GEOTECHNICAL DATA REPORT, SUPPLEMENT FOR HILLSIDE AREA

I-405, Brickyard to SR 527 Improvement Project

XL5446, I-405, MP 21.4 – 27.1

Washington State Department of Transportation
Multimodal Development & Delivery
Construction Division
Geotechnical Office
1655 2nd Avenue SW
Tumwater, WA 98512-6951

January 15, 2023

This Geotechnical Data Report, Supplement for Hillside Area (GDR Supplement) is issued as part of the Request for Proposals (RFP) for the subject project. The GDR Supplement has been prepared to provide geotechnical data for use by the Design-Builder as described in Chapter 1 of the RFP. It should not be used, in part or in whole, for other purposes, without contacting the WSDOT Geotechnical Office for a review of the applicability of such reuse.

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Contents

FIGURES

APPENDICES

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

This Geotechnical Data Report, Supplement for Hillside Area (GDR Supplement) is issued as part of the Request for Proposals (RFP) for the design and construction of the I-405, Brickyard to SR 527 Improvement Project (Project) in Bothell, Washington, on Interstate 405 (I-405). This GDR Supplement covers only boreholes and CPTs advanced in fall 2022 in the Hillside Baseline Area I-405, approximate MP 23.1 to MP 23.59 south of the I 405 / SR-522 interchange (Figure 1).

Note that only data for the following boreholes and CPTs is provided in this GDR Supplement:

Explorations	Identification
Borings	
	NE-101vw-22
	NE-102vw-22
	NE-103vw-22
	NE-104vw-22
CPTs	
	NE-201cp-22
	NE-202cp-22
	NE-203cp-22
	NE-204cp-22
	NE-205cp-22
	NE-206cp-22

This GDR Supplement shall be read with the GBR (RFP Appendix G1) and the GDR (RFP Appendix G2). This GDR Supplement is subject to all requirements and limitations in the GDR Appendix G2.

1.2 REFERENCE DOCUMENTS

There are additional publications that are issued as reference documents to the Contract from past or nearby construction projects. **Reference documents in the RFP are provided for information only and are not Contract documents.**

2 GDR SUPPLEMENT FOR HILLSIDE AREA - FIELD EXPLORATIONS

The geotechnical investigations included in this GDR Supplement were planned, coordinated, and managed by WSDOT and by outside private firms. This work included subsurface borings, vibrating wire piezometers, Cone Penetration Testing (CPTs), and groundwater monitoring.

The subsurface investigation for this Project was conducted for the purpose of providing the data needed for the Design-Builder to develop an informed cost proposal for the Work. The Design-Builder must be aware that the explorations contained in this GDR Supplement are not sufficient to comply with the WSDOT Geotechnical Design Manual (GDM) for the Project. The Design-Builder will need to perform additional explorations for Contract compliance.

2.1 BORINGS

Four (4) GDR Supplement borings were completed for the Project to collect focused subsurface information.

The locations of the Project borings, associated instrumentation, and CPT locations were surveyed by WSDOT crews. The boring datum is indicated on the boring logs. Figure 2, sheets 6 and 18, show the locations of the Project explorations that are considered Contract data as identified by the baseline criteria described in the GBR. The boring logs also provide latitude and longitude; the latitude and longitude shall not be used for Contractual location of borings.

The Project borings were continuously monitored, logs of subsurface conditions were maintained, and representative samples were collected. The soil samples collected were visually classified per the GDM based on modified procedures outlined in ASTM D-2488. Logs for the explorations including, a key for symbols and further description of the field exploration, are in Appendix A-1.

2.2 CPTS

Six (6) CPTs were completed by ConeTec crews using either a C20 (30 Ton Rig Cylinder) or a C23 (25 Ton Rig Cylinder). The CPT logs were completed showing tip resistance and friction ratio by depth and interpreted soil classifications and strengths. Seismic cone penetration tests and dissipation were also performed

Logs for the CPTs are in Appendix A-2.

3 GEOTECHNICAL LABORATORY TESTS

Soil index testing was conducted for the Project for the purpose of classifying soils according to the Unified Soil Classification System and for development of index properties. Soil index testing for this geotechnical investigation consisted of Atterberg limits, moisture content testing, and gradation testing.

Other laboratory testing was conducted to characterize strength, consolidation, and other properties of Project soils.

Most index testing and some special tests were performed at the WSDOT Materials Laboratory in Tumwater, Washington. Some index tests and special tests were

performed at Haley & Aldrich's soils laboratory in Seattle, Washington. All tests were completed in accordance with the following test methods:

Laboratory Test	Test Method
Atterberg Limits	AASHTO[1] T89/90
Moisture Content	AASHTO T265
Gradation	AASHTO T11/27
1-D Consolidation	AASHTO T216 D4186
Triaxial Tests	D4767-11 (2020)
Direct Simple Shear	ASTM[2] D6528-07

[1] AASHTO - American Association of State Highway and Transportation Officials
[2] American Society for Testing and Materials

The laboratory test results are provided in Appendix B.

4 GROUNDWATER INFORMATION

Vibrating wire piezometers (VWPs) were installed in four (4) of the GDR Supplement borings. VWP designs are shown on the right side of each test boring log in Appendix A.

Groundwater monitoring consisted of manual periodic measurements of groundwater elevations in piezometers and data acquisition from automated pressure transducer data loggers. Groundwater measurements for the GDR Supplement VWPs have been compiled and are presented in Appendix C.

5 LIMITATIONS

This GDR Supplement has been prepared for the exclusive use of the Project team for specific application to the Project. The data contained herein is based on site conditions as they existed at the time of the field explorations. Within the limitations of the scope, schedule, and budget, the data presented in this report was collected and presented in accordance with generally accepted professional geotechnical practice in this area at the time this report was prepared. No other warranty, expressed or implied, is made.

This report was completed to provide prospective design-build bidders with geotechnical information. No design recommendations or interpretive information is provided herein.

The exploration program completed to date is not sufficient for final design. The design team will need to augment the geotechnical information in this report to support Project design and construction.

This report provides the geotechnical data obtained at certain exploration locations and is not a warranty of subsurface conditions across the Project area.

The GDR does not include environmental site assessments or evaluations regarding the presence or absence of hazardous or toxic materials in the soil, cultural resources, surface water, groundwater, or air, on or below the site, or for evaluation or disposal of contaminated soils or groundwater, should any be encountered.

6 REFERENCES

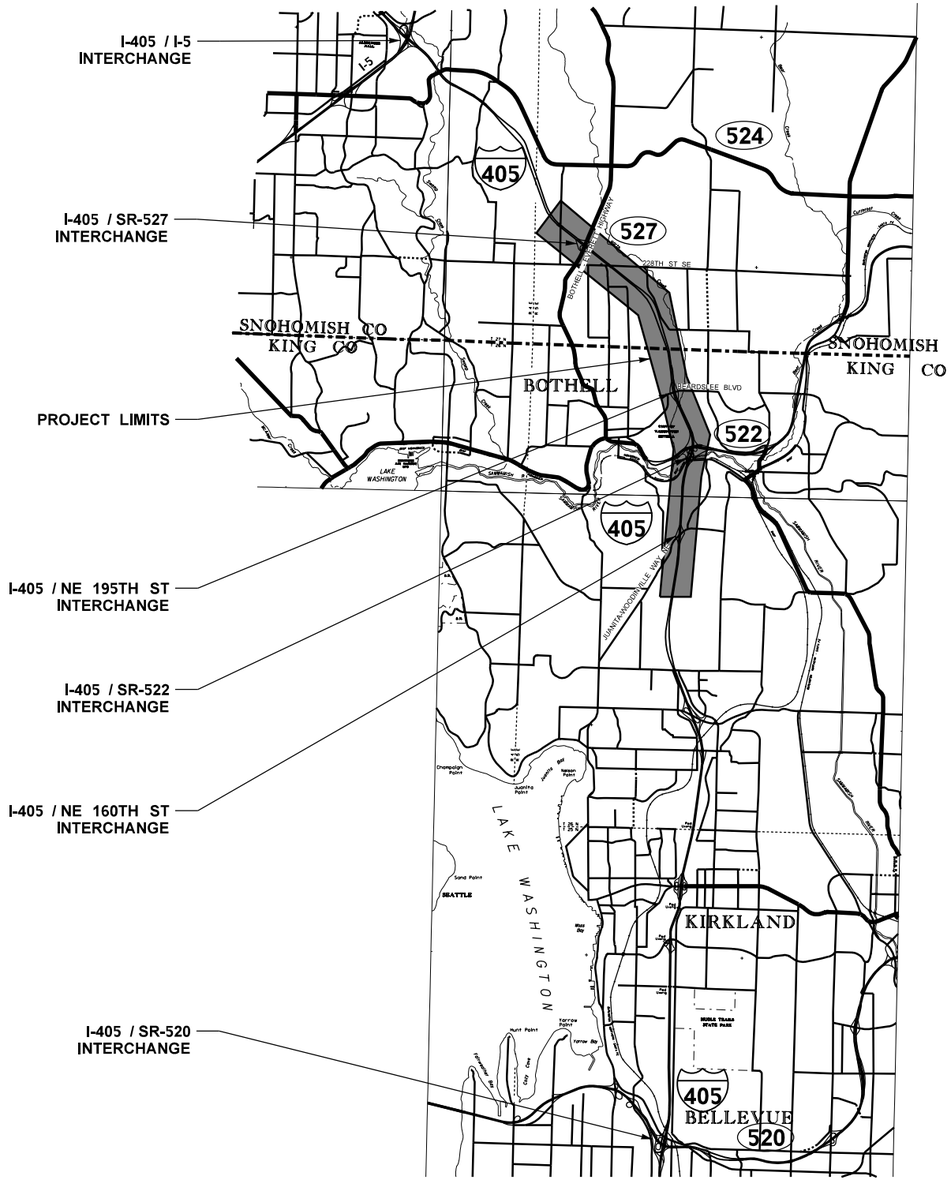
American Association of State Highway and Transportation Officials, 2020, AASHTO Guide Specifications for LRFD Seismic Bridge Design 2nd Edition, American Association of State Highway and Transportation Officials, Washington, DC.

Washington State Department of Transportation, 2022, Geotechnical Design Manual. Publication M 46-03.16. Washington State Dept. of Transportation, Olympia, WA.

Washington State Department of Transportation, 2022, Standard Specifications for Road, Bridge, and Municipal Construction. Publication M 41-10. Washington State Dept. of Transportation, Olympia, WA.

FIGURES

I-405
BRICKYARD TO SR 527 IMPROVEMENT PROJECT



PROJECT LOCATION MAP
NTS

Washington State Department of Transportation

I-405
SR 522 VICINITY TO SR 527 EXPRESS TOLL LANES IMPROVEMENT PROJECT

FIGURE 1: VICINITY MAP

SHEET 1 OF 1 SHEETS

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I-405 & 522 I/C

MATCH LINE SEE SHEET 14

NORTH CREEK

SAMMAMISH RIVER

EAST RIVERSIDE DR

NE WOODINVILE DR

SR 522

NE-28p-19 XL5446

NE-68-20 XL5446

FOR DETAIL, SEE SHEET 18

MATCH LINE - SEE SHEET 5

MATCH LINE - SEE SHEET 7

23.32L

23.35

MP 23.40

MP 23.45

MP 23.50

MP 23.55

MP 23.60

MP 23.65

MP 23.70

MP 23.75

MP 23.80

MP 23.85

23.20R

23.28R

23.53R

23.55R

23.56R

23.57R

23.64R

23.74R

23.73R

23.72R

23.80R

23.63R

SB I-405

NB I-405

NE-15p-19 XL5446

NE-16p-19 XL5446

NE-14p-19 XL5446

NE-13p-19 XL5446

NE-17p-19 XL5446

NE-12p-19 XL5446

NE-11-19 XL5446

NE-101VW-22

NE-201cp-22

NE-103VW-22

NE-203cp-22

NE-202cp-22

NE-102VW-22

NE-104VW-22

NE-204cp-22

NE-205cp-22

NE-206cp-22

NE-09si-19 XL5446

NE-10p-19 XL5446

NE-20vw-19 XL5446

NE-19p-19 XL5446

NE-18p-19 XL5446

NE-21p-19 XL5446

NE-29-19 XL5446

NE-31p-19 XL5446

NE-30vw-19 XL5446

BUILDING HAS BEEN DEMOLISHED

WOODCREST DR NE

WOODINVILLE DRIVE

MATCH LINE - SEE SHEET 15

LEGEND

- LIMITED ACCESS & EXISTING ROW
- PROPOSED RIGHT OF WAY
- NEW RETAINING WALL (FILL)
- NEW RETAINING WALL (CUT)
- NEW NOISE WALL
- DETENTION POND
- FISH PASSAGE AND DRAINAGE STRUCTURES
- NEW BRIDGE
- CONTRACT PROJECT BOREHOLE
- CONTRACT CPT

0 100 200
SCALE IN FEET

c:\users\bungerk\pw_wsdotd0529705\XL5446_PS_GDR_006_Rev1.dgn

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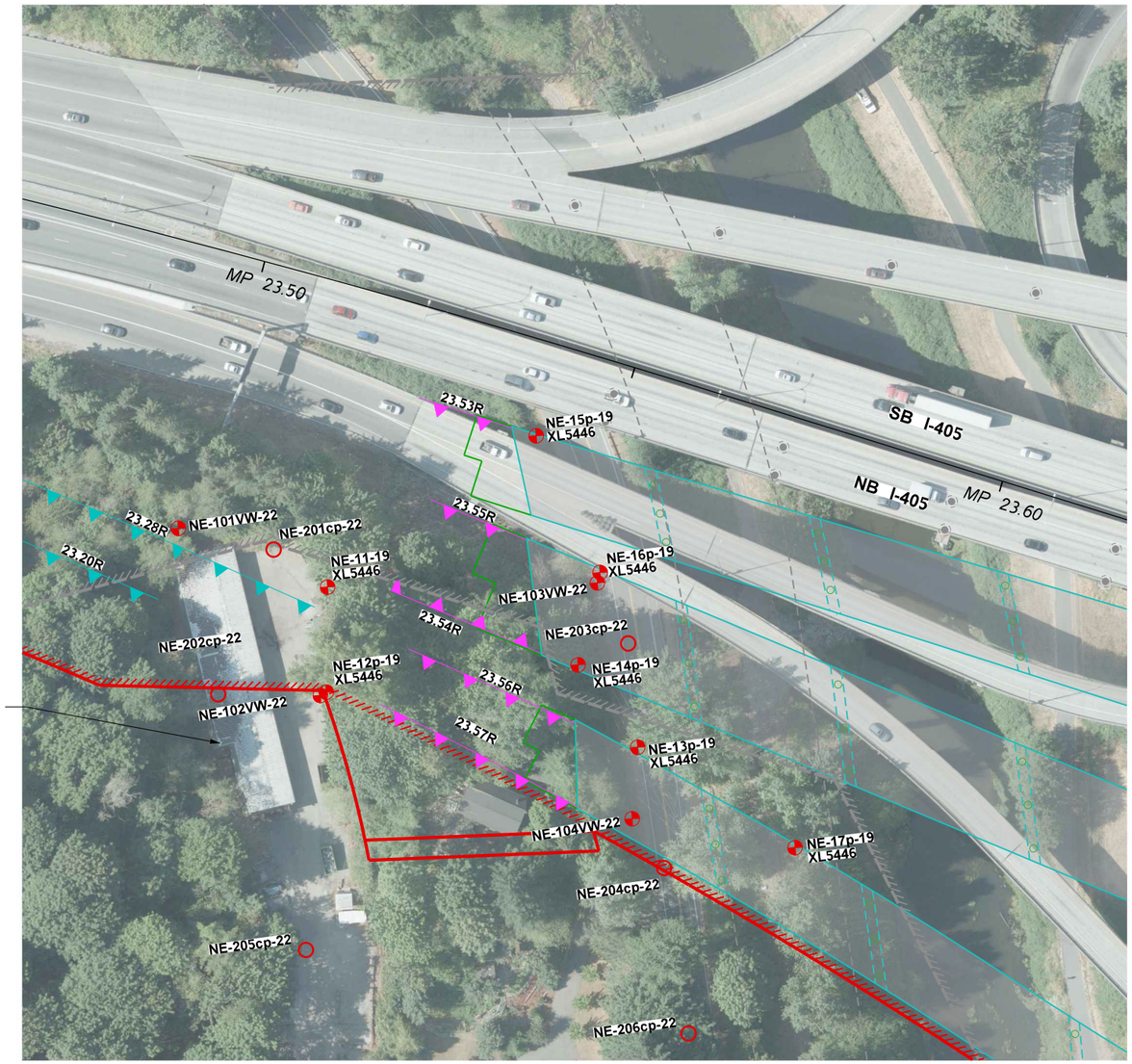
I-405
SR 522 VICINITY TO SR 527 EXPRESS
TOLL LANES IMPROVEMENT PROJECT

FIGURE 2: SITE AND EXPLORATION PLAN

SHEET 6 OF 18 SHEETS



LEGEND

- LIMITED ACCESS & EXISTING ROW
- PROPOSED RIGHT OF WAY
- NEW RETAINING WALL (FILL)
- NEW RETAINING WALL (CUT)
- NEW NOISE WALL
- DETENTION POND
- FISH PASSAGE AND DRAINAGE STRUCTURES
- NEW BRIDGE
- CONTRACT PROJECT BOREHOLE
- CONTRACT CPT

0 50 100
SCALE IN FEET

Washington State Department of Transportation

I-405
SR 522 VICINITY TO SR 527 EXPRESS
TOLL LANES IMPROVEMENT PROJECT

FIGURE 2: SITE AND EXPLORATION PLAN

SHEET 18 OF 18 SHEETS

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APPENDIX A-1 – GDR SUPPLEMENT – BORING LOGS

Field Exploration Summary

Drilling Methods

The drill rigs used by the WSDOT Geotechnical Office are manufactured by Central Mine Equipment (CME) Company. Track mounted and skid type drills are often used on WSDOT's projects. The boring logs indicate what model of drill was used and the drilling method. Typically, wet rotary methods are used with water acting to remove cuttings, lubricate, and cool the bits. Depending on the soils encountered, polymer or bentonite slurry is used to control caving and heave. In addition to wet rotary methods, hollow stem augers may be used.

Disturbed Sampling of Soil

Disturbed samples are generally taken at 2 1/2- to 5-foot intervals in the borings to evaluate stratigraphy by visual examination and to obtain soil specimens for laboratory index testing. Disturbed samples are collected using split-barrel samplers following AASHTO T206 and ASTM D 1586 procedures for Standard Penetration Testing (SPT) of soil. The drill rigs used on this Project were equipped with CME automatic hammers with a chain mounted "dog" that lifts and repeatedly drops the 140-pound hammer from a height of 30 inches during SPT testing. SPT tests were generally driven 18 inches in three successive 6-inch long increments. The initial 6-inch increment is considered a seating drive and is typically ignored. The blows required for the second and third 6-inch increments are totaled to provide blows/foot. This total is referred to as the SPT resistance or "N-value". The blow counts recorded in the field are summarized on the boring logs for the Project and have not been corrected for overburden pressure, flexure of the rods, or silt content. Where the soils are very dense, the testing is terminated when the blows for a 6-inch increment exceed 50 blows per foot to avoid damaging the equipment. In this case, the blows are reported as 50 over the distance driven in 50 blows, such as 50/4 inches.

Undisturbed Sampling of Soil

Undisturbed soil samples are taken for performing laboratory strength and consolidation testing on generally cohesive soils. Thin-walled, 3-inch, Shelby tubes are preferred for obtaining relatively undisturbed samples of the soils. For the direct-push sampling method using a Shelby tube, the steel thin-walled tube is connected to a sampling head that is attached to the drill rods. The tube is pushed by the hydraulic rams of the drill rig into the soil below the bottom of a drill hole and then retracted to obtain a sample.

Similar to Shelby tubes, piston samplers were pushed into the undisturbed soil at the bottoms of boreholes hydraulically. The piston sampler uses a stationary piston at the top of the soil to be sampled, creating suction while the sampler is retrieved and achieving increased sample retention compared to a Shelby tube.

However, if the soils are too stiff, an oversized sampler may be used. The sampler is pushed, but may be driven, to retrieve the sample. The boring logs indicate the sampler type used.

WSDOT

EXPLORATION LOG LEGEND

In Situ Sample and Test Symbols

	Standard Penetration Test
	Non-standard Penetration Test
	Shelby Tube
P	Piston Sampler
	WSDOT Undisturbed Sampler
	Core Sample
G	Grab Sample
	California Sampler
	Vane Shear Test
P	Pressuremeter Test

Backfill and Instrument Symbols

	Cement Surface Seal
	Bentonite Chips
	Bentonite Cement Grout (BCM)
	Sand Filter Pack
	Slough (Hole Collapse)
	Pipe (Piezometer or Instrument) in BCM
	Well Screen in Sand Filter Pack
	Vibrating Wire Piezometer in BCM

Water Level Symbols

▽	Water Level During Drilling	→	Transducer Depth
	Water Range in Piezometer	DRY	Water is Below Transducer

Laboratory Testing Codes

AL	Atterberg Limits Test
CD	Consolidated Drained Triaxial Test
CN	1-Dimensional Consolidation Test
CSS	Cyclic Simple Shear Test
CU	Consolidated Undrained Triaxial Test
DG	Degradation Test
DN	Density Test
DS	Direct Shear Test
DSS	Direct Simple Shear Test
GS	Grain Size Distribution Test
HC	Hydraulic Conductivity Test
HT	Hydrometer Test
JS	Jar Slake Test
LA	LA Abrasion Test
LOI	Loss on Ignition Test
MC	Moisture Content Test
PH	pH Test
PT	Point Load Compressive Test
RES	Resistivity Test
RS	Torsional Ring Shear Test
SG	Specific Gravity Test
SL	Slake Durability Test
UC	Unconfined Compression Test
UU	Unconlidated Undrained Triaxal Test

Soil Stratigraphy Symbols

COARSE GRAINED	FINE GRAINED & ORGANIC
GW: Well-graded Gravel	CL: Lean Clay
GP: Poorly graded Gravel	ML: Silt
GM: Silty Gravel	CH: Fat Clay
GC: Clayey Gravel	MH: Elastic Silt
SW: Well-graded Sand	OL: Organic Silt
SP: Poorly graded Sand	OH: Organic Clay
SM: Silty Sand	CL-ML: Silty Clay (dual symbol)
SC: Clayey Sand	PT: Peat or Highly Organic Soil

Soil classification is per Chapter 4.2 of the WSDOT Geotechnical Design Manual (GDM). The soil groups above contain less than 15% of other constituents. When more than 15% other constituents are observed, the soil group names are modified (e.g. Silty Gravel with Sand; Sandy, Elastic Silt with Gravel) per ASTM 2488. For dual classifications, a split symbol is used (e.g. CL-ML above). Refer to the Material Description column on the log for a complete description of the observed soil conditions.

Soil Density/Consistency

WSDOT GDM 4.2.5

COHESIONLESS SOILS		COHESIVE SOILS	
Blows/Ft	Density Term	Blows/Ft	Consistency Term
< 5	Very Loose	< 2	Very Soft
5 - 10	Loose	2 - 4	Soft
11 - 24	Medium Dense	5 - 8	Medium Stiff
25 - 50	Dense	9 - 15	Stiff
> 50	Very Dense	16 - 30	Very Stiff
		31 - 60	Hard
		> 60	Very Hard

(REF) is indicated on the log for any soil type when the penetration resistance exceeded 100 blows per foot (refusal conditions).

Soil Angularity

WSDOT GDM 4.2.4

Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges

Soil Moisture

WSDOT GDM 4.2.7

Dry	Absence of moisture, dusty, dry to touch
Moist	Damp but no visible water
Wet	Visible Free Water

Soil Structure

WSDOT GDM 4.2.8

Stratified	Alternating layers of varying material or color with layers at least 0.25 inch thick
Laminated	Alternating layers of varying material or color with layers less than 0.25 inch thick
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into smaller angular lumps which resists further breakdown
Disrupted	Soil structure is broken and mixed. Infers that material has moved substantially - landslide debris
Homogeneous	Same color and appearance throughout
Cemented	Particles are held together by a binding agent

DATUM ABBREVIATIONS: NAD = North American Datum; NAVD = North American Vertical Datum; SPN = State Plane North; SPS = State Plane South

WSDOT

LOG OF BORING NE-101VW-22

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

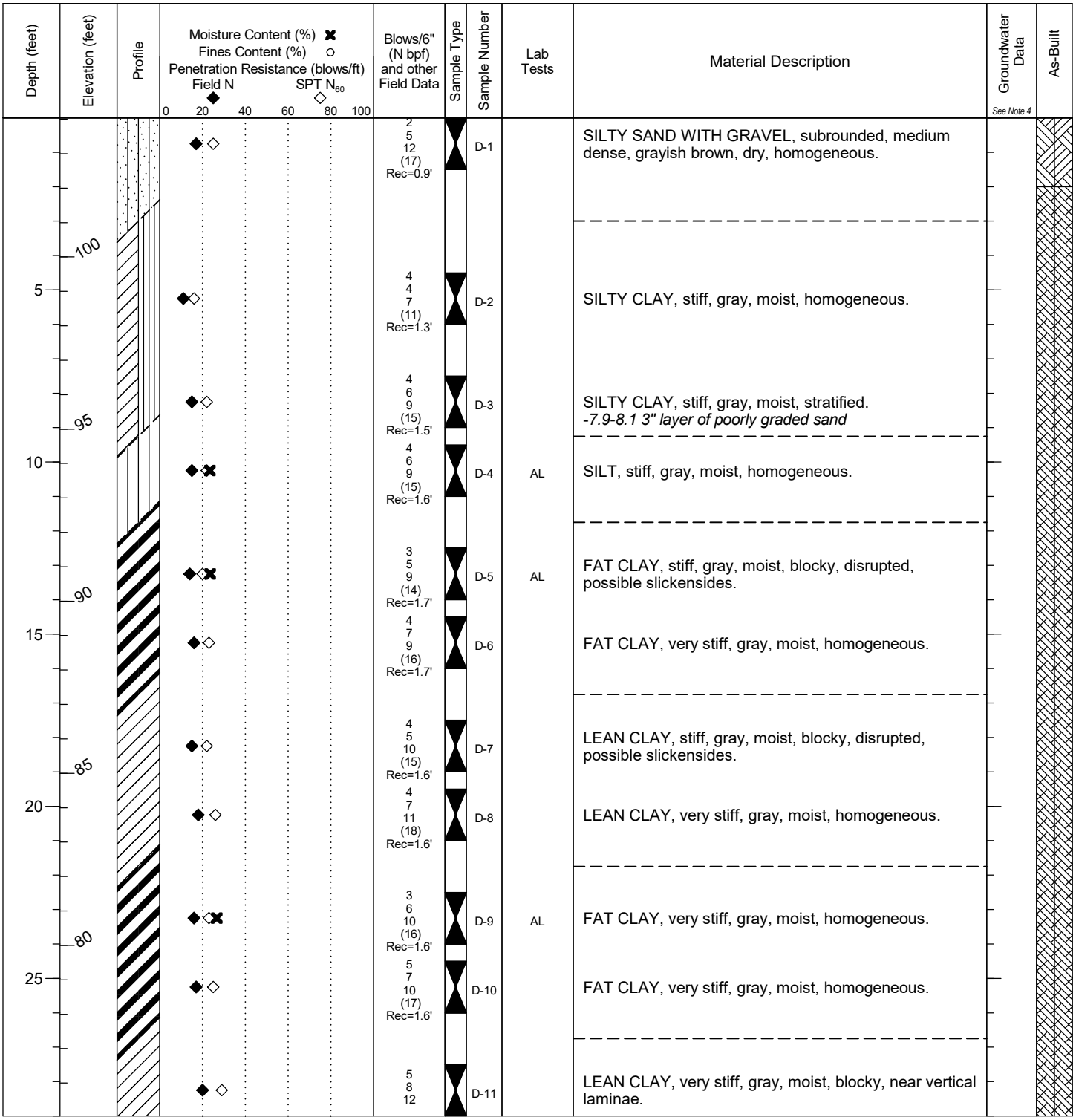
Northing: 278,503.2 feet *Latitude:* 47.755503 deg. *Driller/Inspector:* Weatherford, Michael (#3331) / Walker, Robert (#2864)

Easting: 1,308,019.0 feet *Longitude:* -122.184731 deg. *Start Card:* RE-23450 *Well Tag:* BBC-646 *Instrument:* VWP

Elevation: 104.0 feet *Collector:* Region Survey *Drilling Method:* Casing Advancer/Over Ream *Hole Diam.:* 4 in

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88 *Equipment:* CME 850 (ID:9C2-5) *Rod Type:* HQ

Started: September 15, 2022 *Completed:* September 19, 2022 *Hammer Type:* Autohammer *Historic Efficiency:* 87.1%



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Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ Fines Content (%) ○ Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ 0 20 40 60 80 100	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
				(20) Rec=1.6'						
30			✖ ○	Rec=1.0'	P	PS-12	GS, AL, HT, SG	LEAN CLAY, gray, moist.		
			◆ ◇	6 7 13 (20) Rec=1.6'		D-13		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	70									
35			◆ ◇	5 8 11 (19) Rec=1.7'		D-14		LEAN CLAY, very stiff, gray, moist, possibly disturned, faint slickensides, sub-horizontal to vertical zones.		
			◆ ✖ ◇	4 9 13 (22) Rec=1.7'		D-15	AL	LEAN CLAY, very stiff, gray, moist, rare slickensides, some blocky zones.		
	65									
40			◆ ◇	6 9 14 (23) Rec=1.6'		D-16		LEAN CLAY, very stiff, gray, moist, homogeneous.		
			◆ ◇	5 7 11 (18) Rec=1.6'		D-17		LEAN CLAY, very stiff, gray, moist, homogeneous, some slickensides.		
	60									
45			◆ ◇	5 9 12 (21) Rec=1.6'		D-18		LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
			✖ ◇ ○	6 12 14 (26) Rec=1.6'		D-19	GS, AL, HT, SG	LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
	55									
50			◆ ✖	5 8 9 (17) Rec=1.5'		D-20	AL	SILT, medium dense, gray, moist, homogeneous.		
			◆ ◇	3 6 9 (15) Rec=1.8'		D-21		LEAN CLAY, stiff, gray, moist, homogeneous.		
	50									
55			✖ ○	Rec=0.9'	P	PS-22	GS, AL, HT, SG	LEAN CLAY, gray, moist.		
			◆ ◇	4 5 7 (12) Rec=1.8'		D-23		LEAN CLAY, stiff, gray, moist, blocky, disrupted.		
	45									
60			◆ ✖ ◇ ○	6 9 13 (22) Rec=1.8'		D-24	GS, AL, HT, SG	LEAN CLAY, very stiff, gray, moist, blocky, disrupted, some slickensides.		
			◆ ◇	3 6 9 (15) Rec=1.7'		D-25		LEAN CLAY, stiff, gray, moist, homogeneous.		
	40									

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ Fines Content (%) ○ Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ 0 20 40 60 80 100	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
65			◆◇✖	4 6 8 (14) Rec=1.8'		D-26	AL	LEAN CLAY, stiff, gray, moist, homogeneous.		
	35		◆◇	4 7 10 (17) Rec=1.7'		D-27		LEAN CLAY, very stiff, gray, moist, homogeneous, possibly disturbed, rare slickensides.		
70				Rec=0.5'		PS-28		LEAN CLAY, gray, moist.		
			◆◇	6 7 11 (18) Rec=1.8'		D-29		SANDY SILTY CLAY, very stiff, gray, moist, homogeneous.		
	30									
75			✖◇ ○	4 6 8 (14) Rec=1.7'		D-30	GS, AL, HT, SG	SANDY SILTY CLAY, stiff, gray, moist, homogeneous.		
			◆◇	5 10 14 (24) Rec=1.5'		D-31		SANDY SILTY CLAY, very stiff, gray, moist, homogeneous.		
	25									
80			✖◆ ◇ ○	6 11 11 (22) Rec=1.6'		D-32	GS, AL, HT, SG	SILTY SAND, medium dense, gray, moist, homogeneous.		
	20									
85			◆◇	5 8 9 (17) Rec=1.6'		D-33		SANDY SILTY CLAY, very stiff, gray, moist, homogeneous.		
	15									
90			◆◇	5 8 10 (18) Rec=1.8'		D-34		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	10									
95			◆✖	5 8 9 (17) Rec=1.8'		D-35	AL	LEAN CLAY, very stiff, gray, moist, homogeneous.		
	5									

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Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ / Fines Content (%) ○ / Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ (0 20 40 60 80 100)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
100			◆ ✖ ○	5 7 10 (17) Rec=1.6'		D-36	GS, AL, HT, SG	LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
	0									
105			◆ ◇	4 6 9 (15) Rec=1.9'		D-37		LEAN CLAY, stiff, gray, moist, homogeneous.		
	-5									
110			◆ ◇ ✖ ○	5 7 9 (16) Rec=1.7'		D-38	GS, AL, HT, SG	LEAN CLAY, very stiff, gray, moist, homogeneous. *-drilling indicated denser material at 112.5*		
	-10									
115			◆ ◇	5 7 10 (17) Rec=1.5'		D-39		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-15									
120			◆ ◇	5 10 13 (23) Rec=1.5'		D-40		LEAN CLAY, very stiff, gray, moist, stratified.		
	-20									
125			◆ ◇ ✖ ○	5 8 11 (19) Rec=1.5'		D-41	GS, AL, HT, SG	LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-25									
130			◆ ◇	6 8 10 (18) Rec=1.8'		D-42		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-30									

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ Fines Content (%) ○ Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ 0 20 40 60 80 100	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
135			◆ ◇	5 8 12 (20) Rec=1.6'		D-43		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-35									
140			◆ ◇	6 9 11 (20) Rec=1.8'		D-44		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-40									
145			◆ ✖ ◇	5 8 11 (19) Rec=1.5'		D-45	AL	LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-45									
150			◆ ◇	6 8 12 (20) Rec=1.5'		D-46		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-50									
155			◆ ◇	6 9 12 (21) Rec=1.7'		D-47		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-55									
160			◆ ◇	7 10 12 (22) Rec=1.5'		D-48		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-60									
165			◆ ◇	6 9 10 (19) Rec=1.5'		D-49		LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
	-65									

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Moisture Content (%) ✖
Fines Content (%) ○
Penetration Resistance (blows/ft)
Field N ◆ SPT N_{60} ◇
0 20 40 60 80 100

Depth (feet)	Elevation (feet)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
		9 17 28 (45) Rec=1.3'	D-50	D-50		LEAN CLAY WITH SAND, hard, gray, moist, homogeneous. *-drilling indicated denser material at 172*		
175	-70	5 7 11 (18) Rec=1.7'	D-51	D-51	GS, AL, HT, SG	LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
180	-75	>> 50/5" (REF) Rec=0.6'	D-52	D-52		SILTY SAND, very dense, gray, moist, homogeneous. *-chunks of silt throughout sample- sample had more moisture than previously encountered*		
185	-80	48 >> 50/5" (REF) Rec=1.0'	D-53	D-53	GS, AL	SILTY SAND, very dense, gray, moist, homogeneous. *-chunks of silt present*		
190	-85	25 >> 50/6" (REF) Rec=1.2'	D-54	D-54		SILTY SAND, very dense, gray, moist, stratified.		
195	-90	6 9 11 (20) Rec=1.5'	D-55	D-55		LEAN CLAY, very stiff, gray, moist, homogeneous.		
200	-95	45 >> 50/4" (REF) Rec=0.9'	D-56	D-56	GS	POORLY GRADED SAND WITH SILT, very dense, gray, moist, homogeneous.		
205	-100	>> 33	D-57	D-57				

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

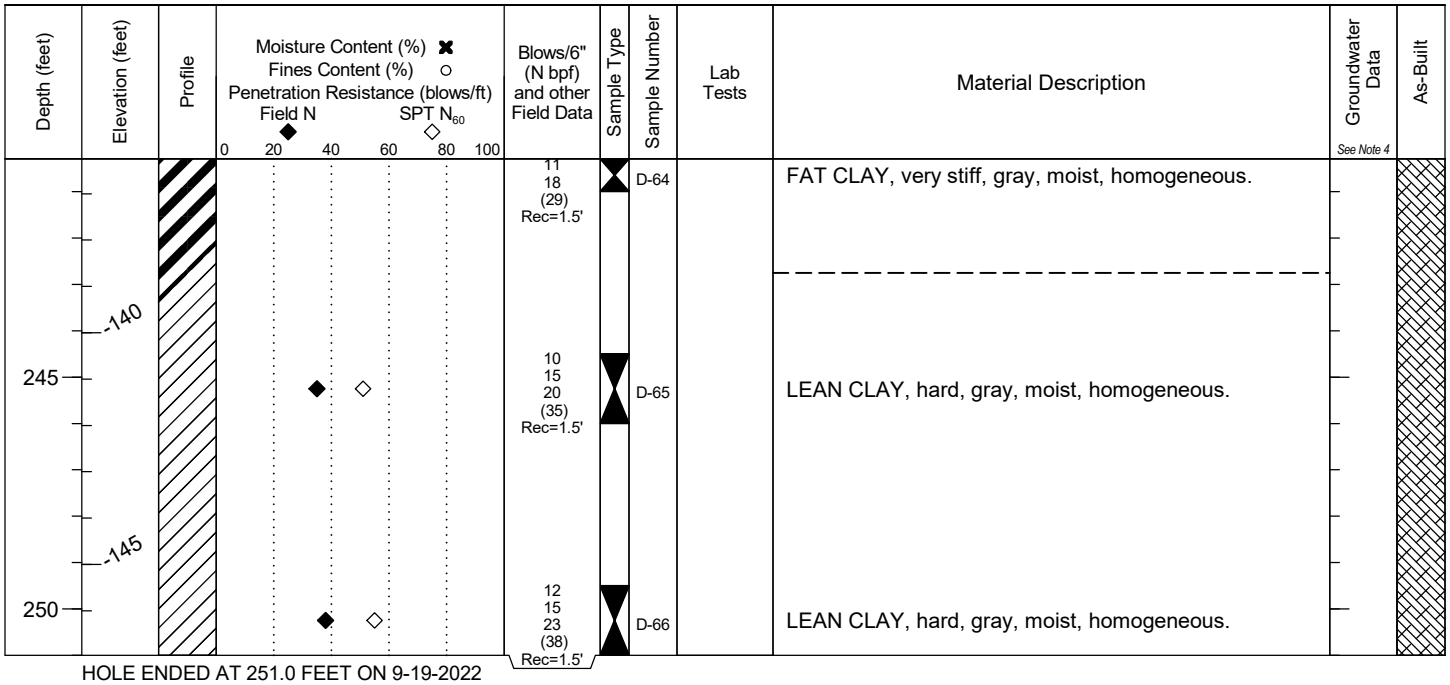
Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ Fines Content (%) ○ Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ 0 20 40 60 80 100	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
				50/5" (REF) Rec=0.9'				POORLY GRADED SAND WITH SILT, very dense, gray, moist, stratified. *-drilling indicated gravel contact at 206.5- 2 feet thick*		
	-105									
210			◆ ◇	10 18 23 (41) Rec=1.6'		D-58		LEAN CLAY, hard, gray, moist, homogeneous, with rare thin laminations.		
	-110									
215			◆ ◇	8 16 21 (37) Rec=1.7'		D-59		LEAN CLAY, hard, gray, moist, homogeneous.		
	-115									
220			✖ ◆ ◇	9 15 20 (35) Rec=1.7'		D-60	AL	LEAN CLAY, hard, gray, moist, homogeneous.		
	-120									
225			◆ ◇	9 14 19 (33) Rec=1.5'		D-61		LEAN CLAY, hard, gray, moist, homogeneous.		
	-125									
230			◆ ◇	9 13 17 (30) Rec=1.5'		D-62		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-130									
235			✖ ◇	7 12 16 (28) Rec=1.5'		D-63	AL	FAT CLAY, very stiff, gray, moist, homogeneous.		
	-135									
240			◆ ◇	9		D-64		FAT CLAY, very stiff, gray, moist, homogeneous.		

CONTINUED NEXT PAGE *(see last page for notes)*

VERSION 1
FINAL

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80



HOLE ENDED AT 251.0 FEET ON 9-19-2022

NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 10/12/2022 and 11/16/2022. The blue line extends between the minimum and maximum readings collected during the monitoring period.

WSDOT

LOG OF BORING NE-102VW-22

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

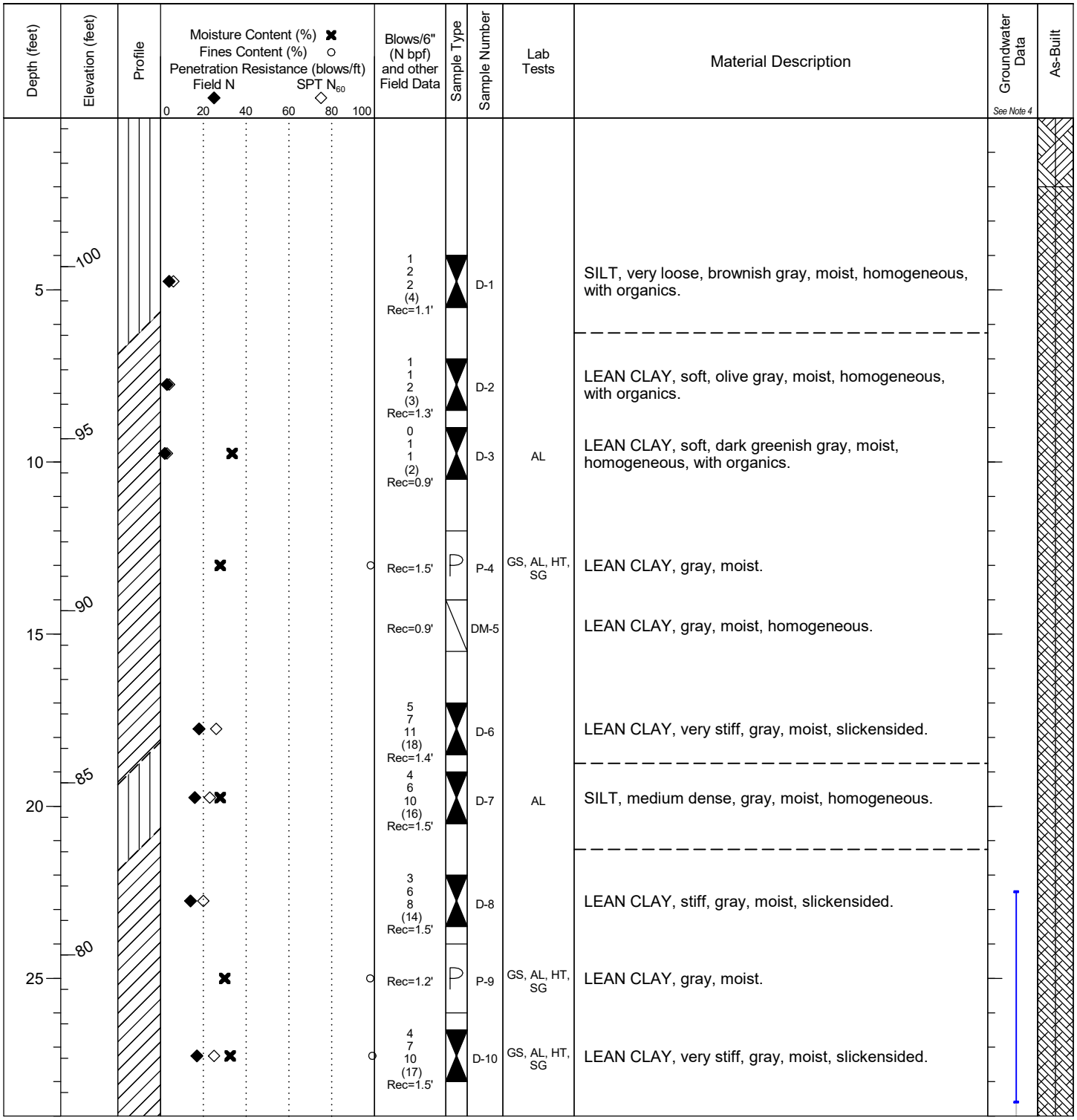
Northing: 278,592.4 feet *Latitude:* 47.755753 deg. *Driller/Inspector:* Weatherford, Michael (#3331) / Walker, Robert (#2864)

Easting: 1,308,140.0 feet *Longitude:* -122.184246 deg. *Start Card:* RE-23450 *Well Tag:* BBC-647 *Instrument:* VWP

Elevation: 104.3 feet *Collector:* Region Survey *Drilling Method:* Casing Advancer *Hole Diam.:* 6 in

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88 *Equipment:* CME 850 (ID:9C2-5) *Rod Type:* HWT

Started: September 20, 2022 *Completed:* September 23, 2022 *Hammer Type:* Autohammer *Historic Efficiency:* 87.1%



CONTINUED NEXT PAGE *(see last page for notes)*

VERSION 1
FINAL

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Moisture Content (%) ✖
Fines Content (%) ○
Penetration Resistance (blows/ft)
Field N ◆ SPT N_{60} ◇
0 20 40 60 80 100

Depth (feet)	Elevation (feet)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description
30	75	5 10 10 (20) Rec=1.5'		D-11		LEAN CLAY, very stiff, gray, moist, slickensided.
		4 9 15 (24) Rec=1.5'		D-12	AL	LEAN CLAY, very stiff, gray, moist, slickensided, blocky.
35	70	/5" Rec=1.0'		DM-13		LEAN CLAY, gray, moist, homogeneous.
		4 9 11 (20) Rec=1.5'		D-14		LEAN CLAY, very stiff, gray, moist, slickensided.
40	65	4 8 11 (19) Rec=1.5'		D-15		LEAN CLAY, very stiff, gray, moist, slickensided.
		5 9 15 (24) Rec=1.5'		D-16	AL	LEAN CLAY, very stiff, gray, moist, homogeneous.
45	60	/5" Rec=1.0'		DM-17		LEAN CLAY, gray, moist, homogeneous.
		6 12 15 (27) Rec=1.5'		D-18	AL	LEAN CLAY, very stiff, gray, moist, slickensided.
50	55	4 7 11 (18) Rec=1.5'		D-19		LEAN CLAY, very stiff, gray, moist, disrupted.
		2 5 8 (13) Rec=1.5'		D-20		LEAN CLAY, stiff, gray, moist, homogeneous.
55	50	Rec=1.0'		DM-21		LEAN CLAY, gray, moist, homogeneous.
		5 6 9 (15) Rec=1.5'		D-22		LEAN CLAY, stiff, gray, moist, homogeneous, with sand lense.
60	45	3 7 8 (15) Rec=1.5'		D-23		LEAN CLAY, stiff, gray, moist, homogeneous.
		4 6 7 (13) Rec=1.5'		D-24	GS, AL, HT, SG	LEAN CLAY, stiff, gray, moist, homogeneous, with sand lense.

Groundwater Data *See Note 4*

As-Built

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ Fines Content (%) ○ Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ 0 20 40 60 80 100	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
65				Rec=1.0'		DM-25				
				Rec=1.0'		DM-25		LEAN CLAY, gray, moist, homogeneous, with sand lense.		
				4 6 10 (16) Rec=1.5'		D-26		LEAN CLAY, very stiff, gray, moist, homogeneous.		
	35			6 6 10 (16) Rec=1.5'		D-27	AL	LEAN CLAY, very stiff, gray, moist, homogeneous.		
70										
	30									
75				Rec=1.0'		DM-28		LEAN CLAY, gray, moist, homogeneous.		
	25			10 8 10 (18) Rec=1.5'		D-29		LEAN CLAY, very stiff, gray, moist, homogeneous, with sand lense.		
80										
	20									
85				Rec=1.0'		DM-30		LEAN CLAY, gray, moist, homogeneous.		
	15			5 5 10 (15) Rec=1.5'		D-31	GS, AL, HT, SG	LEAN CLAY WITH SAND, stiff, gray, moist, slickensided.		
90										
	10									
95				Rec=0.9'		DM-32		LEAN CLAY, gray, moist, homogeneous.		
	5			5		D-33				

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
100		7 10 (17) Rec=1.5'		D-33		LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
	0	Rec=1.0'		DM-34		LEAN CLAY, gray, moist, homogeneous.		
105								
	-5	6 8 11 (19) Rec=1.0'		D-35		LEAN CLAY, very stiff, gray, moist, homogeneous.		
110								
	-10	/5" Rec=1.0'		DM-36		LEAN CLAY, gray, moist, homogeneous.		
115								
	-15	5 8 12 (20) Rec=1.5'		D-37	GS, AL, HT, SG	LEAN CLAY, very stiff, gray, moist, homogeneous.		
120								
	-20	Rec=1.0'		DM-38		LEAN CLAY, gray, moist, homogeneous.		
125								
	-25	6 9 12 (21) Rec=1.5'		D-39		LEAN CLAY, very stiff, gray, moist, homogeneous.		
130								
	-30	Rec=1.0'		DM-40		LEAN CLAY, gray, moist, homogeneous.		

Moisture Content (%) ✖
Fines Content (%) ○
Penetration Resistance (blows/ft)
Field N ◆ SPT N_{60} ◇
0 20 40 60 80 100

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

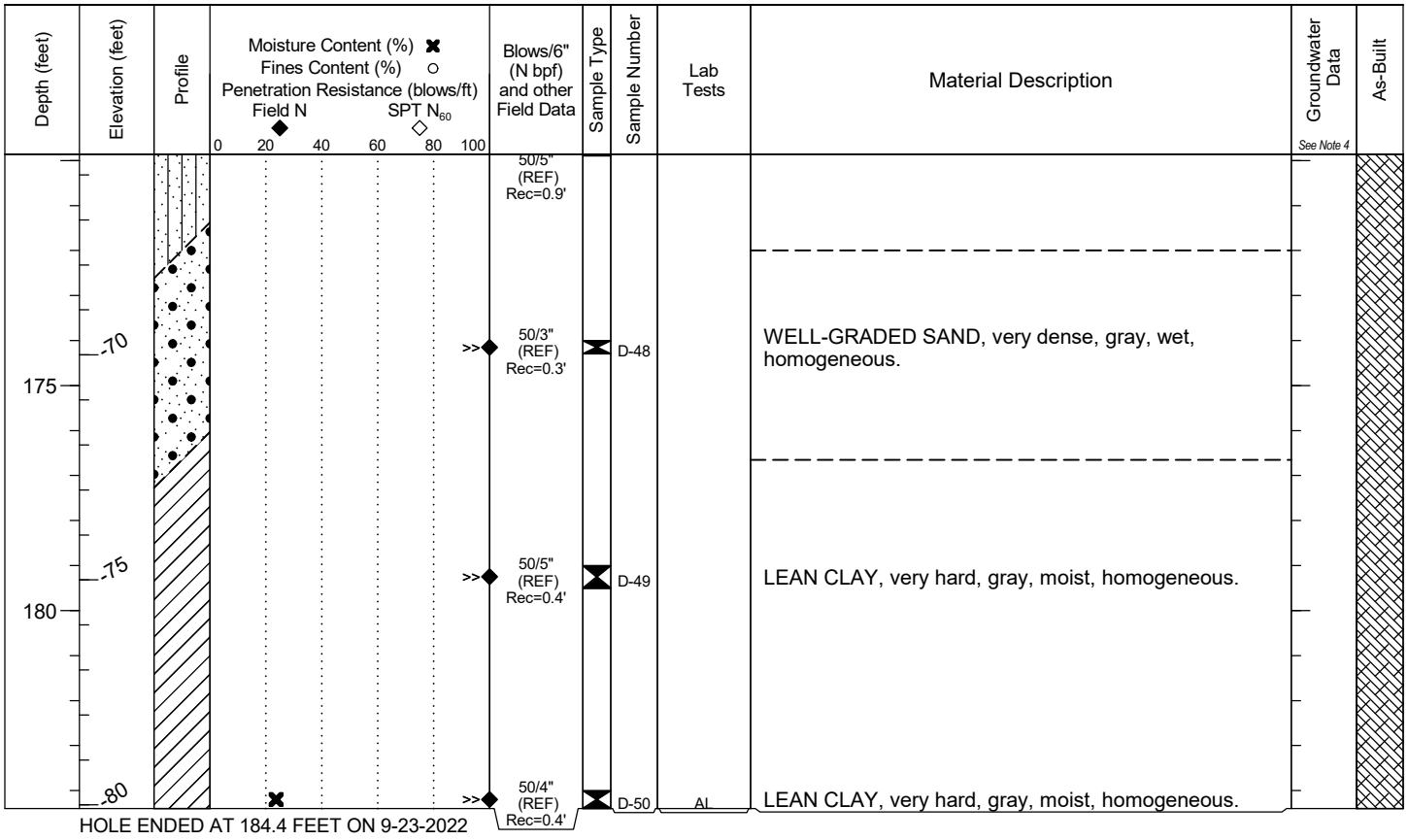
Depth (feet)	Elevation (feet)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
135		Rec=1.0'		DM-40		LEAN CLAY, gray, moist, homogeneous.		
	-35	6 9 13 (22) Rec=1.5'		D-41		LEAN CLAY, very stiff, gray, moist, homogeneous.		
140	-40	Rec=1.0'		DM-42		LEAN CLAY, gray, moist, homogeneous.		
145	-45	6 9 12 (21) Rec=1.5'		D-43	AL	LEAN CLAY, very stiff, gray, moist, homogeneous.		
150	-50	/4" Rec=1.0'		DM-44		LEAN CLAY, gray, moist, homogeneous.		
155	-55	6 10 11 (21) Rec=1.5'		D-45	GS, AL, HT, SG	LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
160	-60	>> 46 50/3" (REF) Rec=0.7'		D-46		SILTY SAND, very dense, gray, moist, homogeneous.		
165	-65	>> 40		D-47	GS	SILTY SAND, very dense, gray, moist, homogeneous.		

Moisture Content (%) ✖
Fines Content (%) ○
Penetration Resistance (blows/ft)
Field N ◆ SPT N_{60} ◇
0 20 40 60 80 100

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80



<u>NOTES:</u>

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used. The field N value and blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 10/12/2022 and 11/16/2022. The blue line extends between the minimum and maximum readings collected during the monitoring period.

WSDOT

LOG OF BORING NE-103vw-22

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Northing: 278,787.3 feet *Latitude:* 47.756284 deg. *Driller/Inspector:* Cahill, Kenneth (#3323T) / Cooper, Rich (#2964)

Easting: 1,308,076.2 feet *Longitude:* -122.184519 deg. *Start Card:* RE23449 *Well Tag:* BBC-648 *Instrument:* VWP

Elevation: 54.1 feet *Collector:* Region Survey *Drilling Method:* Casing Advancer *Hole Diam.:* 4 in

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88 *Equipment:* CME 45C (ID:9A4-7) *Rod Type:* AWJ

Started: October 3, 2022 *Completed:* October 6, 2022 *Hammer Type:* Autohammer *Historic Efficiency:* 91.5%

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ / Fines Content (%) ○ / Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ (0 20 40 60 80 100)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
								-Vacuumed to 8 ft; 1st samples at 9 ft.		
5	50								10-04-22 ▽	
10	45		◆◇	2 3 4 7 (7) Rec=1.5'		D-1		SILTY CLAY, medium stiff, gray, moist, with gravelly and sandy zones.		
			◆◇	3 5 8 10 (13) Rec=2.0'		D-2		LEAN CLAY, stiff, gray, moist, homogeneous.		
15	40		◆◇✖ ○	2 6 8 10 (14) Rec=2.0'		D-3	GS, AL, SG	LEAN CLAY, stiff, gray, moist, homogeneous.		
			◆◇	5 7 10 9 (17) Rec=2.0'		D-4		LEAN CLAY, very stiff, gray, moist, homogeneous.		
20	35		◆✖◇ ○	3 9 10 11 (19) Rec=2.0'		D-5	GS, AL, HT, SG	LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
			◆◇	4 5 8 7 (13) Rec=2.0'		D-6		LEAN CLAY, stiff, gray, moist, homogeneous.		
25	30		◆◇	2 7 8 9 (15) Rec=2.0'		D-7		LEAN CLAY, stiff, gray, moist, homogeneous.		
			◆◇	5 8 12 16 (20) Rec=2.0'		D-8		LEAN CLAY, very stiff, gray, moist, mixed appearance with layers, pockets, and sub-vertical zones.		
30	25		✖ ○	Rec=1.0'		S-9	GS, AL, HT	SANDY SILT, gray, moist.		

CONTINUED NEXT PAGE *(see last page for notes)*

VERSION 1
FINAL

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description
35	20	2 6 7 9 (13) Rec=2.0'		D-10	AL	LEAN CLAY, stiff, gray, moist, homogeneous, with slickensided FAT CLAY zone.
		4 6 10 11 (16) Rec=2.0'		D-11		LEAN CLAY, very stiff, gray, moist, homogeneous.
	15	3 6 8 10 (14) Rec=2.0'		D-12	GS, AL, HT, SG	FAT CLAY, stiff, gray, moist, homogeneous, disturbed appearance and slickensides.
40		Rec=2.0'		S-13	GS, AL, HT	LEAN CLAY, gray, moist.
	10	6 7 10 11 (17) Rec=2.0'		D-14		LEAN CLAY, very stiff, gray, moist, homogeneous, with visible sub-vertical zones.
45		2 7 9 12 (16) Rec=2.0'		D-15		LEAN CLAY, very stiff, gray, moist, homogeneous.
	5	4 7 9 12 (16) Rec=2.0'		D-16	GS, AL, HT, SG	SILT, medium dense, gray, moist, homogeneous.
50		Rec=2.0'		S-17	GS, AL, HT	LEAN CLAY, gray, moist.
55	0	4 8 8 (16) Rec=1.5'		D-18		LEAN CLAY, very stiff, gray, moist, homogeneous.
60	-5	5 6 9 (15) Rec=1.5'		D-19	GS, AL, HT, SG	LEAN CLAY, stiff, gray, moist, homogeneous.
65	-10	5 8 10 (18) Rec=1.5'		D-20		LEAN CLAY, very stiff, gray, moist, homogeneous.

Moisture Content (%) ✖
Fines Content (%) ○
Penetration Resistance (blows/ft)
Field N ◆ SPT N_{60} ◇
0 20 40 60 80 100

Groundwater Data *See Note 4*

As-Built

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ Fines Content (%) ○ Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ 0 20 40 60 80 100	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
70	-15		✖ ○	Rec=1.0'		S-21	GS, AL, HT	LEAN CLAY, gray, moist.		
75	-20		✖ ◆ ◇ ○	6 15 12 (27) Rec=1.5'		D-22	GS, AL, HT, SG	LEAN CLAY, very stiff, gray, moist, homogeneous.		
80	-25		◆ >> ◇	6 34 50 (84) Rec=1.5'		D-23		LEAN CLAY, very hard, gray, moist, homogeneous, organics, wood pieces.		
85	-30		✖ ○ >> ◆	32 50/6" (REF) Rec=1.0'		D-24	GS, AL	SILTY SAND, very dense, gray, moist, homogeneous.		
90	-35		>> ◆	50/6" (REF) Rec=0.5'		D-25		SILTY SAND, very dense, gray, moist, homogeneous.		
95	-40		>> ◆	16 28 50/5" (REF) Rec=1.4'		D-26		CLAYEY SAND WITH GRAVEL, subrounded, very dense, gray, moist, homogeneous.		
100	-45		✖ ○ >> ◆	17 50/6" (REF) Rec=1.0'		D-27	GS, AL, HT, SG	CLAYEY SAND WITH GRAVEL, subrounded to rounded, very dense, gray, moist, stratified.		

STANDARD BORING LOG XL5446 405 SR 522 TO SR 527.GPJ 2020 WSDOT GINT TEMPLATE.GDT 1/13/23

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

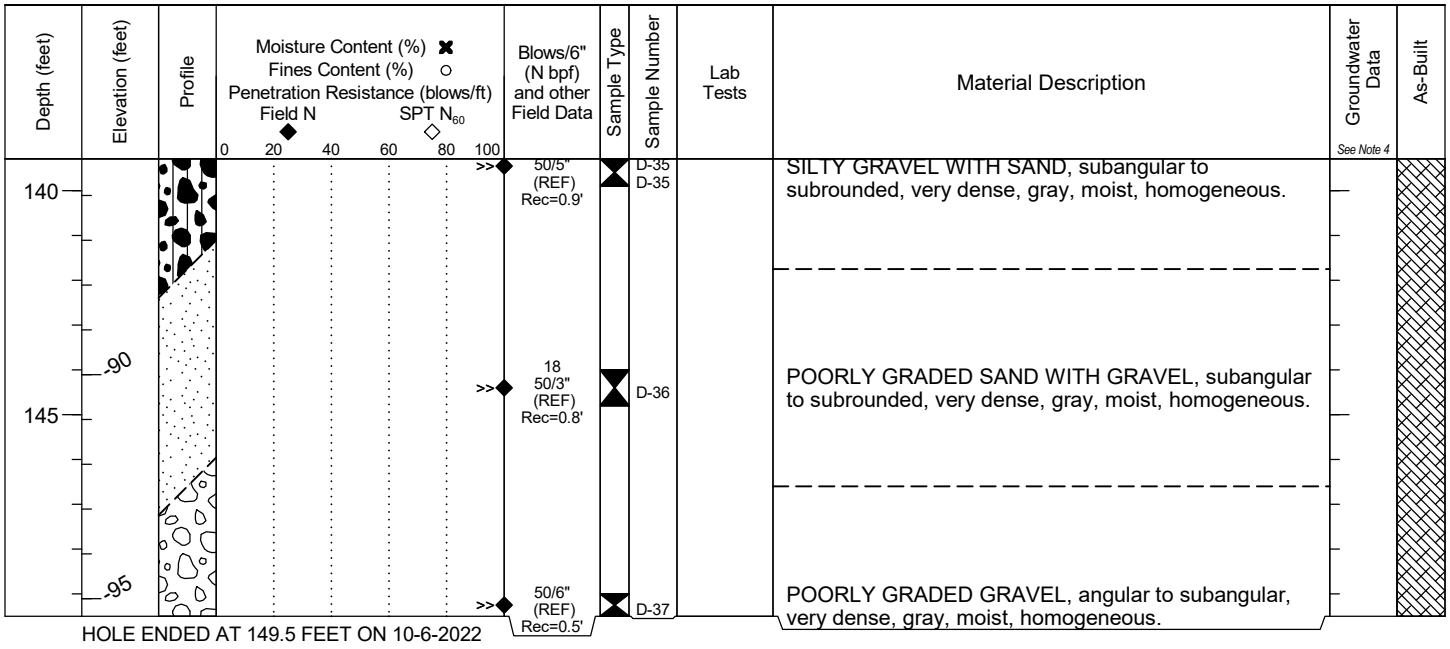
Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ / Fines Content (%) ○ / Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ (0 20 40 60 80 100)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
105	-50			>> 50/1" (REF) Rec=0.0'		D-28		NO RECOVERY		
110	-55			>> 30 50/3" (REF) Rec=0.8'		D-29		POORLY GRADED GRAVEL WITH SAND, subangular to subrounded, very dense, gray, wet, homogeneous.		
115	-60		✖	>> 50/2" (REF) Rec=0.2'		D-30	GS	POORLY GRADED GRAVEL WITH SAND, subangular to subrounded, very dense, gray, moist, homogeneous.		
120	-65			>> 50/6" (REF) Rec=0.5'		D-31		POORLY GRADED GRAVEL WITH SAND, subangular to subrounded, very dense, gray, moist, homogeneous.		
125	-70			>> 50/3" (REF) Rec=0.2'		D-32		POORLY GRADED GRAVEL WITH SAND, subangular to subrounded, very dense, gray, moist, homogeneous.		
130	-75			>> 50/3" (REF) Rec=0.2'		D-33		POORLY GRADED GRAVEL WITH SAND, subangular to subrounded, very dense, gray, moist, homogeneous.		
135	-80			>> 50/6" (REF) Rec=0.5'		D-34		WELL-GRADED GRAVEL WITH SAND, subangular to subrounded, very dense, gray, moist, homogeneous.		
	-85			23						

STANDARD BORING LOG XL5446 405 SR 522 TO SR 527.GPJ 2020 WSDOT GINT TEMPLATE.GDT 1/13/23

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80



HOLE ENDED AT 149.5 FEET ON 10-6-2022

NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 10/12/2022 and 11/16/2022. The blue line extends between the minimum and maximum readings collected during the monitoring period.

WSDOT

LOG OF BORING NE-104VW-22

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Northing: 278,799.9 feet *Latitude:* 47.756327 deg. *Driller/Inspector:* Cahill, Kenneth (#3323T) / Cooper, Rich (#2964)

Easting: 1,308,239.1 feet *Longitude:* -122.183858 deg. *Start Card:* RE23449 *Well Tag:* BBC-649 *Instrument:* VWP

Elevation: 53.3 feet *Collector:* Region Survey *Drilling Method:* Casing Advancer *Hole Diam.:* 4 in

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88 *Equipment:* CME 45C (ID:9A4-7) *Rod Type:* AWJ

Started: September 13, 2022 *Completed:* September 28, 2022 *Hammer Type:* Autohammer *Historic Efficiency:* 91.5%

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ / Fines Content (%) ○ / Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ (0 20 40 60 80 100)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
								-Had to vac bore hole to 7 feet because of utilities first drive at 8.0 feet		
5	50								09-26-22 ▽	
10	45		◆ ◇	2 6 10 12 (16)		D-1		LEAN CLAY WITH GRAVEL, rounded, very stiff, brown, moist, homogeneous.		
	40		◆ ◇	9 22 18 10 (40)		D-2		GRAVELLY LEAN CLAY WITH SAND, rounded, hard, brown, moist, homogeneous.	09-27-22 ▽	
15			◆ ◇ ✖	6 6 8 10 (14)		D-3	AL	FAT CLAY, stiff, brown, moist, homogeneous.	09-15-22 ▽	
	35		◆ ◇	3 6 10 12 (16)		D-4		LEAN CLAY, very stiff, gray, moist, homogeneous, disturbed appearance and possible slickensides.		
20			◆ ◇ ✖ ○	3 6 6 9 (12)		D-5	GS, AL, HT, SG	LEAN CLAY, stiff, gray, moist, homogeneous, sub-vertical zones.		
	30		◆ ◇	4 6 8 14 (14)		D-6		LEAN CLAY, stiff, gray, moist, homogeneous.		
25			◆ ◇ ✖	2 6 7 11 (13)		D-7	AL	LEAN CLAY, stiff, gray, moist, homogeneous.		
	25		◆ ◇	2 4 7 11 (11)		D-8		LEAN CLAY, stiff, gray, moist, homogeneous.		

CONTINUED NEXT PAGE *(see last page for notes)*

VERSION 1
FINAL

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Moisture Content (%) ✖
Fines Content (%) ○
Penetration Resistance (blows/ft)
Field N ◆ SPT N_{60} ◇
0 20 40 60 80 100

Depth (feet)	Elevation (feet)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description
30				S-9	GS, AL, HT, SG	LEAN CLAY, gray, moist.
	20	5 11 8 (19)		D-10	AL	LEAN CLAY, very stiff, gray, moist, disturbed appearance, sub-vertical zones, slickensies, sand pocket.
35		3 4 7 (11)		D-11		LEAN CLAY, stiff, gray, moist, homogeneous.
	15	3 7 10 (17)		D-12	AL	LEAN CLAY, very stiff, gray, moist, homogeneous.
40				S-13	GS, AL, HT, SG	FAT CLAY, gray, moist.
	10	6 10 16 (26)		D-14		SILTY CLAY WITH SAND, very stiff, gray, moist, homogeneous.
45		11 12 10 (22)		D-15	GS, AL, HT, SG	SILTY CLAY WITH SAND, very stiff, gray, moist, homogeneous.
	5	5 10 10 (20)		D-16		LEAN CLAY, very stiff, gray, moist, homogeneous, possible slickensides, sub-vertical zones.
50		6 10 14 (24)		D-17		LEAN CLAY, very stiff, gray, moist, homogeneous.
	0					
55		6 12 13 (25)		D-18	AL	LEAN CLAY, very stiff, gray, moist, homogeneous.
	-5					
60		6 10 13 (23)		D-19		LEAN CLAY, very stiff, gray, moist, homogeneous.
	-10					

Groundwater Data — See Note 4

As-Built

CONTINUED NEXT PAGE *(see last page for notes)*

VERSION 1
FINAL

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ / Fines Content (%) ○ / Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ (0 20 40 60 80 100)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data (See Note 4)	As-Built
					S-20			LEAN CLAY, gray, moist.		
65			◆ ◇	7 10 18 (28)		D-21		LEAN CLAY, very stiff, gray, moist, homogeneous, possible slickensides.		
	-15									
70			✖ ◇ ○	6 12 16 (28)		D-22	GS, AL, HT, SG	LEAN CLAY, very stiff, gray, moist, homogeneous.		
	-20									
75			◆ >>◇	9 19 50 (69)		D-23		SILT WITH GRAVEL, subrounded, very dense, gray, moist, homogeneous.		
	-25									
80			◆ >>◇	27 40 38 (78)		D-24		POORLY GRADED SAND, very dense, gray, wet, homogeneous.		
	-30									
85			>>◆	24 50/6" (REF)		D-25		POORLY GRADED SAND, very dense, gray, wet, homogeneous.		
	-35									
90			○ ✖ ◆ >>◇	17 31 41 (72)		D-26	GS	POORLY GRADED SAND, very dense, gray, wet, homogeneous.		
	-40									
95			>>◆	14 50/6" (REF)		D-27		POORLY GRADED SAND, very dense, gray, wet, homogeneous.		
	-45									
			>>			D-28		POORLY GRADED SAND WITH SILT AND GRAVEL,		

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

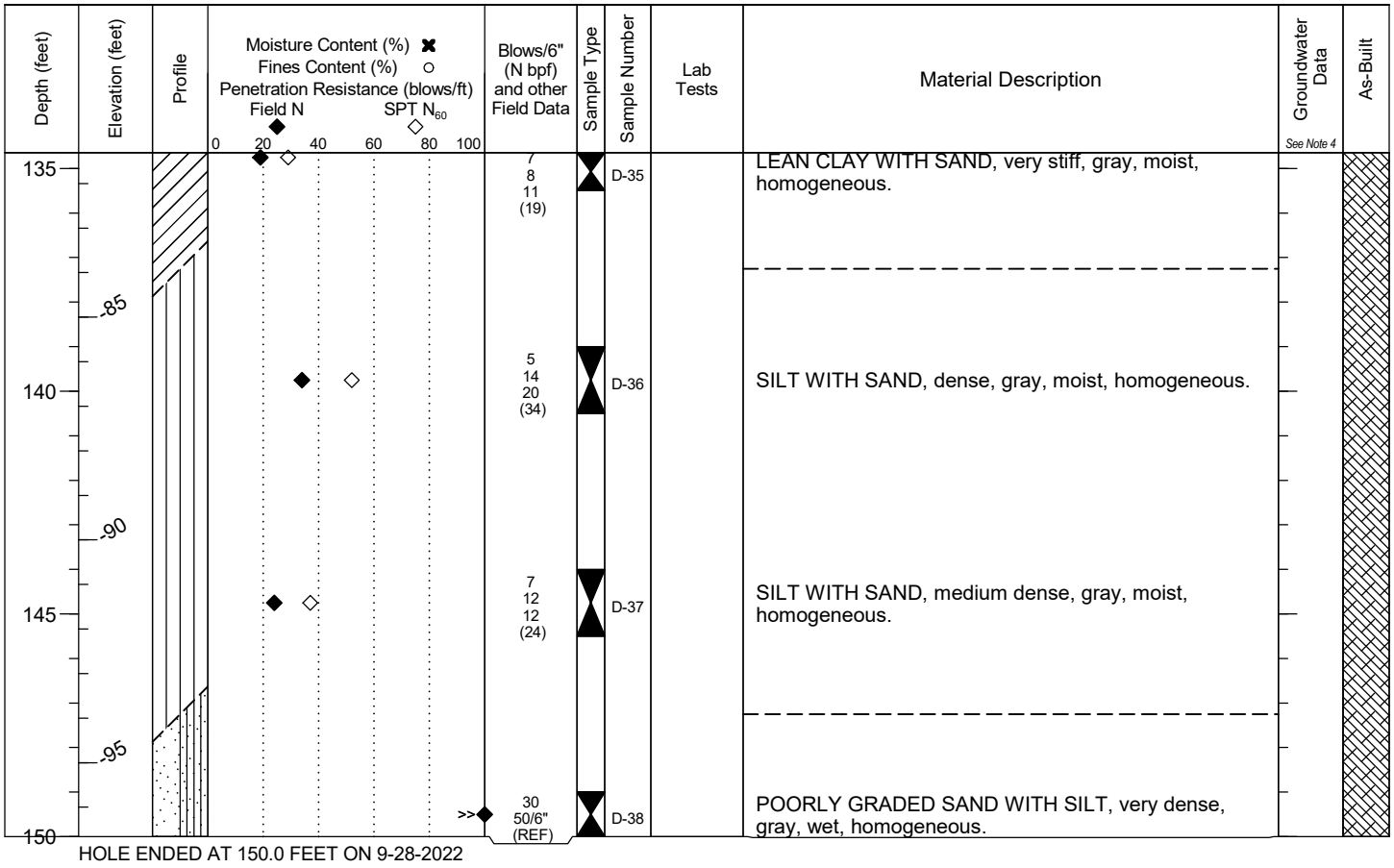
Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✖ / Fines Content (%) ○ / Penetration Resistance (blows/ft) Field N ◆ SPT N_{60} ◇ (0 20 40 60 80 100)	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
100				40 50/3" (REF)				subangular to subrounded, very dense, gray, wet, homogeneous.	See Note 4	
	-50		✖ >>◆	50/6" (REF)		D-29	GS	POORLY GRADED SAND WITH SILT AND GRAVEL, subangular to subrounded, very dense, gray, wet, homogeneous.		
105										
	-55									
110			◆ ◇	2 10 35 (45)		D-30		POORLY GRADED SAND WITH SILT AND GRAVEL, subangular to subrounded, dense, gray, wet, homogeneous.		
	-60									
			>>◆	50/6" (REF)		D-31		POORLY GRADED GRAVEL, subangular to subrounded, very dense, gray, moist, homogeneous.		
115										
	-65									
120			◆ ◇	7 8 11 (19)		D-32		LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
	-70									
			◆ ✖ ○	5 7 8 (15)		D-33	GS, AL, HT, SG	LEAN CLAY WITH SAND, stiff, gray, moist, homogeneous.		
125	-75									
			◆ ◇	6 8 9 (17)		D-34		LEAN CLAY WITH SAND, very stiff, gray, moist, homogeneous.		
130										
	-80					D-35				

CONTINUED NEXT PAGE *(see last page for notes)*

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Job Number: XL5446 *Route & MP Range:* SR 405 MP 21.60 - 26.80



NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 10/12/2022 and 11/16/2022. The blue line extends between the minimum and maximum readings collected during the monitoring period.

APPENDIX A-2 – GDR SUPPLEMENT – CPTS

Table A-2 Summary of GDR Supplement for Hillside Area - CPTs

Boring ID	Northing (ft) [1]	Easting (ft) [1]	Elevation (ft) [2]	Total Depth (feet)	Finish Date	Cone	Cone Area (cm2)	Rig	Assumed Phreatic Surface [3] (ft)	Number of Shear Wave Velocity Tests	Number of Compression Wave Velocity Tests
NE-201cp-22	278567.4	1308038.0	105.7	101.62	11-10-22	859:T1500F15U35	15	C20 30 Ton Rig Cylinder	69.0	10	10
NE-202cp-22	278522.6	1308134.4	104.1	74.56	11-09-22	870:T1500F15U35	15	C23 25 Ton Rig Cylinder	69.0	23	22
NE-203cp-22	278805.5	1308119.1	54.8	104.33	10-31-22	921:T1500F15U35	15	C23 25 Ton Rig Cylinder	22.0	31	30
NE-204cp-22	278819.4	1308274.4	53.1	93.09	10-31-22	921:T1500F15U35	15	C23 25 Ton Rig Cylinder	22.0		
NE-205cp-22	278570.5	1308313.4	100.1	78.17	11-09-22	870:T1500F15U35	15	C20 30 Ton Rig Cylinder	69.0		
NE-206cp-22	278828.3	1308388.7	50.7	100.80	12-05-22	859:T1500F15U35	15	C23 25 Ton Rig Cylinder	22.0	64	62

Notes

[1] Washington State Plan North

[2] NGVD 1988

[3] Assumed phreatic surface was based on pore pressure dissipation tests, unless otherwise noted. Hydrostatic conditions were assumed for the calculated parameters.

PRESENTATION OF SITE INVESTIGATION RESULTS

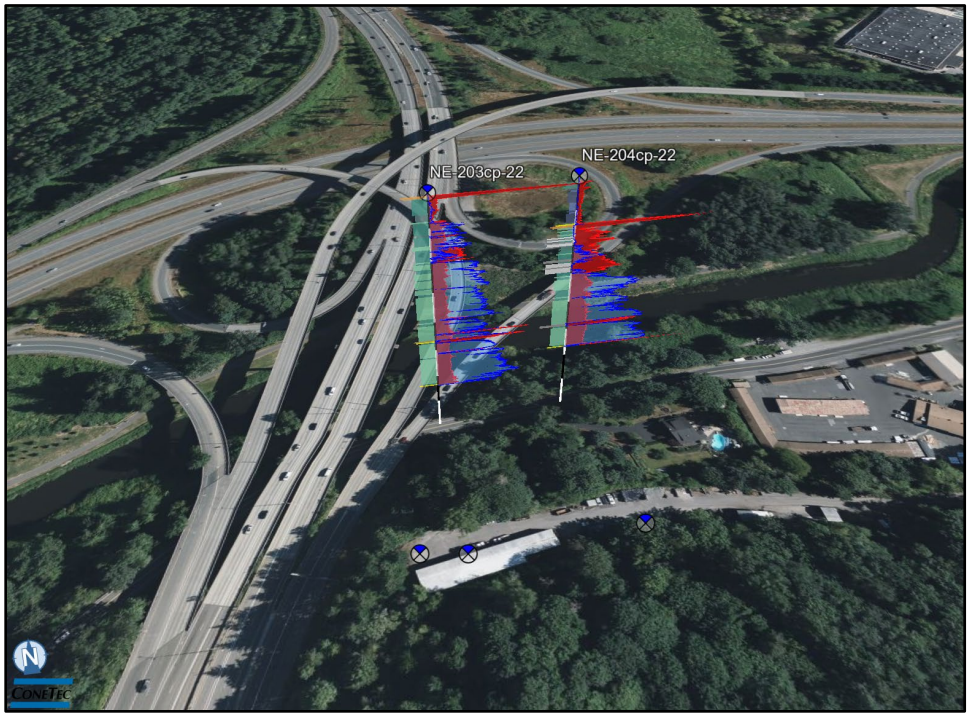
SR 522/I-405

Prepared for:

Washington State Department of Transportation

ConeTec Job No: 22-59-25003

Project Start Date: 31-Oct-2022
Project End Date: 05-Dec-2022
Report Date: 19-Dec-2022



Prepared by:

ConeTec Inc.
1508 O Street SW, Unit 103-104
Auburn, WA 98001

Tel: (801) 973-3801

ConeTecWA@conetec.com
www.conetec.com
www.conetecdataservices.com

The appendices listed below are included in the report:

- Cone Penetration Test Summary and Standard Cone Penetration Test Plots
- Seismic Cone Penetration (Vs and Vp) Test Plots
- Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Cone Penetration Test Summary and Standard Cone Penetration Test Plots

CONETEC

Job No:	22-59-25003
Client:	Washington State Department of Transportation
Project:	SR 522/I-405
Start Date:	31-Oct-2022
End Date:	05-Dec-2022

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Cone Area (cm^2)	Rig	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Shear Wave Velocity Tests	Compression Wave Velocity Tests	Latitude[2] (°)	Longitude[2] (°)	Refer to Notation Number
NE-201cp-22	22-59-25003_SP_NE-201	10-Nov-2022	859:T1500F15U35	15.0	C20 - 30Ton	69.0	101.6	10	10	47.75567	122.18464	3
NE-202cp-22	22-59-25003_SP_NE-202	09-Nov-2022	870:T1500F15U35	15.0	C23 - 25Ton	69.0	74.6	23	22	47.75563	122.18440	3
NE-203cp-22	22-59-25003_SP_NE-203	31-Oct-2022	921:T1500F15U35	15.0	C23 - 25Ton	22.0	104.3	31	30	47.75633	122.18442	3
NE-204cp-22	22-59-25003_CP_NE-204	31-Oct-2022	921:T1500F15U35	15.0	C23 - 25Ton	22.0	93.1			47.75640	122.18365	3
NE-205cp-22	22-59-25003_CP_NE-205	09-Nov-2022	870: T1500F15U35	15.0	C23 - 25Ton	69.0	78.2			47.75564	122.18347	3
NE-206cp-22	22-59-25003_CP_NE-206	05-Dec-2022	859:T1500F15U35	15.0	C20 - 30Ton	22.0	100.8			47.75645	122.18329	3
Totals	6 soundings						451.8	64	62			

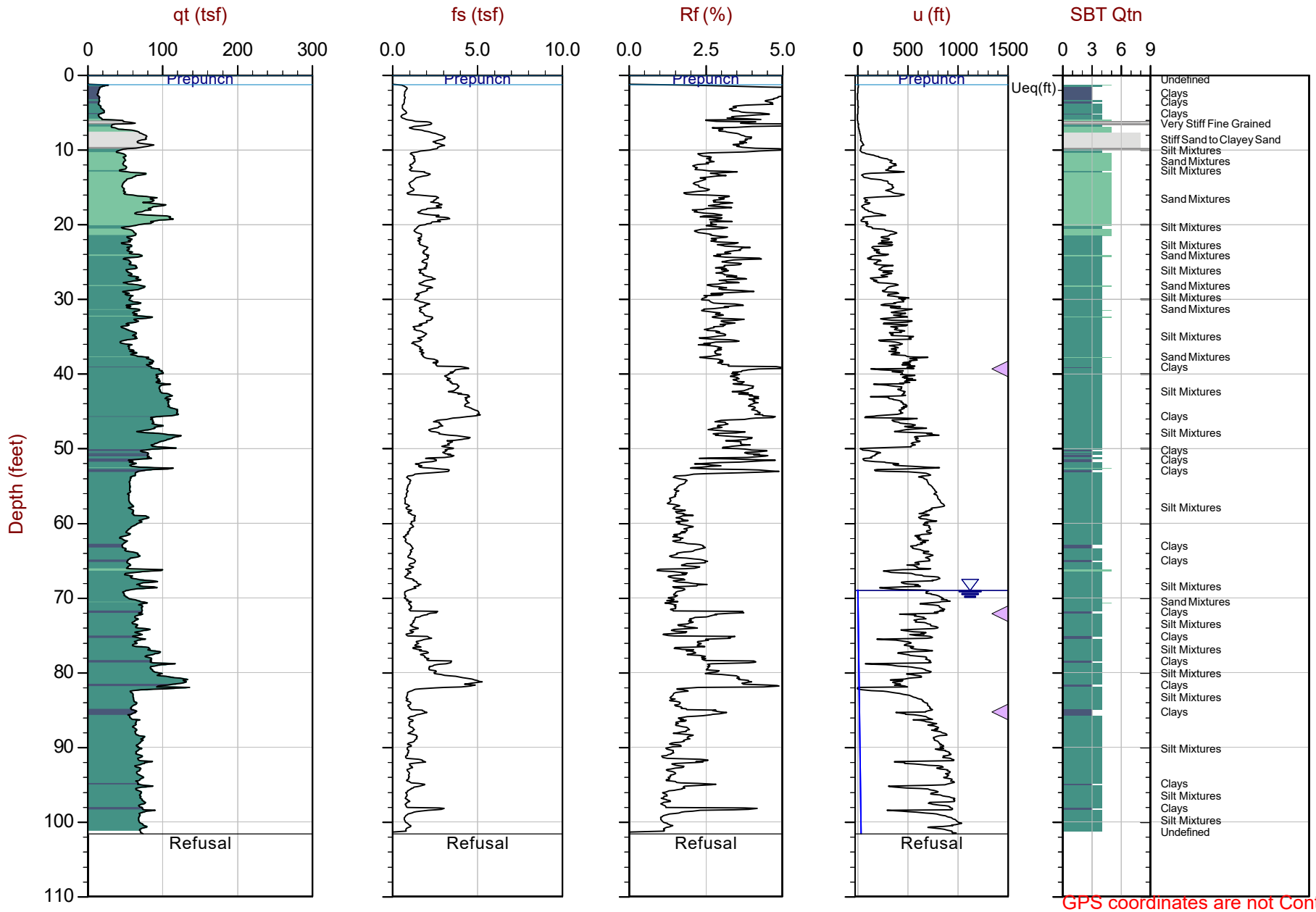
1. The assumed phreatic surface was based on pore pressure dissipation tests, unless otherwise noted. Hydrostatic conditions were assumed for the calculated parameters.
2. Coordinates were acquired using consumer grade GPS equipment, datum: WGS 1984. These GPS coordinates are NOT Contractual. See Table A-2 for survey coordinates.
3. The assumed phreatic surface was based on client provided data.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-11-10 08:28
Site: SR 522/I-405

Sounding: NE-201cp-22
Cone: 859:T1500F15U35



Max Depth: 30.975 m / 101.62 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_SP_NE-201.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: Lat: 47.75567 ° Long: 122.18464 °
Sheet No: 1 of 1

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Dissipation, Ueq assumed | Hydrostatic Line

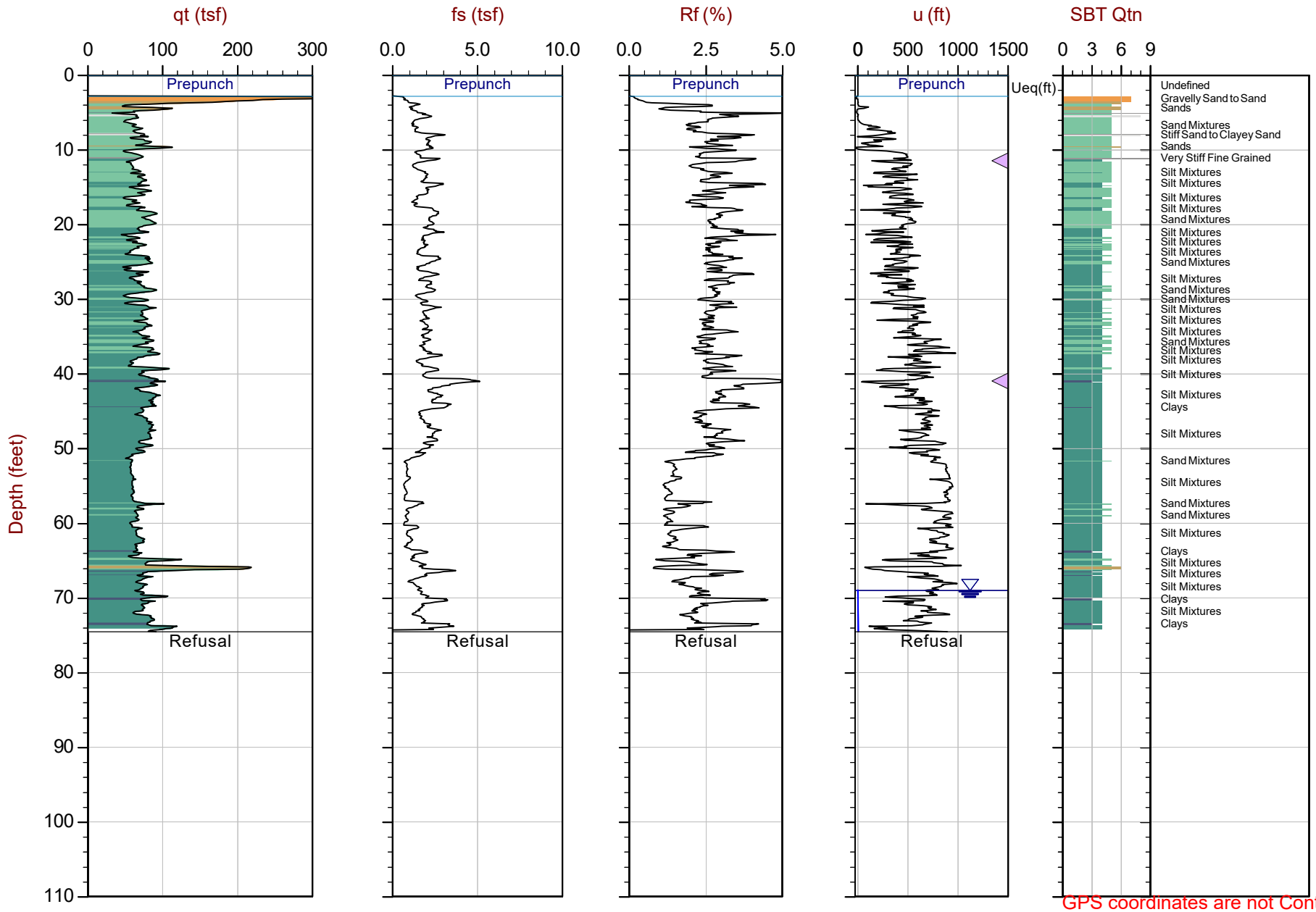
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-11-09 08:58
Site: SR 522/I-405

Sounding: NE-202cp-22
Cone: 870:T1500F15U35



Max Depth: 22.725 m / 74.56 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_SP_NE-202.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: Lat: 47.75563 ° Long: 122.18440 °
Sheet No: 1 of 1

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Dissipation, Ueq assumed Hydrostatic Line

