Revised Geotechnical Report

ANC FedEx Sorting Facility

Anchorage, Alaska

June 2023

Contact
Steven Halcomb, PE, GE, DGE
shalcomb@crweng.com

3940 Arctic Blvd., Suite 300 Anchorage, AK 99503
p (907) 562.3252 | **f** (907) 561.2273

[THIS PAGE LEFT INTENTIONALLY BLANK]

Revised Geotechnical Report
ANC FedEx Sorting Facility

Submitted To:

Mr. Matt Van Goethem, Construction Manager
MCG Explore Design
Anchorage, Alaska

Submitted By:

CRW Engineering Group, Inc.
3940 Arctic Blvd., Suite 300
Anchorage, AK 99503
(907) 562-3252
www.crweng.com

Steven M. Halcomb
CE-12939
06.15.2023

Steven Halcomb, PE, GE, D.GE
Senior Geotechnical Engineer

Alison Sacks, PE
Geotechnical Engineer

June 2023
CRW Project Number 73138.00

Table of Contents

Tables

Figures

Appendices

1. Introduction and Project Description

CRW Engineering Group, Inc. (CRW) is pleased to present this geotechnical data and design recommendations report to support the site development of a new aviation cargo sorting facility with plane parking at the Ted Stevens International Airport (ANC) in Anchorage, Alaska. Figure 1 shows the project location with reference to Anchorage, Alaska.

A geotechnical investigation was conducted by CRW for MCG Explore Design (MCG) working through their agreement with FedEx.

The scope of work included:

- Performing a geotechnical investigation which included advancing peat probes and boreholes over the approximately 22-acre lot.
- Overseeing laboratory testing of recovered soil samples including consolidation tests, moisture content, grain size distribution with hydrometer, and Atterberg Limits.
- Analysis of field observations and testing results.
- Performing settlement calculations.
- Preparing the geotechnical report to provide recommendations.

1.1 Revised Report

CRW has prepared this revised final report to include the use of Geopiers ground improvement beneath the proposed building.

2. Site Conditions

The project is located on the east side of ANC, west of North Tug Road, east of the Remain Overnight Parking area, and south of the existing FedEx facility. This area is currently outside of the existing security fence. The site is approximately 22 acres, with overall dimensions of approximately 875 by 1080 feet.

The site has minimal topography and is primarily composed of wetlands. The National Wetlands Inventory lists three wetland classifications in this area: Freshwater Emergent Wetland (PEM1/SS1C), Freshwater Forested/Shrub Wetland (PSS4/1B), and Freshwater Forested/Shrub Wetland (PSS1/EM1B). Several areas appear to have been filled with granular material in the past, and these areas host many of the trees and shrubs that cover the lot. The unaltered portions of the lost include grassy wetlands with hummock and tussock terrain. The west and south edges of the site are particularly soft and wet.

To the west and south, the site is bounded by wetlands. To the south the wetlands extend to the ANC Airfield Maintenance and Fire Training facilities with only limited alteration to the natural state. The wetlands to the west transition to higher ground and ultimately to the fill upon which the Remain Overnight Parking Area and taxiways are built. To the east of the site is Tug Road which is built on a berm approximately 10 feet above the wetland grade. To the north, Taxiway U separates the site from the existing FedEx facility. Taxiway U does not extend all the way to North Tug Road.

Shallowly buried remnants of a small wooden structure or structures were found in the western portion of the site. The origin and purpose of the structures are unknown.

Site drainage has been enhanced by a few corrugated metal drainage basins and a network of ditches up to approximately 8 feet wide that lead to a drainage point in the northeast corner of the lot. It is believed that this outlet leads to an outfall into the Knik Arm to the north. The soil removed from the ditches is piled in narrow mounds parallel to the ditches and consists primarily of organics that now host many trees, shrubs, and other vegetation.

Minimal utilities are known to be located on the site. Communications and power lines run parallel and adjacent to North Tug Road.

3. Subsurface Exploration /Field Investigation

For a description of activities and results of the peat probing effort undertaken in May of 2021, see CRW's memorandum titled *Peat Probe Investigation Findings* (CRW, 2021). A geotechnical investigation was completed between the 3rd and 11th of March 2022, to assess the project site's existing soil conditions. The investigation drilled and sampled 16 boreholes (BH-01 through BH-16). Borehole logs are presented in Appendix A.

Borehole locations were pre-determined from the conceptual layout plan. Minor field adjustments to some of the boring locations were made to provide better access for the drilling equipment.

3.1 Subsurface Investigation

Drilling services were provided by GeoTek Alaska, Inc. (GTA) of Anchorage, Alaska, using a track-mounted Geoprobe 7822DT drill rig. The drill rig was equipped with a nominal 8-inch outer diameter (O.D.) hollow-stem auger and a 3.25-inch inner diameter (I.D.) continuous flight, hollow stem auger, which was used to advance the drilling and reach the target depths for each borehole. At selected borehole locations, vane shear tests were conducted at pre-selected depths within the peat identified during the peat probe investigation to characterize the undrained shear strengths of the peat. Undisturbed samples of peat were also collected in selected locations for primary consolidation testing. Where the depths of vane shear and consolidation tests overlapped, an offset hole was drilled to ensure test and sample quality. Utilities were located prior to any drilling.

CRW engineers supervised the field exploration program, recovered soil samples, executed vane shear tests, and managed field operations. Borings were advanced to depths ranging from 31.5 to 76.5 feet below ground surface (BGS). Borehole locations are presented in Figure 2 which also provide the thickness of peat as determined during CRW's previous peat probe field work.

3.2 Sample Collection

Bulk soil samples were obtained from the borings by advancing a standard split-spoon sampler into the soil beyond the bottom of the auger or by collecting cuttings from the auger. Driven samples were collected using a 2-inch O.D. split-spoon sampler as a Standard Penetration Test (SPT). The sampler was driven 18 or 24 inches, counted in 6-inch intervals, using a 140-pound automatic hammer. The number of blows required to drive the sampler each 6-inch interval is reported on the borehole logs. The blow counts shown on the borehole logs are uncorrected values.

Samples for consolidation testing were collected in Shelby tubes advanced over the selected interval using the drill rig mast. Tubes were capped immediately upon retrieval and were transported and stored with care to prevent freezing and excessive jostling before being submitted to the laboratory.

Recovered samples were visually classified in the field before being individually sealed in double plastic bags and transported for additional testing. Field visual classifications were verified per laboratory testing. Soil characteristics, such as classification, consistency, moisture, and color were noted for each sample recovered. The classification was performed following the Unified Soils Classification System (USCS), according to ASTM D2487/D2488. Frost classifications of the soil are described according to the United

States Department of Transportation Federal Aviation Administration's (FAA) Advisory Circular (AC) Number 150/5320-6G (Airport Pavement Design and Evaluation) and reference to the Municipality of Anchorage (MOA) Design Criteria Manual (DCM) standard.

3.3 Borehole Completion

All boreholes were backfilled with cuttings brought to the ground surface during drilling. Eight piezometers were installed at the site. Piezometer wells (constructed of 1-inch Schedule 80 PVC with threaded joints and hand-slotted screens) were installed to varying depths. Wells with piezometers were left with 1.5 to 4.5 feet of stickup above the ground surface.

Table 3-1 – Borehole Completion Summary

Borehole Designation	Total Depth (feet BGS)	Completion Type	Piezometer (if applicable)			Peat Depth (feet BGS)
			Screened Interval (feet BGS)	PVC Total Depth (feet BGS)	Stickup Height (feet)	
BH-01	32	Piezometer	21.5 – 31.5	31.5	1.7	9.0
BH-02	76.5	Backfilled	-	-	-	3.0
BH-03	52	Piezometer	8.5 – 38.5	38.5	3.0	7.5
BH-04	41.5	Backfilled	-	-	-	15.5
BH-05	39	Backfilled	-	-	-	9.5
BH-06	31.5	Piezometer	2.0 – 12.0	12.0	3.3	2.75
BH-07	67	Backfilled	-	-	-	8.8
BH-08	37	Piezometer	7.0 – 27.0	37.0	1.5	6.0
BH-09	31.5	Backfilled	-	-	-	1.25
BH-10	36.5	Piezometer	7.0 – 17.0	37	2.9	7.0
BH-11	37	Backfilled	-	-	-	4.5
BH-12	51.5	Backfilled	-	-	-	5.0
BH-13	37	Piezometer	9.0 – 24.0	33.1	3.8	No peat
BH-14	36.5	Piezometer	8.4 – 18.4	23.4	3.8	No peat
BH-15	32	Piezometer	6.8 – 16.8	21.8	4.5	No peat
BH-16	32	Backfilled	-	-	-	7.0

All borings were restored to original grade while striving to maintain original drainage patterns. The presence of snow made this difficult in some cases.

4. Laboratory Testing and Results

4.1 Testing Summary

Soil laboratory tests to evaluate index properties of representative samples were performed by Alaska Testlab at their Anchorage facility. The laboratory tests were performed in accordance with the test methods of ASTM International or laboratory procedures, as summarized in Table 4-1. In total, 186 samples were submitted for testing.

The laboratory testing consisted of soil index tests for: water content, grain-size distribution, Atterberg Limits, frost classification, organic content by loss on ignition (LOI) and Limited Mechanical Analysis (LMA) to determine percentages of gravel, sand, and fines content. Advanced testing included consolidation testing on samples of undisturbed peat.

LMA consists of washing a sample over the Number 200 mesh sieve. The coarse fraction of the remaining soil is then dried and sieved through the Number 4 sieve to determine the sand and gravel content. The LMA is a means to determine the percentage of coarse and fine soil in a sample without having to perform full gradations. Because LMAs are not full gradations, all classifications of clean granular soils are "poorly graded" even though the soil may, in fact, be well graded. Qualitative observations of grain sizes are included in the soil descriptions on the logs in Appendix A.

Results of the laboratory testing are presented in Appendix B.

Table 4-1 – Laboratory Tests

Analysis	Method	Quantity
Water Content	ASTM D2216	176
Grain-size Distribution including hydrometer	ASTM D6913 ASTM D422	3 2
Atterberg Limits	ASTM D4318	27
Limited Mechanical Analysis	Laboratory procedure	34
Organic Content by LOI	ASTM D2974	1
Consolidation Test	ASTM D7181 ASTM D2435	8

4.2 Results

All samples were tested for their water content. In granular soils the water content varied between 7 and 37 percent. For silts and clays, water contents up to 33 percent were recorded. Several samples with organic material were analyzed, and water contents found to vary between 49 and 1757 percent.

Native soils comprise silts, sandy silts, silty sands, clays, and occasional layers of well-sorted sand. Gravel was rarely observed across the site in native soils, and where present was subrounded to rounded and less than one inch in diameter.

Thirty-nine samples were selected for grain-size distribution testing or LMA. Fines contents ranged from 9 to 100 percent in soils tested. Many fine-grained soils were not analyzed for grain size. Two samples were analyzed by hydrometer testing, and the fraction finer than 0.02 mm ranged from 50 to 72 percent, a frost classification of FG-4 (MOA F-4).

Twenty-seven samples were tested for their Atterberg Limits. The results of these tests determined the plasticity indices to be between 7 and 27. Most soils tested were classified as lean clay, with one classified as fat clay and one as silty clay.

Eight samples were tested for their consolidation parameters. The interpreted results of these tests are summarized below. Note that the specific gravities were estimated based on past testing of specific gravity of peats relative to their initial water content. The coefficient of consolidation is based on samples tested between 500 to 2000 pounds per square foot (PSF) to better represent loadings in the field.

Table 4-2 – Consolidation Parameters

Borehole	Sample	Depth	Initial Water Content (%)	Specific Gravity, Gs	Initial Void Ratio, e	Compression Index, Cc	Secondary Compression, Cα	Coefficient of Consolidation (ft^2/yr)[1]
BH-01	S2B	3	410	2.0	10.41	4.9	0.43	95 to 63
BH-01	S2B	3.5	346	2.10	8.02	2.8	0.13	189 to 158
BH-05	S4	7.5	1757	1.5	28.29	11.6	0.17	126[2]
BH-05	S4	8	555	1.7	12.11	6.2	0.23	88 to 47
BH-08	S2A	2.5	377	2.10	9.21	4.2	0.05	158 to 126
BH-10	S2	6	610	1.6	10.06	5.3	0.08	63 to 19
BH-10	S2	7	579	1.7	10.71	4.6	0.05	79 to 47
BH-12	S3A	4	264	1.7	4.84	2.1	0.06	79 to 57

1. Values are for the 500 PSF to 2000 PSF, respectively.
2. Issues occurred during testing. Value is for 500 PSF only.

We note that not all samples appears to have achieved completion of primary consolidation to confidently determine the secondary compression value, C_a. We recommend the standard literature value of C_a/C_c of 0.06 be used for design (Terzaghi et al., 1996).

The strain produced in the lab testing for 500 PSF loading ranged between 6 to 18 percent with an average of 9.4 percent. The strain for the 1000 PSF loading ranged between 3 to 18 percent with an average of 10.5 percent. The strain for the 2000 PSF loading ranged between 9 to 33 percent with an average of 17.7 percent.

Results of the laboratory testing are presented in Appendix B.

5. Site Conditions

5.1 Geology

The surficial geology in Anchorage was determined from the Simplified Geologic Map of Central and East Anchorage, Alaska, as mapped by R.A. Combellick with the Alaska Division of Geologic and Geophysical Surveys (DGGS) in 1999 in addition to the 1972 map by Schmoll and Dobrovolny. Ted Stevens International Airport (ANC) is located in the western portion of the MOA; the surficial geology in this area is characterized by glacially-derived sediment. Soils in the area are typically 1) well stratified and sorted silts and clays of aeolian, fluvial, or lacustrine origin; 2) well sorted sands and gravels of glacial outwash origin; or 3) silts and clays underlying coarser sediments of lacustrine origin (Schmoll, et al. 1999). Peat bogs are common in the general area.

5.2 Soil Lithology

The surface of the project area consists predominantly of a brown to black wet, very soft, fibrous peat with roots and occasional wood fragments. This peat layer ranged in thickness from 0 feet BGS on the northeast side of the site to 15 feet BGS in the southwest side of the site. The peat is underlain by a unit of gray to brown moist silty sand or silt with sand. The silty sand/silt with sand ranged between 5 feet thick on the southwest corner of the site and 5 to 20 feet thick on the north and eastern sides of the site, respectively.

Below the silty sand/silt with sand layer, was a stiff, gray, and moist layer of lean clay. The clay ranged between 3 to 40 feet BGS with depths reaching 50 to 55 ft BGS in the south half of the site. This lean clay had occasional layers of silt, silty clay, and clayey sand.

Specific variations in water content, fines content, and other lithological features were too diverse to succinctly summarize. Borehole logs are included in Appendix A with soils laboratory data in Appendix B for further information.

5.3 Vane Shear Testing

Vane shear testing was performed in mineral soils recovered in split-spoons samples and in situ in peat material. Vane shear testing of split-spoon samples was performed with a Humboldt handheld vane shear tool used in the manner recommended by the manufacturer. Vane shear tests in the peats were performed using an Acker downhole vane shear tool provided by GeoTek and deployed using the drill rig. Vane shear tests were conducted as recommended by the manufacturer using a torque wrench.

Eight downhole vane shear test locations were selected to test the range of peat undrained shear strength as determined from qualitative observations recorded during the peat probing effort in May 2021 (CRW, 2021).

The results of downhole vane shear tests in peats conducted within the upper 8 feet BGS range from 157 to 1356 PSF. Analysis of these results shows that shear strength increases with depth and that the lower limit of the undrained shear strength can be described by the following equation:

$$S_u \text{ (PSF)} = 60.6 * \text{Depth (feet)} - 21.7$$

The results of vane shear tests on split-spoon samples of cohesive material from 7.5 to 75 feet BGS show variable undrained shear strength values with no clear trend between 7.5 to 35 feet BGS. Measured undrained shear strengths range from 417.8 to 3133.5 PSF. Below 35 feet BGS, measured shear strength values range from 417.8 to 1754.8 PSF, generally increasing with depth. The trend is not marked enough to justify representation with a simple equation.

5.4 Groundwater Conditions

Groundwater, if observed during drilling, was recorded on the borehole logs. Some of the sand, silty sand, or silt layers within the clay may be water-bearing, though the predominantly clayey soils throughout the site are likely to act as aquitards. The surface water in the peat bog and shallow granular soils is perched on this clay. Other than this, there is no well-connected unconfined aquifer across the site that forms a water table. Table 5-1 provides a summary of the screened intervals and the groundwater levels at the time of drilling and several days after the completion of drilling. All depths are relative to the existing ground surface.

Table 5-1 – Summary of Groundwater Levels

Borehole Designation	Depth to Water (feet BGS)		Piezometer		
	At Time of Drilling	Nine Weeks After Drilling	Screened Interval (feet BGS)	PVC Total Depth (feet BGS)	Stickup Height (feet)
BH-01	10.5	5.05	21.5 – 31.5	31.5	4.75
BH-03	1	20.95	8.5 – 38.5	38.5	3.0
BH-06	7.5	0.7	2.0 – 12.0	12.0	3.25
BH-08	7.5	0.7	7.0 – 27.0	37.0	1.5
BH-10	Not observed	0.28	4.6 – 14.6	34.6	2.9
BH-13	7.0	4.25	4.1 – 19.1	29.1	3.8
BH-14	3.0	1.3	5.4 – 15.4	20.4	3.8
BH-15	7.5	5.3	5.8 – 15.8	20.8	4.5

5.5 Seismic Considerations

The project site lies in a region of moderate to high seismicity, and is subjected to relatively large earthquakes and strong ground motion. The Alaska Earthquake Center (AEC) has documented several moment magnitude earthquakes larger than 7.0, including the November 2018 Anchorage earthquake. The general Anchorage area is bounded by the Denali Fault to the north and east, the Castle Mountain fault to the west-southwest, and the Alaska-Aleutian Megathrust Subduction zone to the south. The project site has three dominant seismic sources that present hazards. All information below comes from the AEC, the Alaska Department of Natural Resources Division of Geological and Geophysical Surveys, and the United States Geological Survey (USGS) website (retrieved July/August 2020).

- The Denali Fault is a thrust and right-lateral strike-slip surface fault extending over 1,000 miles, located approximately 130 miles away from the project site at the nearest approach. The Denali Fault has a variable slip rate of greater than 0.2 inches/year on some segments. The central portion generated a moment magnitude earthquake of 7.9 on November 3, 2002.
- The Castle Mountain fault is a northeast-striking, active fault system located an estimated 25 miles from the project site. The fault is approximately 120 miles long and the western segment is considered active with Holocene fault scarps identified along this portion of the fault. The Castle Mountain fault has a maximum slip rate of 0.2 inches/year and an estimated maximum moment magnitude earthquake of 7.1.
- The toe of the Alaska-Aleutian Megathrust Subduction zone is approximately 200 miles from the project site. This plate boundary fault is the source of the 1964 Great Alaska Earthquake. A fault in the subducted Pacific slab was the source of the 2018 Anchorage Earthquake. The convergence and slip along the megathrust is estimated to be between 2.2 and 2.9 inches/year in a north-northwest direction.

Seismic design parameters were determined from the MOA Building Safety Design parameters, the Applied Technology Council's (ATC) online Hazards by Location tool (https://hazards.atcouncil.org/), and the United States Geological Survey (USGS) online Unified Hazard Tool (https://earthquake.usgs.gov/hazards/interactive/) in addition to considerations from the American Society of Civil Engineers (ASCE) 7-16 (2016) and the International Building Code (IBC, International Code Council, 2018). We note that ASCE 7-16 has two maximum considered earthquakes (MCE): one for geometric mean (MCE_G) and one for risk-targeted (MCE_R). See ASCE 7-16 for detailed discussion of the differences in the two MCE ground motions.

Table 5-2 provides the seismic design parameters for the 2,475-year return period (2 percent in 50 years) consistent with the IBC and ASCE 7-16. The seismic parameters below assume a Risk Category II structure. If the building has a different risk category, the parameters should be adjusted.

The borings depths were not sufficient to fully evaluate the project site class based on ASCE 7 however based on our borings, experience, and judgment, we estimate the project site class to be site class D.

The MOA has identified and mapped areas of the city where there is increased potential for ground failure during a seismic event (MOA, 2006). The map was developed based on observations of ground failure from the 1964 M9.2 earthquake and attempts to identify sites that may experience ground failure. There are five seismic hazard zones, Zones 1 through 5, that range from low to high potential for ground failure, respectively. The project site is located in Zone 3.

Table 5-2 – Seismic Design Parameters (2,475-year return period)

Description	Value (Site Class D)
Moment Magnitude, M_W	9.2
Peak Ground Acceleration, PGA_M	0.60g
S_S (0.2 second period acceleration, MOA value)	1.50g
S_1 (1 second period acceleration, MOA value)	0.55g
S_{DS} (0.2 second period acceleration)	1.00g
S_{D1} (1 second period acceleration)	0.623g

5.6 Contaminated Soils

No evidence of contaminated soils was observed during the geotechnical investigation based on olfactory screening during sample recovery. No petroleum odor or sheen was observed on any sample. Environmental sampling for PFAS was not part of CRW's scope of work and no results of environmental investigations are presented in this report.

6. Geotechnical Engineering Recommendations

Based on our findings and results of our laboratory testing, we have developed recommendations for the project site development including taxiway and aprons, hardstands, parking lots, sidewalks, utilities, building foundations, and fill slopes.

6.1 Frost Depth and Permafrost

Seasonal frost was observed across the site to varying depths at the time of drilling. Recommendations are based on one-dimensional freeze/thaw estimates for Anchorage which typically results in design frost depths of 8 to 11 feet BGS. It should be noted that seasonal fluctuations of snow cover, temperatures, infiltration/evaporation, groundwater table, and other climatic effects will have an impact on the design frost depth. Deeper frost penetrations are possible though not common.

Permafrost was not encountered in the exploration and is not expected at the project site.

6.2 Stability Evaluation

6.2.1 Slope Instability

The site is relatively flat, therefore, by inspection, global instability is deemed of no concern.

6.2.2 Loss of Bearing Capacity

The proposed building will be founded on piles which will be installed sufficiently deep that loss of bearing during a seismic event is expected to be negligible.

6.2.3 Liquefaction and Lateral Spreading

We performed an inspection of the field blow counts and evaluation of the soil types, including fines content, which leads to our conclusion that there is a low potential for soil liquefaction at the project site. We noted a zone of potentially liquefiable at the interface of the peat and underlaying silty sand on the order of 2 to 3 feet in thickness in select borings assuming the silty sands are saturated. The primary manifestation from this would be post-earthquake settlement which we estimate to be on the order of 1 to 2 inches before fill placement which is expected to mitigate some post-earthquake settlement, though the exact magnitude is difficult to determine.

If proposed building is founded on pile foundations due to the presence of peat beneath the building footprint, the pile design should account for the post-earthquake liquefaction and backfill/surcharge settlement downdrag as required.

6.3 Site Preparation, Fill Placement, Surcharge, and Settlement Monitoring

All trees, bushes, and existing infrastructure should be removed prior to beginning any earthwork. We understand that removal of the peat at this site is not planned due to the presence of PFAS.

6.3.1 Fill Placement and Staged Construction

The peat found in the west and southwest portion of the site is particularly soft and potentially susceptible to shear failure. The in-situ vane shear measurements and expected fill heights are not expected to require staged construction. Staged construction occurs when the underlying peat/soft soil cannot bear the weight of the full amount of fill, requiring that the fill be placed in stages. A stage is typically a percentage of the full fill height that allows the peat/soft soil to gain strength through the consolidation process. Once sufficient strength is gained, additional stages are added until the full height is achieved.

The additional load due to surcharge, however, could warrant staged construction and will be evaluated by CRW's geotechnical and civil engineers as the design advances.

During fill placement, the contractor shall monitor for signs of "mud-waving" or other instability. If signs of instability are observed fill placement shall be halted to assess conditions. We recommend the project's specification include requirements for contractor experience in working with fills over peat.

6.3.2 Surcharge and Drainage

Placement of fill over the site will result on primary consolidation of the peat. As such, we recommend a surcharge be placed prior to final earthwork construction (i.e. pavements) to compress the peat and mitigate primary consolidation. Secondary compression (long-term settlement in the peat due to sustained loading) is expected; however, the surcharge can mitigate some secondary compression. In addition to compressing the peat, the mineral soils at the north end of the feeder ramp (in particular BH-14 and BH-15) are recommended to be surcharged to over-consolidate, or be excavated and replaced.

The height of the surcharge is a function of the settlement magnitude (both primary consolidation and secondary compression), time rate of consolidation considering drainage path, and available construction window. CRW's geotechnical and civil engineers are working with the contractor to develop the surcharge plan as the design advances.

We recommend surcharge be placed in the fall, prior to ground freezing, to permit the maximum amount of time for the surcharge to be effective. If the peat freeze prior to surcharge placement, the surcharge will not induce the required loading and be ineffective until the peat thaw the following spring/summer.

The time required for surcharge can be lengthened if staged construction is required.

If the total construction time between surcharge and staged construction does not meet the construction schedule, the design will need to incorporate a method to accelerate consolidation. A common method for accelerating consolidation is the installation of prefabricated vertical drains (PVDs, a.k.a. "Wick Drains"). The PVDs would be spaced such that consolidation could be decreased from months down to weeks or even days. PVDs are typically installed by ground improvement contractors and spaced 3 to 8 feet apart in a triangular pattern covering the whole surcharged area. If this option is selected, design of the PVD layout should be developed in consultation with the geotechnical engineer of record and a ground improvement contractor.

The consolidation of the peat is expected to produce water in an upward manner due to the relatively low permeability of the underlying silty soils. To assist with drainage, the designers could consider a 1-foot layer of clean, free-draining fill that meets the Porous Backfill Material specification in Alaska Department of Transportation and Public Facilities (ADOT&PF) Standard Specification for Highway Construction (ADOT&PF, 2017) be used. The Porous Backfill Material is placed directly on the geotextile (discussed later in this report) with subsequent lifts of classified fill. To aid in constructability, we recommend a biaxial geogrid, consistent with Mirafi BXG11 or approved equal, be installed at the top of the Porous Backfill Material. The geogrid should be handled and installed per the manufacturer's recommendations.

6.3.3 Settlement Monitoring

We recommend the installation of settlement monitoring plates over the site at the beginning of fill placement to permit monitoring of the peat settlement over time. The time-rate of settlement can then be correlated with degree of consolidation using observational methods to predict when primary consolidation is nearing completion.

The settlement plates consist of square metal plates attached to the bottom of a riser pipe, which is typically a two-inch diameter steel pipe welded orthogonal to the plate with threaded connections at the top to allow additional pipe sections to be added as the fill is placed. The top of the riser pipe is then surveyed during and after fill/surcharge placement. We recommend the plate be one inch thick and at least three feet square. The plate can be directly installed on the peat, although is it preferable to install it on the first lift of fill for increased stability. The settlement monitoring plates and risers can be damaged if not protected and regularly monitored by construction personnel and equipment. If a settlement monitoring plate is damaged during construction, it should be replaced with a new plate and riser installed at the same location as soon as possible.

Settlement plate locations will be coordinated with the civil engineer as the design advances.

We recommend survey measurements of the riser pipe occur a minimum of every 5 days or each time a new riser pipe is installed. The accuracy of the survey measurements should be at least ±0.01 feet. Survey should reference the same non-moving benchmark each time settlement readings are collected for consistency. Survey measurements should be provided to the geotechnical engineer as soon as possible to interpret the data and provide real-time monitoring of the degree of consolidation.

Alternatively, the designers can select instrumentation to monitor settlement during construction. CRW's geotechnical engineers will work with the designers to select the most cost effective and simplest approach during design.

6.3.4 Alternatives to Surcharge

As the design is advanced, we understand alternatives to surcharging the site have and are being considered including light weight fill and ground improvement.

We understand the design team has elected to use ground improvement beneath the proposed building to utilize shallow foundations as an alternative to pile foundations. CRW recommends the use of Rammed Aggregate Piers (RAP) to stabilize the peat and provide a stable surface for conventional shallow foundations. RAP have greater strength and stiffness allowing for higher bearing capacities and less settlement compared to traditional stone columns.

6.4 Shallow Foundations with Rammed Aggregate Piers (RAP)

We recommend the use of Rammed Aggregate Piers (RAP) to provide a stabilized subgrade upon which conventional shallow foundations for the building can be constructed. The RAP is a highly densified inclusion of rammed crushed aggregate forming a relatively stiff column to a target depth of improvement. RAP are constructed by applying a direct vertical ramming energy to compact successive lifts of the aggregate in a pre-drilled hole. Constructed RAP inclusions provide a reinforced soil profile with less compressibility than without the inclusion. Typically, RAP range from 2 to 3 feet in diameter, spaced between 8 to 15 feet on-center, and can extend to depths up to 30 feet, depending on construction technique and/or design requirements. For this project, RAP diameter is 2 feet, with pier spacing on the order of 6 to 7.5 feet on-center, and penetration depths up to approximately 20 feet.

6.4.1 Bearing Capacity and Settlement

Footings constructed on RAP have allowable bearing pressures between 3,000 to 6,000 PSF. For this project, we understand the design is based on an allowable bearing pressure of 4,000 PSF with a one-third increase for transient loads such as wind and seismic. We recommend the RAP contractor work directly with the structural engineers on the design allowable bearing pressure during design development.

We recommend RAP be designed for a typical settlement of 1 inch total and 0.5-inch differential settlement. The design will need to consider time-dependent settlement in the peat and underlying clays as part of the settlement calculations. CRW’s geotechnical engineer can provide consolidation characteristics of the underlying clays based on past experience and local correlations as no site-specific consolidation testing was completed as part of the fieldwork.

For the building slab foundation, we recommend coordination between the structural engineer and the RAP designer on the required structural slab load and the associated capacity of the RAP.

6.4.2 Lateral Loading

Lateral loads on footings will be resisted by passive earth pressures developed against the footing block and frictional resistance against the base of the footing. We recommend a passive resistance (equivalent fluid pressure) of 225 psf/foot (pcf) for the expected fill adjacent to the footings. This equivalent fluid pressure includes a factor of safety of 2.0. A friction coefficient of 0.45 is recommended to be used for resistance of footings to lateral sliding, assuming the concrete footing is cast directly against sand and gravel. A friction coefficient of 0.35 is recommended for precast footings.

6.4.3 Uplift

Uplift loads may occur in some foundation elements due to overturning moments resulting from wind and seismic forces. Uplift loads may be resisted by the weight of the footing and soil within the limits of a truncated pyramid above the top of the footing. The shape of the truncated pyramid will vary with material type and density. For the expected fill, the pyramid should be defined by a 17 degree angle α as shown in Exhibit 1, measured from a vertical line extending upward from the top edge of the footing. If footings are not sufficient to resist uplift, additional structural elements such as helical piles may be required. CRW’s geotechnical engineer will provide support to the structural engineer if helical piles are required to address uplift.

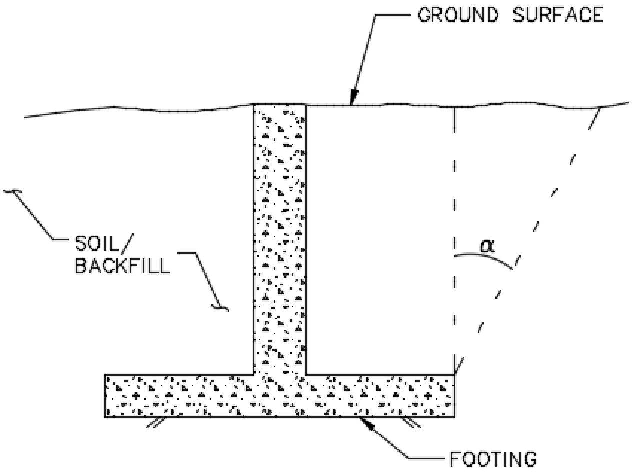


Exhibit 1. Uplift Resistance

6.4.4 Liquefaction Potential with RAP

We understand the shallow foundation will be designed to accommodate the post-liquefaction settlement; however, we anticipate that the placement of additional fill and the construction of the RAP will result in increased confinement as well as densification of the liquefiable layer, respectively. These combined improvements can reduce the liquefaction potential and settlement magnitudes even further than the already acceptable levels. Because the shallow foundation will accommodate the maximum liquefaction potential before any resulting construction, we do not feel verification of liquefaction mitigation is required as part of the project. If verification is required, CRW should be retained to perform that verification as we are intimately familiar with the field testing procedures that were performed and the most qualified to perform post-construction verification.

6.4.5 RAP Construction Recommendations

RAP layout and installation requires precise control in the field and is the responsibility of the General Contractor (GC) and the RAP Contractor. The RAP Contractor should provide the required tolerances for pier installation relative to the design. Other construction requirements such as stable subgrade requirements, lift thickness, and depth shall be coordinated between the GC and the RAP Contractor. We understand the aggregate for the piers will consist of Type 1 Grade B in general accordance with ASTM D1241.

The presence of the peat will require the use of casing or other similar construction technique to ensure stabilization of the peat for the construction of the RAP. Low undrained shear strength material can present construction difficulties for RAP (Han, 2015).

We recommend downward modulus test(s) be performed on the RAP to determine the pier stiffness. The number of tested RAP should follow typical practice. The RAP Contractor should select the pier(s) for testing, perform the test(s), and submit the results to the project geotechnical engineer for review. We recommend the testing procedure be submitted to the geotechnical engineer for review well in advance of testing to ensure adequate time for feedback and comment prior to mobilization of equipment.

We recommend CRW be retained to provide full-time observation of the installation of the RAP to verify the procedures and document any changes to the subsurface conditions, if encountered.

6.5 Excavations

All excavations should follow proper local, state, and federal requirements including those in 29 Code of Federal Regulations (CFR) Part 1926 Occupational Safety and Health Standards Subpart P – Excavations (Occupational Safety and Health Administration [OSHA], 2020). The contractor is responsible for trench stability, worker safety, and regulation compliance as he will be present on a day-to-day basis and can adjust efforts to obtain the needed stability.

Excavation in the areas of thick non-compressed peat is not recommended due to its soft nature and high degree of saturation. In areas adjacent to higher ground, in compressed peat, or where granular materials are present near the surface, excavations may be more practical. We recommend close coordination between the GC and the RAP Contractor if excavations are expected to occur near the RAP after they are installed.

Excavations in soils above the water table may stand relatively steeply initially but fail suddenly without warning. As the in-situ silty soils dry they will tend to ravel and slough to their natural angle of repose, which we estimate to be about 2H:1V (horizontal to vertical). Below the water table, or if surface water is allowed to enter the trench, silty soils may soften, squeeze, slump over time or due to disturbance, to slopes of 3.0 to 4H:1V or flatter.

Permanent excavations into soil should either be retained or sloped to meet long-term stability requirements. Excavation and backfilling operations should be closely coordinated so that potential seepage and surface runoff is not allowed to collect and stand in open trenches for long periods.

We recommend that excavation bottoms in mineral soils be evaluated by a qualified geotechnical engineer or trained inspector to identify unsuitable soils. Unsuitable soils are defined as organics, organic soils, or soft, saturated silts. If unsuitable soils are encountered, they should be overexcavated and replaced with non-frost susceptible (NFS) classified fill as required.

We recommend that the excavations be performed with equipment that minimizes disturbance of the in-situ soils. Excavations should be performed with equipment that minimizes the disturbance of any subgrade soils. The contractor should exercise care to avoid pumping or rutting subgrade soils. Over-excavation and replacement of disturbed, pumped, or rutted subgrade soils may be required to achieve compaction of fill.

6.6 Drainage, Control of Water, and Dewatering

Excavations may experience seepage due to potential perched water, surface runoff, or rain infiltration, and should be monitored during construction. Where possible, the ground around open excavations should be contoured to direct surface water away from the excavations.

Parking areas should have positive gradients toward drainage structures and away from buildings. Site grading should be established to provide drainage of surface water and roof drainage away from proposed buildings. Grading should be designed to prevent ponding of surface water except where retention ponds or similar devices are intended.

The native soils may present difficulties for compaction and construction equipment if exposed to excess water from rain or surface runoff.

Groundwater was observed in the peat, which is expected. No conventional water table was observed deeper in the soils. Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences, such as existing ditches and drainage structures.

We understand excavations into compressed peat will occur as part of the utility installations. Depths range from approximately 8 to 12 feet below final grade. As such, we anticipate dewatering will be required. Due to the variation of peat depth, soil type, earthwork quantity balances, and PFAS water treatment, CRW's geotechnical engineer will provide dewatering rates separately from the geotechnical report.

6.7 Pile Foundation Recommendations

Foundations are used to transfer building loads to the underlying soil. The soil type, consistency/density, compressibility, frost classification, heave/swell/collapse potential, groundwater table, and depth to and type of bedrock are all considered in the type of foundation recommended for the proposed infrastructure.

Due to the presence of peat from the ground surface to depths up to 15 feet BGS, if ground improvement with shallow foundations is not used, we recommend deep foundations via piles to carry the expected building loads.

Design of pile foundations should consider the bearing capacity of the soils, expected settlements, uplift forces, lateral forces due to wind and seismic loads, frost heaving potential, and constructability issues. We anticipate that the pile will consist of a driven, open-ended steel pipe pile. Pile size and depth must be selected based on vertical and lateral soil response to loading, downdrag loading, and installation verification method. Helical piles were considered, but not found to be cost advantageous compared to driven piles. Small diameter helical piles for uplift are not included in the comparison.

All values and recommendations presented below are based on our understanding at the time of this report and should be assessed and refined in the design phase.

6.7.1 Soil Parameters

We have developed generalized soil parameters for use in design of the pile foundation based on the soils encountered in borings BH-02, 07, and 12. Table 6-1 provides generalized average soil properties for input into lateral and axial pile analysis based on blow counts, soil types, lab testing results, literature values, and judgment. The soil profile is based on conditions at the time of the geotechnical investigation and do not reflect changes to the site for construction such as fill placement.

Table 6-1 – Soil Profile for Building Piles

Depth (feet BGS)	Soil Classification	Model Soil Type	Drained Friction Angle (degrees)	Effective Unit Weight (pcf)[2]	Undrained Shear Strength (psf)	Modulus of Horizontal Subgrade Reaction (psi/in)	ε_{50} (-)	P-Multiplier, m_p[1]
0 – 9	Peat	Soft Clay	N/A	72	200	N/A	0.02	1.0
9 – 12	Silty Sand	Reese Sand	32	62.6	N/A	75	N/A	1.0 [0.1]
12 – 20	Silty Sand	Reese Sand	32	62.6	N/A	75	N/A	1.0
20 – 30	Lean Clay	Stiff Clay without free water	28	57.6	1200	-	0.01	1.0
30 – 60	Lean Clay	Stiff Clay without free water	28	57.6	600	-	0.02	1.0
60 – 75	Lean Clay	Stiff Clay without free water	28	57.6	1200	-	0.01	1.0

The values in the above table are appropriate for non-cyclic loading.

pcf – pounds per cubic foot, psi/in – pounds per square inch per inch, psf – pounds per square foot

1. For liquefied/seismic conditions, the p-y method and P-multipliers provided in brackets should be applied in LPile analysis.
2. All soil units are below the static groundwater level. Total unit weight of soil is reduced by 62.4 pcf for submerged soil units to estimate effective unit weight.

6.7.2 Axial Capacities

Typically, the pile's axial capacity is developed through frictional resistance along the pile's external surface area and the tip resistance at the end of the pile. The allowable axial pile capacity during design is dependent on the size/shape, type, installation, and verification method during construction. The verification method dictates the factors of safety used in design. CRW's geotechnical engineer has provided axial capacity charts for select pile sizes and will continue to provide pile capacities separate from this report as the design develops.

We recommend driven, open ended, steel pipe pile be used for the building foundation. Discussion on additional considerations for the axial pile design are discussed below.

6.7.3 Lateral Capacities

Lateral loads from the wind and seismic loadings are expected to occur. The lateral loading on foundation piles will be resisted by the surrounding soil and is dependent on pile type, size, stiffness, allowable deflection, and degree of pile head fixity. The behavior of soil surrounding and reacting to a laterally loaded pile can be characterized by the p-y method, which offers a family of curves that relate soil reaction (p) to lateral pile deflection (y). P-y curves are assigned at discreet depths along the pile and are equivalent to stiff, non-linear springs counteracting the pile movement.

For the use of modeling, lateral soil properties are provided in Table 6-1. No factors of safety should be applied to these parameters, as they are for displacement-based analyses. Further reductions should be applied if piles are spaced less than 6 times the largest pile diameters apart (see next section).

6.7.4 Group Effects

If more than a single pile is used, the piles should be spaced far enough apart that group effects are not deemed a concern. If multiple piles are placed close together, group effect decreases the axial capacity of a single pile. If the piles are spaced over 6 times the pile diameter, the group efficiency is 1.0. At 2.5 times the pile diameter, we recommend the efficiency be 0.65. For intermediate spacing, the value for efficiency may be determined by linear interpolation. Spacing closer than 2.5 times the pile diameters is not recommended.

For lateral pile group action, the p-y curves should be reduced if the piles are spaced closely enough to influence the other piles in the group. The values of p should be multiplied by a p-multiplier value, Pm, to account for group effects. The value of Pm can be determined based on recommendations in the AASHTO LRFD Bridge Manual (AASHTO 2015).

6.7.5 Downdrag

The placement of fill is expected to produce consolidation of the peat and loose, silty sand resulting in downdrag on the pile. Downdrag forces are the result of soils that move downward relative to a pile foundation that extends into dense, non-compressible soils. The vertical settlement of the consolidating soils generates negative (i.e. downward) frictional load on the side of the pile. We recommend the pile's computed frictional resistance in the upper 12 feet be used for the downdrag force in the pile design.

6.7.6 Factor of Safety

We have provided factors of safety for compression and tension, lateral, and frost heave loading for driven piles based on published literature for deep foundations (AASHTO 2015; FHWA, 2016) and judgment. We recommend the minimum factors of safety for compression, tension, and lateral capacity of piles as shown in Table 6-2. These factors of safety assume no static load testing is performed. Lower factors of safety can be used as higher quality load testing occurs.

Table 6-2 – Pile Recommended Factors of Safety

Method/Loading		Factor of Safety
Static Analysis – Compression	Skin Friction	2.25
	End Bearing	3.0
Static Analysis – Tension (excluding frost heaving)		3.0
Static Analysis – Lateral and Downdrag		1.0
Static Analysis – Frost Heaving		1.5
Verification – Wave Equation Analysis		2.0
Verification – High Strain Dynamic Testing (HSDT)		1.5*

* Assumes significant driven capacity during construction beyond required value or re-strike of the pile.

6.7.7 Pile Driving Considerations

We anticipate the use of an impact pile driving hammer to install the pile foundation. We recommend the contractor submit a pile driving plan prior to mobilization of equipment to the site. The plan should include proposed methods, equipment, and a wave equation analysis.

The hammer should be sized to achieve the ultimate pile capacity without damage to the pile and not exceeding the blows per foot of the hammer that voids the manufacturer’s warranty. The compressive driving stress is recommended to not exceed 90 percent of the steel yield strength. A wave equation analysis should be performed prior to the start of pile driving to ensure the pile/driving hammer combination are compatible so as to minimize the driving stress in the pile while also achieving required pile embedment. The selection of the pile driving equipment is the responsibility of the contractor, but is subject to approval by the engineer.

We recommend driven piles be installed plumb, and be no more than a 1/8-inch per foot from the vertical and be installed within 2 horizontal inches of design location. Piles should be driven continuously to the extent possible to avoid pile setup.

We recommend the piles be driven to a capacity that includes both the downdrag load and the structural load, not just the structural load.

We recommend that driven piles have an inside cutting shoe to avoid damage to the pile toe should any obstructions be encountered. The contractor should have means of clearing obstructions like pre-drilling or jetting.

A qualified technician or engineer representing the owner should be present during production driving to observe and record pile installation practices. Complete driving logs should be maintained as part of the permanent as-built record. Completed pile driving logs should, at a minimum, include:

- Date of installation
- Start and end time of driving the pile and any stopping periods
- Hammer and pile designation, type, size, etc.
- Hammer stroke and setting
- Blows per foot of pile
- Any other comments during driving

Two methods for verifying pile capacity during driving are 1) wave equation analysis, and 2) dynamic testing with signal matching using high-strain dynamic testing (HSDT).

Wave equation analysis is performed to establish installation criteria (i.e., required blows per foot versus stroke or energy of the particular hammer) to determine ultimate pile capacity. The wave equation is used to assess potential pile damage and driving stresses. The wave equation analysis assesses the feasibility of the proposed foundation system and establishes installation criteria to limit driving stresses to acceptable levels and provides verification in the field.

HSDT testing provides an added degree of certainty when determining pile capacity, and consequently permits a lower factor of safety when calculating ultimate pile capacity. Other advantages of HSDT testing is the ability to monitor pile stresses during driving, measure hammer energy transmitted to the pile, recognize possible damage during installation, gauge soil set-up or relaxation, and assess structural integrity of the pile as installed. HSDT is strongly recommended for the verification method during design and construction, particularly to better assess the magnitude of the downdrag and ensure the pile has adequate axial capacity. We recommend CRW be retained to perform HSDT to verify pile capacity during construction.

6.8 Retaining Walls and Lateral Earth Pressures

We understand retaining walls are not anticipated for this project however we recognize many times the site development changes such that they become necessary. We have provided the following general recommendations which can be refined if retaining walls become necessary.

Retaining walls, including those used for basements or crawl spaces, must be designed to resist lateral earth pressures plus lateral pressure resulting from surcharge loads applied at the ground surface behind the wall. The magnitude of the earth pressure varies depending on permissible wall movement, type of backfill used, compaction, and drainage.

We recommend a minimum of 5 feet thick, clean, free-draining, and properly-compacted (per our recommendations) coarse-grained soil for backfill, with drainage provisions to prevent the buildup of hydrostatic pressure on the wall. All retaining wall recommendations assume these conditions exist. Alternate recommendations can be provided, should differing materials or drainage exist. Additional lateral loads due to surface loads are not included in the equivalent fluid densities below.

The active earth pressure condition for static loading should be designed to resist the lateral earth pressure exerted by a fluid with a density of 40 pcf if the retaining wall is allowed to deflect or rotate a minimum of 0.001 times the wall height.

The at-rest pressure condition will occur if the wall is restrained at the top and cannot move sufficiently to permit the active earth pressure condition to exist. Under this condition, retaining walls should be designed to resist the lateral earth pressure exerted by a fluid with a density of 60 pcf.

The passive earth pressure condition for static loading can be designed for 250 pcf if the retaining wall is allowed to deflect or rotate a minimum of 0.01 times the wall height. This equivalent fluid pressure includes a factor of safety of 2.0. A friction coefficient of 0.45 is recommended to be used for resistance of footings to lateral sliding.

For seismic lateral earth pressures, we recommend a fluid density of 30 pcf be added to the active or at-rest condition, depending on the wall type.

We recommend any foundation stem walls be backfilled on both sides simultaneously to prevent differential lateral loading of the foundation wall.

6.9 Slope Stability

We understand the site grading will require fill slopes around the perimeter. We recommend classified fill slopes be no steeper than 3H:1V to aid with fill placement and performance of fill over the peat. Steeper slopes may require slower placement or even reinforcement depending on the rate of loading on the peat.

Fill slopes at this recommended angle will perform well though some minor sloughing and rills might occur over time due to runoff/infiltration under static conditions and minor toe shoving could occur due to peat displacement. During strong ground motions, minor displacements could occur with the primary effect anticipated to be rotational failures of the slope edges. More detailed seismic slope stability analyses can be performed on request.

6.10 Pavement Recommendations

The following pavement recommendations were developed based on several sources. Flexible pavements intended only for vehicular traffic were designed using the Federal Highway Administration's NHI-05-037, *Geotechnical Aspects of Pavements* (2006) and the American Association of State Highway and Transportation Officials (AASHTO) *Guide for Design of Pavement Structures* (1993). All recommendations for pavements intended to support aircraft and ground support vehicles were developed using the United States Department of Transportation Federal Aviation Administration's (FAA) Advisory Circular (AC) Number 150/5320-6G *Airport Pavement Design and Evaluation* (2021).

Vehicle types, maximum gross weights, frequency of passage or departures, and gear/wheel configurations were assumed based on limited knowledge of the operations of the proposed facility. Typically, the largest or heaviest aircraft and ground support vehicles were selected, or the heaviest use classes. The departures were based on approximately one aircraft per hardstand per day 360 days per year, with two departures for each type of ground support vehicle per aircraft turnaround. As designers refine the operating capacity of the proposed facility, these assumptions should be refined to accurately reflect intended capacity.

We recommend the following pavement sections (Tables 6-3 through 6-7) however further modifications may be required as traffic loading and aircraft weights could vary during design. Based on knowledge of the local geology and experience with one-dimensional frost penetration modeling, frost penetration depths for the proposed structural sections and existing subgrade are around 8 feet below grade. The pavement sections were evaluated, in addition to traffic loading, considering the Limited Subgrade Frost Penetration approach per AC 150/5320-6G such that the thickness of the NFS pavement is greater than 65 percent of the frost penetration.

The designers will need to evaluate separately the transitions from these pavement sections to the existing Taxiway pavement section.

Table 6-3 – Flexible Asphalt Pavement Section (Parking Lot: Light/Heavy)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
2/6	Top/Wearing Course	Asphalt Concrete	Per Specifications
2/6	Crushed Aggregate Base	D-1	95
42/48	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	

Table 6-4 – Flexible Asphalt Pavement Section (Apron – Ground Support Vehicles Only)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
4	Top/Wearing Course	Asphalt Concrete	Per Specifications
6	Crushed Aggregate Base	D-1	100
36	Subbase	Selected Material Type A	100 (upper 24 inches), 95
--	Geotextile Separation Fabric	Separation per ADOT	

Table 6-5 – Flexible Asphalt Pavement Section (Apron – Aircraft Taxiways)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
5	Top/Wearing Course	Asphalt Concrete	Per Specifications
6	Crushed Aggregate Base	D-1	100
48	Subbase	Selected Material Type A	100 (upper 24 inches), 95
--	Geotextile Separation Fabric	Separation per ADOT	-

Table 6-6 – Rigid Pavement Section (Hardstands)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
9	Top/Wearing Course	Portland Cement Concrete	-
6	Crushed Aggregate Base	D-1	100
48	Subbase	Selected Material Type A	100 (upper 24 inches), 95
--	Geotextile Separation Fabric	Separation per ADOT	-

Table 6-7 – Rigid Pavement Section (Truck Loading Dock)

Thickness (inches)	Layer	Type/Material	Compaction (percent)
7	Top/Wearing Course	Portland Cement Concrete	-
6	Crushed Aggregate Base	D-1	95
30	Subbase	Selected Material Type A	95
--	Geotextile Separation Fabric	Separation per ADOT	-

6.11 Fill and Compaction

6.11.1 Classified Fill and Compaction General Requirements

All classified fill material should be thawed, free from lumps, organics, debris, and other deleterious material and should be durable and sound. A vibratory steel drum roller should be used to compact classified fill. Lightweight or hand-operated compactors should be used near existing structures, utilities, or other infrastructure to prevent damage.

No hauling or grading equipment should be used in lieu of appropriate compaction equipment. Any loosening of fill material by hauling or other equipment should be repaired and re-compacted. The number of passes required to meet the compaction requirement will depend on the size of compaction equipment used. Each layer should be compacted as recommended in the report and field verification of compaction requirements is recommended.

Foundation soils should be protected from freezing during construction. No frozen soil should be used as fill, nor should any fill be placed over frozen soil. Any frozen soil should be removed and replaced with appropriate fill prior to construction.

6.11.2 Classified Fill and Compaction

We recommend the classified fill be clean, well-graded sand and gravel with a frost classification of NFS. The gradation of the classified fill be consistent with the State of Alaska Department of Transportation and Public Facilities (ADOT&PF) Standard Specifications for Highway Construction (2017) unless otherwise specified.

Classified fill should be placed in loose lifts not exceeding 12 inches in thickness with lift thickness adjusted based on the contractor's equipment to achieve the required compaction. Each lift of classified fill should be compacted to a minimum of 95 percent of its Modified Proctor Maximum Density, determined per ASTM D1557, unless otherwise recommended in this report.

6.11.3 Porous Backfill and Compaction

The Porous Backfill for the first lift over the peat may be difficult to compact. We recommend static compaction rolling without vibration. The Porous Backfill should be compacted to a minimum of 95 percent of its Modified Proctor Maximum Density, as determined per ASTM D1557.

6.12 Geotextiles

We recommend that a separation geotextile be used at the base of the fill in surcharged areas. The use of a geotextile increases lateral confinement over the peat providing additional stability during construction. This separation geotextile must consider the expected flow of water upward from the peat during the consolidation process. Typical permittivity of separation geotextiles are on the order of 0.05 sec^{-1} however this permittivity will impede flow. We recommend the permittivity of the separation geotextile be at least 1.0 sec^{-1}. We recommend a woven geotextile consistent with Mirafi FW300 or approved equal be used for the separation geotextile.

Joints should be overlapped or sewn in accordance with the manufacturer's recommendations.

6.13 Utility Recommendations

The satisfactory performance of piped utilities is highly dependent upon the quality of soil below and along the sides of the pipe. We recommend, if possible, utilities being installed below the peat to mitigate long-term settlements. If that is not possible, we recommend utilities being installed in the fill placed over the peat after the surcharge settlement is completed and settlements have stabilized. Secondary compression producing long-term settlements are expected. Utilities that rely on gravity to flow may require support in the form of supports like helical piles to aid in mitigating the effects of settlement. Careful consideration should be made to supporting utilities in this manner however as the utilities will be at a relatively fixed elevation whereas the fill around the utility will settle. This could result in surface manifestations of the utility over time. CRW’s geotechnical engineer will continue to work with the designers on the best approach to utility installation and performance.

All utilities should be bedded and compacted per the utility owner’s requirements or manufacturer’s recommendations, whichever is more stringent. Backfill over the bedding should be non-frost susceptible (NFS) sand and gravel classified fill or native material as appropriate to match the soils outside the trench to maintain consistent surface behavior. We recommend a separation fabric be used around the bedding material to mitigate the potential for fines migration.

Buried utilities which are susceptible to damage from freezing need to be frost-protected by sufficient amounts of burial depth, insulation, or active freeze protection like heat tape or a combination of these methods.

We recommend maintaining adequate burial depth to protect from freezing. Insulation recommendations can be provided if burial depths cannot be achieved.

7. Limitations and Closure

The information submitted in this report is based on our interpretation of data from a field geotechnical exploration performed for this project. The conclusions contained in this report are based on site conditions as they were observed on the drilling dates indicated. It is presumed that the exploratory borings are representative of the subsurface conditions throughout the site. Effort was made to obtain information representative of existing conditions at the site. If, however, subsurface conditions are found to differ, we should be notified immediately to review these recommendations in light of additional information.

If there is substantial lapse of time between the submittal of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we recommend that this report be reviewed to determine the applicability of the conclusions considering the changed conditions and time lapse. Unanticipated soil conditions are commonly encountered and cannot fully be determined by collecting discrete samples or advancing borings. The client and contractor should be aware of this risk and account for contingency accordingly.

Soil samples will be retained for six months following the date of issue of the final report. If the client wishes to make other arrangements for the retention of samples, this can be accommodated.

This report was prepared by CRW for use on this project only, and may not be used in any manner that would constitute a detriment to CRW. CRW is not responsible for conclusions, opinions, or recommendations made by others based on data presented in this report.

8. References

Alaska Department of Natural Resources Division of Geological and Geophysical Surveys. Retrieved August 2020: https://dggs.alaska.gov/hazards/earthquakes.html.

Alaska Department of Transportation and Public Facilities. 2017. Standard Specifications for Highway Construction.

Alaska Earthquake Center. Retrieved July 2020: http://earthquake.alaska.edu/.

American Association of State Highway and Transportation Officials (AASHTO), 1993. AASHTO Guide for Design of Pavement Structures.

American Association of State Highway and Transportation Officials (AASHTO), 2015. LRFD Bridge Design Specifications.

American Society of Civil Engineers (ASCE). 2016. ASCE 7-16: Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

Combellick, R.A., 1999. Simplified geologic map and cross sections of central and east Anchorage, Alaska: Alaska Division of Geological and Geophysical Surveys Preliminary Interpretive Report 1999-1.

CRW Engineering Group, LLC. 2021. *Peat Probe Investigation Findings*. Prepared for FedEx. June 23.

Federal Highway Administration, 2006*. Geotechnical Aspects of Pavements.* NHI-05-037.

Federal Highway Administration, 2016*. Design and Construction of Driven Pile Foundations.* NHI-16-009.

Han, J. 2015. Principles and Practices of Ground Improvement. John Wiley and Sons, Hoboken, NJ.

International Codes Council. 2018. International Building Code.

Municipality of Anchorage GIS Services: Data, Projects & Procurement Division, Information Technology Department. 2006. *Seismic Ground Failure Susceptibility Map*. December.

Municipality of Anchorage Project Management and Engineering. 2007. Design Criteria Manual.

Occupational Safety and Health Administration, 2020. 29 CFR Part 1926 Subpart P - Excavations, Occupational Safety and Health Standards. United Stated Department of Labor. Updated February 2020.

Schmoll, H.R. and Dobrovolny, E., 1972. Generalized Geologic Map of Anchorage and Vicinity, Greater Anchorage Area Borough, Alaska. US. Geological Survey Open File Report: Technical Data Unit Classification number 513.

Schmoll, H.R., Yehle, L.A., and Updike, R.G., 1999. *Summary of Quaternary geology of the Municipality of Anchorage, Alaska*. Quaternary International v60 (1999) 3-36.

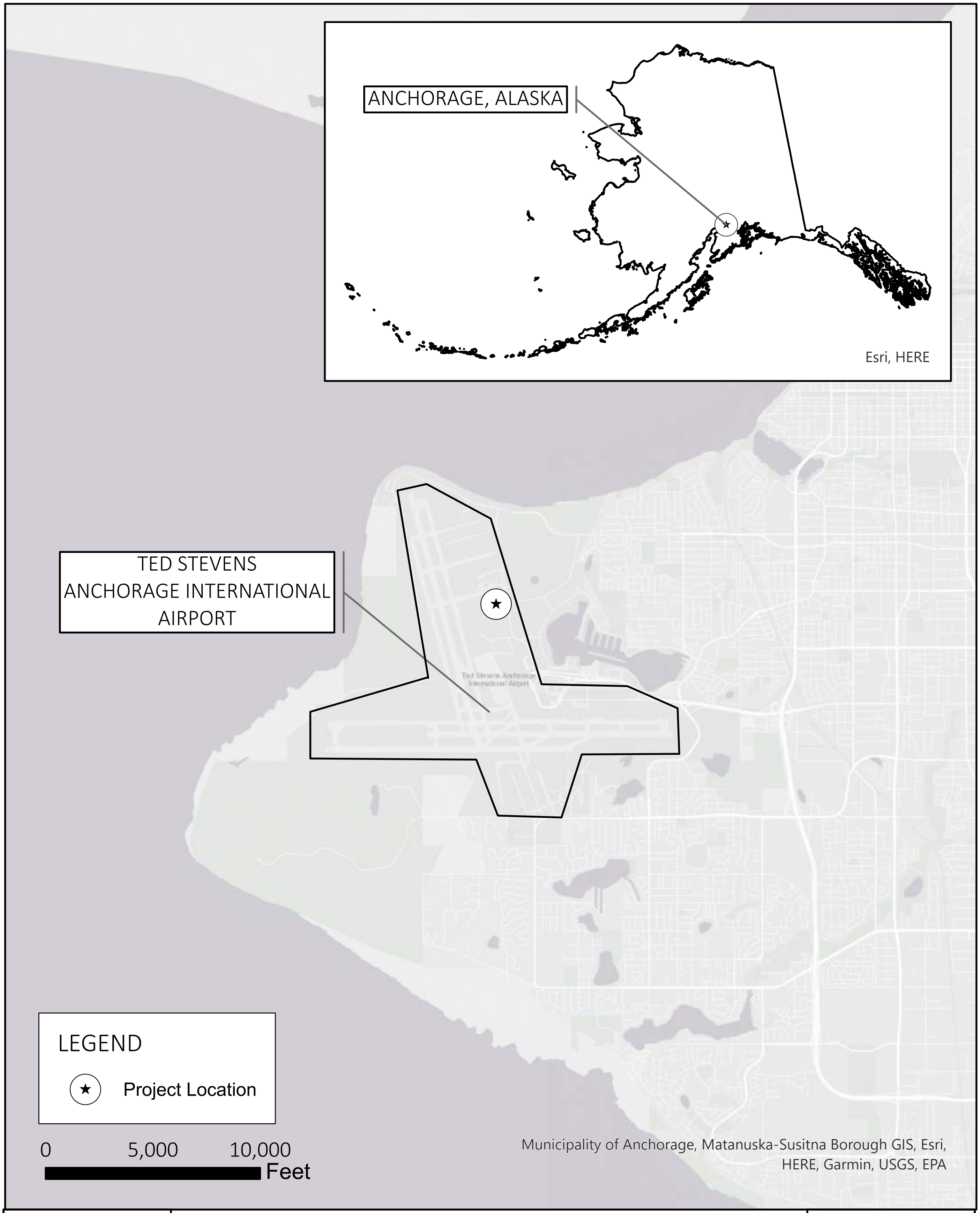
Terzaghi, K., Peck, R., and Mesri, G., 1996. Soil Mechanics in Engineering Practice, 3rd Edition. John Wiley & Sons.

United States Department of Transportation (USDOT), Federal Aviation Administration (FAA), 2021. Advisory Circular No. 150/5320-G, *Airport Pavement Design and Evaluation*. November 10.

United States Geological Survey (USGS) Quaternary Fault and Fold Database. Retrieved July 2020: https://www.usgs.gov/natural-hazards/earthquake-hazards/hazards.

USGS website. Retrieved August 2020: https://www.usgs.gov/news/2018-anchorage-earthquake.

Figures



Municipality of Anchorage, Matanuska-Susitna Borough GIS, Esri, HERE, Garmin, USGS, EPA

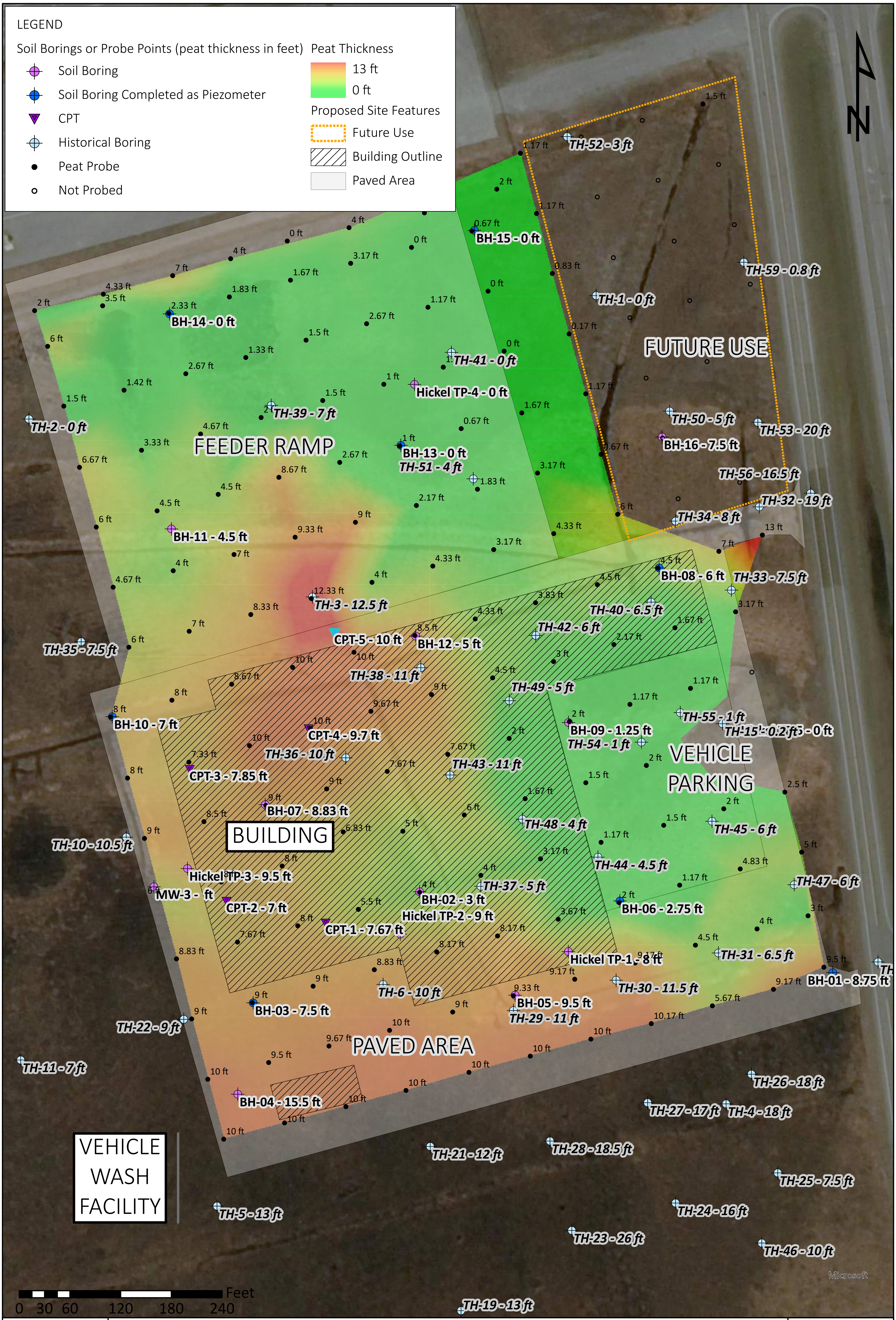
CRW ENGINEERING GROUP
3490 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE (907) 562-3252
#AECL882-AK

VICINITY MAP

ANC FEDEX SORTING FACILITY SITE ANALYSIS
TED STEVENS ANCHORAGE INTERNATIONAL AIRPORT
ANCHORAGE, ALASKA

Project: 73138.00
Drawn By: AFS
Scale: Graphical Scale
Date: Jun 2023
Figure: 1

File Path: J:\JobsData\73138.00 ANCA FedEx Sorting Facility\00 CADD 2019\04 GIS\73138_VicinityMap_converted\73138_VicinityMap_converted.aprx



CRW ENGINEERING GROUP
3490 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE (907) 562-3252
#AECL882-AK

PEAT PROBE AND CURRENT AND HISTORICAL BOREHOLE LOCATIONS WITH PEAT THICKNESS

ANC FEDEX SORTING FACILITY GEOTECHNICAL REPORT
TED STEVENS ANCHORAGE INTERNATIONAL AIRPORT
ANCHORAGE, ALASKA

Project:	73138.00
Drawn By:	AFS
Scale:	Graphical
Date:	Jun 2023
Figure:	2

File Path: \\crweng.com\Projects\JobsData\73138.00 ANCA FedEx Sorting Facility\00 CADD 2019\04 GIS\00 Project Database\73138_Geotech_Figures\73138_Geotech_Figures.aprx

Appendix A

Borehole Logs

Included in this section:

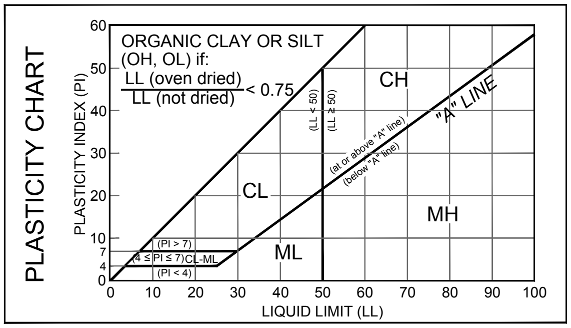
1) Borehole Log Legend
2) Borehole Logs (BH-01 through BH-16)

UNIFIED SOIL CLASSIFICATION (ASTM D 2487)

GROUP SYMBOL	SOIL GROUP NAMES & LEGEND		
GW	WELL-GRADED GRAVEL	●	if soil contains ≥ 15% sand, add "with sand"
GP	POORLY GRADED GRAVEL	○	
GM	SILTY GRAVEL	○	
GC	CLAYEY GRAVEL	○	
SW	WELL-GRADED SAND	⁘	if soil contains ≥ 15% gravel, add "with gravel"
SP	POORLY GRADED SAND	░	
SM	SILTY SAND	▥	
SC	CLAYEY SAND	▨	
CL	LEAN CLAY	▨	if soil contains coarse-grained soil from 15% to 29%, add "with sand" or "with gravel" for whichever type is prominent, or for ≥ 30%, add "sandy" or "gravelly"
ML	SILT	▥	
OL	ORGANIC CLAY OR SILT	☰	
CH	FAT CLAY	▨	
MH	ELASTIC SILT	▥	
OH	ORGANIC CLAY OR SILT	〰	
PT	PEAT	⋰	

Gravels or sands with 5% to 12 % fines require dual symbols (GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC) and add "with clay or "with silt" to group name. If fines classify as CL-ML for GM or SM, use dual symbol GC-GM or SC-SM.

Optional Abbreviations: Lower case "s" after USCS group symbol denotes either "sandy or "with sand" and "g" denotes either "gravelly" or "with gravel."



COMPONENT DEFINITIONS BY GRADATION

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 IN.
COBBLES	3 IN. TO 12 IN.
GRAVEL	3 IN. TO NO. 4 (4.76 mm)
COARSE GRAVEL	3 IN. TO 3/4 IN.
FINE GRAVEL	3/4 IN. TO NO. 4 (4.76 mm)
SAND	NO. 4 (4.76 mm) TO NO. 200 (0.074 mm)
COARSE SAND	NO. 4 (4.76 mm) TO NO. 10 (2.0 mm)
MEDIUM SAND	NO 10 (2.0 mm) TO NO. 40 (0.42 mm)
FINE SAND	NO. 40 (0.42 mm) TO NO. 200 (0.074 mm)
SILT AND CLAY	SMALLER THAN NO. 200 (0.074 mm)
SILT	0.074 mm TO 0.005 mm
CLAY	LESS THAN 0.005 mm

OTHER SYMBOLS

SYMBOL	NAMES & LEGEND		
BLDR	COBBLES AND BOULDERS	●	overlay
FILL	GRANULAR FILL	▩	man-made or placed
WD	WOODY DEBRIS	▧	
RAP	RECLAIMED ASPHALT PAVEMENT	▒	

RELATIVE DENSITY / CONSISTENCY ESTIMATE USING STANDARD PENETRATION TEST (SPT) VALUES (FROM TERZAGHI & PECK 1996)

COHESIONLESS SOILS[a]		COHESIVE SOILS[b]		
RELATIVE DENSITY	N_{60} (BLOWS/FOOT)[c]	CONSISTENCY	N_{60} (BLOWS/FOOT)[c]	UNCONFINED COMPRESSIVE STRENGTH (TSF)[d]
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.50
MED DENSE	10 - 30	MEDIUM	4 - 8	0.50 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

(a) Soils consisting of gravel, sand and silt, either separately or in combination possessing no characteristics of plasticity, and exhibiting drained behavior.

(b) Soils possessing the characteristics of plasticity, and exhibiting undrained behavior.

(c) Refer to ASTM D 1586-99 for a definition of N.

(d) Undrained shear strength, s_u = 1/2 unconfined compression strength, U_c. Note that Torvane measures s_u and Pocket Penetrometer measures U_c.

CRITERIA FOR DESCRIBING MOISTURE CONDITION (ASTM D 2488)

DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
MOIST	DAMP BUT NO VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE

SAMPLER ABBREVIATIONS

SS	SPT Sampler (2 in. OD, 140 lb hammer)	C	Core (Rock)
SSO	Oversize Spit Spoon (2.5 in. OD, 140 lb typ.)	TW	Thin Wall (Shelby Tube)
HD	Heavy Duty Split Spoon (3 in. OD, 300/340 lb typ.)	MS	Modified Shelby
BD	Bulk Drive (4 in. OD, 300/340 lb hammer typ.)	GP	Geoprobe
CA	Continuous Core (Soil in Hollow-Stem Auger)	AR	Air Rotary Cuttings
G	Grab Sample from surface / testpit	AG	Auger Cuttings

DESCRIPTIVE TERMINOLOGY FOR PERCENTAGES (ASTM D 2488)

DESCRIPTIVE TERMS	RANGE OF PROPORTION
TRACE	0 - 5%
FEW	5 - 10%
LITTLE	10 - 25%
SOME	30 - 45%
MOSTLY	50 - 100%

LABORATORY TEST ABBREVIATIONS

AL	Atterberg Limit	PI	Plastic Index	TS	Thaw Consolidation
Consol	Consolidation	PID	Photoionization Detector	TV	Torvane
LMA	Limited Mechanical Analysis	Proc	Proctor	TXCD	Consolidated Drained Triaxial
MA	Sieve and Hydrometer Analysis	PP	Pocket Penetrometer	TXCU	Consolidated Undrained Triaxial
MC	Moisture Content	P200	Percent Fines (Silt & Clay)	TXUU	Unconsolidated Undrained Triaxial
NP	Non-plastic	SA	Sieve Analysis	VS	Vane Shear
OLI	Organic Loss on Ignition	SpG	Specific Gravity	Ω	Soil Resistivity

CRW
ENGINEERING GROUP, LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

LEGEND: SOIL CLASSIFICATION AND ABBREVIATIONS

FILE NAME: \\crweng.com\Technical_Resources\Engineering_References\Tech_Geotechnical\CRW Geotechnical Report Template\Borehole Log Legend\Geotech Borehole Legends.dwg

FROZEN SOIL CLASSIFICATION (ASTM D 4083)

1. DESCRIBE SOIL INDEPENDENT OF FROZEN STATE	CLASSIFY SOIL BY THE UNIFIED SOIL CLASSIFICATION SYSTEM				
	MAJOR GROUP		SUBGROUP		
	DESCRIPTION	DESIGNATION	DESCRIPTION		DESIGNATION
2. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF FROZEN SOIL	Segregated ice not visible by eye	N	Poorly bonded of friable		N_f
			Well bonded	No excess ice	Nbn
				Excess ice	Nbe
	Segregated ice visible by eye (ice less than 25 mm thick)	V	Individual ice crystals or inclusions		V_x
			Ice coatings on particles		V_c
			Random or irregularly oriented ice formations		V_r
			Stratified or distinctly oriented ice formations		V_s
			Uniformly distributed ice		V_u
3. MODIFY SOIL DESCRIPTION BY DESCRIPTION OF SUBSTANTIAL ICE STRATA	Ice greater than 25 mm thick	ICE	Ice with soil inclusions		ICE+soil type
			Ice without soil inclusions		ICE

FROST DESIGN SOIL CLASSIFICATION(1)

FROST GROUP(2)	GENERAL SOIL TYPE	% FINER THAN 0.02 mm BY WEIGHT	TYPICAL USCS SOIL CLASS
NFS(3)	(a) Gravels Crushed stone Crushed rock	0 - 1.5	GW, GP
	(b) Sands	0 - 3	SW, SP
PFS(4) [MOA NFS] [FAA NFS]	(a) Gravels Crushed stone Crushed rock	1.5 - 3	GW, GP
[MOA F-2] [FAA FG-2]	(b) Sands	3 - 10	SW, SP
S1 [MOA F-1] [FAA FG-1]	Gravelly soils	3 - 6	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
S1 [MOA F-2] [FAA FG-2]	Sandy soils	3 - 6	SW, SP, SW-SM, SP-SM, SW-SC, SP-SC
F1(5) [MOA F-1] [FAA FG-1]	Gravelly soils	6 - 10	GM, GC, GM-GC, GW-GM, GP-GM, GW-GC, GP-GC
F2(5) [MOA F-2] [FAA FG-2]	(a) Gravelly soils	10 - 20	GW, GP, GW-GM, GP-GM, GW-GC, GP-GC
	(b) Sands	6 - 15	SM, SW-SM, SP-SM, SC, SW-SC, SP-SC, SM-SC
F3(5) [MOA F-3] [FAA FG-3]	(a) Gravelly soils	Over 20	GM, GC, GM-GC
	(b) Sands, except very fine silty sands	Over 15	SM, SC, SM-SC
	(c) Clays, PI>12	--	CL, CH
F4(5) [MOA F-4] [FAA FG-4]	(a) Silts	--	ML, MH, ML-CL
	(b) Very fine silty sands	Over 15	SM, SC, SM-SC
	(c) Clays, PI≤12	--	CL, ML-CL
	(d) Varved clays or other fine-grained banded sediments	--	CL or CH layered with ML, MH, ML-CL, SM, SC, or SM-SC

(1) From the U.S. Army Corps of Engineers (USACE), EM 1110-3-138, "Pavement Criteria for Seasonal Frost Conditions", April 1984

(2) USACE frost groups directly correspond to frost groups in Municipality of Anchorage (MOA) Design Criteria Manual (DCM). Federal Aviation Administration (FAA) frost groups come from Table 2-2 in Section 2.5.4 of Advisory Circular (AC) 150/5320-6G, Airport Pavement Design and Evaluation (June, 2021).

(3) Non-frost susceptible

(4) Possibly frost susceptible, requires lab test for void ratio to determine frost design classification.

(5) Consistent with MOA Definition.

ICE BONDING SYMBOLS

□	No ice-bonded soil observed
▤	Poorly bonded or friable
■	Well bonded

DEFINITIONS

Candled Ice is ice which has rotted or otherwise formed into long columnar crystals, very loosely bonded together.

Clear Ice is transparent and contains only a moderate number of air bubbles.

Cloudy Ice is translucent, but essentially sound and non-pervious.

Friable denotes a condition in which material is easily broken up under light to moderate pressure.

Granular Ice is composed of coarse, more or less equidimensional, ice crystals weakly bonded together.

Ice Coatings on particles are discernible layers of ice found on or below the larger soil particles in a frozen soil mass. They are sometimes associated with hoarfrost crystals, which have grown into voids produced by the freezing action.

Ice Crystal is a very small individual ice particle visible in the face of a soil mass. Crystals may be present alone or in a combination with other ice formations.

Ice Lenses are lenticular ice formations in soil occurring essentially parallel to each other, generally normal to the direction of heat loss and commonly in repeated layers.

Ice Segregation is the growth of ice as distinct lenses, layers, veins and masses in soils, commonly but not always oriented normal to direction of heat loss.

Massive Ice is a large mass of ice, typically nearly pure and relatively homogeneous.

Poorly-Bonded signifies that the soil particles are weakly held together by the ice and that the frozen soil consequently has poor resistance to chipping or breaking.

Porous Ice contains numerous void, usually interconnected and usually resulting from melting at air bubbles or along crystal interfaces from presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural unity.

Thaw-Stable frozen soils do not, on thawing, show loss of strength below normal, long-time thawed values nor produce detrimental settlement.

Thaw-Unstable frozen soils show on thawing, significant loss of strength below normal, long-time thawed values and/or significant settlement, as a direct result of the melting of the excess ice in the soil.

Well-Bonded signifies that the soil particles are strongly held together by the ice and that the frozen soil possesses relatively high resistance to chipping or breaking.

FILE NAME: \\crweng.com\Technical_Resources\Engineering_References\Tech_Geotechnical\CRW Geotechnical Report Template\Borehole Log Legend\Geotech Borehole Legends.dwg

CRW
ENGINEERING GROUP, LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

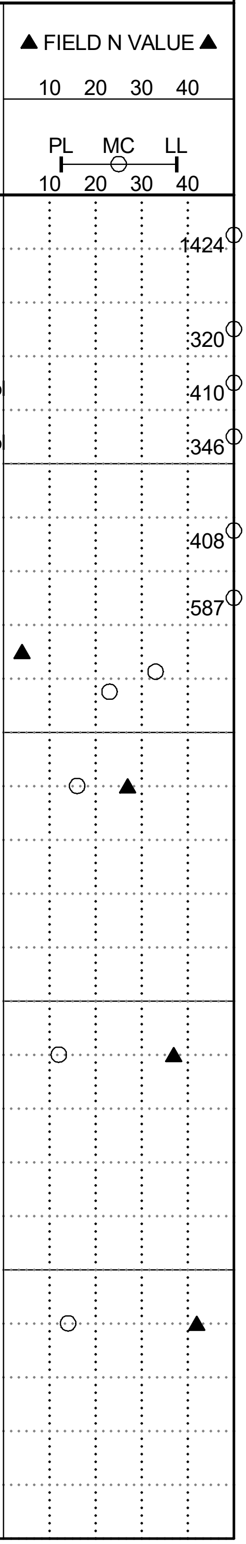
LEGEND: FROZEN SOIL CLASSIFICATION

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-01

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/11/22 **COMPLETED** 3/11/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
▽ **AT TIME OF DRILLING** 10.50 ft
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
▼ **AFTER DRILLING** 5.05 ft

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Brown, moist to wet, fibrous.	G S1	100					
			G S2A	100					
			ST S2B	100					Consol
5		▼	ST S2B	100					Consol
		VS (Acker) = 1295 psf peak/648 psf residual	SS S3	40	WOH				VS
			SS S4A	100	0-0-4-7 (4)				OLI
	OL	ORGANIC SOIL, (OL) 0% gravel, 10% sand, 90% fines Moist. 10.8% organics.	SS S4B						
10	SM	SILTY SAND, (SM) 0% gravel, 81% sand, 19% fines ▽ Gray, moist to wet, no odor. Fine to coarse sand.	SS S4C						
			SS S5	50	0-12-15-16 (27)				LMA
15			SS S6	75	13-17-20-21 (37)				
20			SS S6	75	14-19-23-23 (42)				
25									

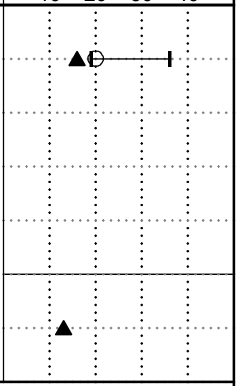


(Continued Next Page)

BOREHOLE BH-01

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	▲ FIELD N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
25	CL	▨	LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, stiff, no odor. VS (Humboldt) 1212 psf peak/125 psf residual.	SS S7	83	4-6-10-13 (16)	8000 avg			AL, VS	
30					0	5-5-8-9 (13)					



Bottom of borehole at 32.0 feet.

Notes:
Completed as piezometer. 1" Sch80 PVC, hand slotted 21.5 to 31.5 ft BGS. Stickup 1.7 ft. Annulus backfilled with cuttings.

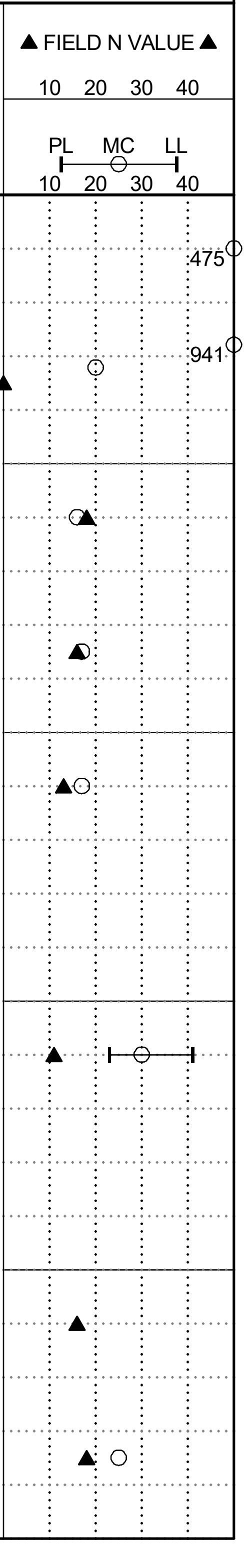
CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-02

PAGE 1 OF 3

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/7/22 **COMPLETED** 3/7/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
∇ **AT TIME OF DRILLING** 1.50 ft
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Dark brown, wet, no odor. Fibrous, contains live roots and trees. ∇	G S1				■		
	SM	SILTY SAND, (SM) 0% gravel, 68% sand, 32% fines Gray, moist, no odor. Fine to medium sand.	SS S2A SS S2B	42	2-0-0-0 (0)				LMA
5			SS S3	83	5-9-9-12 (18)				
		0% gravel, 71% sand, 29% fines	SS S4	79	8-10-6-4 (16)				LMA
10			SS S5	67	6-6-7-10 (13)				
15	CL	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff to very stiff, no odor. VS (Humboldt) = 1629 psf peak/84 psf residual.	SS S6	50	4-5-6-7 (11)	4500 avg			AL
20		Gray, moist, very stiff, low plasticity to nonplastic, no odor.		0	4-6-10-11 (16)				
		VS (Humboldt) = 1253 psf peak/0 psf residual.	SS S7	100	5-8-10-12 (18)	7833 avg			
25									



(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-02

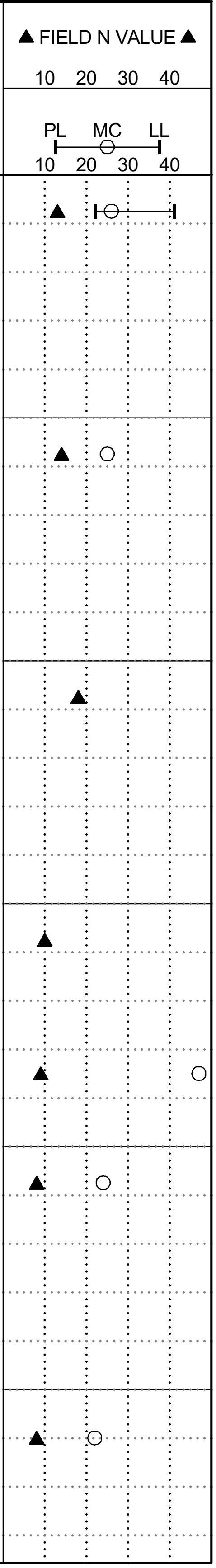
CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25	CL		LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff to very stiff, no odor. *(continued)* VS (Humboldt) = 1504 psf peak/334 psf residual.	SS S8	117	6-6-7 (13)	6167 avg			AL
30			Medium plasticity. VS (Humboldt) = 1170 psf peak/0 psf residual.	SS S9	67	6-6-8 (14)	5000 avg			
35				SS S10	0	8-8-10 (18)				
40					0	4-4-6 (10)				
			Wet, very disturbed. Likely slough, may not be representative.	SS S11	75	4-4-5-5 (9)				
45	CL		LEAN CLAY WITH SAND, (CL) 0% gravel, 19% sand, 81% fines Gray, moist, soft to medium, low plasticity, no odor. Thin laminae of gray to very dark gray fine sand. VS (Humboldt) = 627 psf peak/0 psf residual.	SS S12	28	4-4-4 (8)	1200			LMA
50	CL		LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, soft to medium, low plasticity, no odor. Thin laminae of fine gray to black sand up to 1/16" thick. VS (Humboldt) = 627 psf peak/0 psf residual.	SS S13	100	7-4-4-7 (8)	3167 avg			



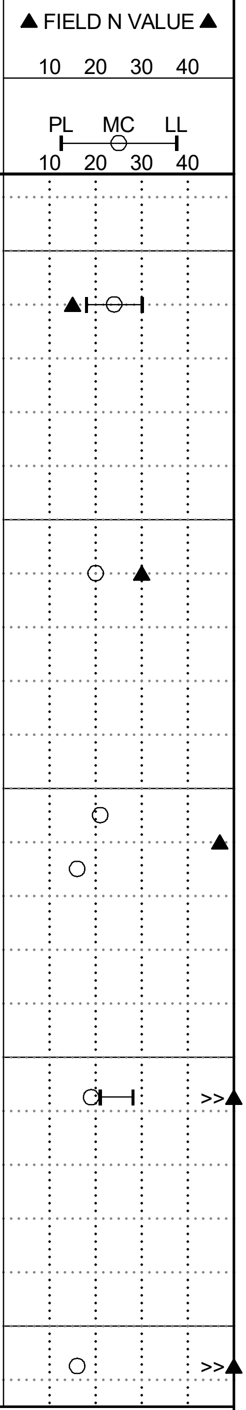
(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-02

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
55	CL		LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, soft to medium, low plasticity, no odor. Thin laminae of fine gray to black sand up to 1/16" thick. *(continued)* Medium to stiff. VS (Humboldt) = 794 psf peak/0 psf residual.	SS S14	75	5-7-8-9 (15)	3667 avg			AL
60	CL		SANDY LEAN CLAY, (CL) 10% gravel, 21% sand, 69% fines Gray, moist, no odor. Very fine to coarse angular sand and round to subrounded gravel up to 1". VS (Humboldt) = 1212 psf peak/84 psf residual.	SS S15	75	10-13-17-26 (30)	7750 avg			LMA
65	CL		LEAN CLAY, (CL) 0% gravel, 10% sand, 90% fines Gray, moist, very stiff to hard, nonplastic, no odor.	SS S16A	100	14-22-25-23 (47)				
	SC		CLAYEY SAND, (SC) 0% gravel, 60% sand, 40% fines Gray, moist, no odor. Very fine to fine sand.	SS S16B						
70	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 10% sand, 90% fines Gray, moist, very stiff to hard, no odor. VS (Humboldt) = 1755 psf peak/42 psf residual.	SS S17	100	22-25-31 (56)	9000 avg			AL
75	CL		LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, no odor. VS (Humboldt) = 1504 psf peak/251 psf residual.	SS S18	83	17-26-27 (53)	9000 avg			



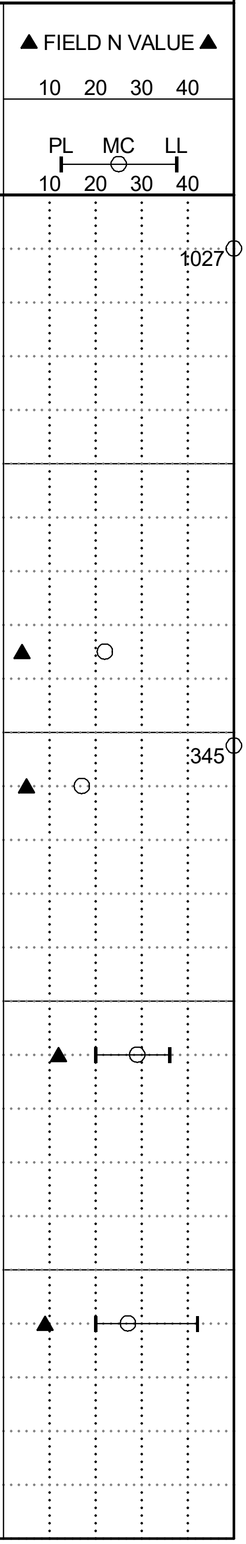
Bottom of borehole at 76.5 feet.

Notes:
Backfilled with cuttings.

BOREHOLE BH-03

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/9/22 **COMPLETED** 3/9/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
AT TIME OF DRILLING 1.00 ft Also surface water present.
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING 10.50 ft Deeper groundwater at time of drilling.
NOTES
AFTER DRILLING 20.95 ft

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Brown, wet, no odor. Fibrous.	G S1						
5		VS (Acker) = 566 psf peak/158 psf residual							VS
	SM	SILTY SAND, (SM) 0% gravel, 73% sand, 27% fines Gray, moist. Fine sand.	SS S2	42	0-0-4-5 (4)				LMA
10	PT	PEAT, (PT) Brown, moist, soft.	SS S3A	75	0-0-5-7 (5)				
	ML	SILT WITH SAND, (ML) 0% gravel, 40% sand, 60% fines Gray, wet. Fine sand.	SS S3B						
15	CL	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff.	SS S4	100	3-5-7-8 (12)				AL
20	CL	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff.	SS S5	100	3-4-5-7 (9)				AL
25									



(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-03

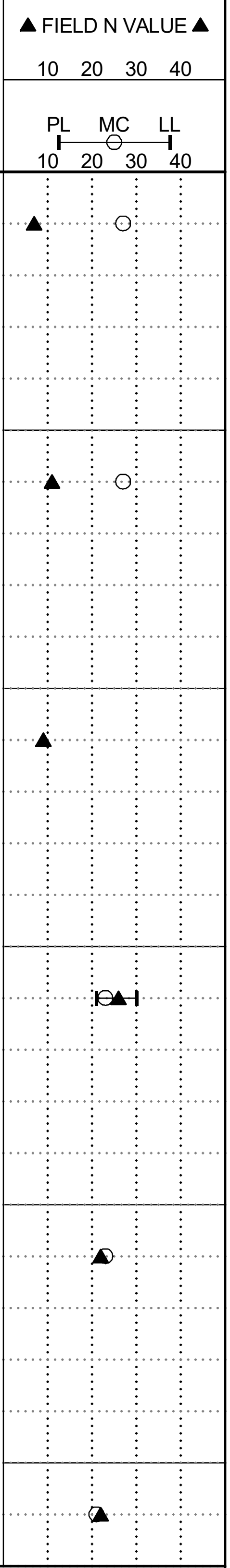
CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff. *(continued)*	SS S6	100	3-3-4-7 (7)				
30				SS S7	88	5-5-6-8 (11)				
35				SS S8	0	3-4-5-6 (9)				
40			Very stiff to hard.	SS S9	75	7-11-15-20 (26)	9000 avg			AL
45			Medium plasticity.	SS S10	100	8-9-13-17 (22)	8000 avg			
50			Low plasticity. Notes: Completed as piezometer. 1" Sch80 PVC, hand slotted 8.5 to 38.5 ft BGS. Stickup 3 ft. Annulus backfilled with cuttings.	SS S11	100	8-10-12-14 (22)	9000 avg			



Bottom of borehole at 52.0 feet.

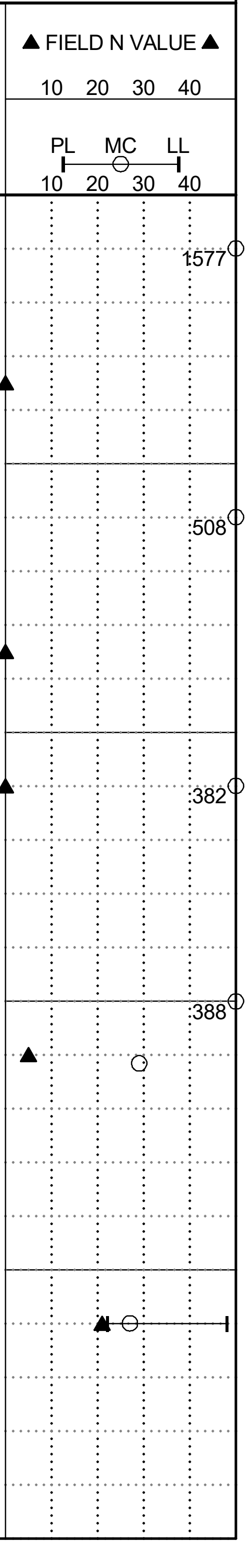
CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-04

PAGE 1 OF 2

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/9/22 **COMPLETED** 3/9/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
▽ **AT TIME OF DRILLING** 1.50 ft
LOGGED BY DSN **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT		PEAT, (PT) Brown, moist to wet, extremely soft, fibrous. Contains roots. ▽ Poor recovery, no recovery in Shelby tube attempt. Peat appears compressed at bottom of interval.	G S1	100			■		
			VS (Acker) = 136 psf peak/91 psf residual	SS S2	0	WOH				VS
5			Shelby tube sample (S3) attempted 5 to 7 ft BGS, no recovery. Sample of auger cuttings (S4) collected instead.	G S4	100					
			VS (Acker) = 407 psf peak/181 psf residual	SS S5	0	WOH				VS
10				SS S6	17	WOH				
15	CL		LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, soft to medium. Frost class F4 (24-hr hydrometer).	SS S7A SS S7B	100	0-2-3-4 (5)	4333 avg			MA
20				SS S8	100	5-9-12-12 (21)	9000 avg			AL
25										

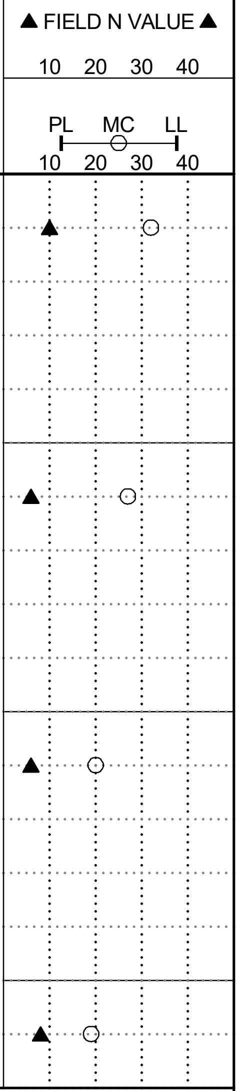


(Continued Next Page)

BOREHOLE BH-04

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25		▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, soft to medium. Frost class F4 (24-hr hydrometer). *(continued)*	SS S9	100	3-5-5-8 (10)	6000 avg			
30	CL	▨		SS S10	100	3-3-3-4 (6)	5000 avg			
35		▨	LEAN CLAY WITH SAND, (CL) 0% gravel, 16% sand, 84% fines Gray, moist. Fine sand and one 1/4" piece of subrounded gravel in 35-ft sample.	SS S11	100	3-3-3-5 (6)				LMA
40	CL	▨		SS S12	75	4-3-5-6 (8)	4333 avg			



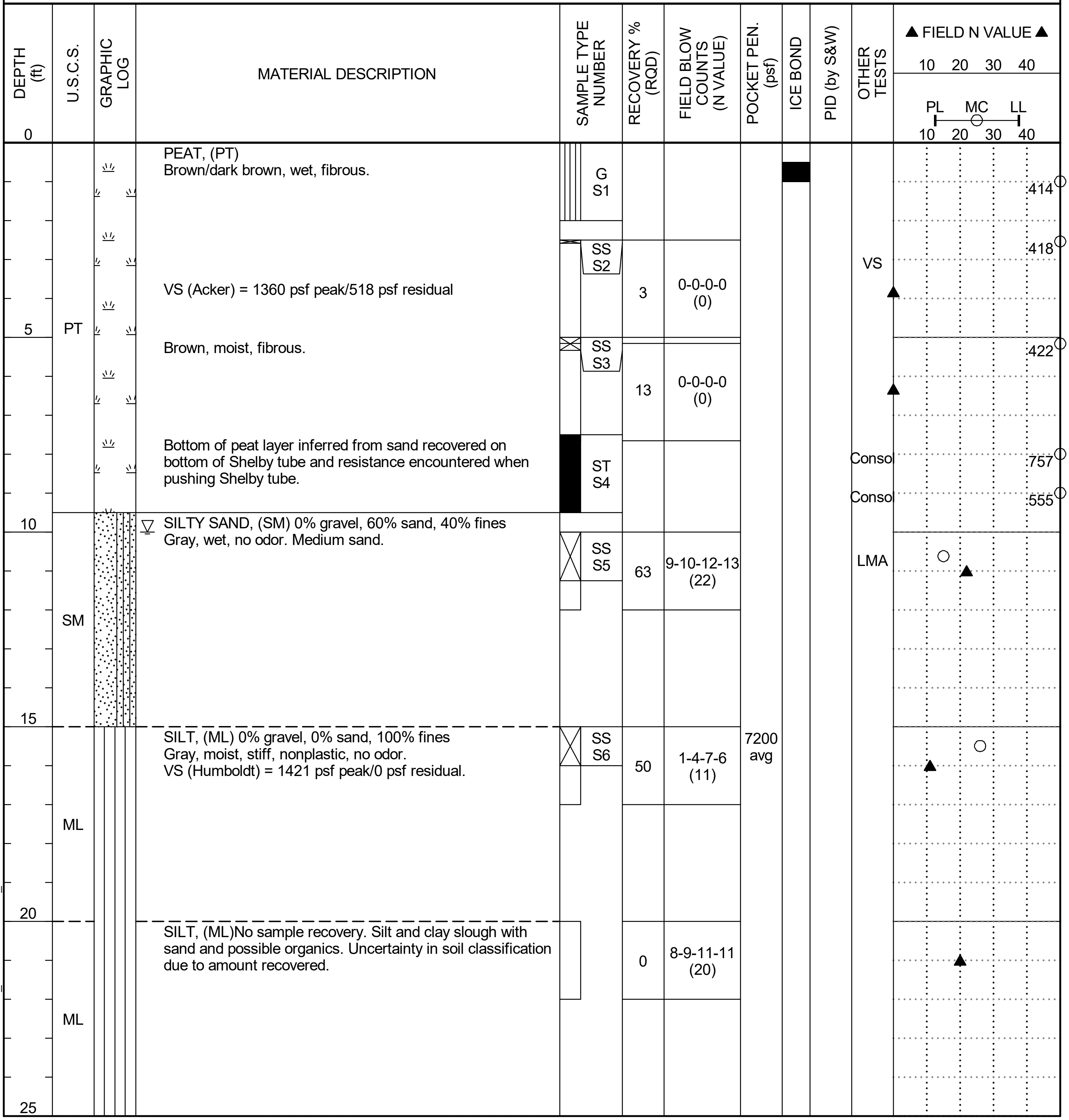
Bottom of borehole at 42.0 feet.

