractor	Fosler
Qualls	Trisha	OH	Major Contractor	Fosler
Quinn Jr	Richard	OH	Major Contractor	Fosler
Quintanilla	Alberto	OH-X	Major Contractor	Fosler
Ragland	Donte	OH	Major Contractor	Fosler
Ramos	Edgardo	OH-X	Major Contractor	Fosler
Reed	Brent	OH	Major Contractor	Fosler
Reed	Christopher	OH	Major Contractor	Fosler
Reeves	Jznna	OH	Major Contractor	Fosler
Renide	(Renide) Jos	OH	Major Contractor	Fosler
Renteria	Maria	TX	Major Contractor	Fosler
Reyes	Daniel	OH-X	Major Contractor	Fosler
Reyes	Jimmy Kane	OH	Major Contractor	Fosler
Reynolds	Luke	OH	Major Contractor	Fosler

Ridore	Marie	OH-X	Major Contractor	Fosler
Rieger	Caleb	OH-X	Major Contractor	Fosler
Riley	Madison	OH	Major Contractor	Fosler
Rivera	Brittani	OH	Major Contractor	Fosler
Rivera	Angel	OH-X	Major Contractor	Fosler
Rivera Del Va	Victor	OH	Major Contractor	Fosler
Roberts	Bradley	OH-X	Major Contractor	Fosler
Robertson	Aaron	OH	Major Contractor	Fosler
Roblero	Fernando	NC	Major Contractor	Fosler
Rocha	Fernando	OH-X	Major Contractor	Fosler
Rock	Juno	OH-X	Major Contractor	Fosler
Rodriguez	Ashley	OH-X	Major Contractor	Fosler
Rodriguez	Engler	TX	Major Contractor	Fosler
Rodriguez	Julio	TX	Major Contractor	Fosler
Rodriguez	Leticia	TX	Major Contractor	Fosler
Rodriguez	Lian	TX	Major Contractor	Fosler
Rodriguez	Peyton	TX	Major Contractor	Fosler
Rodriguez	Pilar	OH-X	Major Contractor	Fosler
Rodriguez Ca	Gabriel	OH-X	Major Contractor	Fosler
Ronald Conta	Jean	OH-X	Major Contractor	Fosler
Rony	Jean	OH-X	Major Contractor	Fosler
Rosario	Joy	OH-X	Major Contractor	Fosler
Rosario Cruz	Eliezer	OH	Major Contractor	Fosler
Rosario-Pena	Ezequiel	OH-X	Major Contractor	Fosler
Roth	Brandi	OH	Major Contractor	Fosler
Ruiz	Gabriel	OH-X	Major Contractor	Fosler
Ruiz	Ricardo	OH	Major Contractor	Fosler
Ruiz Fane	Caden	OH	Major Contractor	Fosler
Ruiz Fane	Donavin	OH	Major Contractor	Fosler
Ruiz Jr	Christopher	OH	Major Contractor	Fosler
Ruiz Robles	Oscar	OH-X	Major Contractor	Fosler
Saint Armand	Wilguns	OH-X	Major Contractor	Fosler
Saint Hillaire	Manette	OH-X	Major Contractor	Fosler
Saint Louis	Maxlin	OH-X	Major Contractor	Fosler
Salas Jr	Victor	TX	Major Contractor	Fosler
Salas Sr	Victor M	TX	Major Contractor	Fosler
Salomon	Eval	OH	Major Contractor	Fosler
Salters	Kinashasa	OH-X	Major Contractor	Fosler
Sanchez	Michael	OH-X	Major Contractor	Fosler
Sanchez	Victor	OH-X	Major Contractor	Fosler
Sandoval	Jesus	OH-X	Major Contractor	Fosler
Santiago-Ruiz	Carlos	OH	Major Contractor	Fosler
Santos-Fernan	Luis	OH-X	Major Contractor	Fosler
Sauveur	Emmanuel	OH	Major Contractor	Fosler

Schimmoller	Catherine	OH	Major Contractor	Fosler
Schindler	James	OH	Major Contractor	Fosler
Schmitt	Clint	OH-X	Major Contractor	Fosler
Schneider	Jason	OH-X	Major Contractor	Fosler
Segura	Veronica	OH	Major Contractor	Fosler
Seiler	Taylor	OH	Major Contractor	Fosler
Serrano	Alberto	TX	Major Contractor	Fosler
Shaw	Brian	OH	Major Contractor	Fosler
Shores	Scotshaun	OH-X	Major Contractor	Fosler
Sierra	Alemantu	OH	Major Contractor	Fosler
Silva	Miguel	OH-X	Major Contractor	Fosler
Similien	Regodya	OH	Major Contractor	Fosler
Simon	Rose	OH-X	Major Contractor	Fosler
Smith	Angela	OH	Major Contractor	Fosler
Smith	Colon	NY	Major Contractor	Fosler
Smith	Dugan	OH-X	Major Contractor	Fosler
Smith	Dustin	OH	Major Contractor	Fosler
Smith	Hugh	NC	Major Contractor	Fosler
Smith	Johnette	OH-X	Major Contractor	Fosler
Smith	Juanita	OH-X	Major Contractor	Fosler
Smith	Marquis	OH	Major Contractor	Fosler
Smith	Mikeeya	OH	Major Contractor	Fosler
Smith	Torre	OH	Major Contractor	Fosler
Snow	Brandon	OH-X	Major Contractor	Fosler
Snowden	Jack	OH	Major Contractor	Fosler
Solis	Karen	OH-X	Major Contractor	Fosler
Soto	Orlando	OH-X	Major Contractor	Fosler
Souffrant	Johnny	OH-X	Major Contractor	Fosler
Spraldin	James	OH	Major Contractor	Fosler
Stevenson	Wood	OH-X	Major Contractor	Fosler
Strain	Charles	OH-X	Major Contractor	Fosler
Strom	Lorrie	FL	Major Contractor	Fosler
Stump	Devin	OH	Major Contractor	Fosler
Suleymanov	Hamdi	OH	Major Contractor	Fosler
Sylfort	Jonel	OH	Major Contractor	Fosler
Sylfort	Widnel	OH-X	Major Contractor	Fosler
Sylvanius	(Sylvanius)	OH-X	Major Contractor	Fosler
Sylvestre	Boniface	OH	Major Contractor	Fosler
Taylor	Rodney	OH-X	Major Contractor	Fosler
Taylor	Stephen	OH-X	Major Contractor	Fosler
Telfort	Hubert	OH-X	Major Contractor	Fosler
Terraza	Daniel	OH-X	Major Contractor	Fosler
Thelemaque	Vertilor	OH	Major Contractor	Fosler
Theophile	Wilkins	OH-X	Major Contractor	Fosler

Thomas	Arrius	OH	Major Contractor	Fosler
Thomas	Dalton	OH	Major Contractor	Fosler
Thomas	Devin	OH	Major Contractor	Fosler
Thomas	Jordan	TX	Major Contractor	Fosler
Thomas Jr	Derrick	OH-X	Major Contractor	Fosler
Torres	Luis	OH-X	Major Contractor	Fosler
Torres	Robert	TX	Major Contractor	Fosler
Torres-Gonza	Yamilet	NC	Major Contractor	Fosler
Trenkamp	Austin	OH-X	Major Contractor	Fosler
Truett	Treyvon	OH	Major Contractor	Fosler
Tucker Jr	Kenneth	OH	Major Contractor	Fosler
Turenne	Jonas	OH	Major Contractor	Fosler
Unique	(Unique) No	OH	Major Contractor	Fosler
Upshaw Jr	Bryan	OH	Major Contractor	Fosler
Valdez	Eduardo	OH	Major Contractor	Fosler
Valdez Serna	Eduardo	OH	Major Contractor	Fosler
Valmyr	Moizie	OH-X	Major Contractor	Fosler
Van Norman	Derrick	LA	Major Contractor	Fosler
Vargus	Ernesto	OH	Major Contractor	Fosler
Varner	Joseph	OH	Major Contractor	Fosler
Vazquez	Benjamin	TX	Major Contractor	Fosler
Vega	Jose	OH-X	Major Contractor	Fosler
Vega	Maribelee	OH-X	Major Contractor	Fosler
Vekaryas	Aryanna	OH	Major Contractor	Fosler
Victor	Jacky	OH	Major Contractor	Fosler
Vilcin	Bealous	OH	Major Contractor	Fosler
Villanev	Demian	OH-X	Major Contractor	Fosler
Vital-Cas	Enrique	TX	Major Contractor	Fosler
Walrath	Brandon	OH-X	Major Contractor	Fosler
Weber	Christopher	OH	Major Contractor	Fosler
Welch	Tanner	OH-X	Major Contractor	Fosler
White	Alexx	TX	Major Contractor	Fosler
Whitt	Marcus	OH-X	Major Contractor	Fosler
Widener	Brian	OH	Major Contractor	Fosler
Wiggins	Angelo	OH	Major Contractor	Fosler
Williams	Dakota	OH	Major Contractor	Fosler
Williams	Dexter	TX	Major Contractor	Fosler
Williams Jr	Madison	OH	Major Contractor	Fosler
Williamson	Lamondre	OH	Major Contractor	Fosler
Willis	Marqueviou	OH-X	Major Contractor	Fosler
Winn Jr	Joseph	OH	Major Contractor	Fosler
Wireman	Stephen	OH	Major Contractor	Fosler
Witcher	Brentten	OH	Major Contractor	Fosler
Woodard	Robert	OH-X	Major Contractor	Fosler

Woods	Anthony	OH	Major Contractor	Fosler
Woody	Haisson	OH	Major Contractor	Fosler
Wright	James	OH	Major Contractor	Fosler
Yepez-O	Martin	TX	Major Contractor	Fosler
Young	Andra	OH-X	Major Contractor	Fosler
Zajac	Mark	OH	Major Contractor	Fosler
Zamarron	Bryan	OH	Major Contractor	Fosler
Zamarron	Daniel	OH	Major Contractor	Fosler
Zamora	Tomas	OH	Major Contractor	Fosler
Zepeda	Josue	OH	Major Contractor	Fosler
Zimmerer	Paul	OH	Major Contractor	Fosler
Zuniga	Alejandro	OH-X	Major Contractor	Fosler
Abke	Abigail	OH	Major Contractor	JFECC
Anderson	Jeremiah	OH	Major Contractor	JFECC
Arrendondo	Raul	OH	Major Contractor	JFECC
Bachli	Bryce	OH	Major Contractor	JFECC
Barber	Kent	CO	Major Contractor	JFECC
Barnett	Kenneth	OH-X	Major Contractor	JFECC
Bechstein	Brian	OH-X	Major Contractor	JFECC
Benson	Virgile	OH-X	Major Contractor	JFECC
Benton	Bilal	OH	Major Contractor	JFECC
Blair	Dylan	OH	Major Contractor	JFECC
Blatnik	Zayre	OH-X	Major Contractor	JFECC
Boling	Jacob	OH	Major Contractor	JFECC
Bonfert	Walter	OH	Major Contractor	JFECC
Booker	Carl	OH	Major Contractor	JFECC
Booth	Robert	TX	Major Contractor	JFECC
Branecky	Joe	OH-X	Major Contractor	JFECC
Breazeale	Jeremy	OH	Major Contractor	JFECC
Burger	Jeffrey	OH	Major Contractor	JFECC
Carver	Matthew	IL	Major Contractor	JFECC
Castaneda	Charles	OH	Major Contractor	JFECC
Castro	Julio	OH	Major Contractor	JFECC
Chaput	James	OH	Major Contractor	JFECC
Clady	Quinton	OH	Major Contractor	JFECC
Clagg	Nathaniel	OH	Major Contractor	JFECC
Clapper	Steven	OH	Major Contractor	JFECC
Clapper Jr	Steven	OH	Major Contractor	JFECC
Clay	Brian	OH	Major Contractor	JFECC
Cook	Dalton	MO	Major Contractor	JFECC
Copeland	Chris	OH	Major Contractor	JFECC
Cox	Tony	OH	Major Contractor	JFECC
Cruz	Diego	OH	Major Contractor	JFECC
Daniels	Branden	OH	Major Contractor	JFECC

Dawson	Jared	OH	Major Contractor	JFECC
Deming	Tommy	OH	Major Contractor	JFECC
Dennis	Alec	OH	Major Contractor	JFECC
Diekman	Brett	OH	Major Contractor	JFECC
DiStasio	Nick	IL	Major Contractor	JFECC
Doak	Terence	OH	Major Contractor	JFECC
Ehlert	Joshua	OH	Major Contractor	JFECC
Ellis	Armond	OH	Major Contractor	JFECC
Ellis	Jacob	OH	Major Contractor	JFECC
Enright	Elizabeth	OH	Major Contractor	JFECC
Enright Jr	Timothy	OH-X	Major Contractor	JFECC
Erickson	Mitch	AZ	Major Contractor	JFECC
Erkembrack	Bryce	MN	Major Contractor	JFECC
Erkenbrack	Blain	MN	Major Contractor	JFECC
Gaston	Donovan	OH	Major Contractor	JFECC
Geldien	Max	OH-X	Major Contractor	JFECC
Gibson	Christopher	OH	Major Contractor	JFECC
Gomez	Gilberto	TX	Major Contractor	JFECC
Gonzales	Jacob	OH	Major Contractor	JFECC
Harden	Stephen	OH	Major Contractor	JFECC
Harris	Shyleigh	TX	Major Contractor	JFECC
Hartbarger	Phillip	OH	Major Contractor	JFECC
Hendricks	Christopher	OH	Major Contractor	JFECC
Hernandez	Joshua	OH	Major Contractor	JFECC
Huffman	Mike	IL	Major Contractor	JFECC
Hurley	Kevin	OH	Major Contractor	JFECC
Kelbley	Scott	OH	Major Contractor	JFECC
Kelley	Jason	OH	Major Contractor	JFECC
Keros	Matthew	OH	Major Contractor	JFECC
Kolasinski	Adam	OH	Major Contractor	JFECC
Kosch	Roger	OH	Major Contractor	JFECC
Kruger II	Bradley	OH-X	Major Contractor	JFECC
Kruse	Brian	OH	Major Contractor	JFECC
Lang	Alex	OH-X	Major Contractor	JFECC
Livengood	Joshua	OH	Major Contractor	JFECC
Lorenzen	Matthew	OH-X	Major Contractor	JFECC
Lundemo	Mike	OH	Major Contractor	JFECC
Lutz	Michael	OH	Major Contractor	JFECC
Malone Jr	Derrick	OH	Major Contractor	JFECC
Marinski	Michael	OH	Major Contractor	JFECC
Marrufo	Cesar	OH	Major Contractor	JFECC
Matt	Garrett	OH	Major Contractor	JFECC
Mendoza	Gilberto	OH	Major Contractor	JFECC
Murray	Zachary	OH	Major Contractor	JFECC

Nelson	Monica	OH	Major Contractor	JFECC
Nicely	Mike	OH	Major Contractor	JFECC
Nicolini	Alexander	OH	Major Contractor	JFECC
Olson	Garrett	FL	Major Contractor	JFECC
Orcasitas	Kurtis	OH	Major Contractor	JFECC
Overmyer	Donald	OH	Major Contractor	JFECC
Paxton	Desmond	OH	Major Contractor	JFECC
Peal	Jason	IL	Major Contractor	JFECC
Pedelose	Joshua	OH	Major Contractor	JFECC
Peek	Ann	OH	Major Contractor	JFECC
Perez	Arturo	TX	Major Contractor	JFECC
Perez	Deveb	OH	Major Contractor	JFECC
Peterson	Drew	OH-X	Major Contractor	JFECC
Poulos	Jake	IL	Major Contractor	JFECC
Quinonez	Edward	OH	Major Contractor	JFECC
Racz	Joshua	OH	Major Contractor	JFECC
Racz	Nate	OH	Major Contractor	JFECC
Rentz	Matthew	OH	Major Contractor	JFECC
Riggs	James	OH	Major Contractor	JFECC
Rushlow	Michael	OH	Major Contractor	JFECC
Salazar	Marciano	OH	Major Contractor	JFECC
Schwab	Dana	OH	Major Contractor	JFECC
Seymour	Steven	OH	Major Contractor	JFECC
Shelton	Jessie	OH	Major Contractor	JFECC
Siebert	Jonathan	OH	Major Contractor	JFECC
Sigurdson	Mitchell	OH-X	Major Contractor	JFECC
Solly	Shaun	OH	Major Contractor	JFECC
Sprouse	Shane	OH	Major Contractor	JFECC
Tesch	Brett	OH	Major Contractor	JFECC
Thomas	Bret	OH	Major Contractor	JFECC
Thomas	Tyler	MO	Major Contractor	JFECC
Tucker-Wiggi	Leonard	OH	Major Contractor	JFECC
VanAntwerp	Kale	IL	Major Contractor	JFECC
VanCalster	Frankie	OH	Major Contractor	JFECC
Ventreesca	James	OH	Major Contractor	JFECC
Wachowiak	Kevin	OH	Major Contractor	JFECC
Wallace	Eric	OH	Major Contractor	JFECC
Waller	Ayesha	OH	Major Contractor	JFECC
Warns	Sean	OH	Major Contractor	JFECC
Watts	Andrew	OH	Major Contractor	JFECC
Weber	Gary	OH	Major Contractor	JFECC
Weissinger	Jordan	OH	Major Contractor	JFECC
Wendler	William	OH	Major Contractor	JFECC
Widmer	Scott	OH	Major Contractor	JFECC

Woodley Jr	Archie	OH	Major Contractor	JFECC
Yeates	Crystal	OH	Major Contractor	JFECC
Zimmerman	Jeffery	OH	Major Contractor	JFECC
Zimmerman	John	OH	Major Contractor	JFECC
Baden	Benjamin	OH	Major Contractor	MBC
Baldridge	Braxton	OH	Major Contractor	MBC
Boellner	Steven	OH	Major Contractor	MBC
Bojarski	David	MI	Major Contractor	MBC
Bok	Joe	OH	Major Contractor	MBC
Boltz	Derek	OH	Major Contractor	MBC
Carrizales	Caleb	OH-X	Major Contractor	MBC
Cramer	Matthew	OH-X	Major Contractor	MBC
Deleon	Anthony	OH-X	Major Contractor	MBC
Fischer	Joseph	OH	Major Contractor	MBC
Flores	Marcos	OH-X	Major Contractor	MBC
Gayheart	John	OH-X	Major Contractor	MBC
Gunderman	Danniel	OH	Major Contractor	MBC
Helmke	Austin	OH	Major Contractor	MBC
Helmke	Todd	OH	Major Contractor	MBC
Heudecker	Arthur	OH-X	Major Contractor	MBC
Horstman	Zachary	OH	Major Contractor	MBC
Kennelly	Ethan	OH-X	Major Contractor	MBC
Kime	Joshua	OH	Major Contractor	MBC
Macijewski	Jaymes	OH	Major Contractor	MBC
Massengale	Dewayne	OH	Major Contractor	MBC
Mickel	Edward	IN	Major Contractor	MBC
Mickel	Kathy	IN	Major Contractor	MBC
Mowry	Braden	OH	Major Contractor	MBC
Neifer	Jeremy	OH-X	Major Contractor	MBC
Nickles	Doug	IN	Major Contractor	MBC
Noffsinger	Wayne	OH	Major Contractor	MBC
Pedraza	Joe	OH	Major Contractor	MBC
Raines Jr	Daniel	OH-X	Major Contractor	MBC
Reinking	Dean	OH	Major Contractor	MBC
Rodgers	David	OH	Major Contractor	MBC
Rupp	Clayton	OH	Major Contractor	MBC
Shaffer	Shawn	OH	Major Contractor	MBC
Sherick	Brent	OH	Major Contractor	MBC
Short	Todd	OH	Major Contractor	MBC
Smith	Douglas	IN	Major Contractor	MBC
Stephens	Matthew	OH	Major Contractor	MBC
Stewart	Jacob	OH-X	Major Contractor	MBC
Stock	Zachary	OH-X	Major Contractor	MBC
Troyer	Bryant	OH-X	Major Contractor	MBC

Troyer	Jeremy	OH	Major Contractor	MBC
Vorhees	Norman	OH-X	Major Contractor	MBC
Wagner	Brandon	OH	Major Contractor	MBC
Zeigler	Norman	OH	Major Contractor	MBC
Biller	Andrew	OH	Major Contractor	Newkirk
Boreman	Tyler	OH-X	Major Contractor	Newkirk
Brembry	Mike	OH-X	Major Contractor	Newkirk
Burley	James	OH	Major Contractor	Newkirk
Castor	Matt	OH	Major Contractor	Newkirk
Culver	Ryan	MI	Major Contractor	Newkirk
Dancer	Aaron	MI	Major Contractor	Newkirk
Diaz	Rebecca	OH	Major Contractor	Newkirk
Dillree	Chad	MI	Major Contractor	Newkirk
Fagalar	Tim	OH	Major Contractor	Newkirk
Frazier	Paul	OH	Major Contractor	Newkirk
Freel	Tyler	MI	Major Contractor	Newkirk
Freese	Kristen	OH	Major Contractor	Newkirk
Frisbie	Edward	MI	Major Contractor	Newkirk
Herman	Zachary	OH-X	Major Contractor	Newkirk
Hernandez	Joshua	OH-X	Major Contractor	Newkirk
Hill	Jay	OH	Major Contractor	Newkirk
Iltis	Kameron	MI	Major Contractor	Newkirk
Ketcham	Autumn	OH-X	Major Contractor	Newkirk
Letz	Trevor	OH-X	Major Contractor	Newkirk
McDaniel Jr	Tim	OH	Major Contractor	Newkirk
Metcalf	Jacob	OH-X	Major Contractor	Newkirk
Moffett	Anthony	OH	Major Contractor	Newkirk
Nolan	John	MI	Major Contractor	Newkirk
Otterson	Ronald	OH-X	Major Contractor	Newkirk
Peterman	Joe	OH	Major Contractor	Newkirk
Roberts	Roy	KY	Major Contractor	Newkirk
Robinson	Bridgette	OH	Major Contractor	Newkirk
Sawyers	Lance	OH-X	Major Contractor	Newkirk
Shelton	Wyatt	OH	Major Contractor	Newkirk
Taylor	Mike	MI	Major Contractor	Newkirk
Thompson	Robert	MI	Major Contractor	Newkirk
Baer	Evan	OH-X	Major Contractor	Osting
Browning	Misty	OH-X	Major Contractor	Osting
Ducheney	Dirk	OH	Major Contractor	Osting
Mohr	Greg	OH-X	Major Contractor	Osting
Osting	Alfred	OH-X	Major Contractor	Osting
Aguilar	Kaden	OH	Major Contractor	Sac Drilling
Alvarado	Brandon	OH	Major Contractor	Sac Drilling
Alvarez - Lun	Jorge	OH	Major Contractor	Sac Drilling

Andrade Da S	Hellyson	OH	Major Contractor	Sac Drilling
Bailey	William	OH	Major Contractor	Sac Drilling
Balderas	Mario	OH	Major Contractor	Sac Drilling
Blizzard	Charles	OH-X	Major Contractor	Sac Drilling
Bojorquez Me	Martha	OH	Major Contractor	Sac Drilling
Boone	Daniel J	OK	Major Contractor	Sac Drilling
Bridges	Sylvester	MS	Major Contractor	Sac Drilling
Brubaker	Matt	OH	Major Contractor	Sac Drilling
Bullock	Montreal	MS	Major Contractor	Sac Drilling
Bynum	Ben	MS	Major Contractor	Sac Drilling
Casarez	Javier D	NM	Major Contractor	Sac Drilling
Cervantes Go	Jose	OH	Major Contractor	Sac Drilling
Chavero Solis	Javier D	TX	Major Contractor	Sac Drilling
Cordle	Mackenzie	OH	Major Contractor	Sac Drilling
Cortes	Joel	OH	Major Contractor	Sac Drilling
Darelus	Onel	OH	Major Contractor	Sac Drilling
Davila Ramire	Jose	OH	Major Contractor	Sac Drilling
Dewitt	Tyree	OH	Major Contractor	Sac Drilling
Dickerson	Cody	OH	Major Contractor	Sac Drilling
Emfinger	Alvin	OH	Major Contractor	Sac Drilling
Estrada	Cruz	OH	Major Contractor	Sac Drilling
Flores Morale	Ricardo	OR	Major Contractor	Sac Drilling
Francois	Gladson Peg	OH-X	Major Contractor	Sac Drilling
Funchess	Dakeshia	MS	Major Contractor	Sac Drilling
Geckle	Michael	OH-X	Major Contractor	Sac Drilling
Gonzalez	William	OH	Major Contractor	Sac Drilling
Guelde	Kaleb	OH-X	Major Contractor	Sac Drilling
Hackett	Kepatrick	MS	Major Contractor	Sac Drilling
Hammond	Jeremy	MS	Major Contractor	Sac Drilling
Harris Jr	Paul	OH	Major Contractor	Sac Drilling
Harter	Benjamin	OH	Major Contractor	Sac Drilling
Hernandez	Samuel	OH	Major Contractor	Sac Drilling
Hicks	Shari	OH	Major Contractor	Sac Drilling
Hurley	Ryan	OH	Major Contractor	Sac Drilling
Irving	Alexander	OH-X	Major Contractor	Sac Drilling
Jean	Dionny	OH	Major Contractor	Sac Drilling
Jones	Kaleb	OH	Major Contractor	Sac Drilling
Joseph	Jean Nady	OH-X	Major Contractor	Sac Drilling
King	Dominique	OH	Major Contractor	Sac Drilling
Lee	Chase	MS	Major Contractor	Sac Drilling
Leonard	Robert	OH	Major Contractor	Sac Drilling
Lieb	Michael	OH	Major Contractor	Sac Drilling
Logan	Bryce	OH	Major Contractor	Sac Drilling
Logan	Derrick	OH-X	Major Contractor	Sac Drilling