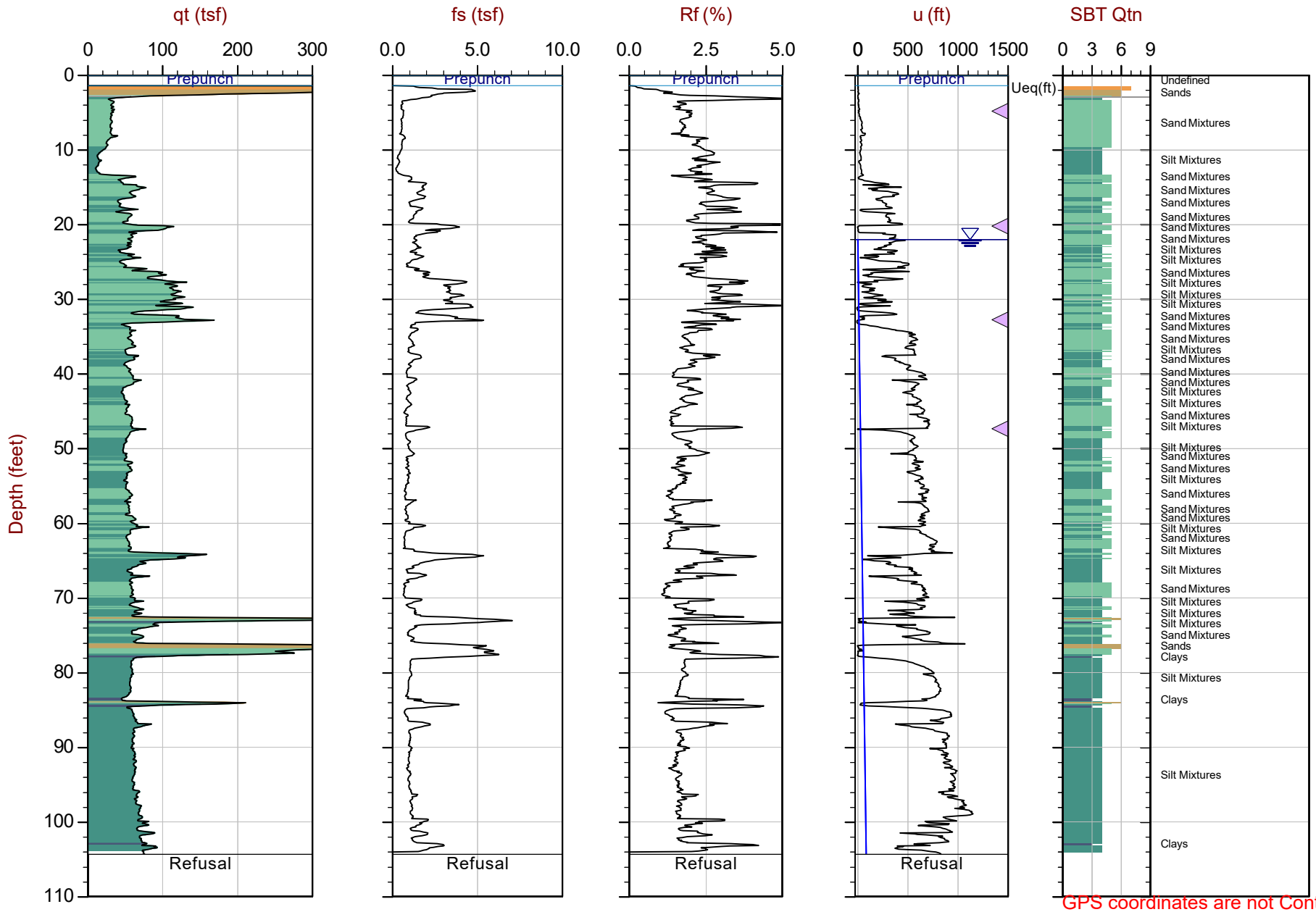
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-10-31 10:31
Site: SR 522/I-405

Sounding: NE-203cp-22
Cone: 921:T1500F15U35



Max Depth: 31.800 m / 104.33 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_SP_NE-203.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: Lat: 47.75633 ° Long: 122.18442 °
Sheet No: 1 of 1

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Dissipation, Ueq assumed | Hydrostatic Line

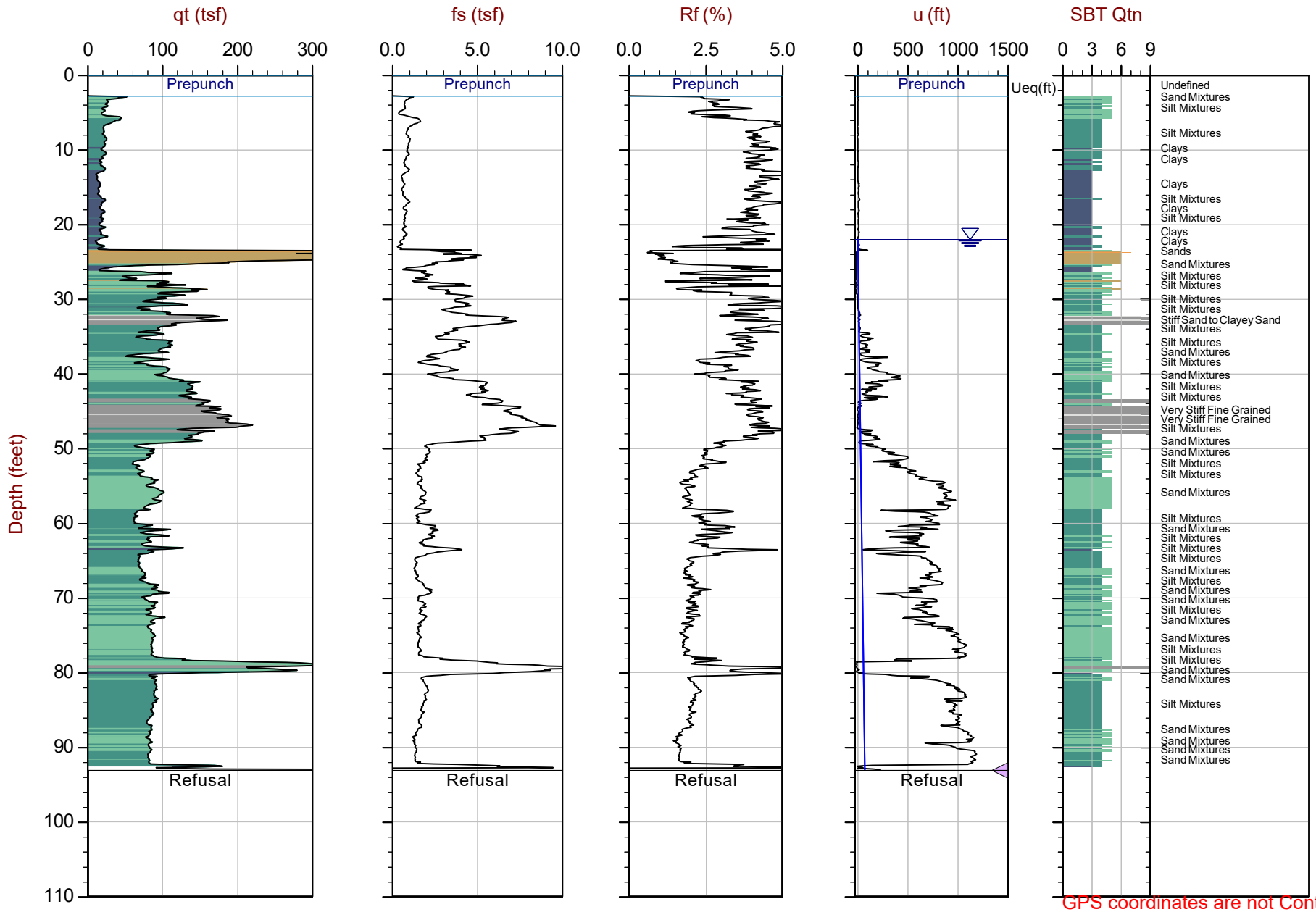
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-10-31 14:10
Site: SR 522/I-405

Sounding: NE-204cp-22
Cone: 921:T1500F15U35



Max Depth: 28.375 m / 93.09 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_CP_NE-204.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: Lat: 47.75640 ° Long: 122.18364 °
Sheet No: 1 of 1

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Dissipation, Ueq assumed | Hydrostatic Line

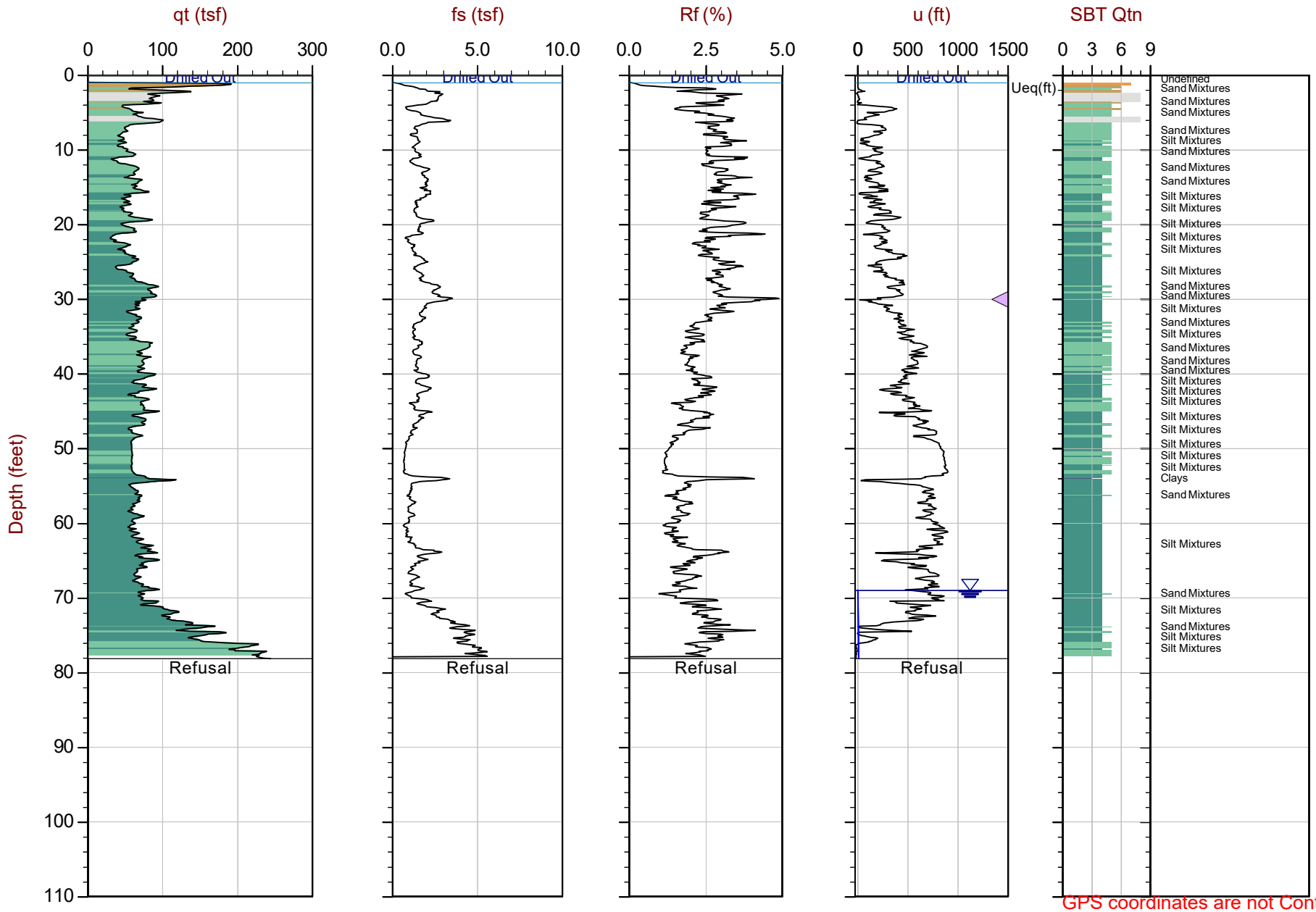
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-11-09 11:33
Site: SR 522/I-405

Sounding: NE-205cp-22
Cone: 870:T1500F15U35



Max Depth: 23.825 m / 78.17 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_CP_NE-205.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: Lat: 47.75564 ° Long: 122.18347 °
Sheet No: 1 of 1

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Dissipation, Ueq assumed Hydrostatic Line

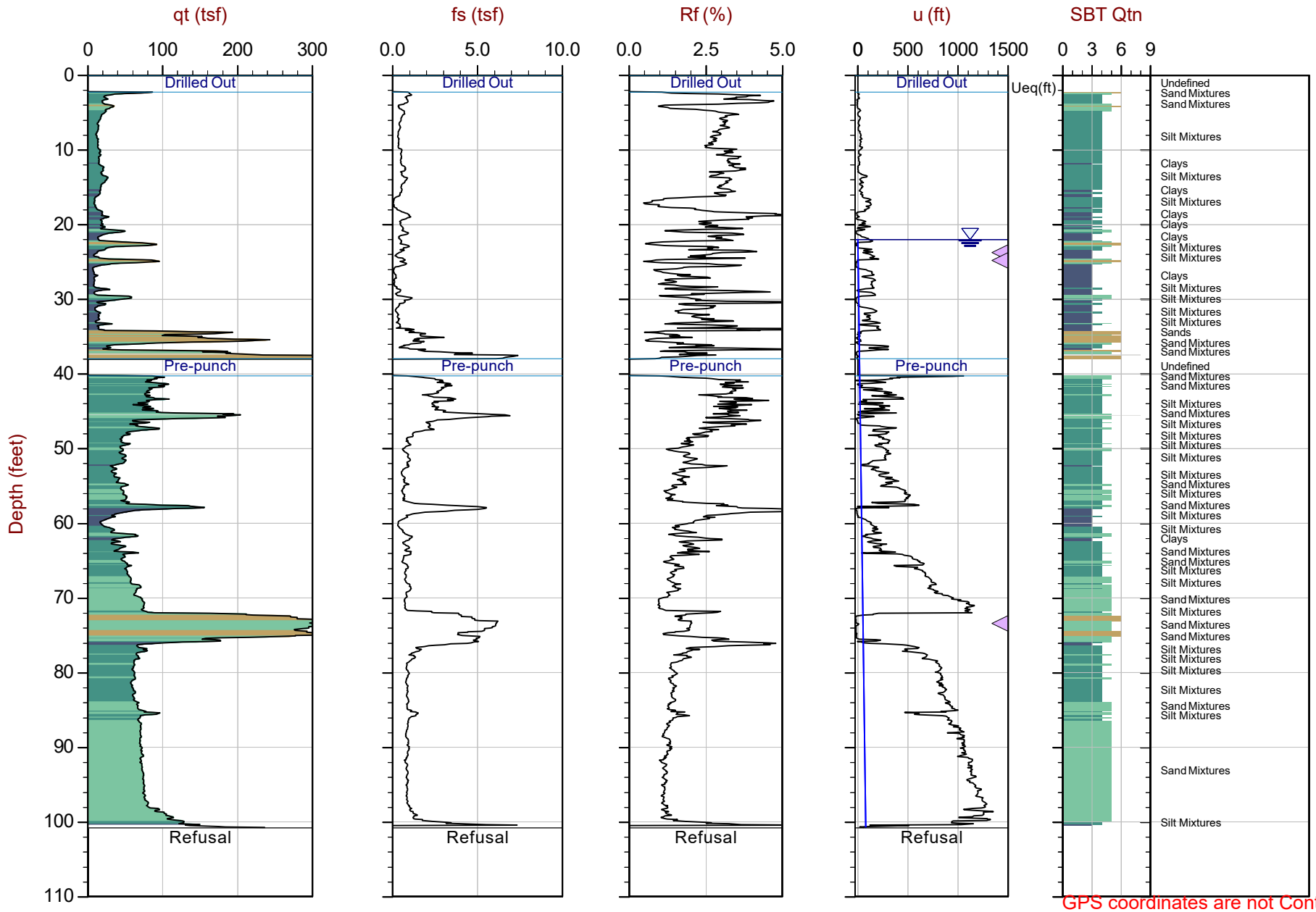
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-12-05 10:07
Site: SR 522/I-405

Sounding: NE-206cp-22
Cone: 859:T1500F15U35



Max Depth: 30.725 m / 100.80 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_CP_NE-206.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: Lat: 47.75645 ° Long: 122.18329 °
Sheet No: 1 of 1

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Dissipation, Ueq assumed | Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Seismic Cone Penetration Test Plots

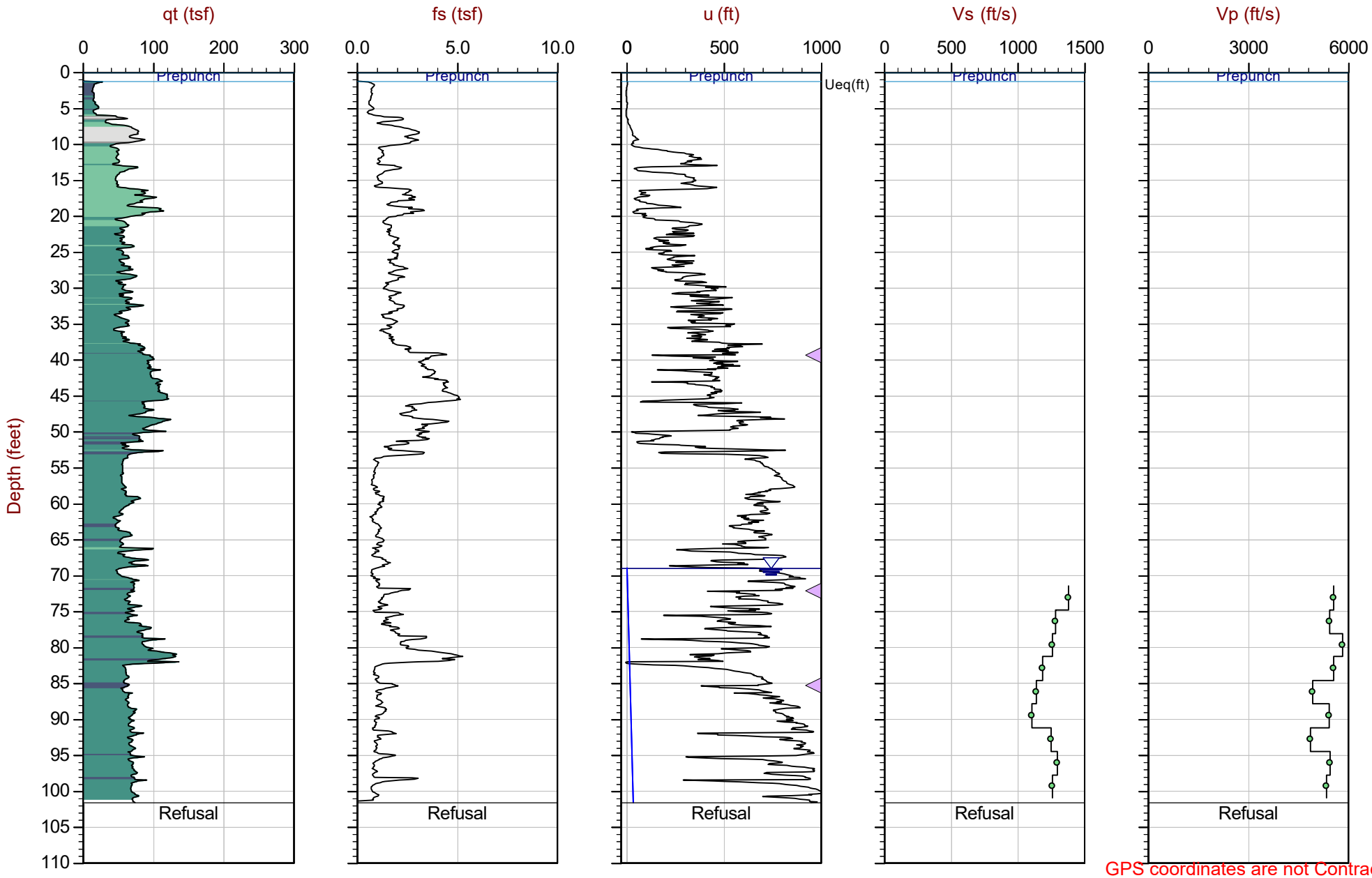
CONETEC

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-11-10 08:28
Site: SR 522/I-405

Sounding: NE-201cp-22
Cone: 859:T1500F15U35



Max Depth: 30.975 m / 101.62 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_SP_NE-201.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2016
Coords: Lat: 47.75567 ° Long: 122.18464 °

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Dissipation, Ueq assumed | Hydrostatic Line

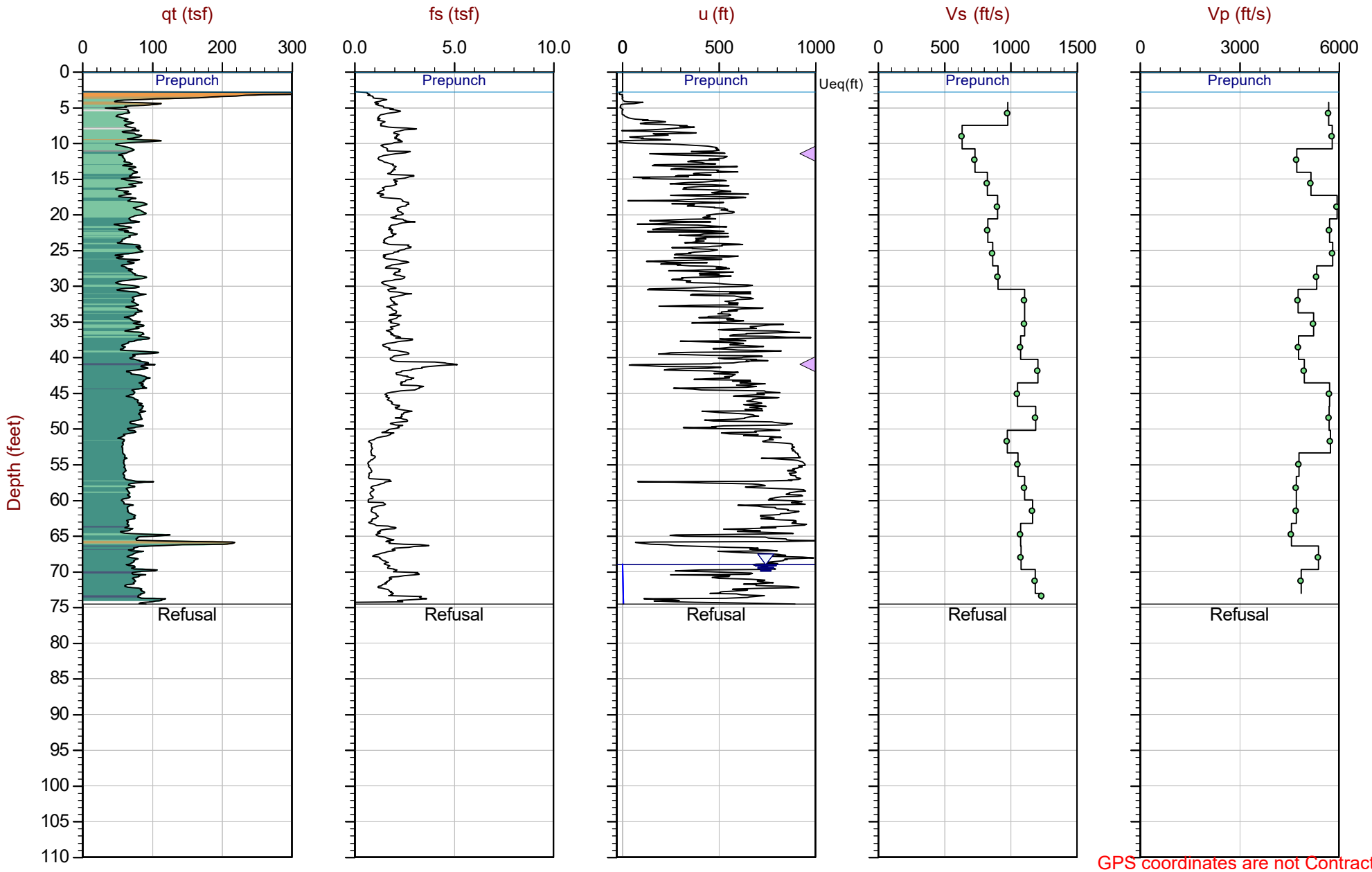
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-11-09 08:58
Site: SR 522/I-405

Sounding: NE-202cp-22
Cone: 870:T1500F15U35



Max Depth: 22.725 m / 74.56 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_SP_NE-202.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2016
Coords: Lat: 47.75563 ° Long: 122.18440 °

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Dissipation, Ueq assumed Hydrostatic Line

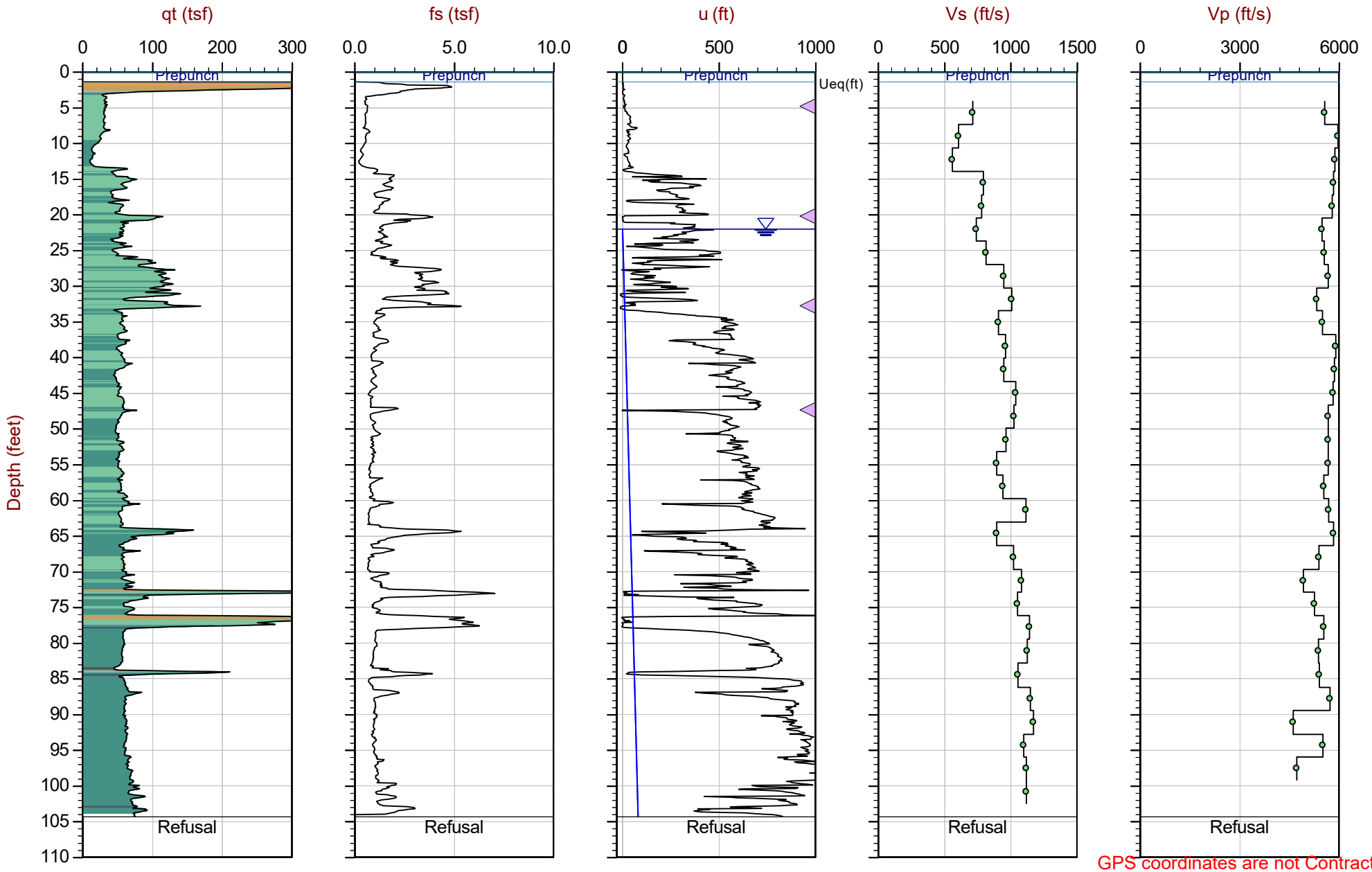
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

WSDOT

Job No: 22-59-25003
Date: 2022-10-31 10:31
Site: SR 522/I-405

Sounding: NE-203cp-22
Cone: 921:T1500F15U35



Max Depth: 31.800 m / 104.33 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 22-59-25003_SP_NE-203.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2016
Coords: Lat: 47.75633 ° Long: 122.18442 °

GPS coordinates are not Contractual.
Use Survey Coordinates in Table A-2.

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Dissipation, Ueq assumed | Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Job No:	22-59-25003
Client:	Washington State Department of Transportation
Project:	SR 522/I-405
Start Date:	31-Oct-2022
End Date:	05-Dec-2022

CPTu PORE PRESSURE DISSIPATION SUMMARY

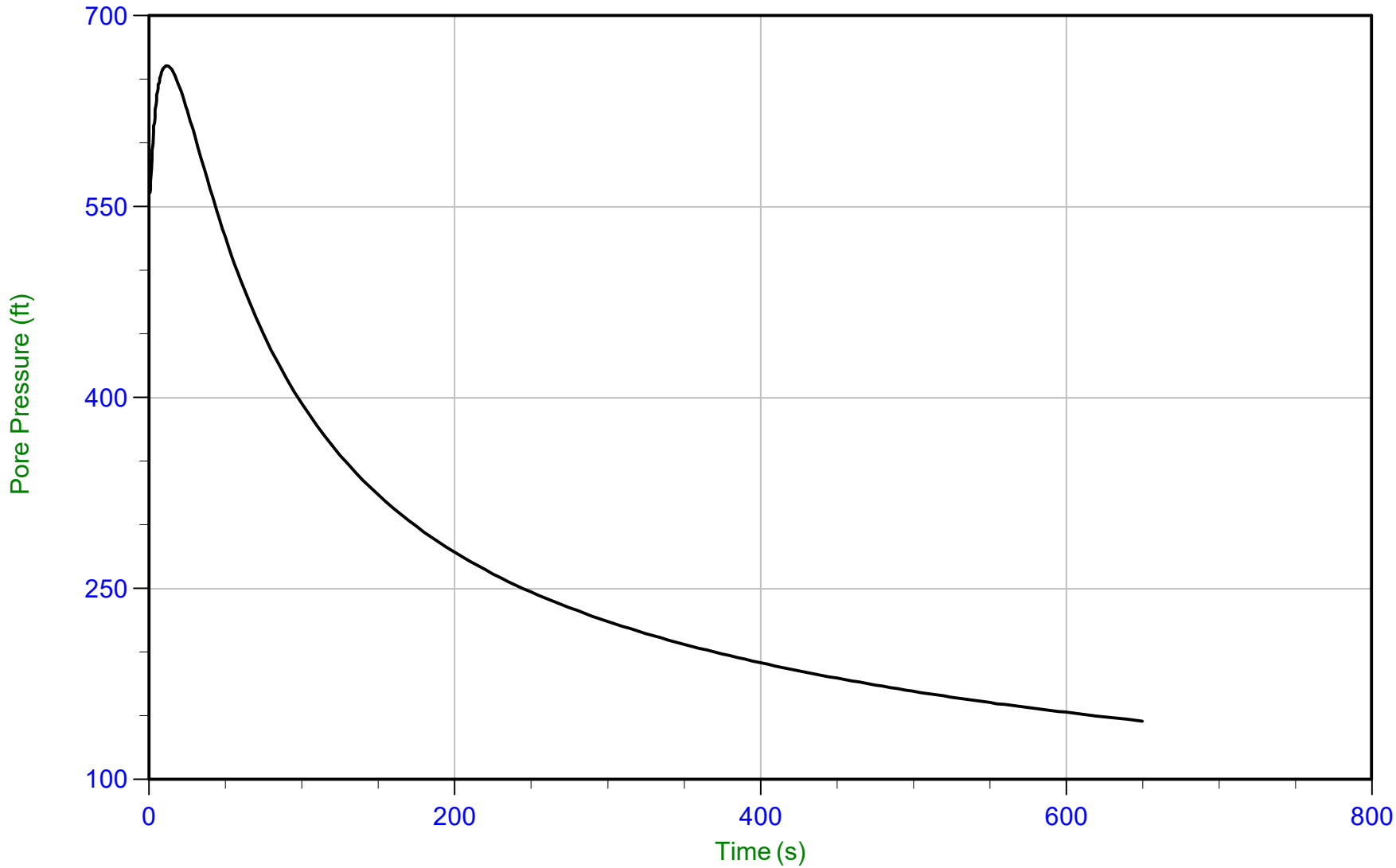
Sounding ID	File Name	Cone Area (cm^2)	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U_{eq} (ft)	Calculated Phreatic Surface (ft)
NE-201cp-22	22-59-25003_SP_NE-201	15.0	650.0	39.3		
NE-202cp-22	22-59-25003_SP_NE-202	15.0	740.0	11.4		
NE-202cp-22	22-59-25003_SP_NE-202	15.0	1120.0	40.9		
NE-203cp-22	22-59-25003_SP_NE-203	15.0	565.0	4.8		
NE-203cp-22	22-59-25003_SP_NE-203	15.0	1240.0	20.2		
NE-203cp-22	22-59-25003_SP_NE-203	15.0	1830.0	32.7		
NE-203cp-22	22-59-25003_SP_NE-203	15.0	445.0	47.3		
NE-204cp-22	22-59-25003_SP_NE-204	15.0	220.0	93.1		
NE-205cp-22	22-59-25003_SP_NE-205	15.0	950.0	30.0		
NE-206cp-22	22-59-25003_SP_NE-206	15.0	300.0	23.7		
NE-206cp-22	22-59-25003_SP_NE-206	15.0	700.0	73.4		
Total Duration			146.0 min			

CONETEC

WSDOT

Job No: 22-59-25003
Date: 11/10/2022 08:28
Site: SR 522/I-405

Sounding: NE-201cp-22
Cone: 859:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-201.PPF
Depth: 11.975 m / 39.288 ft
Duration: 650.0 s

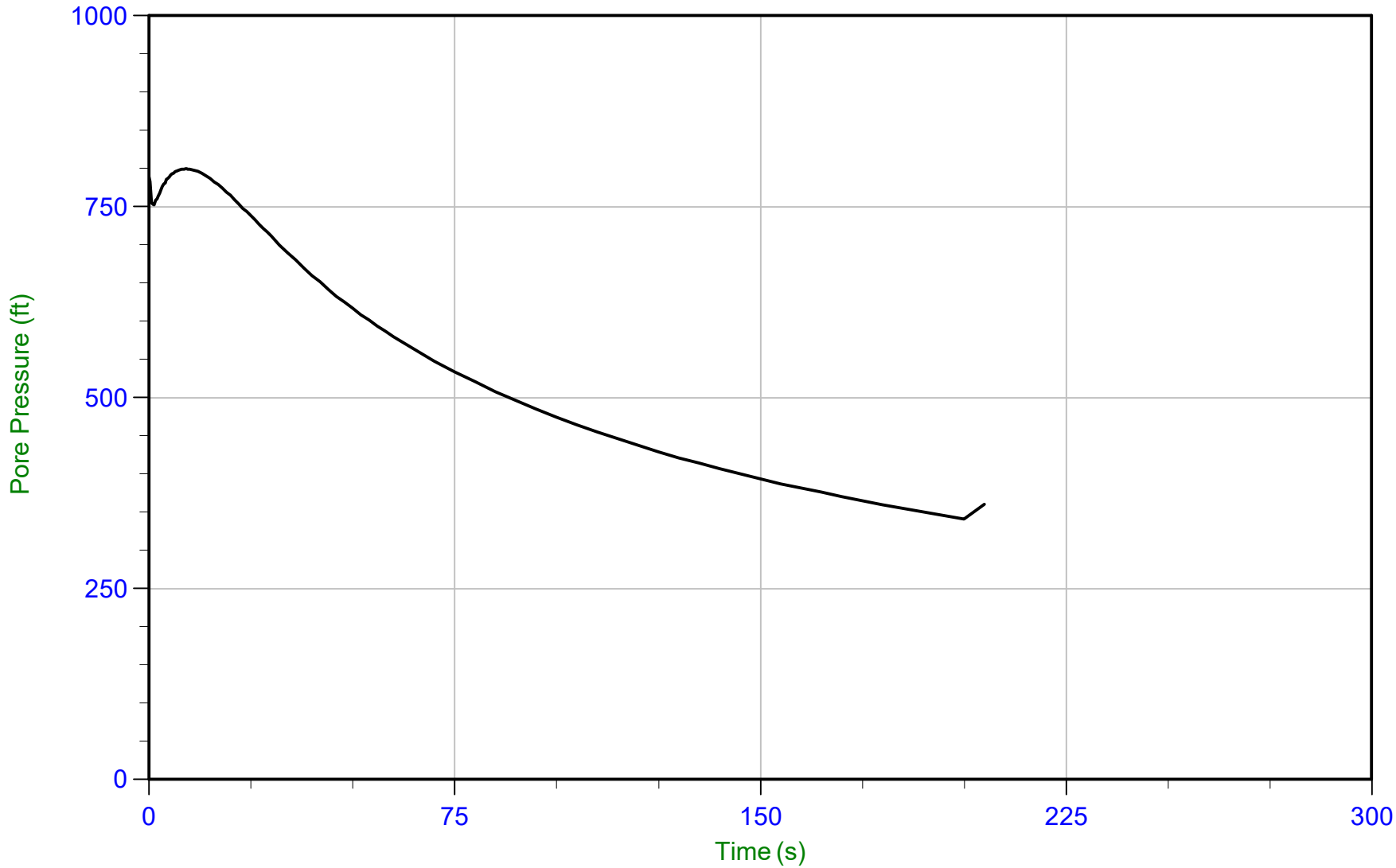
u Min: 145.9 ft
u Max: 660.6 ft
u Final: 145.9 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 11/10/2022 08:28
Site: SR 522/I-405

Sounding: NE-201cp-22
Cone: 859:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-201.PPF
Depth: 21.975 m / 72.096 ft
Duration: 205.0 s

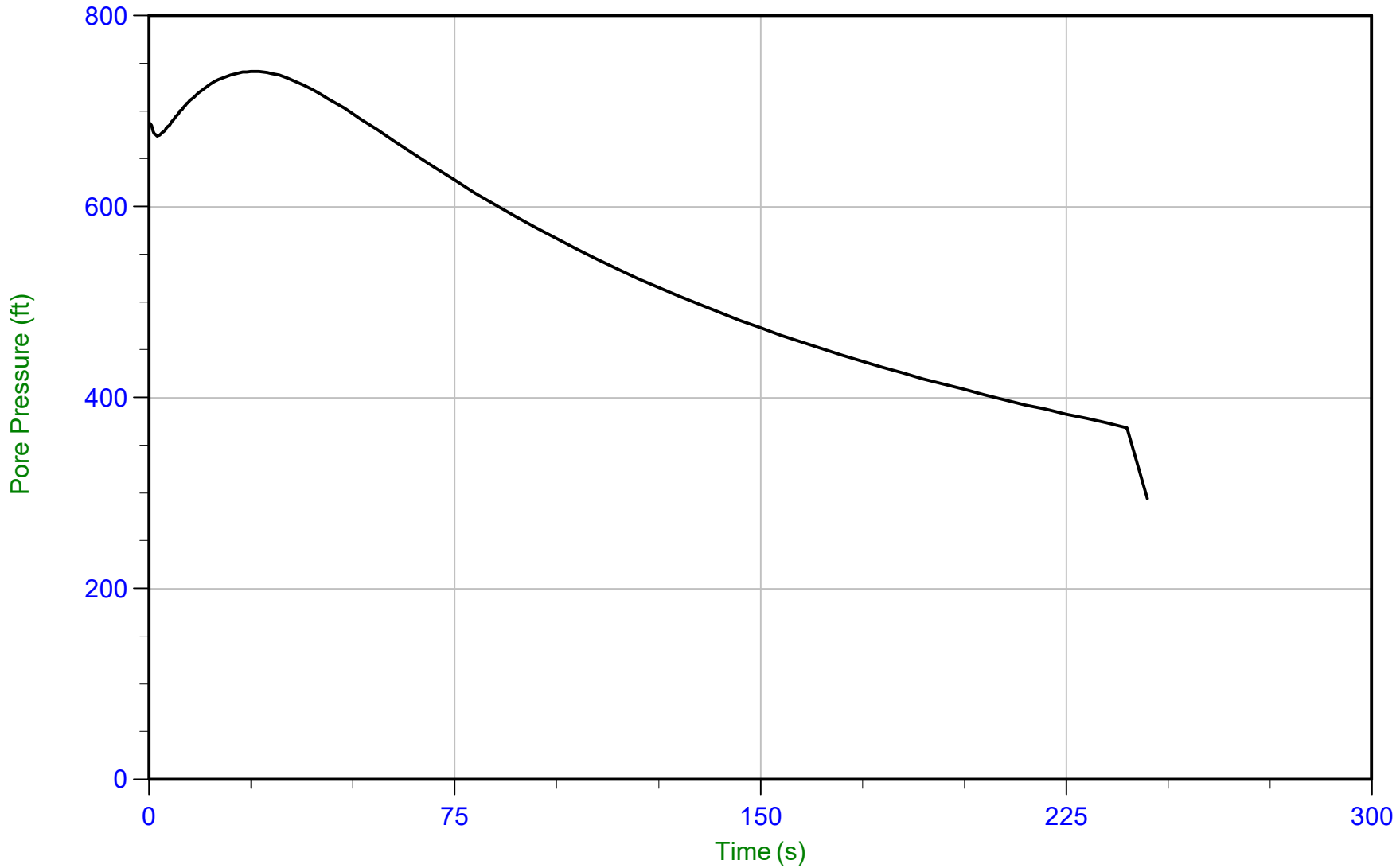
u Min: 341.0 ft
u Max: 799.4 ft
u Final: 360.0 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 11/10/2022 08:28
Site: SR 522/I-405

Sounding: NE-201cp-22
Cone: 859:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-201.PPF
Depth: 26.000 m / 85.301 ft
Duration: 245.0 s

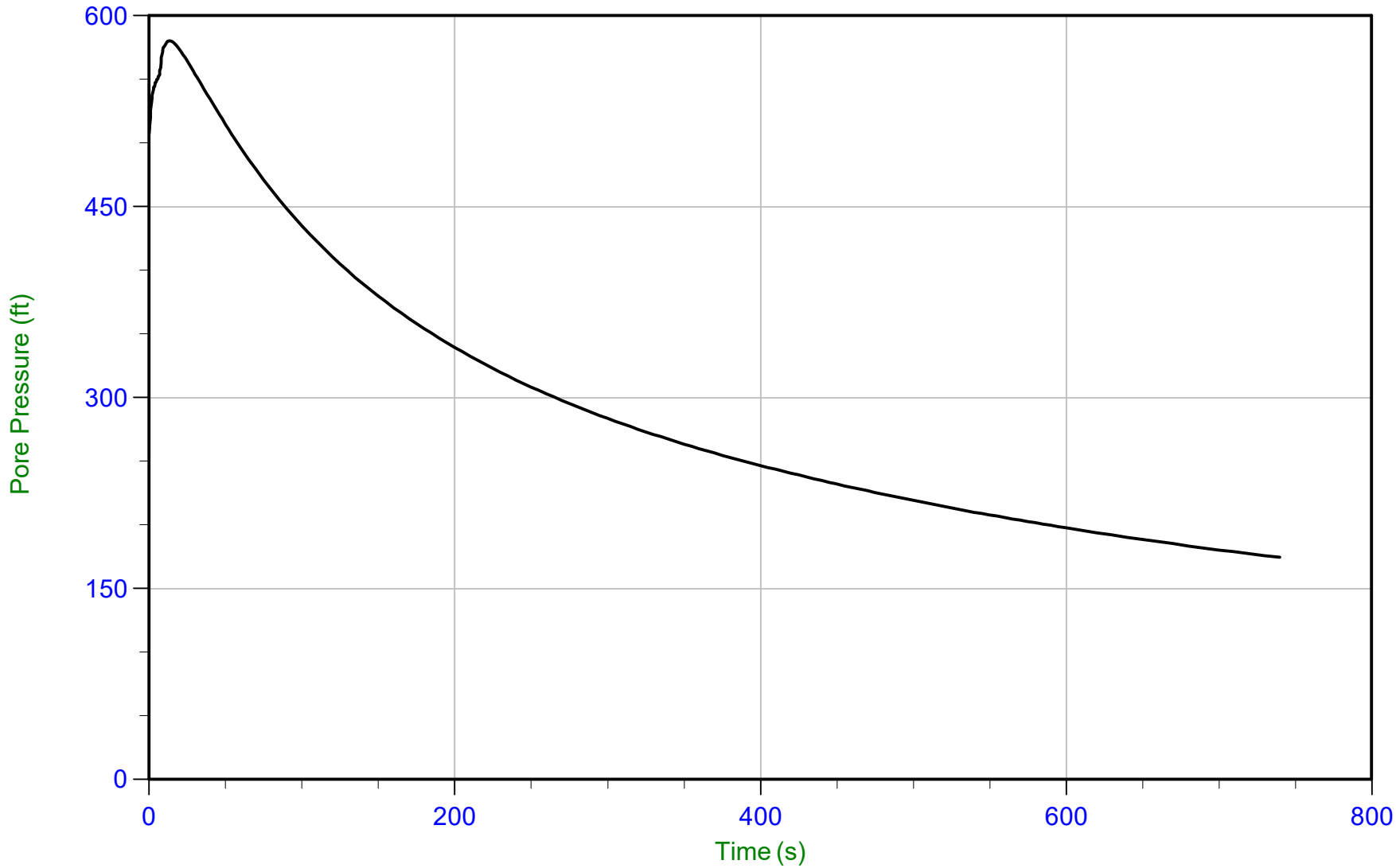
u Min: 294.4 ft
u Max: 741.7 ft
u Final: 294.4 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 11/09/2022 08:58
Site: SR 522/I-405

Sounding: NE-202cp-22
Cone: 870:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-202.PPF
Depth: 3.475 m / 11.401 ft
Duration: 740.0 s

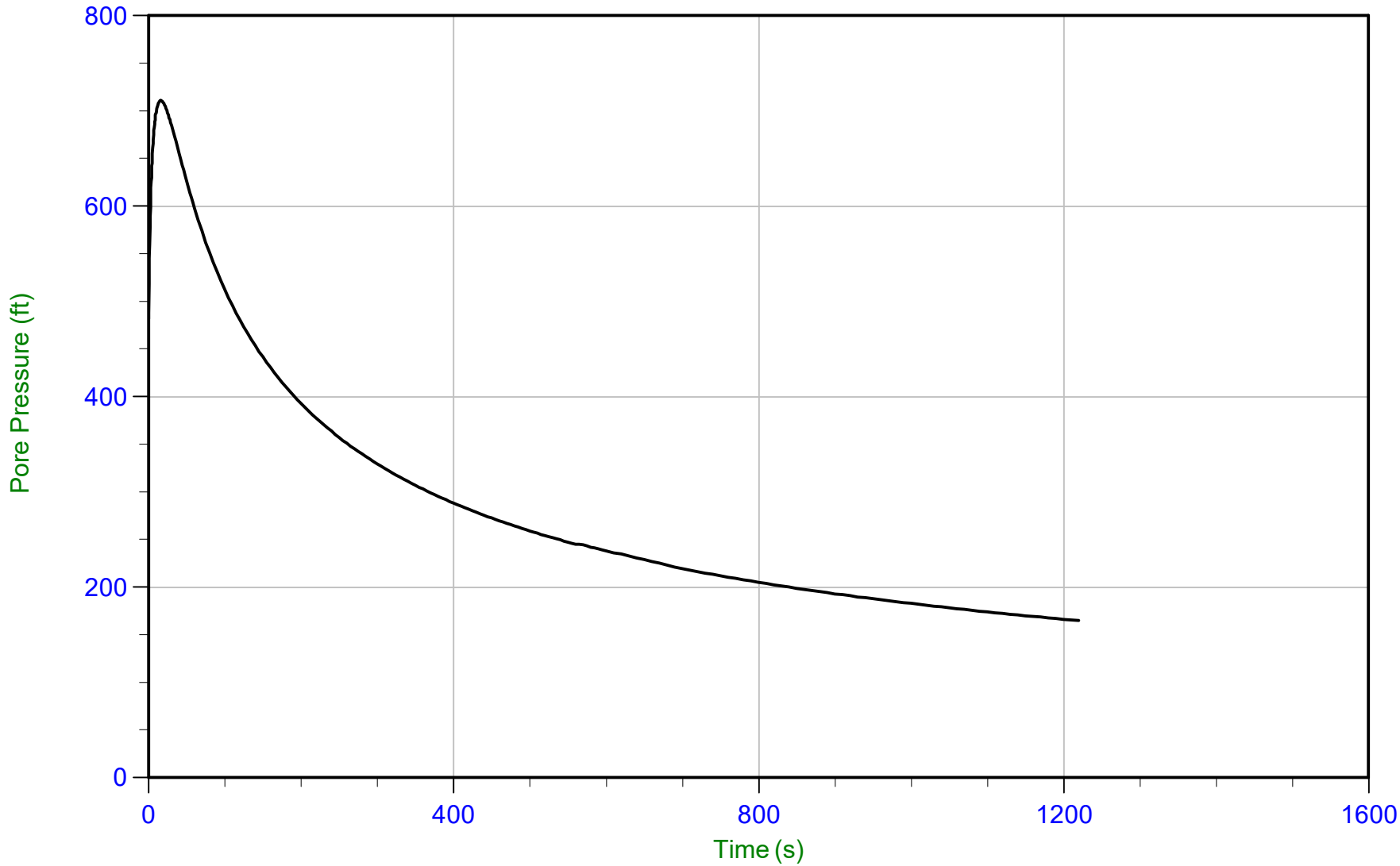
u Min: 174.4 ft
u Max: 580.2 ft
u Final: 174.4 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 11/09/2022 08:58
Site: SR 522/I-405

Sounding: NE-202cp-22
Cone: 870:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-202.PPF
Depth: 12.475 m / 40.928 ft
Duration: 1220.0 s

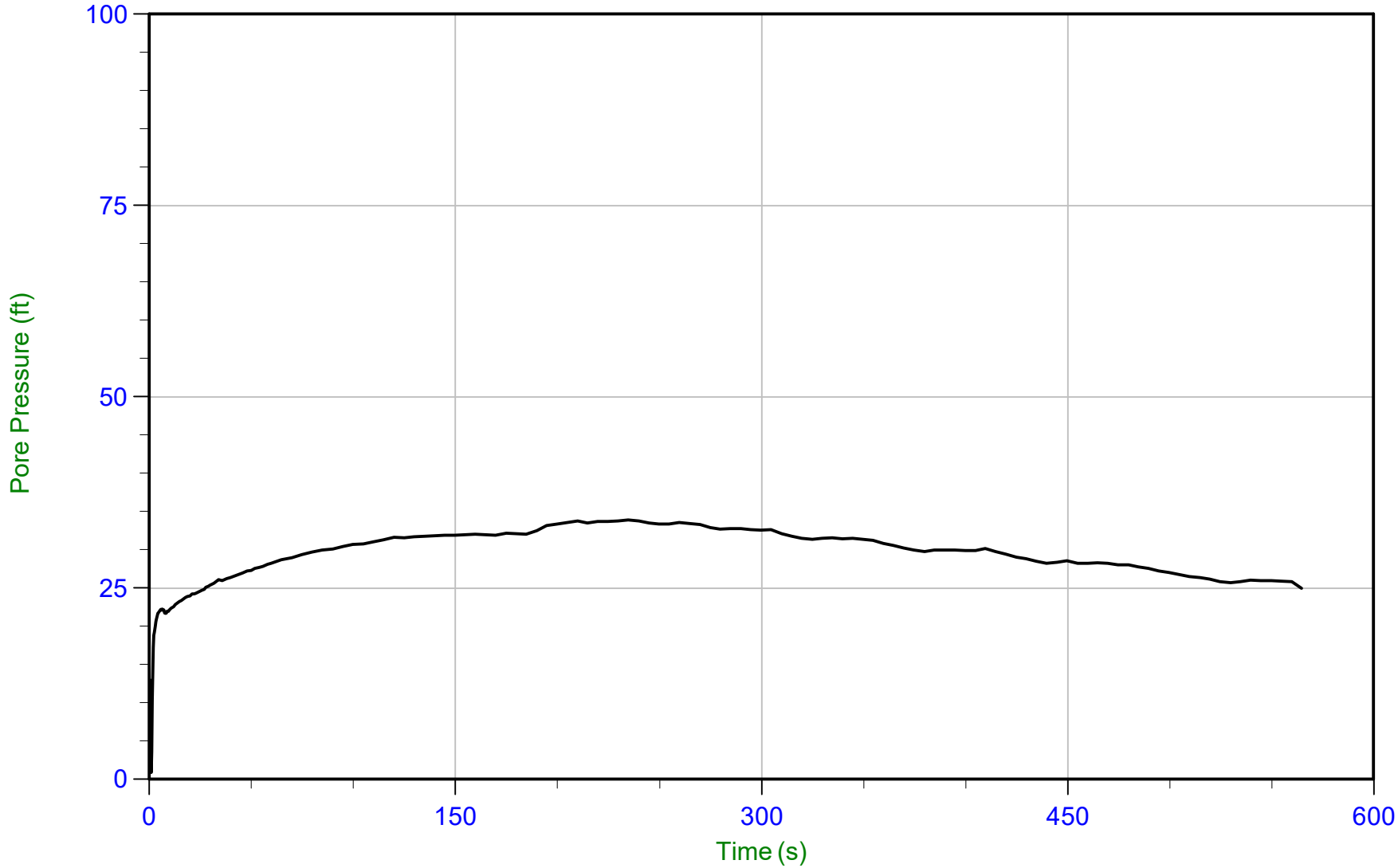
u Min: 164.9 ft
u Max: 711.0 ft
u Final: 164.9 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 10/31/2022 10:31
Site: SR 522/I-405

Sounding: NE-203cp-22
Cone: 921:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-203.PPF
Depth: 1.450 m / 4.757 ft
Duration: 565.0 s

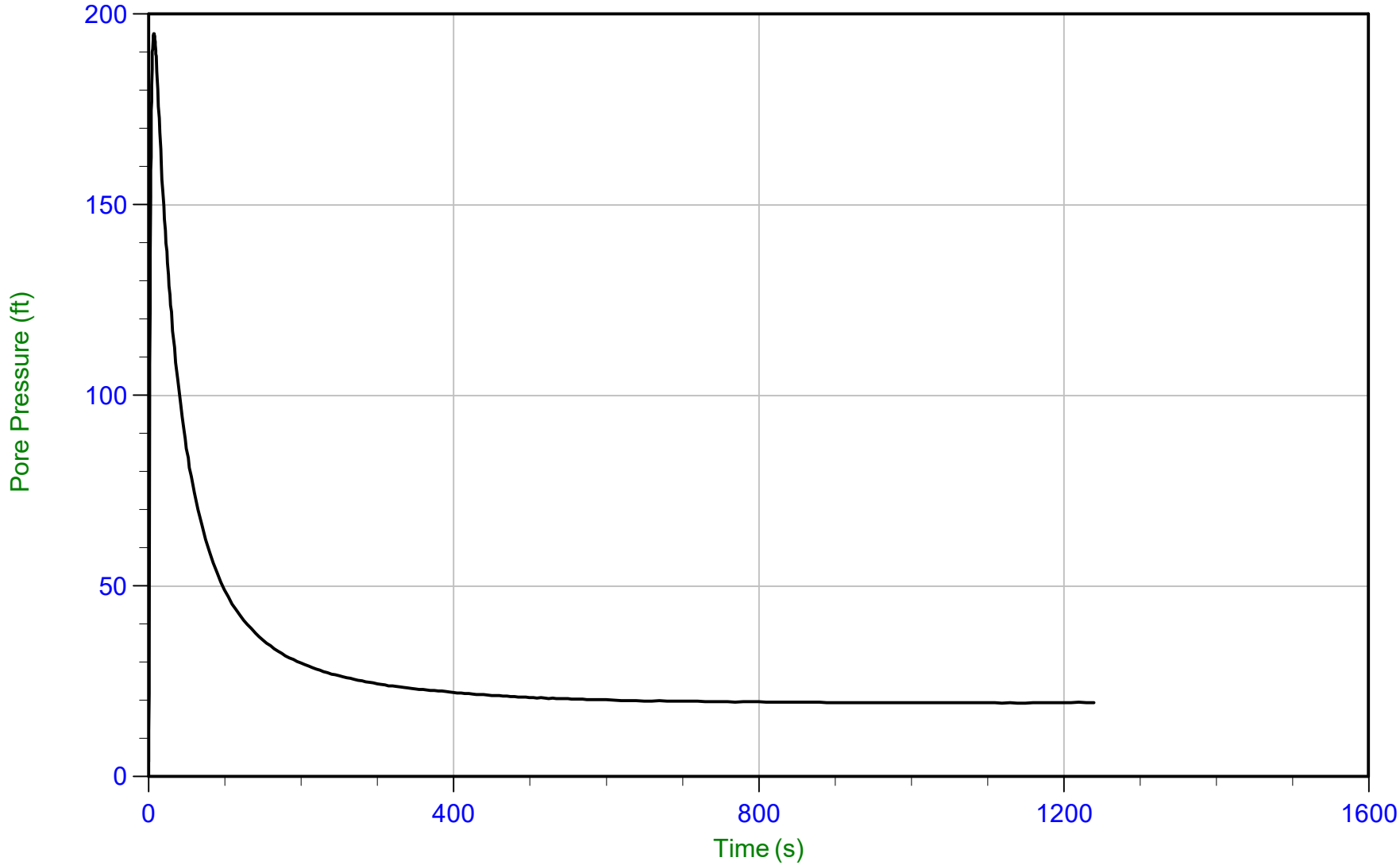
u Min: 0.9 ft
u Max: 33.9 ft
u Final: 24.9 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 10/31/2022 10:31
Site: SR 522/I-405

Sounding: NE-203cp-22
Cone: 921:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-203.PPF
Depth: 6.150 m / 20.177 ft
Duration: 1240.0 s

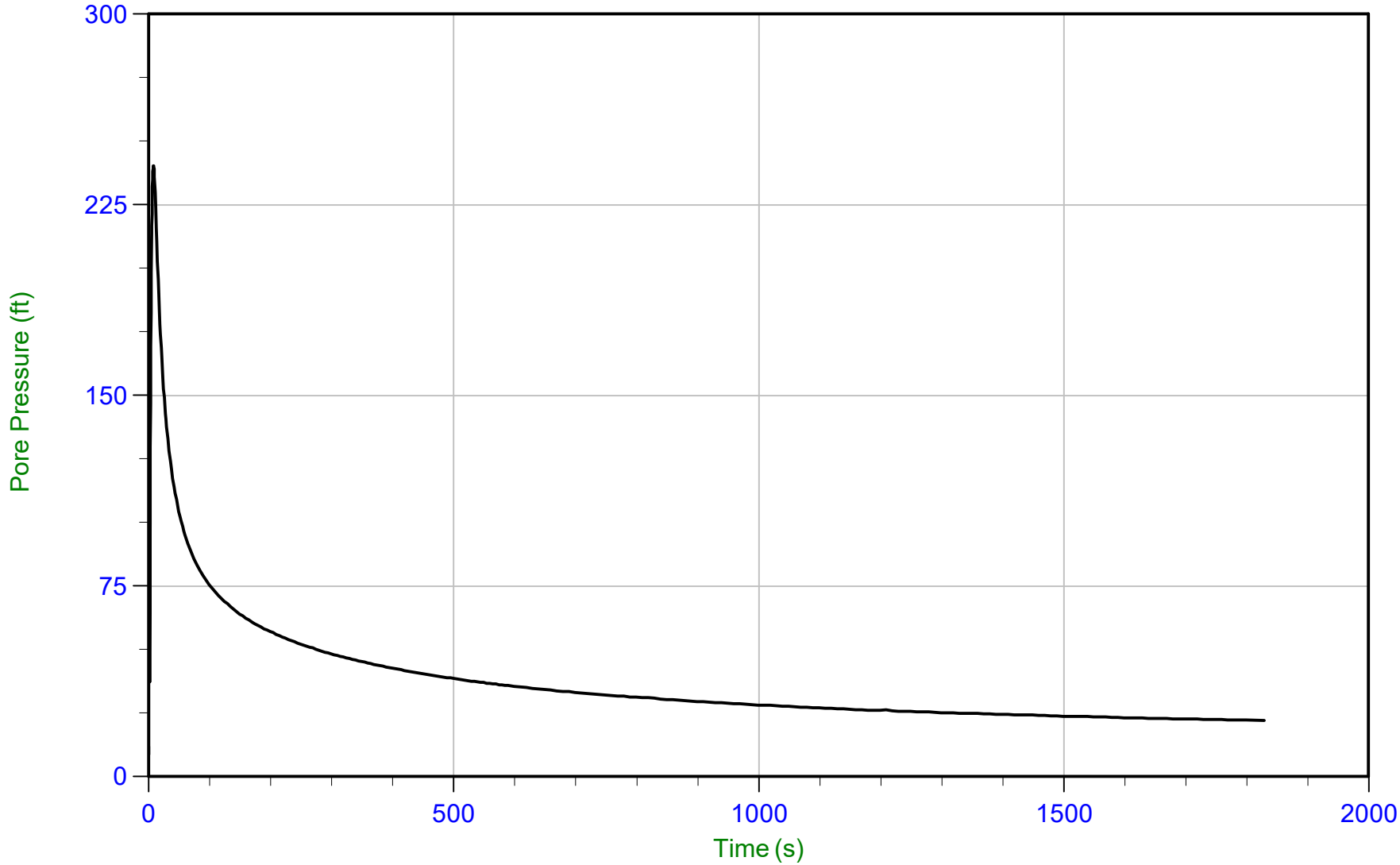
u Min: 4.0 ft
u Max: 194.9 ft
u Final: 19.4 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 10/31/2022 10:31
Site: SR 522/I-405

Sounding: NE-203cp-22
Cone: 921:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-203.PPF
Depth: 9.975 m / 32.726 ft
Duration: 1830.0 s

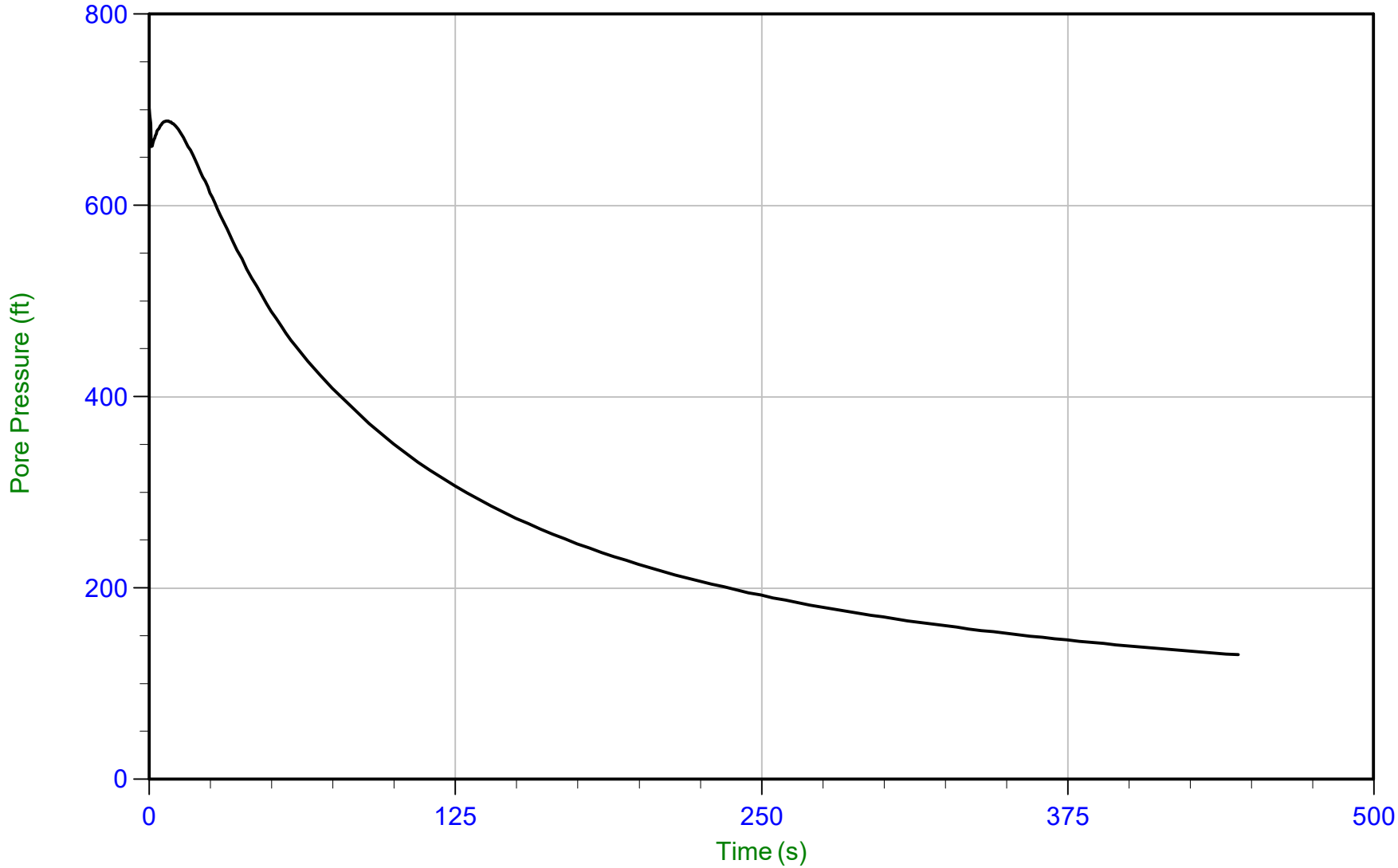
u Min: 8.7 ft
u Max: 240.3 ft
u Final: 22.0 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 10/31/2022 10:31
Site: SR 522/I-405

Sounding: NE-203cp-22
Cone: 921:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_SP_NE-203.PPF
Depth: 14.425 m / 47.326 ft
Duration: 445.0 s

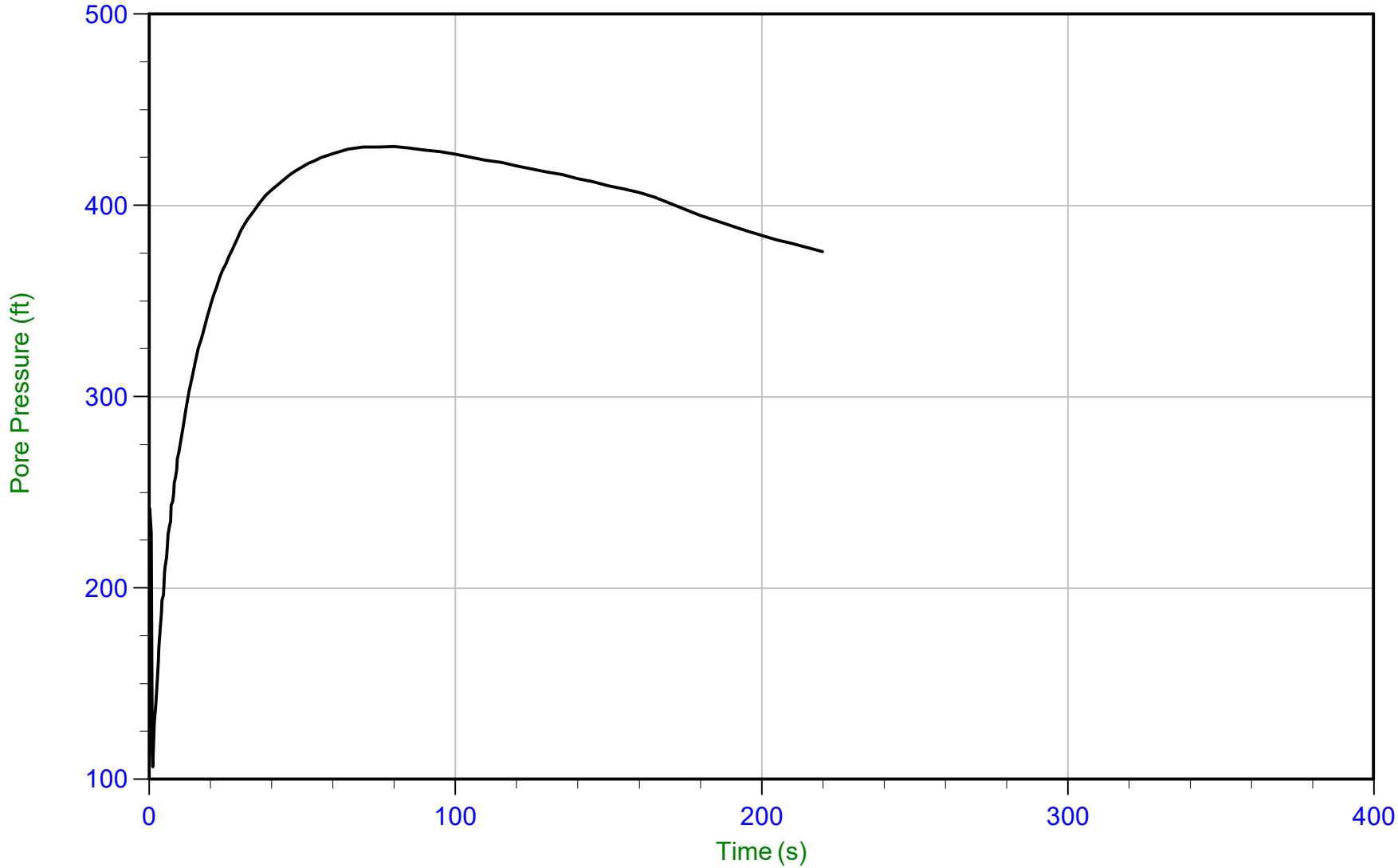
u Min: 130.2 ft
u Max: 701.0 ft
u Final: 130.2 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 10/31/2022 14:10
Site: SR 522/I-405

Sounding: NE-204cp-22
Cone: 921:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_CP_NE-204.PPF
Depth: 28.375 m / 93.093 ft
Duration: 220.0 s

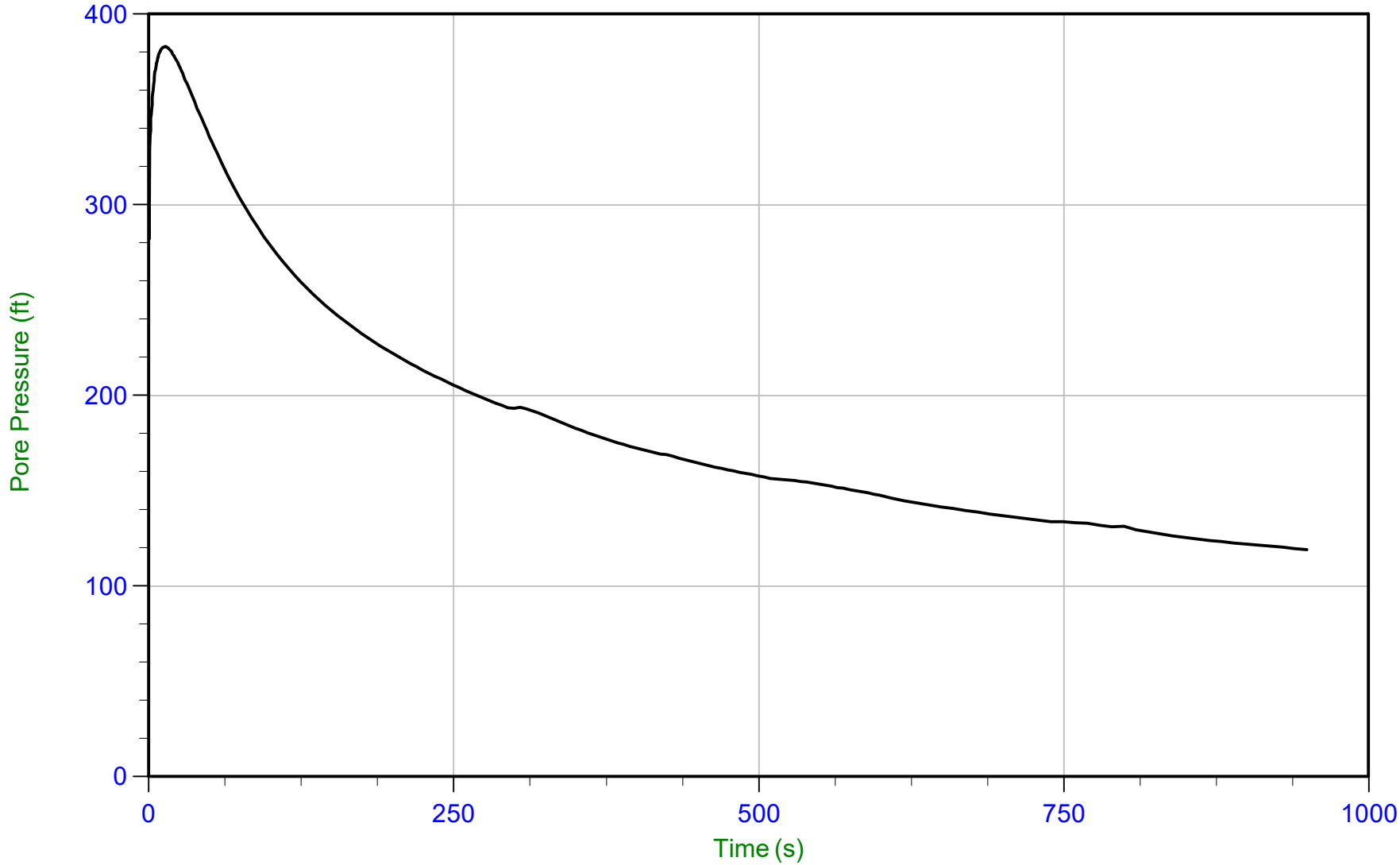
u Min: 106.5 ft
u Max: 430.7 ft
u Final: 375.9 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 11/09/2022 11:33
Site: SR 522/I-405

Sounding: NE-205cp-22
Cone: 870:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_CP_NE-205.PPF
Depth: 9.150 m / 30.019 ft
Duration: 950.0 s

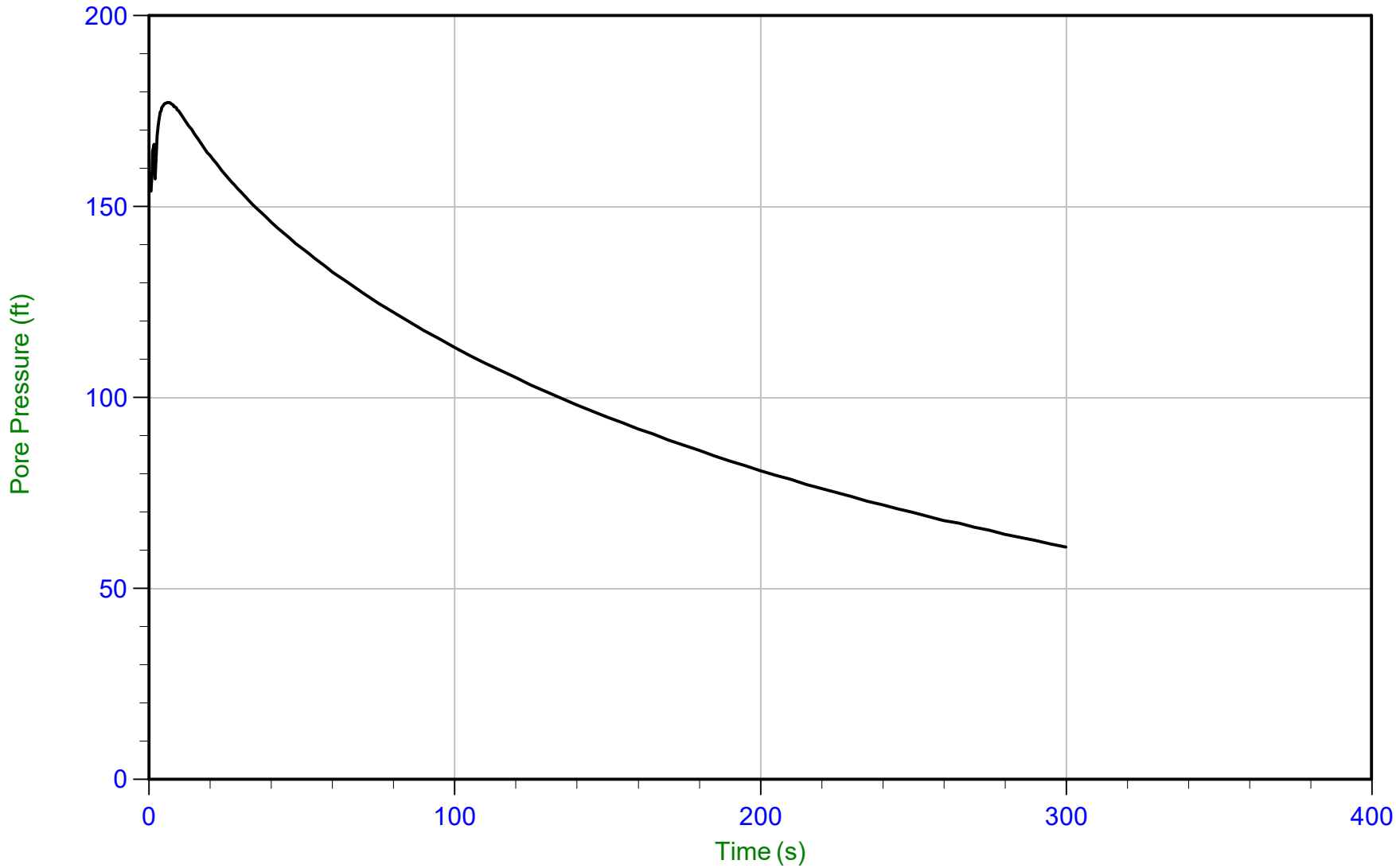
u Min: 119.1 ft
u Max: 383.0 ft
u Final: 119.1 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 12/05/2022 10:07
Site: SR522/I405 CPT

Sounding: NE-206cp-22
Cone: 859:T1500F15U3 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_CP_NE-206.PPF
Depth: 7.225 m / 23.704 ft
Duration: 300.0 s

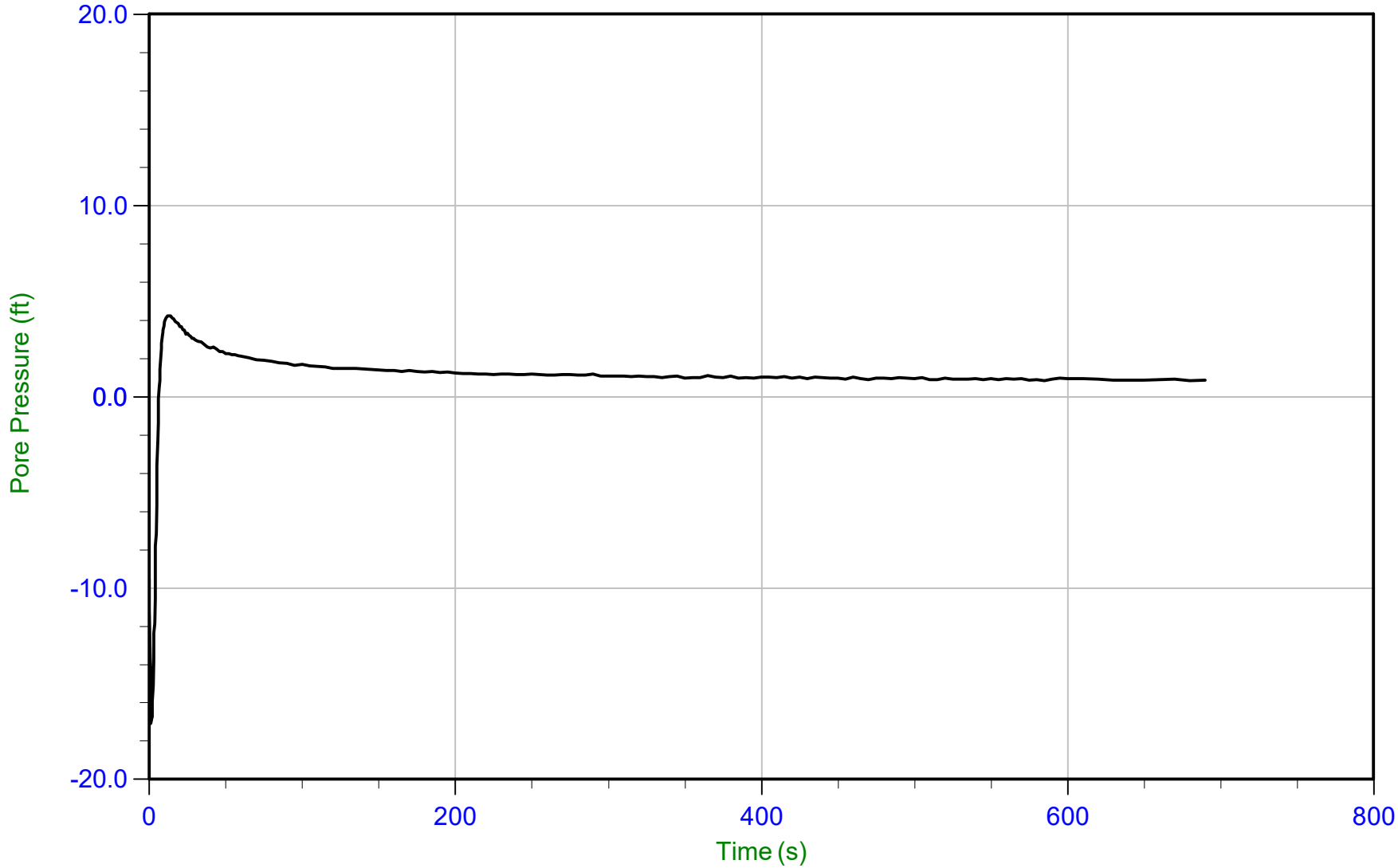
u Min: 60.9 ft
u Max: 177.3 ft
u Final: 60.9 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 12/05/2022 10:07
Site: SR522/I405 CPT

Sounding: NE-206cp-22
Cone: 859:T1500F15U3 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_CP_NE-206.PPF
Depth: 7.550 m / 24.770 ft
Duration: 690.0 s

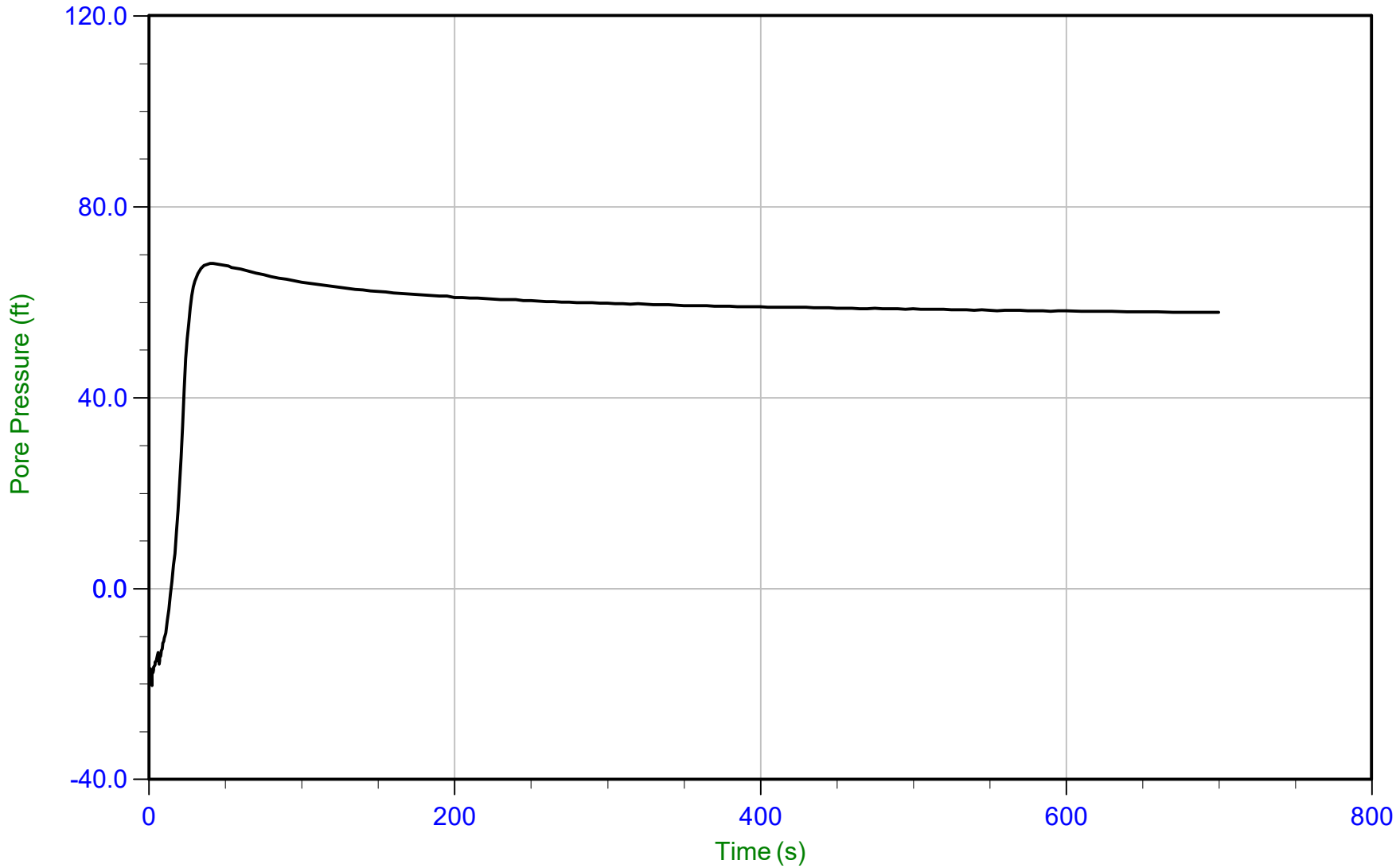
u Min: -17.1 ft
u Max: 4.2 ft
u Final: 0.9 ft

CONETEC

WSDOT

Job No: 22-59-25003
Date: 12/05/2022 10:07
Site: SR522/I405 CPT

Sounding: NE-206cp-22
Cone: 859:T1500F15U3 Area=15 cm²



Trace Summary:

Filename: 22-59-25003_CP_NE-206.PPF
Depth: 22.375 m / 73.408 ft
Duration: 700.0 s

u Min: -20.3 ft
u Max: 68.1 ft
u Final: 57.8 ft

APPENDIX B – PROJECT LABORATORY TEST RESULTS

B-1 CLASSIFICATION TESTS

B-2 CONSOLIDATION TESTS

B-3 STRENGTH TESTS

B-1 INDEX TESTS

Table B-1 - Laboratory Test Result Summary - GDR Supplement for I-405, Brickyard to SR 527 Improvement Project

Exploration Name	Sample Information				Field Blow Count[1] [RQD]	N60[2] [FF]	USCS[3] [ASTM D2487]	USCS Group Name or Rock Type[3,4] [ASTM D2487]	Moisture Content [AASHTO T265]	Atterberg Limits (Plasticity) [AASHTO T89, T90]			Grain Size Distribution/Hydrometer[5] (% of Sample by Weight) [AASHTO T11, T27, T88]					Specific Gravity [AASHTO T100]	LOI Organic Content [AASHTO T267]	pH/ Resistivity [WSDOT T417 & AASHTO T289]	Other Tests Performed[6]
	No.	Type	Depth (feet)	Elevation (feet)	(bpf)	(bpf)			(%)	LL	PL	PI	Gravel (%)	Sand (%)	Fines (%)	Silt (%)	Clay (%)		(%)	(/ohms-cm)	
NE-101VW-22	D-4	SPT	9.5	94.5	15	22	ML	SILT	24	33	24	9									
NE-101VW-22	D-5	SPT	12.5	91.5	14	20	CH	FAT CLAY	24	55	26	29									
NE-101VW-22	D-9	SPT	22.5	81.5	16	23	CH	FAT CLAY	27	65	27	38									
NE-101VW-22	PS-12	Piston	29.5	74.5	N/A	N/A	CL	LEAN CLAY	29	43	25	18	0	1.6	98.4	73.7	24.7	2.80			Direct Shear
NE-101VW-22	D-15	SPT	37.5	66.5	22	32	CL	LEAN CLAY	27	48	27	21									
NE-101VW-22	D-19	SPT	47.5	56.5	26	38	CL	LEAN CLAY with SAND	23	32	18	14	0	15	85	59	26	2.75			
NE-101VW-22	D-20	SPT	49.5	54.5	17	25	ML	SILT	26	34	25	9									
NE-101VW-22	PS-22	Piston	54.5	49.5	N/A	N/A	CL	LEAN CLAY	31	46	23	23	N/A	N/A	100	67.4	32.6	2.83			Direct Shear
NE-101VW-22	D-24	SPT	59.5	44.5	22	32	CL	LEAN CLAY	29	45	21	24	0	3	97	57	40	2.71			
NE-101VW-22	D-26	SPT	64.5	39.5	14	20	CL	LEAN CLAY	28	42	21	21									
NE-101VW-22	D-30	SPT	74.5	29.5	14	20	CL-ML	SANDY SILTY CLAY	11	22	17	5	0	30	70	59	11	2.69			
NE-101VW-22	D-32	SPT	79.5	24.5	22	32	SM	SILTY SAND	18	16	n/a	NP	0	51	49	40	9	2.71			
NE-101VW-22	D-35	SPT	94.5	9.5	17	25	CL	LEAN CLAY	25	33	21	12									
NE-101VW-22	D-36	SPT	99.5	4.5	17	25	CL	LEAN CLAY with SAND	23	26	18	8	0	21	79	63	16	2.72			
NE-101VW-22	D-38	SPT	109.5	-5.5	16	23	CL	LEAN CLAY	26	37	23	14	0	4	96	78	18	2.79			
NE-101VW-22	D-41	SPT	124.5	-20.5	19	28	CL	LEAN CLAY	29	41	21	20	0	3	97	61	37	2.78			
NE-101VW-22	D-45	SPT	144.5	-40.5	19	28	CL	LEAN CLAY	24	37	21	16									
NE-101VW-22	D-51	SPT	174.5	-70.5	18	26	CL	LEAN CLAY with SAND	24	25	16	9	0	20	80	56	24	2.76			
NE-101VW-22	D-53	SPT	184.4	-80.4	101	101	SM	SILTY SAND	19	n/a	n/a	NP	0	75	25						
NE-101VW-22	D-56	SPT	199.5	-95.5	101	101	SP-SM	POORLY GRADED SAND with SILT	18				0	93	7						
NE-101VW-22	D-60	SPT	219.5	-115.5	35	51	CL	LEAN CLAY	24	41	21	20									
NE-101VW-22	D-63	SPT	234.5	-130.5	28	41	CH	FAT CLAY	30	50	23	27									
NE-102VW-22	D-3	SPT	9	95.3	2	3	CL	LEAN CLAY	34	44	25	19									
NE-102VW-22	P-4	Piston	12	92.3	N/A	N/A	CL	LEAN CLAY	28	34	23	11	0	1.8	98.2	75.7	22.5	2.66			Direct Shear
NE-102VW-22	D-7	SPT	19	85.3	16	23	ML	SILT	28	41	26	15									
NE-102VW-22	P-9	Piston	24	80.3	N/A	N/A	CH	FAT CLAY	30	52	23	29	0	2	98	71.7	26.3	2.85			Consolidation
NE-102VW-22	D-10	SPT	26.5	77.8	17	25	CL	LEAN CLAY	33	45	25	20	0	1	99	70	29	2.81			
NE-102VW-22	D-12	SPT	32	72.3	24	35	CL	LEAN CLAY	18	34	19	15									
NE-102VW-22	D-16	SPT	42	62.3	24	35	CL	LEAN CLAY	18	28	17	11									
NE-102VW-22	D-18	SPT	47	57.3	27	39	CL	LEAN CLAY	17	32	18	14									
NE-102VW-22	D-24	SPT	62	42.3	13	19	CL	LEAN CLAY	26	33	23	10	0	7	93	78	15	2.76			

Table B-1 - Laboratory Test Result Summary - GDR Supplement for I-405, Brickyard to SR 527 Improvement Project

Exploration Name	Sample Information				Field Blow Count[1] [RQD]	N60[2] [FF]	USCS[3] [ASTM D2487]	USCS Group Name or Rock Type[3,4] [ASTM D2487]	Moisture Content [AASHTO T265]	Atterberg Limits (Plasticity) [AASHTO T89, T90]			Grain Size Distribution/Hydrometer[5] (% of Sample by Weight) [AASHTO T11, T27, T88]					Specific Gravity [AASHTO T100]	LOI Organic Content [AASHTO T267]	pH/ Resistivity [WSDOT T417 & AASHTO T289]	Other Tests Performed[6]
	No.	Type	Depth (feet)	Elevation (feet)	(bpf)	(bpf)			(%)	LL	PL	PI	Gravel (%)	Sand (%)	Fines (%)	Silt (%)	Clay (%)		(%)	(/ohms-cm)	
NE-102VW-22	D-27	SPT	69	35.3	16	23	CL	LEAN CLAY	26	39	20	19									
NE-102VW-22	D-31	SPT	89	15.3	15	22	CL	LEAN CLAY with SAND	24	37	17	20	0	20	80	59	21	2.79			
NE-102VW-22	D-37	SPT	119	-14.7	20	29	CL	LEAN CLAY	27	32	22	10	0	7	93	77	16	2.80			
NE-102VW-22	D-43	SPT	149	-44.7	21	30	CL	LEAN CLAY	23	36	21	15									
NE-102VW-22	D-45	SPT	159	-54.7	21	30	CL	LEAN CLAY with SAND	20	29	17	12	0	24	76	59	17	2.80			
NE-102VW-22	D-47	SPT	169	-64.7	101	101	SM	Silty SAND	18				0	79	21						
NE-102VW-22	D-50	SPT	184	-79.7	101	101	CL	LEAN CLAY	24	28	18	10									
NE-103vw-22	D-3	SPT	14	40.1	14	21	CL	LEAN CLAY	24	32	23	9	0	11	89	74	15	3.00			
NE-103vw-22	D-5	SPT	19	35.1	19	29	CL	LEAN CLAY with SAND	24	27	19	8	0	19	81	68	13	2.78			
NE-103vw-22	S-9	Shelby	29	25.1	N/A	N/A	ML	SANDY SILT	17	20	17	3	0	43.2	56.8	42.7	14.1				CU Triax
NE-103vw-22	D-10	SPT	32	22.1	13	20	CL	LEAN CLAY	22	32	20	12									
NE-103vw-22	D-10	SPT	32.1	22.0	13	20	CH	FAT CLAY	47	79	25	54									
NE-103vw-22	D-12	SPT	37	17.1	14	21	CH	FAT CLAY	30	51	22	29	0	2	98	68	29	2.80			
NE-103vw-22	S-13	Shelby	39	15.1	N/A	N/A	CL	LEAN CLAY with SAND	19	27	18	9	0	27.3	72.7	45.3	27.4				Consolidation
NE-103vw-22	D-16	SPT	47	7.1	16	24	ML	SILT	30	38	25	13	0	2	98	70	28	2.83			
NE-103vw-22	S-17	Shelby	49	5.1	N/A	N/A	CL	LEAN CLAY	28	46	21	25	0	0.5	99.5	46.8	52.7				CU Triax
NE-103vw-22	D-19	SPT	59	-4.9	15	23	CL	LEAN CLAY	29	38	23	15	0	1	99	77	22	2.82			
NE-103vw-22	S-21	Shelby	69	-14.9	N/A	N/A	CL	LEAN CLAY	28	40	20	20	0	0.4	99.6	61.3	38.3				CU Triax
NE-103vw-22	D-22	SPT	74	-19.9	27	41	CL	LEAN CLAY	23	37	20	17	4	8	88	68	21	2.80			
NE-103vw-22	D-24	SPT	84	-29.9	101	101	SM	SILTY SAND	22	n/a	n/a	NP	0	65	35						
NE-103vw-22	D-27	SPT	99	-44.9	101	101	SC	CLAYEY SAND with GRAVEL	15	26	16	10	31	45	25	19	6	2.78			
NE-103vw-22	D-30	SPT	114	-59.9	101	101	GP	POORLY GRADED GRAVEL with SAND	4				74	23	4						
NE-104VW-22	D-3	SPT	14	39.3	14	21	CH	FAT CLAY	33	53	25	28									
NE-104VW-22	D-5	SPT	19	34.3	12	18	CL	LEAN CLAY	25	45	23	22	9	6	86	62	24	2.78			
NE-104VW-22	D-7	SPT	24	29.3	13	20	CL	LEAN CLAY	28	47	26	21									
NE-104VW-22	S-9	Shelby	29	24.3	N/A	N/A	CL	LEAN CLAY	24	33	19	14	0	11.4	88.6	67.8	20.7	2.72			Consolidation, Direct Shear
NE-104VW-22	D-10	SPT	32	21.3	19	29	CL	LEAN CLAY	39	24	16	8									
NE-104VW-22	D-12	SPT	37	16.3	17	26	CL	LEAN CLAY	26	40	23	17									
NE-104VW-22	S-13	Shelby	39	14.3	N/A	N/A	CH	FAT CLAY	33	54	23	31	0	0.4	99.6	44.1	55.5	2.67			Consolidation Direct Shear
NE-104VW-22	D-15	SPT	44	9.3	22	34	CL-ML	SILTY CLAY with SAND	22	20	14	6	0	26	74	47	27	2.80			
NE-104VW-22	D-18	SPT	54	-0.7	25	38	CL	LEAN CLAY	17	27	17	10									
NE-104VW-22	D-22	SPT	69	-15.7	28	43	CL	LEAN CLAY	26	41	22	19	0	1	99	66	33	2.81			
NE-104VW-22	D-26	SPT	89	-35.7	72	101	SP	POORLY GRADED SAND	12				14	82	4						
NE-104VW-22	D-29	SPT	104	-50.7	101	101	SP-SM	POORLY GRADED SAND with SILT and GRAVEL	9				20	72	7						
NE-104VW-22	D-33	SPT	124	-70.7	15	23	CL	LEAN CLAY with SAND	24	30	19	11	0	22	78	61	18	2.77			

Table B-1 - Laboratory Test Result Summary - GDR Supplement for I-405, Brickyard to SR 527 Improvement Project

Exploration Name	Sample Information				Field Blow Count[1] [RQD]	N60[2] [FF]	USCS[3] [ASTM D2487]	USCS Group Name or Rock Type[3,4] [ASTM D2487]	Moisture Content [AASHTO T265]	Atterberg Limits (Plasticity) [AASHTO T89, T90]			Grain Size Distribution/Hydrometer[5] (% of Sample by Weight) [AASHTO T11, T27, T88]					Specific Gravity [AASHTO T100]	LOI Organic Content [AASHTO T267]	pH/ Resistivity [WSDOT T417 & AASHTO T289]	Other Tests Performed[6]
	No.	Type	Depth (feet)	Elevation (feet)	(bpf)	(bpf)			(%)	LL	PL	PI	Gravel (%)	Sand (%)	Fines (%)	Silt (%)	Clay (%)		(%)	(/ohms-cm)	

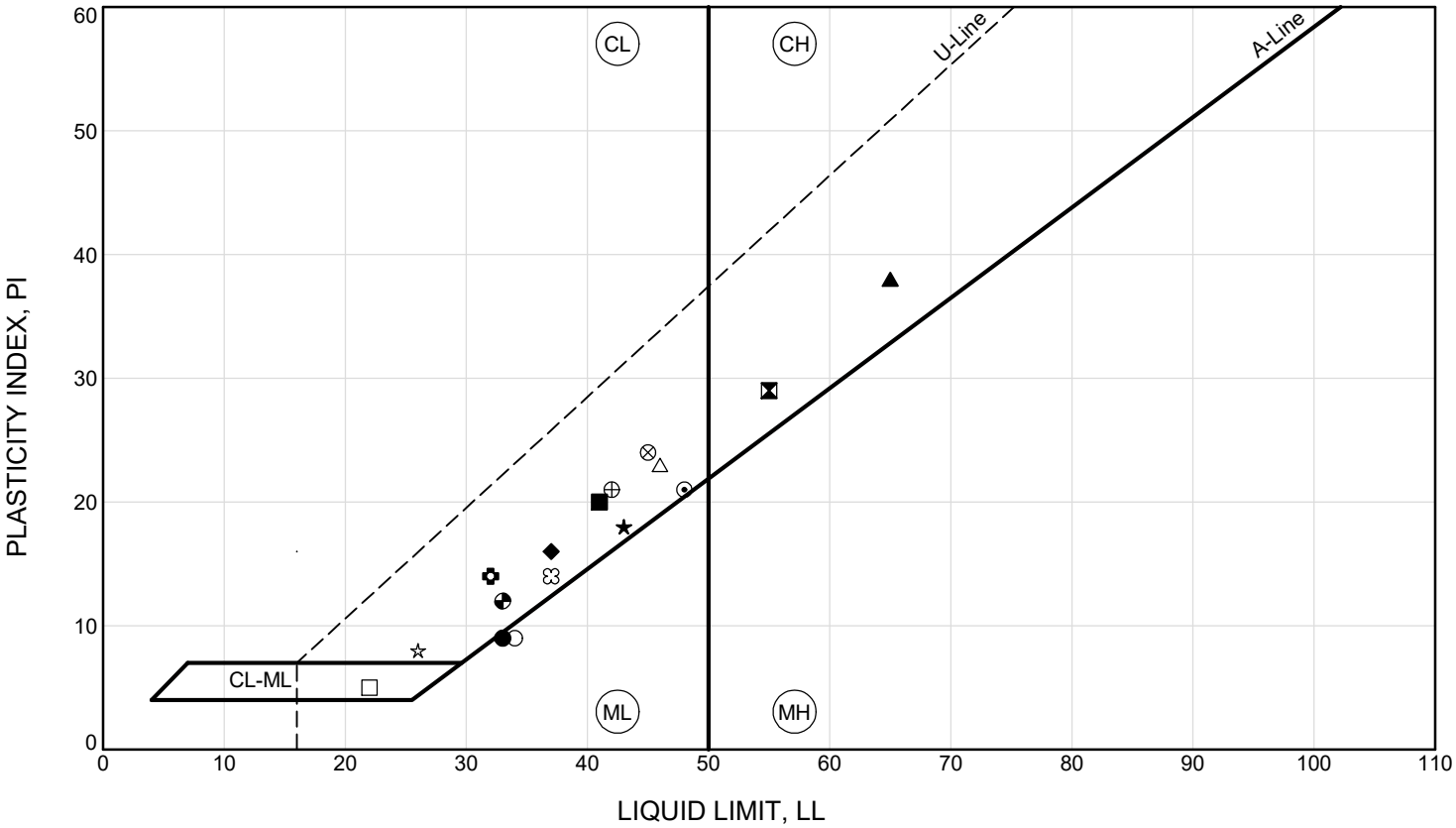
NOTES:

1. Blow count listed represents the field measured blows per foot (bpf) based on Standard Penetration Test (SPT) methods. The values show have not been corrected for SPT hammer energy or other factors. Values have been corrected for sampler size. For core samples, RQD (%) is listed instead of the field blo
2. N_{60} is the SPT field N-value that has been corrected for the drill rig hammer energy, normalized to a 60% energy. See boring logs in Appendix A for hammer energies used. For core samples, FF (#/foot) is listed instead of N_{60}.
3. In some cases the USCS Symbol and Group Name were estimated based on a) an assumption of less than 15% sand/gravel based on visual-manual procedure and b) an assumption that fines are non-plastic based on visual-manual examination procedures. Identification of estimates is provided on the Atterbe
4. Rock type is based on visual observations only. Where rock type is shown in brackets, the USCS description is based on the portion of the sample that breaks down into soil (weathered rock).
5. Gravel, sand, and fines represents particle sizes greater than 4.75 mm, between 0.075 and 4.75 mm, and smaller than 0.075 mm, respectively. Silt and clay represents particle sizes between 0.075 and 0.002 mm and smaller than 0.002 mm, respectively. Fines = Silt + Clay.
6. See Exploration Log Legend in Appendix A for abbreviations of different test types.