Notes:
Backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-05

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/10/22 **COMPLETED** 3/10/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
∇ **AT TIME OF DRILLING** 10.00 ft Also surface water at 1 ft BGS.
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING



DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	MC
0	PT		PEAT, (PT) Brown/dark brown, wet, fibrous.	G S1							414
			VS (Acker) = 1360 psf peak/518 psf residual	SS S2	3	0-0-0-0 (0)				VS	418
5			Brown, moist, fibrous.	SS S3	13	0-0-0-0 (0)					422
			Bottom of peat layer inferred from sand recovered on bottom of Shelby tube and resistance encountered when pushing Shelby tube.	ST S4						Conso Conso	757 555
10	SM		∇ SILTY SAND, (SM) 0% gravel, 60% sand, 40% fines Gray, wet, no odor. Medium sand.	SS S5	63	9-10-12-13 (22)				LMA	
15	ML		SILT, (ML) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, nonplastic, no odor. VS (Humboldt) = 1421 psf peak/0 psf residual.	SS S6	50	1-4-7-6 (11)	7200 avg				
20	ML		SILT, (ML)No sample recovery. Silt and clay slough with sand and possible organics. Uncertainty in soil classification due to amount recovered.		0	8-9-11-11 (20)					
25											

(Continued Next Page)

BOREHOLE BH-05

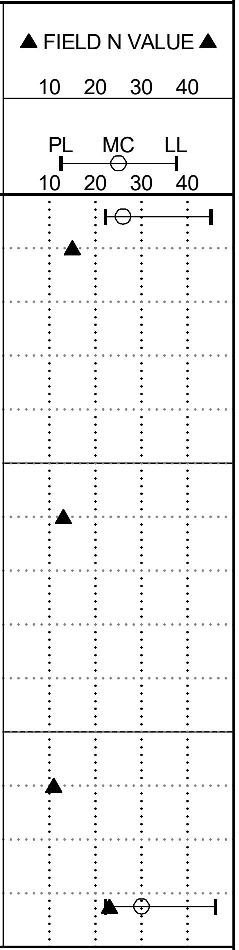
CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, no odor. VS (Humboldt) = 1337 psf peak/42 psf residual.	SS S8	42	6-7-8-10 (15)	6000 avg			AL
30		▨	No recovery at 30 ft sample.		0	4-6-7-8 (13)				
35		▨	No recovery at 35 ft sample.		0	4-5-6-7 (11)				
	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff to very stiff, no odor.	SS S10	100	10-10-13 (23)	2000 avg			AL



Bottom of borehole at 39.0 feet.

Notes:
Backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-06

PAGE 1 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DATE STARTED 3/10/22 **COMPLETED** 3/10/22

GROUND ELEVATION

DRILLING CONTRACTOR GeoTek Alaska, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger, autohammer

▽ **AT TIME OF DRILLING** 7.50 ft

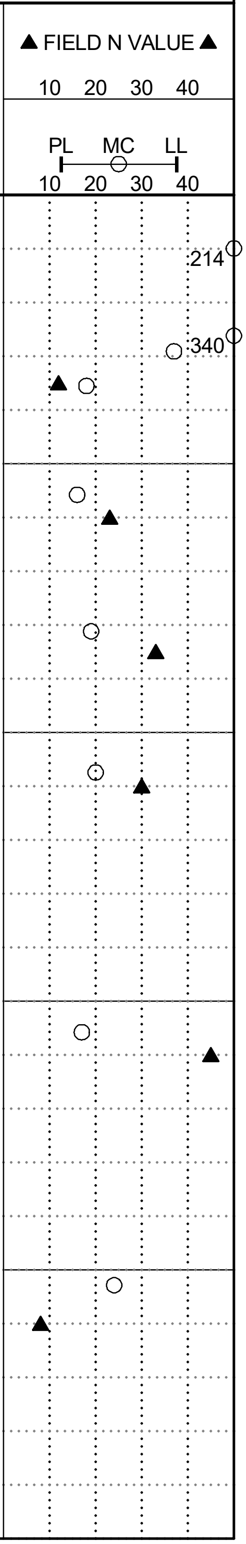
LOGGED BY AFS **CHECKED BY** SMH

AT END OF DRILLING

NOTES

▼ **AFTER DRILLING** 0.70 ft

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	▼ PEAT, (PT) Dark brown, moist, organics, fibrous.	G S1						
	SM	Frozen.	SS S2A	75	3-5-7-10 (12)		▬		LMA
	SM	SILTY SAND, (SM) 0% gravel, 75% sand, 25% fines Brown, moist, no odor.	SS S2B						LMA
		SILTY SAND, (SM) 0% gravel, 77% sand, 23% fines Gray/brown, moist, no odor.	SS S2C						
5		0% gravel, 75% sand, 25% fines Medium sand. Single 1/4" lens of gray silt.	SS S3	58	7-11-12-11 (23)				SA
		▽							
		Gray, wet, no odor.	SS S4	63	14-15-18-18 (33)				
10		0% gravel, 52% sand, 48% fines Gray, moist to wet, no odor. Interbedded sand, silt, and silty sand.	SS S5	75	10-15-15-17 (30)				LMA
15		SILT, (ML) 0% gravel, 40% sand, 60% finesGray, moist, stiff, low plasticity to nonplastic, no odor.	SS S6	58	15-19-26-26 (45)				
20	ML	VS (Humboldt) = 1462 psf peak/0 psf residual.	SS S7	29	4-2-6-10 (8)	7000 avg			
25									



(Continued Next Page)

BOREHOLE BH-06

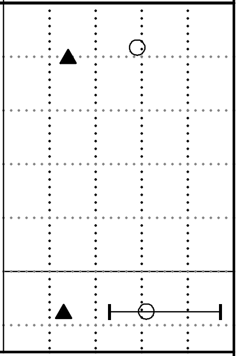
CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	▲ FIELD N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
25	CL-ML	▨	CLAYEY SILT, (CL-ML) 0% gravel, 0% sand, 100% fines Gray, moist, low plasticity, soft to stiff, no odor. VS (Humboldt) = 1253 psf peak/0 psf residual.	SS S8	83	4-6-8-10 (14)	6033 avg				
30	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, no odor. VS (Humboldt) = 1003 psf peak/0 psf residual.	SS S9	100	6-5-8 (13)	4367 avg			AL	



Bottom of borehole at 31.5 feet.

Notes:
Completed as piezometer. 1" Sch80 PVC, hand slotted 2 to 12 ft BGS. Stickup 3.25 ft. Annulus backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-07

PAGE 1 OF 3

CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DATE STARTED 3/8/22 **COMPLETED** 3/8/22

GROUND ELEVATION

DRILLING CONTRACTOR GeoTek Alaska, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Hollow-Stem Auger, autohammer

∇ **AT TIME OF DRILLING** 1.00 ft

LOGGED BY AFS **CHECKED BY** SMH

AT END OF DRILLING

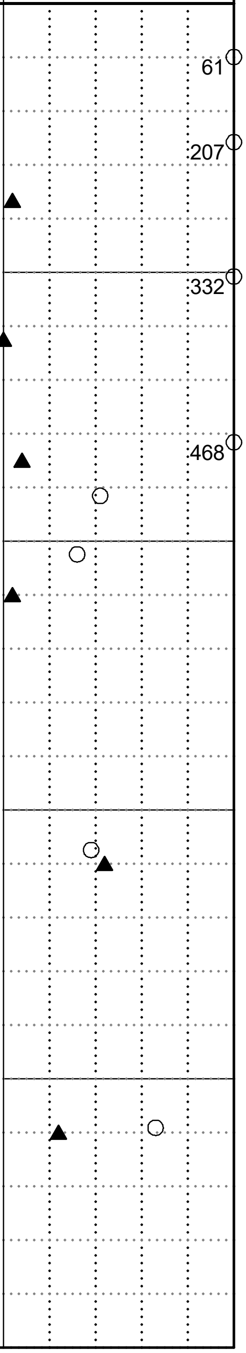
NOTES

AFTER DRILLING

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT		∇ PEAT, (PT) Dark brown organic silt, moist. Frozen to 1ft BGS.	G S1				■		
			Organics/wood.	SS S2	7	0-0-2-1 (2)				
5				SS S3	7	0-0-0-0 (0)				
				SS S4A	100	0-0-4-6 (4)				
10	SM		SILTY SAND, (SM) 0% gravel, 56% sand, 44% fines Gray, moist, no odor. Fine to medium sand.	SS S4B						LMA
				SS S5	25	0-0-2-9 (2)				
15	SM		SILTY SAND, (SM) 0% gravel, 55% sand, 45% fines Gray, moist, no odor. Fine to medium sand with 3" layers of silty sand and sandy silt.	SS S6	75	7-10-12-14 (22)				
20	CL-ML		CLAYEY SILT, (CL-ML) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, low plasticity, no odor. VS (Humboldt) = 1671 psf peak/0 psf residual.	SS S7	92	4-5-7-10 (12)	6333 avg			
25										

▲ FIELD N VALUE ▲
10 20 30 40

PL MC LL
10 20 30 40



(Continued Next Page)

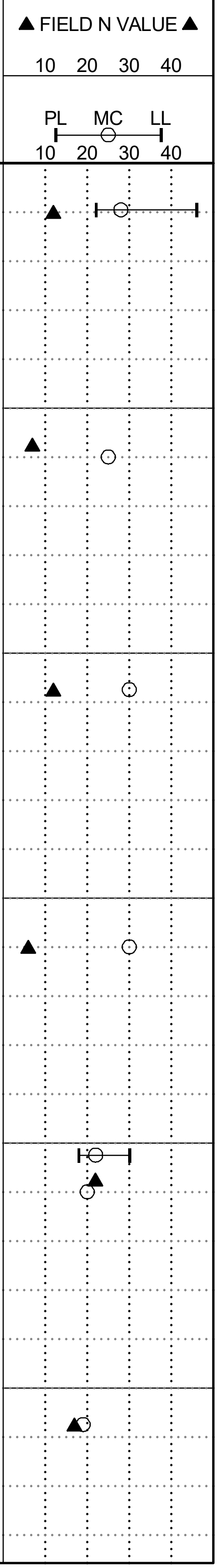
CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-07

PAGE 2 OF 3

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25	CL		LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, medium, no odor. VS (Humboldt) = 1922 psf peak/125 psf residual.	SS S8	96	3-5-7-9 (12)	6833 avg			AL
30			VS (Humboldt) = 1170 psf peak/125 psf residual.	SS S9	133	3-3-4 (7)	4500 avg			
35			VS (Humboldt) = 1546 psf peak/42 psf residual.	SS S10	100	4-6-6 (12)	5300 avg			
40	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 6% sand, 94% fines Gray, moist, soft to medium, medium plasticity, no odor. Thin lenses and laminations of silt or very fine sand. VS (Humboldt) = 501 psf peak/42 psf residual.	SS S11	100	2-2-4-6 (6)	1667 avg			LMA
45	CL		LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, no odor. VS (Humboldt) = 1045 psf peak/84 psf residual.	SS S12A	100	3-10-12 (22)	2400 avg			AL
	CL-ML		SILTY CLAY WITH SAND, (CL-ML) 0% gravel, 12% sand, 88% fines Gray, moist, no odor. Interbedded clayey and sandy intervals.	SS S12B						LMA
50			Medium to stiff, medium plasticity. VS (Humboldt) = 836 psf peak/84 psf residual.	SS S13	100	4-7-10 (17)	4600 avg			



(Continued Next Page)

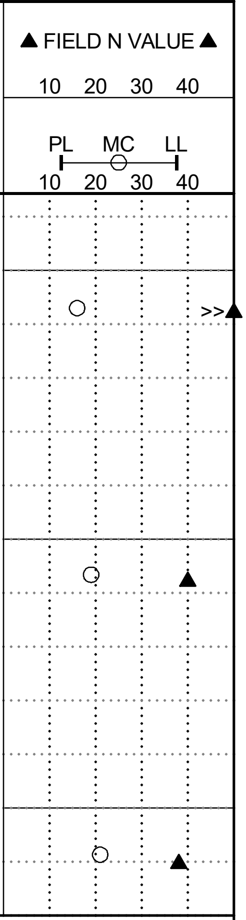
CLIENT MCG Explore Design

PROJECT NUMBER 73138.00

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
55	CL-ML	▨								
60	ML		SILT WITH SAND, (ML) 8% gravel, 20% sand, 72% fines Gray, moist, hard, nonplastic, no odor. Angular, coarse sand. Rounded and subrounded gravel up to 3/4".	SS S14	94	16-20-32 (52)	9000 avg			LMA
65	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, medium, nonplastic, no odor. VS (Humboldt) = 836 psf peak/0 psf residual.	SS S15	89	11-17-23 (40)	9000 avg			
	CL-ML	▨	CLAYEY SILT, (CL-ML) 0% gravel, 10% sand, 90% fines Gray, moist, low plasticity, no odor. Some very thin sand laminations, and some black sand/oxidized organics. Trace angular coarse sand. VS (Humboldt) = 418 psf peak/42 psf residual.	SS S16	88	16-18-20-20 (38)	6300 avg			



Bottom of borehole at 67.0 feet.

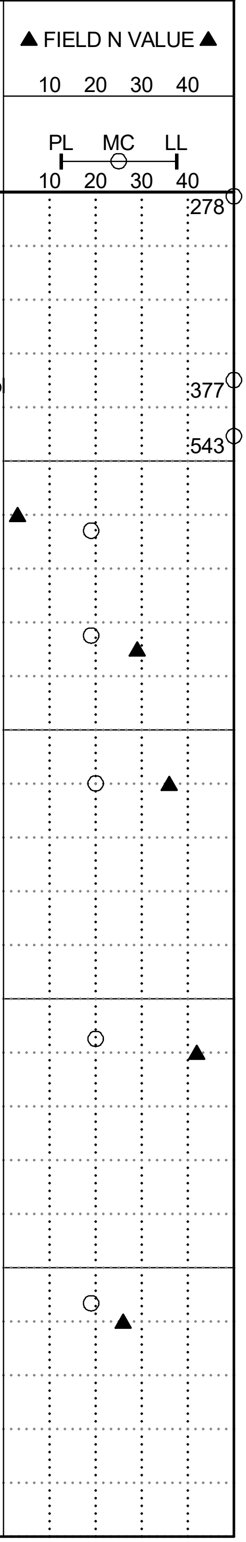
Notes:
Backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-08

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/11/22 **COMPLETED** 3/11/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
∇ **AT TIME OF DRILLING** 7.50 ft
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Dark brown, fibrous, organics, frozen insitu.	G S1				■		
			ST S2A						Consol
5	SM	SILTY SAND, (SM) 0% gravel, 79% sand, 21% fines Gray, moist, no odor. Fine to medium sand. Soil, wood fragments, and moss recovered in bottom of Shelby tube sampled as S2B. Soil recovered classifies as SM.	ST S2B						LMA
		0% gravel, 80% sand, 20% fines	SS S3	50	0-0-3-7 (3)				
∇		0% gravel, 85% sand, 15% fines	SS S4	75	10-13-16-19 (29)				LMA
10			SS S5	100	8-16-20-19 (36)				
15	SM	SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Gray, moist, no odor. Fine to medium sand, Lenses of gray silt ~3/4" thick.	SS S6	75	12-19-23-23 (42)				LMA
20	SM	SILTY SAND, (SM) 0% gravel, 85% sand, 15% fines Gray, moist, no odor. Fine to medium sand.	SS S7	67	10-11-15-10 (26)				
25									

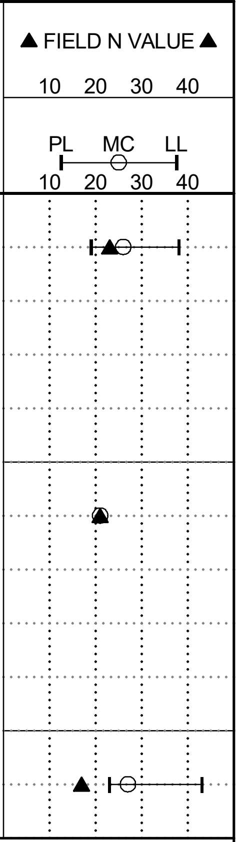


(Continued Next Page)

BOREHOLE BH-08

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25	CL	▨	LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, stiff, no odor. VS (Humboldt) = 1212 psf peak/0 psf residual.	☒ SS S8	100	6-10-13-17 (23)	8200 avg			AL
30	ML	▥	SILT, (ML) 0% gravel, 0% sand, 100% fines Gray, moist, very stiff, nonplastic, no odor. VS (Humboldt) = 1421 psf peak/0 psf residual.	☒ SS S9	100	6-7-14-20 (21)	8967 avg			
35	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, no odor. VS (Humboldt) = 1504 psf peak/42 psf residual.	☒ SS S10	100	5-7-10-14 (17)	6967 avg			AL



Bottom of borehole at 37.0 feet.

Notes:
Completed as piezometer. 1" Sch80 PVC, hand slotted 7 to 27 ft BGS, unslotted casing 27 to 37 ft BGS. Stickup 1.5 ft. Annulus backfilled with cuttings.

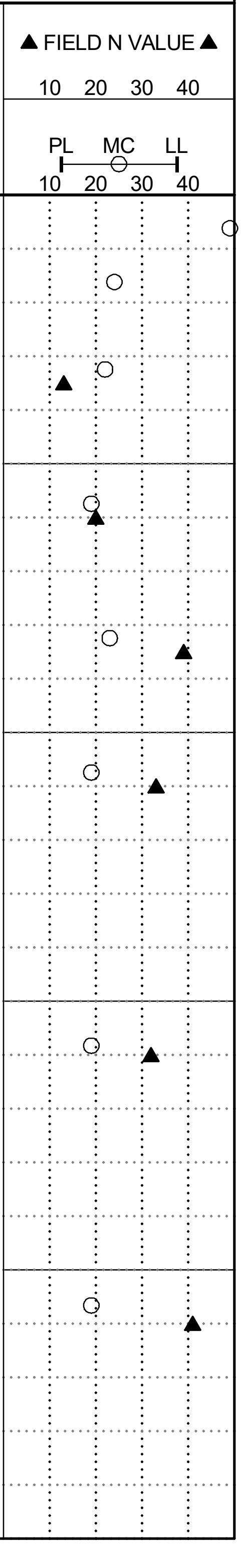
CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-09

PAGE 1 OF 2

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/6/22 **COMPLETED** 3/6/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
∇ **AT TIME OF DRILLING** 5.50 ft
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Dark brown, fibrous, frozen.	G S1A						
	SM	SILTY SAND, (SM) 0% gravel, 60% sand, 40% fines Brown, moist to wet, no odor. Fine to medium sand. May contain organics.	G S1B						
	SM	SILTY SAND, (SM) 0% gravel, 81% sand, 19% fines Gray/brown with reddish/orange iron staining, moist, no odor. Medium sand, contains roots.	SS S2	75	5-7-6-8 (13)				LMA
5	SP-SM	∇ POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Gray, wet, no odor. Medium sand.	SS S3	75	6-9-11-13 (20)				
			SS S4	75	13-17-22-19 (39)				
10			SS S5	75	5-15-18-17 (33)				
15	SM	SILTY SAND, (SM) 0% gravel, 85% sand, 15% fines Gray, wet, no odor. Fine to medium sand.	SS S6	83	12-16-16-18 (32)				
20	SM	SILTY SAND, (SM) 0% gravel, 72% sand, 28% fines Gray, wet, no odor. Fine sand with trace coase sand.	SS S7	67	11-17-24-26 (41)				LMA
25									

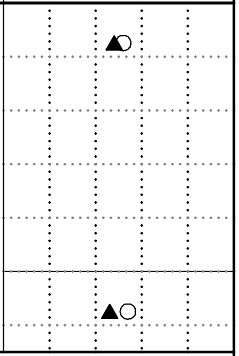


(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-09

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	▲ FIELD N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
25	CL-ML	▨	CLAYEY SILT, (CL-ML) 0% gravel, 0% sand, 100% fines Gray, moist, stiff to very stiff, low plasticity to nonplastic, no odor. VS (Humboldt) = 1797 psf peak/0 psf residual.	SS S8	100	8-11-13 (24)	8500 avg				
30			VS (Humboldt) = 1671 psf peak/84 psf residual.	SS S9	100	7-9-14 (23)	8000 avg				

Bottom of borehole at 31.5 feet.

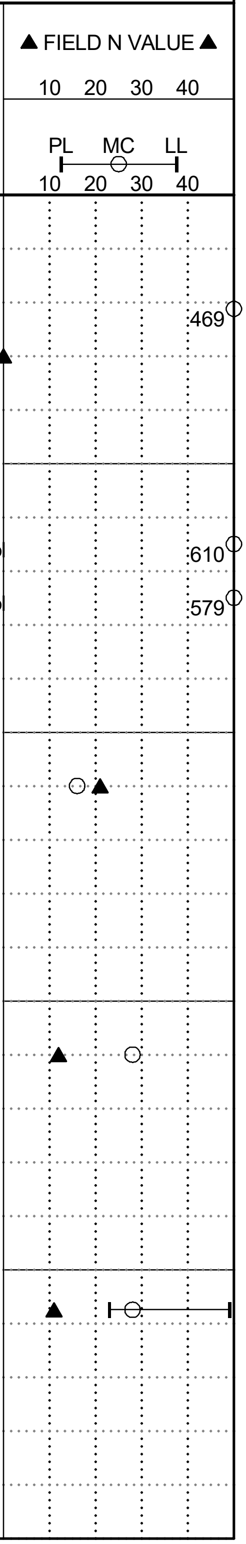
Notes:
Backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-10

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/6/22 **COMPLETED** 3/6/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
AT TIME OF DRILLING
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
▼ **AFTER DRILLING** 0.28 ft

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	▼ PEAT, (PT) Fibrous.					■		
			SS S1	13	1-0-0-0 (0)				
5		VS (Acker) = 1101 psf peak/712 psf residual							VS
		Bottom depth inferred from observations of bottom of Shelby tube.	ST S2						Consol Consol
	SP-SM	POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines							
10	SM	SILTY SAND, (SM) 0% gravel, 63% sand, 37% fines Gray, moist, no odor. Fine to medium sand.	SS S3	75	7-10-11-9 (21)				LMA
15	CL-ML	CLAYEY SILT, (CL-ML) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, low plasticity, no odor. VS (Humboldt) = 1462 psf peak/125 psf residual.	SS S4	100	4-5-7-9 (12)	5833 avg			
20	CL	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, no odor. VS (Humboldt) = 1922 psf peak/209 psf residual, measurement possibly elevated.	SS S5	67	4-5-6 (11)	5000 avg			AL
25									



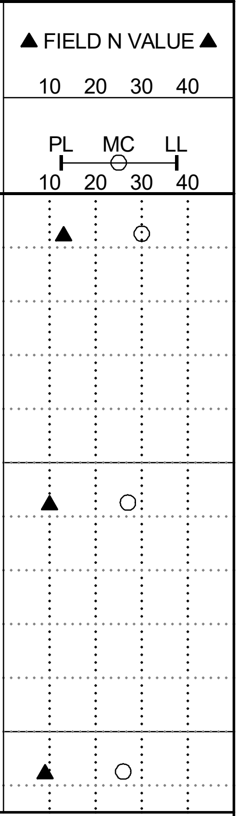
(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-10

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, no odor. *(continued)* VS (Humboldt) = 1253 psf peak/42 psf residual, measurement possibly elevated.	SS S6	100	5-6-7 (13)	6333 avg			
30		▨	Softer and higher plasticity than above. VS (Humboldt) = 1253 psf peak/84 psf residual, measurement possibly elevated.	SS S7	100	5-5-5 (10)	5167 avg			
35		▨	VS (Humboldt) = 1253 psf peak/125 psf residual.	SS S8	100	4-4-5 (9)	4000 avg			



Bottom of borehole at 36.5 feet.

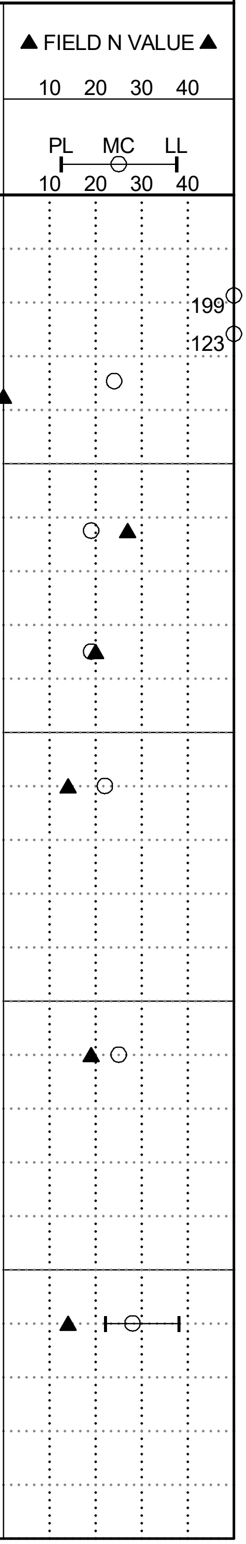
Notes:
Completed as piezometer. 1" Sch80 PVC, hand slotted 7 to 17 ft BGS, unslotted casing 17 to 37 ft BGS. Stickup 2.9 ft. Annulus backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-11

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/3/22 **COMPLETED** 3/3/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
▽ **AT TIME OF DRILLING** 5.50 ft
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Dark brown, moist, no odor. Organics with roots.							
		Brown, fibrous, organic odor.	G S1 SS S2A						
	SM	SILTY SAND, (SM) 0% gravel, 76% sand, 24% fines Gray/brown, moist, no odor. VS (Acker): No soil failure at maximum torque.	SS S2B	47	0-0-0-10 (0)				LMA VS
5		▽							
	SP	POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Gray, wet, no odor.	SS S3	67	12-13-14 (27)				
	SM	SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Gray, wet, no odor. Medium sand.	SS S4	63	7-6-14-11 (20)				LMA
10		0% gravel, 65% sand, 35% fines Gray, wet, no odor. Interbedded gray silty sand and sandy silt in ~4" layers. Fine to medium sand.	SS S5	75	6-5-9-10 (14)				
15	CL-ML	SILTY CLAY, (CL-ML) 0% gravel, 0% sand, 100% fines Gray, moist, very stiff, medium plasticity, no odor. Possible trace sand.	SS S6	67	5-8-11-11 (19)	8500 avg			
20	CL	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, no odor. VS (Humboldt) = 1671 psf peak/0 psf residual.	SS S7	75	4-6-8-9 (14)	6800 avg			AL
25									



(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-11

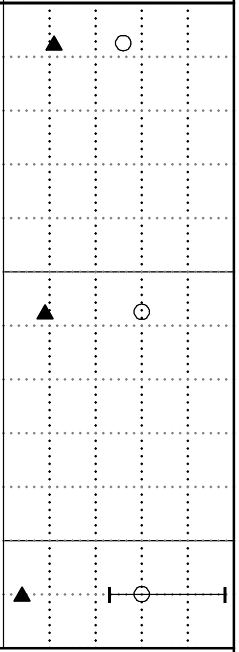
PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	▲ FIELD N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
25	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, stiff, no odor. *(continued)* VS (Humboldt) = 1379 psf peak/125 psf residual.	SS S8	100	4-5-6 (11)	6867 avg				
30			VS (Humboldt) = 1671 psf peak/84 psf residual.	SS S9	100	3-4-5 (9)	3233 avg				
35	CL	▨	LEAN CLAY WITH SAND, (CL) 0% gravel, 10% sand, 90% fines Gray, moist, soft, no odor. Fine grain sand layer at ~35.5 feet. VS (Humboldt) = 543 psf peak/0 psf residual.	SS S10	100	0-2-2-4 (4)	1750 avg			AL	

Bottom of borehole at 37.0 feet.

Notes:
Backfilled with cuttings.

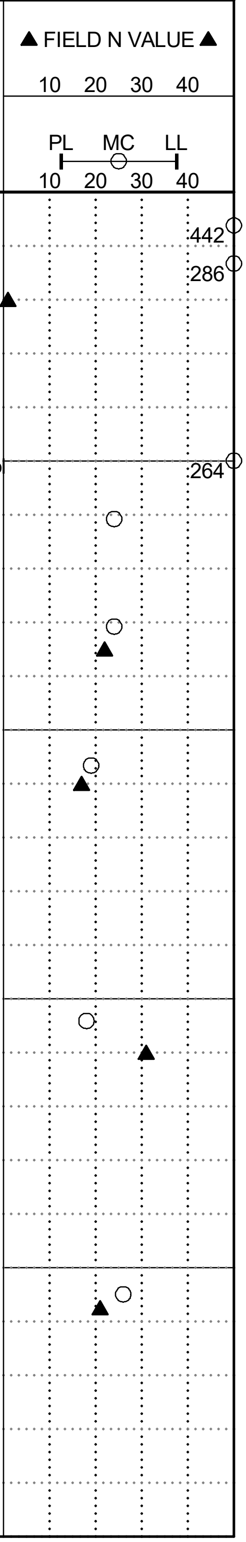
CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-12

PAGE 1 OF 2

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/4/22 **COMPLETED** 3/5/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
∇ **AT TIME OF DRILLING** 7.50 ft
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Dark brown, organics. Frozen with visible ice.	G S1						
			SS S2	33	2-1-0-0 (1)				
5			ST S3A	63					Conso
	SP	POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Gray/brown, moist, no odor. Organics in Sample S3. ∇ Gray, wet, no odor. Fine to medium sand.	ST S3B						
			SS S4	58	11-11-11-11 (22)				
10	SM	SILTY SAND, (SM) 0% gravel, 77% sand, 23% fines Gray, wet, no odor. Fine to medium sand.	SS S5	67	8-8-9-11 (17)				LMA
15		0% gravel, 60% sand, 40% fines Gray, moist to wet. Fine to medium sand.	SS S6	42	15-15-16-15 (31)				
20	CL-ML	SILTY CLAY, (CL-ML) 0% gravel, 10% sand, 90% fines Gray, moist, soft to very stiff, no odor. 1" lens of fine sand. VS (Humboldt) = 2883 psf peak/167 psf residual.	SS S7	67	8-10-11 (21)	9000 avg			
25									

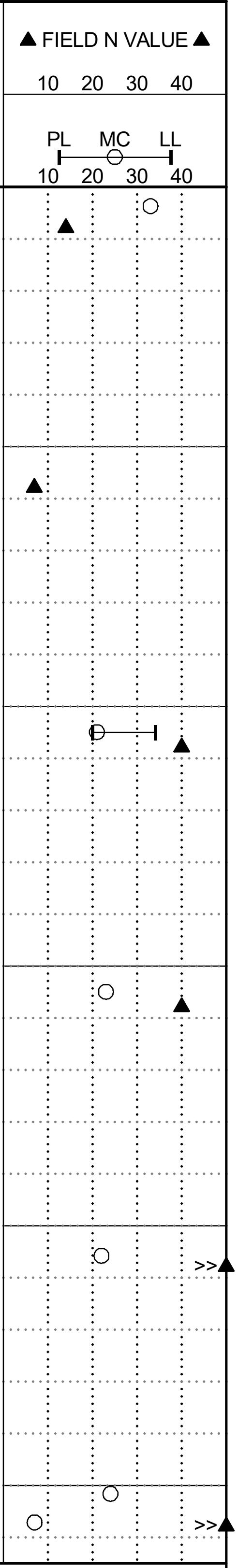


(Continued Next Page)

BOREHOLE BH-12

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25	CL-ML		SILTY CLAY, (CL-ML) 0% gravel, 10% sand, 90% fines Gray, moist, soft to very stiff, no odor. 1" lens of fine sand. *(continued)* VS (Humboldt) = 836 psf peak/0 psf residual.	SS S8	50	4-7-7 (14)				
30			No recovery.		0	3-3-4 (7)				
35	CL		LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, very stiff to hard, no odor. VS (Humboldt) = 1253 psf peak/167 psf residual.	SS S10	67	14-18-22 (40)	9000 avg			AL
40	ML		SILT, (ML) 0% gravel, 13% sand, 87% fines Gray, moist, no odor. Crumbles easily under hand pressure.	SS S11	67	11-18-22 (40)				LMA
45	SM		SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Gray, moist, no odor. Fine sand.	SS S12	78	17-24-31 (55)				
50	ML SM		SILT WITH SAND, (ML) 0% gravel, 35% sand, 65% fines Gray, moist, no odor. Crumbles easily under hand pressure. SILTY SAND, (SM) 0% gravel, 83% sand, 26% fines Gray, moist, no odor. Fine sand.	SS S13A SS S13B	78	15-23-33 (56)				SA



Bottom of borehole at 51.5 feet.

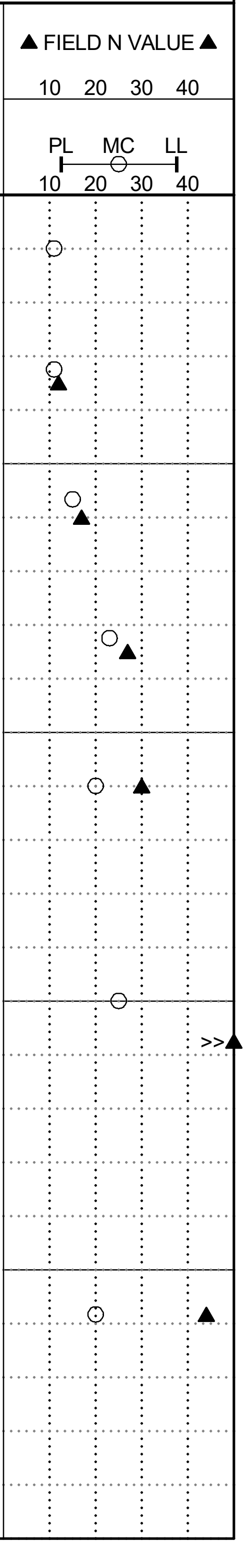
Notes:
Backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-13

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/4/22 **COMPLETED** 3/4/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
∇ **AT TIME OF DRILLING** 7.00 ft
LOGGED BY AFS **CHECKED BY** SMH
▼ **AT END OF DRILLING** 6.41 ft
NOTES
▼ **AFTER DRILLING** 4.25 ft

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	SM	SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Brown/reddish brown, moist, slight organic odor, roots.	G S1				■		
	SM	SILTY SAND, (SM) 0% gravel, 84% sand, 16% fines Brown, moist, no odor. Intervals of silty sand and sandy silt. Fine to medium sand.	SS S2	75	7-6-6-7 (12)				LMA
5			SS S3	67	5-9-8-6 (17)				
	SM	SILTY SAND, (SM) 0% gravel, 83% sand, 17% fines Brown, wet, no odor. Fine to medium sand.	SS S4	75	8-11-16-13 (27)				LMA
10	SP	POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown, wet, no odor. Fine to medium sand.	SS S5	100	4-12-18-20 (30)				
15	SP-SM	POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Gray, wet, no odor. Fine to medium sand.	SS S6	100	26-31-39 (70)				
20			SS S7	100	21-21-23 (44)				
25									



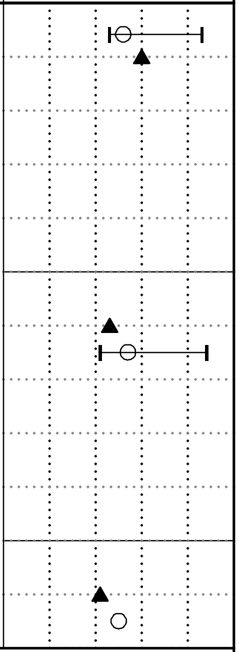
(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-13

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	▲ FIELD N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
25	CL		LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, very stiff, no odor. VS (Humboldt) = 2005 psf peak/0 psf residual.	SS S8	50	9-13-17-22 (30)	9000			AL	
30	CL		LEAN CLAY, (CL) 0% gravel, 3% sand, 97% fines Gray, moist, stiff to very stiff, no odor. VS (Humboldt) = 1629 psf peak/209 psf residual.	SS S9	100	8-11-12-14 (23)	8300 avg			LMA, AL	
35			0% gravel, 0% sand, 100% fines VS (Humboldt) = 1838 psf peak/0 psf residual.	SS S10	75	6-9-12-12 (21)	7250 avg				



Bottom of borehole at 37.0 feet.

Notes:
Completed as piezometer. 1" Sch80 PVC, machine slotted 9 to 24 ft BGS. Stickup 3.8 ft. Annulus backfilled with cuttings.

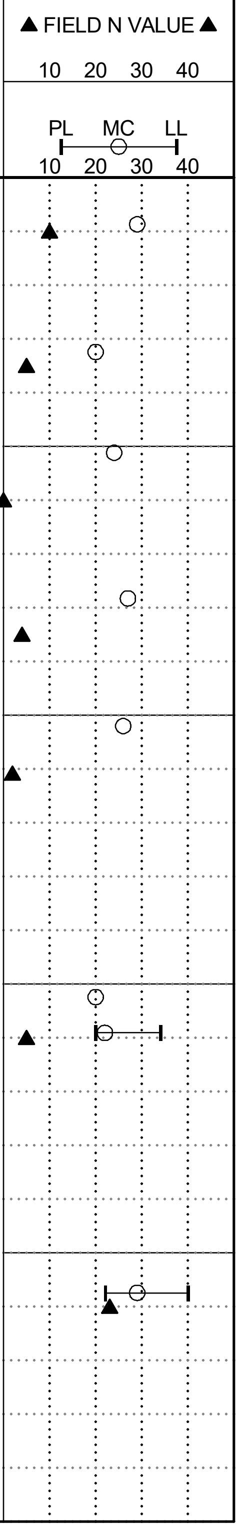
CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-14

PAGE 1 OF 2

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/4/22 **COMPLETED** 3/4/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
∇ **AT TIME OF DRILLING** 3.00 ft
LOGGED BY AFS **CHECKED BY** SMH
▼ **AT END OF DRILLING** 4.48 ft
NOTES
▼ **AFTER DRILLING** 1.30 ft

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	ML	SILT, (ML) 0% gravel, 10% sand, 90% fines Tan/brown, moist, soft, nonplastic, no odor. Frozen, Vx 5-15%. ▼	SS S1	88	9-7-3-3 (10)		☰		
	ML	∇ SILT WITH SAND, (ML) 3% gravel, 20% sand, 77% fines Tan/brown, moist to wet, soft. ▼	SS S2	75	4-2-3-2 (5)				LMA
5		0% gravel, 25% sand, 75% fines Wet	SS S3	13	0-0-0-0 (0)				LMA
	ML	SILT, (ML) 0% gravel, 10% sand, 90% fines Tan/brown, moist to wet, soft, nonplastic.	SS S4	33	1-3-1-2 (4)				
10			SS S5	19	0-1-1-1 (2)				
15	SM	SILTY SAND, (SM) 0% gravel, 60% sand, 40% fines Gray, wet, no odor. Fine to medium sand.	SS S6A SS S6B	25	4-3-2-1 (5)	1000			AL
	CL	LEAN CLAY WITH SAND, (CL) 0% gravel, 24% sand, 76% fines Gray, moist, soft, no odor. VS (Humboldt) = 418 psf peak/0 psf residual.							
20	CL	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, medium to very stiff, no odor. VS (Humboldt) = 1504 psf peak/0 psf residual.	SS S7	75	5-10-13-17 (23)	8833 avg			AL
25									



(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-14

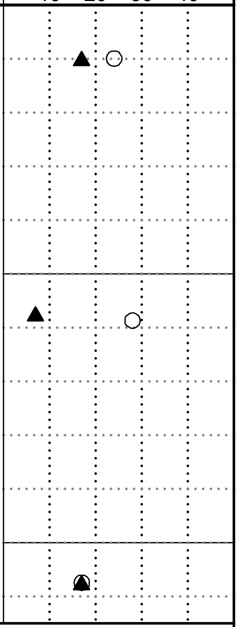
CLIENT MCG Explore Design

PROJECT NAME ANCA FedEx Sorting Facility

PROJECT NUMBER 73138.00

PROJECT LOCATION Anchorage, Alaska

DEPTH (ft) 25	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	▲ FIELD N VALUE ▲ 10 20 30 40 / PL MC LL 10 20 30 40
		▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, medium to very stiff, no odor. *(continued)* VS (Humboldt) = 3134 psf peak/418 psf residual.	SS S8	100	5-7-10-11 (17)	8433 avg				
30	CL	▨	VS (Humboldt) = 1671 psf peak/293 psf residual.	SS S9	117	4-3-4 (7)	4900 avg				
35	CL	▨	LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, stiff to very stiff, no odor. Lenses of fine gray sand, <0.25" thick. VS (Humboldt) = 1128 psf peak/167 psf residual.	SS S10	100	5-7-10 (17)	5100 avg				



Bottom of borehole at 36.5 feet.

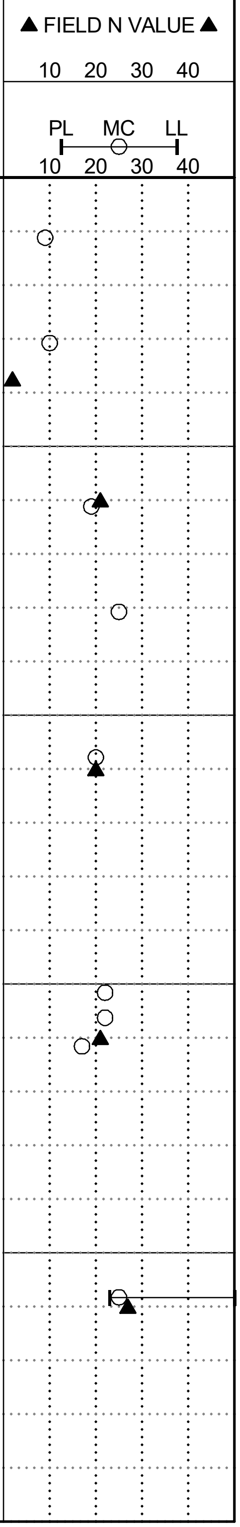
Notes:
Completed as piezometer. 1" Sch80 PVC, machine slotted 8.4 to 18.4 ft BGS, 5 ft unslotted casing below. Stickup 3.8 ft. Annulus backfilled with cuttings.

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-15

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/3/22 **COMPLETED** 3/3/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
▽ **AT TIME OF DRILLING** 7.50 ft
LOGGED BY AFS **CHECKED BY** SMH
▼ **AT END OF DRILLING** 7.26 ft
NOTES
▼ **AFTER DRILLING** 5.30 ft

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	SP-SM	POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 91% sand, 9% fines Dark brown, moist, no odor, organics.	G S1						LMA
		Roots.	SS S2	47	2-2-0-0 (2)				
5	SM	SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Brown, moist, no odor. Interbedded silt and silty sand. Silt layers gray/brown.	SS S3	88	2-8-13-12 (21)				
	SP-SM	POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown/gray, wet, no odor. Blow counts during sampling inaccurate due to hammer issue.	SS S4	58	N/A				
10	SM	SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Gray, wet, no odor. Fine to coarse sand.	SS S5	79	3-9-11-12 (20)				SA
15		Gray, wet, no odor. Fine to medium sand.	SS S6A	67	5-10-11-13 (21)	7500			
	ML	SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Gray, moist to wet, nonplastic, no odor. Laminae of sand within silt.	SS S6B						
	SM	SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Gray, moist, no odor. Fine sand.	SS S6C						
20	CH	FAT CLAY, (CH) 0% gravel, 0% sand, 100% fines Gray, moist, very stiff to hard, no odor.	SS S7	83	7-12-15-22 (27)	9000 avg			AL
25									



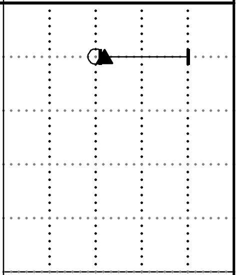
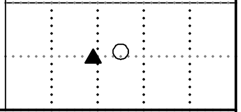
(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-15

PAGE 2 OF 2

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS	▲ FIELD N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
25	CL	▨	LEAN CLAY, (CL) 0% gravel, 0% sand, 100% fines Gray, moist, very stiff, no odor.	SS S8	100	5-9-13-15 (22)	9000 avg			AL	
30	ML	⁘	SILT WITH SAND, (ML) 3% gravel, 12% sand, 85% fines Gray/brown, moist, very stiff, no odor. Rounded gravel up to 1/4".	SS S9	92	5-7-12-18 (19)	8300 avg			LMA	

Bottom of borehole at 32.0 feet.

Notes:
Completed as piezometer. 1" Sch80 PVC, machine slotted 6.75 to 16.75 ft BGS, 5 ft unslotted casing below. Stickup 4.5 ft. Annulus backfilled with cuttings.

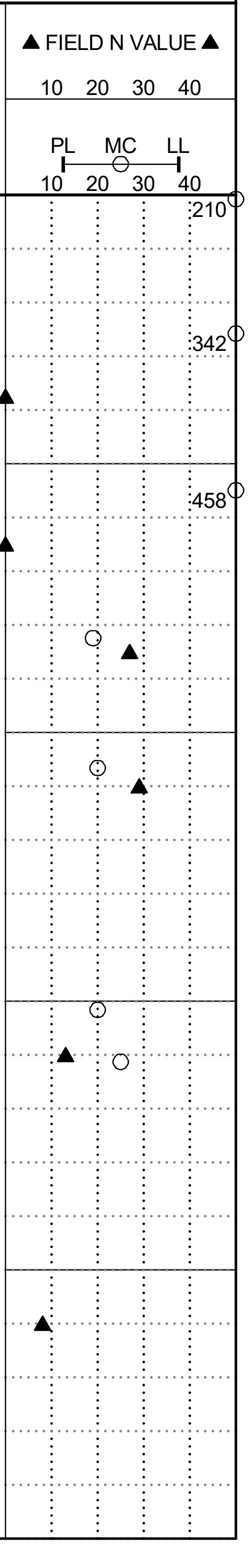
CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-16

PAGE 1 OF 2

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska
DATE STARTED 3/11/22 **COMPLETED** 3/11/22
GROUND ELEVATION
DRILLING CONTRACTOR GeoTek Alaska, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Hollow-Stem Auger, autohammer
▽ **AT TIME OF DRILLING** 7.50 ft
LOGGED BY AFS **CHECKED BY** SMH
AT END OF DRILLING
NOTES
AFTER DRILLING

DEPTH (ft)	U.S.C.S.	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
0	PT	PEAT, (PT) Dark brown, moist to wet, organics, fibrous.	G S1						
		Some frozen slough. VS (Acker) = 1230 psf peak/324 psf residual	SS S2	7	0-0-0-1 (0)				VS
5		Small amount of gray medium sand in sample shoe.	SS S3	33	0-0-0-0 (0)				
▽	SP	POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Gray, wet, no odor. Medium sand.	SS S4	75	7-14-13-17 (27)				
10		0% gravel, 95% sand, 5% fines Fine to medium sand.	SS S5	67	7-15-14-15 (29)				
15	ML	SANDY SILT, (ML) 0% gravel, 42% sand, 58% fines Gray, moist, no odor.	SS S6A	100	4-3-10-5 (13)				LMA
	SP	POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Gray, moist, no odor. Medium sand.	SS S6B						
20	ML	SILT, (ML) No recovery. Gray sandy slough in sample spoon.		0	3-3-5-7 (8)				
25									



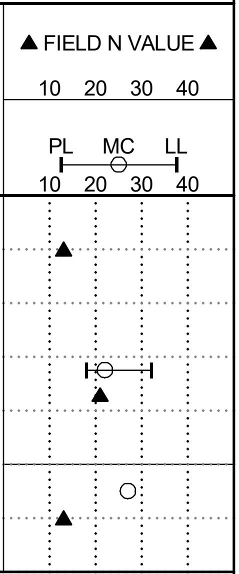
(Continued Next Page)

CRW Engineering Group, Inc.
3940 Arctic Blvd, Ste. 300
Anchorage, AK 99503
Telephone: (907) 562-3252

BOREHOLE BH-16

CLIENT MCG Explore Design
PROJECT NAME ANCA FedEx Sorting Facility
PROJECT NUMBER 73138.00
PROJECT LOCATION Anchorage, Alaska

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	FIELD BLOW COUNTS (N VALUE)	POCKET PEN. (psf)	ICE BOND	PID (by S&W)	OTHER TESTS
25			SILT, (ML) No recovery. Gray sandy slough in sample spoon. *(continued)* No recovery. Very disturbed wet silt and fine sand in sample spoon, likely slough.		0	4-6-7-8 (13)				
	ML CL		LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Gray, moist, stiff to very stiff, no odor. VS (Humboldt) = 2047 psf peak/125 psf residual.	SS S8	62	5-8-13-16 (21)	5900 avg			AL
30	ML		SANDY SILT, (ML) 5% gravel, 37% sand, 58% fines Gray, moist, stiff, low to medium plasticity, no odor. VS (Humboldt) = 1128 psf peak/84 psf residual.	SS S9	50	4-4-9-13 (13)	5500 avg			MA



Bottom of borehole at 32.0 feet.

Notes:
Backfilled with cuttings.

Appendix B

Laboratory Results

Included in this section:

1) Laboratory Results from Alaska Testlab

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0250
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0250-S01	22-0250-S02	22-0250-S03	22-0250-S04	22-0250-S05	22-0250-S06
Client Sample ID	BH-01 S1	BH-01 S2A	BH-01 S2B 3.0ft	BH-01 S2B 4.0ft	BH-01 S3	BH-01 S4A
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D2216	1424	320			408	587	
Date Tested		3/21/2022	3/22/2022			3/22/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan			Christian Detablan	Christian Detablan	

Comments

N/A

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0250
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0250-S07	22-0250-S08	22-0250-S09	22-0250-S10	22-0250-S11	22-0250-S12
Client Sample ID	BH-01 S4B	BH-01 S4C	BH-01 S5	BH-01 S6	BH-01 S7	BH-01 S8
Date Sampled						

Other Test Results

Description	**Method**	**Results**						**Limits**
Water Content (%)	ASTM D2216	33	23	16	12	14	20	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Organic Material (%)	ASTM D2974	10.8						
Ash Content (%)		89.2						
Water Content (%)		2						
Method		A						
Furnace Temperature (°C)		440						
Furnace Duration (min)		300						
Tested By		Cindy Zickefoose						
Percent Gravel	LMA (Internal Method)			0				
Percent Sand				81				
Percent Fines (Silt/Clay)				19				
Group Symbol				SM				
Group Name				Silty sand				
Tested By				John Platt				
Group Code	ASTM D2487						CL	
Group Name							Lean clay	
Gravel (%)							0	
Sand (%)							0	
Fines (%)							100	
Tested By	ASTM D2487						Cindy Zickefoose	
Liquid Limit	ASTM D4318						36	
Plastic Limit							19	
Plasticity Index							17	
Preparation Method							Wet	
Oversize Removed By							Hand during mixing on glass plate	
Liquid Limit Apparatus							Mechanical	
Grooving Tool							Plastic	
Rolling							Hand	
Tested By							Caleb Fischer	
Date Tested							4/15/2022	

Comments

N/A

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0254
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0254-S01	22-0254-S02	22-0254-S03	22-0254-S04	22-0254-S05
Client Sample ID	BH-02 S1	BH-02 S2A	BH-02 S2B	BH-02 S3	BH-02 S4
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	475	941	20	16	17	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)			0		0	
Percent Sand				68		71	
Percent Fines (Silt/Clay)				32		29	
Group Symbol				SM		SM	
Group Name				Silty sand		Silty Sand	
Tested By				John Platt		John Platt	

Comments

Soil classification of Fines (-#200) in LMA assumed unless verified by additional testing

Material Test Report

Report No: ASM:22-0254
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID		22-0254-S06	22-0254-S07	22-0254-S08	22-0254-S09	22-0254-S10	
Client Sample ID		BH-02 S5	BH-02 S6	BH-02 S7	BH-02 S8	BH-02 S9	
Date Sampled							

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	17	30	25	26	25	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487		CL		CL		
Group Name			Lean clay		Lean clay		
Material Proportions Estimated			Yes		Yes		
Gravel (%)			0		0		
Sand (%)			0		0		
Fines (%)			100		100		
Tested By	ASTM D2487		Cindy Zickefoose		Cindy Zickefoose		
Liquid Limit	ASTM D4318		41		41		
Plastic Limit			23		22		
Plasticity Index			18		19		
Preparation Method			Wet		Wet		
Oversize Removed By			Hand during mixing on glass plate		Hand during mixing on glass plate		
Liquid Limit Apparatus			Mechanical		Mechanical		
Grooving Tool			Plastic		Plastic		
Rolling			Hand		Hand		
Tested By			Karen Jackson		Karen Jackson		
Date Tested			4/11/2022		4/8/2022		

Comments

Soil classification of Fines (-#200) in LMA assumed unless verified by additional testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0254
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0254-S11	22-0254-S12	22-0254-S13	22-0254-S14	22-0254-S15
Client Sample ID	BH-02 S11	BH-02 S12	BH-02 S13	BH-02 S14	BH-02 S15
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	47	24	22	24	20	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)		0			10	
Percent Sand			19			21	
Percent Fines (Silt/Clay)			81			69	
Group Symbol			ML			ML	
Group Name			Silt with sand			Sandy silt	
Tested By			John Platt			John Platt	
Group Code	ASTM D2487				CL		
Group Name					Lean clay		
Material Proportions Estimated					Yes		
Gravel (%)					0		
Sand (%)					0		
Fines (%)					100		
Tested By	ASTM D2487				Cindy Zickefoose		
Liquid Limit	ASTM D4318				30		
Plastic Limit					18		
Plasticity Index					12		
Preparation Method					Wet		
Oversize Removed By					Hand during mixing on glass plate		
Liquid Limit Apparatus					Mechanical		
Grooving Tool					Plastic		
Rolling					Hand		
Tested By					Karen Jackson		
Date Tested					4/11/2022		

Comments

Soil classification of Fines (-#200) in LMA assumed unless verified by additional testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0254
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0254-S16	22-0254-S17	22-0254-S18	22-0254-S19
Client Sample ID	BH-02 S16A	BH-02 S16B	BH-02 S17	BH-02 S18
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	21	16	19	16	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487			CL-ML		
Group Name				Silty clay		
Gravel (%)				0		
Sand (%)				0		
Fines (%)				100		
Tested By	ASTM D2487			Cindy Zickefoose		
Liquid Limit	ASTM D4318			28		
Plastic Limit				21		
Plasticity Index				7		
Preparation Method				Wet		
Oversize Removed By				Hand during mixing on glass plate		
Liquid Limit Apparatus				Mechanical		
Grooving Tool				Plastic		
Rolling				Hand		
Tested By				Caleb Fischer		
Date Tested				4/15/2022		

Comments

Soil classification of Fines (-#200) in LMA assumed unless verified by additional testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0256
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0256-S01	22-0256-S02	22-0256-S03	22-0256-S04	22-0256-S05	22-0256-S06
Client Sample ID	BH-03 S1	BH-03 S2	BH-03 S3A	BH-03 S3B	BH-03 S4	BH-03 S5
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D2216	1027	22	345	17	29	27	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)		0					
Percent Sand			73					
Percent Fines (Silt/Clay)			27					
Group Symbol			SM					
Group Name			Silty sand					
Tested By			John Platt					
Group Code	ASTM D2487					CL	CL	
Group Name						Lean clay	Lean clay	
Material Proportions Estimated						Yes	Yes	
Gravel (%)						0	0	
Sand (%)						0	0	
Fines (%)						100	100	
Tested By	ASTM D2487					Cindy Zickefoose	Cindy Zickefoose	
Liquid Limit	ASTM D4318					36	42	
Plastic Limit						20	20	
Plasticity Index						16	22	
Preparation Method						Wet	Wet	
Oversize Removed By						Hand during mixing on glass plate	Hand during mixing on glass plate	
Liquid Limit Apparatus						Mechanical	Mechanical	
Grooving Tool						Plastic	Plastic	
Rolling						Hand	Hand	
Tested By						Karen Jackson	Karen Jackson	
Date Tested						4/11/2022	4/11/2022	

Comments

Soil Classification of Fines (-#200) in LMA assumed unless verified by additional testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0256
Issue No: 1

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0256-S07	22-0256-S08	22-0256-S09	22-0256-S10	22-0256-S11
Client Sample ID	BH-03 S6	BH-03 S7	BH-03 S9	BH-03 S10	BH-03 S11
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	27	27	23	23	21	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487			CL			
Group Name				Lean clay			
Material Proportions Estimated				Yes			
Gravel (%)				0			
Sand (%)				0			
Fines (%)				100			
Tested By	ASTM D2487			Cindy Zickefoose			
Liquid Limit	ASTM D4318			30			
Plastic Limit				21			
Plasticity Index				9			
Preparation Method				Wet			
Oversize Removed By				Hand during mixing on glass plate			
Liquid Limit Apparatus				Mechanical			
Grooving Tool				Plastic			
Rolling				Hand			
Tested By				Caleb Fischer			
Date Tested				4/15/2022			

Comments

Soil Classification of Fines (-#200) in LMA assumed unless verified by additional testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0257
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0257-S01	22-0257-S02	22-0257-S03	22-0257-S04	22-0257-S05
Client Sample ID	BH-04 S1	BH-04 S4	BH-04 S6	BH-04 S7A	BH-04 S7B
Date Sampled					

Particle Size Distribution

Method:
ASTM D 422
Description:
Analysis of Particle Size Distribution in Soils. Sieving for Particles >75µm, Hydrometer
Drying By:

Washed:
Sample Washed

Sieve Size	% Passing					Limits
3in					100	
2in					100	
1½in					100	
1in					100	
¾in					100	
½in					100	
3/8in					100	
No.4					100	
No.10					100	
No.20					100	
No.40					100	
No.60					100	
No.100					100	
No.200					100	
Finer No.200 (75µm)					99.5	

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	1577	508	382	388	29	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Dispersion device	ASTM D 422					Dispersant by hand	
Dispersion time (min)							
Shape							
Hardness							
Group Code	ASTM D2487					ML	
Group Name						Silt	
Liquid Limit						0	
Plasticity Index						0	
Gravel (%)						0	
Sand (%)						0	
Fines (%)						100	
Tested By	ASTM D2487					Cindy Zickefoose	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Material Test Report

Report No: ASM:22-0257
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0257-S06	22-0257-S07	22-0257-S08	22-0257-S09	22-0257-S10
Client Sample ID	BH-04 S8	BH-04 S9	BH-04 S10	BH-04 S11	BH-04 S12
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	27	32	27	20	19	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487	CL					
Group Name		Lean clay					
Material Proportions Estimated		Yes					
Gravel (%)		0					
Sand (%)		0					
Fines (%)		100					
Tested By	ASTM D2487	Cindy Zickefoose					
Liquid Limit	ASTM D4318	48					
Plastic Limit		22					
Plasticity Index		26					
Preparation Method		Wet					
Oversize Removed By		Hand during mixing on glass plate					
Liquid Limit Apparatus		Mechanical					
Grooving Tool		Plastic					
Rolling		Hand					
Tested By		Caleb Fischer					
Date Tested		4/15/2022					
Percent Gravel	LMA (Internal Method)				0		
Percent Sand					16		
Percent Fines (Silt/Clay)					84		
Group Symbol					ML		
Group Name					Silt with sand		
Tested By					John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0257-S05
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

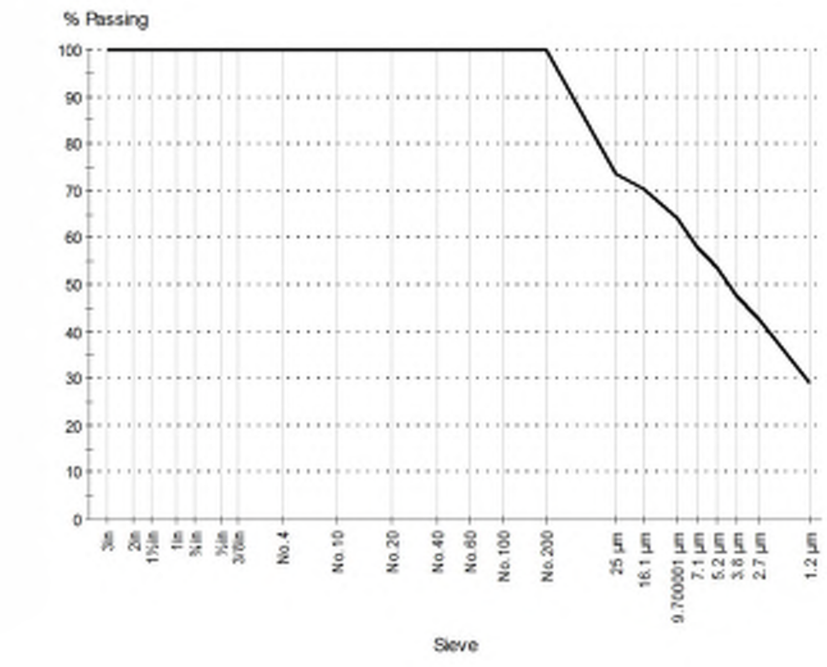
Sample Details

Sample ID	22-0257-S05
Client Sample ID	BH-04 S7B
Specification	Sieve SOILS

Other Test Results

Description	Method	Result	Limits
	ASTM D 422		
Dispersion device		Dispersant by hand	
Dispersion time (min)			
Shape			
Hardness			
Water Content (%)	ASTM D2216	29	
Date Tested		3/22/2022	
Tested By		Christian Detablan	

Particle Size Distribution



Method: ASTM D 422

Date Tested: 4/4/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	100	
No.10	100	
No.20	100	
No.40	100	
No.60	100	
No.100	100	
No.200	100	
Finer No.200 (75µm)	99.5	
25.0 µm	73.4	
16.1 µm	70.4	
9.7 µm	64.2	
7.1 µm	58.1	
5.2 µm	53.5	
3.8 µm	47.4	
2.7 µm	42.8	
1.2 µm	29.1	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0257-S05
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Other Test Results

Description	Method	Result	Limits
Group Code	ASTM D2487	ML	
Group Name		Silt	
Liquid Limit		0	
Plasticity Index		0	
Gravel (%)		0	
Sand (%)		0	
Fines (%)		100	
Tested By	ASTM D2487	Cindy Zickefoose	
Date Tested		4/9/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0258
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0258-S01	22-0258-S02	22-0258-S03	22-0258-S04	22-0258-S05
Client Sample ID	BH-05 S1	BH-05 S2	BH-05 S3	BH-05 S4 Shelby	BH-05 S4 Shelby
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	414	418	422			
Date Tested		3/22/2022	3/22/2022	3/22/2022			
Tested By		Christian Detablan	Christian Detablan	Christian Detablan			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0258
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0258-S06	22-0258-S07	22-0258-S08	22-0258-S09
Client Sample ID	BH-05 S5	BH-05 S6	BH-05 S8	BH-05 S10
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	15	26	26	30	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		60				
Percent Fines (Silt/Clay)		40				
Group Symbol		SM				
Group Name		Silty sand				
Tested By		John Platt				
Group Code	ASTM D2487			CL	CL	
Group Name				Lean clay	Lean clay	
Material Proportions Estimated				Yes	Yes	
Fines (%)				100	100	
Tested By	ASTM D2487			Maria E Kampsen	Caleb Fischer	
Liquid Limit	ASTM D4318			45	46	
Plastic Limit				22	22	
Plasticity Index				23	24	
Tested By				Karen Jackson	Caleb Fischer	
Date Tested				4/11/2022	4/14/2022	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0259
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0259-S01	22-0259-S02	22-0259-S03	22-0259-S04	22-0259-S05	22-0259-S06
Client Sample ID	BH-06 S1	BH-06 S2A	BH-06 S2B	BH-06 S2C	BH-06 S3	BH-06 S4
Date Sampled						

Other Test Results

Description	**Method**	**Results**						**Limits**
Water Content (%)	ASTM D2216	214	340	37	18	16	19	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)			0	0			
Percent Sand				75	77			
Percent Fines (Silt/Clay)				25	23			
Group Symbol				SM	SM			
Group Name				SIlty sand	Silty sand			
Tested By				John Platt	John Platt			
Group Code	ASTM D2487					SM		
Group Name						Silty sand		
Liquid Limit						0		
Plasticity Index						0		
Tested By	ASTM D2487					Cindy Zickefoose		
Method	ASTM D6913					A		
Preparation Method						Oven Dry		
Composite Sieving?						Yes		
Separating Sieve(s)						No. 4		
Fractional Mass Retained (%)						0.00		
Cu	ASTM D2487							
Cc								

Comments

N/A

Material Test Report

Report No: ASM:22-0259
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Mar E Kampsen

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0259-S07	22-0259-S08	22-0259-S09	22-0259-S10	22-0259-S11
Client Sample ID	BH-06 S5	BH-06 S6	BH-06 S7	BH-06 S8	BH-06 S9
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	20	17	24	29	31	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)	0					
Percent Sand		52					
Percent Fines (Silt/Clay)		48					
Group Symbol		SM					
Group Name		Silty sand					
Tested By		John Platt					
Group Code	ASTM D2487					CL	
Group Name						Lean clay	
Material Proportions Estimated						Yes	
Gravel (%)						0	
Sand (%)						0	
Fines (%)						100	
Tested By	ASTM D2487					Cindy Zickefoose	
Liquid Limit	ASTM D4318					47	
Plastic Limit						23	
Plasticity Index						24	
Preparation Method						Wet	
Oversize Removed By						Hand during mixing on glass plate	
Liquid Limit Apparatus						Mechanical	
Grooving Tool						Plastic	
Rolling						Hand	
Tested By						Karen Jackson	
Date Tested						4/11/2022	

Comments

N/A

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0259-S05
Issue No: 1

Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code:	220484
		CC:	CRW Maria Kampsen
Project:	FedEx Bog 73138.00		

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

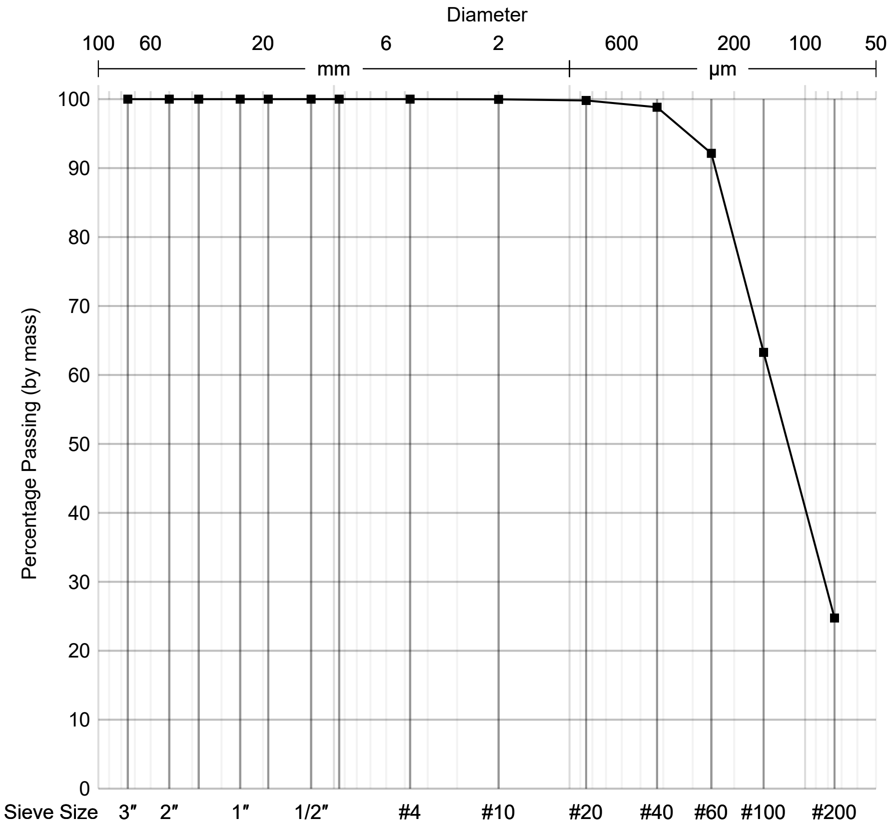
Sample Details

Sample ID	22-0259-S05
Client Sample ID	BH-06 S3

Other Test Results

Description	**Method**	**Result**	**Limits**
Water Content (%)	ASTM D2216	16	
Date Tested		3/22/2022	
Tested By		Christian Detablan	
Group Code	ASTM D2487	SM	
Group Name		Silty sand	
Liquid Limit		0	
Plasticity Index		0	
	ASTM D2487		
Tested By		Cindy Zickefoose	
Date Tested		4/9/2022	

Particle Size Distribution



Method:	ASTM D6913
Drying By:	Oven
Date Tested:	4/1/2022
Tested By:	John Platt

Sieve Size	**% Passing**	**Limits**
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	100.0	
No.10	100	
No.20	100	
No.40	99	
No.60	92	
No.100	63	
No.200	25	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0259-S05
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Maria E Kampsen

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/1/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0260
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0260-S01	22-0260-S02	22-0260-S03	22-0260-S04	22-0260-S05	22-0260-S06
Client Sample ID	BH-07 S1	BH-07 S2	BH-07 S3	BH-07 S4A	BH-07 S4B	BH-07 S5
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D2216	61	207	332	468	21	16	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/20/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)					0		
Percent Sand						56		
Percent Fines (Silt/Clay)						44		
Group Symbol						SM		
Group Name						Silty sand		
Tested By						John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0260
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0260-S07	22-0260-S08	22-0260-S09	22-0260-S10	22-0260-S11	22-0260-S12
Client Sample ID	BH-07 S6	BH-07 S7	BH-07 S8	BH-07 S9	BH-07 S10	BH-07 S11
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D2216	19	33	28	25	30	30	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487			CL				
Group Name				Lean clay				
Material Proportions Estimated				Yes				
Fines (%)				100				
Tested By	ASTM D2487			Karen Jackson				
Liquid Limit	ASTM D4318			46				
Plastic Limit				22				
Plasticity Index				24				
Tested By				Karen Jackson				
Date Tested				4/11/2022				
Percent Gravel	LMA (Internal Method)						0	
Percent Sand							6	
Percent Fines (Silt/Clay)							94	
Group Symbol							ML	
Group Name							Silt	
Tested By							John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Material Test Report

Report No: ASM:22-0260
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0260-S13	22-0260-S14	22-0260-S15	22-0260-S16	22-0260-S17	22-0260-S18
Client Sample ID	BH-07 S12A	BH-07 S12B	BH-07 S13	BH-07 S14	BH-07 S15	BH-07 S16
Date Sampled						

Other Test Results

Description	**Method**	**Results**						**Limits**
Water Content (%)	ASTM D2216	22	20	19	16	19	21	
Date Tested		3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487	CL						
Group Name		Lean clay						
Material Proportions Estimated		Yes						
Gravel (%)		0						
Sand (%)		0						
Fines (%)		100						
Tested By	ASTM D2487	Cindy Zickefoose						
Liquid Limit	ASTM D4318	30						
Plastic Limit		18						
Plasticity Index		12						
Preparation Method		Wet						
Oversize Removed By		Hand during mixing on glass plate						
Liquid Limit Apparatus		Mechanical						
Grooving Tool		Plastic						
Rolling		Hand						
Tested By		Karen Jackson						
Date Tested		4/11/2022						
Percent Gravel	LMA (Internal Method)		0		8			
Percent Sand			12		20			
Percent Fines (Silt/Clay)			88		72			
Group Symbol			ML		ML			
Group Name			Silt		Silt with sand			
Tested By			John Platt		John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0261
Issue No: 1

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0261-S01	22-0261-S02	22-0261-S03	22-0261-S04
Client Sample ID	BH-08 S1	BH-08 S2A	BH-08 S2B	BH-08 S3
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	278		543	19	
Date Tested		3/23/2022		3/23/2022	3/23/2022	
Tested By		Christian Detablan		Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)			0		
Percent Sand				79		
Percent Fines (Silt/Clay)				21		
Group Symbol				SM		
Group Name				Silty sand		
Tested By				John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0261
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0261-S05	22-0261-S06	22-0261-S07	22-0261-S08
Client Sample ID	BH-08 S4	BH-08 S5	BH-08 S6	BH-08 S7
Date Sampled				

Other Test Results

Description	**Method**	**Results**				**Limits**
Water Content (%)	ASTM D2216	19	20	20	19	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)	0		0		
Percent Sand		85		65		
Percent Fines (Silt/Clay)		15		35		
Group Symbol		SM		SM		
Group Name		Silty sand		Silty sand		
Tested By		John Platt		John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Material Test Report

Report No: ASM:22-0261
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0261-S09	22-0261-S10	22-0261-S11
Client Sample ID	BH-08 S8	BH-08 S9	BH-08 S10
Date Sampled			

Other Test Results

Description	Method	Results			Limits
Water Content (%)	ASTM D2216	26	21	27	
Date Tested		3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487	CL		CL	
Group Name		Lean clay		Lean clay	
Material Proportions Estimated				Yes	
Gravel (%)		0			
Sand (%)		0			
Fines (%)		100		100	
Tested By	ASTM D2487	Cindy Zickefoose		Karen Jackson	
Liquid Limit	ASTM D4318	38		43	
Plastic Limit		19		23	
Plasticity Index		19		20	
Preparation Method		Wet			
Oversize Removed By		Hand during mixing on glass plate			
Liquid Limit Apparatus		Mechanical			
Grooving Tool		Plastic			
Rolling		Hand			
Tested By		Karen Jackson		Karen Jackson	
Date Tested		4/11/2022		4/16/2022	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0262
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0262-S01	22-0262-S02	22-0262-S03	22-0262-S04	22-0262-S05
Client Sample ID	BH-09 S1A	BH-09 S1B	BH-09 S2	BH-09 S3	BH-09 S4
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	49	24	22	19	23	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)			0			
Percent Sand				81			
Percent Fines (Silt/Clay)				19			
Group Symbol				SM			
Group Name				Silty sand			
Tested By				John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Material Test Report

Report No: ASM:22-0262
Issue No: 1

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0262-S06	22-0262-S07	22-0262-S08	22-0262-S09	22-0262-S10
Client Sample ID	BH-09 S5	BH-09 S6	BH-09 S7	BH-09 S8	BH-09 S9
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	19	19	19	26	27	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)			0			
Percent Sand				72			
Percent Fines (Silt/Clay)				28			
Group Symbol				SM			
Group Name				Silty sand			
Tested By				John Platt			

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0263
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0263-S01	22-0263-S02	22-0263-S03	22-0263-S04	22-0263-S05
Client Sample ID	BH-10 S1	BH-10 S2 Shelby	BH-10 S2 Shelby	BH-10 S3	BH-10 S4
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	469			16	28	
Date Tested		3/23/2022			3/23/2022	3/23/2022	
Tested By		Christian Detablan			Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)				0		
Percent Sand					63		
Percent Fines (Silt/Clay)					37		
Group Symbol					SM		
Group Name					Silty sand		
Tested By					John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0263
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0263-S06	22-0263-S07	22-0263-S08	22-0263-S09
Client Sample ID	BH-10 S5	BH-10 S6	BH-10 S7	BH-10 S8
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	28	30	27	26	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487	CL				
Group Name		Lean clay				
Material Proportions Estimated		Yes				
Fines (%)		100				
Tested By	ASTM D2487	Caleb Fischer				
Liquid Limit	ASTM D4318	49				
Plastic Limit		23				
Plasticity Index		26				
Tested By		Caleb Fischer				
Date Tested		4/18/2022				

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0264
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0264-S01	22-0264-S02	22-0264-S03	22-0264-S04	22-0264-S05	22-0264-S06
Client Sample ID	BH-11 S1	BH-11 S2A	BH-11 S2B	BH-11 S3	BH-11 S4	BH-11 S5
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D2216	199	123	24	19	19	22	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487							
Group Name								
Percent Gravel	LMA (Internal Method)			0		0		
Percent Sand				76		70		
Percent Fines (Silt/Clay)				24		30		
Group Symbol				SM		SM		
Group Name				Silty sand		Silty sand		
Tested By				John Platt		John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0264
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0264-S07	22-0264-S08	22-0264-S09	22-0264-S10	22-0264-S11
Client Sample ID	BH-11 S6	BH-11 S7	BH-11 S8	BH-11 S9	BH-11 S10
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	25	28	26	30	30	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487		CL		CL		
Group Name			Lean clay		Lean clay		
Material Proportions Estimated					Yes		
Gravel (%)			0				
Sand (%)			0				
Fines (%)			100		100		
Tested By	ASTM D2487		Cindy Zickefoose		Caleb Fischer		
Liquid Limit	ASTM D4318		38		48		
Plastic Limit			22		23		
Plasticity Index			16		25		
Preparation Method			Wet				
Oversize Removed By			Hand during mixing on glass plate				
Liquid Limit Apparatus			Mechanical		Manual		
Grooving Tool			Plastic		Plastic		
Rolling			Hand		Hand		
Tested By			Cindy Zickefoose		Caleb Fischer		
Date Tested			4/8/2022		4/15/2022		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0265
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0265-S01	22-0265-S02	22-0265-S03	22-0265-S04	22-0265-S05
Client Sample ID	BH-12 S1	BH-12 S2	BH-12 S3A Shelby	BH-12 S3B	BH-12 S4
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	442	286		24	24	
Date Tested		3/23/2022	3/23/2022		3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan		Christian Detablan	Christian Detablan	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0265
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0265-S06	22-0265-S07	22-0265-S08	22-0265-S09	22-0265-S10
Client Sample ID	BH-12 S5	BH-12 S6	BH-12 S7	BH-12 S8	BH-12 S10
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	19	18	26	33	21	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)	0					
Percent Sand		77					
Percent Fines (Silt/Clay)		23					
Group Symbol		SM					
Group Name		Silty sand					
Tested By		John Platt					
Group Code	ASTM D2487					CL	
Group Name						Lean clay	
Material Proportions Estimated						Yes	
Fines (%)						100	
Tested By	ASTM D2487					Karen Jackson	
Liquid Limit	ASTM D4318					34	
Plastic Limit						20	
Plasticity Index						14	
Preparation Method						Wet	
Liquid Limit Apparatus						Manual	
Grooving Tool						Metal	
Rolling						Hand	
Tested By						Karen Jackson	
Date Tested						4/16/2022	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0265
Issue No: 1

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0265-S11	22-0265-S12	22-0265-S13	22-0265-S14
Client Sample ID	BH-12 S11	BH-12 S12	BH-12 S13A	BH-12 S13B
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Water Content (%)	ASTM D2216	23	22	24	7	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		13				
Percent Fines (Silt/Clay)		87				
Group Symbol		ML				
Group Name		Silt				
Tested By		John Platt				
Group Code	ASTM D2487				SM	
Group Name					Silty sand	
Liquid Limit					0	
Plasticity Index					0	
Tested By	ASTM D2487				Cindy Zickefoose	
Method	ASTM D6913				A	
Preparation Method					Oven Dry	
Composite Sieving?					Yes	
Separating Sieve(s)					No. 4	
Fractional Mass Retained (%)					0.00	
Cu	ASTM D2487					
Cc						

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0265-S14
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Ashley Kampsen

Reviewed By: Ashley Kampsen
Title: Administrator
Date: 5/13/2022

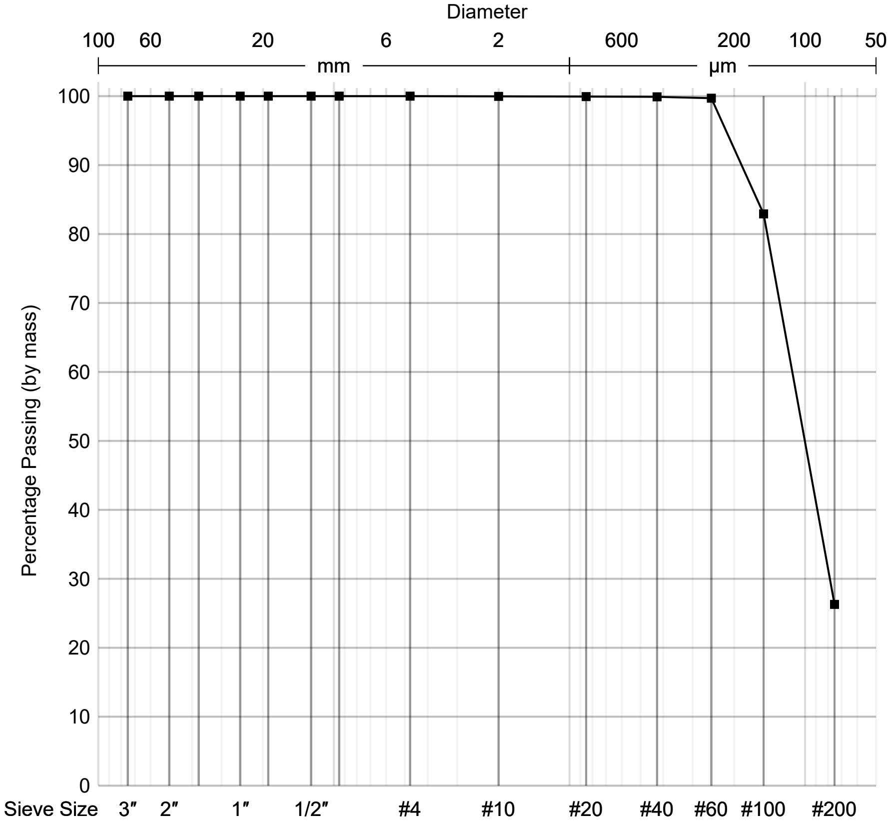
Sample Details

Sample ID	22-0265-S14
Client Sample ID	BH-12 S13B

Other Test Results

Description	**Method**	**Result**	**Limits**
Water Content (%)	ASTM D2216	7	
Date Tested		3/23/2022	
Tested By		Christian Detablan	
Group Code	ASTM D2487	SM	
Group Name		Silty sand	
Liquid Limit		0	
Plasticity Index		0	
	ASTM D2487		
Tested By		Cindy Zickefoose	
Date Tested		4/9/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/1/2022
Tested By: John Platt

Sieve Size	**% Passing**	**Limits**
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	100.0	
No.10	100	
No.20	100	
No.40	100	
No.60	100	
No.100	83	
No.200	26	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0265-S14
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Ashley Kampsen

Reviewed By: Ashley Kampsen
Title: Administrator
Date: 5/13/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/1/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0266
Issue No: 1

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0266-S01	22-0266-S02	22-0266-S03	22-0266-S04	22-0266-S05
Client Sample ID	BH-13 S1	BH-13 S2	BH-13 S3	BH-13 S4	BH-13 S5
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	11	11	15	23	20	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)		0		0		
Percent Sand			84		83		
Percent Fines (Silt/Clay)			16		17		
Group Symbol			SM		SM		
Group Name			Silty sand		Silty sand		
Tested By			John Platt		John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0266
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0266-S06	22-0266-S07	22-0266-S08	22-0266-S09	22-0266-S10
Client Sample ID	BH-13 S6	BH-13 S7	BH-13 S8	BH-13 S9	BH-13 S10
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	25	20	26	27	25	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487			CL	CL		
Group Name				Lean clay	Lean clay		
Material Proportions Estimated				Yes	Yes		
Gravel (%)				0			
Sand (%)				0	5		
Fines (%)				100	95		
Tested By	ASTM D2487			Cindy Zickefoose	Karen Jackson		
Liquid Limit	ASTM D4318			43	44		
Plastic Limit				23	21		
Plasticity Index				20	23		
Preparation Method				Wet	Wet		
Oversize Removed By				Hand during mixing on glass plate	Mechanically pushed through No. 40 sieve		
Liquid Limit Apparatus				Mechanical	Manual		
Grooving Tool				Plastic	Plastic		
Rolling				Hand	Hand		
Tested By				Karen Jackson	Karen Jackson		
Date Tested				4/8/2022	4/16/2022		
Percent Gravel	LMA (Internal Method)				0		
Percent Sand					3		
Percent Fines (Silt/Clay)					97		
Group Symbol					CL		
Group Name					Lean Clay		
Tested By					John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0267
Issue No: 1

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0267-S01	22-0267-S02	22-0267-S03	22-0267-S04	22-0267-S05	22-0267-S06
Client Sample ID	BH-14 S1	BH-14 S12	BH-14 S3	BH-14 S4	BH-14 S5	BH-14 S6A
Date Sampled						

Other Test Results

Description	Method	Results						Limits
Water Content (%)	ASTM D2216	29	20	24	27	26	20	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/23/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)		3	0				
Percent Sand			20	25				
Percent Fines (Silt/Clay)			77	75				
Group Symbol			ML	ML				
Group Name			Silt with sand	Silt with sand				
Tested By			John Platt	John Platt				

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0267
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/22/2022

Sample Details

Sample ID	22-0267-S07	22-0267-S08	22-0267-S09	22-0267-S10	22-0267-S11
Client Sample ID	BH-14 S6B	BH-14 S7	BH-14 S8	BH-14 S9	BH-14 S10
Date Sampled					

Other Test Results

Description	**Method**	**Results**					**Limits**
Water Content (%)	ASTM D2216	22	29	24	28	17	
Date Tested		3/23/2022	3/23/2022	3/23/2022	3/23/2022	3/24/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487	CL	CL				
Group Name		Lean clay with sand	Lean clay				
Material Proportions Estimated			Yes				
Sand (%)		24					
Fines (%)		76	100				
Tested By	ASTM D2487	Karen Jackson	Karen Jackson				
Liquid Limit	ASTM D4318	34	40				
Plastic Limit		20	22				
Plasticity Index		14	18				
Tested By		Karen Jackson	Karen Jackson				
Date Tested		4/15/2022	4/16/2022				
Percent Gravel	LMA (Internal Method)	0					
Percent Sand		24					
Percent Fines (Silt/Clay)		76					
Group Symbol		CL					
Group Name		Lean clay with sand					
Tested By		John Platt					

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0268
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

Sample Details

Sample ID	22-0268-S01	22-0268-S02	22-0268-S03	22-0268-S04	22-0268-S05	22-0268-S06
Client Sample ID	BH-15 S1	BH-15 S2	BH-15 S3	BH-15 S4	BH-15 S5	BH-15 S6A
Date Sampled						

Other Test Results

Description	**Method**	**Results**						**Limits**
Water Content (%)	ASTM D2216	9	10	19	25	20	22	
Date Tested		3/24/2022	3/24/2022	3/24/2022	3/24/2022	3/24/2022	3/24/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)	0						
Percent Sand		91						
Percent Fines (Silt/Clay)		9						
Group Symbol		SP-SM						
Group Name		Poorly graded sand with silt						
Tested By		John Platt						
Group Code	ASTM D2487					SM		
Group Name						Silty sand		
Liquid Limit						0		
Plasticity Index						0		
Tested By	ASTM D2487					Cindy Zickefoose		
Method	ASTM D6913					A		
Preparation Method						Oven Dry		
Composite Sieving?						Yes		
Separating Sieve(s)						No. 4		
Fractional Mass Retained (%)						0.00		
Cu	ASTM D2487							
Cc								

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0268
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

Sample Details

Sample ID	22-0268-S07	22-0268-S08	22-0268-S09	22-0268-S10	22-0268-S11
Client Sample ID	BH-15 S6B	BH-15 S6C	BH-15 S7	BH-15 S8	BH-15 S9
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	22	17	25	20	25	
Date Tested		3/24/2022	3/24/2022	3/24/2022	3/24/2022	3/24/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Group Code	ASTM D2487			CH	CL		
Group Name				Fat clay	Lean clay		
Material Proportions Estimated				Yes	Yes		
Fines (%)				100	100		
Tested By	ASTM D2487			Caleb Fischer	Karen Jackson		
Liquid Limit	ASTM D4318			50	40		
Plastic Limit				23	21		
Plasticity Index				27	19		
Oversize Removed By				Mechanically pushed through No. 40 sieve			
Liquid Limit Apparatus				Manual			
Grooving Tool				Plastic			
Rolling				Hand			
Tested By					Karen Jackson		
Date Tested					4/16/2022		
Percent Gravel	LMA (Internal Method)					3	
Percent Sand						12	
Percent Fines (Silt/Clay)						85	
Group Symbol						ML	
Group Name						Silt with sand	
Tested By						John Platt	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0268-S05
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Mar E Kampsen

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

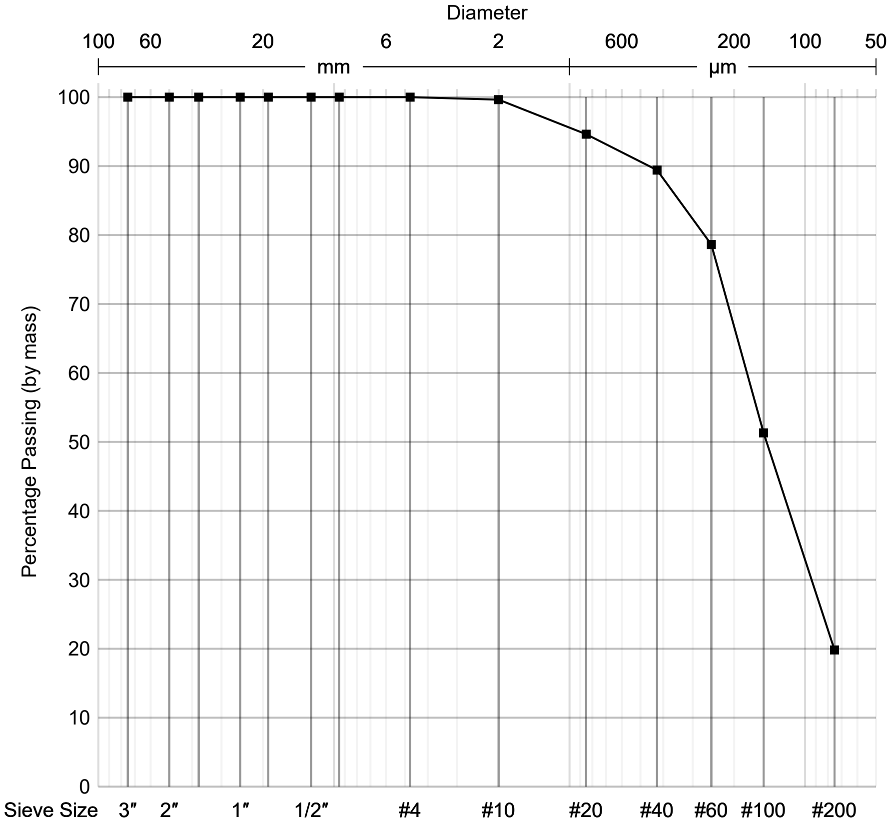
Sample Details

Sample ID	22-0268-S05
Client Sample ID	BH-15 S5

Other Test Results

Description	Method	Result	Limits
Water Content (%)	ASTM D2216	20	
Date Tested		3/24/2022	
Tested By		Christian Detablan	
Group Code	ASTM D2487	SM	
Group Name		Silty sand	
Liquid Limit		0	
Plasticity Index		0	
	ASTM D2487		
Tested By		Cindy Zickefoose	
Date Tested		4/9/2022	

Particle Size Distribution



Method: ASTM D6913
Drying By: Oven
Date Tested: 4/8/2022
Tested By: John Platt

Sieve Size	% Passing	Limits
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	100	
No.4	100.0	
No.10	100	
No.20	95	
No.40	89	
No.60	79	
No.100	51	
No.200	20	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0268-S05
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Maria E Kampsen

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

Other Test Results

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)		0.00	
Cu	ASTM D2487		
Cc			
Date Tested		4/8/2022	

Comments

Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing
No Plasticity Index Test Performed

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: ASM:22-0269
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Maria E Kampsen

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

Sample Details

Sample ID	22-0269-S01	22-0269-S02	22-0269-S03	22-0269-S04	22-0269-S05
Client Sample ID	BH-16 S1	BH-16 S2	BH-16 S3	BH-16 S4	BH-16 S5
Date Sampled					

Other Test Results

Description	Method	Results					Limits
Water Content (%)	ASTM D2216	210	342	458	19	20	
Date Tested		3/24/2022	3/24/2022	3/24/2022	3/24/2022	3/24/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Material Test Report

Report No: ASM:22-0269
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

Sample Details

Sample ID	22-0269-S06	22-0269-S07	22-0269-S08	22-0269-S09
Client Sample ID	BH-16 S6A	BH-16 S6B	BH-16 S8	BH-16 S9
Date Sampled				

Particle Size Distribution

Method:
ASTM D 422

Description:
Analysis of Particle Size Distribution in Soils. Sieving for Particles >75µm, Hydrometer

Drying By:

Washed:
Sample Washed

Sieve Size	**% Passing**				**Limits**
3in				100	
2in				100	
1½in				100	
1in				100	
¾in				100	
½in				100	
3/8in				99	
No.4				95	
No.10				76	
No.20				76	
No.40				74	
No.60				71	
No.100				67	
No.200				58	
Finer No.200 (75µm)				67.1	

Other Test Results

Description	**Method**	**Results**				**Limits**
Water Content (%)	ASTM D2216	20	25	22	27	
Date Tested		3/24/2022	3/24/2022	3/24/2022	3/24/2022	
Tested By		Christian Detablan	Christian Detablan	Christian Detablan	Christian Detablan	
Percent Gravel	LMA (Internal Method)	0				
Percent Sand		42				
Percent Fines (Silt/Clay)		58				
Group Symbol		ML				
Group Name		Sandy silt				
Tested By		John Platt				
Group Code	ASTM D2487			CL	ML	
Group Name				Lean clay	Sandy silt	
Liquid Limit					0	
Plasticity Index					0	
Material Proportions Estimated	ASTM D2487			Yes		
Gravel (%)					5	
Sand (%)					37	
Fines (%)				100	58	
Tested By	ASTM D2487			John Platt		

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Material Test Report

Report No: ASM:22-0269
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

Sample Details

Sample ID	22-0269-S06	22-0269-S07	22-0269-S08	22-0269-S09
Client Sample ID	BH-16 S6A	BH-16 S6B	BH-16 S8	BH-16 S9
Date Sampled				

Other Test Results

Description	Method	Results				Limits
Liquid Limit	ASTM D4318			32		
Plastic Limit				18		
Plasticity Index				14		
Tested By				John Platt		
Date Tested				4/18/2022		
Dispersion device	ASTM D 422				Dispersant by hand	
Dispersion time (min)						
Shape						
Hardness						