Long	Bryce	OH	Major Contractor	Sac Drilling
Lopez	Robert	OH	Major Contractor	Sac Drilling
March	Devin	OH	Major Contractor	Sac Drilling
May	Laclinton	MS	Major Contractor	Sac Drilling
Mefferd	Grant	OH	Major Contractor	Sac Drilling
Miller	Adam	OH	Major Contractor	Sac Drilling
Montes	Overlin	OH	Major Contractor	Sac Drilling
Moore	Joseph	OH	Major Contractor	Sac Drilling
Mora	Jesus Anton	OH-X	Major Contractor	Sac Drilling
Mora Vasquez	Jose	OH-X	Major Contractor	Sac Drilling
Morales Guer	Rogelio	OH	Major Contractor	Sac Drilling
Mrgan	Andrew	NV	Major Contractor	Sac Drilling
Murdock	Martin	OH	Major Contractor	Sac Drilling
Niang	Ibrahima	OH-X	Major Contractor	Sac Drilling
Novak	Adam	MS	Major Contractor	Sac Drilling
Palomares	George	OH	Major Contractor	Sac Drilling
Parra Gonzale	Jennifer	OH	Major Contractor	Sac Drilling
Pecina	Pablo	TX	Major Contractor	Sac Drilling
Pierre	Christian	OH	Major Contractor	Sac Drilling
Poe	Shane	OH	Major Contractor	Sac Drilling
Pope	Trent	MS	Major Contractor	Sac Drilling
Rochin	Kevin	OR	Major Contractor	Sac Drilling
Salinas Chave	Reynoldo	TX	Major Contractor	Sac Drilling
Salinas Garcia	Reynoldo	TX	Major Contractor	Sac Drilling
Salinas Garza	Marco	OH	Major Contractor	Sac Drilling
Salinas Jr	Marco	OH	Major Contractor	Sac Drilling
Sanchez	William	MS	Major Contractor	Sac Drilling
Saucedo	Victor	MS	Major Contractor	Sac Drilling
Scott	Orlando	OH	Major Contractor	Sac Drilling
Sharp	Jaden Craig	OH	Major Contractor	Sac Drilling
Smith	Daquan	MS	Major Contractor	Sac Drilling
Smith	Logan	OH-X	Major Contractor	Sac Drilling
Smith	Nicholas	OR	Major Contractor	Sac Drilling
Smith	Quartavius	MS	Major Contractor	Sac Drilling
Solis	Dallas	OH	Major Contractor	Sac Drilling
Soria	Efren	OH	Major Contractor	Sac Drilling
St Germain	Kimberly	OH	Major Contractor	Sac Drilling
Stevens	Andy	OH-X	Major Contractor	Sac Drilling
Stewart	Aketha	MS	Major Contractor	Sac Drilling
Talavera	Adan	AZ	Major Contractor	Sac Drilling
Thomas	Eric	OH	Major Contractor	Sac Drilling
Thomas Jr	Richard	OH	Major Contractor	Sac Drilling
Valentine Var	Savion	OH	Major Contractor	Sac Drilling
Volcy	Juior	OH-X	Major Contractor	Sac Drilling

VonZynda	Ethan	MS	Major Contractor	Sac Drilling
Ward II	Michael	OH	Major Contractor	Sac Drilling
Wiervillie	Deven	OH	Major Contractor	Sac Drilling
Wilson	Jonathan	OH	Major Contractor	Sac Drilling
Wilson	Nathan	MS	Major Contractor	Sac Drilling
Zuniga Diaz	Juan	OH	Major Contractor	Sac Drilling
Zuniga Ezquiv	Perla	OH	Major Contractor	Sac Drilling
Cetovich	Mitch	OH	Major Contractor	Terracon
Foster	Mark	WV	Major Contractor	Terracon
McGougan	Ian	OH	Major Contractor	Terracon
Murphy	Jaron	OH	Major Contractor	Terracon
Payne	Jeremey	OH	Major Contractor	Terracon

Timber Road Solar Project

Employee Hours & Ohio Certification of Residency

Acceptable OH Hours	211291.46	**72.37%**
Other Hours	80662.98	
Total Hrs	291954.44	

Last Name	First Name	State	Control	Company
March	Charles	OH	Main Contractor	Atwell
Porterfield	Rocky	OH	Main Contractor	Atwell
Schofield	Paul	OH	Main Contractor	Atwell
Spangler	Brett	OH	Main Contractor	Atwell
Bernard	Bryan	OH-X	Main Contractor	Borrego
Bishop	Ethan	OH	Main Contractor	Borrego
Brito	Ibrahim	OH	Main Contractor	Borrego
Brooks	Gary	OH	Main Contractor	Borrego
Brooks	Ian	OH	Main Contractor	Borrego
Bunkley	Brandon	GA	Main Contractor	Borrego
Bunkley	Shawn	OH	Main Contractor	Borrego
Callaway	Shane	OH	Main Contractor	Borrego
Callaway	Tina	OH	Main Contractor	Borrego
Chang	Allen	OH	Main Contractor	Borrego
Christen	Anna	OH	Main Contractor	Borrego
Cota	Eduardo	CA	Main Contractor	Borrego
Council	Gary	OH	Main Contractor	Borrego
Cruz	Salvador	TX	Main Contractor	Borrego
Dallas	John	GA	Main Contractor	Borrego
Davis	George	FL	Main Contractor	Borrego
DeLeon	Victor	CA	Main Contractor	Borrego
Dixon	Todd	OH	Main Contractor	Borrego
Dodson	Tre'von	OH	Main Contractor	Borrego
Gardner	Zachary	OH	Main Contractor	Borrego
Gil	Leonardo	OH	Main Contractor	Borrego
Godwin	Emma	OH	Main Contractor	Borrego
Gonzalez	Felipe	OH	Main Contractor	Borrego
Hale	Dan	OH	Main Contractor	Borrego
Hamp	Keyshawn	OH	Main Contractor	Borrego
Harris	Rayse	KY	Main Contractor	Borrego
Hernandez	Kaleb	OH	Main Contractor	Borrego
Holmes	Melissa	OH	Main Contractor	Borrego
Hook	Trinda	OH	Main Contractor	Borrego
Juarez	Rafaela	OH	Main Contractor	Borrego
Keckler	Stephen	OH	Main Contractor	Borrego
Keckler	Brandon	OH	Main Contractor	Borrego

Keckler	Heath	OH	Main Contractor	Borrego
Lee	Brent	OH	Main Contractor	Borrego
Liberatore	Chris	OH	Main Contractor	Borrego
McIntosh	John	OH	Main Contractor	Borrego
Morton	Clifford	OH	Main Contractor	Borrego
Oglesbee	William	OH	Main Contractor	Borrego
Pelland	Nathan	OH	Main Contractor	Borrego
Powell	Angela	OH	Main Contractor	Borrego
Price	Tyler	OH	Main Contractor	Borrego
Puerto	Cesar	OH	Main Contractor	Borrego
Rodriguez	Branton	OH	Main Contractor	Borrego
Rodriguez	Carolina	OH	Main Contractor	Borrego
Rodriguez	David	OH	Main Contractor	Borrego
Rodriguez	Diana	OH	Main Contractor	Borrego
Rodriguez	Rosendo	OH	Main Contractor	Borrego
Rogers	Markeyon	OH	Main Contractor	Borrego
Ross	James	OH	Main Contractor	Borrego
Schneider	Kenneth	OH	Main Contractor	Borrego
Staley	Ashley	OH	Main Contractor	Borrego
Talley	Kendrick	OH	Main Contractor	Borrego
Thati	Aravind	OH	Main Contractor	Borrego
Troglin	Marcus	OH	Main Contractor	Borrego
Tyner	Ethan	AZ	Main Contractor	Borrego
Vyhnan	Oleksiy	OH	Main Contractor	Borrego
Waughtel	Kolton	OH	Main Contractor	Borrego
Akers	Riley	IL	Main Contractor	CIC
Blake	Christian	OH	Main Contractor	CIC
Brown	Earl	PA	Main Contractor	CIC
Duvault	Dylan	OH	Main Contractor	CIC
Farjado	David	IL	Main Contractor	CIC
Kessler	Marty	OH	Main Contractor	CIC
Nichols	Logan	OH	Main Contractor	CIC
Nochta	Ronald	OH	Main Contractor	CIC
Nochta	Curtis	OH	Main Contractor	CIC
Rightnour	Patrick	OH-X	Main Contractor	CIC
Rosebrock	Dylan	OH	Main Contractor	CIC
Servin	Agustin	OH	Main Contractor	CIC
Servin	Ricardo	OH	Main Contractor	CIC
Servin	Samuel	OH	Main Contractor	CIC
Servin	Reuben	OH	Main Contractor	CIC
Stack	Joshua	OH	Main Contractor	CIC
Niese	Dillan	OH	Minor Subcontractor	County Electric
Osting	Easton	OH	Minor Subcontractor	County Electric
Rosengarten	Joshua	OH	Minor Subcontractor	County Electric

Russell	Brent	OH	Minor Subcontractor	County Electric
Schroeder	Michael	OH	Minor Subcontractor	County Electric
Thomas	Frank	OH	Minor Subcontractor	County Electric
Adkins	Cory	OH	Main Contractor	Fosler
Adkins	Daniel	SC	Main Contractor	Fosler
Aguilar	Kaden	OH	Main Contractor	Fosler
Alexis	Job	OH	Main Contractor	Fosler
Allen	Felicia	OH	Main Contractor	Fosler
Allen	Norman	OH	Main Contractor	Fosler
Allman	Gunnar	OH	Main Contractor	Fosler
Alonso Leanos	Josue	OH	Main Contractor	Fosler
Alphonce	Louis	OH	Main Contractor	Fosler
Anderson	Allen	OH	Main Contractor	Fosler
Anderson	Antionette	OH	Main Contractor	Fosler
Anderson	Cleshaun	OH	Main Contractor	Fosler
Anderson	Deaundre	OH	Main Contractor	Fosler
Anderson	Jawan	OH	Main Contractor	Fosler
Angel Escorza	Miguel	OH	Main Contractor	Fosler
Aranda	Ruben	TX	Main Contractor	Fosler
Arellanes	Moises	NV	Main Contractor	Fosler
Austin	Jamere	OH	Main Contractor	Fosler
Avitia	Jose	OH	Main Contractor	Fosler
Banks	Cortlend	OH	Main Contractor	Fosler
Banks	Michael	OH	Main Contractor	Fosler
Barajas	Luis	OH	Main Contractor	Fosler
Barnett	Bill	OH	Main Contractor	Fosler
Barnett	De'Metria	OH	Main Contractor	Fosler
Bartley	Connor	OH	Main Contractor	Fosler
Bartley	Draven	OH	Main Contractor	Fosler
Bartley	Taiann	OH	Main Contractor	Fosler
Bates	Justin	OH	Main Contractor	Fosler
Battle	Corey	TX	Main Contractor	Fosler
Beaubanois	Andrew	OH	Main Contractor	Fosler
Beauplan (Pierre)	Patrick	OH	Main Contractor	Fosler
Beckes	Christopher	OH	Main Contractor	Fosler
Behnke	Jason	OH	Main Contractor	Fosler
Bell	Reiner	OH	Main Contractor	Fosler
Berrier	Amanda	OH	Main Contractor	Fosler
Bicknese	Brian	IN	Main Contractor	Fosler
Bishop	Ethan	OH	Main Contractor	Fosler
Bissainth	Jeff	OH	Main Contractor	Fosler
Blanc	Sountina	IN	Main Contractor	Fosler
Bledsoe	Martin	OH	Main Contractor	Fosler
Boggs	Jessica	OH	Main Contractor	Fosler

Booth	Anthony	OH-X	Main Contractor	Fosler
Borders	Duane	IN	Main Contractor	Fosler
Bosquez	Daniel	OH	Main Contractor	Fosler
Boswell	Kurtis	OH	Main Contractor	Fosler
Boswell	Carl	OH	Main Contractor	Fosler
Bowen	Caden	OH	Main Contractor	Fosler
Bowyer	Harry	OH	Main Contractor	Fosler
Bradford	Cody	OH	Main Contractor	Fosler
Bradley	Philip	FL	Main Contractor	Fosler
Brenneman	Cameron	OH	Main Contractor	Fosler
Bridges	Marvin	OH	Main Contractor	Fosler
Brogdon	Kristian	FL	Main Contractor	Fosler
Brooks	Henry	OH	Main Contractor	Fosler
Brooks	Michael	OH	Main Contractor	Fosler
Brown	Donta	OH	Main Contractor	Fosler
Bullie	Herman	OH	Main Contractor	Fosler
Bulton	Jame	OH	Main Contractor	Fosler
Burga	Melissa	OH	Main Contractor	Fosler
Burgess	Sylvia	FL	Main Contractor	Fosler
Burnett	Stephon	OH	Main Contractor	Fosler
Burton	Jame Reed	OH	Main Contractor	Fosler
Caceres-	Julio	TX	Main Contractor	Fosler
Calderon	Yony	OH	Main Contractor	Fosler
Calderon-Garcia	Robin	MD	Main Contractor	Fosler
Camel	Shadarius	IN	Main Contractor	Fosler
Campbell	Johnny	OH	Main Contractor	Fosler
Cantave	Charles	OH	Main Contractor	Fosler
Cantu-Arellano	Jaciel	OH	Main Contractor	Fosler
Caprella	John	OH	Main Contractor	Fosler
Carballo	Francisco	TX	Main Contractor	Fosler
Cardona	Verny	OH	Main Contractor	Fosler
Cardoza	Izayas	OH	Main Contractor	Fosler
Carpenter	Stephen	MI	Main Contractor	Fosler
Carrion-Torres	Juan	OH	Main Contractor	Fosler
Carrisalez	Nathaniel	OH	Main Contractor	Fosler
Cartagena	Jayden	OH	Main Contractor	Fosler
Carter	Mekhi	OH	Main Contractor	Fosler
Carter	Ronald	TX	Main Contractor	Fosler
Caserta	Charlton	WV	Main Contractor	Fosler
Castillo	Gesli	OH	Main Contractor	Fosler
Ceballos	Anthony	OH	Main Contractor	Fosler
Cephacile	Fabiola	OH	Main Contractor	Fosler
Cesar	Reginal	OH	Main Contractor	Fosler
Chaney	Tempsett	GA	Main Contractor	Fosler

Charles	Judith	OH	Main Contractor	Fosler
Charles	Junior	OH	Main Contractor	Fosler
Chavez	Jose	OH	Main Contractor	Fosler
Chavis	William	TX	Main Contractor	Fosler
Chery	Jacques	OH	Main Contractor	Fosler
Chery	Marie	OH	Main Contractor	Fosler
Chilcoat	Kody	OH	Main Contractor	Fosler
Childs	Joshua Jame	OH	Main Contractor	Fosler
Clair	Dasan	OH	Main Contractor	Fosler
Collins	Nathan	OH	Main Contractor	Fosler
Collum	Thomas	OH	Main Contractor	Fosler
Collum	Wayne	OH	Main Contractor	Fosler
Compton	Nick	OH	Main Contractor	Fosler
Contreras	Marcos	TX	Main Contractor	Fosler
Cooper	Joseph	IN	Main Contractor	Fosler
Cooper	Tim	OH	Main Contractor	Fosler
Cordle	Mackenzie	OH	Main Contractor	Fosler
Coressel	Damon	OH-X	Main Contractor	Fosler
Cornell	John	OH	Main Contractor	Fosler
Corpus	Edgar	OH	Main Contractor	Fosler
Cremeans	Blayne	OH	Main Contractor	Fosler
Crosby	Donnie	OH	Main Contractor	Fosler
Crosby	Dorothy	OH	Main Contractor	Fosler
Crosby	Rionardo	OH	Main Contractor	Fosler
Cushard	Bailey	OH	Main Contractor	Fosler
Davenport	Daniel	OH	Main Contractor	Fosler
Davis	Geangelo	OH	Main Contractor	Fosler
Davis	Thomas	OH	Main Contractor	Fosler
Davis	Walter	OH	Main Contractor	Fosler
DeAnda	Juan-Carlo	TX	Main Contractor	Fosler
De-La-San	Freddy	OH	Main Contractor	Fosler
Delasancha	Jennifer	OH	Main Contractor	Fosler
Delgado	Frank	TX	Main Contractor	Fosler
Delgado	Raul	CA	Main Contractor	Fosler
Dennis	Elizabeth	OH	Main Contractor	Fosler
Derelus	Onel	OH-X	Main Contractor	Fosler
Derilus	Charles	OH	Main Contractor	Fosler
Desdunes	Cedric	OH	Main Contractor	Fosler
Destine	Gary	OH	Main Contractor	Fosler
Devoe	Evan	OH	Main Contractor	Fosler
Dewitt	Sarah	OH	Main Contractor	Fosler
Diaz Gonzalez	Frorentino	OH	Main Contractor	Fosler
Dickess	Billy	OH	Main Contractor	Fosler
Dido	Davern	OH	Main Contractor	Fosler

Dieudonne	Stefedson	OH-X	Main Contractor	Fosler
Dixon	Joshua	OH	Main Contractor	Fosler
Dodson	Tre'von	GA	Main Contractor	Fosler
Dorissaint	James	OH	Main Contractor	Fosler
Dotson	Averil	OH	Main Contractor	Fosler
Dotson	Johnny	OH	Main Contractor	Fosler
Duron	Keent	OH	Main Contractor	Fosler
Duron-O	Eidelis	TX	Main Contractor	Fosler
Edge	Frankie	OH	Main Contractor	Fosler
England	Debra	OH	Main Contractor	Fosler
Englehart	Austin	OH	Main Contractor	Fosler
Escorza	Miguel-Ange	OH	Main Contractor	Fosler
Esduardo-Palomar	Eric	OH	Main Contractor	Fosler
Esparza	Hector Jose	OH	Main Contractor	Fosler
Esparza	Phillir	OH	Main Contractor	Fosler
Esti	Renard	OH	Main Contractor	Fosler
Estime	Mubarack	OH	Main Contractor	Fosler
Eutsler	Garret	OH	Main Contractor	Fosler
Evans	Genea	OH	Main Contractor	Fosler
Evans	James	OH	Main Contractor	Fosler
Excellent	Saintal	OH-X	Main Contractor	Fosler
Fackler	Narissa	OH	Main Contractor	Fosler
Fagan	Tristan	OH	Main Contractor	Fosler
Faulconer	Gavin	OH	Main Contractor	Fosler
Faulkner	Alexander	OH	Main Contractor	Fosler
Feagin	Eric	OH	Main Contractor	Fosler
Feemster	Colinna	OH-X	Main Contractor	Fosler
Fench	Antonio	OH	Main Contractor	Fosler
Ferdinand	Fritz	OH-X	Main Contractor	Fosler
Ferguson	Cairia	GA	Main Contractor	Fosler
Figueroa	Luis	OH	Main Contractor	Fosler
Figueroa Barajas	Pedro	TX	Main Contractor	Fosler
Finch	Willian	NC	Main Contractor	Fosler
Finfrock	Josh	OH	Main Contractor	Fosler
Fleming	Tolby	OH	Main Contractor	Fosler
Flores Morales	Zulma	OH	Main Contractor	Fosler
Fox	Adonis	OH	Main Contractor	Fosler
Francois	Wilson	OH	Main Contractor	Fosler
Francois	Magalie	OH	Main Contractor	Fosler
Franklin	Kendell	OH	Main Contractor	Fosler
Frazier	Simone	OH	Main Contractor	Fosler
Frederic	Wilbens	OH	Main Contractor	Fosler
Gabriela-Terrazas	Margarita	OH	Main Contractor	Fosler
Gaines	Zane	OH	Main Contractor	Fosler

Gallenstein	Christian	OH	Main Contractor	Fosler
Galloway	Richard	OH	Main Contractor	Fosler
Galvan	Roberto	OH	Main Contractor	Fosler
Garcia	Adam	TX	Main Contractor	Fosler
Garcia	Anthony	OH	Main Contractor	Fosler
Garcia	Arturo	MD	Main Contractor	Fosler
Garcia	David	TX	Main Contractor	Fosler
Garcia	Jonathan	OH	Main Contractor	Fosler
Garcia	Leslie	OH	Main Contractor	Fosler
Garcia	Vivian	OH	Main Contractor	Fosler
Garcia-A	Socorro	TX	Main Contractor	Fosler
Garcia-C	Luis	TX	Main Contractor	Fosler
Garza	Anna	TX	Main Contractor	Fosler
Garza	Jacqueline	OH	Main Contractor	Fosler
Garza	Jesus	VA	Main Contractor	Fosler
Garza	Mayra	OH	Main Contractor	Fosler
Garza	Santos	TX	Main Contractor	Fosler
Garza	Jose	TX	Main Contractor	Fosler
Garza	Richard	OH	Main Contractor	Fosler
Garza Jr	Jose	TX	Main Contractor	Fosler
Gatling	Nateris	GA	Main Contractor	Fosler
Georges	Joinel	OH	Main Contractor	Fosler
Gerard	Bionca	OH	Main Contractor	Fosler
Germain	Dava	OH	Main Contractor	Fosler
Gibbs	Guy Serge	OH-X	Main Contractor	Fosler
Gilbert	Freddie	OH	Main Contractor	Fosler
Gillette	Mark	OH	Main Contractor	Fosler
Gillette	Rose	OH	Main Contractor	Fosler
Givens	James	OH	Main Contractor	Fosler
Godsey	Lameshia	OH	Main Contractor	Fosler
Goings	Orman	OH	Main Contractor	Fosler
Gomez-T	Geovanis	TX	Main Contractor	Fosler
Gonzales	Michael	OH	Main Contractor	Fosler
Gordillo Moreno	Josue	OH	Main Contractor	Fosler
Gott	Deonte	OH	Main Contractor	Fosler
Graham	Calvin	OH	Main Contractor	Fosler
Gray	Christopher	OH	Main Contractor	Fosler
Gregory	Andrew	OH	Main Contractor	Fosler
Grimmet	Ricardo	OH	Main Contractor	Fosler
Griswold	Jeremy	GA	Main Contractor	Fosler
Guerra	Julio	TX	Main Contractor	Fosler
Guerra	Rose	TX	Main Contractor	Fosler
Guitierrez	Josue	TX	Main Contractor	Fosler
Guitierrez	Miguel	OH	Main Contractor	Fosler

Hall	Kevarea	GA	Main Contractor	Fosler
Hamby	Daniel	TX	Main Contractor	Fosler
Hanes	Cody	OH	Main Contractor	Fosler
Haney	April	OH	Main Contractor	Fosler
Haney	Brett	OH	Main Contractor	Fosler
Haney	Chris	OH	Main Contractor	Fosler
Hankins	Tra	OH	Main Contractor	Fosler
Hardy	Steven	OH	Main Contractor	Fosler
Harnishfeger	Caleb	OH	Main Contractor	Fosler
Harris	Arnold	OH	Main Contractor	Fosler
Harris	Jenny	OH	Main Contractor	Fosler
Harris	Joseph	OH	Main Contractor	Fosler
Harris	Marquise	OH	Main Contractor	Fosler
Harrison	Levi	OH	Main Contractor	Fosler
Hauenstein	Hailey	OH	Main Contractor	Fosler
Haywood	Malvin	OH	Main Contractor	Fosler
Haywood	Michael	OH	Main Contractor	Fosler
Hedger	Nathan	OH	Main Contractor	Fosler
Henderson	Gage	OH	Main Contractor	Fosler
Hendren	Michael	FL	Main Contractor	Fosler
Hernandes	Leslie	OH	Main Contractor	Fosler
Herndandez	Angel	OH	Main Contractor	Fosler
Hernandez	Marcos	OH	Main Contractor	Fosler
Herrera	Karen	OH	Main Contractor	Fosler
Hiles	Larry	OH	Main Contractor	Fosler
Hill	Angelo	GA	Main Contractor	Fosler
Hill	Stanquez	OH	Main Contractor	Fosler
Hines	Marcus	OH	Main Contractor	Fosler
Hinojosa	Julian	VA	Main Contractor	Fosler
Hiram	Christian	OH	Main Contractor	Fosler
Hogue	Deshawn	OH	Main Contractor	Fosler
Hollinger	Dion	OH-X	Main Contractor	Fosler
Hollins	Sly	OH	Main Contractor	Fosler
Hord	Jerome	LA	Main Contractor	Fosler
Hughes	Kaylon	OH	Main Contractor	Fosler
Hunt	Jared	OH	Main Contractor	Fosler
Hunt	Justin	OH	Main Contractor	Fosler
Hunt	Rachel	OH	Main Contractor	Fosler
Huntley	Dailen	OH	Main Contractor	Fosler
Hurley	Amber	OH	Main Contractor	Fosler
Hurley	Michael	OH	Main Contractor	Fosler
Hutchinson	Claud	FL	Main Contractor	Fosler
Ingol	Savion	OH	Main Contractor	Fosler
Jacques	Dachenie	OH	Main Contractor	Fosler

Jacques	Noel	OH	Main Contractor	Fosler
Jadys	Ronel Junior	OH	Main Contractor	Fosler
Jame-Childs	Joshua	VA	Main Contractor	Fosler
Jansen	Sean	FL	Main Contractor	Fosler
Jarvise	Baker	FL	Main Contractor	Fosler
Jean	Dionny	OH	Main Contractor	Fosler
Jean	Fabrice	OH-X	Main Contractor	Fosler
Jean	Nadia	OH	Main Contractor	Fosler
Jean	Nadou	OH	Main Contractor	Fosler
Jean Eddy	Paul	OH	Main Contractor	Fosler
Jean-Paul	Berthony	OH	Main Contractor	Fosler
Jeanty	Wills Wood	OH	Main Contractor	Fosler
Jennett	Nicolas	CA	Main Contractor	Fosler
Jeudy	Josue	OH-X	Main Contractor	Fosler
Jimenez	Daniel	OH	Main Contractor	Fosler
Johns	Randy	OH	Main Contractor	Fosler
Johnson	Brent	OH	Main Contractor	Fosler
Johnson	Dalton	OH	Main Contractor	Fosler
Johnson	Jeremy	FL	Main Contractor	Fosler
Johnson	Joshua	OH	Main Contractor	Fosler
Johnson	Kamar	OH	Main Contractor	Fosler
Jones	Anthony	OH	Main Contractor	Fosler
Jones	Daymond	AL	Main Contractor	Fosler
Jones	Drake	OH	Main Contractor	Fosler
Jones	Dominique	OH	Main Contractor	Fosler
Jones	Jayvin	OH	Main Contractor	Fosler
Jones	Keyshawn	OH	Main Contractor	Fosler
Jones	Lakedrick	OH	Main Contractor	Fosler
Jones	Shylin	OH	Main Contractor	Fosler
Jones	Willie	OH	Main Contractor	Fosler
Jordan	Jennetta	NC	Main Contractor	Fosler
Joseph	Aaron	OH	Main Contractor	Fosler
Joseph	Emerson	OH	Main Contractor	Fosler
Joseph	Jean	OH	Main Contractor	Fosler
Joseph	Samantha	OH	Main Contractor	Fosler
Joseph	Sony	OH	Main Contractor	Fosler
Joseph	Sylvio	OH	Main Contractor	Fosler
Joubert	Adrein	OH-X	Main Contractor	Fosler
Kane-Reyes	Jimmy	OH	Main Contractor	Fosler
Kazee	Virece	OH	Main Contractor	Fosler
Keiser	Bailey	OH	Main Contractor	Fosler
Keller	Christian	OH	Main Contractor	Fosler
Kelly	Glenn	OH	Main Contractor	Fosler
Kennard	Roshia	OH	Main Contractor	Fosler