Acronyms: RQD = rock quality designation; FF = fracture frequency; USCS = Unified Soil Classification System; LL = liquid limit; PL = plastic limit; PI = plasticity index; n/a = not tested or not applicable; NP = nonplastic; AASHTO - American Association of State Highway Transportation Officials;

Units: bpf = blows per foot; psi = pounds per square inch; pcf = pounds per cubic foot; psf = pounds per square foot

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

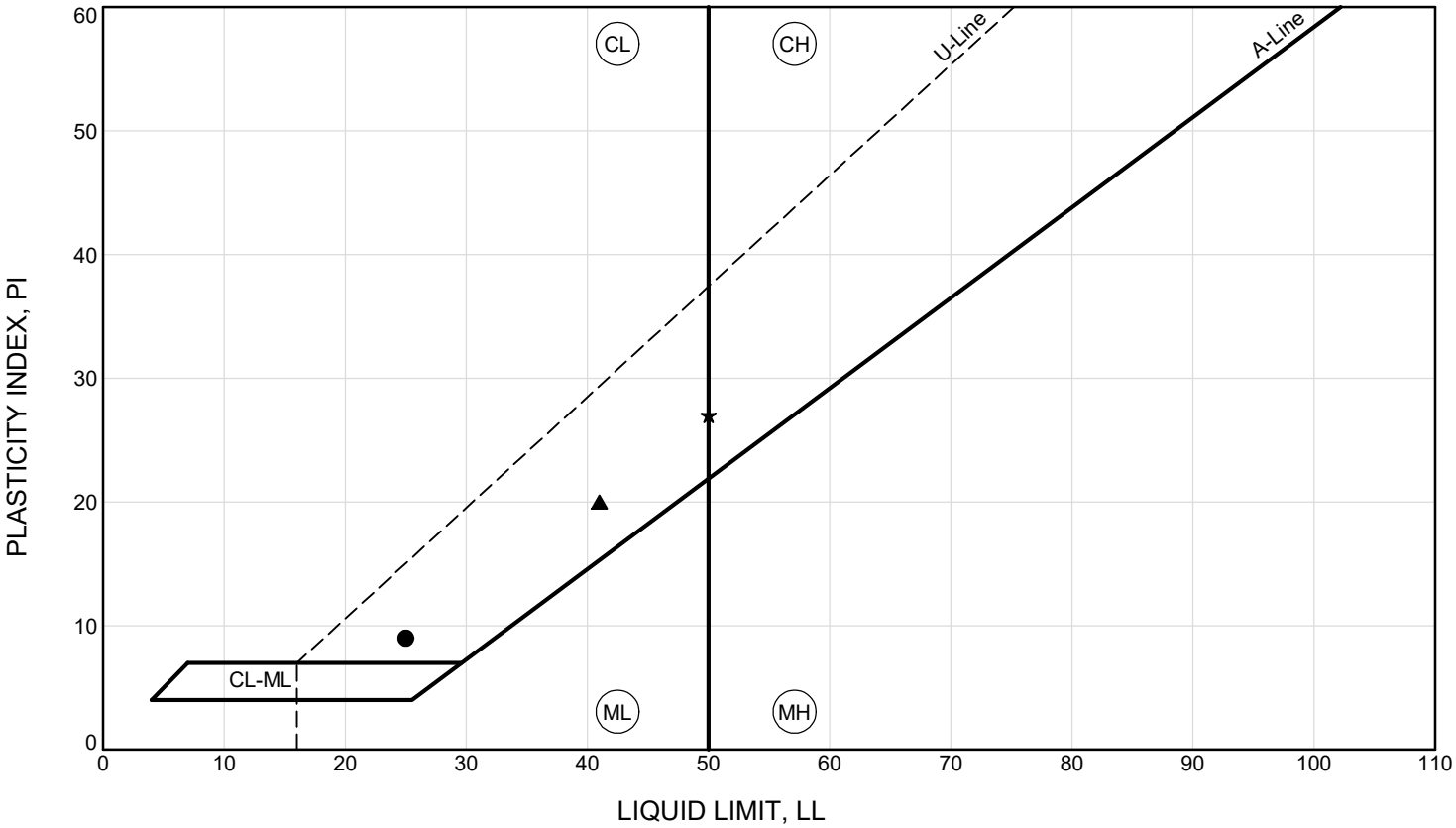


Symbol	Hole No.	Depth (feet)	Sample No.	USCS	Description	Comment	MC (%)	LL	PL	PI	Fines (%)	Silt (%)	Clay (%)
●	NE-101VW-22	9.5	D-4	ML	SILT		23	33	24	9			
⊠	NE-101VW-22	12.5	D-5	CH	FAT CLAY		24	55	26	29			
▲	NE-101VW-22	22.5	D-9	CH	FAT CLAY		27	65	27	38			
★	NE-101VW-22	29.5	PS-12	CL	LEAN CLAY		29	43	25	18	98.4	73.7	24.7
⊙	NE-101VW-22	37.5	D-15	CL	LEAN CLAY		27	48	27	21			
✿	NE-101VW-22	47.5	D-19	CL	LEAN CLAY with SAND		23	32	18	14	84.7	58.1	26.7
○	NE-101VW-22	49.5	D-20	ML	SILT		26	34	25	9			
△	NE-101VW-22	54.5	PS-22	CL	LEAN CLAY		31	46	23	23	100.0	67.4	32.6
⊗	NE-101VW-22	59.5	D-24	CL	LEAN CLAY		29	45	21	24	96.8	55.9	40.9
⊕	NE-101VW-22	64.5	D-26	CL	LEAN CLAY		28	42	21	21			
□	NE-101VW-22	74.5	D-30	CL-ML	SANDY SILTY CLAY		11	22	17	5	69.5	58.2	11.4
	NE-101VW-22	79.5	D-32	SM	SILTY SAND		18	16	n/a	NP	48.7	39.4	9.3
◕	NE-101VW-22	94.5	D-35	CL	LEAN CLAY		25	33	21	12			
☆	NE-101VW-22	99.5	D-36	CL	LEAN CLAY with SAND		23	26	18	8	79.3	61.9	17.3
⊠	NE-101VW-22	109.5	D-38	CL	LEAN CLAY		26	37	23	14	96.2	76.9	19.3
■	NE-101VW-22	124.5	D-41	CL	LEAN CLAY		29	41	21	20	97.4	59.5	37.8
◆	NE-101VW-22	144.5	D-45	CL	LEAN CLAY		24	37	21	16			

** Sample was assumed to have less than 15% sand/gravel based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the Atterberg Limits only.*

ABBREVIATIONS:
LL = liquid limit; MC = moisture content; n/a = test attempted; NP = nonplastic; PI = plasticity index; PL = plastic limit; USCS = Unified Soil Classification System code
USCS codes listed on graph: CL = lean clay; CH = fat clay; ML = silt; MH = elastic silt; CL-ML = silty clay

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**



Symbol	Hole No.	Depth (feet)	Sample No.	USCS	Description	Comment	MC (%)	LL	PL	PI	Fines (%)	Silt (%)	Clay (%)
●	NE-101VW-22	174.5	D-51	CL	LEAN CLAY with SAND		24	25	16	9	80.0	55.6	24.4
	NE-101VW-22	184.4	D-53	SM	SILTY SAND	Dry Prep Performed	19	n/a	n/a	NP	25.3		
▲	NE-101VW-22	219.5	D-60	CL	LEAN CLAY		24	41	21	20			
★	NE-101VW-22	234.5	D-63	CH	FAT CLAY		30	50	23	27			

** Sample was assumed to have less than 15% sand/gravel based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the Atterberg Limits only.*

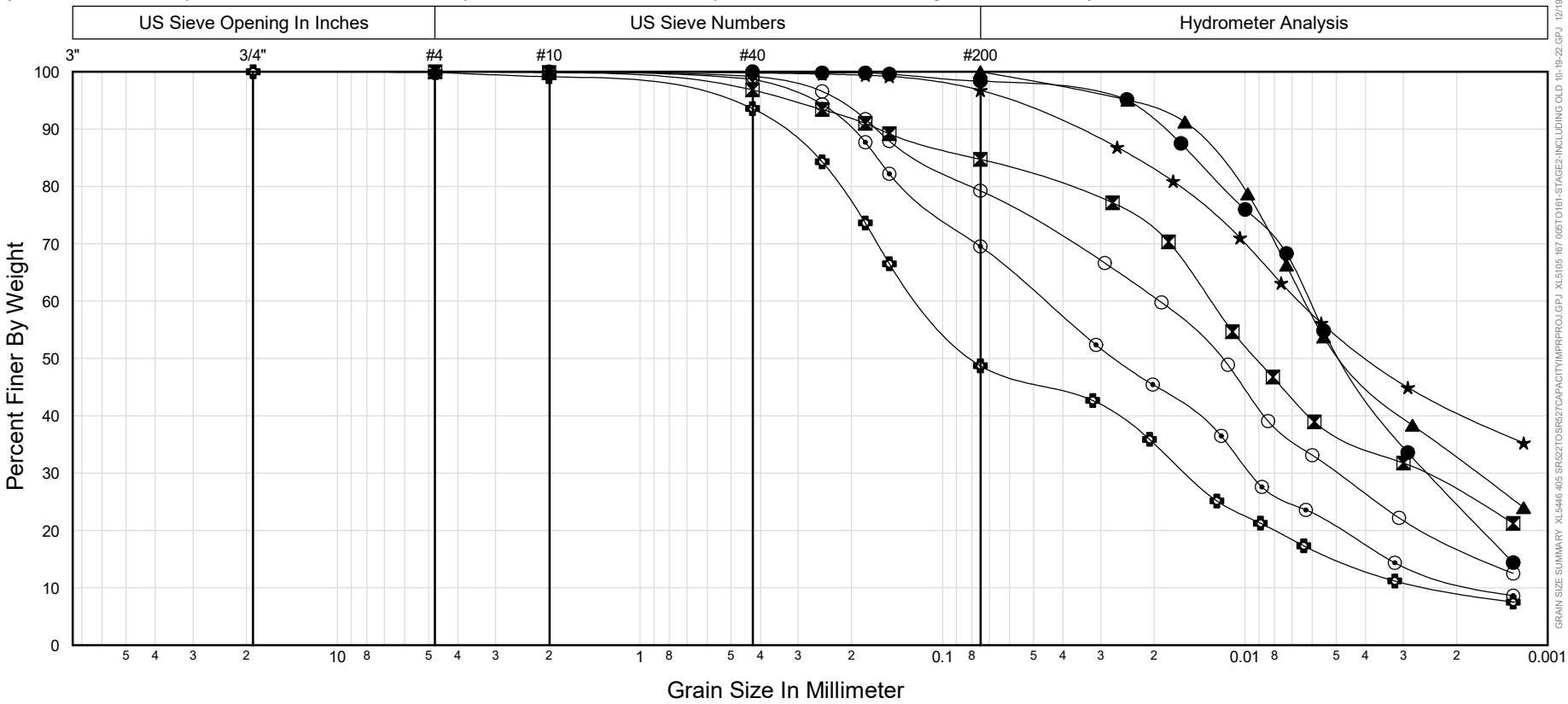
ABBREVIATIONS:
LL = liquid limit; MC = moisture content; n/a = test attempted; NP = nonplastic; PI = plasticity index; PL = plastic limit; USCS = Unified Soil Classification System code
USCS codes listed on graph: CL = lean clay; CH = fat clay; ML = silt; MH = elastic silt; CL-ML = silty clay

GRAIN SIZE ANALYSIS SUMMARY FOR NE-101VW-22

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	29.5	PS-12	CL	LEAN CLAY	12-19-22	29	43	25	18		2.80	0.0	1.6	98.4			0.019	0.006	0.005	0.002	0.002	
⊠	47.5	D-19	CL	LEAN CLAY with SAND	11-3-22	23	32	18	14		2.75	0.0	15.3	84.7			0.163	0.013	0.009	0.003		
▲	54.5	PS-22	CL	LEAN CLAY	12-19-22	31	46	23	23		2.83	N/A	N/A	100.0			0.015	0.006	0.005	0.002		
★	59.5	D-24	CL	LEAN CLAY	11-3-22	29	45	21	24		2.71	0.0	3.2	96.8			0.037	0.007	0.004			
⊙	74.5	D-30	CL-ML	SANDY SILTY CLAY	11-3-22	11	22	17	5		2.69	0.0	30.5	69.5	1.2	29	0.202	0.046	0.027	0.010	0.005	0.002
✿	79.5	D-32	SM	SILTY SAND	11-3-22	18	16	n/a	NP		2.71	0.1	51.2	48.7	0.9	49	0.346	0.116	0.079	0.016	0.008	0.002
○	99.5	D-36	CL	LEAN CLAY with SAND	11-3-22	23	26	18	8		2.72	0.0	20.7	79.3			0.166	0.019	0.012	0.005	0.003	

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*

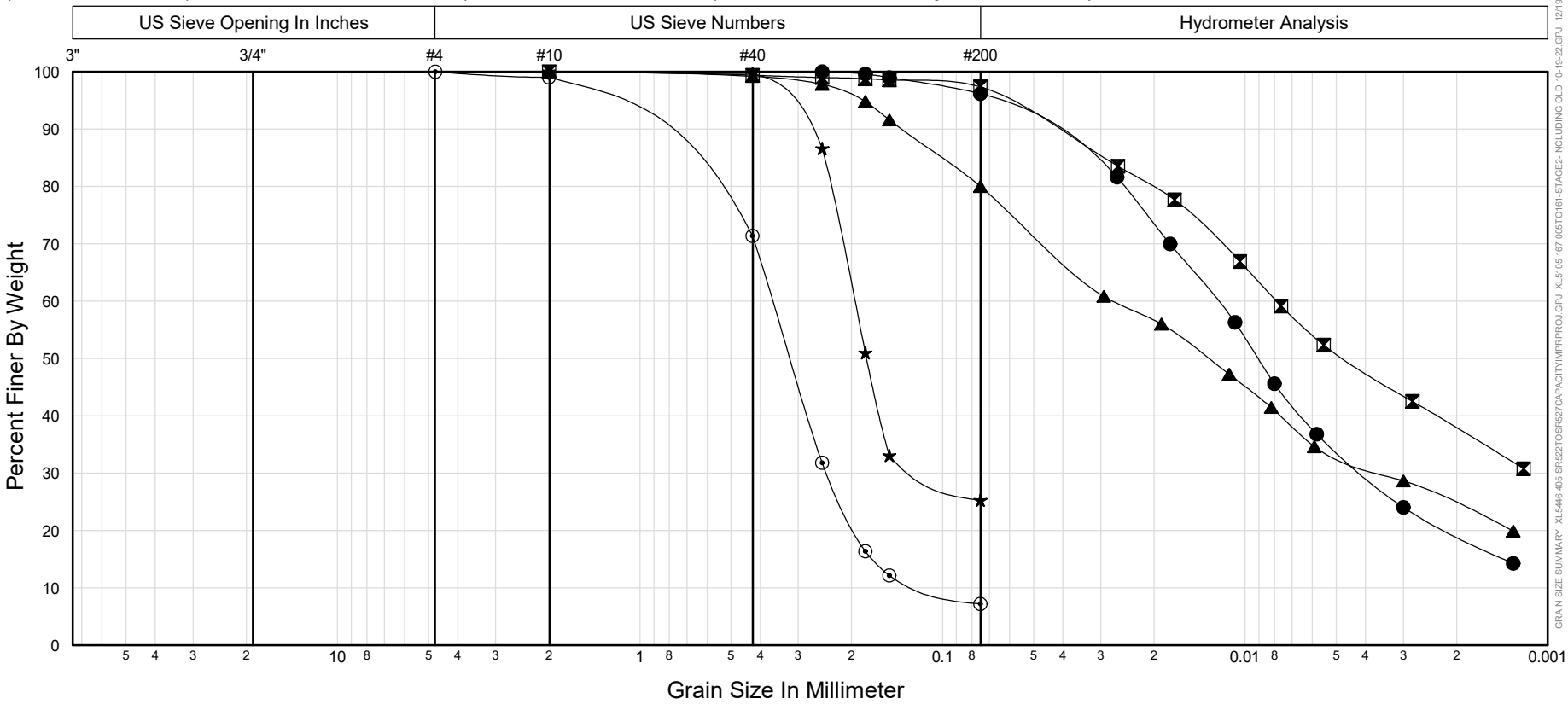


GRAIN SIZE ANALYSIS SUMMARY FOR NE-101VW-22

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

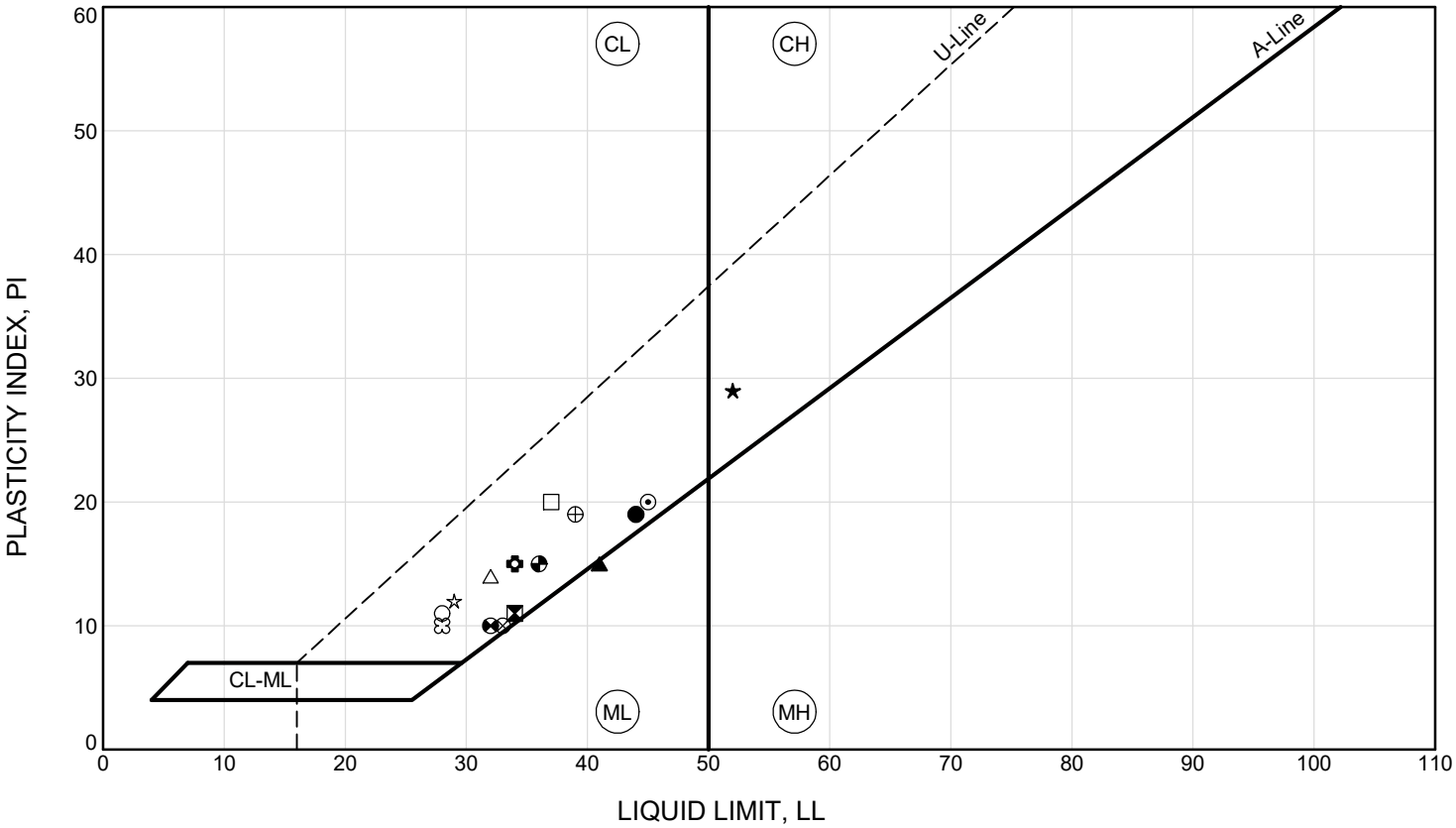
Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	109.5	D-38	CL	LEAN CLAY	11-3-22	26	37	23	14		2.79	0.0	3.8	96.2			0.048	0.012	0.009	0.004	0.002	
⊠	124.5	D-41	CL	LEAN CLAY	11-3-22	29	41	21	20		2.78	0.0	2.6	97.4			0.043	0.008	0.005			
▲	174.5	D-51	CL	LEAN CLAY with SAND	11-3-22	24	25	16	9		2.76	0.0	20.0	80.0			0.136	0.027	0.013	0.003	0.001	
★	184.4	D-53	SM	SILTY SAND	11-3-22	19	n/a	n/a	NP			0.0	74.7	25.3			0.287	0.196	0.178	0.114		
⊙	199.5	D-56	SP-SM	POORLY GRADED SAND with SILT	11-3-22	18						0.0	92.8	7.2	1.4	3	1.206	0.365	0.319	0.241	0.194	0.111

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*



Gravel		Sand			Silt	Clay
Coarse	Fine	Coarse	Medium	Fine		

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**



Symbol	Hole No.	Depth (feet)	Sample No.	USCS	Description	Comment	MC (%)	LL	PL	PI	Fines (%)	Silt (%)	Clay (%)
●	NE-102VW-22	9.0	D-3	CL	LEAN CLAY		33	44	25	19			
⊠	NE-102VW-22	12.0	P-4	CL	LEAN CLAY		28	34	23	11	98.2	75.7	22.5
▲	NE-102VW-22	19.0	D-7	ML	SILT		28	41	26	15			
★	NE-102VW-22	24.0	P-9	CH	FAT CLAY		30	52	23	29	98.0	71.7	26.3
⊙	NE-102VW-22	26.5	D-10	CL	LEAN CLAY		33	45	25	20	99.0	67.9	31.1
✿	NE-102VW-22	32.0	D-12	CL	LEAN CLAY		18	34	19	15			
○	NE-102VW-22	42.0	D-16	CL	LEAN CLAY		18	28	17	11			
△	NE-102VW-22	47.0	D-18	CL	LEAN CLAY		17	32	18	14			
⊗	NE-102VW-22	62.0	D-24	CL	LEAN CLAY		26	33	23	10	93.4	77.7	15.7
⊕	NE-102VW-22	69.0	D-27	CL	LEAN CLAY		26	39	20	19			
□	NE-102VW-22	89.0	D-31	CL	LEAN CLAY with SAND		24	37	17	20	79.5	57.7	21.8
⊠	NE-102VW-22	119.0	D-37	CL	LEAN CLAY		27	32	22	10	93.3	76.5	16.8
◕	NE-102VW-22	149.0	D-43	CL	LEAN CLAY		23	36	21	15			
☆	NE-102VW-22	159.0	D-45	CL	LEAN CLAY with SAND		20	29	17	12	76.3	58.8	17.6
⊠	NE-102VW-22	184.0	D-50	CL	LEAN CLAY		24	28	18	10			

** Sample was assumed to have less than 15% sand/gravel based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the Atterberg Limits only.*

ABBREVIATIONS:
LL = liquid limit; MC = moisture content; n/a = test attempted; NP = nonplastic; PI = plasticity index; PL = plastic limit; USCS = Unified Soil Classification System code
USCS codes listed on graph: CL = lean clay; CH = fat clay; ML = silt; MH = elastic silt; CL-ML = silty clay

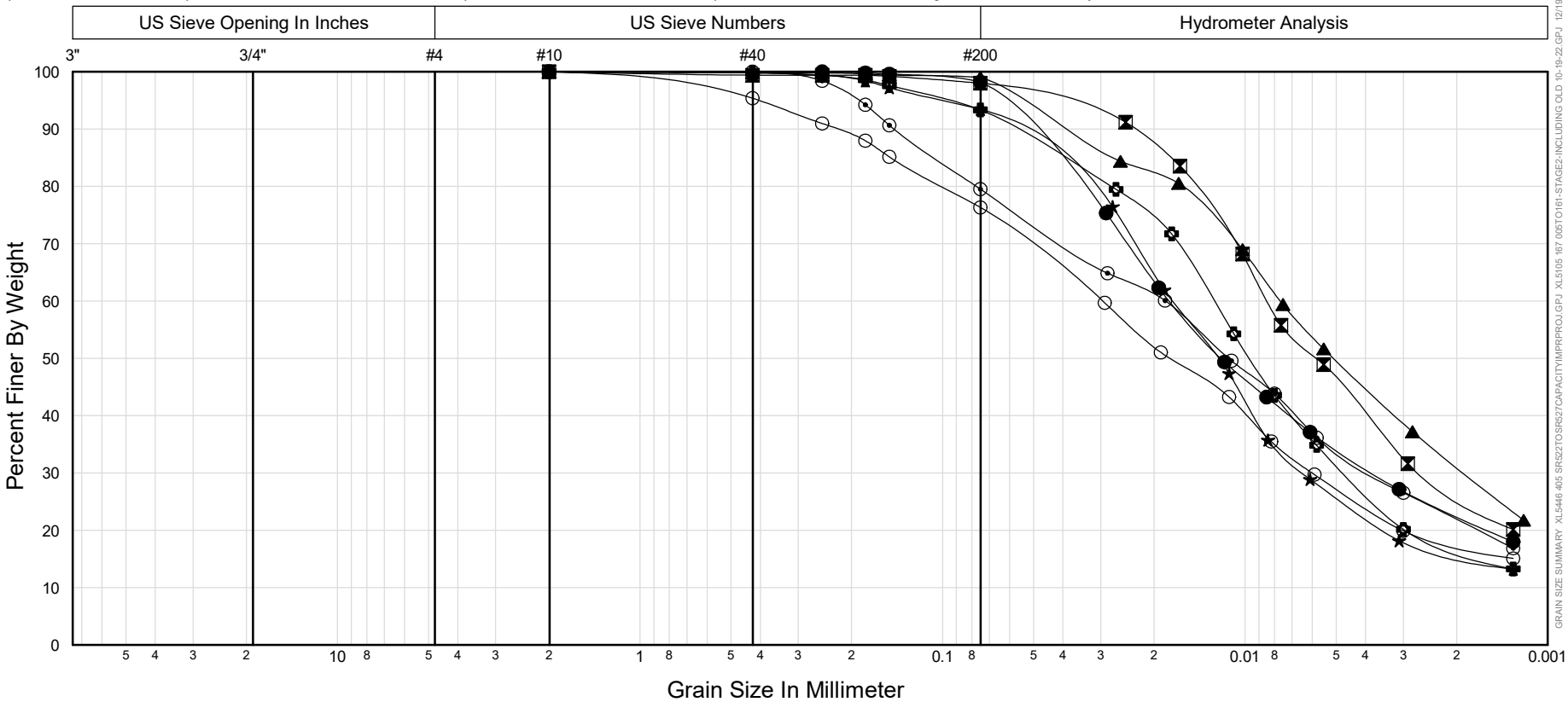
WSDOT

GRAIN SIZE ANALYSIS SUMMARY FOR NE-102VW-22

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	12.0	P-4	CL	LEAN CLAY	12-14-22	28	34	23	11		2.66	0.0	1.8	98.2			0.053	0.018	0.012	0.004	0.002	
⊠	24.0	P-9	CH	FAT CLAY	12-19-22	30	52	23	29		2.85	0.0	2.0	98.0			0.023	0.008	0.006	0.003		
▲	26.5	D-10	CL	LEAN CLAY	11-3-22	33	45	25	20		2.81	0.0	1.0	99.0			0.039	0.008	0.005	0.002		
★	62.0	D-24	CL	LEAN CLAY	11-3-22	26	33	23	10		2.75	0.0	6.6	93.4			0.061	0.017	0.012	0.006	0.003	
⊙	89.0	D-31	CL	LEAN CLAY with SAND	11-3-22	24	37	17	20		2.79	0.0	20.5	79.5			0.144	0.018	0.011	0.004	0.002	
✿	119.0	D-37	CL	LEAN CLAY	11-3-22	27	32	22	10		2.80	0.0	6.7	93.3			0.059	0.013	0.010	0.005	0.003	
○	159.0	D-45	CL	LEAN CLAY with SAND	11-3-22	20	29	17	12		2.80	0.0	23.7	76.3			0.225	0.030	0.018	0.006	0.003	

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*

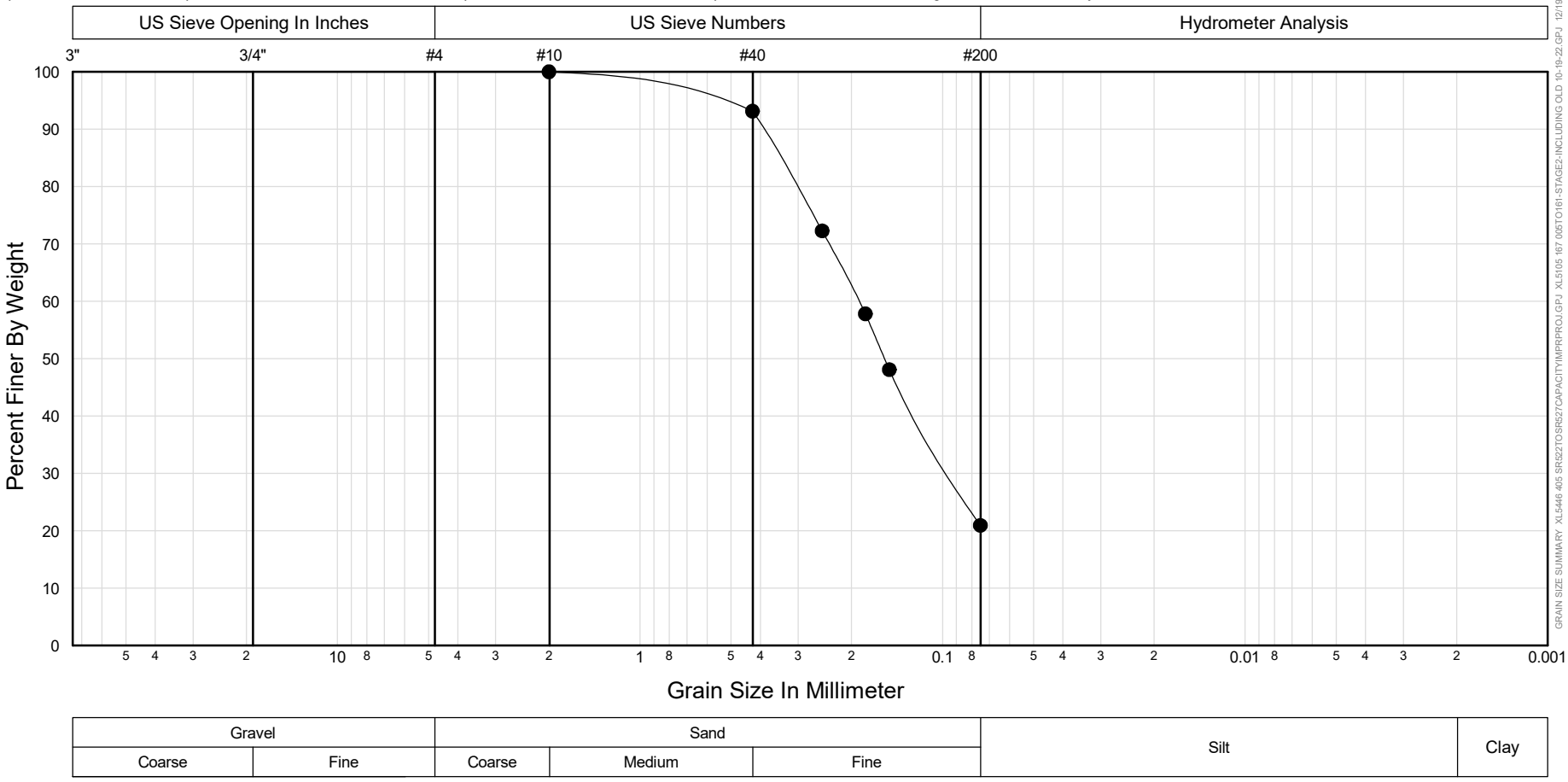


Gravel		Sand			Silt	Clay
Coarse	Fine	Coarse	Medium	Fine		

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	169.0	D-47	SM	Silty SAND	11-3-22	18						0.0	79.1	20.9			0.392	0.189	0.156	0.095		

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*

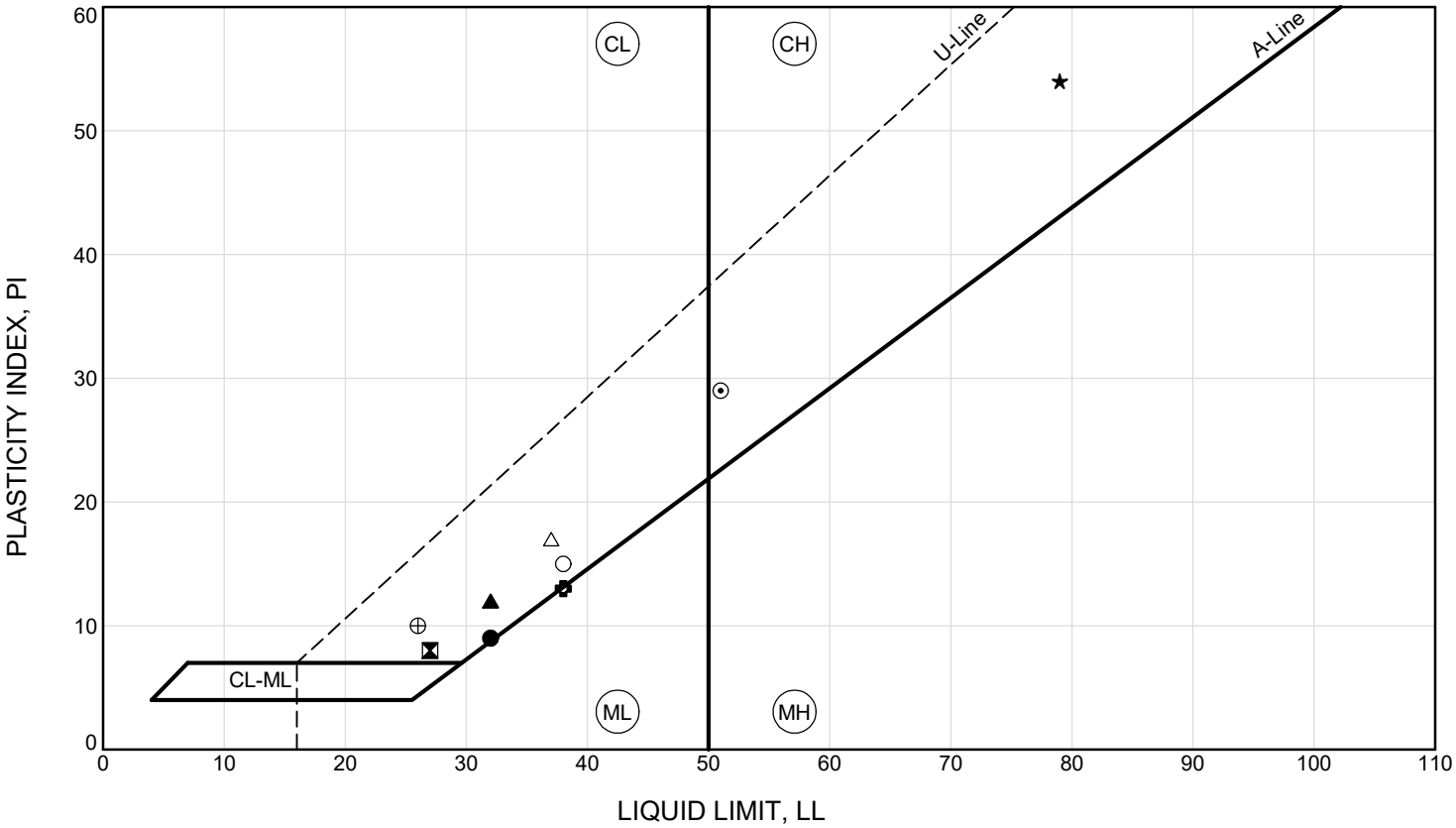


Gravel		Sand			Silt	Clay
Coarse	Fine	Coarse	Medium	Fine		

WSDOT

ATTERBERG LIMITS SUMMARY

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**



Symbol	Hole No.	Depth (feet)	Sample No.	USCS	Description	Comment	MC (%)	LL	PL	PI	Fines (%)	Silt (%)	Clay (%)
●	NE-103vw-22	14.0	D-3	CL	LEAN CLAY		24	32	23	9	89.4	73.3	16.1
⊠	NE-103vw-22	19.0	D-5	CL	LEAN CLAY with SAND		24	27	19	8	81.2	67.7	13.5
▲	NE-103vw-22	32.0	D-10	CL	LEAN CLAY		22	32	20	12			
★	NE-103vw-22	32.1	D-10	CH	FAT CLAY		47	79	25	54			
⊙	NE-103vw-22	37.0	D-12	CH	FAT CLAY		30	51	22	29	97.6	67.5	30.1
✿	NE-103vw-22	47.0	D-16	ML	SILT		30	38	25	13	97.8	68.6	29.2
○	NE-103vw-22	59.0	D-19	CL	LEAN CLAY		29	38	23	15	99.0	76.3	22.7
△	NE-103vw-22	74.0	D-22	CL	LEAN CLAY		23	37	20	17	88.2	67.0	21.1
	NE-103vw-22	84.0	D-24	SM	SILTY SAND		22	n/a	n/a	NP	35.1		
⊕	NE-103vw-22	99.0	D-27	SC	CLAYEY SAND with GRAVEL		15	26	16	10	24.8	18.6	6.2

** Sample was assumed to have less than 15% sand/gravel based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the Atterberg Limits only.*

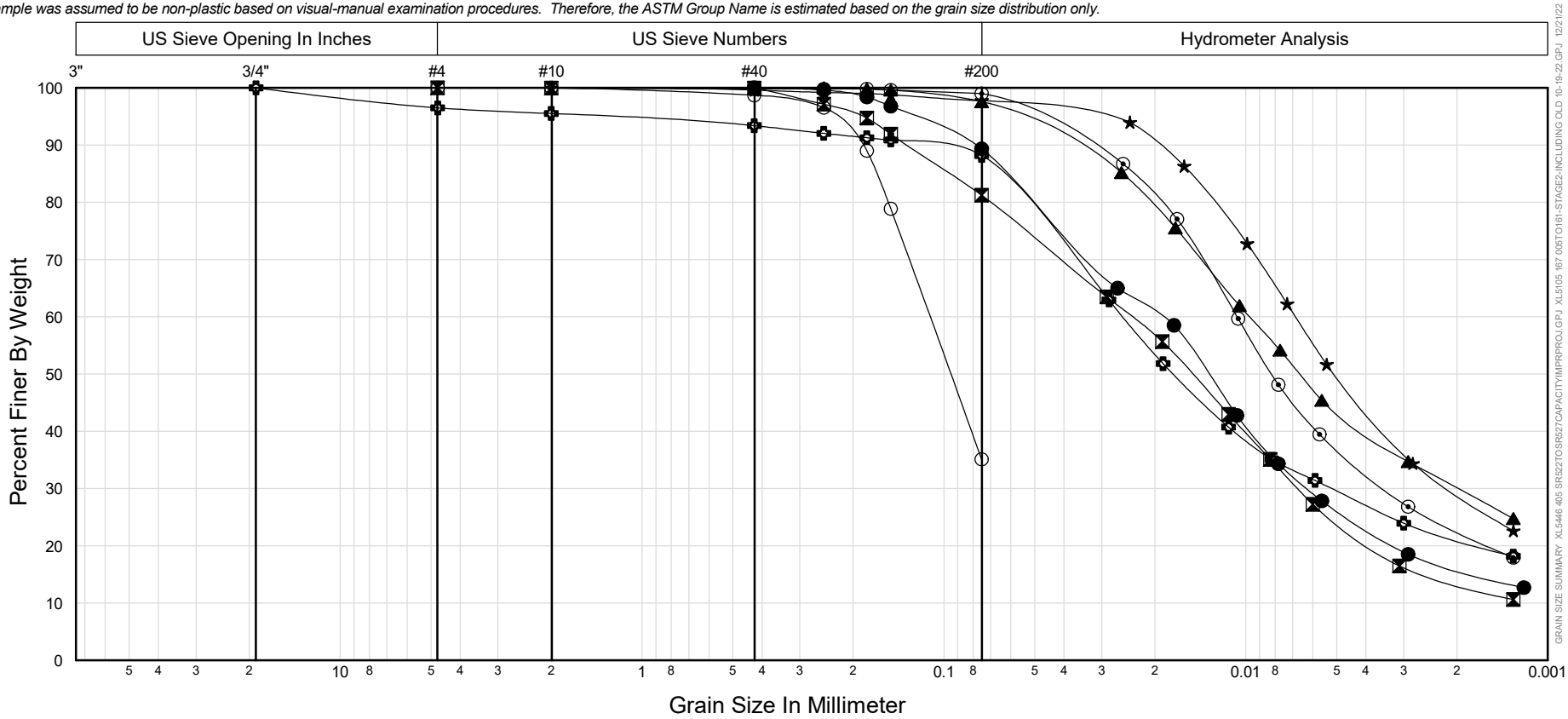
ABBREVIATIONS:
LL = liquid limit; MC = moisture content; n/a = test attempted; NP = nonplastic; PI = plasticity index; PL = plastic limit; USCS = Unified Soil Classification System code
USCS codes listed on graph: CL = lean clay; CH = fat clay; ML = silt; MH = elastic silt; CL-ML = silty clay

GRAIN SIZE ANALYSIS SUMMARY FOR NE-103vw-22

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	14.0	D-3	CL	LEAN CLAY	11-4-22	24	32	23	9		3.00	0.0	10.6	89.4			0.080	0.019	0.013	0.006	0.003	
⊠	19.0	D-5	CL	LEAN CLAY with SAND	11-4-22	24	27	19	8		2.77	0.0	18.8	81.2			0.133	0.024	0.015	0.007	0.004	
▲	37.0	D-12	CH	FAT CLAY	11-4-22	30	51	22	29		2.80	0.0	2.4	97.6			0.039	0.010	0.007	0.002		
★	47.0	D-16	ML	SILT	11-4-22	30	38	25	13		2.83	0.0	2.2	97.8			0.020	0.007	0.005	0.002		
⊙	59.0	D-19	CL	LEAN CLAY	11-4-22	29	38	23	15		2.81	0.0	1.0	99.0			0.034	0.011	0.008	0.003	0.002	
✿	74.0	D-22	CL	LEAN CLAY	11-4-22	23	37	20	17		2.80	3.5	8.3	88.2			0.120	0.025	0.017	0.005	0.002	
○	84.0	D-24	SM	SILTY SAND	11-4-22	22	n/a	n/a	NP			0.0	64.9	35.1			0.188	0.111	0.095			

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*

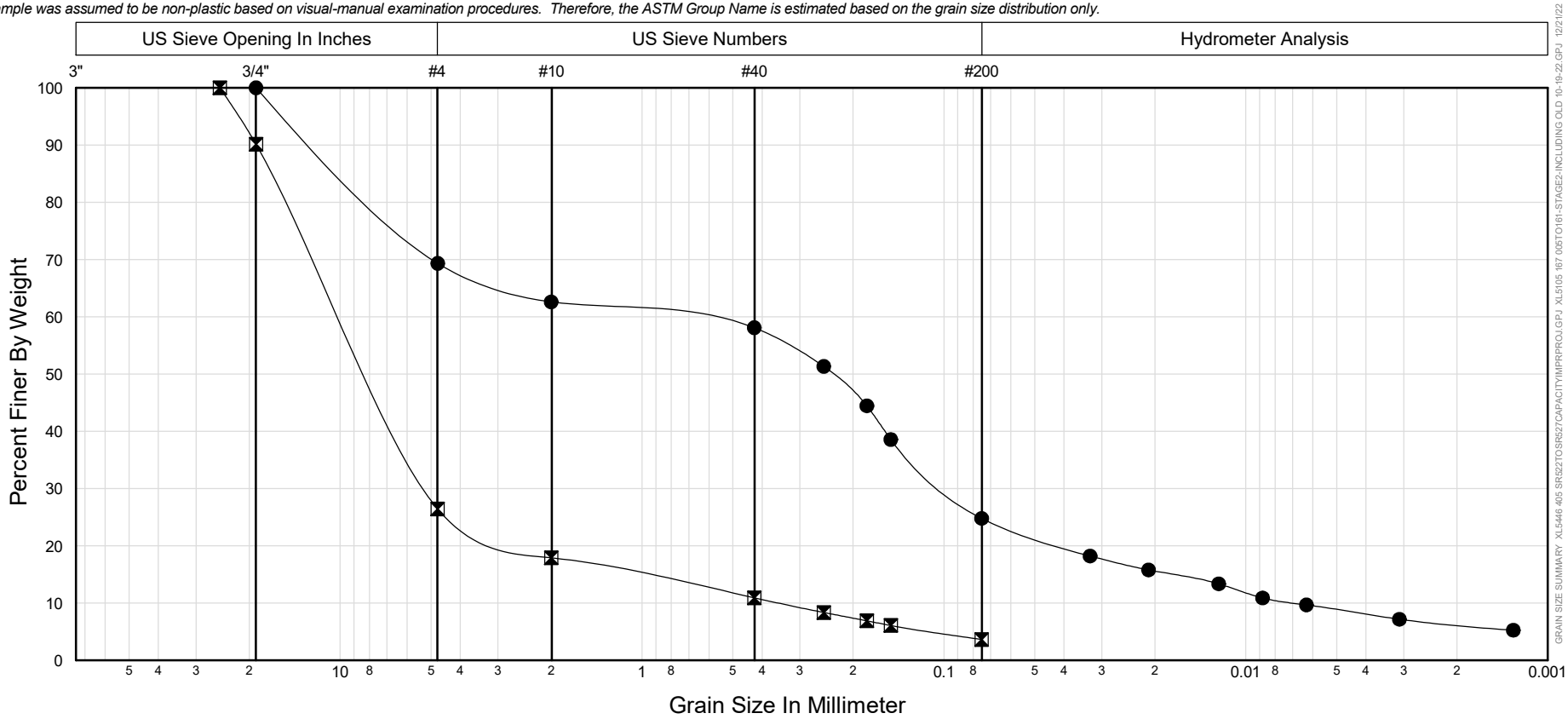


Gravel		Sand			Silt	Clay
Coarse	Fine	Coarse	Medium	Fine		

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

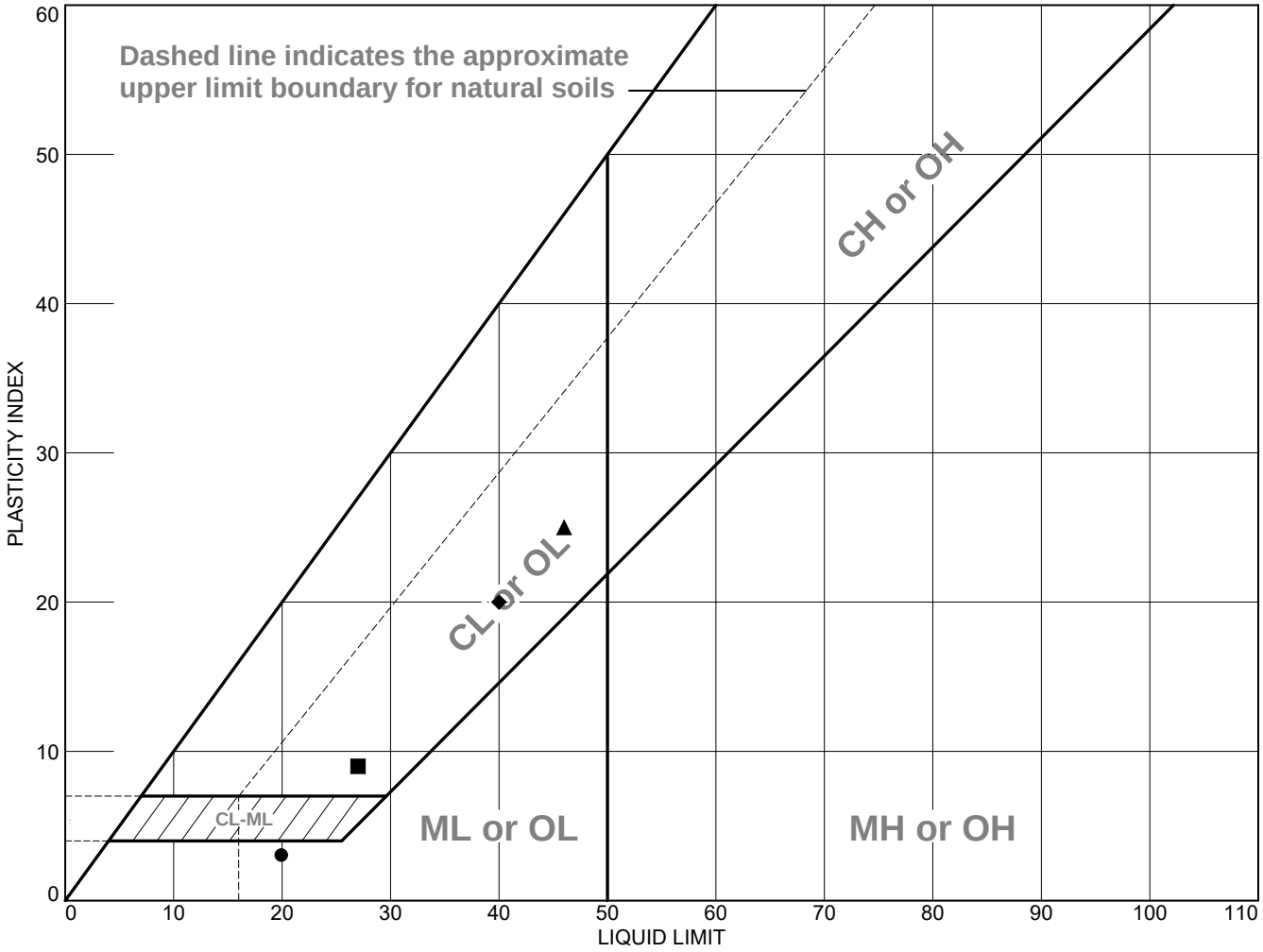
Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	99.0	D-27	SC	CLAYEY SAND with GRAVEL	11-4-22	15	26	16	10		2.78	30.7	44.6	24.8	1.7	119	12.090	0.818	0.235	0.098	0.041	0.007
⊠	114.0	D-30	GP	POORLY GRADED GRAVEL with SAND	11-4-22	4						73.6	22.8	3.6	7.6	28	18.943	9.864	7.936	5.136	2.479	0.352

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*



Gravel		Sand			Silt	Clay
Coarse	Fine	Coarse	Medium	Fine		

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	SANDY SILT (ML)	20	17	3	98.3	56.8	ML
■	LEAN CLAY WITH SAND	27	18	9	99.8	72.7	CL
▲	LEAN CLAY (CL)	46	21	25	99.8	99.5	CL
◆	LEAN CLAY (CL)	40	20	20	99.8	99.6	CL

Project No. 0205069001 **Client:** WSDOT

Project: XL 5446

●**Source of Sample:** NE-103vw-22 **Depth:** 29.5 **Sample Number:** S-9

■**Source of Sample:** NE-103vw-22 **Depth:** 40.2 **Sample Number:** S-13

▲**Source of Sample:** NE-103vw-22 **Depth:** 49.9 **Sample Number:** S-17

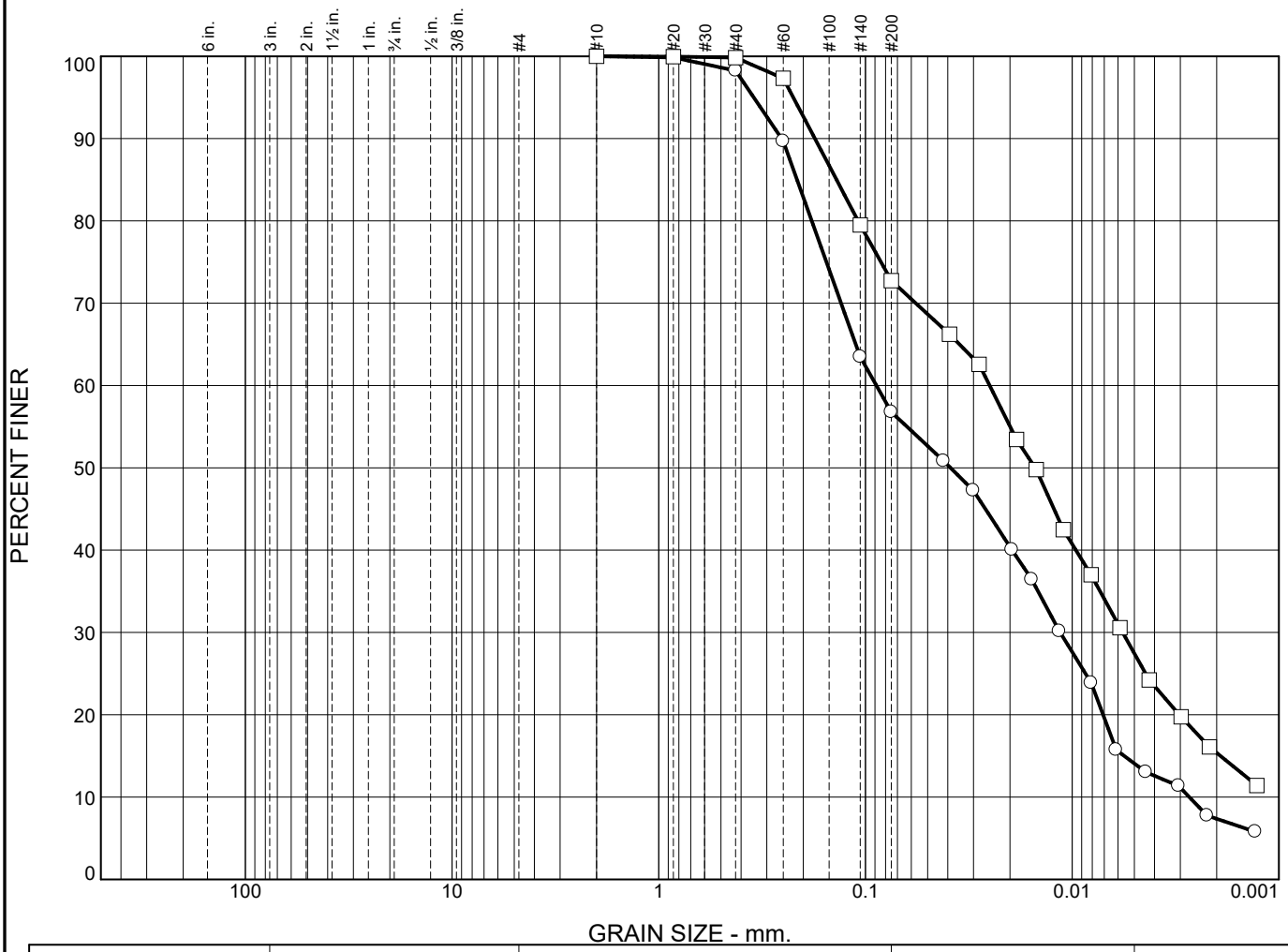
◆**Source of Sample:** NE-103vw-22 **Depth:** 69.5 **Sample Number:** S-21

HALEY ALDRICH

Remarks:

Figure

Particle Size Distribution Report



	% +3"	% Gravel	% Sand	% Silt	% Clay
○	0.0	0.0	43.2	42.7	14.1
□	0.0	0.0	27.3	45.3	27.4

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	20	17	0.2144	0.0886	0.0388	0.0114	0.0056	0.0027	0.54	32.63
□	27	18	0.1381	0.0251	0.0151	0.0057	0.0019			

MATERIAL DESCRIPTION	TEST DATE	USCS	NM
○ SANDY SILT (ML)	11/16/22	ML	16.5
□ LEAN CLAY WITH SAND	11/16/22	CL	19.2

Project No. 0205069001 **Client:** WSDOT
Project: XL 5446

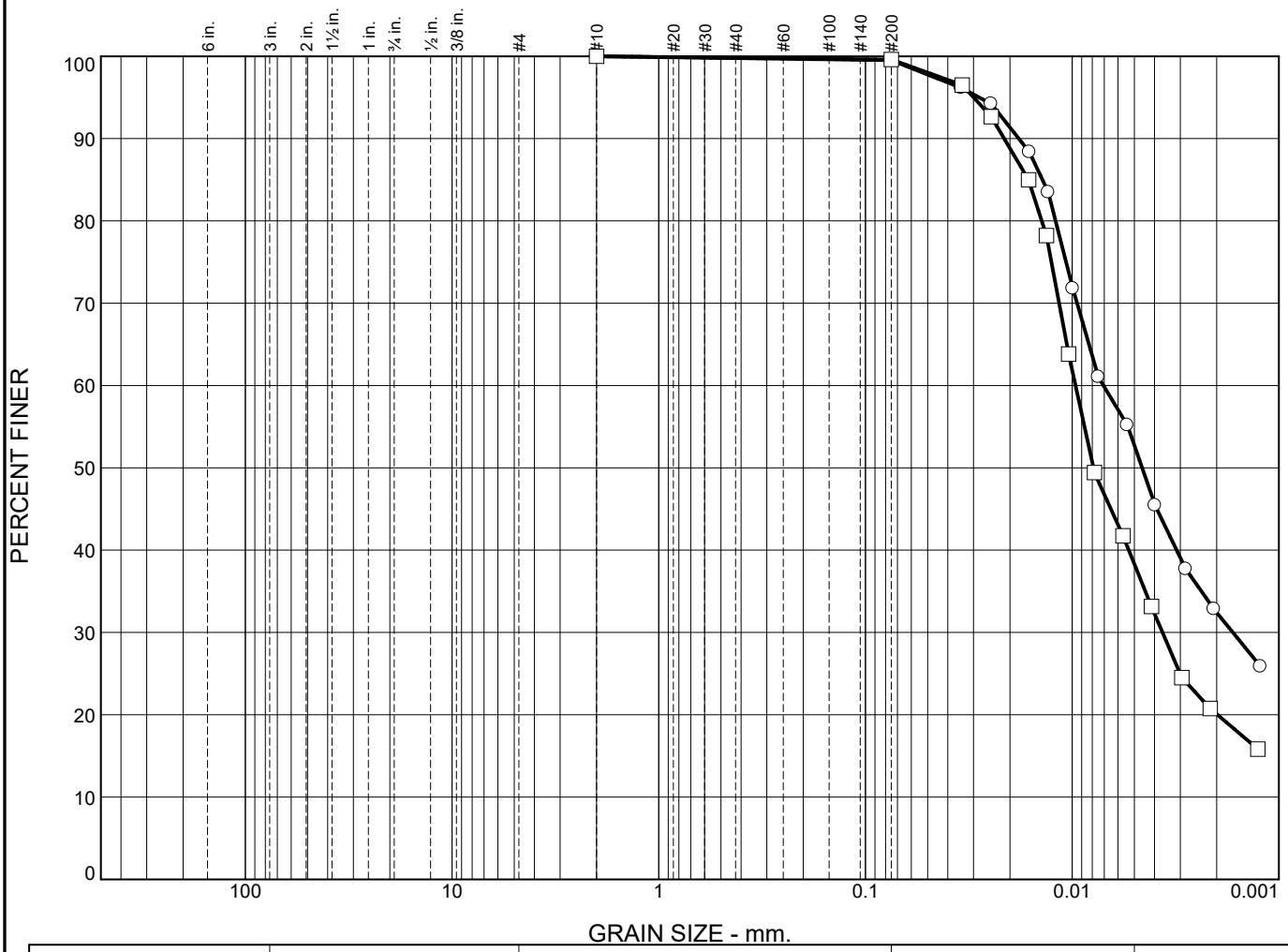
○ **Source of Sample:** NE-103vw-22 **Depth:** 29.5 **Sample Number:** S-9
□ **Source of Sample:** NE-103vw-22 **Depth:** 40.2 **Sample Number:** S-13

HALEY ALDRICH

Remarks:

Figure

Particle Size Distribution Report



	% +3"	% Gravel	% Sand	% Silt	% Clay
○	0.0	0.0	0.5	46.8	52.7
□	0.0	0.0	0.4	61.3	38.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	46	21	0.0139	0.0071	0.0046	0.0017				
□	40	20	0.0163	0.0096	0.0079	0.0037				

MATERIAL DESCRIPTION	TEST DATE	USCS	NM
○ LEAN CLAY (CL)	11/16/22	CL	28.2
□ LEAN CLAY (CL)	11/16/22	CL	27.6

Project No. 0205069001 **Client:** WSDOT

Project: XL 5446

○ **Source of Sample:** NE-103vw-22 **Depth:** 49.9 **Sample Number:** S-17

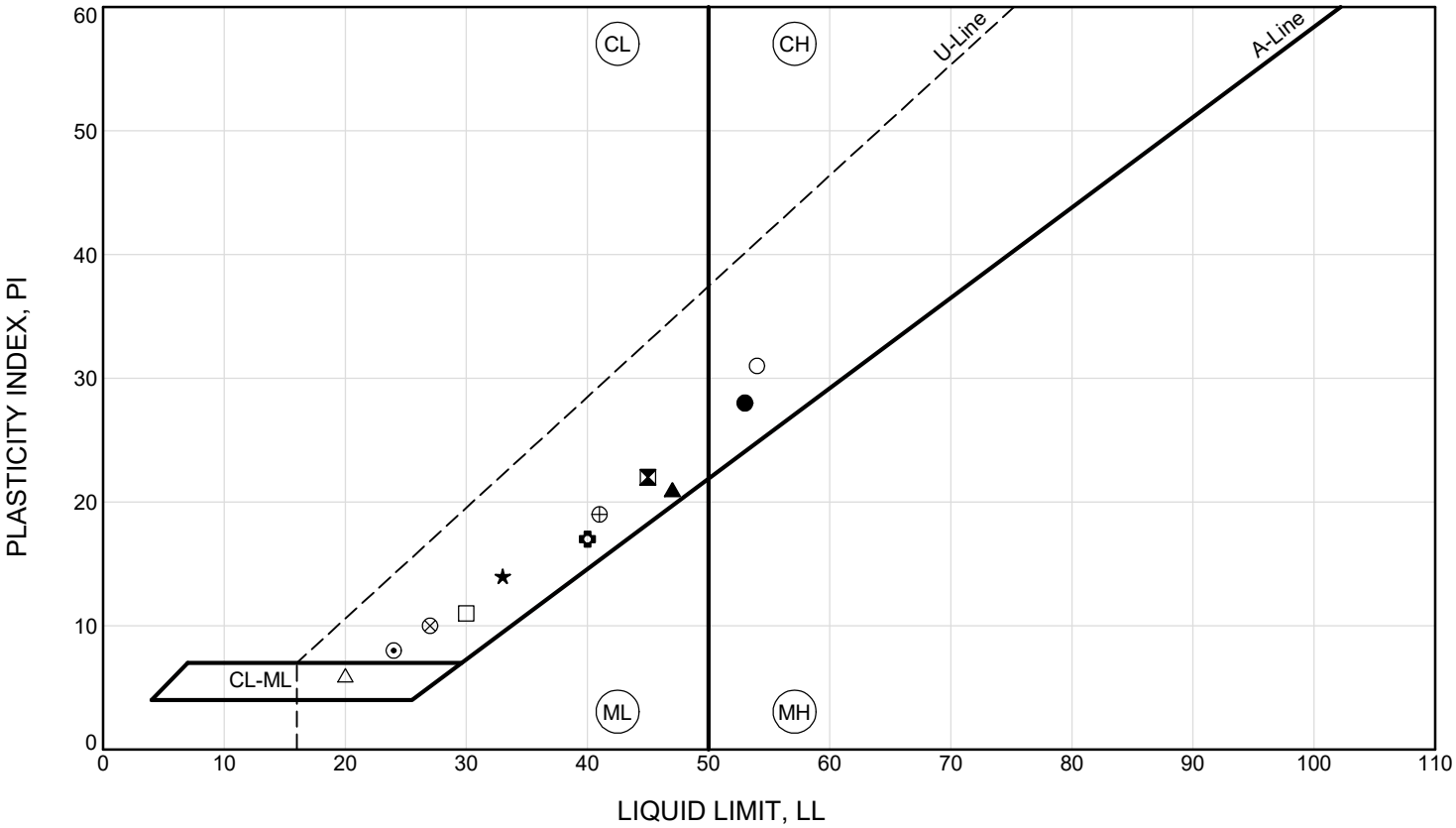
□ **Source of Sample:** NE-103vw-22 **Depth:** 69.5 **Sample Number:** S-21

Remarks:

HALEY ALDRICH

Figure

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**



Symbol	Hole No.	Depth (feet)	Sample No.	USCS	Description	Comment	MC (%)	LL	PL	PI	Fines (%)	Silt (%)	Clay (%)
●	NE-104VW-22	14.0	D-3	CH	FAT CLAY		32	53	25	28			
⊠	NE-104VW-22	19.0	D-5	CL	LEAN CLAY		25	45	23	22	85.8	60.8	25.1
▲	NE-104VW-22	24.0	D-7	CL	LEAN CLAY		28	47	26	21			
★	NE-104VW-22	29.0	S-9	CL	LEAN CLAY		24	33	19	14	88.6	67.8	20.7
⊙	NE-104VW-22	32.0	D-10	CL	LEAN CLAY		39	24	16	8			
✿	NE-104VW-22	37.0	D-12	CL	LEAN CLAY		26	40	23	17			
○	NE-104VW-22	39.0	S-13	CH	FAT CLAY		33	54	23	31	99.6	44.1	55.5
△	NE-104VW-22	44.0	D-15	CL-ML	SILTY CLAY with SAND		22	20	14	6	73.6	45.7	27.9
⊗	NE-104VW-22	54.0	D-18	CL	LEAN CLAY		17	27	17	10			
⊕	NE-104VW-22	69.0	D-22	CL	LEAN CLAY		26	41	22	19	98.8	64.6	34.2
□	NE-104VW-22	124.0	D-33	CL	LEAN CLAY with SAND		24	30	19	11	78.4	59.6	18.8

** Sample was assumed to have less than 15% sand/gravel based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the Atterberg Limits only.*

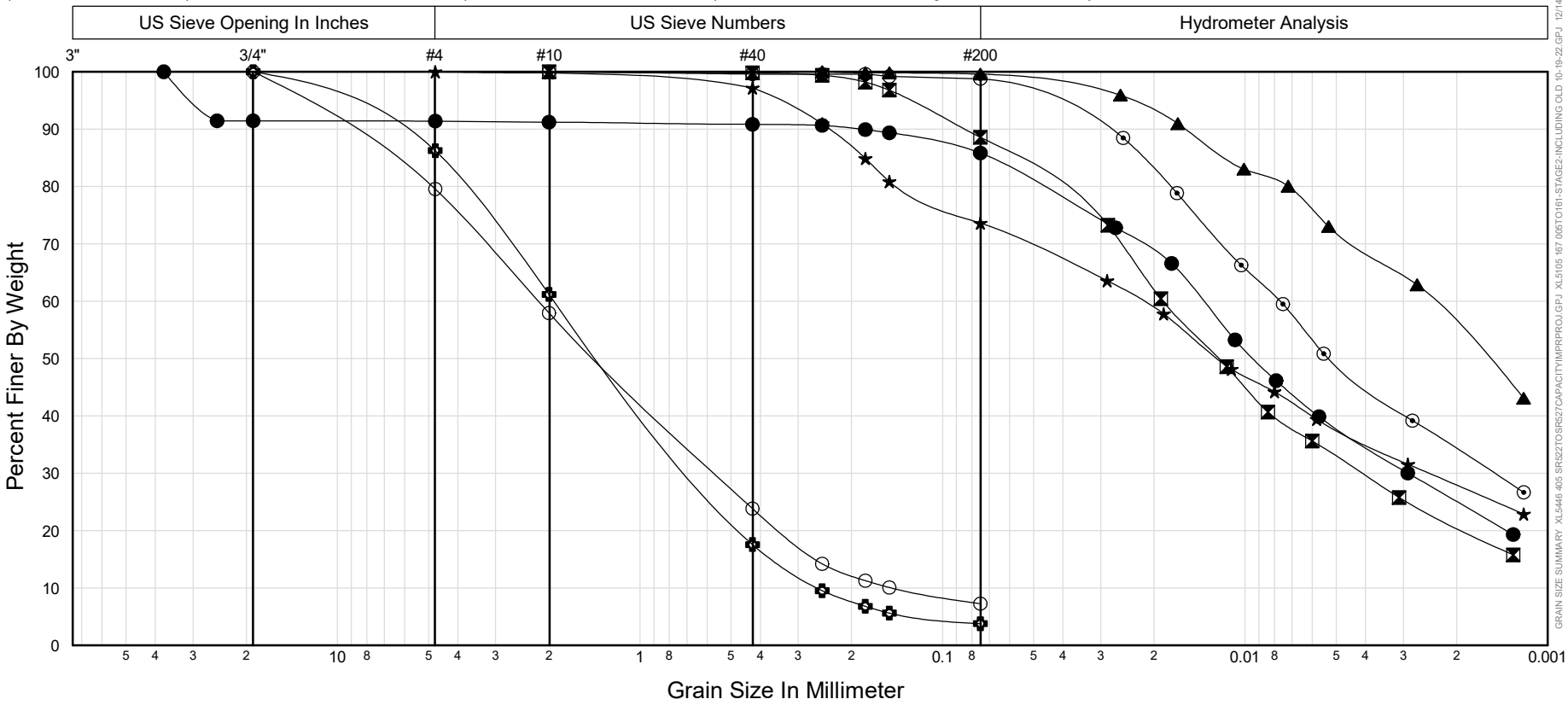
ABBREVIATIONS:
LL = liquid limit; MC = moisture content; n/a = test attempted; NP = nonplastic; PI = plasticity index; PL = plastic limit; USCS = Unified Soil Classification System code
USCS codes listed on graph: CL = lean clay; CH = fat clay; ML = silt; MH = elastic silt; CL-ML = silty clay

GRAIN SIZE ANALYSIS SUMMARY FOR NE-104VW-22

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	19.0	D-5	CL	LEAN CLAY	11-3-22	25	45	23	22		2.78	8.6	5.6	85.8			0.187	0.014	0.009	0.003	0.001	
⊠	29.0	S-9	CL	LEAN CLAY	12-14-22	24	33	19	14		2.72	0.0	11.4	88.6			0.085	0.019	0.012	0.004	0.002	
▲	39.0	S-13	CH	FAT CLAY		33	54	23	31		2.67	0.0	0.4	99.6			0.016	0.002	0.002			
★	44.0	D-15	CL-ML	SILTY CLAY with SAND	11-3-22	22	20	14	6		2.80	0.0	26.4	73.6			0.238	0.022	0.012	0.002		
⊙	69.0	D-22	CL	LEAN CLAY	11-3-22	26	41	22	19		2.81	0.0	1.2	98.8			0.030	0.008	0.005	0.002		
✿	89.0	D-26	SP	POORLY GRADED SAND	11-3-22	12						13.7	82.5	3.8	0.9	7	6.931	1.919	1.345	0.661	0.463	0.258
○	104.0	D-29	SP-SM	POORLY GRADED SAND with SILT and GRAVEL	11-3-22	9						20.4	72.3	7.3	1.0	15	9.642	2.172	1.395	0.562	0.344	0.147

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*



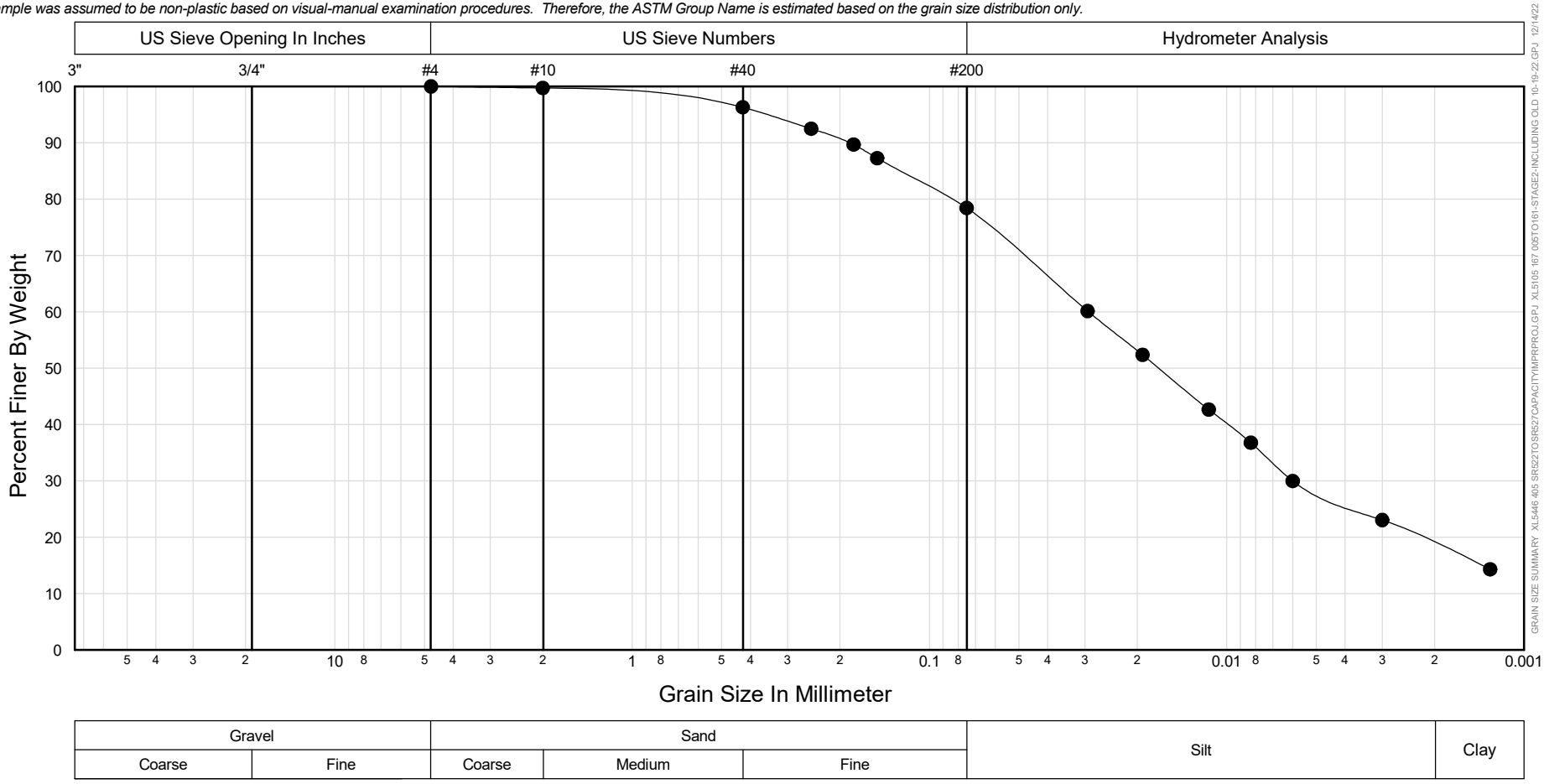
Gravel		Sand			Silt	Clay
Coarse	Fine	Coarse	Medium	Fine		

GRAIN SIZE ANALYSIS SUMMARY FOR NE-104VW-22

Job No: **XL5446**
Project: **I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project**

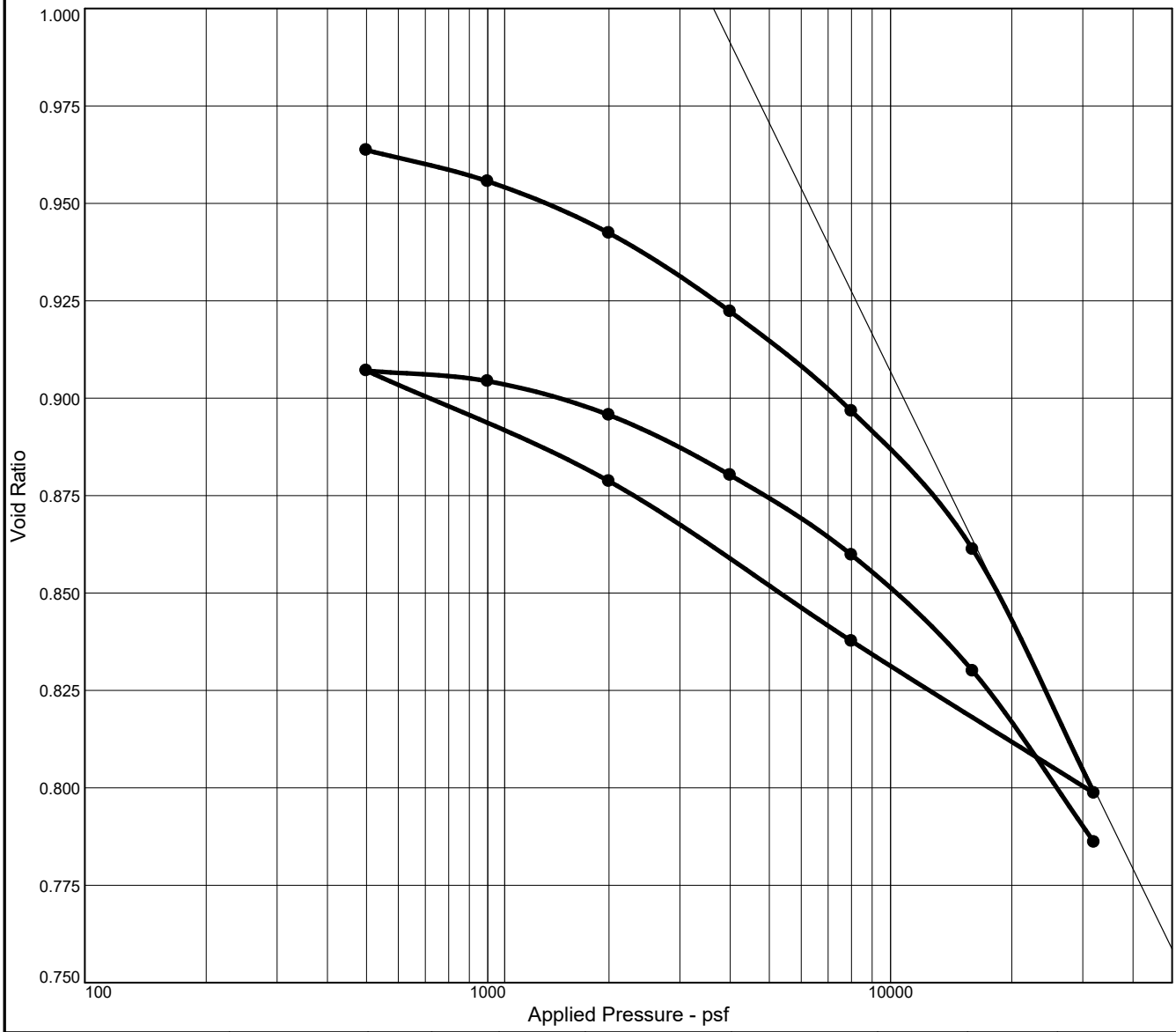
Symbol	Depth (feet)	Sample No.	USCS	Description	Test Date	MC (%)	LL	PL	PI	Moist Density (lbs/ft^3)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	C_c	C_u	D_{90} (mm)	D_{60} (mm)	D_{50} (mm)	D_{30} (mm)	D_{20} (mm)	D_{10} (mm)
●	124.0	D-33	CL	LEAN CLAY with SAND	11-3-22	24	30	19	11		2.77	0.0	21.6	78.4			0.187	0.029	0.017	0.006	0.002	

**Sample was assumed to be non-plastic based on visual-manual examination procedures. Therefore, the ASTM Group Name is estimated based on the grain size distribution only.*



B-2 CONSOLIDATION TESTS

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
87.1 %	29.9 %	89.9	52	29	2.85	3125	6996	0.21	0.06	0.979

MATERIAL DESCRIPTION	USCS	AASHTO
CH - FAT CLAY	CH	

Project No. XL5446 **Client:** WSDOT (Geotechnical Office)

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Location: NE-102VW-22 **Depth:** 24.5 **Sample Number:** P-9

Washington State Department of Transportation

Olympia, WA

Remarks:

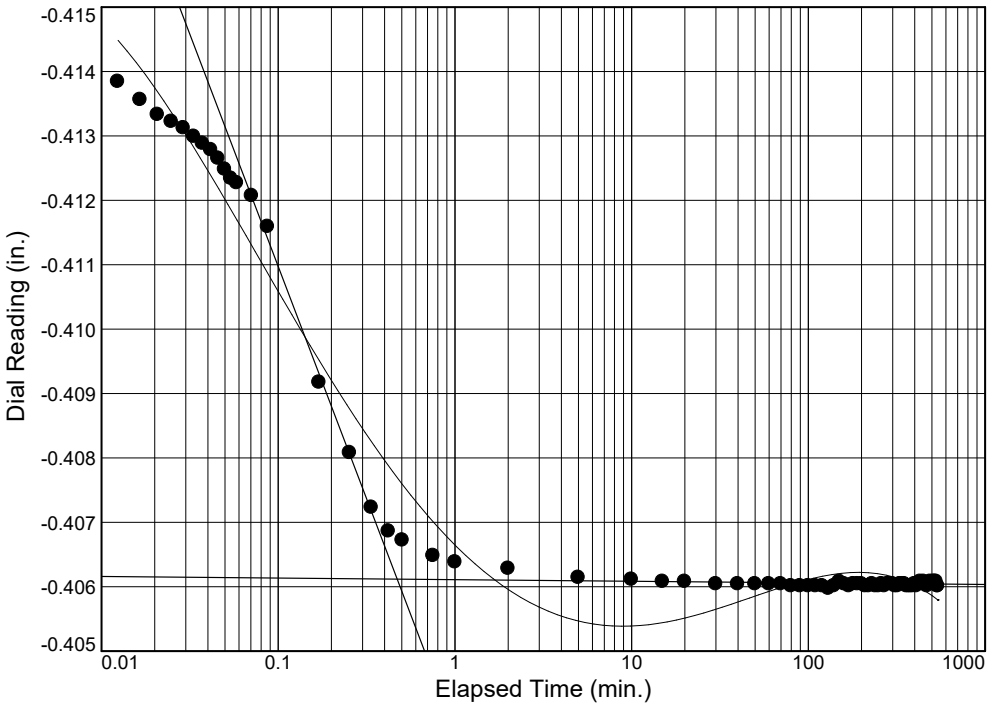
Figure

Checked By: SW

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

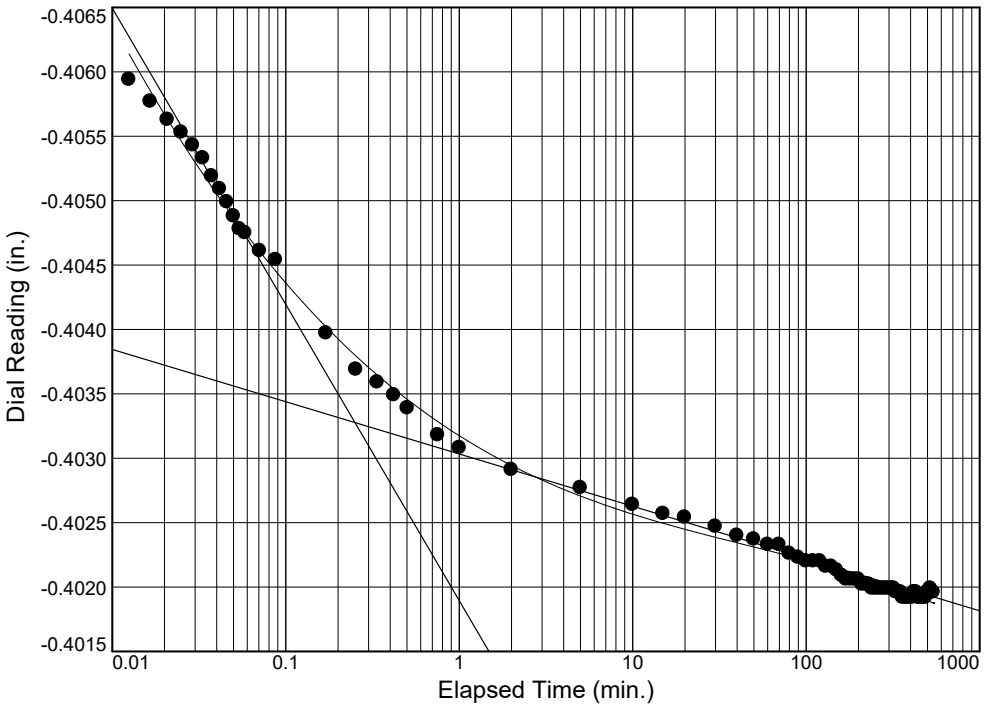
Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 1
Load= 500.00 psf
D_0 = -0.4140
D_{50} = -0.4100
D_{100} = -0.4061
T_{50} = 0.13 min.