Comments

Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Material Test Report

Report No: MAT:22-0269-S09
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

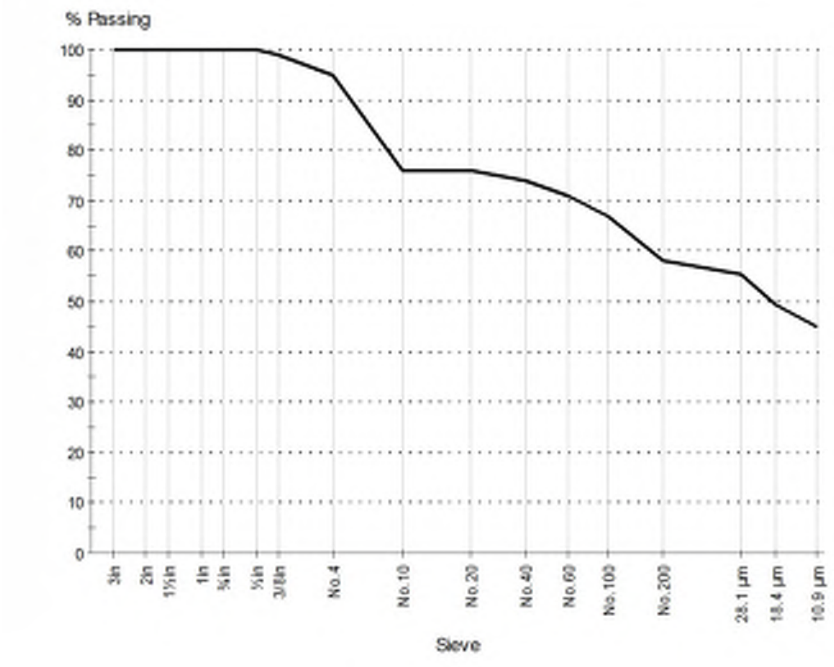
Sample Details

Sample ID	22-0269-S09
Client Sample ID	BH-16 S9
Specification	Sieve SOILS

Other Test Results

Description	**Method**	**Result**	**Limits**
	ASTM D 422		
Dispersion device		Dispersant by hand	
Dispersion time (min)			
Shape			
Hardness			
Water Content (%)	ASTM D2216	27	
Date Tested		3/24/2022	
Tested By		Christian Detablan	

Particle Size Distribution



Method: ASTM D 422

Date Tested: 4/12/2022
Tested By: Cindy Zickefoose

Sieve Size	**% Passing**	**Limits**
3in	100	
2in	100	
1½in	100	
1in	100	
¾in	100	
½in	100	
3/8in	99	
No.4	95	
No.10	76	
No.20	76	
No.40	74	
No.60	71	
No.100	67	
No.200	58	
Finer No.200 (75µm)	67.1	
28.1 µm	55.3	
18.4 µm	49.3	
10.9 µm	44.8	

Comments

No Plasticity Index Test Performed
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Material Test Report

Report No: MAT:22-0269-S09
Issue No: 1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

CC: CRW
Maria Kampsen

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/23/2022

Other Test Results

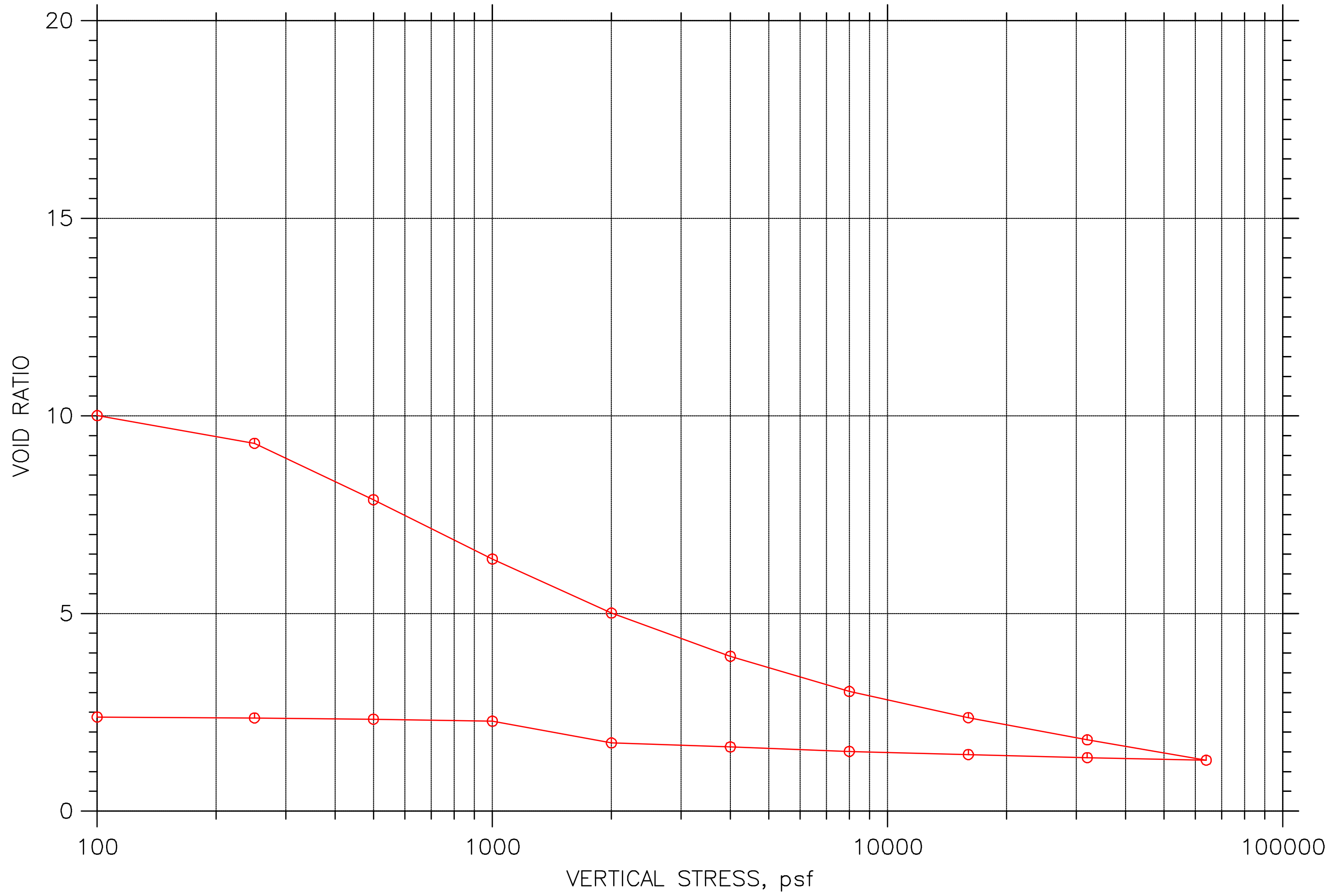
Description	Method	Result	Limits
Group Code	ASTM D2487	ML	
Group Name		Sandy silt	
Liquid Limit		0	
Plasticity Index		0	
Gravel (%)		5	
Sand (%)		37	
Fines (%)		58	

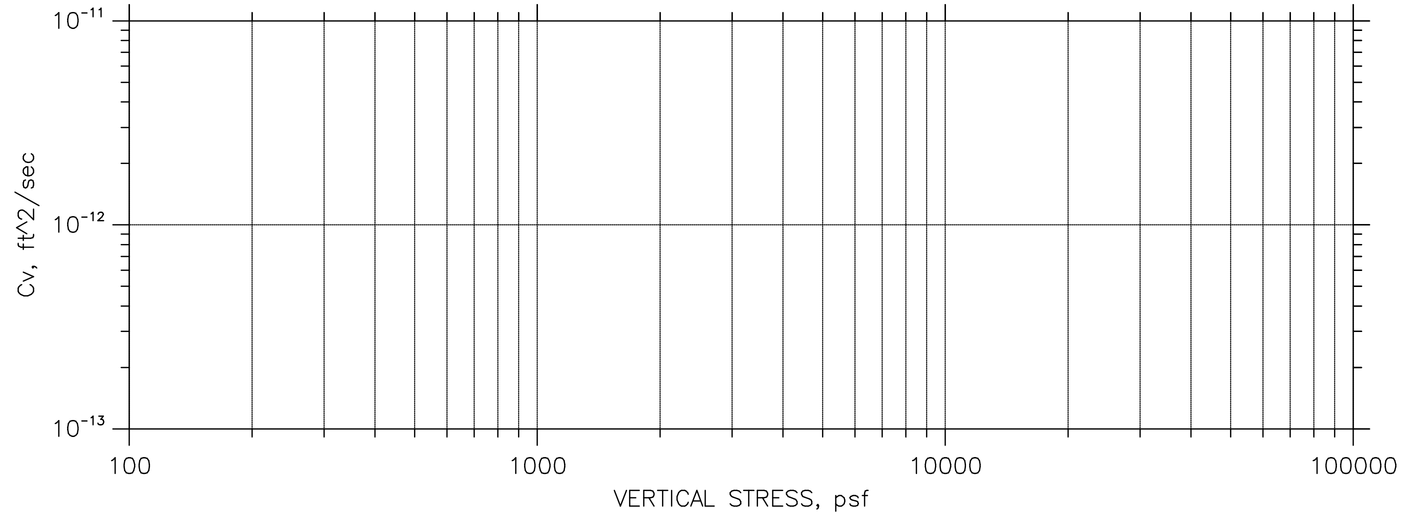
Comments

No Plasticity Index Test Performed
Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing

Consolidation Test

SUMMARY REPORT





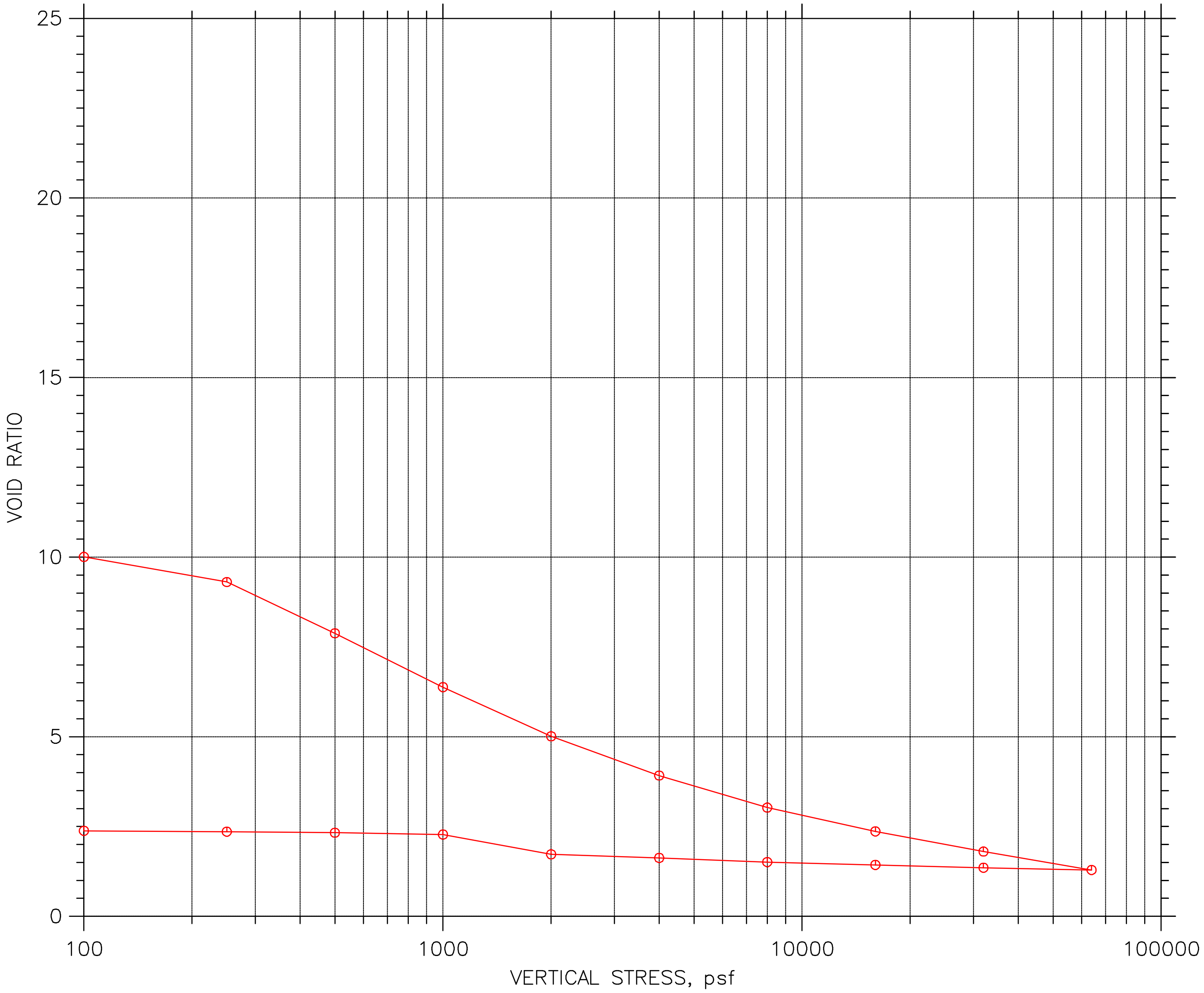
Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Consolidation Test

SUMMARY REPORT

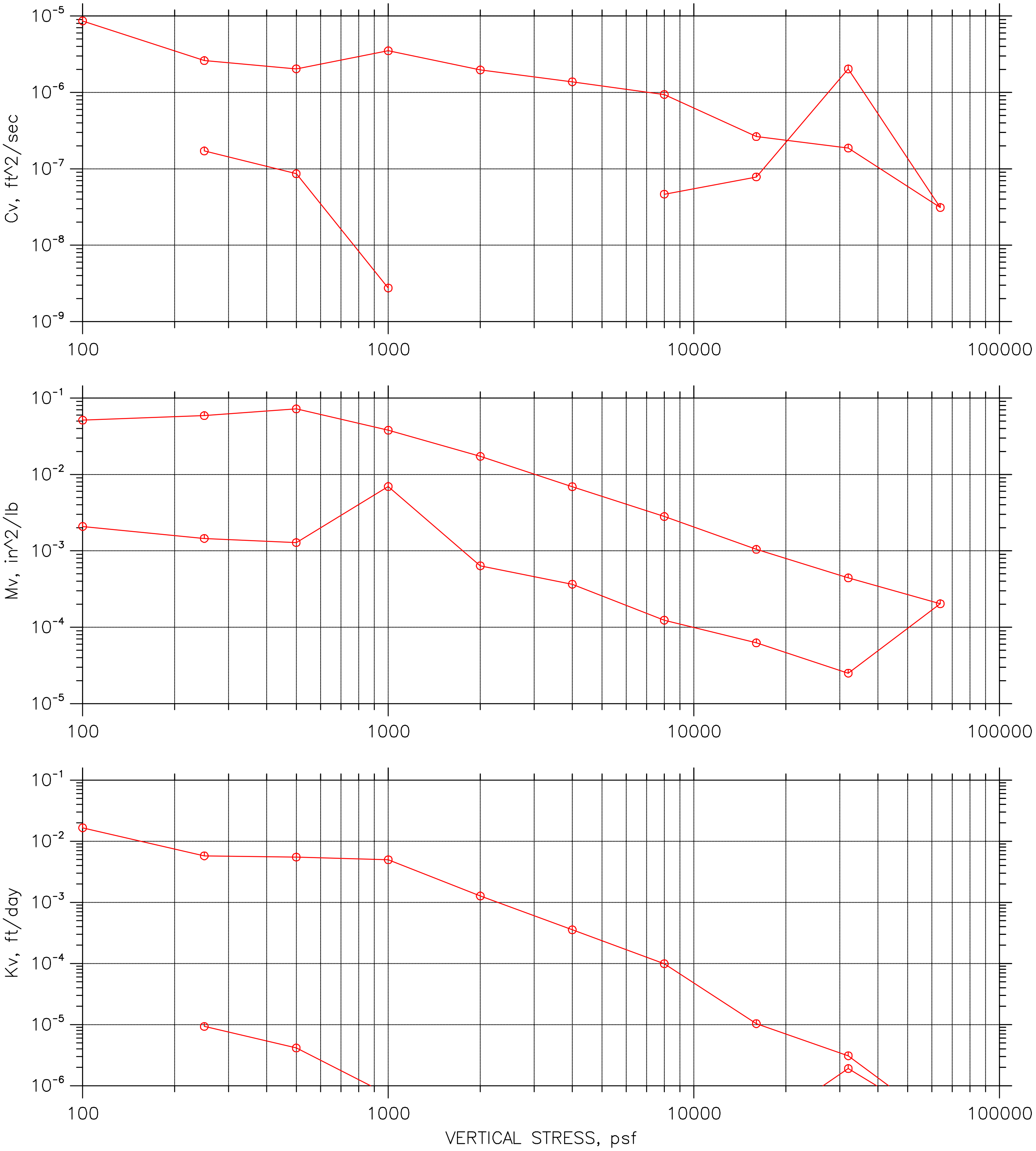


					Before Test	After Test
Overburden Pressure: 0 psf				Water Content, %	410.33	123.16
Preconsolidation Pressure: 0 psf				Dry Unit Weight, pcf	10.94	36.946
Compression Index: 0				Saturation, %	78.81	103.53
Diameter: 2.499 in		Height: 0.9985 in		Void Ratio	10.41	2.38
LL: ---	PL: ---	PI: ---	GS: 2.00	Back Pressure, psf	0	0

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Consolidation Test

ROOT of TIME COEFFICIENTS



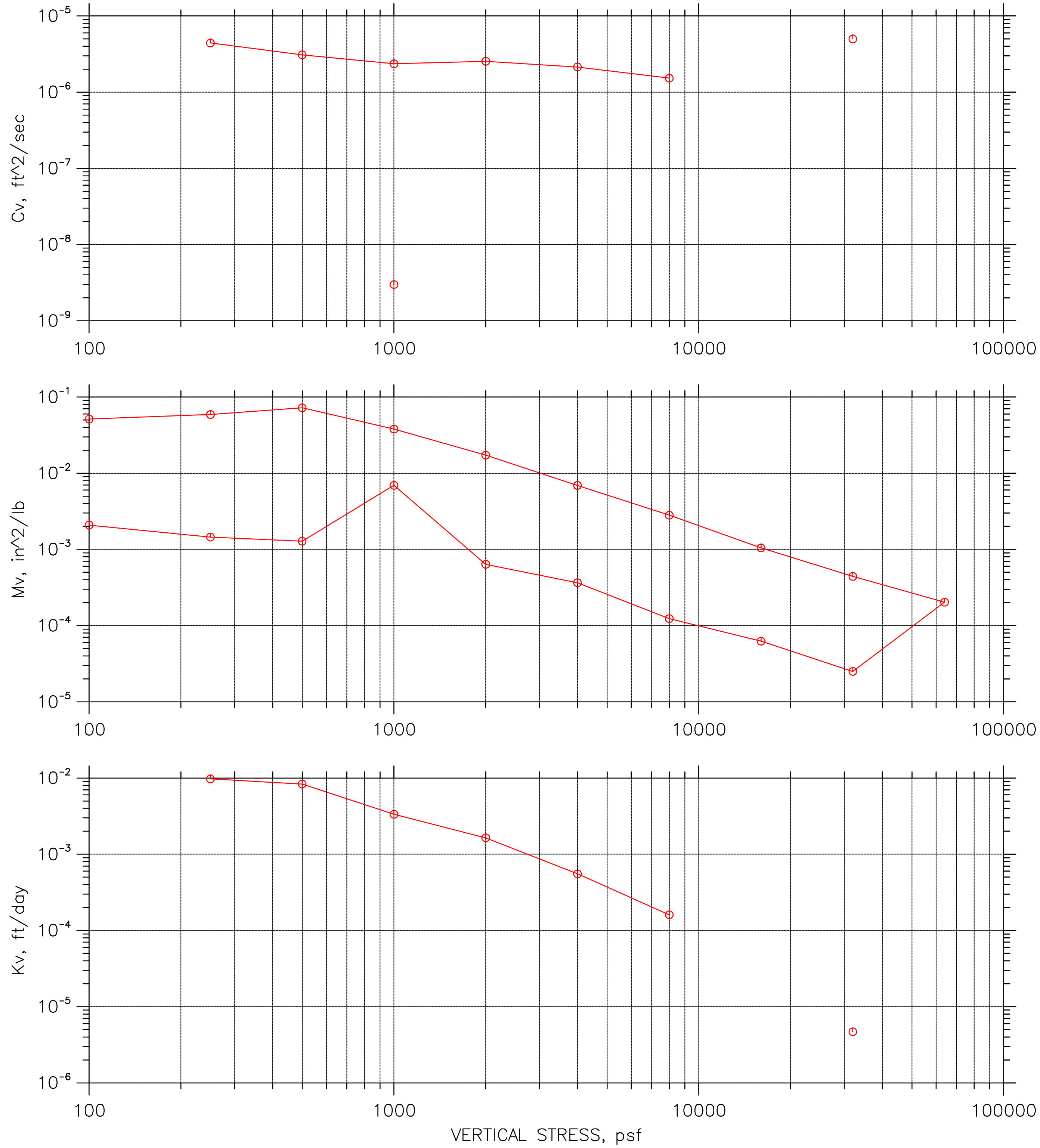
Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Consolidation Test

LOG of TIME COEFFICIENTS



Alaska Testlab			
	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-01	Tested By: CZ	Checked By: MEK
	Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
	Depth: 3.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

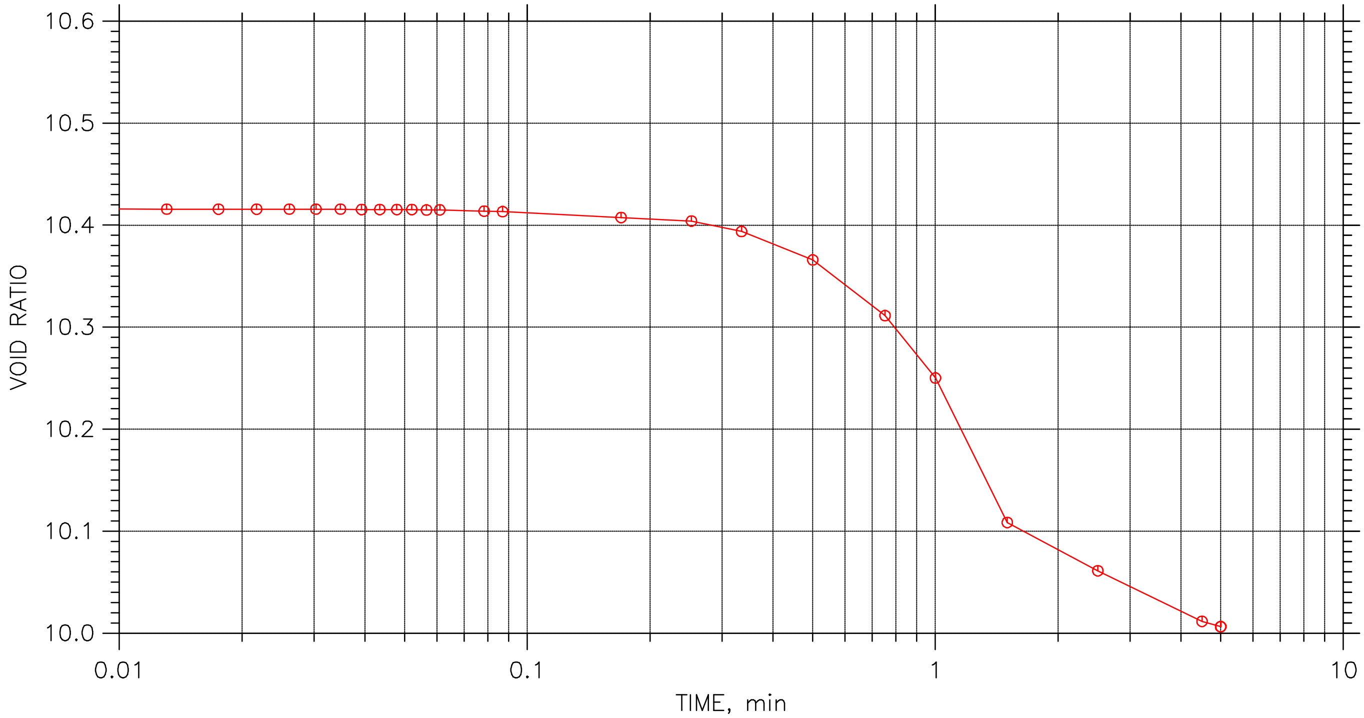
Tue, 26-APR-2022 10:05:00

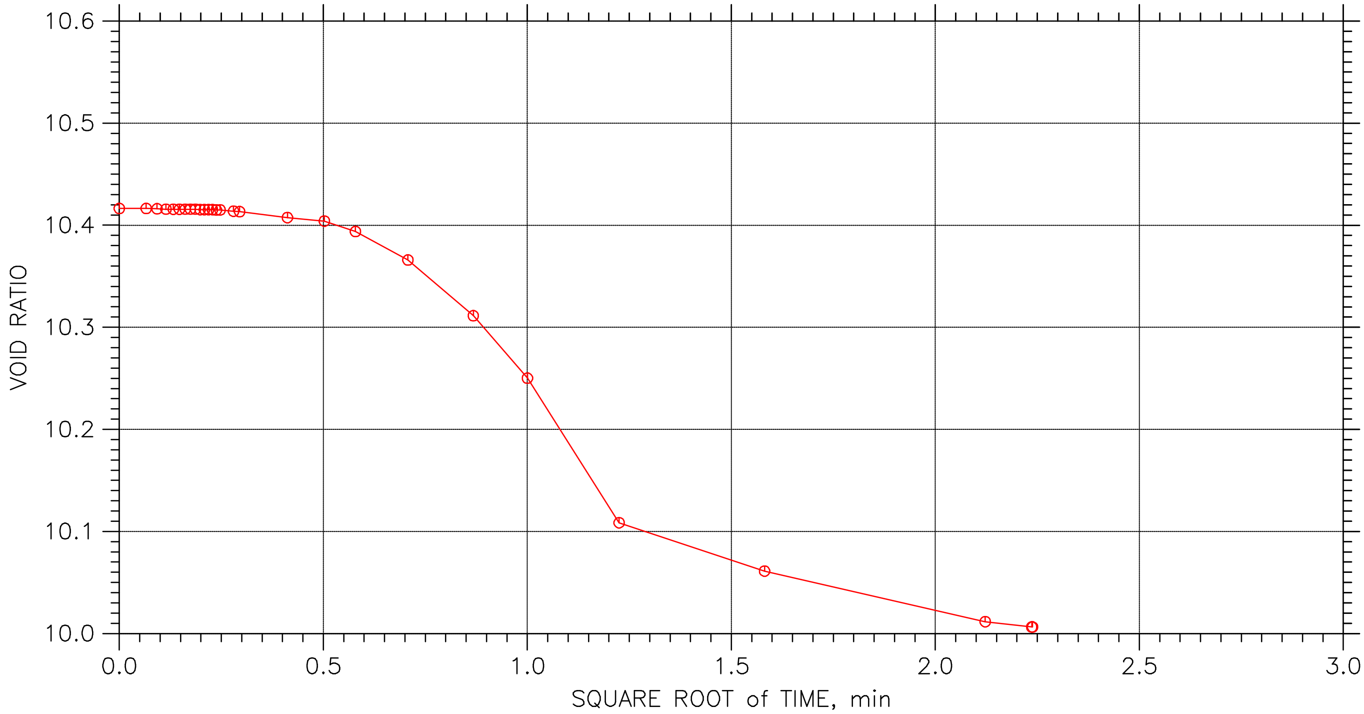
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

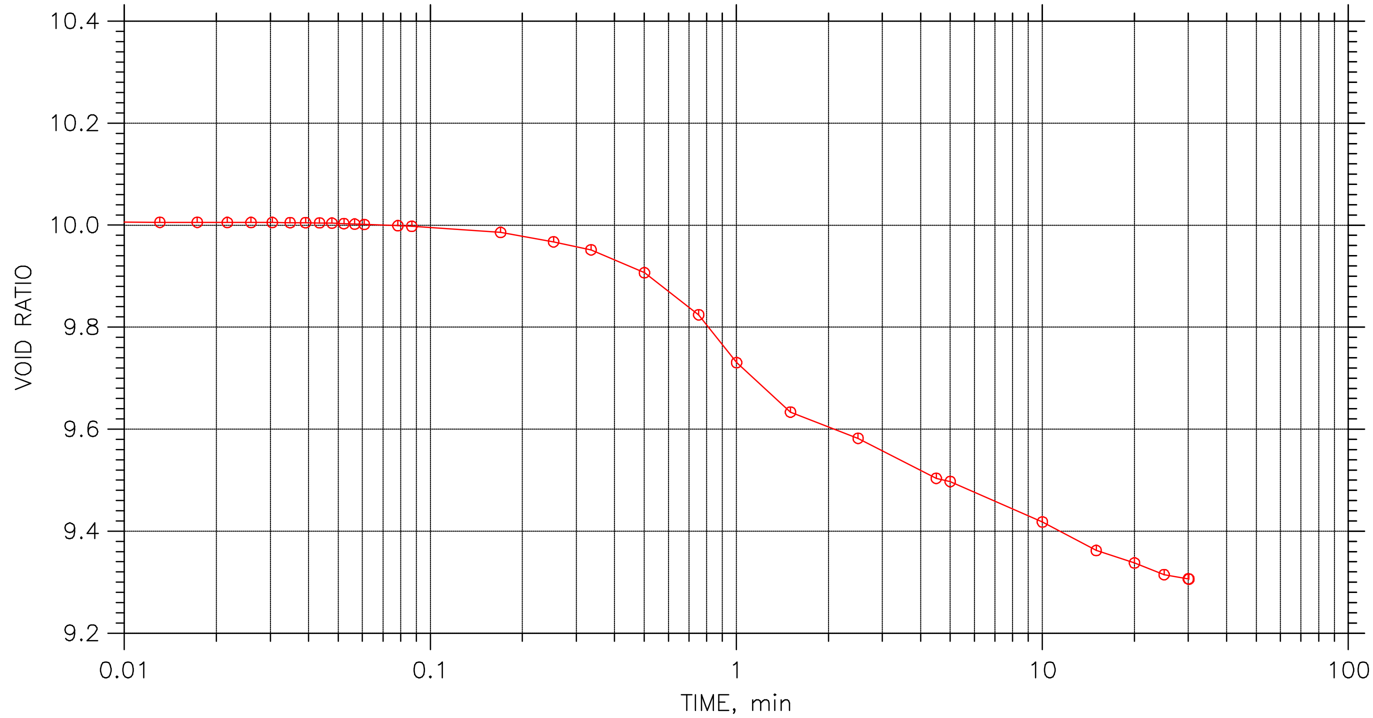
Reviewed by

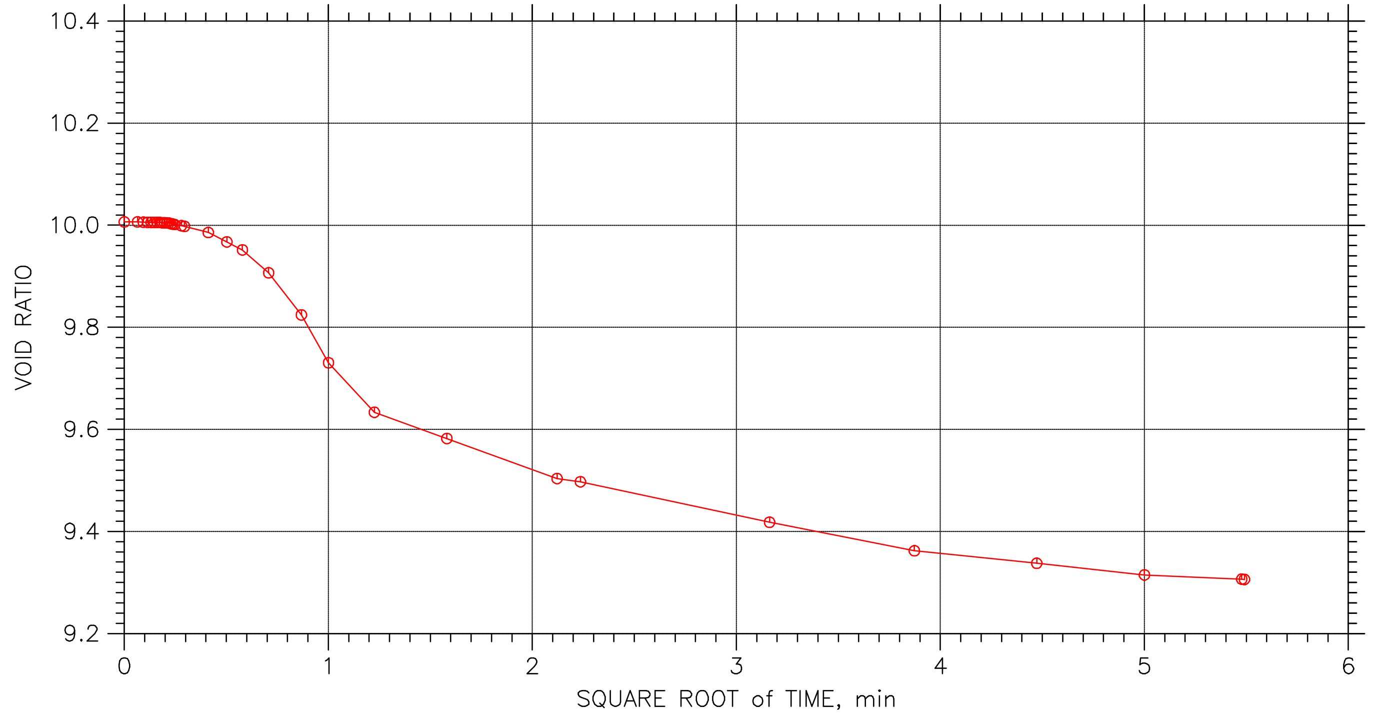
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

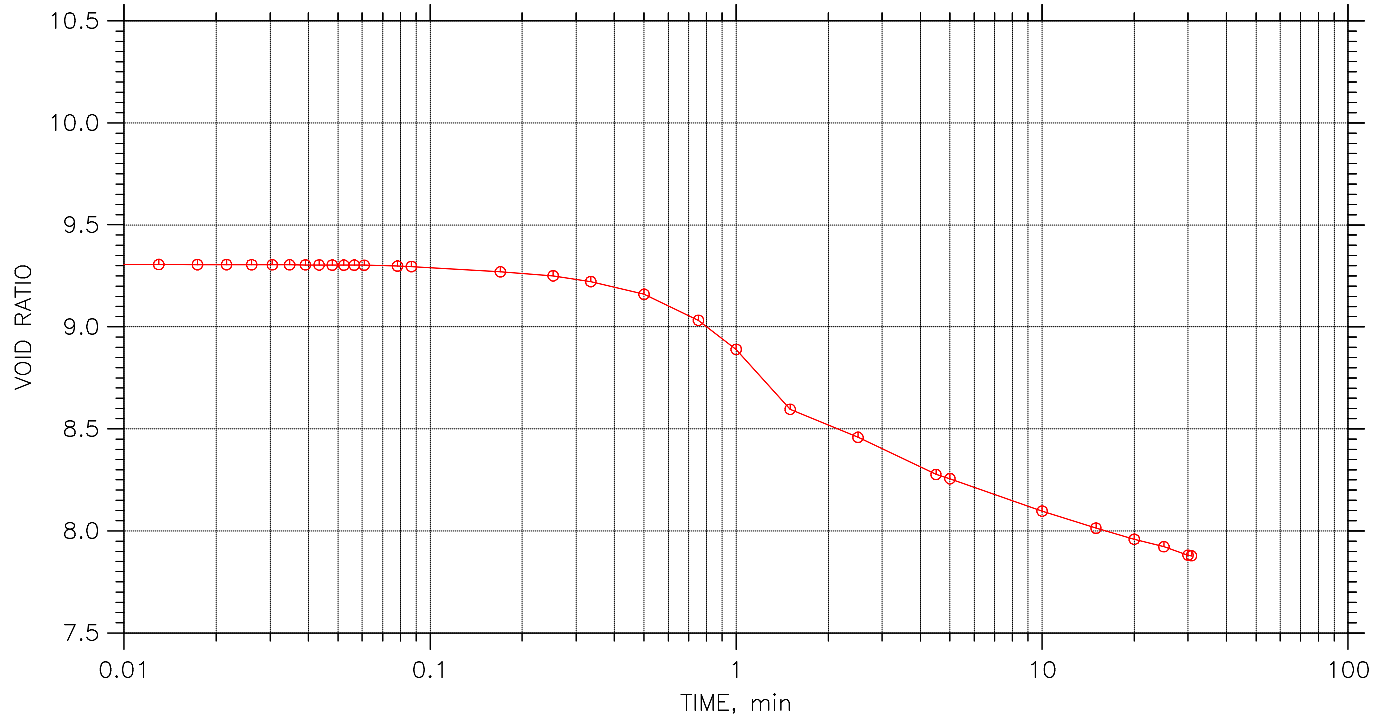
Reviewed by

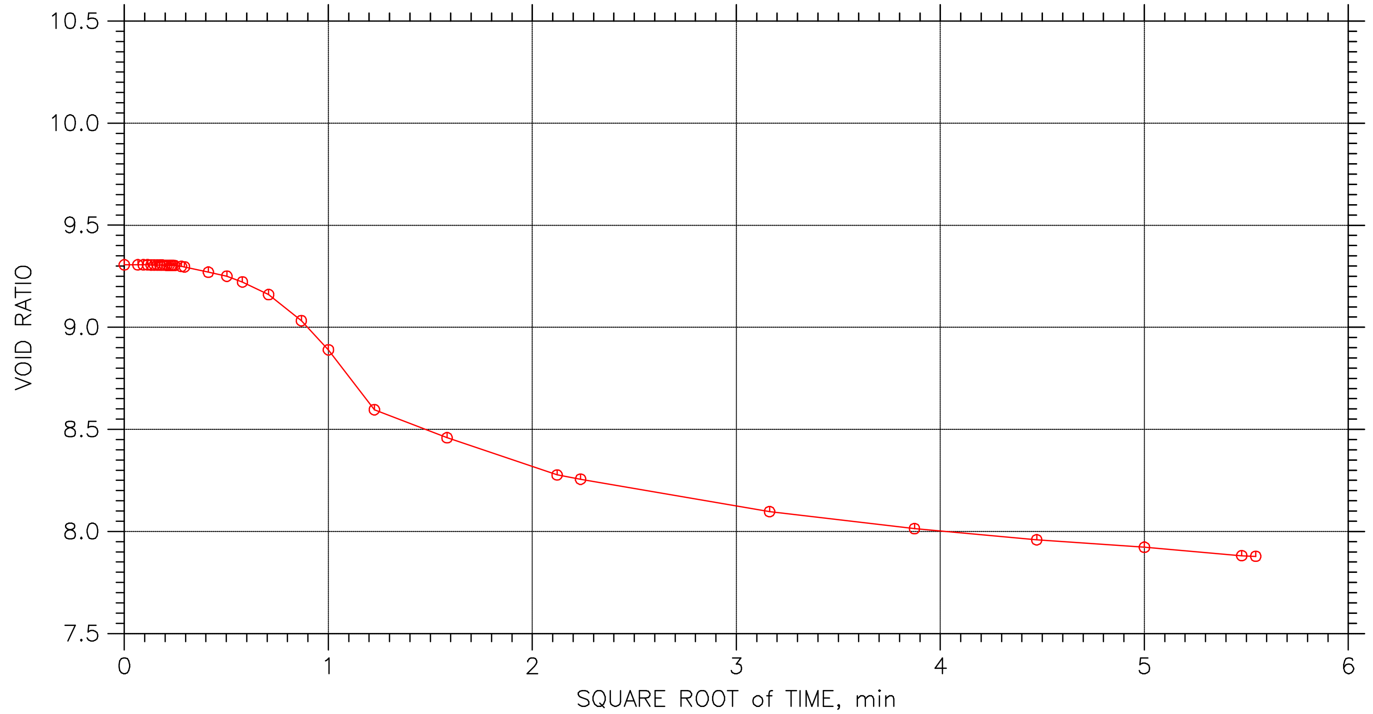
Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

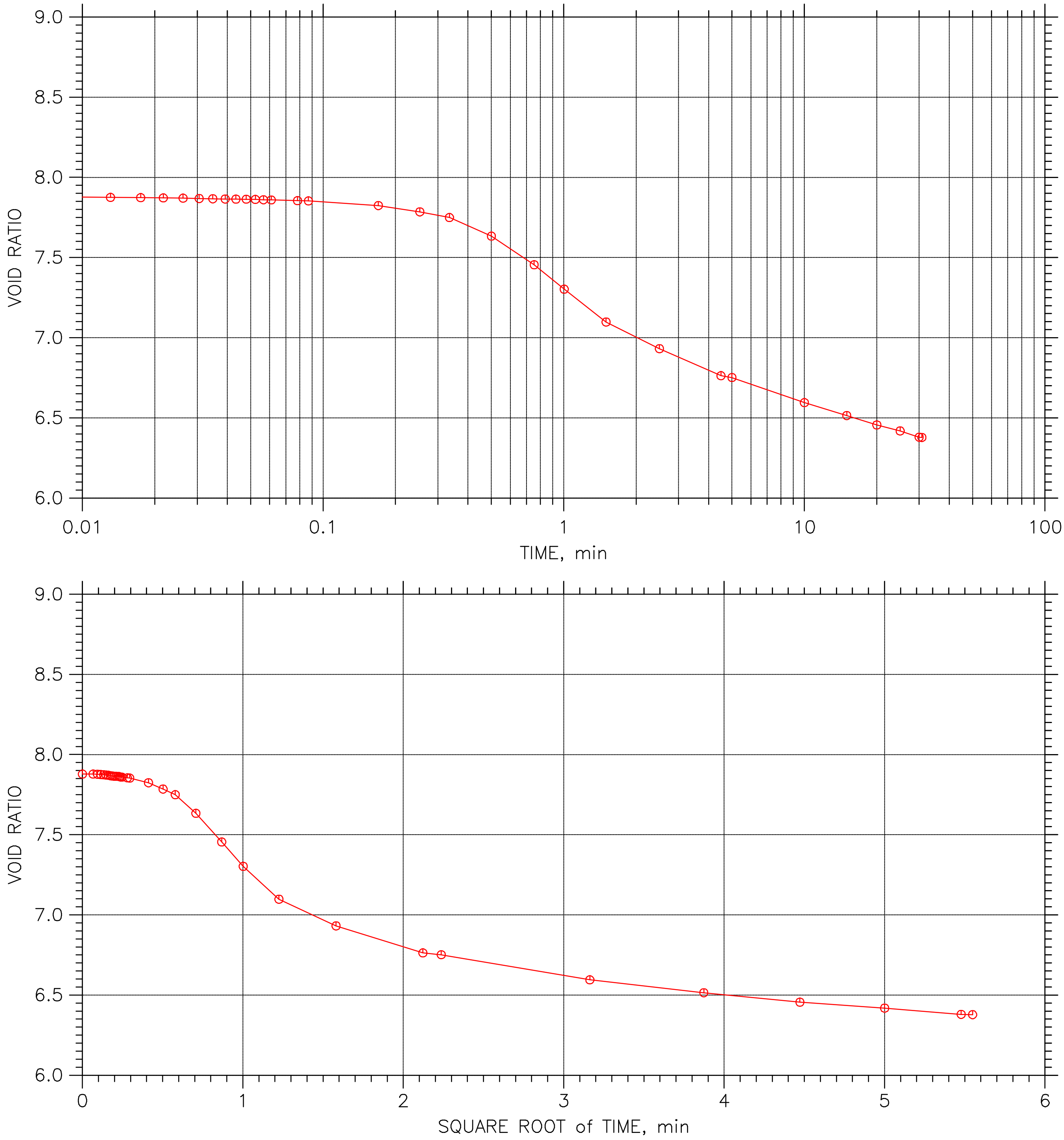
Reviewed by

Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf



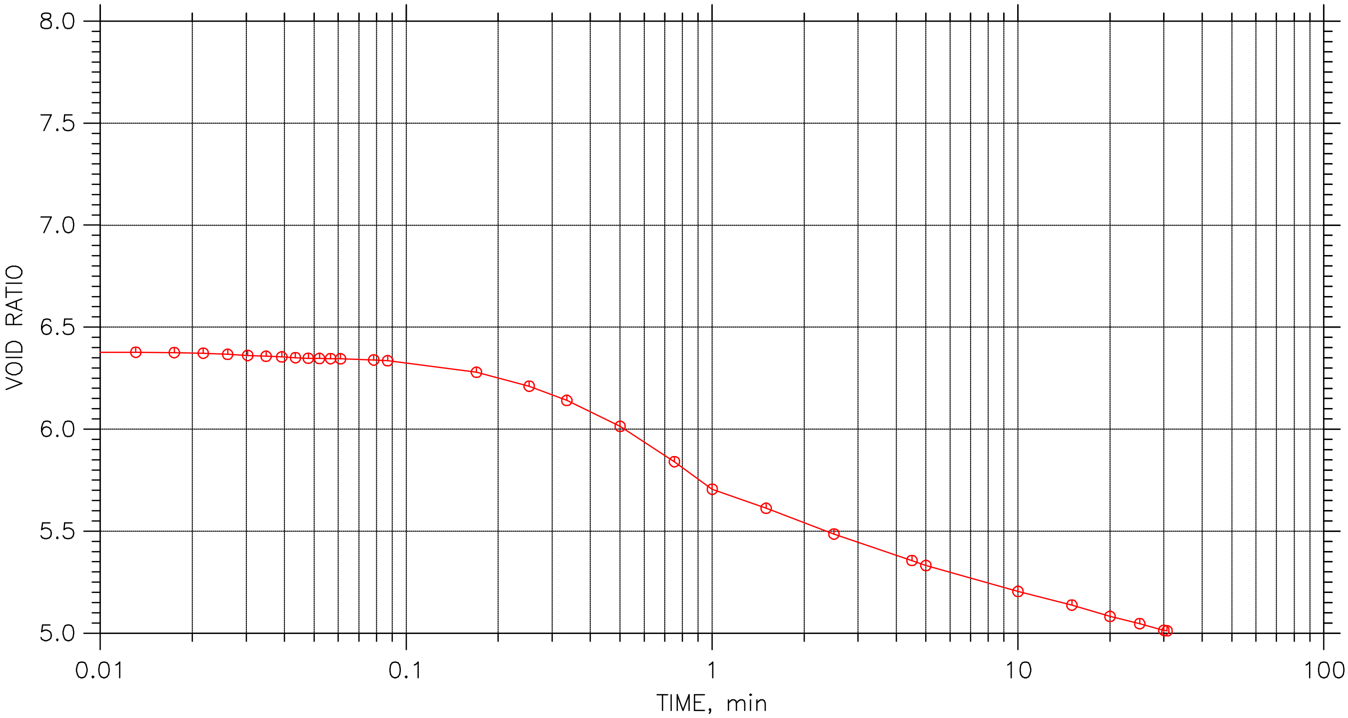
Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-01	Tested By: CZ	Checked By: MEK
	Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
	Depth: 3.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

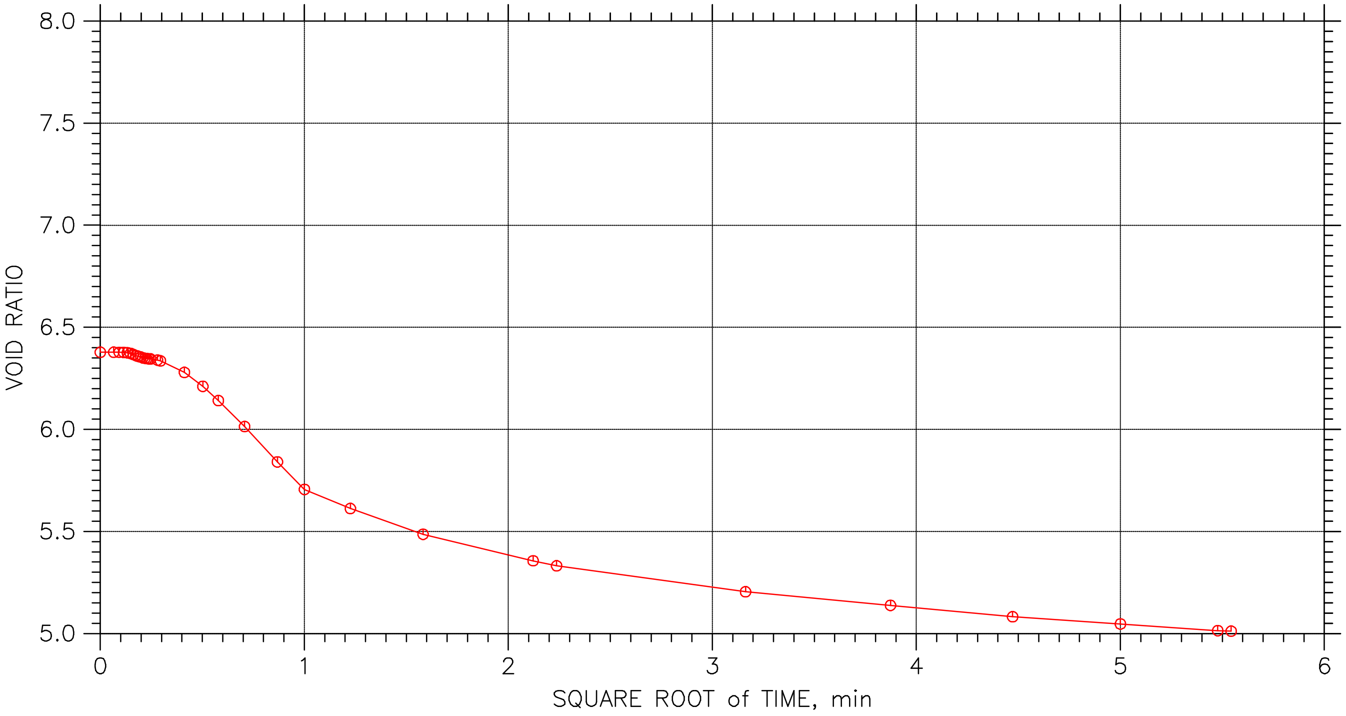
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

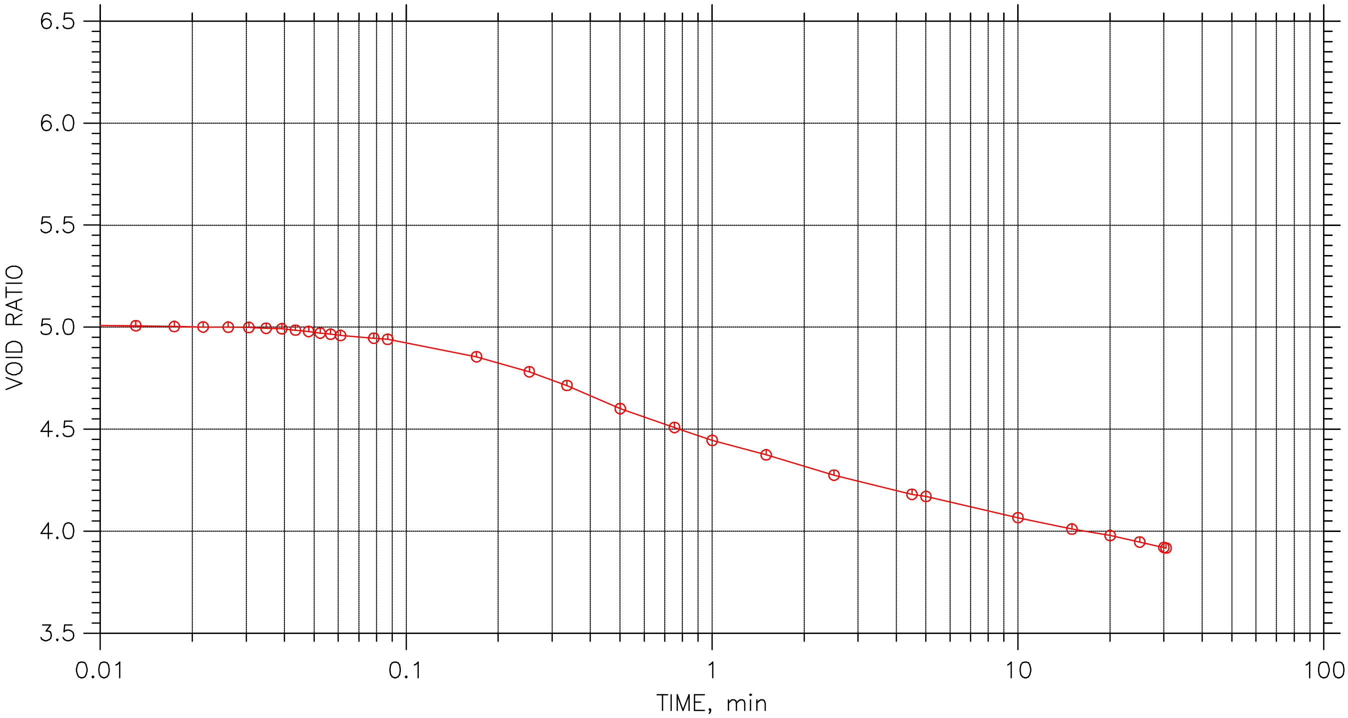
Reviewed by

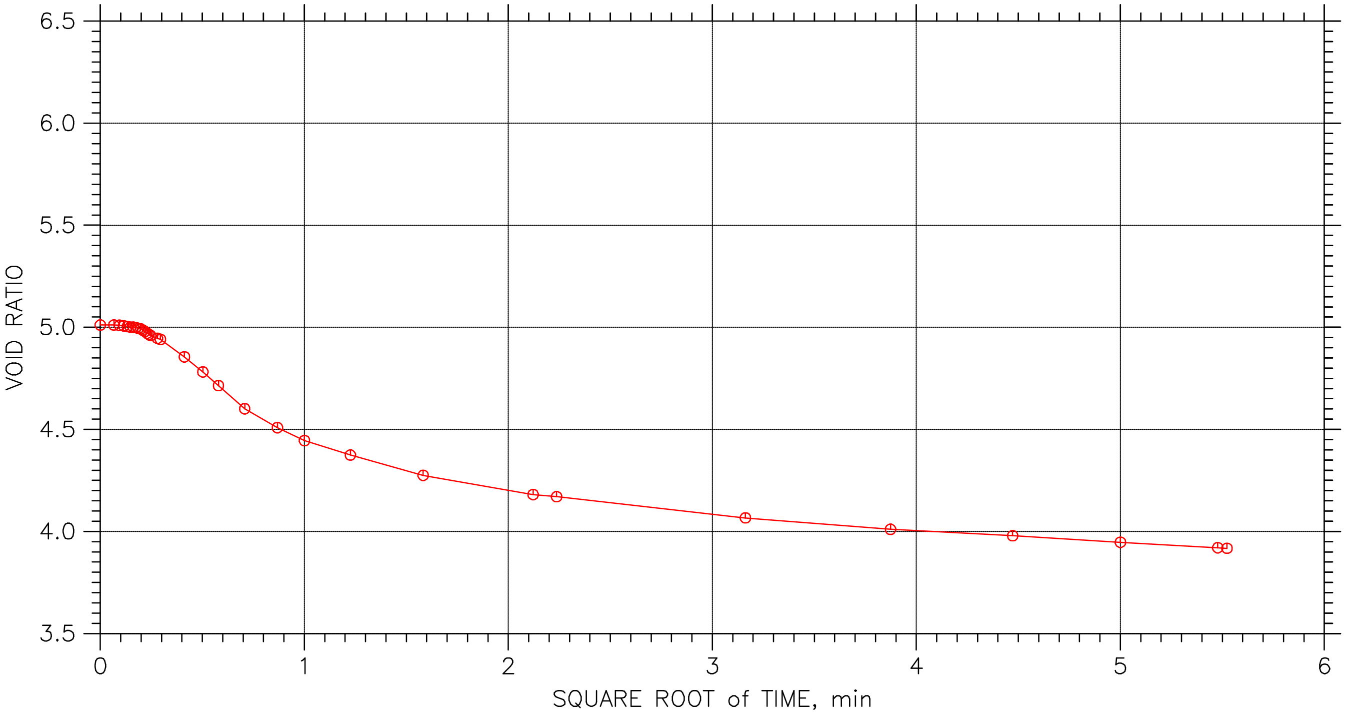
Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf





Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

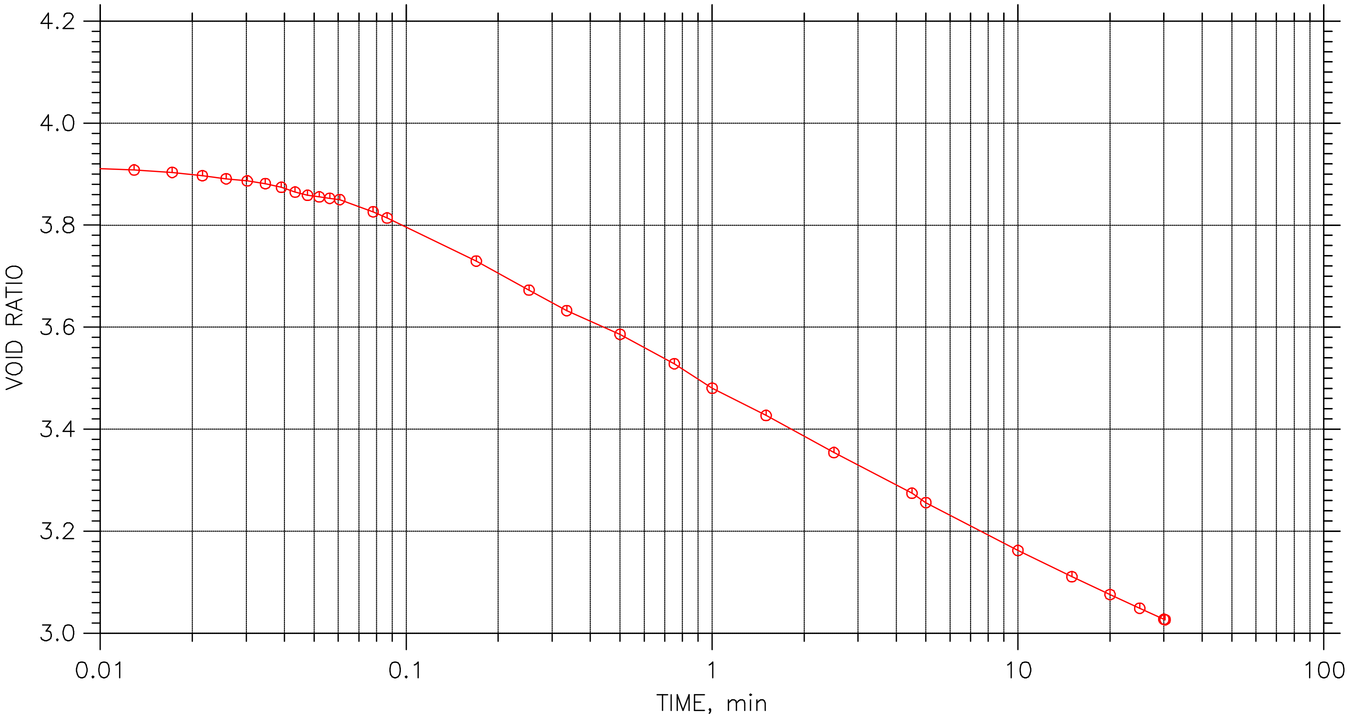
Tue, 26-APR-2022 10:05:07

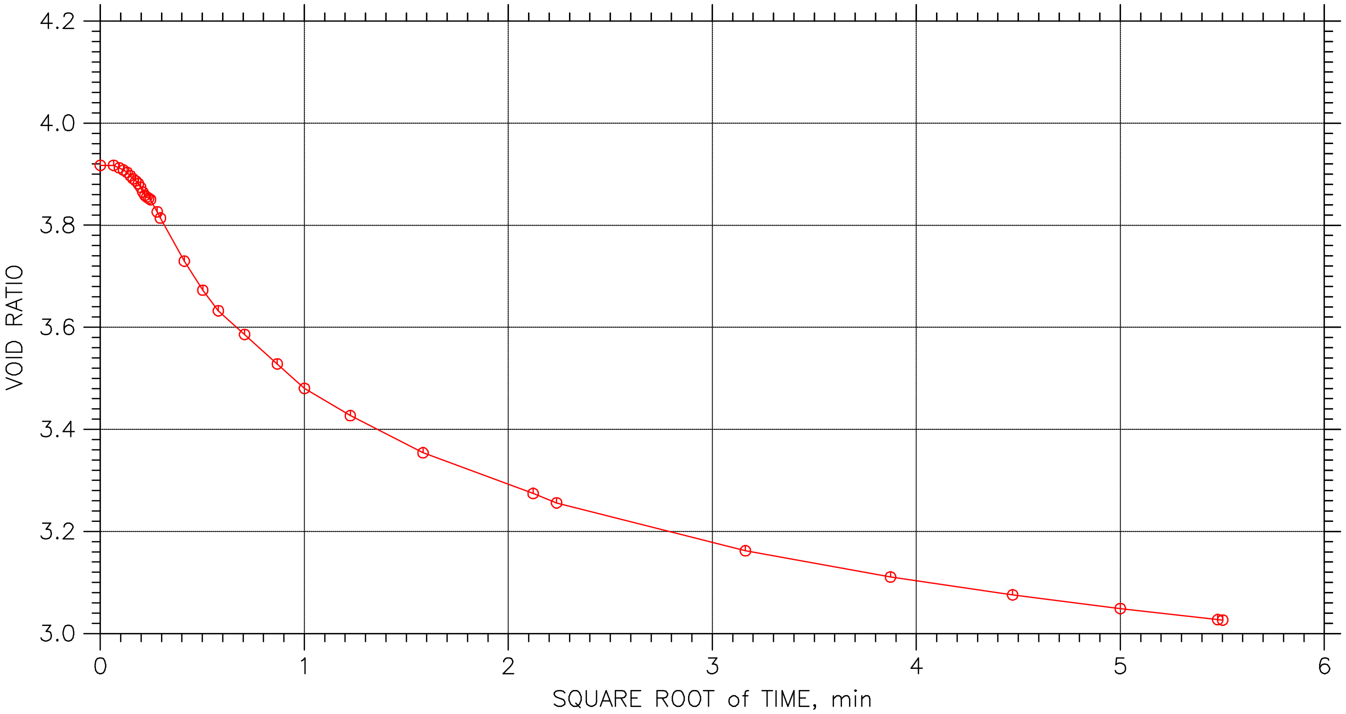
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

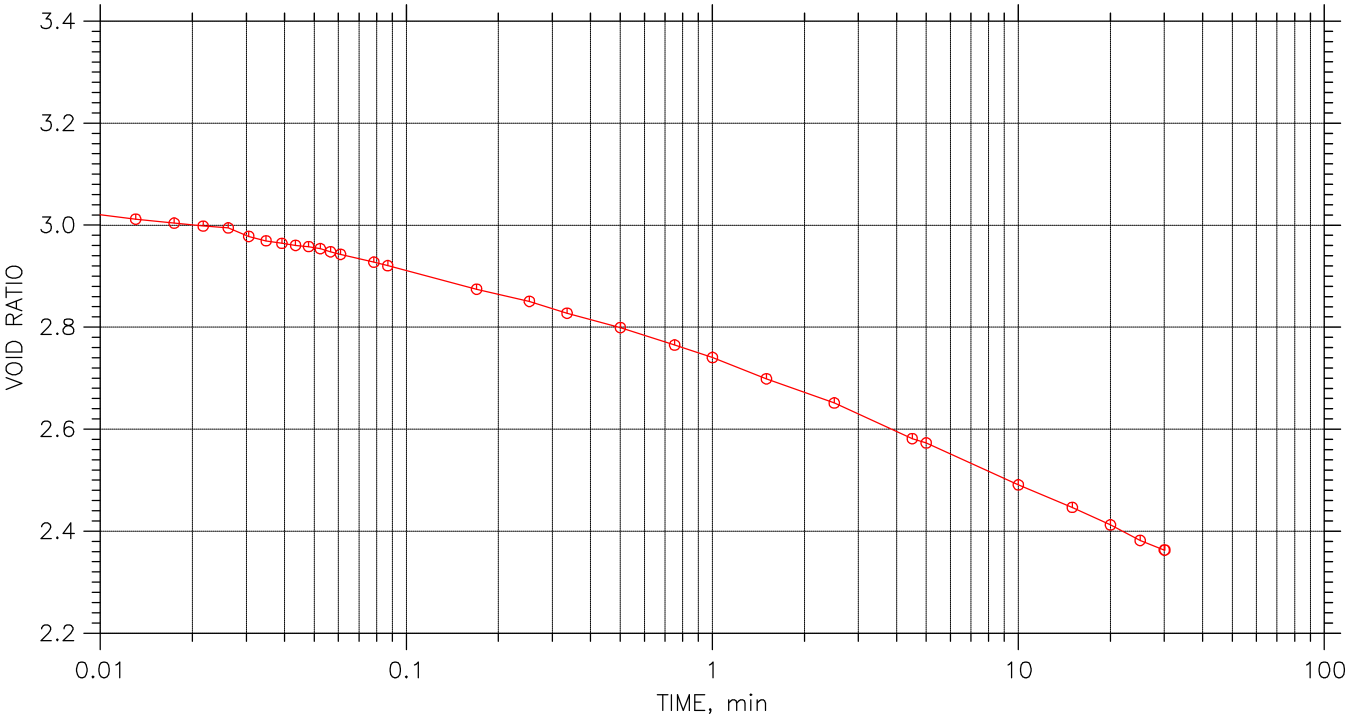
Tue, 26-APR-2022 10:05:08

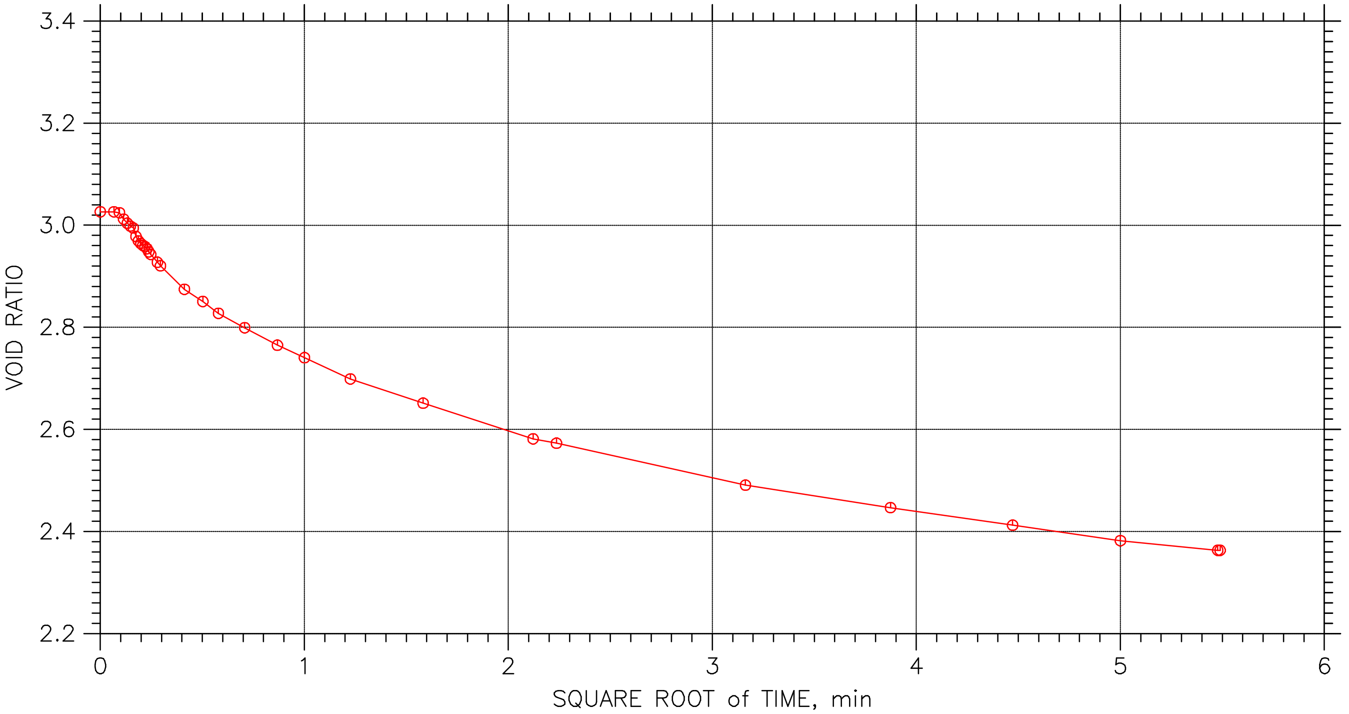
Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

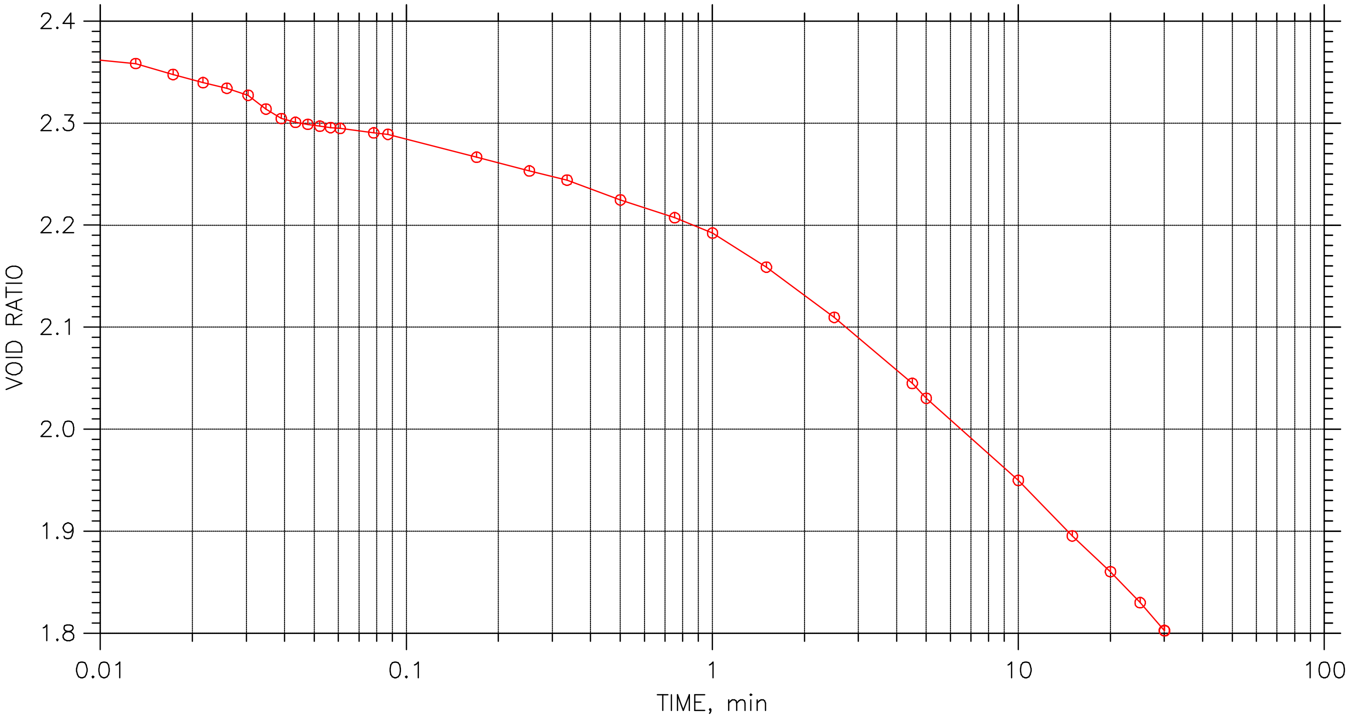
Tue, 26-APR-2022 10:05:09

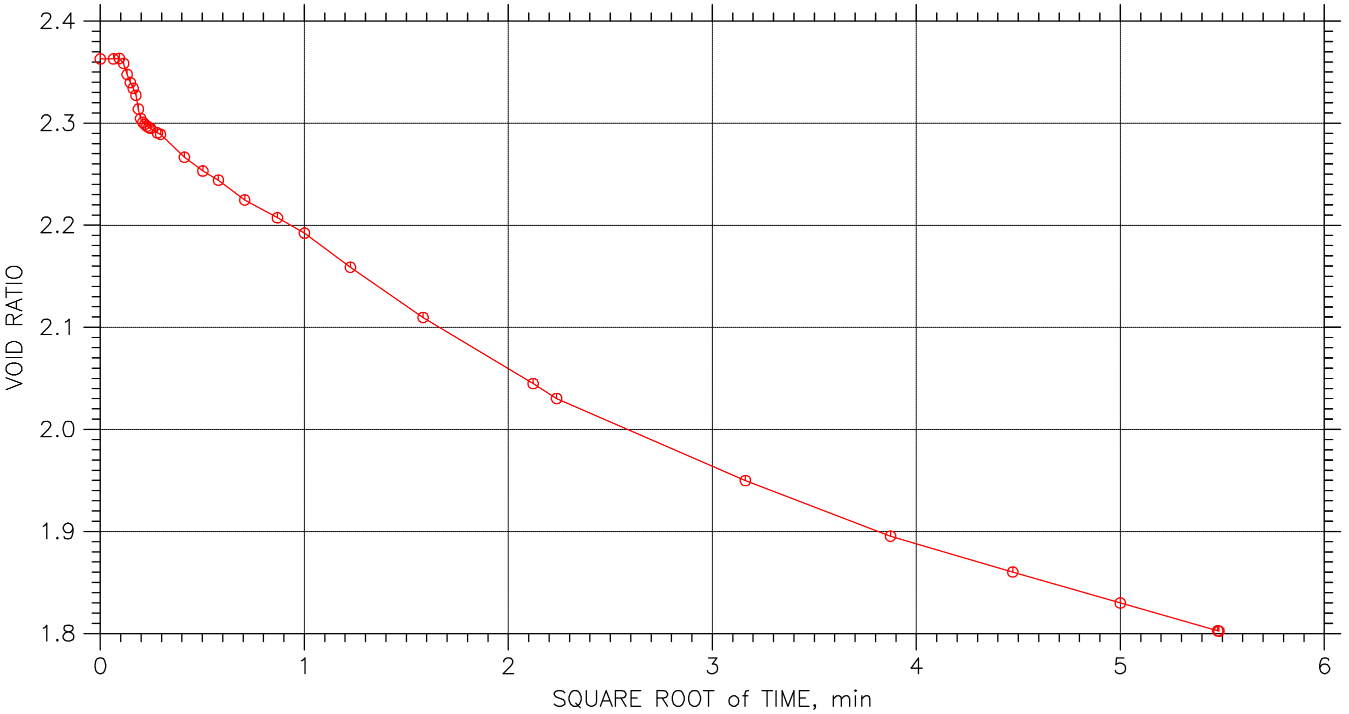
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

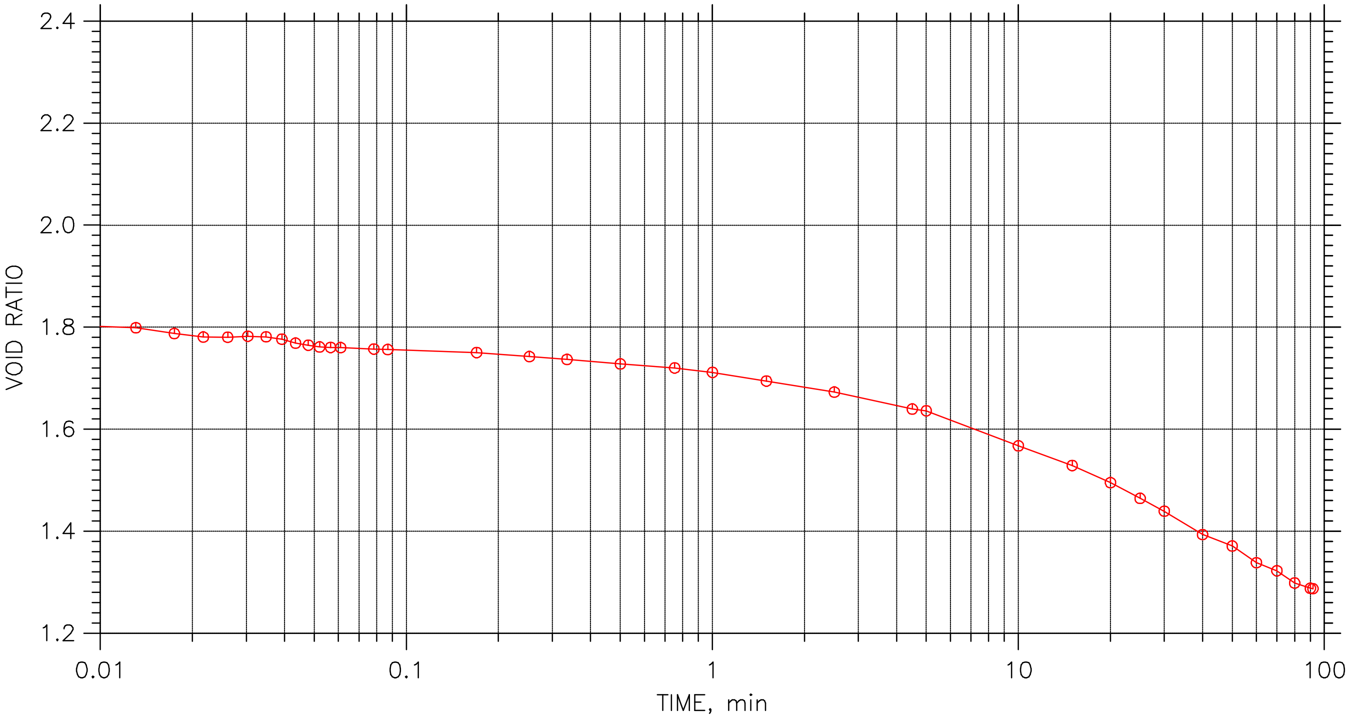
Remarks: ASTM D2487: PT   Visual Classification: Peat

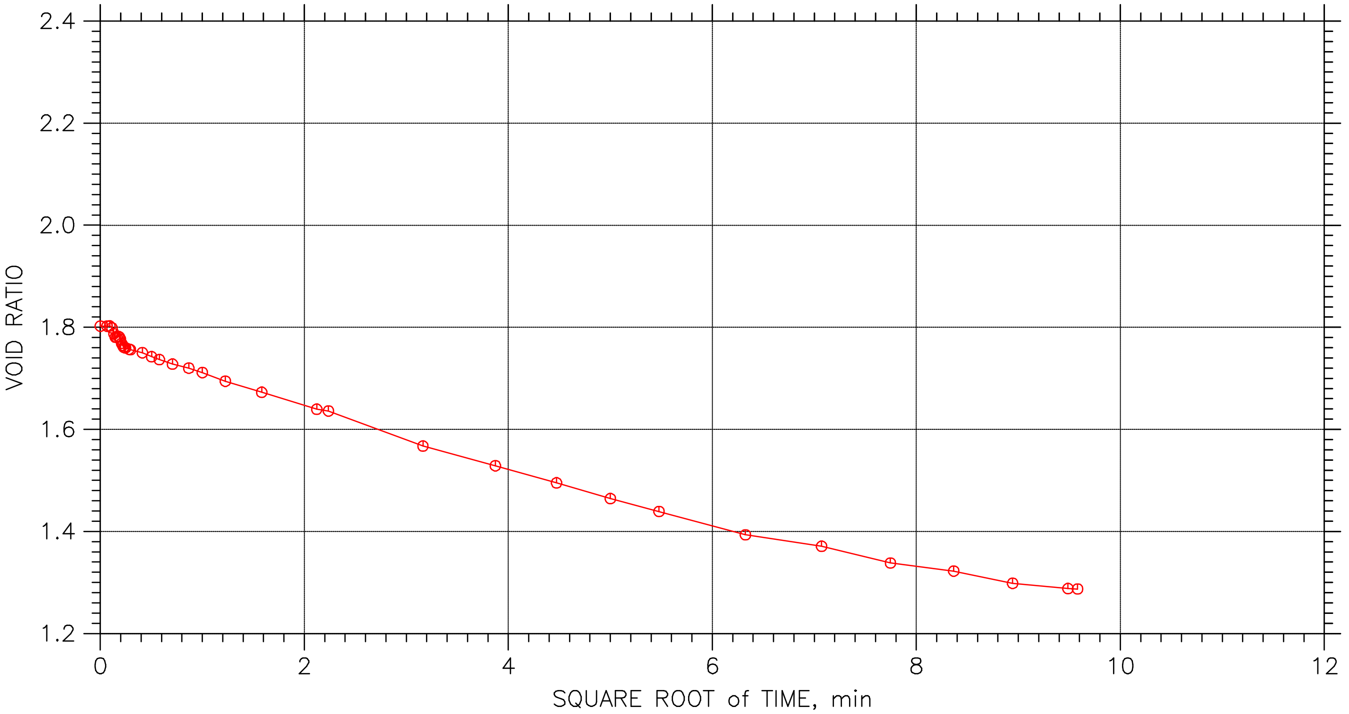
Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

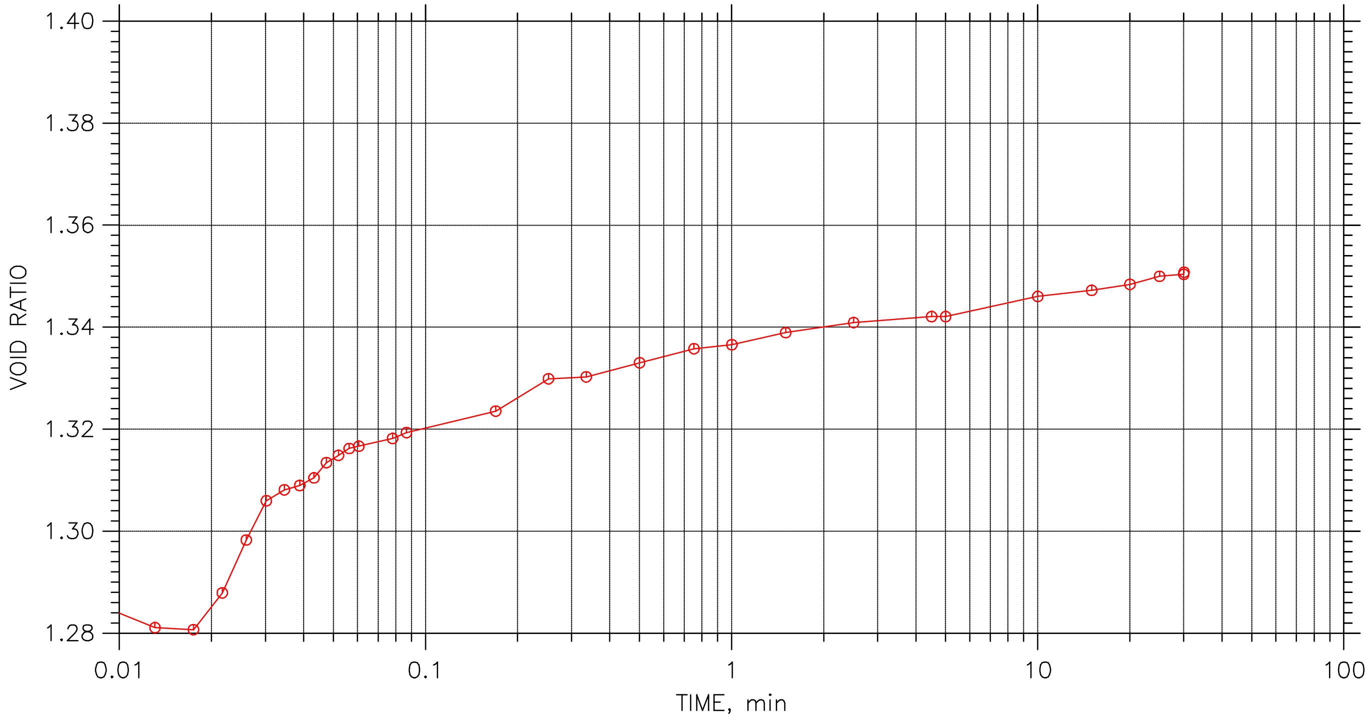
Remarks: ASTM D2487: PT   Visual Classification: Peat

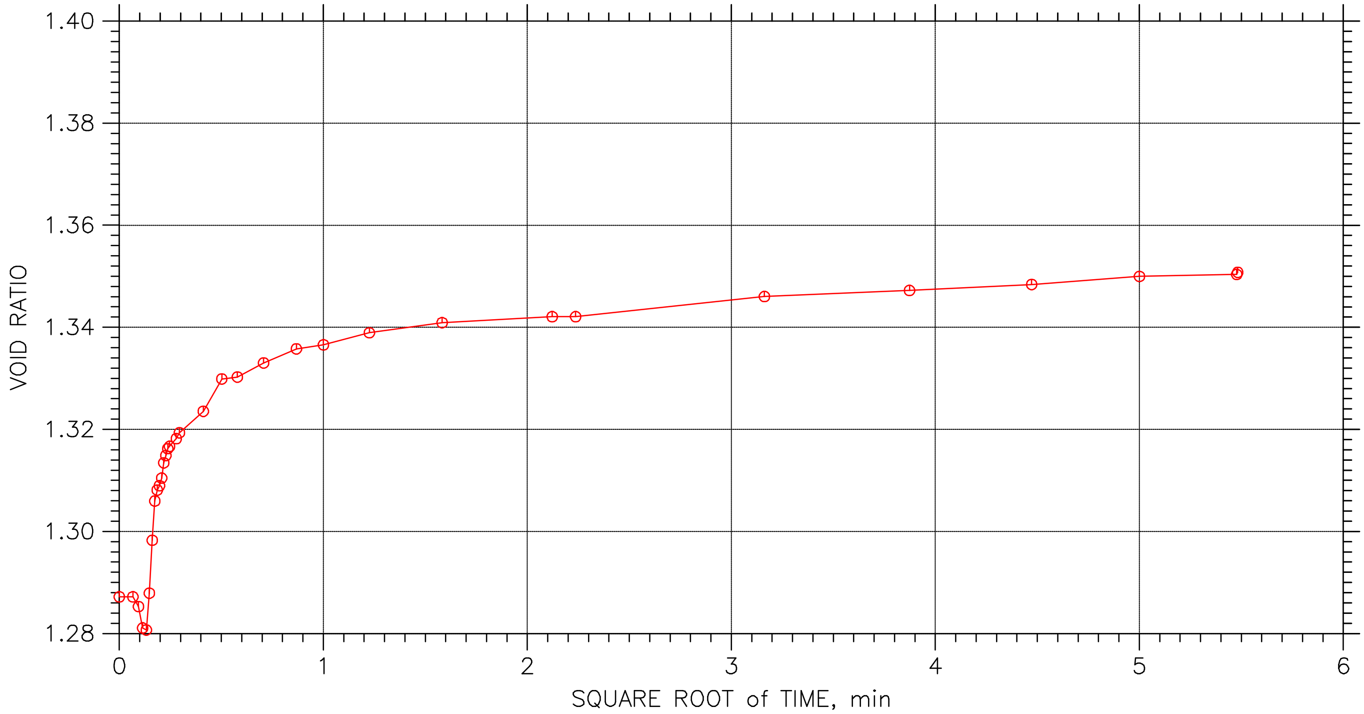
Consolidation Test

TIME CURVES

Constant Load Step 11 of 19

Stress: 32000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-01	Tested By: CZ	Checked By: MEK
	Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
	Depth: 3.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

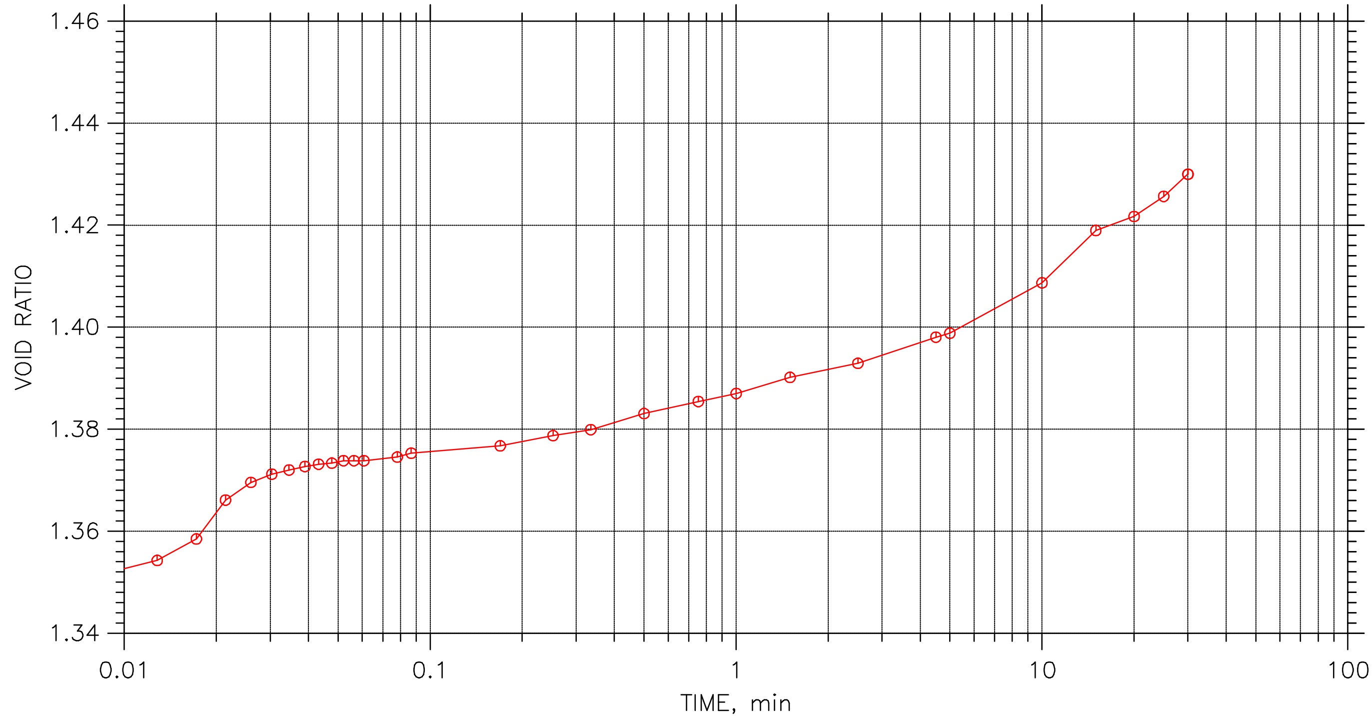
Tue, 26-APR-2022 10:05:13

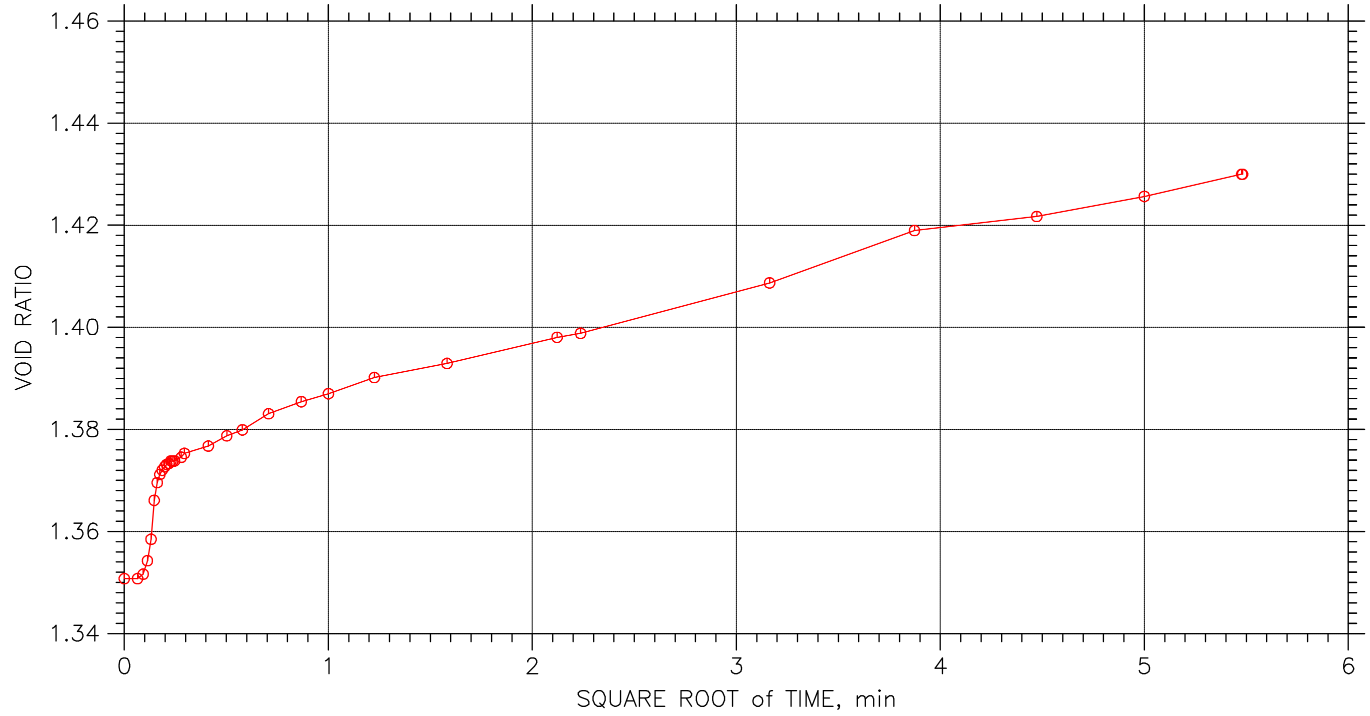
Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

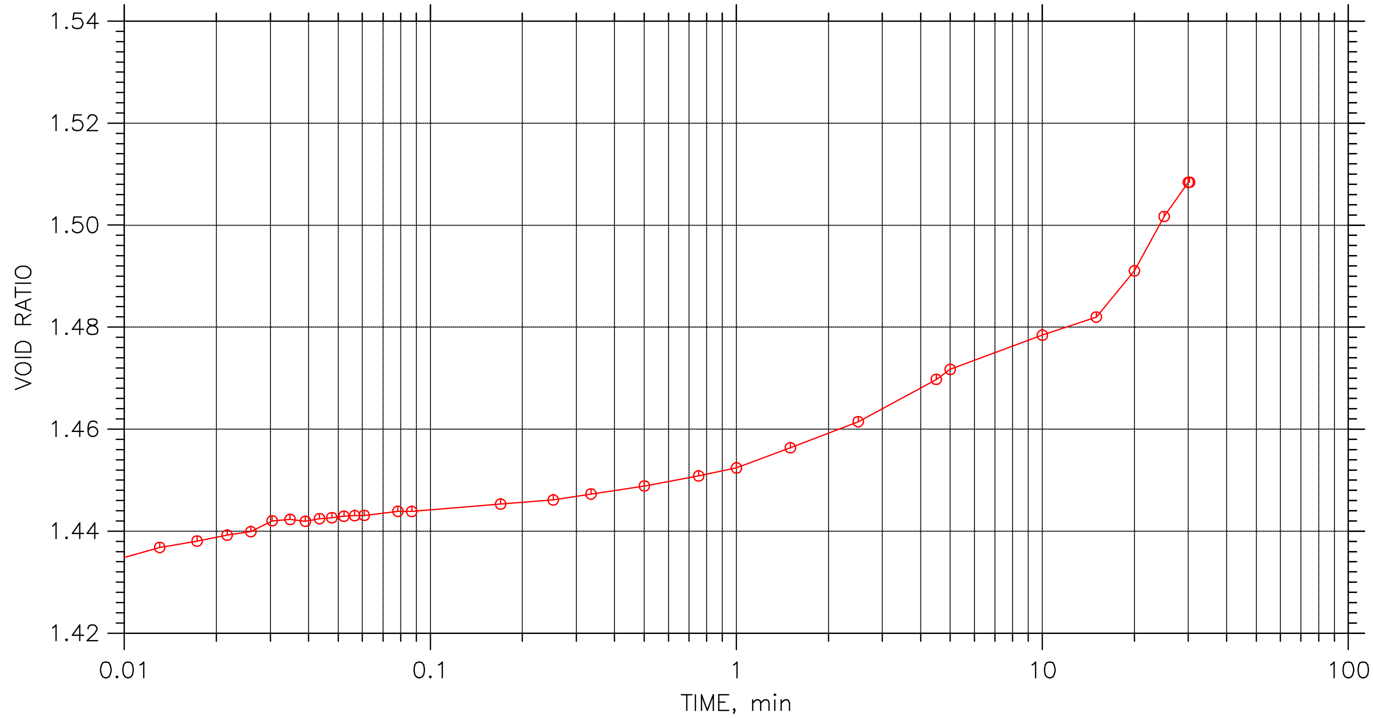
Reviewed by

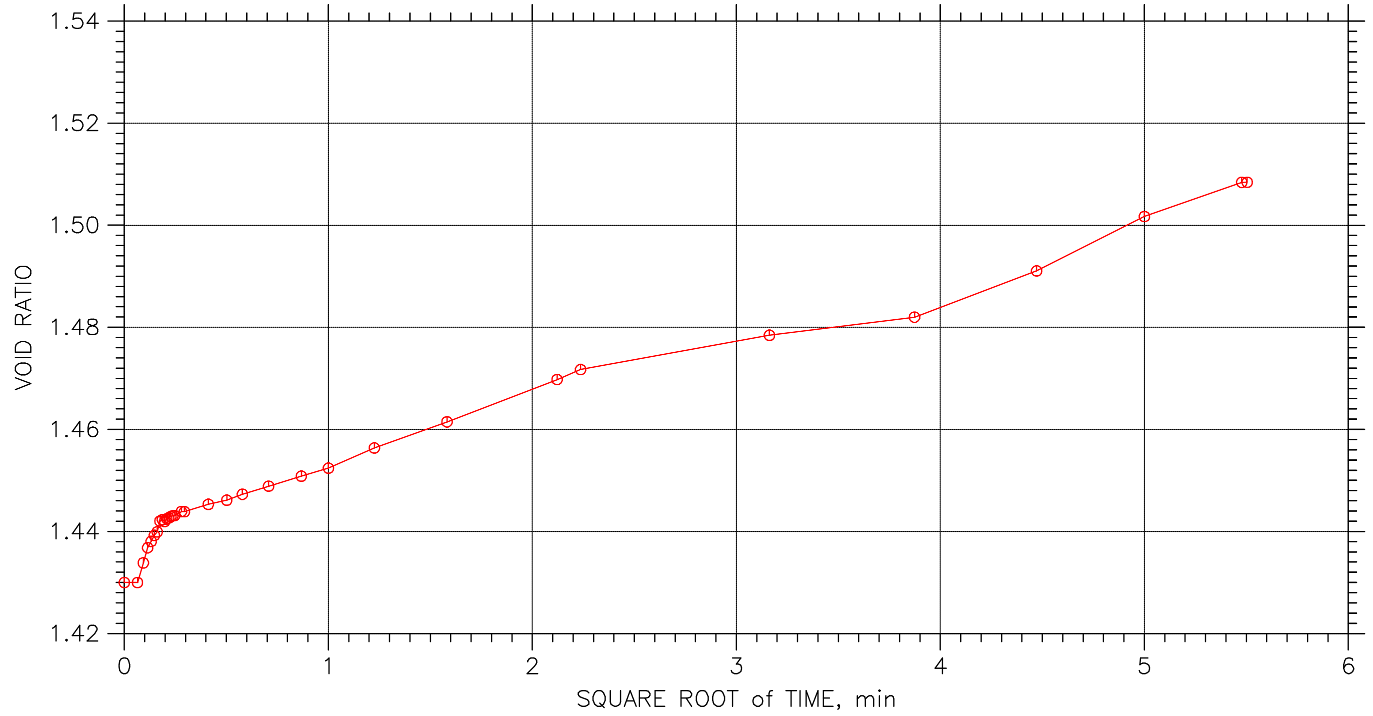
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