Kessler	Richard	OH-X	Main Contractor	Fosler
Kipker	Justin	OH	Main Contractor	Fosler
Klinger	Kegan	OH	Main Contractor	Fosler
Kreh	William	OH	Main Contractor	Fosler
Krockel	Jerald	OH	Main Contractor	Fosler
Kupfersmith	Ray	OH	Main Contractor	Fosler
Lacroix	Frantz	OH	Main Contractor	Fosler
Lacroix	Sanley	OH	Main Contractor	Fosler
Ladorian	Romeo	IN	Main Contractor	Fosler
Lafleur	Jean-Hilaire	OH	Main Contractor	Fosler
Lamour	Carly	OH	Main Contractor	Fosler
Laney	Dylan	OH	Main Contractor	Fosler
Lanier	Cedric	MS	Main Contractor	Fosler
Lapaix	Ricardi	OH-X	Main Contractor	Fosler
Laplume	Michael	OH	Main Contractor	Fosler
Laroche	Michel	OH	Main Contractor	Fosler
Laroque	David	OH	Main Contractor	Fosler
Larralde	Raul	OH	Main Contractor	Fosler
Lasenby	Jarese	OH	Main Contractor	Fosler
Lasenby	Javar	OH	Main Contractor	Fosler
Launder	Jason	OH	Main Contractor	Fosler
Lawrence	Tyler	OH	Main Contractor	Fosler
Lazo	Valeria-C	OH	Main Contractor	Fosler
Lebon	William	OH	Main Contractor	Fosler
Leger	Steven	OH	Main Contractor	Fosler
Levron	Grant Michae	OH	Main Contractor	Fosler
Liles	JuNiel	OH	Main Contractor	Fosler
Limpreaux	Cham	OH	Main Contractor	Fosler
Lindsey	Lee	GA	Main Contractor	Fosler
Long	Nickolas	OH	Main Contractor	Fosler
Long	Ray	OH	Main Contractor	Fosler
Lopez	Angel	OH	Main Contractor	Fosler
Lopez	Conrado	OH	Main Contractor	Fosler
Lopez	Julian	OH	Main Contractor	Fosler
Lopez	Daniel	GA	Main Contractor	Fosler
Lopez Rodriguez	Jesus	OH	Main Contractor	Fosler
Lorcy	Duckenson	OH	Main Contractor	Fosler
Louis	Frantz-Junio	OH	Main Contractor	Fosler
Low	Heath	TX	Main Contractor	Fosler
Lucnord	Ceus	OH	Main Contractor	Fosler
Lucsama	Gardy	OH	Main Contractor	Fosler
Lujan	Ilyas Michael	OH	Main Contractor	Fosler
Lunce	Roger	OH	Main Contractor	Fosler
Magdarig	Yordelis	TX	Main Contractor	Fosler

Maignan	Joel	OH	Main Contractor	Fosler
Maldonado	Demian	OH	Main Contractor	Fosler
Male	Scott	OH	Main Contractor	Fosler
Maloney	Blake	OH	Main Contractor	Fosler
Manley	Tierre	OH	Main Contractor	Fosler
Mann	Jarrett	OH	Main Contractor	Fosler
Marcelin	Pierre	OH	Main Contractor	Fosler
Marceline	Onorable	OH	Main Contractor	Fosler
Mares	Jennifer	OH	Main Contractor	Fosler
Margarita	Jhoana	OH	Main Contractor	Fosler
Mark	Tito	OH	Main Contractor	Fosler
Martin	Joseph	OH	Main Contractor	Fosler
Martin	Omar	OH	Main Contractor	Fosler
Martin	Tyler	OH	Main Contractor	Fosler
Martinez	Leondardo	TX	Main Contractor	Fosler
Martinez Banks	Juan	OH	Main Contractor	Fosler
Mason	Giovonni	OH	Main Contractor	Fosler
Matte	Cody	OH	Main Contractor	Fosler
Matthews	Shawn	OH	Main Contractor	Fosler
Matthews	Ronald	OH	Main Contractor	Fosler
May	Eric	OH	Main Contractor	Fosler
McCleod	Calvin	FL	Main Contractor	Fosler
McCullough	Bret	OH	Main Contractor	Fosler
McGraw	Damon	OH	Main Contractor	Fosler
McKenna	Jason	OH	Main Contractor	Fosler
McKinney	Korhea	OH	Main Contractor	Fosler
McMahan	Sean	OH	Main Contractor	Fosler
Medy	Michael	OH	Main Contractor	Fosler
Mendoza	Denis	OH	Main Contractor	Fosler
Mendoza	Oscar	OH	Main Contractor	Fosler
Merzilien	Merzilier	OH	Main Contractor	Fosler
Mesidor	Jussicia	TX	Main Contractor	Fosler
Meyer	Michael	OH-X	Main Contractor	Fosler
Meyers	Otis	OH	Main Contractor	Fosler
Miller	Alexander	OH	Main Contractor	Fosler
Miller	Charles	OH	Main Contractor	Fosler
Miller	Joshua	OH	Main Contractor	Fosler
Miller	Nyahbing	OH	Main Contractor	Fosler
Milliken	Samantha	GA	Main Contractor	Fosler
Mireles	Kimberly	OH	Main Contractor	Fosler
Mirla	Michel	OH	Main Contractor	Fosler
Mitchell	Emeri	OH	Main Contractor	Fosler
Moise	Nicholas	OH	Main Contractor	Fosler
Monteiz	Scott	FL	Main Contractor	Fosler

Moore	Christopher	OH	Main Contractor	Fosler
Morales	Alejandra	OH	Main Contractor	Fosler
Moreau	John Faniel	OH	Main Contractor	Fosler
Moreland	Resean	OH	Main Contractor	Fosler
Moreno	Ruben	TX	Main Contractor	Fosler
Morton	Lerenzo	OH-X	Main Contractor	Fosler
Mosier	Collin	OH	Main Contractor	Fosler
Muler Cajuste	Joseph	OH	Main Contractor	Fosler
Murillo	Alberto	OH	Main Contractor	Fosler
Myers	Blake	OH	Main Contractor	Fosler
Negron	Jose	OH	Main Contractor	Fosler
Nelson	Travis	GA	Main Contractor	Fosler
Nieves-Romero	Jesus	OH	Main Contractor	Fosler
Noel	James	OH	Main Contractor	Fosler
Nordman	Alexander St	OH	Main Contractor	Fosler
Noriega	Ruben	OH	Main Contractor	Fosler
Normil	Sandor	OH	Main Contractor	Fosler
Normil	Yves	OH	Main Contractor	Fosler
Nunez-B	Surizana	OH	Main Contractor	Fosler
Nunez-Vasquez	Elias	OH	Main Contractor	Fosler
Oblin	Oscar	OH	Main Contractor	Fosler
Olivas	Daniel	OH	Main Contractor	Fosler
Olivia-Sandoval	Joel	MD	Main Contractor	Fosler
Olivrr	James	OH	Main Contractor	Fosler
Ortiz	Aaron	OH	Main Contractor	Fosler
Ortiz	Ezequiel	OH	Main Contractor	Fosler
Osborne	Jonathan	OH	Main Contractor	Fosler
Osorio Mena	Jovanni	OH	Main Contractor	Fosler
Oveton	Mark	OH	Main Contractor	Fosler
Padron	Gabriel Dieg	OH	Main Contractor	Fosler
Palacios	Samuel	OH	Main Contractor	Fosler
Palomar	Eric Eduardo	OH	Main Contractor	Fosler
Parker	Macio	MS	Main Contractor	Fosler
Parks	Darren	OH	Main Contractor	Fosler
Pearson	Marcryllus	OH-X	Main Contractor	Fosler
Pearson	Marcus	OH	Main Contractor	Fosler
Pearson	Marquarius	OH	Main Contractor	Fosler
Pena	Ezequiel	OH	Main Contractor	Fosler
Peralta	Victor	OH	Main Contractor	Fosler
Perez	Alejandro	OH	Main Contractor	Fosler
Perez	Pedro	OH	Main Contractor	Fosler
Perez Alicea	Janiel	OH	Main Contractor	Fosler
Pernell	Amarie	OH	Main Contractor	Fosler
Pernell	Daquarius	OH	Main Contractor	Fosler

Perrine	Jeremy	OH	Main Contractor	Fosler
Perryman	K'Son	OH	Main Contractor	Fosler
Petit- Homme	Jean	OH	Main Contractor	Fosler
Petty	Brian	OH	Main Contractor	Fosler
Philbert	Adeline	OH	Main Contractor	Fosler
Philogene	Lerzius	OH	Main Contractor	Fosler
Phrael	Jones	OH	Main Contractor	Fosler
Picklesmier	Stephen	OH	Main Contractor	Fosler
Pierce	Kadeem	FL	Main Contractor	Fosler
Pierre	Christian	OH	Main Contractor	Fosler
Pierre	Erick	OH	Main Contractor	Fosler
Pierre	Peterson	OH	Main Contractor	Fosler
Pierre	Rosemy	OH	Main Contractor	Fosler
Pierre	Serge	OH	Main Contractor	Fosler
Pina-Valdez	Carlos	TX	Main Contractor	Fosler
Pitts	Daniel	GA	Main Contractor	Fosler
Porcenat	Aloirence	OH	Main Contractor	Fosler
Prats-Be	Ranses	TX	Main Contractor	Fosler
Pratt	John	TX	Main Contractor	Fosler
Price	Desrosiers	OH	Main Contractor	Fosler
Prickett	Marr	NC	Main Contractor	Fosler
Prowant	Gannon	OH	Main Contractor	Fosler
Puerto (Prieto)	Cesar	OH	Main Contractor	Fosler
Punrifie	Clarence	FL	Main Contractor	Fosler
Qualls	Trisha	OH	Main Contractor	Fosler
Queen	Steven	OH	Main Contractor	Fosler
Rakes	Johnny	OH	Main Contractor	Fosler
Ramos David	Darwin	OH	Main Contractor	Fosler
Ramos-Serrano	Reinaldo	TX	Main Contractor	Fosler
Ramsey	Derrick	OH	Main Contractor	Fosler
Renide	Joseph	OH	Main Contractor	Fosler
Resendiz	Anel	TX	Main Contractor	Fosler
Reyes	Daniel Javaa	OH	Main Contractor	Fosler
Reyes	Jimmy Kane	OH	Main Contractor	Fosler
Reynolds	Luke	OH	Main Contractor	Fosler
Rhia	Garmel	OH-X	Main Contractor	Fosler
Richardson	Wanterius	OH-X	Main Contractor	Fosler
Rieger	Caleb	OH	Main Contractor	Fosler
Rivas	Jesus	OH	Main Contractor	Fosler
Rivera	Brittany	OH	Main Contractor	Fosler
Rivera	Jose	OH	Main Contractor	Fosler
Roberts	Bradely	OH-X	Main Contractor	Fosler
Robertson	Aaron	OH	Main Contractor	Fosler
Robinson	Andrew	TX	Main Contractor	Fosler

Roblero	Fernando	NC	Main Contractor	Fosler
Rocha	Fernando	OH	Main Contractor	Fosler
Rodriguez	Branton	OH	Main Contractor	Fosler
Rodriguez	Peyton	TX	Main Contractor	Fosler
Rodriguez	Joe	OH	Main Contractor	Fosler
Rodriguez	Lian	TX	Main Contractor	Fosler
Rodriguez	Engler	TX	Main Contractor	Fosler
Rodriguez	Julio	TX	Main Contractor	Fosler
Rodriguez	Rachel	TX	Main Contractor	Fosler
Rodriguez Carballo	Gabriel	OH	Main Contractor	Fosler
Rogers	Markeyon	MS	Main Contractor	Fosler
Romero	Jesus	OH	Main Contractor	Fosler
Rosario Cruz	Eliezer	OH	Main Contractor	Fosler
Rose	Zach	TX	Main Contractor	Fosler
Ruby Munos	Esmeralda	OH	Main Contractor	Fosler
Ruiz	Carlos-Sa	OH	Main Contractor	Fosler
Ruiz	Christopher	OH	Main Contractor	Fosler
Ruiz-Fane	Caden	OH	Main Contractor	Fosler
Ruiz-Fane	Donavin	OH	Main Contractor	Fosler
Sainfort	Jean	OH	Main Contractor	Fosler
Saint Louis	Maxlin	OH	Main Contractor	Fosler
Salas Jr	Victor E	TX	Main Contractor	Fosler
Salas Sr	Victor M	TX	Main Contractor	Fosler
Salomon	Eval	OH	Main Contractor	Fosler
Sample	Martuan	OH	Main Contractor	Fosler
Sample	Shanice	OH	Main Contractor	Fosler
Sanchez	Victor David	OH	Main Contractor	Fosler
Sanchez	Alfonso	OH	Main Contractor	Fosler
Sanchez	Rodrigo	OH	Main Contractor	Fosler
Sanchez Barbosa	Ivan	OH	Main Contractor	Fosler
Sanchez Ruiz	Alexis	OH	Main Contractor	Fosler
Sanchez Ruiz	Eduardo	OH	Main Contractor	Fosler
Santiago-Ruiz	Carlos	OH	Main Contractor	Fosler
Santos	Luis	OH	Main Contractor	Fosler
Sauveur	Emmanuel	OH	Main Contractor	Fosler
Savage	Cheophus	OH	Main Contractor	Fosler
Schimmoller	Catherine	OH	Main Contractor	Fosler
Schleter	Adam	OH	Main Contractor	Fosler
Serrano	Alberto	TX	Main Contractor	Fosler
Shanks	Charles	OH-X	Main Contractor	Fosler
Shanks	Douglas	OH	Main Contractor	Fosler
Shaw	Brion	OH	Main Contractor	Fosler
Shepler	Brent	OH	Main Contractor	Fosler
Shilling	Steven	OH	Main Contractor	Fosler

Shine	Anthony	OH	Main Contractor	Fosler
Shockey	Christopher	OH	Main Contractor	Fosler
Shoemaker	Jason	OH	Main Contractor	Fosler
Short	Christopher	OH	Main Contractor	Fosler
Shurelds	Breanna	OH	Main Contractor	Fosler
Sierra	Alemantu	OH	Main Contractor	Fosler
Simon	Rose	OH	Main Contractor	Fosler
Slash	Tre'von	OH	Main Contractor	Fosler
Smart	Denver	OH	Main Contractor	Fosler
Smith	David	OH	Main Contractor	Fosler
Smith	Delvin	IN	Main Contractor	Fosler
Smith	Dustin	OH	Main Contractor	Fosler
Smith	Hugh	NC	Main Contractor	Fosler
Smith	Jenny	OH	Main Contractor	Fosler
Smith	Johnette	OH	Main Contractor	Fosler
Smith	Juanita	OH	Main Contractor	Fosler
Smith	Marquise	OH	Main Contractor	Fosler
Smith	Taloma	OH	Main Contractor	Fosler
Snowball	Jason	OH	Main Contractor	Fosler
Solis	Dallis	OH	Main Contractor	Fosler
Soto	Felix	MD	Main Contractor	Fosler
St Germain	Kimberly	OH	Main Contractor	Fosler
St Juste	Jean	OH	Main Contractor	Fosler
Staley	Ashley	OH	Main Contractor	Fosler
Stevens	Marcus	OH	Main Contractor	Fosler
Stevenson	Wood	OH	Main Contractor	Fosler
Stewart	Devin	OH	Main Contractor	Fosler
Stickland	Derrick	OH	Main Contractor	Fosler
Strickland	Roderick	OH	Main Contractor	Fosler
Strom	Lorrie	FL	Main Contractor	Fosler
Suleymanov	Hamdi	OH	Main Contractor	Fosler
Sylvanius	Cook	OH	Main Contractor	Fosler
Sylvestre	Boniface	OH	Main Contractor	Fosler
Taylor	Brad	OH	Main Contractor	Fosler
Taylor	Stephen	MS	Main Contractor	Fosler
Terraza	Daniel Santia	OH	Main Contractor	Fosler
Theil	Misty	OH	Main Contractor	Fosler
Thelemaque	Jean	OH	Main Contractor	Fosler
Thelemaque	Vertilor	OH	Main Contractor	Fosler
Theophile	Wilkins	OH	Main Contractor	Fosler
Thomas	Devin	OH	Main Contractor	Fosler
Tilley	Sarah	OH	Main Contractor	Fosler
Tirado-Rosado	Edwin	MD	Main Contractor	Fosler
Toney	Michael	OH	Main Contractor	Fosler

Toomy	Trent	OH	Main Contractor	Fosler
Torok	Scott	OH	Main Contractor	Fosler
Torres	Manuel-Ant	TX	Main Contractor	Fosler
Torres	Roberto	TX	Main Contractor	Fosler
Torres-Gonzalez	Yamilet	NC	Main Contractor	Fosler
Toussaint	Nakia	OH	Main Contractor	Fosler
Trujeque	Daniel	OH	Main Contractor	Fosler
Turner	Marquise	OH	Main Contractor	Fosler
Unique	Noncemt	OH	Main Contractor	Fosler
Urbina-Puentes	Pablo	OH	Main Contractor	Fosler
Valdez	Eric Fernand	OH	Main Contractor	Fosler
Valliere	Angello	OH	Main Contractor	Fosler
Valmyr	Moizie	OH	Main Contractor	Fosler
Van Norman	Derrick	LA	Main Contractor	Fosler
Vanhorn	Tyler	OH	Main Contractor	Fosler
Vargas	Ernesto	OH	Main Contractor	Fosler
Vasquez	Benjamin	TX	Main Contractor	Fosler
Vasquez	Jeremy	OH	Main Contractor	Fosler
Vega Luna	Jose	OH	Main Contractor	Fosler
Verdier	Emmanuel	OH	Main Contractor	Fosler
Vess	Autumn	OH	Main Contractor	Fosler
Victor	Jacky	OH	Main Contractor	Fosler
Vilcin	Bealous	OH	Main Contractor	Fosler
Villarreal	Jonathon	OH	Main Contractor	Fosler
Villeda-V	Donaldo	TX	Main Contractor	Fosler
Vital-Cas	Enrique	TX	Main Contractor	Fosler
Vogel	John	OH	Main Contractor	Fosler
Wall	Robert	OH	Main Contractor	Fosler
Wallace	Adriene	MS	Main Contractor	Fosler
Wallace	Eris	OH	Main Contractor	Fosler
Watkins	Cheyron	OH	Main Contractor	Fosler
Watkins	Myron	OH	Main Contractor	Fosler
Watson	Taylor	OH	Main Contractor	Fosler
Weaver	Teresa	IN	Main Contractor	Fosler
White	Alexx	TX	Main Contractor	Fosler
White	Chazzmin	OH	Main Contractor	Fosler
White	Jaylon	OH	Main Contractor	Fosler
Whiteside	Tevin	OH	Main Contractor	Fosler
Whitington	Richard	OH	Main Contractor	Fosler
Widener	Brian	OH	Main Contractor	Fosler
Williams	Dakota	OH	Main Contractor	Fosler
Williams	Seven	OH	Main Contractor	Fosler
Williamson	Kyla	OH	Main Contractor	Fosler
Willis	Marquise	OH	Main Contractor	Fosler

Winfree	Branton	OH	Main Contractor	Fosler
Wingardner	Justin	OH	Main Contractor	Fosler
Wireman	Stephen	OH	Main Contractor	Fosler
Woods	Tarell	GA	Main Contractor	Fosler
Yepez-O	Martin	TX	Main Contractor	Fosler
Yurilandis	Robert	OH	Main Contractor	Fosler
Zamora III	Tomas	OH	Main Contractor	Fosler
Zaragoza	Reynaldo	OH	Main Contractor	Fosler
Zeigler	Jeffrey	OH	Main Contractor	Fosler
Zepeda	Josue	OH	Main Contractor	Fosler
Zimmerer	Paul	OH	Main Contractor	Fosler
Zuniga	Alejandro	OH	Main Contractor	Fosler
Abke	Abigail	OH	Main Contractor	JFECC
Allen	Michael	OH	Main Contractor	JFECC
Anderson	Jeremiah	OH	Main Contractor	JFECC
Anguiano	Edgar	OH	Main Contractor	JFECC
Bachli	Bryce	OH	Main Contractor	JFECC
Barber	Kent	CO	Main Contractor	JFECC
Barth	Garrett	OH	Main Contractor	JFECC
Benson	Virgile	OH	Main Contractor	JFECC
Benton	Bilal	OH	Main Contractor	JFECC
Blair	Dylan	OH	Main Contractor	JFECC
Blair	Andrew	OH	Main Contractor	JFECC
Blanks	Jeffery	OH	Main Contractor	JFECC
Blatnik	Zayre	OH	Main Contractor	JFECC
Boling	Jacob	OH	Main Contractor	JFECC
Bonfert	Walter	OH	Main Contractor	JFECC
Booth	Robert	TX	Main Contractor	JFECC
Boyle	Patrick	MN	Main Contractor	JFECC
Breazeale	Jeremy	OH	Main Contractor	JFECC
Brogan	Thomas	OH	Main Contractor	JFECC
Brown	Russell	OK	Main Contractor	JFECC
Buck	Michael	OH	Main Contractor	JFECC
Caldwell	Keith	OH	Main Contractor	JFECC
Carver	Matt	IL	Main Contractor	JFECC
Castaneda	Charles	OH	Main Contractor	JFECC
Castro	Julio	OH	Main Contractor	JFECC
Chamberlain	Dominic	OH	Main Contractor	JFECC
Chaput	James	OH	Main Contractor	JFECC
Clady	Quinton	OH	Main Contractor	JFECC
Clapper	Steven	OH	Main Contractor	JFECC
Clapper Sr	Steven	OH	Main Contractor	JFECC
Clay	Brian	OH	Main Contractor	JFECC
Conn	Darrin	OH	Main Contractor	JFECC

Cook	Dalton	MO	Main Contractor	JFECC
Cox	Tony	OH	Main Contractor	JFECC
Crist	Austin	OH	Main Contractor	JFECC
Crumrine	Jared	OH	Main Contractor	JFECC
Cruz	Diego	OH	Main Contractor	JFECC
Cutlip	Jeffrey	OH	Main Contractor	JFECC
Danko	Mike	OH	Main Contractor	JFECC
Deming	Tommy	OH	Main Contractor	JFECC
Diekman	Brett	OH	Main Contractor	JFECC
DiStasio	Nick	IL	Main Contractor	JFECC
Duggan	Joseph	OH	Main Contractor	JFECC
Ehlert	Joshua	OH	Main Contractor	JFECC
Ellis	Armond	OH	Main Contractor	JFECC
Enright	Elizabeth	OH	Main Contractor	JFECC
Enright Jr	Timothy Jam	OH	Main Contractor	JFECC
Erickson	Mitch	AZ	Main Contractor	JFECC
Erkenbrack	Blaine	MN	Main Contractor	JFECC
Erkenbrack	Bryce	MN	Main Contractor	JFECC
Eureste	David	OH	Main Contractor	JFECC
Eversole	Jarad	OH	Main Contractor	JFECC
Fackelman	Chris	OH	Main Contractor	JFECC
Fletchall	Joey	IL	Main Contractor	JFECC
Fressie	Nicole	OH	Main Contractor	JFECC
Gansmiller	Mason	OH	Main Contractor	JFECC
Gaston	Donovan	OH	Main Contractor	JFECC
Geldien	Max	OH	Main Contractor	JFECC
Gibson	Christopher	OH	Main Contractor	JFECC
Gollman	Steven	OH-X	Main Contractor	JFECC
Gregory	Ryan	OH	Main Contractor	JFECC
Grundy	Jonathan	OH	Main Contractor	JFECC
Harden	Stephen	OH	Main Contractor	JFECC
Haver	Roger	OH	Main Contractor	JFECC
Hendricks	Christopher	OH	Main Contractor	JFECC
Herman	Zachary	OH	Main Contractor	JFECC
Hernandez	Joshua	OH	Main Contractor	JFECC
Huffman	Mike	IL	Main Contractor	JFECC
Hunt	Brian	OH	Main Contractor	JFECC
Kelley	Jason	OH	Main Contractor	JFECC
Keros	Matthew	OH	Main Contractor	JFECC
Ketcham	Autumn	OH	Main Contractor	JFECC
Kosch	Roger	OH	Main Contractor	JFECC
Krecic	Rod	OH	Main Contractor	JFECC
Kruger	Bradley	OH	Main Contractor	JFECC
Kruse	Brian	OH	Main Contractor	JFECC