C_v @ T_{50}
3.743 ft.^{2}/day

C_α = 0.000



Load No.= 2
Load= 1000.00 psf
D_0 = -0.4060
D_{50} = -0.4046
D_{100} = -0.4033
T_{50} = 0.07 min.

C_v @ T_{50}
7.183 ft.^{2}/day

C_α = 0.001

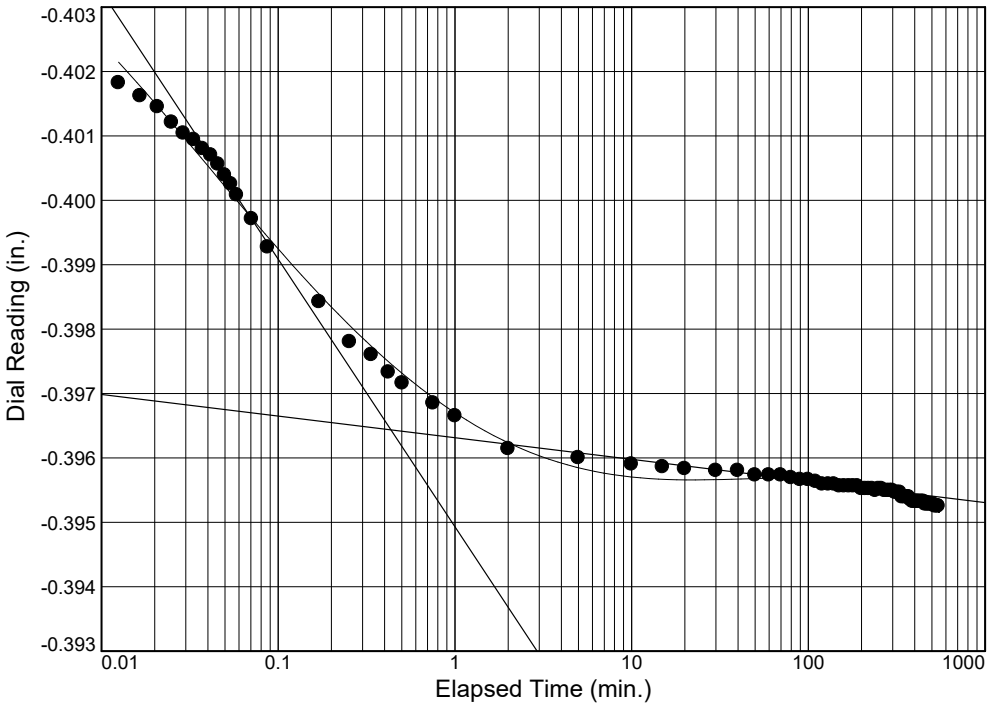
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

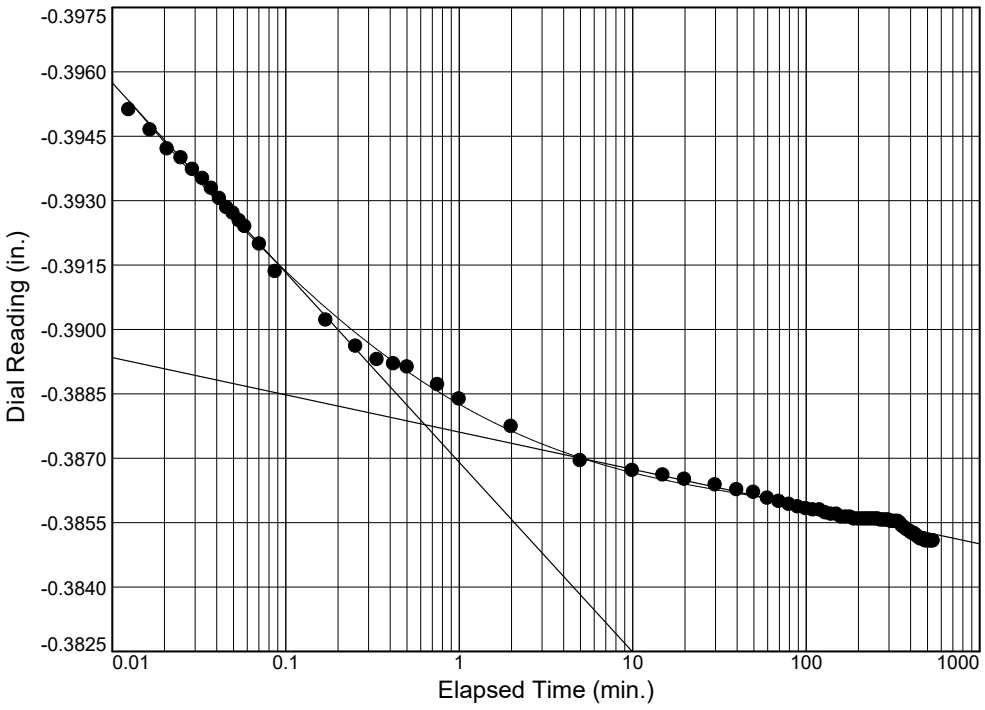
Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 3
Load= 2000 psf
D_0 = -0.4020
D_{50} = -0.3992
D_{100} = -0.3964
T_{50} = 0.10 min.

C_v @ T_{50}
4.613 ft.^{2}/day

C_α = 0.001



Load No.= 4
Load= 4000 psf
D_0 = -0.3952
D_{50} = -0.3915
D_{100} = -0.3878
T_{50} = 0.09 min.

C_v @ T_{50}
5.154 ft.^{2}/day

C_α = 0.002

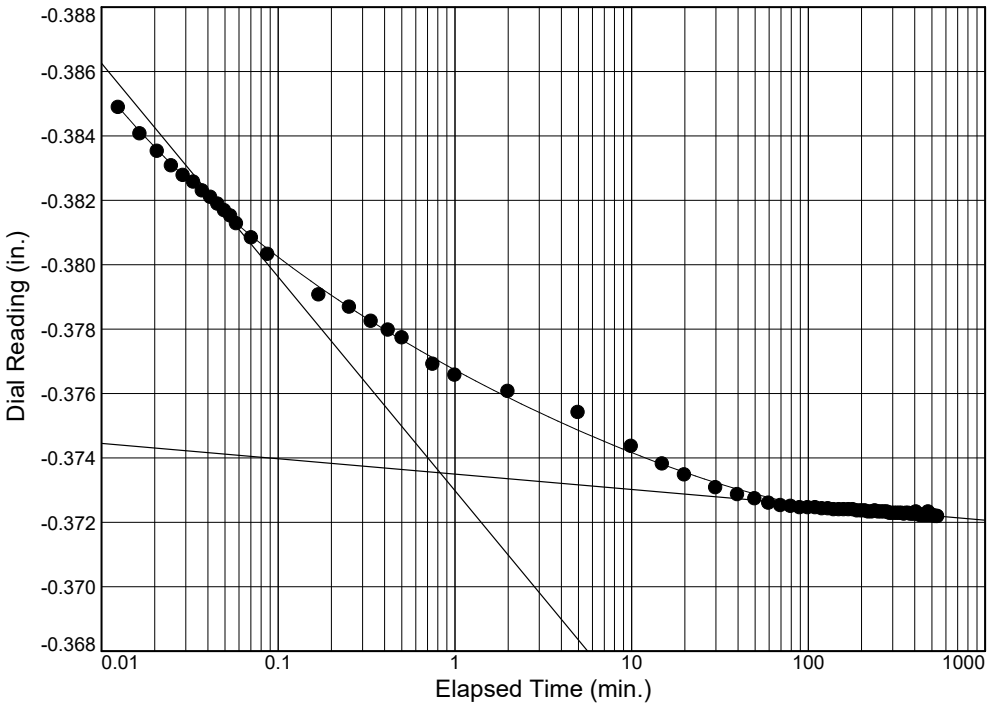
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

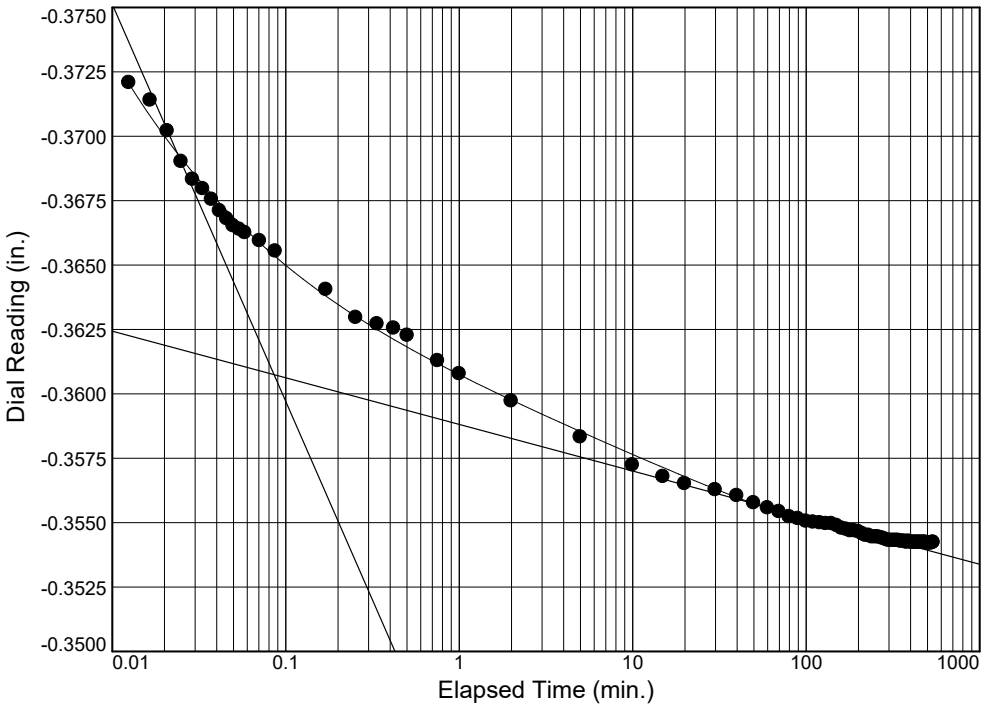
Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 5
Load= 8000 psf
D_0 = -0.3851
D_{50} = -0.3793
D_{100} = -0.3735
T_{50} = 0.17 min.

C_v @ T_{50}
2.676 ft.^{2}/day

C_α = 0.001



Load No.= 6
Load= 16000 psf
D_0 = -0.3722
D_{50} = -0.3665
D_{100} = -0.3607
T_{50} = 0.06 min.

C_v @ T_{50}
7.776 ft.^{2}/day

C_α = 0.004

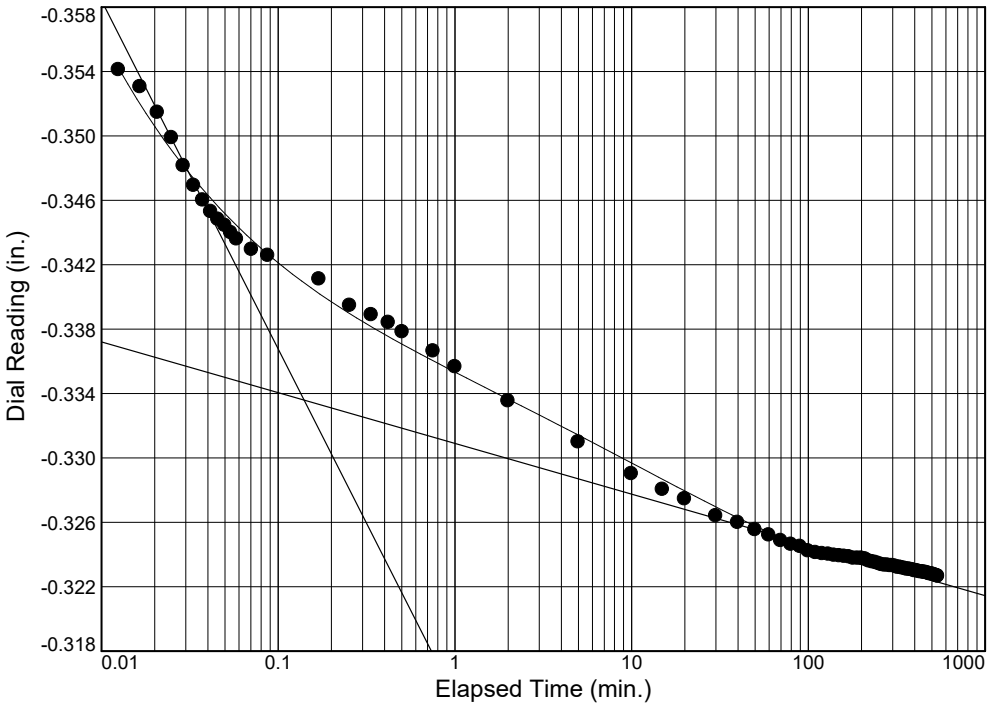
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

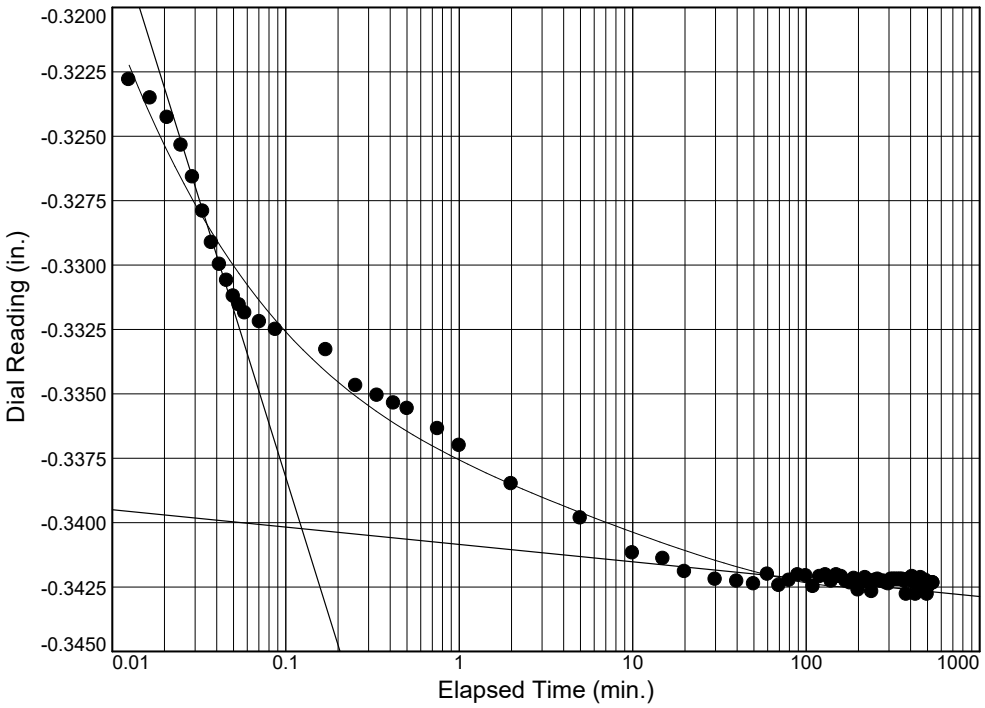
Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 7
Load= 32000 psf
D_0 = -0.3542
D_{50} = -0.3439
D_{100} = -0.3336
T_{50} = 0.07 min.

C_v @ T_{50}
6.462 ft.^{2}/day

C_α = 0.006



Load No.= 8
Load= 8000 psf
D_0 = -0.3226
D_{50} = -0.3314
D_{100} = -0.3402
T_{50} = 0.07 min.

C_v @ T_{50}
5.814 ft.^{2}/day

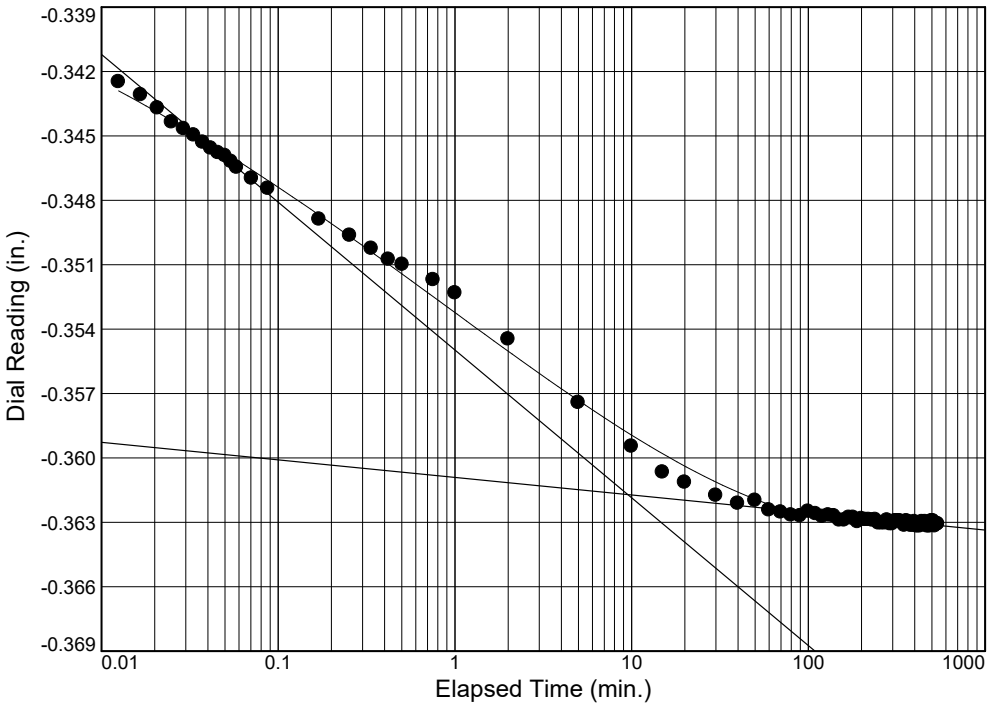
Figure

Washington State Department of Transportation

Dial Reading vs. Time

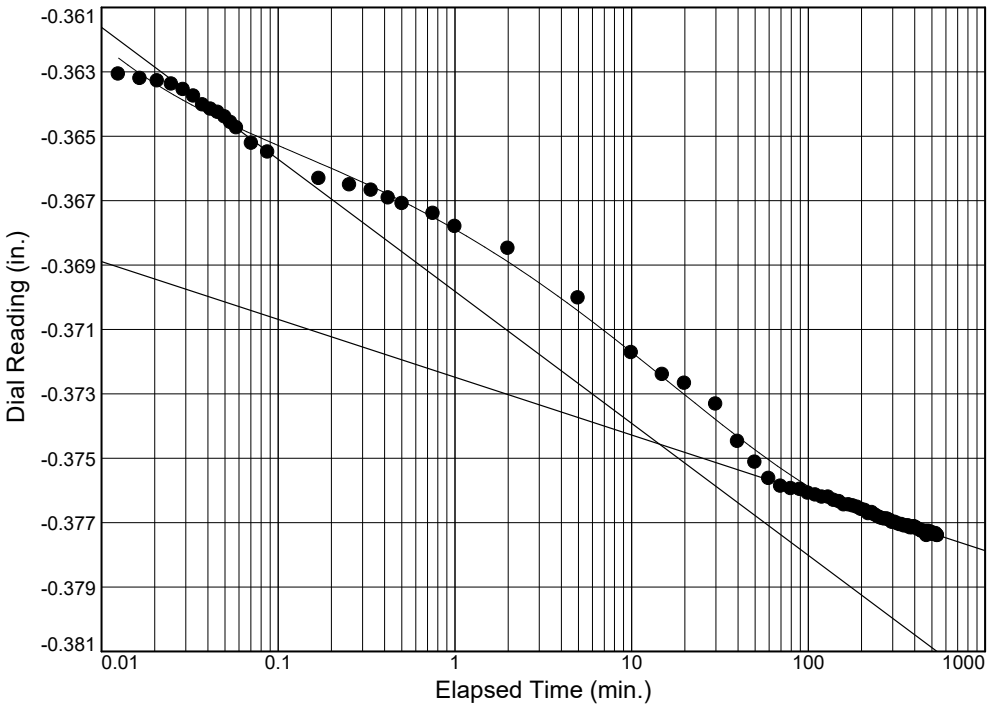
Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 9
Load= 2000 psf
D_0 = -0.3423
D_{50} = -0.3520
D_{100} = -0.3617
T_{50} = 0.63 min.

C_v @ T_{50}
0.688 ft.^{2}/day



Load No.= 10
Load= 500.00 psf
D_0 = -0.3631
D_{50} = -0.3688
D_{100} = -0.3746
T_{50} = 1.90 min.

C_v @ T_{50}
0.237 ft.^{2}/day

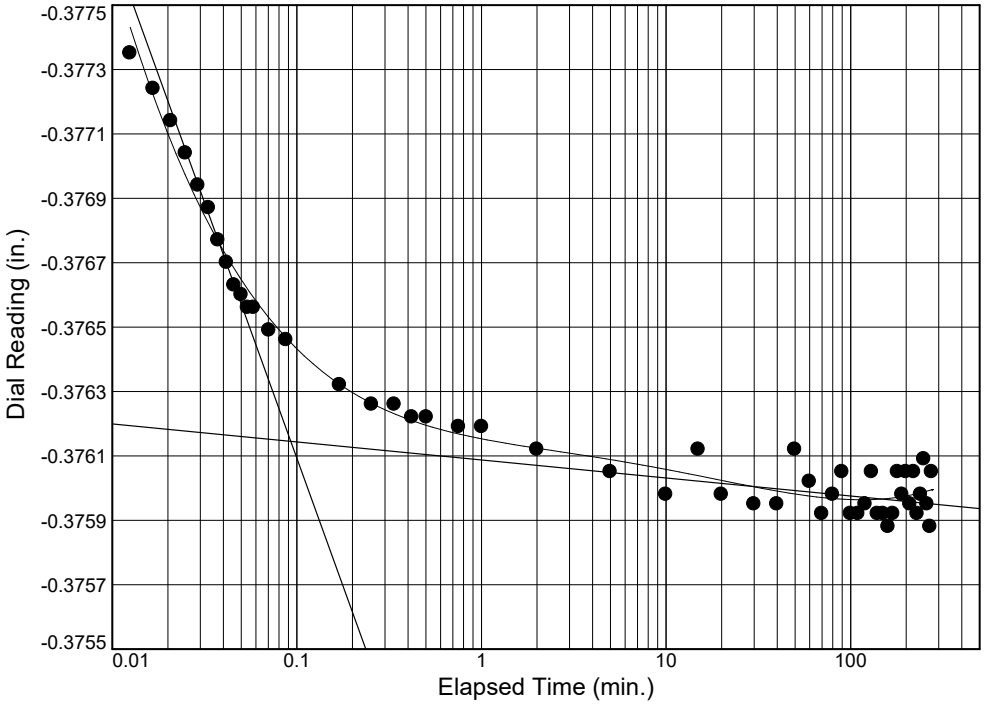
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

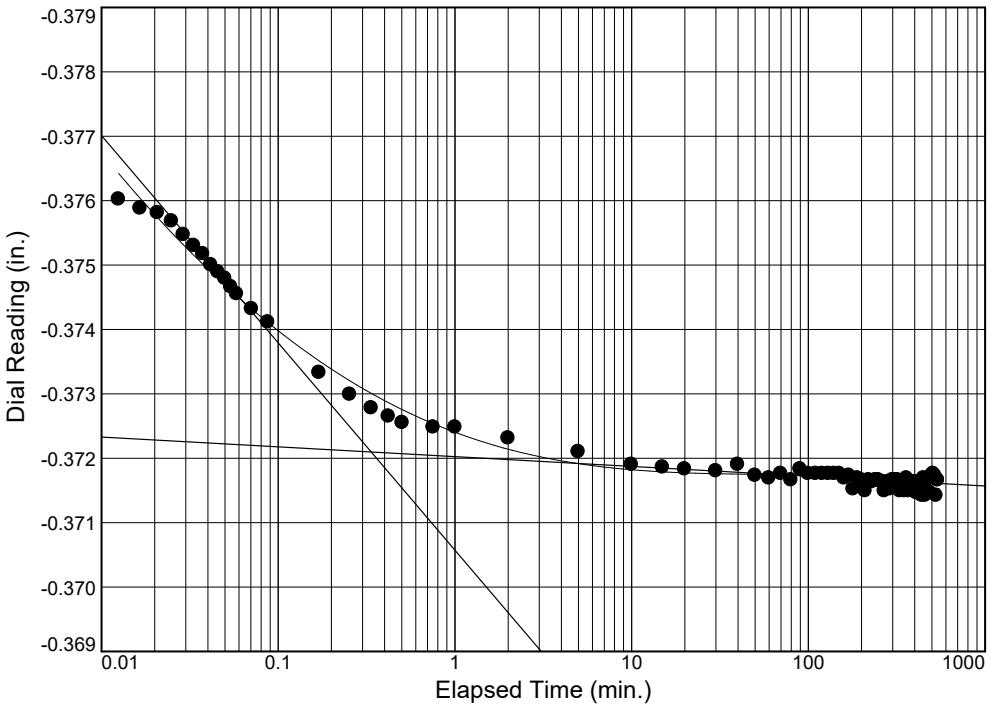
Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 11
Load= 1000.00 psf
D_0 = -0.3774
D_{50} = -0.3768
D_{100} = -0.3761
T_{50} = 0.04 min.

C_v @ T_{50}
12.508 ft.^{2}/day

C_α = 0.000



Load No.= 12
Load= 2000 psf
D_0 = -0.3760
D_{50} = -0.3741
D_{100} = -0.3721
T_{50} = 0.09 min.

C_v @ T_{50}
5.007 ft.^{2}/day

C_α = 0.000

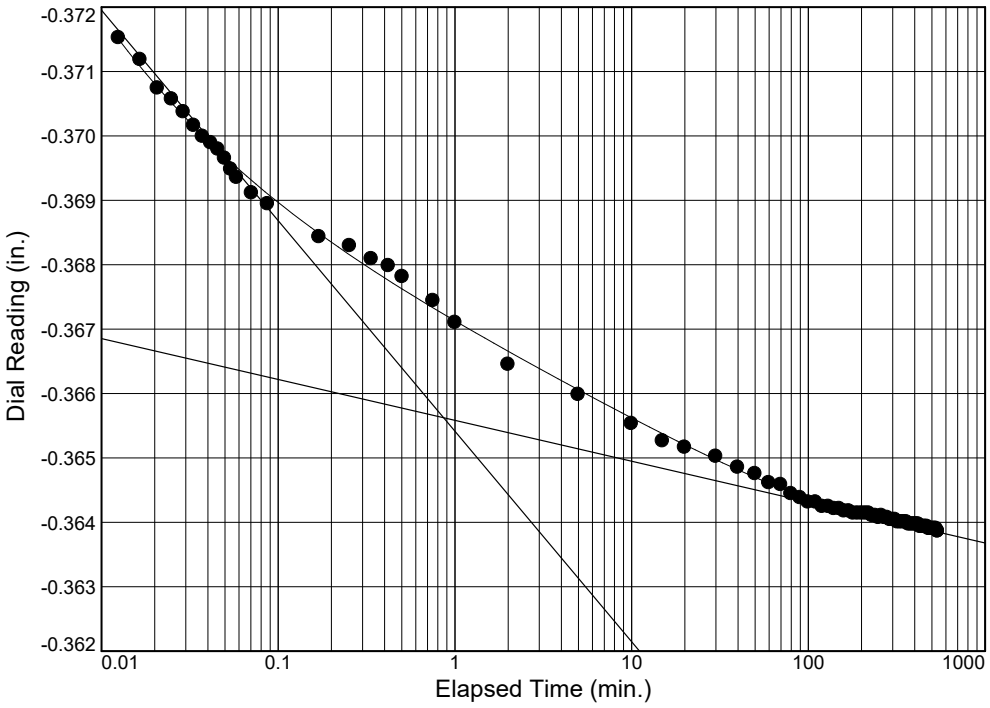
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

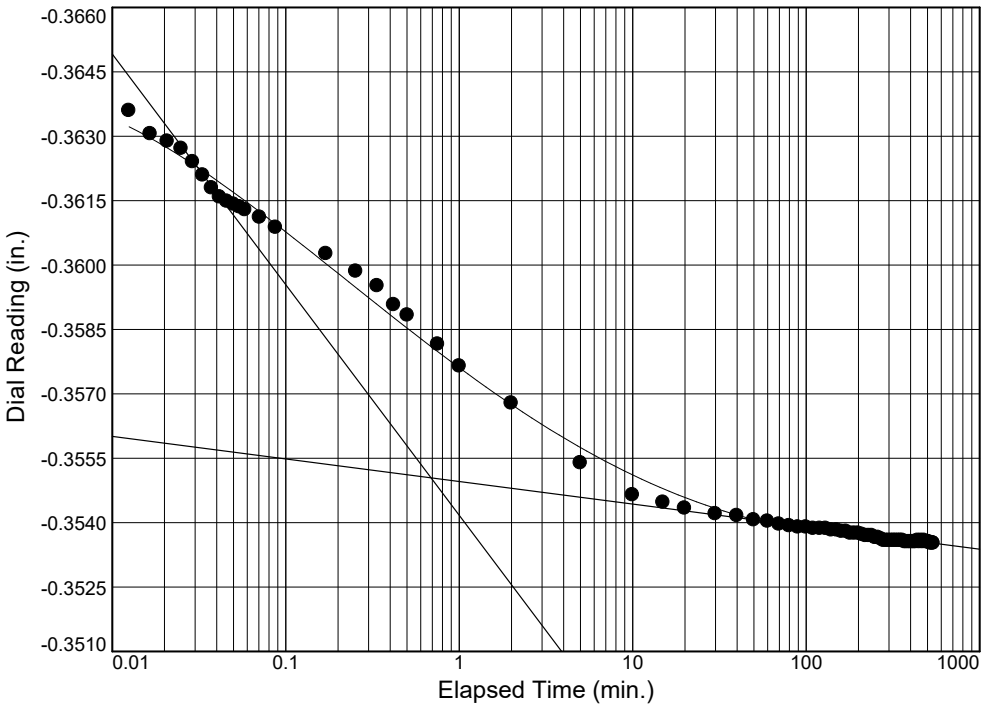
Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 13
Load= 4000 psf
D_0 = -0.3717
D_{50} = -0.3686
D_{100} = -0.3656
T_{50} = 0.14 min.

C_v @ T_{50}
3.146 ft.^{2}/day

C_α = 0.001



Load No.= 14
Load= 8000 psf
D_0 = -0.3639
D_{50} = -0.3595
D_{100} = -0.3550
T_{50} = 0.26 min.

C_v @ T_{50}
1.705 ft.^{2}/day

C_α = 0.001

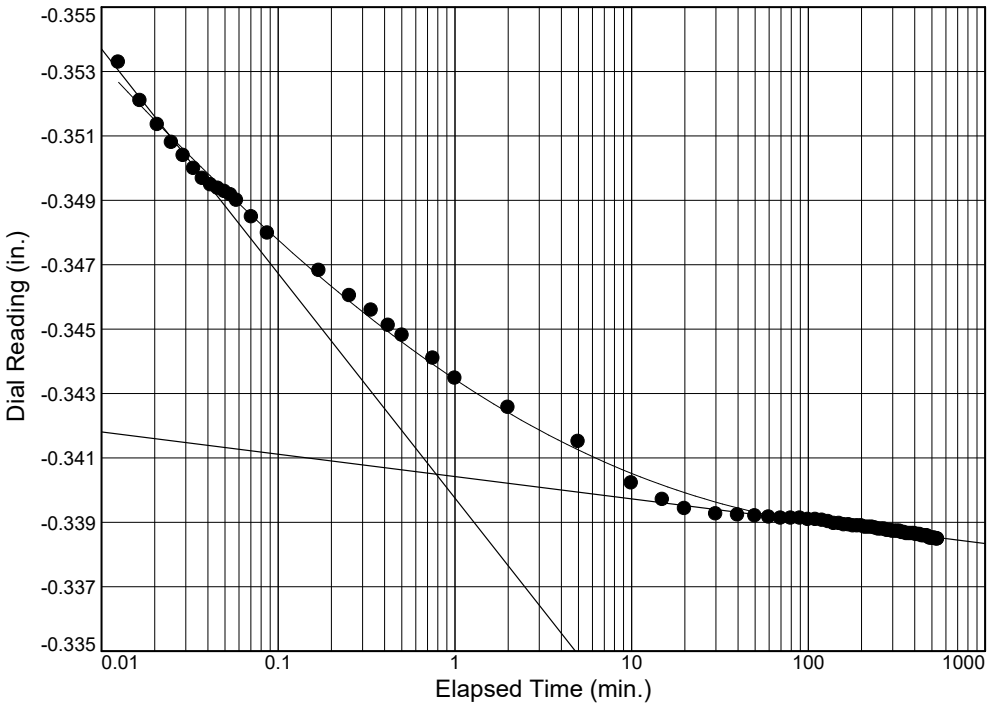
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

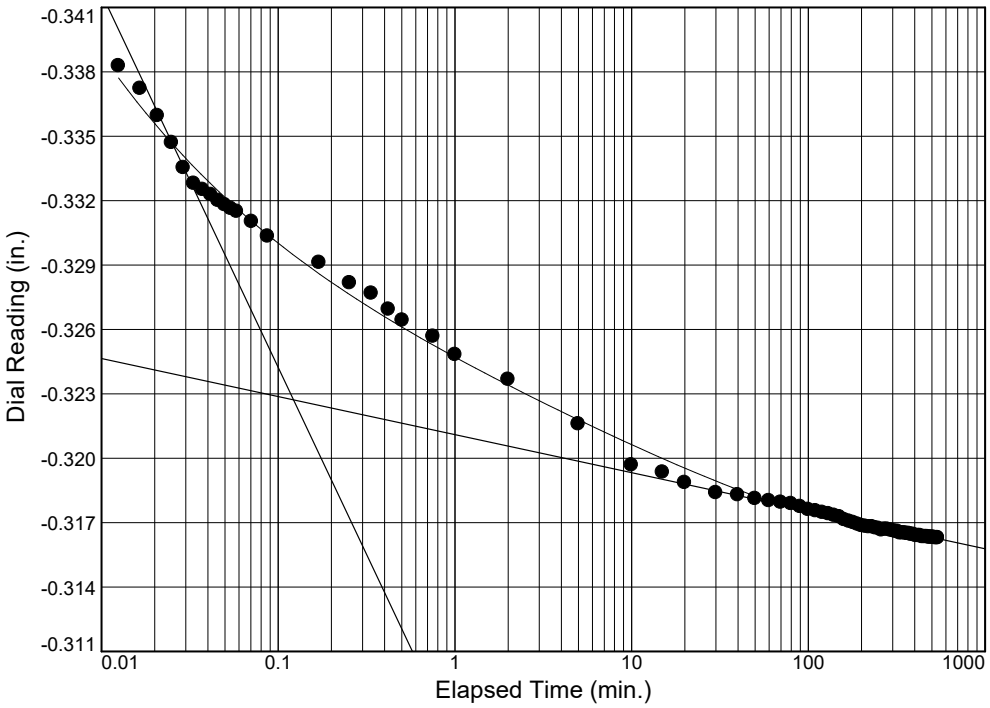
Location: NE-102VW-22 Depth: 24.5 Sample Number: P-9



Load No.= 15
Load= 16000 psf
D_0 = -0.3535
D_{50} = -0.3470
D_{100} = -0.3405
T_{50} = 0.14 min.

C_v @ T_{50}
2.989 ft.^{2}/day

C_α = 0.001



Load No.= 16
Load= 32000 psf
D_0 = -0.3385
D_{50} = -0.3306
D_{100} = -0.3227
T_{50} = 0.08 min.

C_v @ T_{50}
5.011 ft.^{2}/day

C_α = 0.004

Figure

Washington State Department of Transportation

CONSOLIDATION TEST DATA

12/21/2022

Client: WSDOT (Geotechnical Office)
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Project Number: XL5446
Location: NE-102VW-22
Depth: 24.5 **Sample Number:** P-9
Material Description: CH - FAT CLAY
Liquid Limit: 52 **Plasticity Index:** 29
USCS: CH
Tested by: TM **Checked by:** SW

Test Specimen Data

NATURAL MOISTURE
Wet w+t = 746.20 g.
Dry w+t = 625.24 g.
Tare Wt. = 221.30 g.
Moisture = 29.9 %

VOID RATIO
Spec. Gr. = 2.85
Est. Ht. Solids = 0.505 in.
Init. V.R. = 0.979
Init. Sat. = 87.1 %

AFTER TEST
Wet w+t = 235.77 g.
Dry w+t = 199.71 g.
Tare Wt. = 88.00 g.
Moisture = 32.3 %

UNIT WEIGHT
Height = 1.000 in.
Diameter = 2.500 in.
Weight = 150.50 g.
Dry Dens. = 89.9 pcf

TEST START
Height = 1.000 in.
Diameter = 2.500 in.

Dry Wt. = 111.71 g.

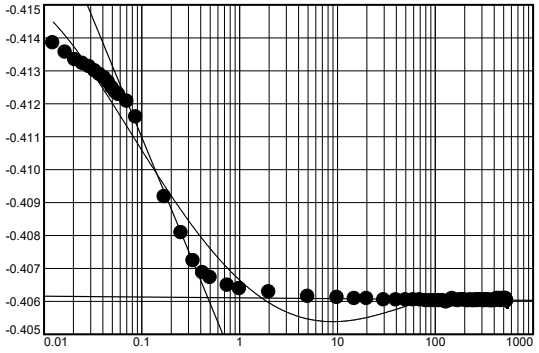
End-Of-Load Summary

Pressure (psf)	Final Dial (in.)	Deformation (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Strain
start	-0.41397	0.00000			0.979	
500.00	-0.40601	0.00796	3.743	0.000	0.964	0.8 Comprs.
1000.00	-0.40196	0.01201	7.183	0.001	0.956	1.2 Comprs.
2000	-0.39525	0.01872	4.613	0.001	0.942	1.9 Comprs.
4000	-0.38507	0.02890	5.154	0.002	0.922	2.9 Comprs.
8000	-0.37217	0.04180	2.676	0.001	0.897	4.2 Comprs.
16000	-0.35423	0.05974	7.776	0.004	0.861	6.0 Comprs.
32000	-0.32264	0.09133	6.462	0.006	0.799	9.1 Comprs.
8000	-0.34235	0.07162	5.814		0.838	7.2 Comprs.
2000	-0.36308	0.05089	0.688		0.879	5.1 Comprs.
500.00	-0.37741	0.03656	0.237		0.907	3.7 Comprs.
1000.00	-0.37605	0.03792	12.508	0.000	0.904	3.8 Comprs.
2000	-0.37166	0.04231	5.007	0.000	0.896	4.2 Comprs.
4000	-0.36386	0.05011	3.146	0.001	0.880	5.0 Comprs.
8000	-0.35352	0.06045	1.705	0.001	0.860	6.0 Comprs.
16000	-0.33847	0.07550	2.989	0.001	0.830	7.6 Comprs.
32000	-0.31628	0.09769	5.011	0.004	0.786	9.8 Comprs.

Compression index (C_c), psf = 0.21 **Preconsolidation pressure (P_p), psf =** 6996 **Void ratio at P_p (e_m) =** 0.902
Overburden (σ_{vo}), psf = 3125 **Void ratio at σ_{vo} (e_o) =** 0.930

Pressure: 500.00 psf | **TEST READINGS** | **Load No. 1**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.41397	41	160.0013	-0.40604
2	0.0124	-0.41384	42	170.0014	-0.40601
3	0.0166	-0.41356	43	180.0015	-0.40604
4	0.0208	-0.41333	44	190.0016	-0.40604
5	0.0249	-0.41322	45	200.0016	-0.40604
6	0.0291	-0.41312	46	210.0017	-0.40601
7	0.0333	-0.41299	47	220.0018	-0.40601
8	0.0374	-0.41288	48	230.0019	-0.40604
9	0.0416	-0.41278	49	240.0020	-0.40601
10	0.0458	-0.41265	50	250.0020	-0.40601
11	0.0499	-0.41248	51	260.0022	-0.40604
12	0.0541	-0.41234	52	270.0022	-0.40601
13	0.0583	-0.41227	53	280.0023	-0.40604
14	0.0708	-0.41207	54	290.0024	-0.40604
15	0.0874	-0.41159	55	300.0025	-0.40604
16	0.1708	-0.40917	56	310.0026	-0.40601
17	0.2541	-0.40808	57	320.0026	-0.40601
18	0.3374	-0.40723	58	330.0027	-0.40604
19	0.4208	-0.40686	59	340.0028	-0.40604
20	0.5041	-0.40672	60	350.0029	-0.40604
21	0.7541	-0.40648	61	360.0030	-0.40601
22	1.0041	-0.40638	62	370.0031	-0.40601
23	2.0041	-0.40628	63	380.0031	-0.40601
24	5.0041	-0.40614	64	390.0032	-0.40601
25	10.0000	-0.40611	65	400.0033	-0.40604
26	15.0001	-0.40608	66	410.0034	-0.40601
27	20.0001	-0.40608	67	420.0035	-0.40604
28	30.0002	-0.40604	68	430.0036	-0.40608
29	40.0003	-0.40604	69	440.0037	-0.40604
30	50.0004	-0.40604	70	450.0038	-0.40608
31	60.0004	-0.40604	71	460.0038	-0.40604
32	70.0005	-0.40604	72	470.0039	-0.40601
33	80.0006	-0.40601	73	480.0040	-0.40604
34	90.0007	-0.40601	74	490.0041	-0.40608
35	100.0008	-0.40601	75	500.0000	-0.40604
36	110.0009	-0.40601	76	510.0001	-0.40608
37	120.0009	-0.40601	77	520.0002	-0.40608
38	130.0010	-0.40597	78	530.0003	-0.40608
39	140.0011	-0.40601	79	540.0004	-0.40601
40	150.0012	-0.40608	80	540.2173	-0.40601

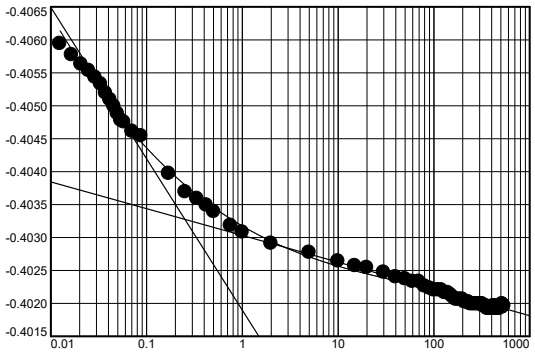


Void Ratio = 0.964 **Compression =** 0.8%

D_0 = -0.4140 **D_{50} =** -0.4100 **D_{100} =** -0.4061 **C_V at 0.13 min. =** 3.743 ft.^{2}/day **C_α =** 0.000

Pressure: 1000.00 psf	TEST READINGS	Load No. 2

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.40601	41	160.0014	-0.40209
2	0.0125	-0.40594	42	170.0015	-0.40206
3	0.0166	-0.40577	43	180.0016	-0.40206
4	0.0208	-0.40563	44	190.0017	-0.40206
5	0.0250	-0.40553	45	200.0018	-0.40206
6	0.0291	-0.40543	46	210.0019	-0.40202
7	0.0333	-0.40533	47	220.0020	-0.40202
8	0.0375	-0.40519	48	230.0020	-0.40202
9	0.0416	-0.40509	49	240.0021	-0.40199
10	0.0458	-0.40499	50	250.0022	-0.40199
11	0.0500	-0.40488	51	260.0023	-0.40199
12	0.0541	-0.40478	52	270.0024	-0.40199
13	0.0583	-0.40475	53	280.0025	-0.40199
14	0.0708	-0.40461	54	290.0026	-0.40199
15	0.0875	-0.40454	55	300.0027	-0.40199
16	0.1708	-0.40397	56	310.0028	-0.40199
17	0.2541	-0.40369	57	320.0029	-0.40199
18	0.3375	-0.40359	58	330.0029	-0.40196
19	0.4208	-0.40349	59	340.0031	-0.40196
20	0.5041	-0.40339	60	350.0031	-0.40196
21	0.7541	-0.40318	61	360.0032	-0.40192
22	1.0042	-0.40308	62	370.0033	-0.40192
23	2.0041	-0.40291	63	380.0034	-0.40192
24	5.0000	-0.40277	64	390.0035	-0.40192
25	10.0001	-0.40264	65	400.0036	-0.40192
26	15.0001	-0.40257	66	410.0037	-0.40192
27	20.0001	-0.40254	67	420.0038	-0.40196
28	30.0002	-0.40247	68	430.0038	-0.40196
29	40.0003	-0.4024	69	440.0040	-0.40192
30	50.0004	-0.40237	70	450.0040	-0.40192
31	60.0005	-0.40233	71	460.0041	-0.40192
32	70.0006	-0.40233	72	470.0001	-0.40192
33	80.0007	-0.40226	73	480.0001	-0.40192
34	90.0008	-0.40223	74	490.0002	-0.40192
35	100.0009	-0.4022	75	500.0003	-0.40196
36	110.0009	-0.4022	76	510.0004	-0.40196
37	120.0010	-0.4022	77	520.0005	-0.40199
38	130.0011	-0.40216	78	530.0006	-0.40196
39	140.0012	-0.40216	79	540.0007	-0.40196
40	150.0013	-0.40213	80	540.0759	-0.40196

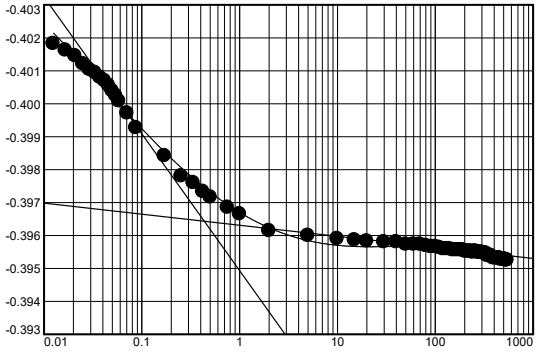


Void Ratio = 0.956 **Compression =** 1.2%

D_0 = -0.4060 **D_{50} =** -0.4046 **D_{100} =** -0.4033 **C_V at 0.07 min. =** 7.183 ft.^{2}/day **C_α =** 0.001

Pressure: 2000 psf | **TEST READINGS** | **Load No. 3**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.40196	41	160.0012	-0.39556
2	0.0125	-0.40182	42	170.0013	-0.39556
3	0.0166	-0.40162	43	180.0014	-0.39556
4	0.0208	-0.40145	44	190.0014	-0.39556
5	0.0250	-0.40121	45	200.0015	-0.39552
6	0.0291	-0.40104	46	210.0016	-0.39552
7	0.0333	-0.40094	47	220.0017	-0.39552
8	0.0374	-0.4008	48	230.0018	-0.39552
9	0.0416	-0.4007	49	240.0018	-0.39549
10	0.0458	-0.40056	50	250.0019	-0.39552
11	0.0499	-0.40039	51	260.0020	-0.39552
12	0.0541	-0.40025	52	270.0021	-0.39549
13	0.0583	-0.40008	53	280.0022	-0.39549
14	0.0708	-0.39971	54	290.0022	-0.39549
15	0.0874	-0.39927	55	300.0023	-0.39549
16	0.1708	-0.39842	56	310.0024	-0.39546
17	0.2541	-0.3978	57	320.0025	-0.39546
18	0.3375	-0.3976	58	330.0025	-0.39546
19	0.4208	-0.39733	59	340.0026	-0.39539
20	0.5041	-0.39716	60	350.0027	-0.39539
21	0.7541	-0.39685	61	360.0028	-0.39539
22	1.0041	-0.39665	62	370.0029	-0.39539
23	2.0041	-0.39614	63	380.0029	-0.39535
24	5.0000	-0.396	64	390.0030	-0.39532
25	10.0001	-0.3959	65	400.0031	-0.39532
26	15.0001	-0.39586	66	410.0032	-0.39532
27	20.0001	-0.39583	67	420.0033	-0.39532
28	30.0002	-0.3958	68	430.0034	-0.39532
29	40.0003	-0.3958	69	440.0034	-0.39532
30	50.0004	-0.39573	70	450.0035	-0.39532
31	60.0005	-0.39573	71	460.0036	-0.39528
32	70.0006	-0.39573	72	470.0037	-0.39528
33	80.0006	-0.39569	73	480.0038	-0.39528
34	90.0007	-0.39566	74	490.0038	-0.39528
35	100.0008	-0.39566	75	500.0039	-0.39528
36	110.0009	-0.39563	76	510.0040	-0.39528
37	120.0009	-0.39559	77	520.0041	-0.39525
38	130.0010	-0.39559	78	530.0000	-0.39525
39	140.0011	-0.39559	79	540.0001	-0.39525
40	150.0011	-0.39556	80	544.7379	-0.39525



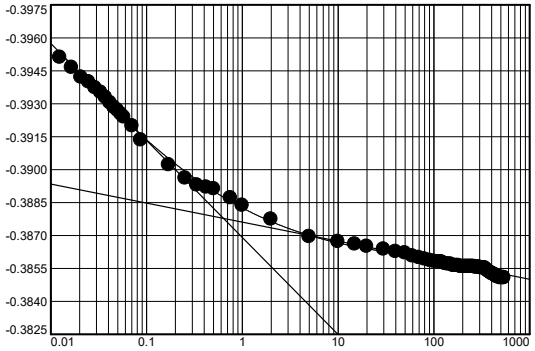
Void Ratio = 0.942 **Compression =** 1.9%

D_0 = -0.4020 **D_{50} =** -0.3992 **D_{100} =** -0.3964 **C_V at 0.10 min. =** 4.613 ft.^{2}/day **C_α =** 0.001

Washington State Department of Transportation

Pressure: 4000 psf | **TEST READINGS** | **Load No. 4**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.39525	41	160.0013	-0.38562
2	0.0125	-0.39511	42	170.0014	-0.38562
3	0.0166	-0.39464	43	180.0014	-0.38562
4	0.0208	-0.3942	44	190.0015	-0.38558
5	0.0250	-0.39399	45	200.0016	-0.38558
6	0.0291	-0.39372	46	210.0017	-0.38558
7	0.0333	-0.39351	47	220.0018	-0.38558
8	0.0374	-0.39328	48	230.0019	-0.38558
9	0.0416	-0.39304	49	240.0020	-0.38558
10	0.0458	-0.39283	50	250.0020	-0.38558
11	0.0499	-0.3927	51	260.0021	-0.38558
12	0.0541	-0.39253	52	270.0022	-0.38555
13	0.0583	-0.39239	53	280.0023	-0.38555
14	0.0708	-0.39198	54	290.0024	-0.38555
15	0.0874	-0.39134	55	300.0025	-0.38555
16	0.1708	-0.39021	56	310.0025	-0.38552
17	0.2541	-0.3896	57	320.0026	-0.38552
18	0.3374	-0.38929	58	330.0027	-0.38552
19	0.4208	-0.38919	59	340.0028	-0.38552
20	0.5041	-0.38912	60	350.0029	-0.38548
21	0.7541	-0.38871	61	360.0030	-0.38541
22	1.0041	-0.38837	62	370.0031	-0.38538
23	2.0041	-0.38773	63	380.0031	-0.38534
24	5.0042	-0.38694	64	390.0032	-0.38531
25	10.0000	-0.38671	65	400.0033	-0.38528
26	15.0001	-0.3866	66	410.0034	-0.38524
27	20.0001	-0.3865	67	420.0035	-0.38524
28	30.0002	-0.38637	68	430.0036	-0.38521
29	40.0003	-0.38626	69	440.0037	-0.38517
30	50.0004	-0.3862	70	450.0037	-0.38514
31	60.0005	-0.38606	71	460.0038	-0.38511
32	70.0005	-0.38599	72	470.0039	-0.38511
33	80.0006	-0.38592	73	480.0040	-0.38511
34	90.0007	-0.38586	74	490.0041	-0.38507
35	100.0008	-0.38582	75	500.0000	-0.38507
36	110.0009	-0.38579	76	510.0001	-0.38507
37	120.0009	-0.38579	77	520.0002	-0.38507
38	130.0010	-0.38572	78	530.0003	-0.38507
39	140.0011	-0.38569	79	540.0004	-0.38507
40	150.0012	-0.38569	80	540.1173	-0.38507



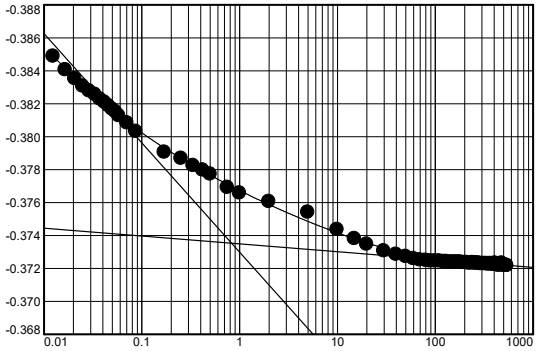
Void Ratio = 0.922 **Compression =** 2.9%

D_0 = -0.3952 **D_{50} =** -0.3915 **D_{100} =** -0.3878 **C_V at 0.09 min. =** 5.154 ft.^{2}/day **C_α =** 0.002

Washington State Department of Transportation

Pressure: 8000 psf | **TEST READINGS** | **Load No. 5**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.38507	41	160.0014	-0.37238
2	0.0125	-0.38487	42	170.0015	-0.37238
3	0.0166	-0.38405	43	180.0016	-0.37238
4	0.0208	-0.38351	44	190.0017	-0.37234
5	0.0250	-0.38306	45	200.0017	-0.37234
6	0.0291	-0.38276	46	210.0018	-0.37234
7	0.0333	-0.38255	47	220.0019	-0.37231
8	0.0374	-0.38228	48	230.0020	-0.37231
9	0.0416	-0.38208	49	240.0021	-0.37234
10	0.0458	-0.38187	50	250.0022	-0.37231
11	0.0499	-0.38167	51	260.0023	-0.37231
12	0.0541	-0.3815	52	270.0023	-0.37231
13	0.0583	-0.38126	53	280.0024	-0.37231
14	0.0708	-0.38082	54	290.0025	-0.37227
15	0.0875	-0.38031	55	300.0026	-0.37227
16	0.1708	-0.37905	56	310.0027	-0.37227
17	0.2541	-0.37867	57	320.0028	-0.37227
18	0.3375	-0.37823	58	330.0029	-0.37227
19	0.4208	-0.37796	59	340.0030	-0.37227
20	0.5041	-0.37772	60	350.0031	-0.37224
21	0.7541	-0.3769	61	360.0031	-0.37227
22	1.0041	-0.37656	62	370.0032	-0.37227
23	2.0041	-0.37605	63	380.0033	-0.37224
24	5.0000	-0.3754	64	390.0034	-0.37224
25	10.0001	-0.37435	65	400.0035	-0.37224
26	15.0001	-0.3738	66	410.0036	-0.37231
27	20.0001	-0.37346	67	420.0037	-0.37224
28	30.0002	-0.37306	68	430.0037	-0.3722
29	40.0003	-0.37285	69	440.0038	-0.3722
30	50.0004	-0.37272	70	450.0039	-0.3722
31	60.0005	-0.37258	71	460.0040	-0.3722
32	70.0006	-0.37251	72	470.0040	-0.3722
33	80.0007	-0.37248	73	480.0041	-0.37231
34	90.0008	-0.37244	74	490.0000	-0.3722
35	100.0009	-0.37244	75	500.0001	-0.3722
36	110.0009	-0.37244	76	510.0002	-0.3722
37	120.0010	-0.37241	77	520.0003	-0.37217
38	130.0011	-0.37241	78	530.0003	-0.37217
39	140.0012	-0.37238	79	540.0004	-0.37217
40	150.0013	-0.37238	80	540.1007	-0.37217

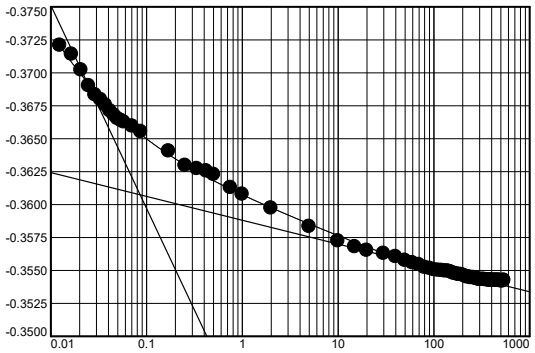


Void Ratio = 0.897 **Compression =** 4.2%

D_0 = -0.3851 **D_{50} =** -0.3793 **D_{100} =** -0.3735 **C_V at 0.17 min. =** 2.676 ft.^{2}/day **C_α =** 0.001

Pressure: 16000 psf | **TEST READINGS** | **Load No. 6**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.37217	41	160.0012	-0.35478
2	0.0125	-0.37207	42	170.0013	-0.35474
3	0.0166	-0.37139	43	180.0014	-0.35467
4	0.0208	-0.3702	44	190.0015	-0.35467
5	0.0250	-0.36901	45	200.0016	-0.35464
6	0.0291	-0.36832	46	210.0016	-0.35457
7	0.0333	-0.36795	47	220.0017	-0.3545
8	0.0374	-0.36754	48	230.0018	-0.3545
9	0.0416	-0.3671	49	240.0019	-0.35444
10	0.0458	-0.36679	50	250.0020	-0.35444
11	0.0499	-0.36652	51	260.0020	-0.35444
12	0.0541	-0.36638	52	270.0032	-0.3544
13	0.0583	-0.36625	53	280.0032	-0.35437
14	0.0708	-0.36594	54	290.0033	-0.35433
15	0.0874	-0.36553	55	300.0034	-0.3543
16	0.1708	-0.36404	56	310.0035	-0.3543
17	0.2541	-0.36295	57	320.0036	-0.3543
18	0.3374	-0.36271	58	330.0037	-0.3543
19	0.4208	-0.36254	59	340.0038	-0.3543
20	0.5041	-0.36226	60	350.0038	-0.35427
21	0.7541	-0.36128	61	360.0039	-0.35427
22	1.0041	-0.36077	62	370.0040	-0.35427
23	2.0041	-0.35971	63	380.0041	-0.35423
24	5.0042	-0.35832	64	390.0000	-0.35427
25	10.0000	-0.35723	65	400.0001	-0.35423
26	15.0001	-0.35678	66	410.0002	-0.35423
27	20.0001	-0.35651	67	420.0003	-0.35423
28	30.0002	-0.35627	68	430.0004	-0.35423
29	40.0003	-0.35604	69	440.0004	-0.35423
30	50.0003	-0.35576	70	450.0005	-0.35423
31	60.0004	-0.35556	71	460.0006	-0.35423
32	70.0005	-0.35542	72	470.0007	-0.35423
33	80.0006	-0.35522	73	480.0008	-0.35423
34	90.0007	-0.35515	74	490.0009	-0.35423
35	100.0007	-0.35505	75	500.0010	-0.3542
36	110.0008	-0.35501	76	510.0010	-0.3542
37	120.0009	-0.35498	77	520.0011	-0.3542
38	130.0010	-0.35495	78	530.0012	-0.3542
39	140.0011	-0.35495	79	540.0013	-0.35423
40	150.0011	-0.35488	80	540.0932	-0.35423



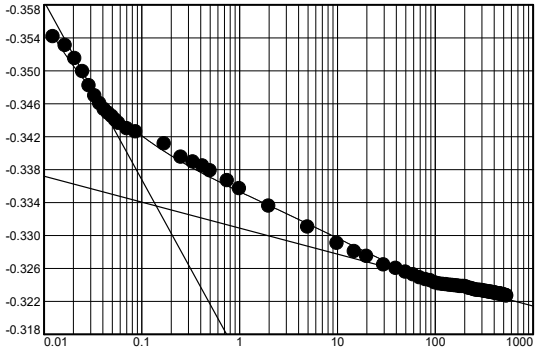
Void Ratio = 0.861 **Compression =** 6.0%

D_0 = -0.3722 **D_{50} =** -0.3665 **D_{100} =** -0.3607 **C_V at 0.06 min. =** 7.776 ft.^{2}/day **C_α =** 0.004

Washington State Department of Transportation

Pressure: 32000 psf	TEST READINGS	Load No. 7

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.35423	41	160.0014	-0.32387
2	0.0125	-0.3541	42	170.0014	-0.32383
3	0.0166	-0.35304	43	180.0015	-0.32376
4	0.0208	-0.35144	44	190.0016	-0.32376
5	0.0250	-0.34987	45	200.0017	-0.32376
6	0.0291	-0.34814	46	210.0018	-0.3237
7	0.0333	-0.34691	47	220.0019	-0.32359
8	0.0375	-0.34599	48	230.0020	-0.32353
9	0.0416	-0.34528	49	240.0020	-0.32349
10	0.0458	-0.3448	50	250.0021	-0.32342
11	0.0500	-0.34443	51	260.0022	-0.32336
12	0.0541	-0.34398	52	270.0023	-0.32332
13	0.0583	-0.34358	53	280.0024	-0.32332
14	0.0708	-0.34293	54	290.0025	-0.32329
15	0.0875	-0.34256	55	300.0026	-0.32329
16	0.1708	-0.34109	56	310.0027	-0.32325
17	0.2542	-0.33946	57	320.0028	-0.32319
18	0.3375	-0.33888	58	330.0029	-0.32319
19	0.4208	-0.3384	59	340.0029	-0.32315
20	0.5041	-0.33782	60	350.0031	-0.32312
21	0.7542	-0.33663	61	360.0031	-0.32308
22	1.0042	-0.33564	62	370.0032	-0.32308
23	2.0041	-0.33353	63	380.0033	-0.32305
24	5.0000	-0.33098	64	390.0034	-0.32302
25	10.0001	-0.32901	65	400.0035	-0.32298
26	15.0001	-0.32802	66	410.0036	-0.32298
27	20.0001	-0.32744	67	420.0037	-0.32295
28	30.0002	-0.32639	68	430.0038	-0.32291
29	40.0003	-0.32598	69	440.0039	-0.32291
30	50.0004	-0.32553	70	450.0040	-0.32288
31	60.0005	-0.32519	71	460.0040	-0.32288
32	70.0006	-0.32485	72	470.0041	-0.32285
33	80.0007	-0.32462	73	480.0001	-0.32281
34	90.0008	-0.32448	74	490.0001	-0.32278
35	100.0008	-0.32421	75	500.0002	-0.32278
36	110.0009	-0.3241	76	510.0003	-0.32274
37	120.0010	-0.32404	77	520.0004	-0.32271
38	130.0011	-0.324	78	530.0005	-0.32268
39	140.0012	-0.32393	79	540.0006	-0.32264
40	150.0013	-0.3239	80	540.0842	-0.32264

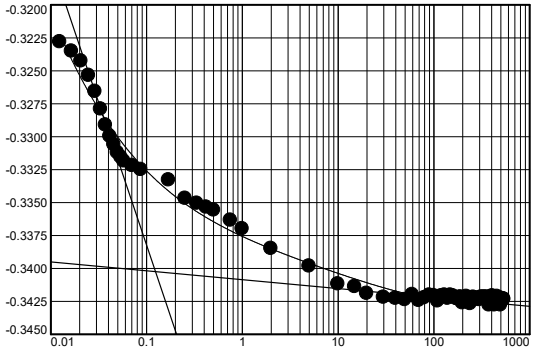


Void Ratio = 0.799 **Compression =** 9.1%

D_0 = -0.3542 **D_{50} =** -0.3439 **D_{100} =** -0.3336 **C_V at 0.07 min. =** 6.462 ft.^{2}/day **C_α =** 0.006

Pressure: 8000 psf **TEST READINGS** **Load No. 8**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.32264	41	160.0014	-0.34211
2	0.0125	-0.32281	42	170.0015	-0.34228
3	0.0166	-0.32353	43	180.0016	-0.34235
4	0.0208	-0.32428	44	190.0017	-0.34218
5	0.0250	-0.32536	45	200.0018	-0.34262
6	0.0291	-0.32659	46	210.0019	-0.34232
7	0.0333	-0.32792	47	220.0019	-0.34215
8	0.0375	-0.32914	48	230.0020	-0.34225
9	0.0416	-0.32999	49	240.0021	-0.34269
10	0.0458	-0.33061	50	250.0022	-0.34225
11	0.0500	-0.33122	51	260.0022	-0.34221
12	0.0541	-0.33156	52	270.0023	-0.34228
13	0.0583	-0.33187	53	280.0024	-0.34228
14	0.0708	-0.33221	54	290.0025	-0.34235
15	0.0875	-0.33251	55	300.0025	-0.34239
16	0.1708	-0.3333	56	310.0026	-0.34221
17	0.2541	-0.33469	57	320.0027	-0.34221
18	0.3375	-0.33507	58	330.0028	-0.34221
19	0.4208	-0.33537	59	340.0028	-0.34221
20	0.5041	-0.33558	60	350.0029	-0.34221
21	0.7542	-0.33636	61	360.0030	-0.34221
22	1.0042	-0.33701	62	370.0031	-0.34228
23	2.0041	-0.3385	63	380.0031	-0.34279
24	5.0000	-0.33983	64	390.0032	-0.34221
25	10.0001	-0.34119	65	400.0033	-0.34225
26	15.0001	-0.3414	66	410.0034	-0.34211
27	20.0002	-0.34191	67	420.0034	-0.34232
28	30.0002	-0.34221	68	430.0035	-0.34279
29	40.0003	-0.34228	69	440.0036	-0.34232
30	50.0004	-0.34239	70	450.0037	-0.34228
31	60.0005	-0.34201	71	460.0038	-0.34215
32	70.0006	-0.34245	72	470.0038	-0.34225
33	80.0007	-0.34225	73	480.0039	-0.34242
34	90.0008	-0.34204	74	490.0040	-0.34225
35	100.0009	-0.34208	75	500.0041	-0.34279
36	110.0010	-0.34249	76	510.0042	-0.34249
37	120.0011	-0.34211	77	520.0001	-0.34235
38	130.0012	-0.34204	78	530.0002	-0.34235
39	140.0012	-0.34228	79	540.0002	-0.34235
40	150.0013	-0.34204	80	540.0588	-0.34235



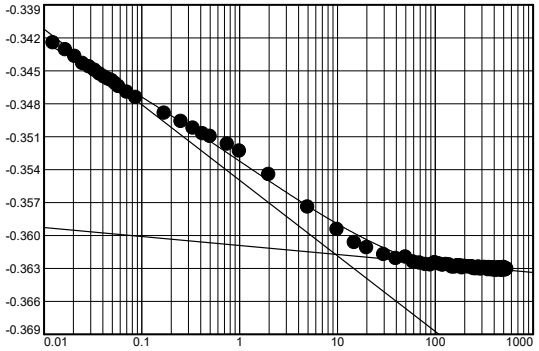
Void Ratio = 0.838 **Compression =** 7.2%

D_0 = -0.3226 **D_{50} =** -0.3314 **D_{100} =** -0.3402 **C_V at 0.07 min. =** 5.814 ft.^{2}/day

Washington State Department of Transportation

Pressure: 2000 psf | **TEST READINGS** | **Load No. 9**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.34235	41	160.0013	-0.36291
2	0.0125	-0.34249	42	170.0014	-0.36278
3	0.0167	-0.3431	43	180.0015	-0.36278
4	0.0208	-0.34371	44	190.0016	-0.36298
5	0.0250	-0.34436	45	200.0017	-0.36284
6	0.0292	-0.34467	46	210.0017	-0.36288
7	0.0333	-0.34497	47	220.0018	-0.36288
8	0.0375	-0.34531	48	230.0019	-0.36291
9	0.0417	-0.34558	49	240.0020	-0.36288
10	0.0458	-0.34579	50	250.0021	-0.36305
11	0.0500	-0.34593	51	260.0021	-0.36305
12	0.0542	-0.3462	52	270.0022	-0.36305
13	0.0583	-0.34647	53	280.0023	-0.36291
14	0.0708	-0.34698	54	290.0024	-0.36308
15	0.0875	-0.34746	55	300.0025	-0.36308
16	0.1708	-0.34889	56	310.0025	-0.36295
17	0.2542	-0.34964	57	320.0026	-0.36295
18	0.3375	-0.35025	58	330.0027	-0.36295
19	0.4208	-0.35076	59	340.0028	-0.36298
20	0.5042	-0.351	60	350.0029	-0.36315
21	0.7542	-0.35171	61	360.0030	-0.36295
22	1.0042	-0.35233	62	370.0031	-0.36298
23	2.0042	-0.35447	63	380.0031	-0.36315
24	5.0000	-0.35743	64	390.0032	-0.36315
25	10.0001	-0.35947	65	400.0033	-0.36298
26	15.0001	-0.36067	66	410.0034	-0.36318
27	20.0002	-0.36114	67	420.0035	-0.36318
28	30.0002	-0.36175	68	430.0035	-0.36318
29	40.0003	-0.36213	69	440.0036	-0.36298
30	50.0004	-0.36199	70	450.0037	-0.36301
31	60.0005	-0.36244	71	460.0038	-0.36298
32	70.0006	-0.36254	72	470.0039	-0.36318
33	80.0006	-0.36267	73	480.0040	-0.36318
34	90.0007	-0.36271	74	490.0040	-0.36318
35	100.0008	-0.3625	75	500.0041	-0.36295
36	110.0009	-0.36261	76	510.0000	-0.36295
37	120.0010	-0.36274	77	520.0001	-0.36318
38	130.0011	-0.36267	78	530.0002	-0.36312
39	140.0011	-0.36271	79	540.0003	-0.36308
40	150.0012	-0.36291	80	540.0839	-0.36308



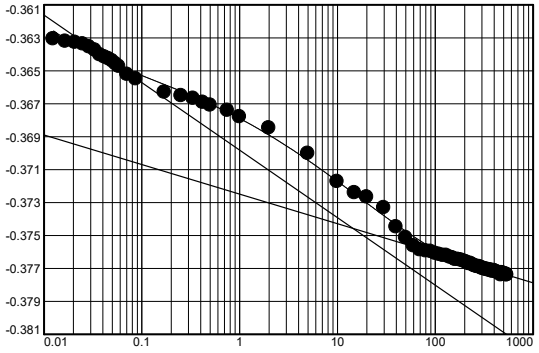
Void Ratio = 0.879 **Compression =** 5.1%

D_0 = -0.3423 **D_{50} =** -0.3520 **D_{100} =** -0.3617 **C_V at 0.63 min. =** 0.688 ft.^{2}/day

Washington State Department of Transportation

Pressure: 500.00 psf | **TEST READINGS** | **Load No. 10**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.36308	41	160.0019	-0.37646
2	0.0125	-0.36308	42	170.0020	-0.37646
3	0.0166	-0.36322	43	180.0020	-0.37649
4	0.0208	-0.36329	44	190.0021	-0.37653
5	0.0250	-0.36339	45	200.0022	-0.3766
6	0.0291	-0.36356	46	210.0023	-0.37663
7	0.0333	-0.36376	47	220.0024	-0.37673
8	0.0375	-0.36404	48	230.0025	-0.3767
9	0.0416	-0.36417	49	240.0026	-0.37677
10	0.0458	-0.36427	50	250.0026	-0.37683
11	0.0500	-0.36441	51	260.0027	-0.37687
12	0.0541	-0.36458	52	270.0028	-0.3769
13	0.0583	-0.36475	53	280.0029	-0.3769
14	0.0708	-0.36523	54	290.0030	-0.37694
15	0.0875	-0.3655	55	300.0031	-0.377
16	0.1708	-0.36632	56	310.0031	-0.377
17	0.2542	-0.36652	57	320.0032	-0.37704
18	0.3375	-0.36669	58	330.0033	-0.37707
19	0.4208	-0.36693	59	340.0034	-0.37707
20	0.5041	-0.3671	60	350.0035	-0.37711
21	0.7542	-0.36741	61	360.0035	-0.37711
22	1.0042	-0.36781	62	370.0036	-0.37711
23	2.0041	-0.36849	63	380.0037	-0.37717
24	5.0000	-0.37003	64	390.0038	-0.37717
25	10.0001	-0.37173	65	400.0039	-0.37714
26	15.0001	-0.37241	66	410.0040	-0.37717
27	20.0002	-0.37268	67	420.0040	-0.37721
28	30.0002	-0.37333	68	430.0041	-0.37724
29	40.0003	-0.37449	69	440.0000	-0.37728
30	50.0004	-0.37513	70	450.0001	-0.37728
31	60.0010	-0.37564	71	460.0002	-0.37728
32	70.0011	-0.37588	72	470.0003	-0.37741
33	80.0012	-0.37595	73	480.0004	-0.37728
34	90.0013	-0.37598	74	490.0004	-0.37731
35	100.0014	-0.37609	75	500.0005	-0.37731
36	110.0014	-0.37615	76	510.0006	-0.37738
37	120.0015	-0.37622	77	520.0007	-0.37738
38	130.0016	-0.37622	78	530.0008	-0.37735
39	140.0017	-0.37632	79	540.0009	-0.37741
40	150.0018	-0.37636	80	540.0803	-0.37741



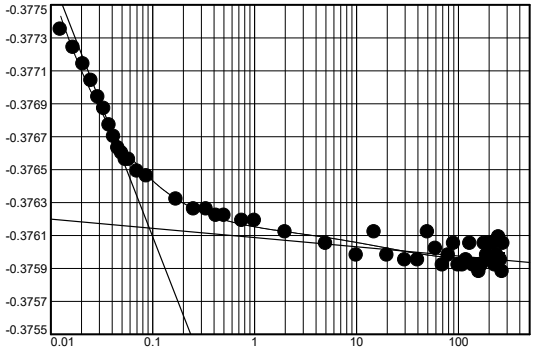
Void Ratio = 0.907 **Compression =** 3.7%

D_0 = -0.3631 **D_{50} =** -0.3688 **D_{100} =** -0.3746 **C_V at 1.90 min. =** 0.237 ft.^{2}/day

Washington State Department of Transportation

Pressure: 1000.00 psf | **TEST READINGS** | **Load No. 11**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.37741	28	30.0002	-0.37595
2	0.0125	-0.37735	29	40.0003	-0.37595
3	0.0167	-0.37724	30	50.0004	-0.37612
4	0.0208	-0.37714	31	60.0005	-0.37602
5	0.0250	-0.37704	32	70.0005	-0.37592
6	0.0292	-0.37694	33	80.0006	-0.37598
7	0.0333	-0.37687	34	90.0007	-0.37605
8	0.0375	-0.37677	35	100.0008	-0.37592
9	0.0417	-0.3767	36	110.0008	-0.37592
10	0.0458	-0.37663	37	120.0009	-0.37595
11	0.0500	-0.3766	38	130.0010	-0.37605
12	0.0542	-0.37656	39	140.0011	-0.37592
13	0.0583	-0.37656	40	150.0011	-0.37592
14	0.0708	-0.37649	41	160.0012	-0.37588
15	0.0875	-0.37646	42	170.0013	-0.37592
16	0.1708	-0.37632	43	180.0016	-0.37605
17	0.2542	-0.37626	44	190.0017	-0.37598
18	0.3375	-0.37626	45	200.0018	-0.37605
19	0.4208	-0.37622	46	210.0019	-0.37595
20	0.5042	-0.37622	47	220.0020	-0.37605
21	0.7542	-0.37619	48	230.0020	-0.37592
22	1.0042	-0.37619	49	240.0021	-0.37598
23	2.0042	-0.37612	50	250.0022	-0.37609
24	5.0000	-0.37605	51	260.0023	-0.37595
25	10.0001	-0.37598	52	270.0023	-0.37588
26	15.0001	-0.37612	53	275.4735	-0.37605
27	20.0002	-0.37598			

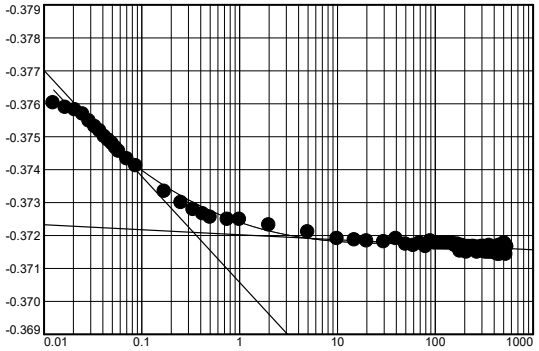


Void Ratio = 0.904 **Compression =** 3.8%

D_0 = -0.3774 **D_{50} =** -0.3768 **D_{100} =** -0.3761 **C_V at 0.04 min. =** 12.508 ft.^{2}/day **C_α =** 0.000

Pressure: 2000 psf	TEST READINGS	Load No. 12

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.37605	41	160.0013	-0.37169
2	0.0125	-0.37602	42	170.0013	-0.37173
3	0.0166	-0.37588	43	180.0014	-0.37152
4	0.0208	-0.37581	44	190.0015	-0.37169
5	0.0250	-0.37568	45	200.0016	-0.37166
6	0.0291	-0.37547	46	210.0017	-0.37149
7	0.0333	-0.3753	47	220.0017	-0.37166
8	0.0375	-0.37517	48	230.0018	-0.37163
9	0.0416	-0.375	49	240.0019	-0.37166
10	0.0458	-0.37489	50	250.0020	-0.37166
11	0.0500	-0.37479	51	260.0021	-0.37163
12	0.0541	-0.37466	52	270.0022	-0.37149
13	0.0583	-0.37455	53	280.0022	-0.37163
14	0.0708	-0.37432	54	290.0023	-0.37152
15	0.0875	-0.37411	55	300.0024	-0.37166
16	0.1708	-0.37333	56	310.0025	-0.37166
17	0.2542	-0.37299	57	320.0025	-0.37166
18	0.3375	-0.37278	58	330.0026	-0.37149
19	0.4208	-0.37265	59	340.0027	-0.37163
20	0.5041	-0.37255	60	350.0028	-0.37149
21	0.7542	-0.37248	61	360.0029	-0.37169
22	1.0042	-0.37248	62	370.0030	-0.37149
23	2.0041	-0.37231	63	380.0031	-0.37152
24	5.0000	-0.3721	64	390.0031	-0.37163
25	10.0001	-0.3719	65	400.0032	-0.37163
26	15.0001	-0.37186	66	410.0033	-0.37146
27	20.0001	-0.37183	67	420.0034	-0.37146
28	30.0002	-0.3718	68	430.0035	-0.37159
29	40.0003	-0.3719	69	440.0036	-0.37142
30	50.0004	-0.37173	70	450.0037	-0.37169
31	60.0005	-0.37169	71	460.0037	-0.37142
32	70.0005	-0.37176	72	470.0038	-0.37166
33	80.0006	-0.37166	73	480.0039	-0.37169
34	90.0007	-0.37183	74	490.0040	-0.37146
35	100.0008	-0.37176	75	500.0040	-0.37173
36	110.0009	-0.37176	76	510.0041	-0.37176
37	120.0009	-0.37176	77	520.0001	-0.37173
38	130.0010	-0.37176	78	530.0001	-0.37142
39	140.0011	-0.37176	79	540.0002	-0.37166
40	150.0012	-0.37176	80	540.0546	-0.37166



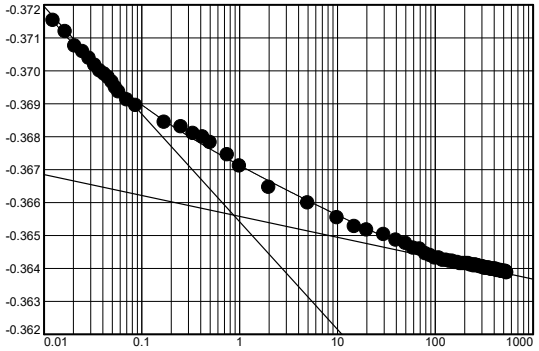
Void Ratio = 0.896 **Compression =** 4.2%

D_0 = -0.3760 **D_{50} =** -0.3741 **D_{100} =** -0.3721 **C_V at 0.09 min. =** 5.007 ft.^{2}/day **C_α =** 0.000

Washington State Department of Transportation

Pressure: 4000 psf	TEST READINGS	Load No. 13

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.37166	41	160.0013	-0.36417
2	0.0125	-0.37152	42	170.0014	-0.36417
3	0.0166	-0.37118	43	180.0014	-0.36414
4	0.0208	-0.37074	44	190.0015	-0.36414
5	0.0250	-0.37057	45	200.0016	-0.36414
6	0.0291	-0.37037	46	210.0017	-0.36414
7	0.0333	-0.37016	47	220.0017	-0.36414
8	0.0374	-0.36999	48	230.0018	-0.3641
9	0.0416	-0.36989	49	240.0019	-0.3641
10	0.0458	-0.36979	50	250.0020	-0.36407
11	0.0499	-0.36965	51	260.0021	-0.3641
12	0.0541	-0.36948	52	270.0022	-0.36407
13	0.0583	-0.36935	53	280.0022	-0.36407
14	0.0708	-0.36911	54	290.0023	-0.36404
15	0.0874	-0.36894	55	300.0024	-0.36404
16	0.1708	-0.36843	56	310.0025	-0.36404
17	0.2541	-0.36829	57	320.0026	-0.364
18	0.3375	-0.36809	58	330.0027	-0.364
19	0.4208	-0.36798	59	340.0028	-0.364
20	0.5041	-0.36781	60	350.0028	-0.364
21	0.7541	-0.36744	61	360.0029	-0.364
22	1.0041	-0.3671	62	370.0030	-0.36397
23	2.0041	-0.36645	63	380.0031	-0.36397
24	5.0042	-0.36598	64	390.0032	-0.36397
25	10.0000	-0.36553	65	400.0032	-0.36397
26	15.0001	-0.36526	66	410.0033	-0.36397
27	20.0001	-0.36516	67	420.0034	-0.36397
28	30.0002	-0.36502	68	430.0035	-0.36393
29	40.0003	-0.36485	69	440.0036	-0.36393
30	50.0004	-0.36475	70	450.0037	-0.36393
31	60.0004	-0.36461	71	460.0037	-0.36393
32	70.0005	-0.36458	72	470.0038	-0.36393
33	80.0006	-0.36444	73	480.0039	-0.3639
34	90.0007	-0.36438	74	490.0040	-0.3639
35	100.0008	-0.36431	75	500.0041	-0.3639
36	110.0008	-0.36431	76	510.0041	-0.3639
37	120.0009	-0.36424	77	520.0001	-0.3639
38	130.0010	-0.36424	78	530.0001	-0.3639
39	140.0011	-0.36421	79	540.0002	-0.36386
40	150.0012	-0.36421	80	540.0630	-0.36386



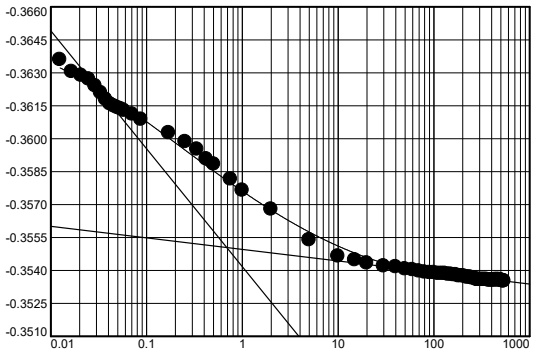
Void Ratio = 0.880 **Compression =** 5.0%

D_0 = -0.3717 **D_{50} =** -0.3686 **D_{100} =** -0.3656 **C_V at 0.14 min. =** 3.146 ft.^{2}/day **C_α =** 0.001

Washington State Department of Transportation

Pressure: 8000 psf **TEST READINGS** **Load No. 14**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.36386	41	160.0013	-0.35379
2	0.0125	-0.36359	42	170.0014	-0.35379
3	0.0166	-0.36305	43	180.0014	-0.35375
4	0.0208	-0.36288	44	190.0015	-0.35375
5	0.0250	-0.36271	45	200.0016	-0.35375
6	0.0291	-0.3624	46	210.0017	-0.35372
7	0.0333	-0.36209	47	220.0018	-0.35369
8	0.0375	-0.36179	48	230.0019	-0.35369
9	0.0416	-0.36158	49	240.0019	-0.35369
10	0.0458	-0.36148	50	250.0020	-0.35365
11	0.0500	-0.36141	51	260.0021	-0.35365
12	0.0541	-0.36135	52	270.0022	-0.35362
13	0.0583	-0.36128	53	280.0022	-0.35358
14	0.0708	-0.36111	54	290.0023	-0.35358
15	0.0875	-0.36087	55	300.0024	-0.35358
16	0.1708	-0.36026	56	310.0025	-0.35358
17	0.2541	-0.35985	57	320.0026	-0.35358
18	0.3375	-0.35951	58	330.0027	-0.35358
19	0.4208	-0.35907	59	340.0027	-0.35358
20	0.5041	-0.35883	60	350.0028	-0.35358
21	0.7542	-0.35815	61	360.0029	-0.35358
22	1.0042	-0.35764	62	370.0030	-0.35355
23	2.0041	-0.35678	63	380.0031	-0.35355
24	5.0042	-0.35539	64	390.0031	-0.35355
25	10.0001	-0.35464	65	400.0032	-0.35355
26	15.0001	-0.35447	66	410.0033	-0.35355
27	20.0001	-0.35433	67	420.0034	-0.35355
28	30.0002	-0.3542	68	430.0035	-0.35355
29	40.0003	-0.35416	69	440.0035	-0.35358
30	50.0004	-0.35406	70	450.0036	-0.35355
31	60.0005	-0.35403	71	460.0037	-0.35358
32	70.0005	-0.35396	72	470.0038	-0.35355
33	80.0006	-0.35392	73	480.0039	-0.35358
34	90.0007	-0.35389	74	490.0040	-0.35355
35	100.0008	-0.35389	75	500.0040	-0.35355
36	110.0009	-0.35386	76	510.0041	-0.35355
37	120.0009	-0.35386	77	520.0000	-0.35352
38	130.0010	-0.35386	78	530.0001	-0.35352
39	140.0011	-0.35382	79	540.0002	-0.35352
40	150.0012	-0.35382	80	540.0713	-0.35352

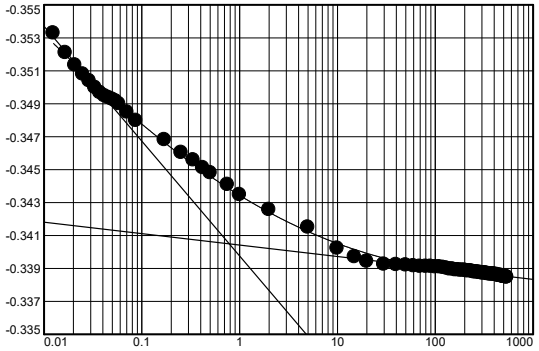


Void Ratio = 0.860 **Compression =** 6.0%

D_0 = -0.3639 **D_{50} =** -0.3595 **D_{100} =** -0.3550 **C_V at 0.26 min. =** 1.705 ft.^{2}/day **C_α =** 0.001

Pressure: 16000 psf	TEST READINGS	Load No. 15

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.35352	41	160.0013	-0.33891
2	0.0125	-0.35328	42	170.0014	-0.33891
3	0.0166	-0.35209	43	180.0014	-0.33888
4	0.0208	-0.35134	44	190.0015	-0.33888
5	0.0250	-0.35079	45	200.0016	-0.33888
6	0.0291	-0.35038	46	210.0017	-0.33884
7	0.0333	-0.34998	47	220.0018	-0.33884
8	0.0374	-0.34967	48	230.0019	-0.33884
9	0.0416	-0.34947	49	240.0020	-0.33881
10	0.0458	-0.34936	50	250.0020	-0.33878
11	0.0499	-0.34926	51	260.0021	-0.33878
12	0.0541	-0.34916	52	270.0022	-0.33878
13	0.0583	-0.34899	53	280.0023	-0.33874
14	0.0708	-0.34848	54	290.0024	-0.33874
15	0.0874	-0.34797	55	300.0025	-0.33871
16	0.1708	-0.34681	56	310.0025	-0.33871
17	0.2541	-0.34603	57	320.0026	-0.33871
18	0.3374	-0.34558	58	330.0027	-0.33871
19	0.4208	-0.34511	59	340.0028	-0.33867
20	0.5041	-0.3448	60	350.0029	-0.33867
21	0.7541	-0.34409	61	360.0030	-0.33864
22	1.0041	-0.34347	62	370.0031	-0.33864
23	2.0041	-0.34256	63	380.0031	-0.33864
24	5.0042	-0.3415	64	390.0032	-0.33864
25	10.0000	-0.34021	65	400.0033	-0.33864
26	15.0001	-0.3397	66	410.0034	-0.33861
27	20.0001	-0.33942	67	420.0035	-0.33861
28	30.0002	-0.33925	68	430.0036	-0.33861
29	40.0003	-0.33922	69	440.0037	-0.33857
30	50.0004	-0.33919	70	450.0037	-0.33857
31	60.0005	-0.33915	71	460.0038	-0.33857
32	70.0005	-0.33912	72	470.0039	-0.33857
33	80.0006	-0.33912	73	480.0040	-0.33854
34	90.0007	-0.33912	74	490.0041	-0.3385
35	100.0008	-0.33908	75	500.0000	-0.3385
36	110.0009	-0.33908	76	510.0001	-0.3385
37	120.0009	-0.33905	77	520.0002	-0.3385
38	130.0010	-0.33901	78	530.0003	-0.33847
39	140.0011	-0.33895	79	540.0004	-0.33847
40	150.0012	-0.33895	80	540.0715	-0.33847



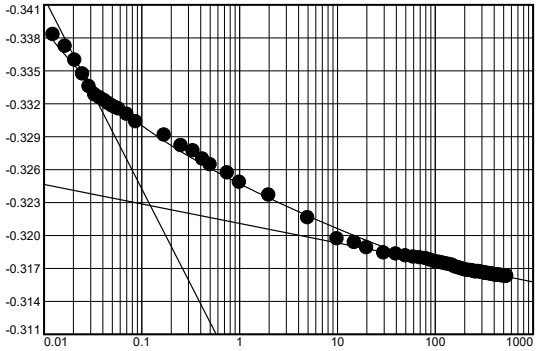
Void Ratio = 0.830 **Compression =** 7.6%

D_0 = -0.3535 **D_{50} =** -0.3470 **D_{100} =** -0.3405 **C_V at 0.14 min. =** 2.989 ft.^{2}/day **C_α =** 0.001

Washington State Department of Transportation

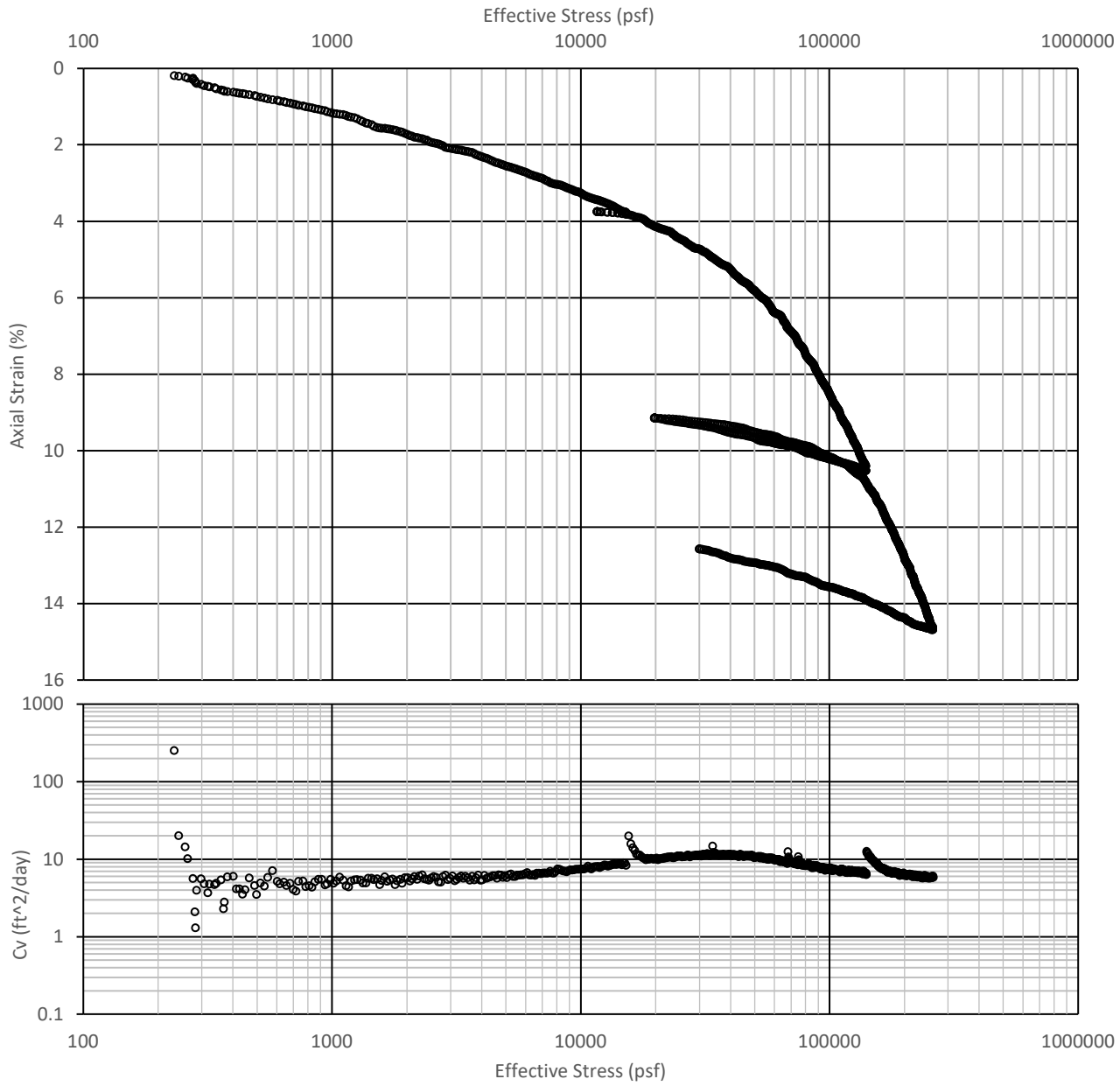
Pressure: 32000 psf	TEST READINGS	Load No. 16

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.33847	41	160.0013	-0.31713
2	0.0125	-0.33827	42	170.0014	-0.31706
3	0.0166	-0.33721	43	180.0015	-0.31699
4	0.0208	-0.33595	44	190.0016	-0.31692
5	0.0250	-0.33469	45	200.0017	-0.31685
6	0.0291	-0.33353	46	210.0018	-0.31682
7	0.0333	-0.33279	47	220.0019	-0.31679
8	0.0374	-0.33251	48	230.0019	-0.31679
9	0.0416	-0.33227	49	240.0020	-0.31675
10	0.0458	-0.332	50	250.0021	-0.31672
11	0.0499	-0.3318	51	260.0022	-0.31665
12	0.0541	-0.33163	52	270.0023	-0.31668
13	0.0583	-0.33149	53	280.0024	-0.31668
14	0.0708	-0.33102	54	290.0025	-0.31665
15	0.0874	-0.33033	55	300.0025	-0.31662
16	0.1708	-0.32911	56	310.0026	-0.31658
17	0.2541	-0.32816	57	320.0027	-0.31658
18	0.3374	-0.32768	58	330.0028	-0.31651
19	0.4208	-0.32693	59	340.0029	-0.31651
20	0.5041	-0.32642	60	350.0030	-0.31651
21	0.7541	-0.32567	61	360.0031	-0.31648
22	1.0041	-0.32482	62	370.0031	-0.31648
23	2.0041	-0.32366	63	380.0032	-0.31645
24	5.0042	-0.32159	64	390.0033	-0.31645
25	10.0000	-0.31968	65	400.0034	-0.31641
26	15.0001	-0.31934	66	410.0035	-0.31638
27	20.0001	-0.31886	67	420.0036	-0.31638
28	30.0002	-0.31839	68	430.0037	-0.31638
29	40.0003	-0.31828	69	440.0037	-0.31634
30	50.0004	-0.31811	70	450.0038	-0.31634
31	60.0005	-0.31801	71	460.0039	-0.31634
32	70.0006	-0.31794	72	470.0040	-0.31634
33	80.0006	-0.31788	73	480.0041	-0.31631
34	90.0007	-0.31774	74	490.0000	-0.31631
35	100.0008	-0.3176	75	500.0001	-0.31631
36	110.0009	-0.31754	76	510.0002	-0.31631
37	120.0010	-0.31747	77	520.0003	-0.31628
38	130.0011	-0.3174	78	530.0004	-0.31628
39	140.0012	-0.31733	79	540.0004	-0.31628
40	150.0013	-0.31726	80	540.0674	-0.31628



Void Ratio = 0.786 **Compression =** 9.8%

D_0 = -0.3385 **D_{50} =** -0.3306 **D_{100} =** -0.3227 **C_V at 0.08 min. =** 5.011 ft.^{2}/day **C_α =** 0.004



Depth	W.C. (%)		Atterberg Limits			Description	USCS
(ft)	Before	After	LL	PL	PI		
39.7	19	16	27	18	9	LEAN CLAY WITH SAND	CL

Initial Specimen Properties	
Height (inches)	1.00
Diameter (inches)	2.50
Weight (ounces)	5.96
Total Unit Weight (pcf)	131.41
Degree of Saturation (%)	91.73
Void Ratio (e0)	0.584

Sample Preparation and Comments:
The specimen test was an intact soil sample which was extracted from the sampling tube by cutting and delaminating a section of the sample tube. The test was run with a room temperature between 71 and 73 degrees Farenheit.