Alaska Testlab

Reviewed by

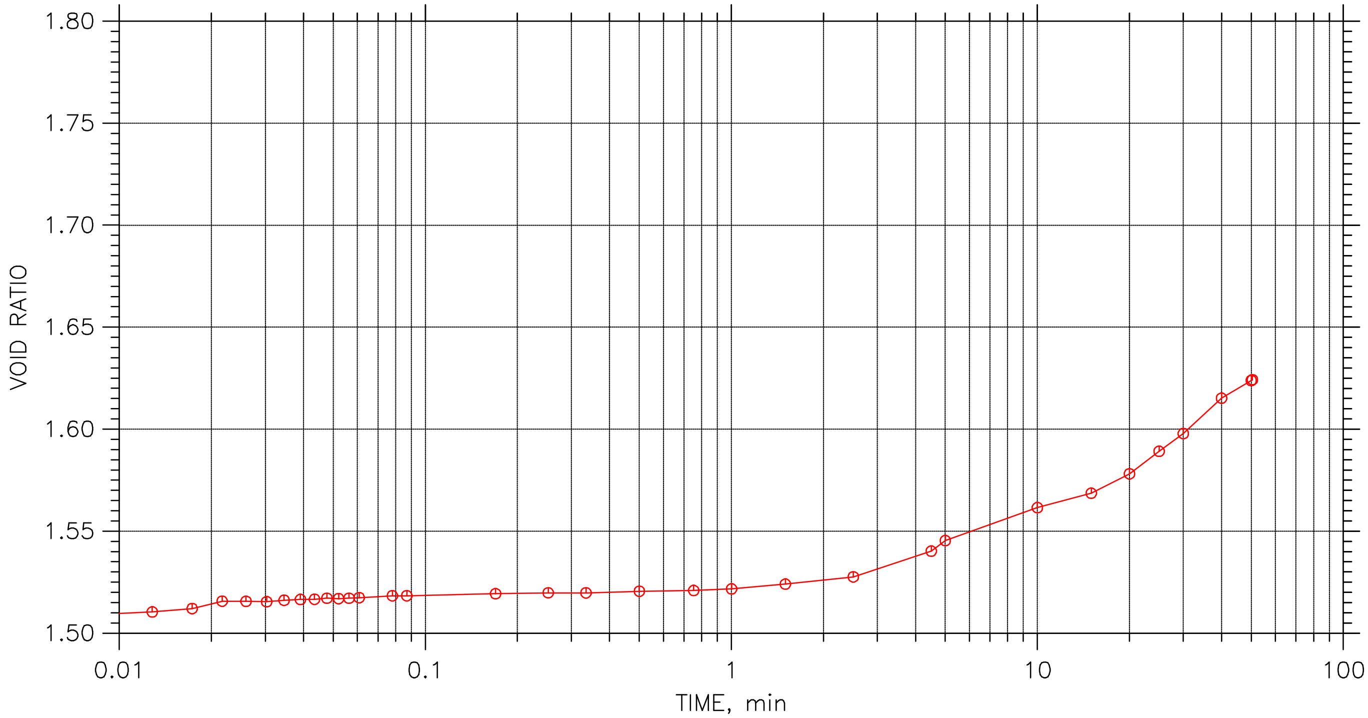
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

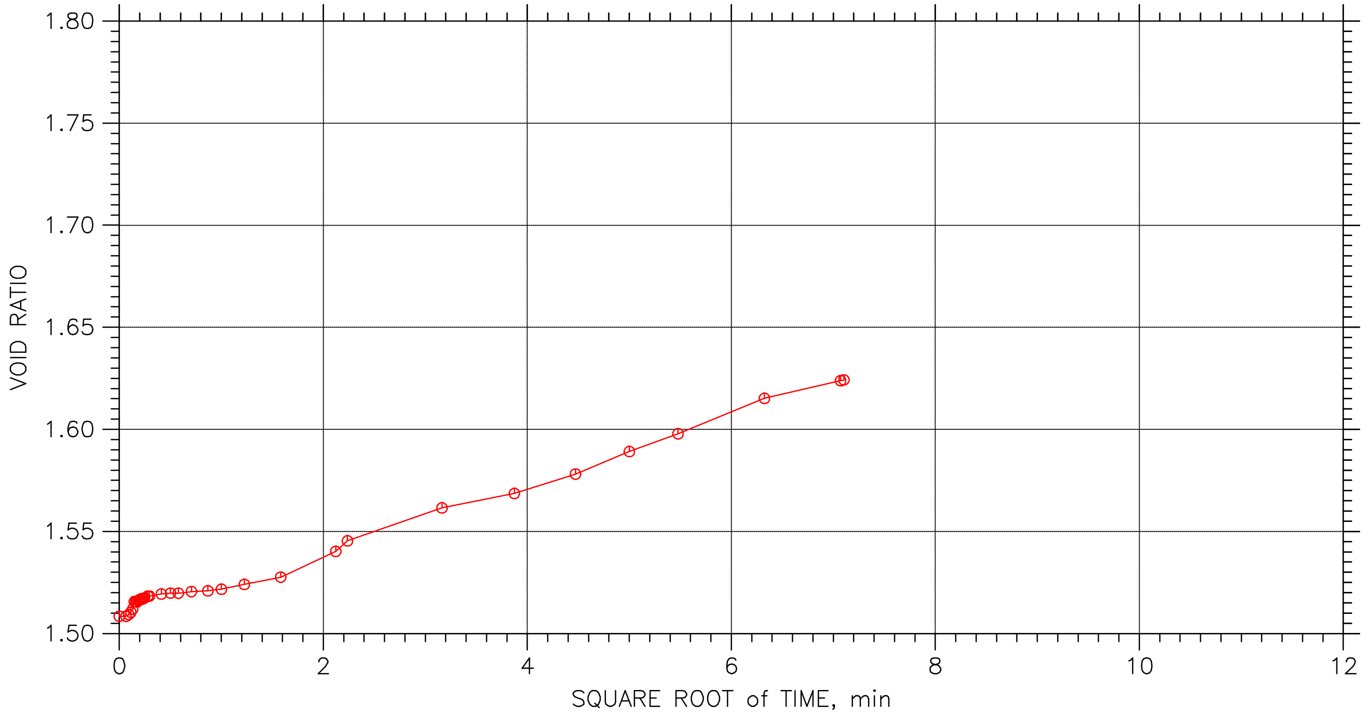
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





Alaska Testlab

Reviewed by

Max E Kapsen

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

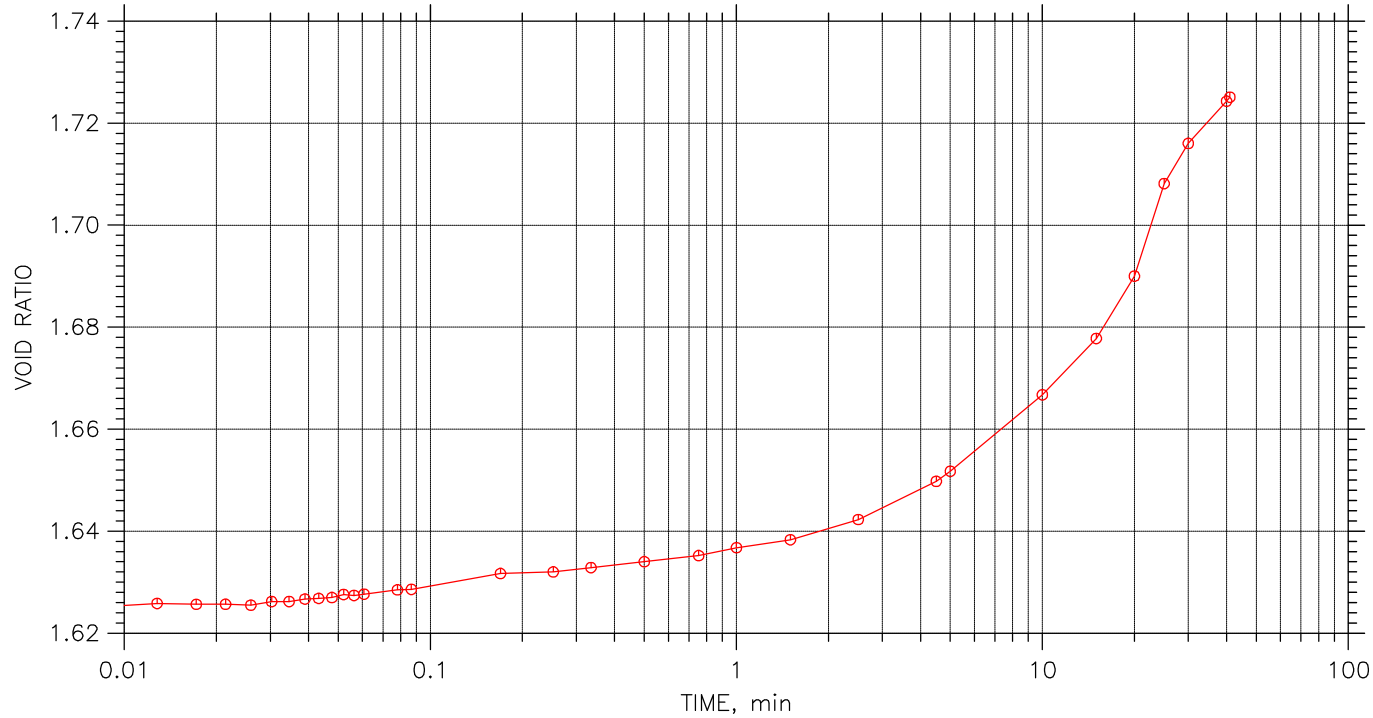
Tue, 26-APR-2022 10:05:16

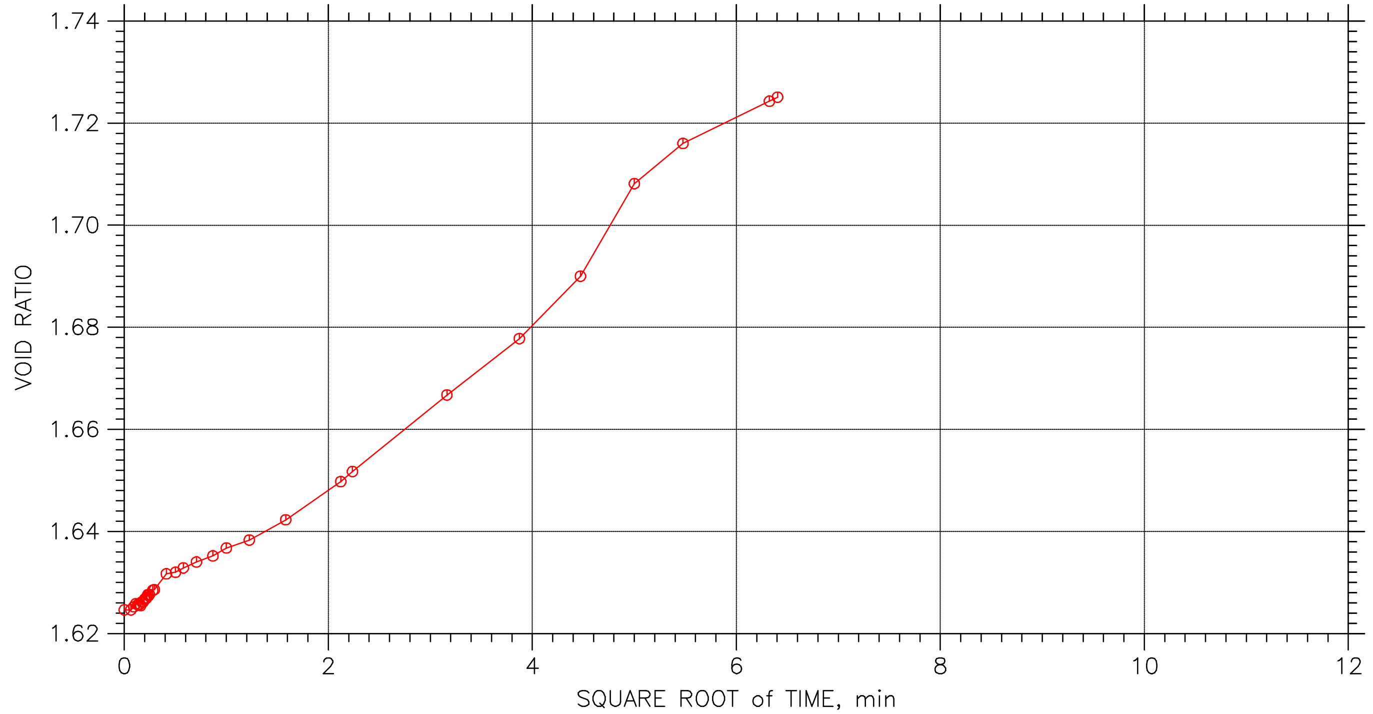
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





ATL
Alaska Testlab
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

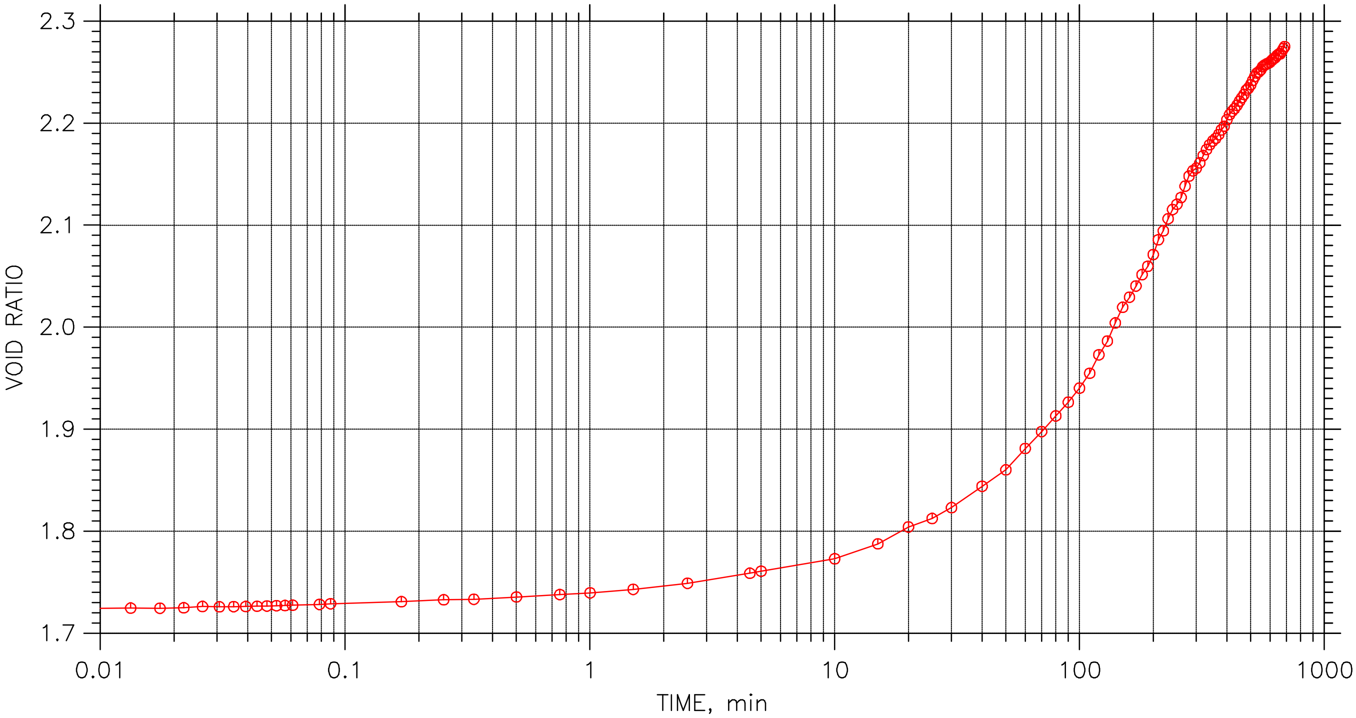
Tue, 26-APR-2022 10:05:17

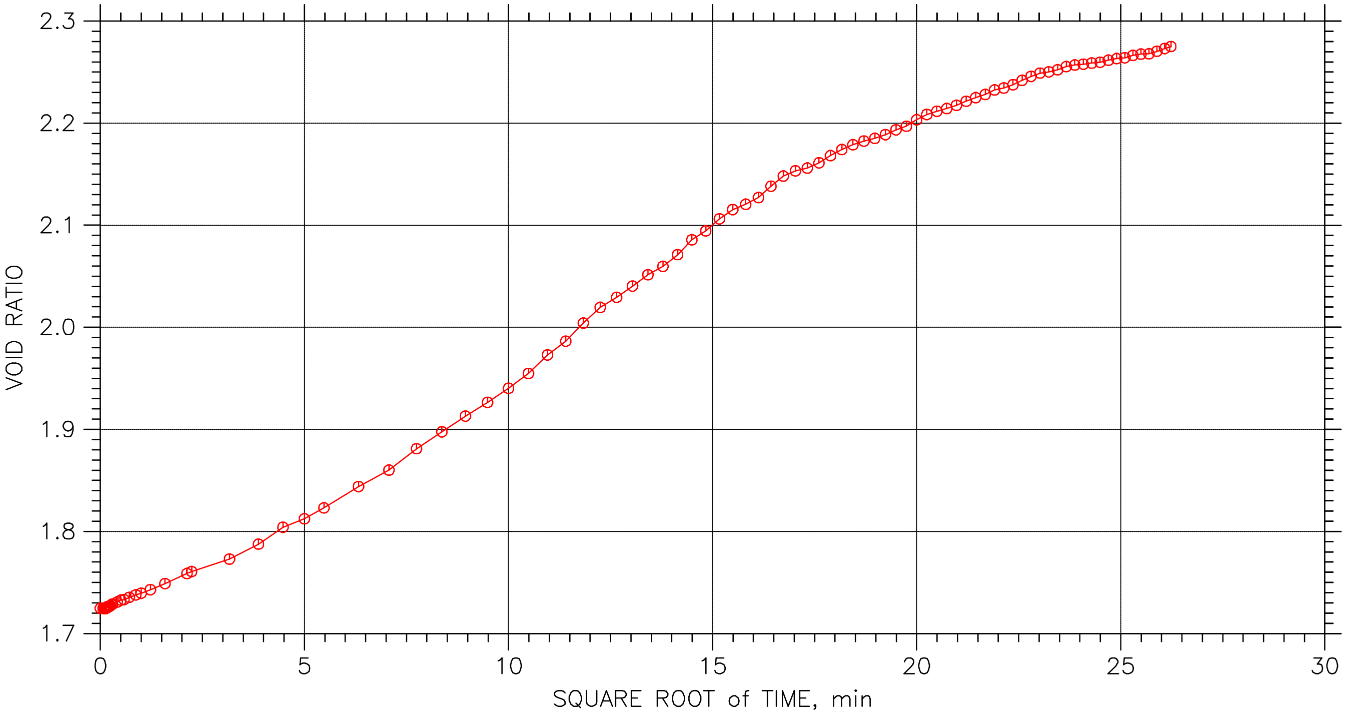
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

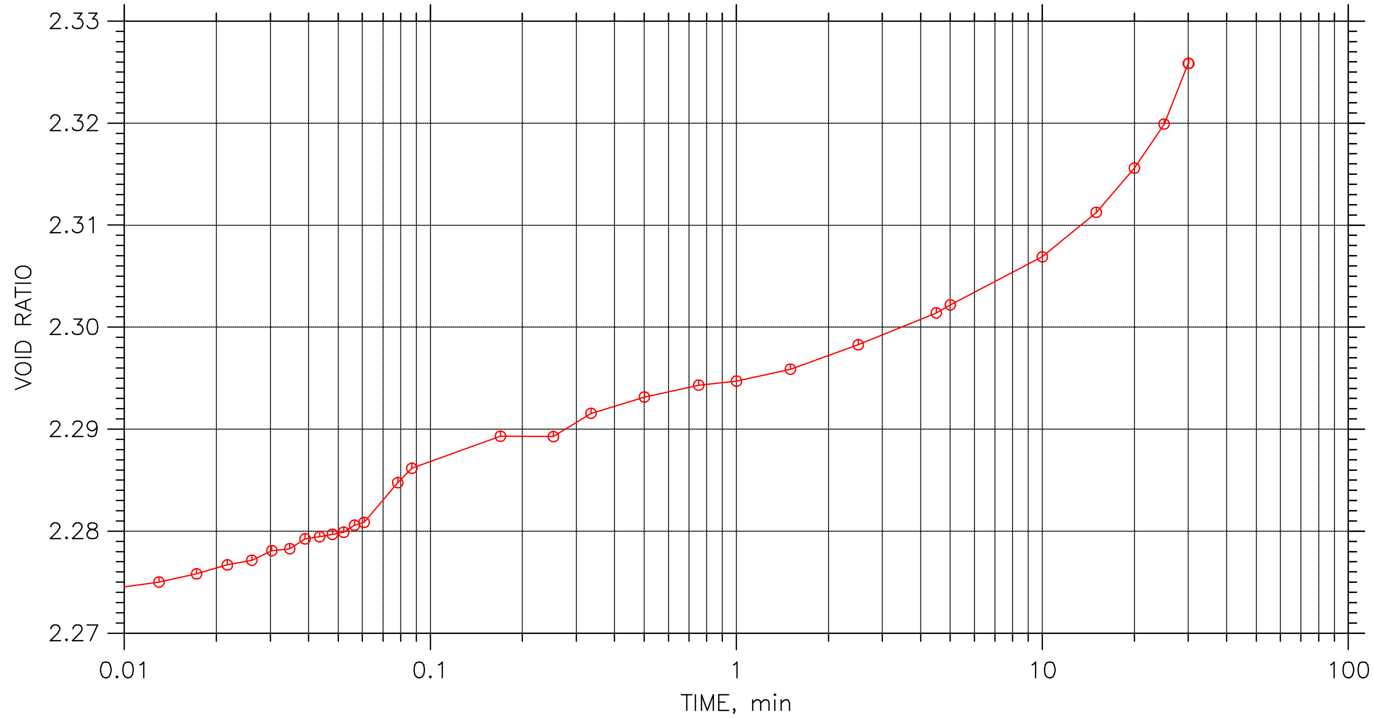
Tue, 26-APR-2022 10:05:19

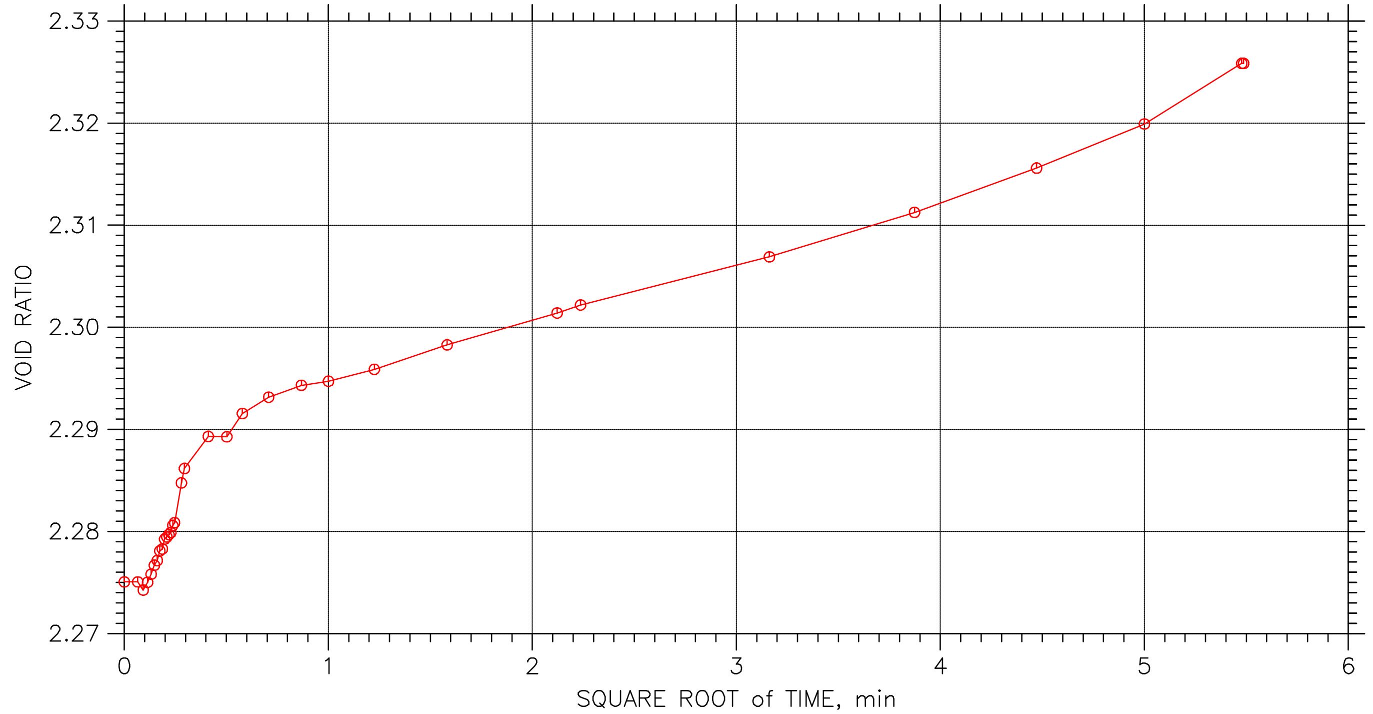
Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

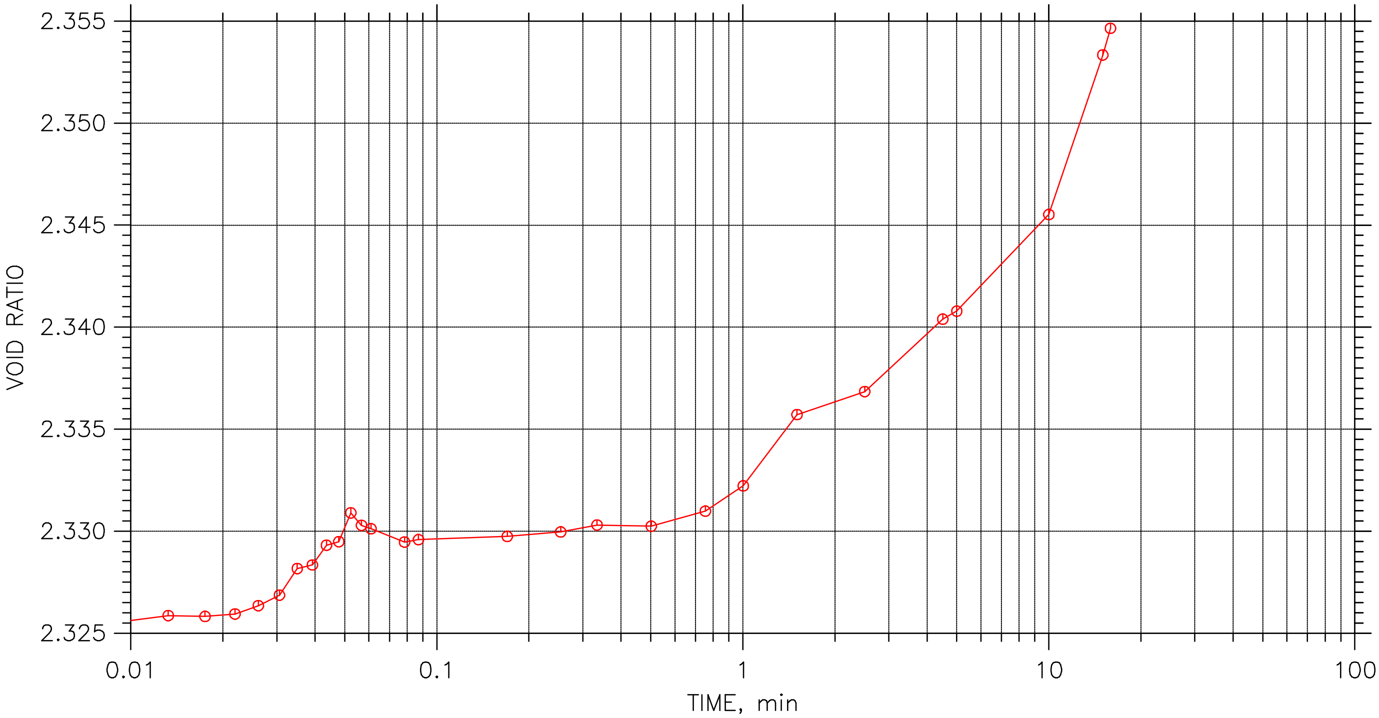
Reviewed by

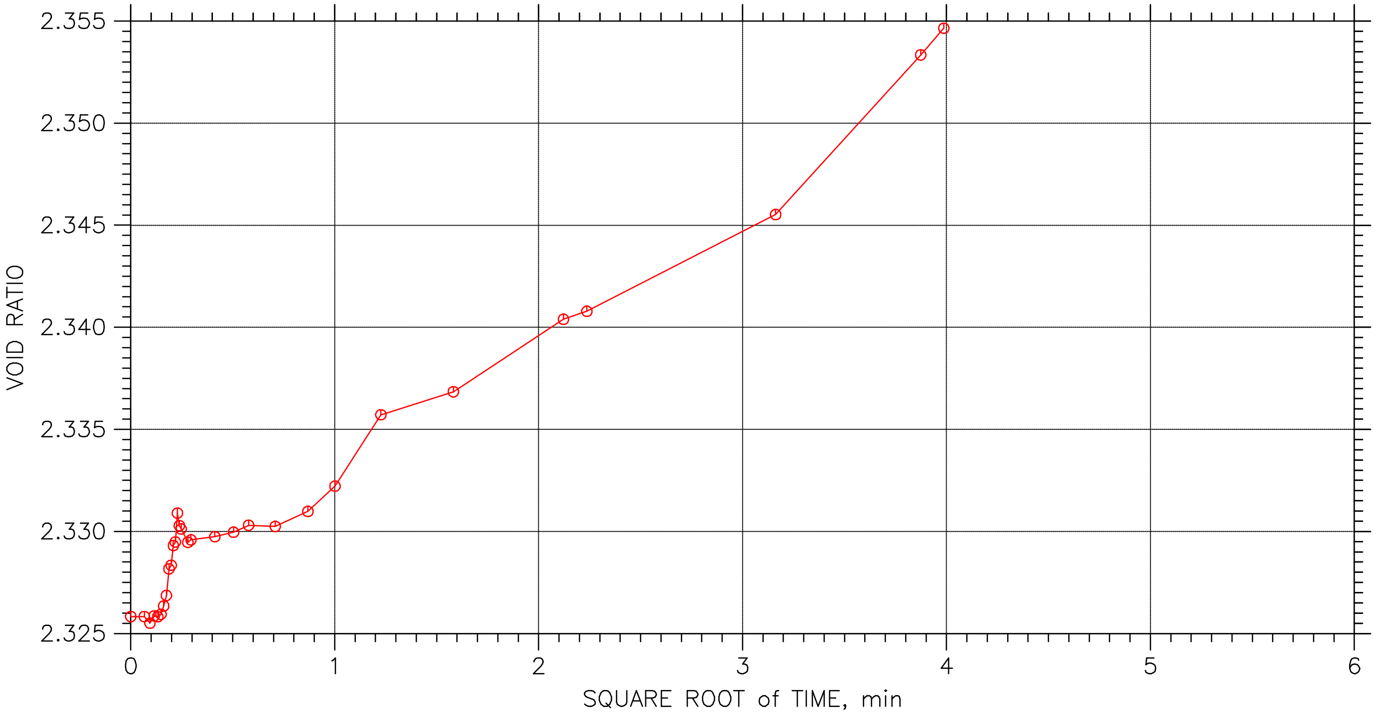
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

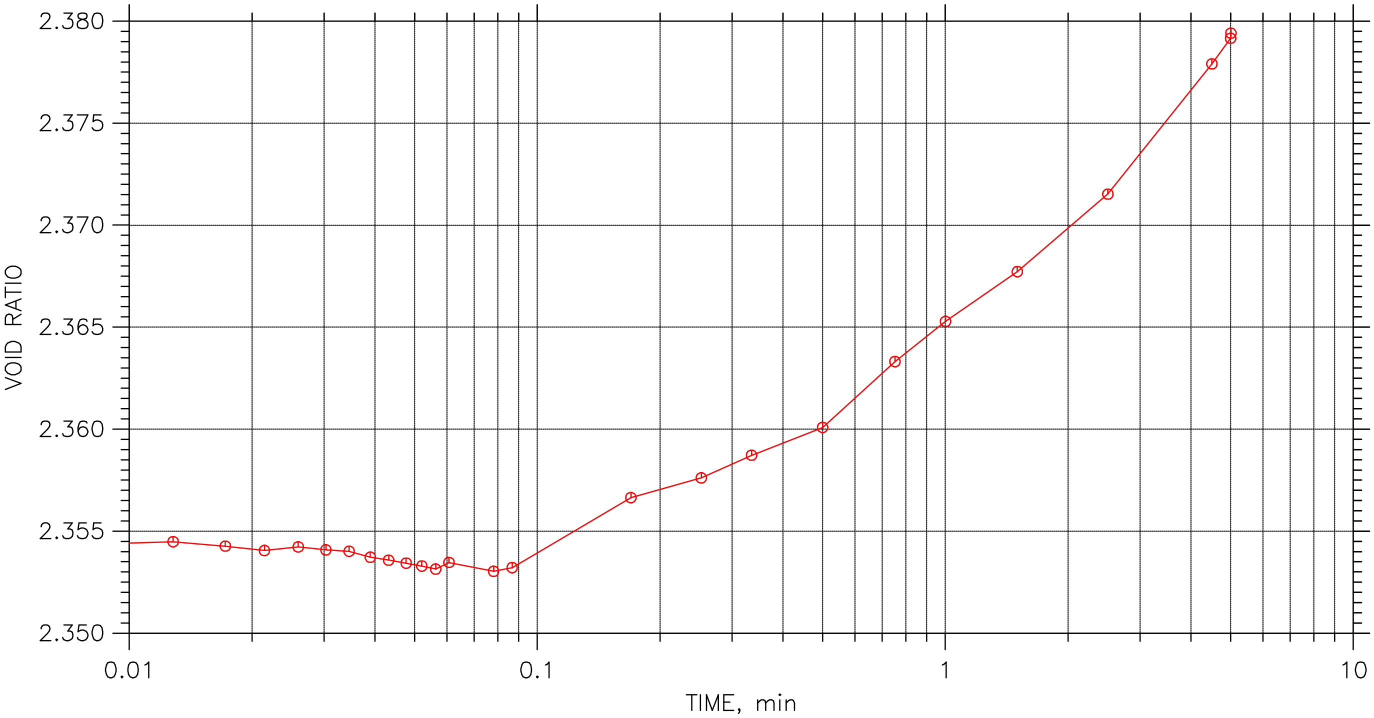
Tue, 26-APR-2022 10:05:21

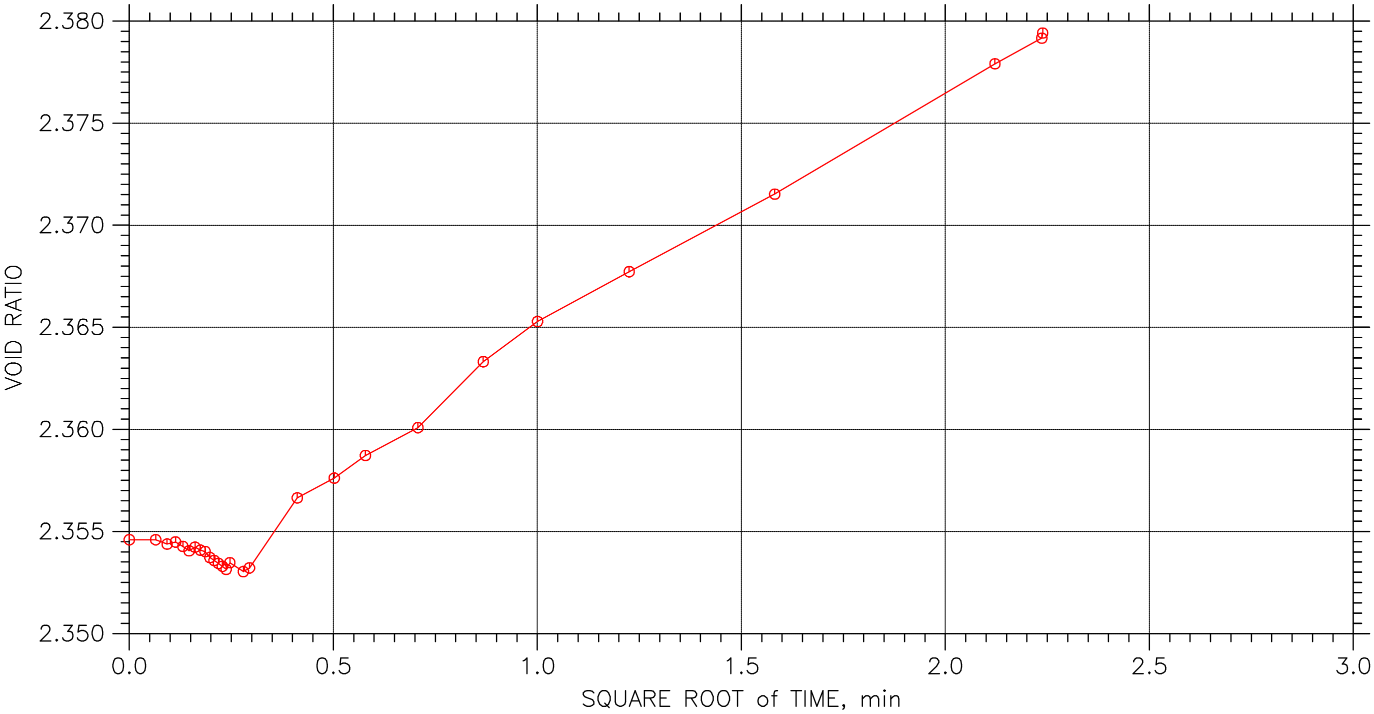
Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-01	Tested By: CZ	Checked By: MEK
	Sample No.: S2B	Test Date: 4/1/2022	Test No.: 1
	Depth: 3.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

Tue, 26-APR-2022 10:05:23

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

73138.00

Date Received:	March 21, 2022
Sample #:	22-0250-S03 and S04
Material:	BH-01 Sa2B

Sample after extraction

Alaska Testlab - Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

External Test Report

Report No: EXT:22-0250-S03-1
Issue No: 2

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484

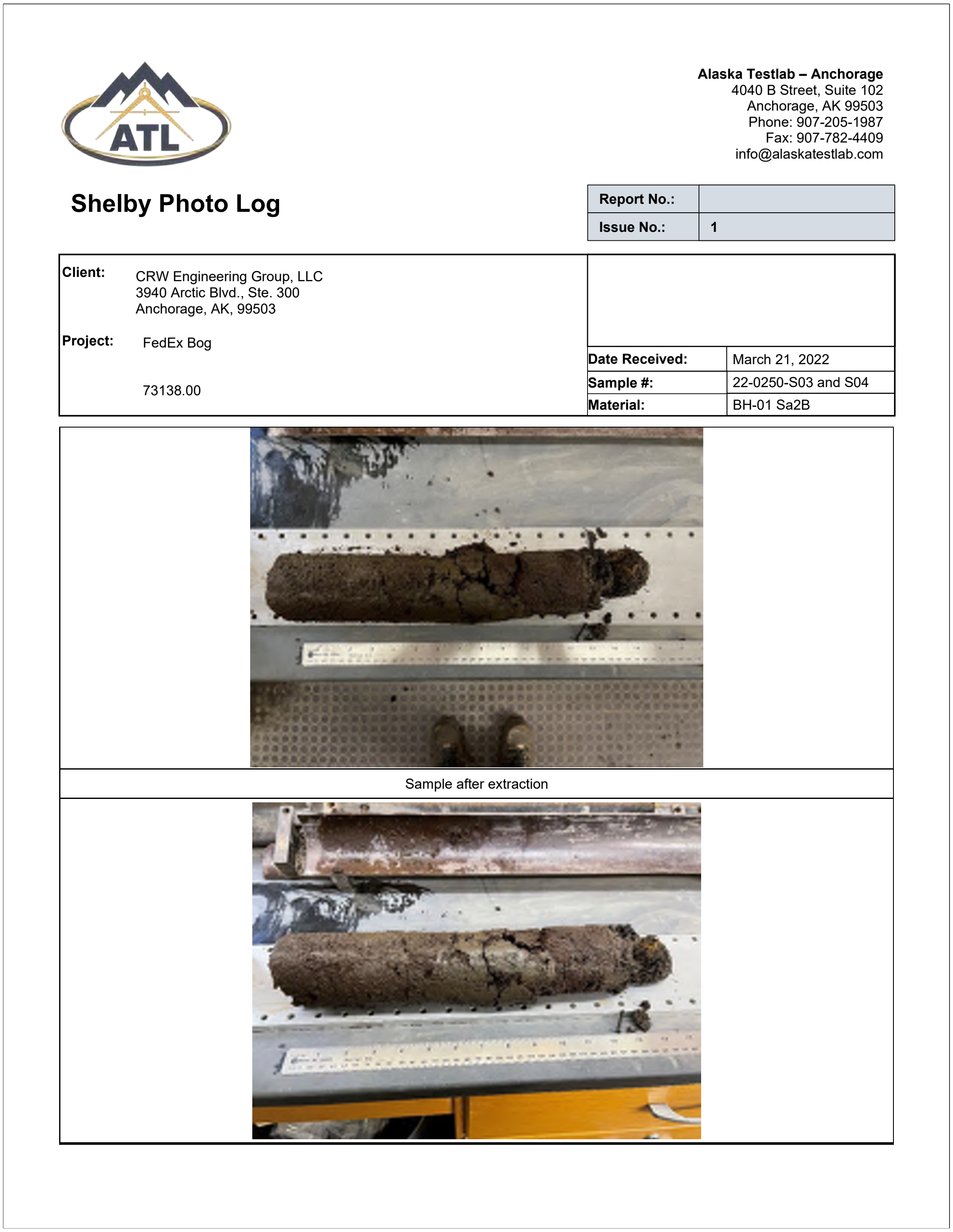
CC:

Project: FedEx Bog

73138.00

The results contained below pertain only to the items tested below. This report should not be reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022



Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

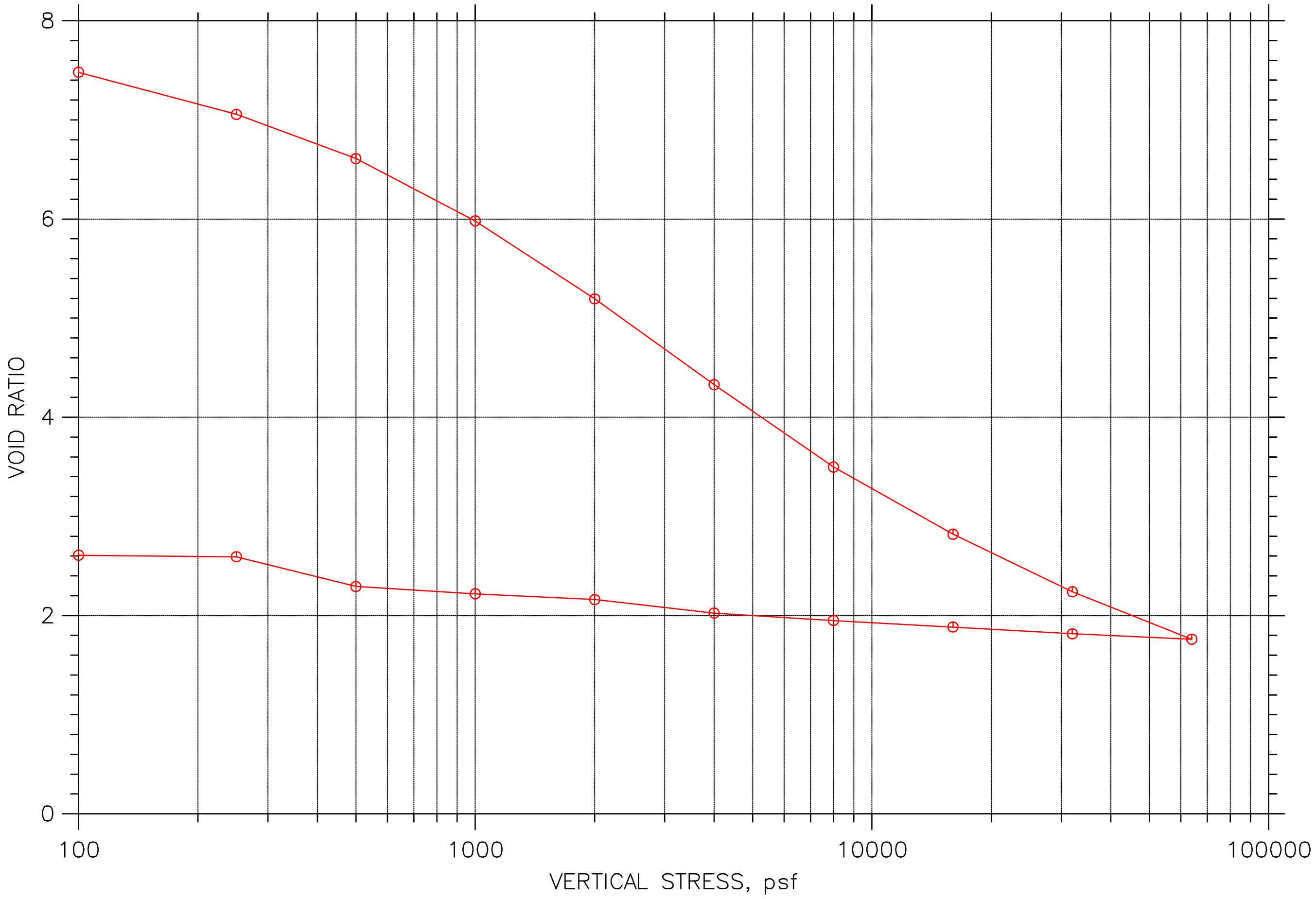
73138.00

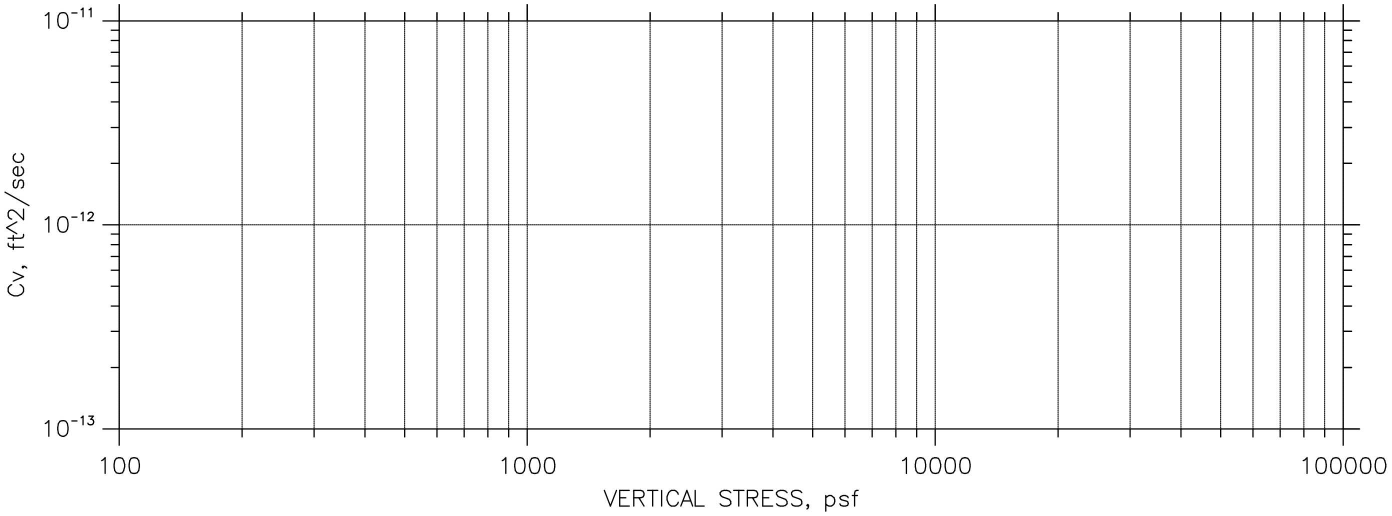
Date Received:	March 21, 2022
Sample #:	22-0250-S03 and S04
Material:	BH-01 Sa2B

Sample after extraction

Consolidation Test

SUMMARY REPORT





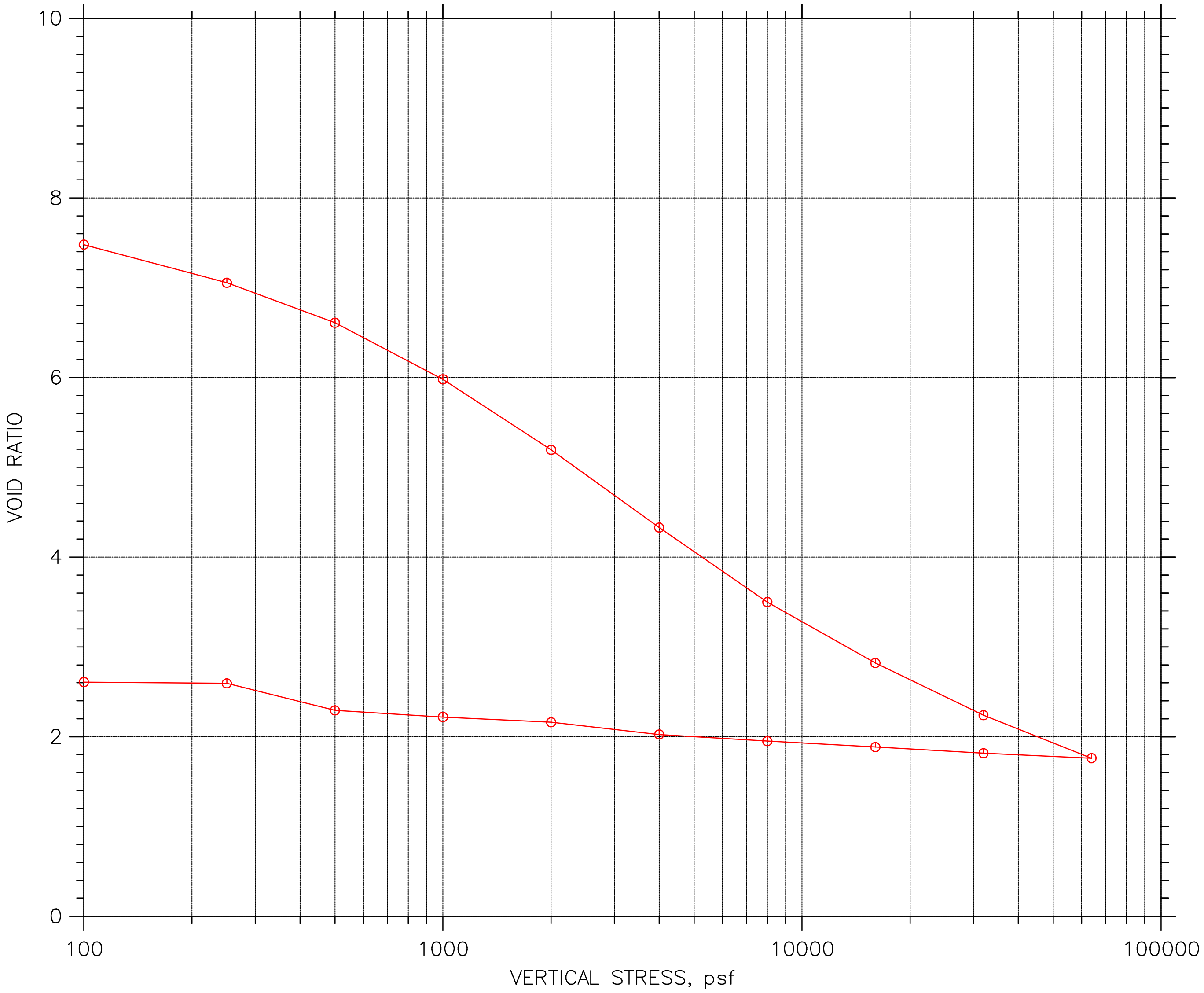
Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Consolidation Test

SUMMARY REPORT



					Before Test	After Test
Overburden Pressure: 0 psf				Water Content, %	345.98	129.56
Preconsolidation Pressure: 0 psf				Dry Unit Weight, pcf	14.531	36.33
Compression Index: 0				Saturation, %	90.57	104.30
Diameter: 2.5 in		Height: 1 in		Void Ratio	8.02	2.61
LL: ---	PL: ---	PI: ---	GS: 2.10	Back Pressure, psf	0	0

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

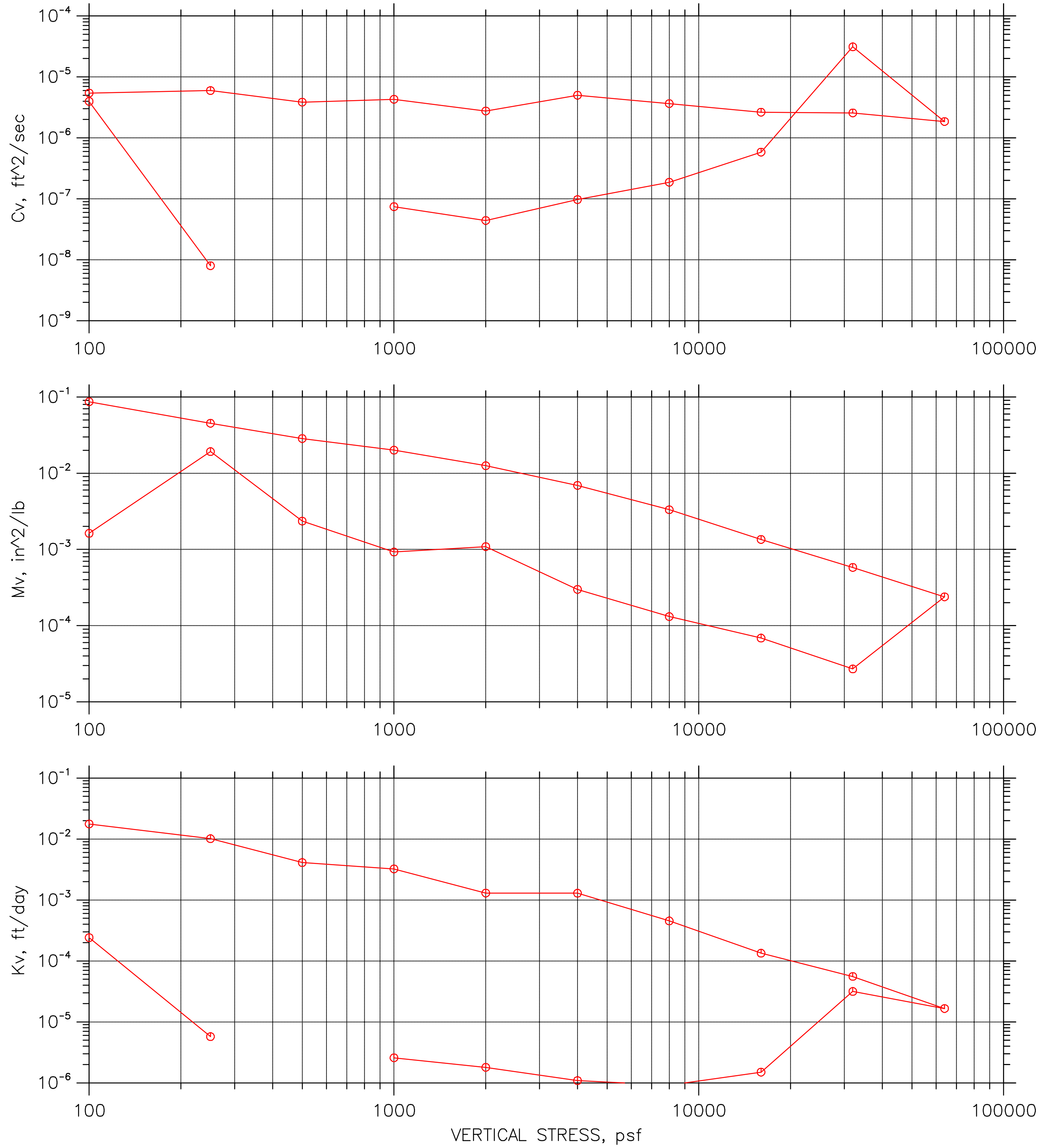
ATL Alaska Testlab

Reviewed by

Tue, 26-APR-2022 10:09:36

Consolidation Test

ROOT of TIME COEFFICIENTS



Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

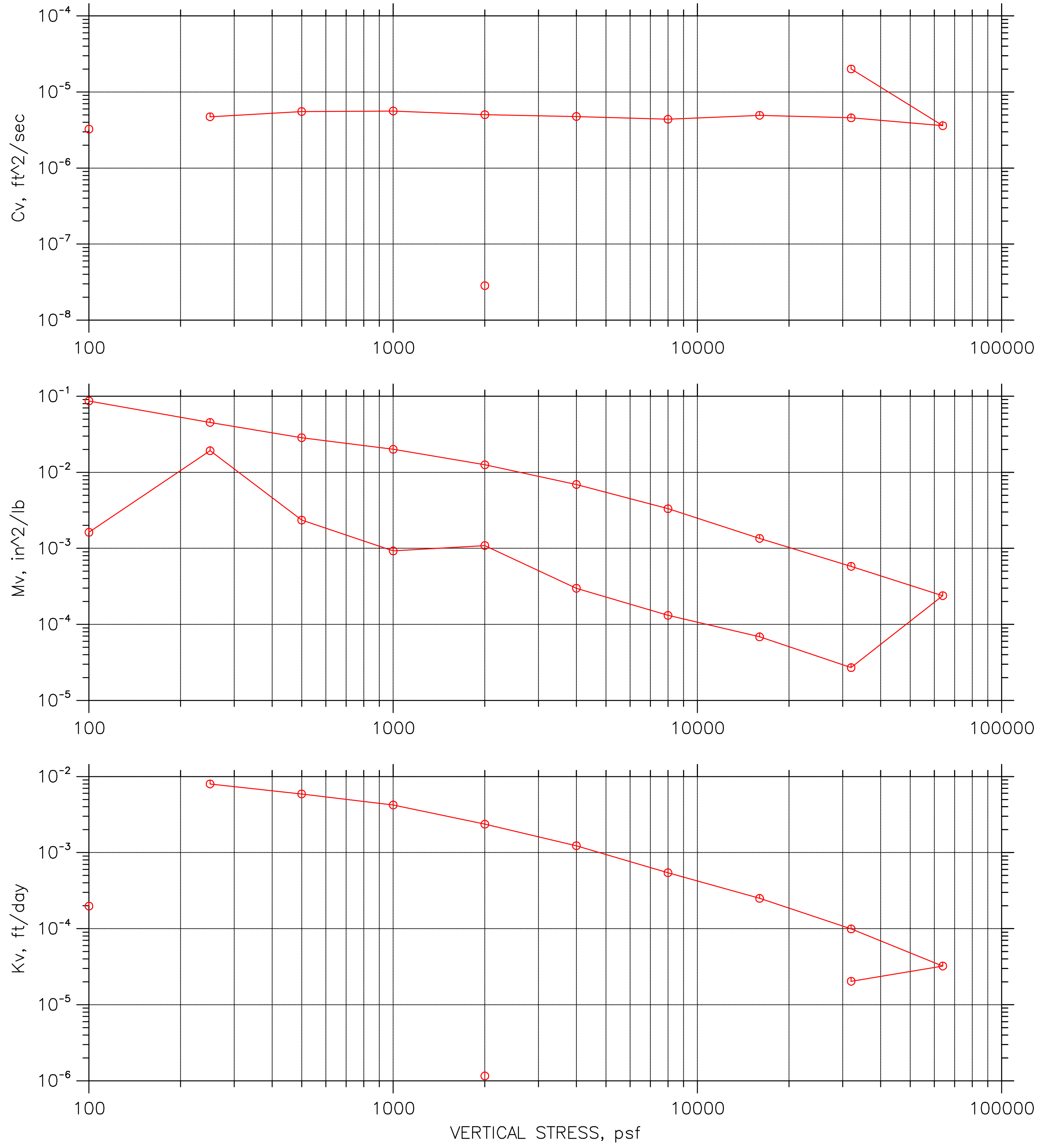
Alaska Testlab

Reviewed by

Tue, 26-APR-2022 10:09:37

Consolidation Test

LOG of TIME COEFFICIENTS



Alaska Testlab

Reviewed by

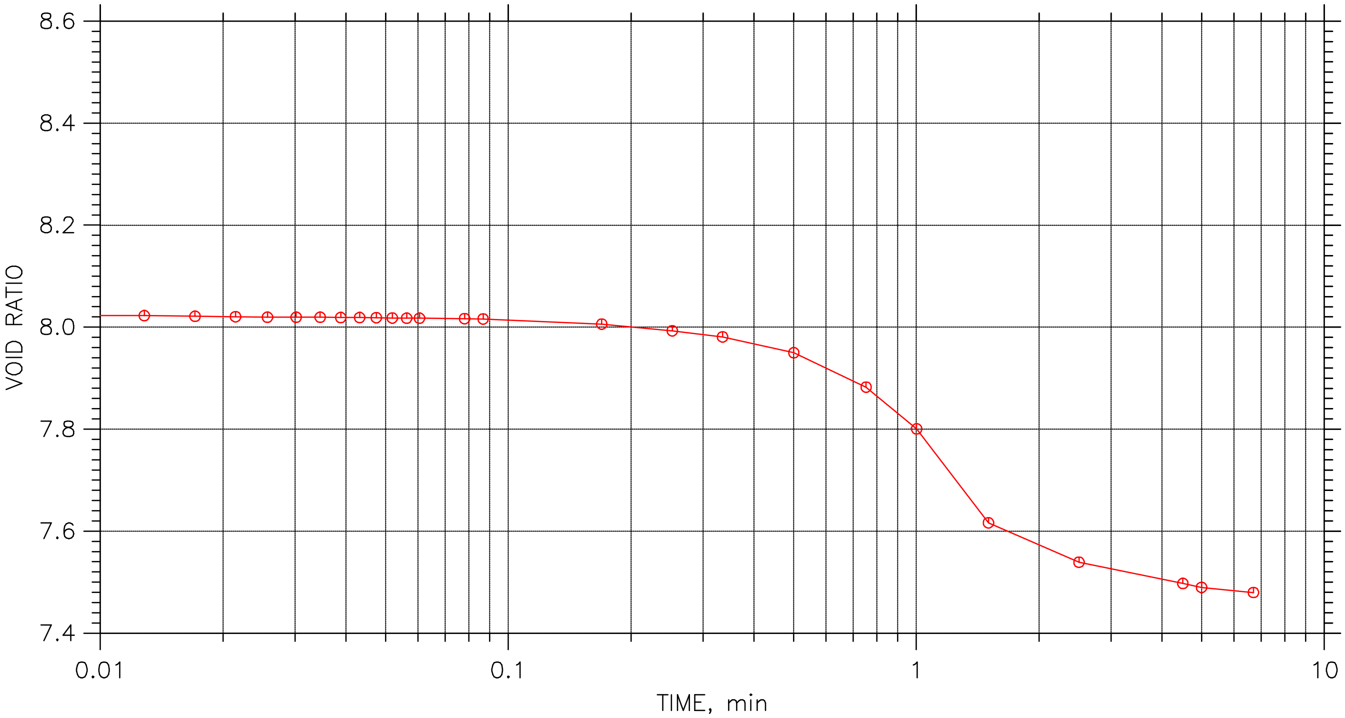
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

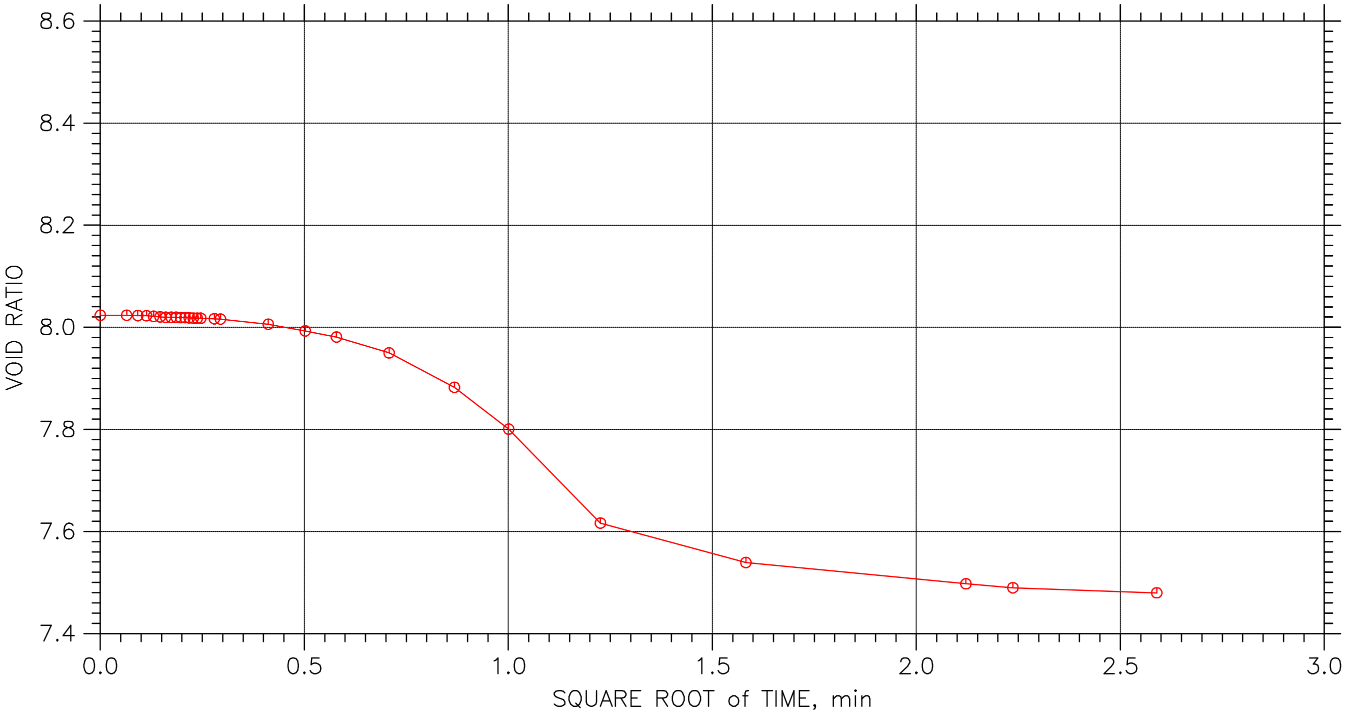
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

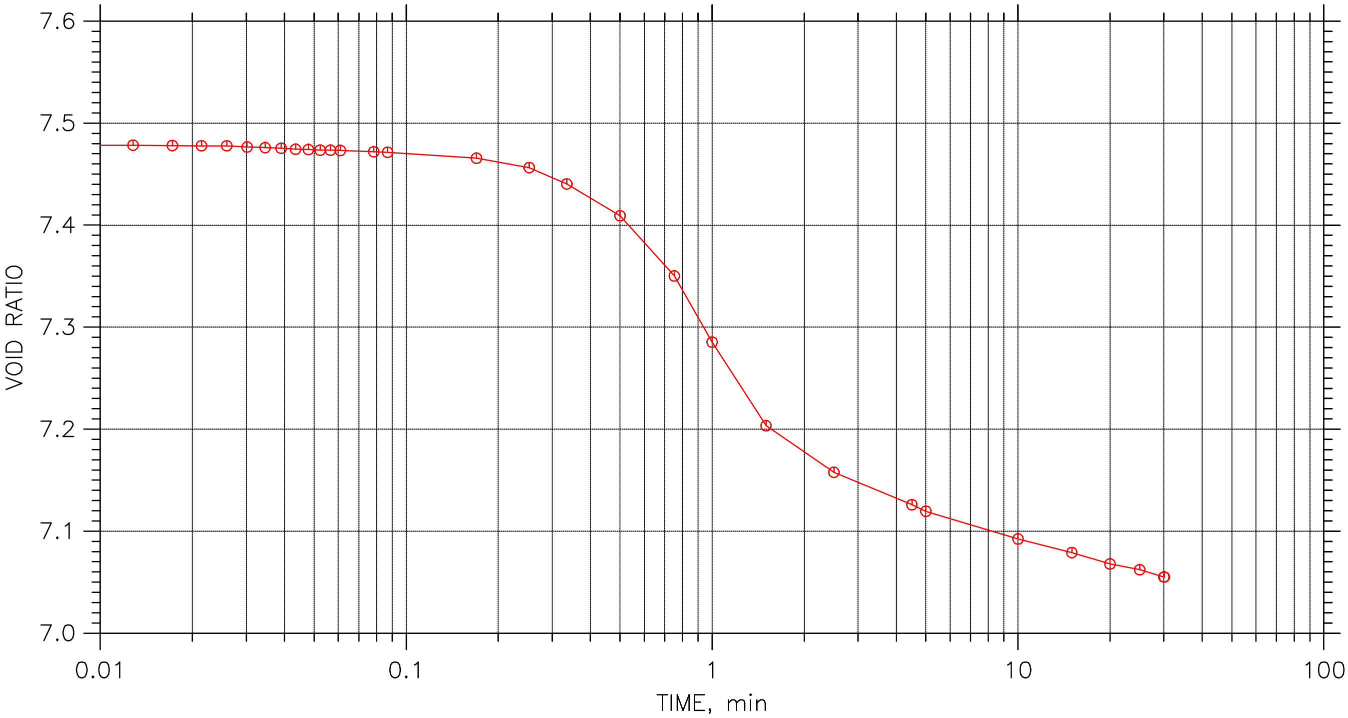
Reviewed by

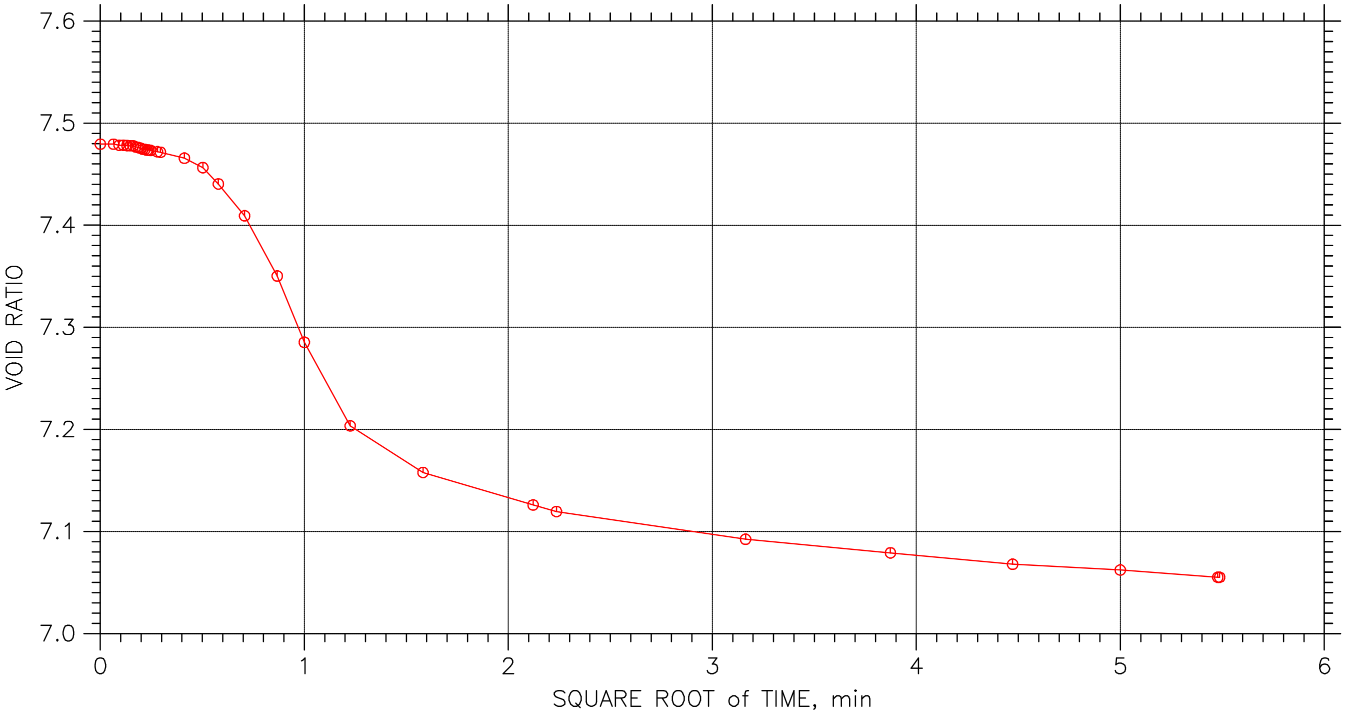
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

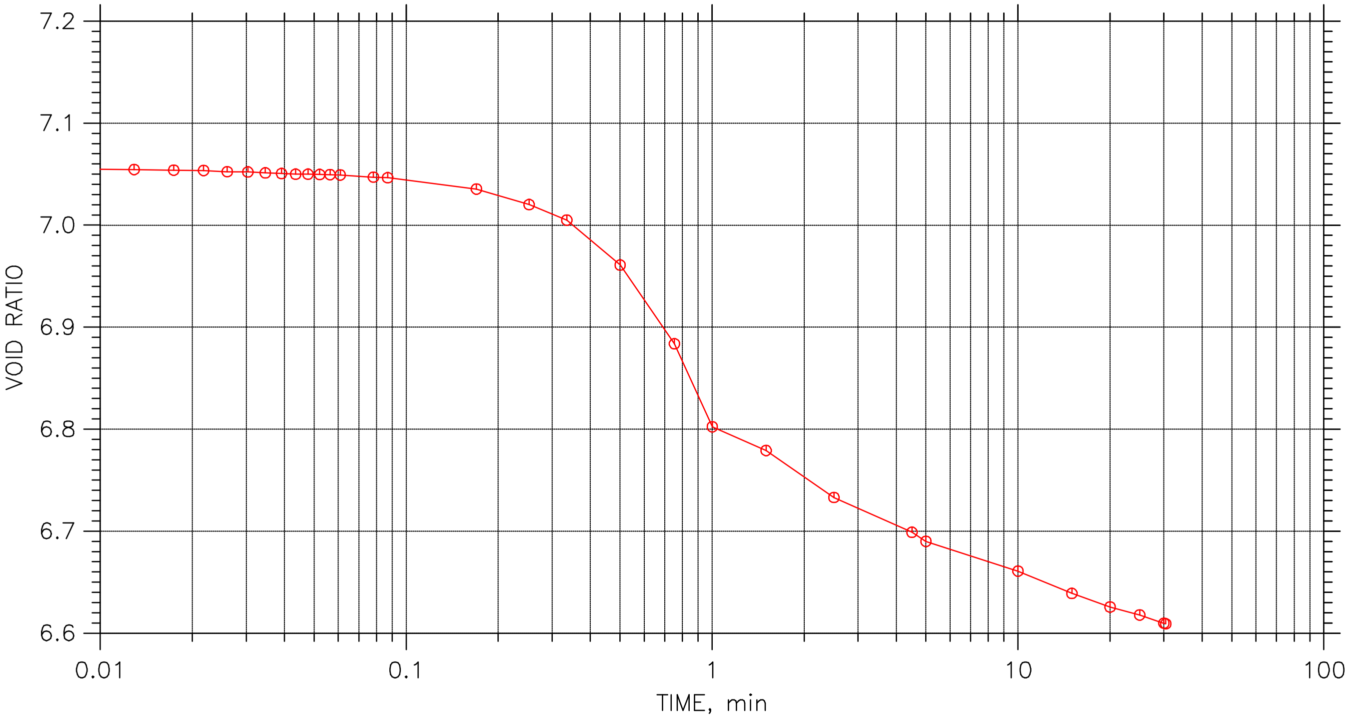
Remarks: ASTM D2487: PT Visual Classification: Peat

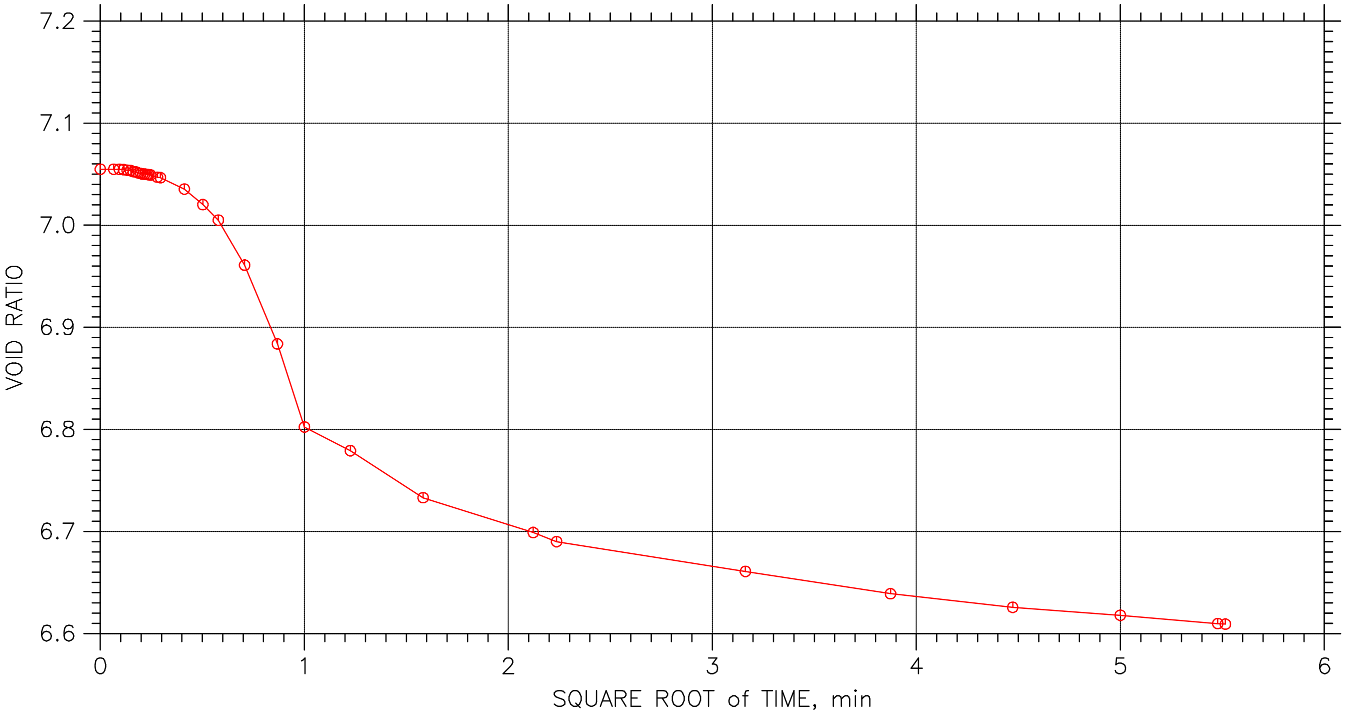
Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-01	Tested By: CZ	Checked By: MEK
	Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
	Depth: 3.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

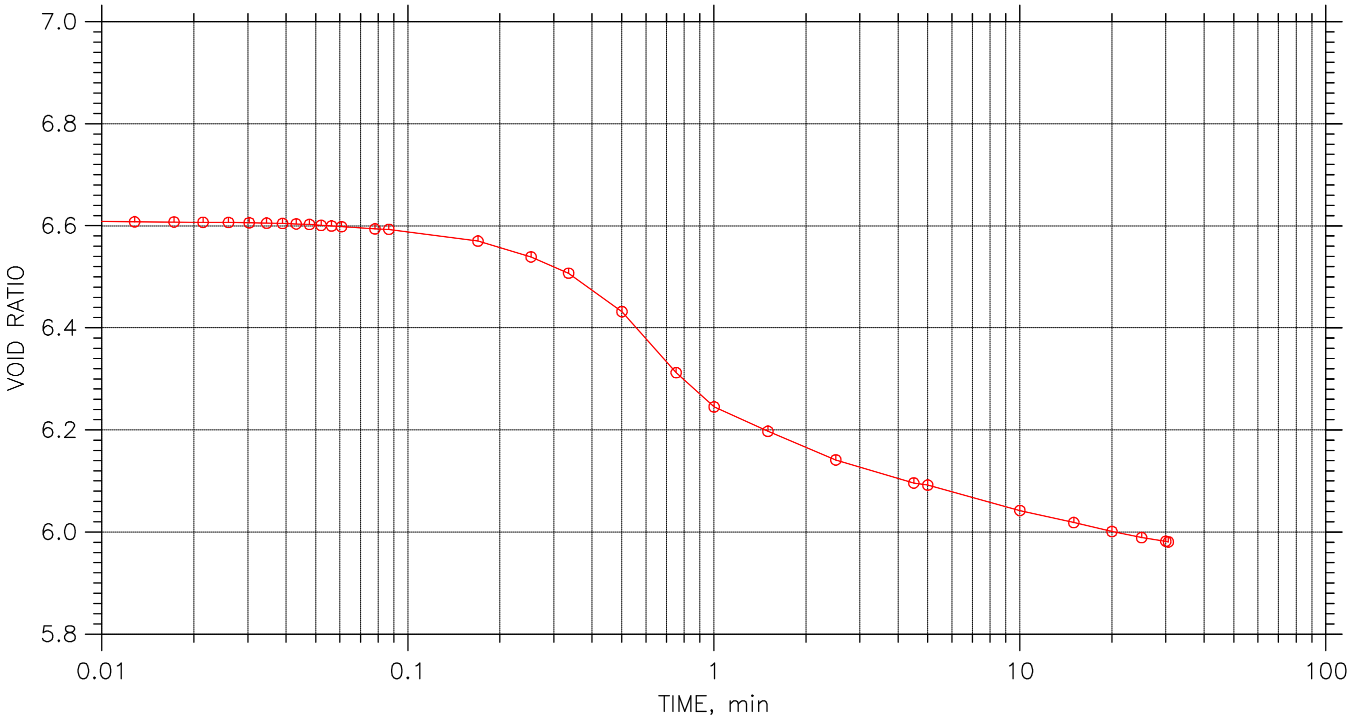
Tue, 26-APR-2022 10:09:42

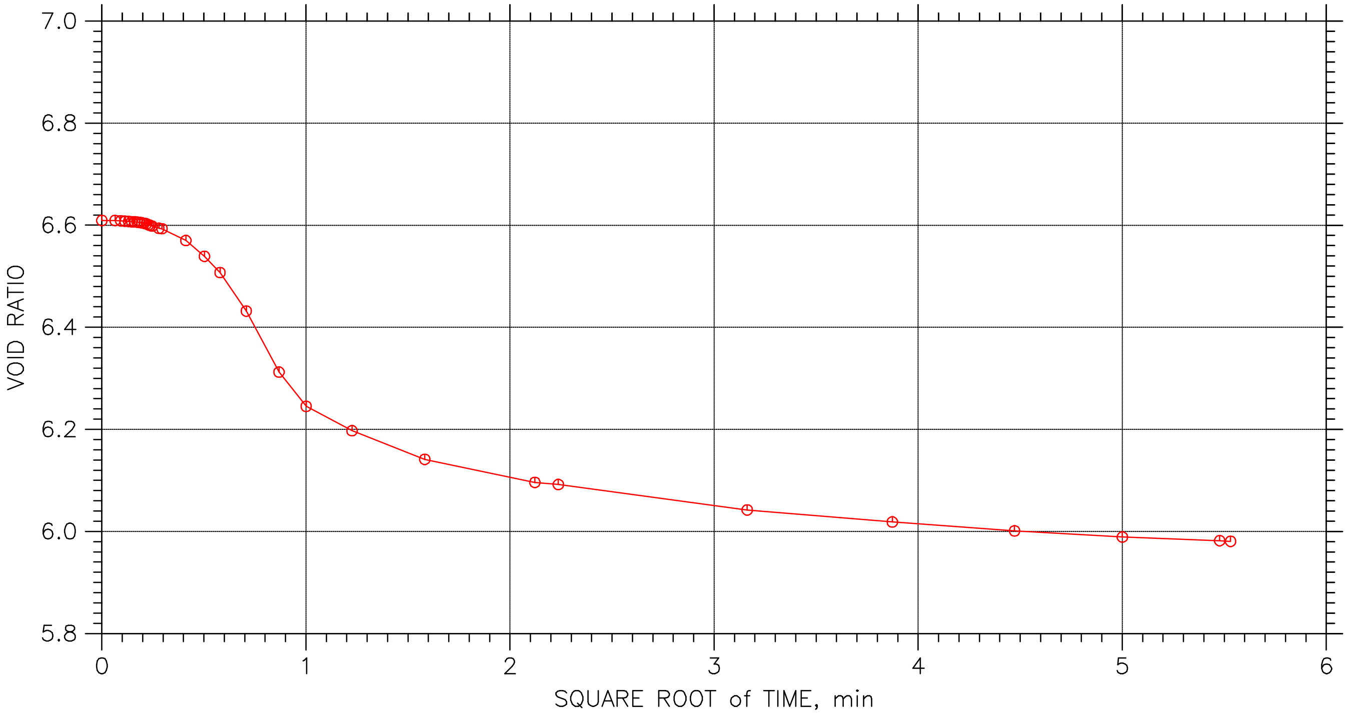
Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf





Alaska Testlab

Reviewed by

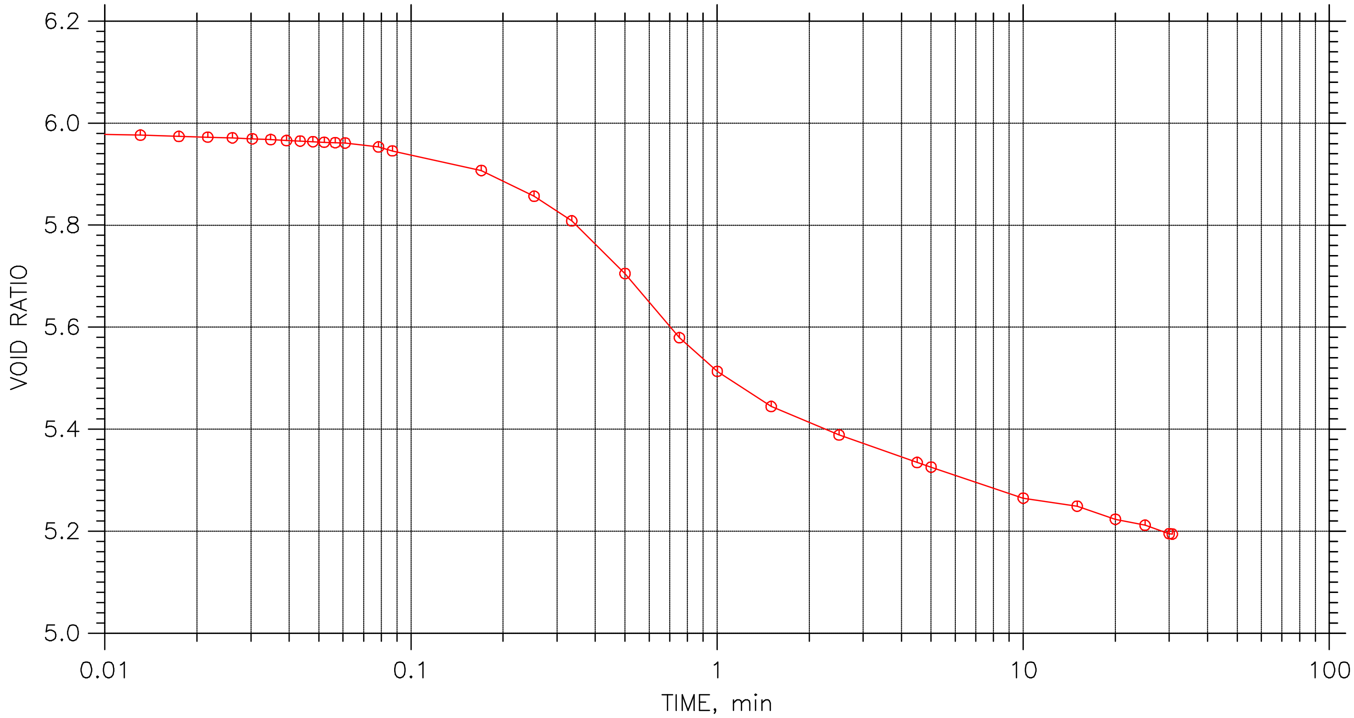
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

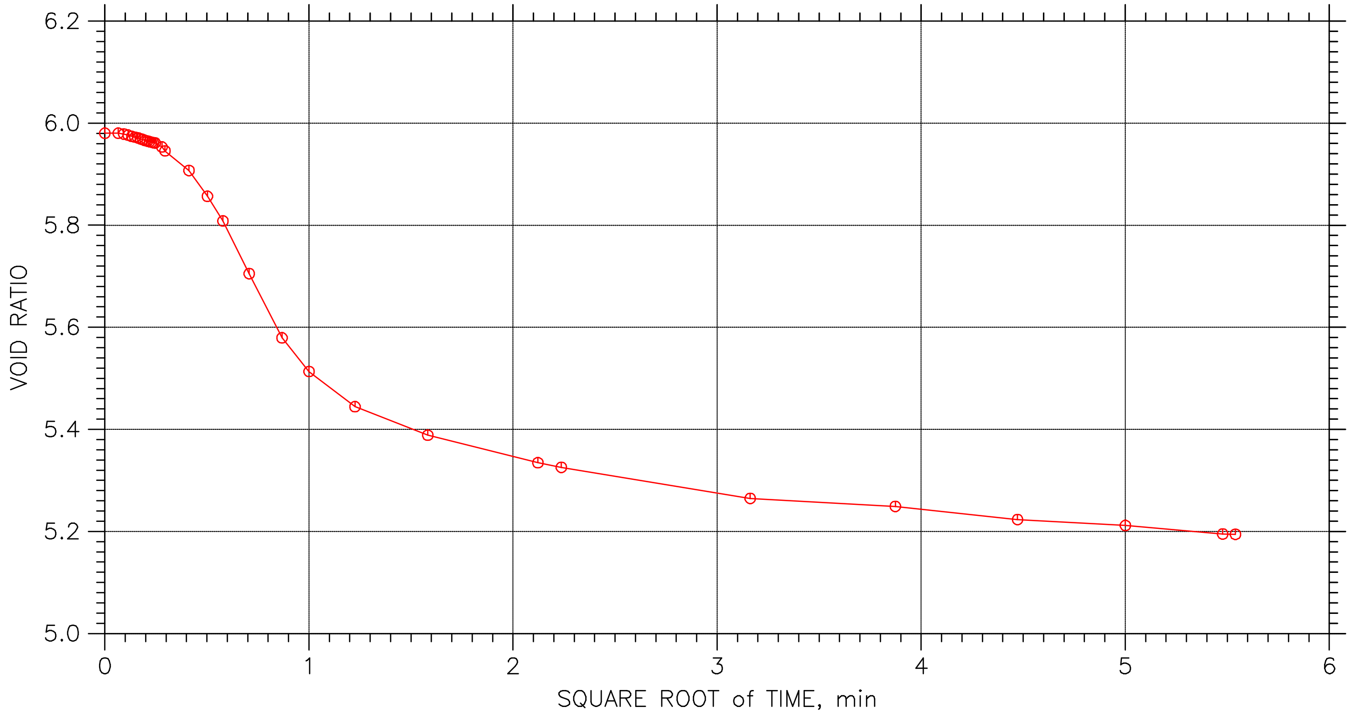
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