Kuhr	Andrew	OH	Main Contractor	JFECC
Landsberger	Brian	OH	Main Contractor	JFECC
Lutz	Michael	OH	Main Contractor	JFECC
Marrufo	Cesar	OH	Main Contractor	JFECC
McIntire	Jordan	OH	Main Contractor	JFECC
McMaster	Justin	OH	Main Contractor	JFECC
Mendoza	Gilberto	OH	Main Contractor	JFECC
Michael	Lucas	OH	Main Contractor	JFECC
Mitch	Erickson	MN	Main Contractor	JFECC
Myers	Brandon	OH	Main Contractor	JFECC
Nealy	Matthew	IL	Main Contractor	JFECC
Nelson	Monica	OH	Main Contractor	JFECC
Olson	Garrett	FL	Main Contractor	JFECC
Opsal	Logan	IL	Main Contractor	JFECC
Overmyer	Donald	OH	Main Contractor	JFECC
Parker	Wyatt	OH	Main Contractor	JFECC
Parker	David E	OH	Main Contractor	JFECC
Parker	Colt	OH	Main Contractor	JFECC
Patel	Binoy	OH	Main Contractor	JFECC
Patel	Binoy	OH	Main Contractor	JFECC
Paxton	Desmond	OH	Main Contractor	JFECC
Peal	Jason	IL	Main Contractor	JFECC
Pedelose	Joshua	OH	Main Contractor	JFECC
Perez	Arturo	KS	Main Contractor	JFECC
Peterson	Drew	OH-X	Main Contractor	JFECC
Poulos	Jake	IL	Main Contractor	JFECC
Queenan	Kraig	OH	Main Contractor	JFECC
Racz	Joshua	OH	Main Contractor	JFECC
Racz	Nateris	OH	Main Contractor	JFECC
Rentz	Matt	OH	Main Contractor	JFECC
Riggs	James	OH	Main Contractor	JFECC
Rizo	Marcos	OH	Main Contractor	JFECC
Rushlow	Michael	OH	Main Contractor	JFECC
Schwab	Dana	OH	Main Contractor	JFECC
Seymour	Steven	OH	Main Contractor	JFECC
Shelton	Jessie	OH	Main Contractor	JFECC
Shyleigh	Harris	TX	Main Contractor	JFECC
Siebert	Jonathan	OH	Main Contractor	JFECC
Sigurdson	Mitchell	OH	Main Contractor	JFECC
Smith	Kody	OH-X	Main Contractor	JFECC
Stickley	Shawn	OH-X	Main Contractor	JFECC
Stiltner	Monty	OH	Main Contractor	JFECC
Summers	Landon	IL	Main Contractor	JFECC
Telljohann	Ivan	OH-X	Main Contractor	JFECC

Thomas	Bret	OH	Main Contractor	JFECC
Thomas	Tyler	MO	Main Contractor	JFECC
Tornero	Paul	OH	Main Contractor	JFECC
Tucker-Wiggins	Leonard	OH	Main Contractor	JFECC
VanAntwerp	Kale	IL	Main Contractor	JFECC
Varela	Gavin	OH	Main Contractor	JFECC
Veith	Michael	OH	Main Contractor	JFECC
Wallace	Eric	OH	Main Contractor	JFECC
Watts	Andrew	OH	Main Contractor	JFECC
Weissinger	Jordan	OH	Main Contractor	JFECC
Wells	Ricky	OH	Main Contractor	JFECC
Williams	Darrel	OH	Main Contractor	JFECC
Woodley	Archie	OH	Main Contractor	JFECC
Yeats	Crystal	OH	Main Contractor	JFECC
Baden	Benjamin	OH	Main Contractor	MBC
Boellner	Steven	OH	Main Contractor	MBC
Bojarski	David	MI	Main Contractor	MBC
Boltz	Derek	OH	Main Contractor	MBC
Carrizales	Caleb	OH	Main Contractor	MBC
Coates	Tommy	OH	Main Contractor	MBC
Deleon	Anthony	OH	Main Contractor	MBC
Didier	Jacob	OH	Main Contractor	MBC
Fischer	Joseph	OH	Main Contractor	MBC
Gayheart	John	OH	Main Contractor	MBC
Gunderman	Danniel	OH	Main Contractor	MBC
Helmke	Todd	OH-X	Main Contractor	MBC
Helmke	Austin	OH-X	Main Contractor	MBC
Heudecker	Arthur	OH	Main Contractor	MBC
Horstman	Zachary	OH-X	Main Contractor	MBC
Kennelly	Ethan	OH	Main Contractor	MBC
Ketner	Lorren	OH	Main Contractor	MBC
Kime	Joshua	OH	Main Contractor	MBC
Kohv	Martin	OH	Main Contractor	MBC
Mickel	Edward	IN	Main Contractor	MBC
Miller	Scott	OH	Main Contractor	MBC
Moore	Timothy	OH	Main Contractor	MBC
Neifer	Jeremy	OH	Main Contractor	MBC
Nickles	Doug	IN	Main Contractor	MBC
Noffsinger	Wayne	OH	Main Contractor	MBC
Pedraza	Joe	OH	Main Contractor	MBC
Raines	Daniel	OH	Main Contractor	MBC
Reicher	Jeffrey	OH	Main Contractor	MBC
Reinking	Dean	OH	Main Contractor	MBC
Rodgers	David	OH	Main Contractor	MBC

Shaffer	Shawn	OH	Main Contractor	MBC
Short	Todd	OH	Main Contractor	MBC
Simon	Aaron	OH	Main Contractor	MBC
Smith	Douglas	IN	Main Contractor	MBC
Stewart	Jacob	OH	Main Contractor	MBC
Stock	Zachary	OH	Main Contractor	MBC
Swing III	John	OH	Main Contractor	MBC
Troyer	Bryant	OH	Main Contractor	MBC
Troyer	Jeremy	OH	Main Contractor	MBC
Vollmar	Keith	OH	Main Contractor	MBC
Vorhees	Norman	OH	Main Contractor	MBC
Wagner	Brandon	OH-X	Main Contractor	MBC
Wonderly	Donnie	OH	Main Contractor	MBC
Adu-Gyapon	Moses	OH	Main Contractor	Newkirk
Arroyo	Jonathan	IN	Main Contractor	Newkirk
Bembry	Michael	OH	Main Contractor	Newkirk
Blair	Andrew	OH	Main Contractor	Newkirk
Boreman	Tyler	OH	Main Contractor	Newkirk
Bowman	Trevor	OH	Main Contractor	Newkirk
Burley	James	OH	Main Contractor	Newkirk
Callif	Jamey	OH	Main Contractor	Newkirk
Clay	Stacey	OH	Main Contractor	Newkirk
Congrove	Ronald	OH	Main Contractor	Newkirk
Culver	Ryan	MI	Main Contractor	Newkirk
Dancer	Aaron	MI	Main Contractor	Newkirk
Dillree	Chad	MI	Main Contractor	Newkirk
Freel	Tyler	MI	Main Contractor	Newkirk
Frisbie	Edward	MI	Main Contractor	Newkirk
Glass	Shane	OH	Main Contractor	Newkirk
Henderly	Noah	OH	Main Contractor	Newkirk
Herman	Zachary	OH	Main Contractor	Newkirk
Heythaler	Fred	MI	Main Contractor	Newkirk
Hunt	Brian	OH	Main Contractor	Newkirk
Iltis	Kameron	MI	Main Contractor	Newkirk
Keefer	Nakoa	OH	Main Contractor	Newkirk
Kube	Aaron	OH	Main Contractor	Newkirk
McDougle	Jacqueline	OH	Main Contractor	Newkirk
Metcalf	Jacob	OH	Main Contractor	Newkirk
Moffett	Anthony	OH	Main Contractor	Newkirk
Nolan	John	MI	Main Contractor	Newkirk
Roberts	Roy	KY	Main Contractor	Newkirk
Sawyers	Lance	OH	Main Contractor	Newkirk
Smiley	Blake	OH	Main Contractor	Newkirk
Taylor	Mike	MI	Main Contractor	Newkirk

Thompson	Robert	MI	Main Contractor	Newkirk
Baer	Evan	OH	Main Contractor	Osting
Browning	Misty	OH	Main Contractor	Osting
Ducheney	Dirk	OH	Main Contractor	Osting
Mohr	Greg	OH	Main Contractor	Osting
Osting	Alfred	OH	Main Contractor	Osting
Abrahamson	Dustin	OH	Main Contractor	Sac Drilling
Alliman	Brandon	OH	Main Contractor	Sac Drilling
Alliman	Gunnar	OH	Main Contractor	Sac Drilling
Alvarado	Brandon	OH	Main Contractor	Sac Drilling
Ansari	Ajani	OH	Main Contractor	Sac Drilling
Bailey	William	OH	Main Contractor	Sac Drilling
Balderas	Mario	OH	Main Contractor	Sac Drilling
Blizzard	Charles	OH-X	Main Contractor	Sac Drilling
Bockelman	John	OH-X	Main Contractor	Sac Drilling
Boundy	Colby	OH	Main Contractor	Sac Drilling
Bowen	Caden	OH	Main Contractor	Sac Drilling
Bowyer	Harry	OH	Main Contractor	Sac Drilling
Brown	William	OH	Main Contractor	Sac Drilling
Brubaker	Matt	OH	Main Contractor	Sac Drilling
Burnett	Andrew	OH	Main Contractor	Sac Drilling
Cervantes Gonzalez	Jose	OH	Main Contractor	Sac Drilling
Chavero Solis	Javier	OH-X	Main Contractor	Sac Drilling
Cooke	Aaron	TX	Main Contractor	Sac Drilling
Cordle	Mackenzie	OH	Main Contractor	Sac Drilling
Cortes	Joel	OH-X	Main Contractor	Sac Drilling
Davila Ramirez	Jose	AZ	Main Contractor	Sac Drilling
Dennis Jr	Theodore	OH	Main Contractor	Sac Drilling
Dunakin	Dylan	OH	Main Contractor	Sac Drilling
Finfrock	Josh	OH	Main Contractor	Sac Drilling
Flores Morales	Ricardo	OH	Main Contractor	Sac Drilling
Flores Morales	Juan Manuel	OR	Main Contractor	Sac Drilling
Fogle	Randy	TX	Main Contractor	Sac Drilling
Fussnecker	Jeffery	OH	Main Contractor	Sac Drilling
Gonzalez	Jose	OH	Main Contractor	Sac Drilling
Green	Nathaniel	TX	Main Contractor	Sac Drilling
Hauenstein	Hailey	OH	Main Contractor	Sac Drilling
Herrera	Karen	OH	Main Contractor	Sac Drilling
Hilderbrand	Jeremy	OH-X	Main Contractor	Sac Drilling
Irving	Alexander	OH-X	Main Contractor	Sac Drilling
Justinger	Thomas	OH	Main Contractor	Sac Drilling
King	Dominique	OH	Main Contractor	Sac Drilling
Leonard	Robert	OH	Main Contractor	Sac Drilling
Lieb	Michael	OH	Main Contractor	Sac Drilling

Lira	Angel	OH	Main Contractor	Sac Drilling
Logan	Derrick	OH	Main Contractor	Sac Drilling
Lopez	Roberto	OH-X	Main Contractor	Sac Drilling
March	Devin	OH	Main Contractor	Sac Drilling
Miller	Adam	OH	Main Contractor	Sac Drilling
Montalvo-Solis	Cruz	TX	Main Contractor	Sac Drilling
Montes	Overlin	OH-X	Main Contractor	Sac Drilling
Mora	Jesus Antoni	OH	Main Contractor	Sac Drilling
Mora Vasquez	Jose	OH	Main Contractor	Sac Drilling
Morales Guerra	Rogelio	OH	Main Contractor	Sac Drilling
Myers	Levi	OH	Main Contractor	Sac Drilling
Northan	Keith	TX	Main Contractor	Sac Drilling
Orlando	David	OH	Main Contractor	Sac Drilling
Palomares	George	OH	Main Contractor	Sac Drilling
Riley	Wayne	OH	Main Contractor	Sac Drilling
Rochin	Kevin	OR	Main Contractor	Sac Drilling
Rowe	Jay	OH	Main Contractor	Sac Drilling
Salinas Chavero	Reynaldo	TX	Main Contractor	Sac Drilling
Salinas Garcia	Reynaldo	TX	Main Contractor	Sac Drilling
Salinas Garza	Marco	OH	Main Contractor	Sac Drilling
Salinas Jr	Marco	OH	Main Contractor	Sac Drilling
Sargent	Joshua	OH-X	Main Contractor	Sac Drilling
Schmidt	Blake Ronan	OH	Main Contractor	Sac Drilling
Shannon	Jason	OH	Main Contractor	Sac Drilling
Shockey	Christopher	OH	Main Contractor	Sac Drilling
Sierra-Cruz Jr	Ismael	OH	Main Contractor	Sac Drilling
Smith	Nicholas	OR	Main Contractor	Sac Drilling
Soria Jr	Efren	OH	Main Contractor	Sac Drilling
Sproles	Hunter	OH	Main Contractor	Sac Drilling
Stantz	Quincy	OH	Main Contractor	Sac Drilling
Stevens	Andy	OH	Main Contractor	Sac Drilling
Talavera Malta	Adan	AZ	Main Contractor	Sac Drilling
Thomas	Richard	OH	Main Contractor	Sac Drilling
Trenkamp	Autsin	OH	Main Contractor	Sac Drilling
Trujillo	Rodolfo	TX	Main Contractor	Sac Drilling
Vance	William	OH	Main Contractor	Sac Drilling
Walker	Daymon	OH	Main Contractor	Sac Drilling
Ward	Michael	OH	Main Contractor	Sac Drilling
Zuniga	Perla	OH	Main Contractor	Sac Drilling
Zuniga	Juan	OH	Main Contractor	Sac Drilling
Bishop	Miranda	OH	Main Contractor	Terracon
Cetovich	Mithc	OH	Main Contractor	Terracon
Foster	Mark	WV	Main Contractor	Terracon
Halman	Jamie	OH	Main Contractor	Terracon

Jobe	Rhett	WV	Main Contractor	Terracon
McGougan	Ian	OH	Main Contractor	Terracon
Payne	Jeremey	OH	Main Contractor	Terracon
Talib	Mustafa	OH	Main Contractor	Terracon

Request No. 4:

Provide a copy of all environmental surveys that have not yet been provided, including the Planning and Consultation (IPAC) report.

Response No. 4:

Please see the following environmental reports attached: Clover Creek's IPAC reports from 2020 and 2025, and the Project's Threatened and Endangered Species Habitat Assessment produced by Copperhead Environmental Consulting, Inc. dated February 6, 2025.

Responding Witnesses: Jesse Eick

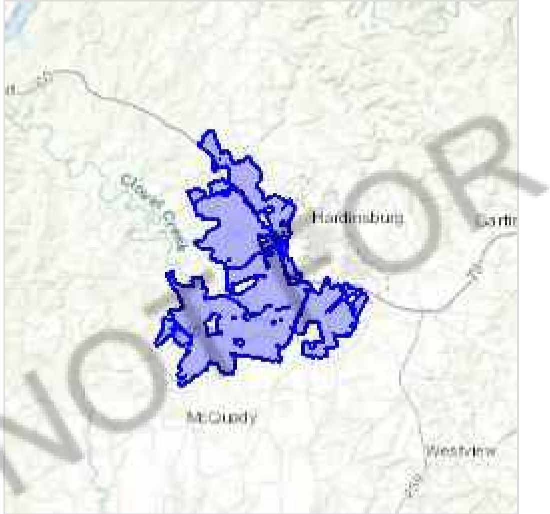
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Breckinridge County, Kentucky



Local office

Kentucky Ecological Services Field Office

☎ (502) 695-0468
📠 (502) 695-1024

J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670

http://www.fws.gov/frankfort/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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[1] Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

[2] NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens This species only needs to be considered if the following condition applies: • The project area includes potential gray bat habitat. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat Myotis sodalis This species only needs to be considered if any of the following conditions apply: • The project area includes known 'swarming 1' habitat. • The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species. There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis This species only needs to be considered if the following condition applies: • The specified area includes areas in which incidental take would not be prohibited under the 4(d) rule. For reporting purposes, please use the "streamlined consultation form," linked to in the "general project design guidelines" for the species. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Clubshell Pleurobema clava This species only needs to be considered if the following condition applies: • The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3789	Endangered

Fanshell Cyprogenia stegaria Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4822

Northern Riffleshell Epioblasma torulosa rangiana Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/527

Pink Mucket (pearlymussel) Lampsilis abrupta Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7829

Purple Cat's Paw (=purple Cat's Paw Pearlymussel) Epioblasma obliquata obliquata Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5602

Rabbitsfoot Quadrula cylindrica cylindrica Threatened

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5165

Ring Pink (mussel) Obovaria retusa Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4128

Rough Pigtoe Pleurobema plenum Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6894

Sheepnose Mussel Plethobasus cyphyus Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6903

Spectaclecase (mussel) Cumberlandia monodonta Endangered

This species only needs to be considered if the following condition applies:

- The species may potentially occur in suitable habitat within the following rivers: Little, Pond, Rough, and Tradewater; and their larger tributaries.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7867

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Breckinridge County, Kentucky

Local office

Kentucky Ecological Services Field Office

☎ (502) 695-0467
(502) 695-1024
kentuckyes@fws.gov

J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Bat Myotis grisescens Wherever found This species only needs to be considered if the following condition applies: • The project area includes potential gray bat habitat. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat Myotis sodalis Wherever found This species only needs to be considered if the following condition applies: • The project area includes known 'swarming 1' habitat. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Whooping Crane Grus americana No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/758	EXPN

Clams

NAME	STATUS

Longsolid Fusconaia subrotunda Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9880	Threatened
Pink Mucket (pearlymussel) Lampsilis abrupta Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7829	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

that no eagles have been observed in this area. This d
ent in your project area, especially if the area is difficult to survey
to Take When No Results Are Returned' section of the Supplemental Infor
ory Birds and Eagles document to determine if your project is in a poorly surveyed a
t is, you may need to rely on other resources to determine if eagles may be present (e.g. yo
local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and
elps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce
tential impacts from your project activities or get the appropriate permits should presence be confirmed.

do I know if eagles are breeding, wintering, or migrating in my area?

what part of a particular bird's range your project area falls within (i.e. breeding, wintering
you may query your location using the RAIL Tool and view the range maps provi
bottom of the profiles provided for each bird in your results. If an eagle
has a breeding season associated with it (indicated by yellow v

your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (FWS). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The FWS interprets the MBTA to prohibit incidental take.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The data in this location indicates that no migratory birds of concern have been observed in this area. This does not mean birds of concern are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine what migratory birds of concern may be present (e.g. your local FWS field office, state surveys, your own surveys).

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Threatened and Endangered Species Habitat Assessment for the New Frontiers Solar Project in Breckinridge County, Kentucky

Submitted to:

EDP Renewables North America LLC
6 February 2025

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TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

INTRODUCTION

EDP Renewables North America LLC (EDP NA) contracted Copperhead Environmental Consulting, Inc. (Copperhead) to conduct a habitat assessment of federally listed species (FLS) and state listed species (SLS) for the New Frontiers Solar Project (the Project) in Breckinridge County, Kentucky. The main focus of the habitat assessment was to investigate the habitats of FLS bat and mussel species, as these have the greatest potential to occur in, and be affected by, the Project. Other FLS and SLS were also considered.

Portions of the Project have been assessed under different ownership and a different project title: the Clover Creek Solar Project (Clover Creek). Two previous habitat assessments were conducted in the area, one by Western EcoSystems Technology (WEST) in September 2020, and, due to changes in the project boundary, a second by Copperhead in November 2023. The current effort was conducted in December 2024, under EDP ownership, to address minor changes to the Project boundary, address FLS listing changes, and assess the suitability of larger streams of the Project for FLS mussel species.

This report primarily details the findings of the December 2024 habitat assessment but also provides a summary of previous assessments. Additional work on the site that provided background information for this assessment included wetland and stream delineations that Copperhead conducted in 2024.

BIOLOGICAL BACKGROUND INFORMATION ON SPECIES CONCERNED

Federally Listed Mammals

Gray Bat (*Myotis grisescens*)

On April 28, 1976, the gray bat was listed as endangered under the Endangered Species Act (ESA) (USFWS 1976a). This species is found primarily in the cave regions of Alabama, Arkansas, Kentucky, Missouri, and Tennessee, with smaller populations known to exist in Florida, Georgia, Illinois, Indiana, Kansas, Mississippi, North Carolina, Oklahoma, Virginia, and West Virginia (USFWS 2009).

Gray bats, which typically roost in caves year-round, are often found congregating in large numbers, with colonies in excess of 1 million individuals reported (Brady et al. 1982). Habitat requirements for roosts are highly specific, with fewer than 5 percent of caves representing suitable habitat (Tuttle 1979). The gray bat uses varying types of caves during different times of the year, including caves with deep vertical shafts that provide a cold air trap during winter (hibernacula) and caves with domed ceilings that trap warm air during summer. Hibernacula typically have multiple entrances, good air flow (Martin 2007), and temperatures from 1° to 9° Celsius (C), although 1° to 4° C seems to be preferred (Tuttle and Kennedy 2005). Approximately 95 percent of the total species population hibernates in only nine caves. Maternity colonies are typically found in caves with temperatures from 14° to 25° C that are located within 4 kilometers of a stream or water body (Tuttle 1976, Tuttle and Kennedy 2005, Martin 2007). Other caves, known as dispersal caves, are used as roosting sites during migration from maternity caves to hibernacula.

Gray bats are also known to use bridges and culverts as roosting habitat during the spring, summer, and fall. Concrete structures seem to be preferred due to their tendency to retain heat longer than other materials; however, metal and wood structures may also be used with less frequency. Gray bats have been observed using bridges and culverts as both day and night roosts. Bridges used as day roosts are typically constructed of concrete and contain vertical crevices, expansion joints, or other locations that allow bats to retreat into the bridge deck or superstructure (Keeley and Tuttle 1999, Feldhamer et al. 2003, Cleveland and Jackson 2013). Bridges with a concrete deck and concrete or metal girders seem to be preferred as night roosts (Keeley and Tuttle 1999, Kiser et al. 2002). This bridge type retains heat into the night, and the chambers between the girders trap heat rising from under the bridge and provide protection from wind, weather, and predators. Night-roosting bats are typically found on the vertical surface of the girder at the intersection with the underside of the deck, often near the bridge abutments. Areas over land seem to be preferred more than the central portion of the bridge and areas spanning water. Bridges that lack crevices/expansion joints or girders are rarely used as day or night roosts (Adam and Hayes 2000, Feldhamer et al. 2003, Ormsbee et al. 2007); however, structures with cave-like areas or other unique features that provide suitable roosting locations can also provide suitable roosting habitat.

Culverts used by gray bats are typically concrete box culverts from 5 feet to 10 feet in height; however, this species may also use metal culverts with similar dimensions. These structures are generally 50 feet or longer and provide dark zones, protection from high winds, and are not susceptible to frequent flooding. Roosting locations preferred by gray bats include dark areas with crevices and structural imperfections. Culverts less than 5 feet high are not generally used as roosting habitat (Keeley and Tuttle 1999, USFWS 2009).

Gray bats usually forage in riparian areas or over open water bodies such as rivers, streams, lakes, or reservoirs. While foraging, the gray bat consumes a variety of insects, most of which are aquatic-based (Brack and LaVal 2006). Studies in Indiana, Kentucky, Alabama, and Missouri have revealed that Tricoptera, Lepidoptera, Coleoptera, and Diptera are most frequently consumed, with a total of 14 insect orders documented as prey for this species (Brack et al. 1982, Brack and LaVal 2006). Commuting habitat between roosts and foraging areas consists primarily of wooded corridors like streams or forested roads, though forested edges also are used. Gray bats of all ages, including newly volant young, typically travel in the tree canopy while commuting, which may provide protection from predators (Brady et al. 1982).

Indiana Bat (*Myotis sodalis*)

The Indiana bat was listed as an endangered species on March 11, 1967, under the Endangered Species Preservation Act of 1966. Critical habitat — designated for the species on September 24, 1976 — includes 11 caves and three mines in six states. In Kentucky, Indiana bat records occur in half the counties and the species may exist nearly statewide (USFWS 2019b). Hibernacula are concentrated in the karst regions of the state.

During the winter months, Indiana bats are restricted to suitable underground hibernacula, typically consisting of caves located in karst areas of the east-central United States; however, this species also hibernates in cave-like locations, including abandoned mines (USFWS 2007).

During the spring, summer, and fall, the Indiana bat uses a variety of forested habitats for roosting, foraging, and commuting. These habitats include forest blocks and woodlots, as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure.

Indiana bats typically roost in trees, though their use of anthropogenic structures — including bridges, attics, and bat houses — also has been documented. Tree roosts often occur in dead, dying, or damaged trees with sloughing bark or cavities. Primary maternity roosts are usually at least 22.9 centimeters in diameter (at breast height) and receive direct sunlight for more than half the day (USFWS 2016a). Colonies will also use smaller secondary roost trees that may have less solar exposure with less frequency. Maternity roosts in riparian zones, bottomland and floodplain habitats, wooded wetlands, and upland communities have been documented (USFWS 2007). Individual trees that are isolated from other forested tracks may provide suitable roosting habitat if the trees exhibit the characteristics of a suitable roost tree and are located within 305 meters of other suitable habitat.

Foraging habitat for the Indiana bat includes closed to semi-open forested habitats, where bats forage along forest edges and above the tree canopy (Humphrey et al. 1977, LaVal et al. 1977, Brack 1983). Commuting habitat includes forested blocks and corridors that connect roosting and foraging areas.

Northern Long-eared bat (*Myotis septentrionalis*)

The northern long-eared bat was listed as threatened under the ESA on April 2, 2015, with a rule under authority of Section 4(d) of the ESA finalized on January 14, 2016 (USFWS 2016b). On March 23, 2022, the U.S. Fish and Wildlife Service (USFWS) proposed the reclassification of the species as endangered under the ESA (USFWS 2022). The final rule elevating the northern long-eared bat status to endangered took effect on March 31, 2023. No critical habitat for this species is currently designated or proposed by the USFWS.

In Kentucky, the northern long-eared bat has been recorded throughout most of the state and likely occurs statewide. Summer occurrences have been recorded in 76 of 120 Kentucky counties in the state, with winter records in 28 counties. Breckinridge County has both summer and winter records of the species (USFWS 2019c). The northern long-eared bat uses different habitats during the summer and winter months.

Hibernacula used in winter vary from large caves and abandoned mines with large entrances and passages to smaller features like cliff line crevices (White et al. 2020). Preferred features have relatively constant, cool temperatures (0° to 9° C), high humidity, and minimal air currents (Raesly and Gates 1987, Caceres and Pybus 1997). This species typically hibernates in small crevices and cracks in walls and ceilings; however, individuals have also been observed hibernating in the open, although less frequently (Barbour and Davis 1969, Caceres and Pybus 1997, Whitaker and Mumford 2009). In addition to mines, northern long-eared bats have been found hibernating in other cave-like, man-made structures (USFWS 2015).