WSDOT XL5446
WA

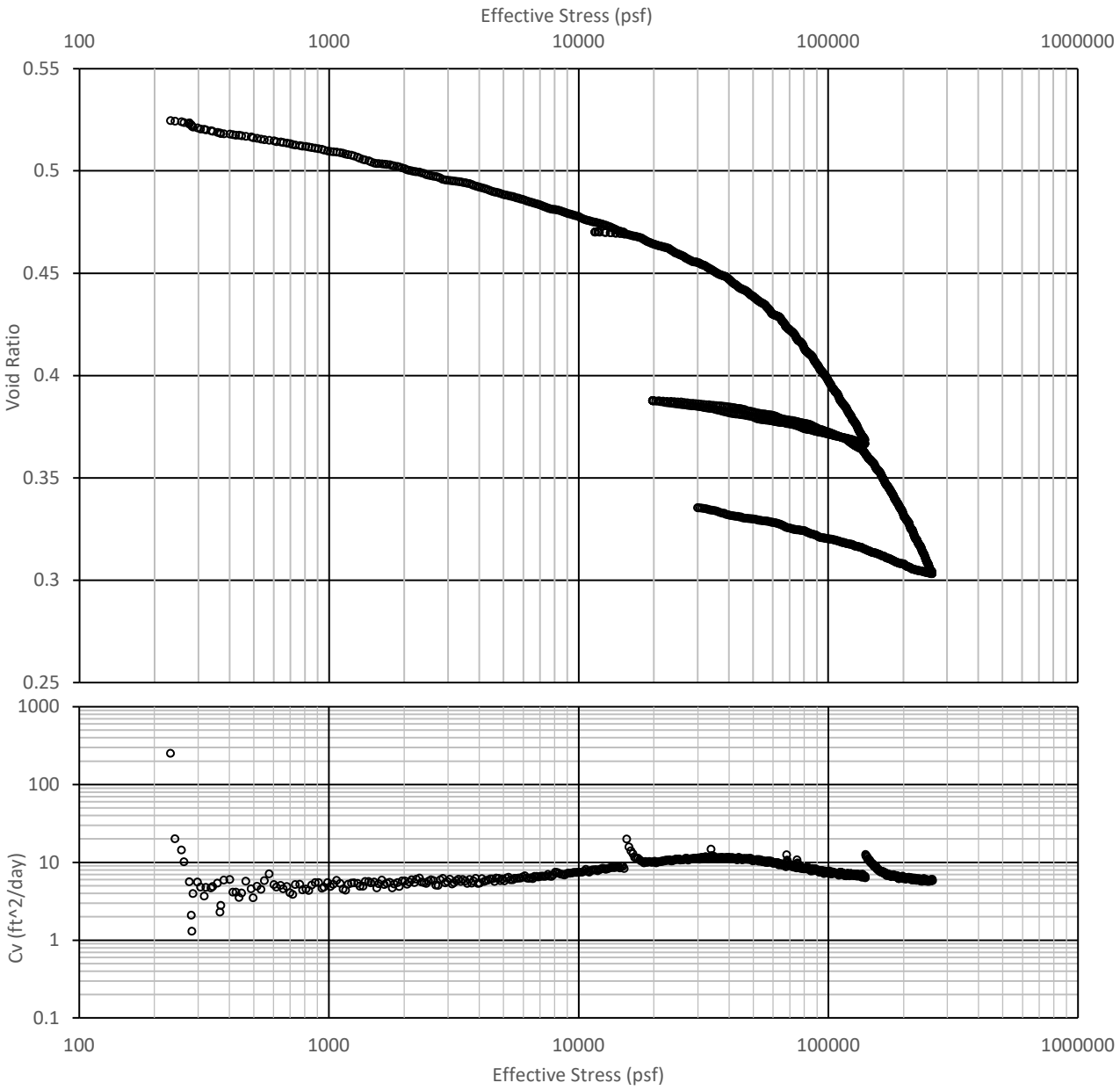
Axial strain and coefficient of consolidation versus logarithm of vertical effective stress for 103vw-22 S-13 CRS Consolidation

Job Number: 0205069-001 11/4/2022

HALEY ALDRICH

Figure

JSB 12/14/2022 G:\Notebooks\0206848-002_SR522_to_SR527\Lab Data\Internal Lab Data



Depth	W.C. (%)		Atterberg Limits			Description	USCS
(ft)	Before	After	LL	PL	PI		
39.7	19	16	27	18	9	LEAN CLAY WITH SAND	CL

Initial Specimen Properties	
Height (inches)	1.00
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Sample Preparation and Comments:
The specimen test was an intact soil sample which was extracted from the sampling tube by cutting and delaminating a section of the sample tube. The test was run with a room temperature between 71 and 73 degrees Farenheit.

WSDOT XL5446
WA

Void ratio and coefficient of consolidation versus logarithm of vertical effective stress for 103vw-22 S-13 CRS Consolidation

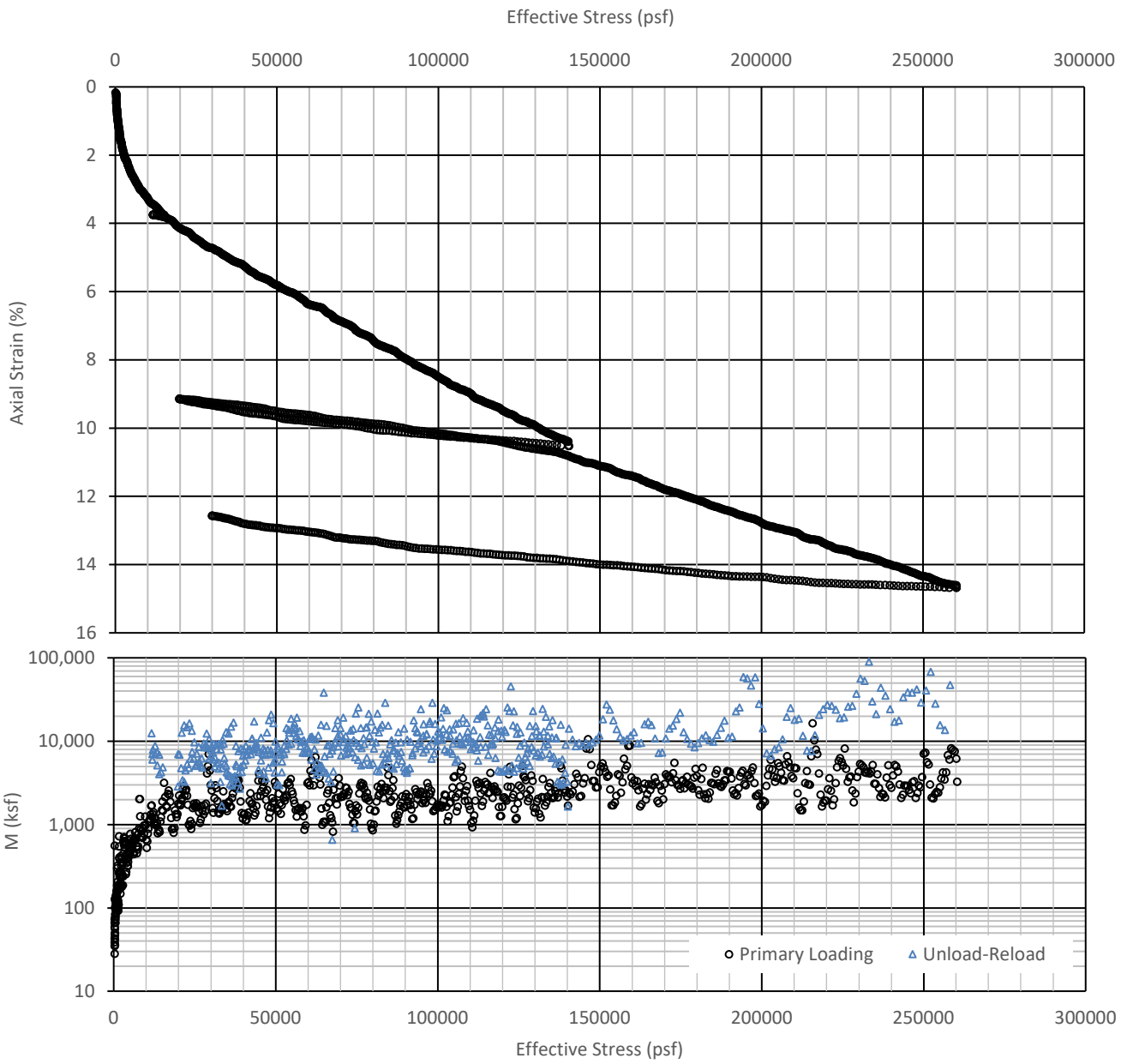
Job Number: 0205069-001

11/4/2022

HALEY ALDRICH

Figure

JSB 12/14/2022 G:\Notebooks\0206848-002_SR522_to_SR527\Lab Data\Internal Lab Data



Depth	W.C. (%)		Atterberg Limits			Description	USCS
(ft)	Before	After	LL	PL	PI		
39.7	19	16	27	18	9	LEAN CLAY WITH SAND	CL

Initial Specimen Properties	
Height (inches)	1.00
Diameter (inches)	2.50
Weight (ounces)	5.96
Total Unit Weight (pcf)	131.41
Degree of Saturation (%)	91.73
Void Ratio (e0)	0.584

Sample Preparation and Comments:
The specimen test was an intact soil sample which was extracted from the sampling tube by cutting and delaminating a section of the sample tube. The test was run with a room temperature between 71 and 73 degrees Farenheit.

WSDOT XL5446
WA

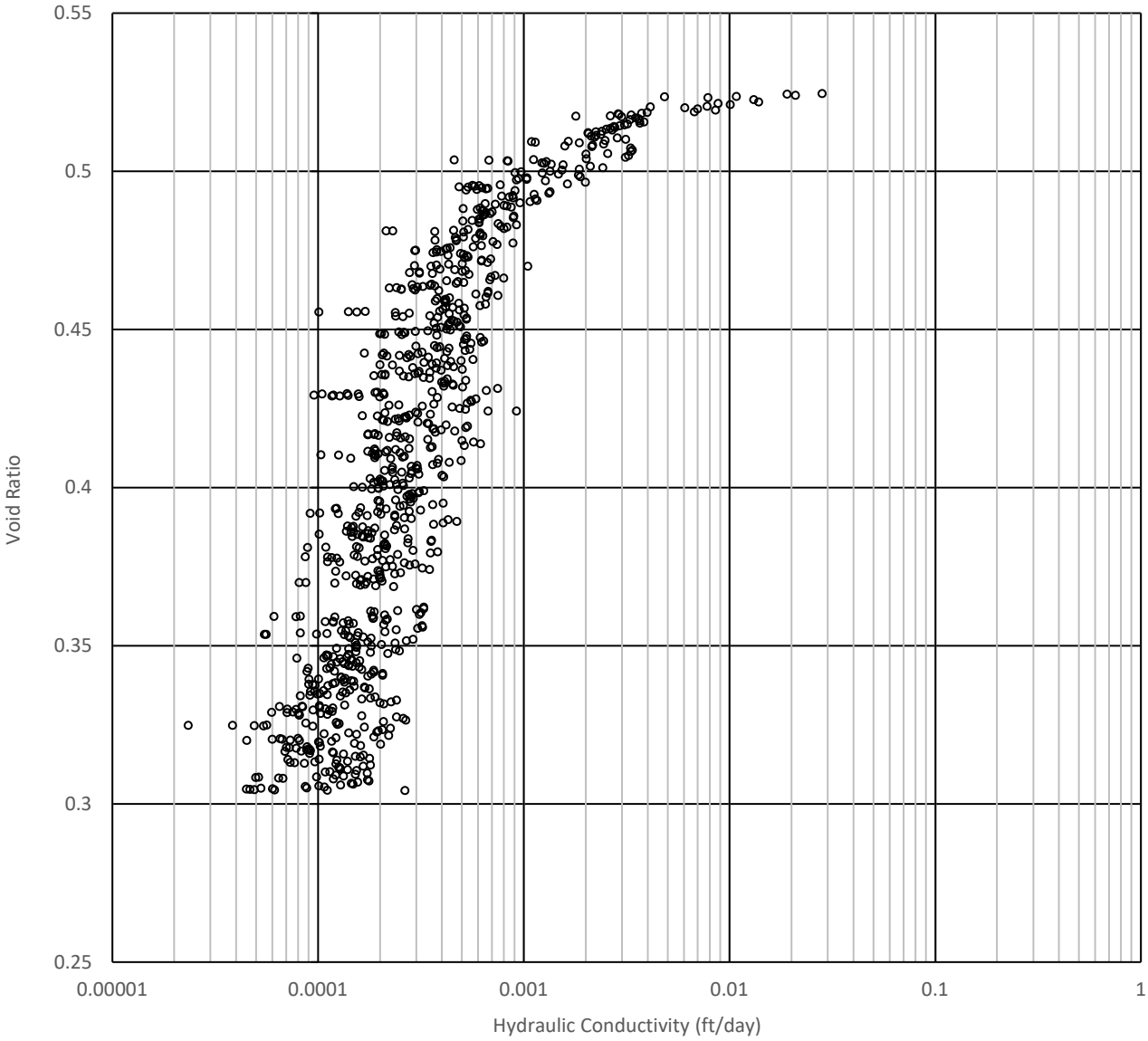
Axial strain versus vertical effective stress for 103vw-22 S-13 CRS Consolidation

Job Number: 0205069-001 11/4/2022

HALEY ALDRICH

Figure

JSB 12/14/2022 G:\Notebooks\0206848-002_SR522_to_SR527\Lab Data\Internal Lab Data



Depth	W.C. (%)		Atterberg Limits				
(ft)	Before	After	LL	PL	PI	Description	USCS
39.7	19	16	27	18	9	LEAN CLAY WITH SAND	CL

Initial Specimen Properties	
Height (inches)	1.00
Diameter (inches)	2.50
Weight (ounces)	5.96
Total Unit Weight (pcf)	131.41
Degree of Saturation (%)	91.73
Void Ratio (e0)	0.584

Sample Preparation and Comments:
The specimen test was an intact soil sample which was extracted from the sampling tube by cutting and delaminating a section of the sample tube. The test was run with a room temperature between 71 and 73 degrees Farenheit.

WSDOT XL5446
WA

Void ratio versus logarithm of hydraulic conductivity 103vw-22 S-13 CRS Consolidation

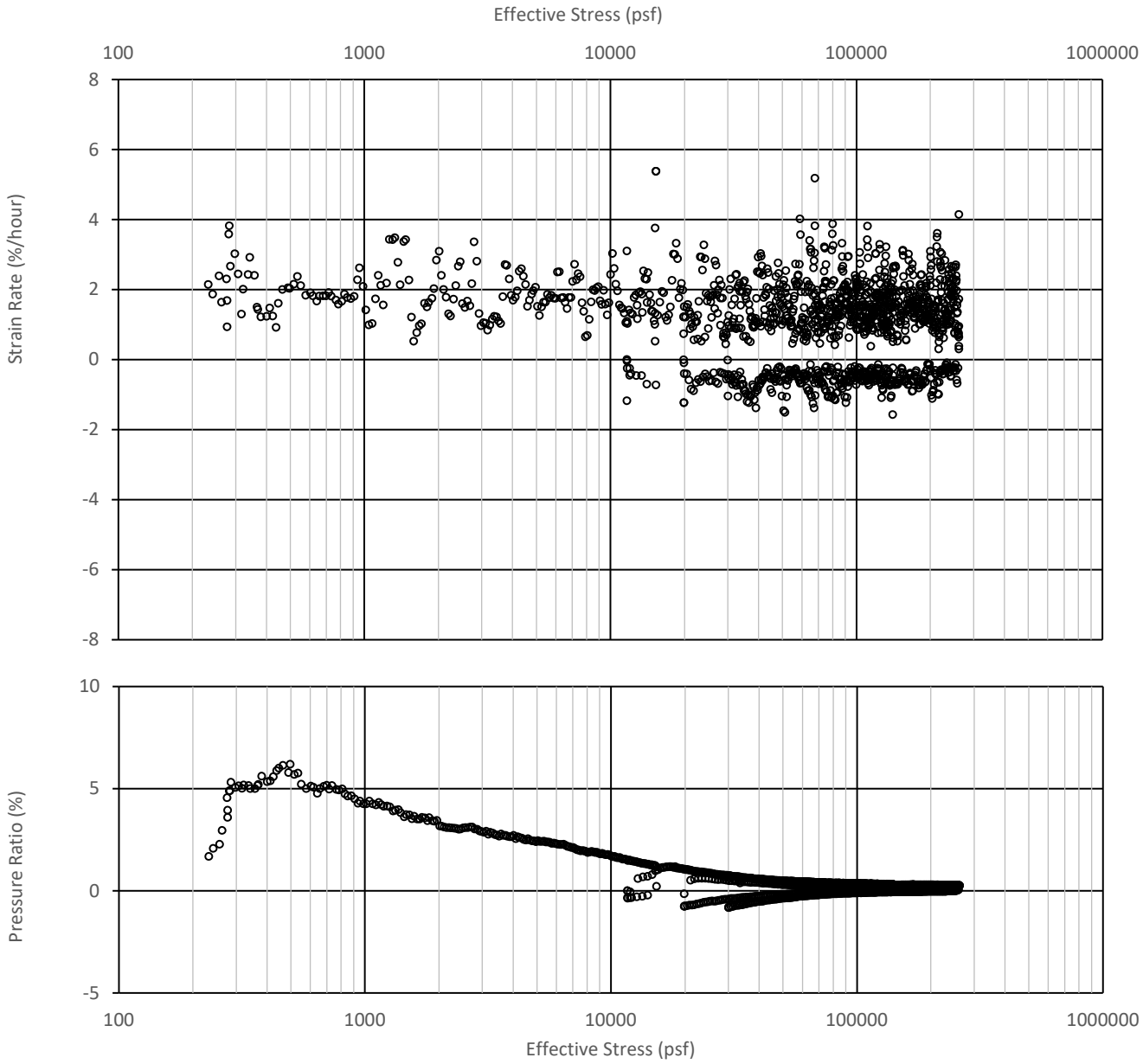
Job Number: 0205069-001

11/4/2022

HALEY ALDRICH

Figure

JSB 12/14/2022 G:\Notebooks\0206848-002_SR522_to_SR527\Lab Data\Internal Lab Data



Depth	W.C. (%)		Atterberg Limits			Description	USCS
(ft)	Before	After	LL	PL	PI		
39.7	19	16	27	18	9	LEAN CLAY WITH SAND	CL

Initial Specimen Properties	
Height (inches)	1.00
Diameter (inches)	2.50
Weight (ounces)	5.96
Total Unit Weight (pcf)	131.41
Degree of Saturation (%)	91.73
Void Ratio (e0)	0.584

Sample Preparation and Comments:
The specimen test was an intact soil sample which was extracted from the sampling tube by cutting and delaminating a section of the sample tube. The test was run with a room temperature between 71 and 73 degrees Farenheit.

WSDOT XL5446
WA

Axial strain, void ratio, and coefficient of consolidation versus logarithm of vertical effective stress for 103vw-22 S-13 CRS Consolidation

Job Number: 0205069-001 11/4/2022

HALEY ALDRICH

Figure

WSDOT XL5446
WA

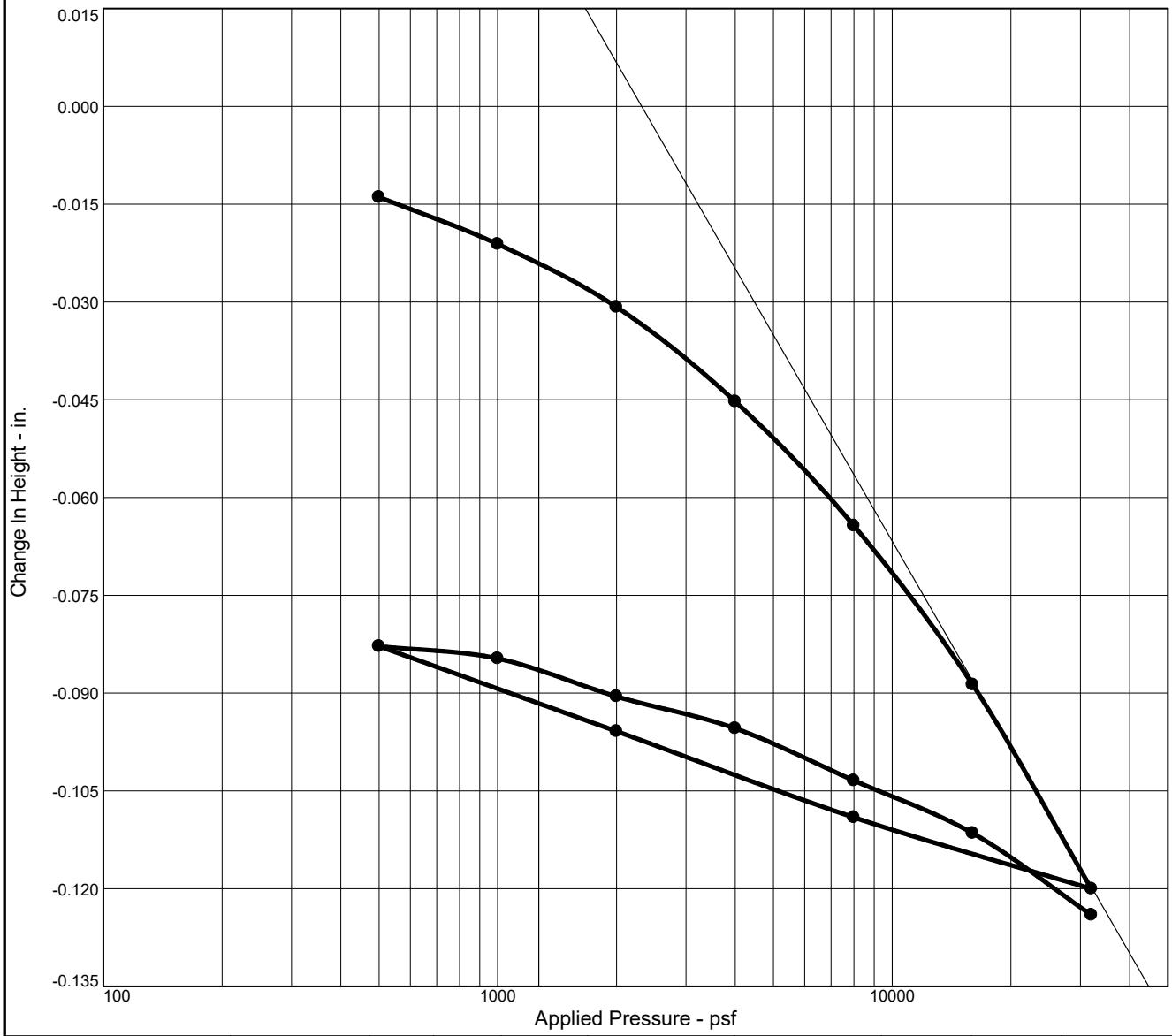
Pre-Test Photograph

0205069-001 11/4/2022

HALEY ALDRICH

Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
100.6 %	24.1 %	102.8	33	19	2.72	2400	4723	0.17	0.03	0.652

MATERIAL DESCRIPTION	USCS	AASHTO
CL - Lean Clay	CL	

Project No. XL5446 **Client:** WSDOT (Geotechnical Office)

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Location: NE-104VW-22 **Depth:** 29.17 **Sample Number:** S-9

Washington State Department of Transportation

Olympia, WA

Remarks:

I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

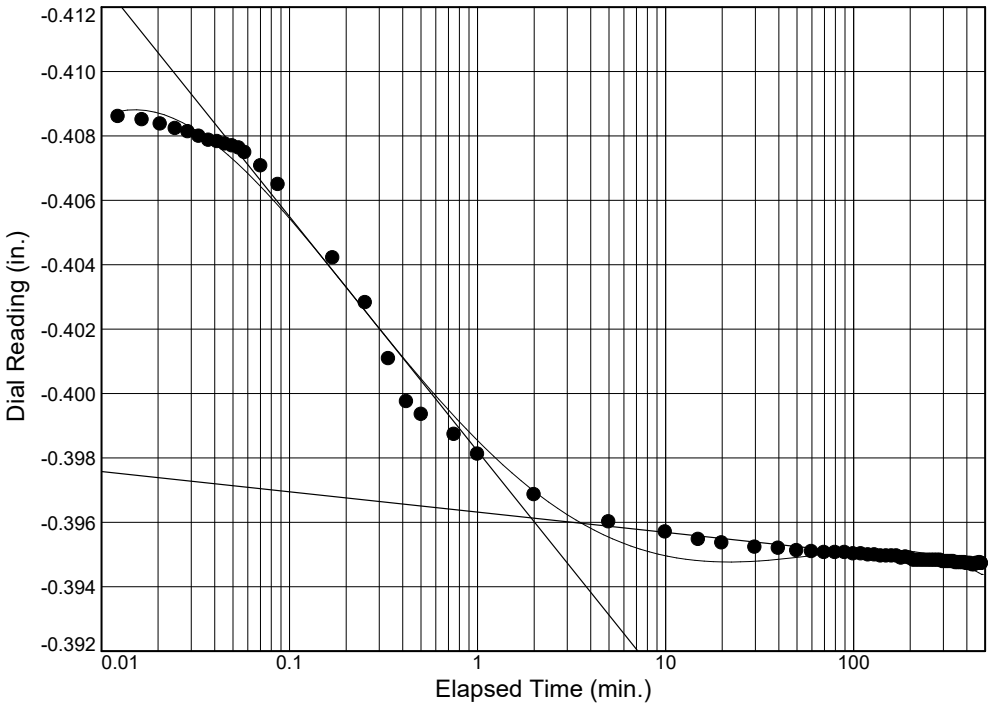
Figure

Checked By: SW

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

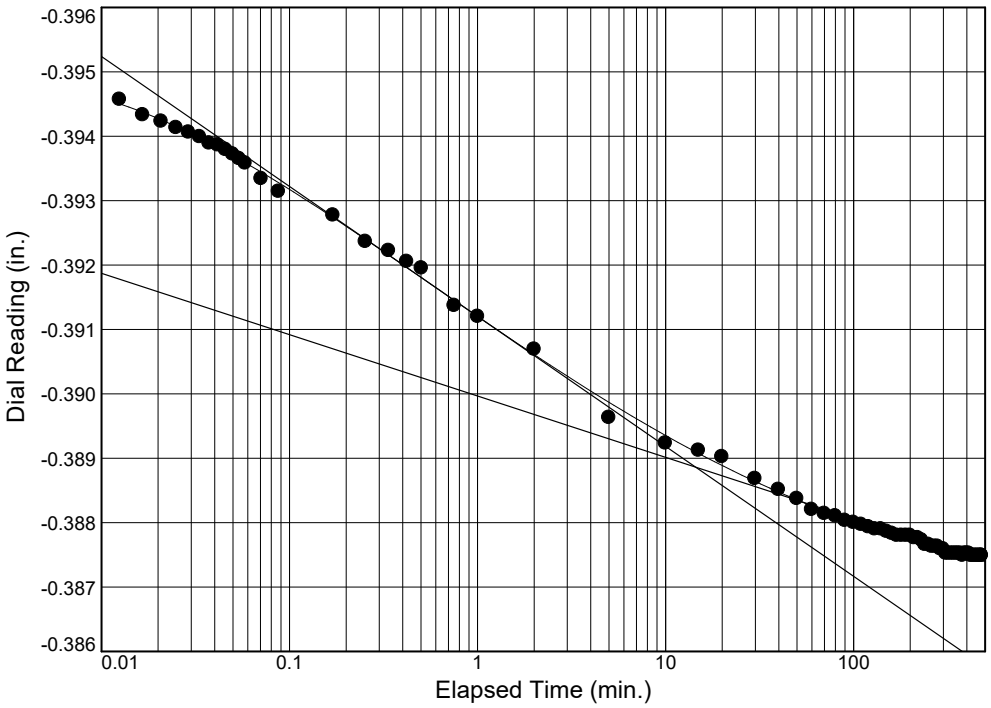
Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 1
Load= 500.00 psf
D_0 = -0.4086
D_{50} = -0.4024
D_{100} = -0.3961
T_{50} = 0.27 min.

C_v @ T_{50}
1.816 ft.^{2}/day

C_α = 0.001



Load No.= 2
Load= 1000.00 psf
D_0 = -0.3947
D_{50} = -0.3918
D_{100} = -0.3889
T_{50} = 0.51 min.

C_v @ T_{50}
0.928 ft.^{2}/day

C_α = 0.002

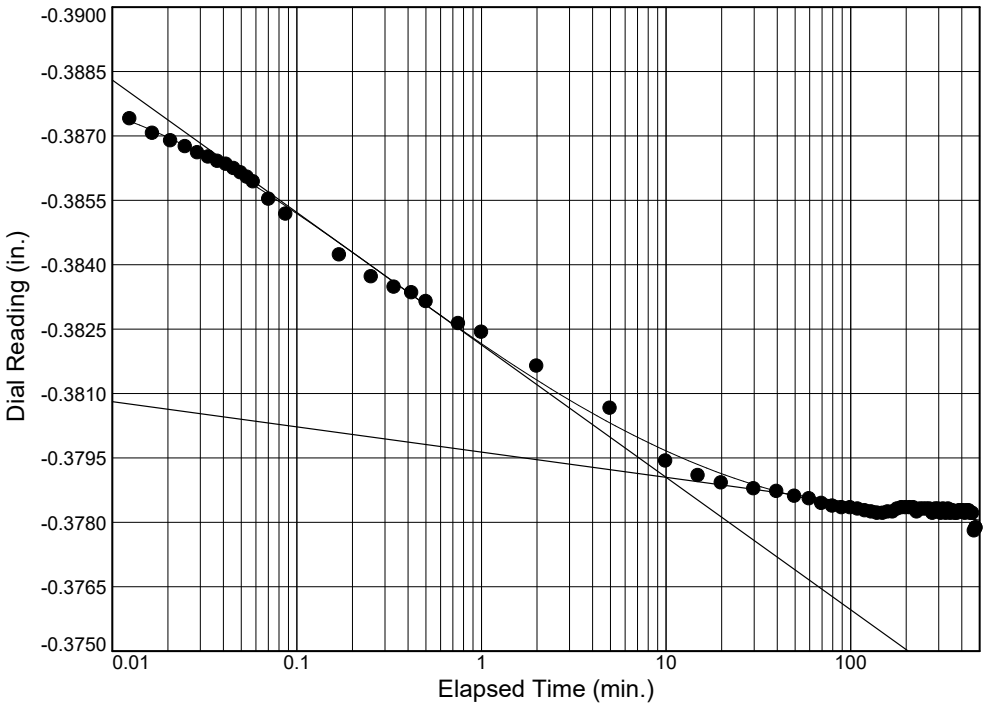
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

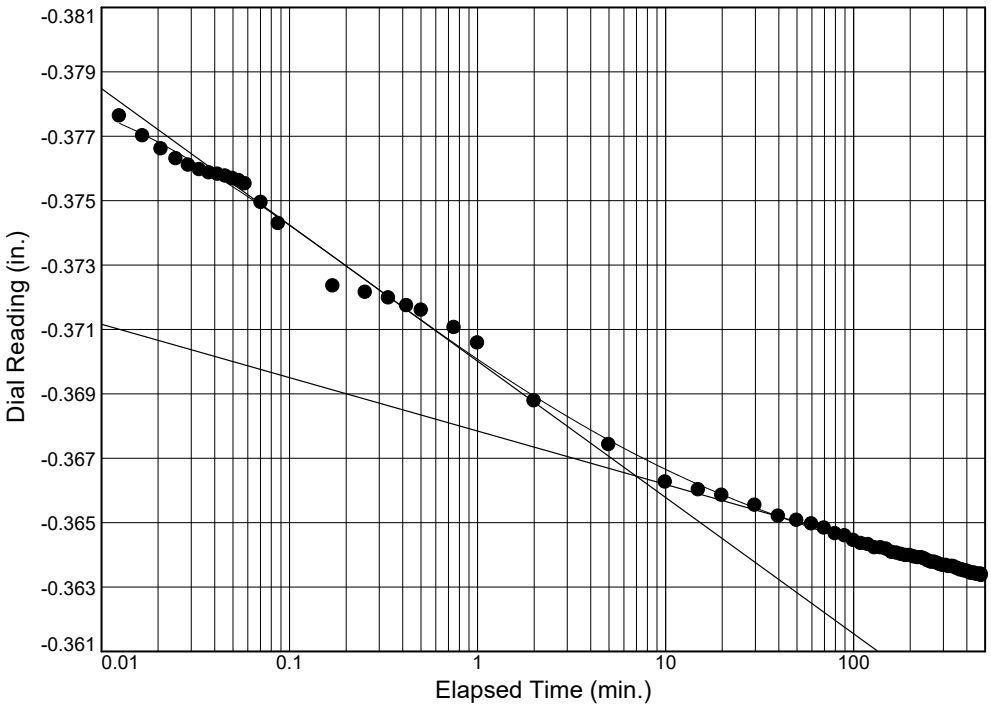
Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 3
Load= 2000 psf
D_0 = -0.3875
D_{50} = -0.3833
D_{100} = -0.3790
T_{50} = 0.43 min.

C_v @ T_{50}
1.090 ft.^{2}/day

C_α = 0.001



Load No.= 4
Load= 4000 psf
D_0 = -0.3779
D_{50} = -0.3722
D_{100} = -0.3664
T_{50} = 0.31 min.

C_v @ T_{50}
1.460 ft.^{2}/day

C_α = 0.003

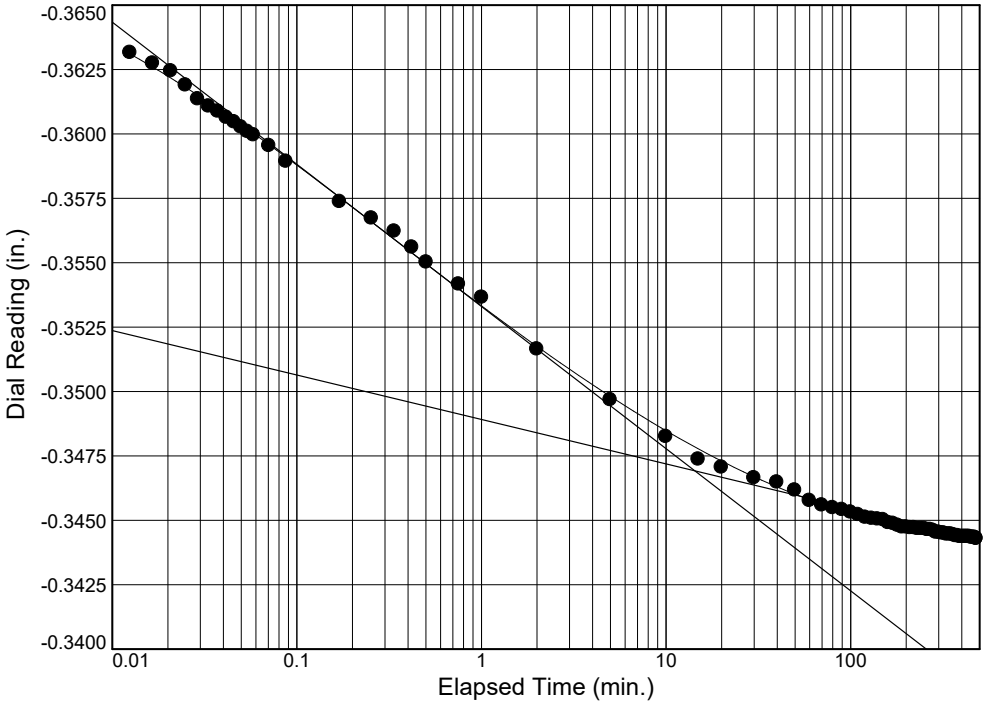
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

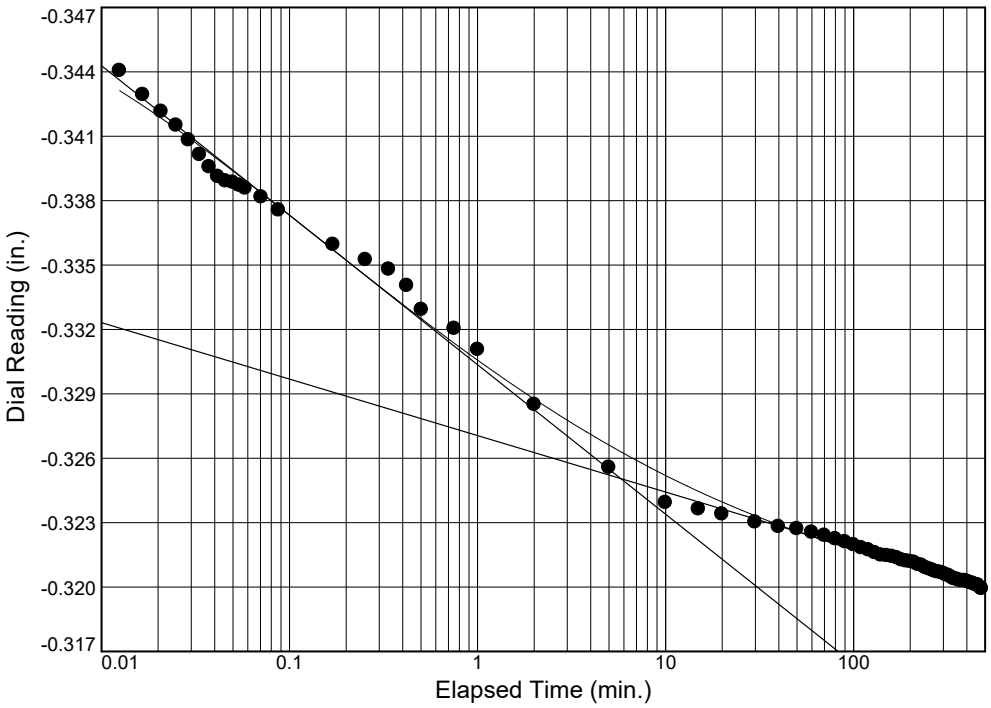
Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 5
Load= 8000 psf
D_0 = -0.3634
D_{50} = -0.3551
D_{100} = -0.3469
T_{50} = 0.47 min.

C_v @ T_{50}
0.945 ft.^{2}/day

C_α = 0.003



Load No.= 6
Load= 16000 psf
D_0 = -0.3443
D_{50} = -0.3347
D_{100} = -0.3251
T_{50} = 0.24 min.

C_v @ T_{50}
1.745 ft.^{2}/day

C_α = 0.004

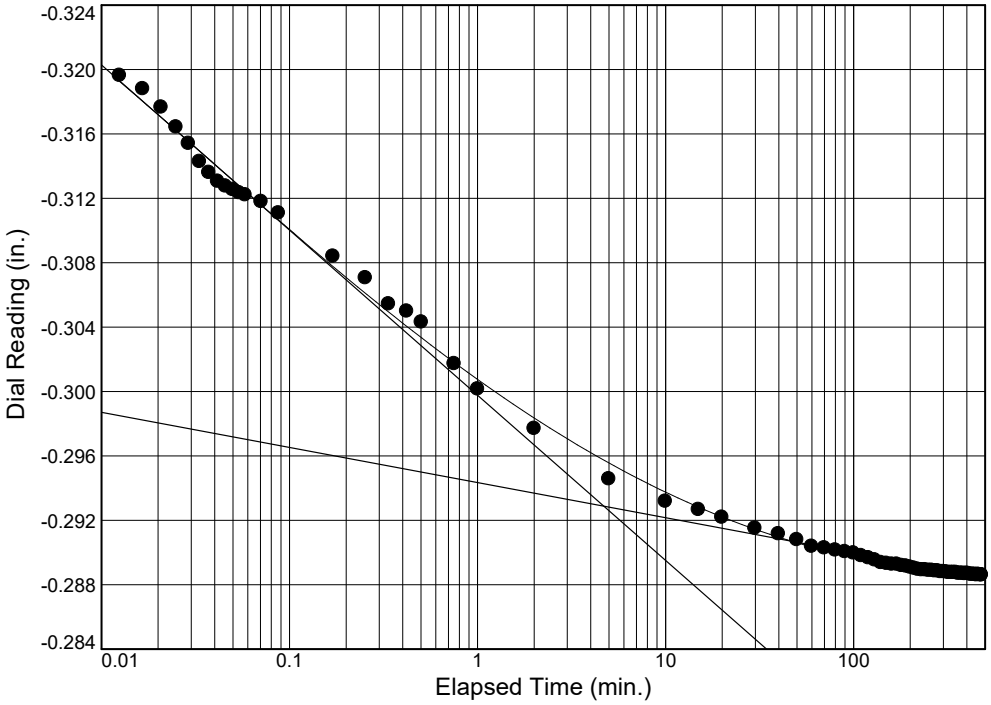
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

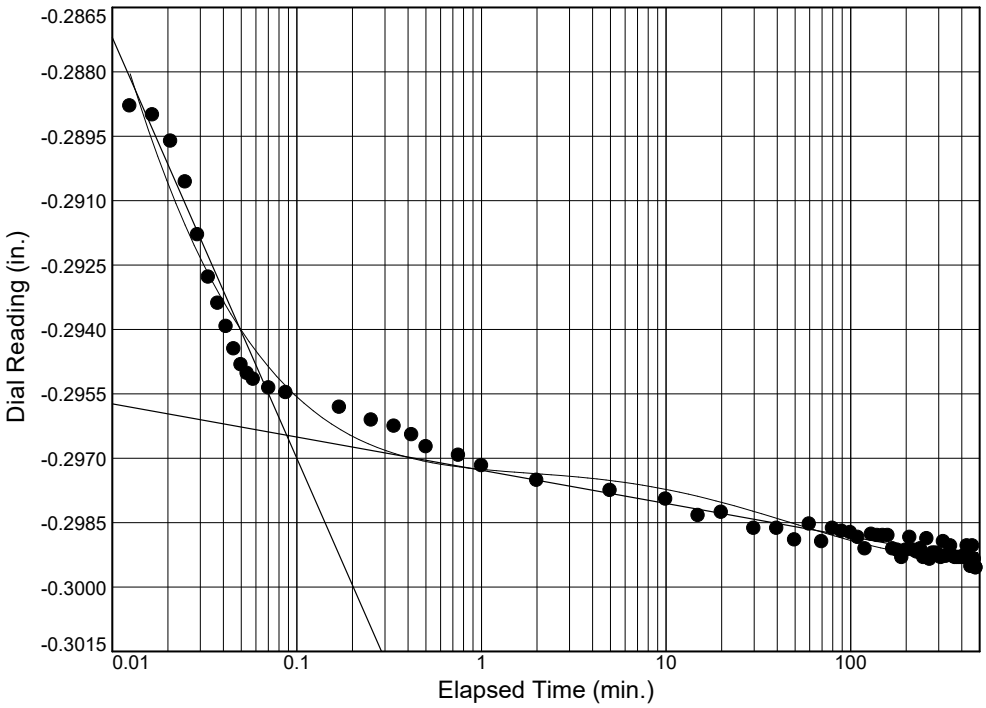
Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 7
Load= 32000 psf
D_0 = -0.3199
D_{50} = -0.3064
D_{100} = -0.2929
T_{50} = 0.24 min.

C_v @ T_{50}
1.677 ft.^{2}/day

C_α = 0.004



Load No.= 8
Load= 8000 psf
D_0 = -0.2886
D_{50} = -0.2925
D_{100} = -0.2965
T_{50} = 0.03 min.

C_v @ T_{50}
12.224 ft.^{2}/day

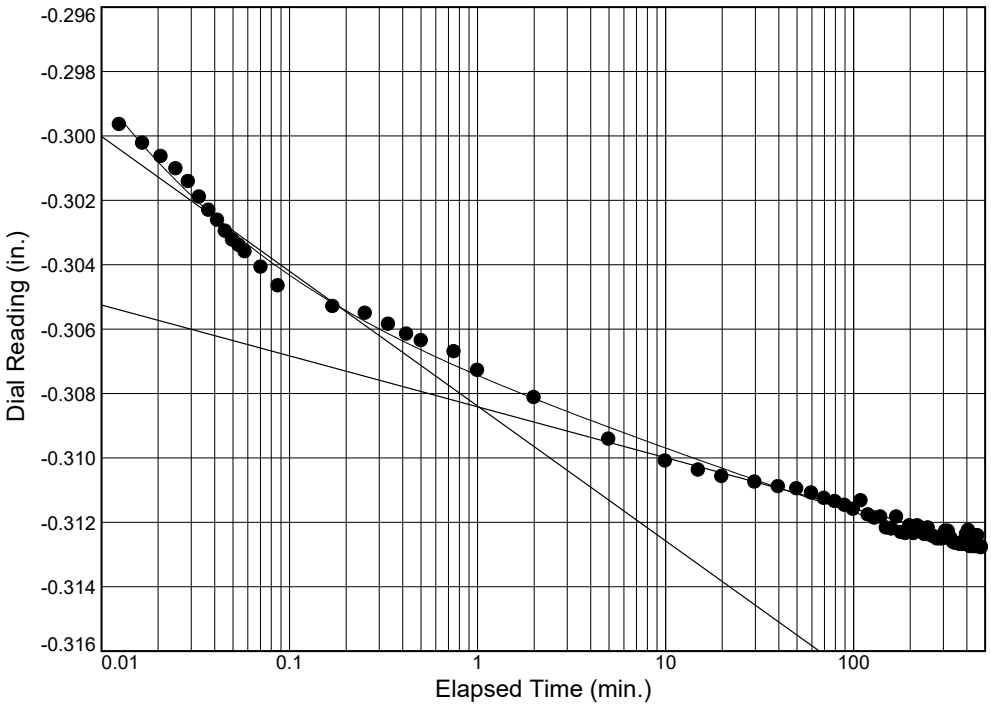
Figure

Washington State Department of Transportation

Dial Reading vs. Time

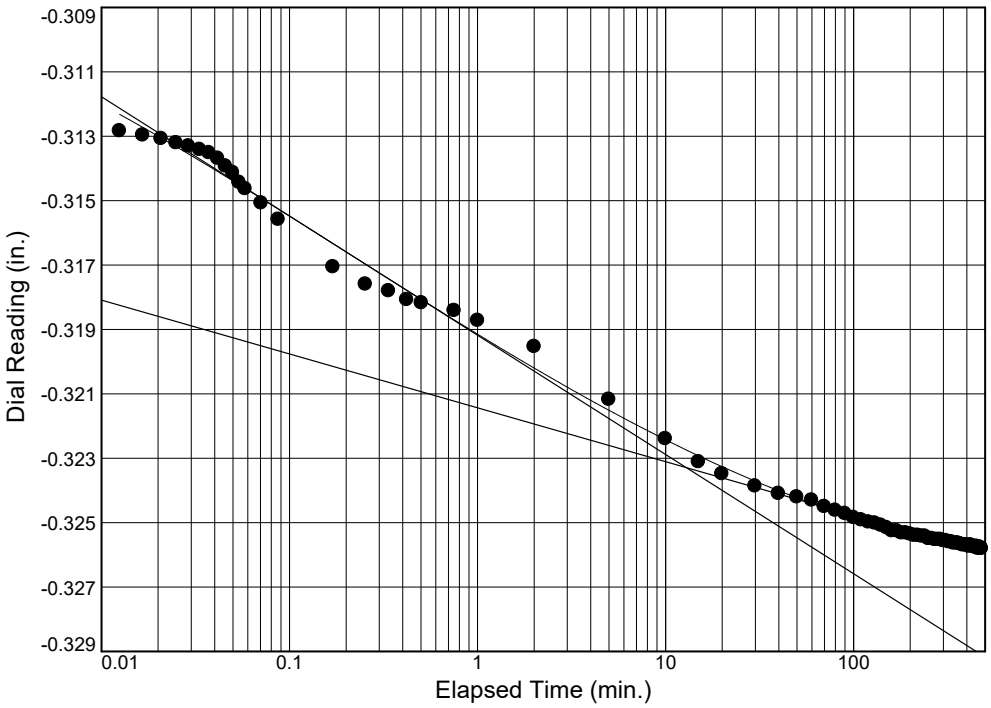
Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 9
Load= 2000 psf
D_0 = -0.2996
D_{50} = -0.3040
D_{100} = -0.3084
T_{50} = 0.08 min.

C_v @ T_{50}
4.781 ft.^{2}/day



Load No.= 10
Load= 500.00 psf
D_0 = -0.3128
D_{50} = -0.3180
D_{100} = -0.3233
T_{50} = 0.50 min.

C_v @ T_{50}
0.824 ft.^{2}/day

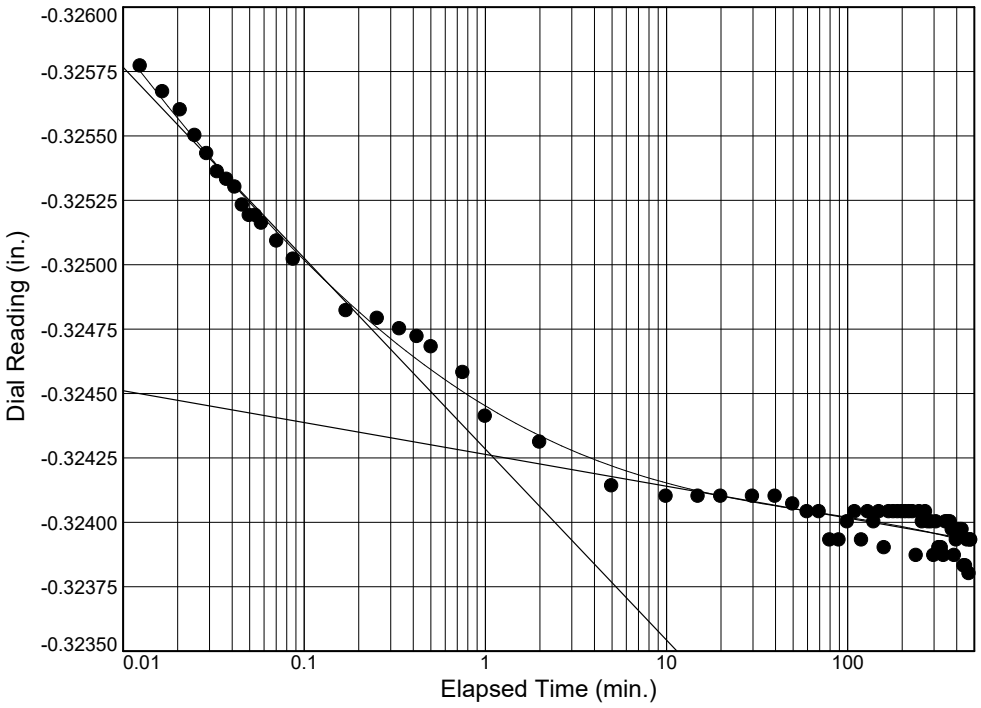
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

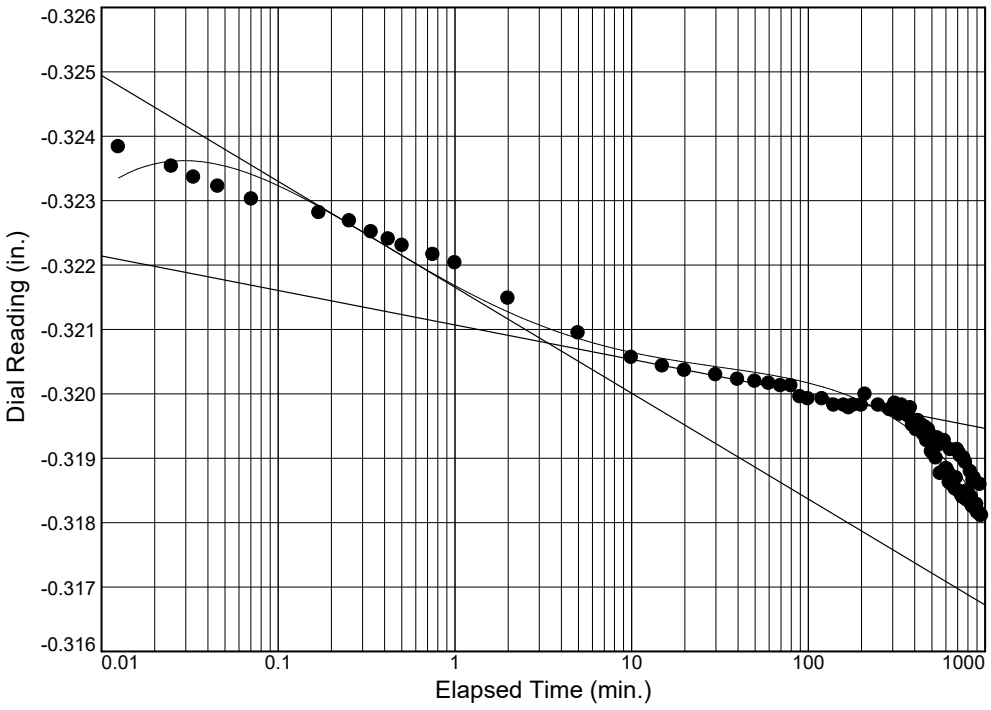
Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 11
Load= 1000.00 psf
D_0 = -0.3258
D_{50} = -0.3250
D_{100} = -0.3243
T_{50} = 0.09 min.

C_v @ T_{50}
4.373 ft.^{2}/day

C_α = 0.000



Load No.= 12
Load= 2000 psf
D_0 = -0.3239
D_{50} = -0.3224
D_{100} = -0.3208
T_{50} = 0.37 min.

C_v @ T_{50}
1.099 ft.^{2}/day

C_α = 0.001

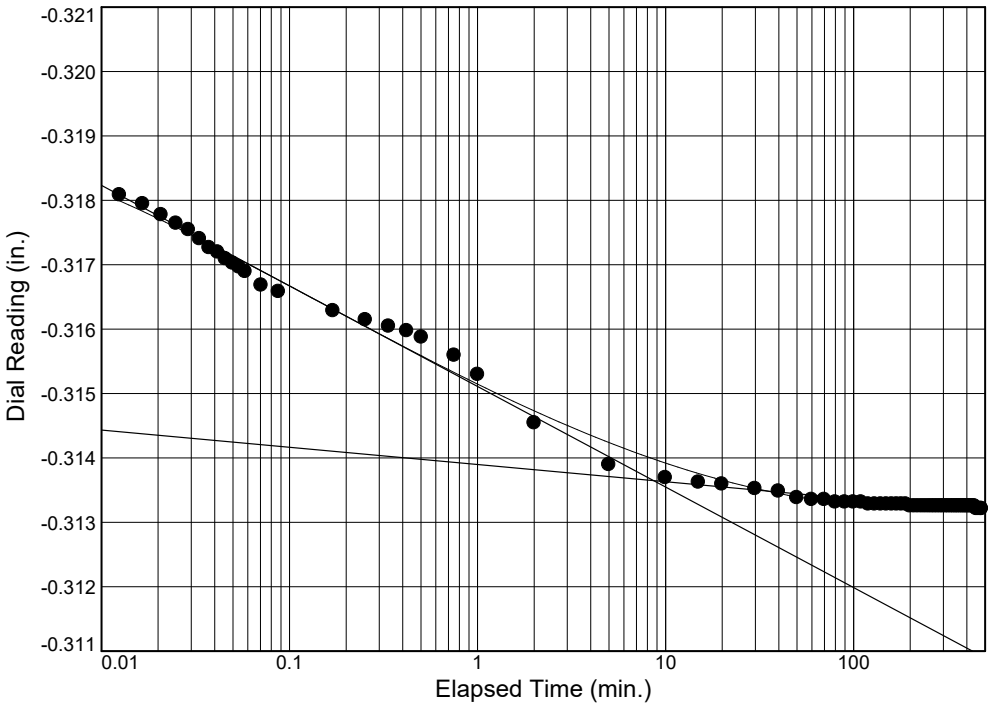
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

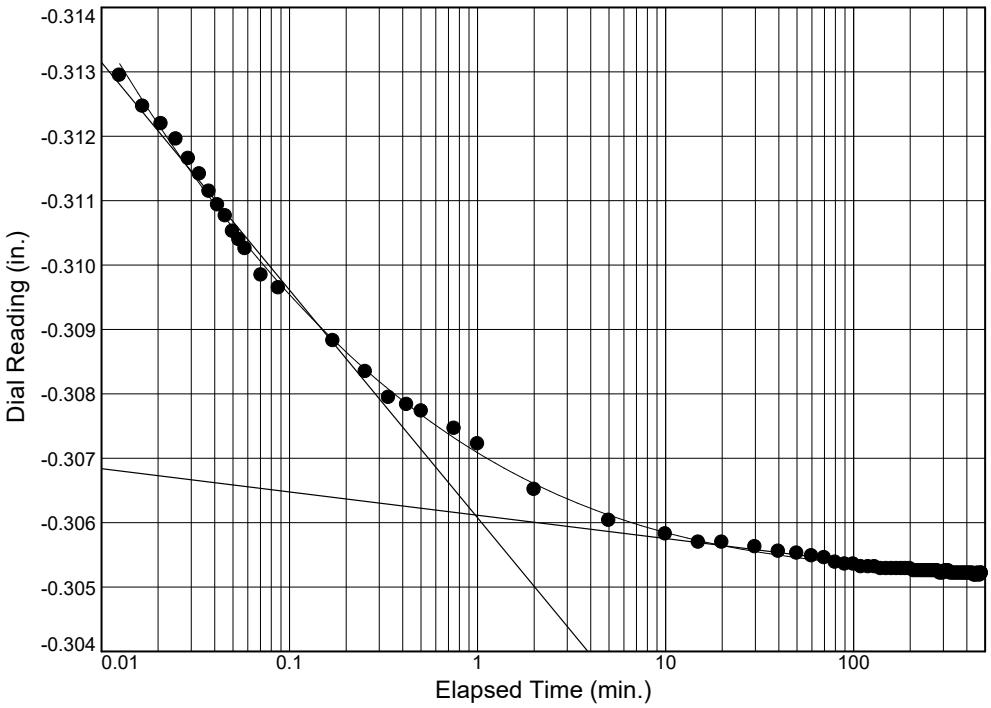
Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 13
Load= 4000 psf
D_0 = -0.3181
D_{50} = -0.3159
D_{100} = -0.3136
T_{50} = 0.32 min.

C_v @ T_{50}
1.256 ft.^{2}/day

C_α = 0.000



Load No.= 14
Load= 8000 psf
D_0 = -0.3132
D_{50} = -0.3097
D_{100} = -0.3061
T_{50} = 0.09 min.

C_v @ T_{50}
4.363 ft.^{2}/day

C_α = 0.001

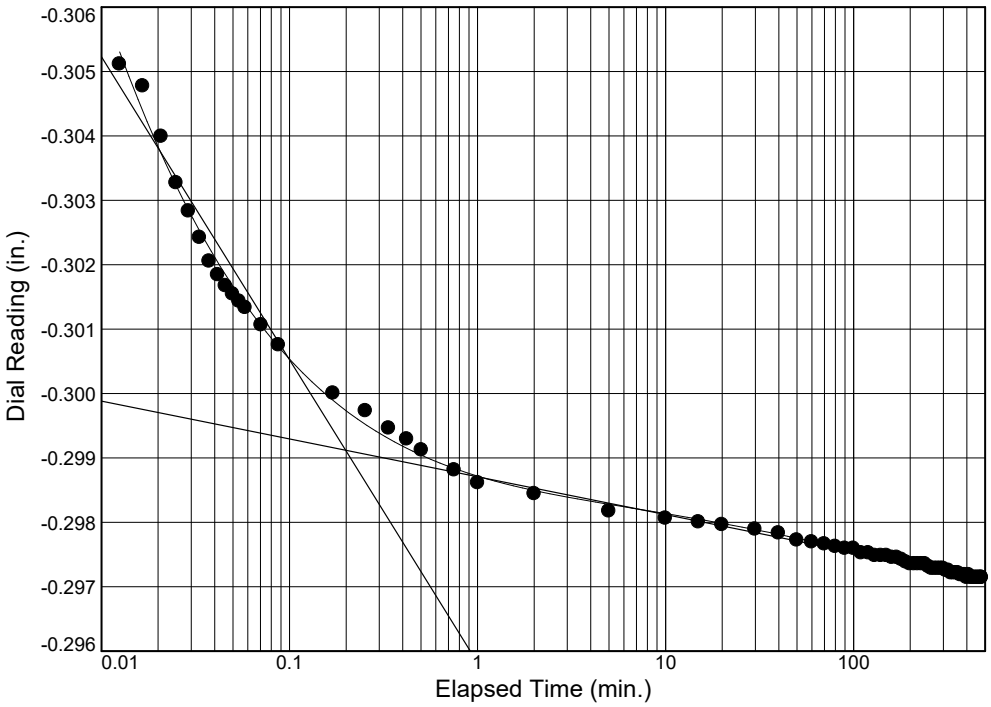
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

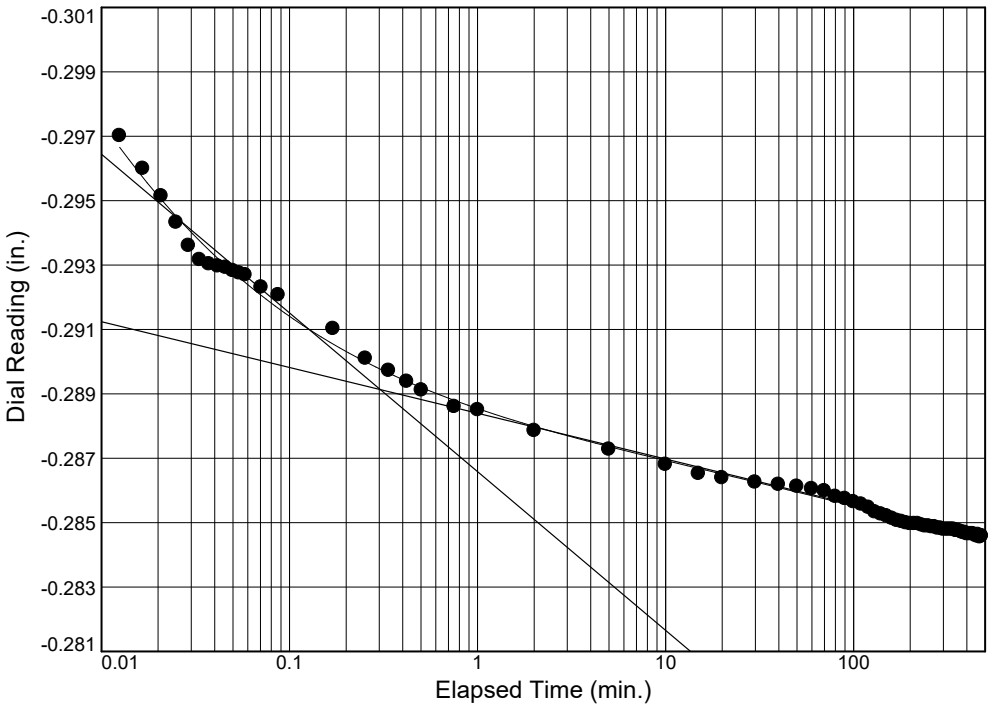
Location: NE-104VW-22 Depth: 29.17 Sample Number: S-9



Load No.= 15
Load= 16000 psf
D_0 = -0.3052
D_{50} = -0.3022
D_{100} = -0.2991
T_{50} = 0.04 min.

C_v @ T_{50}
10.032 ft.^{2}/day

C_α = 0.001



Load No.= 16
Load= 32000 psf
D_0 = -0.2971
D_{50} = -0.2931
D_{100} = -0.2891
T_{50} = 0.04 min.

C_v @ T_{50}
8.953 ft.^{2}/day

C_α = 0.002

Figure

Washington State Department of Transportation

CONSOLIDATION TEST DATA

12/14/2022

Client: WSDOT (Geotechnical Office)
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Project Number: XL5446
Location: NE-104VW-22
Depth: 29.17 **Sample Number:** S-9
Material Description: CL - Lean Clay
Liquid Limit: 33 **Plasticity Index:** 19
USCS: CL
Testing Remarks: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Tested by: TM **Checked by:** SW

Test Specimen Data

NATURAL MOISTURE		VOID RATIO		AFTER TEST	
Wet w+t =	778.90 g.	Spec. Gr. =	2.72	Wet w+t =	238.24 g.
Dry w+t =	669.74 g.	Est. Ht. Solids =	0.605 in.	Dry w+t =	212.60 g.
Tare Wt. =	217.30 g.	Init. V.R. =	0.652	Tare Wt. =	82.02 g.
Moisture =	24.1 %	Init. Sat. =	100.6 %	Moisture =	19.6 %

UNIT WEIGHT		TEST START			
Height =	1.000 in.	Height =	1.000 in.	Dry Wt. =	130.58 g.
Diameter =	2.500 in.	Diameter =	2.500 in.		
Weight =	164.38 g.				
Dry Dens. =	102.8 pcf				

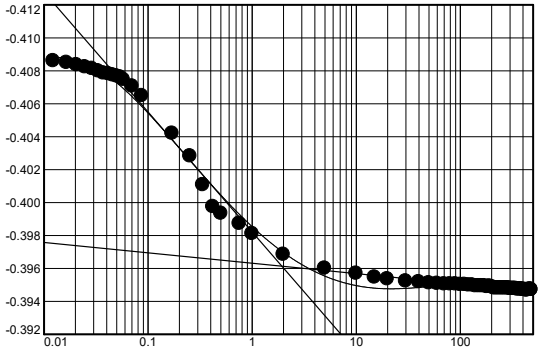
End-Of-Load Summary

Pressure (psf)	Final Dial (in.)	Deformation (in.)	C_V (ft.^{2}/day)	C_α	Void Ratio	% Strain
start	-0.40863	0.00000			0.652	
500.00	-0.39471	0.01392	1.816	0.001	0.629	1.4 Comprs.
1000.00	-0.38749	0.02114	0.928	0.002	0.617	2.1 Comprs.
2000	-0.37786	0.03077	1.090	0.001	0.601	3.1 Comprs.
4000	-0.36335	0.04528	1.460	0.003	0.577	4.5 Comprs.
8000	-0.34429	0.06434	0.945	0.003	0.546	6.4 Comprs.
16000	-0.31992	0.08871	1.745	0.004	0.506	8.9 Comprs.
32000	-0.28860	0.12003	1.677	0.004	0.454	12.0 Comprs.
8000	-0.29956	0.10907	12.224		0.472	10.9 Comprs.
2000	-0.31277	0.09586	4.781		0.494	9.6 Comprs.
500.00	-0.32581	0.08282	0.824		0.515	8.3 Comprs.
1000.00	-0.32393	0.08470	4.373	0.000	0.512	8.5 Comprs.
2000	-0.31811	0.09052	1.099	0.001	0.503	9.1 Comprs.
4000	-0.31321	0.09542	1.256	0.000	0.495	9.5 Comprs.
8000	-0.30521	0.10342	4.363	0.001	0.481	10.3 Comprs.
16000	-0.29714	0.11149	10.032	0.001	0.468	11.1 Comprs.
32000	-0.28458	0.12405	8.953	0.002	0.447	12.4 Comprs.