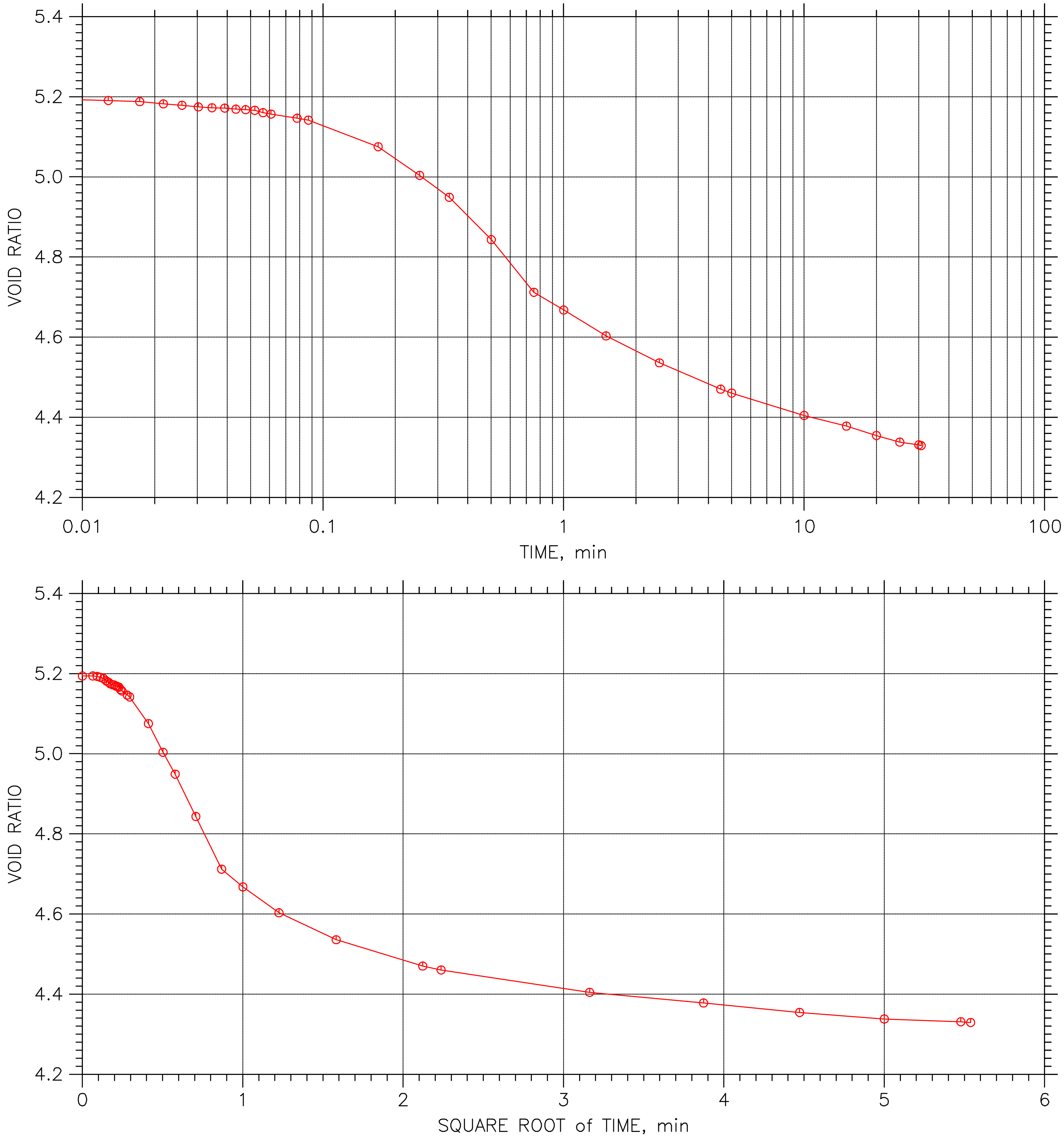
Reviewed by

Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf



ATL

Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

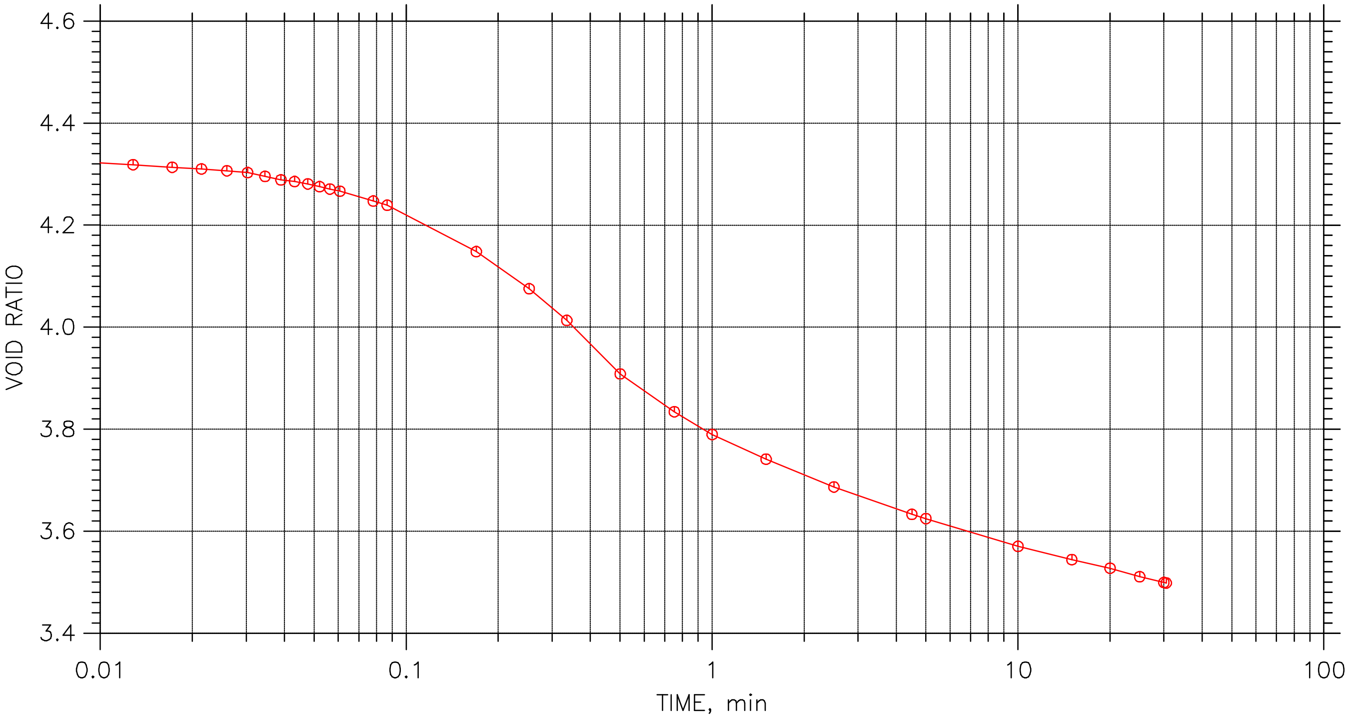
Tue, 26-APR-2022 10:09:45

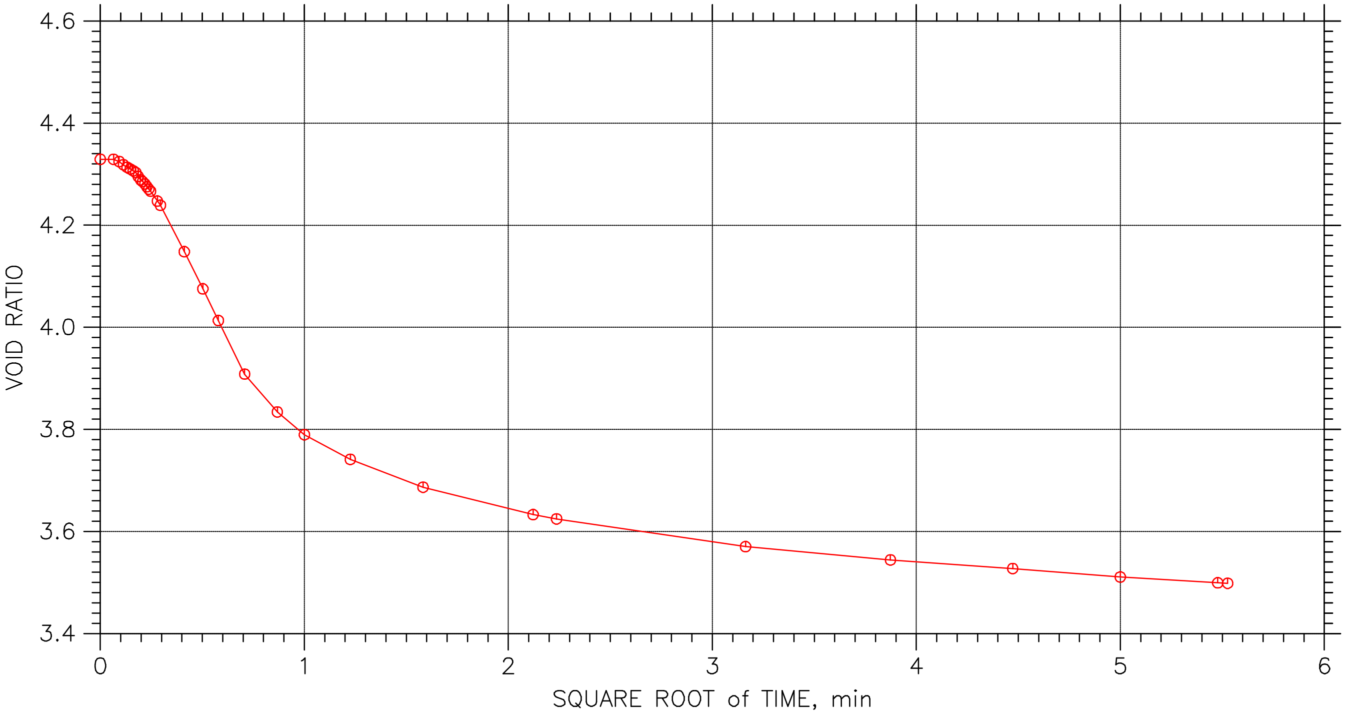
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





ATL Alaska Testlab

Reviewed by

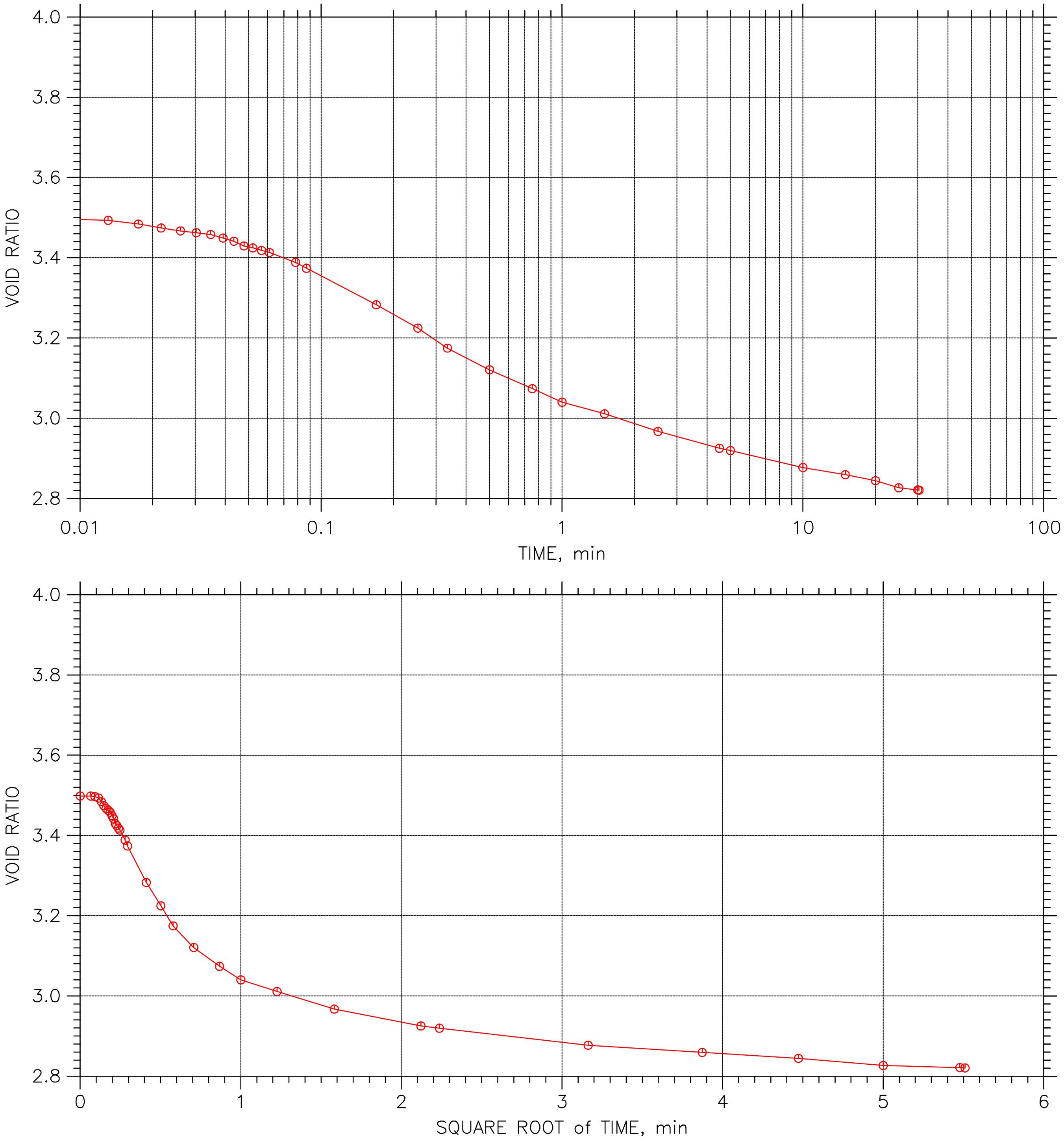
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf



Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

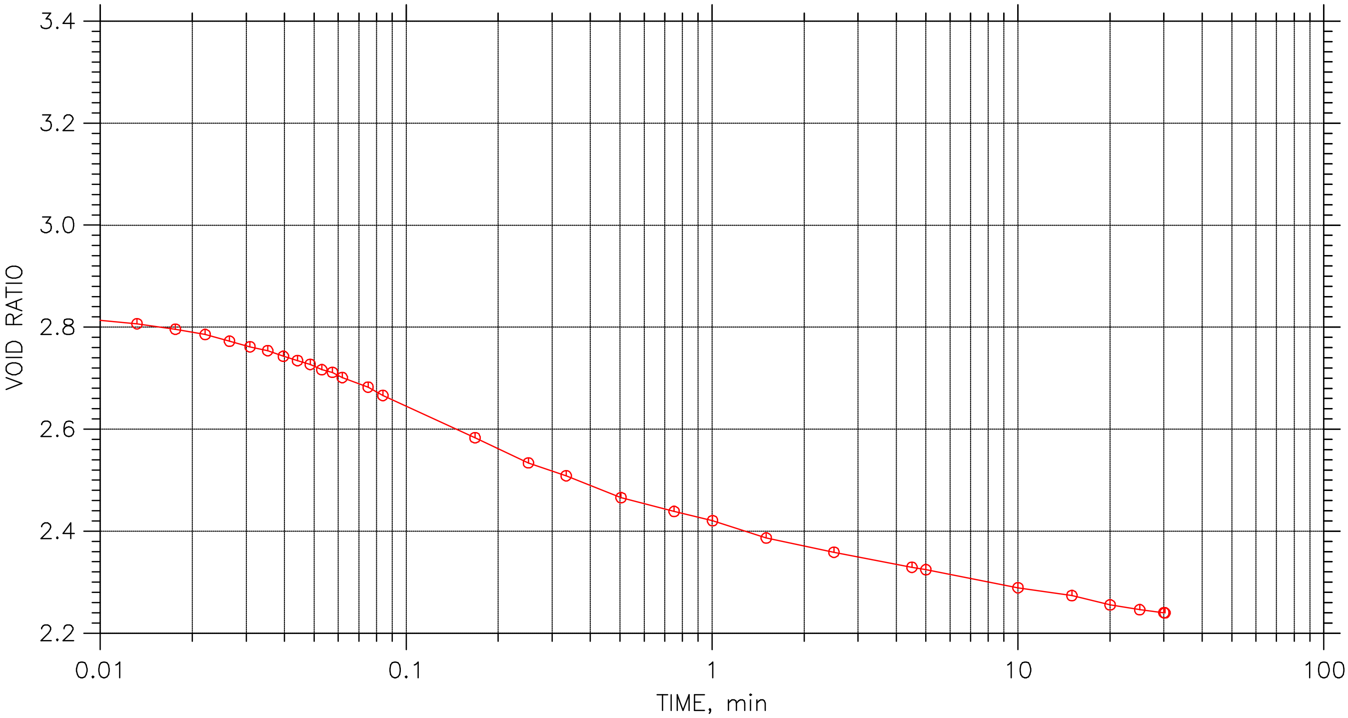
Tue, 26-APR-2022 10:09:48

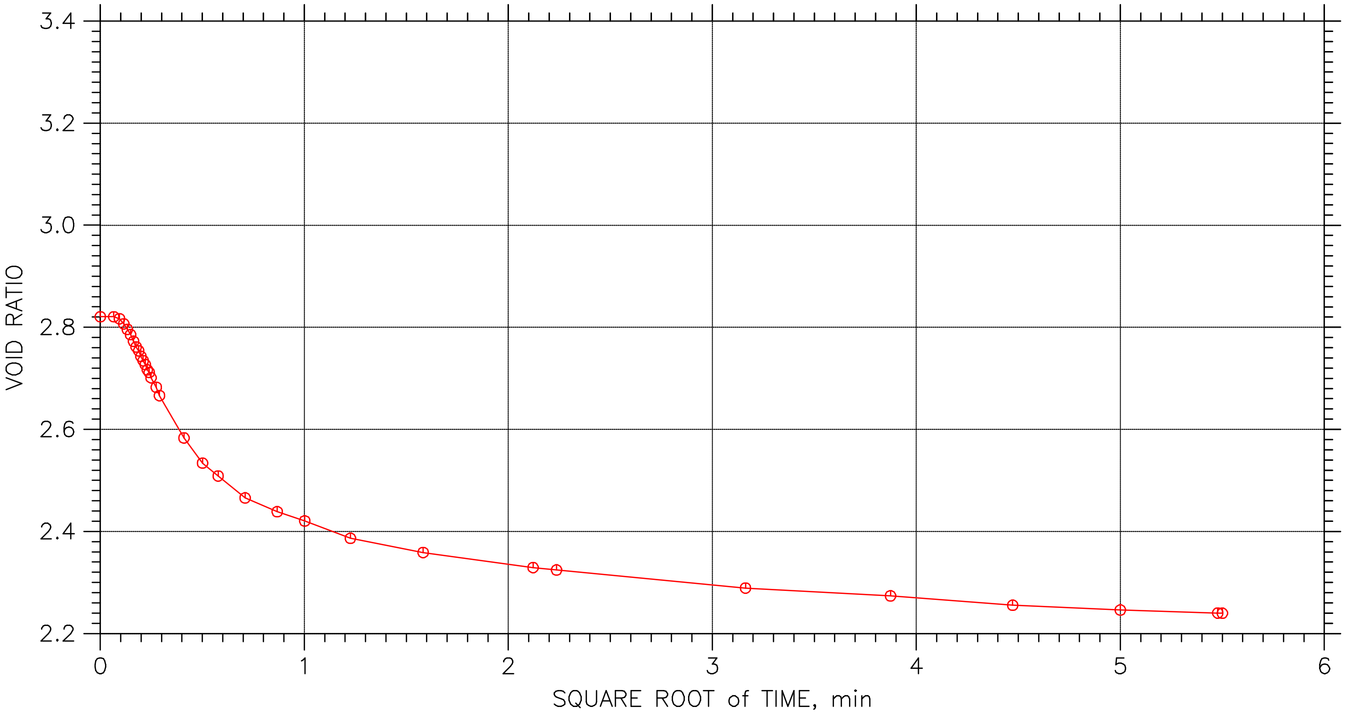
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-01	Tested By: CZ	Checked By: MEK
	Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
	Depth: 3.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

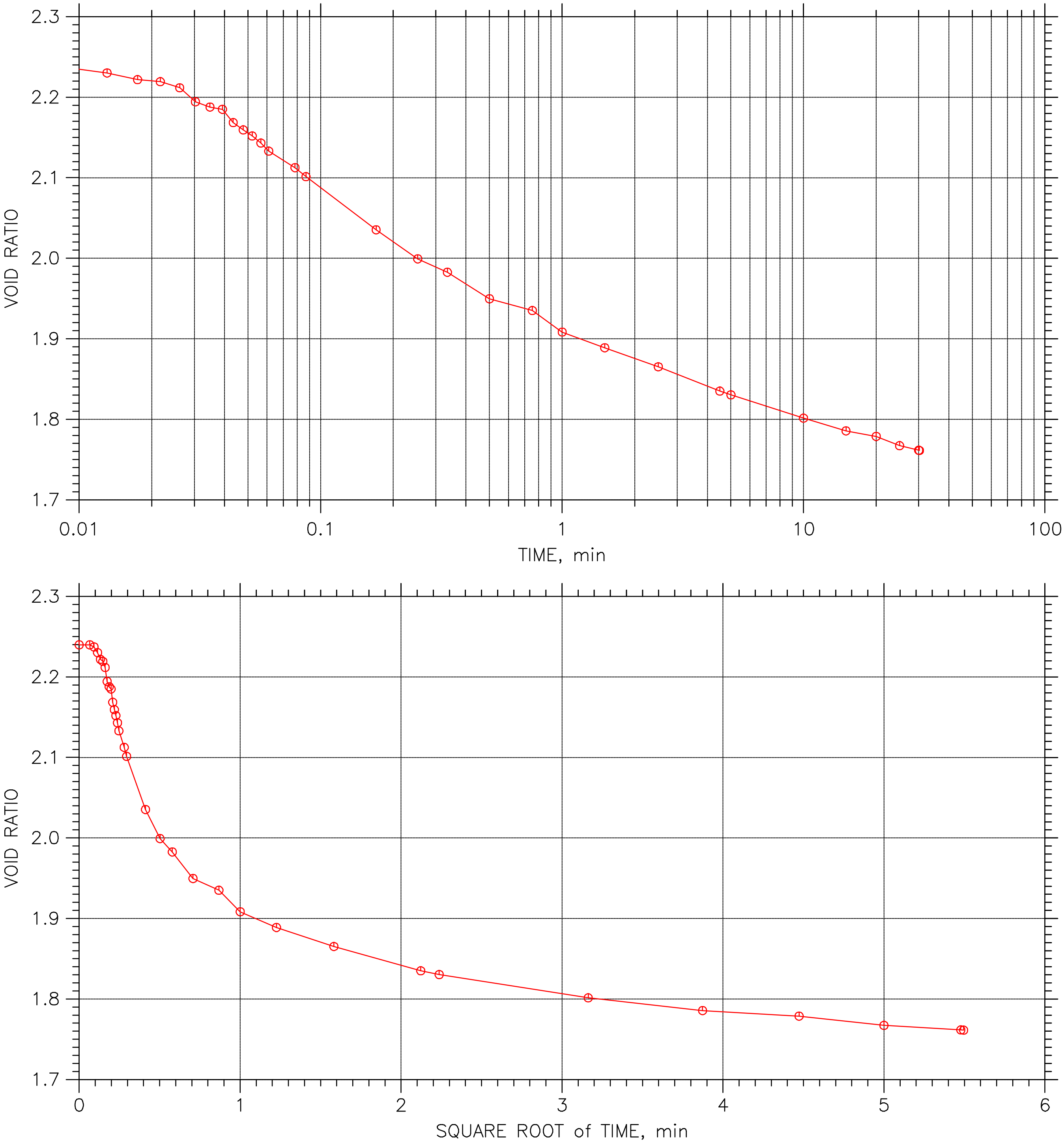
Tue, 26-APR-2022 10:09:49

Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf



Alaska Testlab

Reviewed by

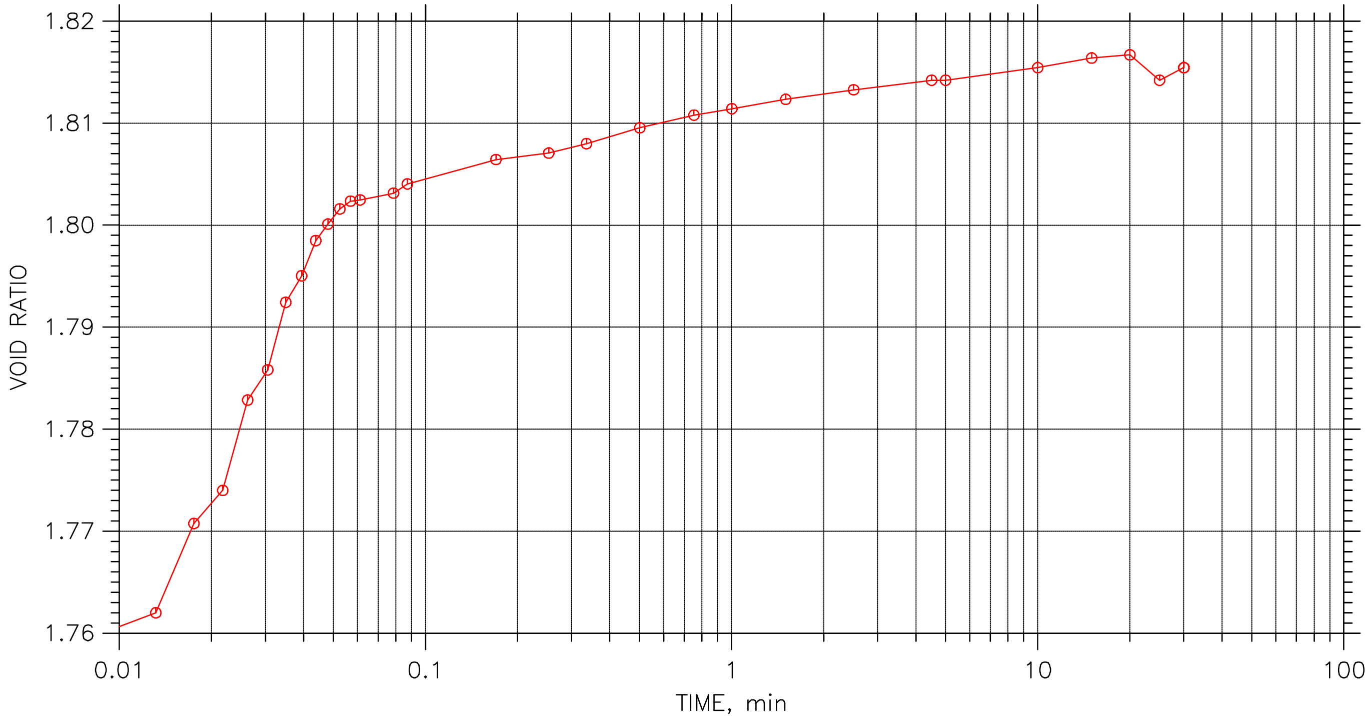
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

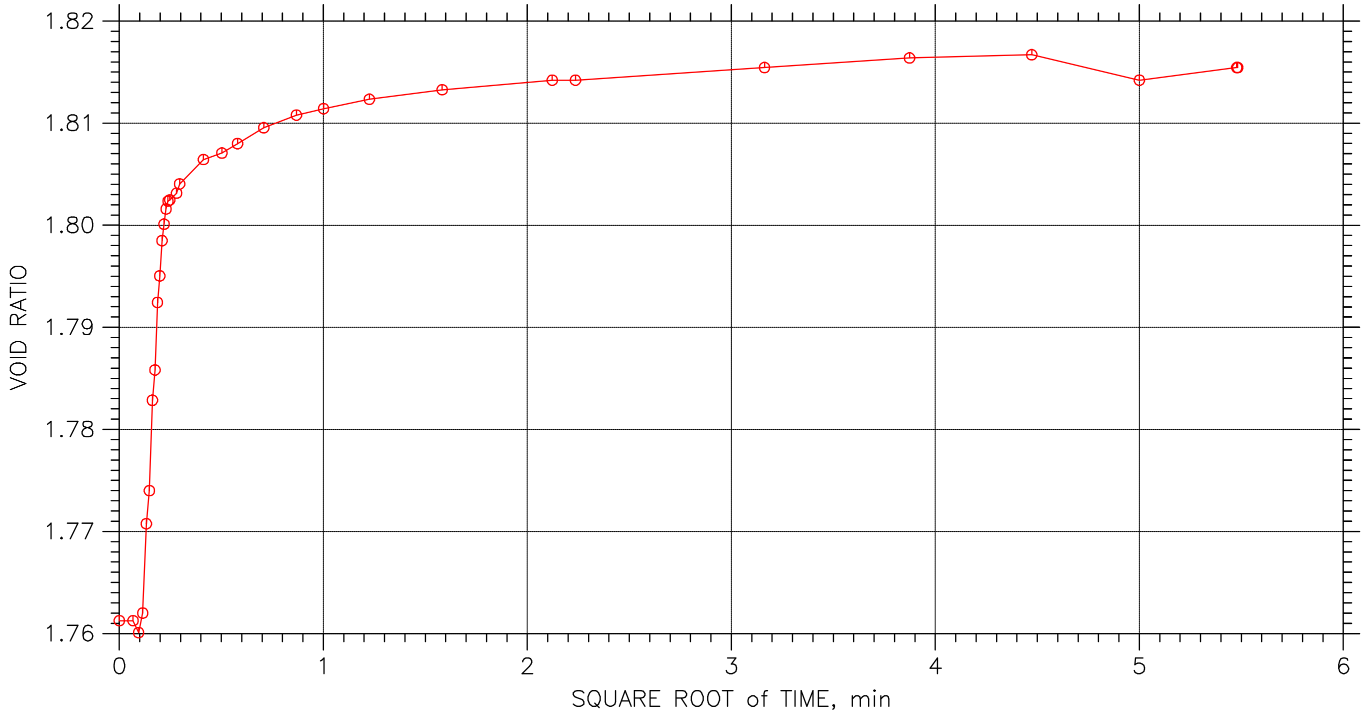
Consolidation Test

TIME CURVES

Constant Load Step 11 of 19

Stress: 32000 psf





Alaska Testlab

Reviewed by

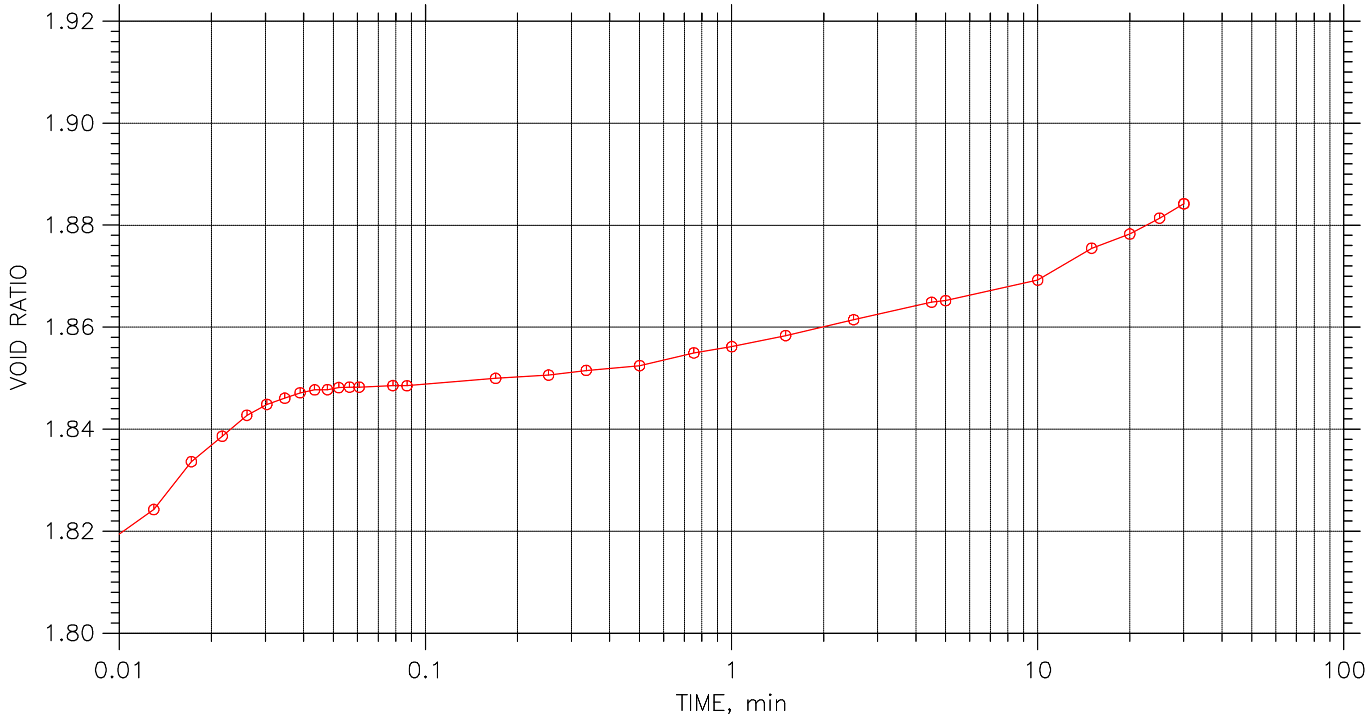
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

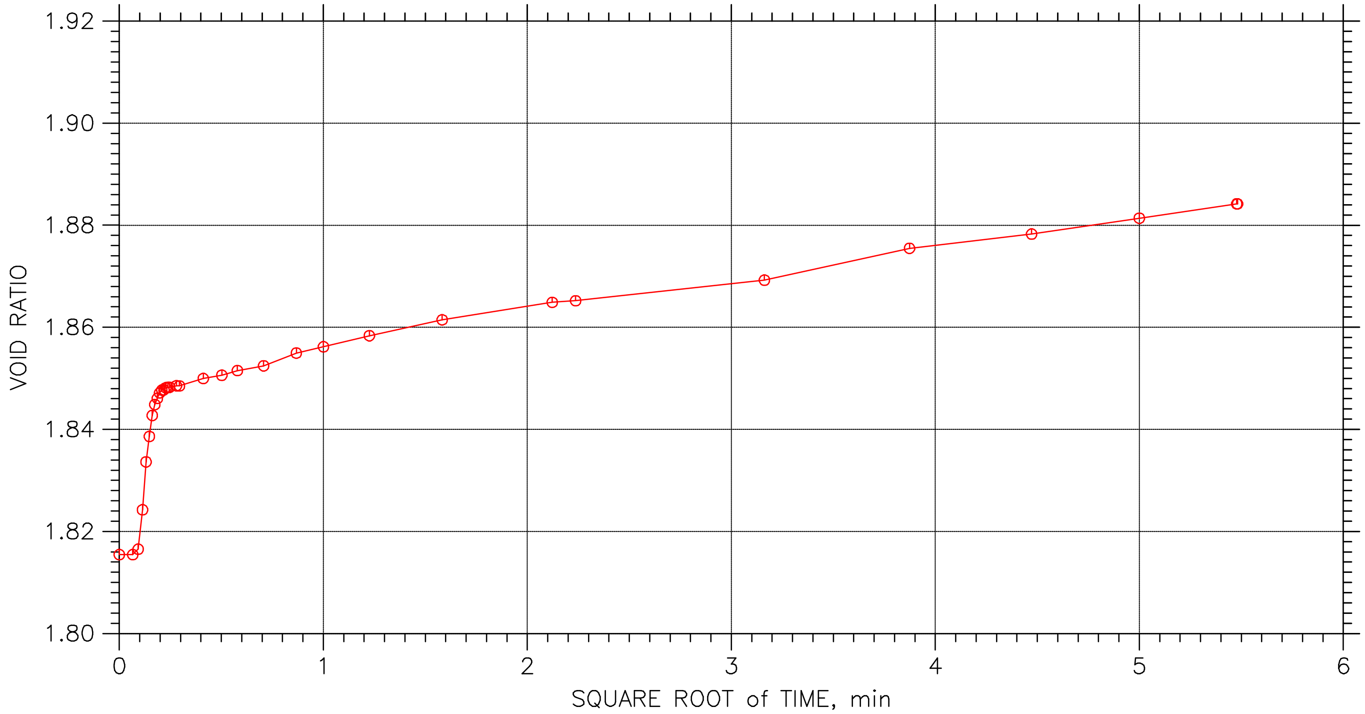
Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf





Alaska Testlab

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

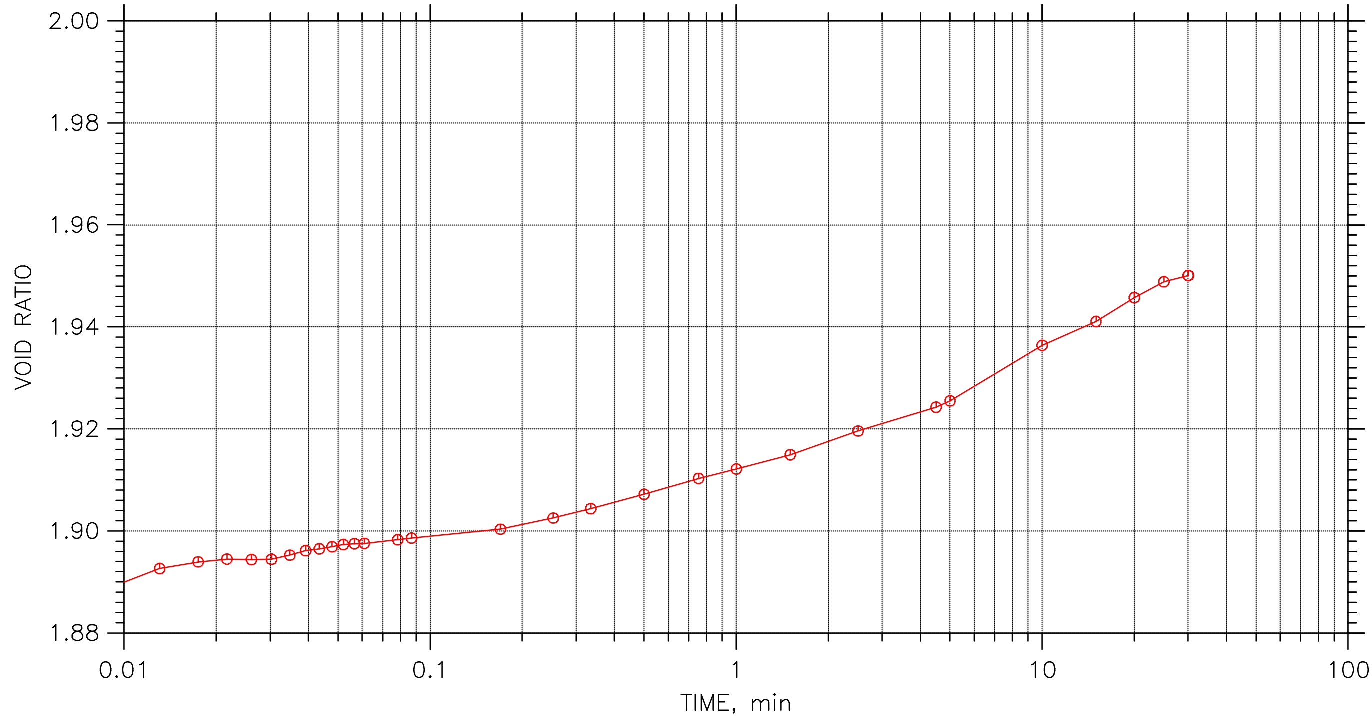
Tue, 26-APR-2022 10:09:52

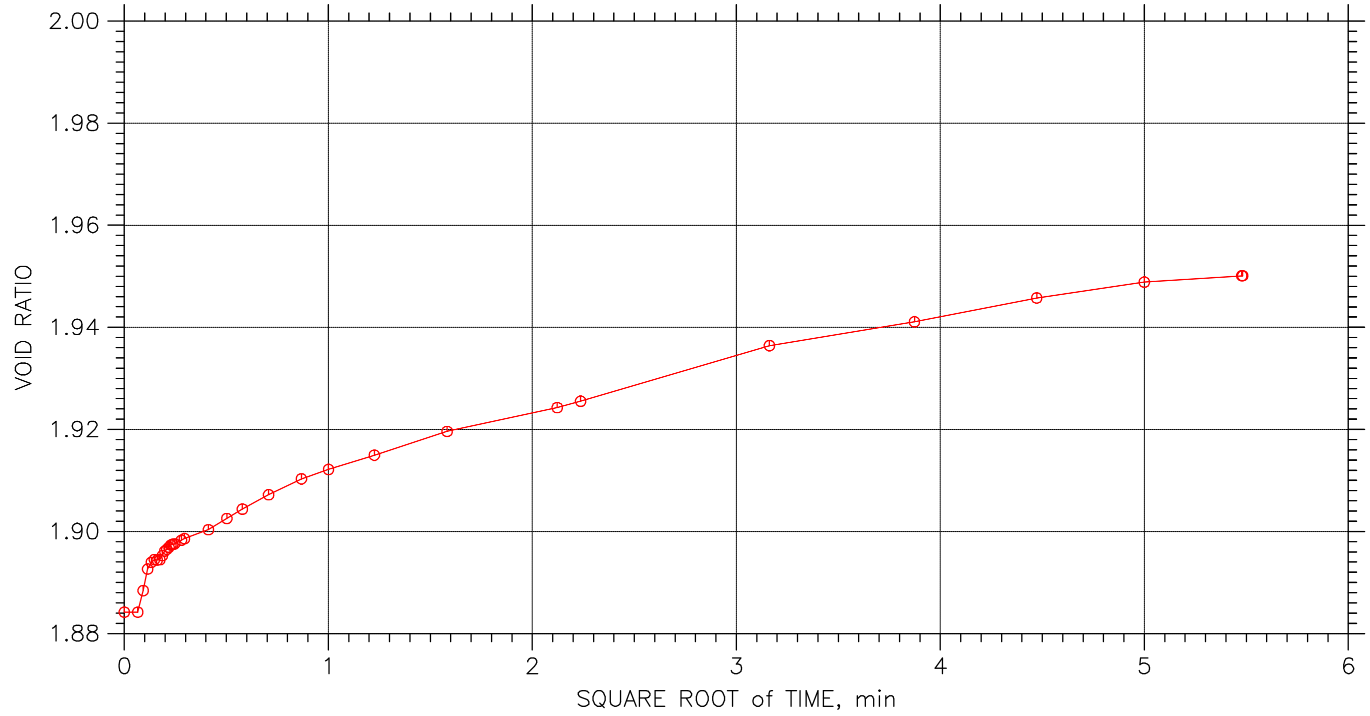
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





Alaska Testlab

Reviewed by

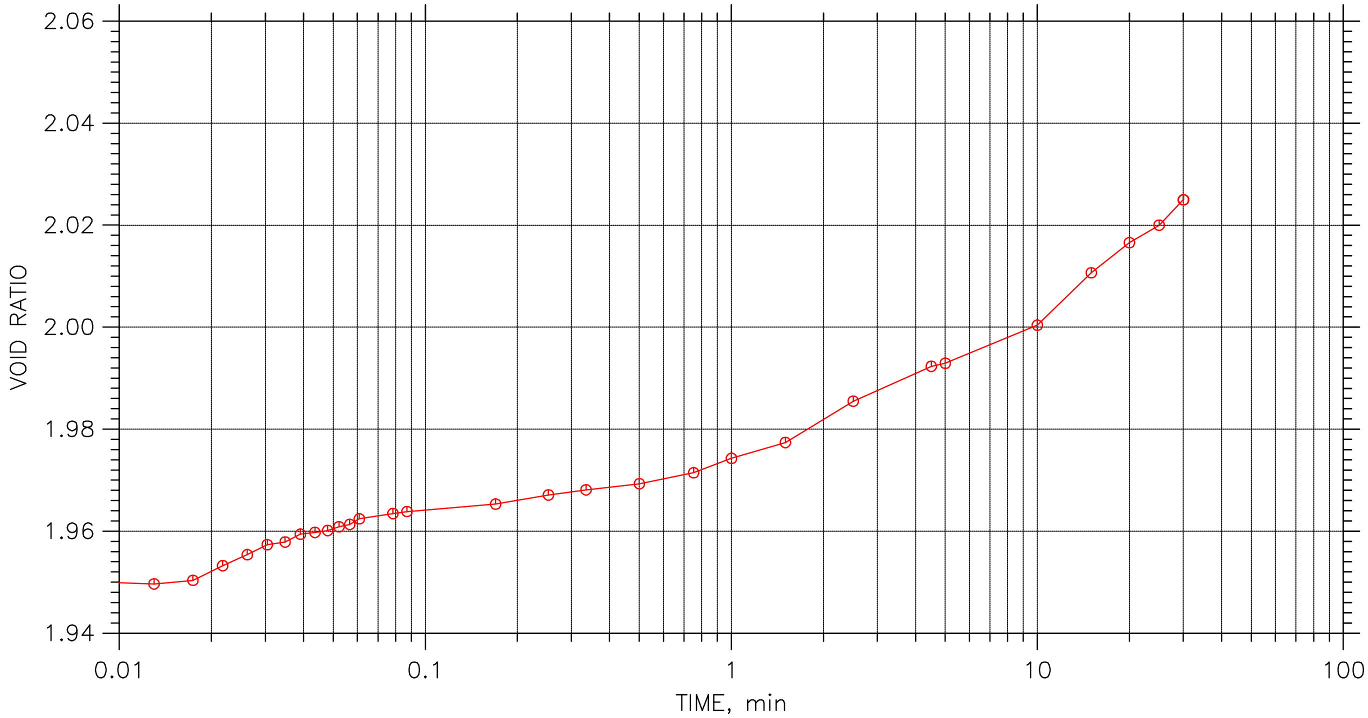
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

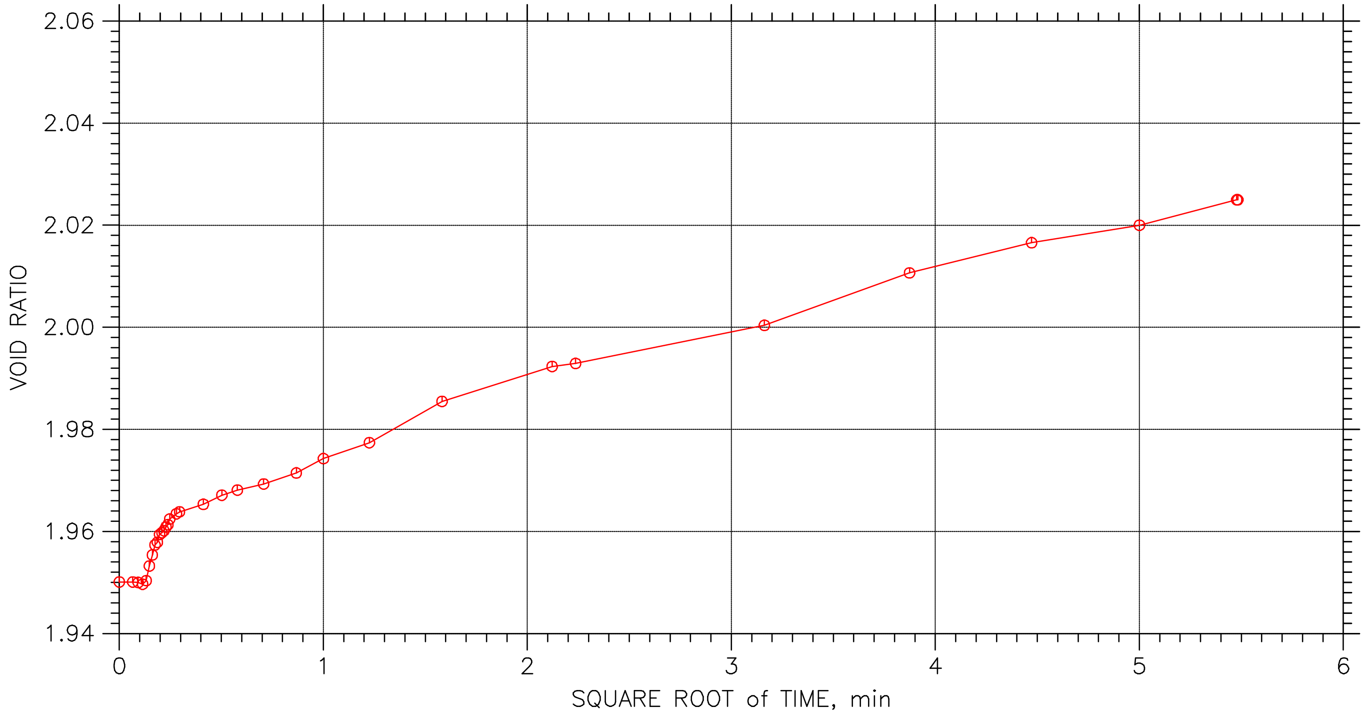
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

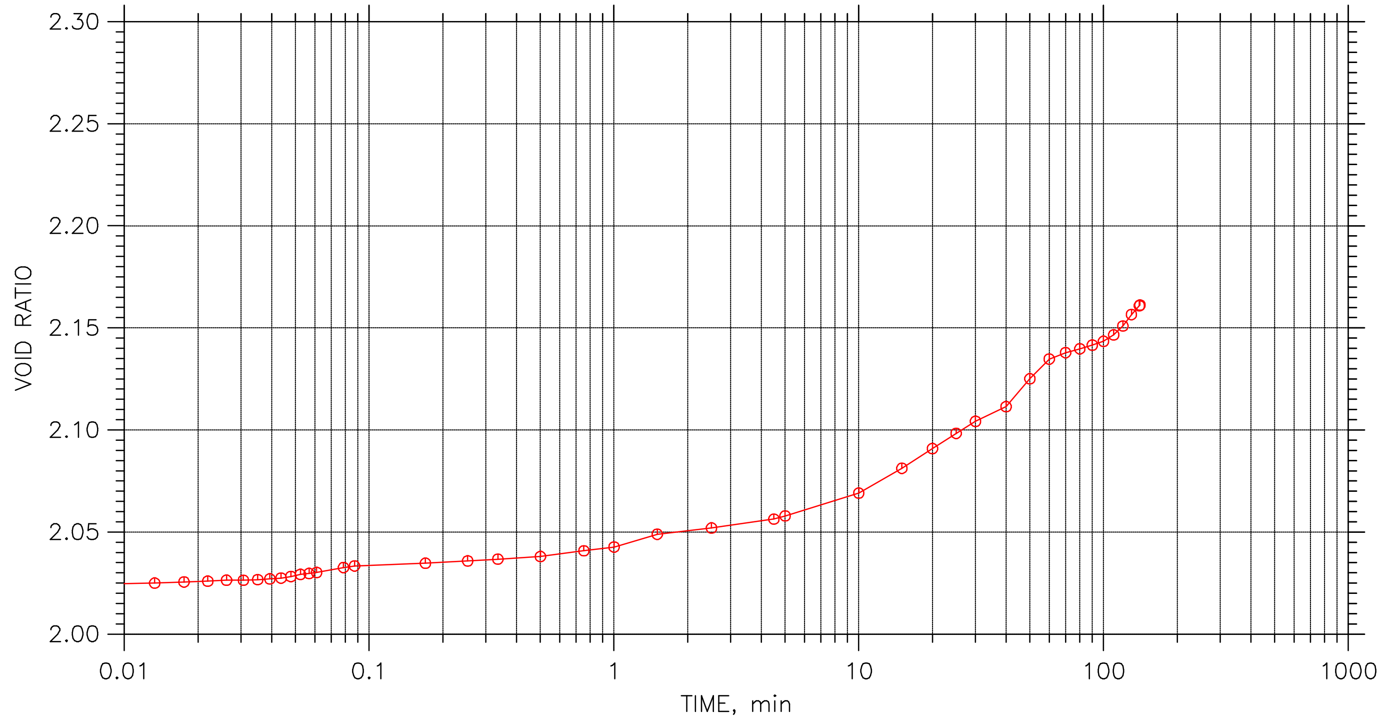
Tue, 26-APR-2022 10:09:54

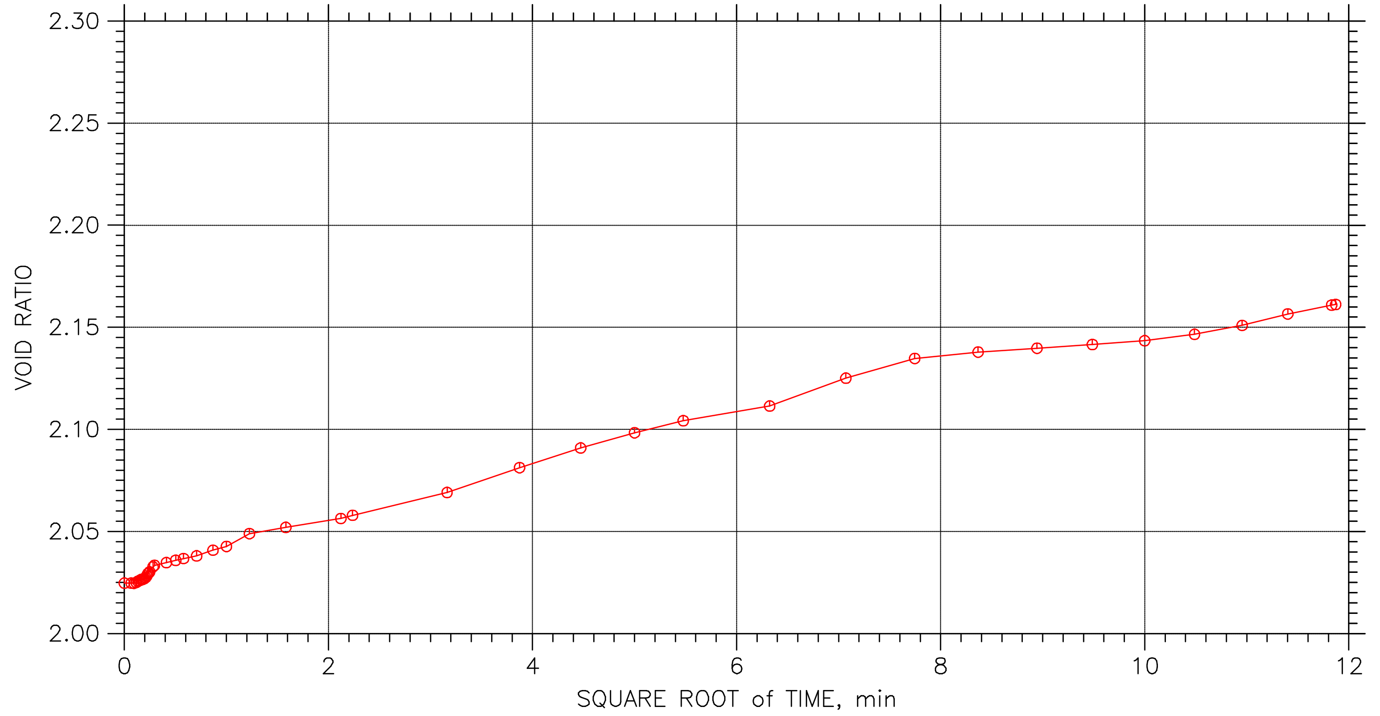
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





ATL Alaska Testlab

Reviewed by

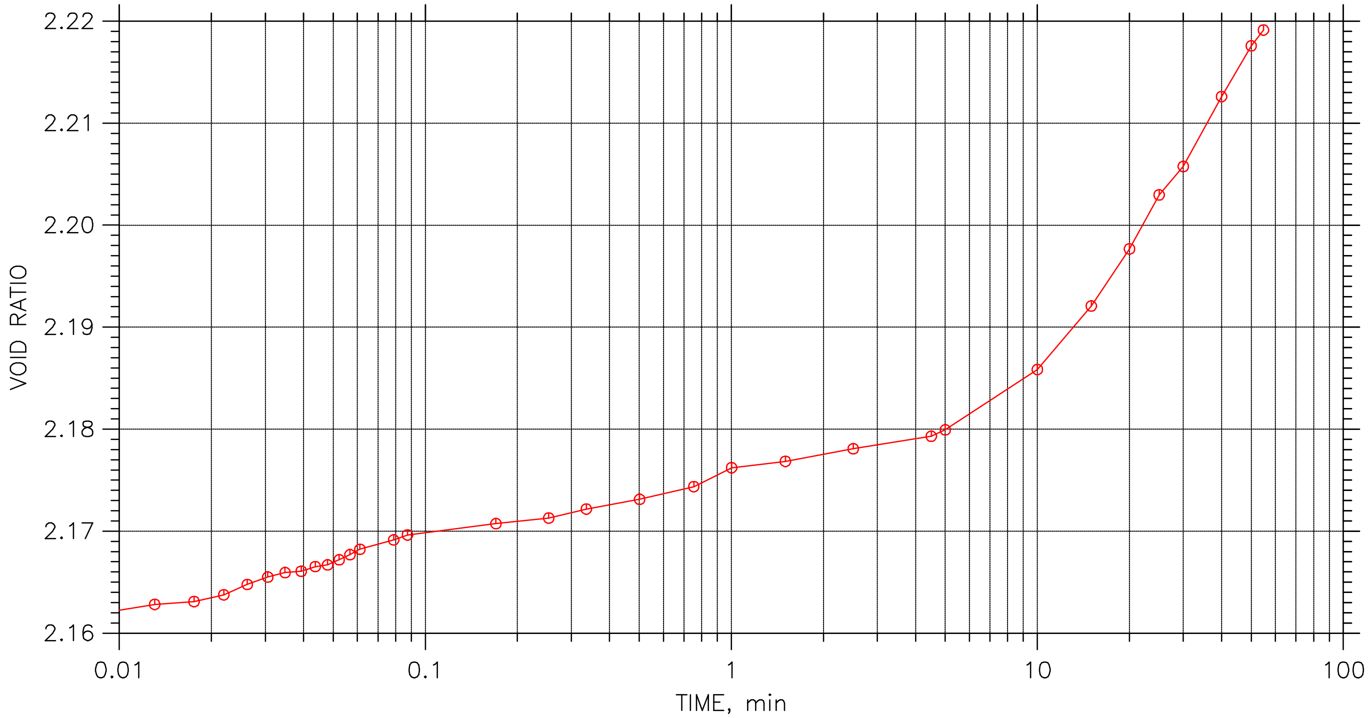
Project: FedEx BOG
Location: Anchorage, AK
Project No.: 220484
Boring No.: BH-01
Tested By: CZ
Checked By: MEK
Sample No.: S2B
Test Date: 4/2/2022
Test No.: 2
Depth: 3.0
Sample Type: Shelby
Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)
Remarks: ASTM D2487: PT Visual Classification: Peat

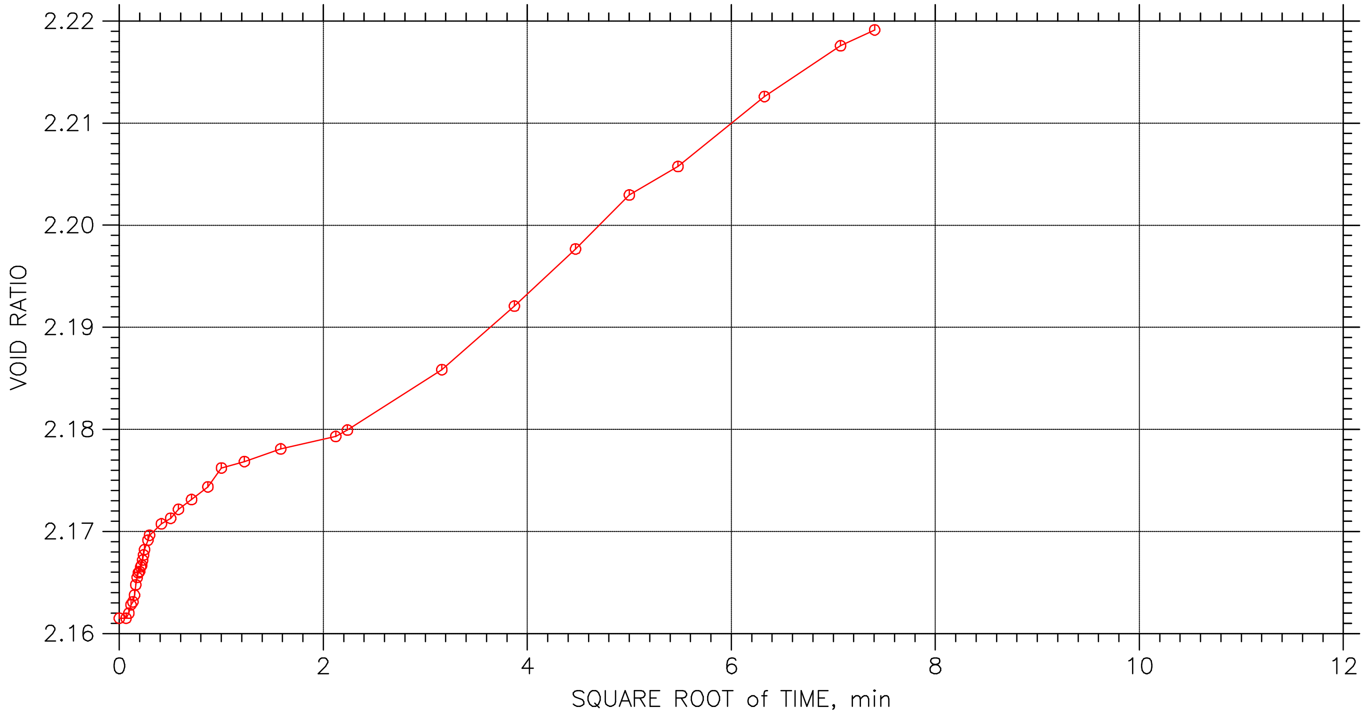
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

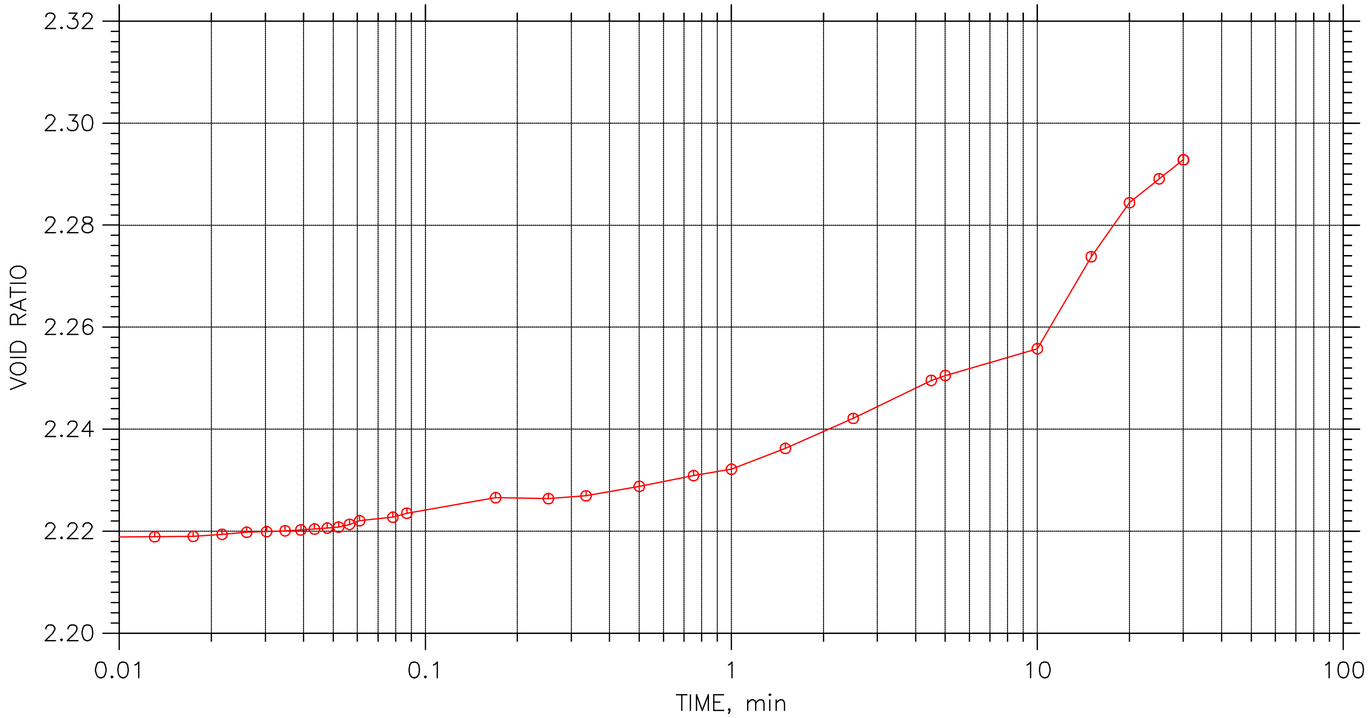
Reviewed by

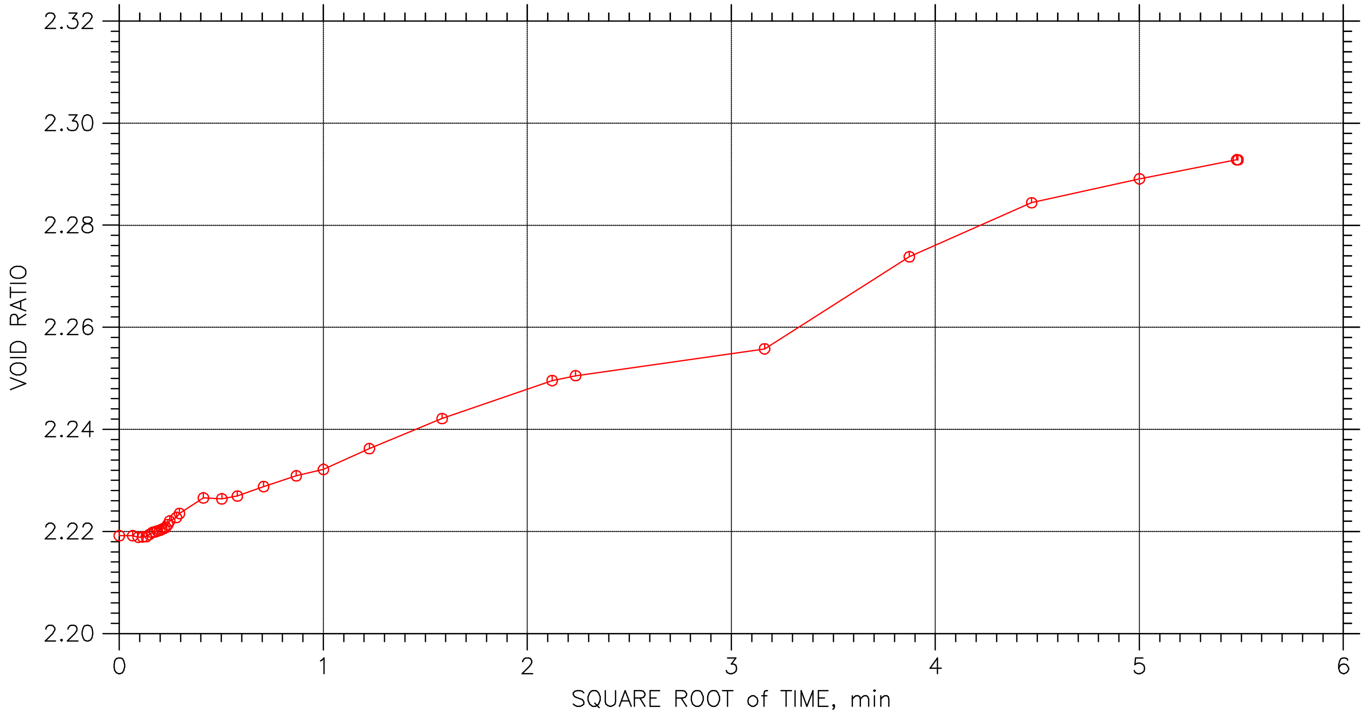
Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

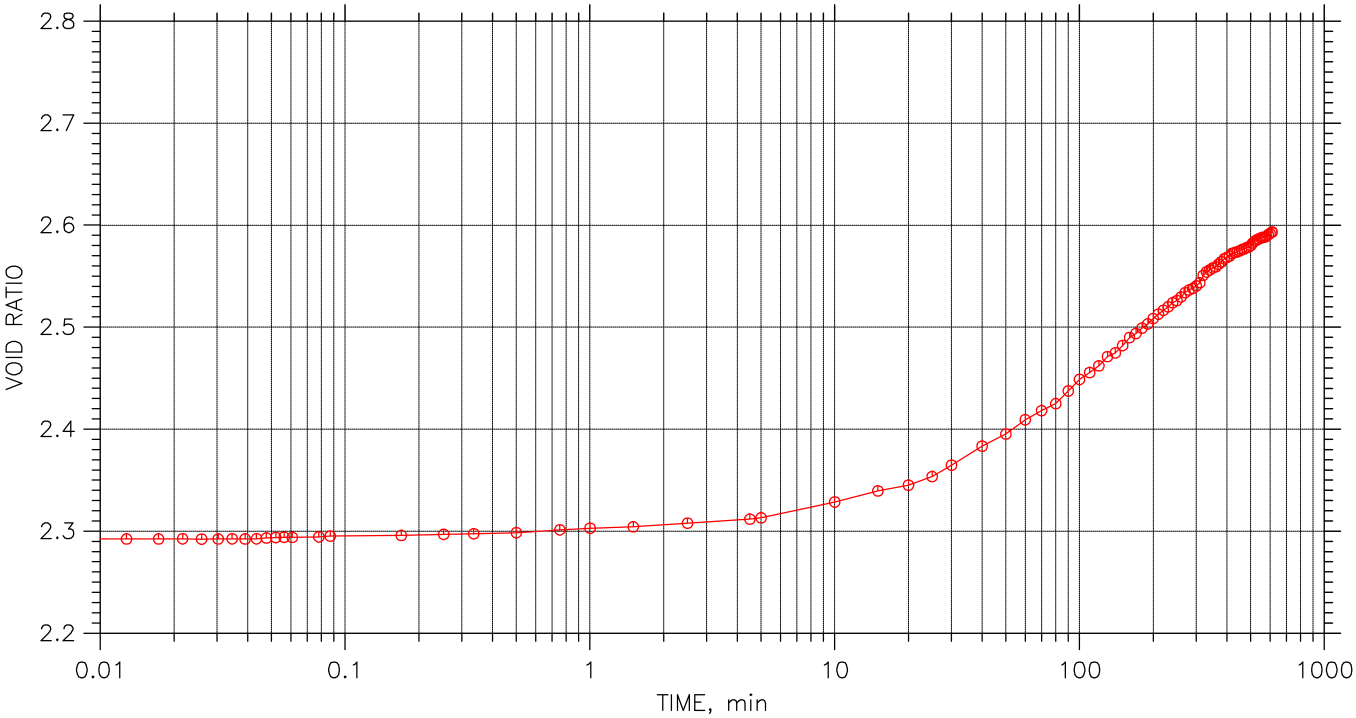
Tue, 26-APR-2022 10:09:58

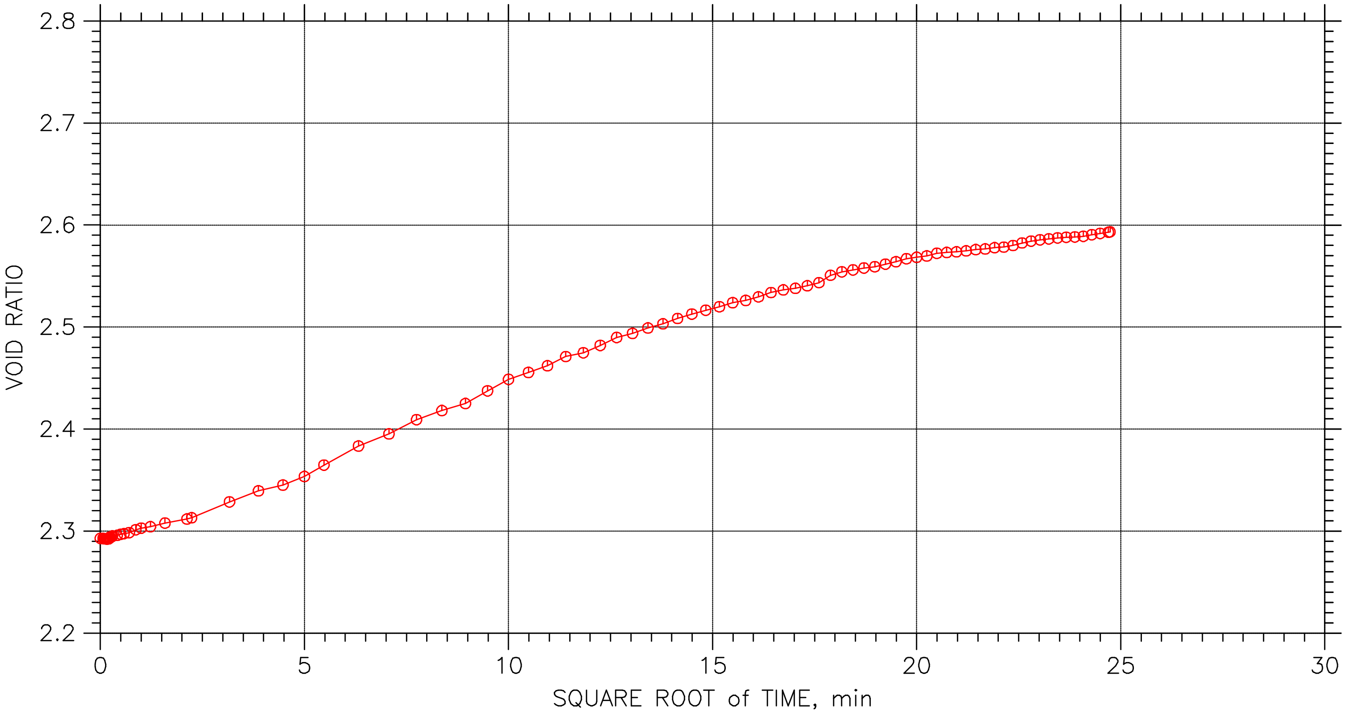
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





Alaska Testlab

Reviewed by

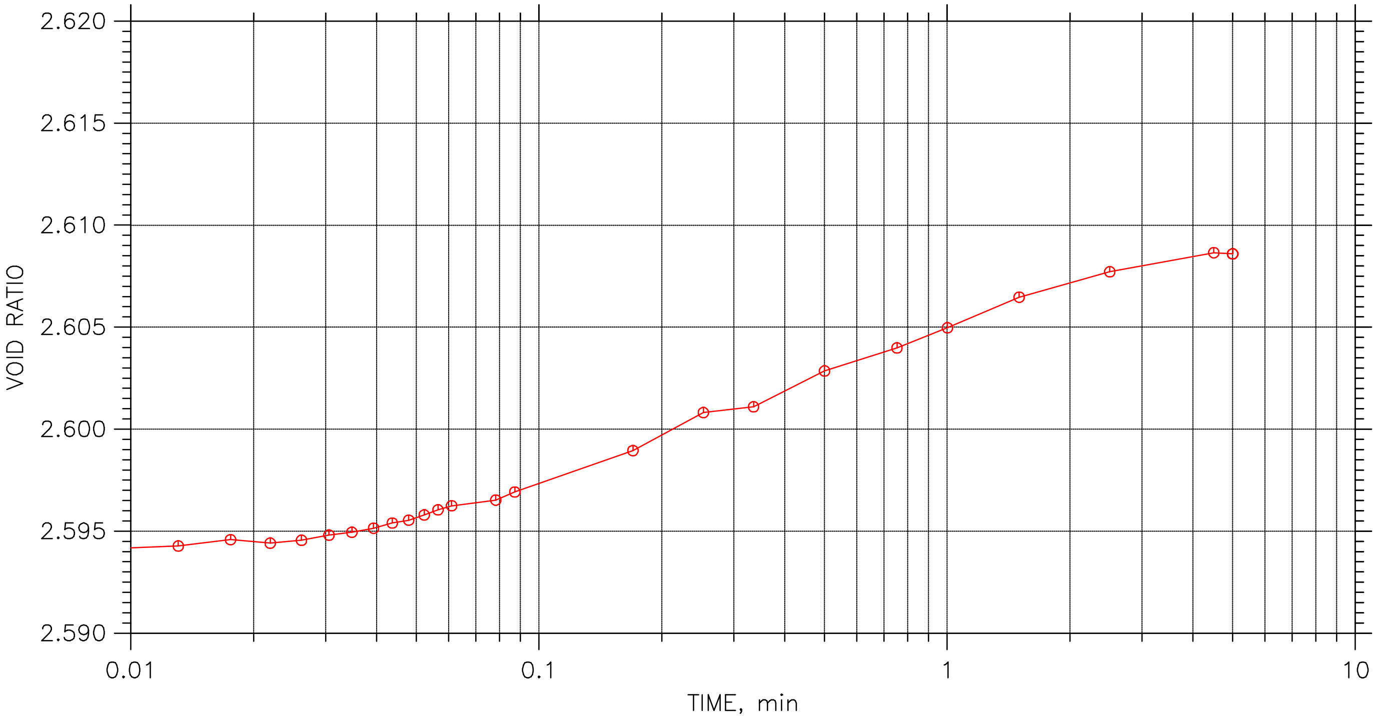
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

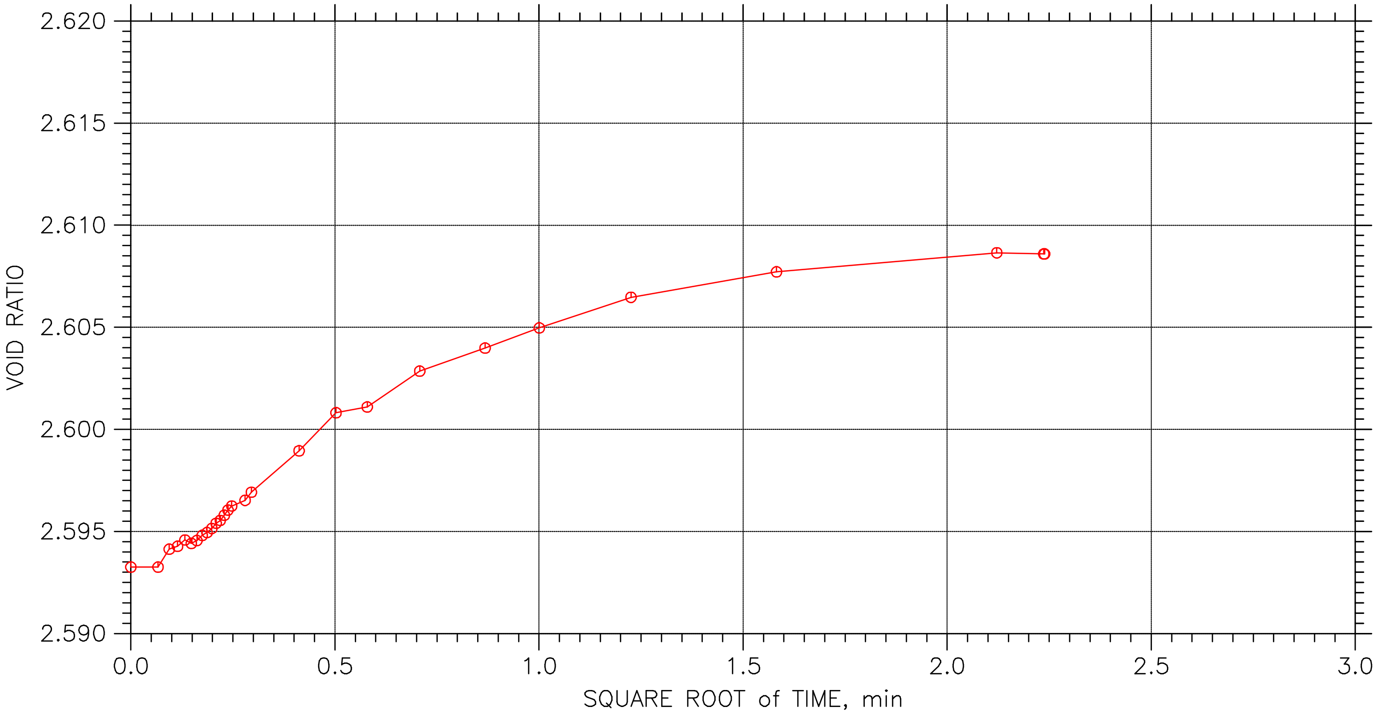
Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-01	Tested By: CZ	Checked By: MEK
Sample No.: S2B	Test Date: 4/2/2022	Test No.: 2
Depth: 3.0	Sample Type: Shelby	Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

Remarks: ASTM D2487: PT Visual Classification: Peat

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

73138.00

Date Received:	March 21, 2022
Sample #:	22-0250-S03 and S04
Material:	BH-01 Sa2B

Sample after extraction

External Test Report

Report No: EXT:22-0250-S04-1
Issue No: 2

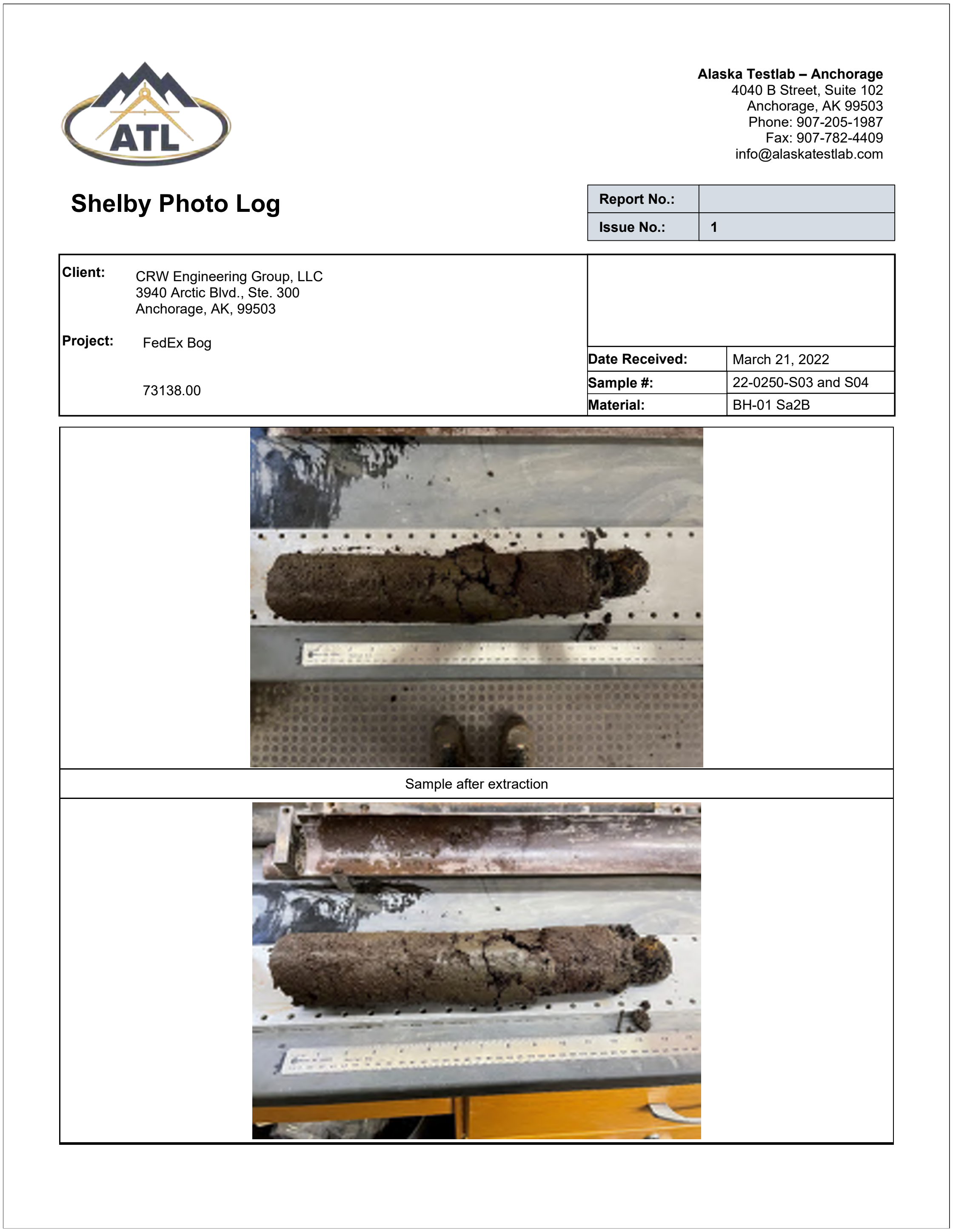
Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project Code: 220484
CC:

Project: FedEx Bog

73138.00

Reviewed By: Maria E Kampsen
Title: Senior Engineer
Date: 4/26/2022



Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

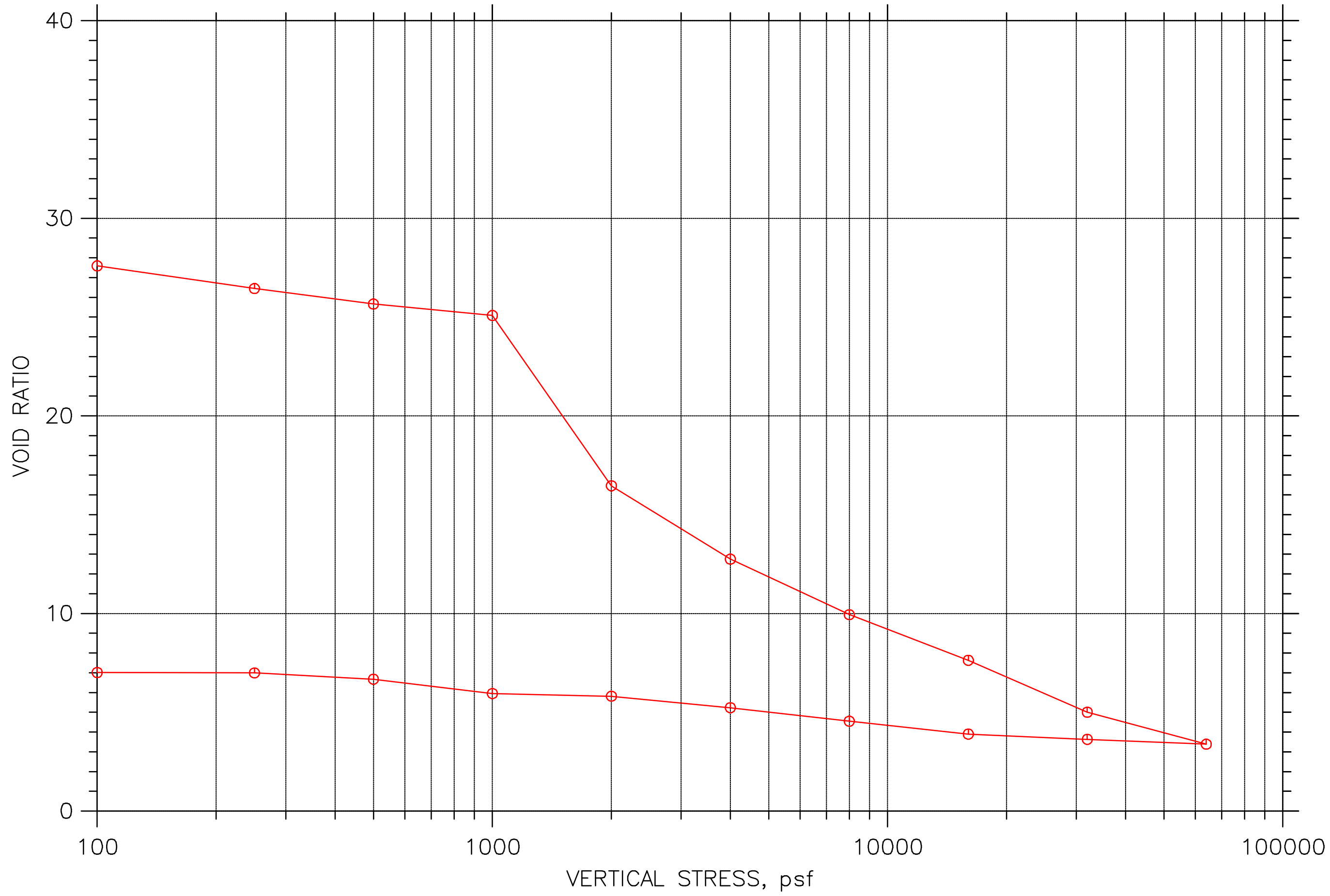
73138.00

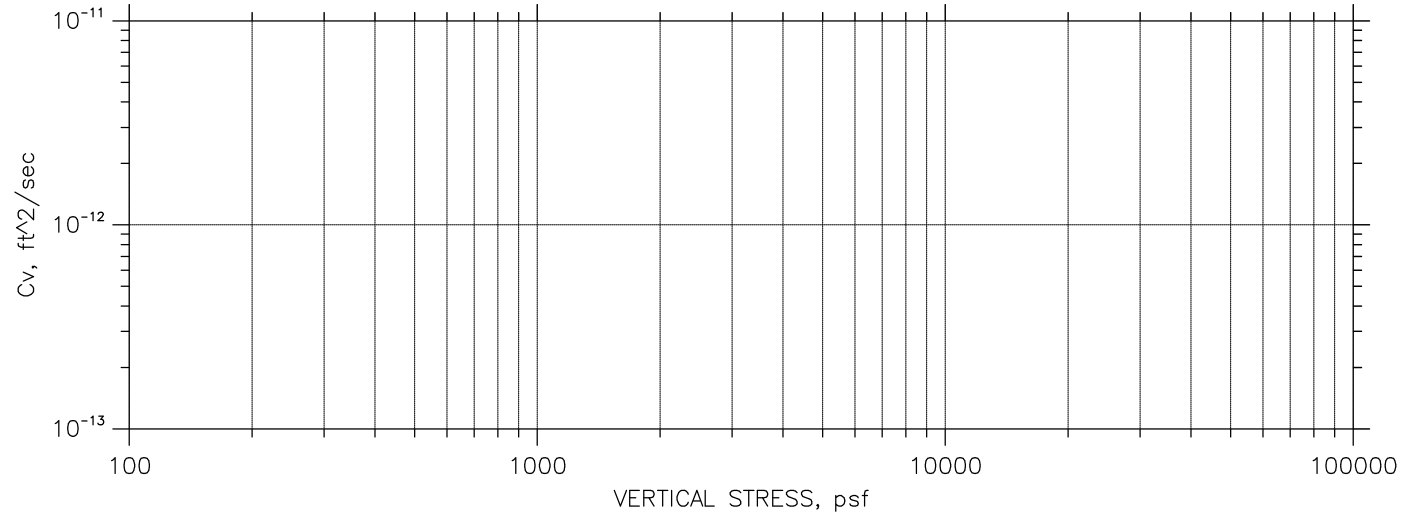
Date Received:	March 21, 2022
Sample #:	22-0250-S03 and S04
Material:	BH-01 Sa2B

Sample after extraction

Consolidation Test

SUMMARY REPORT





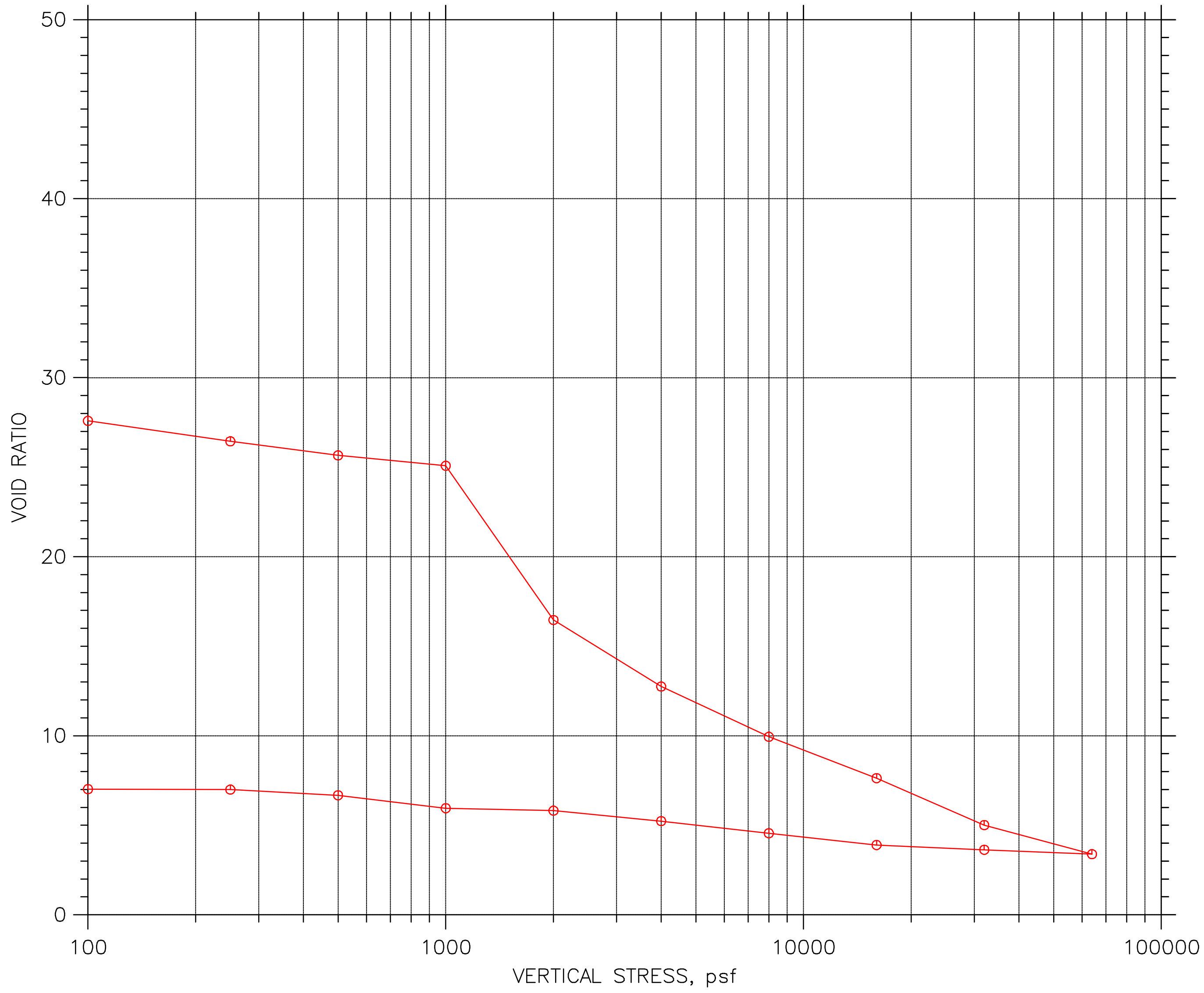
Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Tue, 26-APR-2022 10:13:23

Consolidation Test
SUMMARY REPORT



	Before Test	After Test
Water Content, %	1756.56	639.41
Dry Unit Weight, pcf	3.1967	11.687
Saturation, %	93.13	136.77
Void Ratio	28.29	7.01
Back Pressure, psf	0	0

Overburden Pressure: 0 psf

Preconsolidation Pressure: 0 psf

Compression Index: 0

Diameter: 2.495 in

Height: 1 in

LL: ---

PL: ---

PI: ---

GS: 1.50

Alaska Testlab

Reviewed by

Project: FedEx BOG

Location: Anchorage, AK

Project No.: 220484

Boring No.: BH-05

Tested By: CZ

Checked By: MEK

Sample No.: S4

Test Date: 4/11/2022

Test No.: 1

Depth: 7.5-8.5

Sample Type: Shelby

Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

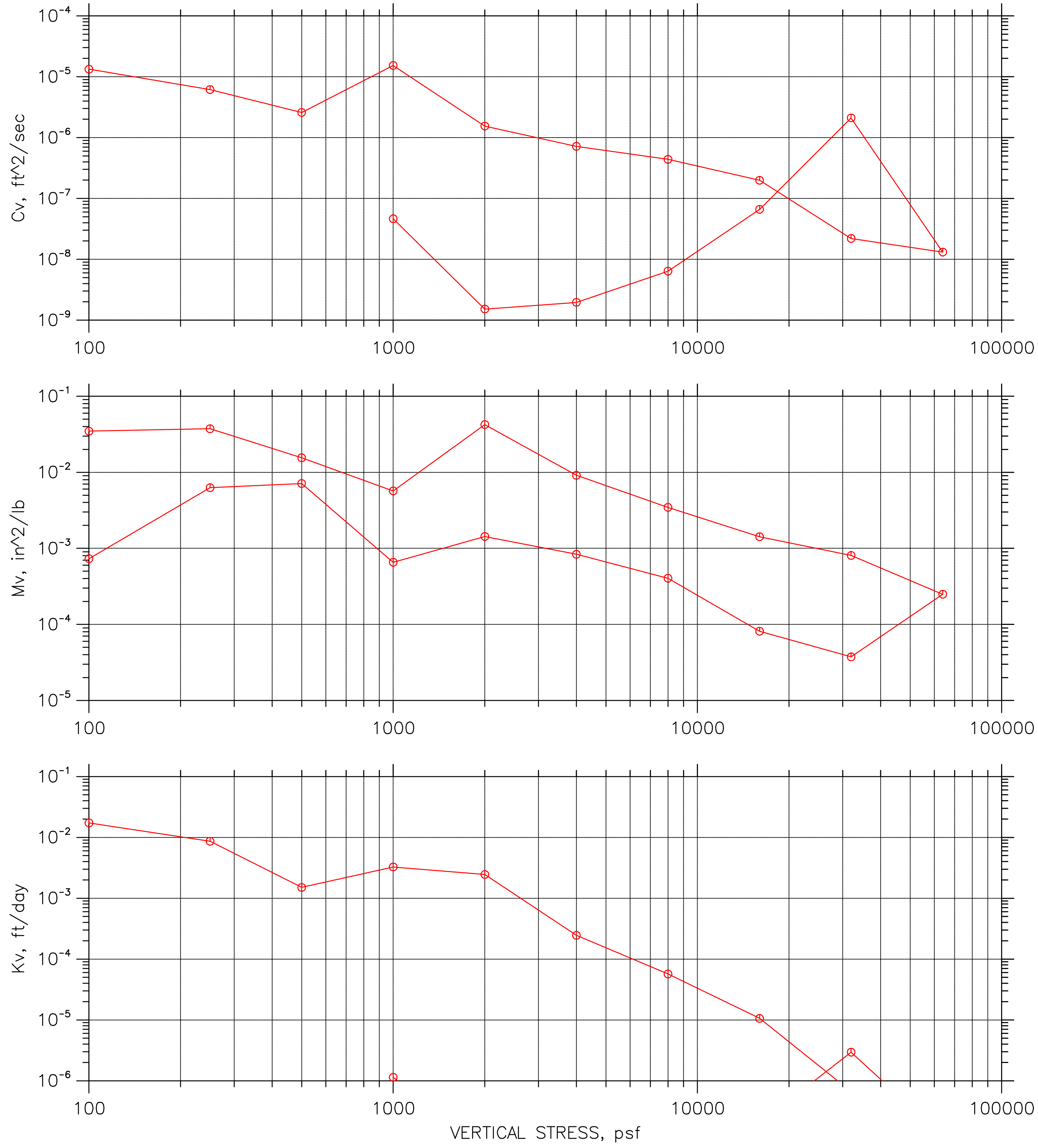
Remarks: ASTM D2487: PT Visual Classification: Peat