During the spring, summer, and fall, the northern long-eared bat uses a variety of forested habitats for roosting, foraging, and commuting, including forest blocks and woodlots, as well as linear features such as fencerows, riparian forests, and other wooded corridors. These forested areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Suitable roosting habitat consists of live or dead trees and snags with a DBH of 7.6 centimeters or greater that exhibit any of the following characteristics: exfoliating bark, crevices, cavities, or cracks (USFWS 2016a). This species is more likely to roost in crevices, cracks, and cavities than other Myotis species (Carter and Feldhamer 2005, Lacki et al. 2009) and is more opportunistic when selecting a roost tree, often using shorter trees with smaller DBH and tree stumps.

Foraging habitat includes mature upland forests along hillsides and ridges (LaVal et al. 1977, Brack and Whitaker 2001). This species may also forage in more open areas, such as forest clearings, over open water, and along roads (van Zyll de Jong 1985); however, it is less likely to forage in riparian areas (LaVal et al. 1977, Brack and Whitaker 2001). Commuting habitat is used to travel between roosting and foraging areas and typically includes forest edges and linear features, such as riparian corridors and fencerows (USFWS 2015).

Tricolored bat (*Perimyotis subflavus*)

On September 13, 2022, the USFWS proposed that the tricolored bat be listed as endangered under the Endangered Species Act.

Within the United States, the species is known to occur in 39 states extending north-south from the Canadian border to the Gulf of Mexico and east-west from the Atlantic Ocean to Texas and Minnosota.

During the summer, spring, and fall season tricolored bats roost primarily in live and dead leaf clusters of deciduous trees where they blend in with leaf litter. They will also roost in Spanish moss in the southern part of their range. The species has also been documented roosting under in caves, bridges, barns, and buildings. Tricolored bats forage on small flying insects, including caddisflies, moths, beetles, wasps, flying ants, and flies (USFWS 2024).

During the winter months, tricolored bats are primarily found hibernating singly on walls or ceiling of caves and mines with high humidity, often in sections with higher winter temperatures than those used by Myotis species (Lutsch. 2019). They have also been found hibernating in abandoned mines, in abandoned railroad tunnels, and in the southern portion of their range in culverts (Kurta and Smith 2014, Hill and Staron 2019).

Federally Listed Freshwater Mussels

Long-solid (*Fusconaia subrotunda*)

The long-solid was listed as threatened by USFWS in 2023. The long-solid occurs in nine states, including Kentucky, between three river basins, including the Ohio River, which is the ultimate receiving stream for all water draining the Project (USFWS, 2023). The habitat preferred by this freshwater mussel is large creeks and small rivers with substrates that are comprised primarily of sand and gravel at depths of less than 2 feet. However, they can be found in larger rivers at depths of 12-18 feet in coarse gravel and cobble (USFWS, 2023). Host fishes are unconfirmed but are likely fish in the minnow family (Cyprinidae).

Pink Mucket (*Lampsilis abrupta*)

In 1976, the USFWS listed the pink mucket as endangered (USFWS, 2024). This species is typically found in flowing waters of medium to large rivers in main channels over firm sand, gravel, and mud substrates. Habitat is associated with its host fishes — black basses, walleye, and sauger (KDFWR, 2023).

Federally Listed Birds

Whooping Crane (*Grus americana*)

The whooping crane is found in the United States and Canada, with a historic population of more than 10,000 (USFWS 2024b). This species typically uses flooded agricultural fields, river bottoms, and harvested agricultural fields, as well as managed wetlands on refuge and wildlife areas (KDFWR, 2023).

The whooping crane — known to occur in the U.S. in Kansas, Louisiana, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas — has only one self-sustaining wild population, which nests in Wood Buffalo National Park and winters in the coastal marches of Aransas in southern Texas (USFWS 2024b). Additionally, there are experimental captive raised populations (non-essential), including a small migratory population introduced in the beginning of 2001, that migrate between Wisconsin and Florida in an eastern migratory trajectory, and a non-migratory Florida population (USFWS 2024b). The last remaining bird in the experimental Rocky Mountain population died in 2002 (USFWS 2024b).

Whooping cranes have life spans of up to 30 years in the wild, and 35 to 40 years in captivity (USFWS 2024b). They are monogamous birds, forming pair bonds around 2 or 3 years of age; however, the average age of first egg production is around 5 years of age. Whooping cranes tend to nest annually, but they have been documented to skip a year if they are nutritionally stressed or if there are unsuitable nesting habitat conditions (USFWS 2024b). Eggs are typically laid in late April to mid-May, with an average clutch size of two eggs. Both parents participate in incubation and brood-rearing, with at least one member of the pair remaining on the nest at all times. The nest and territory are defended primarily by the male while females take on feeding responsibilities and care for the young (USFWS 2024b). The migratory behavior of whooping cranes varies, with some birds that live and travel alone, some in pairs, and some in flocks of 50 or more birds that can include sandhill cranes.

Habitat for breeding, migration, and over-wintering include coastal marshes and estuaries, inland marshes, lakes, open ponds, wet meadows, rivers, and pastures and agricultural fields (USFWS 2024b). Prey items include large lymphal or larval forms of insects, frogs, rodents, small birds, minnows, and berries (USFWS 2024b). The winter diet of the whooping crane consists primarily of blue crabs, clams, and Carolina wolfberry (USFWS 2024b).

In Kentucky, whooping cranes from an experimental population are known to over-winter in Hopkins, Hardin, and Barren counties.

Federally Listed Insects

Monarch Butterfly

The monarch butterfly was listed as a candidate species on December 17, 2020. The monarch is proposed for listing under the ESA as a threatened species; therefore, consultation with USFWS is not required unless project development will not occur until after the listing. The USFWS encourages agencies to take advantage of any opportunity they may have to conserve the species.

The monarch can be found in much of North America, in open habitat from Canada to South America. Monarchs are known for their annual migration and are the only butterfly to regularly migrate north and south (Pyle. 1981). Monarchs in central and eastern North America migrate to the mountainous forests of central Mexico while those in the western portions of North America migrate to the California coast. Monarch habitat is complex but generally includes virtually all patches of milkweed in North America. Milkweeds are the only plants on which monarchs lay eggs. Overwintering habitats, including high altitude Mexican conifer forests or coastal California conifer and eucalyptus groves, are critical for the species. Land management changes that impact milkweed include increased herbicide use, excessive roadside mowing, and urban development, among others (USFWS 2020). Based on record search and site reconnaissance, the Project contains habitat suitable for the monarch butterfly.

State Listed Threatened, Endangered, and Special Concern Species (SLS)

SLS were assessed initially via desktop analysis, and suitable habitat presence was confirmed with information gathered during field visits (during wetland and bat/mussel habitat assessment). Desktop analysis reviewed data from the Kentucky Speleological Survey (KSS), Kentucky Geological Survey (KGS), Office of Kentucky Nature Preserves (OKNP), State Wildlife Action Plan, and Kentucky's Comprehensive Wildlife Conservation Strategy. Desktop analysis identified 89 SLS species, including 13 mammals, 48 birds, two reptiles, five amphibians, three fish, six crustaceans, eight mollusks, one insect, and three plants that are listed as threatened, endangered, special concern, or historic in Kentucky and have the potential to occur in the project area. SLS with the potential to occur within the Project footprint, as well as summary descriptions of their habitats, are included in the State Listed Species Assessment Matrix in Appendix B.

SUMMARY OF PREVIOUS BAT HABITAT ASSESSMENTS

September 2020 Bat Habitat Assessment

Before Copperhead's December site visit, Clover Creek contracted WEST to complete a habitat assessment for FLS and SLS within the Project. Using information generated through agency requests, WEST mapped habitats suitable for listed species likely to occur in the Project area. The primary purposes of the assessment were to identify potential summer habitat for Indiana bats and northern long-eared bats within the Project, inform Project design, and minimize or avoid activities such as tree clearing that may result in indirect "take" of the species. WEST conducted a desktop habitat assessment and field assessment.

2020 Desktop Assessment

The desktop habitat assessment designated 847.4 acres of suitable roosting habitat for Indiana bat and/or northern long-eared bat within the assessment area. KGS data did not identify sinkholes in the assessment area; however, a sinkhole within the Project boundary was evident from area topography. The USFWS Information for Planning and Consultation (IPaC)[1] tool revealed that the Project did not contain critical habitat for federally listed threatened and endangered species, and KSS data indicated that there were no known caves located within 3 miles of the Project.

2020 Field Assessment

A federally permitted bat biologist completed site visits from September 14–16 and September 21–25, 2020. The field assessment identified 564.6 acres of habitat suitable for both Indiana and northern long-eared bats and 106.1 acres of additional habitat suitable for northern long-eared bats. The assessment noted that approximately 176.0 acres of forested habitat identified during the desktop assessment had been cleared since the latest National Land Cover Database (NLCD) iteration (2016). Suitable northern long-eared bat habitat composed approximately 18.7% of the Project, and suitable Indiana bat habitat (which is also suitable for northern long-eared bats) composed approximately 15.7% of the Project. Indiana bat and northern long-eared bat habitat is relatively evenly distributed throughout the Assessment Area, and additional suitable habitat was present in the Project that could not be assessed due to lack of access permission.

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[1] https://ipac.ecosphere.fws.gov/location/index

WEST noted several wide, riparian corridors with suitable gray bat foraging habitat, including along Hardins Creek, Bear Run, and Bens Hole Branch. No potential roost areas for gray bats in the form of portals or caves were observed, and no caves or sinkholes were found in the Project area.

WEST found that forested areas varied, from relatively small and immature stands and shelterbelts, which would likely be suitable only for northern long-eared bat use, to forested riparian corridors and mostly mature stands suitable for northern long-eared bats and Indiana bats. Dominant tree species observed throughout much of the Project included white oak (*Quercus alba*), northern red oak (*Quercus rubra*), shagbark hickory (*Carya ovata*), bitternut hickory (*Carya cordiformis*), mockernut hickory (*Carya tomentosa*), tulip poplar (*Liriodendron tulipifera*), and sugar maple (*Acer saccharum*). Other common tree species included American sycamore (*Platanus occidentalis*), eastern black walnut (*Juglans nigra*), catalpa (*Catalpa speciosa*), boxelder maple (*Acer negundo*), black cherry (*Prunus serotina*), scarlet oak (*Quercus coccinea*), blackjack oak (*Quercus marilandica*), shingle oak (*Quercus imbricaria*), eastern redcedar (*Juniperus virginiana*), and sweet gum (*Liquidambar styraciflua*). Most of these species have been shown to provide roosts for either northern long-eared bats or Indiana bats, especially in the form of snags or damaged/hollow trees and living trees of some species with exfoliating bark (e.g., shagbark hickory; USFWS 2007, 2015).

2022 Bat Habitat Assessment

Copperhead was contracted to visit the site and perform a habitat assessment in November 2022 using information generated through agency requests. Copperhead mapped suitable habitat for listed bat species likely to occur in the Project area. Copperhead assessed the updated Project boundary through the IPaC website in 2022, which identified three federally listed bat species (the gray bat, the northern long-eared bat, and the Indiana bat) as potentially occurring within the Project area. The purposes of the assessment were to identify potential summer and winter habitat for gray bats, northern long-eared bats, and Indiana bats within the Project area; inform Project design; and minimize, avoid, or mitigate activities such as tree clearing that may result in indirect "take" of the species.

2022 Desktop Assessment

The desktop habitat assessment designated 116.3 acres (47.1 ha) of suitable roosting habitat for Indiana bat and/or northern long-eared bat within the Project area. Coordination with resource agencies did not identify mapped sinkholes or caves within the Project area, though a sinkhole was later identified during the site visit. IPaC consultation revealed that the Project did not contain critical habitat for any FLS, and KSS data indicated that there were no known caves located within 5 miles of the Project. The closest known Indiana bat hibernacula is a Priority 2 hibernacula located about 5.5 miles (8.9 km) to the northeast of the Project area.

2022 Field Assessment

During the site visit, Copperhead identified 116.3 acres (47.1 ha) of suitable Indiana bat and northern long-eared bat habitat. Suitable Indiana and northern long-eared bat habitat made up 16.9% of the Project area. Copperhead noted several open ponds suitable for gray bat, Indiana bat, and northern long-eared bat foraging and drinking as well as a few riparian corridors suitable for all bats but particularly beneficial to gray bats, which forage mostly over water. No potential gray bat roost habitat in the form of portals, caves, or bridges was observed. One potential sinkhole depression was identified in the northeast parcel of the Project area; however, there were no obvious openings, and it was covered in farm debris, vegetation, and rock. No caves were identified within the Project area. Suitable forested areas consisted of mostly mature tree stands, forested riparian corridors, and some minor wooded areas such as fence rows suitable for both the Indiana and northern long-eared bats.

Dominant tree species observed throughout the Project included white oak, northern red oak, shagbark hickory, bitternut hickory, tulip poplar, and sugar maple. Other common tree species included American sycamore, eastern black walnut, mockernut hickory, boxelder, black cherry, scarlet oak, blackjack oak, eastern redcedar, American beech (*Fagus grandifolia*), and sweet gum. Most of these tree species provide roosts for either Indiana bats or northern long-eared bats, especially trees with exfoliating bark, trees, and snags that have been storm damaged or are hollow.

2024 HABITAT ASSESSMENT

Project Area Description

The current Project boundary is 4,113.8 acres in area and is located approximately 0.6 of a mile (1.0kilometer) west of Hardinsburg, in Breckinridge County Kentucky (Appendix A, Figure 1). The Project is located within the Interior Plateau Ecoregion in the Crawford-Mammoth Cave Uplands. This area is characterized by shale valleys, cliffs, forests, and upland areas. Karst is common in the region, where caverns, sinkholes and subterranean drainage are present. The region has been partially converted to pastureland and cultivated crops; however, oak-hickory forests still cover a large area (USEPA 2017, Woods et al. 2002). The Ohio River serves as the border between Kentucky and Indiana to the north and west. All streams within the Project drain to Clover Creek west of the Project boundary. Bear Run intersects the northwest portion of the Project. Hardin's Creek flows along the eastern boundary of the Project, and the creek's tributary runs through the northeast portion of the Project. Ben's Hole Branch intersects the southwestern portion of the Project.

According to the National Land Cover Database (NLCD; 2021), the dominate land cover type within the Project area is hay/pasture (39%; 1,590.8 ac), followed by cultivated crops (35%; 1,433.6 acres), and deciduous forest (16%; 676.4 acres). Land cover is detailed in Table 1.

Table 1. Land cover types, area, and composition within the New Frontiers Solar Project Assessment Area in Breckinridge County, Kentucky (National Land Cover Database, 2021).

Land Cover Type	Acres	% Composition	FLS Bat Habitat
Cultivated Crops	1,433.6	35%	No
Deciduous Forest	676.4	16%	Yes
Developed, High Intensity	6.7	0%	No
Developed, Low Intensity	50.8	1%	No
Developed, Medium Intensity	30.2	1%	No
Developed, Open Space	130.5	3%	No
Evergreen Forest	1.6	0%	Yes
Hay/Pasture	1,590.8	39%	No
Herbaceous	17.4	0%	No
Mixed Forest	159.8	4%	Yes
Open Water	3.6	0%	Yes
Shrub/Scrub	12.5	0%	No
Total*	4,113.8	100%	NA

2024 Habitat Assessment Methods

2024 Desktop Assessment Methods

Copperhead conducted a desktop habitat analysis/literature review of the 4,113.8-acre Project area that focused on FLS and SLS. Desktop assessment identified forested land cover, streams, open water, sinkholes, and caves. A review of available global information system (GIS) mapping layers — including the United States Geological Survey (USGS) National Landcover Database, USGS Geologic Data, and recent and historic aerial photography — was conducted prior to the field reconnaissance using ArcGIS Pro, ArcGIS Online, and Google Earth Pro. Streams were identified using the USGS National Hydrography Dataset and were then reviewed using leaf-off aerials. The USGS StreamStats tool (StreamStats) was used to determine drainage basin size.

Copperhead reviewed previous habitat assessments and wetland/stream assessment documents for prior iterations of the Project. Potential karst habitat was evaluated using sinkhole data from the KGS and cave data from the KSS. Sinkholes are defined as natural topographic depressions resulting from water eroding the surface rock, with no surface external drainage (USGS 2024), and caves were defined as horizontal or vertical cavities large enough for human entry, with a depth or length of at least 32.8 feet (10 meters; KSS 2017).

The online IPaC consultation tool was used to obtain an official list of FLS and critical habitat that may occur within the vicinity of the Project. The IPaC tool was re-run just before final reporting to address changes to species status. Copperhead identified SLS with potential to occur within the project area using the State Wildlife Action Plan, Kentucky's Comprehensive Wildlife

Conservation Strategy, the Kentucky Department of Fish and Wildlife Resources databases, Kentucky Rare Plants database, and the Office of Kentucky Nature Preserves literature.

Copperhead coordinated with USFWS Kentucky Ecological Services Field Office to obtain updated FLS bat habitat buffers.

FLS bats and FLS mussels received the most focused assessment, as these are the federally protected species most likely to occupy the Project area.

2024 Field Assessment

The 2024 field assessment focused primarily on habitat of FLS bats and freshwater mussels. The goal of the 2024 field habitat assessment was to evaluate potential bat and mussel habitat identified during the desktop assessment that had not been assessed during previous efforts due to changes in the Project boundary and to spot check to ensure no major land-use changes have recently modified habitat identified during previous assessments. Previous field assessments did not assess streams for mussel habitat, so this was included in the 2024 field assessment.

Copperhead conducted the bat habitat assessment field survey on December 9, 2024. Three Copperhead employees, including two federally permitted bat biologists, conducted a qualitative pedestrian survey. All potential habitat (identified via desktop examination of data) within the boundary that had not been previously ground-truthed was evaluated, and a windshield assessment was conducted to ensure no major land-use changes had affected previously confirmed bat habitat. Forest resources — including dominant tree species, presence of potential flight corridors, potential water resources, and presence of potential roost trees — were evaluated and recorded. The assessment team also documented the presence of caves or other subterranean habitats that could be used by bats as roosts or hibernation sites.

Copperhead conducted the mussel habitat field survey concurrently with the bat assessment on December 9, 2024. A team of three Copperhead biologists — including one federally and Kentucky permitted malacologist — conducted a pedestrian survey of three stream sites within the Project area that were identified during the desktop assessment as potentially having flow sufficient to harbor native freshwater mussel populations. The biologists evaluated the streams for flow, substrate, and size to determine whether the streams provided habitat viable for freshwater mussels.

Federally Listed Threatened and Endangered Species

Copperhead obtained an updated species list from the USFWS online IPaC tool prior to the field assessment and again prior to completion of the assessment report. As summarized in Table 2, the review identified eight federally listed threatened, endangered, candidate, or proposed species that have the potential to occur in the Project area. No designated critical habitat within the vicinity of the Project was identified. The changes from previous IPaC data include the uplisting of the northern long-eared bat to endangered, addition of the tricolored bat as proposed endangered, the addition of the whooping crane as experimental population, and the addition of the monarch butterfly as proposed threatened (elevated from candidate on December 12, 2024).

Table 2. Federally listed species with potential to occur within the project Study Area.

Common Name	Scientific Name	Federal Status
Mammals		
Gray Bat	*Myotis grisescens*	Endangered
Indiana Bat	*Myotis sodalis*	Endangered
Northern Long-Eared Bat	*Myotis septentrionalis*	Endangered
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered
Freshwater Mussels		
Long-solid	*Fusconaia subrotunda*	Threatened
Pink Mucket	*Lampsilis abrupta*	Endangered
Birds		
Whooping Crane	*Grus americana*	Experimental Population/Non-essential
Insects		
Monarch Butterfly	*Danaus plexippus*	Proposed Threatened

Source: USFWS IPaC provided in Appendix D

RESULTS

Desktop Assessment

Federally Listed Bats

An updated informal IPaC assessment (Appendix D) identified four FLS or proposed threatened bat species with the potential to occur in the Project boundary (Indiana bat, northern long-eared bat, gray bat, and tricolored bat). The IPaC confirmed that no critical habitats occur within the project boundary. KSS data indicated that there are no known caves located within 5 miles of the Project. Coordination with USFWS Kentucky Ecological Services Field Office indicated that the entire project occurs within Known Swarming 1 habitat for the Indiana bat (Seth Bishop, personal communication June 4, 2024). The closest known Indiana bat hibernacula is a Priority 2 hibernacula located about 5.5 miles (8.9 kilometers) to the northeast of the Project area. The project is outside of all USFWS northern long-eared bat habitat buffers and is 380 meters from Known Swarming 2 habitat for the species (USFWS 2019).

The desktop habitat assessment identified 668.0 acres of previously identified suitable forested bat habitat within the new Project boundary and 152.5 acres of potential forested bat habitat that had not been previously assessed. In addition, 19.8 acres of open water that could provide foraging/drinking habitat for FLS bat species were identified. Coordination with the wetland crew identified a possible cave within the Project boundary in the northern portion of the Project area.

Freshwater Mussels

Streams within the Project boundary are too small to support mussel populations. However, three apparent perennial streams that warranted further investigation were identified from aerial photography. Two of the identified streams are tributaries of Hardins Creek in the northeast portion of the project. The third, Bear Run, flows out of the western boundary of the Project into Clover Creek. The StreamStats basin tool was used to determine basin size of the three locations. The Hardins Creek tributaries were 0.45 square miles and 1.99 square miles in area at the point they leave the Project. Bear Run near the western project boundary was 2.17 square miles in area. Though small for mussel streams, the basin size — combined with what appeared in aerial photos to be perennial flow — prompted the identification of these streams as sites for further investigation.

The IPaC concluded that no critical habitats occur within the Project boundary.

Field Assessment

Federally Listed Bats

Dominant tree species observed within previously unassessed forested areas included shagbark hickory, southern red oak, post oak (*Quercus stellata*), red oak, and hackberry (*Celtis occidentalis*). Other common tree species included American sycamore, white oak, winged elm (*Ulmus alata*), American beech, sweetgum, and red maple (*Acer rubrum*). Most of these tree species are known to provide roosts for either Indiana bats or northern long-eared bats, especially trees with exfoliating bark, trees and snags that have been damaged, or trees that have hollows. Tricolored bats can roost in leaf clusters in most tree species.

The 2024 habitat assessment identified 152.5 acres of previously unassessed area as suitable forested bat habitat and 19.8 acres of open water (ponds and unforested streams) as bat foraging habitat and a drinking resource. All forested and open water habitats were considered suitable for foraging, and most forested stands had roosting habitat. Newly confirmed suitable habitat accounts for 2% of the total Project area. No habitat suitable for bat hibernation was identified during the field assessment. A cave was identified and surveyed; however, it was small and appeared to regularly flood to the ceiling, with no sections that could provide safe hibernation habitat for any bat species, and it was determined that the cave could not provide safe summer roosting habitat for gray bats.

Combined with previously assessed suitable habitat, the Project area contains 820.5 acres of suitable forested habitat plus 19.8 acres of open water that is suitable as a foraging and drinking resource for Indiana, northern long-eared, gray, and tricolored bats.

Freshwater Mussels

Of the three surveyed reaches, one unnamed tributary of Hardins Creek (NF12) lacked flow, rendering it generally unsuitable for supporting freshwater mussels. A second unnamed tributary of Hardins Creek (NF11) was too small to support either of the federally listed mussels that could occur in the Project area. Bear Run was perennial with several deep pools that could potentially support headwater adapted mussel species; however, the stream was deemed too small to support federally listed species with the potential to occur within the Project boundary.

Whooping Crane

The USFWS Kentucky Field Office has indicated that concerns about whooping cranes in Kentucky should be limited to the experimental populations in Barren, Hardin, and Hopkins counties. Therefore, the Project is not considered to have the potential to adversely affect whooping cranes, and thus, that species is not included this analysis.

Monarch Butterfly

Monarch butterflies are likely to seasonally move through the Project area during their migration. During spring, they lay eggs on milkweeds, particularly on three native species of milkweed occurring in Kentucky (butterfly milkweed [*Asclepias tuberosa*], common milkweed [*A. syriaca*], and swamp milkweed [*A. incarnata*]). If areas where these milkweeds are common can be retained or if monarch butterfly waystations containing these milkweeds can be planted, those occurrences would be beneficial to the species. The species does not have protection under the Endangered Species Act until it is formally moved from proposed threatened to a threatened species, though further consideration should be given to this species if implementation of the Project were to be delayed until after the listing.

State-listed Species

A total of 89 SLS with ranges that overlapped the Project boundary were identified. Of these, 66 species have potential suitable habitat within the Project area (Table 3). Due to the size of the Project and complexity of the habitats occurring within, SLS could broadly use the Project area. However, the presence of potential suitable habitat does not necessarily indicate presence of SLS species. Details on individual SLS habitat requirements and notes on suitable habitat presence within the Project boundary are included in Appendix B, the State Listed Species Assessment Matrix.

Table 3. State listed species summary table

Taxa Group	Species with range overlapping the Project boundary	Species with suitable habitat occurring within the Project boundary	Suitable habitat Presence Unknown**
Mammals	13	12*	0
Birds	48	40*	0
Insects	1	1	0
Fish	3	0	1
Amphibians	5	4	0
Reptiles	2	1	0
Crustaceans	6	5	1
Mussels	8	1	0
Plants	3	2	0

*Habitat is seasonally restricted for some species; **Habitat is subterranean karst & presence is unknown.

CONCLUSION

Federally Listed Bats

The Project is within the range of the Indiana bat, gray bat, northern long-eared bat, and tricolored bat. Results of this habitat assessment confirmed 840.3 acres of habitat suitable for FLS bats occur within the Project boundary, including 152.5 acres of newly assessed forested bat habitat, 668.0 acres of previously identified suitable forested habitat, and 19.8 acres of open water. Habitat suitable for FLS accounts for 19.5% of the Project footprint.

Forested areas, forested streams, woodlots, and fence rows with trees were considered foraging/roosting habitat and travel corridors for Indiana bats, northern long-eared bats, and tricolored bats. These habitats also provide travel corridors for gray bats and may provide limited foraging resources for the species. Open water resources in the form of ponds and non-forested streams were considered suitable foraging habitat for all four FLS bat species. The northern portion of the Project area lies within Known Swarming 1 habitat for Indiana bats. Based on the presence of suitable summer foraging and roosting habitat and overlap with Known Swarming 1 habitat for the Indiana bat, it is possible that Indiana bats, northern long-eared bats, and tricolored bats could be present within the Project boundary during spring migration, summer maternity season, fall migration, and fall swarming periods.