Compression index (C_C), psf = 0.17 **Preconsolidation pressure (P_p), psf =** 4723 **Void ratio at P_p (e_m) =** 0.570
Overburden (σ_{vo}), psf = 2400 **Void ratio at σ_{vo} (e_o) =** 0.596

Pressure: 500.00 psf **TEST READINGS** **Load No. 1**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.40863	38	130.0009	-0.39498
2	0.0123	-0.40859	39	140.0009	-0.39494
3	0.0165	-0.40849	40	150.0010	-0.39494
4	0.0206	-0.40836	41	160.0011	-0.39494
5	0.0248	-0.40822	42	170.0012	-0.39494
6	0.0290	-0.40812	43	180.0013	-0.39488
7	0.0331	-0.40798	44	190.0014	-0.39491
8	0.0373	-0.40785	45	200.0015	-0.39488
9	0.0415	-0.40781	46	210.0015	-0.39481
10	0.0456	-0.40774	47	220.0016	-0.39481
11	0.0498	-0.40768	48	230.0017	-0.39481
12	0.0540	-0.40761	49	240.0018	-0.39481
13	0.0581	-0.40747	50	250.0019	-0.39481
14	0.0706	-0.40706	51	260.0019	-0.39481
15	0.0873	-0.40648	52	270.0020	-0.39481
16	0.1706	-0.4042	53	280.0021	-0.39481
17	0.2540	-0.40281	54	290.0022	-0.39481
18	0.3373	-0.40107	55	300.0023	-0.39477
19	0.4206	-0.39974	56	310.0023	-0.39477
20	0.5040	-0.39934	57	320.0024	-0.39477
21	0.7540	-0.39872	58	330.0025	-0.39477
22	1.0040	-0.39811	59	340.0026	-0.39477
23	2.0040	-0.39685	60	350.0027	-0.39474
24	5.0040	-0.396	61	360.0028	-0.39474
25	10.0040	-0.39569	62	370.0028	-0.39474
26	15.0041	-0.39546	63	380.0029	-0.39474
27	20.0041	-0.39535	64	390.0030	-0.39474
28	30.0000	-0.39522	65	400.0031	-0.39471
29	40.0001	-0.39518	66	410.0032	-0.39471
30	50.0002	-0.39511	67	420.0033	-0.39471
31	60.0003	-0.39508	68	430.0034	-0.39467
32	70.0004	-0.39505	69	440.0034	-0.39467
33	80.0004	-0.39505	70	450.0035	-0.39471
34	90.0005	-0.39505	71	460.0036	-0.39471
35	100.0006	-0.39501	72	470.0037	-0.39474
36	110.0007	-0.39501	73	480.0038	-0.39471
37	120.0008	-0.39498	74	480.2790	-0.39471

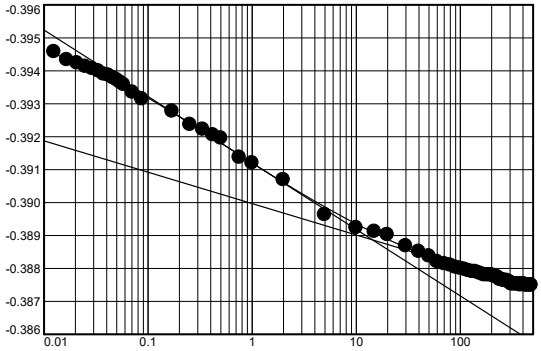


Void Ratio = 0.629 **Compression =** 1.4%

D_0 = -0.4086 **D_{50} =** -0.4024 **D_{100} =** -0.3961 **C_V at 0.27 min. =** 1.816 ft.^{2}/day **C_α =** 0.001

Pressure: 1000.00 psf **TEST READINGS** **Load No. 2**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.39471	38	130.0011	-0.3879
2	0.0125	-0.39457	39	140.0012	-0.3879
3	0.0166	-0.39433	40	150.0013	-0.38786
4	0.0208	-0.39423	41	160.0014	-0.38783
5	0.0250	-0.39413	42	170.0014	-0.3878
6	0.0291	-0.39406	43	180.0015	-0.3878
7	0.0333	-0.39399	44	190.0016	-0.3878
8	0.0375	-0.39389	45	200.0017	-0.3878
9	0.0416	-0.39386	46	210.0018	-0.38776
10	0.0458	-0.39379	47	220.0019	-0.38776
11	0.0500	-0.39372	48	230.0020	-0.38773
12	0.0541	-0.39365	49	240.0021	-0.38766
13	0.0583	-0.39358	50	250.0022	-0.38766
14	0.0708	-0.39334	51	260.0023	-0.38763
15	0.0875	-0.39314	52	270.0023	-0.38763
16	0.1708	-0.39277	53	280.0024	-0.38763
17	0.2541	-0.39236	54	290.0025	-0.38759
18	0.3375	-0.39222	55	300.0026	-0.38759
19	0.4208	-0.39205	56	310.0027	-0.38752
20	0.5041	-0.39195	57	320.0028	-0.38752
21	0.7542	-0.39137	58	330.0029	-0.38752
22	1.0042	-0.3912	59	340.0030	-0.38752
23	2.0041	-0.39069	60	350.0031	-0.38752
24	5.0042	-0.38963	61	360.0032	-0.38752
25	10.0001	-0.38923	62	370.0032	-0.38752
26	15.0001	-0.38912	63	380.0033	-0.38749
27	20.0001	-0.38902	64	390.0034	-0.38752
28	30.0002	-0.38868	65	400.0035	-0.38752
29	40.0003	-0.38851	66	410.0036	-0.38752
30	50.0004	-0.38837	67	420.0037	-0.38749
31	60.0005	-0.3882	68	430.0038	-0.38749
32	70.0006	-0.38814	69	440.0039	-0.38749
33	80.0006	-0.3881	70	450.0040	-0.38749
34	90.0007	-0.38803	71	460.0041	-0.38749
35	100.0008	-0.388	72	470.0041	-0.38749
36	110.0009	-0.38797	73	480.0001	-0.38749
37	120.0010	-0.38793	74	480.0670	-0.38749

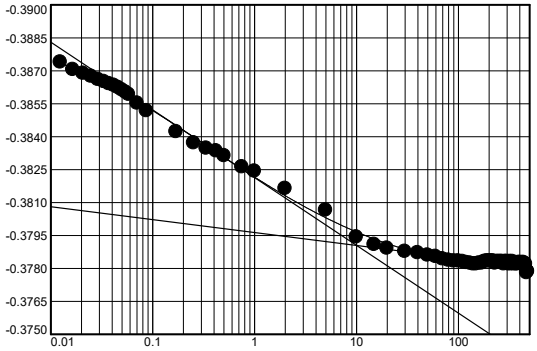


Void Ratio = 0.617 **Compression =** 2.1%

D_0 = -0.3947 **D_{50} =** -0.3918 **D_{100} =** -0.3889 **C_v at 0.51 min. =** 0.928 ft.^{2}/day **C_α =** 0.002

Pressure: 2000 psf | **TEST READINGS** | **Load No. 3**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.38749	38	130.0011	-0.37823
2	0.0125	-0.38739	39	140.0012	-0.3782
3	0.0166	-0.38705	40	150.0013	-0.3782
4	0.0208	-0.38688	41	160.0014	-0.37823
5	0.0250	-0.38674	42	170.0015	-0.37823
6	0.0291	-0.3866	43	180.0016	-0.3783
7	0.0333	-0.3865	44	190.0016	-0.37833
8	0.0374	-0.3864	45	200.0017	-0.37833
9	0.0416	-0.38633	46	210.0018	-0.37833
10	0.0458	-0.38623	47	220.0019	-0.37833
11	0.0499	-0.38613	48	230.0020	-0.37823
12	0.0541	-0.38603	49	240.0020	-0.3783
13	0.0583	-0.38592	50	250.0021	-0.3783
14	0.0708	-0.38552	51	260.0022	-0.3783
15	0.0874	-0.38517	52	270.0023	-0.3783
16	0.1708	-0.38422	53	280.0023	-0.3782
17	0.2541	-0.38371	54	290.0024	-0.3783
18	0.3374	-0.38347	55	300.0025	-0.3783
19	0.4208	-0.38334	56	310.0026	-0.3782
20	0.5041	-0.38313	57	320.0027	-0.3783
21	0.7541	-0.38262	58	330.0027	-0.3782
22	1.0041	-0.38242	59	340.0028	-0.3783
23	2.0041	-0.38163	60	350.0029	-0.3782
24	5.0000	-0.38065	61	360.0030	-0.37826
25	10.0001	-0.37942	62	370.0031	-0.3782
26	15.0001	-0.37908	63	380.0031	-0.3782
27	20.0001	-0.37891	64	390.0032	-0.37826
28	30.0002	-0.37877	65	400.0033	-0.37826
29	40.0003	-0.37871	66	410.0034	-0.37826
30	50.0004	-0.3786	67	420.0034	-0.3782
31	60.0005	-0.37854	68	430.0035	-0.37826
32	70.0006	-0.37843	69	440.0036	-0.37826
33	80.0007	-0.37837	70	450.0037	-0.3782
34	90.0008	-0.37833	71	460.0038	-0.3782
35	100.0009	-0.37833	72	470.0038	-0.37779
36	110.0009	-0.3783	73	480.0039	-0.37786
37	120.0010	-0.37826	74	480.1000	-0.37786

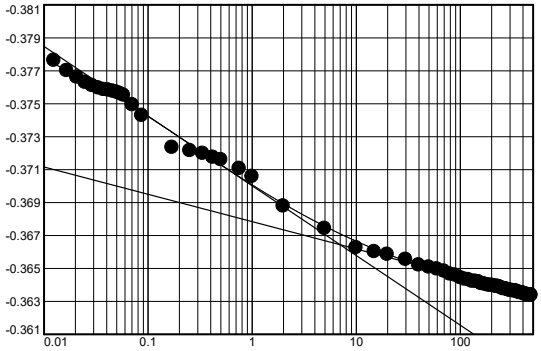


Void Ratio = 0.601 **Compression =** 3.1%

D_0 = -0.3875 **D_{50} =** -0.3833 **D_{100} =** -0.3790 **C_v at 0.43 min. =** 1.090 ft.^{2}/day **C_α =** 0.001

Pressure: 4000 psf	TEST READINGS	Load No. 4

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.37786	38	130.0010	-0.36421
2	0.0125	-0.37762	39	140.0011	-0.36421
3	0.0166	-0.377	40	150.0012	-0.36417
4	0.0208	-0.3766	41	160.0013	-0.36407
5	0.0250	-0.37629	42	170.0014	-0.36404
6	0.0291	-0.37609	43	180.0014	-0.364
7	0.0333	-0.37595	44	190.0015	-0.36397
8	0.0375	-0.37585	45	200.0016	-0.36397
9	0.0416	-0.37581	46	210.0017	-0.36393
10	0.0458	-0.37575	47	220.0018	-0.3639
11	0.0500	-0.37568	48	230.0019	-0.3639
12	0.0541	-0.37561	49	240.0020	-0.36386
13	0.0583	-0.37551	50	250.0020	-0.3638
14	0.0708	-0.37493	51	260.0021	-0.36376
15	0.0875	-0.37428	52	270.0022	-0.36376
16	0.1708	-0.37234	53	280.0023	-0.36373
17	0.2541	-0.37214	54	290.0024	-0.36369
18	0.3375	-0.37197	55	300.0025	-0.36366
19	0.4208	-0.37173	56	310.0025	-0.36366
20	0.5041	-0.37159	57	320.0026	-0.36363
21	0.7541	-0.37105	58	330.0027	-0.36363
22	1.0041	-0.37057	59	340.0028	-0.36363
23	2.0041	-0.36877	60	350.0029	-0.36359
24	5.0042	-0.36741	61	360.0030	-0.36356
25	10.0000	-0.36625	62	370.0031	-0.36352
26	15.0001	-0.36601	63	380.0031	-0.36352
27	20.0001	-0.36584	64	390.0032	-0.36349
28	30.0002	-0.36553	65	400.0033	-0.36349
29	40.0003	-0.36519	66	410.0034	-0.36346
30	50.0004	-0.36506	67	420.0035	-0.36342
31	60.0005	-0.36495	68	430.0036	-0.36342
32	70.0006	-0.36482	69	440.0037	-0.36342
33	80.0006	-0.36465	70	450.0037	-0.36339
34	90.0007	-0.36458	71	460.0038	-0.36339
35	100.0008	-0.36444	72	470.0039	-0.36339
36	110.0009	-0.36434	73	480.0040	-0.36339
37	120.0009	-0.36431	74	480.1126	-0.36335

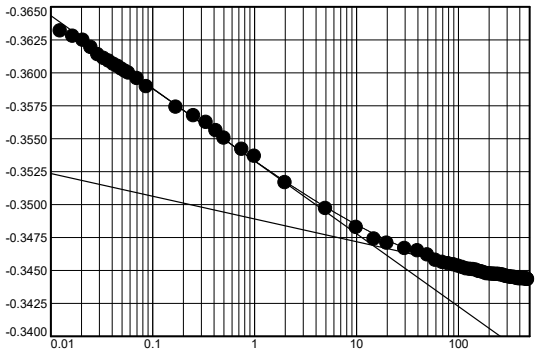


Void Ratio = 0.577 **Compression =** 4.5%

D_0 = -0.3779 **D_{50} =** -0.3722 **D_{100} =** -0.3664 **C_V at 0.31 min. =** 1.460 ft.^{2}/day **C_α =** 0.003

Pressure: 8000 psf | **TEST READINGS** | **Load No. 5**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.36335	38	130.0014	-0.34507
2	0.0125	-0.36315	39	140.0014	-0.34504
3	0.0166	-0.36274	40	150.0015	-0.34501
4	0.0208	-0.36244	41	160.0016	-0.3449
5	0.0250	-0.36189	42	170.0017	-0.34487
6	0.0291	-0.36135	43	180.0018	-0.3448
7	0.0333	-0.36107	44	190.0019	-0.34473
8	0.0374	-0.36087	45	200.0020	-0.34473
9	0.0416	-0.36063	46	210.0021	-0.3447
10	0.0458	-0.36046	47	220.0022	-0.3447
11	0.0499	-0.36026	48	230.0023	-0.34467
12	0.0541	-0.36009	49	240.0023	-0.34467
13	0.0583	-0.35995	50	250.0024	-0.34467
14	0.0708	-0.35954	51	260.0025	-0.34463
15	0.0874	-0.35893	52	270.0026	-0.34463
16	0.1708	-0.35736	53	280.0027	-0.3446
17	0.2541	-0.35672	54	290.0028	-0.34453
18	0.3375	-0.35621	55	300.0029	-0.34453
19	0.4208	-0.35559	56	310.0030	-0.3445
20	0.5041	-0.35501	57	320.0031	-0.3445
21	0.7541	-0.35416	58	330.0032	-0.34446
22	1.0041	-0.35365	59	340.0033	-0.34446
23	2.0041	-0.35164	60	350.0034	-0.34446
24	5.0000	-0.34967	61	360.0034	-0.34443
25	10.0000	-0.34824	62	370.0035	-0.34439
26	15.0001	-0.34736	63	380.0036	-0.34439
27	20.0001	-0.34705	64	390.0037	-0.34436
28	30.0002	-0.34664	65	400.0038	-0.34436
29	40.0003	-0.34647	66	410.0039	-0.34436
30	50.0004	-0.34616	67	420.0040	-0.34436
31	60.0005	-0.34576	68	430.0041	-0.34436
32	70.0006	-0.34558	69	440.0000	-0.34436
33	80.0006	-0.34548	70	450.0001	-0.34433
34	90.0007	-0.34541	71	460.0002	-0.34433
35	100.0008	-0.34531	72	470.0003	-0.34433
36	110.0009	-0.34521	73	480.0004	-0.34429
37	120.0010	-0.34511	74	480.1090	-0.34429

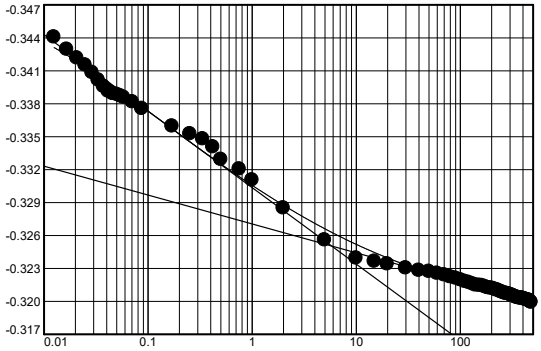


Void Ratio = 0.546 **Compression =** 6.4%

D_0 = -0.3634 **D_{50} =** -0.3551 **D_{100} =** -0.3469 **C_v at 0.47 min. =** 0.945 ft.^{2}/day **C_α =** 0.003

Pressure: 16000 psf | **TEST READINGS** | **Load No. 6**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.34429	38	130.0012	-0.32159
2	0.0125	-0.34405	39	140.0013	-0.32148
3	0.0166	-0.34293	40	150.0013	-0.32145
4	0.0208	-0.34215	41	160.0014	-0.32142
5	0.0250	-0.3415	42	170.0015	-0.32135
6	0.0291	-0.34082	43	180.0016	-0.32125
7	0.0333	-0.34014	44	190.0017	-0.32121
8	0.0375	-0.33956	45	200.0017	-0.32118
9	0.0416	-0.33912	46	210.0018	-0.32114
10	0.0458	-0.33891	47	220.0019	-0.32104
11	0.0500	-0.33884	48	230.0020	-0.32101
12	0.0541	-0.33871	49	240.0021	-0.32091
13	0.0583	-0.33857	50	250.0022	-0.32084
14	0.0708	-0.33816	51	260.0023	-0.3208
15	0.0875	-0.33755	52	270.0023	-0.32073
16	0.1708	-0.33595	53	280.0024	-0.3207
17	0.2541	-0.33524	54	290.0025	-0.32067
18	0.3375	-0.33479	55	300.0026	-0.32063
19	0.4208	-0.33404	56	310.0034	-0.32056
20	0.5041	-0.33292	57	320.0035	-0.32053
21	0.7541	-0.33204	58	330.0036	-0.32046
22	1.0042	-0.33105	59	340.0037	-0.32039
23	2.0041	-0.3285	60	350.0038	-0.32036
24	5.0000	-0.32557	61	360.0039	-0.32033
25	10.0001	-0.32393	62	370.0040	-0.32029
26	15.0001	-0.32363	63	380.0040	-0.32029
27	20.0002	-0.32339	64	390.0041	-0.32029
28	30.0002	-0.32302	65	400.0000	-0.32026
29	40.0003	-0.32281	66	410.0001	-0.32022
30	50.0004	-0.32271	67	420.0002	-0.32019
31	60.0005	-0.32254	68	430.0003	-0.32016
32	70.0006	-0.3224	69	440.0004	-0.32012
33	80.0007	-0.32223	70	450.0004	-0.32009
34	90.0008	-0.3221	71	460.0005	-0.32009
35	100.0009	-0.32196	72	470.0006	-0.31999
36	110.0010	-0.32182	73	480.0007	-0.31992
37	120.0011	-0.32172	74	480.1051	-0.31992

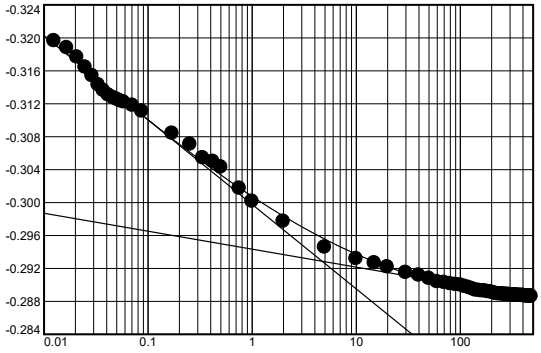


Void Ratio = 0.506 **Compression =** 8.9%

D_0 = -0.3443 **D_{50} =** -0.3347 **D_{100} =** -0.3251 **C_v at 0.24 min. =** 1.745 ft.^{2}/day **C_α =** 0.004

Pressure: 32000 psf | **TEST READINGS** | **Load No. 7**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.31992	38	130.0011	-0.28952
2	0.0125	-0.31961	39	140.0012	-0.28935
3	0.0166	-0.31879	40	150.0013	-0.28931
4	0.0208	-0.31764	41	160.0013	-0.28925
5	0.0250	-0.31641	42	170.0014	-0.28925
6	0.0291	-0.31539	43	180.0015	-0.28918
7	0.0333	-0.31427	44	190.0016	-0.28914
8	0.0374	-0.31359	45	200.0017	-0.28908
9	0.0416	-0.31304	46	210.0018	-0.28901
10	0.0458	-0.31274	47	220.0019	-0.28894
11	0.0500	-0.31253	48	230.0019	-0.28891
12	0.0541	-0.31233	49	240.0020	-0.28891
13	0.0583	-0.31219	50	250.0021	-0.28887
14	0.0708	-0.31178	51	260.0022	-0.28887
15	0.0875	-0.31107	52	270.0023	-0.28884
16	0.1708	-0.30838	53	280.0024	-0.28884
17	0.2541	-0.30705	54	290.0025	-0.2888
18	0.3375	-0.30542	55	300.0025	-0.2888
19	0.4208	-0.30497	56	310.0026	-0.28877
20	0.5041	-0.30429	57	320.0027	-0.28874
21	0.7541	-0.30171	58	330.0028	-0.28874
22	1.0041	-0.30014	59	340.0029	-0.28874
23	2.0041	-0.29769	60	350.0030	-0.28874
24	5.0042	-0.29456	61	360.0031	-0.2887
25	10.0001	-0.29316	62	370.0031	-0.2887
26	15.0001	-0.29265	63	380.0032	-0.2887
27	20.0001	-0.29217	64	390.0033	-0.28867
28	30.0002	-0.29149	65	400.0034	-0.2887
29	40.0003	-0.29115	66	410.0035	-0.28867
30	50.0004	-0.29078	67	420.0036	-0.28863
31	60.0005	-0.29037	68	430.0037	-0.28863
32	70.0006	-0.29027	69	440.0037	-0.28863
33	80.0006	-0.29013	70	450.0038	-0.2886
34	90.0007	-0.29003	71	460.0039	-0.28863
35	100.0008	-0.28996	72	470.0040	-0.2886
36	110.0009	-0.28979	73	480.0041	-0.2886
37	120.0010	-0.28966	74	480.0960	-0.2886

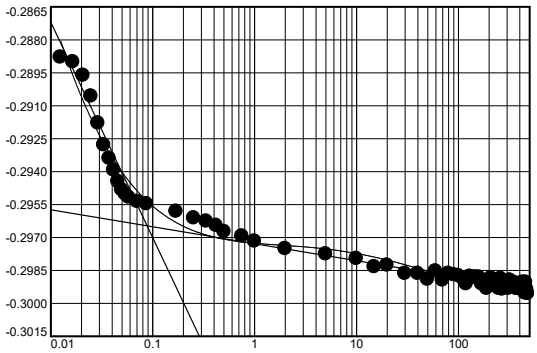


Void Ratio = 0.454 **Compression =** 12.0%

D_0 = -0.3199 **D_{50} =** -0.3064 **D_{100} =** -0.2929 **C_V at 0.24 min. =** 1.677 ft.^{2}/day **C_α =** 0.004

Pressure: 8000 psf	TEST READINGS	Load No. 8

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.2886	38	130.0011	-0.29878
2	0.0125	-0.2888	39	140.0012	-0.29881
3	0.0166	-0.28901	40	150.0013	-0.29881
4	0.0208	-0.28962	41	160.0014	-0.29881
5	0.0250	-0.29057	42	170.0015	-0.29912
6	0.0291	-0.2918	43	180.0016	-0.29915
7	0.0333	-0.29279	44	190.0017	-0.29932
8	0.0375	-0.2934	45	200.0017	-0.29915
9	0.0416	-0.29394	46	210.0019	-0.29885
10	0.0458	-0.29446	47	220.0019	-0.29915
11	0.0500	-0.29483	48	230.0020	-0.29919
12	0.0541	-0.29503	49	240.0021	-0.29912
13	0.0583	-0.29517	50	250.0022	-0.29932
14	0.0708	-0.29537	51	260.0023	-0.29888
15	0.0875	-0.29548	52	270.0024	-0.29936
16	0.1708	-0.29582	53	280.0025	-0.29922
17	0.2541	-0.29612	54	290.0026	-0.29922
18	0.3375	-0.29626	55	300.0027	-0.29925
19	0.4208	-0.29646	56	310.0028	-0.29932
20	0.5041	-0.29674	57	320.0028	-0.29895
21	0.7541	-0.29694	58	330.0029	-0.29929
22	1.0041	-0.29718	59	340.0030	-0.29925
23	2.0041	-0.29752	60	350.0031	-0.29905
24	5.0000	-0.29776	61	360.0032	-0.29929
25	10.0001	-0.29796	62	370.0033	-0.29932
26	15.0001	-0.29834	63	380.0034	-0.29932
27	20.0001	-0.29827	64	390.0035	-0.29932
28	30.0002	-0.29864	65	400.0036	-0.29932
29	40.0003	-0.29864	66	410.0037	-0.29929
30	50.0004	-0.29891	67	420.0038	-0.29932
31	60.0005	-0.29854	68	430.0039	-0.29905
32	70.0006	-0.29895	69	440.0040	-0.29932
33	80.0006	-0.29864	70	450.0040	-0.29953
34	90.0007	-0.29871	71	460.0041	-0.29905
35	100.0008	-0.29874	72	470.0001	-0.29936
36	110.0009	-0.29885	73	480.0002	-0.29956
37	120.0010	-0.29912	74	480.0546	-0.29956

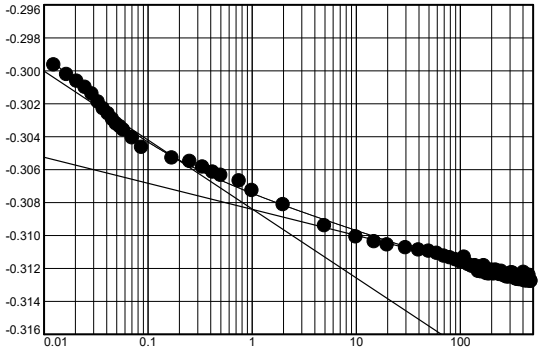


Void Ratio = 0.472 **Compression =** 10.9%

D_0 = -0.2886 **D_{50} =** -0.2925 **D_{100} =** -0.2965 **C_V at 0.03 min. =** 12.224 ft.^{2}/day

Pressure: 2000 psf	TEST READINGS	Load No. 9

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.29956	38	130.0012	-0.31188
2	0.0125	-0.29966	39	140.0012	-0.31185
3	0.0166	-0.30024	40	150.0013	-0.31219
4	0.0208	-0.30065	41	160.0014	-0.31222
5	0.0250	-0.30103	42	170.0015	-0.31185
6	0.0291	-0.30143	43	180.0016	-0.31233
7	0.0333	-0.30191	44	190.0017	-0.31236
8	0.0374	-0.30232	45	200.0017	-0.31212
9	0.0416	-0.30263	46	210.0018	-0.31236
10	0.0458	-0.30297	47	220.0019	-0.31212
11	0.0499	-0.30324	48	230.0020	-0.31219
12	0.0541	-0.30341	49	240.0021	-0.31239
13	0.0583	-0.30361	50	250.0022	-0.31219
14	0.0708	-0.30409	51	260.0022	-0.31243
15	0.0874	-0.30467	52	270.0023	-0.31246
16	0.1708	-0.30531	53	280.0024	-0.31253
17	0.2541	-0.30552	54	290.0025	-0.31253
18	0.3374	-0.30586	55	300.0025	-0.31253
19	0.4208	-0.30617	56	310.0026	-0.31229
20	0.5041	-0.30637	57	320.0027	-0.31229
21	0.7541	-0.30671	58	330.0028	-0.3125
22	1.0041	-0.30729	59	340.0029	-0.31263
23	2.0041	-0.30814	60	350.0029	-0.31267
24	5.0000	-0.30943	61	360.0030	-0.31267
25	10.0001	-0.31011	62	370.0031	-0.3127
26	15.0001	-0.31039	63	380.0032	-0.3127
27	20.0001	-0.31059	64	390.0033	-0.3127
28	30.0002	-0.31076	65	400.0033	-0.31239
29	40.0003	-0.3109	66	410.0034	-0.31226
30	50.0004	-0.31097	67	420.0035	-0.31277
31	60.0005	-0.3111	68	430.0036	-0.31274
32	70.0006	-0.31127	69	440.0037	-0.31277
33	80.0007	-0.31137	70	450.0037	-0.31277
34	90.0008	-0.31148	71	460.0038	-0.31243
35	100.0009	-0.31161	72	470.0039	-0.31277
36	110.0010	-0.31134	73	480.0040	-0.3128
37	120.0011	-0.31178	74	480.0918	-0.31277

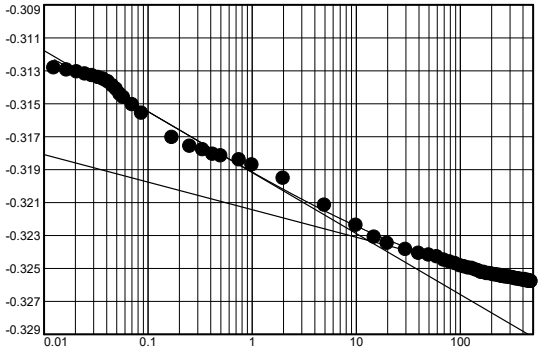


Void Ratio = 0.494 **Compression =** 9.6%

D_0 = -0.2996 **D_{50} =** -0.3040 **D_{100} =** -0.3084 **C_V at 0.08 min. =** 4.781 ft.^{2}/day

Pressure: 500.00 psf **TEST READINGS** **Load No. 10**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.3128	38	130.0011	-0.32502
2	0.0125	-0.31284	39	140.0011	-0.32509
3	0.0166	-0.31297	40	150.0012	-0.32516
4	0.0208	-0.31308	41	160.0013	-0.32526
5	0.0250	-0.31321	42	170.0014	-0.32526
6	0.0291	-0.31331	43	180.0015	-0.32533
7	0.0333	-0.31342	44	190.0016	-0.32533
8	0.0374	-0.31352	45	200.0017	-0.32536
9	0.0416	-0.31369	46	210.0017	-0.3254
10	0.0458	-0.31393	47	220.0018	-0.3254
11	0.0499	-0.31413	48	230.0019	-0.32543
12	0.0541	-0.31444	49	240.0020	-0.32543
13	0.0583	-0.31464	50	250.0036	-0.3255
14	0.0708	-0.31508	51	260.0037	-0.3255
15	0.0874	-0.31559	52	270.0038	-0.32553
16	0.1708	-0.31706	53	280.0039	-0.32553
17	0.2541	-0.3176	54	290.0040	-0.32553
18	0.3374	-0.31781	55	300.0041	-0.32557
19	0.4208	-0.31808	56	310.0041	-0.32557
20	0.5041	-0.31818	57	320.0001	-0.3256
21	0.7541	-0.31842	58	330.0002	-0.3256
22	1.0041	-0.31873	59	340.0002	-0.32564
23	2.0041	-0.31954	60	350.0003	-0.32564
24	5.0042	-0.32118	61	360.0004	-0.32564
25	10.0000	-0.3224	62	370.0005	-0.32567
26	15.0001	-0.32312	63	380.0006	-0.3257
27	20.0001	-0.32349	64	390.0007	-0.3257
28	30.0002	-0.32387	65	400.0008	-0.3257
29	40.0003	-0.3241	66	410.0009	-0.32574
30	50.0004	-0.32421	67	420.0010	-0.3257
31	60.0005	-0.32431	68	430.0010	-0.32574
32	70.0006	-0.32451	69	440.0011	-0.32577
33	80.0006	-0.32462	70	450.0012	-0.32574
34	90.0007	-0.32472	71	460.0013	-0.32581
35	100.0008	-0.32485	72	470.0014	-0.32577
36	110.0009	-0.32492	73	480.0015	-0.32581
37	120.0010	-0.32499	74	480.1101	-0.32581

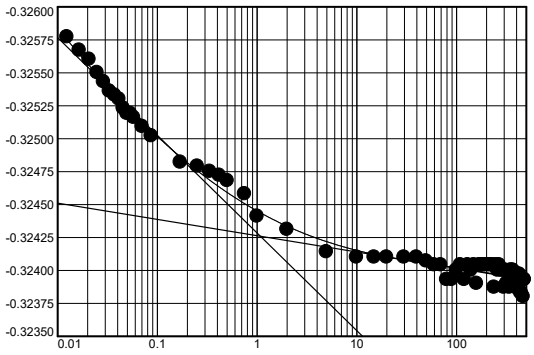


Void Ratio = 0.515 **Compression =** 8.3%

D_0 = -0.3128 **D_{50} =** -0.3180 **D_{100} =** -0.3233 **C_V at 0.50 min. =** 0.824 ft.^{2}/day

Pressure: 1000.00 psf **TEST READINGS** **Load No. 11**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.32581	38	130.0011	-0.32404
2	0.0125	-0.32577	39	140.0012	-0.324
3	0.0166	-0.32567	40	150.0013	-0.32404
4	0.0208	-0.3256	41	160.0014	-0.3239
5	0.0250	-0.3255	42	170.0015	-0.32404
6	0.0291	-0.32543	43	180.0016	-0.32404
7	0.0333	-0.32536	44	190.0017	-0.32404
8	0.0375	-0.32533	45	200.0018	-0.32404
9	0.0416	-0.3253	46	210.0019	-0.32404
10	0.0458	-0.32523	47	220.0020	-0.32404
11	0.0500	-0.32519	48	230.0020	-0.32404
12	0.0541	-0.32519	49	240.0022	-0.32387
13	0.0583	-0.32516	50	250.0022	-0.32404
14	0.0708	-0.32509	51	260.0023	-0.324
15	0.0875	-0.32502	52	270.0024	-0.32404
16	0.1708	-0.32482	53	280.0025	-0.324
17	0.2541	-0.32479	54	290.0026	-0.324
18	0.3375	-0.32475	55	300.0027	-0.32387
19	0.4208	-0.32472	56	310.0028	-0.324
20	0.5041	-0.32468	57	320.0029	-0.3239
21	0.7542	-0.32458	58	330.0030	-0.3239
22	1.0042	-0.32441	59	340.0031	-0.32387
23	2.0041	-0.32431	60	350.0032	-0.324
24	5.0000	-0.32414	61	360.0032	-0.324
25	10.0001	-0.3241	62	370.0034	-0.324
26	15.0001	-0.3241	63	380.0034	-0.32397
27	20.0001	-0.3241	64	390.0035	-0.32387
28	30.0002	-0.3241	65	400.0036	-0.32393
29	40.0003	-0.3241	66	410.0037	-0.32397
30	50.0004	-0.32407	67	420.0038	-0.32397
31	60.0005	-0.32404	68	430.0042	-0.32397
32	70.0006	-0.32404	69	440.0001	-0.32383
33	80.0006	-0.32393	70	450.0002	-0.32383
34	90.0008	-0.32393	71	460.0003	-0.32393
35	100.0009	-0.324	72	470.0004	-0.3238
36	110.0009	-0.32404	73	480.0005	-0.32393
37	120.0010	-0.32393	74	480.0466	-0.32393

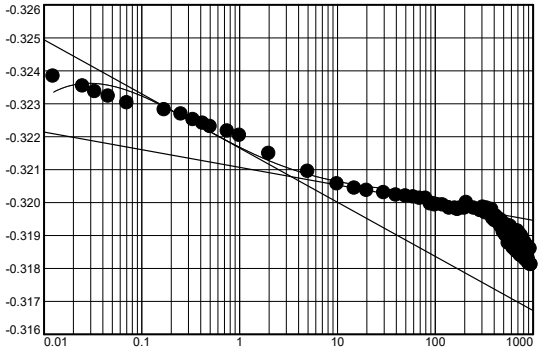


Void Ratio = 0.512 **Compression =** 8.5%

D_0 = -0.3258 **D_{50} =** -0.3250 **D_{100} =** -0.3243 **C_V at 0.09 min. =** 4.373 ft.^{2}/day **C_α =** 0.000

Pressure: 2000 psf | **TEST READINGS** | **Load No. 12**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.32393	41	350.0033	-0.31971
2	0.0125	-0.32383	42	360.0034	-0.31968
3	0.0250	-0.32353	43	370.0035	-0.31965
4	0.0333	-0.32336	44	380.0036	-0.31978
5	0.0458	-0.32322	45	390.0037	-0.31951
6	0.0708	-0.32302	46	400.0038	-0.31954
7	0.1708	-0.32281	47	410.0039	-0.31944
8	0.2541	-0.32268	48	420.0040	-0.31958
9	0.3374	-0.32251	49	430.0041	-0.31944
10	0.4208	-0.3224	50	440.0000	-0.31951
11	0.5041	-0.3223	51	450.0001	-0.31937
12	0.7541	-0.32216	52	460.0002	-0.31948
13	1.0042	-0.32203	53	470.0003	-0.31927
14	2.0041	-0.32148	54	480.0004	-0.31944
15	5.0000	-0.32094	55	490.0005	-0.31937
16	10.0001	-0.32056	56	500.0006	-0.3191
17	15.0001	-0.32043	57	510.0007	-0.31907
18	20.0001	-0.32036	58	520.0008	-0.31927
19	30.0002	-0.32029	59	530.0009	-0.319
20	40.0003	-0.32022	60	540.0010	-0.31931
21	50.0004	-0.32019	61	550.0011	-0.3192
22	60.0005	-0.32016	62	560.0012	-0.31876
23	70.0006	-0.32012	63	570.0013	-0.31927
24	80.0007	-0.32012	64	590.0015	-0.31927
25	90.0008	-0.31995	65	600.0016	-0.31883
26	100.0009	-0.31992	66	610.0017	-0.31883
27	120.0011	-0.31992	67	620.0018	-0.31879
28	140.0013	-0.31982	68	630.0019	-0.31862
29	160.0015	-0.31982	69	640.0019	-0.31913
30	170.0016	-0.31978	70	650.0020	-0.31859
31	180.0017	-0.31982	71	660.0022	-0.31859
32	200.0019	-0.31982	72	670.0023	-0.31866
33	210.0020	-0.31999	73	680.0024	-0.31852
34	250.0023	-0.31982	74	690.0024	-0.31869
35	290.0027	-0.31975	75	700.0025	-0.31913
36	300.0028	-0.31975	76	710.0026	-0.31849
37	310.0029	-0.31985	77	720.0027	-0.31907
38	320.0030	-0.31978	78	730.0028	-0.31903
39	330.0031	-0.31968	79	740.0029	-0.31842
40	340.0032	-0.31982	80	750.0030	-0.31839



Pressure: 2000 psf — **TEST READINGS (continued)** — **Load No. 12**

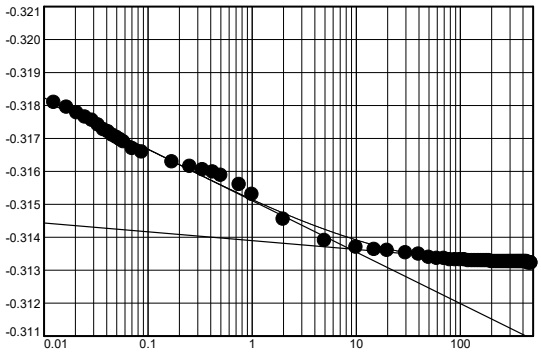
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
81	760.0031	-0.319	91	860.0041	-0.31866
82	770.0032	-0.31839	92	870.0000	-0.31869
83	780.0033	-0.31893	93	880.0001	-0.31822
84	790.0034	-0.31835	94	890.0002	-0.31822
85	800.0035	-0.31849	95	900.0003	-0.31828
86	810.0036	-0.31845	96	910.0004	-0.31815
87	820.0037	-0.31832	97	930.0006	-0.31815
88	830.0038	-0.31879	98	940.0007	-0.31859
89	840.0039	-0.31839	99	950.0008	-0.31811
90	850.0040	-0.31825	100	960.0511	-0.31811

Void Ratio = 0.503 **Compression =** 9.1%

D_0 = -0.3239 **D_{50} =** -0.3224 **D_{100} =** -0.3208 **C_v at 0.37 min. =** 1.099 ft.^{2}/day **C_α =** 0.001

Pressure: 4000 psf — **TEST READINGS** — **Load No. 13**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.31811	25	10.0001	-0.31369
2	0.0125	-0.31808	26	15.0001	-0.31362
3	0.0166	-0.31794	27	20.0002	-0.31359
4	0.0208	-0.31777	28	30.0003	-0.31352
5	0.0250	-0.31764	29	40.0004	-0.31348
6	0.0291	-0.31754	30	50.0005	-0.31338
7	0.0333	-0.3174	31	60.0005	-0.31335
8	0.0375	-0.31726	32	70.0006	-0.31335
9	0.0416	-0.31719	33	80.0008	-0.31331
10	0.0458	-0.31709	34	90.0009	-0.31331
11	0.0500	-0.31702	35	100.0009	-0.31331
12	0.0541	-0.31696	36	110.0011	-0.31331
13	0.0583	-0.31689	37	120.0011	-0.31328
14	0.0708	-0.31668	38	130.0012	-0.31328
15	0.0875	-0.31658	39	140.0013	-0.31328
16	0.1708	-0.31628	40	150.0014	-0.31328
17	0.2541	-0.31614	41	160.0015	-0.31328
18	0.3375	-0.31604	42	170.0016	-0.31328
19	0.4208	-0.31597	43	180.0017	-0.31328
20	0.5041	-0.31587	44	190.0018	-0.31328
21	0.7542	-0.31559	45	200.0019	-0.31325
22	1.0042	-0.31529	46	210.0020	-0.31325
23	2.0041	-0.31454	47	220.0021	-0.31325
24	5.0000	-0.31389	48	230.0022	-0.31325



Pressure: 4000 psf | **TEST READINGS (continued)** | **Load No. 13**

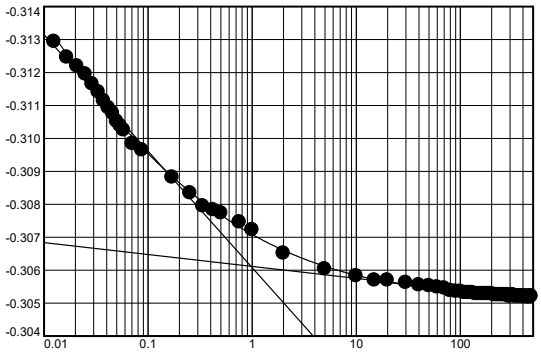
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
49	240.0023	-0.31325	59	340.0033	-0.31325	69	440.0001	-0.31325
50	250.0024	-0.31325	60	350.0034	-0.31325	70	450.0002	-0.31321
51	260.0025	-0.31325	61	360.0035	-0.31325	71	460.0003	-0.31321
52	270.0026	-0.31325	62	370.0036	-0.31325	72	470.0004	-0.31321
53	280.0027	-0.31325	63	380.0037	-0.31325	73	480.0004	-0.31321
54	290.0028	-0.31325	64	390.0038	-0.31325	74	480.0591	-0.31321
55	300.0029	-0.31325	65	400.0039	-0.31325			
56	310.0030	-0.31325	66	410.0040	-0.31325			
57	320.0031	-0.31325	67	420.0040	-0.31325			
58	330.0032	-0.31325	68	430.0041	-0.31325			

Void Ratio = 0.495 **Compression =** 9.5%

D_0 = -0.3181 **D_{50} =** -0.3159 **D_{100} =** -0.3136 **C_v at 0.32 min. =** 1.256 ft.^{2}/day **C_α =** 0.000

Pressure: 8000 psf | **TEST READINGS** | **Load No. 14**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.31321	25	10.0001	-0.30582
2	0.0125	-0.31294	26	15.0001	-0.30569
3	0.0166	-0.31246	27	20.0002	-0.30569
4	0.0208	-0.31219	28	30.0003	-0.30562
5	0.0250	-0.31195	29	40.0003	-0.30555
6	0.0291	-0.31165	30	50.0004	-0.30552
7	0.0333	-0.31141	31	60.0005	-0.30548
8	0.0375	-0.31114	32	70.0006	-0.30545
9	0.0416	-0.31093	33	80.0007	-0.30538
10	0.0458	-0.31076	34	90.0008	-0.30535
11	0.0500	-0.31052	35	100.0009	-0.30535
12	0.0541	-0.31039	36	110.0010	-0.30531
13	0.0583	-0.31025	37	120.0011	-0.30531
14	0.0708	-0.30984	38	130.0012	-0.30531
15	0.0875	-0.30964	39	140.0013	-0.30528
16	0.1708	-0.30882	40	150.0014	-0.30528
17	0.2541	-0.30834	41	160.0015	-0.30528
18	0.3375	-0.30794	42	170.0016	-0.30528
19	0.4208	-0.30783	43	180.0017	-0.30528
20	0.5041	-0.30773	44	190.0017	-0.30528
21	0.7541	-0.30746	45	200.0019	-0.30528
22	1.0041	-0.30722	46	210.0019	-0.30525
23	2.0041	-0.30651	47	220.0020	-0.30525
24	5.0000	-0.30603	48	230.0021	-0.30525



Pressure: 8000 psf | **TEST READINGS (continued)** | **Load No. 14**

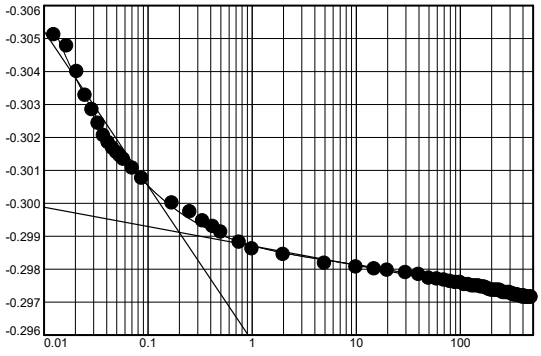
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
49	240.0022	-0.30525	59	340.0031	-0.30521	69	440.0041	-0.30518
50	250.0023	-0.30525	60	350.0032	-0.30521	70	450.0000	-0.30518
51	260.0024	-0.30525	61	360.0034	-0.30521	71	460.0001	-0.30521
52	270.0025	-0.30525	62	370.0034	-0.30521	72	470.0002	-0.30518
53	280.0026	-0.30525	63	380.0035	-0.30521	73	480.0003	-0.30521
54	290.0027	-0.30521	64	390.0036	-0.30521	74	480.0714	-0.30521
55	300.0028	-0.30521	65	400.0037	-0.30521			
56	310.0029	-0.30525	66	410.0038	-0.30521			
57	320.0030	-0.30525	67	420.0039	-0.30521			
58	330.0031	-0.30521	68	430.0040	-0.30521			

Void Ratio = 0.481 **Compression =** 10.3%

D_0 = -0.3132 **D_{50} =** -0.3097 **D_{100} =** -0.3061 **C_v at 0.09 min. =** 4.363 ft.^{2}/day **C_α =** 0.001

Pressure: 16000 psf | **TEST READINGS** | **Load No. 15**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.30521	25	10.0001	-0.29806
2	0.0125	-0.30511	26	15.0001	-0.298
3	0.0166	-0.30477	27	20.0002	-0.29796
4	0.0208	-0.30399	28	30.0002	-0.29789
5	0.0250	-0.30327	29	40.0003	-0.29783
6	0.0291	-0.30283	30	50.0004	-0.29772
7	0.0333	-0.30242	31	60.0005	-0.29769
8	0.0375	-0.30205	32	70.0006	-0.29766
9	0.0416	-0.30184	33	80.0007	-0.29762
10	0.0458	-0.30167	34	90.0008	-0.29759
11	0.0500	-0.30154	35	100.0009	-0.29759
12	0.0541	-0.30143	36	110.0010	-0.29752
13	0.0583	-0.30133	37	120.0011	-0.29752
14	0.0708	-0.30106	38	130.0012	-0.29748
15	0.0875	-0.30075	39	140.0013	-0.29748
16	0.1708	-0.3	40	150.0014	-0.29748
17	0.2541	-0.29973	41	160.0014	-0.29745
18	0.3375	-0.29946	42	170.0016	-0.29745
19	0.4208	-0.29929	43	180.0016	-0.29742
20	0.5041	-0.29912	44	190.0017	-0.29738
21	0.7541	-0.29881	45	200.0018	-0.29735
22	1.0042	-0.29861	46	210.0019	-0.29735
23	2.0041	-0.29844	47	220.0020	-0.29735
24	5.0000	-0.29817	48	230.0021	-0.29735



Pressure: 16000 psf | **TEST READINGS (continued)** | **Load No. 15**

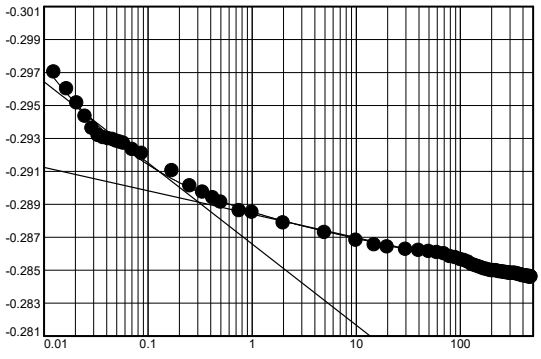
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
49	240.0022	-0.29735	59	340.0031	-0.29721	69	440.0040	-0.29714
50	250.0023	-0.29731	60	350.0032	-0.29721	70	450.0041	-0.29714
51	260.0024	-0.29728	61	360.0033	-0.29721	71	460.0000	-0.29714
52	270.0025	-0.29728	62	370.0034	-0.29718	72	470.0001	-0.29714
53	280.0025	-0.29728	63	380.0035	-0.29718	73	480.0002	-0.29714
54	290.0026	-0.29728	64	390.0035	-0.29718	74	480.0588	-0.29714
55	300.0027	-0.29728	65	400.0037	-0.29714			
56	310.0028	-0.29725	66	410.0037	-0.29718			
57	320.0029	-0.29725	67	420.0038	-0.29714			
58	330.0030	-0.29721	68	430.0039	-0.29714			

Void Ratio = 0.468 **Compression =** 11.1%

D_0 = -0.3052 **D_{50} =** -0.3022 **D_{100} =** -0.2991 **C_v at 0.04 min. =** 10.032 ft.^{2}/day **C_α =** 0.001

Pressure: 32000 psf | **TEST READINGS** | **Load No. 16**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.29714	25	10.0001	-0.2868
2	0.0125	-0.29701	26	15.0001	-0.28652
3	0.0166	-0.29599	27	20.0001	-0.28639
4	0.0208	-0.29514	28	30.0002	-0.28625
5	0.0250	-0.29432	29	40.0003	-0.28618
6	0.0291	-0.2936	30	50.0004	-0.28612
7	0.0333	-0.29316	31	60.0005	-0.28605
8	0.0374	-0.29303	32	70.0006	-0.28598
9	0.0416	-0.29296	33	80.0007	-0.28581
10	0.0458	-0.29292	34	90.0008	-0.28574
11	0.0499	-0.29282	35	100.0009	-0.28564
12	0.0541	-0.29275	36	110.0010	-0.28557
13	0.0583	-0.29269	37	120.0011	-0.28547
14	0.0708	-0.29231	38	130.0012	-0.28533
15	0.0874	-0.29207	39	140.0013	-0.28526
16	0.1708	-0.29102	40	150.0014	-0.2852
17	0.2541	-0.2901	41	160.0014	-0.28513
18	0.3374	-0.28972	42	170.0015	-0.28506
19	0.4208	-0.28938	43	180.0016	-0.28503
20	0.5041	-0.28911	44	190.0017	-0.28499
21	0.7541	-0.2886	45	200.0018	-0.28496
22	1.0041	-0.2885	46	210.0019	-0.28496
23	2.0041	-0.28785	47	220.0020	-0.28496
24	5.0000	-0.28727	48	230.0021	-0.28492



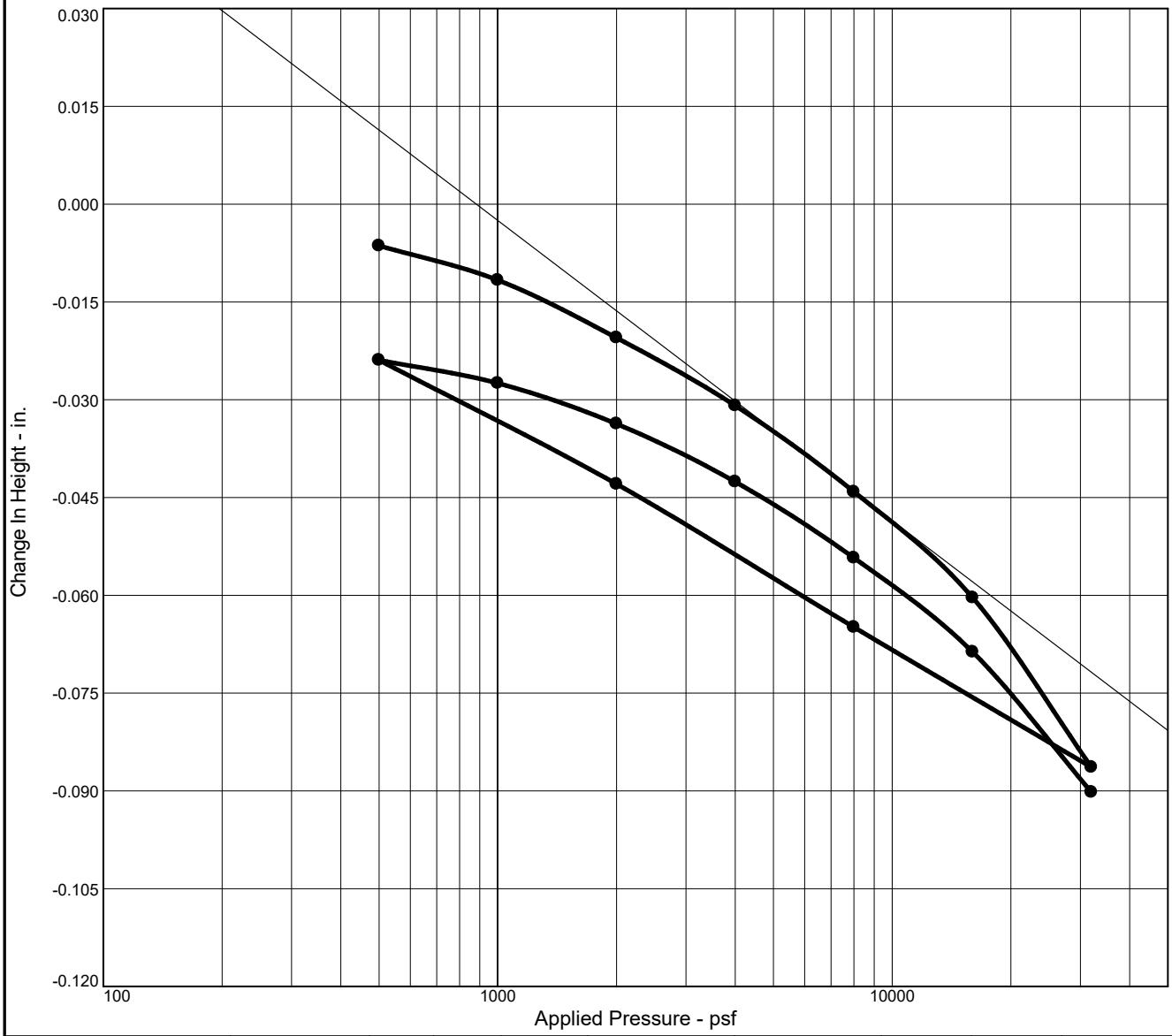
Pressure: 32000 psf	TEST READINGS (continued)	Load No. 16

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
49	240.0022	-0.28489	59	340.0031	-0.28479	69	440.0040	-0.28462
50	250.0023	-0.28489	60	350.0032	-0.28475	70	450.0041	-0.28458
51	260.0024	-0.28486	61	360.0033	-0.28475	71	460.0001	-0.28462
52	270.0025	-0.28486	62	370.0034	-0.28472	72	470.0001	-0.28455
53	280.0025	-0.28482	63	380.0035	-0.28469	73	480.0002	-0.28458
54	290.0026	-0.28482	64	390.0036	-0.28469	74	480.0505	-0.28458
55	300.0027	-0.28479	65	400.0037	-0.28465			
56	310.0028	-0.28479	66	410.0037	-0.28465			
57	320.0029	-0.28479	67	420.0038	-0.28465			
58	330.0030	-0.28479	68	430.0039	-0.28465			

Void Ratio = 0.447 **Compression =** 12.4%

D_0 = -0.2971 **D_{50} =** -0.2931 **D_{100} =** -0.2891 **C_V at 0.04 min. =** 8.953 ft.^{2}/day **C_α =** 0.002

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
114.3 %	33.4 %	93.7	54	31	2.67	3000	1844	0.08	0.07	0.779

MATERIAL DESCRIPTION	USCS	AASHTO
CH - FAT CLAY	CH	

Project No. XL5446 **Client:** WSDOT (Geotechnical Office)

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Location: NE-104VW-22 **Depth:** 39.3 **Sample Number:** S-13

Washington State Department of Transportation

Olympia, WA

Remarks:

I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

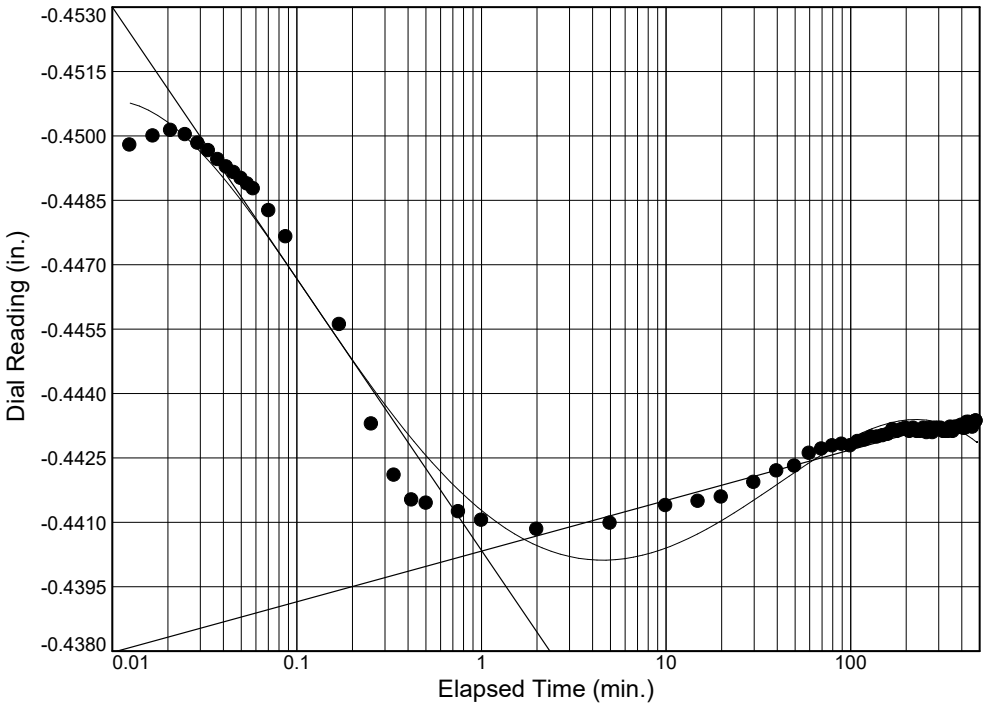
Figure

Checked By: SW

Dial Reading vs. Time

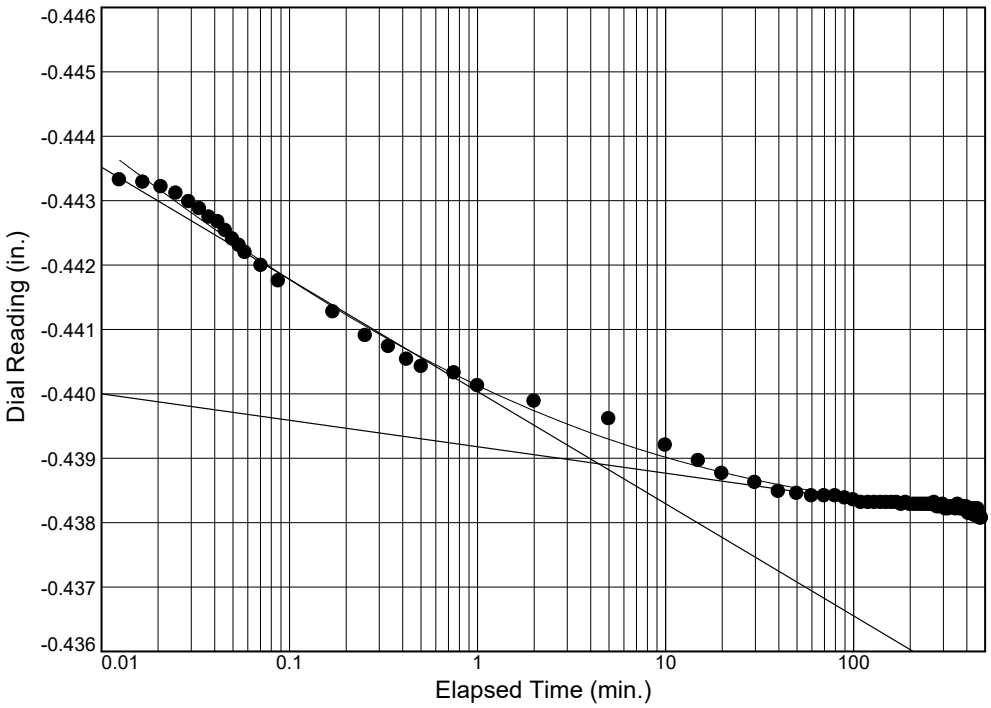
Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 1
Load= 500.00 psf
D_0 = -0.4497
D_{50} = -0.4450
D_{100} = -0.4403
T_{50} = 0.18 min.

C_v @ T_{50}
2.679 ft.^{2}/day



Load No.= 2
Load= 1000.00 psf
D_0 = -0.4434
D_{50} = -0.4411
D_{100} = -0.4389
T_{50} = 0.23 min.

C_v @ T_{50}
2.130 ft.^{2}/day

C_α = 0.001

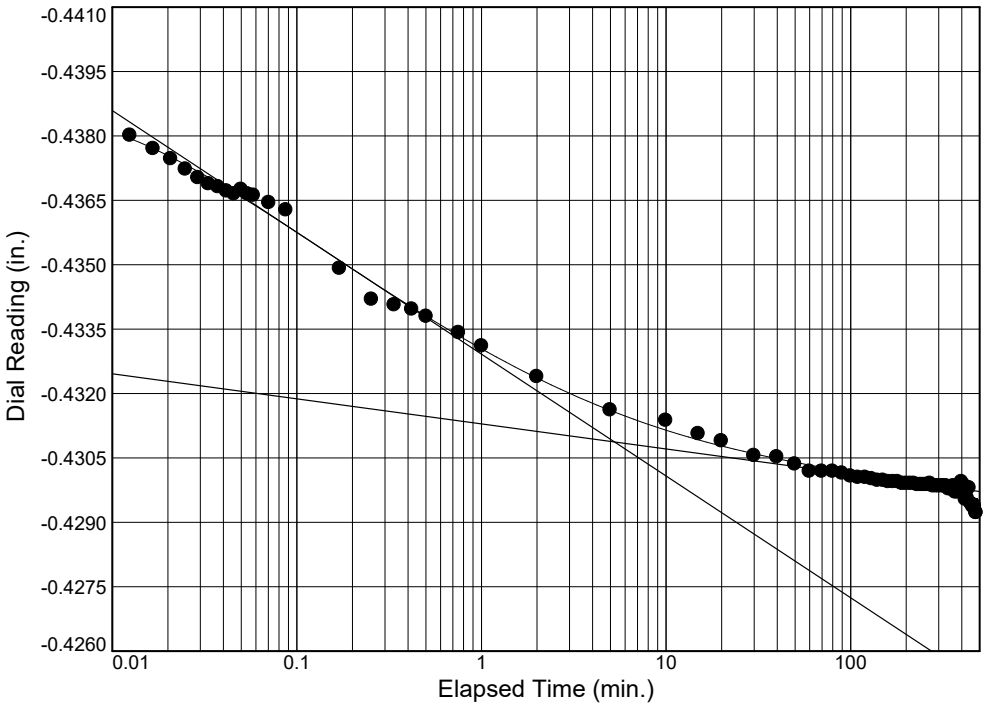
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

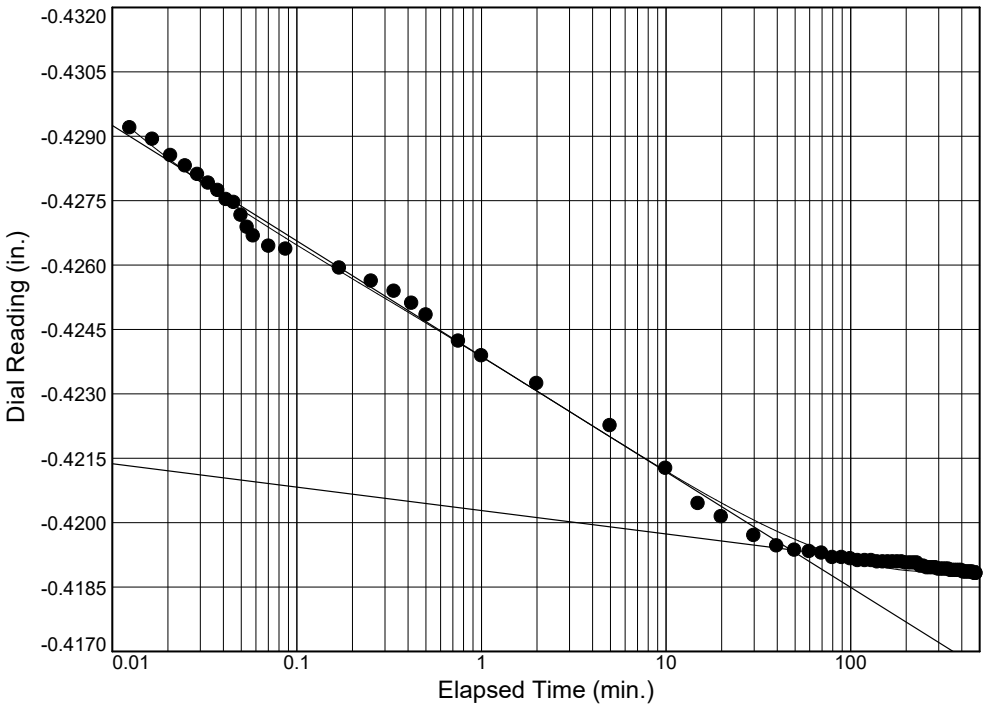
Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 3
Load= 2000 psf
D_0 = -0.4381
D_{50} = -0.4345
D_{100} = -0.4309
T_{50} = 0.28 min.

C_v @ T_{50}
1.675 ft.^{2}/day

C_α = 0.001



Load No.= 4
Load= 4000 psf
D_0 = -0.4292
D_{50} = -0.4243
D_{100} = -0.4194
T_{50} = 0.69 min.

C_v @ T_{50}
0.682 ft.^{2}/day

C_α = 0.001

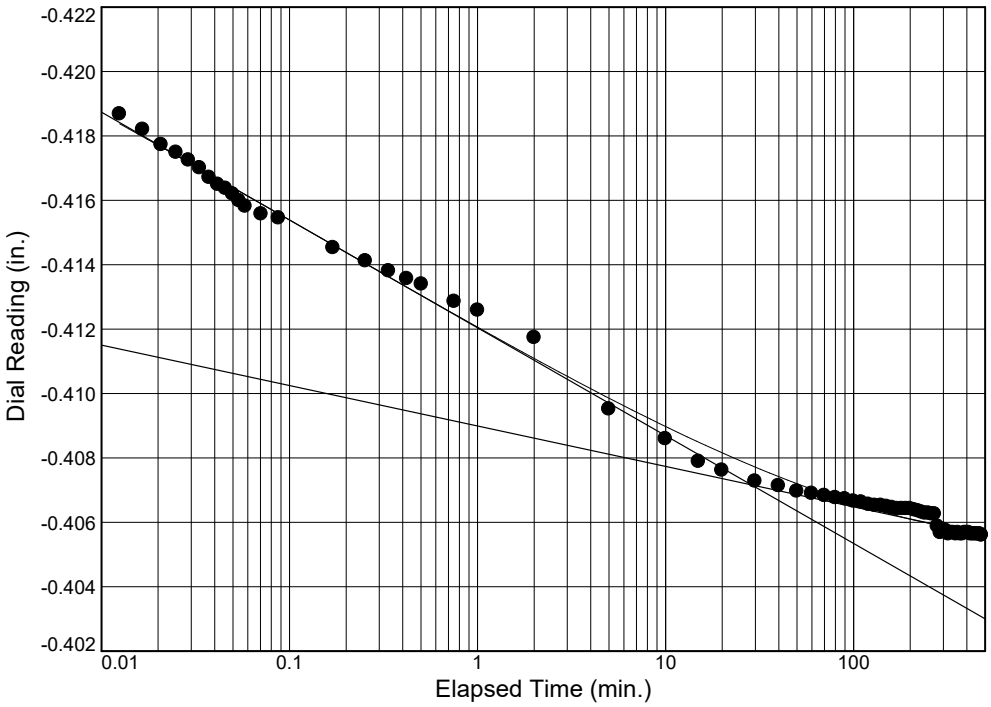
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

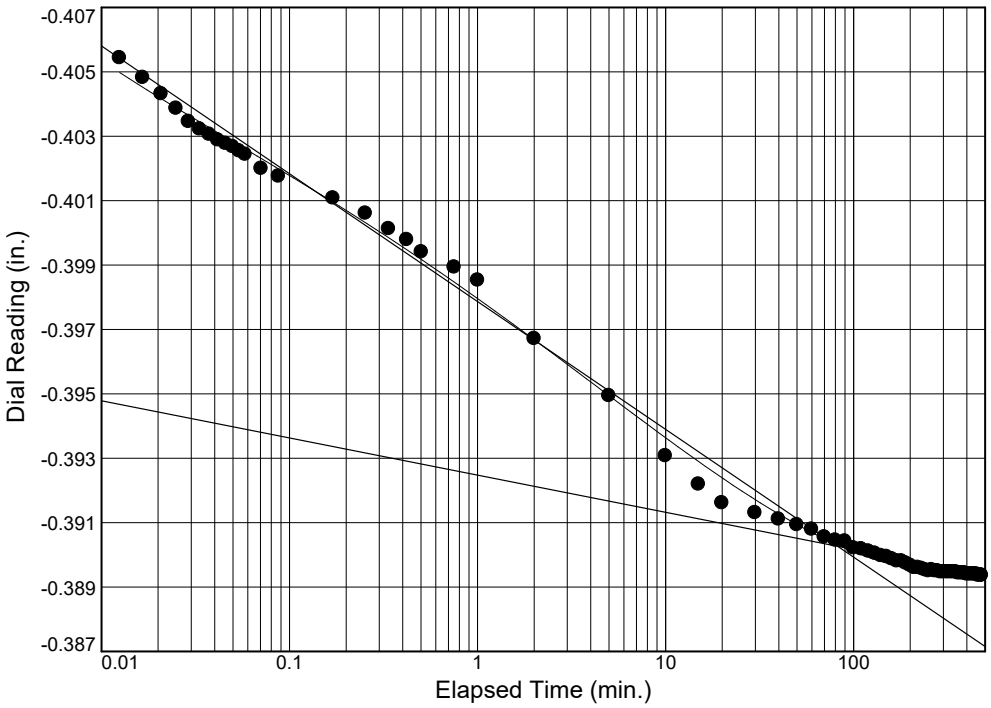
Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 5
Load= 8000 psf
D_0 = -0.4188
D_{50} = -0.4130
D_{100} = -0.4072
T_{50} = 0.52 min.

C_v @ T_{50}
0.871 ft.^{2}/day

C_α = 0.002



Load No.= 6
Load= 16000 psf
D_0 = -0.4056
D_{50} = -0.3979
D_{100} = -0.3903
T_{50} = 1.01 min.

C_v @ T_{50}
0.436 ft.^{2}/day

C_α = 0.002

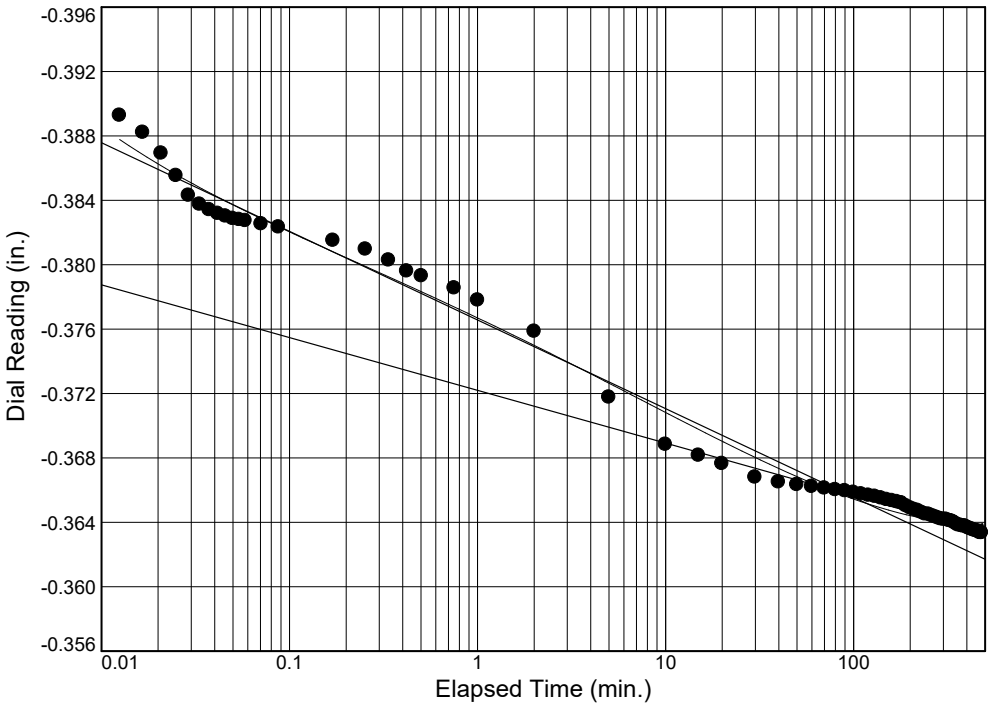
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

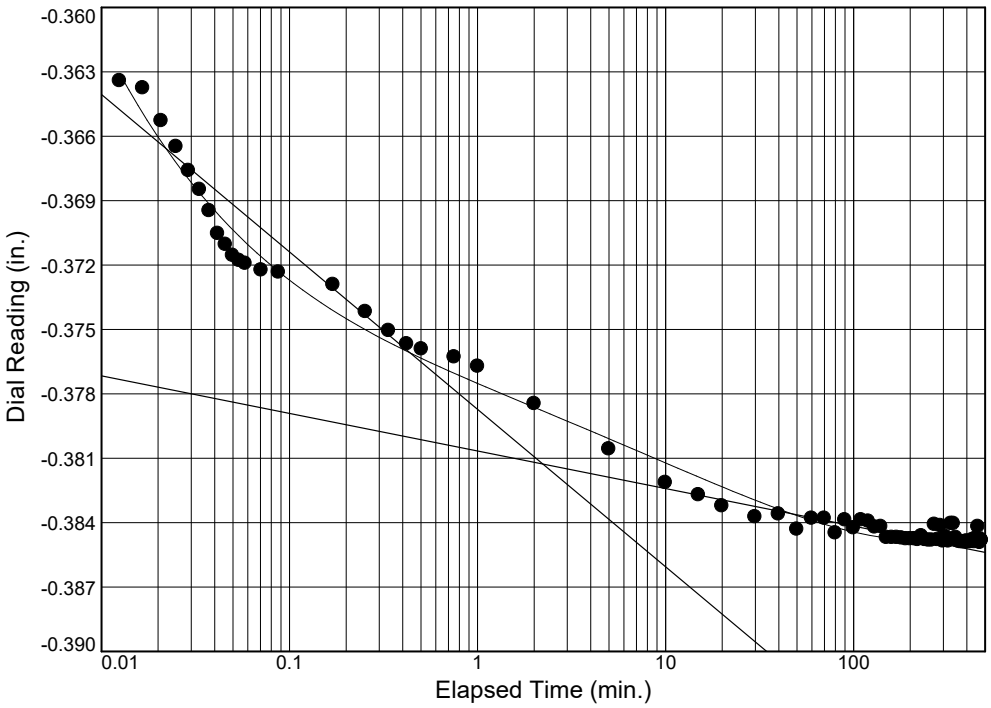
Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 7
Load= 32000 psf
D_0 = -0.3894
D_{50} = -0.3776
D_{100} = -0.3658
T_{50} = 0.70 min.

C_v @ T_{50}
0.608 ft.^{2}/day

C_α = 0.006



Load No.= 8
Load= 8000 psf
D_0 = -0.3634
D_{50} = -0.3723
D_{100} = -0.3813
T_{50} = 0.09 min.

C_v @ T_{50}
4.802 ft.^{2}/day

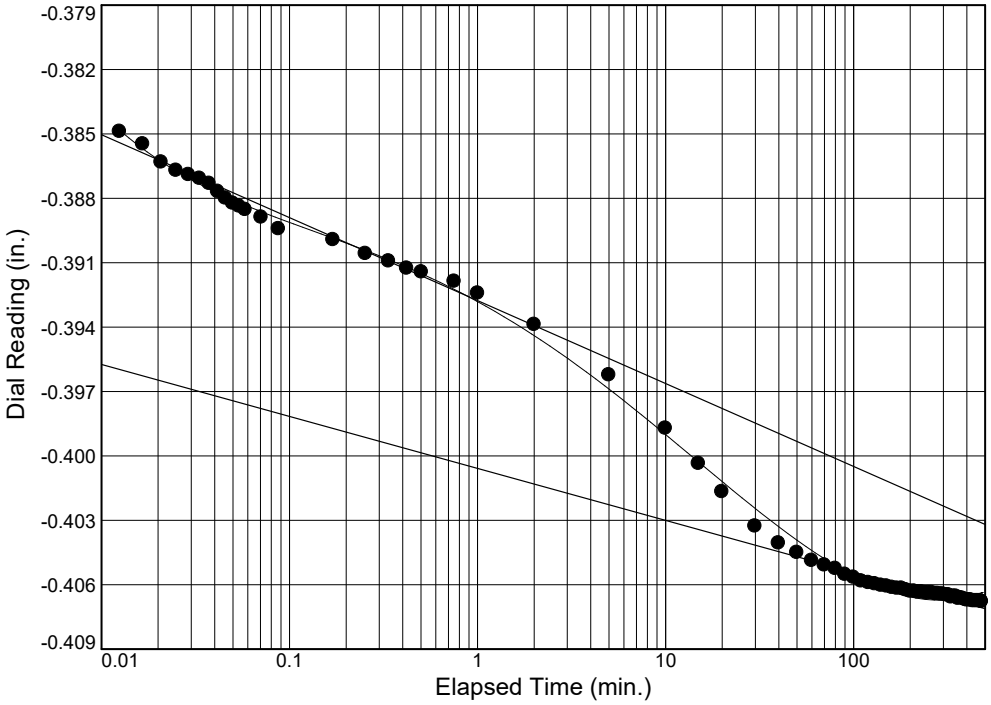
Figure

Washington State Department of Transportation

Dial Reading vs. Time

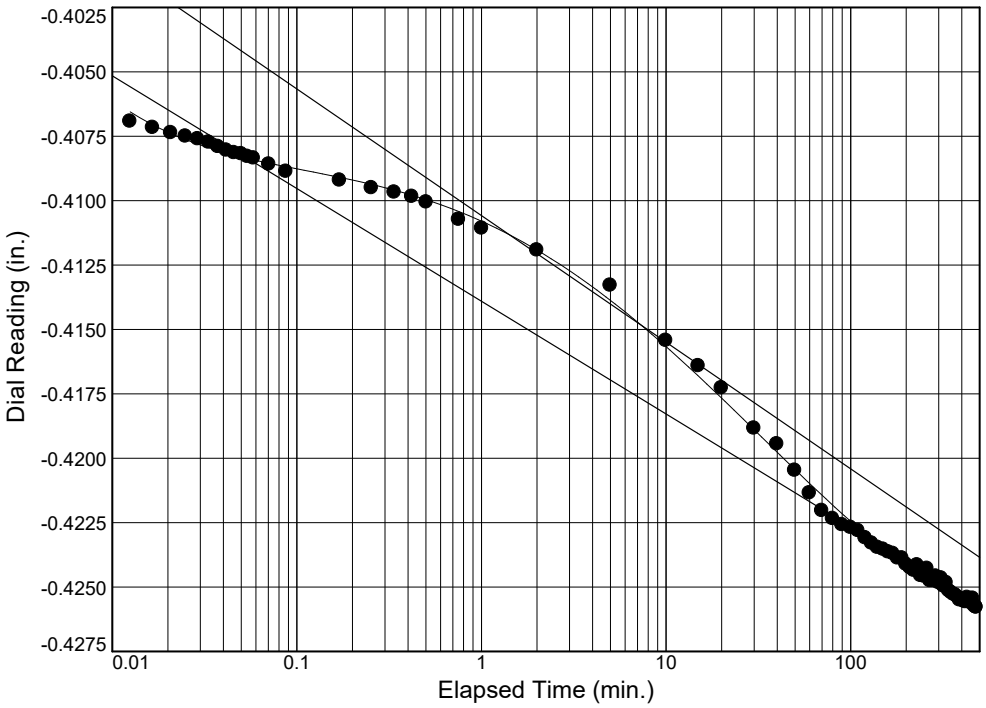
Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 9
Load= 2000 psf
D_0 = -0.3849
D_{50} = -0.3993
D_{100} = -0.4137
T_{50} = 10.95 min.

C_v @ T_{50}
0.040 ft.^{2}/day



Load No.= 10
Load= 500.00 psf
D_0 = -0.4068
D_{50} = -0.4238
D_{100} = -0.4408
T_{50} = 169.80 min.

C_v @ T_{50}
0.003 ft.^{2}/day

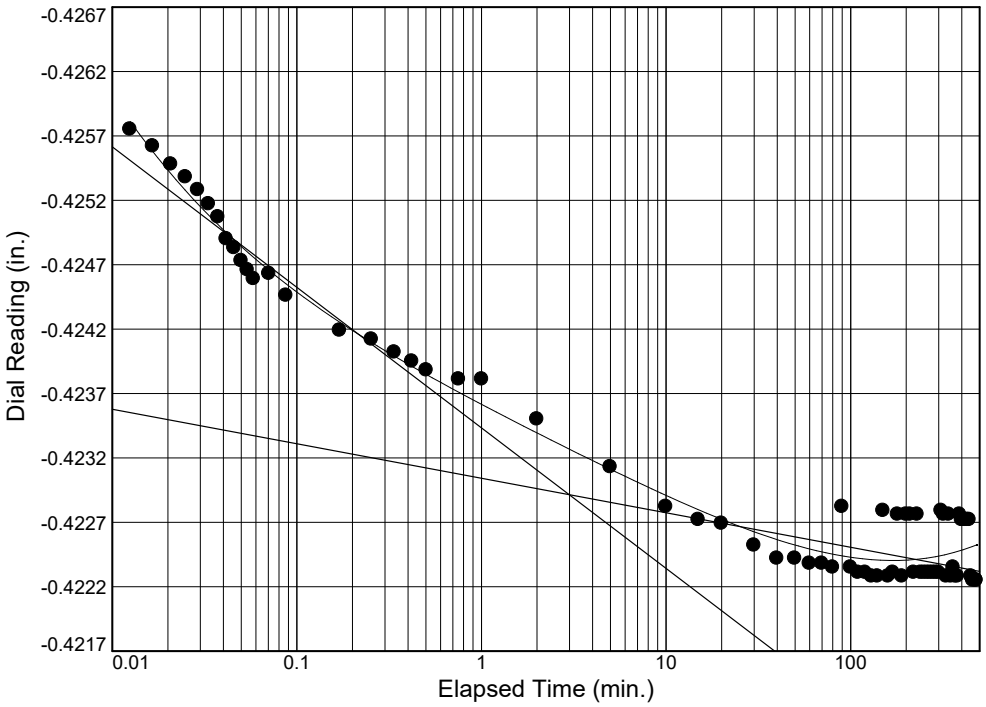
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

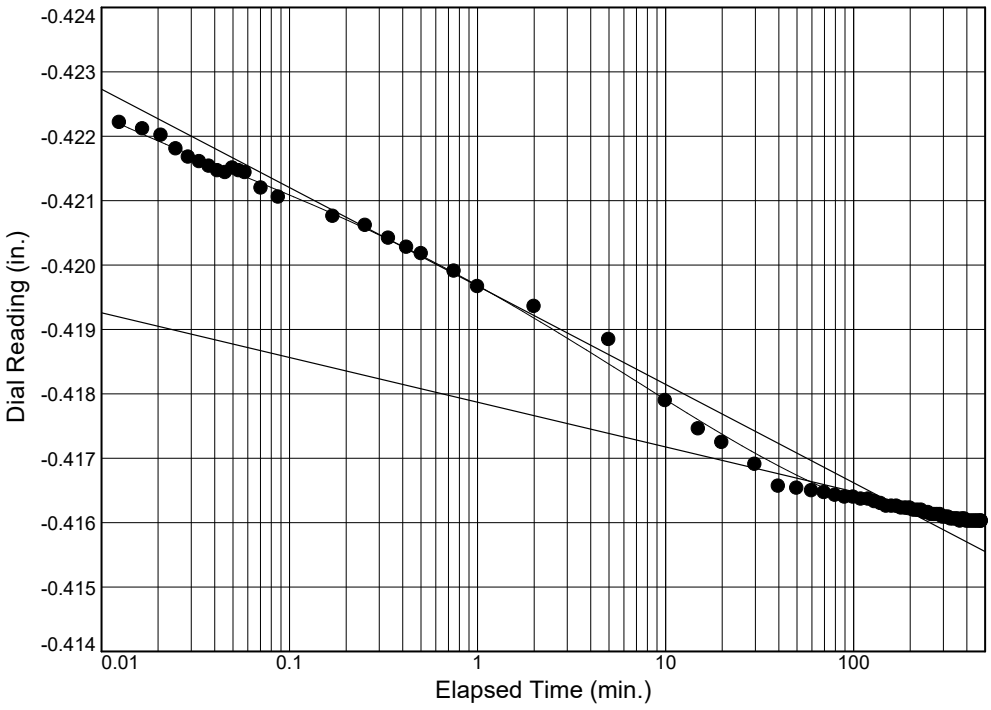
Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 11
Load= 1000.00 psf
D_0 = -0.4258
D_{50} = -0.4244
D_{100} = -0.4229
T_{50} = 0.14 min.

C_v @ T_{50}
3.458 ft.^{2}/day

C_α = 0.000



Load No.= 12
Load= 2000 psf
D_0 = -0.4223
D_{50} = -0.4193
D_{100} = -0.4164
T_{50} = 1.67 min.

C_v @ T_{50}
0.277 ft.^{2}/day

C_α = 0.001

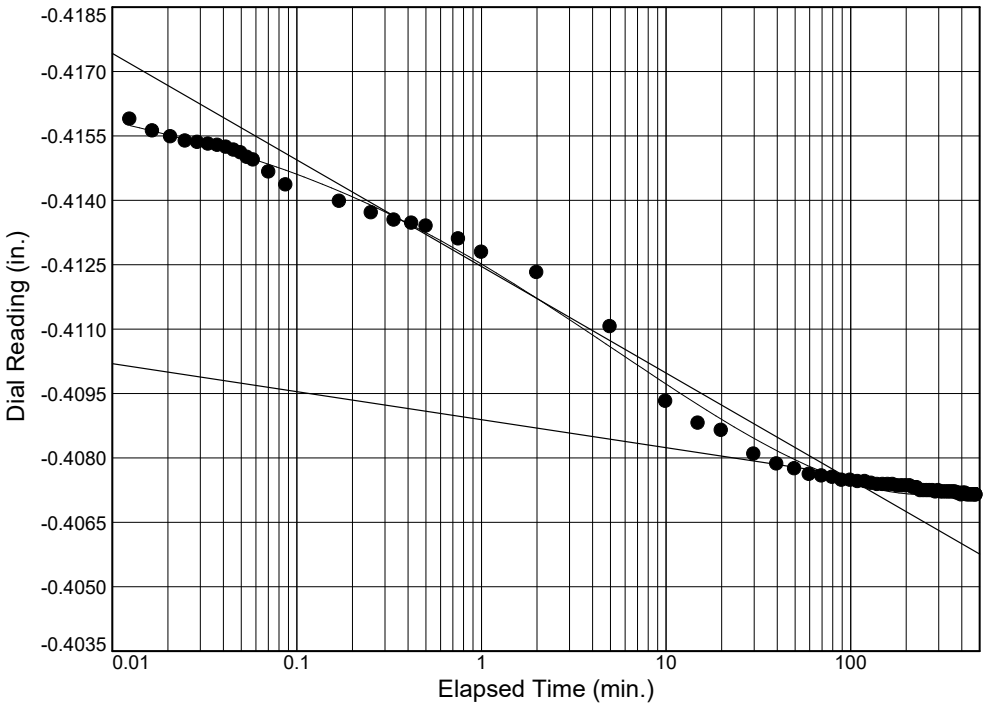
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

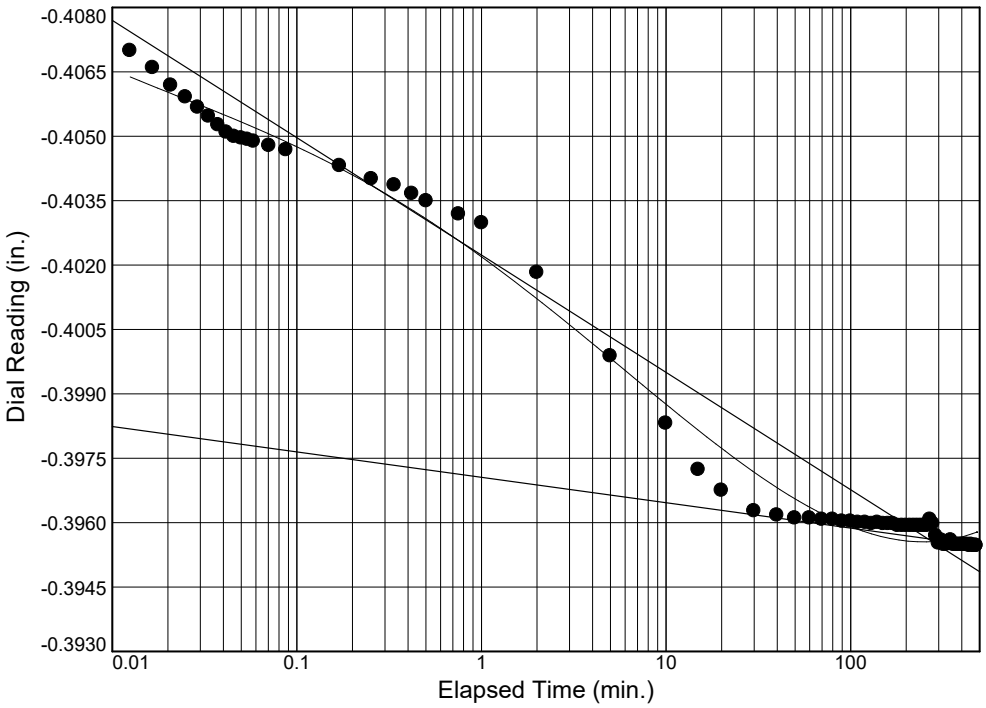
Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 13
Load= 4000 psf
D_0 = -0.4160
D_{50} = -0.4118
D_{100} = -0.4076
T_{50} = 1.83 min.

C_v @ T_{50}
0.249 ft.^{2}/day

C_α = 0.001



Load No.= 14
Load= 8000 psf
D_0 = -0.4071
D_{50} = -0.4014
D_{100} = -0.3956
T_{50} = 1.79 min.

C_v @ T_{50}
0.250 ft.^{2}/day

C_α = 0.001

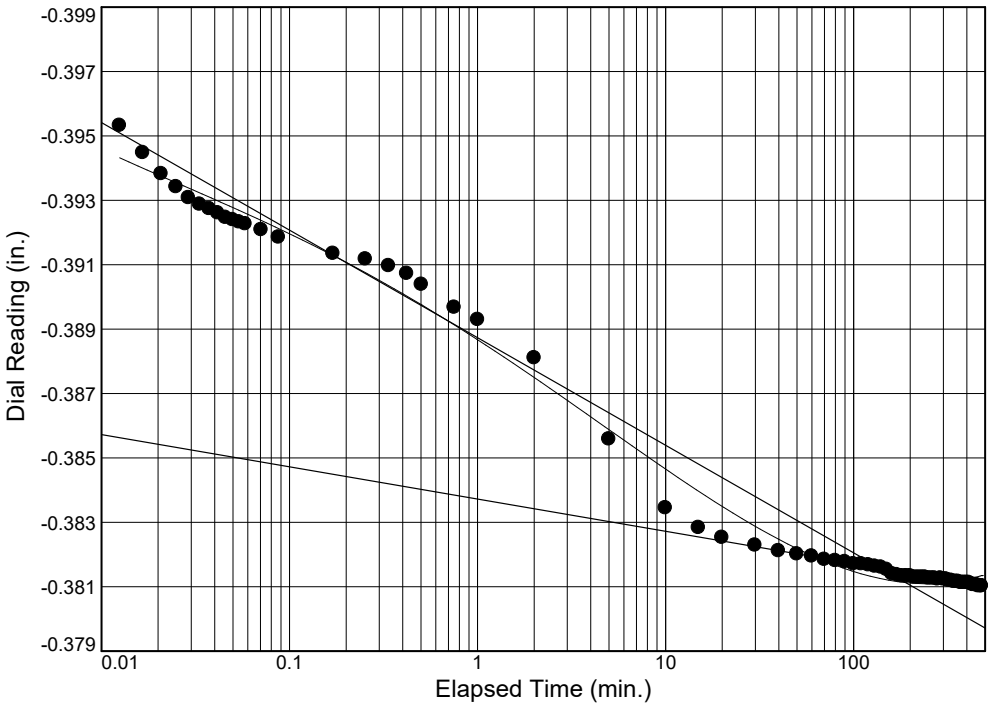
Figure

Washington State Department of Transportation

Dial Reading vs. Time

Project No.: XL5446
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

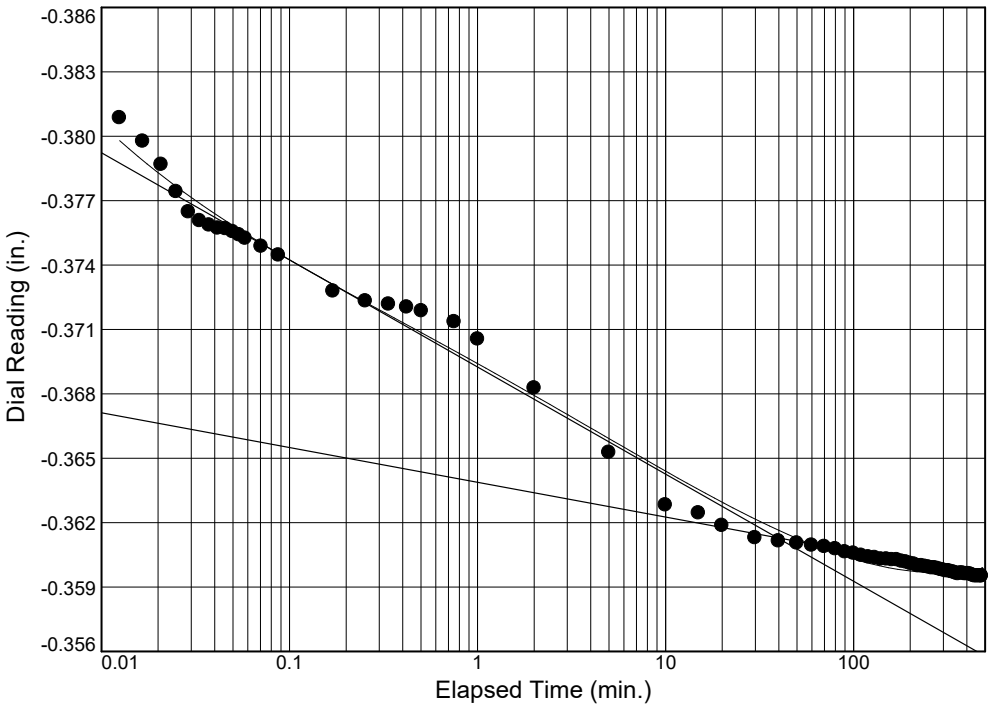
Location: NE-104VW-22 Depth: 39.3 Sample Number: S-13



Load No.= 15
Load= 16000 psf
D_0 = -0.3955
D_{50} = -0.3885
D_{100} = -0.3816
T_{50} = 1.10 min.

C_v @ T_{50}
0.396 ft.^{2}/day

C_α = 0.002



Load No.= 16
Load= 32000 psf
D_0 = -0.3810
D_{50} = -0.3712
D_{100} = -0.3613
T_{50} = 0.43 min.

C_v @ T_{50}
0.966 ft.^{2}/day

C_α = 0.003

Figure

Washington State Department of Transportation

CONSOLIDATION TEST DATA

12/14/2022

Client: WSDOT (Geotechnical Office)
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Project Number: XL5446
Location: NE-104VW-22
Depth: 39.3 **Sample Number:** S-13
Material Description: CH - FAT CLAY
Liquid Limit: 54 **Plasticity Index:** 31
USCS: CH
Testing Remarks: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Tested by: TM **Checked by:** SW

Test Specimen Data

NATURAL MOISTURE		VOID RATIO		AFTER TEST	
Wet w+t	=1260.75 g.	Spec. Gr.	= 2.67	Wet w+t	= 244.65 g.
Dry w+t	=1127.06 g.	Est. Ht. Solids	= 0.562 in.	Dry w+t	= 210.60 g.
Tare Wt.	= 726.37 g.	Init. V.R.	= 0.779	Tare Wt.	= 87.90 g.
Moisture	= 33.4 %	Init. Sat.	= 114.3 %	Moisture	= 27.8 %

UNIT WEIGHT		TEST START			
Height	= 1.000 in.	Height	= 1.000 in.	Dry Wt.	= 122.70 g.
Diameter	= 2.500 in.	Diameter	= 2.500 in.		
Weight	= 160.97 g.				
Dry Dens.	= 93.7 pcf				

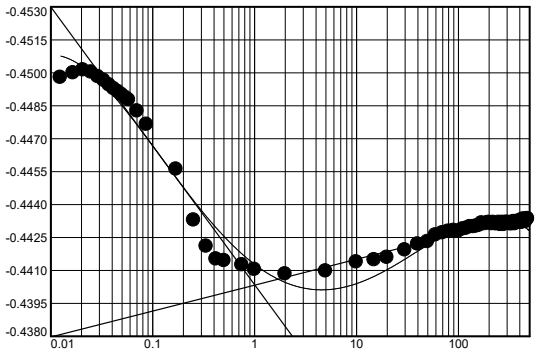
End-Of-Load Summary

Pressure (psf)	Final Dial (in.)	Deformation (in.)	C_V (ft.^{2}/day)	C_α	Void Ratio	% Strain
start	-0.44972	0.00000			0.779	
500.00	-0.44335	0.00637	2.679		0.768	0.6 Comprs.
1000.00	-0.43807	0.01165	2.130	0.001	0.759	1.2 Comprs.
2000	-0.42922	0.02050	1.675	0.001	0.743	2.1 Comprs.
4000	-0.41881	0.03091	0.682	0.001	0.724	3.1 Comprs.
8000	-0.40560	0.04412	0.871	0.002	0.701	4.4 Comprs.
16000	-0.38936	0.06036	0.436	0.002	0.672	6.0 Comprs.
32000	-0.36335	0.08637	0.608	0.006	0.626	8.6 Comprs.
8000	-0.38483	0.06489	4.802		0.664	6.5 Comprs.
2000	-0.40679	0.04293	0.040		0.703	4.3 Comprs.
500.00	-0.42579	0.02393	0.003		0.737	2.4 Comprs.
1000.00	-0.42225	0.02747	3.458	0.000	0.731	2.7 Comprs.
2000	-0.41602	0.03370	0.277	0.001	0.719	3.4 Comprs.
4000	-0.40713	0.04259	0.249	0.001	0.704	4.3 Comprs.
8000	-0.39546	0.05426	0.250	0.001	0.683	5.4 Comprs.
16000	-0.38102	0.06870	0.396	0.002	0.657	6.9 Comprs.
32000	-0.35951	0.09021	0.966	0.003	0.619	9.0 Comprs.