Displacement at End of Primary

Tue, 26-APR-2022 10:13:24

Consolidation Test

ROOT of TIME COEFFICIENTS



ATL Alaska Testlab

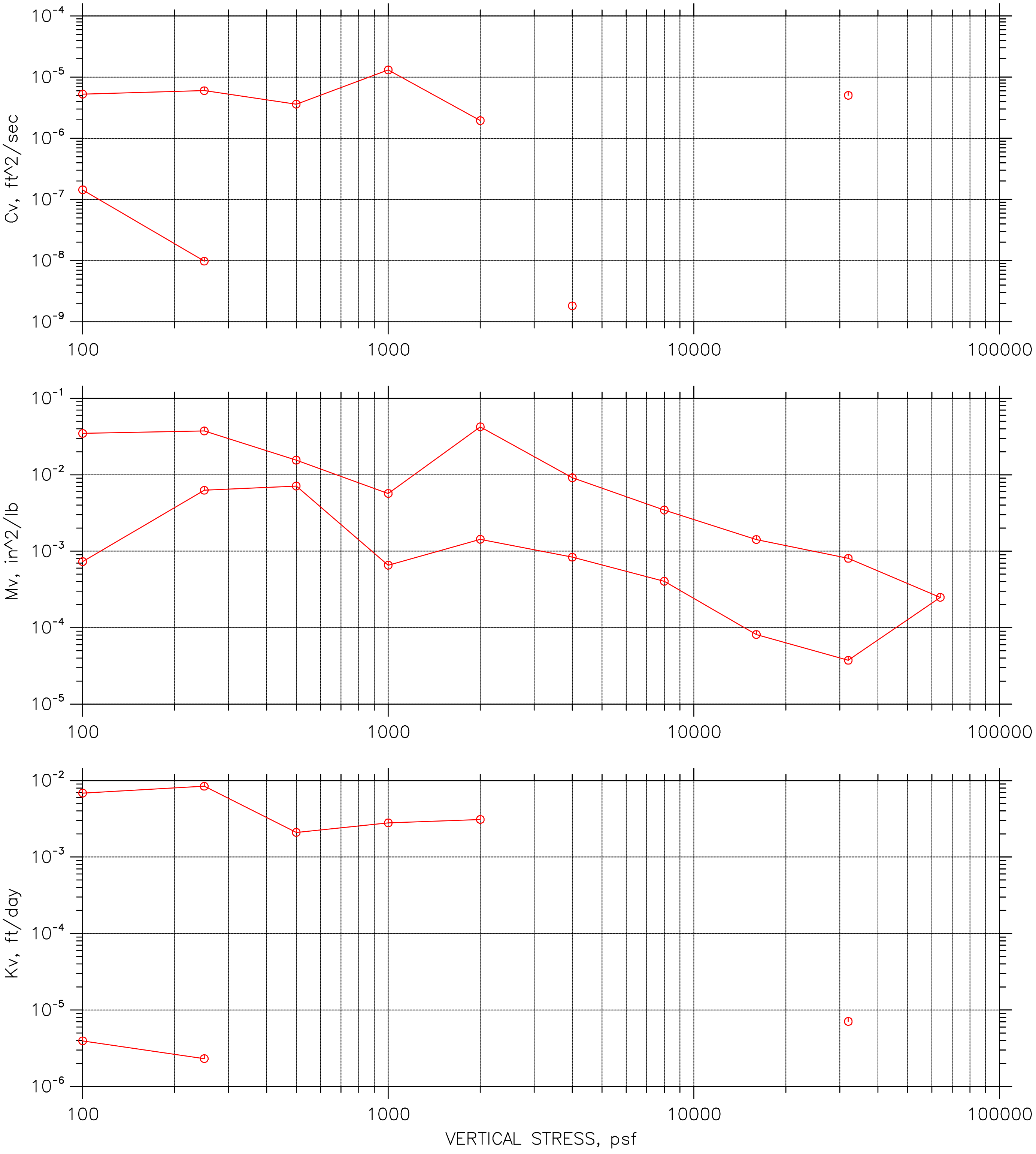
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Tue, 26-APR-2022 10:13:25

Consolidation Test

LOG of TIME COEFFICIENTS



Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

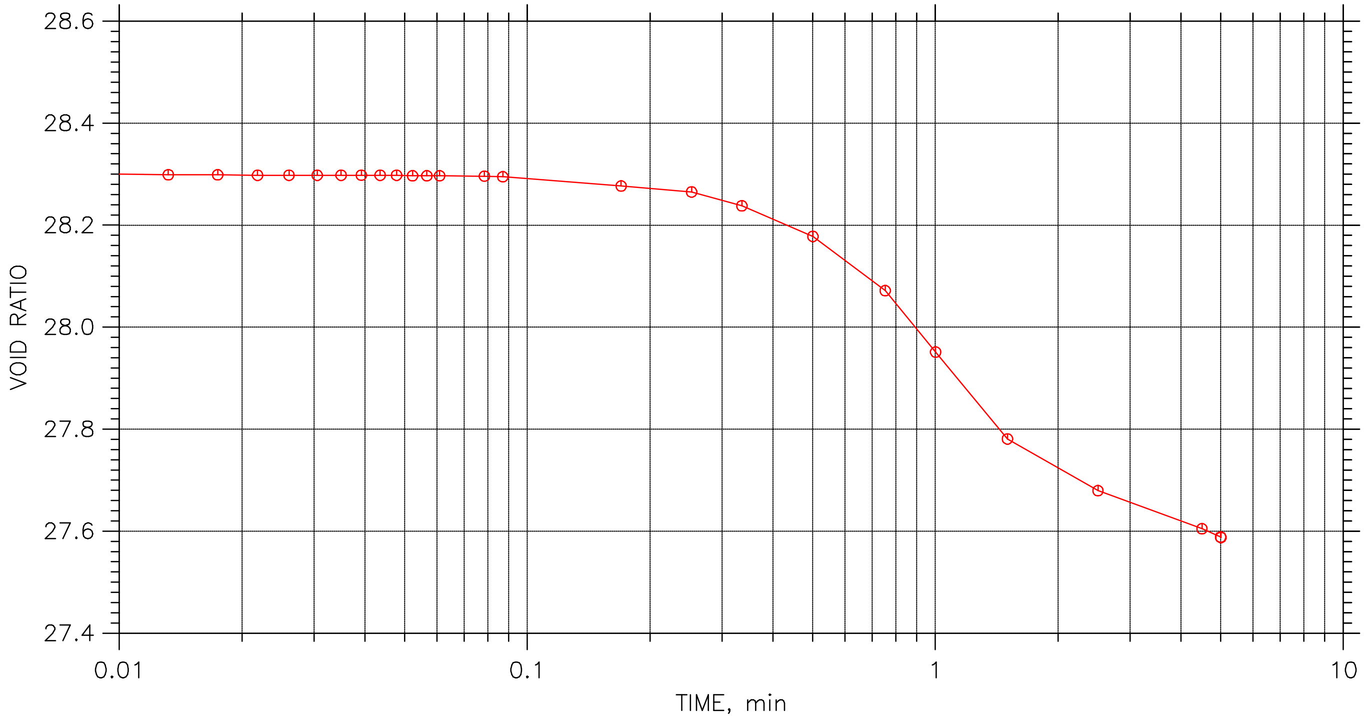
Tue, 26-APR-2022 10:13:27

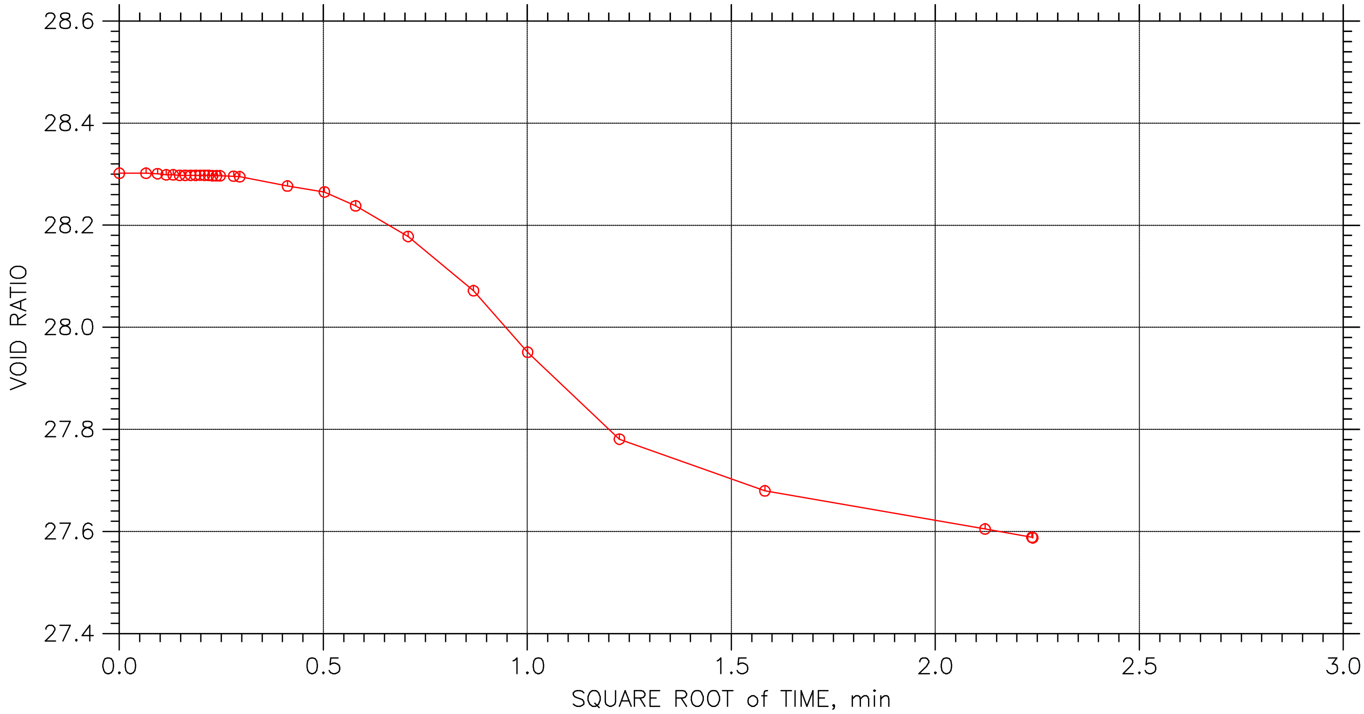
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

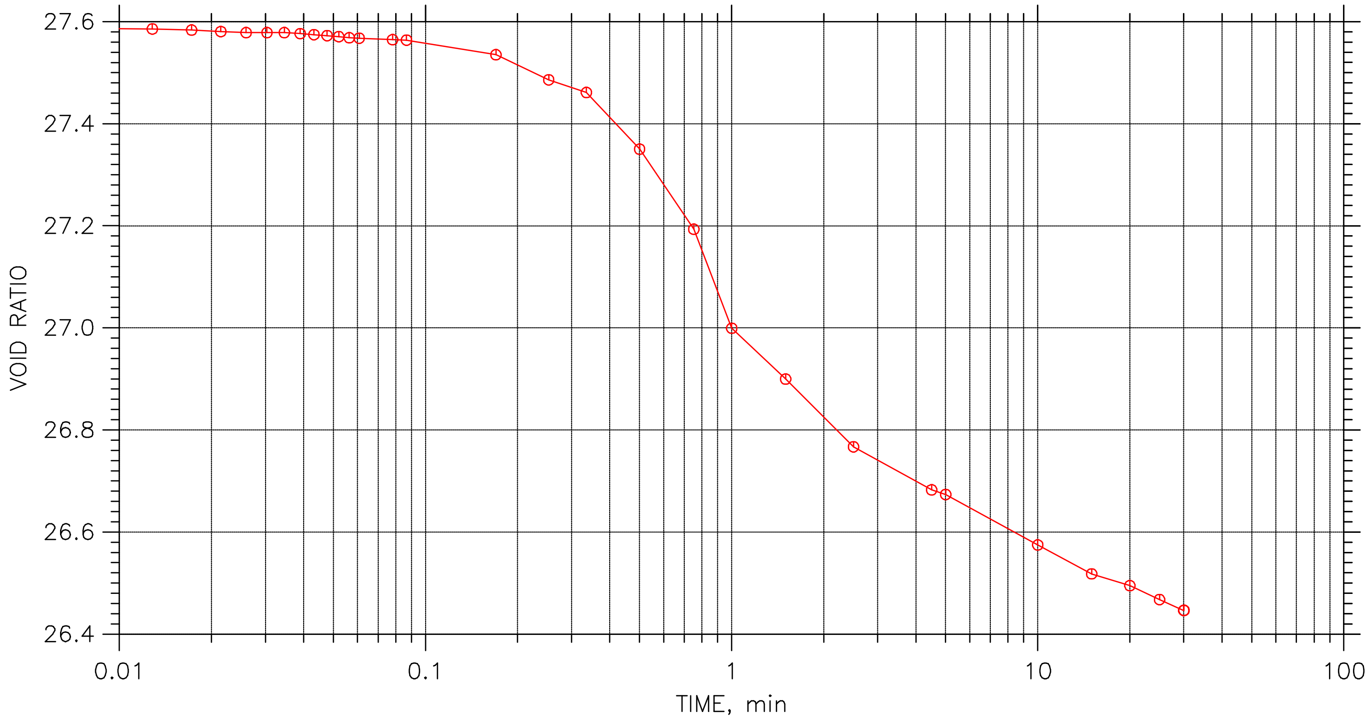
Tue, 26-APR-2022 10:13:28

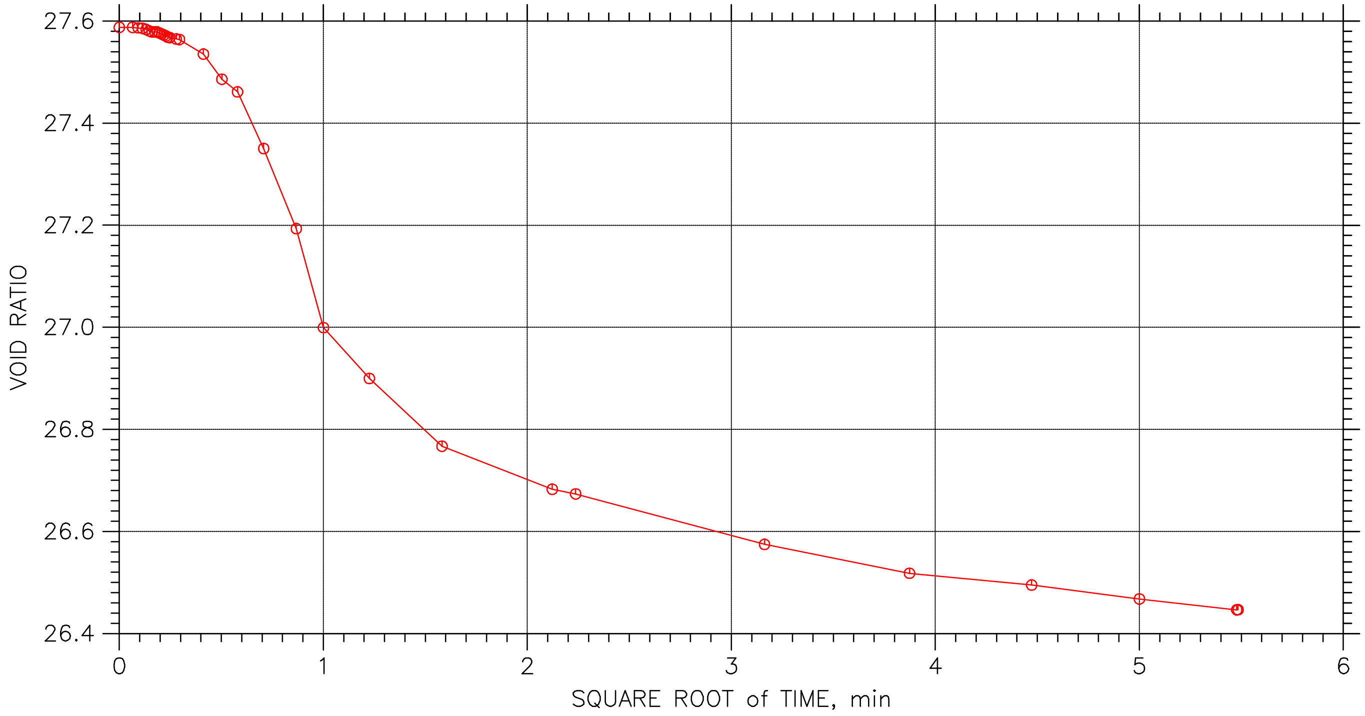
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





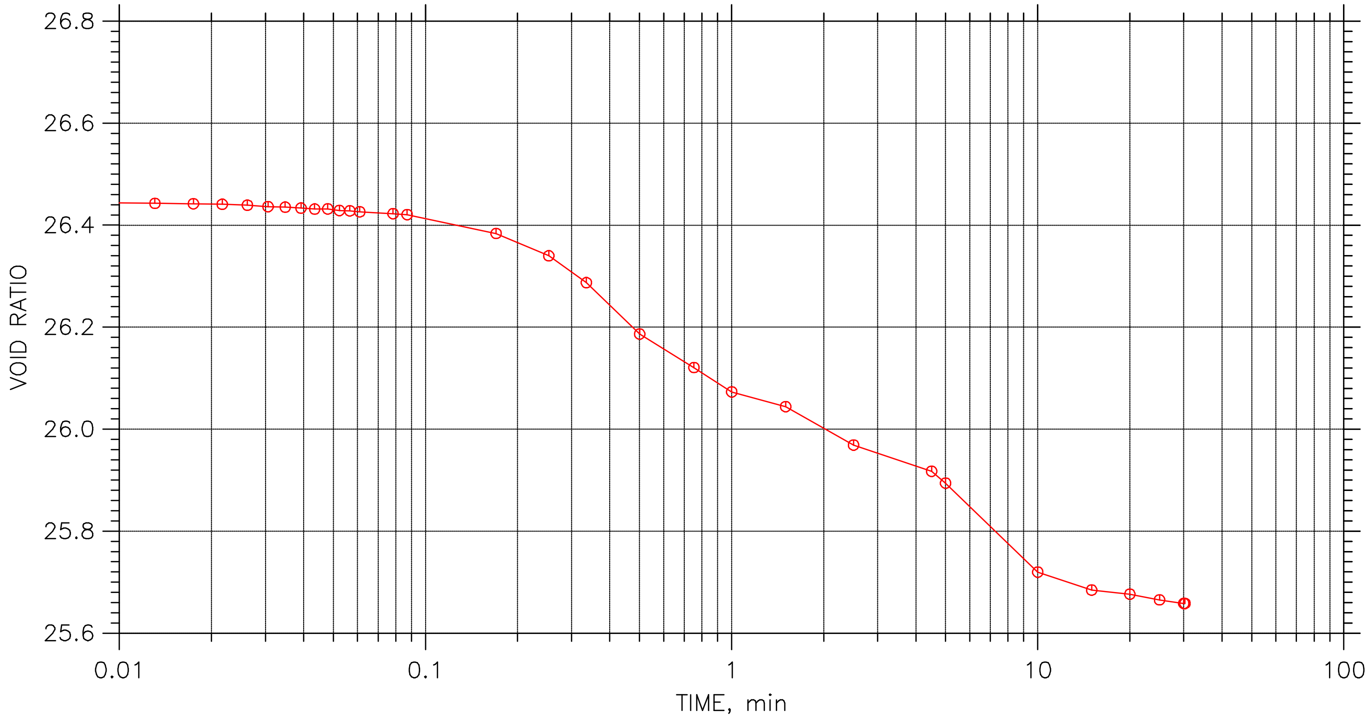
ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

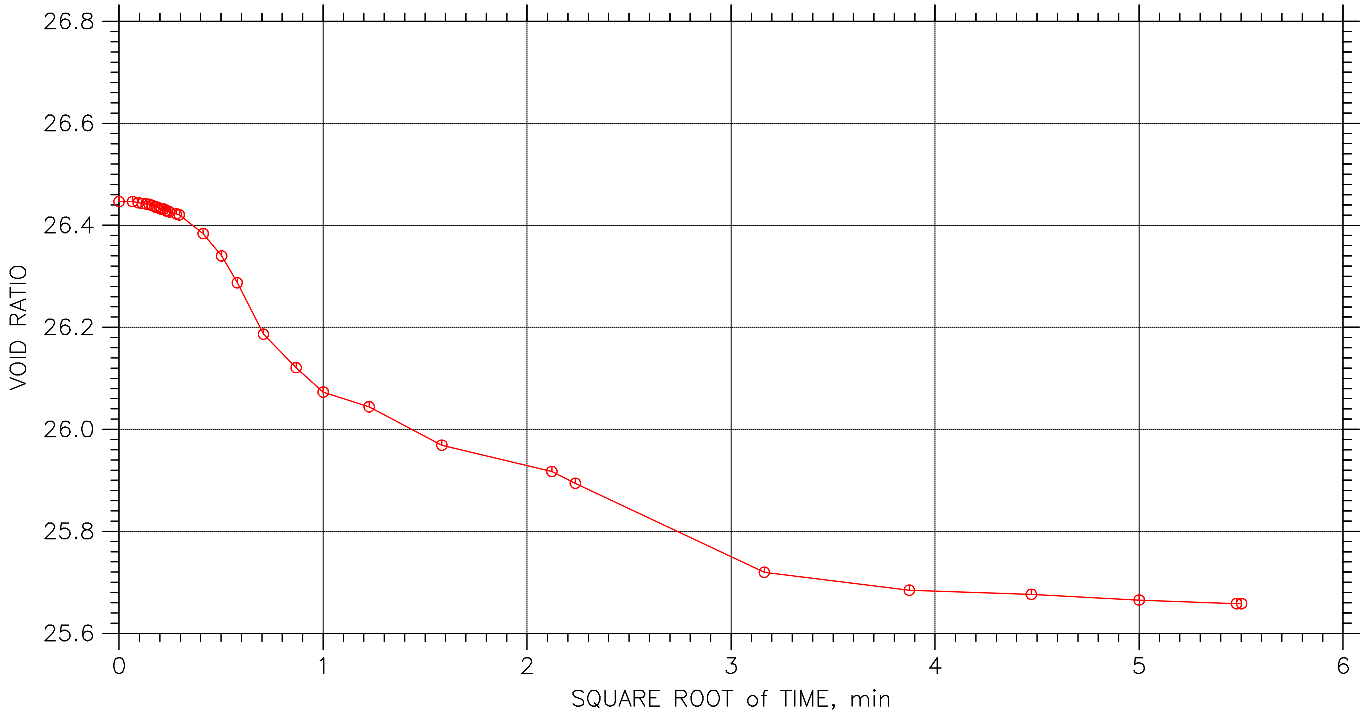
Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

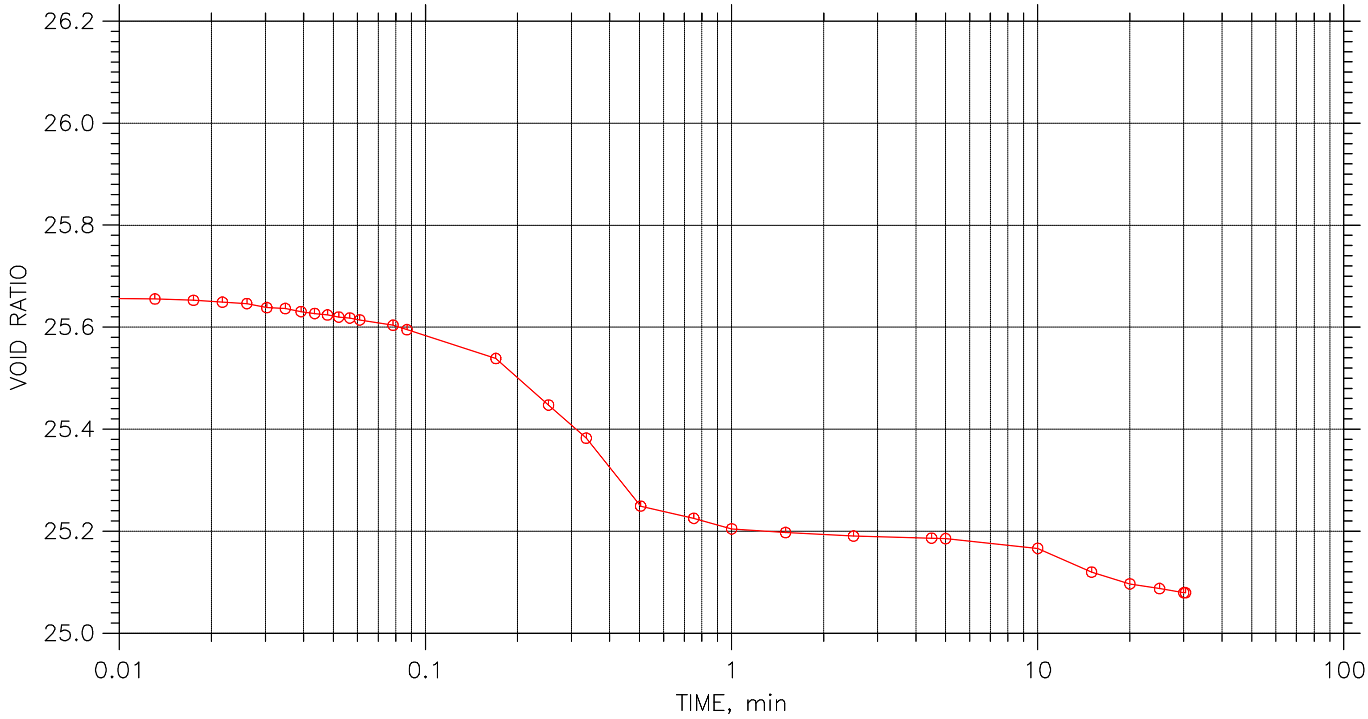
Tue, 26-APR-2022 10:13:30

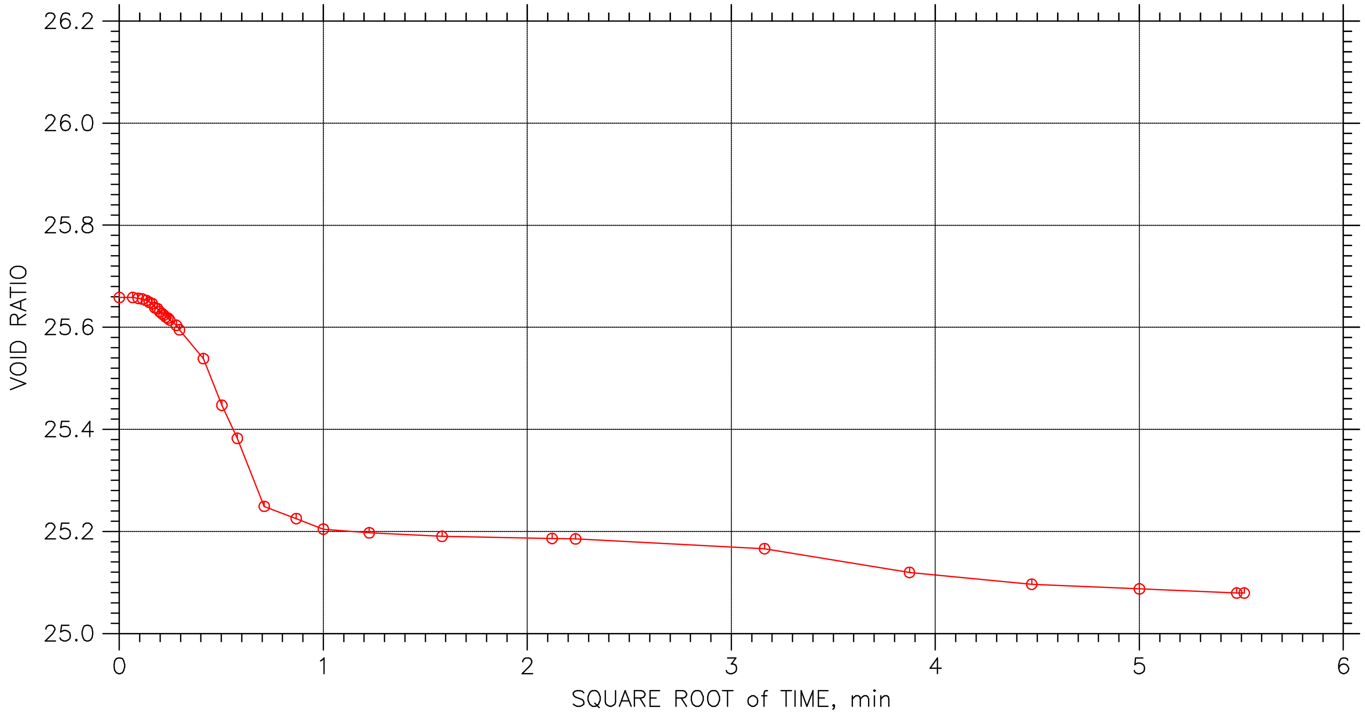
Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf





ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

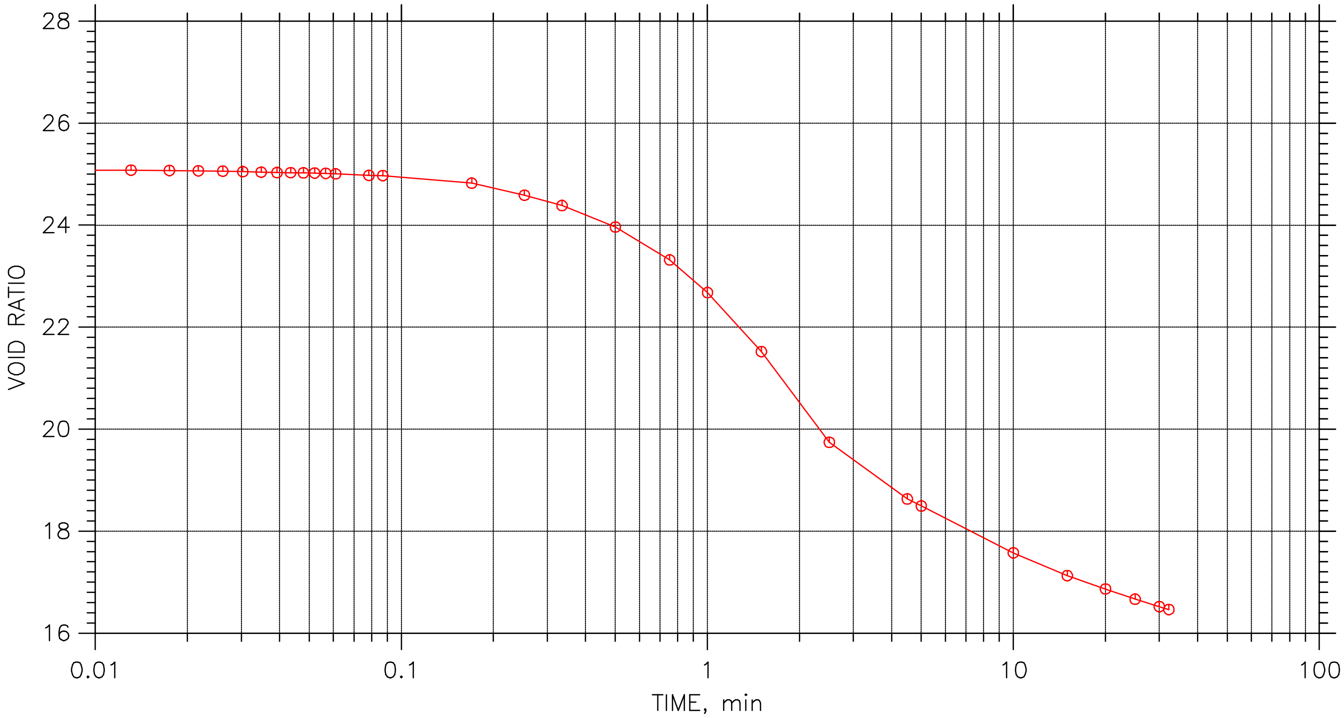
Tue, 26-APR-2022 10:13:31

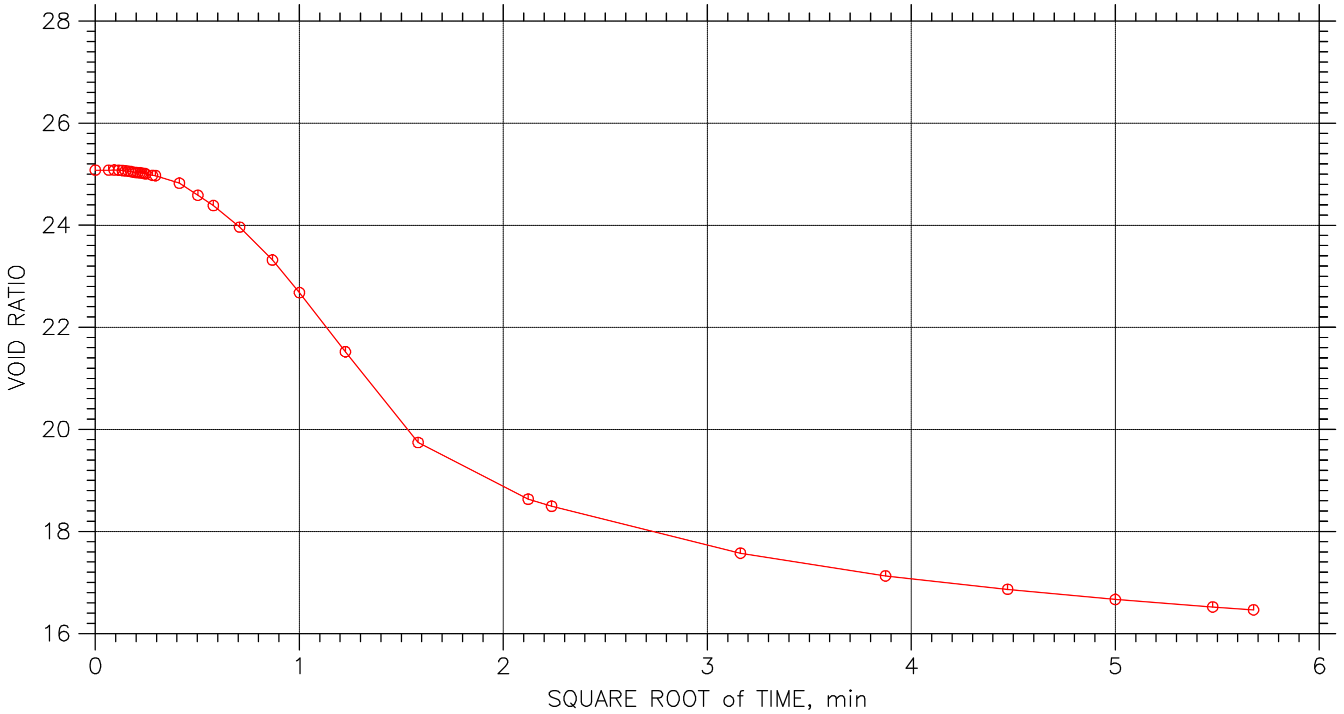
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

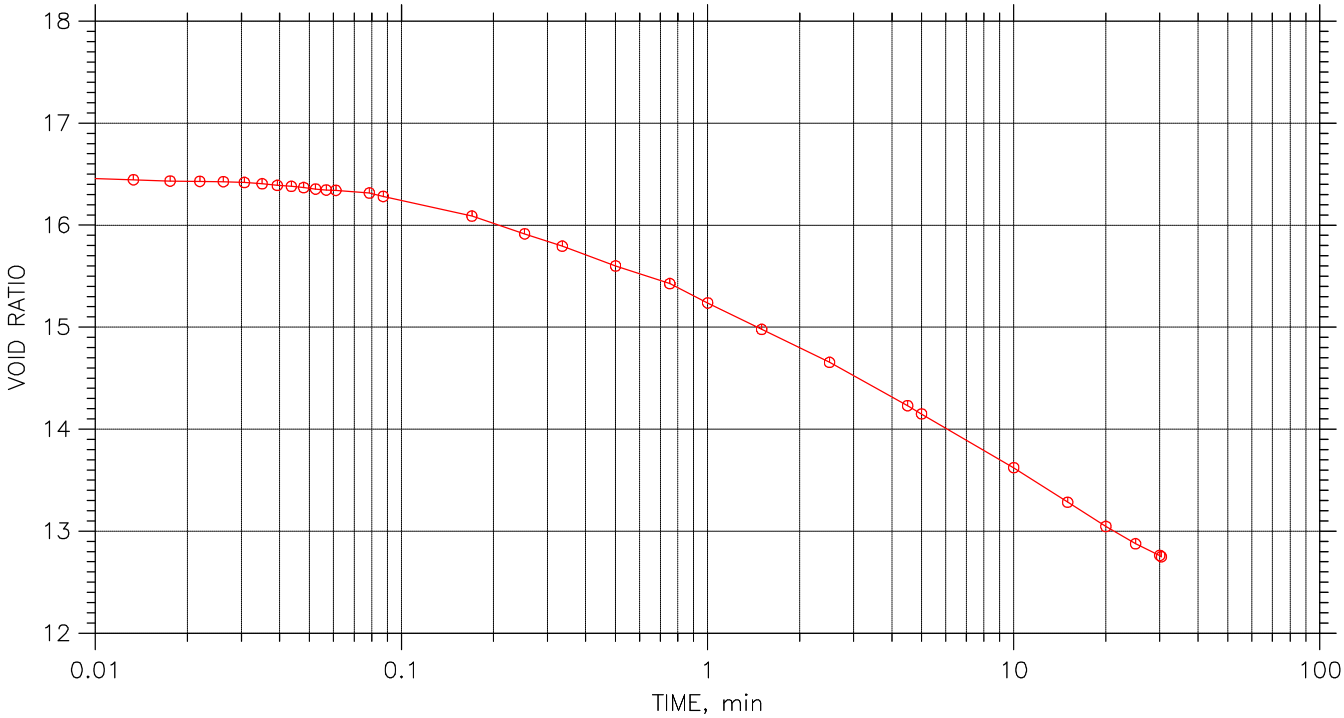
Tue, 26-APR-2022 10:13:32

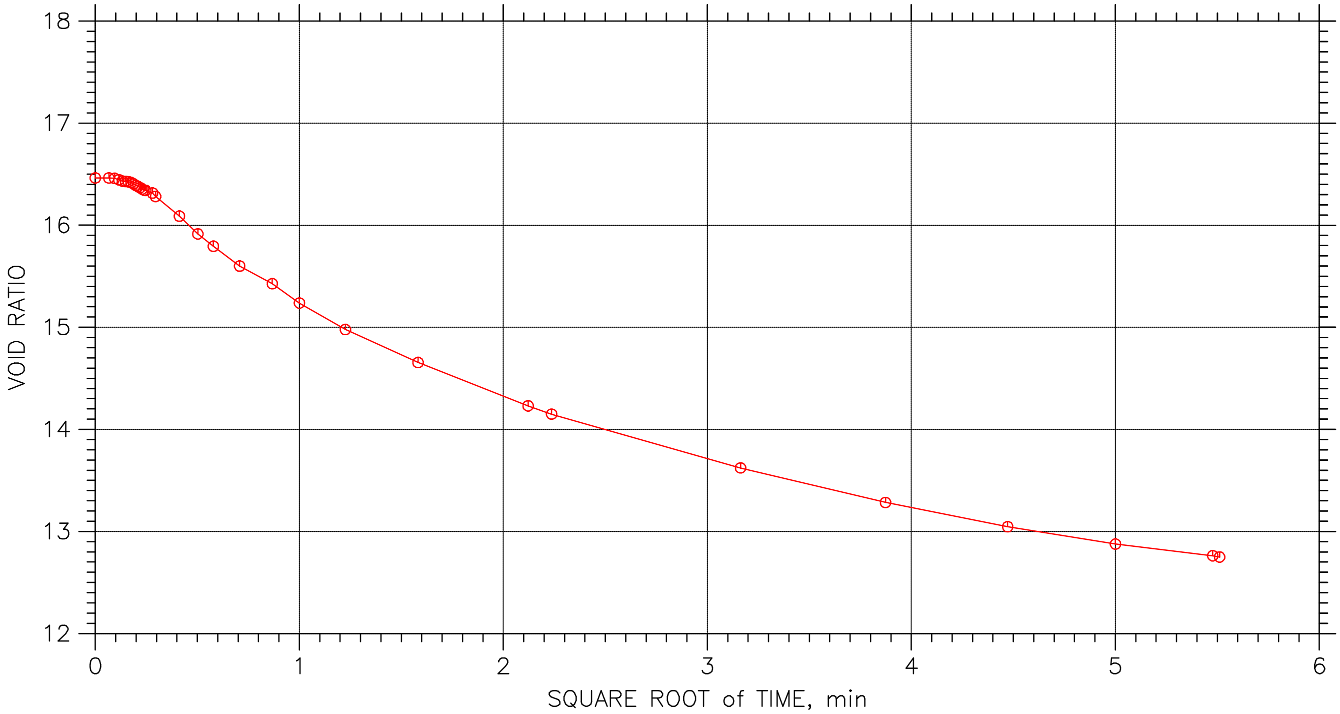
Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

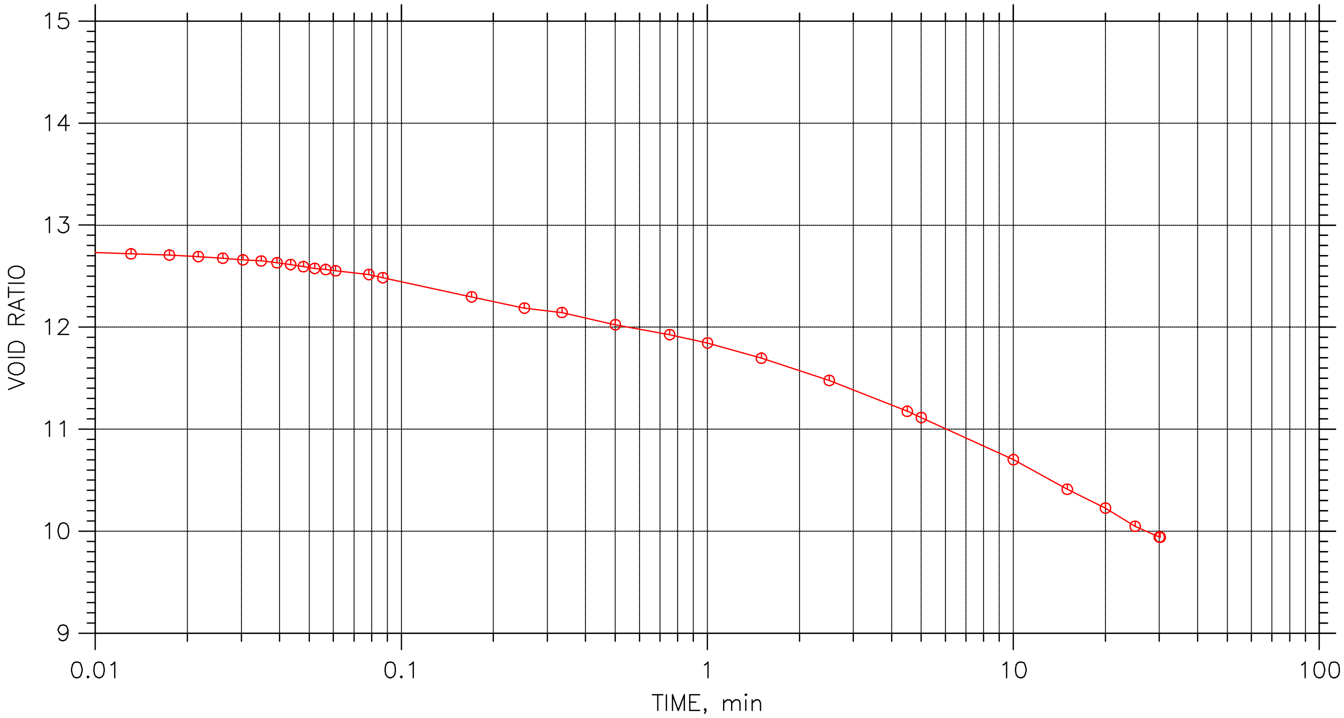
Tue, 26-APR-2022 10:13:33

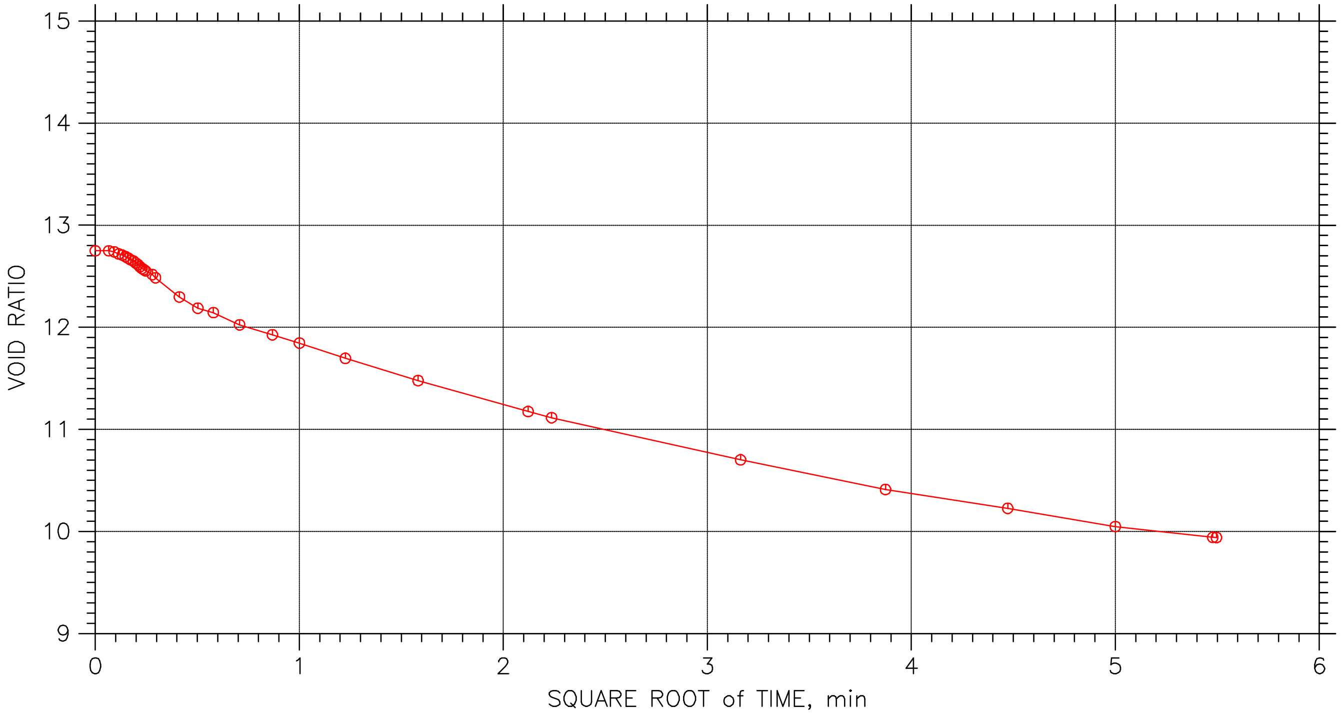
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

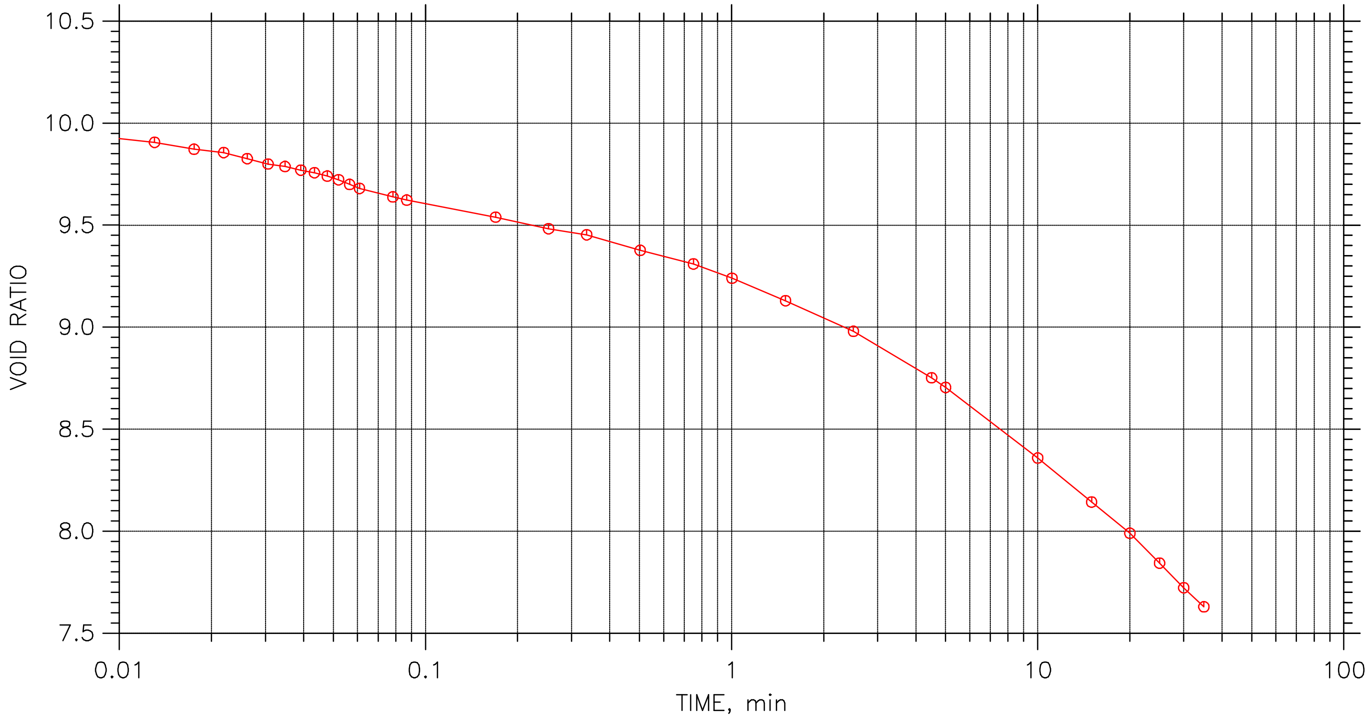
Tue, 26-APR-2022 10:13:34

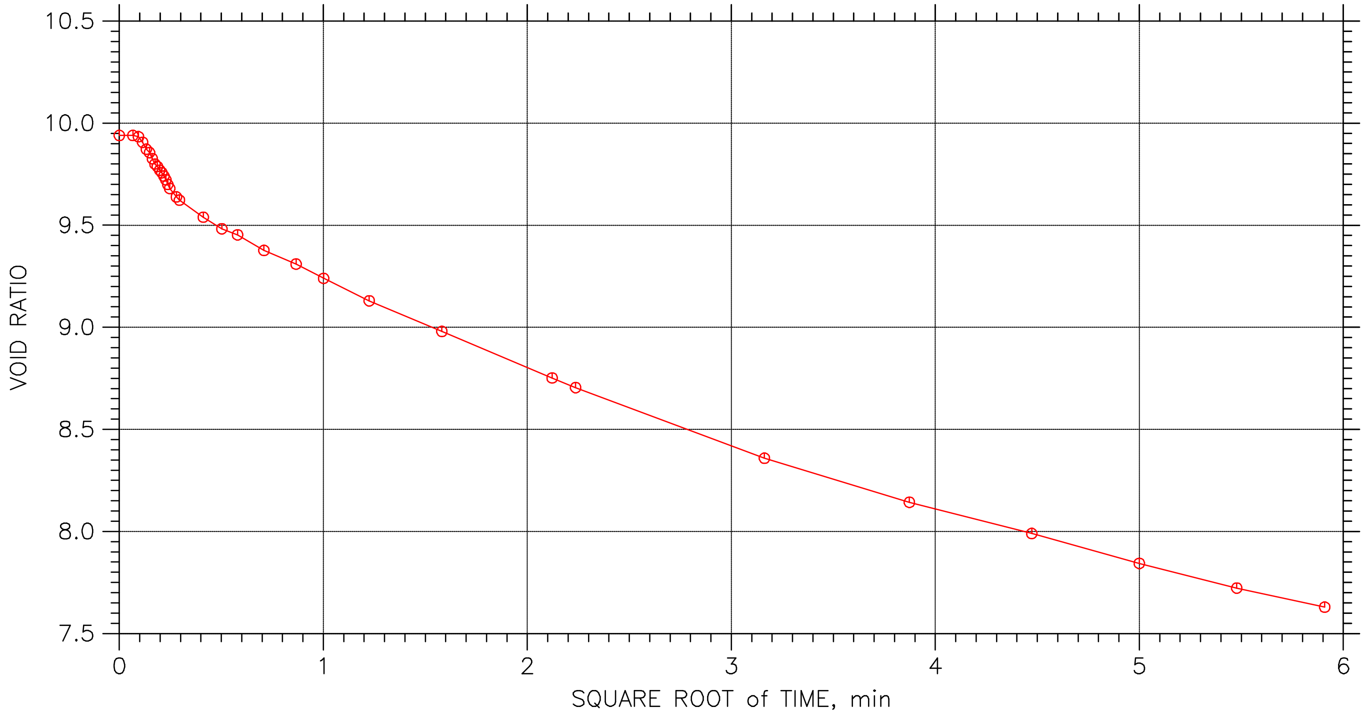
Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

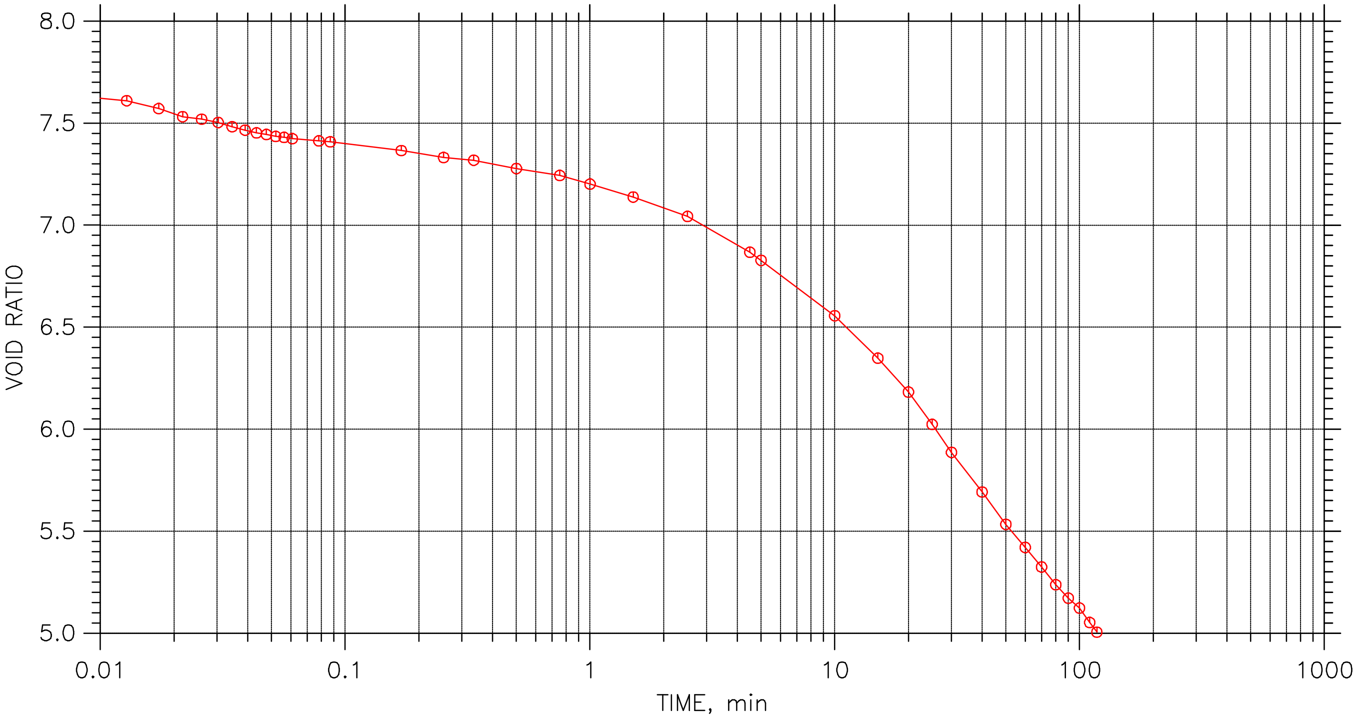
Tue, 26-APR-2022 10:13:35

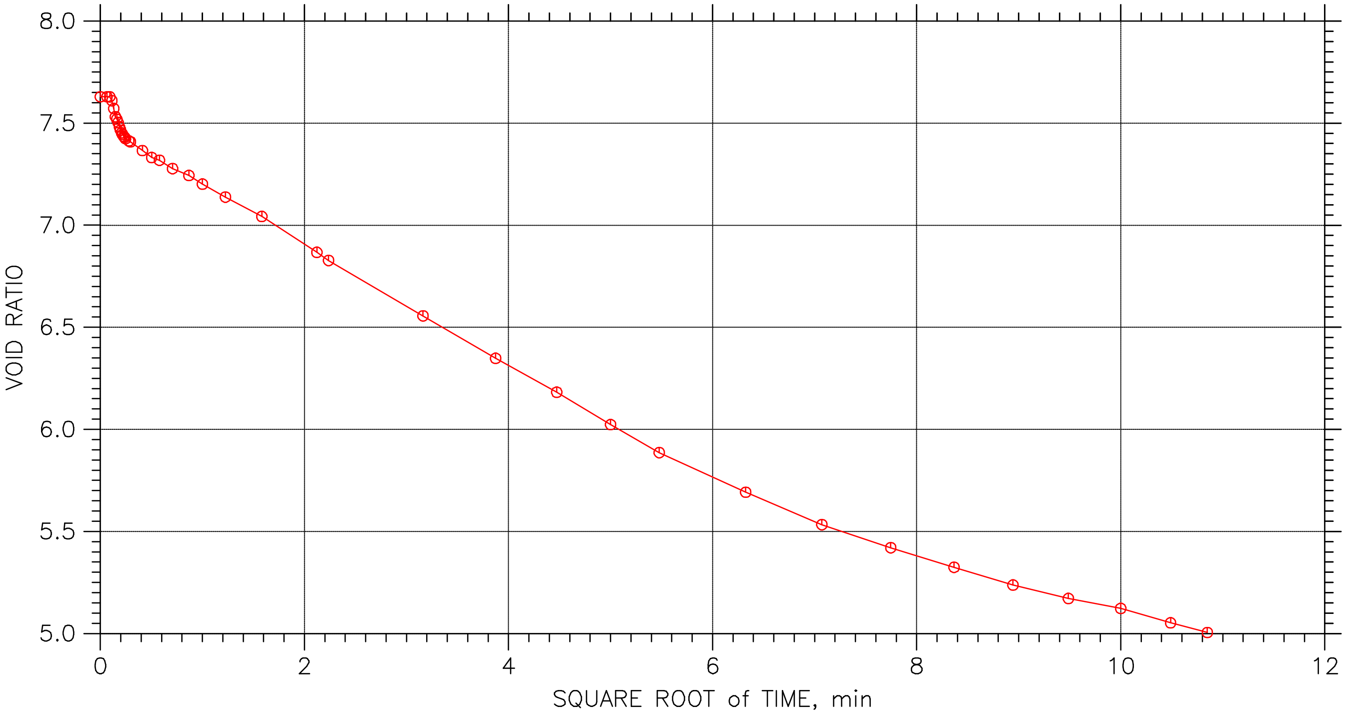
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

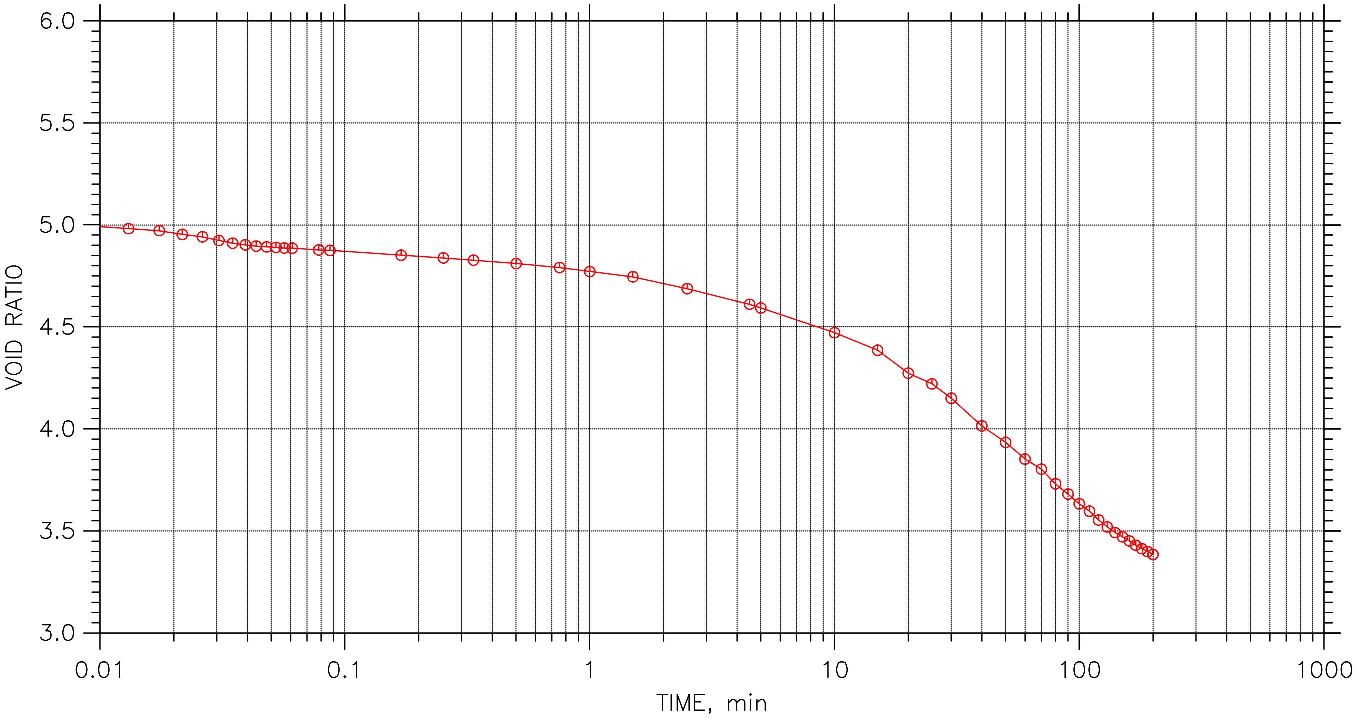
Tue, 26-APR-2022 10:13:37

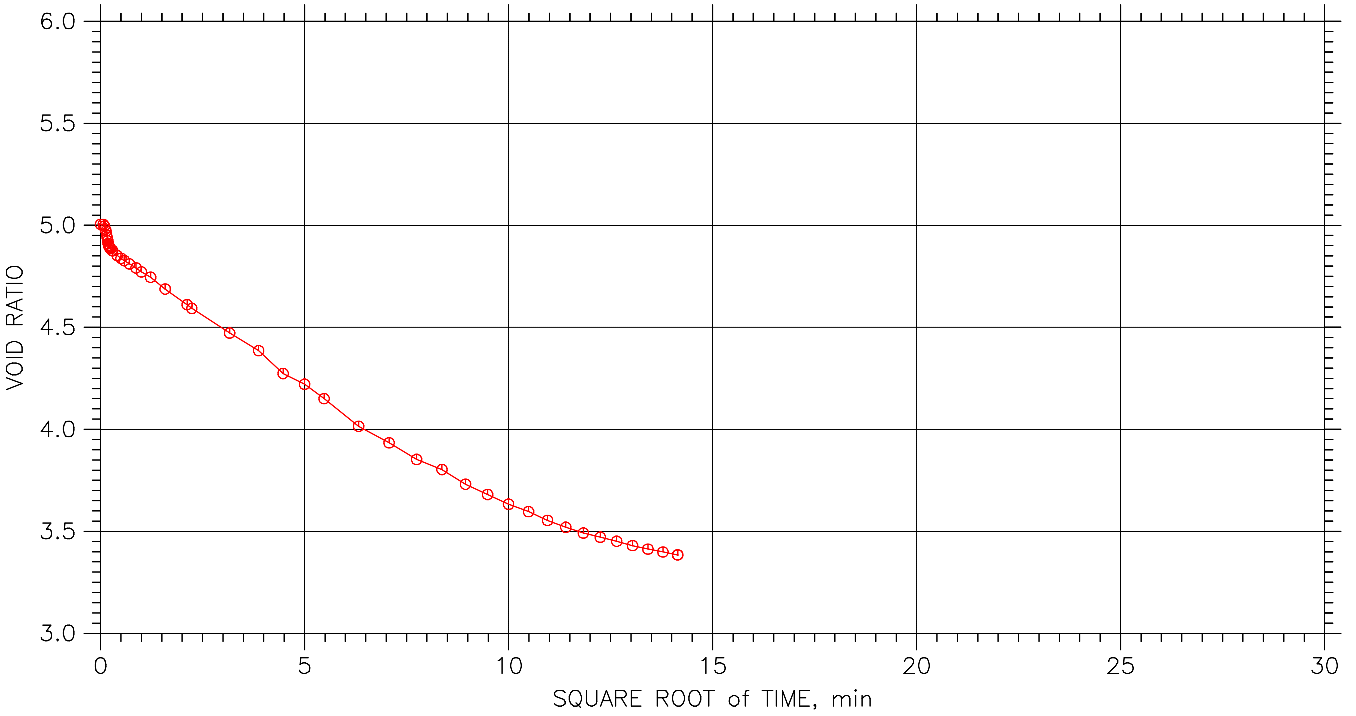
Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf





Alaska Testlab

Reviewed by

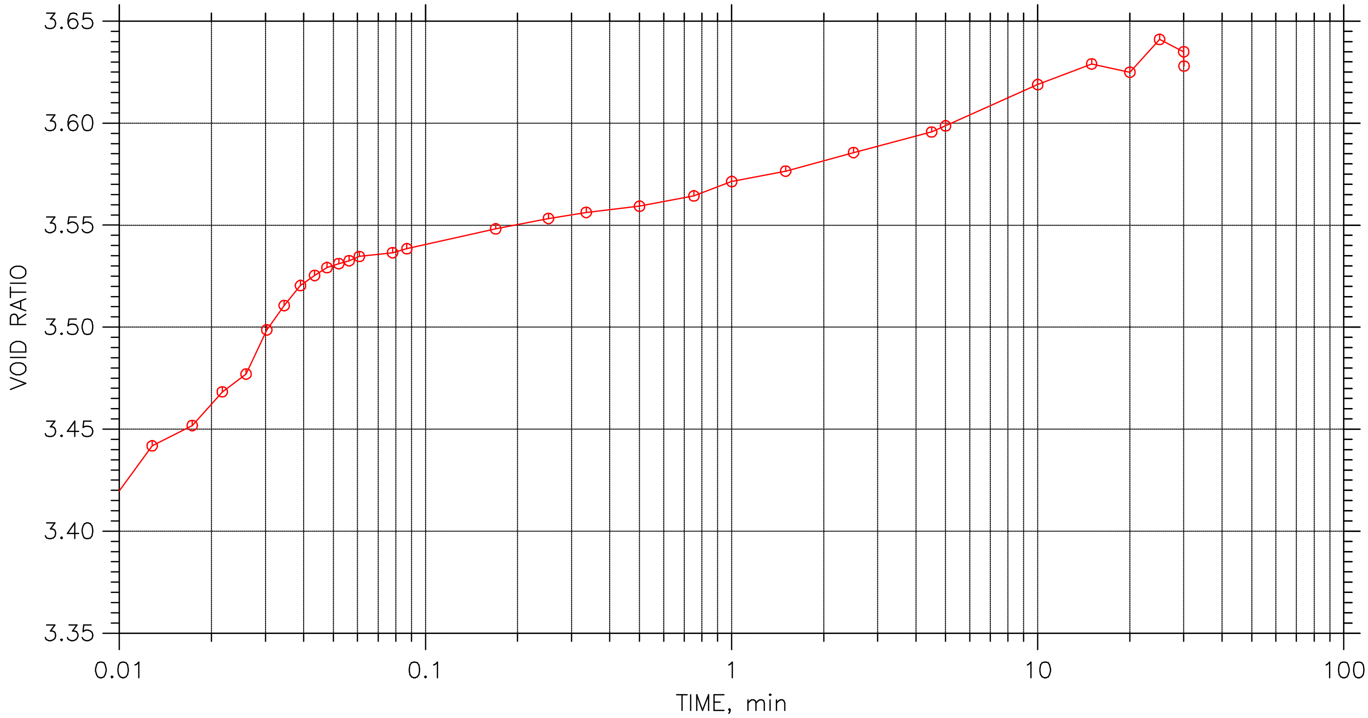
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

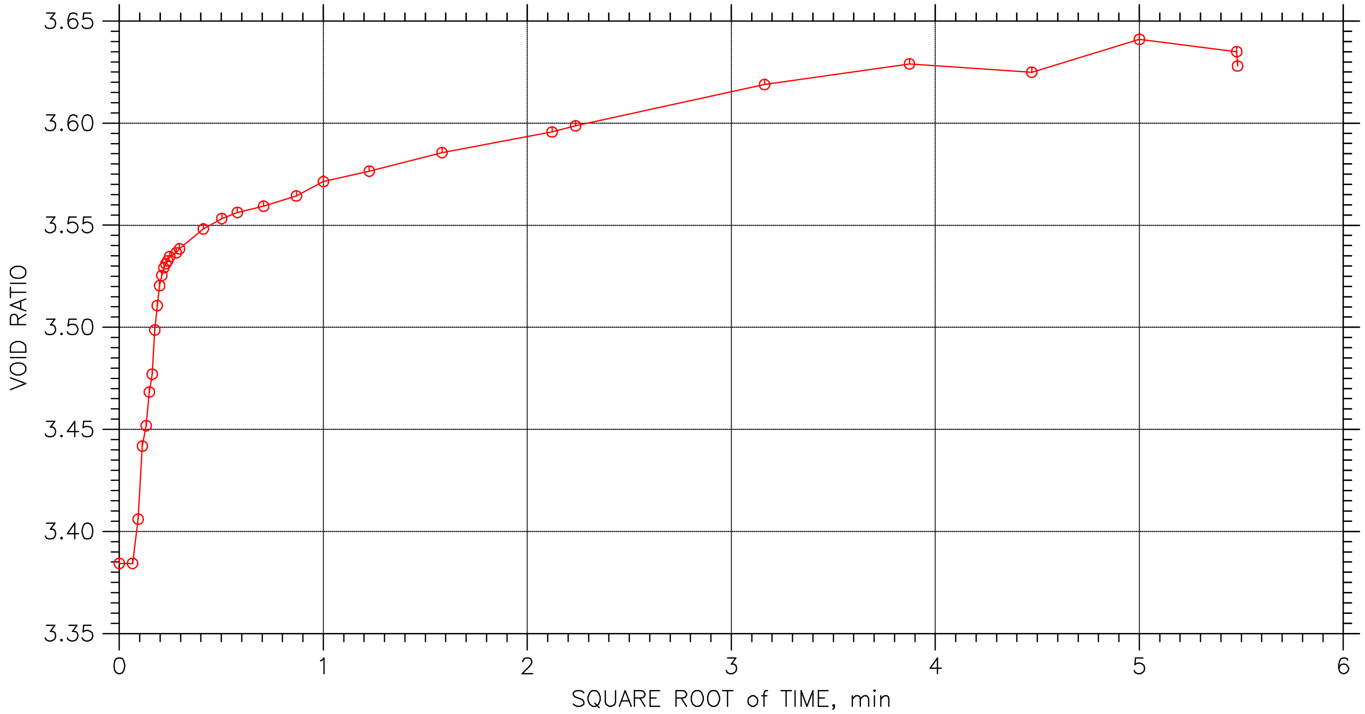
Consolidation Test

TIME CURVES

Constant Load Step 11 of 19

Stress: 32000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

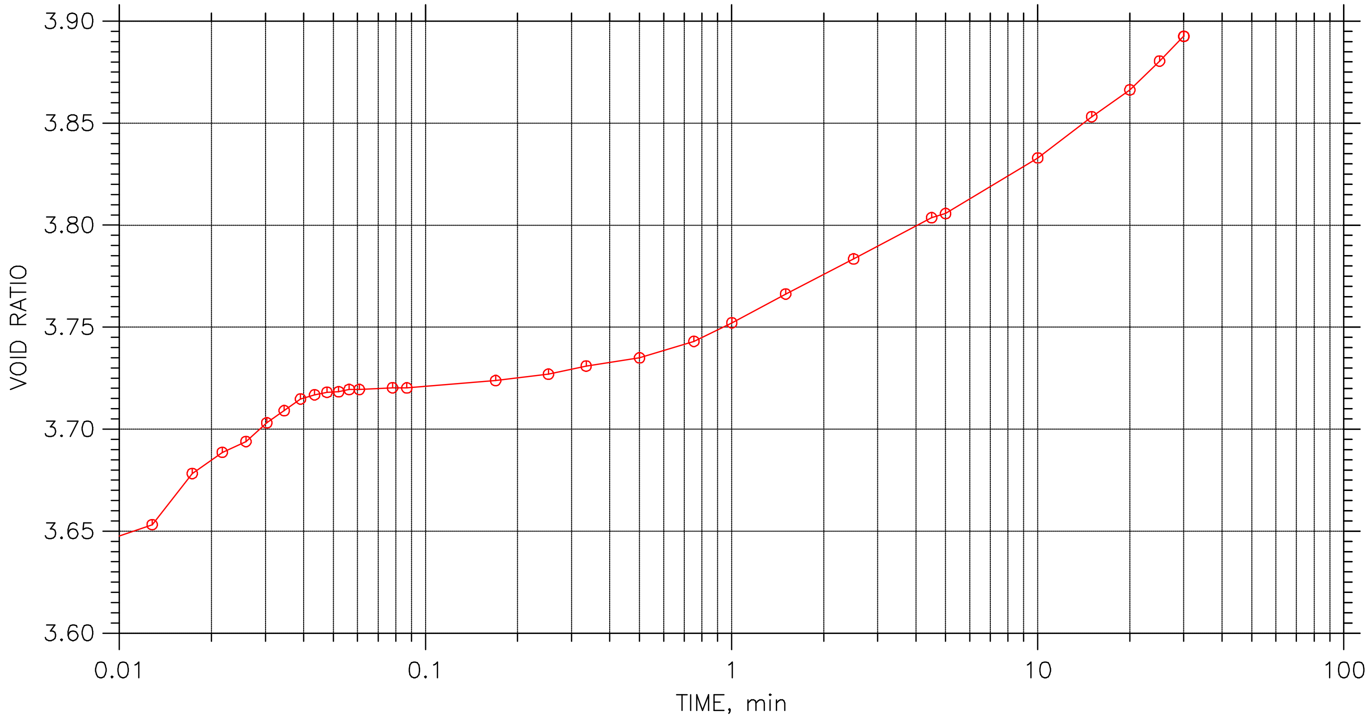
Tue, 26-APR-2022 10:13:39

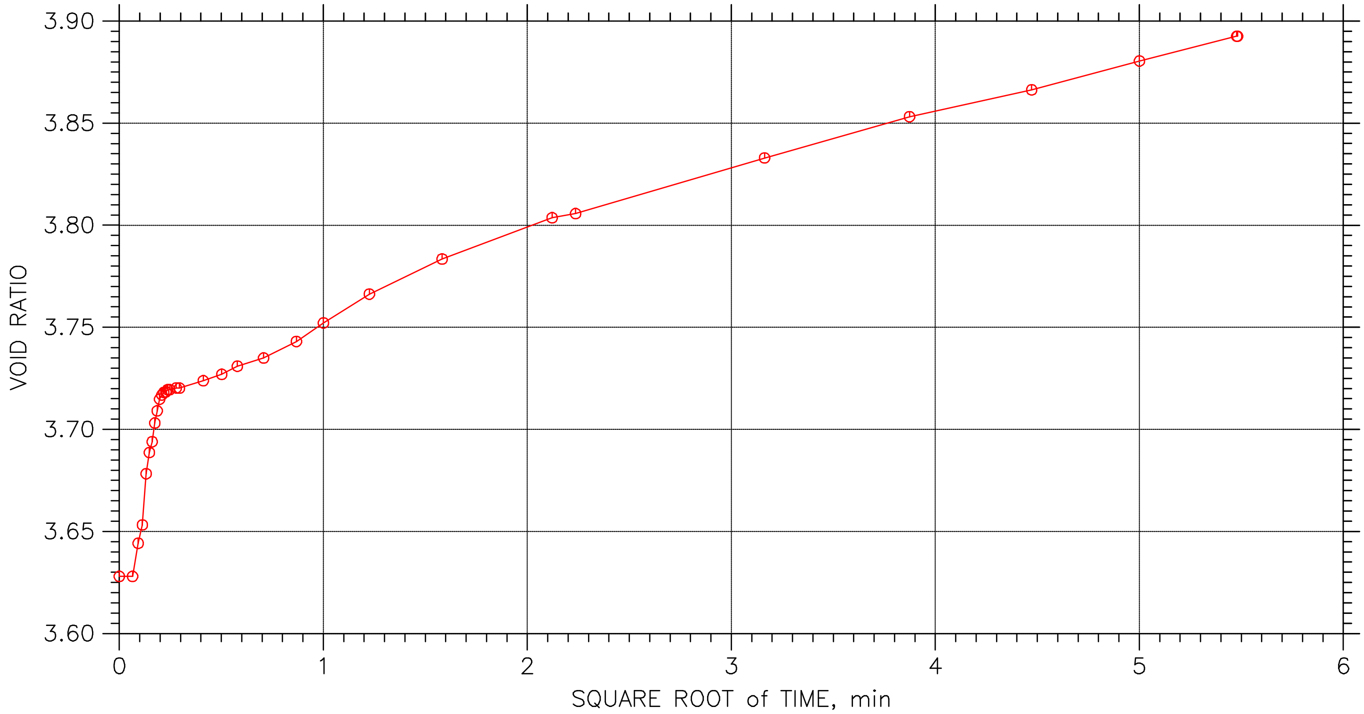
Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

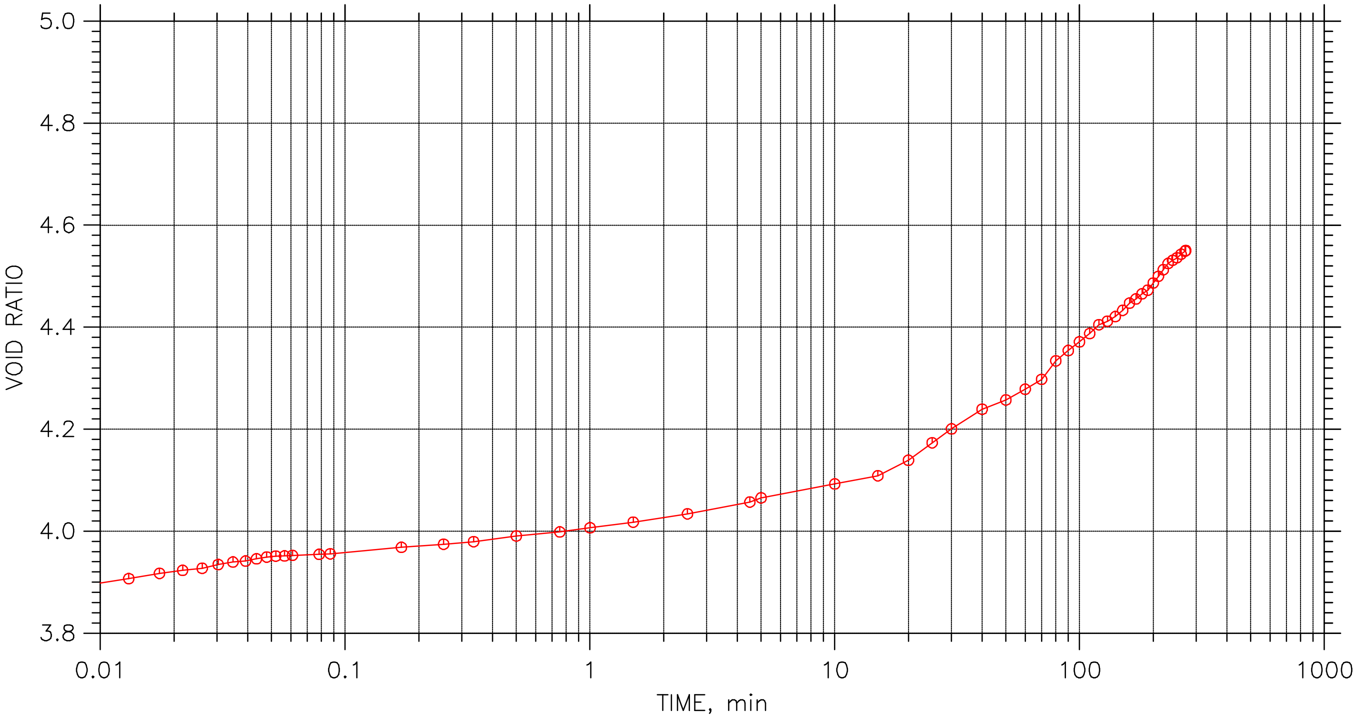
Tue, 26-APR-2022 10:13:40

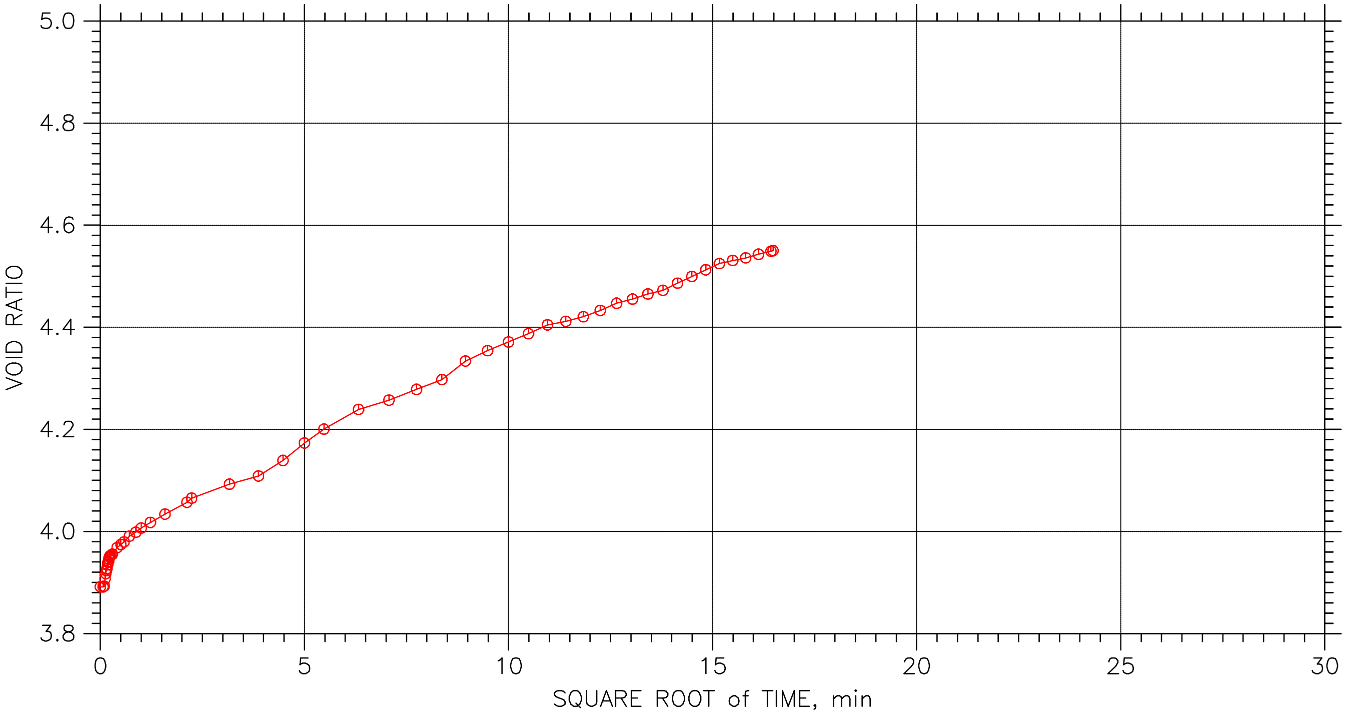
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

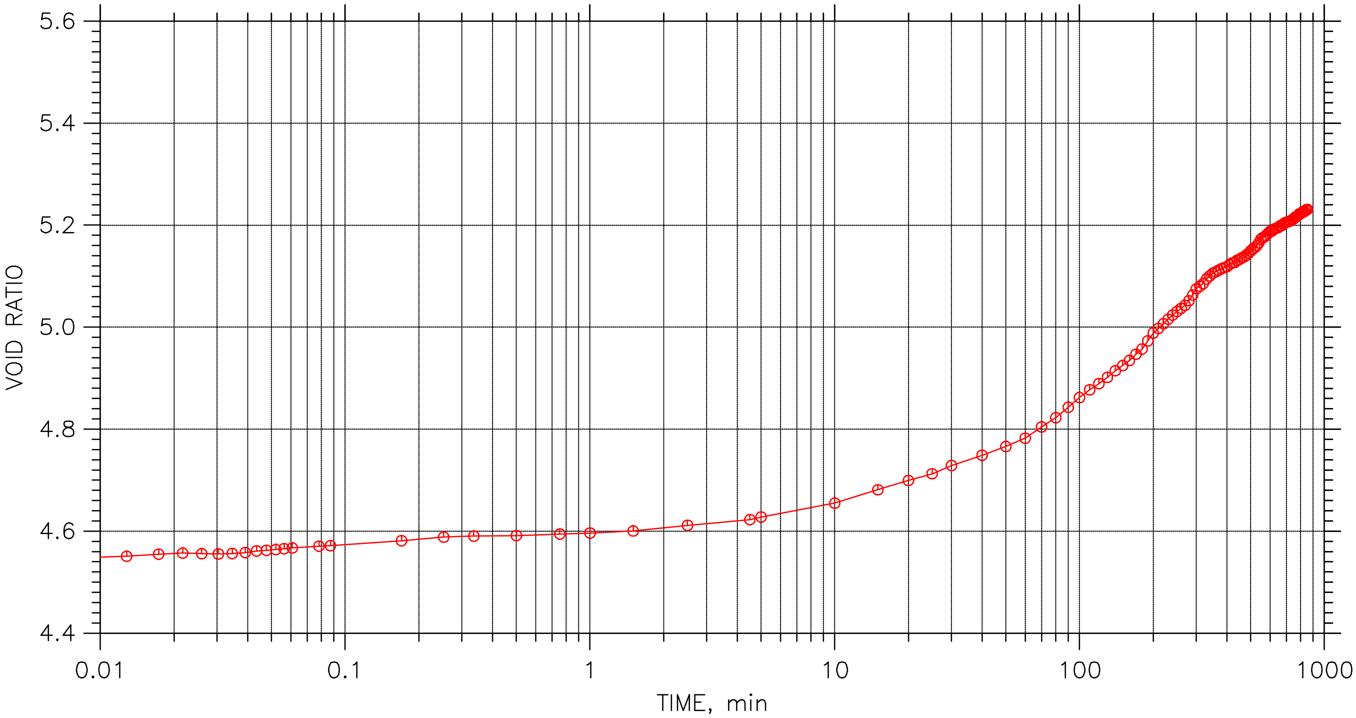
Tue, 26-APR-2022 10:13:41

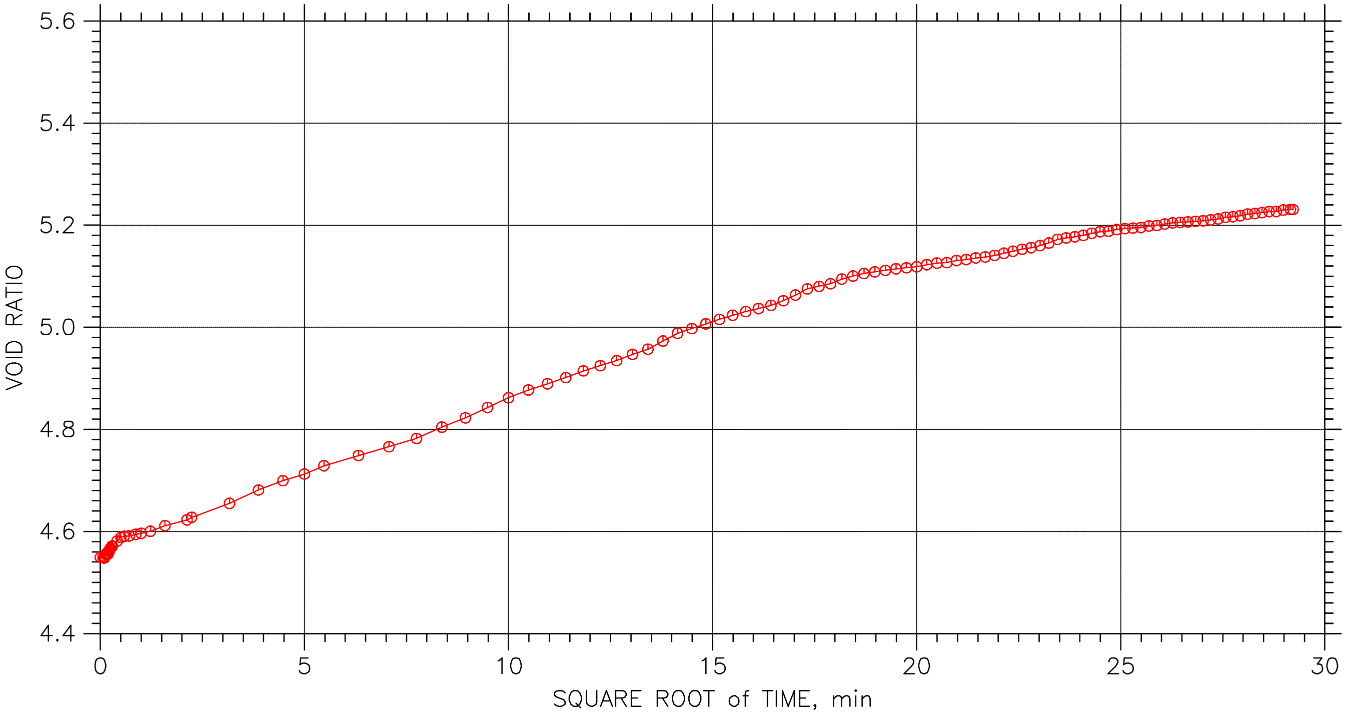
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

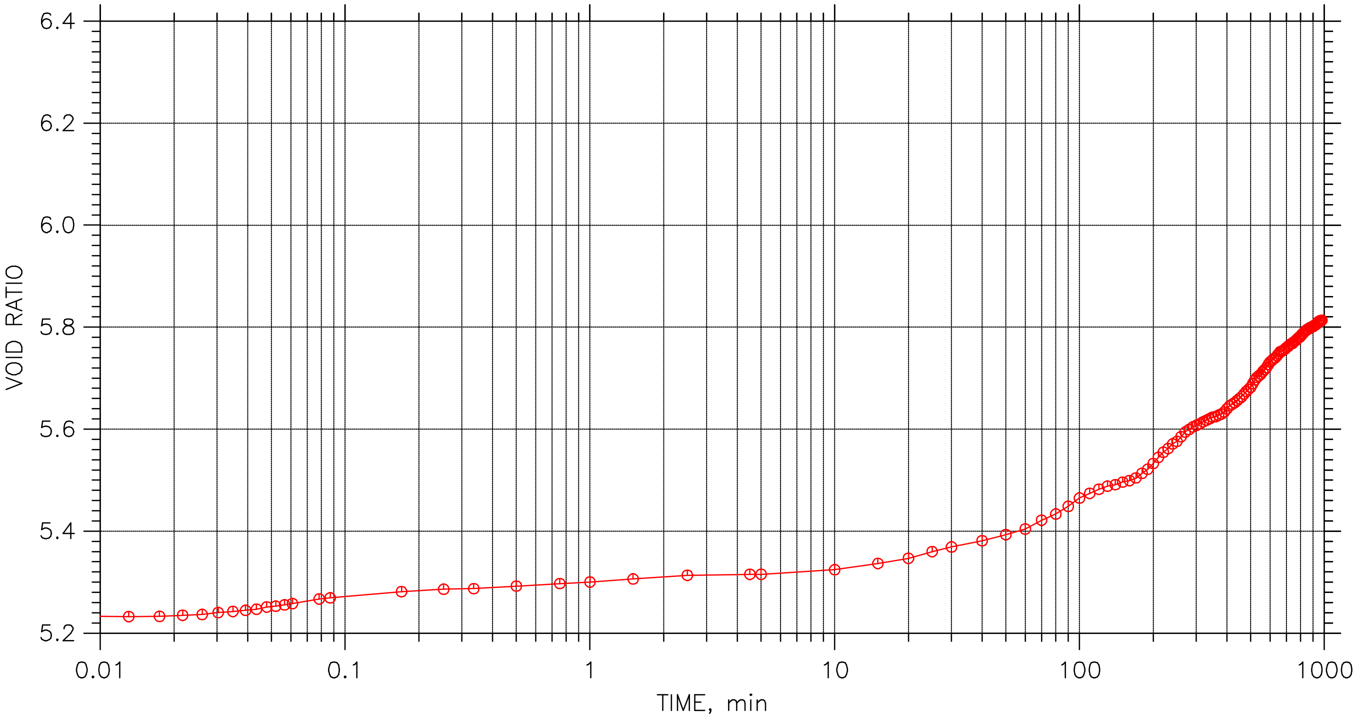
Tue, 26-APR-2022 10:13:43

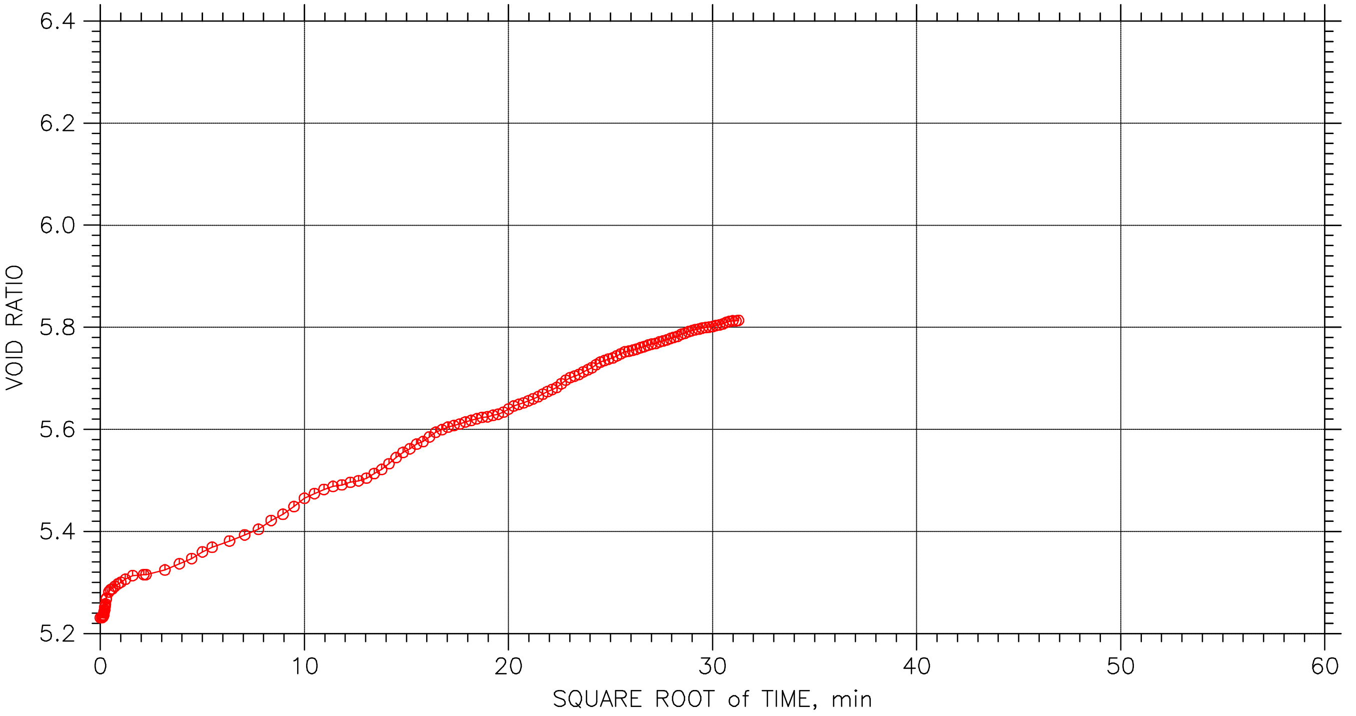
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