Based on the presence of suitable gray bat foraging habitat along Bear Run, Ben's Hole Branch, Hardins Creek, tributaries of Hardins Creek, and area ponds, gray bats may be foraging in the Project area in the spring, summer, and fall seasons. Neither desktop nor field habitat assessment has detected summer roosting habitat (usable caves, mines, etc.) suitable for gray bats within the Project Boundary. Though a small cave was identified, it is unsuitable for long-term gray bat maternity use due to the size and evidence of frequent flooding.

No winter habitat that is suitable for any FLS bat species was identified within the Project boundary. The IPaC concluded that no critical habitats occur within the Project boundary.

Freshwater Mussels

All streams within the Project boundary are too small to support populations of FLS mussels identified in the IPaC (the long-solid and pink mucket). The two unnamed tributaries of Hardins Creek were too small to support native mussel populations of any species. These streams likely have periods of no flow during extreme drought and do not have deeper areas where mussels could survive warming events in summer and freezing in winter. Bear Run appeared to have flow sufficient to support headwater adapted mussel species, including areas greater than 1 meter deep that would provide refugia for mussels during extreme warming or freezing events. However, no native mussels or shell fragments were seen in Bear Run during the site visit, and it is not believed that the stream supports any native mussel populations within the Project boundary.

The IPaC concluded that no critical habitats occur within the Project boundary.

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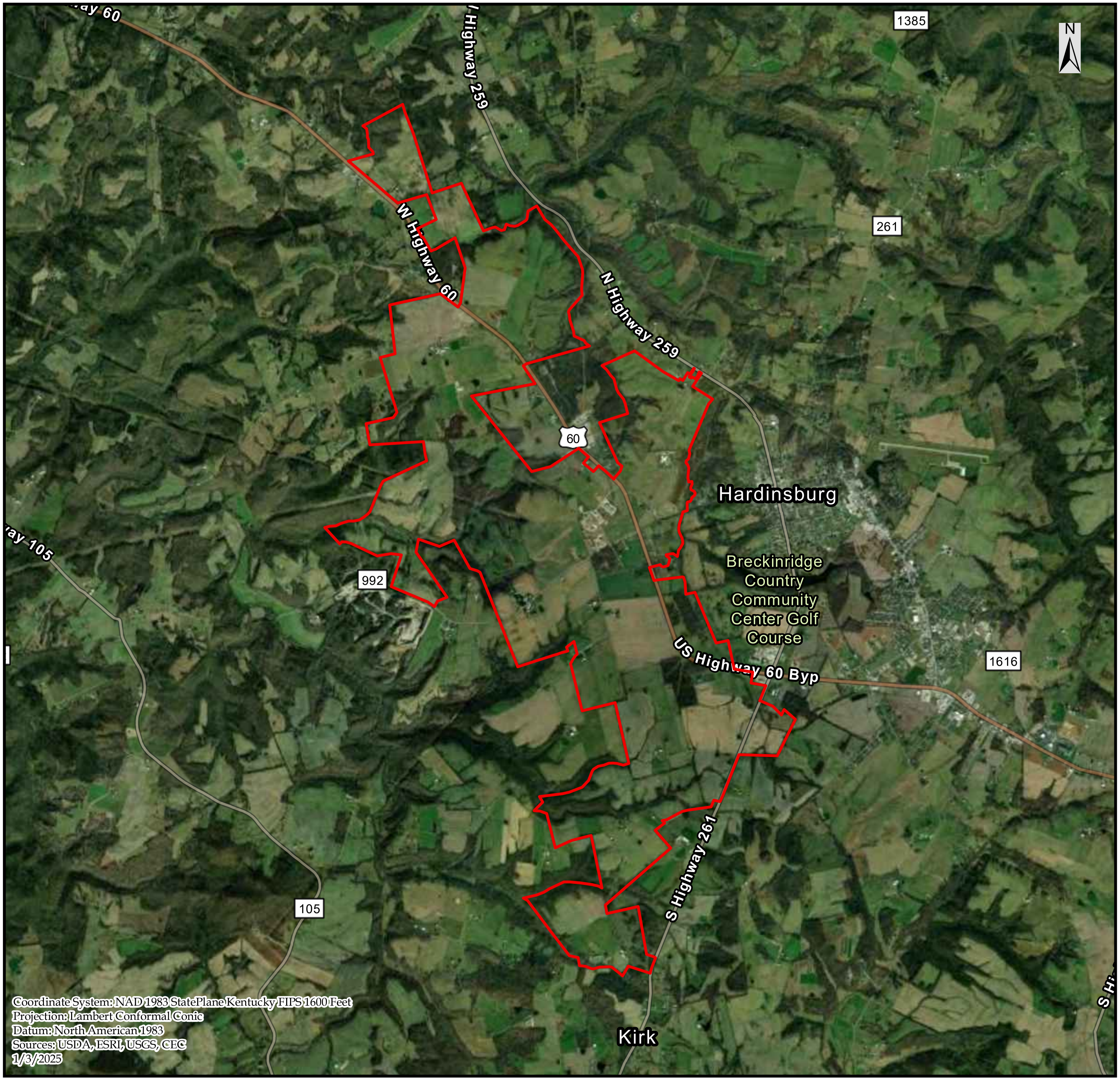
Appendix A:

Figures



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Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, CEC
1/3/2025

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APPENDIX A, FIGURE 1:
Project Overview for the
New Frontiers Solar Project,
Breckinridge County, Kentucky.

Legend

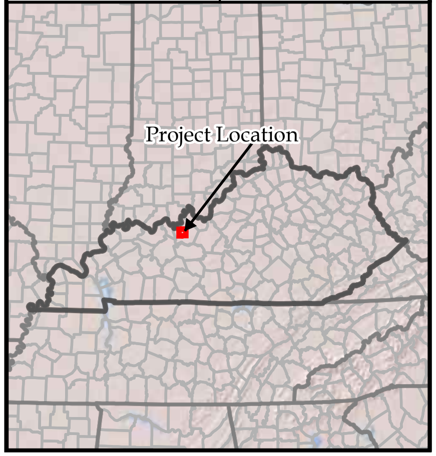
🟥 Project Boundary

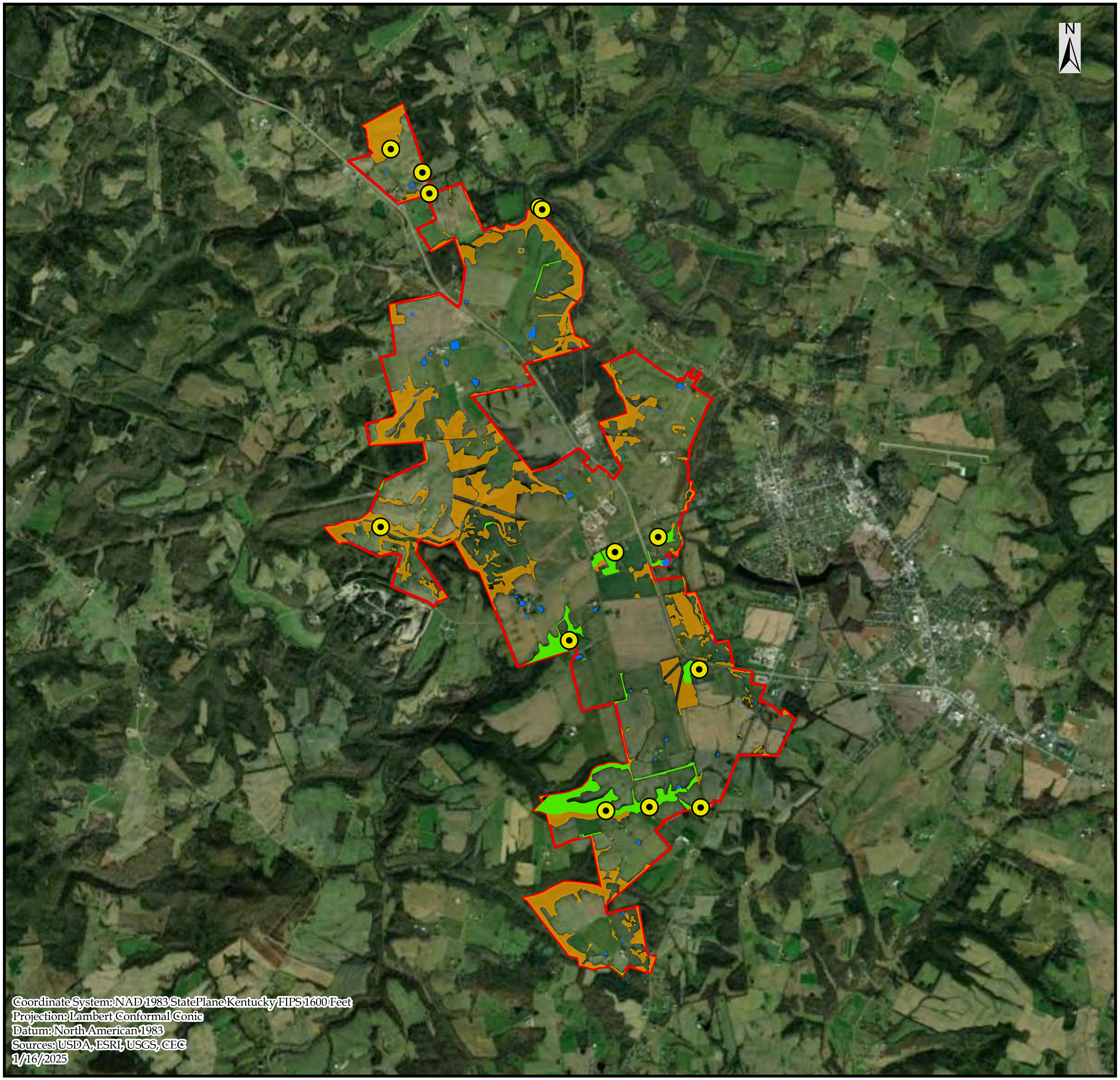
0 2,500 5,000
US Feet

Scale: 1 in = 5,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	1/3/2025
Checked by:	PS	Revision:	01





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Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, CEC
1/16/2025

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APPENDIX A, FIGURE 2.1:
Suitable Bat Habitat for the
New Frontiers Solar Project,
Breckinridge County, Kentucky.

Legend

◉	Bat Habitat Data Point
🟩	Newly Confirmed Bat Habitat: Forested
🟦	Newly Confirmed Bat Habitat: Open Water
🟧	Previously Confrimed Forested Bat Habitat
▭	Project Boundary

0 2,500 5,000
US Feet

Scale: 1 in = 5,000 ft

Prepared by :

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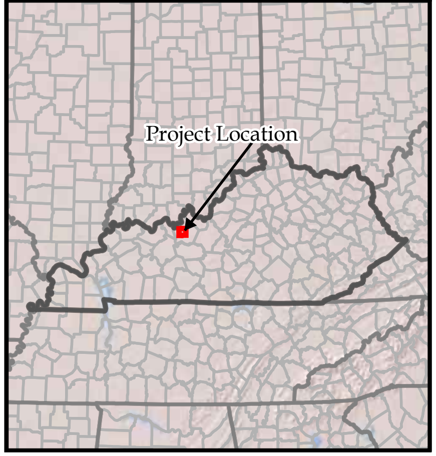
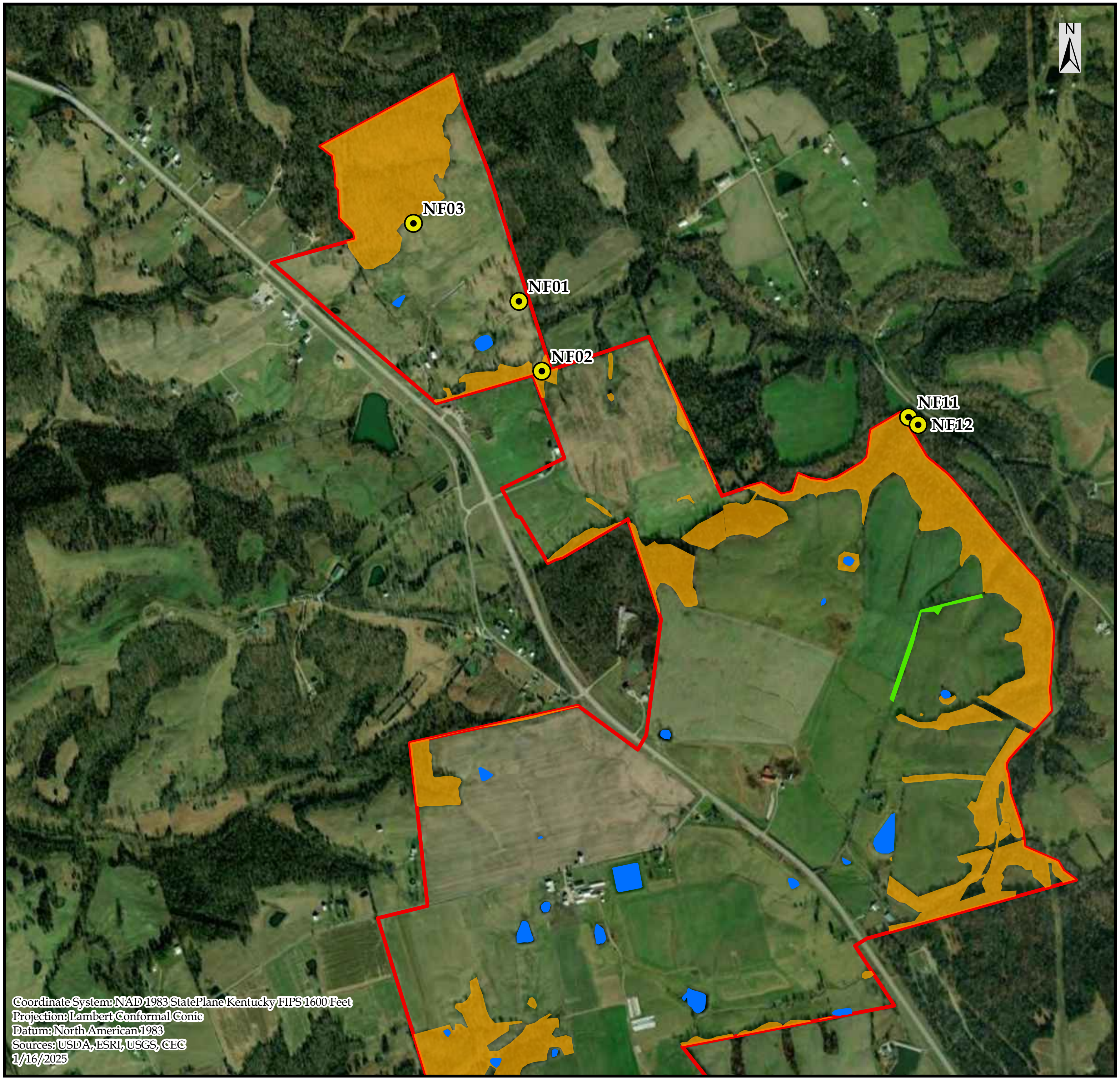
Checked by:	PS	Revision:	02





Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, CEC
1/16/2025

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APPENDIX A, FIGURE 2.2:
Suitable Bat Habitat for the
New Frontiers Solar Project,
Breckinridge County, Kentucky.

Legend

- ◉ Bat Habitat Data Point
- 🟩 Newly Confirmed Bat Habitat: Forested
- 🟦 Newly Confirmed Bat Habitat: Open Water
- 🟧 Previously Confrimed Forested Bat Habitat
- 🟥 Project Boundary

Scale: 1 in = 1,500 ft

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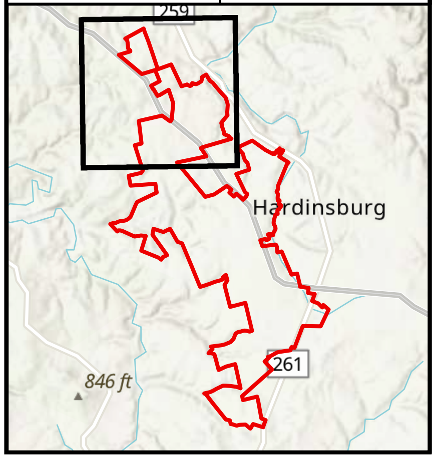

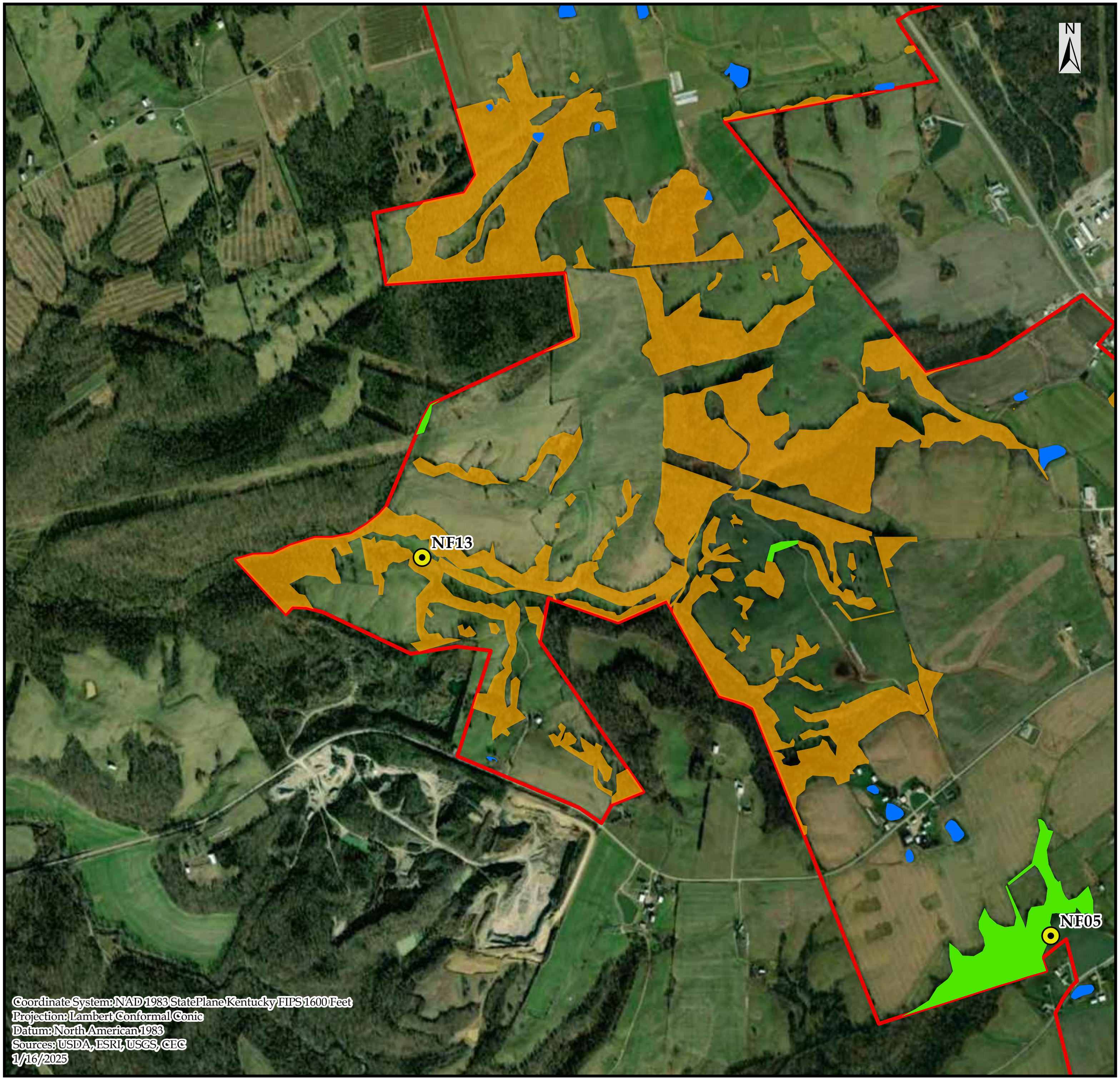

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Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, CEC
1/16/2025

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APPENDIX A, FIGURE 2.3:
Suitable Bat Habitat for the
New Frontiers Solar Project,
Breckinridge County, Kentucky.

Legend

- ● Bat Habitat Data Point
- 🟩 Newly Confirmed Bat Habitat: Forested
- 🟦 Newly Confirmed Bat Habitat: Open Water
- 🟨 Previously Confirmed Forested Bat Habitat
- 🟥 Project Boundary

0 500 1,000
US Feet

Scale: 1 in = 1,500 ft

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Paint Lick, Kentucky 40461

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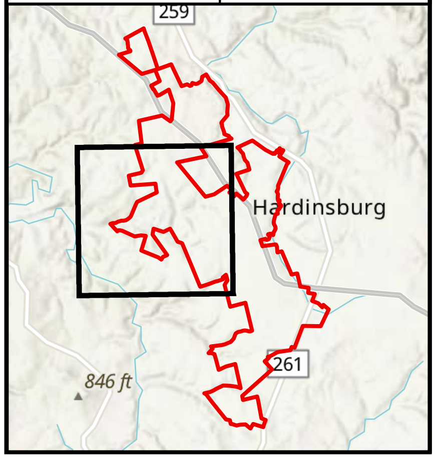

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Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, CEC
1/16/2025

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APPENDIX A, FIGURE 2.4: Suitable Bat Habitat for the New Frontiers Solar Project, Breckinridge County, Kentucky.

Legend

- ● Bat Habitat Data Point
- 🟩 Newly Confirmed Bat Habitat: Forested
- 🟦 Newly Confirmed Bat Habitat: Open Water
- 🟨 Previously Confrimed Forested Bat Habitat
- ☐ Project Boundary

0 500 1,000
US Feet

Scale: 1 in = 1,500 ft

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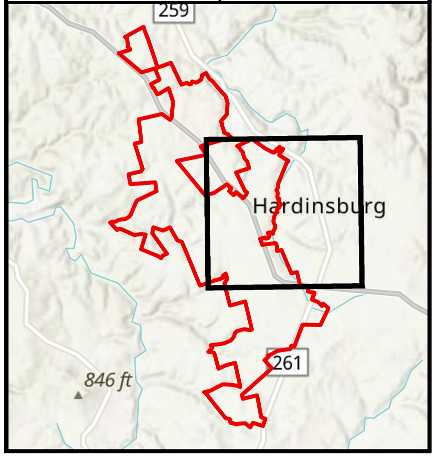

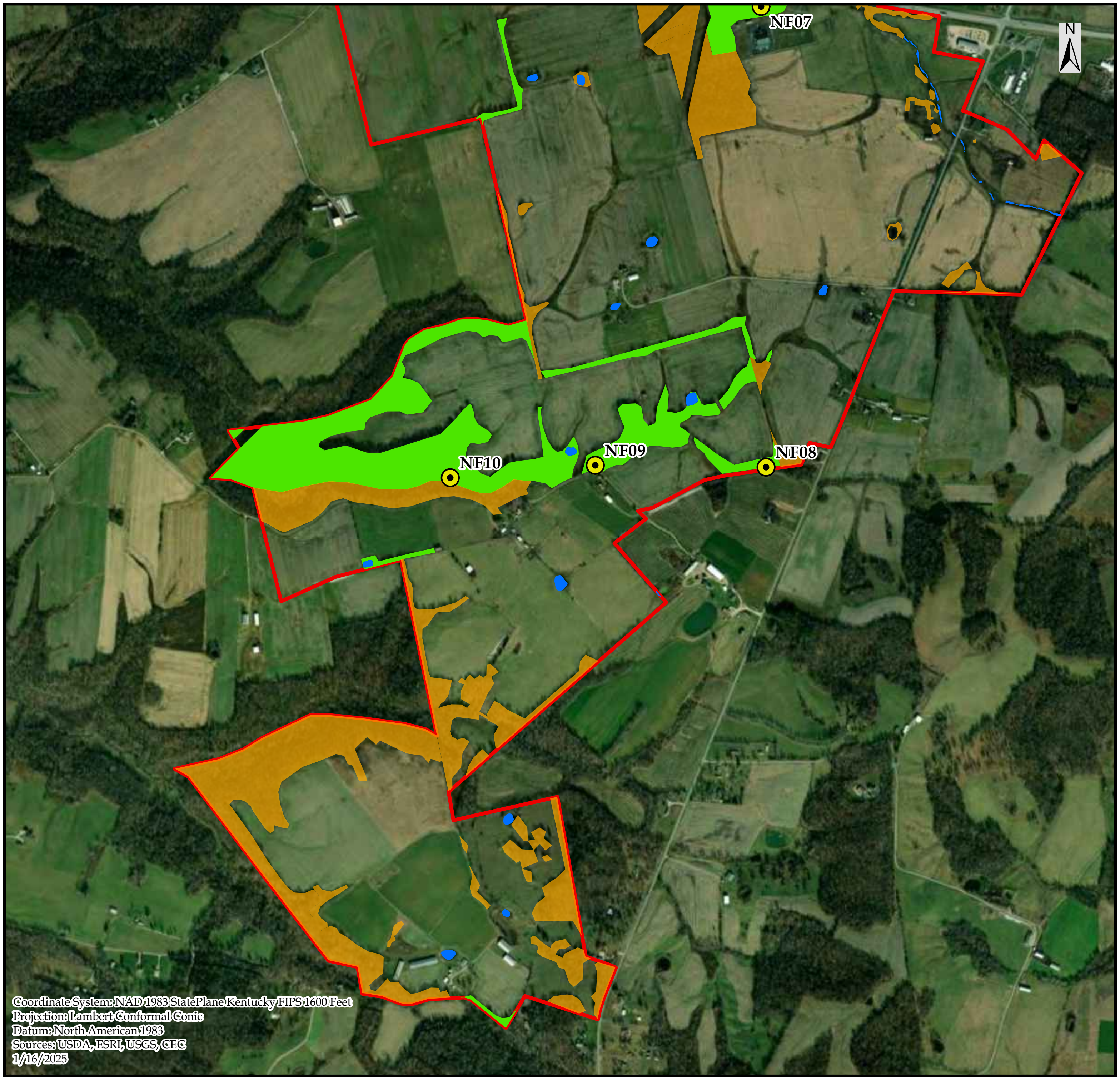

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Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, CEC
1/16/2025

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APPENDIX A, FIGURE 2.5:
Suitable Bat Habitat for the
New Frontiers Solar Project,
Breckinridge County, Kentucky.