Compression index (C_c), psf = 0.08 **Preconsolidation pressure (P_p), psf =** 1844 **Void ratio at P_p (e_m) =** 0.745
Overburden (σ_{vo}), psf = 3000 **Void ratio at σ_{vo} (e_o) =** 0.733

Pressure: 500.00 psf	TEST READINGS	Load No. 1

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.44972	38	130.0011	-0.44298
2	0.0125	-0.44978	39	140.0011	-0.44298
3	0.0167	-0.44999	40	150.0012	-0.44301
4	0.0208	-0.45012	41	160.0013	-0.44304
5	0.0250	-0.45002	42	170.0014	-0.44315
6	0.0292	-0.44982	43	180.0015	-0.44311
7	0.0333	-0.44965	44	190.0015	-0.44315
8	0.0375	-0.44944	45	200.0016	-0.44318
9	0.0417	-0.44927	46	210.0017	-0.44311
10	0.0458	-0.44914	47	220.0018	-0.44318
11	0.0500	-0.449	48	230.0019	-0.44311
12	0.0542	-0.44887	49	240.0020	-0.44311
13	0.0583	-0.44876	50	250.0020	-0.44318
14	0.0708	-0.44825	51	260.0021	-0.44308
15	0.0875	-0.44764	52	270.0022	-0.44318
16	0.1708	-0.4456	53	280.0023	-0.44308
17	0.2542	-0.44328	54	290.0024	-0.44318
18	0.3375	-0.44209	55	300.0025	-0.44318
19	0.4208	-0.44151	56	310.0025	-0.44318
20	0.5042	-0.44144	57	320.0026	-0.44311
21	0.7542	-0.44124	58	330.0027	-0.44311
22	1.0042	-0.44104	59	340.0028	-0.44311
23	2.0042	-0.44083	60	350.0029	-0.44321
24	5.0000	-0.44097	61	360.0030	-0.44311
25	10.0001	-0.44138	62	370.0031	-0.44321
26	15.0001	-0.44148	63	380.0031	-0.44321
27	20.0002	-0.44158	64	390.0032	-0.44321
28	30.0003	-0.44192	65	400.0033	-0.44325
29	40.0003	-0.44219	66	410.0034	-0.44318
30	50.0004	-0.4423	67	420.0035	-0.44318
31	60.0005	-0.4426	68	430.0036	-0.44332
32	70.0006	-0.4427	69	440.0037	-0.44332
33	80.0007	-0.44277	70	450.0037	-0.44328
34	90.0008	-0.44281	71	460.0038	-0.44321
35	100.0008	-0.44277	72	470.0039	-0.44332
36	110.0009	-0.44287	73	480.0040	-0.44335
37	120.0010	-0.44291	74	480.2501	-0.44335

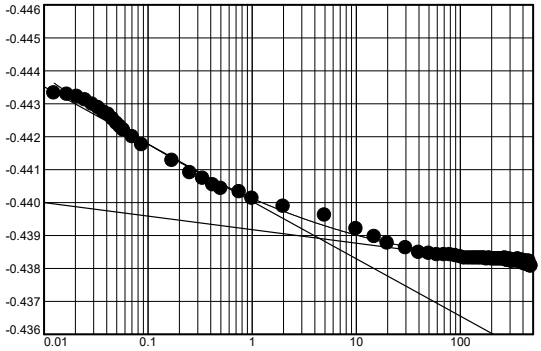


Void Ratio = 0.768 **Compression =** 0.6%

D_0 = -0.4497 **D_{50} =** -0.4450 **D_{100} =** -0.4403 **C_V at 0.18 min. =** 2.679 ft.^{2}/day

Pressure: 1000.00 psf **TEST READINGS** **Load No. 2**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.44335	38	130.0011	-0.43831
2	0.0125	-0.44332	39	140.0011	-0.43831
3	0.0167	-0.44328	40	150.0012	-0.43831
4	0.0208	-0.44321	41	160.0013	-0.43831
5	0.0250	-0.44311	42	170.0014	-0.43831
6	0.0292	-0.44298	43	180.0015	-0.43828
7	0.0333	-0.44287	44	190.0016	-0.43831
8	0.0375	-0.44274	45	200.0017	-0.43828
9	0.0417	-0.44267	46	210.0017	-0.43828
10	0.0458	-0.44253	47	220.0018	-0.43828
11	0.0500	-0.4424	48	230.0019	-0.43828
12	0.0542	-0.4423	49	240.0020	-0.43828
13	0.0583	-0.44219	50	250.0021	-0.43828
14	0.0708	-0.44199	51	260.0022	-0.43828
15	0.0875	-0.44175	52	270.0022	-0.43831
16	0.1708	-0.44127	53	280.0023	-0.43824
17	0.2542	-0.4409	54	290.0024	-0.43824
18	0.3375	-0.44073	55	300.0025	-0.43828
19	0.4208	-0.44053	56	310.0025	-0.43821
20	0.5042	-0.44042	57	320.0026	-0.43821
21	0.7542	-0.44032	58	330.0027	-0.43824
22	1.0042	-0.44012	59	340.0028	-0.43824
23	2.0042	-0.43988	60	350.0029	-0.43821
24	5.0000	-0.43961	61	360.0029	-0.43828
25	10.0001	-0.4392	62	370.0030	-0.43821
26	15.0001	-0.43896	63	380.0031	-0.43821
27	20.0002	-0.43876	64	390.0032	-0.43824
28	30.0002	-0.43862	65	400.0033	-0.43824
29	40.0003	-0.43848	66	410.0034	-0.43814
30	50.0004	-0.43845	67	420.0034	-0.43814
31	60.0005	-0.43841	68	430.0035	-0.43821
32	70.0006	-0.43841	69	440.0036	-0.43811
33	80.0006	-0.43841	70	450.0037	-0.43821
34	90.0007	-0.43838	71	460.0038	-0.43821
35	100.0008	-0.43835	72	470.0038	-0.43807
36	110.0009	-0.43831	73	480.0039	-0.43807
37	120.0010	-0.43831	74	480.1000	-0.43807

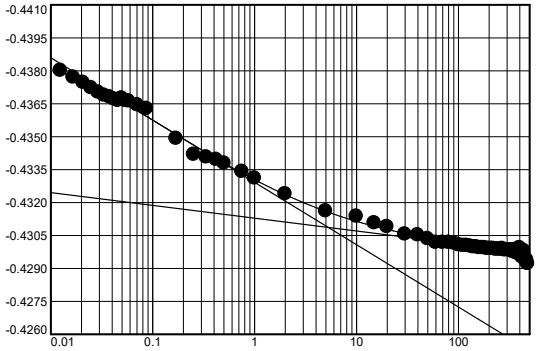


Void Ratio = 0.759 **Compression =** 1.2%

D_0 = -0.4434 **D_{50} =** -0.4411 **D_{100} =** -0.4389 **C_V at 0.23 min. =** 2.130 ft.^{2}/day **C_α =** 0.001

Pressure: 2000 psf | **TEST READINGS** | **Load No. 3**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.43807	38	130.0011	-0.43001
2	0.0125	-0.43801	39	140.0011	-0.42997
3	0.0167	-0.4377	40	150.0012	-0.42997
4	0.0208	-0.43746	41	160.0013	-0.42994
5	0.0250	-0.43722	42	170.0014	-0.42994
6	0.0292	-0.43702	43	180.0015	-0.42994
7	0.0333	-0.43688	44	190.0016	-0.4299
8	0.0375	-0.43681	45	200.0016	-0.4299
9	0.0417	-0.43671	46	210.0017	-0.4299
10	0.0458	-0.43664	47	220.0018	-0.4299
11	0.0500	-0.43675	48	230.0019	-0.42987
12	0.0542	-0.43664	49	240.0020	-0.42987
13	0.0583	-0.43661	50	250.0020	-0.42987
14	0.0708	-0.43644	51	260.0021	-0.42987
15	0.0875	-0.43627	52	270.0022	-0.4299
16	0.1708	-0.43491	53	280.0023	-0.42984
17	0.2542	-0.43419	54	290.0023	-0.42984
18	0.3375	-0.43406	55	300.0024	-0.42984
19	0.4208	-0.43396	56	310.0025	-0.42984
20	0.5041	-0.43379	57	320.0026	-0.42984
21	0.7542	-0.43341	58	330.0027	-0.42984
22	1.0042	-0.4331	59	340.0028	-0.42977
23	2.0042	-0.43239	60	350.0028	-0.42977
24	5.0000	-0.43161	61	360.0029	-0.42984
25	10.0001	-0.43137	62	370.0030	-0.4297
26	15.0001	-0.43106	63	380.0031	-0.4297
27	20.0002	-0.43089	64	390.0032	-0.42977
28	30.0002	-0.43055	65	400.0033	-0.42994
29	40.0003	-0.43052	66	410.0033	-0.42987
30	50.0004	-0.43035	67	420.0034	-0.42953
31	60.0005	-0.43018	68	430.0035	-0.42956
32	70.0006	-0.43018	69	440.0036	-0.4298
33	80.0006	-0.43018	70	450.0037	-0.42943
34	90.0007	-0.43014	71	460.0037	-0.42936
35	100.0008	-0.43007	72	470.0038	-0.42939
36	110.0009	-0.43004	73	480.0039	-0.42922
37	120.0010	-0.43004	74	480.1125	-0.42922

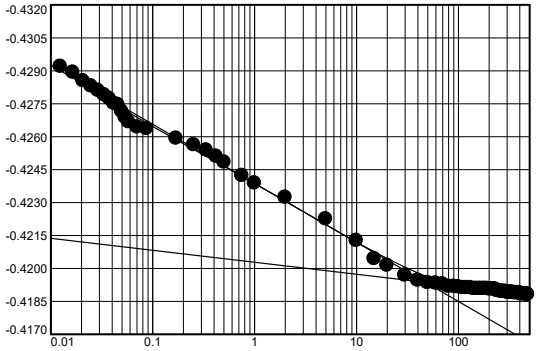


Void Ratio = 0.743 **Compression =** 2.1%

D_0 = -0.4381 **D_{50} =** -0.4345 **D_{100} =** -0.4309 **C_V at 0.28 min. =** 1.675 ft.^{2}/day **C_α =** 0.001

Pressure: 4000 psf **TEST READINGS** **Load No. 4**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.42922	38	130.0010	-0.41911
2	0.0125	-0.42919	39	140.0011	-0.41908
3	0.0166	-0.42892	40	150.0012	-0.41908
4	0.0208	-0.42854	41	160.0013	-0.41908
5	0.0250	-0.4283	42	170.0014	-0.41908
6	0.0291	-0.4281	43	180.0014	-0.41908
7	0.0333	-0.4279	44	190.0015	-0.41908
8	0.0375	-0.42773	45	200.0016	-0.41905
9	0.0416	-0.42752	46	210.0017	-0.41905
10	0.0458	-0.42745	47	220.0018	-0.41905
11	0.0500	-0.42715	48	230.0019	-0.41905
12	0.0541	-0.42687	49	240.0020	-0.41898
13	0.0583	-0.42667	50	250.0020	-0.41898
14	0.0708	-0.42643	51	260.0021	-0.41894
15	0.0875	-0.42636	52	270.0022	-0.41894
16	0.1708	-0.42592	53	280.0023	-0.41894
17	0.2541	-0.42562	54	290.0024	-0.41894
18	0.3375	-0.42538	55	300.0025	-0.41891
19	0.4208	-0.4251	56	310.0026	-0.41891
20	0.5041	-0.42483	57	320.0026	-0.41891
21	0.7541	-0.42422	58	330.0027	-0.41891
22	1.0042	-0.42388	59	340.0028	-0.41891
23	2.0041	-0.42323	60	350.0029	-0.41888
24	5.0000	-0.42225	61	360.0030	-0.41888
25	10.0001	-0.42126	62	370.0031	-0.41888
26	15.0001	-0.42044	63	380.0031	-0.41888
27	20.0001	-0.42013	64	390.0032	-0.41888
28	30.0002	-0.41969	65	400.0033	-0.41888
29	40.0003	-0.41945	66	410.0034	-0.41884
30	50.0004	-0.41935	67	420.0035	-0.41884
31	60.0005	-0.41932	68	430.0036	-0.41884
32	70.0005	-0.41928	69	440.0037	-0.41884
33	80.0006	-0.41918	70	450.0037	-0.41884
34	90.0007	-0.41918	71	460.0038	-0.41884
35	100.0008	-0.41915	72	470.0039	-0.41881
36	110.0009	-0.41911	73	480.0040	-0.41881
37	120.0009	-0.41911	74	480.1001	-0.41881

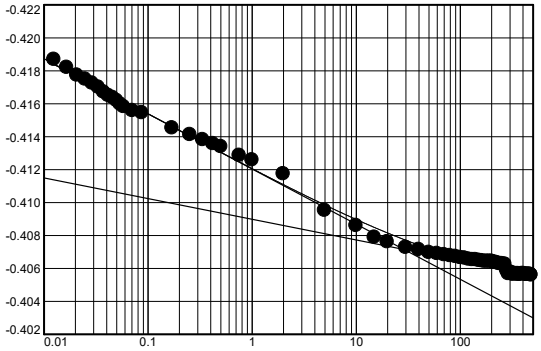


Void Ratio = 0.724 **Compression =** 3.1%

D_0 = -0.4292 **D_{50} =** -0.4243 **D_{100} =** -0.4194 **C_V at 0.69 min. =** 0.682 ft.^{2}/day **C_α =** 0.001

Pressure: 8000 psf **TEST READINGS** **Load No. 5**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.41881	38	130.0011	-0.40652
2	0.0125	-0.41867	39	140.0011	-0.40652
3	0.0166	-0.41819	40	150.0012	-0.40648
4	0.0208	-0.41772	41	160.0013	-0.40645
5	0.0250	-0.41748	42	170.0014	-0.40642
6	0.0291	-0.41724	43	180.0015	-0.40642
7	0.0333	-0.417	44	190.0016	-0.40642
8	0.0375	-0.4167	45	200.0016	-0.40642
9	0.0416	-0.41649	46	210.0017	-0.40638
10	0.0458	-0.41636	47	220.0018	-0.40635
11	0.0500	-0.41619	48	230.0019	-0.40631
12	0.0541	-0.41598	49	240.0020	-0.40628
13	0.0583	-0.41581	50	250.0020	-0.40628
14	0.0708	-0.41557	51	260.0021	-0.40625
15	0.0875	-0.41544	52	270.0022	-0.40625
16	0.1708	-0.41452	53	280.0023	-0.40587
17	0.2542	-0.41411	54	290.0024	-0.40567
18	0.3375	-0.4138	55	300.0025	-0.40577
19	0.4208	-0.41356	56	310.0025	-0.40574
20	0.5041	-0.41339	57	320.0026	-0.40563
21	0.7542	-0.41285	58	330.0027	-0.40567
22	1.0042	-0.41258	59	340.0028	-0.40567
23	2.0041	-0.41173	60	350.0028	-0.40563
24	5.0000	-0.40951	61	360.0029	-0.40567
25	10.0001	-0.40859	62	370.0030	-0.40563
26	15.0001	-0.40788	63	380.0031	-0.40563
27	20.0001	-0.40761	64	390.0032	-0.40567
28	30.0002	-0.40727	65	400.0032	-0.40567
29	40.0003	-0.40713	66	410.0033	-0.40567
30	50.0004	-0.40696	67	420.0034	-0.40563
31	60.0005	-0.40689	68	430.0035	-0.40563
32	70.0006	-0.40682	69	440.0035	-0.40563
33	80.0006	-0.40676	70	450.0036	-0.40563
34	90.0007	-0.40672	71	460.0037	-0.40563
35	100.0008	-0.40665	72	470.0038	-0.40563
36	110.0009	-0.40662	73	480.0039	-0.4056
37	120.0010	-0.40655	74	480.0833	-0.4056

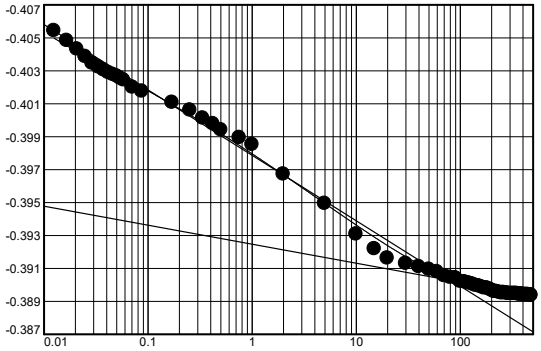


Void Ratio = 0.701 **Compression =** 4.4%

D_0 = -0.4188 **D_{50} =** -0.4130 **D_{100} =** -0.4072 **C_v at 0.52 min. =** 0.871 ft.^{2}/day **C_α =** 0.002

Pressure: 16000 psf | **TEST READINGS** | **Load No. 6**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.4056	38	130.0010	-0.39004
2	0.0125	-0.40543	39	140.0011	-0.38997
3	0.0166	-0.40482	40	150.0012	-0.38994
4	0.0208	-0.40431	41	160.0013	-0.38987
5	0.0250	-0.40386	42	170.0013	-0.3898
6	0.0291	-0.40345	43	180.0014	-0.3898
7	0.0333	-0.40322	44	190.0015	-0.38974
8	0.0375	-0.40305	45	200.0016	-0.38967
9	0.0416	-0.40288	46	210.0017	-0.3896
10	0.0458	-0.40277	47	220.0017	-0.3896
11	0.0500	-0.40267	48	230.0018	-0.38957
12	0.0541	-0.40254	49	240.0019	-0.38953
13	0.0583	-0.40243	50	250.0020	-0.3895
14	0.0708	-0.40199	51	260.0020	-0.38953
15	0.0875	-0.40175	52	270.0021	-0.3895
16	0.1708	-0.40107	53	280.0022	-0.3895
17	0.2542	-0.4006	54	290.0023	-0.38946
18	0.3375	-0.40012	55	300.0024	-0.38946
19	0.4208	-0.39978	56	310.0025	-0.38946
20	0.5041	-0.3994	57	320.0025	-0.38946
21	0.7542	-0.39893	58	330.0026	-0.38946
22	1.0042	-0.39852	59	340.0027	-0.38946
23	2.0041	-0.39671	60	350.0028	-0.38946
24	5.0000	-0.39494	61	360.0029	-0.38943
25	10.0001	-0.39307	62	370.0029	-0.38943
26	15.0001	-0.39219	63	380.0030	-0.38943
27	20.0001	-0.39161	64	390.0031	-0.38943
28	30.0002	-0.3913	65	400.0032	-0.3894
29	40.0003	-0.3911	66	410.0033	-0.3894
30	50.0004	-0.39093	67	420.0034	-0.3894
31	60.0005	-0.39079	68	430.0034	-0.3894
32	70.0005	-0.39055	69	440.0035	-0.3894
33	80.0006	-0.39045	70	450.0036	-0.3894
34	90.0007	-0.39042	71	460.0037	-0.38936
35	100.0008	-0.39021	72	470.0037	-0.38936
36	110.0009	-0.39018	73	480.0038	-0.38936
37	120.0009	-0.39011	74	480.0666	-0.38936

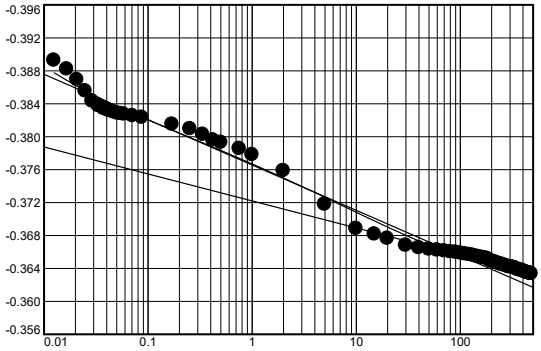


Void Ratio = 0.672 **Compression =** 6.0%

D_0 = -0.4056 **D_{50} =** -0.3979 **D_{100} =** -0.3903 **C_v at 1.01 min. =** 0.436 ft.^{2}/day **C_α =** 0.002

Pressure: 32000 psf | **TEST READINGS** | **Load No. 7**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.38936	38	130.0010	-0.3656
2	0.0125	-0.38926	39	140.0011	-0.3655
3	0.0166	-0.3882	40	150.0012	-0.3654
4	0.0208	-0.38691	41	160.0012	-0.36533
5	0.0250	-0.38552	42	170.0013	-0.36526
6	0.0291	-0.38429	43	180.0014	-0.36519
7	0.0333	-0.38374	44	190.0015	-0.36502
8	0.0375	-0.3834	45	200.0016	-0.36489
9	0.0416	-0.38317	46	210.0017	-0.36478
10	0.0458	-0.383	47	220.0017	-0.36472
11	0.0500	-0.38286	48	230.0018	-0.36461
12	0.0541	-0.38279	49	240.0019	-0.36451
13	0.0583	-0.38272	50	250.0020	-0.36448
14	0.0708	-0.38252	51	260.0021	-0.36441
15	0.0875	-0.38232	52	270.0022	-0.36434
16	0.1708	-0.3815	53	280.0023	-0.36427
17	0.2542	-0.38095	54	290.0023	-0.36421
18	0.3375	-0.38027	55	300.0025	-0.36417
19	0.4208	-0.37959	56	310.0025	-0.36417
20	0.5041	-0.37929	57	320.0026	-0.3641
21	0.7542	-0.37854	58	330.0027	-0.36407
22	1.0042	-0.37779	59	340.0028	-0.364
23	2.0041	-0.37585	60	350.0029	-0.3639
24	5.0000	-0.37176	61	360.0030	-0.36383
25	10.0001	-0.36883	62	370.0031	-0.3638
26	15.0001	-0.36815	63	380.0031	-0.36376
27	20.0001	-0.36764	64	390.0032	-0.36376
28	30.0002	-0.36679	65	400.0033	-0.36369
29	40.0003	-0.36649	66	410.0034	-0.36363
30	50.0004	-0.36632	67	420.0035	-0.36359
31	60.0005	-0.36621	68	430.0036	-0.36352
32	70.0005	-0.36611	69	440.0037	-0.36349
33	80.0006	-0.36601	70	450.0038	-0.36346
34	90.0007	-0.36594	71	460.0039	-0.36342
35	100.0008	-0.36584	72	470.0040	-0.36335
36	110.0009	-0.36574	73	480.0040	-0.36335
37	120.0009	-0.36567	74	480.0585	-0.36335

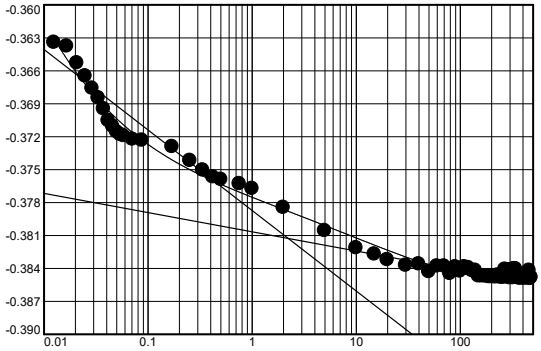


Void Ratio = 0.626 **Compression =** 8.6%

D_0 = -0.3894 **D_{50} =** -0.3776 **D_{100} =** -0.3658 **C_v at 0.70 min. =** 0.608 ft.^{2}/day **C_α =** 0.006

Pressure: 8000 psf **TEST READINGS** **Load No. 8**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.36335	38	130.0011	-0.38422
2	0.0125	-0.36342	39	140.0012	-0.38419
3	0.0166	-0.36376	40	150.0013	-0.3847
4	0.0208	-0.36529	41	160.0014	-0.3847
5	0.0250	-0.36649	42	170.0014	-0.3847
6	0.0291	-0.36761	43	180.0015	-0.38473
7	0.0333	-0.36849	44	190.0016	-0.38477
8	0.0375	-0.36948	45	200.0017	-0.38477
9	0.0416	-0.37054	46	210.0018	-0.38477
10	0.0458	-0.37105	47	220.0019	-0.3848
11	0.0500	-0.37156	48	230.0020	-0.38463
12	0.0541	-0.3718	49	240.0020	-0.3848
13	0.0583	-0.37193	50	250.0021	-0.38483
14	0.0708	-0.37224	51	260.0022	-0.38483
15	0.0875	-0.37234	52	270.0023	-0.38409
16	0.1708	-0.37292	53	280.0024	-0.3848
17	0.2542	-0.37418	54	290.0025	-0.38415
18	0.3375	-0.37506	55	300.0025	-0.38487
19	0.4208	-0.37568	56	310.0026	-0.38466
20	0.5041	-0.37592	57	320.0027	-0.38487
21	0.7542	-0.37629	58	330.0028	-0.38405
22	1.0042	-0.37673	59	340.0029	-0.38405
23	2.0041	-0.37847	60	350.0030	-0.3847
24	5.0000	-0.38058	61	360.0031	-0.38487
25	10.0001	-0.38214	62	370.0031	-0.3849
26	15.0001	-0.38272	63	380.0032	-0.3849
27	20.0002	-0.38323	64	390.0033	-0.3849
28	30.0002	-0.38374	65	400.0034	-0.38487
29	40.0003	-0.38361	66	410.0035	-0.3849
30	50.0004	-0.38432	67	420.0036	-0.3849
31	60.0005	-0.38381	68	430.0037	-0.3848
32	70.0006	-0.38381	69	440.0037	-0.3849
33	80.0007	-0.38449	70	450.0038	-0.38473
34	90.0008	-0.38388	71	460.0039	-0.38419
35	100.0008	-0.38426	72	470.0040	-0.38494
36	110.0009	-0.38388	73	480.0041	-0.38483
37	120.0010	-0.38395	74	480.0627	-0.38483

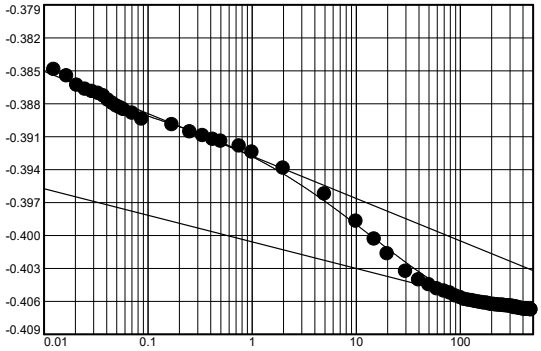


Void Ratio = 0.664 **Compression =** 6.5%

D_0 = -0.3634 **D_{50} =** -0.3723 **D_{100} =** -0.3813 **C_V at 0.09 min. =** 4.802 ft.^{2}/day

Pressure: 2000 psf	TEST READINGS	Load No. 9

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.38487	38	130.0011	-0.40597
2	0.0125	-0.3849	39	140.0011	-0.40604
3	0.0166	-0.38548	40	150.0012	-0.40608
4	0.0208	-0.38633	41	160.0013	-0.40614
5	0.0250	-0.38671	42	170.0014	-0.40618
6	0.0291	-0.38691	43	180.0015	-0.40618
7	0.0333	-0.38708	44	190.0016	-0.40625
8	0.0375	-0.38732	45	200.0017	-0.40631
9	0.0416	-0.38769	46	210.0017	-0.40631
10	0.0458	-0.388	47	220.0018	-0.40635
11	0.0500	-0.38824	48	230.0019	-0.40635
12	0.0541	-0.38837	49	240.0020	-0.40638
13	0.0583	-0.38854	50	250.0021	-0.40638
14	0.0708	-0.38889	51	260.0022	-0.40638
15	0.0875	-0.38943	52	270.0023	-0.40642
16	0.1708	-0.38994	53	280.0023	-0.40642
17	0.2541	-0.39059	54	290.0024	-0.40645
18	0.3375	-0.39093	55	300.0025	-0.40645
19	0.4208	-0.39127	56	310.0026	-0.40648
20	0.5041	-0.39144	57	320.0027	-0.40648
21	0.7542	-0.39188	58	330.0028	-0.40659
22	1.0042	-0.39243	59	340.0029	-0.40655
23	2.0041	-0.39389	60	350.0029	-0.40655
24	5.0000	-0.39624	61	360.0030	-0.40665
25	10.0001	-0.39872	62	370.0031	-0.40662
26	15.0001	-0.40036	63	380.0032	-0.40665
27	20.0001	-0.40168	64	390.0033	-0.40669
28	30.0002	-0.40328	65	400.0034	-0.40672
29	40.0003	-0.40407	66	410.0035	-0.40672
30	50.0004	-0.40451	67	420.0035	-0.40672
31	60.0005	-0.40488	68	430.0036	-0.40676
32	70.0006	-0.40509	69	440.0037	-0.40676
33	80.0006	-0.40526	70	450.0038	-0.40676
34	90.0007	-0.40553	71	460.0039	-0.40676
35	100.0008	-0.40567	72	470.0040	-0.40676
36	110.0009	-0.40584	73	480.0040	-0.40679
37	120.0010	-0.40591	74	480.0960	-0.40679

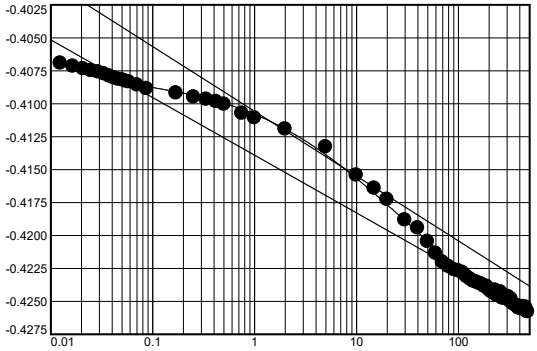


Void Ratio = 0.703 **Compression =** 4.3%

D_0 = -0.3849 **D_{50} =** -0.3993 **D_{100} =** -0.4137 **C_V at 10.95 min. =** 0.040 ft.^{2}/day

Pressure: 500.00 psf **TEST READINGS** **Load No. 10**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.40679	38	130.0011	-0.4233
2	0.0125	-0.40693	39	140.0012	-0.42347
3	0.0166	-0.40717	40	150.0013	-0.42354
4	0.0208	-0.40737	41	160.0014	-0.42364
5	0.0250	-0.40751	42	170.0014	-0.42371
6	0.0291	-0.40761	43	180.0015	-0.42388
7	0.0333	-0.40774	44	190.0016	-0.42388
8	0.0375	-0.40791	45	200.0017	-0.42412
9	0.0416	-0.40805	46	210.0018	-0.42425
10	0.0458	-0.40815	47	220.0019	-0.42436
11	0.0500	-0.40819	48	230.0020	-0.42415
12	0.0541	-0.40829	49	240.0020	-0.42456
13	0.0583	-0.40836	50	250.0021	-0.42459
14	0.0708	-0.40859	51	260.0022	-0.42429
15	0.0875	-0.40887	52	270.0023	-0.42476
16	0.1708	-0.40921	53	280.0024	-0.42476
17	0.2541	-0.40951	54	290.0025	-0.42459
18	0.3375	-0.40968	55	300.0026	-0.42483
19	0.4208	-0.40985	56	310.0026	-0.42466
20	0.5041	-0.41006	57	320.0027	-0.42497
21	0.7542	-0.41074	58	330.0028	-0.42483
22	1.0042	-0.41108	59	340.0029	-0.42514
23	2.0041	-0.41193	60	350.0030	-0.42521
24	5.0000	-0.41329	61	360.0031	-0.42528
25	10.0001	-0.41544	62	370.0032	-0.42531
26	15.0001	-0.41642	63	380.0032	-0.42538
27	20.0001	-0.41728	64	390.0033	-0.42551
28	30.0002	-0.41884	65	400.0034	-0.42551
29	40.0003	-0.41945	66	410.0035	-0.42555
30	50.0004	-0.42048	67	420.0036	-0.42558
31	60.0005	-0.42136	68	430.0037	-0.42541
32	70.0006	-0.42204	69	440.0038	-0.42558
33	80.0006	-0.42235	70	450.0038	-0.42562
34	90.0007	-0.42259	71	460.0039	-0.42545
35	100.0008	-0.42269	72	470.0040	-0.42575
36	110.0009	-0.42282	73	480.0041	-0.42579
37	120.0010	-0.4231	74	480.0960	-0.42579

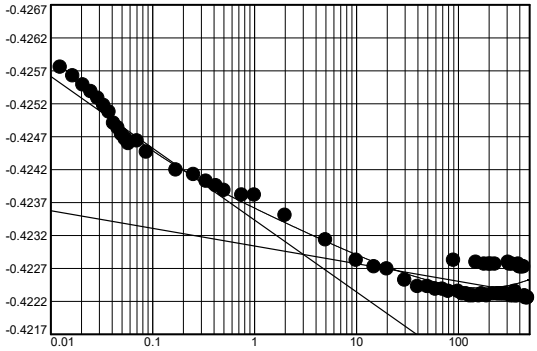


Void Ratio = 0.737 **Compression =** 2.4%

D_0 = -0.4068 **D_{50} =** -0.4238 **D_{100} =** -0.4408 **C_V at 169.80 min. =** 0.003 ft.^{2}/day

Pressure: 1000.00 psf **TEST READINGS** **Load No. 11**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.42579	38	130.0011	-0.42228
2	0.0125	-0.42575	39	140.0012	-0.42228
3	0.0166	-0.42562	40	150.0013	-0.42279
4	0.0208	-0.42548	41	160.0013	-0.42228
5	0.0250	-0.42538	42	170.0014	-0.42231
6	0.0291	-0.42528	43	180.0015	-0.42276
7	0.0333	-0.42517	44	190.0016	-0.42228
8	0.0375	-0.42507	45	200.0017	-0.42276
9	0.0416	-0.4249	46	210.0018	-0.42276
10	0.0458	-0.42483	47	220.0019	-0.42231
11	0.0500	-0.42473	48	230.0019	-0.42276
12	0.0541	-0.42466	49	240.0020	-0.42231
13	0.0583	-0.42459	50	250.0021	-0.42231
14	0.0708	-0.42463	51	260.0022	-0.42231
15	0.0875	-0.42446	52	270.0023	-0.42231
16	0.1708	-0.42419	53	280.0023	-0.42231
17	0.2541	-0.42412	54	290.0025	-0.42231
18	0.3375	-0.42402	55	300.0025	-0.42231
19	0.4208	-0.42395	56	310.0026	-0.42279
20	0.5041	-0.42388	57	320.0027	-0.42276
21	0.7542	-0.42381	58	330.0028	-0.42228
22	1.0042	-0.42381	59	340.0029	-0.42276
23	2.0041	-0.4235	60	350.0030	-0.42228
24	5.0000	-0.42313	61	360.0031	-0.42235
25	10.0001	-0.42282	62	370.0031	-0.42228
26	15.0001	-0.42272	63	380.0032	-0.42228
27	20.0001	-0.42269	64	390.0033	-0.42276
28	30.0002	-0.42252	65	400.0034	-0.42272
29	40.0003	-0.42242	66	410.0035	-0.42272
30	50.0004	-0.42242	67	420.0036	-0.42272
31	60.0005	-0.42238	68	430.0037	-0.42272
32	70.0006	-0.42238	69	440.0037	-0.42272
33	80.0006	-0.42235	70	450.0038	-0.42228
34	90.0007	-0.42282	71	460.0039	-0.42225
35	100.0008	-0.42235	72	470.0040	-0.42225
36	110.0009	-0.42231	73	480.0041	-0.42225
37	120.0010	-0.42231	74	480.0543	-0.42225

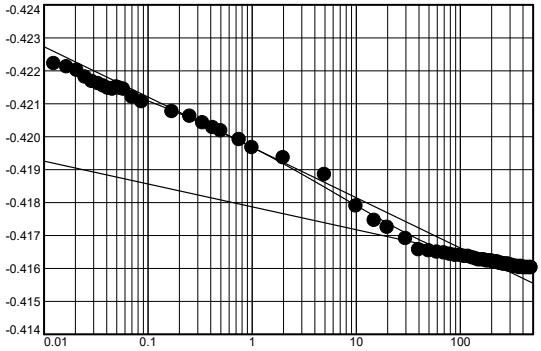


Void Ratio = 0.731 **Compression =** 2.7%

D_0 = -0.4258 **D_{50} =** -0.4244 **D_{100} =** -0.4229 **C_V at 0.14 min. =** 3.458 ft.^{2}/day **C_α =** 0.000

Pressure: 2000 psf	TEST READINGS	Load No. 12

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.42225	38	130.0011	-0.41632
2	0.0125	-0.42221	39	140.0012	-0.41629
3	0.0166	-0.42211	40	150.0013	-0.41625
4	0.0208	-0.42201	41	160.0013	-0.41625
5	0.0250	-0.4218	42	170.0014	-0.41625
6	0.0291	-0.42167	43	180.0015	-0.41622
7	0.0333	-0.4216	44	190.0016	-0.41622
8	0.0375	-0.42153	45	200.0017	-0.41622
9	0.0416	-0.42146	46	210.0018	-0.41619
10	0.0458	-0.42143	47	220.0019	-0.41619
11	0.0500	-0.4215	48	230.0019	-0.41619
12	0.0541	-0.42146	49	240.0020	-0.41615
13	0.0583	-0.42143	50	250.0021	-0.41615
14	0.0708	-0.42119	51	260.0022	-0.41612
15	0.0875	-0.42105	52	270.0023	-0.41612
16	0.1708	-0.42075	53	280.0024	-0.41612
17	0.2541	-0.42061	54	290.0025	-0.41612
18	0.3375	-0.42041	55	300.0025	-0.41608
19	0.4208	-0.42027	56	310.0026	-0.41608
20	0.5041	-0.42017	57	320.0027	-0.41608
21	0.7541	-0.4199	58	330.0028	-0.41605
22	1.0041	-0.41966	59	340.0029	-0.41605
23	2.0041	-0.41935	60	350.0030	-0.41605
24	5.0000	-0.41884	61	360.0031	-0.41605
25	10.0001	-0.41789	62	370.0031	-0.41602
26	15.0001	-0.41745	63	380.0032	-0.41605
27	20.0001	-0.41724	64	390.0033	-0.41605
28	30.0002	-0.4169	65	400.0034	-0.41602
29	40.0003	-0.41656	66	410.0035	-0.41602
30	50.0004	-0.41653	67	420.0036	-0.41602
31	60.0005	-0.41649	68	430.0037	-0.41602
32	70.0006	-0.41646	69	440.0037	-0.41602
33	80.0006	-0.41642	70	450.0038	-0.41602
34	90.0007	-0.41639	71	460.0039	-0.41602
35	100.0008	-0.41639	72	470.0040	-0.41602
36	110.0009	-0.41636	73	480.0041	-0.41602
37	120.0010	-0.41636	74	480.0543	-0.41602

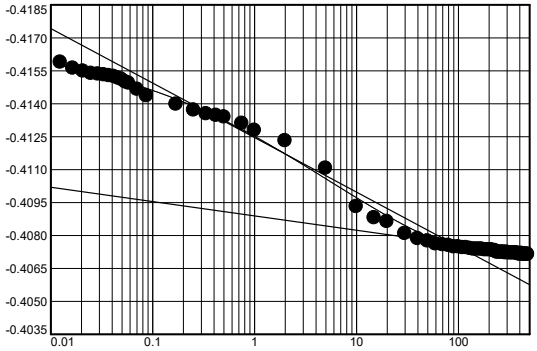


Void Ratio = 0.719 **Compression =** 3.4%

D_0 = -0.4223 **D_{50} =** -0.4193 **D_{100} =** -0.4164 **C_V at 1.67 min. =** 0.277 ft.^{2}/day **C_α =** 0.001

Pressure: 4000 psf **TEST READINGS** **Load No. 13**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.41602	38	130.0011	-0.4074
2	0.0125	-0.41588	39	140.0011	-0.40737
3	0.0166	-0.41561	40	150.0012	-0.40737
4	0.0208	-0.41547	41	160.0013	-0.40737
5	0.0250	-0.41537	42	170.0014	-0.40737
6	0.0291	-0.41534	43	180.0015	-0.40734
7	0.0333	-0.4153	44	190.0016	-0.40734
8	0.0374	-0.41527	45	200.0016	-0.40734
9	0.0416	-0.41523	46	210.0017	-0.40734
10	0.0458	-0.41516	47	220.0018	-0.4073
11	0.0499	-0.4151	48	230.0019	-0.4073
12	0.0541	-0.41499	49	240.0020	-0.40723
13	0.0583	-0.41493	50	250.0020	-0.40723
14	0.0708	-0.41465	51	260.0021	-0.40723
15	0.0874	-0.41435	52	270.0022	-0.40723
16	0.1708	-0.41397	53	280.0023	-0.40723
17	0.2541	-0.4137	54	290.0024	-0.4072
18	0.3375	-0.41353	55	300.0025	-0.40723
19	0.4208	-0.41346	56	310.0025	-0.4072
20	0.5041	-0.41339	57	320.0026	-0.4072
21	0.7541	-0.41309	58	330.0027	-0.4072
22	1.0041	-0.41278	59	340.0028	-0.4072
23	2.0041	-0.41231	60	350.0029	-0.4072
24	5.0000	-0.41105	61	360.0030	-0.4072
25	10.0000	-0.40931	62	370.0031	-0.4072
26	15.0001	-0.4088	63	380.0031	-0.40717
27	20.0001	-0.40863	64	390.0032	-0.40717
28	30.0002	-0.40808	65	400.0033	-0.40713
29	40.0003	-0.40785	66	410.0034	-0.40717
30	50.0004	-0.40774	67	420.0035	-0.40717
31	60.0005	-0.40761	68	430.0036	-0.40713
32	70.0006	-0.40757	69	440.0037	-0.40713
33	80.0006	-0.40754	70	450.0037	-0.40713
34	90.0007	-0.40747	71	460.0038	-0.40713
35	100.0008	-0.40747	72	470.0039	-0.40713
36	110.0009	-0.40744	73	480.0040	-0.40713
37	120.0010	-0.40744	74	480.0584	-0.40713

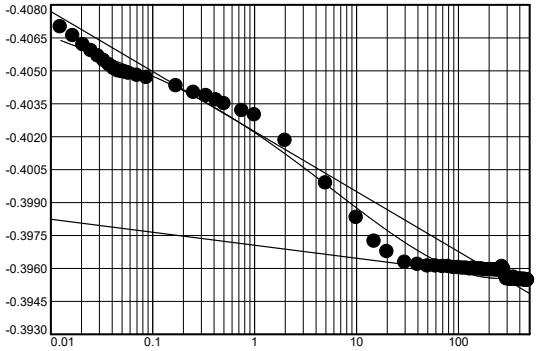


Void Ratio = 0.704 **Compression =** 4.3%

D_0 = -0.4160 **D_{50} =** -0.4118 **D_{100} =** -0.4076 **C_V at 1.83 min. =** 0.249 ft.^{2}/day **C_α =** 0.001

Pressure: 8000 psf | **TEST READINGS** | **Load No. 14**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.40713	38	130.0011	-0.39597
2	0.0125	-0.40699	39	140.0011	-0.396
3	0.0166	-0.40659	40	150.0012	-0.39597
4	0.0208	-0.40618	41	160.0013	-0.39597
5	0.0250	-0.40591	42	170.0014	-0.39597
6	0.0291	-0.40567	43	180.0015	-0.39593
7	0.0333	-0.40546	44	190.0016	-0.39593
8	0.0375	-0.40526	45	200.0016	-0.39593
9	0.0416	-0.40509	46	210.0017	-0.39593
10	0.0458	-0.40499	47	220.0018	-0.39593
11	0.0500	-0.40495	48	230.0019	-0.39593
12	0.0541	-0.40492	49	240.0020	-0.39593
13	0.0583	-0.40488	50	250.0020	-0.39593
14	0.0708	-0.40478	51	260.0021	-0.39593
15	0.0875	-0.40468	52	270.0022	-0.39607
16	0.1708	-0.40431	53	280.0023	-0.39597
17	0.2541	-0.404	54	290.0024	-0.39569
18	0.3375	-0.40386	55	300.0025	-0.39552
19	0.4208	-0.40366	56	310.0025	-0.39559
20	0.5041	-0.40349	57	320.0026	-0.39549
21	0.7541	-0.40318	58	330.0027	-0.39549
22	1.0042	-0.40298	59	340.0028	-0.39552
23	2.0041	-0.40182	60	350.0028	-0.39559
24	5.0000	-0.39988	61	360.0029	-0.39549
25	10.0001	-0.39831	62	370.0030	-0.39549
26	15.0001	-0.39723	63	380.0030	-0.39549
27	20.0001	-0.39675	64	390.0031	-0.39549
28	30.0002	-0.39627	65	400.0032	-0.39549
29	40.0003	-0.39617	66	410.0032	-0.39549
30	50.0004	-0.3961	67	420.0033	-0.39549
31	60.0005	-0.3961	68	430.0034	-0.39549
32	70.0006	-0.39607	69	440.0035	-0.39546
33	80.0006	-0.39607	70	450.0035	-0.39549
34	90.0007	-0.39603	71	460.0036	-0.39546
35	100.0008	-0.39603	72	470.0037	-0.39546
36	110.0009	-0.396	73	480.0037	-0.39546
37	120.0010	-0.396	74	480.0624	-0.39546

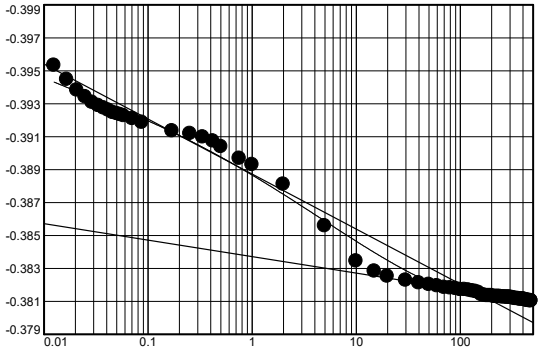


Void Ratio = 0.683 **Compression =** 5.4%

D_0 = -0.4071 **D_{50} =** -0.4014 **D_{100} =** -0.3956 **C_v at 1.79 min. =** 0.250 ft.^{2}/day **C_α =** 0.001

Pressure: 16000 psf **TEST READINGS** **Load No. 15**

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.39546	38	130.0009	-0.38163
2	0.0125	-0.39532	39	140.0010	-0.3816
3	0.0166	-0.39447	40	150.0011	-0.38153
4	0.0208	-0.39382	41	160.0011	-0.3814
5	0.0250	-0.39341	42	170.0012	-0.38136
6	0.0291	-0.39307	43	180.0013	-0.38133
7	0.0333	-0.39287	44	190.0014	-0.38133
8	0.0375	-0.39273	45	200.0015	-0.38133
9	0.0416	-0.3926	46	210.0016	-0.38129
10	0.0458	-0.39246	47	220.0016	-0.38129
11	0.0500	-0.39239	48	230.0017	-0.38129
12	0.0541	-0.39232	49	240.0018	-0.38129
13	0.0583	-0.39226	50	250.0019	-0.38126
14	0.0708	-0.39208	51	260.0019	-0.38126
15	0.0875	-0.39185	52	270.0020	-0.38126
16	0.1708	-0.39134	53	280.0021	-0.38123
17	0.2541	-0.39117	54	290.0022	-0.38126
18	0.3375	-0.39096	55	300.0022	-0.38123
19	0.4208	-0.39072	56	310.0023	-0.38123
20	0.5041	-0.39038	57	320.0024	-0.38119
21	0.7542	-0.38967	58	330.0025	-0.38119
22	1.0042	-0.38929	59	340.0026	-0.38116
23	2.0041	-0.3881	60	350.0026	-0.38116
24	5.0000	-0.38558	61	360.0027	-0.38116
25	10.0000	-0.38344	62	370.0028	-0.38112
26	15.0001	-0.38283	63	380.0029	-0.38112
27	20.0001	-0.38252	64	390.0029	-0.38112
28	30.0002	-0.38228	65	400.0030	-0.38112
29	40.0002	-0.38211	66	410.0031	-0.38112
30	50.0003	-0.38201	67	420.0032	-0.38109
31	60.0004	-0.38194	68	430.0033	-0.38106
32	70.0005	-0.38184	69	440.0034	-0.38106
33	80.0006	-0.3818	70	450.0034	-0.38106
34	90.0006	-0.38177	71	460.0035	-0.38102
35	100.0007	-0.3817	72	470.0036	-0.38102
36	110.0008	-0.3817	73	480.0037	-0.38102
37	120.0009	-0.38167	74	480.0540	-0.38102

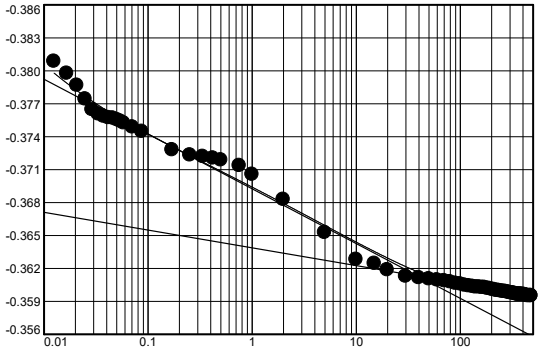


Void Ratio = 0.657 **Compression =** 6.9%

D_0 = -0.3955 **D_{50} =** -0.3885 **D_{100} =** -0.3816 **C_V at 1.10 min. =** 0.396 ft.^{2}/day **C_α =** 0.002

Pressure: 32000 psf **TEST READINGS** **Load No. 16**

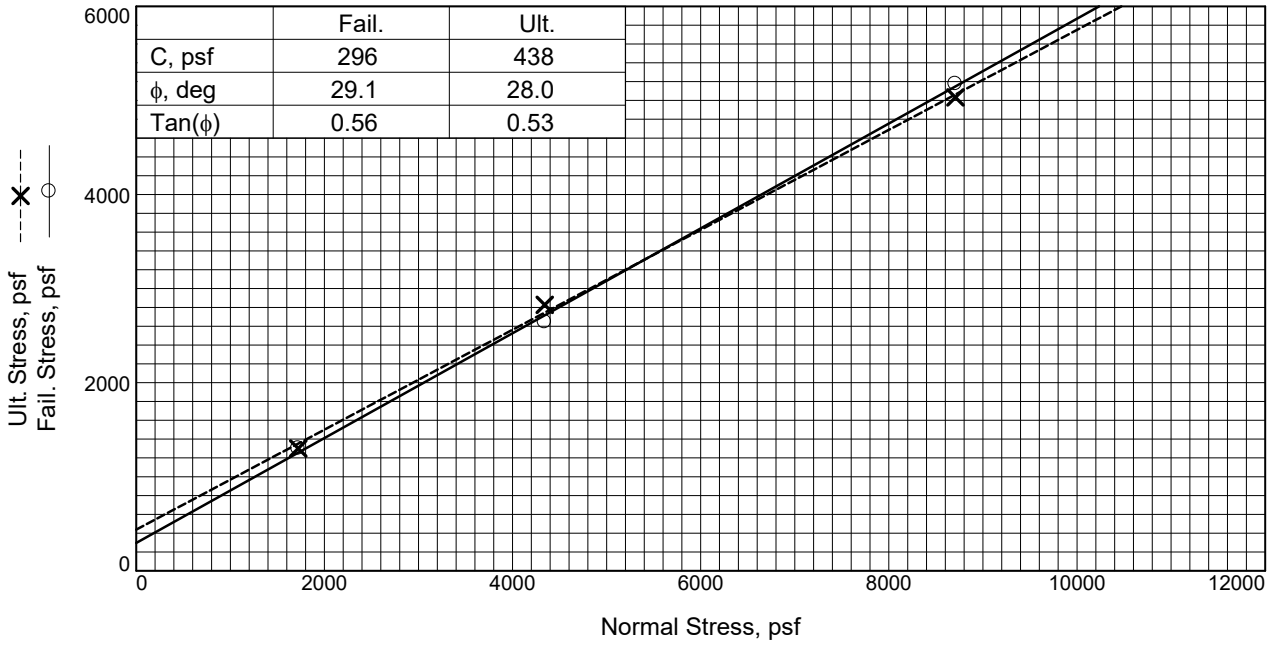
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.0000	-0.38102	38	130.0010	-0.36036
2	0.0125	-0.38085	39	140.0011	-0.36029
3	0.0166	-0.37976	40	150.0012	-0.36029
4	0.0208	-0.37867	41	160.0013	-0.36026
5	0.0250	-0.37741	42	170.0013	-0.36026
6	0.0291	-0.37646	43	180.0014	-0.36019
7	0.0333	-0.37605	44	190.0015	-0.36015
8	0.0375	-0.37585	45	200.0016	-0.36009
9	0.0416	-0.37571	46	210.0017	-0.36005
10	0.0458	-0.37568	47	220.0017	-0.35998
11	0.0500	-0.37554	48	230.0018	-0.35998
12	0.0541	-0.3754	49	240.0019	-0.35995
13	0.0583	-0.37523	50	250.0020	-0.35992
14	0.0708	-0.37486	51	260.0021	-0.35988
15	0.0875	-0.37445	52	270.0022	-0.35988
16	0.1708	-0.37278	53	280.0023	-0.35985
17	0.2541	-0.37231	54	290.0023	-0.35981
18	0.3375	-0.37217	55	300.0024	-0.35978
19	0.4208	-0.37203	56	310.0025	-0.35975
20	0.5041	-0.37186	57	320.0026	-0.35975
21	0.7542	-0.37135	58	330.0027	-0.35971
22	1.0042	-0.37054	59	340.0028	-0.35968
23	2.0041	-0.36826	60	350.0029	-0.35964
24	5.0000	-0.36526	61	360.0030	-0.35961
25	10.0001	-0.36281	62	370.0031	-0.35964
26	15.0001	-0.36244	63	380.0031	-0.35964
27	20.0001	-0.36186	64	390.0032	-0.35961
28	30.0002	-0.36128	65	400.0033	-0.35961
29	40.0003	-0.36114	66	410.0034	-0.35961
30	50.0004	-0.36104	67	420.0035	-0.35958
31	60.0005	-0.36094	68	430.0036	-0.35954
32	70.0005	-0.36087	69	440.0037	-0.35951
33	80.0006	-0.36077	70	450.0037	-0.35951
34	90.0007	-0.36063	71	460.0038	-0.35951
35	100.0008	-0.36056	72	470.0039	-0.35951
36	110.0009	-0.36046	73	480.0040	-0.35951
37	120.0009	-0.36039	74	480.0543	-0.35951

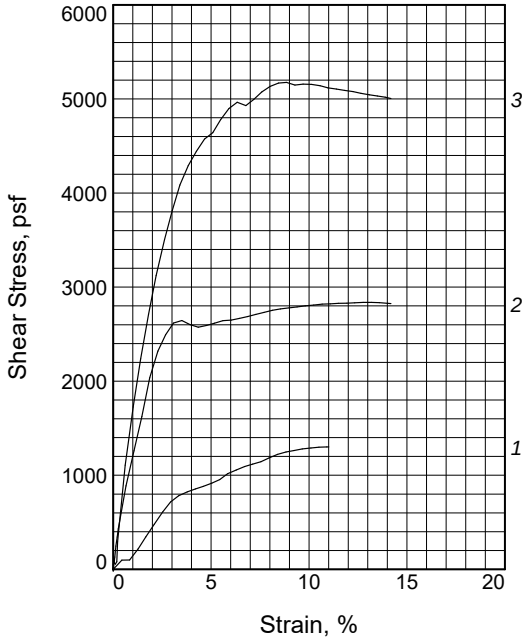


Void Ratio = 0.619 **Compression =** 9.0%

D_0 = -0.3810 **D_{50} =** -0.3712 **D_{100} =** -0.3613 **C_V at 0.43 min. =** 0.966 ft.^{2}/day **C_α =** 0.003

B-3 STRENGTH TESTS





Sample No.		1	2	3
Initial	Water Content, %	29.2	29.2	29.2
	Dry Density, pcf	92.8	93.8	91.1
	Saturation, %	92.3	94.8	88.8
	Void Ratio	0.8845	0.8631	0.9197
	Diameter, in.	2.82	2.82	2.82
	Height, in.	1.15	1.11	1.11
At Test	Water Content, %	31.2	28.6	29.8
	Dry Density, pcf	93.7	96.2	94.5
	Saturation, %	101.1	98.0	98.1
	Void Ratio	0.8650	0.8175	0.8493
	Diameter, in.	2.82	2.82	2.82
	Height, in.	1.14	1.08	1.07
Normal Stress, psf		1722	4342	8708
Fail. Stress, psf		1301	2645	5176
Strain, %		10.9	3.5	8.9
Ult. Stress, psf		1301	2828	5032
Strain, %		10.9	14.0	13.5
Strain rate, in./min.		0.004	0.004	0.004

Sample Type: Piston Shelby
Description: CL - LEAN CLAY

LL= 43 **PL=** 25 **PI=** 18
Specific Gravity= 2.80
Remarks:

Figure _____

Client: WSDOT (Geotechnical Office)

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Source of Sample: NE-101vw-22 **Depth:** 29.5
Sample Number: PS-12
Proj. No.: XL5446 **Date Sampled:** 11/14/2022

DIRECT SHEAR TEST REPORT
Washington State Department of Transportation
Olympia, WA

Tested By: TJM **Checked By:** SLW

DIRECT SHEAR TEST

12/20/2022

Date: 11/14/2022
Client: WSDOT (Geotechnical Office)
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Project No.: XL5446
Location: NE-101vw-22
Depth: 29.5 **Sample Number:** PS-12
Description: CL - LEAN CLAY
Remarks:
Type of Sample: Piston Shelby
Specific Gravity=2.80 **LL=**43 **PL=**25 **PI=**18

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	961.200		155.860
Moisture content: Dry soil+tare, gms.	805.500		139.100
Moisture content: Tare, gms.	271.500		85.460
Moisture, %	29.2	31.2	31.2
Moist specimen weight, gms.	225.9		
Diameter, in.	2.82	2.82	
Area, in.²	6.25	6.25	
Height, in.	1.15	1.14	
Net decrease in height, in.		0.01	
Wet density, pcf	119.8	123.0	
Dry density, pcf	92.8	93.7	
Void ratio	0.8845	0.8650	
Saturation, %	92.3	101.1	

Test Readings for Specimen No. 1

Normal stress = 1722 psf
Strain rate, in./min. = 0.004
Fail. Stress = 1301 psf **at reading no.** 26
Ult. Stress = 1301 psf **at reading no.** 26

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3988	0.000	0.0	0.0	0
1	0.4114	4.227	4.2	0.4	97
2	0.4225	4.308	4.3	0.8	99
3	0.4348	9.424	9.4	1.3	217
4	0.4459	14.997	15.0	1.7	346
5	0.4579	20.759	20.8	2.1	479
6	0.4700	26.413	26.4	2.5	609
7	0.4815	31.072	31.1	2.9	716
8	0.4931	33.953	34.0	3.3	783
9	0.5057	35.730	35.7	3.8	824
10	0.5173	37.049	37.0	4.2	854
11	0.5284	38.261	38.3	4.6	882
12	0.5407	39.714	39.7	5.0	916
13	0.5523	41.384	41.4	5.4	954

Test Readings for Specimen No. 1

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
14	0.5636	44.049	44.0	5.8	1016
15	0.5761	45.800	45.8	6.3	1056
16	0.5881	47.388	47.4	6.7	1093
17	0.5997	48.519	48.5	7.1	1119
18	0.6116	49.623	49.6	7.5	1144
19	0.6234	51.373	51.4	8.0	1184
20	0.6354	53.015	53.0	8.4	1222
21	0.6476	54.066	54.1	8.8	1247
22	0.6593	54.793	54.8	9.2	1263
23	0.6712	55.493	55.5	9.7	1279
24	0.6836	55.923	55.9	10.1	1289
25	0.6950	56.327	56.3	10.5	1299
26	0.7064	56.408	56.4	10.9	1301
27	0.7094	56.435	56.4	11.0	1301

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	961.200		149.320
Moisture content: Dry soil+tare, gms.	805.200		136.900
Moisture content: Tare, gms.	271.500		93.490
Moisture, %	29.2	28.6	28.6
Moist specimen weight, gms.	220.7		
Diameter, in.	2.82	2.82	
Area, in.²	6.25	6.25	
Height, in.	1.11	1.08	
Net decrease in height, in.		0.03	
Wet density, pcf	121.2	123.7	
Dry density, pcf	93.8	96.2	
Void ratio	0.8631	0.8175	
Saturation, %	94.8	98.0	

Test Readings for Specimen No. 2

Normal stress = 4342 psf
Strain rate, in./min. = 0.004
Fail. Stress = 2645 psf **at reading no.** 23
Ult. Stress = 2828 psf **at reading no.** 48

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3617	1.831	0.0	0.0	0
1	0.3617	1.831	0.0	0.0	0
2	0.3617	1.912	0.1	0.0	2
3	0.3617	1.992	0.2	0.0	4
4	0.3618	2.289	0.5	0.0	11
5	0.3619	2.369	0.5	0.0	12
6	0.3619	2.396	0.6	0.0	13
7	0.3620	2.477	0.6	0.0	15
8	0.3623	3.393	1.6	0.0	36
9	0.3629	4.604	2.8	0.0	64

Test Readings for Specimen No. 2

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
10	0.3634	5.654	3.8	0.1	88
11	0.3636	6.597	4.8	0.1	110
12	0.3640	7.485	5.7	0.1	130
13	0.3656	12.520	10.7	0.1	246
14	0.3675	16.694	14.9	0.2	343
15	0.3690	20.463	18.6	0.3	430
16	0.3801	40.307	38.5	0.7	887
17	0.3916	56.489	54.7	1.1	1260
18	0.4030	72.267	70.4	1.5	1624
19	0.4142	90.145	88.3	1.9	2036
20	0.4259	102.400	100.6	2.3	2319
21	0.4371	109.960	108.1	2.7	2493
22	0.4485	115.370	113.5	3.1	2618
23	0.4606	116.560	114.7	3.5	2645
24	0.4725	114.650	112.8	3.9	2601
25	0.4842	113.490	111.7	4.3	2574
26	0.4961	114.270	112.4	4.8	2592
27	0.5077	115.320	113.5	5.2	2617
28	0.5196	116.480	114.6	5.6	2643
29	0.5313	116.750	114.9	6.0	2650
30	0.5435	117.550	115.7	6.4	2668
31	0.5554	118.360	116.5	6.9	2687
32	0.5672	119.360	117.5	7.3	2710
33	0.5787	120.300	118.5	7.7	2731
34	0.5911	121.270	119.4	8.1	2754
35	0.6024	121.860	120.0	8.5	2767
36	0.6149	122.370	120.5	9.0	2779
37	0.6265	122.830	121.0	9.4	2790
38	0.6381	123.290	121.5	9.8	2800
39	0.6505	123.690	121.9	10.2	2810
40	0.6626	124.100	122.3	10.7	2819
41	0.6743	124.230	122.4	11.1	2822
42	0.6860	124.450	122.6	11.5	2827
43	0.6983	124.560	122.7	11.9	2830
44	0.7097	124.740	122.9	12.3	2834
45	0.7216	124.910	123.1	12.8	2838
46	0.7334	124.880	123.0	13.2	2837
47	0.7450	124.770	122.9	13.6	2834
48	0.7569	124.470	122.6	14.0	2828
49	0.7615	124.340	122.5	14.2	2825

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	961.200		142.020
Moisture content: Dry soil+tare, gms.	805.500		128.200
Moisture content: Tare, gms.	271.500		81.750
Moisture, %	29.2	29.8	29.8
Moist specimen weight, gms.	214.0		
Diameter, in.	2.82	2.82	
Area, in.²	6.25	6.25	
Height, in.	1.11	1.07	
Net decrease in height, in.		0.04	
Wet density, pcf	117.6	122.6	
Dry density, pcf	91.1	94.5	
Void ratio	0.9197	0.8493	
Saturation, %	88.8	98.1	

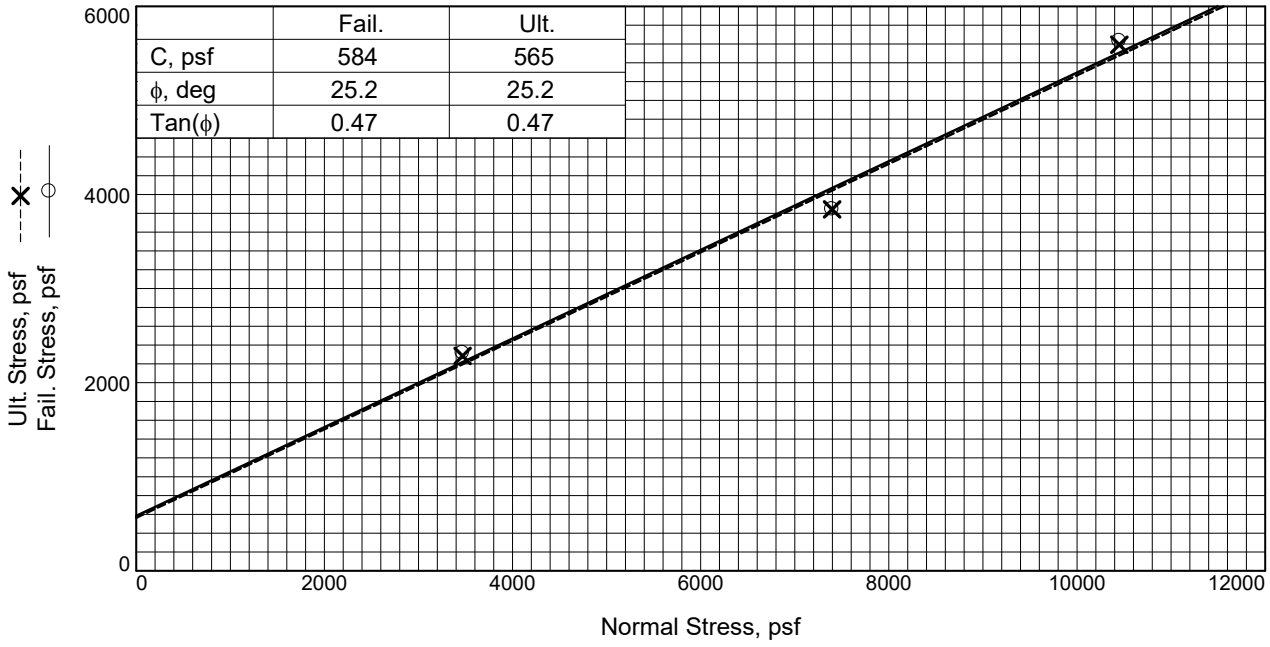
Test Readings for Specimen No. 3

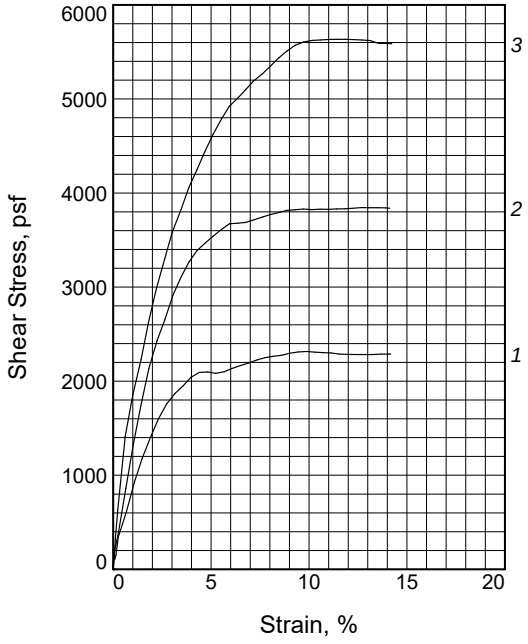
Normal stress = 8708 psf
Strain rate, in./min. = 0.004
Fail. Stress = 5176 psf **at reading no.** 36
Ult. Stress = 5032 psf **at reading no.** 47

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3544	1.966	0.0	0.0	0
1	0.3544	1.966	0.0	0.0	0
2	0.3544	1.939	0.0	0.0	-1
3	0.3544	1.912	-0.1	0.0	-1
4	0.3544	1.858	-0.1	0.0	-2
5	0.3544	1.804	-0.2	0.0	-4
6	0.3544	1.777	-0.2	0.0	-4
7	0.3544	1.158	-0.8	0.0	-19
8	0.3546	2.827	0.9	0.0	20
9	0.3547	4.146	2.2	0.0	50
10	0.3548	4.497	2.5	0.0	58
11	0.3550	4.820	2.9	0.0	66
12	0.3553	5.304	3.3	0.0	77
13	0.3576	4.362	2.4	0.1	55
14	0.3596	5.439	3.5	0.2	80
15	0.3609	14.674	12.7	0.2	293
16	0.3717	49.973	48.0	0.6	1107
17	0.3833	76.817	74.9	1.0	1726
18	0.3941	99.003	97.0	1.4	2237
19	0.4053	119.490	117.5	1.8	2710
20	0.4163	137.370	135.4	2.2	3122
21	0.4284	153.980	152.0	2.6	3505
22	0.4395	167.370	165.4	3.0	3813
23	0.4505	179.110	177.1	3.4	4084
24	0.4626	188.100	186.1	3.8	4291
25	0.4742	194.700	192.7	4.2	4444
26	0.4860	200.320	198.4	4.7	4573
27	0.4978	203.280	201.3	5.1	4641

Test Readings for Specimen No. 3

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.5092	209.290	207.3	5.5	4780
29	0.5210	214.400	212.4	5.9	4898
30	0.5331	217.310	215.3	6.3	4965
31	0.5454	215.800	213.8	6.8	4930
32	0.5569	218.600	216.6	7.2	4995
33	0.5682	222.050	220.1	7.6	5074
34	0.5804	224.610	222.6	8.0	5133
35	0.5925	226.140	224.2	8.4	5168
36	0.6040	226.470	224.5	8.9	5176
37	0.6162	225.260	223.3	9.3	5148
38	0.6279	225.690	223.7	9.7	5158
39	0.6401	225.520	223.6	10.1	5154
40	0.6523	224.930	223.0	10.6	5141
41	0.6637	223.960	222.0	11.0	5118
42	0.6758	223.420	221.5	11.4	5106
43	0.6875	222.800	220.8	11.8	5091
44	0.6998	222.210	220.2	12.2	5078
45	0.7113	221.430	219.5	12.7	5060
46	0.7234	220.730	218.8	13.1	5044
47	0.7349	220.220	218.3	13.5	5032
48	0.7462	219.650	217.7	13.9	5019
49	0.7544	219.060	217.1	14.2	5005





Sample No.		1	2	3
Initial	Water Content, %	31.0	31.0	31.0
	Dry Density, pcf	89.0	92.3	90.6
	Saturation, %	88.9	96.0	92.2
	Void Ratio	0.9855	0.9132	0.9507
	Diameter, in.	2.82	2.83	2.81
	Height, in.	1.24	1.12	1.16
At Test	Water Content, %	35.9	30.8	30.0
	Dry Density, pcf	91.9	97.2	96.3
	Saturation, %	110.0	106.7	101.7
	Void Ratio	0.9224	0.8179	0.8350
	Diameter, in.	2.82	2.83	2.81
	Height, in.	1.20	1.06	1.09
Normal Stress, psf		3469	7397	10450
Fail. Stress, psf		2316	3845	5634
Strain, %		9.9	12.7	11.4
Ult. Stress, psf		2284	3842	5592
Strain, %		13.2	13.9	13.5
Strain rate, in./min.		0.004	0.004	0.004

Sample Type: Shelby
Description: CL - LEAN CLAY

LL= 46 **PL=** 23 **PI=** 23
Specific Gravity= 2.83
Remarks:

Figure _____

Client: WSDOT (Geotechnical Office)

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Source of Sample: NE-101vw-22 **Depth:** 54.5
Sample Number: PS-22
Proj. No.: XL5446 **Date Sampled:** 12/19/2022

DIRECT SHEAR TEST REPORT
Washington State Department of Transportation
Olympia, WA

Tested By: TJM **Checked By:** SLW

DIRECT SHEAR TEST

12/20/2022

Date: 12/19/2022
Client: WSDOT (Geotechnical Office)
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Project No.: XL5446
Location: NE-101vw-22
Depth: 54.5 **Sample Number:** PS-22
Description: CL - LEAN CLAY
Remarks:
Type of Sample: Shelby
Specific Gravity=2.83 **LL=**46 **PL=**23 **PI=**23

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	718.500		155.610
Moisture content: Dry soil+tare, gms.	599.840		135.900
Moisture content: Tare, gms.	216.700		80.930
Moisture, %	31.0	35.9	35.9
Moist specimen weight, gms.	236.9		
Diameter, in.	2.82	2.82	
Area, in.²	6.25	6.25	
Height, in.	1.24	1.20	
Net decrease in height, in.		0.04	
Wet density, pcf	116.5	124.9	
Dry density, pcf	89.0	91.9	
Void ratio	0.9855	0.9224	
Saturation, %	88.9	110.0	

Test Readings for Specimen No. 1

Normal stress = 3469 psf
Strain rate, in./min. = 0.004
Fail. Stress = 2316 psf **at reading no.** 38
Ult. Stress = 2284 psf **at reading no.** 46

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.4511	-4.766	0.0	0.0	0
1	0.4511	-4.766	0.0	0.0	0
2	0.4511	-4.335	0.4	0.0	10
3	0.4512	-4.066	0.7	0.0	16
4	0.4512	-3.581	1.2	0.0	27
5	0.4513	-3.204	1.6	0.0	36
6	0.4513	-2.881	1.9	0.0	43
7	0.4514	-2.612	2.2	0.0	50
8	0.4517	-1.185	3.6	0.0	83
9	0.4519	-0.188	4.6	0.0	106
10	0.4524	-0.081	4.7	0.0	108
11	0.4529	-0.054	4.7	0.1	109
12	0.4534	-0.081	4.7	0.1	108
13	0.4551	1.831	6.6	0.1	152

Test Readings for Specimen No. 1

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
14	0.4568	6.327	11.1	0.2	256
15	0.4584	10.070	14.8	0.3	342
16	0.4704	21.998	26.8	0.7	617
17	0.4819	35.595	40.4	1.1	931
18	0.4931	46.715	51.5	1.5	1187
19	0.5053	56.570	61.3	1.9	1414
20	0.5164	64.728	69.5	2.3	1602
21	0.5279	71.405	76.2	2.7	1756
22	0.5401	76.306	81.1	3.2	1869
23	0.5521	79.967	84.7	3.6	1954
24	0.5630	83.737	88.5	4.0	2040
25	0.5750	86.026	90.8	4.4	2093
26	0.5870	86.241	91.0	4.8	2098
27	0.5988	85.595	90.4	5.2	2083
28	0.6109	86.322	91.1	5.7	2100
29	0.6224	87.857	92.6	6.1	2135
30	0.6340	89.176	93.9	6.5	2166
31	0.6460	90.334	95.1	6.9	2193
32	0.6585	91.788	96.6	7.4	2226
33	0.6700	92.838	97.6	7.8	2250
34	0.6822	93.457	98.2	8.2	2265
35	0.6942	93.942	98.7	8.6	2276
36	0.7058	94.857	99.6	9.0	2297
37	0.7174	95.422	100.2	9.4	2310
38	0.7294	95.692	100.5	9.9	2316
39	0.7413	95.396	100.2	10.3	2309
40	0.7536	95.099	99.9	10.7	2302
41	0.7650	94.992	99.8	11.1	2300
42	0.7769	94.480	99.2	11.6	2288
43	0.7887	94.345	99.1	12.0	2285
44	0.8013	94.292	99.1	12.4	2284
45	0.8131	94.238	99.0	12.8	2283
46	0.8246	94.292	99.1	13.2	2284
47	0.8367	94.426	99.2	13.7	2287
48	0.8480	94.480	99.2	14.1	2288
49	0.8509	94.507	99.3	14.2	2289

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	718.500		146.330
Moisture content: Dry soil+tare, gms.	599.840		130.900
Moisture content: Tare, gms.	216.700		80.860
Moisture, %	31.0	30.8	30.8
Moist specimen weight, gms.	223.7		
Diameter, in.	2.83	2.83	
Area, in.²	6.29	6.29	
Height, in.	1.12	1.06	
Net decrease in height, in.		0.06	
Wet density, pcf	120.9	127.2	
Dry density, pcf	92.3	97.2	
Void ratio	0.9132	0.8179	
Saturation, %	96.0	106.7	

Test Readings for Specimen No. 2

Normal stress = 7397 psf
Strain rate, in./min. = 0.004
Fail. Stress = 3845 psf **at reading no.** 45
Ult. Stress = 3842 psf **at reading no.** 48

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3708	1.212	0.0	0.0	0
1	0.3708	1.212	0.0	0.0	0
2	0.3708	1.185	0.0	0.0	-1
3	0.3708	1.185	0.0	0.0	-1
4	0.3708	1.158	-0.1	0.0	-1
5	0.3708	1.131	-0.1	0.0	-2
6	0.3708	1.131	-0.1	0.0	-2
7	0.3708	1.131	-0.1	0.0	-2
8	0.3712	2.666	1.5	0.0	33
9	0.3716	4.254	3.0	0.0	70
10	0.3717	5.600	4.4	0.0	100
11	0.3719	6.570	5.4	0.0	123
12	0.3720	7.512	6.3	0.0	144
13	0.3738	11.578	10.4	0.1	237
14	0.3755	14.082	12.9	0.2	295
15	0.3775	16.694	15.5	0.2	354
16	0.3891	38.880	37.7	0.6	862
17	0.3998	59.235	58.0	1.0	1328
18	0.4116	78.621	77.4	1.4	1772
19	0.4225	94.588	93.4	1.8	2138
20	0.4341	107.400	106.2	2.2	2431
21	0.4454	117.040	115.8	2.6	2652
22	0.4571	128.510	127.3	3.0	2914
23	0.4692	137.180	136.0	3.5	3113
24	0.4801	143.830	142.6	3.9	3265
25	0.4917	149.190	148.0	4.3	3388
26	0.5041	152.850	151.6	4.7	3471
27	0.5153	155.920	154.7	5.1	3542

Test Readings for Specimen No. 2

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.5270	158.970	157.8	5.5	3612
29	0.5389	161.660	160.4	5.9	3673
30	0.5512	161.950	160.7	6.4	3680
31	0.5623	162.330	161.1	6.8	3688
32	0.5745	163.520	162.3	7.2	3716
33	0.5866	164.810	163.6	7.6	3745
34	0.5985	165.990	164.8	8.0	3772
35	0.6102	166.910	165.7	8.5	3793
36	0.6217	167.880	166.7	8.9	3816
37	0.6338	168.200	167.0	9.3	3823
38	0.6454	168.520	167.3	9.7	3830
39	0.6583	168.250	167.0	10.2	3824
40	0.6697	168.440	167.2	10.6	3828
41	0.6815	168.360	167.1	11.0	3827
42	0.6936	168.550	167.3	11.4	3831
43	0.7056	168.600	167.4	11.8	3832
44	0.7171	168.870	167.7	12.2	3838
45	0.7293	169.170	168.0	12.7	3845
46	0.7408	169.140	167.9	13.1	3844
47	0.7532	169.090	167.9	13.5	3843
48	0.7648	169.040	167.8	13.9	3842
49	0.7705	168.850	167.6	14.1	3838

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	718.500		143.070
Moisture content: Dry soil+tare, gms.	599.840		130.500
Moisture content: Tare, gms.	216.700		88.600
Moisture, %	31.0	30.0	30.0
Moist specimen weight, gms.	224.0		
Diameter, in.	2.81	2.81	
Area, in.²	6.20	6.20	
Height, in.	1.16	1.09	
Net decrease in height, in.		0.07	
Wet density, pcf	118.6	125.2	
Dry density, pcf	90.6	96.3	
Void ratio	0.9507	0.8350	
Saturation, %	92.2	101.7	

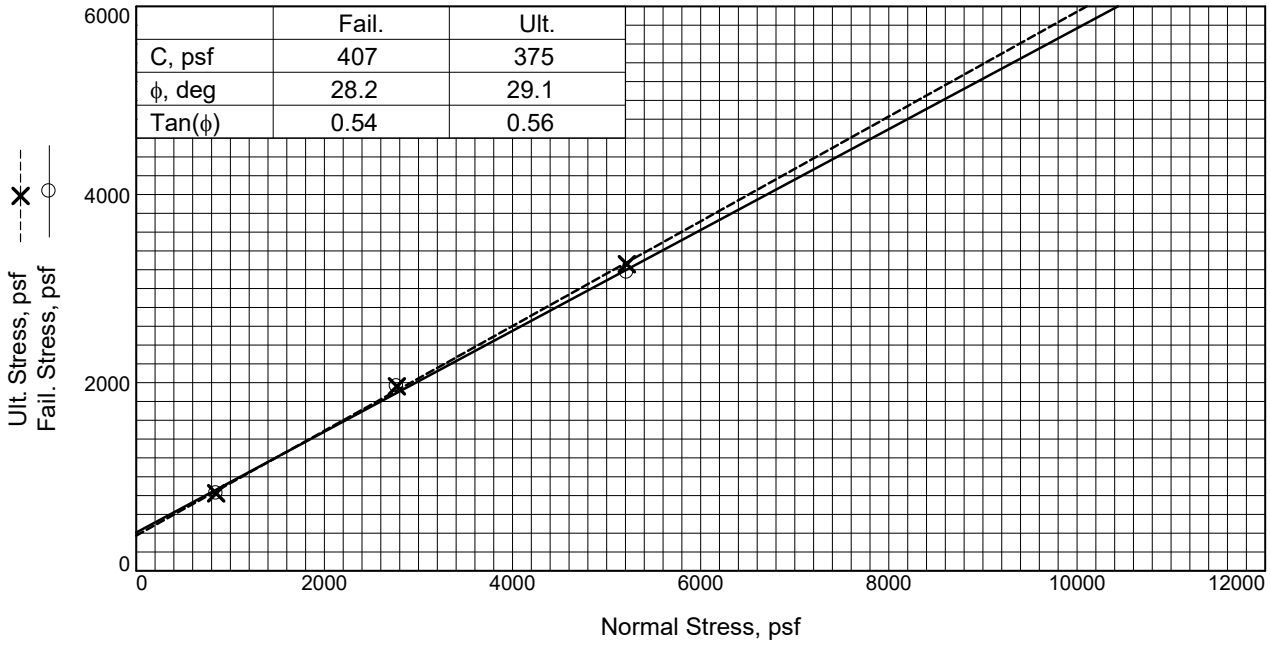
Test Readings for Specimen No. 3

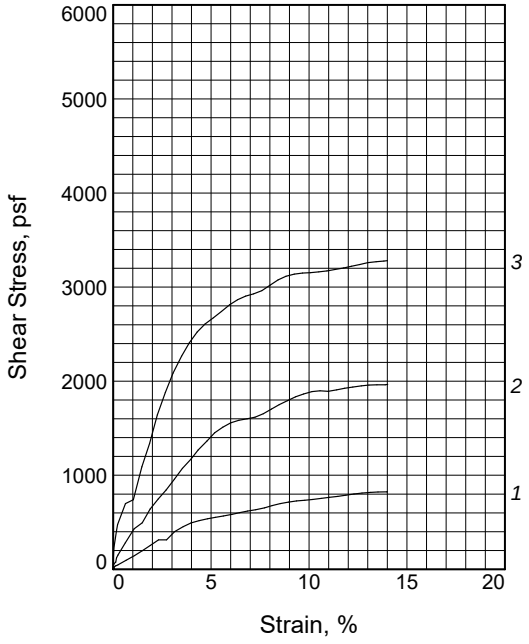
Normal stress = 10450 psf
Strain rate, in./min. = 0.004
Fail. Stress = 5634 psf **at reading no.** 42
Ult. Stress = 5592 psf **at reading no.** 47

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3619	2.181	0.0	0.0	0
1	0.3619	2.181	0.0	0.0	0
2	0.3618	2.181	0.0	0.0	0
3	0.3618	2.181	0.0	0.0	0
4	0.3619	2.127	-0.1	0.0	-1
5	0.3619	2.073	-0.1	0.0	-3
6	0.3619	2.073	-0.1	0.0	-3
7	0.3619	2.127	-0.1	0.0	-1
8	0.3620	3.312	1.1	0.0	26
9	0.3623	4.900	2.7	0.0	63
10	0.3625	6.274	4.1	0.0	95
11	0.3632	7.539	5.4	0.0	124
12	0.3636	8.805	6.6	0.1	154
13	0.3649	15.886	13.7	0.1	318
14	0.3667	22.671	20.5	0.2	476
15	0.3683	29.268	27.1	0.2	629
16	0.3790	62.978	60.8	0.6	1412
17	0.3900	82.041	79.9	1.0	1854
18	0.4018	98.196	96.0	1.4	2229
19	0.4126	115.320	113.1	1.8	2627
20	0.4241	130.960	128.8	2.2	2990
21	0.4359	144.480	142.3	2.6	3304
22	0.4466	156.540	154.4	3.0	3584
23	0.4593	166.880	164.7	3.5	3824
24	0.4703	176.920	174.7	3.9	4057
25	0.4820	185.030	182.8	4.3	4246
26	0.4932	193.210	191.0	4.7	4436
27	0.5054	201.430	199.2	5.1	4627

Test Readings for Specimen No. 3

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.5174	208.450	206.3	5.5	4790
29	0.5285	214.140	212.0	5.9	4922
30	0.5407	217.960	215.8	6.4	5010
31	0.5521	221.840	219.7	6.8	5100
32	0.5634	225.770	223.6	7.2	5192
33	0.5760	229.000	226.8	7.6	5267
34	0.5880	232.740	230.6	8.0	5354
35	0.5994	236.320	234.1	8.5	5437
36	0.6112	239.470	237.3	8.9	5510
37	0.6229	242.060	239.9	9.3	5570
38	0.6350	243.620	241.4	9.7	5606
39	0.6475	244.320	242.1	10.2	5622
40	0.6590	244.510	242.3	10.6	5627
41	0.6708	244.750	242.6	11.0	5632
42	0.6832	244.800	242.6	11.4	5634
43	0.6946	244.830	242.6	11.8	5634
44	0.7064	244.700	242.5	12.3	5631
45	0.7186	244.530	242.3	12.7	5627
46	0.7303	244.260	242.1	13.1	5621
47	0.7426	243.000	240.8	13.5	5592
48	0.7542	242.920	240.7	14.0	5590
49	0.7616	242.780	240.6	14.2	5587





Sample No.		1	2	3
Initial	Water Content, %	27.9	27.9	27.9
	Dry Density, pcf	90.1	87.6	91.9
	Saturation, %	88.0	82.9	92.0
	Void Ratio	0.8431	0.8946	0.8060
	Diameter, in.	2.85	2.85	2.85
	Height, in.	1.24	1.24	1.32
At Test	Water Content, %	33.7	28.1	26.4
	Dry Density, pcf	93.5	93.4	97.0
	Saturation, %	115.5	96.1	98.8
	Void Ratio	0.7752	0.7787	0.7113
	Diameter, in.	2.85	2.85	2.85
	Height, in.	1.19	1.16	1.25
Normal Stress, psf		850	2770	5215
Fail. Stress, psf		824	1961	3172
Strain, %		14.0	13.9	10.9
Ult. Stress, psf		824	1961	3259
Strain, %		14.0	13.9	13.0
Strain rate, in./min.		0.004	0.004	0.004

Sample Type: Piston Tube
Description: CL - LEAN CLAY

LL= 34 **PL=** 23 **PI=** 11
Specific Gravity= 2.66
Remarks: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

Figure _____

Client: WSDOT (Geotechnical Office)

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Source of Sample: NE-102vw-22 **Depth:** 12.0
Sample Number: P-4
Proj. No.: XL5446 **Date Sampled:** 12/14/2022

DIRECT SHEAR TEST REPORT
Washington State Department of Transportation
Olympia, WA

Tested By: TJM **Checked By:** SLW

DIRECT SHEAR TEST

12/15/2022

Date: 12/14/2022
Client: WSDOT (Geotechnical Office)
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Project No.: XL5446
Location: NE-102vw-22
Depth: 12.0 **Sample Number:** P-4
Description: CL - LEAN CLAY
Remarks: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Type of Sample: Piston Tube
Specific Gravity=2.66 **LL=**34 **PL=**23 **PI=**11

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	486.200		326.860
Moisture content: Dry soil+tare, gms.	428.470		266.700
Moisture content: Tare, gms.	221.400		87.990
Moisture, %	27.9	33.7	33.7
Moist specimen weight, gms.	240.1		
Diameter, in.	2.85	2.85	
Area, in.²	6.40	6.40	
Height, in.	1.24	1.19	
Net decrease in height, in.		0.05	
Wet density, pcf	115.2	125.0	
Dry density, pcf	90.1	93.5	
Void ratio	0.8431	0.7752	
Saturation, %	88.0	115.5	

Test Readings for Specimen No. 1

Normal stress = 850 psf
Strain rate, in./min. = 0.004
Fail. Stress = 824 psf **at reading no.** 48
Ult. Stress = 824 psf **at reading no.** 48

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3270	0.565	0.0	0.0	0
1	0.3270	0.565	0.0	0.0	0
2	0.3270	0.565	0.0	0.0	0
3	0.3270	0.565	0.0	0.0	0
4	0.3270	0.565	0.0	0.0	0
5	0.3270	0.538	0.0	0.0	-1
6	0.3270	0.538	0.0	0.0	-1
7	0.3271	0.592	0.0	0.0	1
8	0.3272	1.104	0.5	0.0	12
9	0.3275	1.319	0.8	0.0	17
10	0.3279	1.454	0.9	0.0	20
11	0.3283	1.562	1.0	0.0	22
12	0.3287	1.669	1.1	0.1	25
13	0.3306	2.181	1.6	0.1	36

Test Readings for Specimen No. 1

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
14	0.3324	2.396	1.8	0.2	41
15	0.3345	2.746	2.2	0.3	49
16	0.3458	4.820	4.3	0.7	96
17	0.3582	7.027	6.5	1.1	145
18	0.3697	9.370	8.8	1.5	198
19	0.3811	11.847	11.3	1.9	254
20	0.3931	14.459	13.9	2.3	313
21	0.4048	14.513	13.9	2.7	314
22	0.4166	18.417	17.9	3.1	402
23	0.4291	20.732	20.2	3.6	454
24	0.4406	22.509	21.9	4.0	494
25	0.4523	23.586	23.0	4.4	518
26	0.4646	24.475	23.9	4.8	538
27	0.4762	25.148	24.6	5.2	553
28	0.4876	25.794	25.2	5.6	567
29	0.5000	26.548	26.0	6.1	584
30	0.5113	27.356	26.8	6.5	603
31	0.5230	28.083	27.5	6.9	619
32	0.5349	28.729	28.2	7.3	634
33	0.5476	29.618	29.1	7.7	653
34	0.5588	30.695	30.1	8.1	678
35	0.5707	31.610	31.0	8.5	698
36	0.5825	32.310	31.7	8.9	714
37	0.5943	32.902	32.3	9.4	727
38	0.6064	33.172	32.6	9.8	733
39	0.6179	33.602	33.0	10.2	743
40	0.6302	34.060	33.5	10.6	753
41	0.6421	34.572	34.0	11.0	765
42	0.6545	35.056	34.5	11.5	776
43	0.6663	35.622	35.1	11.9	789
44	0.6781	36.133	35.6	12.3	800
45	0.6898	36.591	36.0	12.7	810
46	0.7019	36.914	36.3	13.1	818
47	0.7132	37.130	36.6	13.5	822
48	0.7257	37.184	36.6	14.0	824
49	0.7269	37.210	36.6	14.0	824

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	486.200		151.590
Moisture content: Dry soil+tare, gms.	428.470		137.100
Moisture content: Tare, gms.	221.400		85.620
Moisture, %	27.9	28.1	28.1
Moist specimen weight, gms.	233.6		
Diameter, in.	2.85	2.85	
Area, in.²	6.40	6.40	
Height, in.	1.24	1.16	
Net decrease in height, in.		0.08	
Wet density, pcf	112.1	119.6	
Dry density, pcf	87.6	93.4	
Void ratio	0.8946	0.7787	
Saturation, %	82.9	96.1	

Test Readings for Specimen No. 2

Normal stress = 2770 psf
Strain rate, in./min. = 0.004
Fail. Stress = 1961 psf **at reading no.** 48
Ult. Stress = 1961 psf **at reading no.** 48

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3224	0.377	0.0	0.0	0
1	0.3224	0.377	0.0	0.0	0
2	0.3224	0.404	0.0	0.0	1
3	0.3224	0.377	0.0	0.0	0
4	0.3224	0.377	0.0	0.0	0
5	0.3224	0.377	0.0	0.0	0
6	0.3224	0.377	0.0	0.0	0
7	0.3224	0.377	0.0	0.0	0
8	0.3226	1.319	0.9	0.0	21
9	0.3228	2.154	1.8	0.0	40
10	0.3229	2.558	2.2	0.0	49
11	0.3232	2.827	2.5	0.0	55
12	0.3235	3.042	2.7	0.0	60
13	0.3262	3.769	3.4	0.1	76
14	0.3272	5.789	5.4	0.2	122
15	0.3291	7.054	6.7	0.2	150
16	0.3402	12.897	12.5	0.6	282
17	0.3529	19.548	19.2	1.1	431
18	0.3647	22.375	22.0	1.5	495
19	0.3762	28.837	28.5	1.9	640
20	0.3880	33.629	33.3	2.3	748
21	0.3996	37.857	37.5	2.7	843
22	0.4115	42.945	42.6	3.1	958
23	0.4233	48.061	47.7	3.5	1073
24	0.4355	52.342	52.0	4.0	1169
25	0.4463	56.785	56.4	4.3	1269
26	0.4590	61.012	60.6	4.8	1364
27	0.4703	64.889	64.5	5.2	1451

Test Readings for Specimen No. 2

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.4822	67.555	67.2	5.6	1511
29	0.4939	69.601	69.2	6.0	1557
30	0.5057	70.840	70.5	6.4	1585
31	0.5176	71.513	71.1	6.8	1600
32	0.5292	72.240	71.9	7.2	1616
33	0.5413	73.882	73.5	7.7	1653
34	0.5532	76.144	75.8	8.1	1704
35	0.5645	78.217	77.8	8.5	1751
36	0.5765	80.102	79.7	8.9	1793
37	0.5883	81.933	81.6	9.3	1834
38	0.5999	83.225	82.8	9.7	1864
39	0.6122	84.383	84.0	10.2	1890
40	0.6239	84.760	84.4	10.6	1898
41	0.6356	84.518	84.1	11.0	1893
42	0.6482	85.164	84.8	11.4	1907
43	0.6598	85.918	85.5	11.8	1924
44	0.6717	86.537	86.2	12.2	1938
45	0.6841	87.103	86.7	12.7	1951
46	0.6953	87.426	87.0	13.1	1958
47	0.7069	87.560	87.2	13.5	1961
48	0.7190	87.560	87.2	13.9	1961
49	0.7226	87.749	87.4	14.0	1965