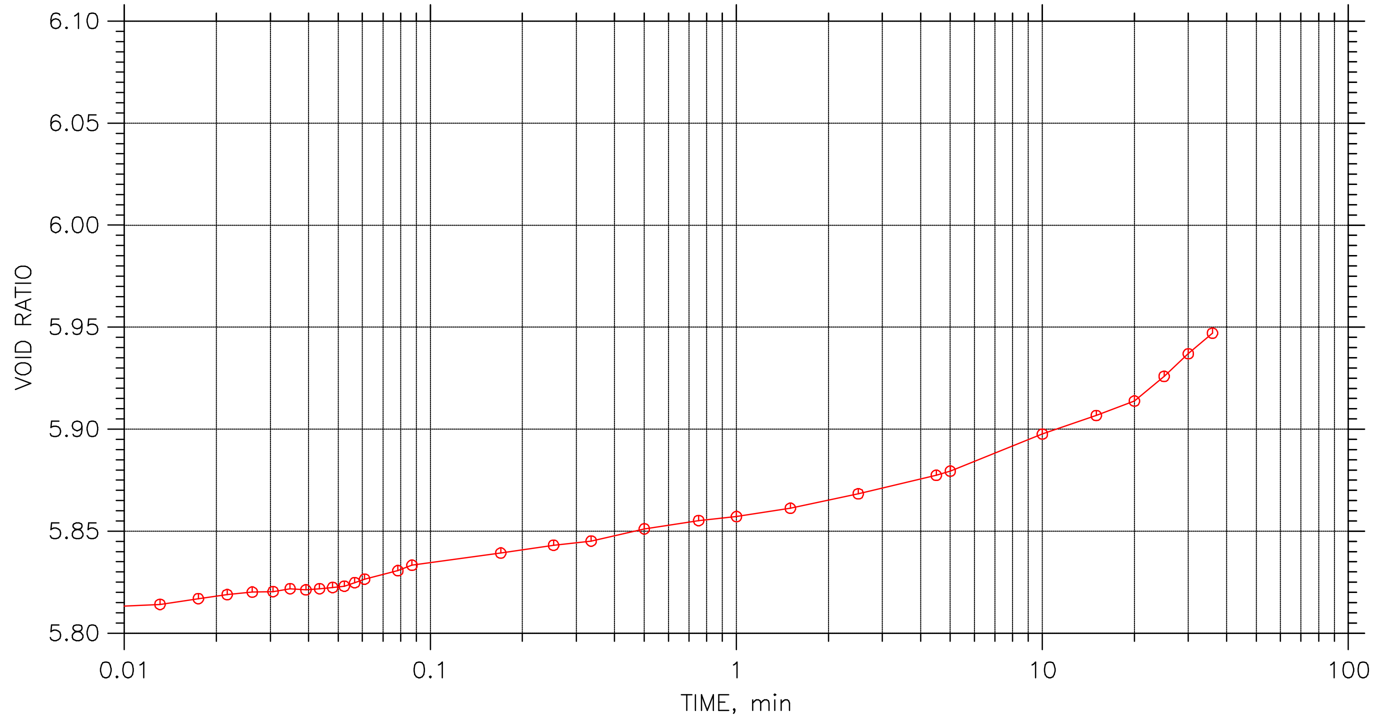
Tue, 26-APR-2022 10:13:44

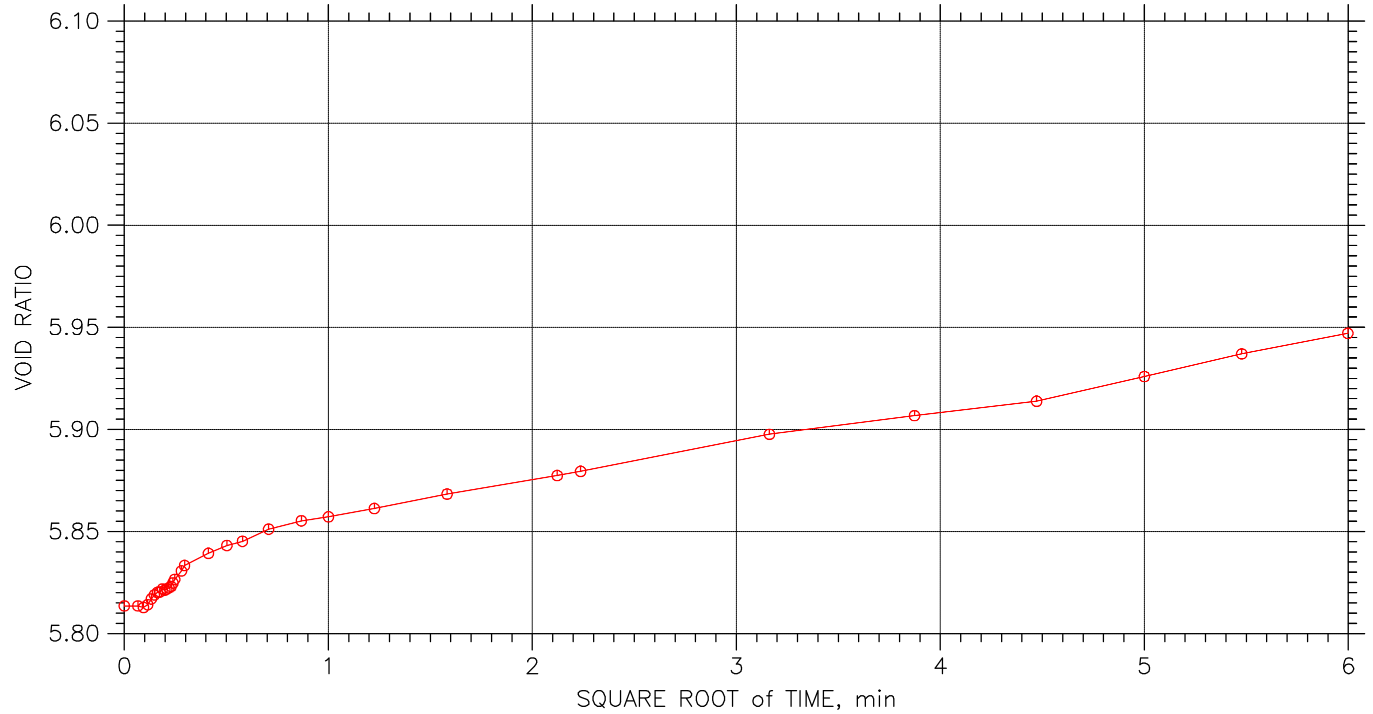
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

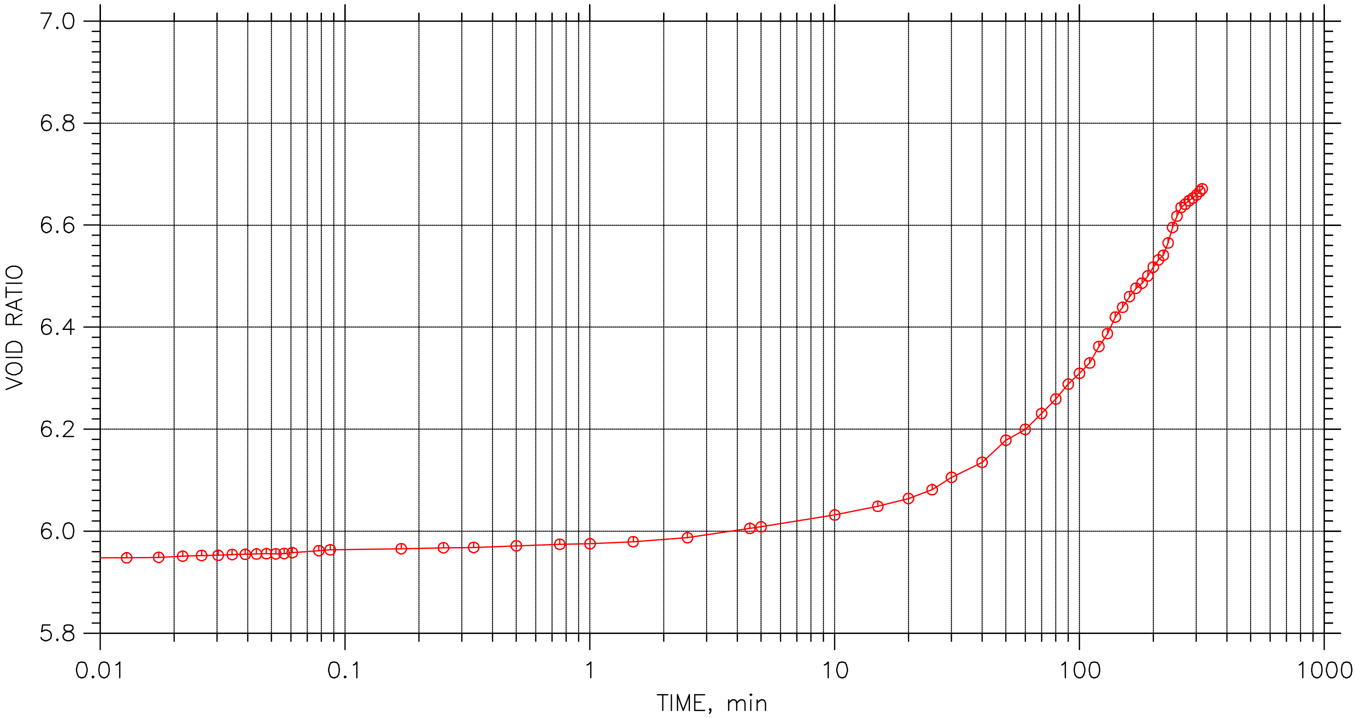
Tue, 26-APR-2022 10:13:46

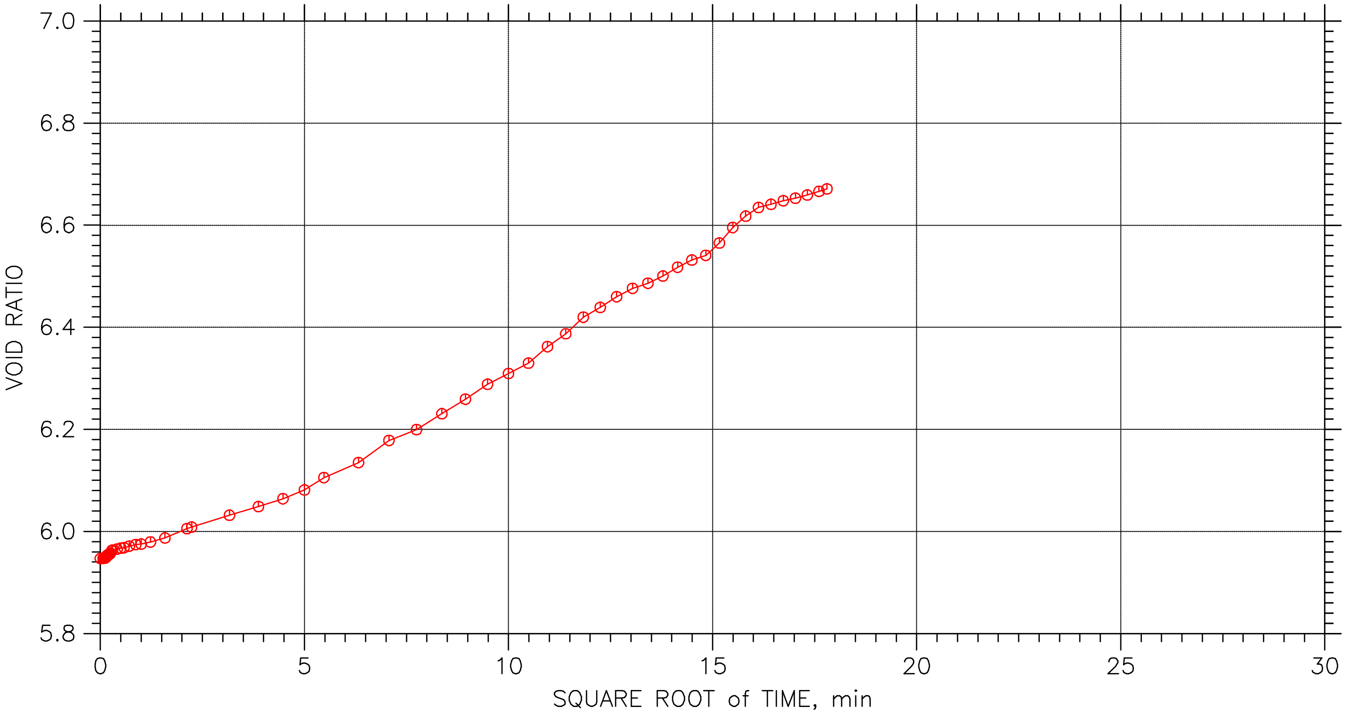
Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

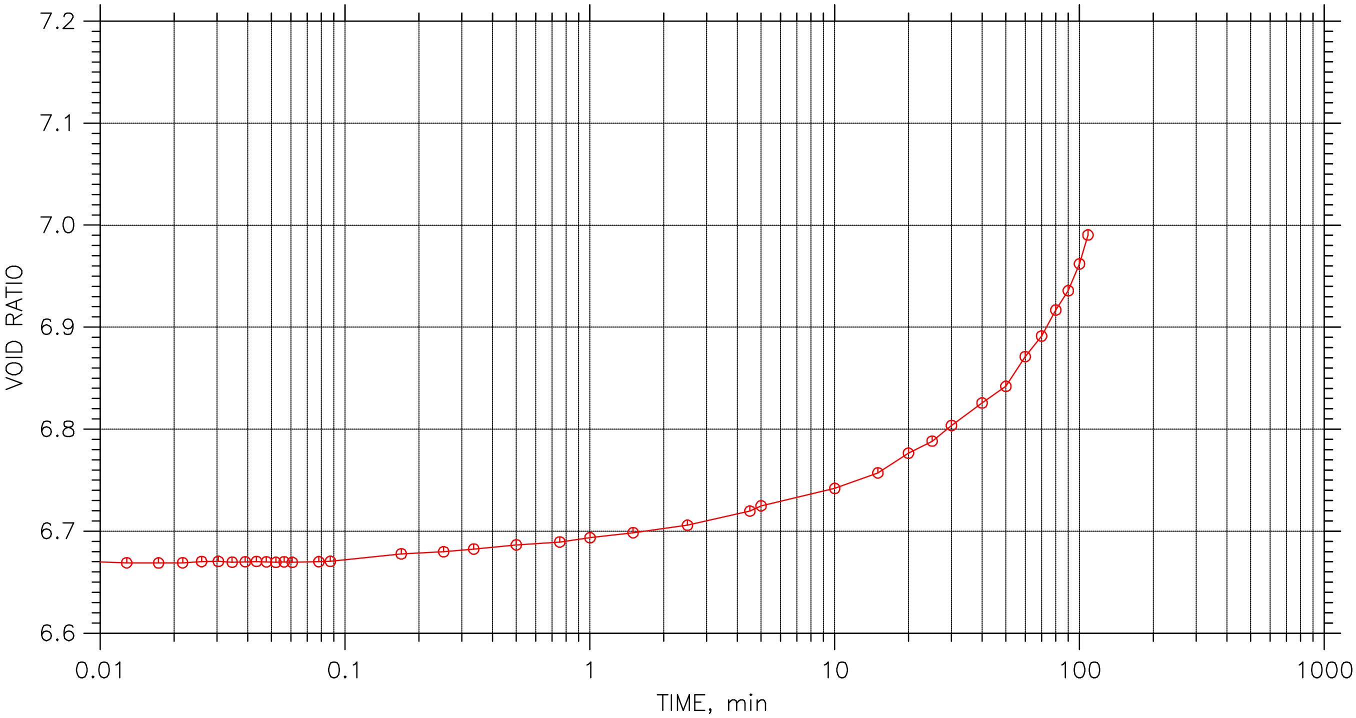
Tue, 26-APR-2022 10:13:47

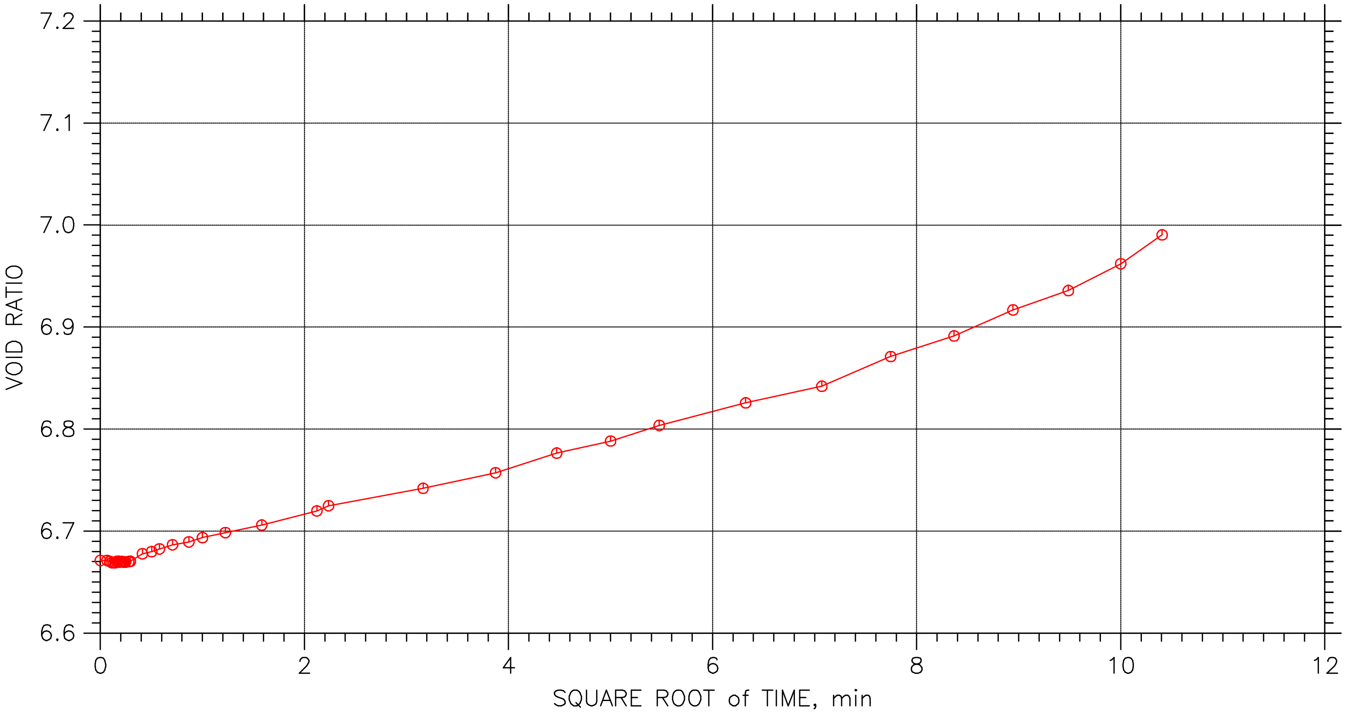
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

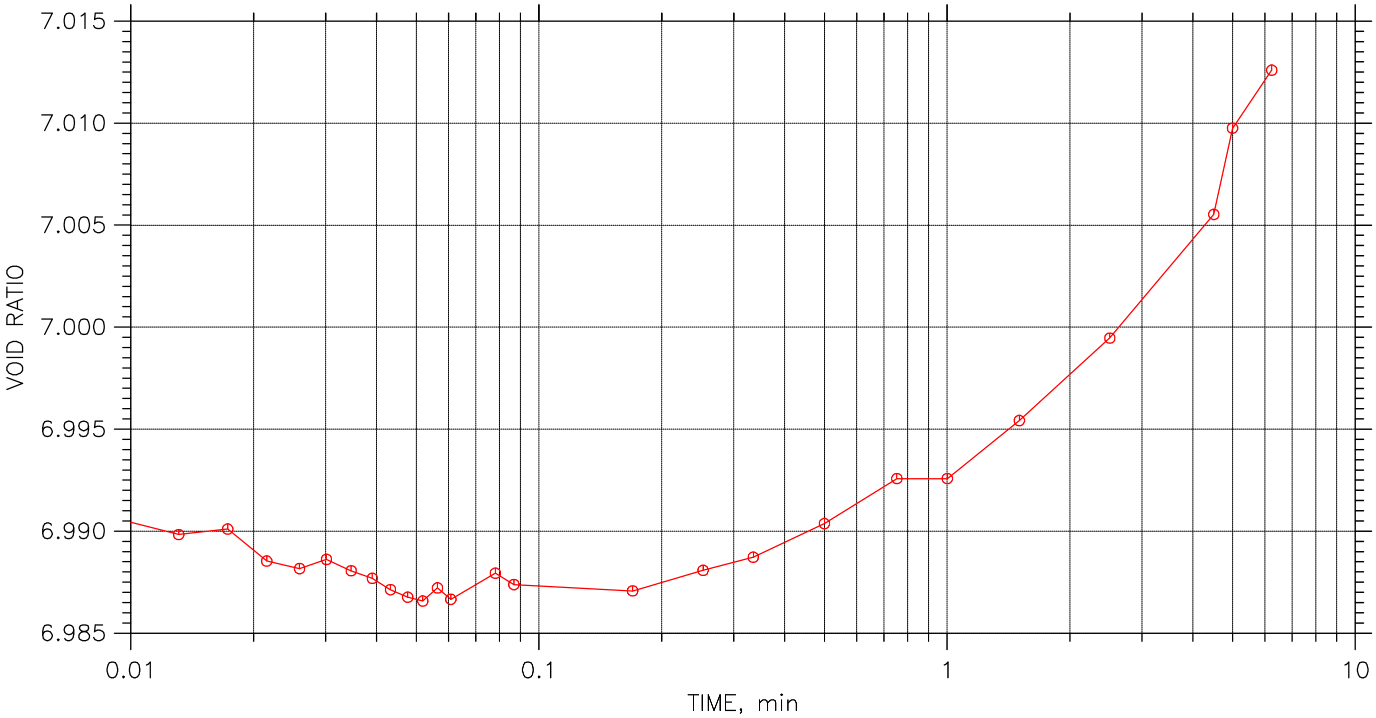
Tue, 26-APR-2022 10:13:49

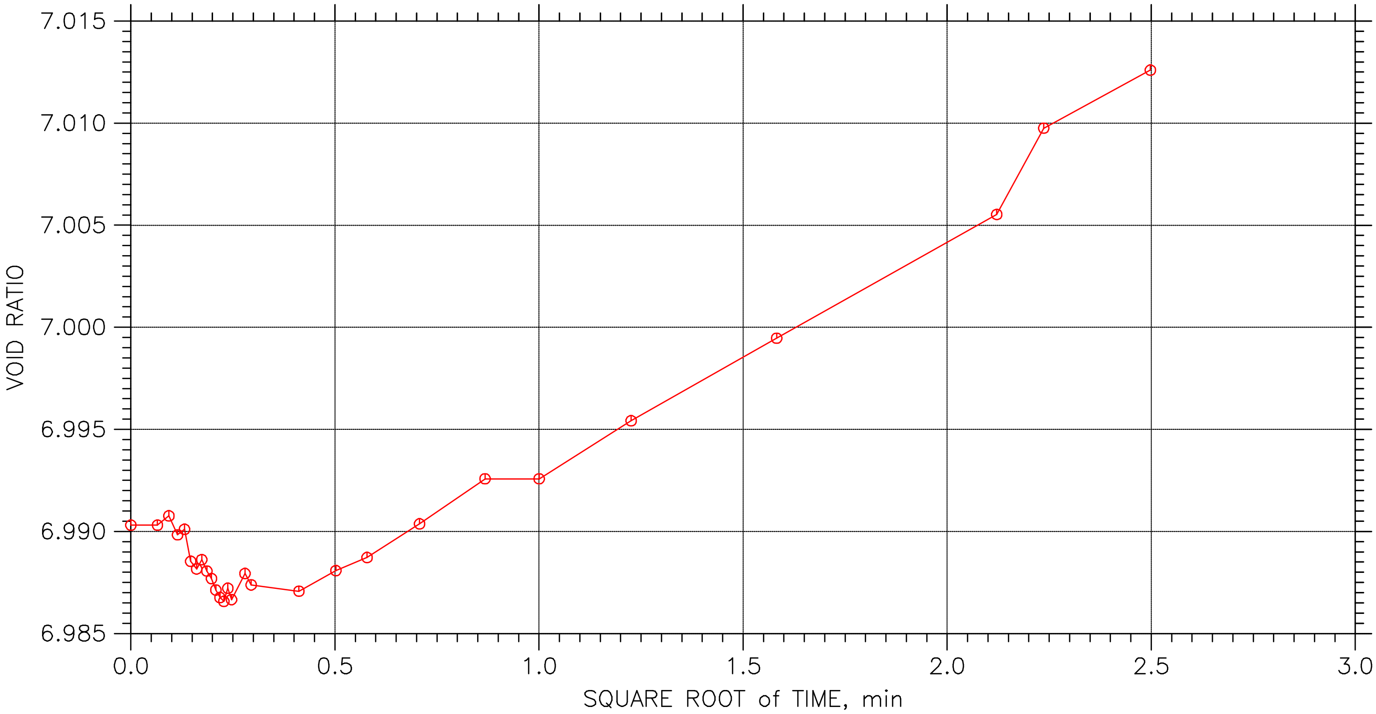
Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/11/2022	Test No.: 1
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

Tue, 26-APR-2022 10:13:50

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

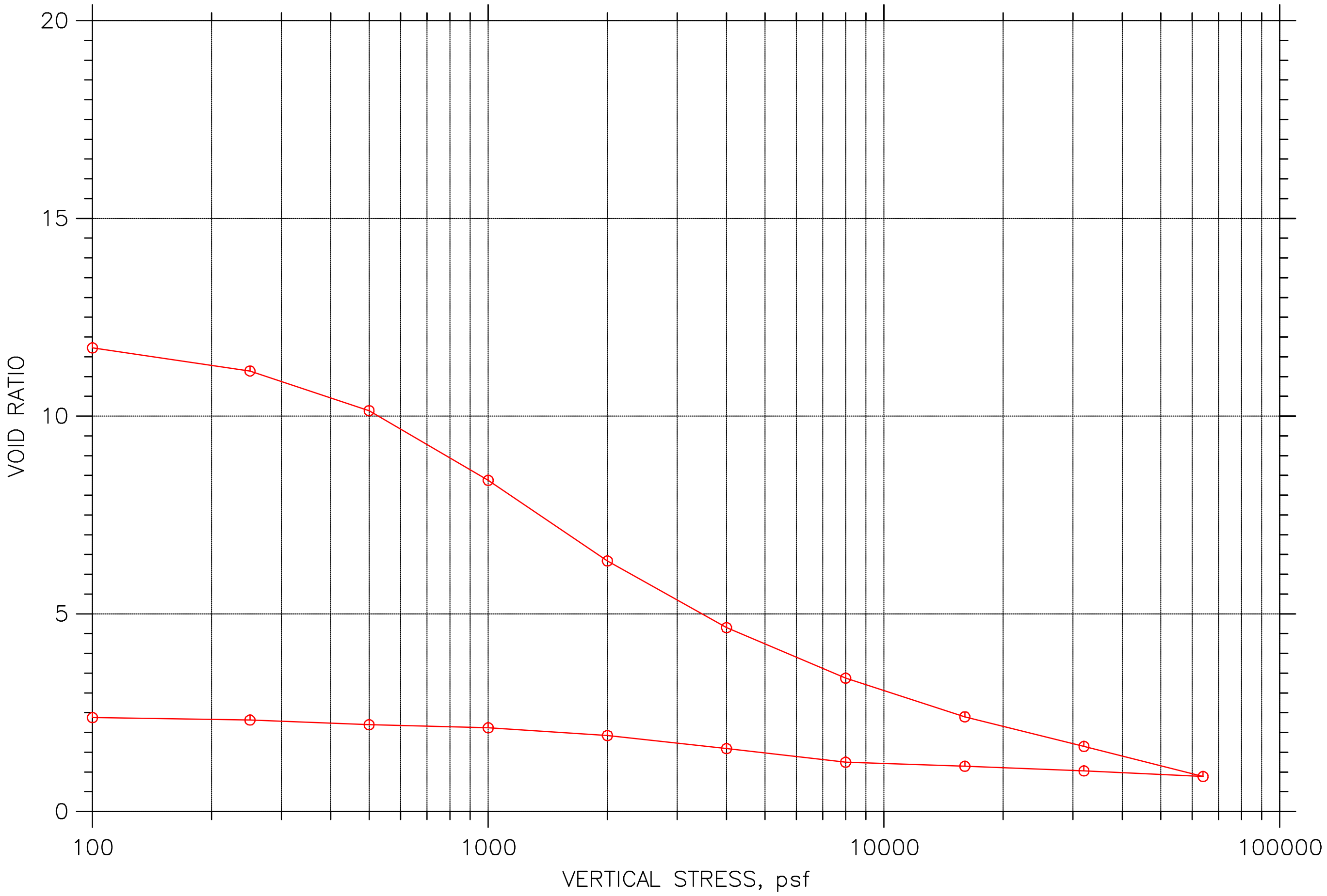
73138.00

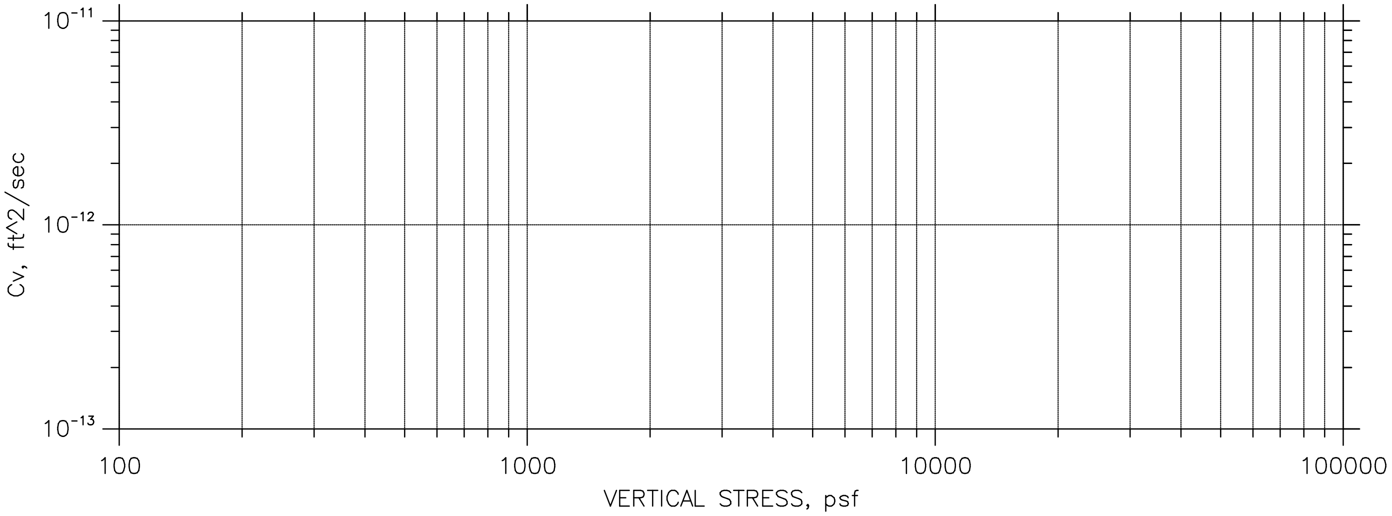
Date Received:	March 21, 2022
Sample #:	22-0258-S04 and S05
Material:	BH-05 Sa4

Sample after extraction

Consolidation Test

SUMMARY REPORT





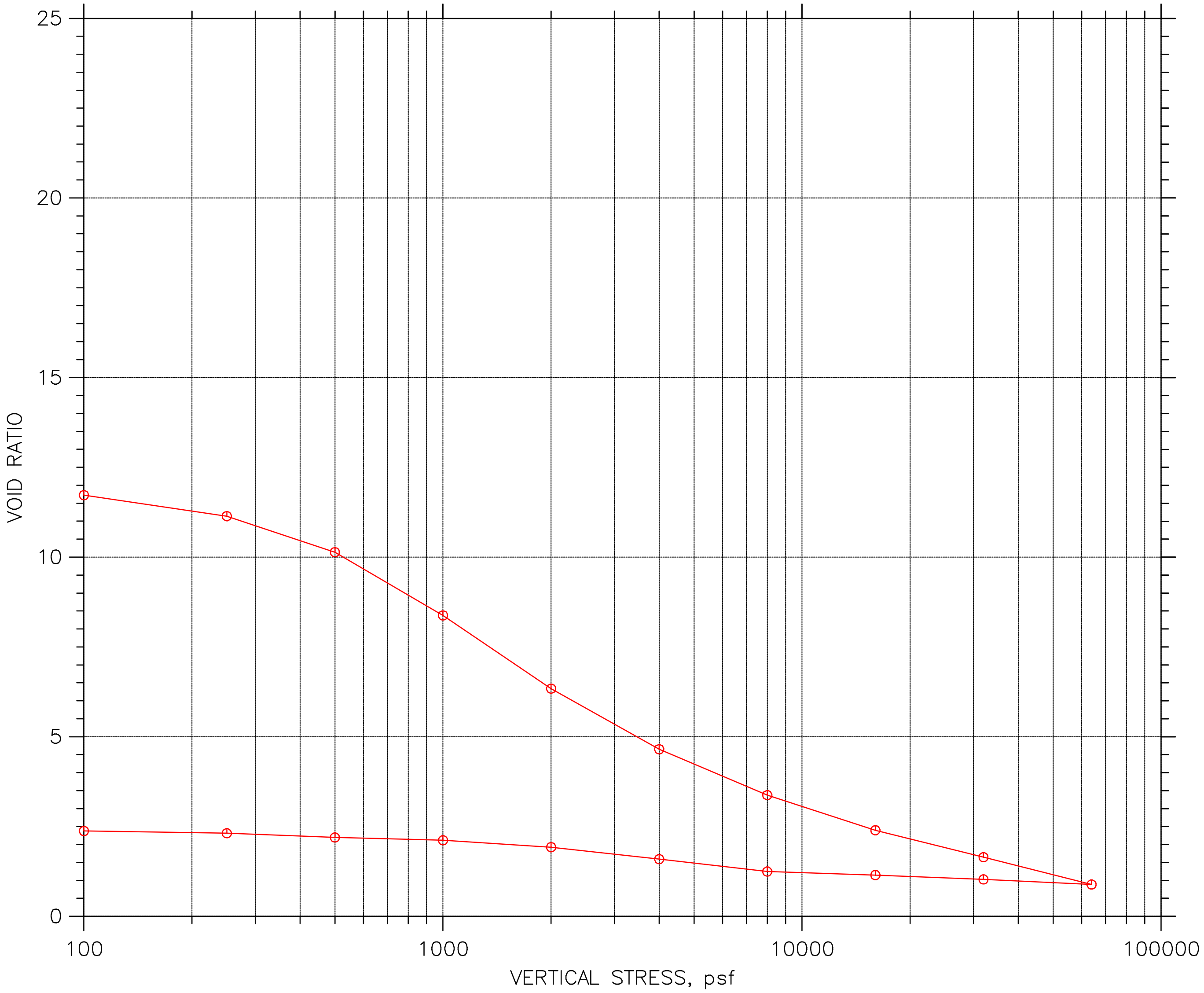
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Reviewed by

Tue, 26-APR-2022 10:18:39

Consolidation Test

SUMMARY REPORT



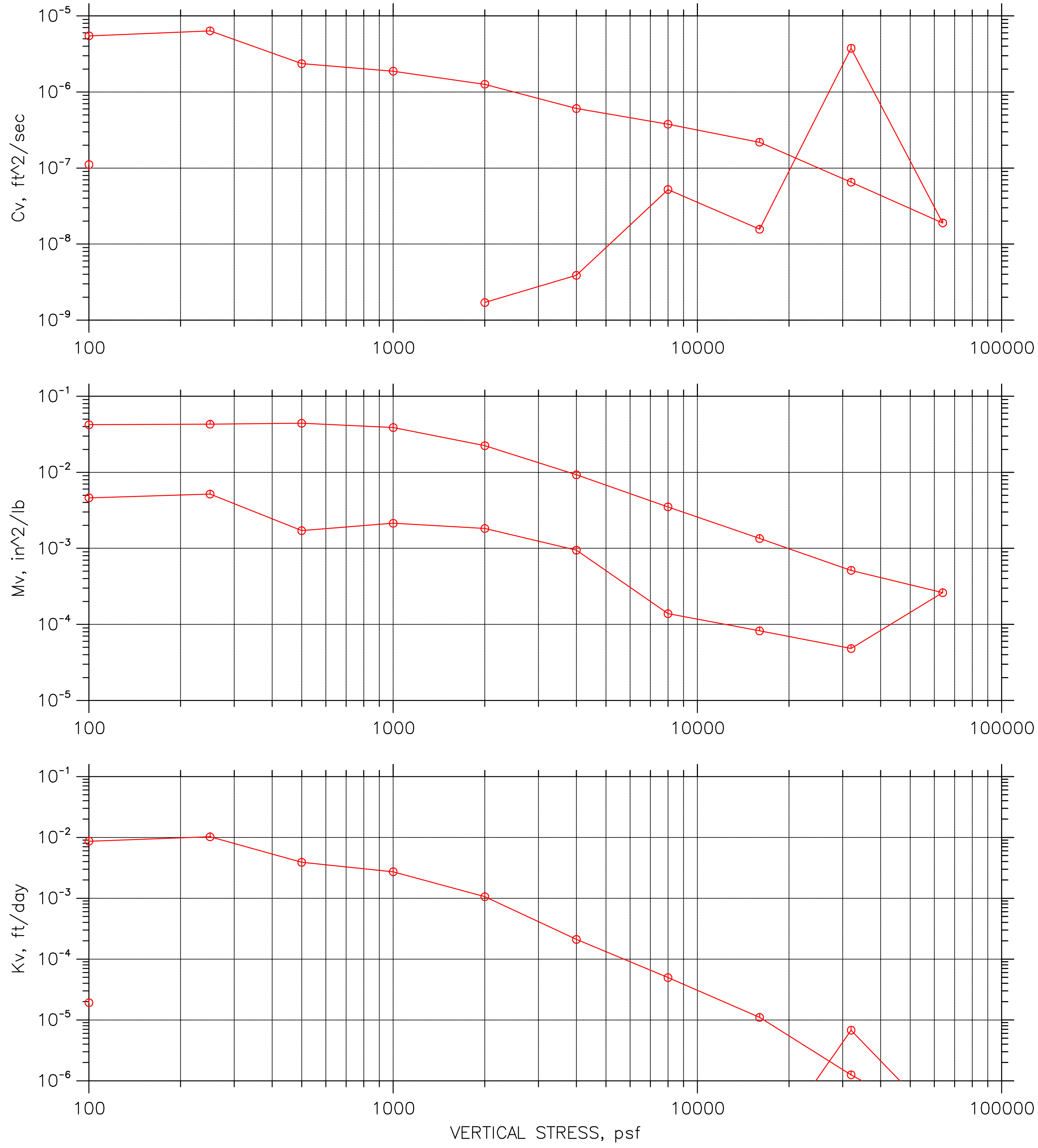
					Before Test	After Test
Overburden Pressure: 0 psf				Water Content, %	554.63	177.32
Preconsolidation Pressure: 0 psf				Dry Unit Weight, pcf	8.096	31.449
Compression Index: 0				Saturation, %	77.87	126.94
Diameter: 2.493 in		Height: 0.9999 in		Void Ratio	12.11	2.37
LL: ---	PL: ---	PI: ---	GS: 1.70	Back Pressure, psf	0	0

Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

Tue, 26-APR-2022 10:18:40

Consolidation Test

ROOT of TIME COEFFICIENTS



Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

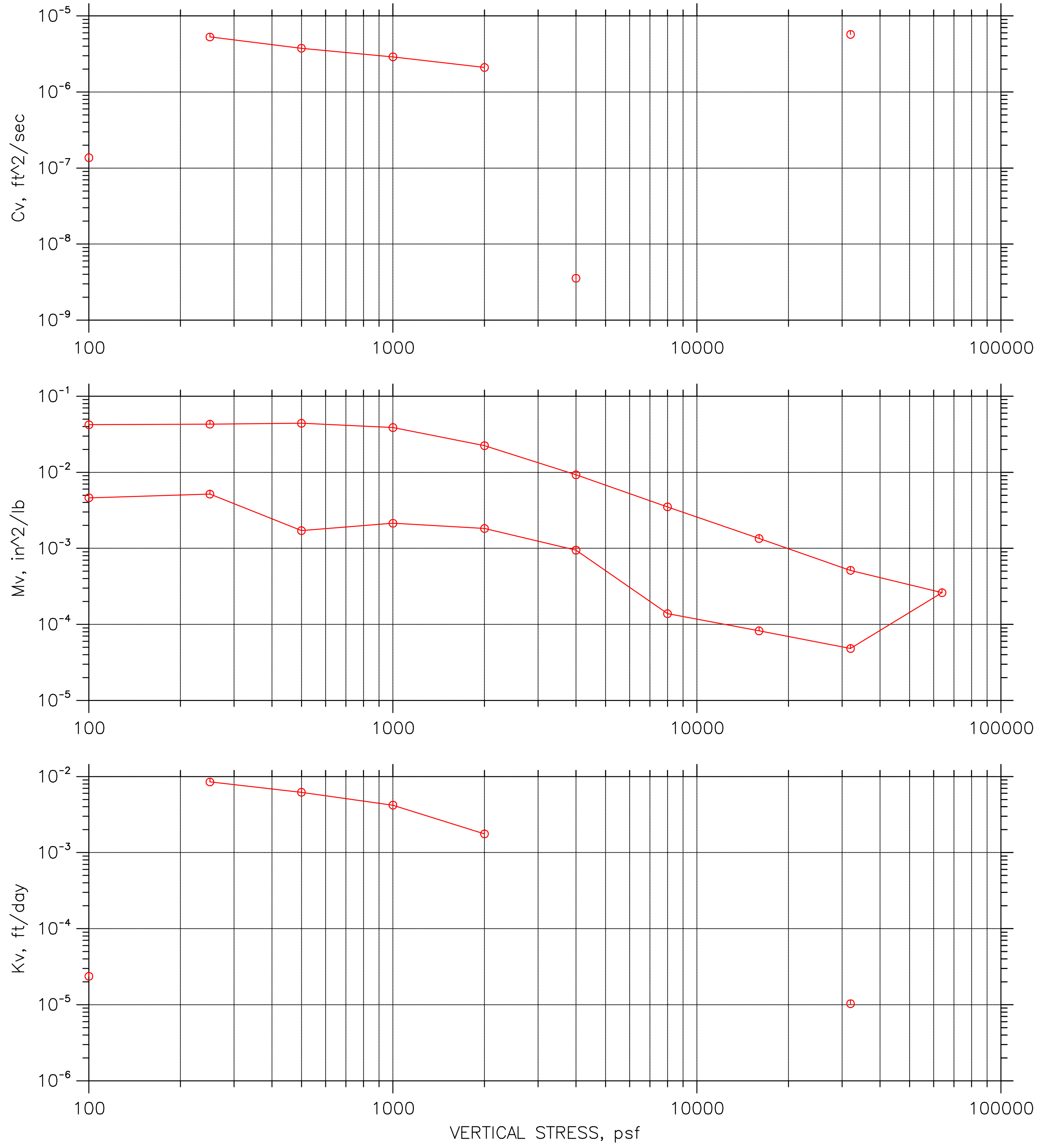
Alaska Testlab

Reviewed by

Tue, 26-APR-2022 10:18:41

Consolidation Test

LOG of TIME COEFFICIENTS



Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Alaska Testlab

Reviewed by

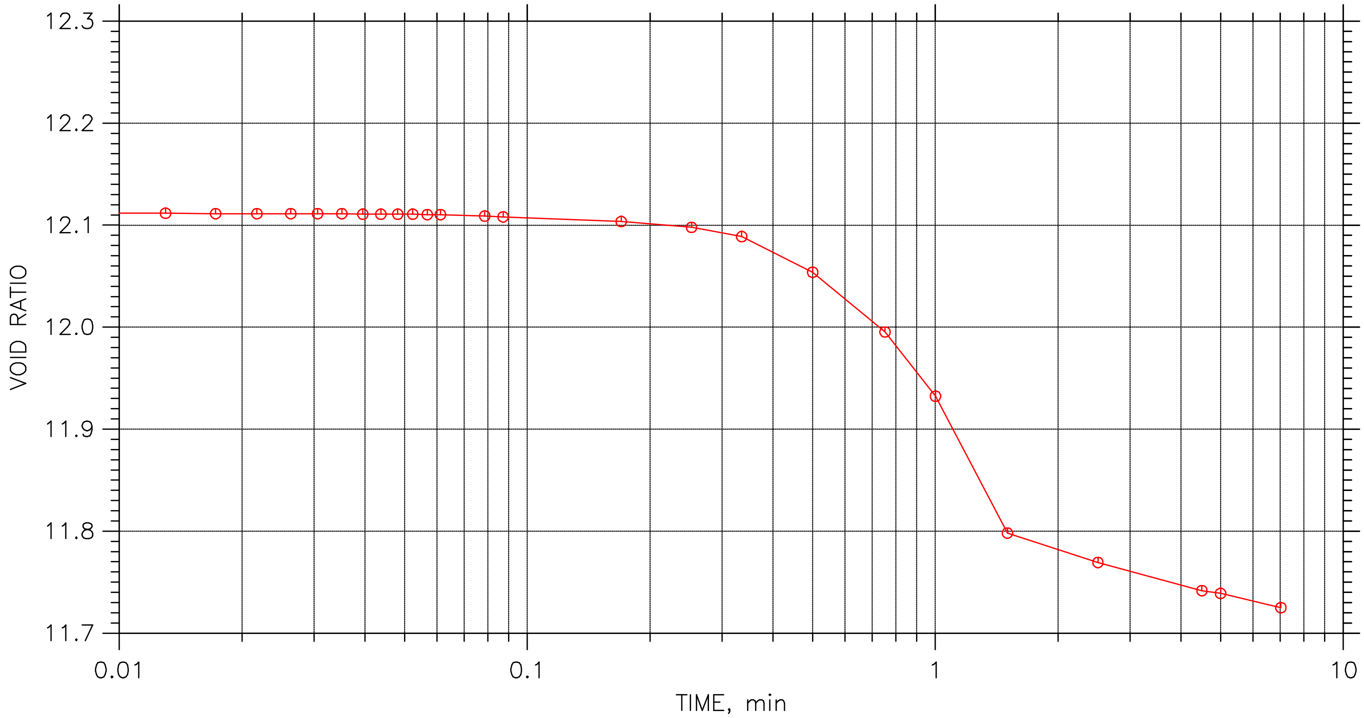
Tue, 26-APR-2022 10:18:42

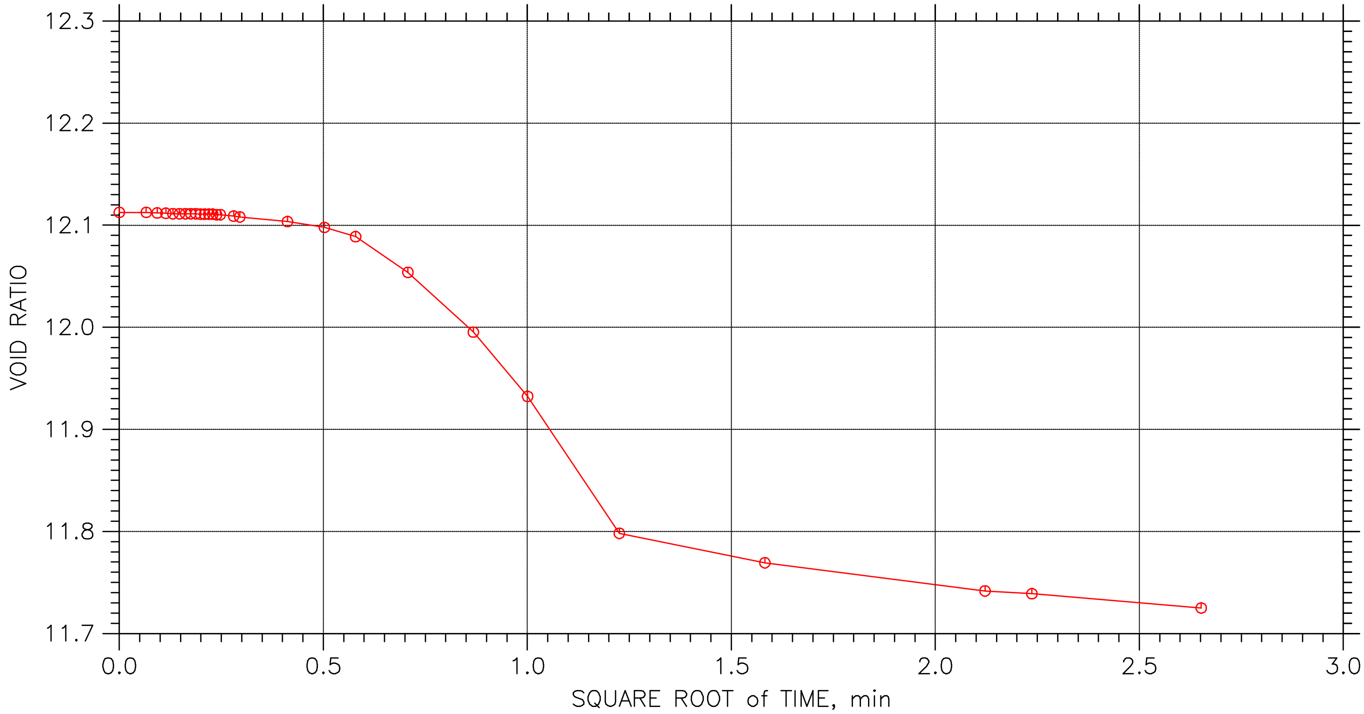
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

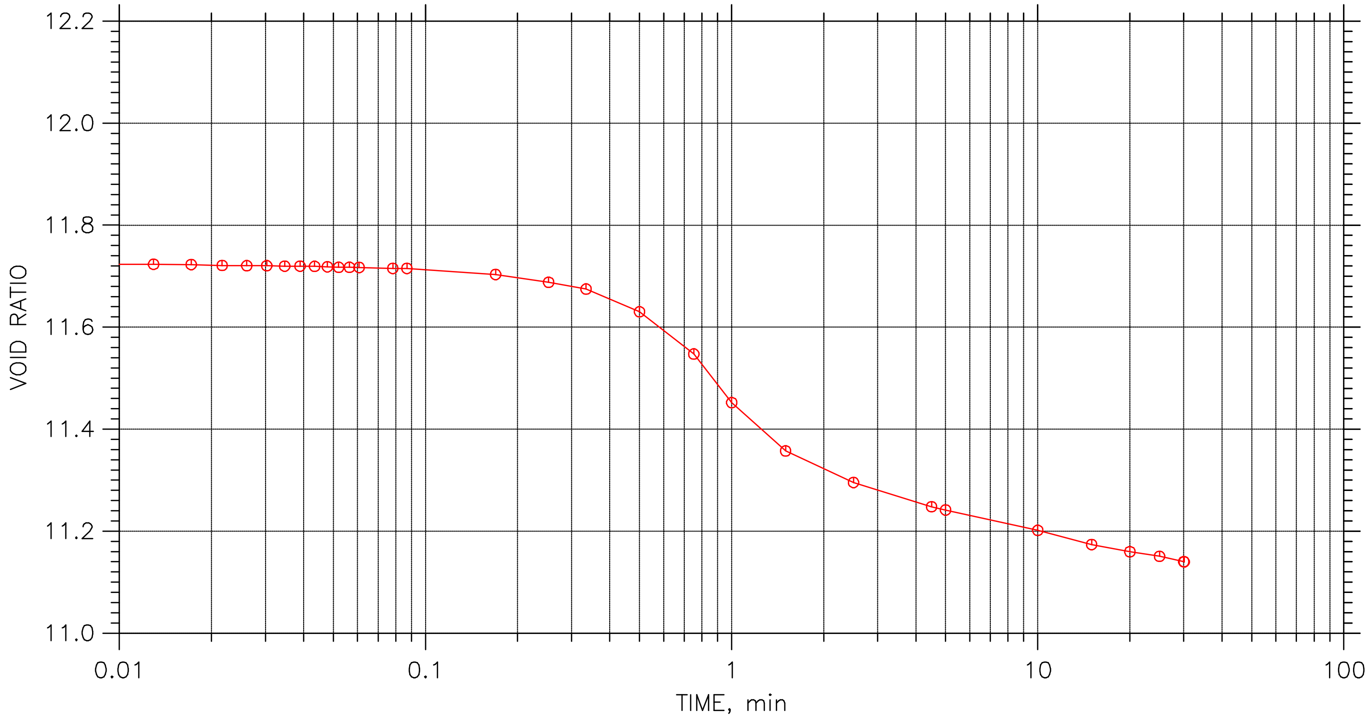
Tue, 26-APR-2022 10:18:43

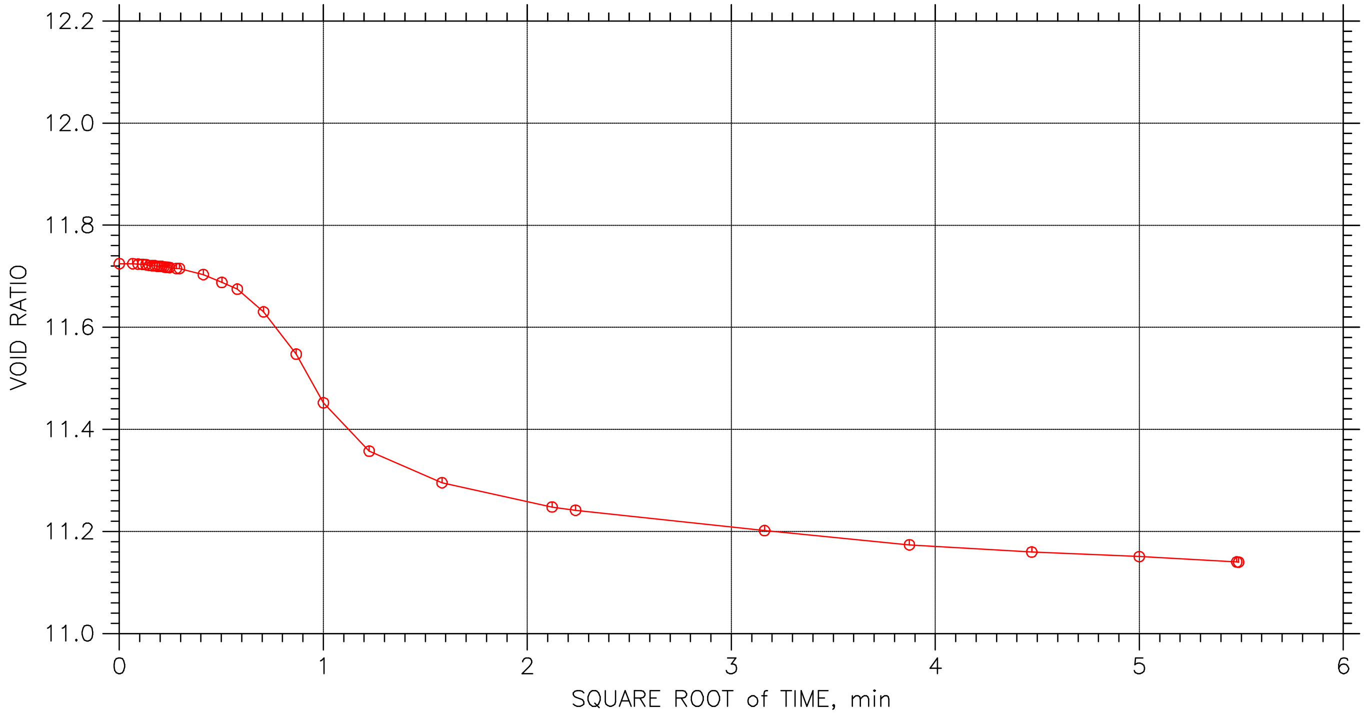
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

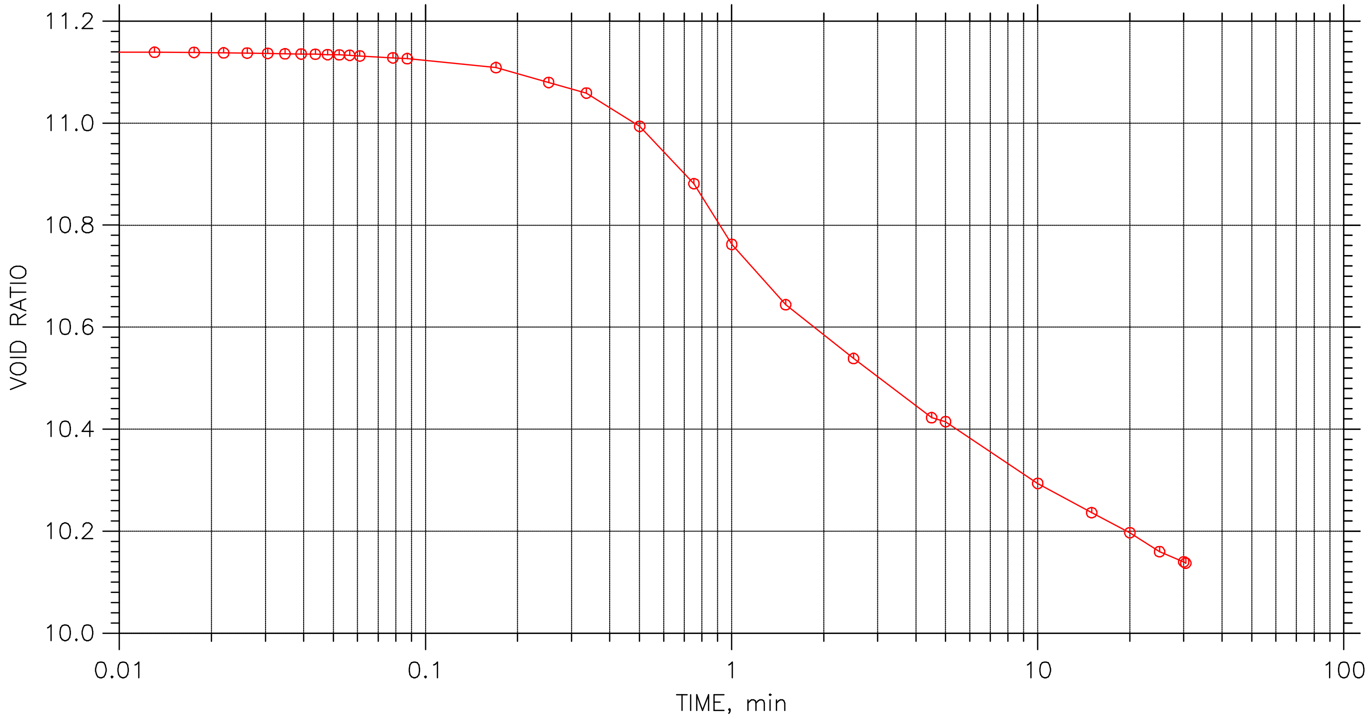
Tue, 26-APR-2022 10:18:44

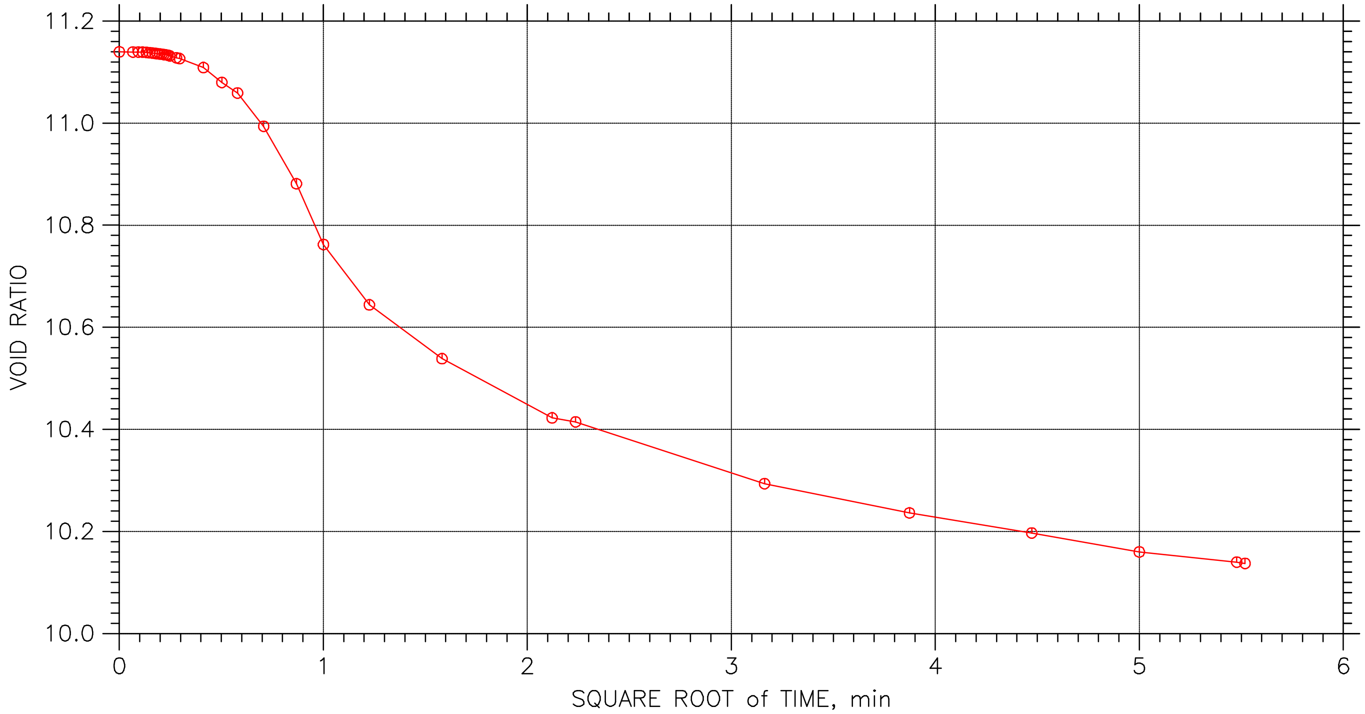
Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf





Alaska Testlab

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

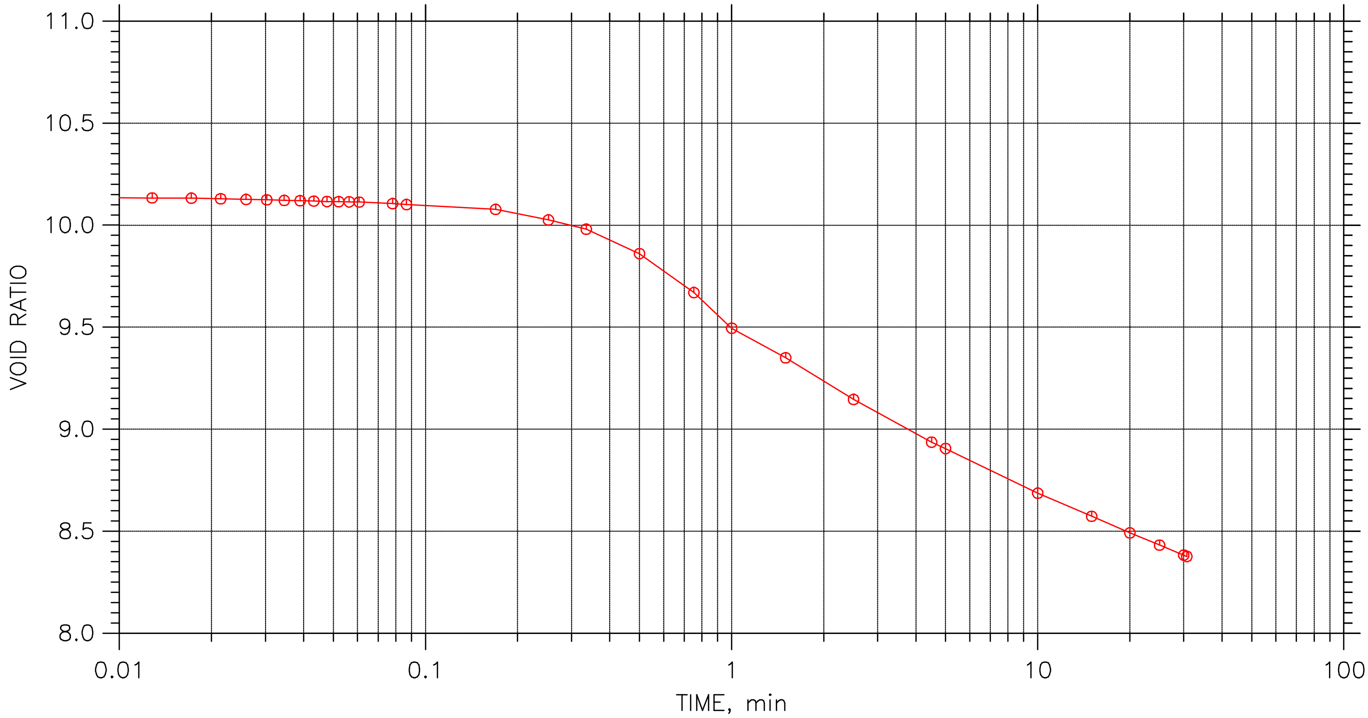
Tue, 26-APR-2022 10:18:46

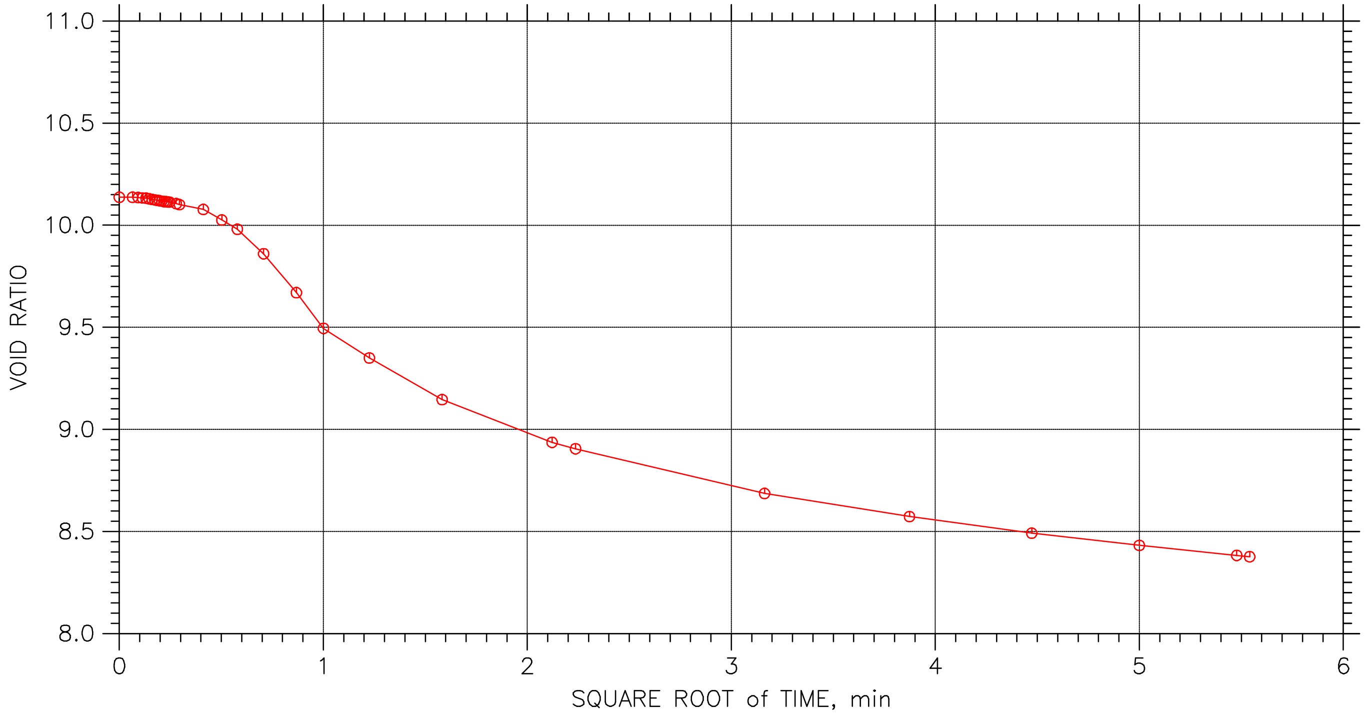
Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf





ATL
Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

Remarks: ASTM D2487: PT Visual Classification: Peat

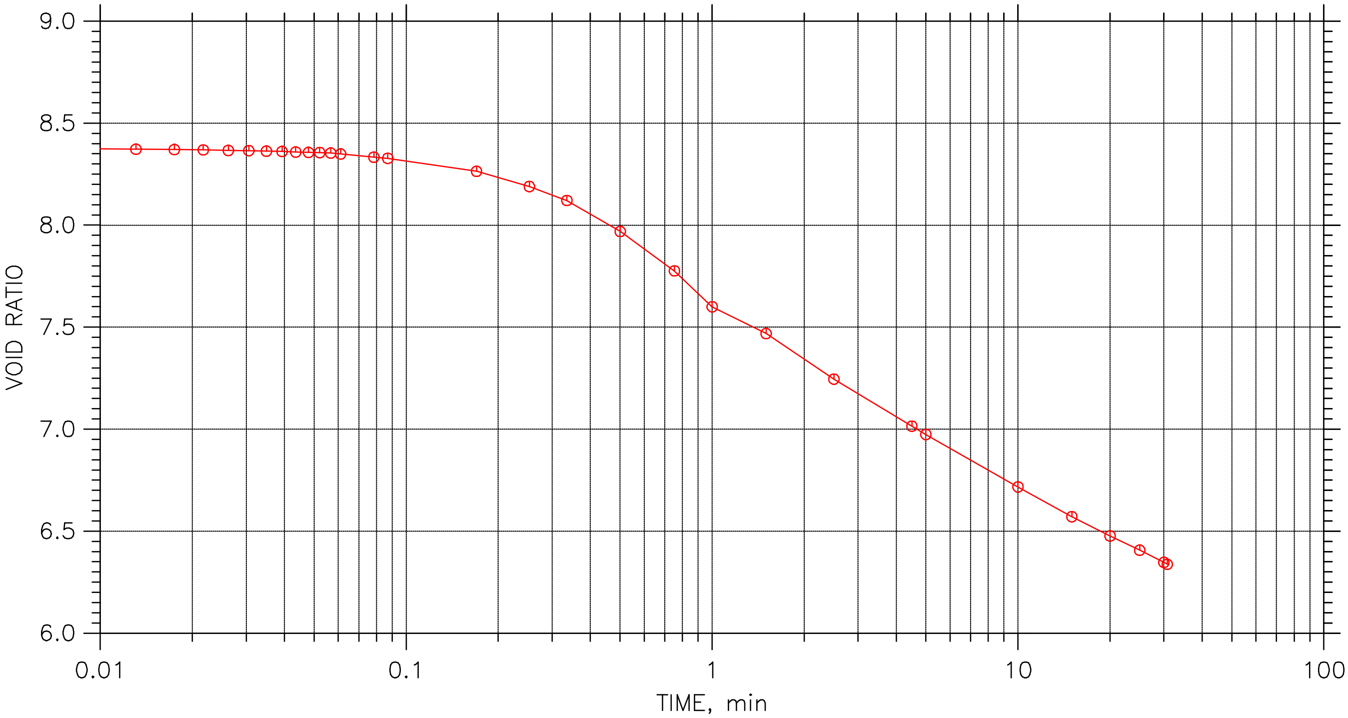
Tue, 26-APR-2022 10:18:47

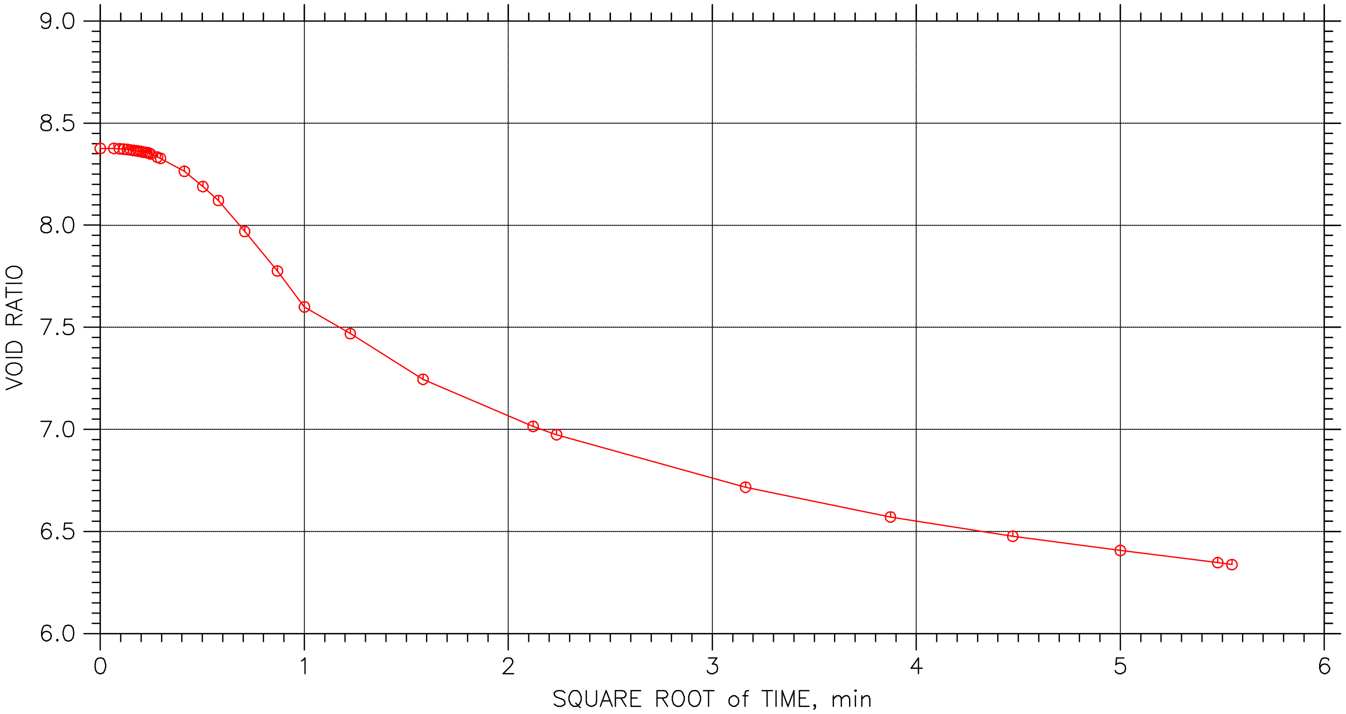
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

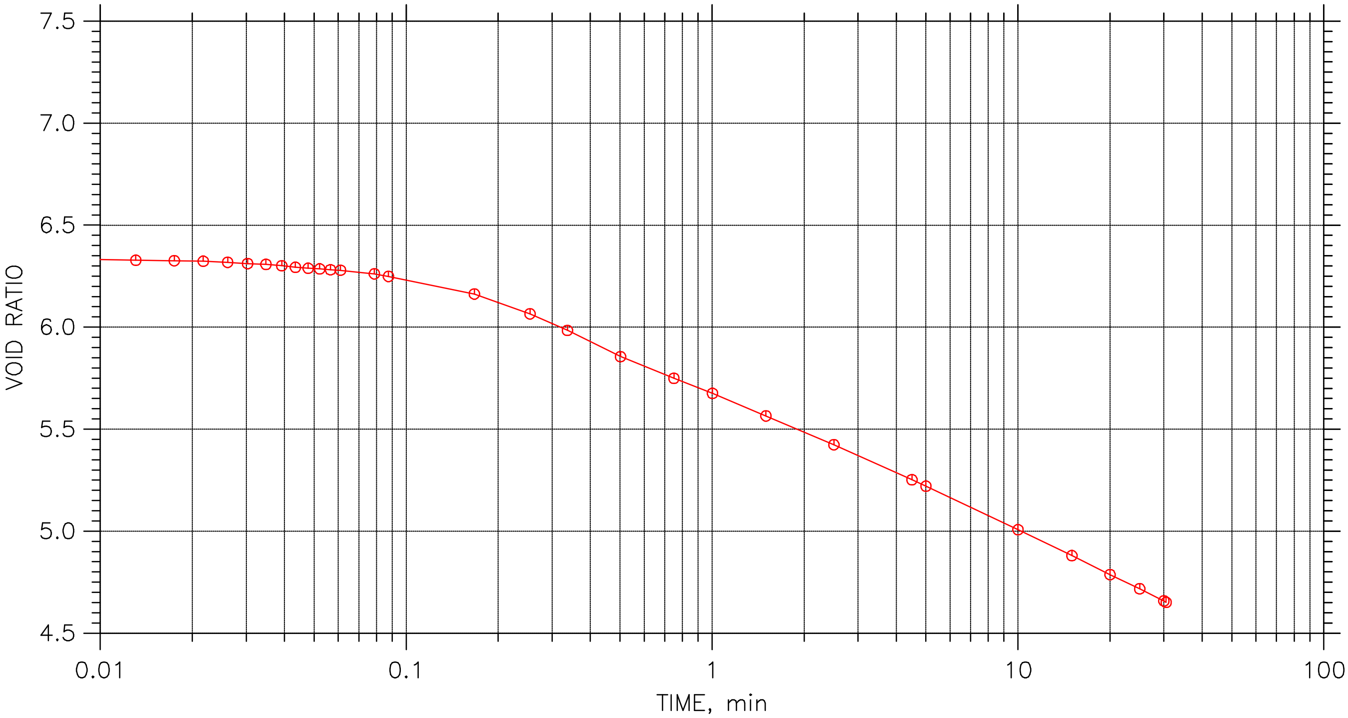
Tue, 26-APR-2022 10:18:48

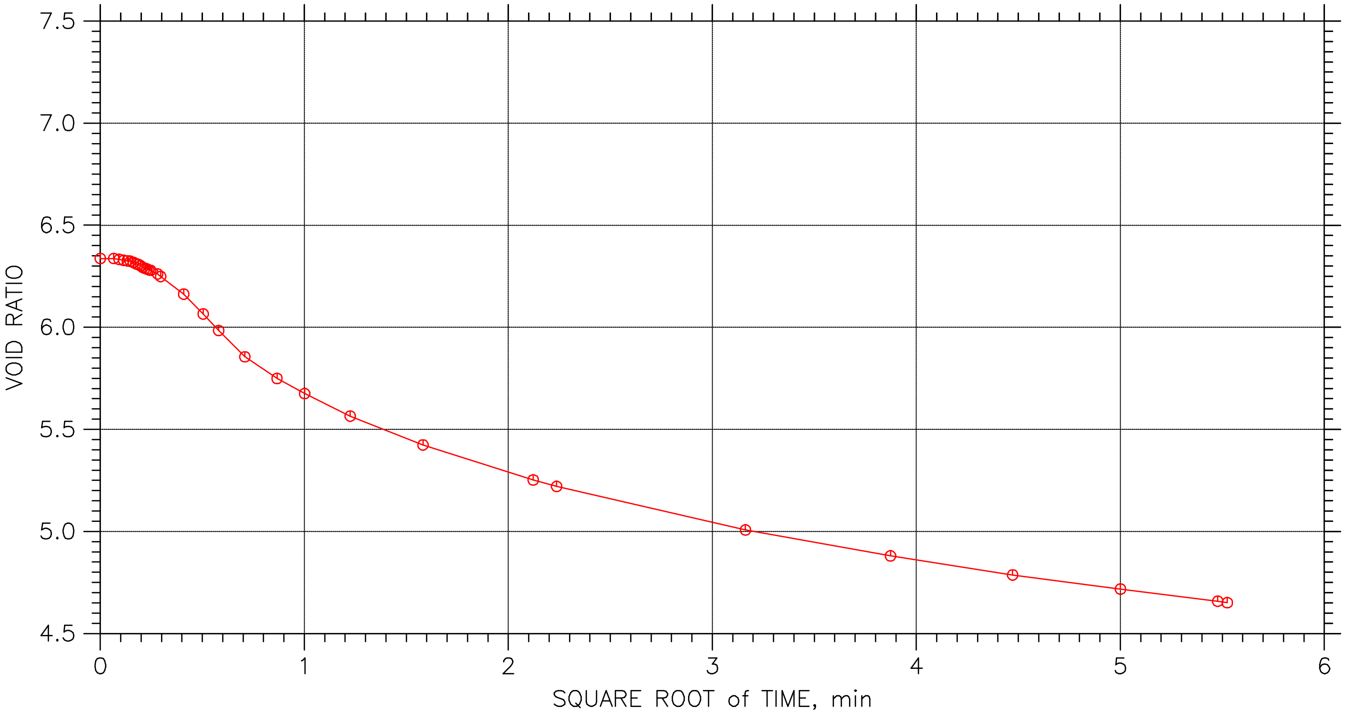
Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

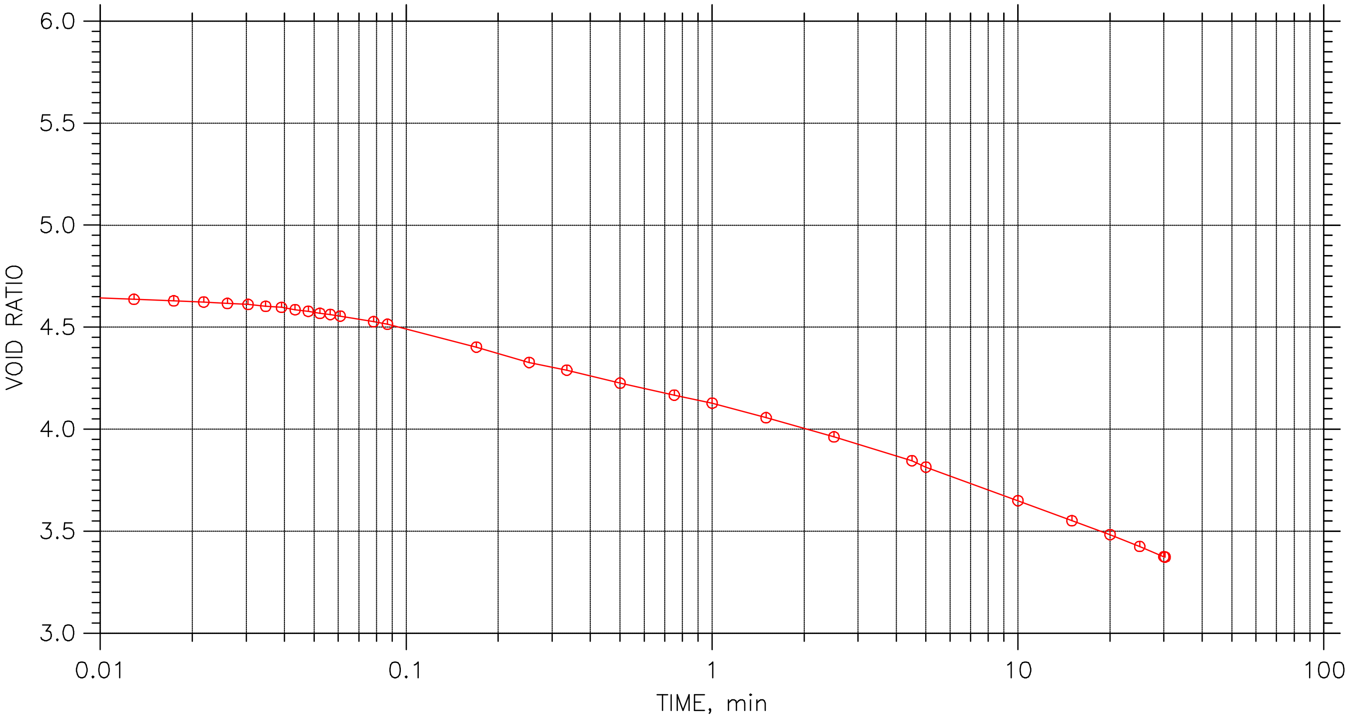
Tue, 26-APR-2022 10:18:49

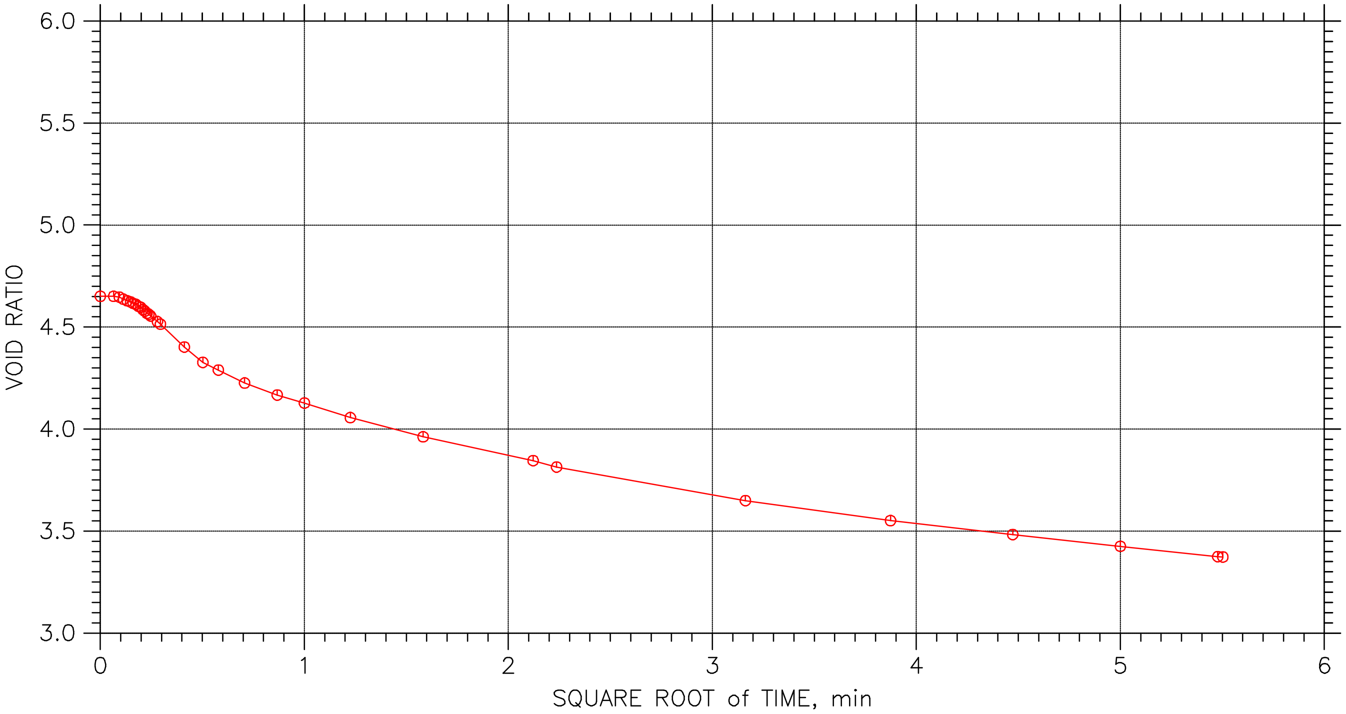
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

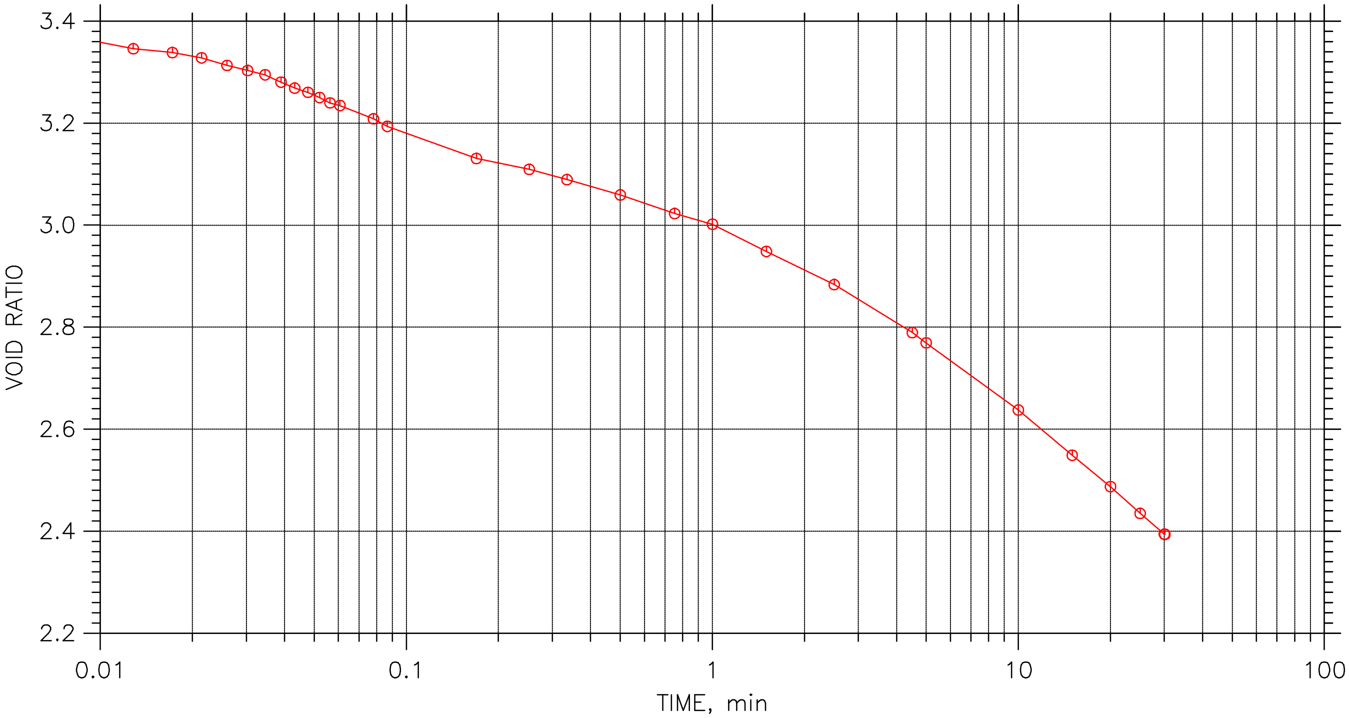
Tue, 26-APR-2022 10:18:50

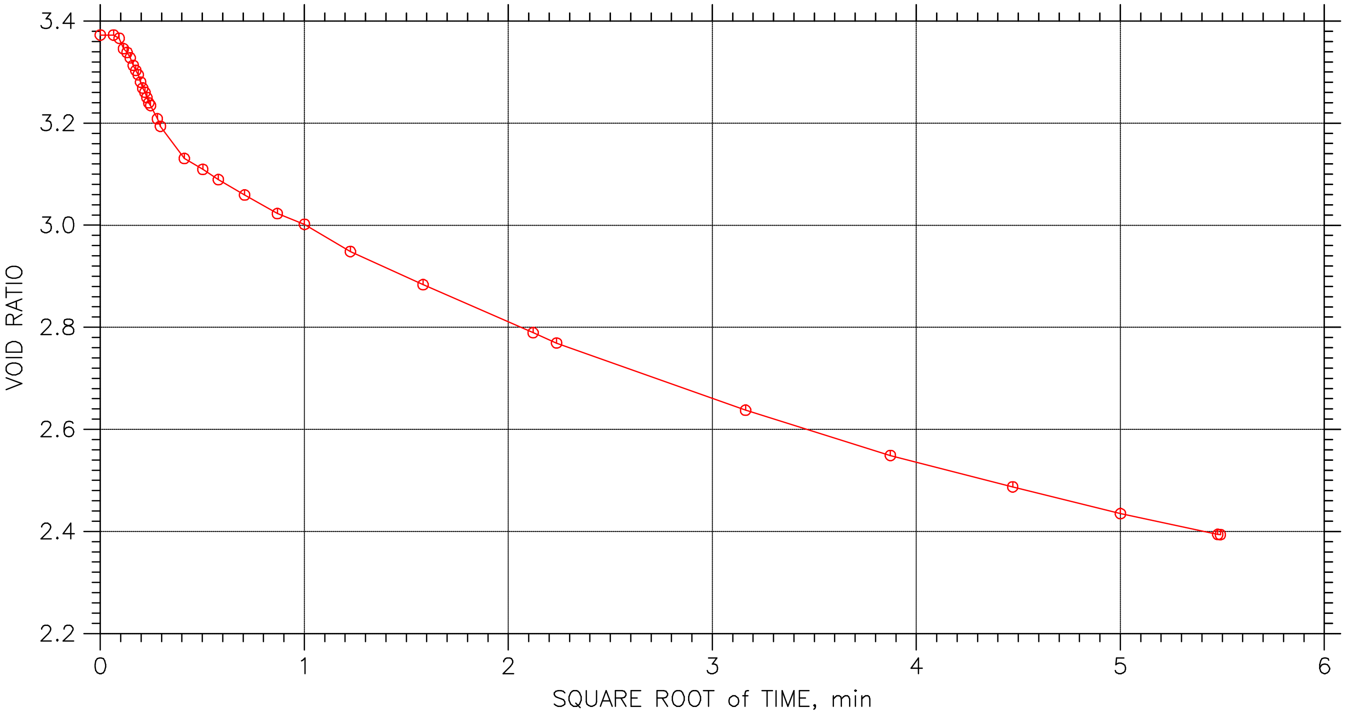
Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

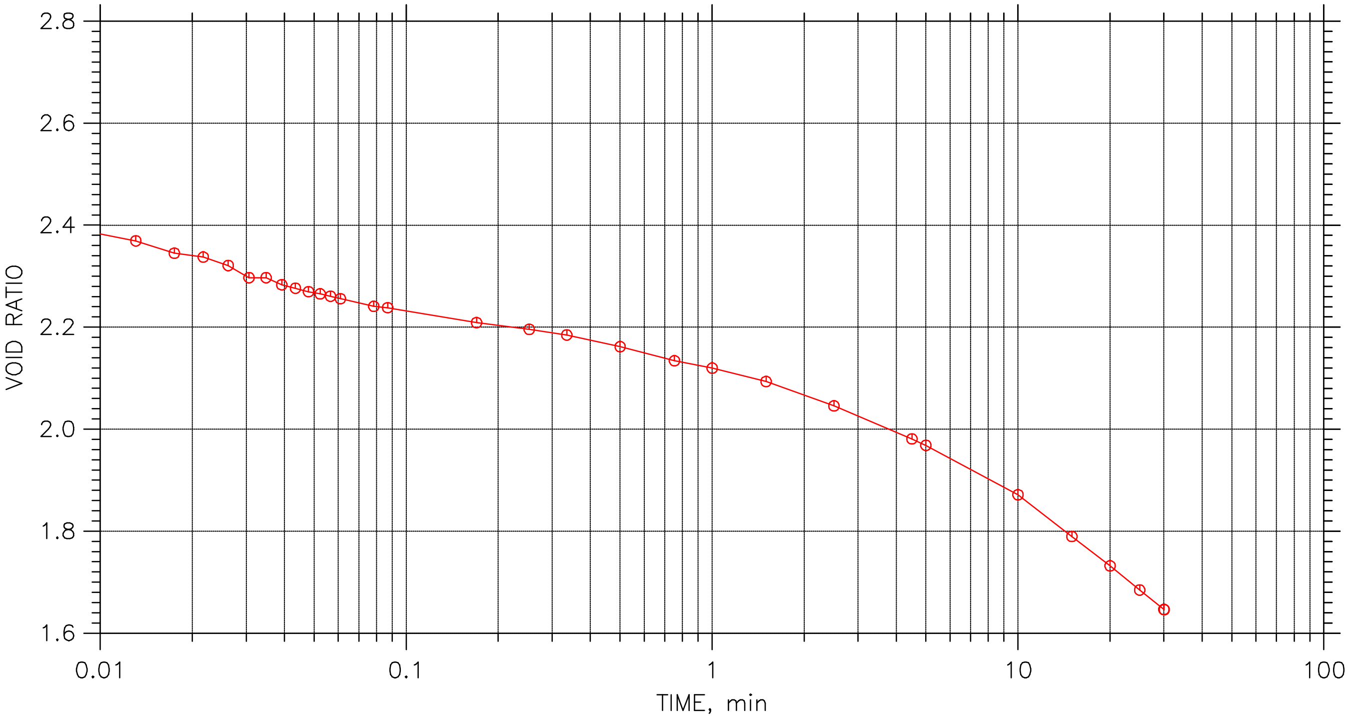
Tue, 26-APR-2022 10:18:51

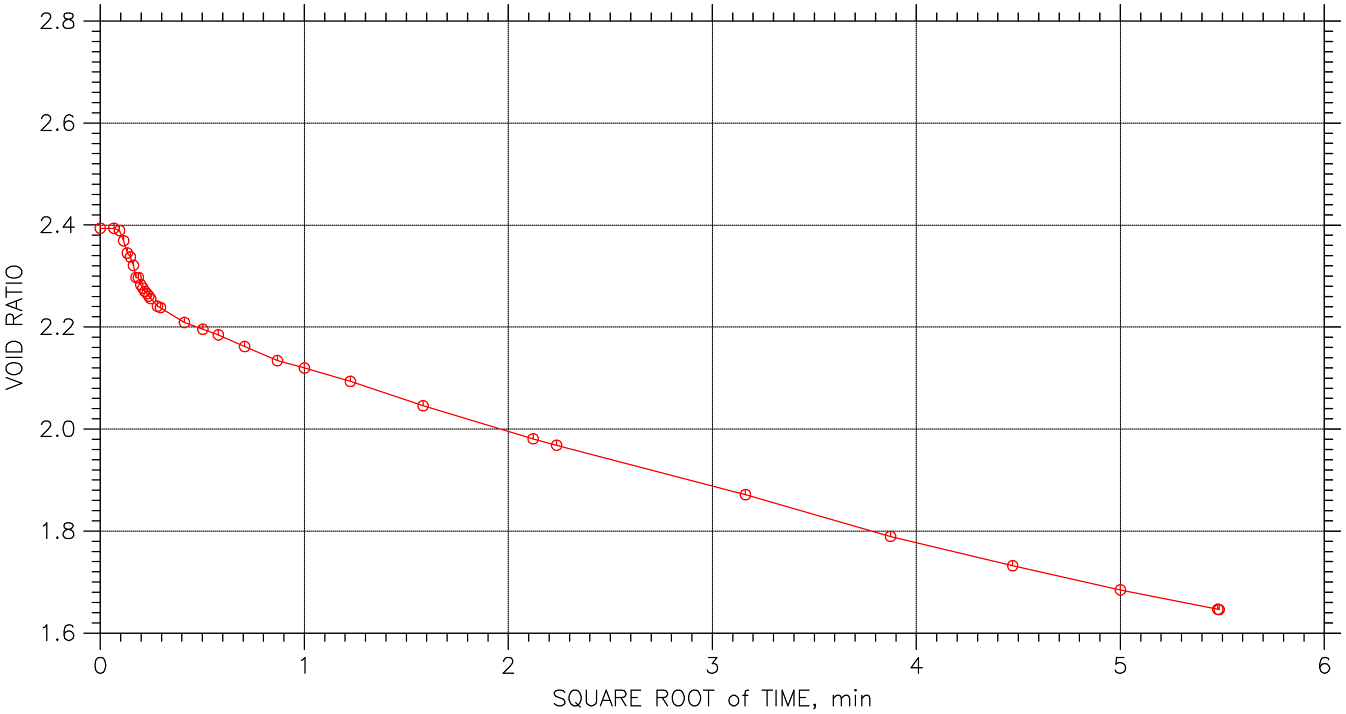
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