Legend

- ◉ Bat Habitat Data Point
- 🟩 Newly Confirmed Bat Habitat: Forested
- 🟦 Newly Confirmed Bat Habitat: Open Water
- 🟨 Previously Confrimed Forested Bat Habitat
- 🟥 Project Boundary

0 500 1,000
US Feet

Scale: 1 in = 1,500 ft

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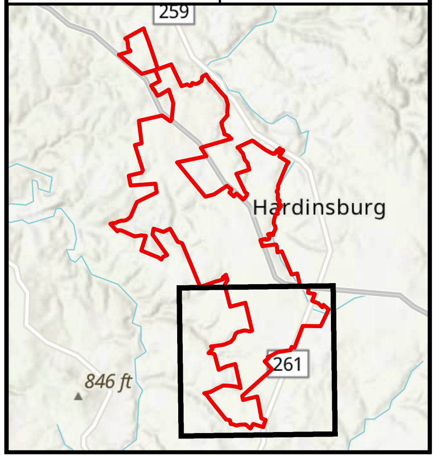

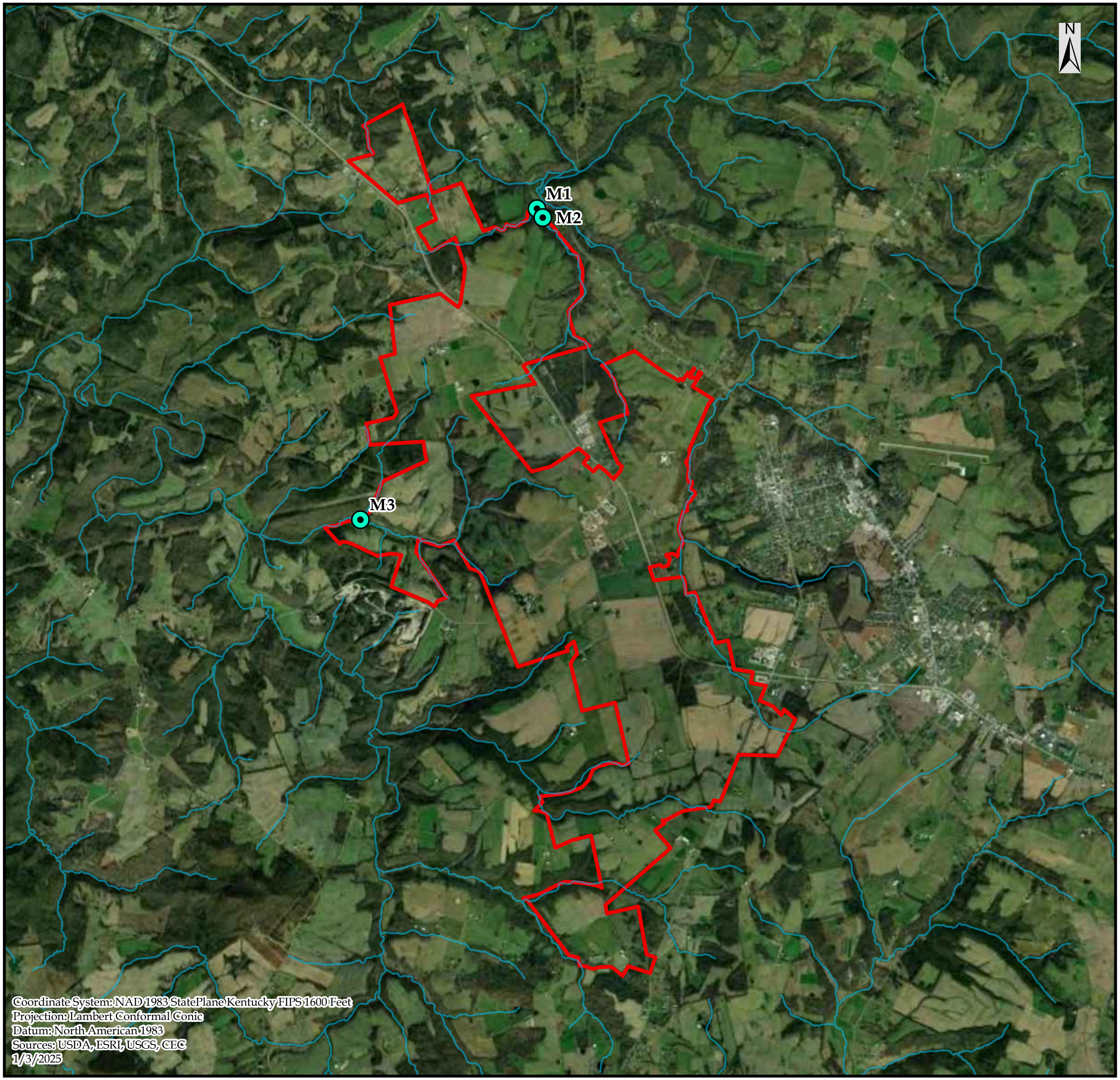

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Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, CEC
1/3/2025

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APPENDIX A, FIGURE 3:
Suitable Mussel Habitat for the
New Frontiers Solar Project,
Breckinridge County, Kentucky.

Legend

◉ Mussel Data Point
— NHD Waterway
🟥 Project Boundary

0 2,500 5,000
US Feet

Scale: 1 in = 5,000 ft

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Paint Lick, Kentucky 40461

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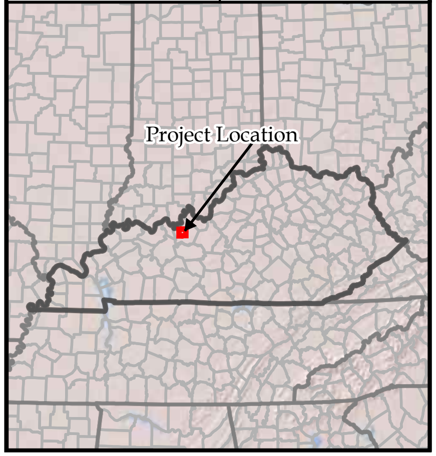

Appendix B:

State Listed Species Assessment Matrix

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
Mammals				
Rafinesque's Big-Eared Bat	*Corynorhinus rafinesquii*	S3	Summer colonies establish most often in hollow trees or buildings in wooded areas, but many utilize caves year-round in Kentucky. Winter hibernacula are typically caves or rockshelters.	Foraging habitat present. Roosting/hibernation habitat not present.
Silver-haired Bat	*Lasionycteris noctivagans*	S4S5M	Inhabits wooded or semi-wooded areas and occupies tree holes in the summer. Hibernacula have been observed in cliff crevices, hollow trees, caves, and mines.	Foraging habitat present. Roosting/hibernation habitat not present.
Long-tailed Weasel	*Mustela frenata*	S4	Uses a variety of habitats that have associated forested components.	Habitat present.
Southeastern Myotis	*Myotis austroriparius*	S3	Clusters in caves, buildings, or other protected sites like hollow trees. Nursery sites may be in buildings where caves are lacking. Larger winter clusters form to hibernate in caves. Often found in association with bottomland hardwood forests.	Marginal habitat present, though the species is unlikely in this portion of the state.
Eastern Small-footed Myotis	*Myotis leibii*	S2	Usually occurs in mountainous regions. Most commonly found in caves and mines, some bats may roost on the ground under rocks and boulders. Uses caves or mines for hibernation in winter.	Foraging habitat present. Roosting/hibernation habitat not present.
Little Brown Bat	*Myotis lucifugus*	S2	Summer maternity colonies may form in buildings and other structures, and occasionally hollow trees. Day roosts consist of nursery colonies formed by females and nursing young and individual sites of males. Night roosts are occupied by a greater number	Foraging and roosting habitat present. Hibernation habitat not present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			of bats in confined spaces. Winter hibernacula are typically caves or mines.	
Allegheny Woodrat	*Neotoma magister*	S3S4	Uses rocky cliffs, caves, and fissures or tumbled boulders on the side of mountains, some utilize buildings. Nests in fissures, behind rocks, or on a rock shelf or on the floor level of a cave. Nests may be around trees and logs, or high in trees in the event of high water.	Habitat not present.
Muskrat	*Ondatra zibethicus*	S5	Uses marshes with abundant emergent vegetation, streams, and wooded swamps. Lodges and feeding shelters are built in water with cattails or other dominant water plants. Without plants, dens are dug into stream banks below water level.	Habitat present.
Smoky Shrew	*Sorex fumeus*	S5	Although it has been collected in a variety of habitats, this species' habitat of choice is shady, damp woods with an abundance of woody debris for cover. It seldom occupies dry woods.	Habitat present.
Pygmy Shrew	*Sorex hoyi*	S4	Found in numerous habitat types in the southern Appalachians, it may have a preference for denser canopies and substrates composed of woody debris.	Habitat present.
Southeastern Shrew	*Sorex longirostris*	S4	Species has a preference for wet habitats like swamps, marshes, and proximity to streams and rivers.	Habitat present.
Southern Bog Lemming	*Synaptomys cooperi*	S4	Found in a great variety of habitats, a chief requirement of the species may be presence of succulent sedges and grasses.	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
Gray Fox	*Urocyon cinereoargenteus*	S4	Typically associated with deciduous forests in eastern North America, also found in in swamps and pine woods. Avoids farmlands. Dens may be in hollow trees/logs, burrows in the grounds on brushy hillsides instead of open fields.	Habitat present.
Birds				
Sharp-shinned Hawk	*Accipiter striatus*	S3B, S4N	This species requires large tracts of mature forest with an evergreen component for nesting habitat. Natural stands of hemlock and pine, as well as introduced pine plantings provide nesting habitat. Winter occurrence is statewide in a wider variety of forested habitats (habitat generalist).	Habitat present.
Grasshopper Sparrow	*Ammodramus savannarum*	S4B	This species occurs in grasslands that are dominated by relatively sparse or short vegetation, no scrub cover and often with some bare ground. Consequently, they are most numerous in lightly grazed pastures, restored native grasslands with lower, more sparse vegetation, hayfields, reclaimed surface mines, and to a lesser extent fallow row-crop fields where grassy vegetation is beginning to recolonize.	Habitat present.
American Black Duck	*Anas rubripes*	S4N	This species primarily uses forested wetlands, buttonbush sloughs, flooded bottomland hardwoods, and beaver ponds. It will also use shallow water wetlands and flooded fields, and loaf on larger bodies of water.	Limited stopover habitat present for transients.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
Chuck-Will's Widow	*Antrostomus carolinensis*	S4S5B	This species is found in areas with scattered tracts of forest, open woodlands, and forest edges and is usually absent in extensively forested areas. They are found more commonly in drier forests with an open mid and understory, especially in oak and hickory forests with scattered cedars or introduced pines.	Habitat present.
Whip-poor-will	*Antrostomus vociferus*	S5B	This species occurs in woodlands and forests and is most abundant in areas of unfragmented forest, though a variety of stages of succession are needed within. Forest openings, logged areas, farm fields and forest edges are used for foraging. This species nests on the ground in dry upland forest or woodland, often choosing a site near to a forest edge.	Habitat present.
Great Egret	*Ardea alba*	S2B	This species nests primarily in floodplain forests and bottomland hardwood forests but will also nest and feed in association with reservoir habitat. They forage in a wide variety of wetland habitats, including marshes, swamps, streams, rivers, ponds, lakes, impoundments, ditches, and fish-rearing ponds.	Habitat present.
Short-eared Owl	*Asio flammeus*	S1B, S2N	This species is found most often in hayfields, pastures, and reclaimed surface mines. Broad expanses of open land with low vegetation and high prey densities are required for foraging. Winter communal roost sites occur in habitat similar to foraging and are likely important.	Habitat present.
Long-eared Owl	*Asio otus*	S1B, S1S2N	This species is known to roost in evergreen trees during the day, in areas near to open habitats,	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			including grassland, hayfield, pasture and reclaimed mineland.	
Lesser Scaup	*Aythya affinis*	S4N	This species uses large lakes and rivers that remain ice-free during the winter.	Habitat not present.
Greater Scaup	*Aythya marila*	S2S3N	This species uses large lakes and rivers that remain ice-free during the winter.	Habitat not present.
Green Heron	*Butorides virescens*	S4S5B	A generalist, this species can be found in riparian zones along creeks and streams, marshes, human-made ditches, canals, ponds, lake edges, open floodplains, backwater oxbow ponds, sloughs, mudflats, and ponds in parks and neighborhoods.	Habitat present.
Henslow's Sparrow	*Centronyx henslowii*	S3B	This species nests in open habitats dominated by thick, grassy vegetation, including reclaimed surface mines, restored native grasslands, fallow fields, pastures, hayfields and other unmowed grassy habitats. The species favors areas that have not been disturbed for a year or two and have accumulated a layer of dead plant material at the base of the current year's growth	Habitat present.
Northern Harrier	*Circus hudsonius*	S1S2B, S4N	The species uses a wide variety of grassland, hayfield/pasture, reclaimed mineland, agricultural and marsh habitats during migration and winter. Nesting occurs on reclaimed mines while in the early stages of succession (grassland).	Habitat present.
Sedge Wren	*Cisothorus stellaris*	S3B	This species is found in hayfields, overgrown pastures, and fallow fields and seems to prefer moist	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			situations with an abundance of thick, herbaceous cover.	
Yellow-billed Cuckoo	*Coccyzus americanus*	S5B	This species uses deciduous forest with a well-developed midstory or early successional forest/shrubland for nesting habitat. It may use a variety of habitats during migration.	Habitat present.
Northern Bobwhite	*Colinus virginianus*	G4G5	This species uses grasslands, reclaimed surface mines, and open woodland/savannah with a well-developed herbaceous understory. Northern bobwhite can also be numerous in rural farmland that has a good supply of fencerows, brushy borders, and other patches of dense cover. Bare ground is an important habitat component, as well as shrub cover and/or woody edges.	Habitat present.
Trumpeter Swan	*Cygnus buccinator*	SNA	This species that uses shallow water wetlands with submerged vegetation as well as larger lakes, rivers, reservoirs, and ponds.	Limited stopover habitat present for transients.
Willow Flycatcher	*Empidonax traillii*	S3S4B	This species occurs in a variety of early successional habitats including patches of young trees along open stream corridors or in marshy areas, and sometimes in drier areas, such as in old fields regenerating from past agricultural use.	Habitat present.
Rusty Blackbird	*Euphagus carolinsus*	S3S4N	This winter species is usually encountered in swampy woods, stream and pond margins, feedlots, agricultural fields and a variety of other habitats, as long as puddled water is present. Rusty blackbirds are	Winter habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			more numerous in the western portion of the state, but can also be found in central and eastern Kentucky	
Peregrine Falcon	*Falco peregrinus*	S1B	Current nesting habitat includes bridges, smokestacks at powerplants, and tall buildings, as well as natural and manmade cliffs. Many nests are in nest boxes managed by the department. Migrants are observed statewide in urban areas, as well as in areas with abundant shorebirds and waterfowl.	Habitat not present.
American Kestrel	*Falco sparverius*	S5B, S5N	This species inhabits rural farmland, native grasslands and altered habitats such as suburban areas, city parks, golf courses, industrial parks, and reclaimed surface mines. This species requires cavities for nesting.	Habitat present.
Wilson's Snipe	*Gallinago delicata*	S3S4N	This species is found in marshes, swamps, wet lawns, wet agricultural fields and pastures, and marshy edges of streams and ditches.	Habitat present.
Kentucky Warbler	*Geothlypis formosa*	S5B	This species nests in forests with a moderate to dense shrub layer. The species occurs predominantly in deciduous forest, but mixed forest types with pines or hemlocks are also used. The Kentucky Warbler also occurs regularly in bottomland forests along major river floodplains	Habitat present.
Bald Eagle	*Haliaeetus leucocepahlus*	S3B, S3S4N	Forested areas, with mature trees near lakes and rivers, particularly within 2000m – 3000m of the shore are important for nesting sites. Areas near coves and source waters, where lakes are narrower and floodplains near rivers that create woody wetlands	Limited stopover habitat present for transients.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			are often used for nesting. Areas near large dams, rivers with sandbars and abundant waterfowl are important for immature bald eagles.	
Wood Thrush	*Hylocichla mustelina*	S5B	This species is found in most mesic and subxeric forest types with a well-developed shrub and midstory layer. The species also occurs in drier deciduous and mixed forests of ridges and slopes, as long as the understory is not too open. Wood Thrushes are most common in areas of extensive forest, but they tolerate slight fragmentation.	Habitat present.
Least Bittern	*Ixobrychus exilis*	S1S2B	This species uses dense, emergent marshes with patches of open water, dominated by herbaceous aquatic vegetation such as cattails, bulrushes, sedges and phragmites. Least bitterns will also use lake and pond edges with cattails and sedges for stop over habitat.	Limited stopover habitat present for transients.
Loggerhead Shrike	*Lanius ludovicianus*	S3S4B, S4N	The species prefers open land with short vegetation. Shrikes are often found in pastures with fence rows, old orchards, mowed roadsides, agricultural fields, and riparian areas. Nesting usually occurs in isolated trees or isolated large shrubs. Thorny shrubs or barbed wire are required for impaling prey.	Habitat present.
Hooded Merganser	*Lophodytes cucllatus*	S2B, S3S4N	This species nests in low numbers near shallow water sloughs and ponds of floodplain forests with cavity trees. Non-breeding birds will use a variety of wetland habitats, including reservoirs, marshes, sloughs, ponds, rivers, lakes and seasonally flooded forests.	Non-breeding habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S4B, S4N	This species is found in a great variety of habitats, but they occur most frequently in semi-open areas with some large trees. The species inhabits bottomland forests, swamps, and the margins of floodplain sloughs, rural farmland with scattered trees or small woodlots, and parkland, riparian corridors, and the margins of reservoirs. Wherever they breed, dead (or partially dead) trees for nest cavities are required	Habitat present.
Yellow-crowned Night Heron	*Nyctanassa violacea*	S2B	This species uses bottomland forests, bald cypress swamps, shallow creeks, rivers, ponds, lakes, and swamps, and occasionally on lawns, plowed fields, and other upland sites.	Habitat present.
Black-crowned Night Heron	*Nycticorax nycticorax*	S1S2B	This species uses reservoir habitat, fish hatcheries and larger lakes and rivers and occasionally shallow water wetlands. They require aquatic habitat for foraging and terrestrial vegetation for cover.	Habitat not present.
Osprey	*Pandion halietus*	S3S4B	Ospreys historically nested in trees near or over water. While some Ospreys continue to use natural nest sites, many have adapted to nesting on manmade structures.	Limited stopover habitat present for transients.
Louisiana Waterthrush	*Parkesia motacilla*	S5B	This species is usually encountered along streams, slow-moving creeks or swampy areas. The Louisiana Waterthrush may also occur in woodlands along stream drainages that are dry for most of the year. They generally do not use streams for nesting unless there is a tract of forest along at least one side.	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
Savannah Sparrow	*Passerculus sandwichensis*	S2S3B, S2S3N	This species is found most frequently during the breeding season in hayfields, pastures, and other grassy habitats where the vegetation is not especially tall or thick. In winter, the species is more numerous and found statewide in weedy, grassy areas and grain stubble fields with dense ground cover.	Habitat present.
Horned Grebe	*Podiceps auritus*	SNA	This species may appear during migration on larger bodies of water, including rivers, if large enough for landing and take-off.	Habitat not present.
Pied-billed Grebe	*Podilymbus podiceps*	S1B, S4N	This species nests in marshy, shallow water habitats with an abundance of submerged vegetation. Nesting territories are usually associated with dense stands of emergent vegetation or aquatic vegetation close to surface for nest construction, and nearby open water, for foraging. This species is a winter habitat generalist.	Winter habitat present.
Prothonotary Warbler	*Protonotaria citrea*	S5B	Nesting habitat for this species includes large bodies of standing or slow-moving water, seasonally flooded bottomland hardwood forest, bald cypress swamps, and larger rivers or lakes. Cavity sites are necessary for nesting and this species will use natural and artificial cavities.	Habitat not present.
Bank Swallow	*Riparia riparia*	S3B	This species is a colonial nester and uses natural riverbanks, gravel pits and sand pits for nest burrows. Key habitat locations are likely to include the banks of Mississippi, Ohio and other large rivers.	Habitat not present.
American Woodcock	*Scolopax minor*	S4S5B	This species nests in young, shrubby, deciduous forests, old fields, and mixed forest-agricultural-urban	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			areas. They display in forest openings and fields in the springtime and often use clearings for roosting in the summer. During the migration and the nesting season, wet native grass fields are often used.	
Cerulean Warbler	*Setophaga cerulea*	S4B	This species uses mature deciduous forests in extensively forested areas and is often associated with small canopy gaps such as along ridges, river corridors, and roads. Ice storm, tornado and other weather damage can also create suitable canopy gaps, as well as logging/thinning. Cerulean Warblers tend to use white oak, cucumber magnolia, bitternut hickory, and sugar maple for nesting and foraging, typically avoiding red oak and red maple. Grapevines provide a favored source of nest material.	Habitat present, though restricted to larger forested tracks.
Prairie Warbler	*Setophaga discolor*	S5B	This species inhabits a variety of semi-open habitats, including reverted agricultural fields and pastures, regenerating forest clear-cuts and reclaimed strip mines. This species requires an early successional component, though it can be found in mature open woodlands. Although the species can be found in deciduous vegetation, it occurs most frequently in mixed community types where pines or red cedars are present.	Habitat present.
Dickcissel	*Spiza americana*	S4S5B	Grassland, old fields, hayfields, fence rows, planted cover.	Habitat present.
Field Sparrow	*Spizella pusilla*	S5B, S5N	This species uses open habitats, such as idle agricultural fields and pastures, fencerows, road and	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			forest edges, and openings in wooded areas. Perch availability is important within grassy habitat.	
Interior Least Tern	*Sternula antillarum athalassos*	S1S2B	This species nests in colonies on open beaches or islands on large rivers. Sparse or absent vegetation is needed on islands for nesting.	Habitat not present.
Eastern Meadowlark	*Sturnella magna*	S5B, S5N	This species is found year-round in grasslands, prairies, pastures, hayfields, agricultural fields, airports, and other grassy areas. In Kentucky, this species tends to be associated with cool season grasses.	Habitat present.
Barn Owl	*Tyto alba*	S3	This species inhabits a variety of open habitats, including farmland, grassland, fallow fields, hayfields, pasture, open marshes, savannah, and to some extent, cropland. This species will nest in grain bins/silos, hunting blinds, building crevices, haylofts, chimneys, hollow trees, rock shelters, bridges and other structures.	Habitat present.
Blue-winged Warbler	*Vermivora cyanoptera*	S4S5B	This species nests in early successional habitats within a forested matrix including natural forest openings, woodland borders, overgrown fields, reclaimed strip mines, powerline right-of-ways and regenerating forest clear-cuts. This species requires plentiful small trees, shrubs, in combination with a dense, grassy herbaceous undergrowth.	Habitat present.
Bell's Vireo	*Vireo bellii*	S2S3B	Early successional forests, brushy fields, old fields. This species nests in large tracts of early successional	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			habitat dominated by deciduous shrubs and small trees.	
			Insects	
American Bumble Bee	*Bombus pensylvanicus*	S2S3	Nests on the surface of the ground among long grass and occasionally underground. Uses open field, farmland, prairie, and grassland habitat.	Habitat present.
			Fish	
Northern Cave Fish	*Amblyopsis spelaea*	S3	Endemic to the karst region of the Interior Plateau of central Kentucky. Restricted to subterranean aquatic habitats consisting of deep pools or moderately deep shoals with rock ledges and overhangs, and slack water areas with an abundance of organic matter.	Unknown. At least 2 karst features are present within the Project boundary. No habitat was visible, but extent of subterranean streams is unknown.
Blue Sucker	*Cycleptus elongatus*	S3	Inhabits main channels of medium to large rivers in strong current over sand, gravel, and cobble substrates. Often associated with wing dikes, bases of dams, and bridge abutments. Riffles or shoals are required for spawning. Adults primarily occupy deep (1-2.5 m) channels and juveniles occur in riffles at depths of less than 1 m. Larvae and small juveniles occur in shallow shorelines and off-channel backwater habitats of large rivers.	Habitat not present.
Paddlefish	*Polypodon spathula*	S4	Typically inhabits large rivers with oxbows and backwaters, but also found in backwaters and embayments of artificial reservoirs. Requires calm or slow-moving waters rich with zooplankton. Must have access to gravel bars subject to sustained flooding during spring months for spawning.	Habitat not present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
Amphibians				
Streamside Salamander	*Abystoma barbouri*	S5	Live underground in mammal burrows and may also use coarse woody debris for cover. Breeding sites include headwater streams, ditches, small ponds, vernal pools and forested wetlands.	Habitat present.
Green Salamander	*Aneides aeneus*	S3S4	Found primarily in rock cervices on acidic substrates (sandstone, shale), though occasionally found in limestone habitats. May also use loose bark, tree cavities, split trees, and deeply furrowed bark.	Habitat not present.
Northern Dusky Salamander	*Desmognathus fuscus*	S4	Uses streams, springs, seeps, and other wet areas in a variety of habitats.	Habitat present.
Midland Mud Salamander	*Pseudotriton montanus diastictus*	S3?	Adults are semiaquatic to terrestrial; some are found in caves, springs, seeps, mucky areas, dripping rock ledges, and other wet places along streams; others can be found under rocks along or near stream channels. They also live beneath logs and other debris in bottomland or upland forest well away from water; many use or live in burrows (including those of burrowing crayfish). Larvae are aquatic and occur in springs, seeps, cave streams, spring-fed creeks, and small streams.	Habitat present.
Eastern Spadefoot Toad	*Scaphiopus holbrookii*	S5	Adults are burrowers and spend much of their time underground. Habitat above the ground is variable; the main habitat requirements include a mix of well-drained loose or sandy soils for burrowing and low spots where temporary breeding ponds or pools can	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			form during periods of heavy rain. Eggs are laid in water and the tadpoles are aquatic.	
			Reptiles	
Timber Rattlesnake	*Crotalus horridus*	S5	Most common in mature upland forest; often associated with cliffs and boulder-strewn slopes. Also uses powerline cuts, old mine sites, and abandoned quarries for basking and/or birthing areas.	Habitat present.
Eastern Mud Turtle	*Kinosternon subrubrum*	S3	Occurs mostly in sloughs, ditches, ponds, along sluggish streams, and in open and forested wetlands and in nearby mesic forests.	Habitat not present.
			Crustaceans	
Appalachian Brook Crayfish	*Cambarus bartonii cavatus*	SNR	Most often associated with small headwater streams and very small spring-fed headwaters as well as creeks that go dry during the summer months.	Habitat present.
Ortmann's Mudbug	*Cambarus ortmanni*	SU	Inhabits both aquatic and semi-aquatic habitats, ponds and streams as well as ditches and wet meadows. Considered a primary and secondary burrower and can be found in pastures, hay fields, roadside ditches, and lawns with shallow water tables.	Habitat present.
Digger Crayfish	*Creaserinus fodiens*	S4S5	Primary burrower in ephemeral wetlands, wooded floodplains, and low-lying fields.	Habitat present.
Rusty Crayfish	*Faxonius rusticus*	SU	Likely a species complex in Kentucky and inhabits a wide range of lotic habitats including: streams, ponds	Habitat present.