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	486.200		143.860
Moisture content: Dry soil+tare, gms.	428.470		131.400
Moisture content: Tare, gms.	221.400		84.250
Moisture, %	27.9	26.4	26.4
Moist specimen weight, gms.	260.8		
Diameter, in.	2.85	2.85	
Area, in.²	6.40	6.40	
Height, in.	1.32	1.25	
Net decrease in height, in.		0.07	
Wet density, pcf	117.6	122.7	
Dry density, pcf	91.9	97.0	
Void ratio	0.8060	0.7113	
Saturation, %	92.0	98.8	

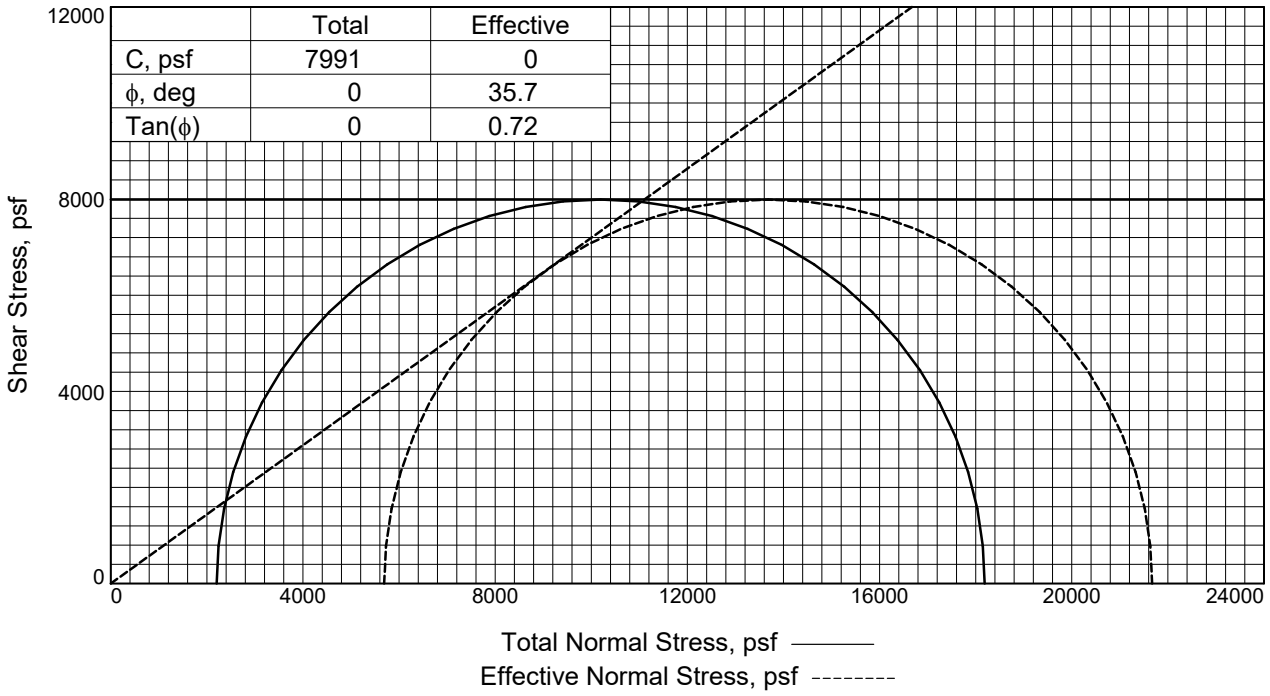
Test Readings for Specimen No. 3

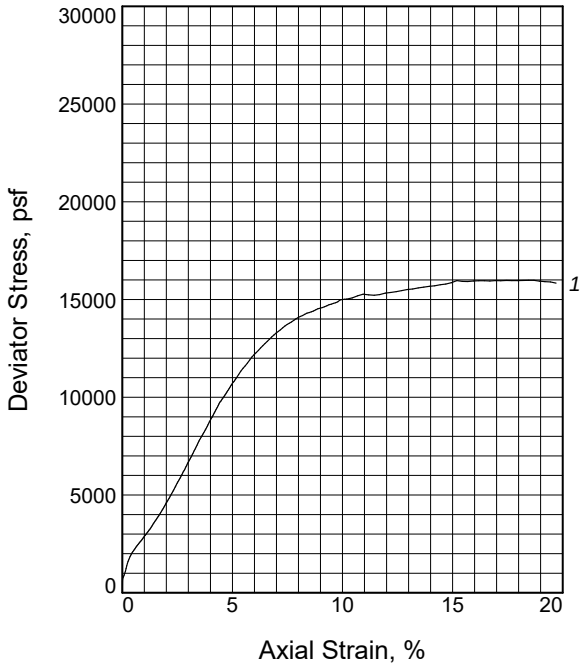
Normal stress = 5215 psf
Strain rate, in./min. = 0.004
Fail. Stress = 3172 psf **at reading no.** 41
Ult. Stress = 3259 psf **at reading no.** 46

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3166	1.723	0.0	0.0	0
1	0.3166	1.723	0.0	0.0	0
2	0.3166	1.750	0.0	0.0	1
3	0.3166	1.750	0.0	0.0	1
4	0.3166	1.750	0.0	0.0	1
5	0.3166	1.777	0.1	0.0	1
6	0.3166	1.723	0.0	0.0	0
7	0.3167	1.831	0.1	0.0	2
8	0.3167	3.823	2.1	0.0	47
9	0.3168	6.247	4.5	0.0	102
10	0.3170	8.347	6.6	0.0	149
11	0.3172	10.016	8.3	0.0	187
12	0.3174	11.389	9.7	0.0	217
13	0.3199	16.720	15.0	0.1	337
14	0.3216	20.086	18.4	0.2	413
15	0.3230	22.886	21.2	0.2	476
16	0.3345	32.795	31.1	0.6	699
17	0.3461	34.626	32.9	1.0	740
18	0.3584	50.161	48.4	1.5	1090
19	0.3697	61.201	59.5	1.9	1338
20	0.3811	74.690	73.0	2.3	1641
21	0.3926	85.272	83.5	2.7	1879
22	0.4039	94.453	92.7	3.1	2086
23	0.4163	102.450	100.7	3.5	2266
24	0.4275	108.780	107.1	3.9	2408
25	0.4391	113.870	112.1	4.3	2523
26	0.4506	117.690	116.0	4.7	2609
27	0.4629	120.650	118.9	5.1	2675

Test Readings for Specimen No. 3

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.4744	123.610	121.9	5.5	2742
29	0.4862	126.760	125.0	5.9	2813
30	0.4981	129.130	127.4	6.4	2866
31	0.5096	130.800	129.1	6.8	2903
32	0.5213	131.880	130.2	7.2	2928
33	0.5334	133.440	131.7	7.6	2963
34	0.5456	136.030	134.3	8.0	3021
35	0.5571	138.530	136.8	8.4	3077
36	0.5685	140.200	138.5	8.8	3115
37	0.5807	141.220	139.5	9.2	3138
38	0.5926	141.760	140.0	9.7	3150
39	0.6043	141.950	140.2	10.1	3154
40	0.6164	142.270	140.5	10.5	3161
41	0.6282	142.730	141.0	10.9	3172
42	0.6400	143.430	141.7	11.3	3188
43	0.6525	144.100	142.4	11.8	3203
44	0.6639	144.960	143.2	12.2	3222
45	0.6760	145.770	144.0	12.6	3240
46	0.6877	146.630	144.9	13.0	3259
47	0.6999	147.090	145.4	13.4	3270
48	0.7113	147.410	145.7	13.8	3277
49	0.7165	147.600	145.9	14.0	3281





Sample No.		1
Initial	Water Content, %	16.5
	Dry Density, pcf	110.5
	Saturation, %	79.5
	Void Ratio	0.5819
	Diameter, in.	2.01
	Height, in.	4.00
At Test	Water Content, %	17.8
	Dry Density, pcf	116.7
	Saturation, %	100.0
	Void Ratio	0.4977
	Diameter, in.	1.96
	Height, in.	3.97
Strain rate, %/min.		0.08
Eff. Cell Pressure, psi		15.31
Fail. Stress, psf		15982
Excess Pore Pr., psf		-3485
Strain, %		18.4
Ult. Stress, psf		
Excess Pore Pr., psf		
Strain, %		
$\bar{\sigma}_1$ Failure, psf		21672
$\bar{\sigma}_3$ Failure, psf		5690

Type of Test:
CU with Pore Pressures

Sample Type: Thin-walled tube

Description: SANDY SILT (ML)

LL= 20 **PL=** 17 **PI=** 3

Specific Gravity= 2.8

Remarks:

Figure _____

Client: WSDOT

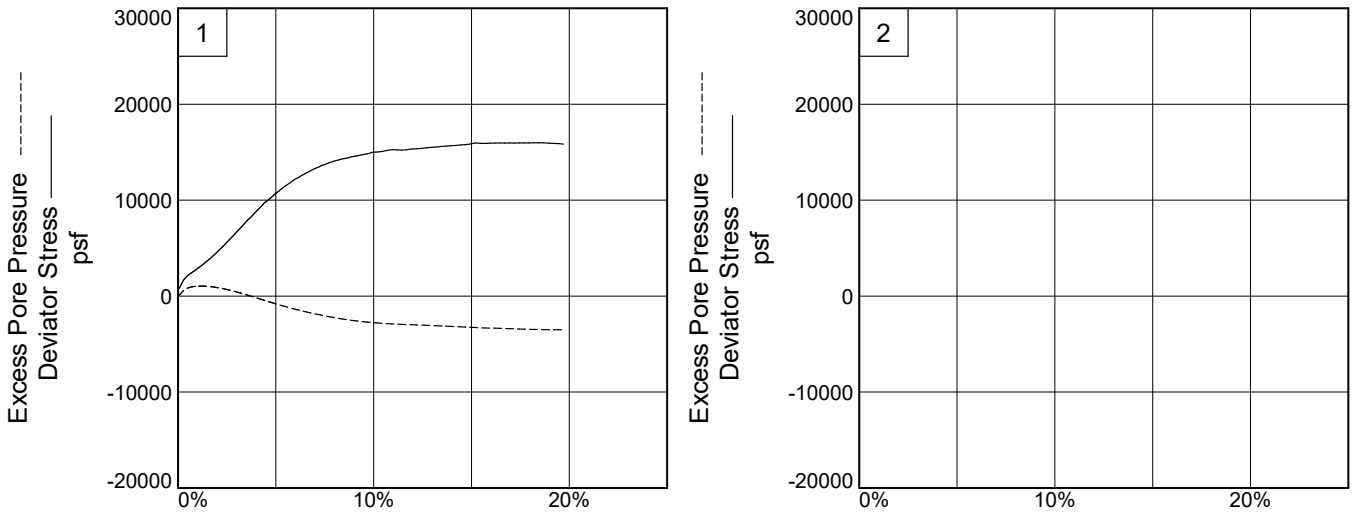
Project: XL 5446

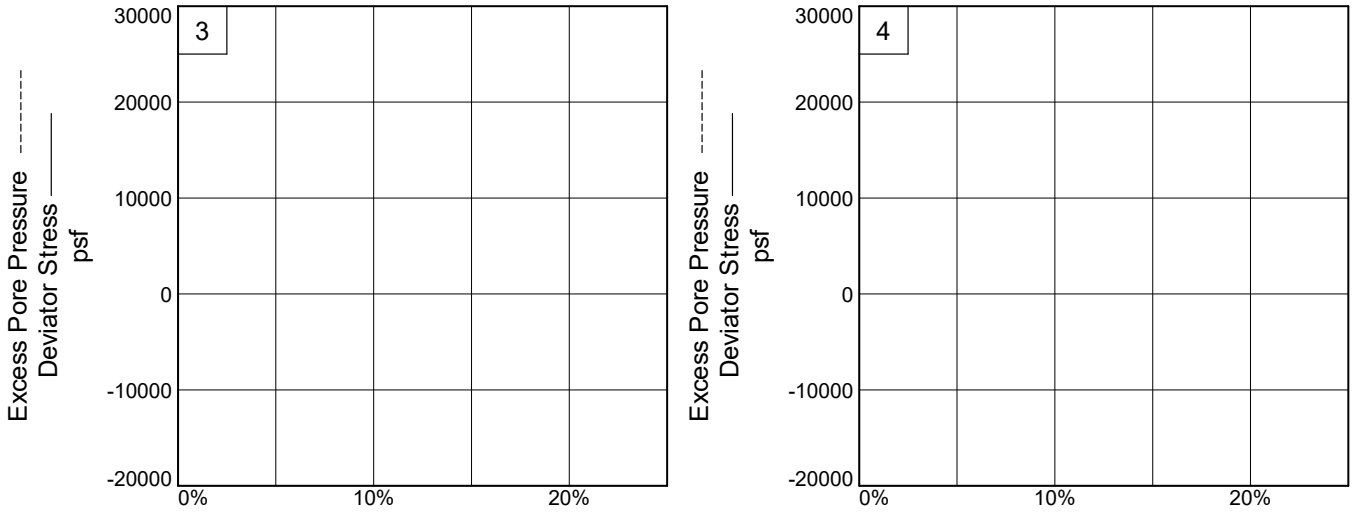
Source of Sample: NE-103vw-22 **Depth:** 29.5

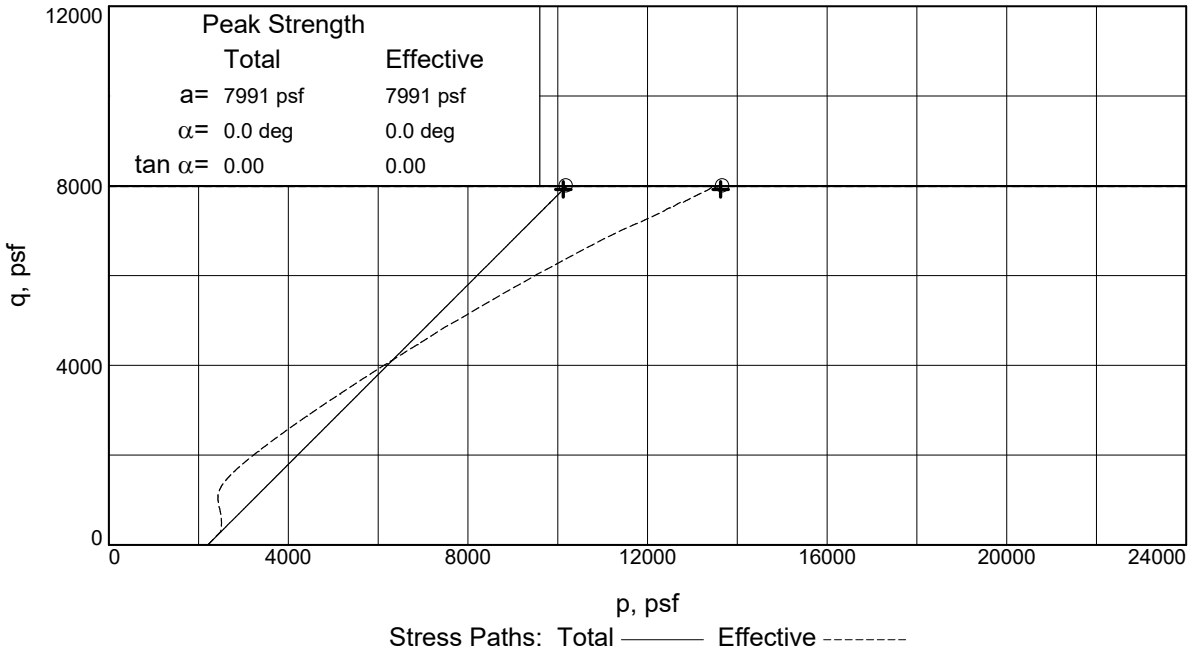
Sample Number: S-9

Proj. No.: 0205069-001 **Date Sampled:** 10/03/2022

HALEY ALDRICH







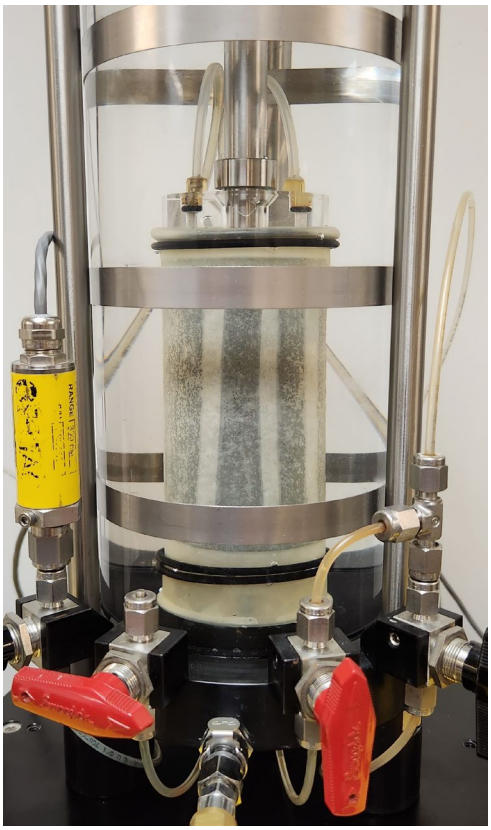
Client: WSDOT

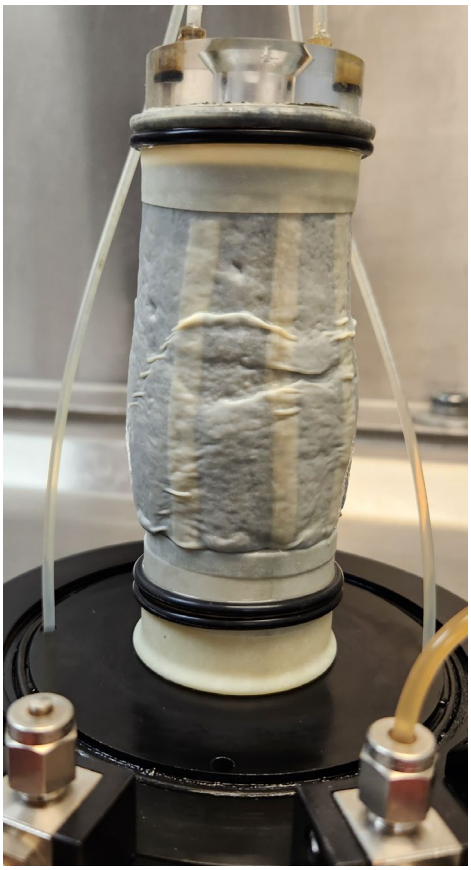
Project: XL 5446

Source of Sample: NE-103vw-22 **Depth:** 29.5 **Sample Number:** S-9

Project No.: 0205069-001 **Figure** _____

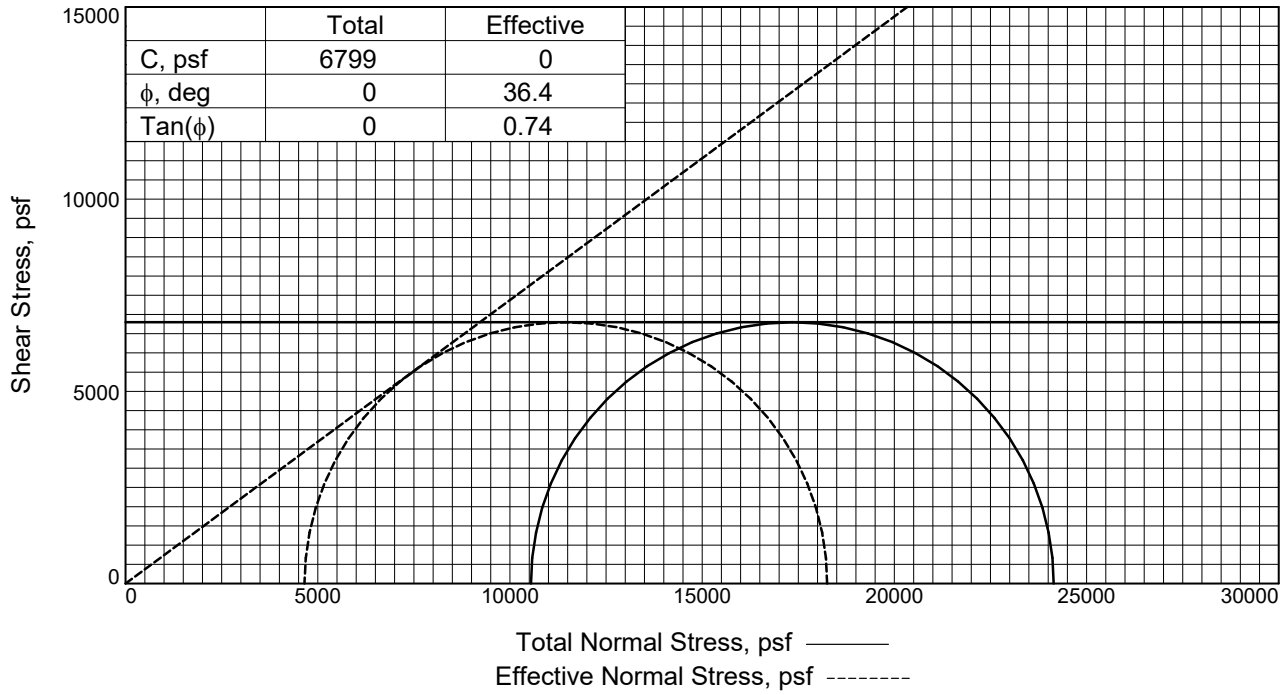
Haley & Aldrich

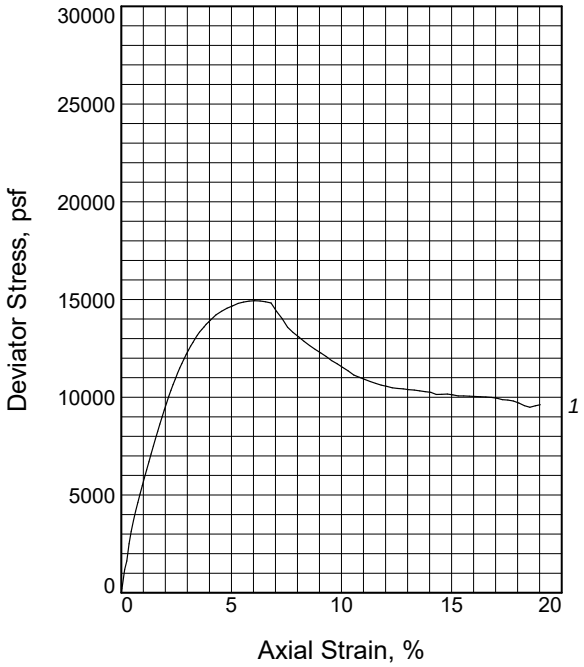




Client: WSDOT
Project: XL 5446
Source of Sample: NE-103vw-22 **Depth:** 29.5 **Sample Number:** S-9
Project No: 0205092-001 **Figure:**

HALEY ALDRICH





Sample No.		1
Initial	Water Content, %	28.2
	Dry Density, pcf	92.4
	Saturation, %	88.7
	Void Ratio	0.8913
	Diameter, in.	2.02
	Height, in.	4.63
At Test	Water Content, %	29.2
	Dry Density, pcf	96.2
	Saturation, %	100.0
	Void Ratio	0.8177
	Diameter, in.	1.98
	Height, in.	4.63
Strain rate, %/min.		0.02
Eff. Cell Pressure, psi		73.24
Fail. Stress, psf		13597
Excess Pore Pr., psf		5892
Strain, %		3.8
Ult. Stress, psf		
Excess Pore Pr., psf		
Strain, %		
$\bar{\sigma}_1$ Failure, psf		18252
$\bar{\sigma}_3$ Failure, psf		4654

Type of Test:
CU with Pore Pressures

Sample Type: Thin-walled tube

Description: LEAN CLAY (CL)

LL= 46 **PL=** 21 **PI=** 25

Specific Gravity= 2.8

Remarks:

Figure _____

Client: WSDOT

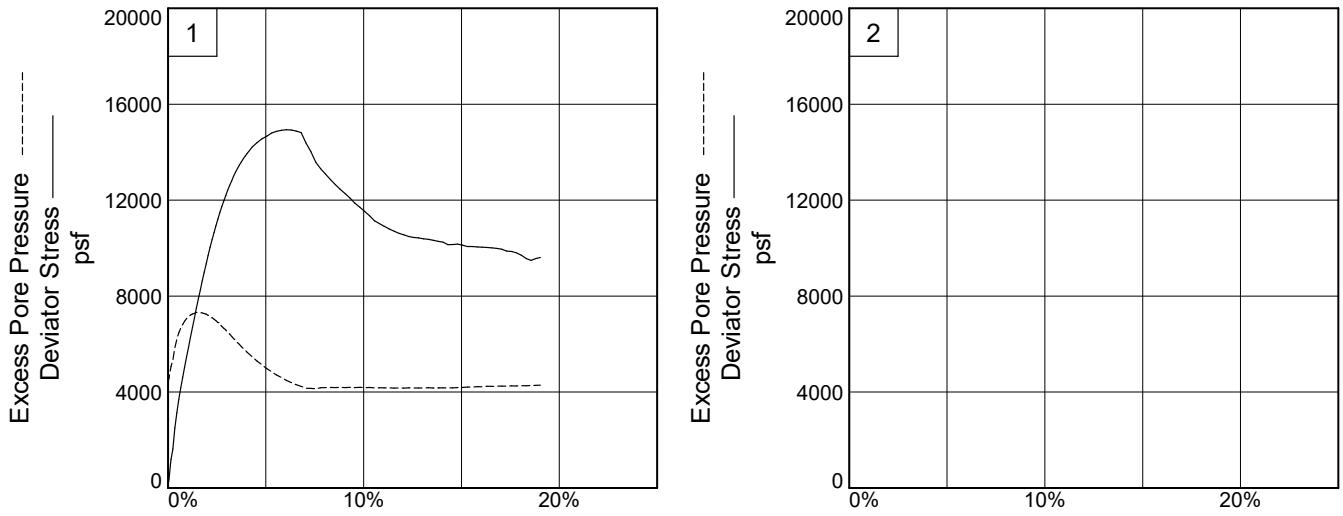
Project: XL 5446

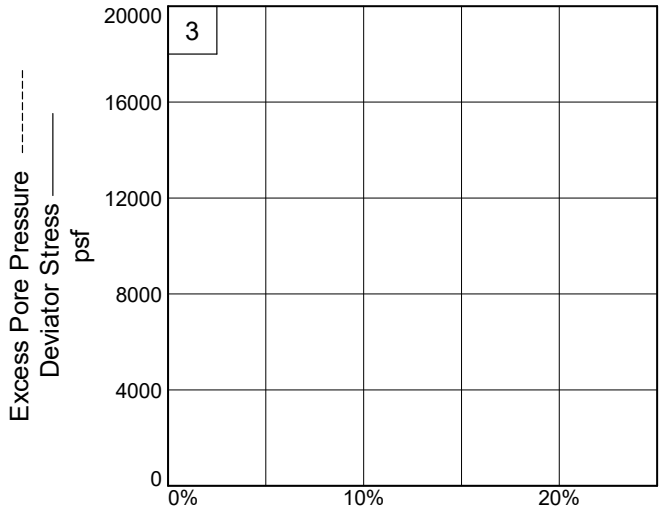
Source of Sample: NE-103vw-22 **Depth:** 49.9

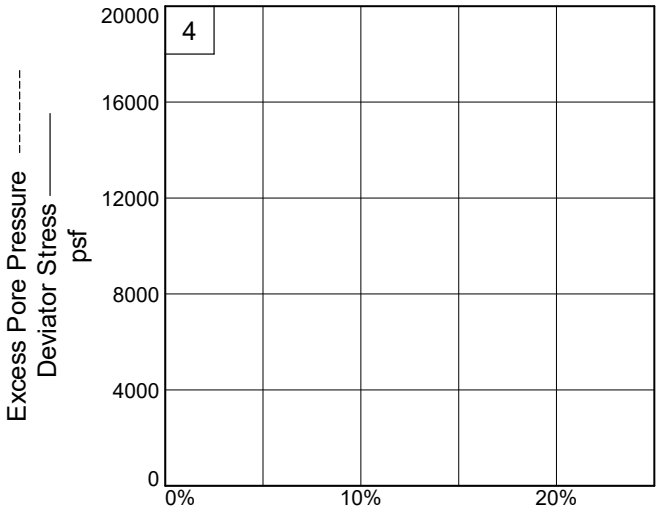
Sample Number: S-17

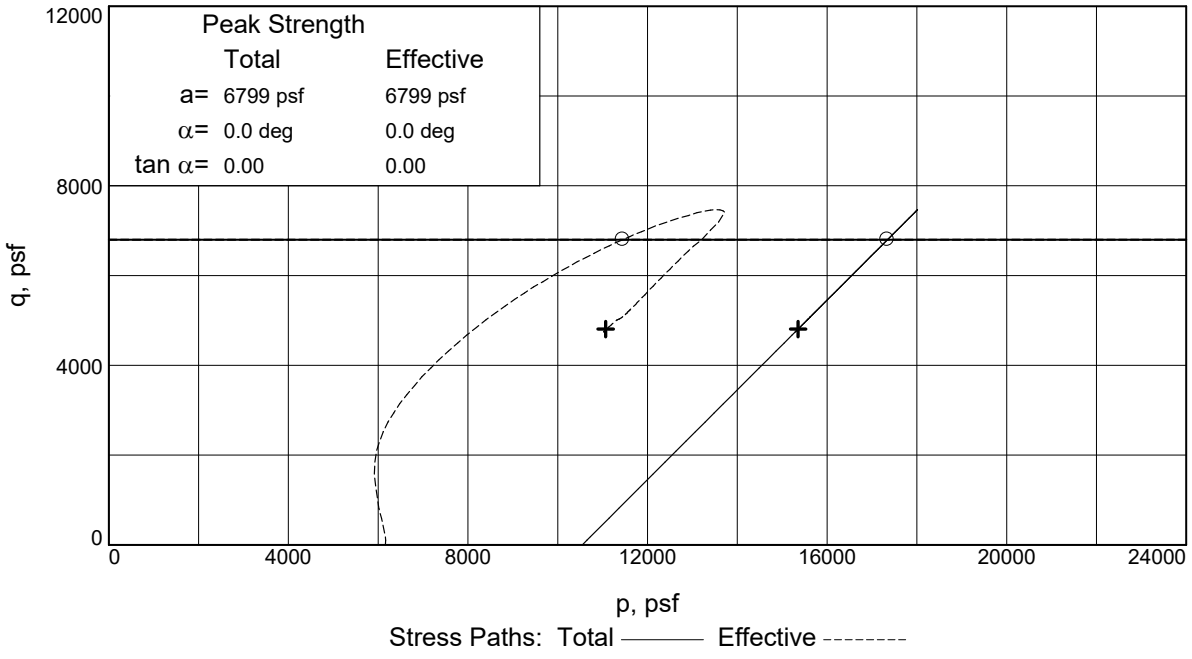
Proj. No.: 0205069-001 **Date Sampled:** 10/03/2022

HALEY ALDRICH









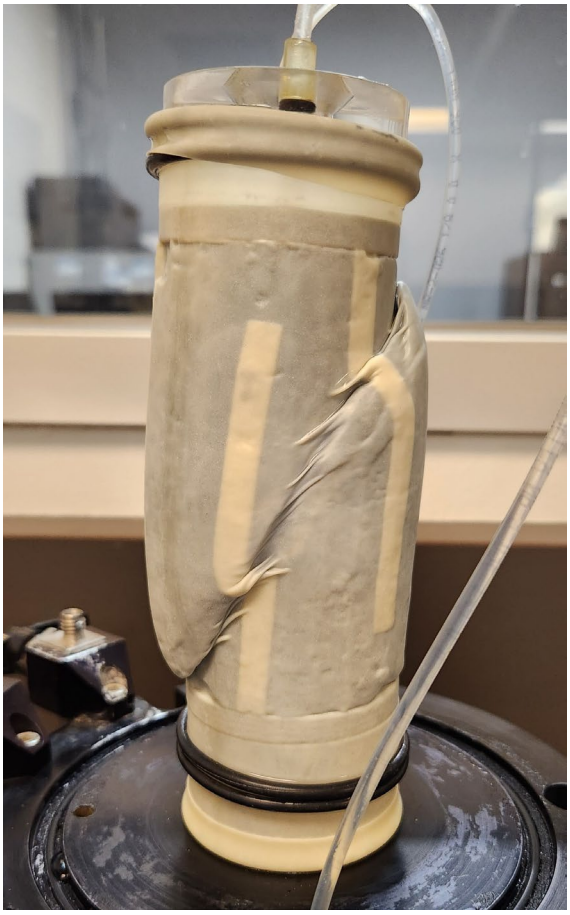
Client: WSDOT

Project: XL 5446

Source of Sample: NE-103vw-22 **Depth:** 49.9 **Sample Number:** S-17

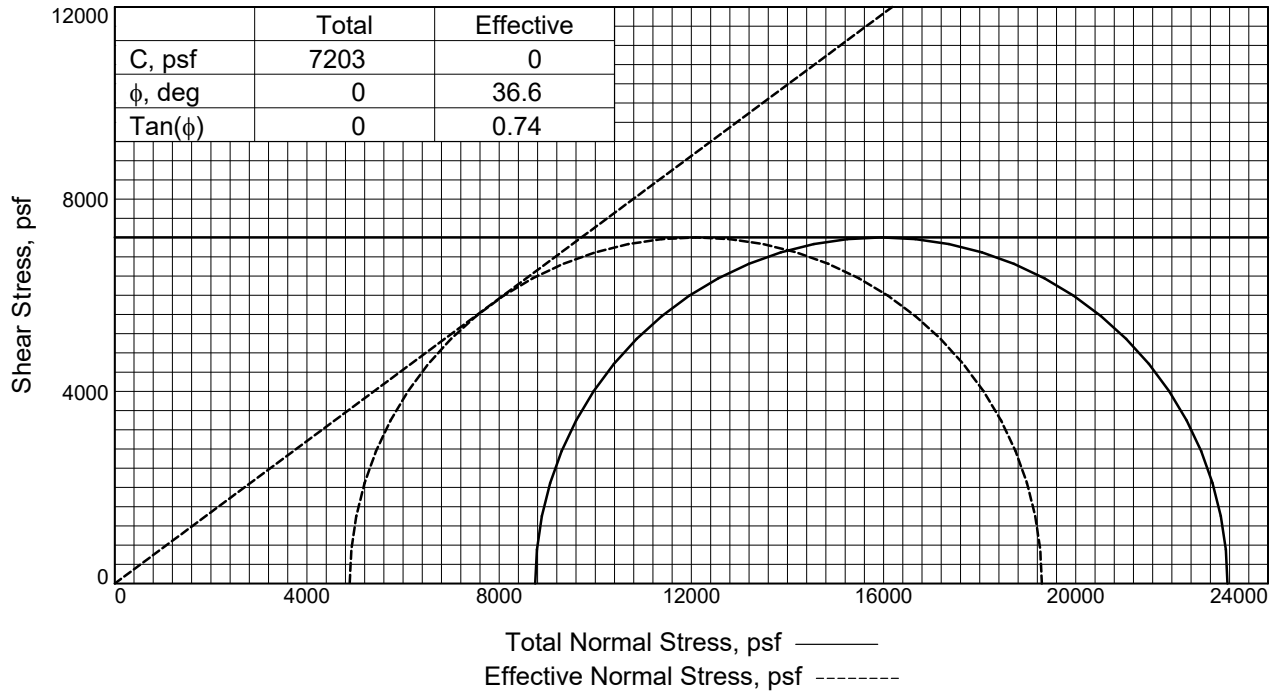
Project No.: 0205069-001 **Figure** _____

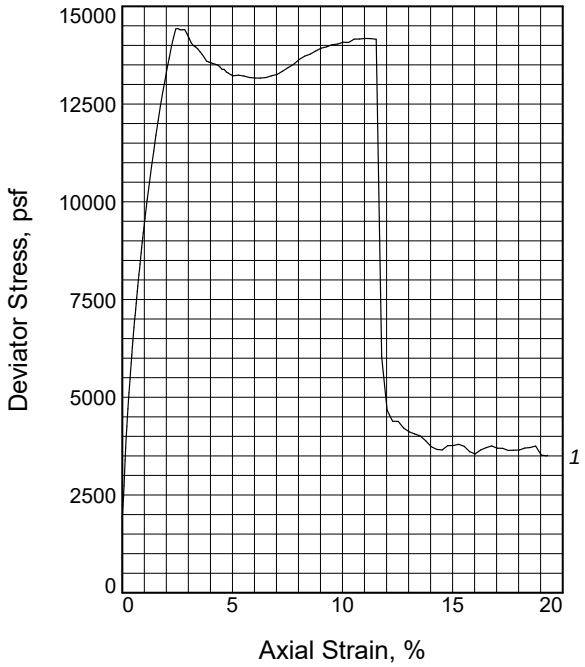
Haley & Aldrich



Client: WSDOT
Project: XL 5446
Source of Sample: NE-103vw-22 **Depth:** 49.9 **Sample Number:** S-17
Project No: 0205092-001 **Figure:**

HALEY ALDRICH





Sample No.		1
Initial	Water Content, %	25.6
	Dry Density, pcf	95.4
	Saturation, %	86.1
	Void Ratio	0.8313
	Diameter, in.	1.44
	Height, in.	3.06
At Test	Water Content, %	24.8
	Dry Density, pcf	103.1
	Saturation, %	100.0
	Void Ratio	0.6955
	Diameter, in.	1.40
	Height, in.	3.02
Strain rate, %/min.		0.02
Eff. Cell Pressure, psi		60.77
Fail. Stress, psf		14406
Excess Pore Pr., psf		3863
Strain, %		2.8
Ult. Stress, psf		
Excess Pore Pr., psf		
Strain, %		
$\bar{\sigma}_1$ Failure, psf		19295
$\bar{\sigma}_3$ Failure, psf		4888

Type of Test:
CU with Pore Pressures

Sample Type: Thin-walled tube

Description: LEAN CLAY (CL)

LL= 40 **PL=** 20 **PI=** 20

Specific Gravity= 2.8

Remarks:

Figure _____

Client: WSDOT

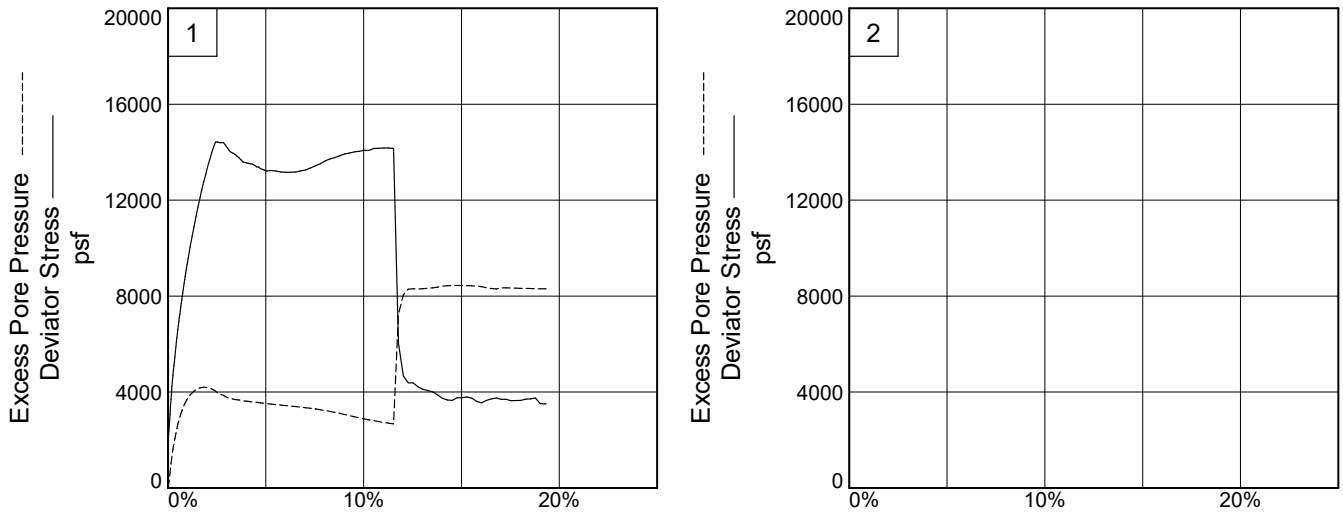
Project: XL 5446

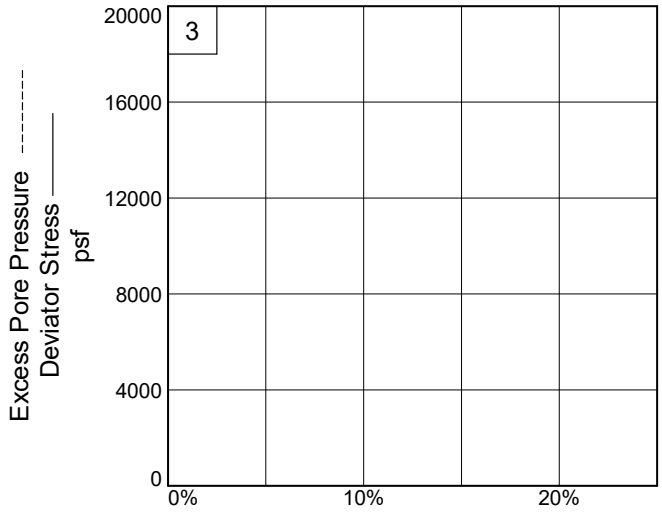
Source of Sample: NE-103vw-22 **Depth:** 69.5

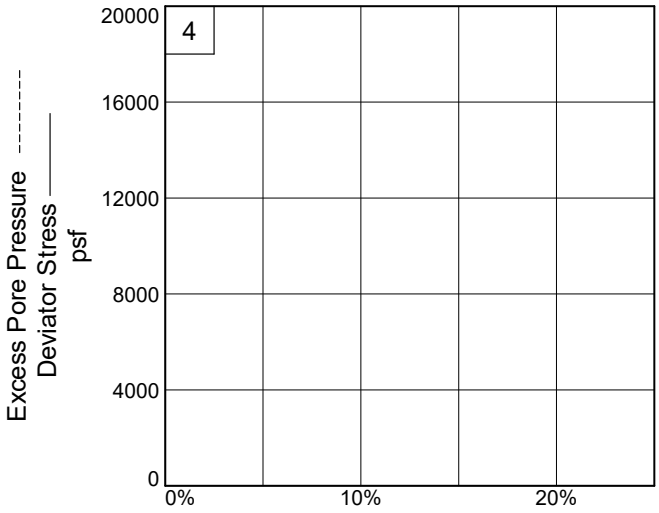
Sample Number: S-21

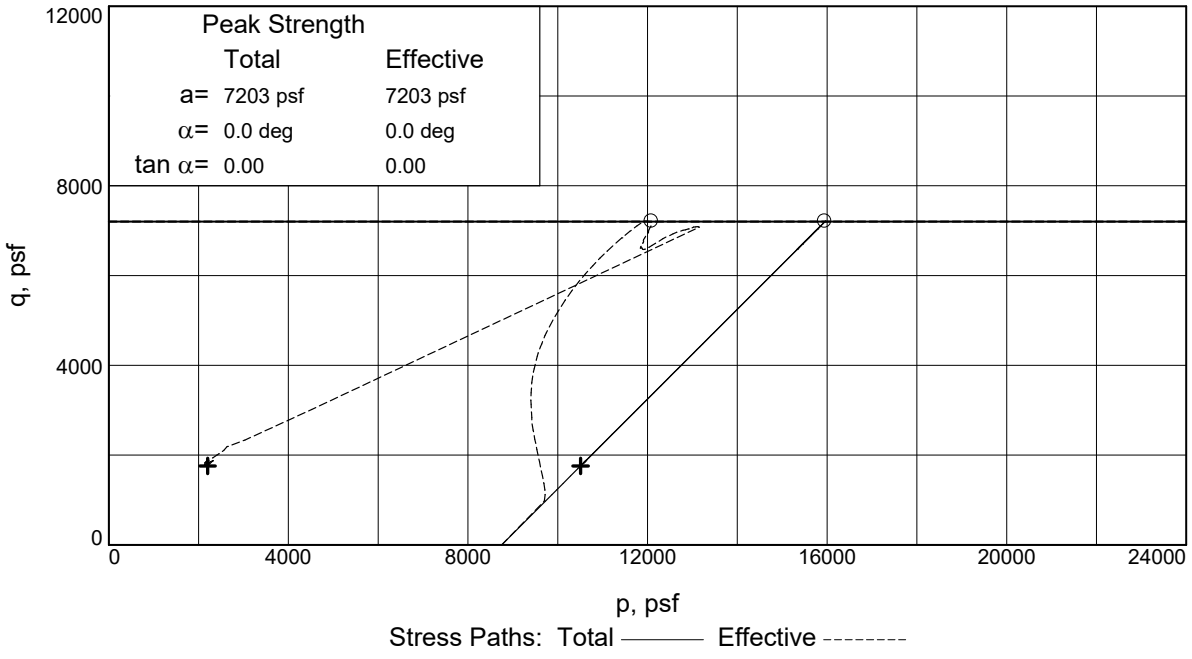
Proj. No.: 0205069-001 **Date Sampled:** 10/04/2022

HALEY ALDRICH









Client: WSDOT

Project: XL 5446

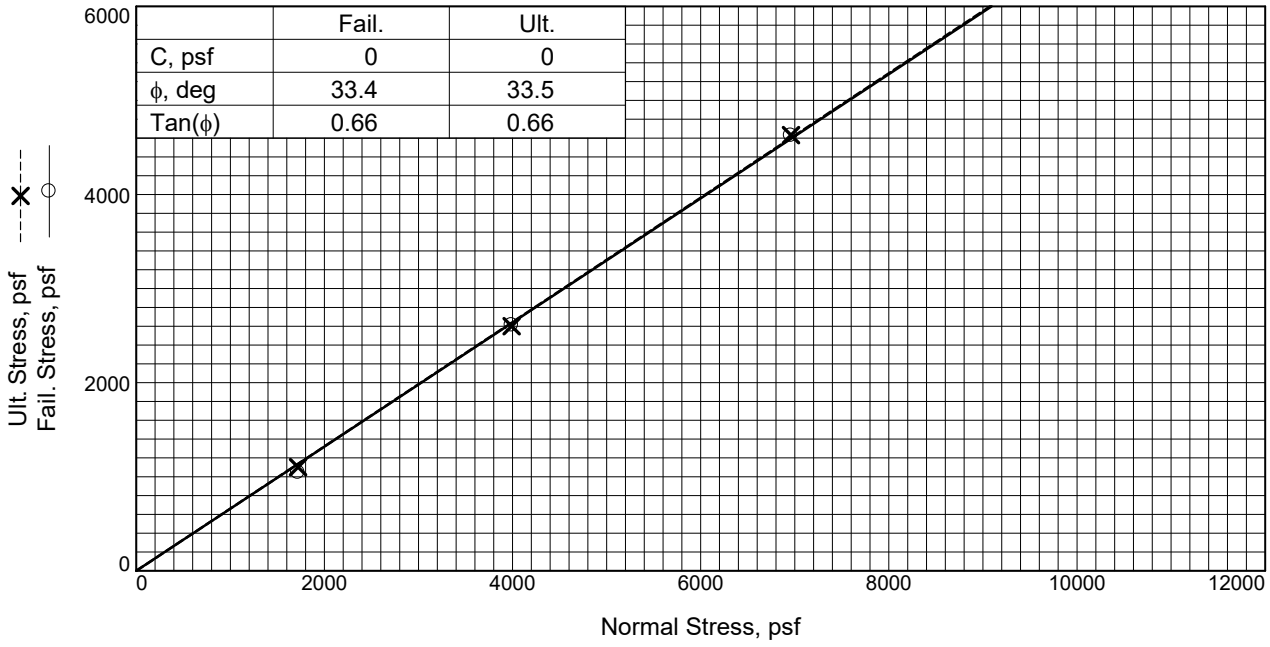
Source of Sample: NE-103vw-22 **Depth:** 69.5 **Sample Number:** S-21

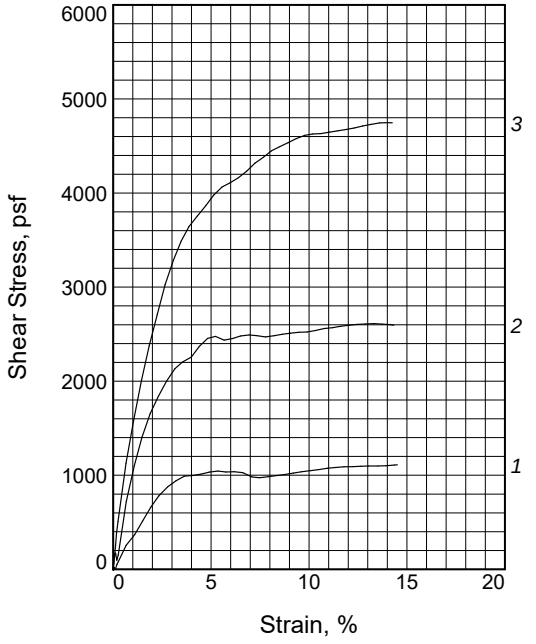
Project No.: 0205069-001 **Figure** _____

Haley & Aldrich

Client: WSDOT
Project: XL 5446
Source of Sample: NE-103vw-22 **Depth:** 69.5 **Sample Number:** S-21
Project No: 0205092-001 **Figure:**

HALEY ALDRICH





Sample No.		1	2	3
Initial	Water Content, %	24.1	24.1	24.1
	Dry Density, pcf	105.3	101.8	101.8
	Saturation, %	107.3	98.3	98.3
	Void Ratio	0.6119	0.6675	0.6678
	Diameter, in.	2.76	2.79	2.81
	Height, in.	1.20	1.22	1.30
At Test	Water Content, %	25.2	22.6	23.9
	Dry Density, pcf	113.0	110.1	110.0
	Saturation, %	136.5	113.5	119.5
	Void Ratio	0.5030	0.5427	0.5432
	Diameter, in.	2.76	2.79	2.81
	Height, in.	1.12	1.13	1.20
Normal Stress, psf		1720	3990	6960
Fail. Stress, psf		1045	2612	4627
Strain, %		5.3	13.3	10.2
Ult. Stress, psf		1102	2600	4632
Strain, %		13.9	14.2	10.6
Strain rate, in./min.		0.004	0.004	0.004

Sample Type: Shelby
Description: CL - LEAN CLAY

LL= 33 **PL=** 19 **PI=** 14
Specific Gravity= 2.72
Remarks:

Figure _____

Client: WSDOT (Geotechnical Office)

Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Location: NE-104VW-22
Sample Number: S-9 **Depth:** 29'
Proj. No.: XL5446 **Date Sampled:** 11/14/2022

DIRECT SHEAR TEST REPORT
Washington State Department of Transportation
Olympia, WA

Tested By: TJM **Checked By:** SLW

DIRECT SHEAR TEST

12/20/2022

Date: 11/14/2022
Client: WSDOT (Geotechnical Office)
Project: I-405 / SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Project No.: XL5446
Location: NE-104VW-22
Depth: 29' **Sample Number:** S-9
Description: CL - LEAN CLAY
Remarks:
Type of Sample: Shelby
Specific Gravity=2.72 **LL=**33 **PL=**19 **PI=**14

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	778.900		340.290
Moisture content: Dry soil+tare, gms.	669.740		290.580
Moisture content: Tare, gms.	217.300		93.620
Moisture, %	24.1	25.2	25.2
Moist specimen weight, gms.	246.4		
Diameter, in.	2.76	2.76	
Area, in.²	5.98	5.98	
Height, in.	1.20	1.12	
Net decrease in height, in.		0.08	
Wet density, pcf	130.8	141.5	
Dry density, pcf	105.3	113.0	
Void ratio	0.6119	0.5030	
Saturation, %	107.3	136.5	

Test Readings for Specimen No. 1

Normal stress = 1720 psf
Strain rate, in./min. = 0.004
Fail. Stress = 1045 psf **at reading no.** 27
Ult. Stress = 1102 psf **at reading no.** 47

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3522	2.235	0.0	0.0	0
1	0.3522	2.235	0.0	0.0	0
2	0.3522	2.235	0.0	0.0	0
3	0.3522	2.208	0.0	0.0	-1
4	0.3522	2.181	-0.1	0.0	-1
5	0.3522	2.154	-0.1	0.0	-2
6	0.3522	2.127	-0.1	0.0	-3
7	0.3522	2.073	-0.2	0.0	-4
8	0.3525	2.558	0.3	0.0	8
9	0.3529	2.989	0.8	0.0	18
10	0.3533	2.935	0.7	0.0	17
11	0.3537	2.854	0.6	0.1	15
12	0.3538	2.962	0.7	0.1	17
13	0.3553	2.154	-0.1	0.1	-2

Test Readings for Specimen No. 1

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
14	0.3574	4.416	2.2	0.2	52
15	0.3594	5.574	3.3	0.3	80
16	0.3704	12.843	10.6	0.7	255
17	0.3824	17.555	15.3	1.1	369
18	0.3937	23.613	21.4	1.5	515
19	0.4052	29.698	27.5	1.9	661
20	0.4165	34.653	32.4	2.3	780
21	0.4291	38.664	36.4	2.8	877
22	0.4408	41.330	39.1	3.2	941
23	0.4525	43.403	41.2	3.6	991
24	0.4646	43.699	41.5	4.1	998
25	0.4761	44.265	42.0	4.5	1012
26	0.4875	45.180	42.9	4.9	1034
27	0.4996	45.638	43.4	5.3	1045
28	0.5113	45.234	43.0	5.8	1035
29	0.5228	45.342	43.1	6.2	1038
30	0.5348	44.938	42.7	6.6	1028
31	0.5475	43.053	40.8	7.1	982
32	0.5586	42.676	40.4	7.5	973
33	0.5710	43.161	40.9	7.9	985
34	0.5822	43.646	41.4	8.3	997
35	0.5940	44.130	41.9	8.8	1008
36	0.6062	44.723	42.5	9.2	1023
37	0.6180	45.315	43.1	9.6	1037
38	0.6301	45.800	43.6	10.1	1049
39	0.6419	46.284	44.0	10.5	1060
40	0.6540	46.850	44.6	10.9	1074
41	0.6658	47.227	45.0	11.4	1083
42	0.6775	47.523	45.3	11.8	1090
43	0.6896	47.604	45.4	12.2	1092
44	0.7012	47.738	45.5	12.6	1095
45	0.7125	47.846	45.6	13.1	1098
46	0.7253	47.846	45.6	13.5	1098
47	0.7367	48.007	45.8	13.9	1102
48	0.7483	48.304	46.1	14.4	1109
49	0.7527	48.384	46.1	14.5	1111

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	778.900		328.780
Moisture content: Dry soil+tare, gms.	669.740		283.640
Moisture content: Tare, gms.	217.300		84.320
Moisture, %	24.1	22.6	22.6
Moist specimen weight, gms.	247.5		
Diameter, in.	2.79	2.79	
Area, in.²	6.11	6.11	
Height, in.	1.22	1.13	
Net decrease in height, in.		0.09	
Wet density, pcf	126.4	135.0	
Dry density, pcf	101.8	110.1	
Void ratio	0.6675	0.5427	
Saturation, %	98.3	113.5	

Test Readings for Specimen No. 2

Normal stress = 3990 psf
Strain rate, in./min. = 0.004
Fail. Stress = 2612 psf **at reading no.** 46
Ult. Stress = 2600 psf **at reading no.** 48

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3472	2.208	0.0	0.0	0
1	0.3472	2.208	0.0	0.0	0
2	0.3472	2.208	0.0	0.0	0
3	0.3472	2.208	0.0	0.0	0
4	0.3472	2.208	0.0	0.0	0
5	0.3472	2.208	0.0	0.0	0
6	0.3472	2.208	0.0	0.0	0
7	0.3472	1.912	-0.3	0.0	-7
8	0.3474	2.962	0.8	0.0	18
9	0.3476	4.227	2.0	0.0	48
10	0.3479	5.331	3.1	0.0	74
11	0.3483	6.354	4.1	0.0	98
12	0.3487	7.431	5.2	0.1	123
13	0.3507	9.558	7.4	0.1	173
14	0.3523	6.274	4.1	0.2	96
15	0.3545	8.697	6.5	0.3	153
16	0.3658	32.768	30.6	0.7	720
17	0.3772	48.896	46.7	1.1	1100
18	0.3883	61.847	59.6	1.5	1405
19	0.3999	72.402	70.2	1.9	1653
20	0.4117	80.317	78.1	2.3	1840
21	0.4231	87.130	84.9	2.7	2000
22	0.4351	92.757	90.5	3.2	2133
23	0.4461	95.772	93.6	3.5	2204
24	0.4585	98.007	95.8	4.0	2256
25	0.4699	102.800	100.6	4.4	2369
26	0.4816	106.410	104.2	4.8	2454
27	0.4930	107.350	105.1	5.2	2477

Test Readings for Specimen No. 2

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.5053	105.650	103.4	5.7	2436
29	0.5173	106.380	104.2	6.1	2454
30	0.5286	107.480	105.3	6.5	2480
31	0.5410	107.970	105.8	6.9	2491
32	0.5526	107.620	105.4	7.4	2483
33	0.5639	107.080	104.9	7.8	2470
34	0.5762	107.650	105.4	8.2	2484
35	0.5881	108.320	106.1	8.6	2499
36	0.5996	108.750	106.5	9.0	2509
37	0.6119	109.210	107.0	9.5	2520
38	0.6234	109.290	107.1	9.9	2522
39	0.6353	109.960	107.8	10.3	2538
40	0.6477	110.850	108.6	10.8	2559
41	0.6593	111.250	109.0	11.2	2568
42	0.6713	111.930	109.7	11.6	2584
43	0.6836	112.390	110.2	12.1	2595
44	0.6947	112.740	110.5	12.5	2603
45	0.7065	112.950	110.7	12.9	2608
46	0.7186	113.090	110.9	13.3	2612
47	0.7306	112.870	110.7	13.7	2607
48	0.7428	112.600	110.4	14.2	2600
49	0.7471	112.360	110.2	14.3	2595

Parameters for Specimen No. 3

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	778.900		343.440
Moisture content: Dry soil+tare, gms.	669.740		292.910
Moisture content: Tare, gms.	217.300		81.230
Moisture, %	24.1	23.9	23.9
Moist specimen weight, gms.	267.4		
Diameter, in.	2.81	2.81	
Area, in.²	6.20	6.20	
Height, in.	1.30	1.20	
Net decrease in height, in.		0.10	
Wet density, pcf	126.4	136.3	
Dry density, pcf	101.8	110.0	
Void ratio	0.6678	0.5432	
Saturation, %	98.3	119.5	

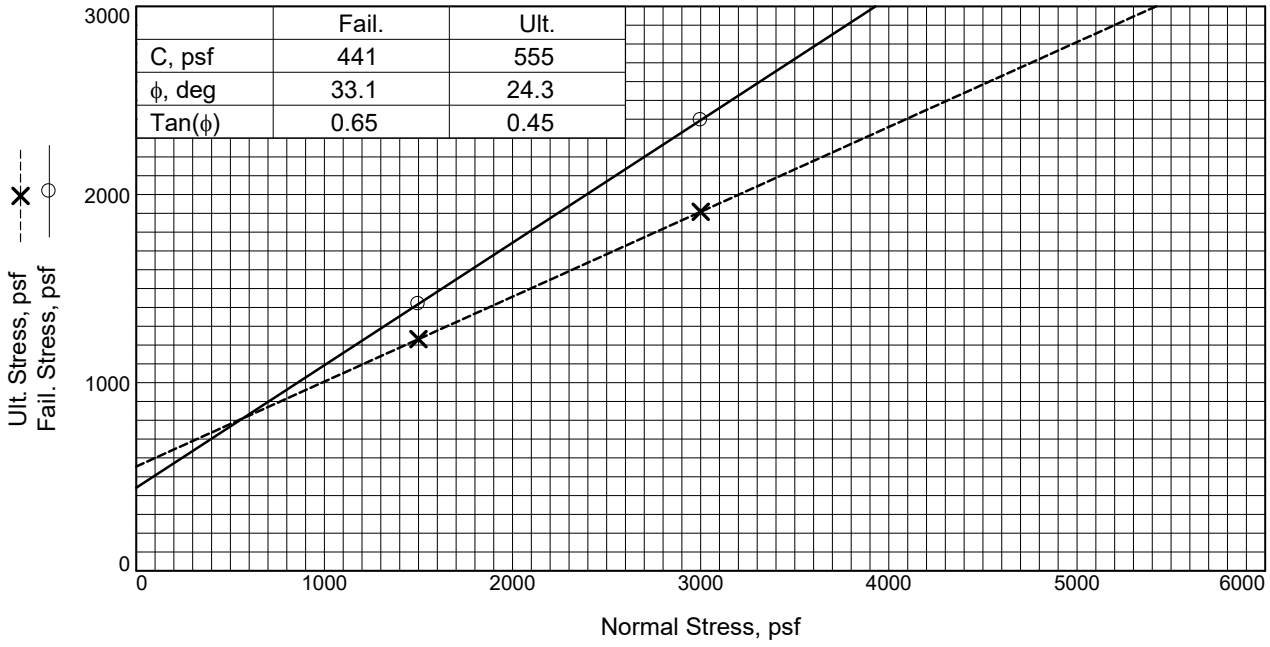
Test Readings for Specimen No. 3

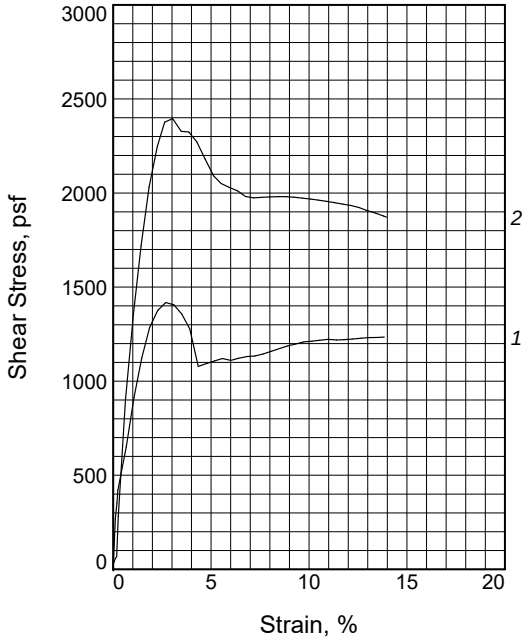
Normal stress = 6960 psf
Strain rate, in./min. = 0.004
Fail. Stress = 4627 psf **at reading no.** 39
Ult. Stress = 4632 psf **at reading no.** 40

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.3388	1.535	0.0	0.0	0
1	0.3388	1.535	0.0	0.0	0
2	0.3388	1.508	0.0	0.0	-1
3	0.3388	1.508	0.0	0.0	-1
4	0.3388	1.481	-0.1	0.0	-1
5	0.3388	1.454	-0.1	0.0	-2
6	0.3388	1.427	-0.1	0.0	-3
7	0.3388	1.319	-0.2	0.0	-5
8	0.3390	2.046	0.5	0.0	12
9	0.3392	2.504	1.0	0.0	23
10	0.3395	3.366	1.8	0.0	43
11	0.3396	4.200	2.7	0.0	62
12	0.3398	5.223	3.7	0.0	86
13	0.3422	11.874	10.3	0.1	240
14	0.3436	18.121	16.6	0.2	385
15	0.3456	23.398	21.9	0.2	508
16	0.3571	50.054	48.5	0.7	1127
17	0.3681	69.574	68.0	1.0	1580
18	0.3792	87.695	86.2	1.4	2001
19	0.3905	103.820	102.3	1.8	2375
20	0.4020	118.040	116.5	2.2	2705
21	0.4133	131.770	130.2	2.6	3024
22	0.4252	142.970	141.4	3.1	3284
23	0.4364	151.830	150.3	3.5	3490
24	0.4476	158.430	156.9	3.9	3643
25	0.4598	163.350	161.8	4.3	3757
26	0.4717	168.070	166.5	4.7	3867
27	0.4832	172.890	171.4	5.1	3979

Test Readings for Specimen No. 3

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.4952	176.600	175.1	5.6	4065
29	0.5066	178.460	176.9	6.0	4108
30	0.5185	180.800	179.3	6.4	4163
31	0.5304	183.820	182.3	6.8	4233
32	0.5423	187.480	185.9	7.2	4318
33	0.5542	190.140	188.6	7.7	4379
34	0.5659	193.130	191.6	8.1	4449
35	0.5777	195.020	193.5	8.5	4493
36	0.5899	196.850	195.3	8.9	4535
37	0.6012	198.680	197.1	9.3	4578
38	0.6137	200.210	198.7	9.8	4613
39	0.6250	200.810	199.3	10.2	4627
40	0.6370	201.000	199.5	10.6	4632
41	0.6495	201.700	200.2	11.1	4648
42	0.6612	202.310	200.8	11.5	4662
43	0.6732	202.910	201.4	11.9	4676
44	0.6847	203.580	202.0	12.3	4691
45	0.6968	204.500	203.0	12.7	4713
46	0.7086	205.250	203.7	13.2	4730
47	0.7208	205.870	204.3	13.6	4745
48	0.7322	206.000	204.5	14.0	4748
49	0.7392	205.950	204.4	14.2	4746





Sample No.		1	2
Initial	Water Content, %	33.4	33.4
	Dry Density, pcf	88.7	95.2
	Saturation, %	101.4	118.5
	Void Ratio	0.8789	0.7517
	Diameter, in.	2.88	2.88
	Height, in.	1.17	1.22
At Test	Water Content, %	27.3	25.8
	Dry Density, pcf	90.2	97.2
	Saturation, %	86.0	96.3
	Void Ratio	0.8475	0.7150
	Diameter, in.	2.88	2.88
	Height, in.	1.15	1.19
Normal Stress, psf		1500	3000
Fail. Stress, psf		1418	2395
Strain, %		2.7	3.0
Ult. Stress, psf		1231	1908
Strain, %		13.0	12.9
Strain rate, %/min.		0.0040	0.0040

Sample Type: Shelby
Description: CH - FAT CLAY

LL= 54 **PL=** 23 **PI=** 31
Specific Gravity= 2.67
Remarks:

Figure _____

Client: WSDOT (Geotechnical Office)

Project: I-90 SR 900 Pre-Design Piezometers

Location: NE-104VW-22
Sample Number: S-13 **Depth:** 39.3
Proj. No.: XL5446 **Date Sampled:**

DIRECT SHEAR TEST REPORT
Washington State Department of Transportation
Olympia, WA

Tested By: TJM **Checked By:** SLW

DIRECT SHEAR TEST

12/14/2022

Date:
Client: WSDOT (Geotechnical Office)
Project: I-90 SR 900 Pre-Design Piezometers
Project No.: XL5446
Location: NE-104VW-22
Depth: 39.3 **Sample Number:** S-13
Description: CH - FAT CLAY
Remarks:
Type of Sample: Shelby
Specific Gravity=2.67 **LL=**54 **PL=**23 **PI=**31

Parameters for Specimen No. 1

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	1260.750		296.320
Moisture content: Dry soil+tare, gms.	1127.060		250.200
Moisture content: Tare, gms.	726.370		81.210
Moisture, %	33.4	27.3	27.3
Moist specimen weight, gms.	236.5		
Diameter, in.	2.88	2.88	
Area, in.²	6.54	6.54	
Height, in.	1.17	1.15	
Net decrease in height, in.		0.02	
Wet density, pcf	118.3	114.8	
Dry density, pcf	88.7	90.2	
Void ratio	0.8789	0.8475	
Saturation, %	101.4	86.0	

Test Readings for Specimen No. 1

Normal stress = 1500 psf
Strain rate, %/min. = 0.0040
Fail. Stress = 1418 psf **at reading no.** 21
Ult. Stress = 1231 psf **at reading no.** 46

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.4148	1.535	0.0	0.0	0
1	0.4148	1.535	0.0	0.0	0
2	0.4148	1.508	0.0	0.0	-1
3	0.4148	1.642	0.1	0.0	2
4	0.4149	2.046	0.5	0.0	11
5	0.4150	2.531	1.0	0.0	22
6	0.4151	3.042	1.5	0.0	33
7	0.4152	3.446	1.9	0.0	42
8	0.4156	5.143	3.6	0.0	79
9	0.4160	6.489	5.0	0.0	109
10	0.4163	7.485	6.0	0.1	131
11	0.4165	8.293	6.8	0.1	149
12	0.4167	9.316	7.8	0.1	171
13	0.4179	13.678	12.1	0.1	267

Test Readings for Specimen No. 1

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
14	0.4203	17.528	16.0	0.2	352
15	0.4217	20.598	19.1	0.2	420
16	0.4341	31.098	29.6	0.7	651
17	0.4455	42.972	41.4	1.1	913
18	0.4568	52.477	50.9	1.5	1122
19	0.4685	59.854	58.3	1.9	1285
20	0.4803	64.001	62.5	2.3	1376
21	0.4922	65.913	64.4	2.7	1418
22	0.5043	65.347	63.8	3.1	1406
23	0.5158	63.139	61.6	3.5	1357
24	0.5275	59.558	58.0	3.9	1278
25	0.5401	50.485	49.0	4.3	1078
26	0.5527	51.211	49.7	4.8	1094
27	0.5641	51.804	50.3	5.2	1107
28	0.5757	52.396	50.9	5.6	1120
29	0.5880	51.938	50.4	6.0	1110
30	0.5997	52.450	50.9	6.4	1122
31	0.6118	52.881	51.3	6.8	1131
32	0.6236	53.015	51.5	7.2	1134
33	0.6355	53.500	52.0	7.6	1145
34	0.6476	54.146	52.6	8.1	1159
35	0.6600	54.819	53.3	8.5	1174
36	0.6721	55.466	53.9	8.9	1188
37	0.6837	55.896	54.4	9.3	1197
38	0.6956	56.408	54.9	9.7	1209
39	0.7080	56.570	55.0	10.2	1212
40	0.7193	56.812	55.3	10.6	1218
41	0.7315	57.027	55.5	11.0	1222
42	0.7437	56.866	55.3	11.4	1219
43	0.7548	56.920	55.4	11.8	1220
44	0.7671	57.108	55.6	12.2	1224
45	0.7796	57.297	55.8	12.6	1228
46	0.7912	57.431	55.9	13.0	1231
47	0.8034	57.485	56.0	13.5	1232
48	0.8142	57.566	56.0	13.8	1234

Parameters for Specimen No. 2

Specimen Parameter	Initial	Consolidated	Final
Moisture content: Moist soil+tare, gms.	1260.750		320.320
Moisture content: Dry soil+tare, gms.	1127.060		271.520
Moisture content: Tare, gms.	726.370		82.300
Moisture, %	33.4	25.8	25.8
Moist specimen weight, gms.	265.7		
Diameter, in.	2.88	2.88	
Area, in.²	6.54	6.54	
Height, in.	1.22	1.19	
Net decrease in height, in.		0.03	
Wet density, pcf	126.9	122.3	
Dry density, pcf	95.2	97.2	
Void ratio	0.7517	0.7150	
Saturation, %	118.5	96.3	

Test Readings for Specimen No. 2

Normal stress = 3000 psf
Strain rate, %/min. = 0.0040
Fail. Stress = 2395 psf **at reading no.** 22
Ult. Stress = 1908 psf **at reading no.** 46

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
0	0.4068	1.723	0.0	0.0	0
1	0.4068	1.723	0.0	0.0	0
2	0.4068	1.696	0.0	0.0	-1
3	0.4068	1.696	0.0	0.0	-1
4	0.4068	1.669	-0.1	0.0	-1
5	0.4068	1.642	-0.1	0.0	-2
6	0.4068	1.642	-0.1	0.0	-2
7	0.4068	1.373	-0.4	0.0	-8
8	0.4069	2.639	0.9	0.0	20
9	0.4072	3.042	1.3	0.0	29
10	0.4074	3.393	1.7	0.0	37
11	0.4079	3.446	1.7	0.0	38
12	0.4084	3.689	2.0	0.1	43
13	0.4101	4.362	2.6	0.1	58
14	0.4119	4.793	3.1	0.2	68
15	0.4144	14.459	12.7	0.3	281
16	0.4250	42.622	40.9	0.6	901
17	0.4367	63.409	61.7	1.0	1359
18	0.4479	79.752	78.0	1.4	1719
19	0.4596	93.915	92.2	1.8	2031
20	0.4718	103.770	102.0	2.3	2248
21	0.4827	109.610	107.9	2.6	2377
22	0.4944	110.450	108.7	3.0	2395
23	0.5070	107.400	105.7	3.5	2328
24	0.5182	107.240	105.5	3.9	2324
25	0.5300	104.870	103.1	4.3	2272
26	0.5424	100.670	98.9	4.7	2180
27	0.5547	96.661	94.9	5.1	2091

Test Readings for Specimen No. 2

No.	Horizontal Def. Dial in.	Load Dial	Load lbs.	Strain %	Shear Stress psf
28	0.5658	94.830	93.1	5.5	2051
29	0.5779	93.861	92.1	5.9	2030
30	0.5900	93.053	91.3	6.3	2012
31	0.6018	91.680	90.0	6.8	1982
32	0.6140	91.357	89.6	7.2	1974
33	0.6256	91.464	89.7	7.6	1977
34	0.6374	91.572	89.8	8.0	1979
35	0.6496	91.653	89.9	8.4	1981
36	0.6615	91.653	89.9	8.8	1981
37	0.6733	91.518	89.8	9.2	1978
38	0.6855	91.276	89.6	9.7	1973
39	0.6975	91.061	89.3	10.1	1968
40	0.7092	90.791	89.1	10.5	1962
41	0.7208	90.522	88.8	10.9	1956
42	0.7331	90.199	88.5	11.3	1949
43	0.7451	89.822	88.1	11.7	1941
44	0.7568	89.526	87.8	12.1	1934
45	0.7686	89.041	87.3	12.5	1923
46	0.7802	88.341	86.6	12.9	1908
47	0.7926	87.722	86.0	13.4	1894
48	0.8049	86.968	85.2	13.8	1878
49	0.8093	86.726	85.0	13.9	1872

APPENDIX C – PROJECT GROUNDWATER DATA

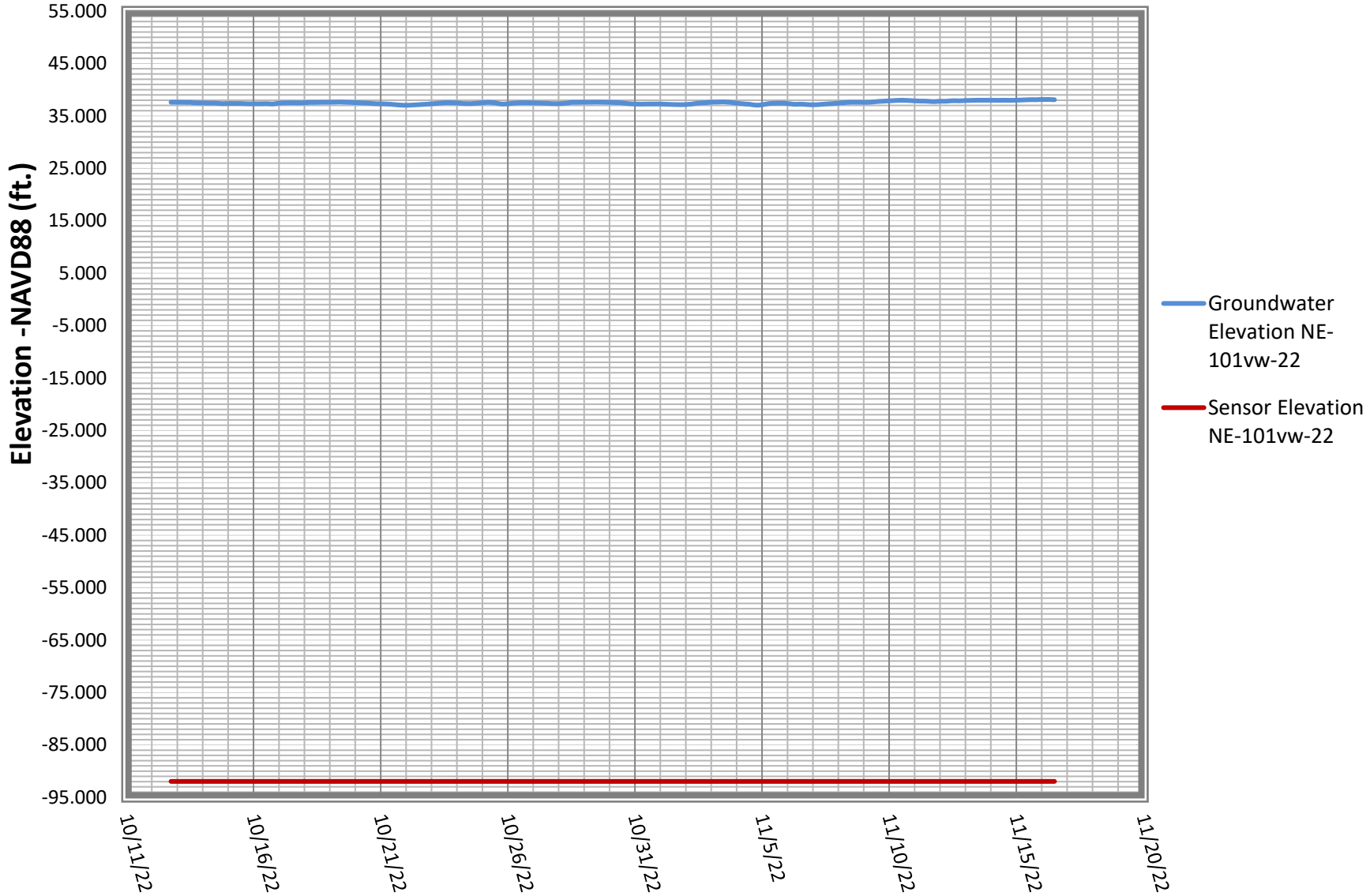
Table C-1 Summary of Groundwater Monitoring Results, I-405, Brickyard to SR 527 Improvement Project

Boring ID	Sensor Elev. (ft)	Water Level Elevation (ft)				Reading Period	
		Min.	Max.	Average	Standard Deviation (SD)	From	To
NE-101vw-22	52.0	37.0	38.1	37.5	0.26	10-12-22	11-16-22
NE-102vw-22	54.3	75.7	81.8	79.4	2.03	10-12-22	11-16-22
NE-103vw-22	-55.9	34.8	35.9	35.3	0.26	10-12-22	11-16-22
NE-104vw-22	-46.7	35.2	36.4	35.7	0.27	10-12-22	11-16-22

Notes:

1. Refer to boring logs for the well construction details.

Figure C-47. Groundwater Elevation Versus Time
NE-101vw-22



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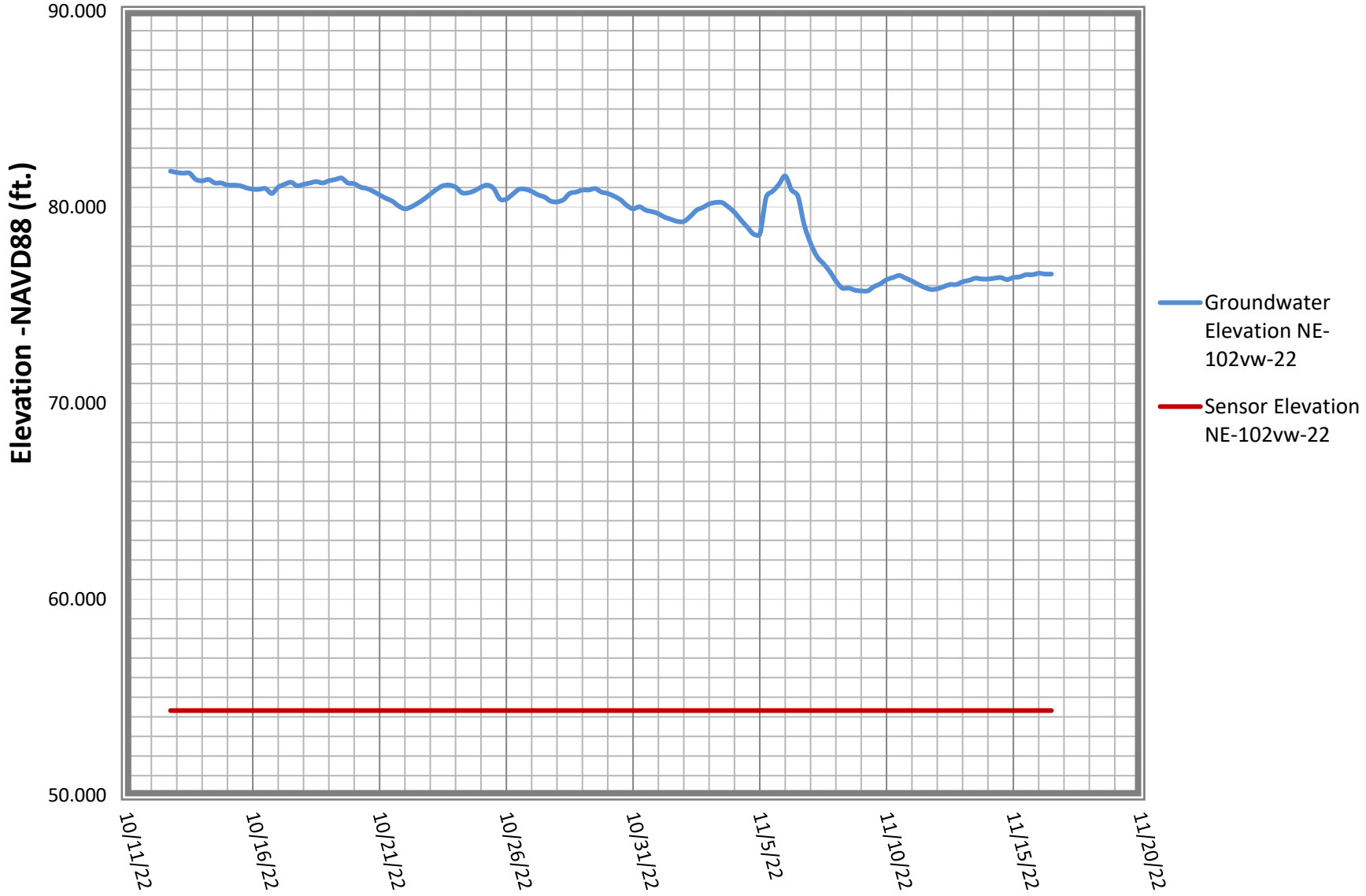
GDR: I-405, Brickyard to SR 527 Improvement Project

Figure C-48. Groundwater Elevation Versus Time
NE-102vw-22



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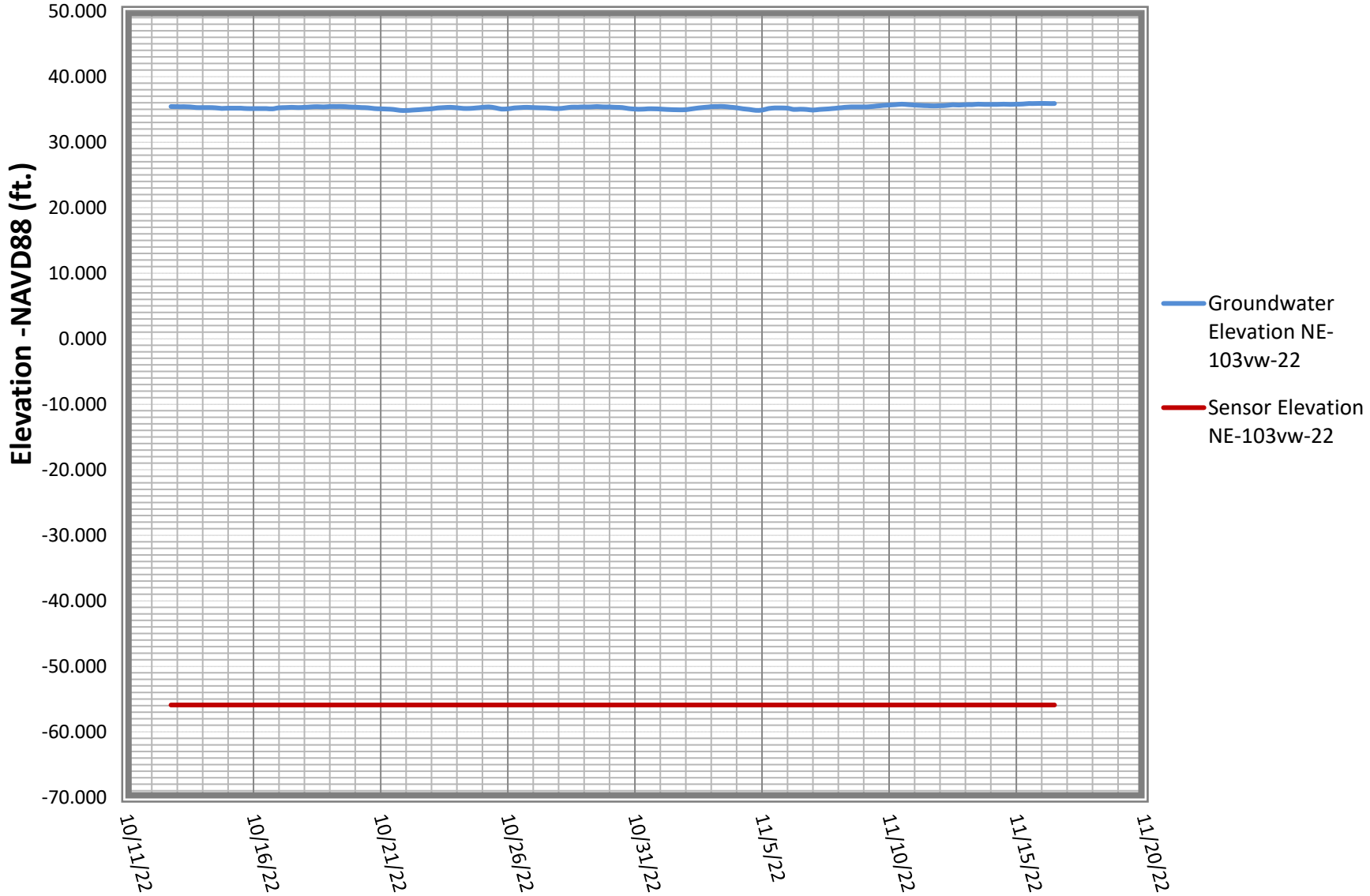
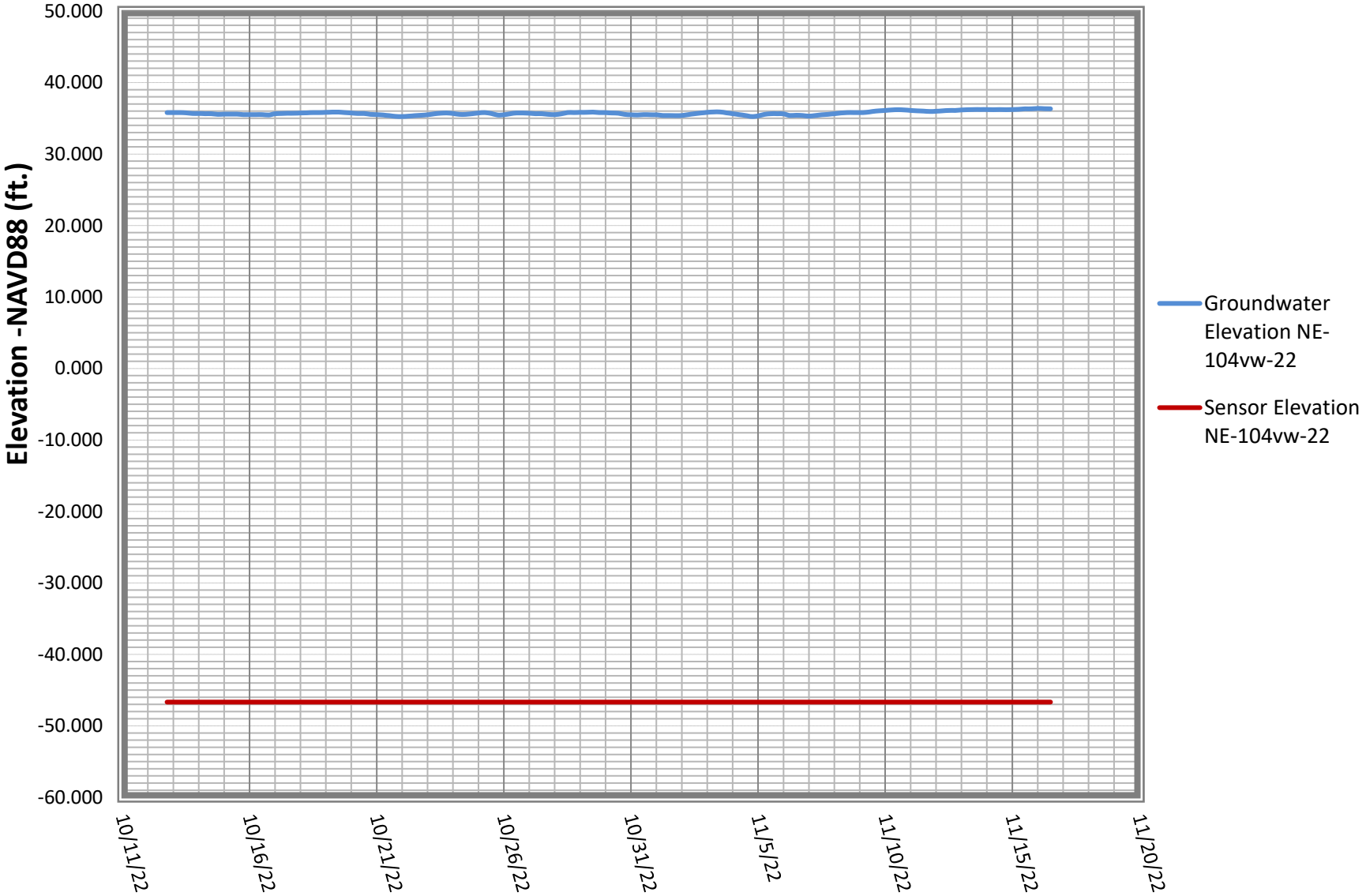
GDR: I-405, Brickyard to SR 527 Improvement Project

Figure C-49. Groundwater Elevation Versus Time
NE-103vw-22



WSDOT Geotechnical Office
GDR: I-405, Brickyard to SR 527 Improvement Project

Figure C-50. Groundwater Elevation Versus Time
NE-104vw-22



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GDR: I-405, Brickyard to SR 527 Improvement Project