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			and lakes including rocky, muddy, and vegetated areas.	
Crawzilla Crawdad	*Lacunicambarus chimera*	S4	Tolerant of anthropogenic alteration of habitat and is often found in ditches, hay fields, and pastures with shallow water tables.	Habitat present.
Ghost Crayfish	*Orconectes inermis inermis*	S3	Occurs in subterranean waters in cave streams. This species is often found in larger base-level pools where mud and silt substrates predominate. Prefers a rocky-gravel substrate in shallow pools where flow gradient is minimal, but freely leaves desired areas in search of food.	Unknown. At least 2 karst features are present within the Project boundary. No habitat was visible, but extent of subterranean streams is unknown.
			Mussels	
Cylindrical Papershell	*Anodontoides ferussacianus*	S3S4	Typically found in flowing waters of small to medium streams over firm sand and gravel substrates. Habitat is associated with a wide variety of host fishes.	Habitat present, though no evidence of native mussels was seen in area streams. Assumed absent.
Butterfly	*Ellipsaria lineolata*	S4S5	Typically found in flowing waters of medium to large rivers in main channels over firm sand, gravel, and mud substrates. Habitat is associated with its host fishes, skipjack herring and Alabama shad.	Habitat not present.
Elephantear	*Elliptio crassidens*	S3S4	Typically found in flowing waters of medium to large rivers in main channels over firm sand, gravel, and mud substrates. Habitat is associated with its host fish, the freshwater drum.	Habitat not present.
Pocketbook	*Lampsilis ovata*	S1	Typically found in flowing waters of medium to large rivers in main channels over firm sand and gravel	Habitat not present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
			substrates. Habitat is associated with its host fish, sauger and black basses.	
Black Sandshell	*Legumia recta*	S4	Typically found in flowing waters of small streams over firm sand and gravel substrates. Habitat is associated with its host fishes, darters.	Habitat not present.
Hickorynut	*Obovaria olivaria*	S4S5	Typically found in flowing waters of large rivers in main channels over firm sand, gravel, and mud substrates. Habitat is associated with its host fishes lake and shovelnose sturgeon.	Habitat not present.
Ohio Pigtoe	*Pleurobema cordatum*	S4	Typically found in flowing waters of medium to large rivers in main channels over firm sand and gravel substrates. Habitat is associated with its host fishes, minnows.	Habitat not present.
Pyramid Pigtoe	*Pleurobema rubrum*	S1	Typically found in flowing waters of medium to large rivers in main channels over firm sand and gravel substrates. Habitat is associated with its host fishes, minnows.	Habitat not present. Species now considered to be genetically indistinct from *Pleurobema sintoxia* and likely doesn't warrant SLS designation.
		Plants		
French's Shooting Star	*Dodecatheon frenchii*		Sandstone rockhouses and overhangs.	Habitat not present.
Wedge-leaf Whitlow-grass	*Draba cunefolis*		Dry rocky or sandy soil, cedar glades including disturbed sites	Habitat present.

APPENDIX B: STATE LISTED SPECIES ASSESSMENT MATRIX

Common Name	Scientific Name	Rank	Habitat Description	Notes on Habitat within the Project Boundary
Thread-leaf Sundrops	*Oenothera linifolia*		Rock ledges and sandy barrens (Gleason & Cronquist 1991); prairies, and dry slopes; in KY, on thin limestone soil in open fields and barrens.	Habitat present.

Source: KDFWR 2023 Kentucky Wildlife Action Plan and OKNP Rare Plants Database

Appendix C:

Photographic Record

Photo Number: 1

Description:
Rural rolling hills with isolated forested tracts common to the Project. Site NF03

Photo Number: 2

Description:
Small cave at NF01 was surveyed. The entire extent flooded to ceiling and was determined to be unsuitable for hibernation or gray bat summer roosting.

Photo Number: 3

Description:
Site NF03 shows woodlot with mixed forest tree species in agricultural landscape. Suitable foraging habitat for Indiana, northern long-eared, and tricolored bats and commuting habitat for gray bats.

Photo Number: 4

Description:
Site NF04, Mixed mature forested track with no understory in rural-residential lot. Suitable foraging habitat for Indiana, northern long-eared, and tricolored bats and commuting habitat for gray bats.

Photo Number: 5

Description:
Site NF05. Oak-hickory forest with suitable foraging and roosting habitat for Indiana, northern long-eared, and tricolored bats. Shagbark hickories and snags offered multiple suitable roosts.

Photo Number: 6

Description:
NF06. Oak-hickory forest with foraging and roosting habitat for Indiana, northern long-eared, and tricolored bats.

Photo Number: 7

Description:
Site NF07. Manacured mature oak forested track on church property offering foraging habitat for Indiana, northern long-eared, and tricolored bats and roosting habitat for tricolored bats.

Photo Number: 8

Description:
Site NF08. Young high stem density foreseted track does provide foraging habitat for bats, however habitat is of poor quality.

Photo Number: 9

Description:
Site NF09. Forested band along Bens Hole Branch provides foraging habitat for all FLS bat species as well as roosting habitat for Indiana, northern long-eared, and tricolored bats.

Photo Number: 10

Description:
Site NF10

Photo Number: 11

Description:
Site NF11. Tributary of Hardins Creek. This stream reach likely dries out during drought conditions and was not considered suitable habitat for any native freshwater mussel species.

Photo Number: 12

Description:
Site NF12. Dry tributary of Hardins Creek. Site was not suitable habitat for any native mussel species.

Photo Number: 13

Description:
Site NF13. Bear Run. This stream appeared to have sufficient flow and deeper refugia to support headwater adapted mussel spececies. This stream was not considered habitat for FLS mussel species. No evidence of any native mussel species was observed when walking the stream reach.

Photo Number: 14

Description:
Pond that could provide foraging and drinking habitat for gray bats, Indiana bats, northern long-eared bats, and tricolored bats.

Appendix D:

Information for Planning and Consulting Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0467 Fax: (502) 695-1024
Email Address: kentuckyes@fws.gov
https://www.fws.gov/office/kentucky-ecological-services

In Reply Refer To: 12/20/2024 18:43:57 UTC
Project Code: 2025-0034690
Project Name: EDP New Frontiers Habitat Assessment

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do..

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0467

PROJECT SUMMARY

Project Code:	2025-0034690
Project Name:	EDP New Frontiers Habitat Assessment
Project Type:	Power Gen - Solar
Project Description:	The project is located in Breckenridge County, KY. The project area is approximately 4,100 acres. The project scope is the construction of a solar photovoltaic power site. Timeline, 2025.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.775456500000004,-86.48947410924873,14z

Counties: Breckinridge County, Kentucky

ENDANGERED SPECIES ACT SPECIES

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The project area includes potential gray bat habitat. Species profile: https://ecos.fws.gov/ecp/species/6329 General project design guidelines: https://ipac.ecosphere.fws.gov/project/F4BMRMTBXJEDPNHWGKZET4OY3A/documents/generated/6422.pdf	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ The project area includes known 'swarming 1' habitat. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/F4BMRMTBXJEDPNHWGKZET4OY3A/documents/generated/6422.pdf	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/F4BMRMTBXJEDPNHWGKZET4OY3A/documents/generated/6422.pdf	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

CLAMS

NAME	STATUS
Longsolid *Fusconaia subrotunda* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9880	Threatened
Pink Mucket (pearlymussel) *Lampsilis abrupta* No critical habitat has been designated for this species.	Endangered

NAME	STATUS
Species profile: https://ecos.fws.gov/ecp/species/7829 General project design guidelines: https://ipac.ecosphere.fws.gov/project/F4BMRMTBXJEDPNHWGKZET4OY3A/documents/generated/5639.pdf	

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Shea Davis
Address:	471 Main Street
City:	Paint Lick
State:	KY
Zip:	40461
Email	sdavis@copperheadconsulting.com
Phone:	8599259012

Request No. 5:

Provide the executed purchase power agreement (PPA).

Response No. 5:

The Project's PPA has been submitted to the Siting Board under seal with a concurrently filed Petition for Confidential Treatment.

Responding Witnesses: Jesse Eick

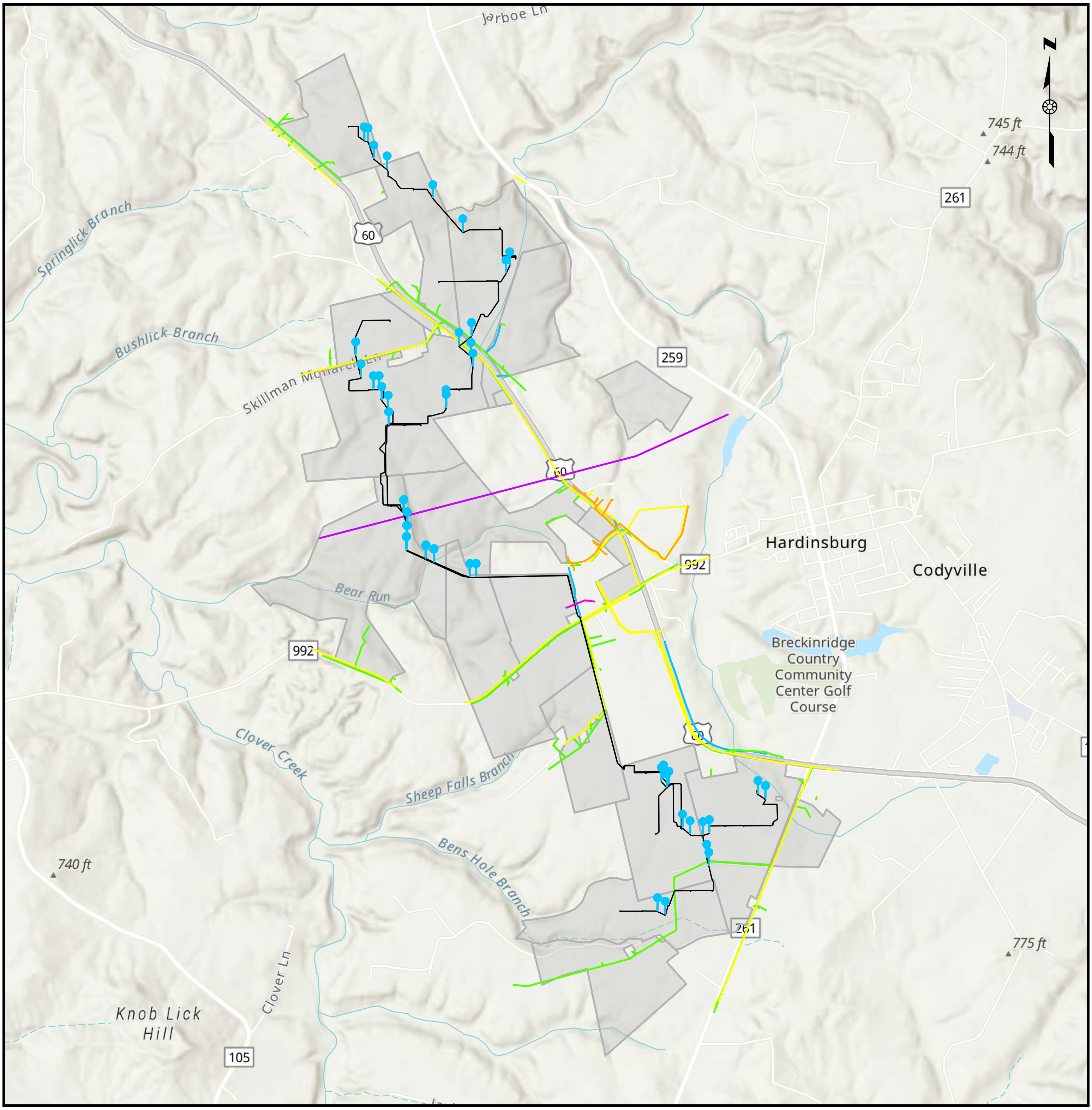
Request No. 6:

Provide a map that identifies which segments of the medium voltage collection system that are underground, which segments are above ground and the location of the transmission lines with the right-of-way distinguished.

Response No. 6:

Please see attached.

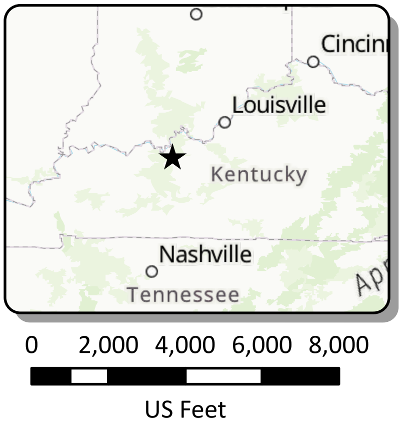
Responding Witnesses: Jesse Eick



edp Renewables

New Frontiers Collection Entities Map 1

Date: 3/27/2025



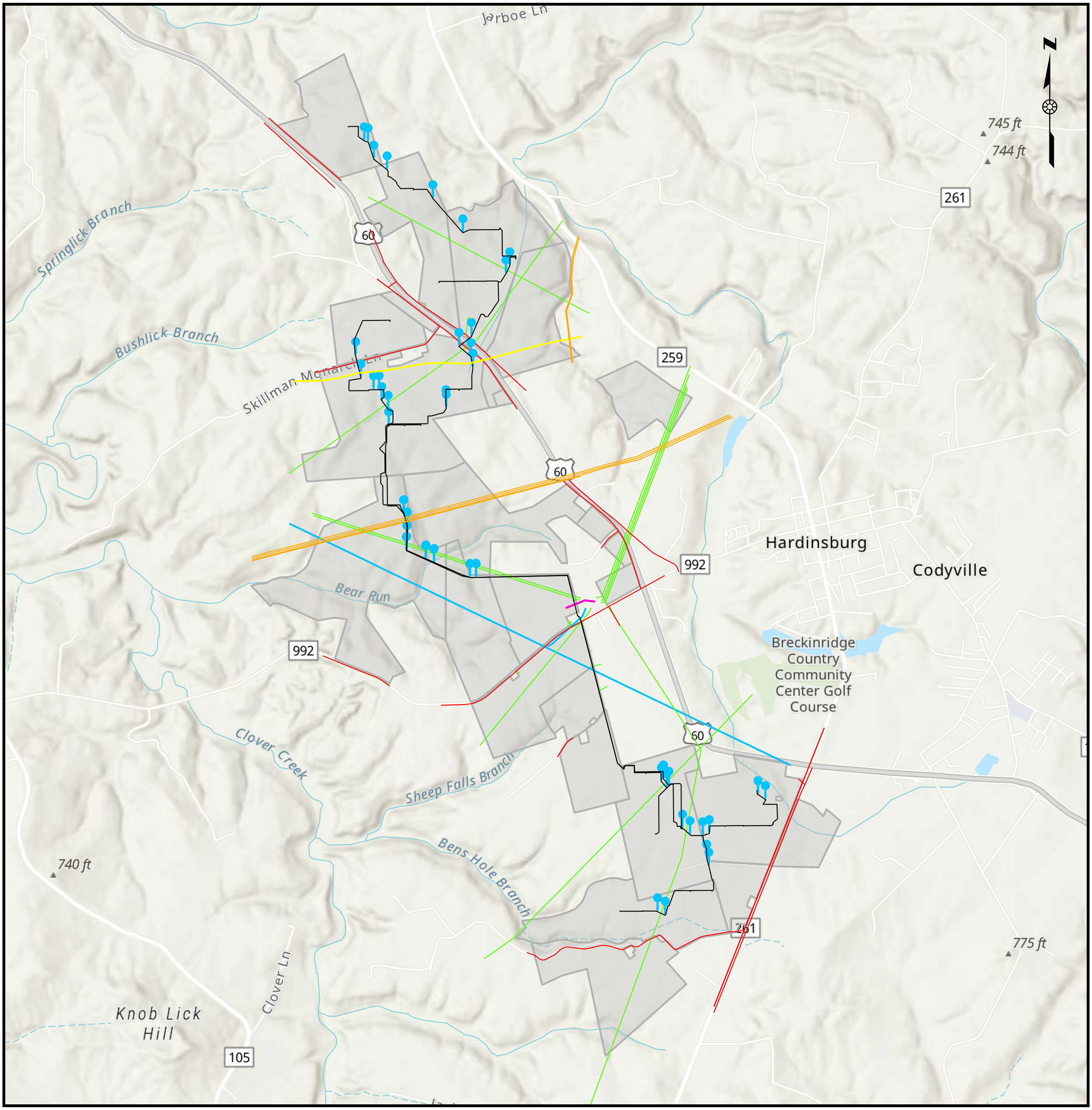
▨ Project Boundary

Above Ground

- Project Junction Box
- Project Generator Lead Line

Below Ground

- Atmos Energy
- Bradenburg Telephone
- City of Hardinsburg Water Line
- Meade County Coop
- Williams Communications Inc
- Project Medium Voltage Cable



edp
Renewables

New Frontiers Collection Entities Map 2

Date: 3/27/2025

0 2,000 4,000 6,000 8,000

Feet

- ▭ Project Boundary

Above Ground

- ● Project Junction Box
- — Kentucky Utilities
- — Big Rivers Corp
- — AT&T
- — Project Generator Lead Line

Below Ground

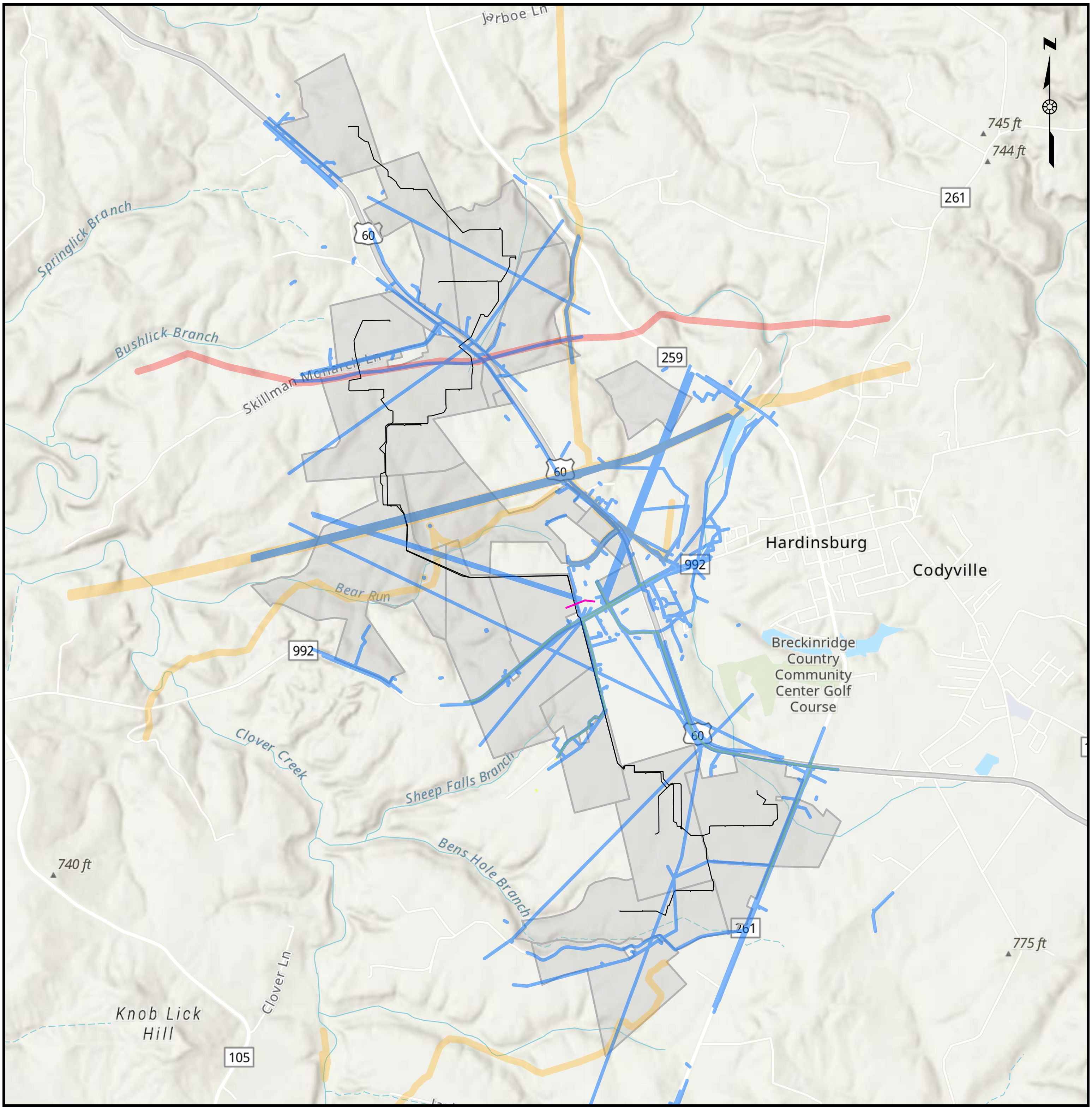
- — Texas Gas
- — Marathon

Above Ground

- — Project Generator Lead Line

Below Ground

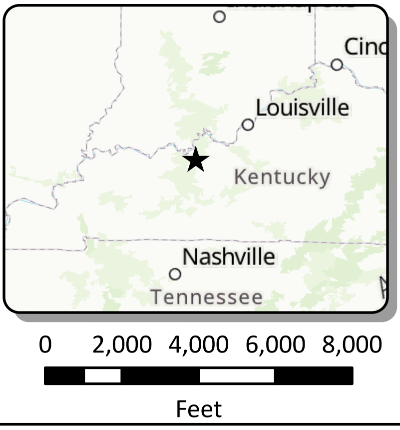
- — Project Medium Voltage Cable



edp Renewables

New Frontiers ROW Map

Date: 3/27/2025



▭ Project Boundary

Above Ground

🟦 Existing Utility Electric Line

— Project Generator Lead Line

Below Ground

🟥 Oil Pipeline

🟧 Gas Pipeline

🟨 Water Pipeline

— Project Medium Voltage Cable

<u>Request No. 7</u>:

Describe the location of the gas wells below ground and include whether the gas wells are within the footprint of the project. Confirm whether the following gas wells, individually, are abandoned or producing.

a. 3004218

b. 127872

c. 129536

d. 129537

e. 144736

f. 145089

<u>Response No. 7</u>:

a. Record 3004218 is located at coordinates 37.759173, -86.472266 on the Russell Hook farm, with a depth of 384 feet. It is located outside the Project fence making it easily accessible, has a vertical direction, is not plugged, and was dry and abandoned as of December 1954.

b. Record 127872 is located at coordinates 37.78122, -86.499945 on the Lee Burke farm, with a depth of 3,878 feet. It is located outside the Project fence making it easily accessible, has a horizontal direction, and is not plugged. This well was producing gas in 2021, and its oil was shut in (i.e., not producing) as of 2022.

c. Record 129536 is located at coordinates 37.746384, -86.47614 on the James Miller farm, with a depth of 1,657 feet. It is located outside the Project fence making it easily accessible, has a vertical direction, and is not plugged. This well was producing gas in 2021, and its oil was shut in as of December 2022.

d. Record 129537 is located at coordinates 37.771575, -86.478296 on the Keenan O'Connell farm, with a depth of 1,640 feet. It is located outside the Project fence making it easily accessible, has a vertical direction, is not plugged, was producing gas in 2021, and its oil was shut in as of December 2022.

e. Record 144736 is located at coordinates 37.75537, -86.475222 on the Brian and Laura Frank farm, with a depth of 1,499 feet. It is located outside the Project fence making it easily accessible, has a vertical direction, is not plugged, and has a shut in status as of July 2014.

f. Record 145089 is located at coordinates 37.75769, -86.476353 on the Brian and Laura Frank farm, with a depth of 1,499 feet. It is located outside the Project fence making it easily accessible, has a vertical direction, is not plugged, and has a shut in status as of November 2014.

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<u>Responding Witnesses</u>: Jesse Eick

Request No. 8:

Provide a table with the distances from the nearest non-participating residence (dwelling not property line) to the following:

a. Fencing.

b. Closest solar panel.

c. Closest inverter.

d. Substation.

Response No. 8:

a. 424 feet.

b. 464 feet.

c. 861 feet.

d. 638 feet.

Responding Witnesses: Jonathan Hess

Request No. 9:

Refer to the motion for deviation from the setback requirements. For the closest residence (dwelling not property line) in each neighborhood, provide a table with the distance to the following:

a. Fencing.

b. Closest solar panel.

c. Closest inverter.

d. Substation.

Response No. 9:

a. Lake Ridge neighborhood: 1,044 feet; Quail Run Lane neighborhood: 2,646 feet.

b. Lake Ridge neighborhood: 1,122 feet; Quail Run Lane neighborhood: 3,218 feet.

c. Lake Ridge neighborhood: 1,779 feet; Quail Run Lane neighborhood: 3,685 feet.

d. Lake Ridge neighborhood: 7,216 feet; Quail Run Lane neighborhood: 1,052 feet.

Responding Witnesses: Jonathan Hess