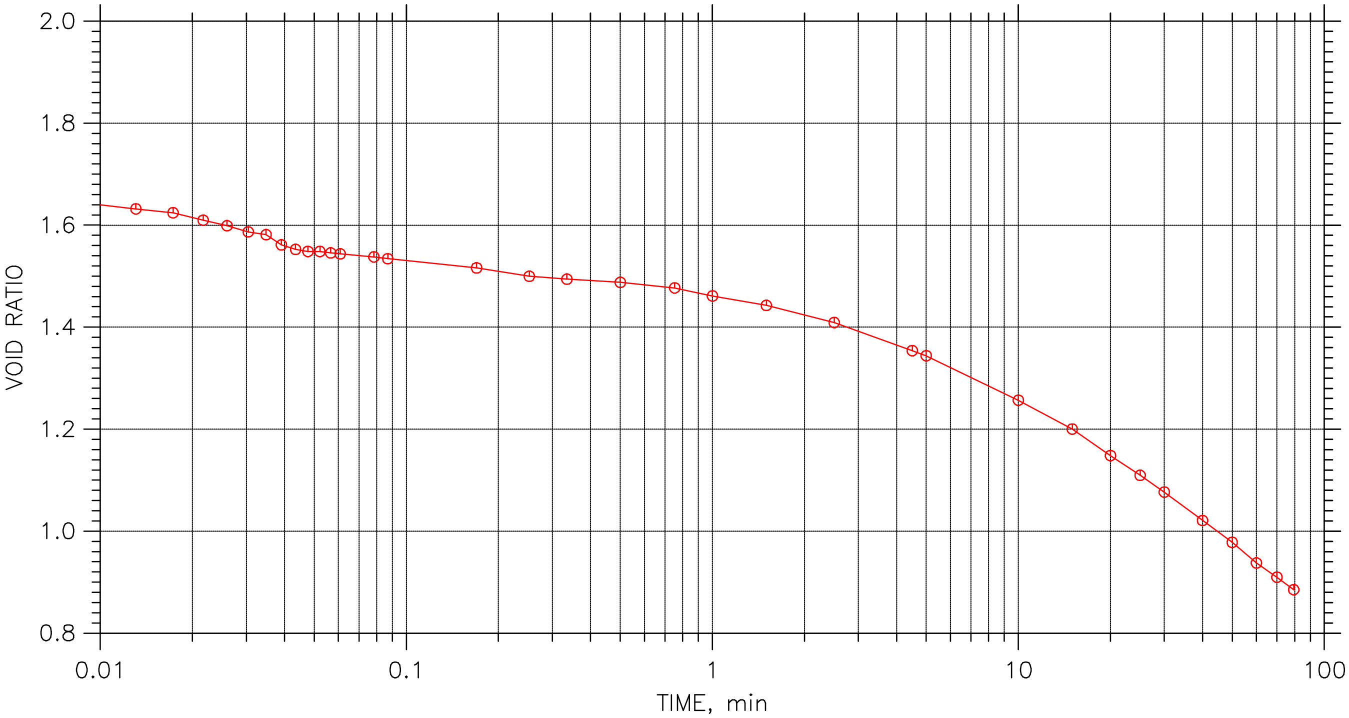
Tue, 26-APR-2022 10:18:52

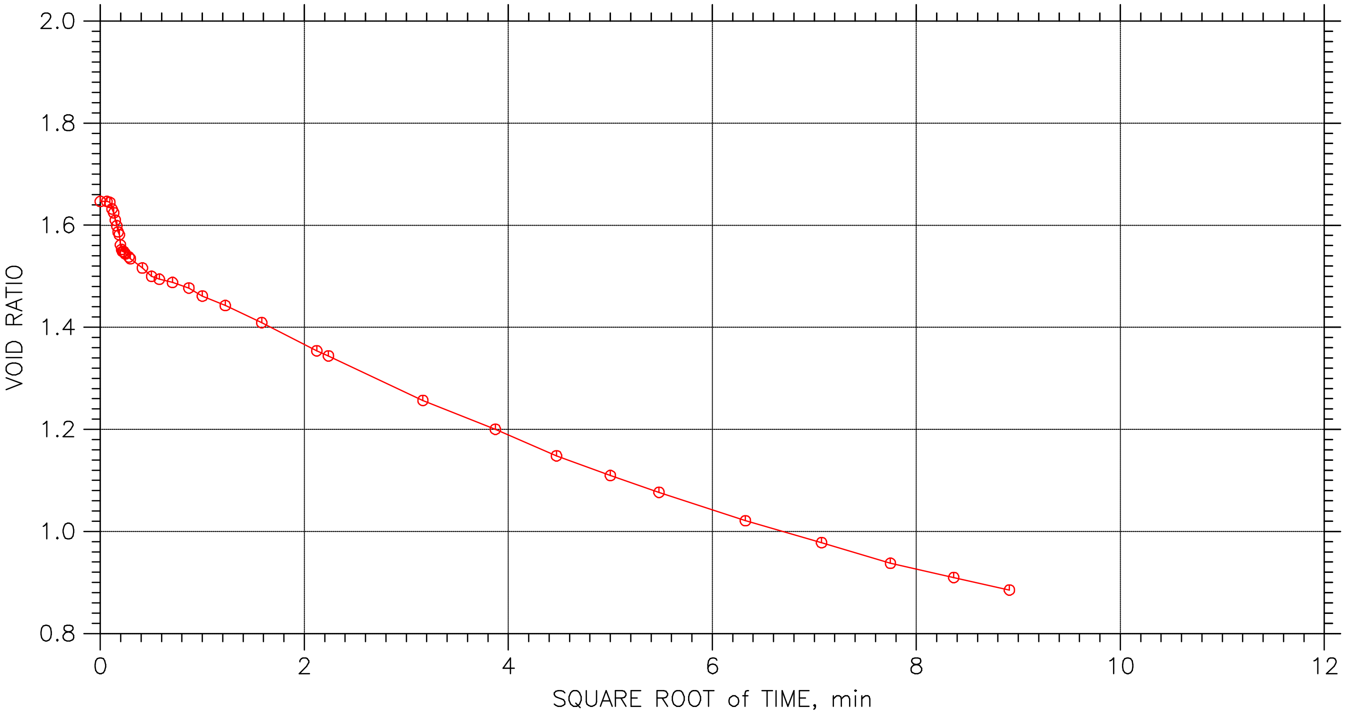
Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

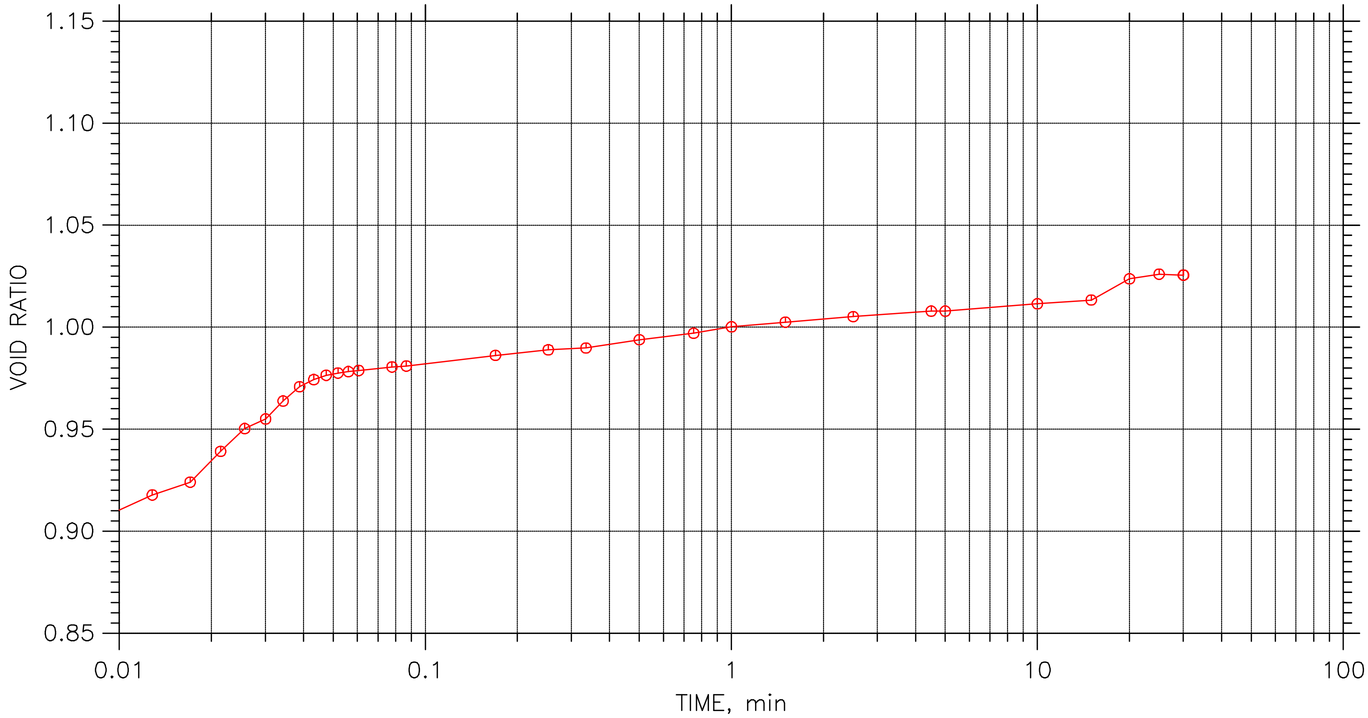
Tue, 26-APR-2022 10:18:53

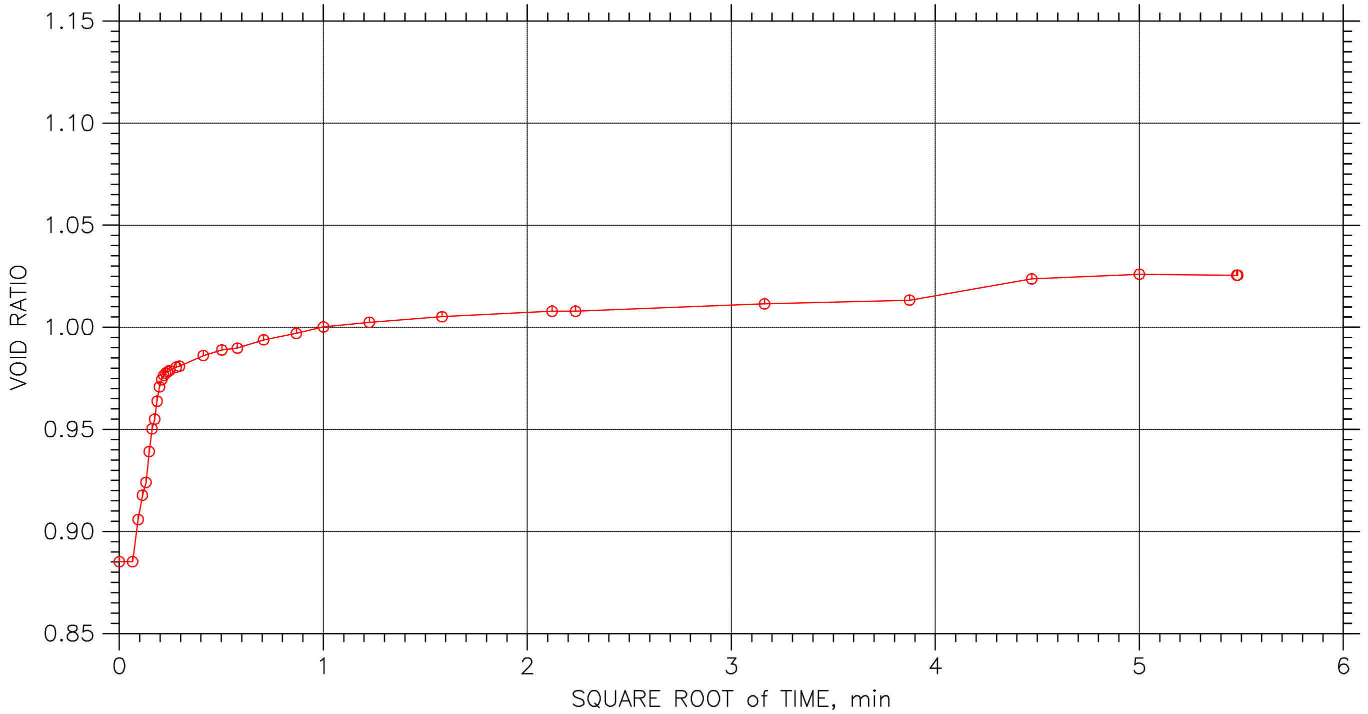
Consolidation Test

TIME CURVES

Constant Load Step 11 of 19

Stress: 32000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

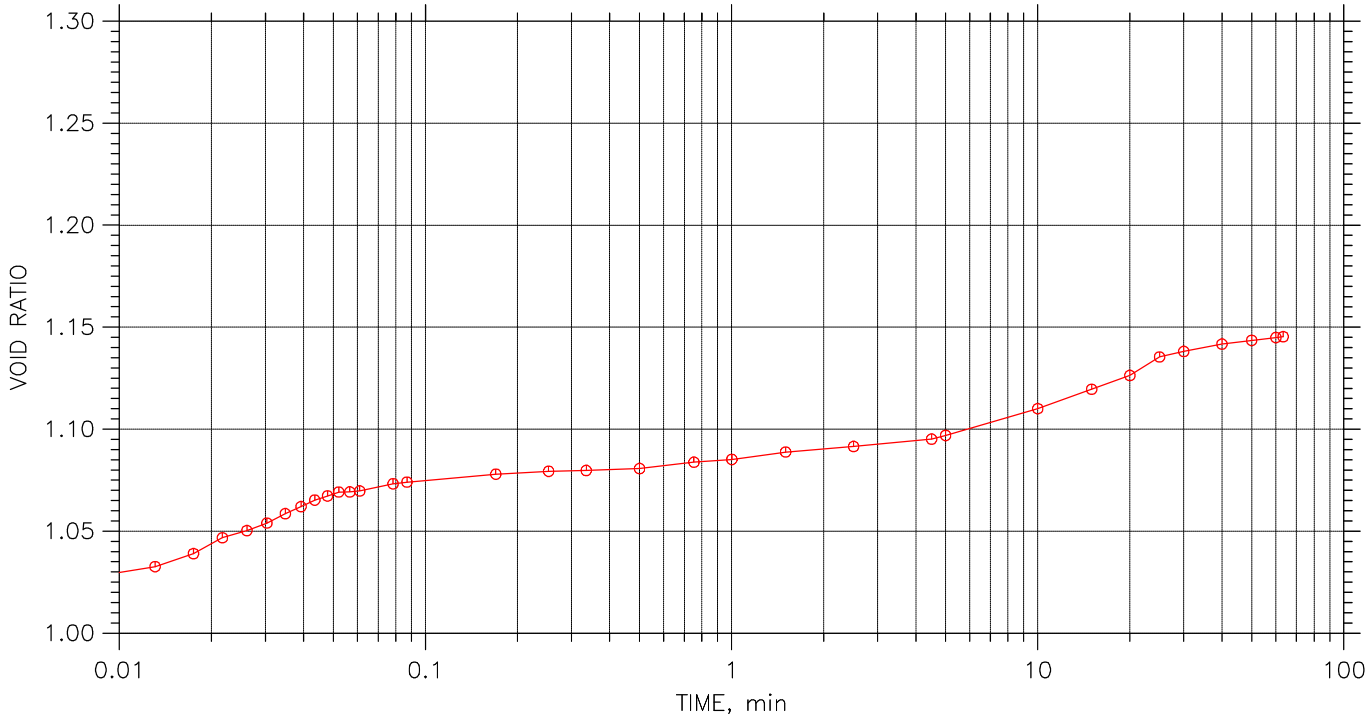
Tue, 26-APR-2022 10:18:55

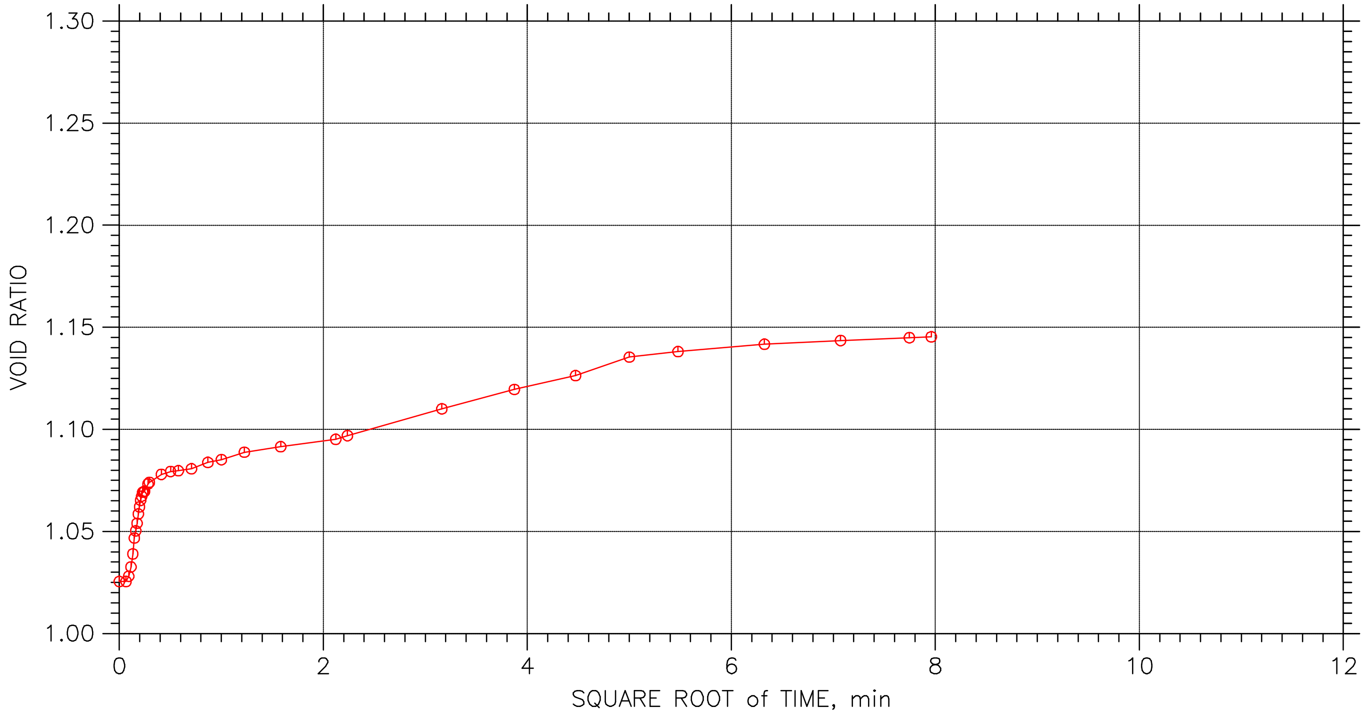
Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

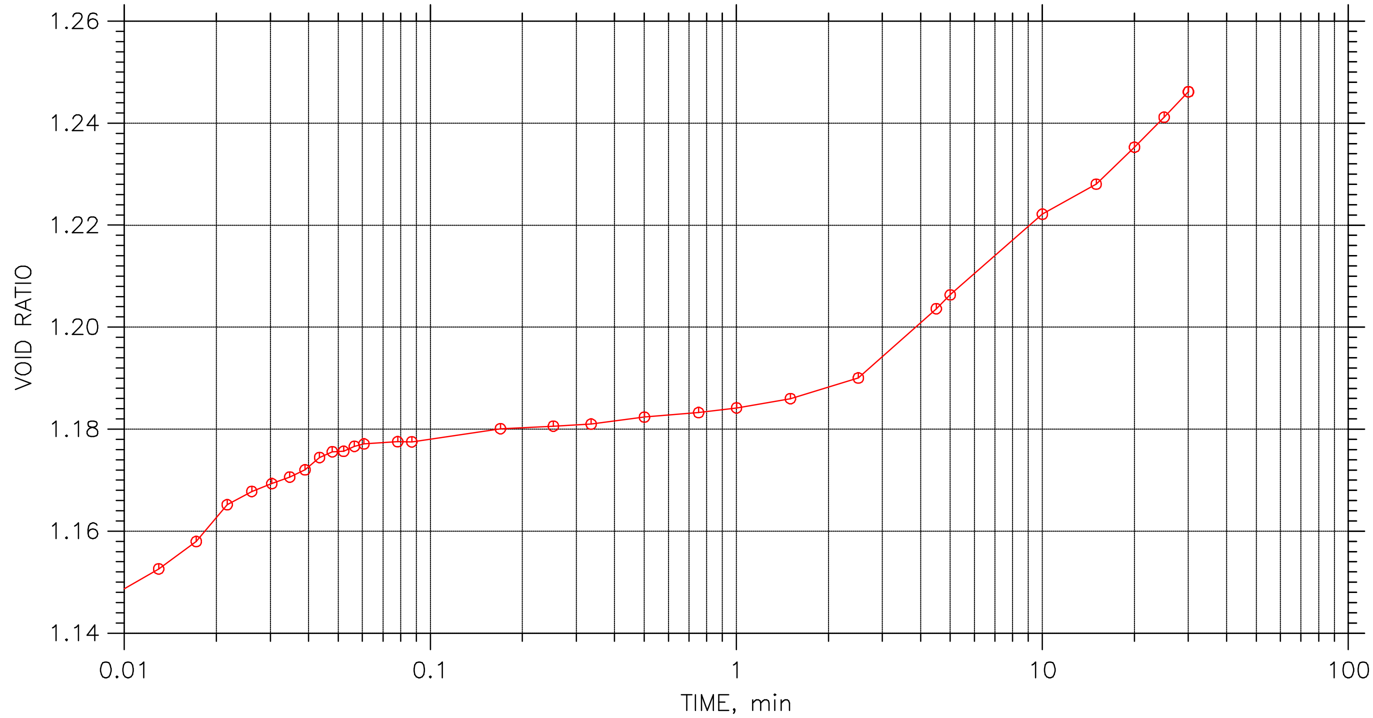
Tue, 26-APR-2022 10:18:56

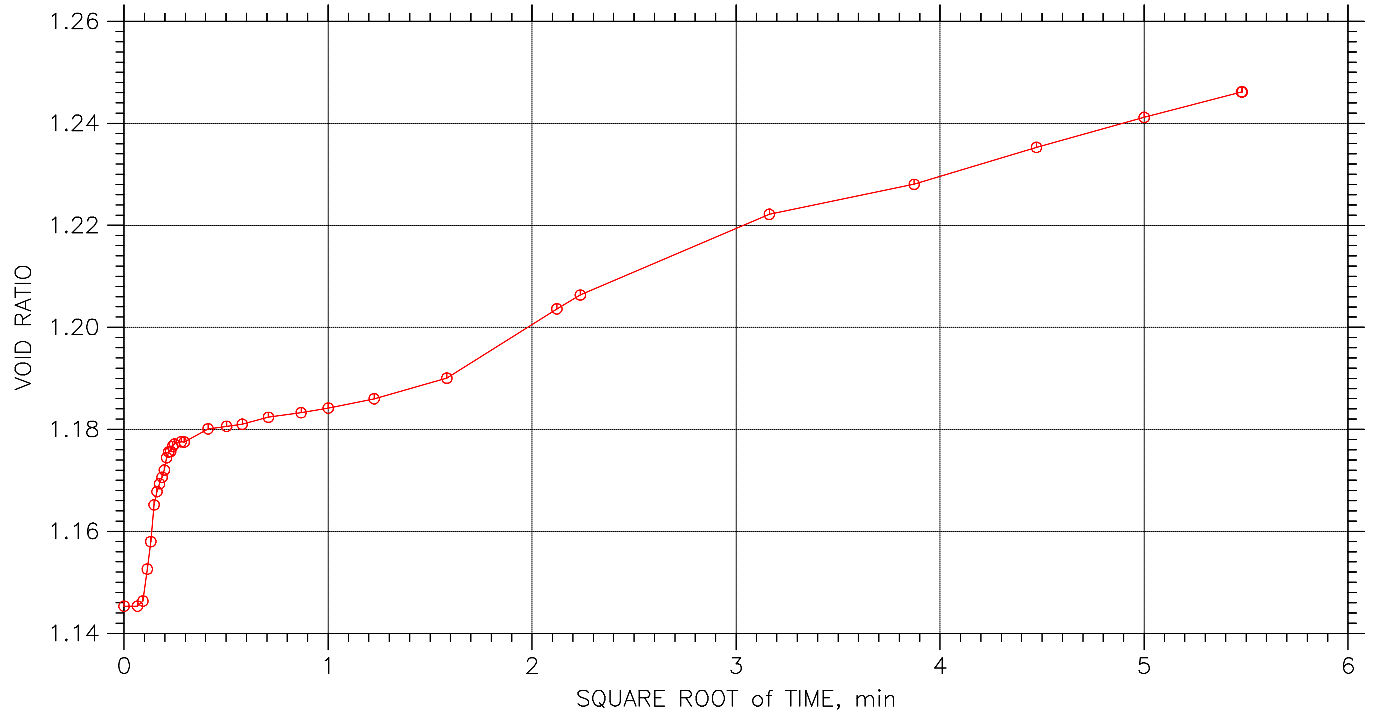
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

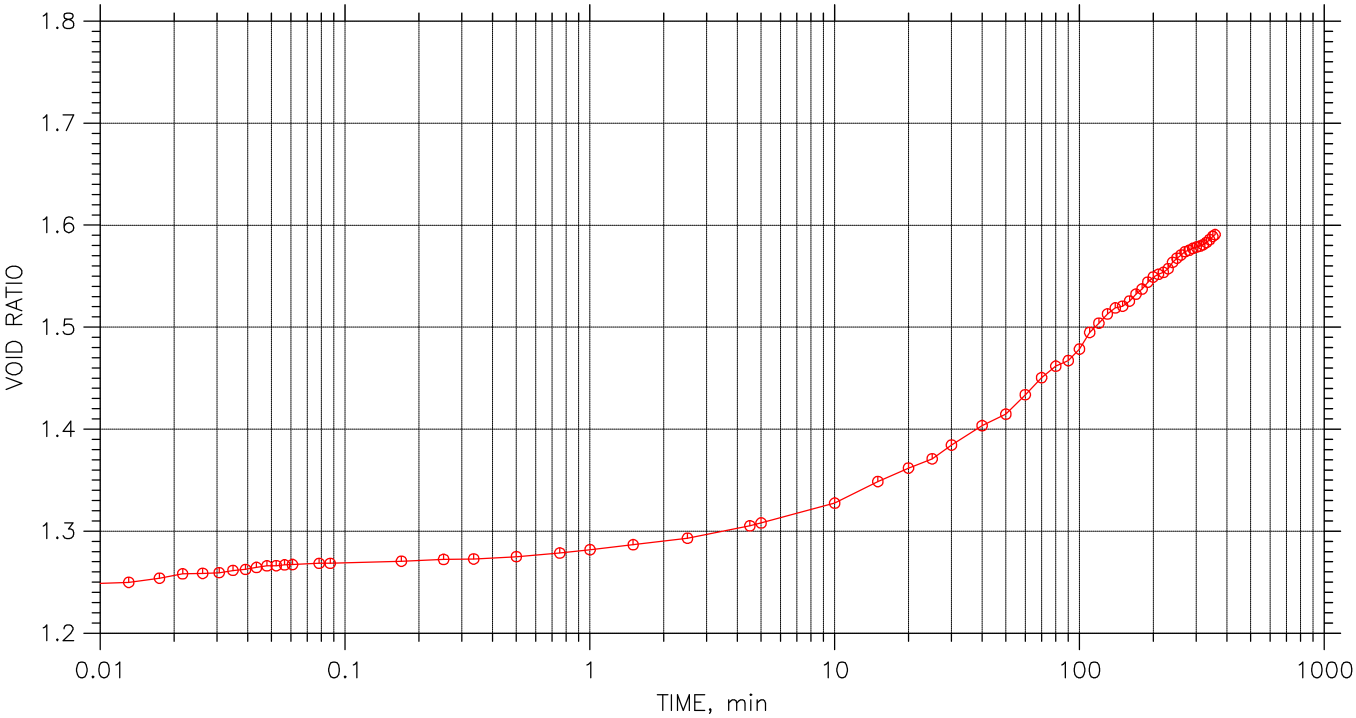
Tue, 26-APR-2022 10:18:57

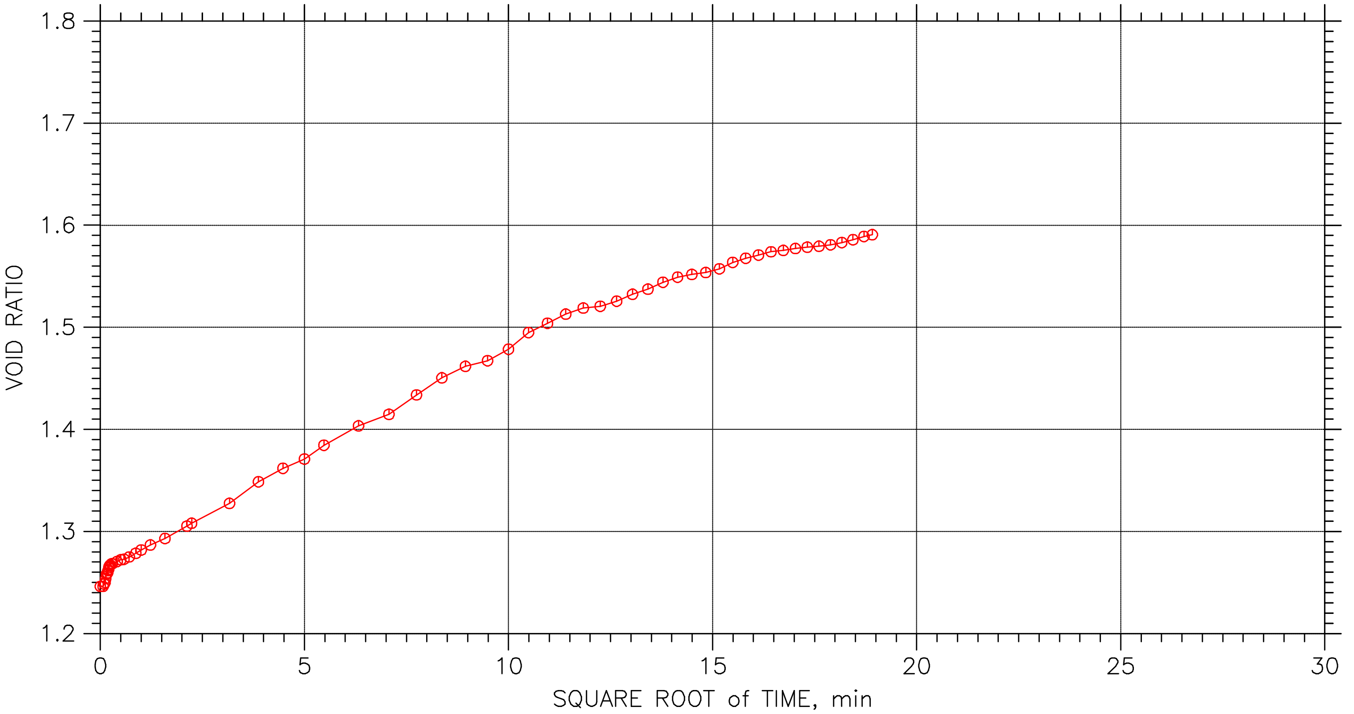
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





ATL Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

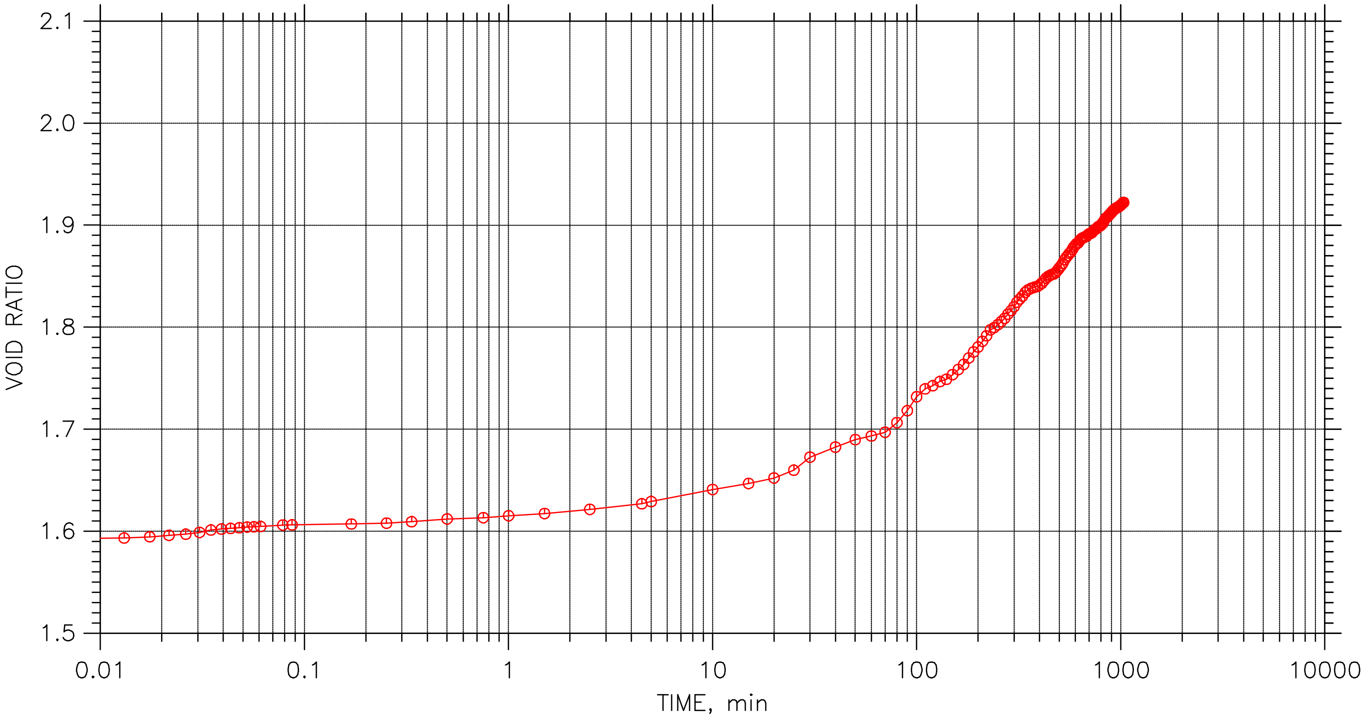
Tue, 26-APR-2022 10:18:58

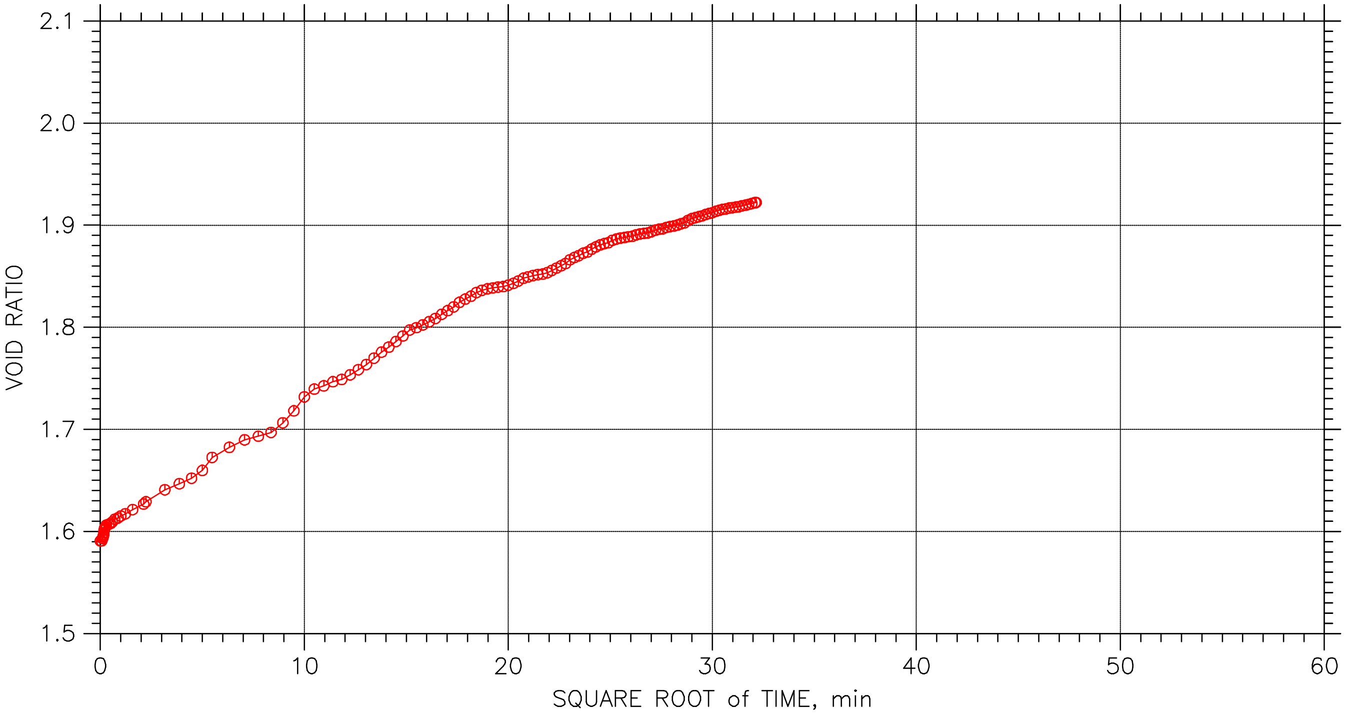
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-05	Tested By: CZ	Checked By: MEK
	Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Reviewed by	Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

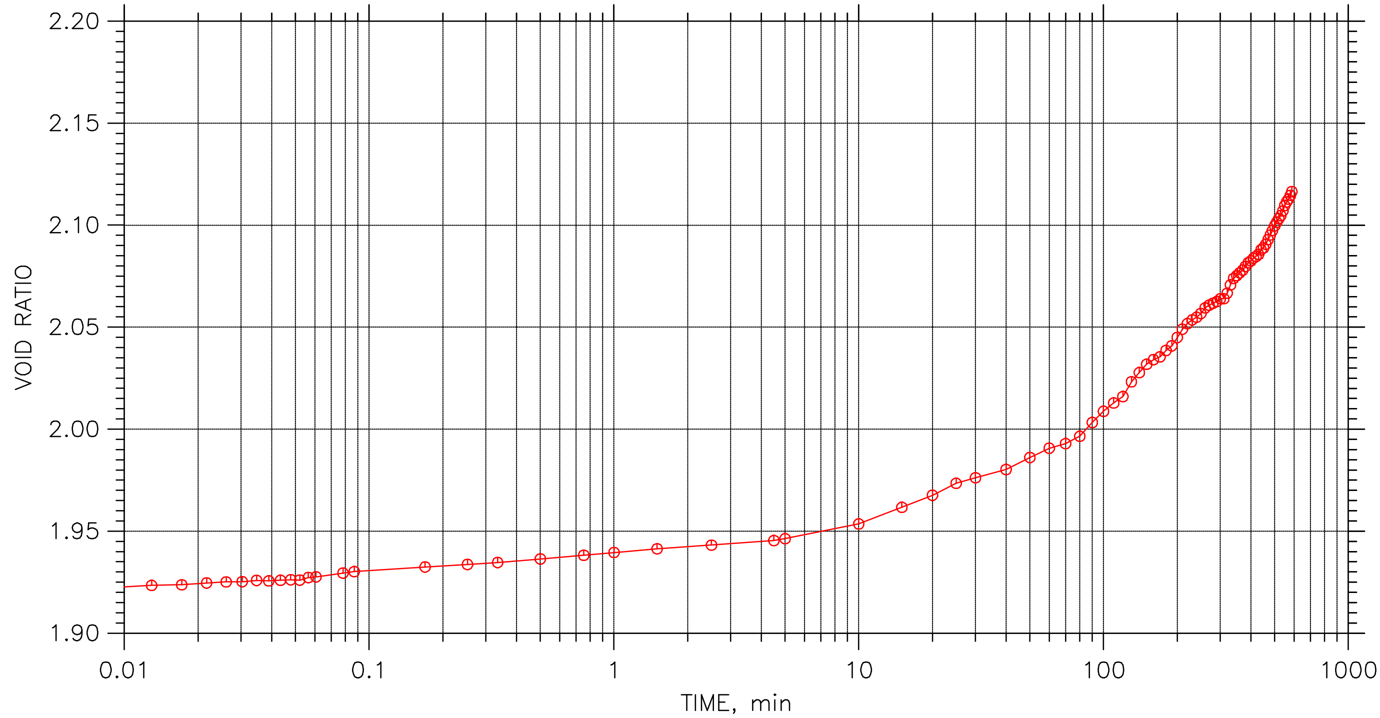
Tue, 26-APR-2022 10:18:59

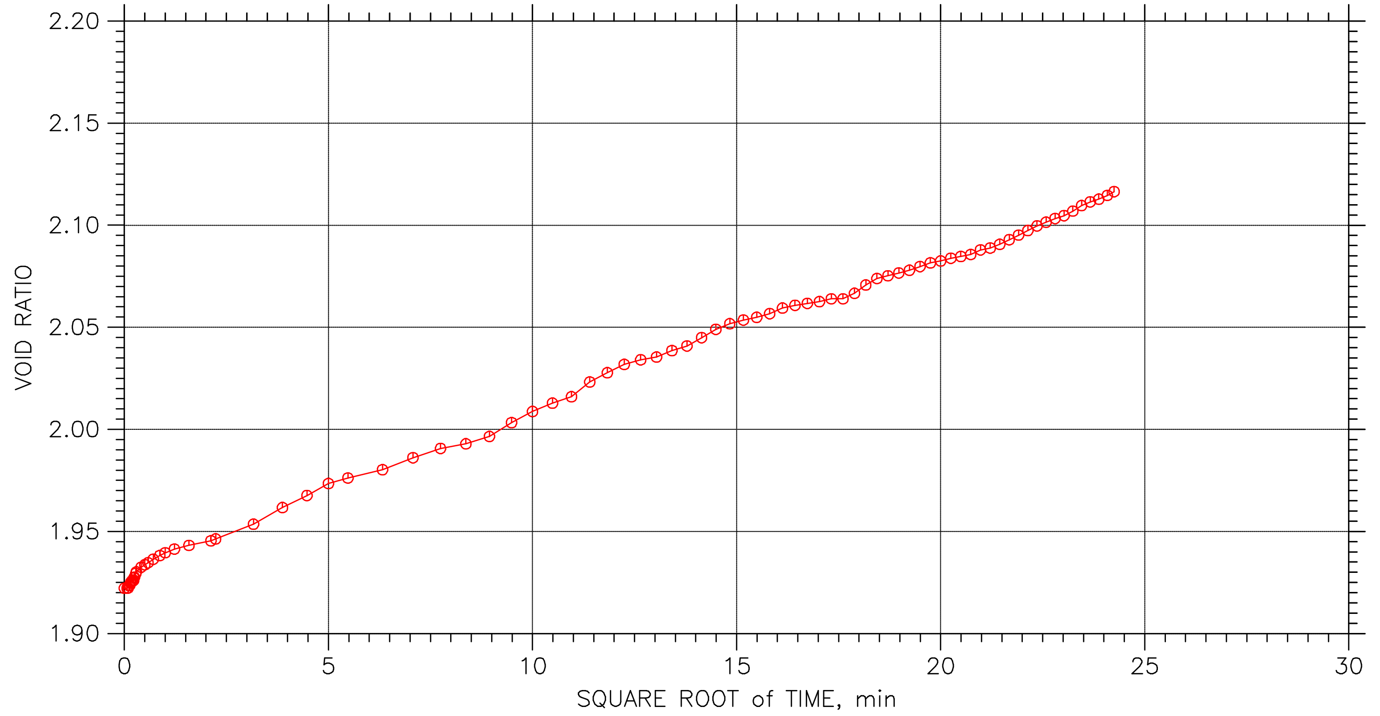
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

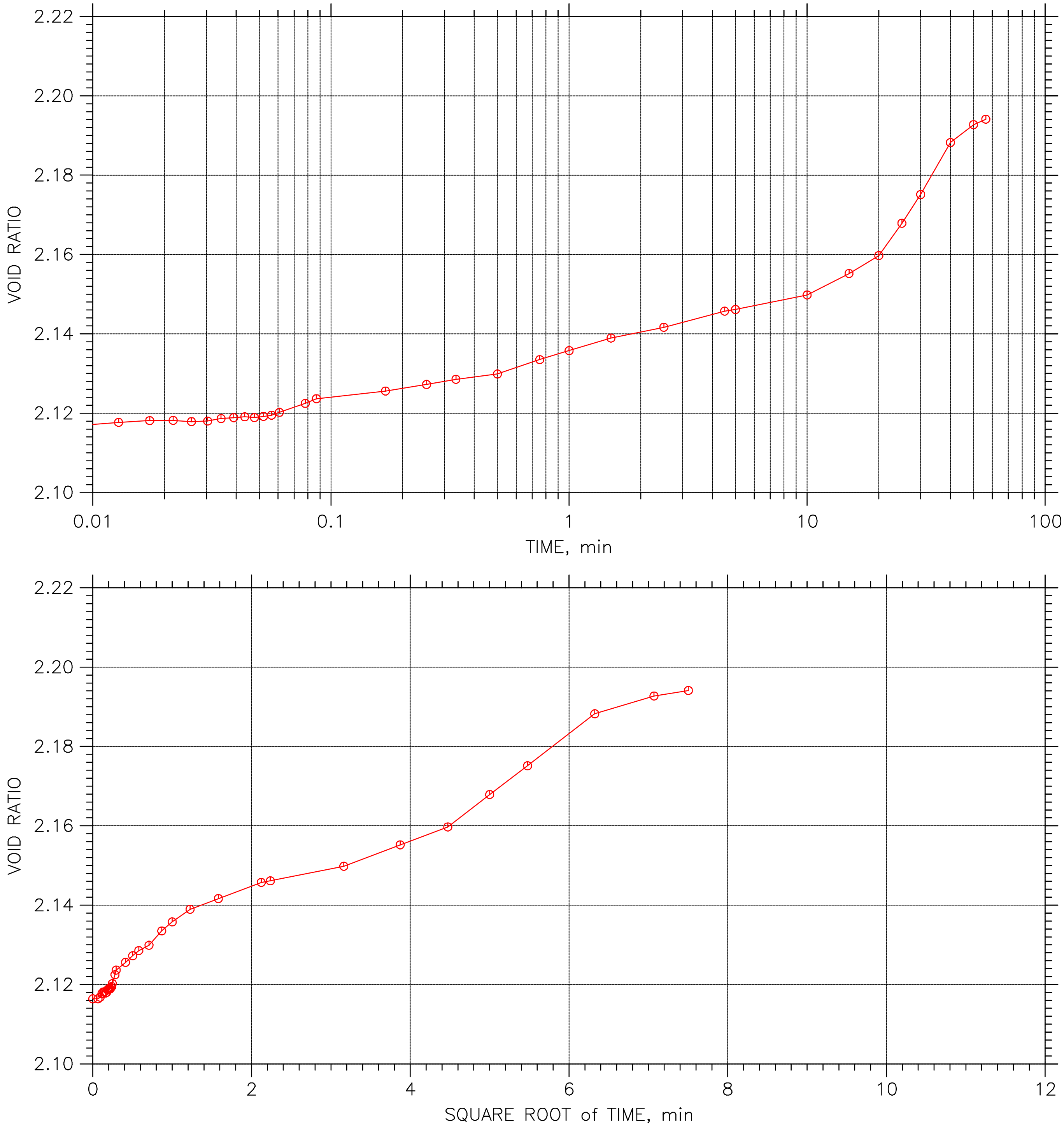
Tue, 26-APR-2022 10:19:01

Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf



Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

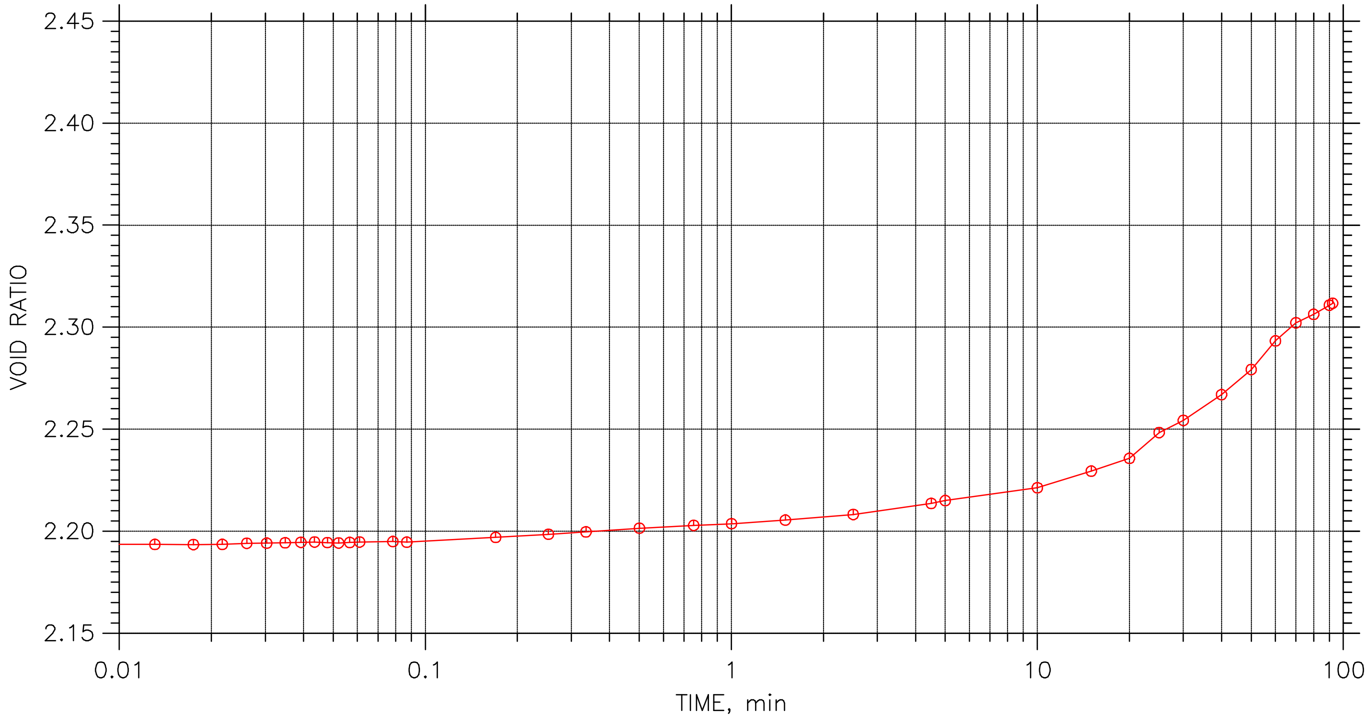
Tue, 26-APR-2022 10:19:03

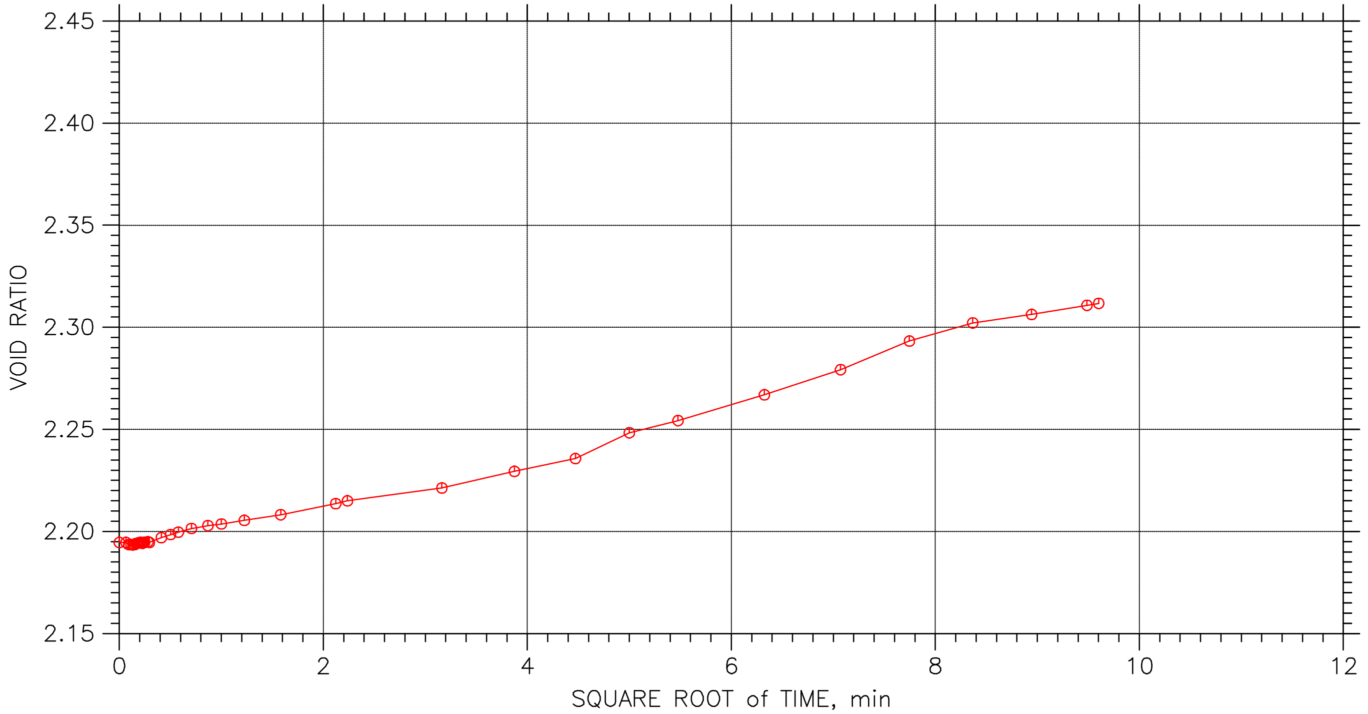
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

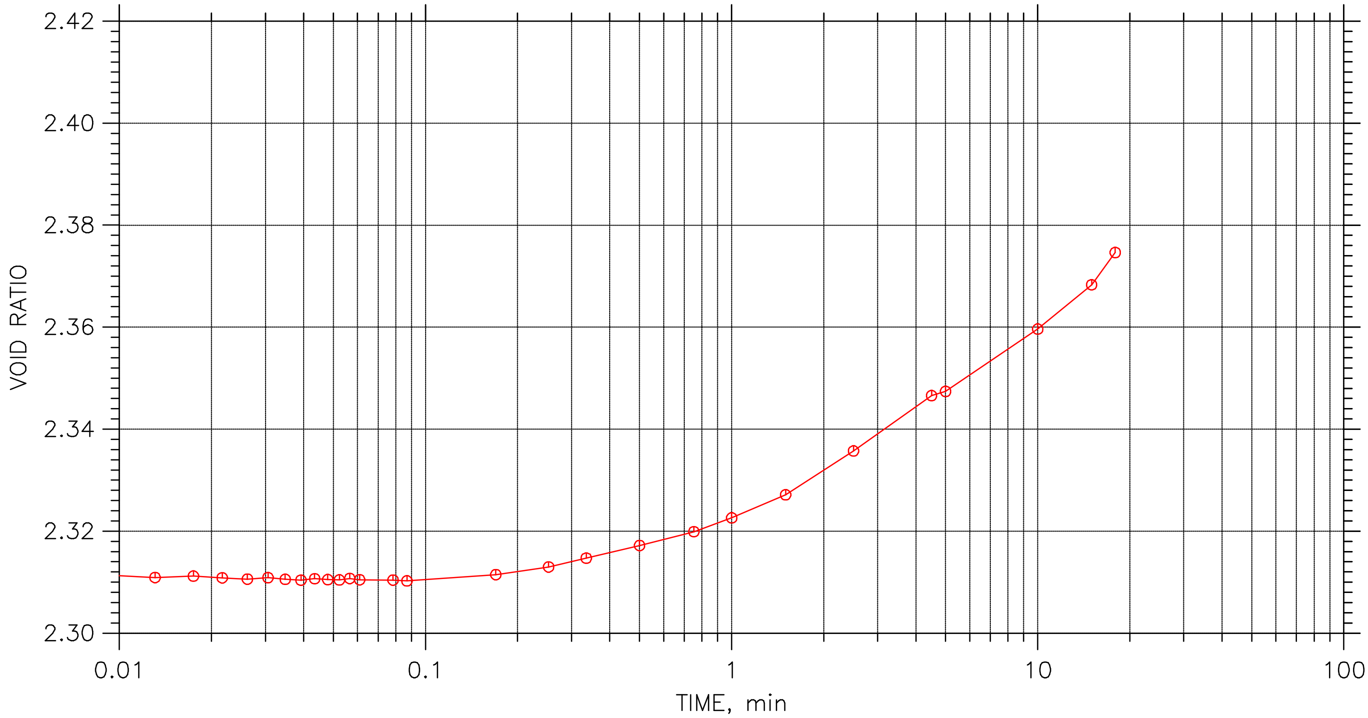
Tue, 26-APR-2022 10:19:04

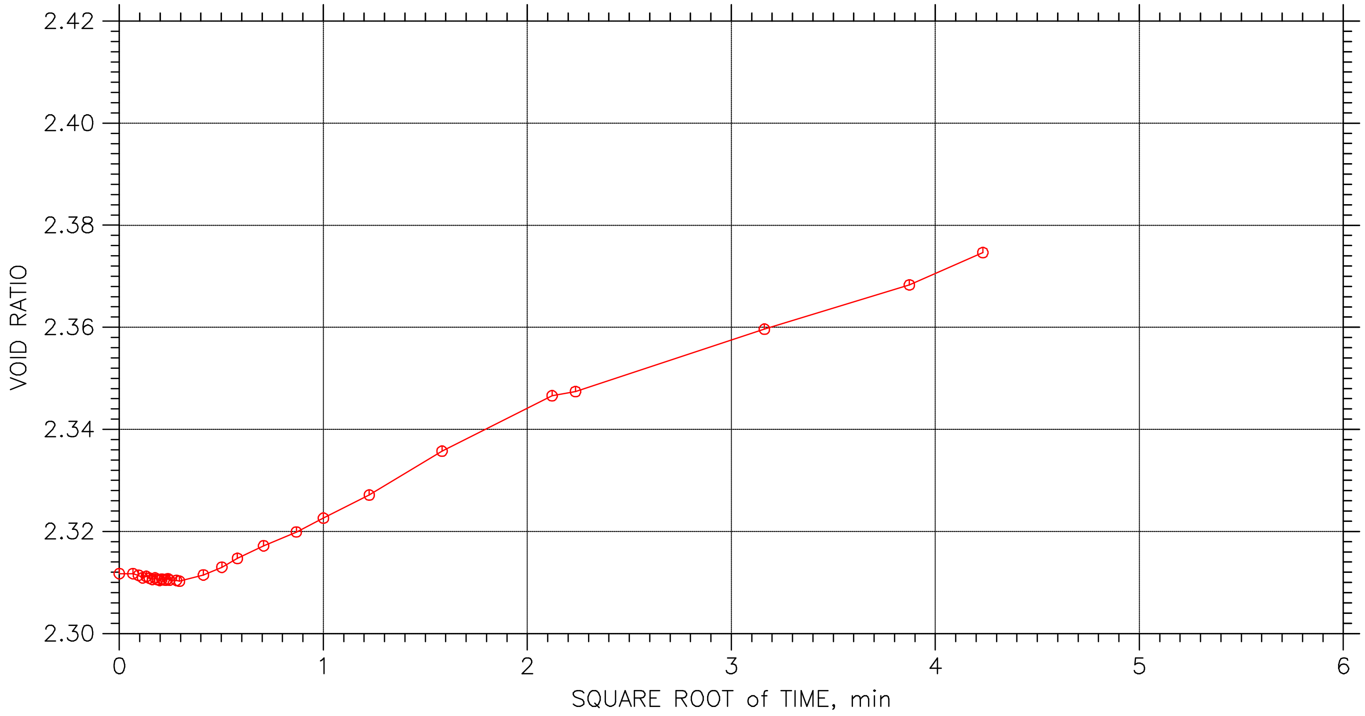
Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-05	Tested By: CZ	Checked By: MEK
Sample No.: S4	Test Date: 4/13/2022	Test No.: 2
Depth: 7.5-8.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Tue, 26-APR-2022 10:19:05

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	**1**

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

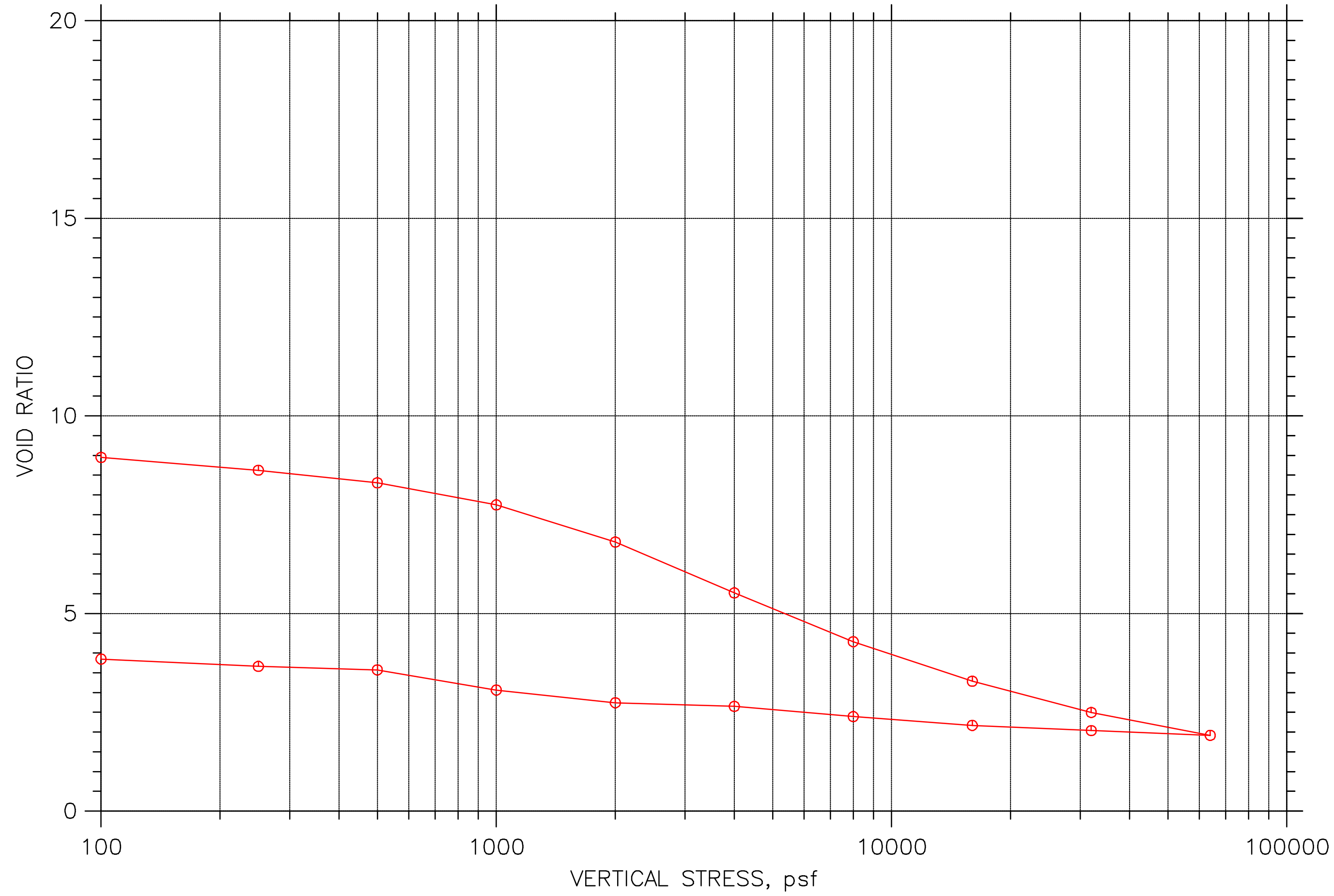
73138.00

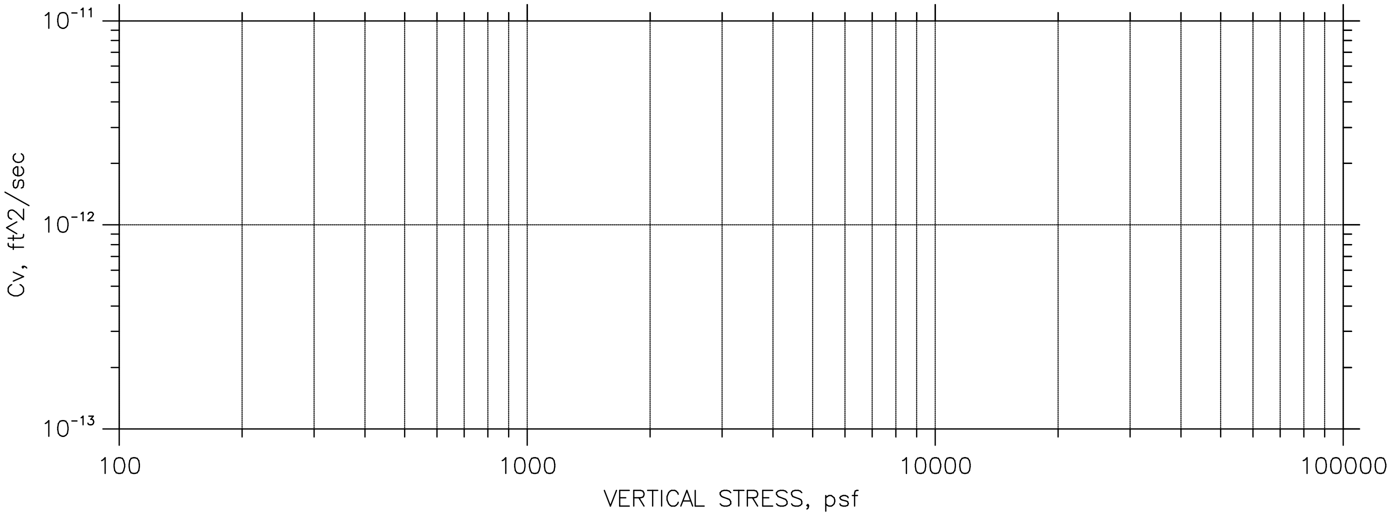
Date Received:	March 21, 2022
Sample #:	22-0258-S04 and S05
Material:	BH-05 Sa4

Sample after extraction

Consolidation Test

SUMMARY REPORT





Alaska Testlab

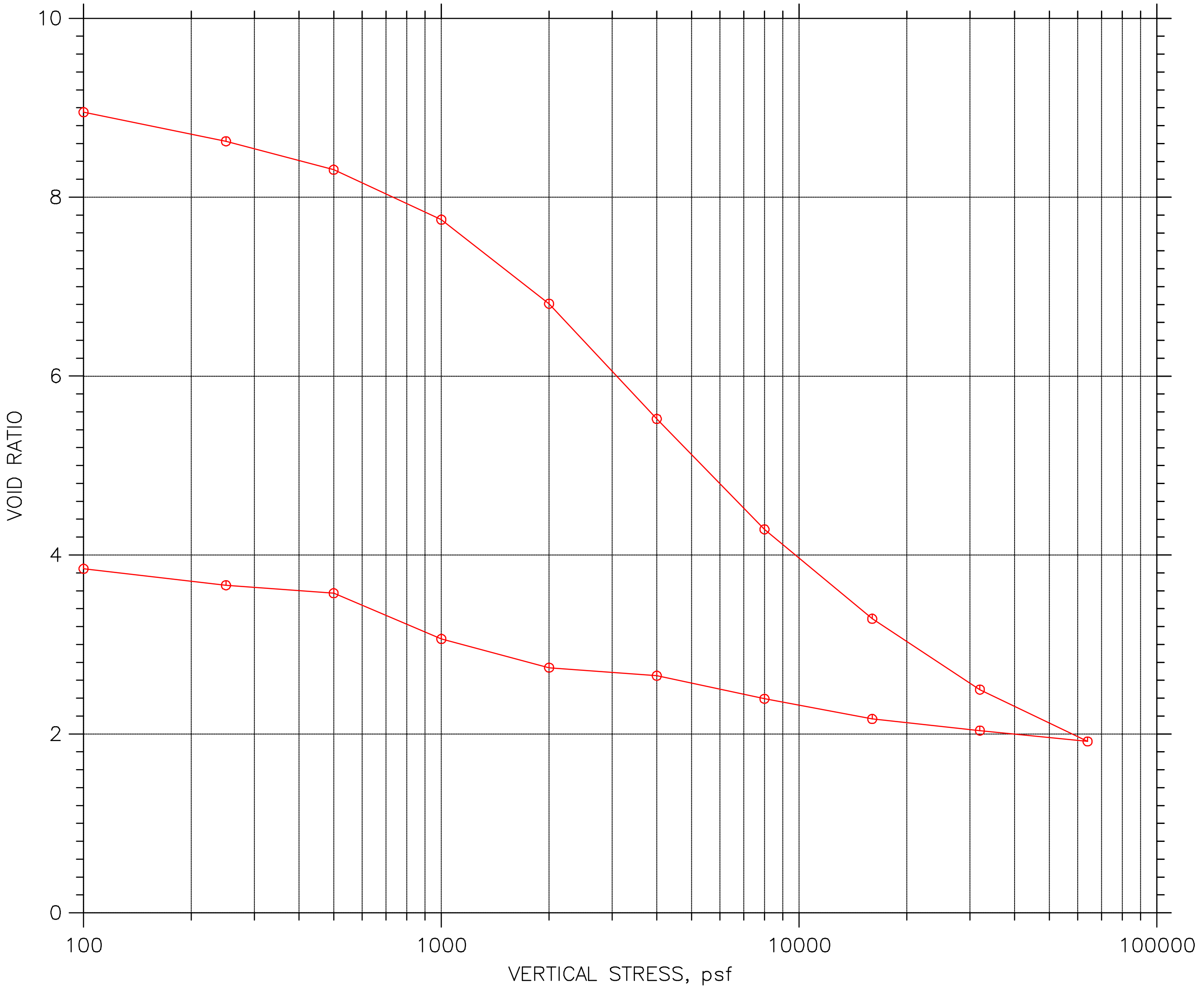
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Tue, 26-APR-2022 10:25:04

Consolidation Test

SUMMARY REPORT



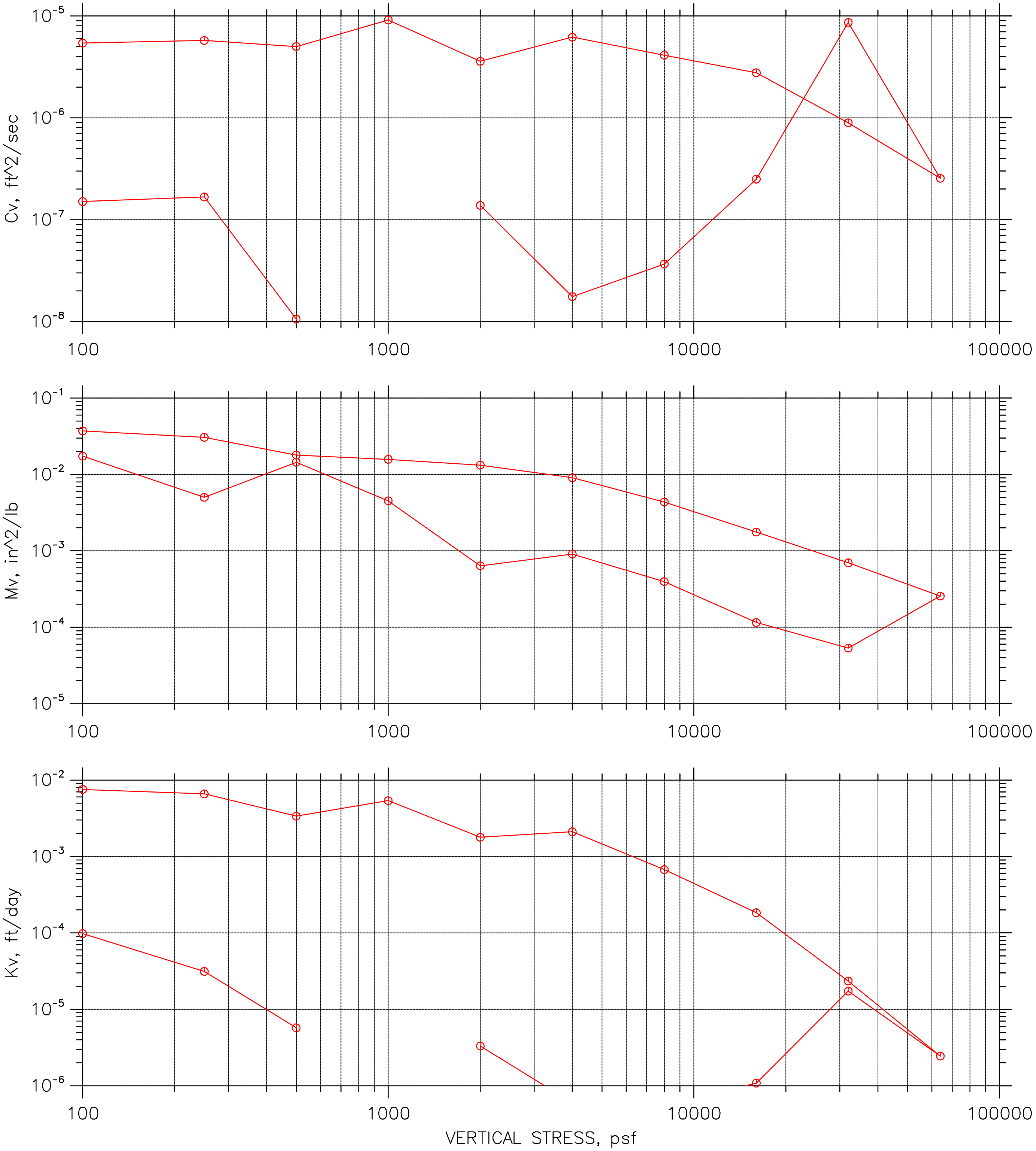
					Before Test	After Test
Overburden Pressure: 0 psf				Water Content, %	377.10	191.07
Preconsolidation Pressure: 0 psf				Dry Unit Weight, pcf	12.837	27.055
Compression Index: 0				Saturation, %	85.96	104.34
Diameter: 2.497 in		Height: 0.9999 in		Void Ratio	9.21	3.85
LL: ---	PL: ---	PI: ---	GS: 2.10	Back Pressure, psf	0	0

ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

Tue, 26-APR-2022 10:25:05

Consolidation Test

ROOT of TIME COEFFICIENTS



Alaska Testlab

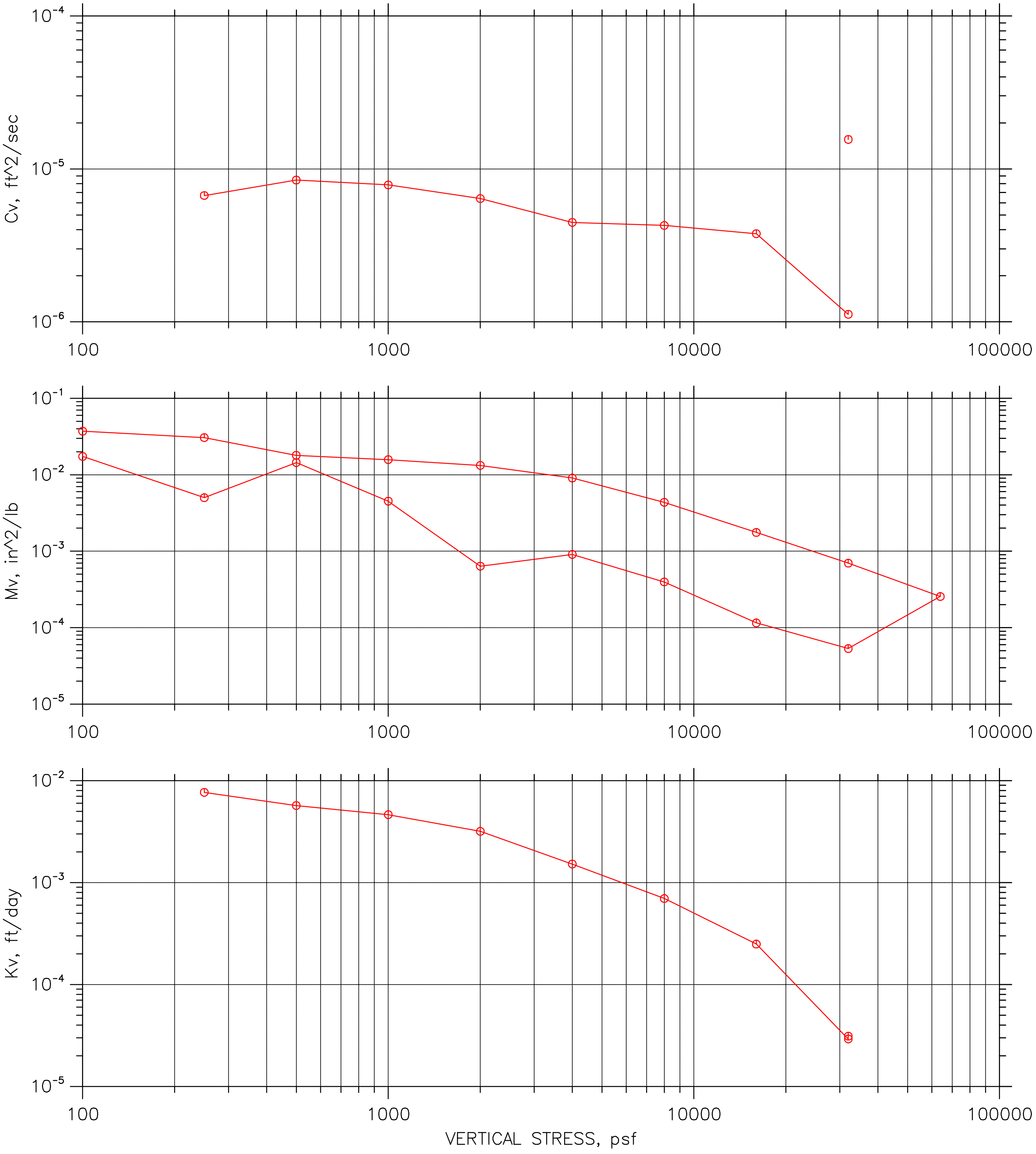
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Tue, 26-APR-2022 10:25:06

Consolidation Test

LOG of TIME COEFFICIENTS



Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

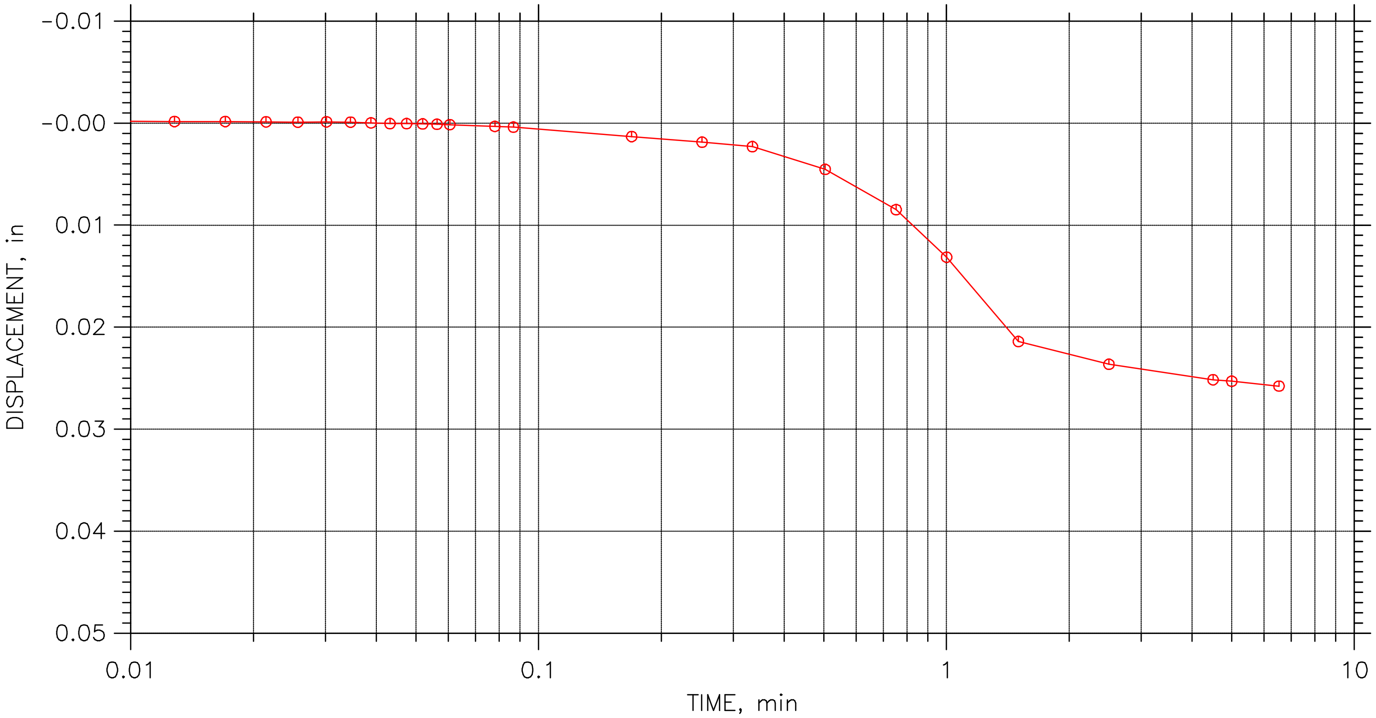
Tue, 26-APR-2022 10:25:07

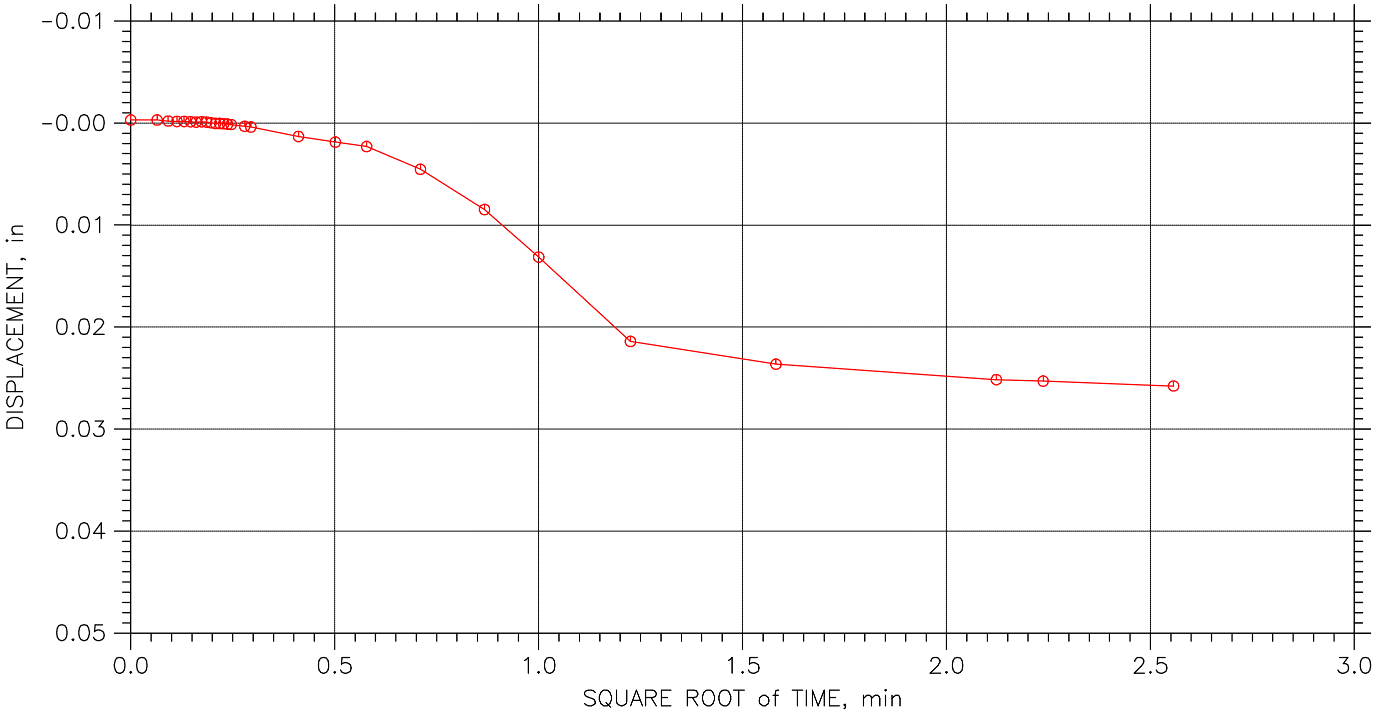
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

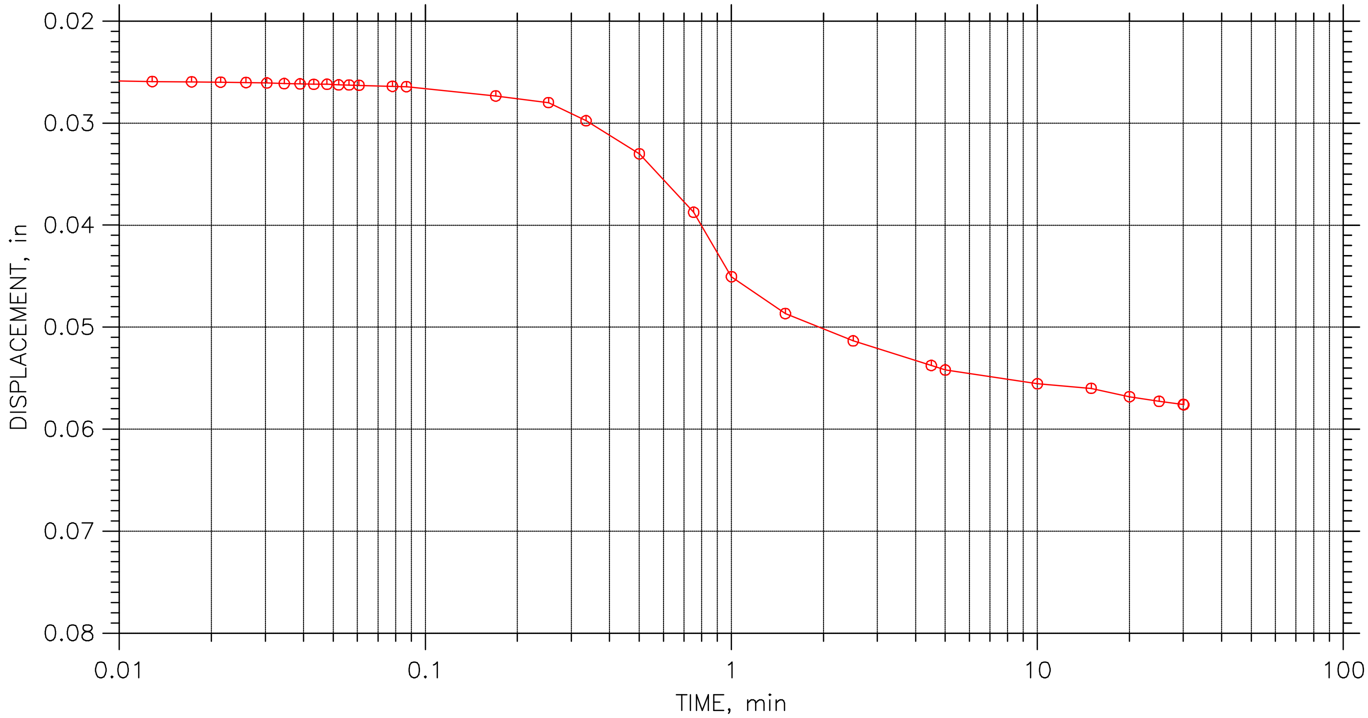
Tue, 26-APR-2022 10:25:08

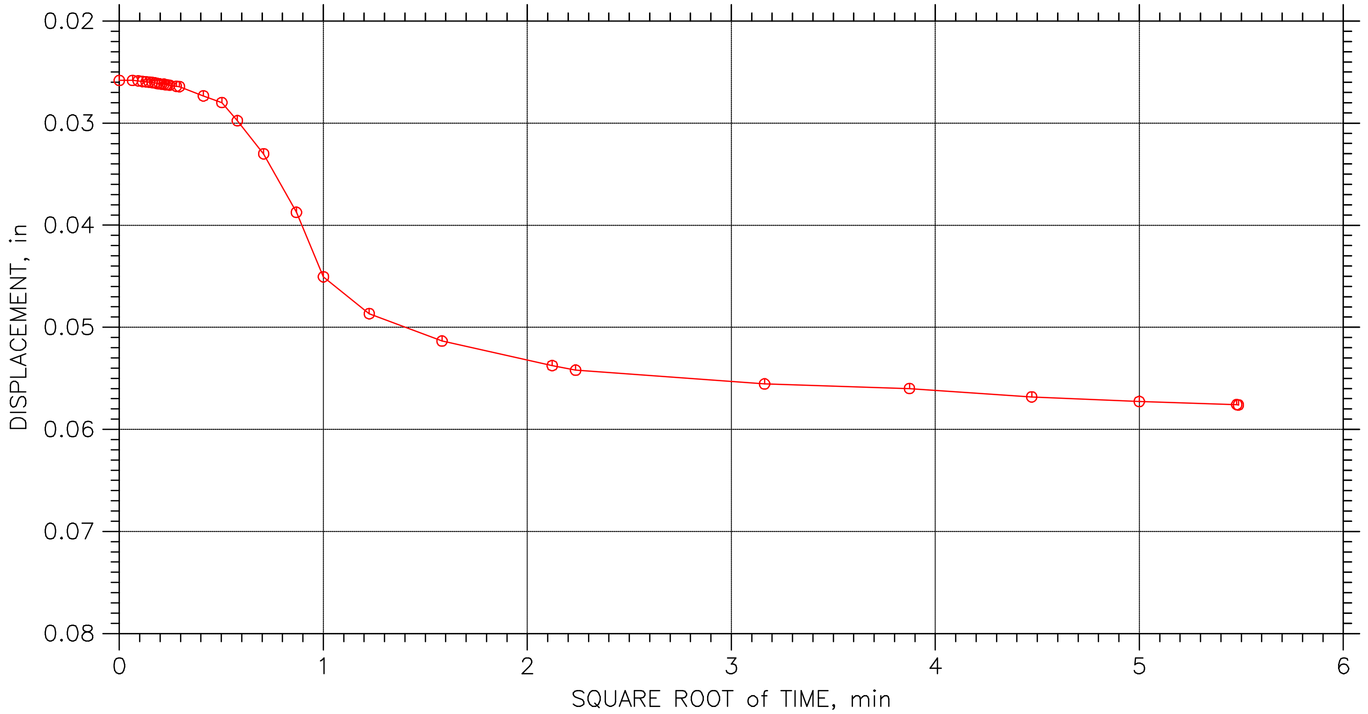
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





Alaska Testlab

Reviewed by

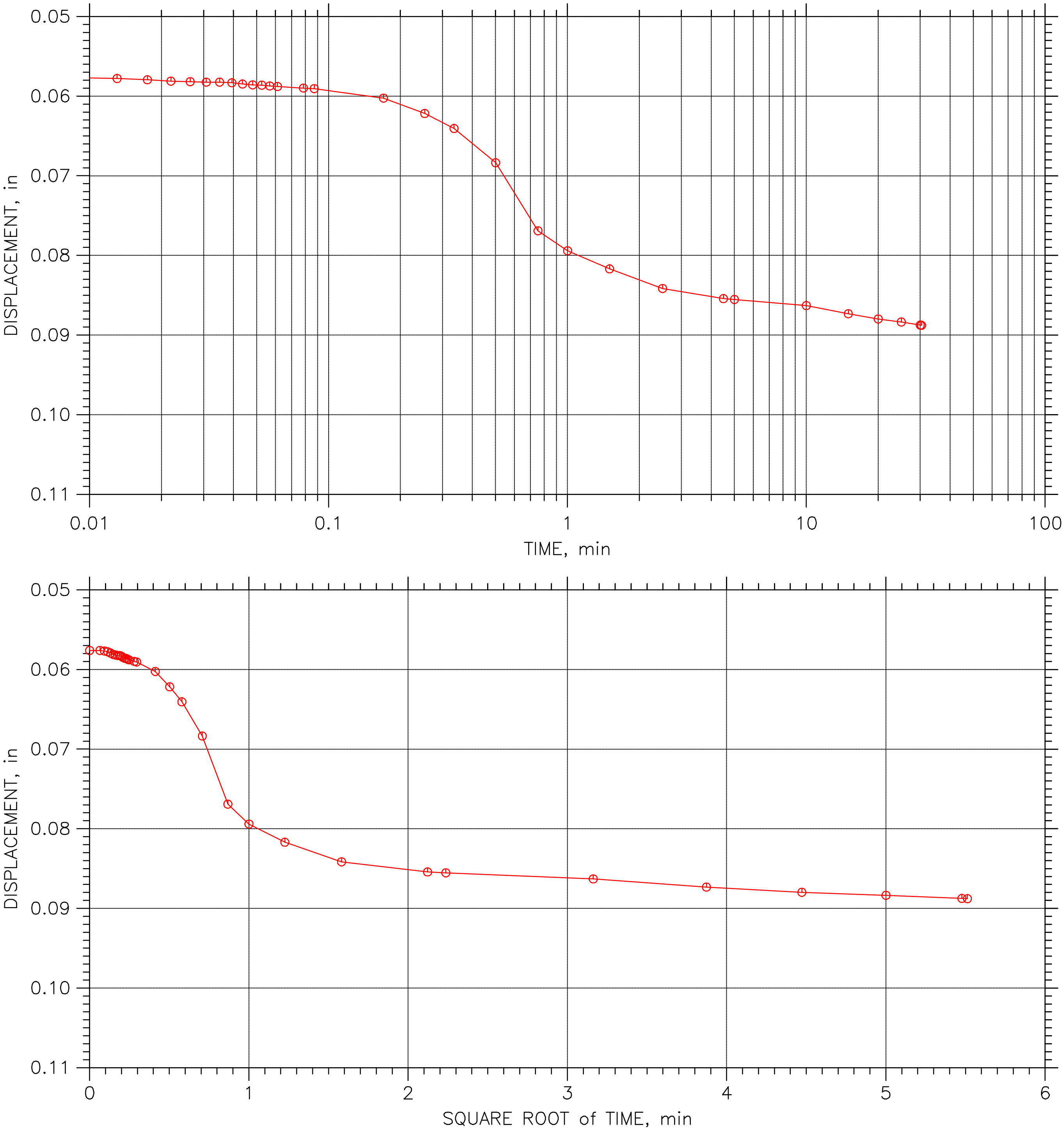
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf



ATL

Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

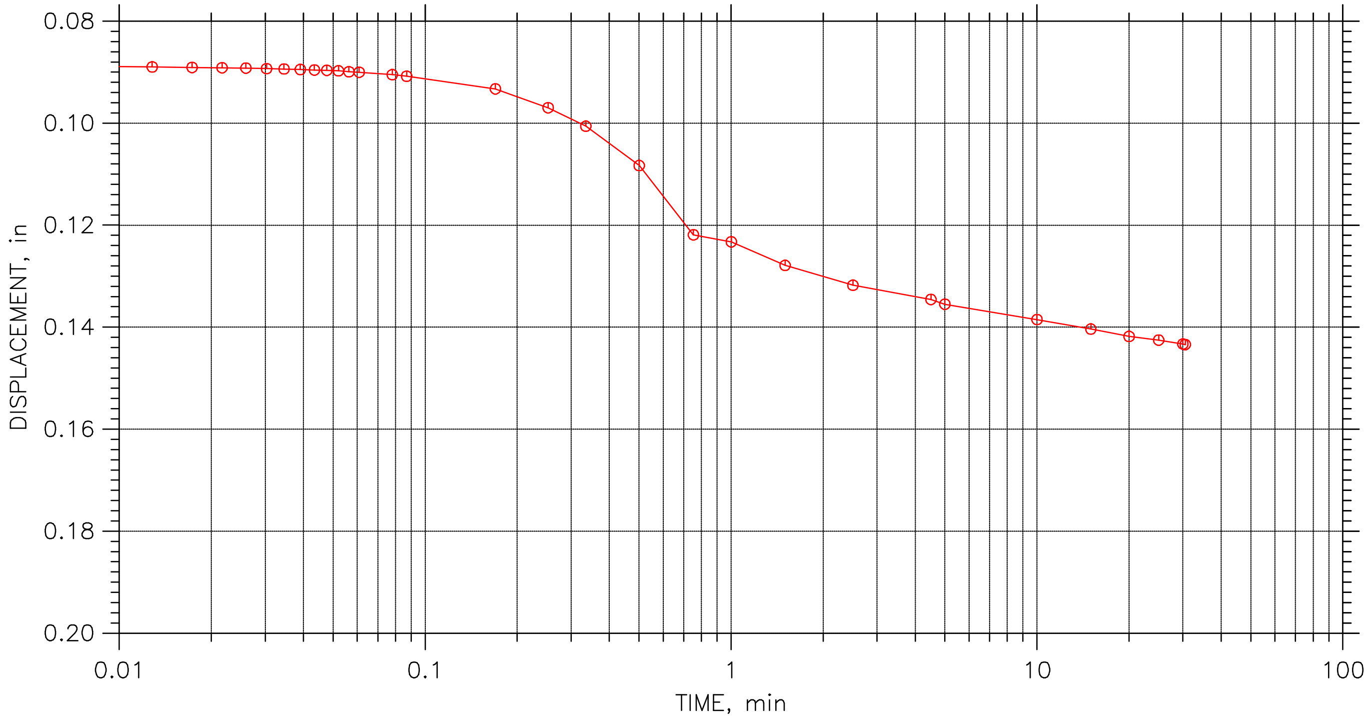
Tue, 26-APR-2022 10:25:11

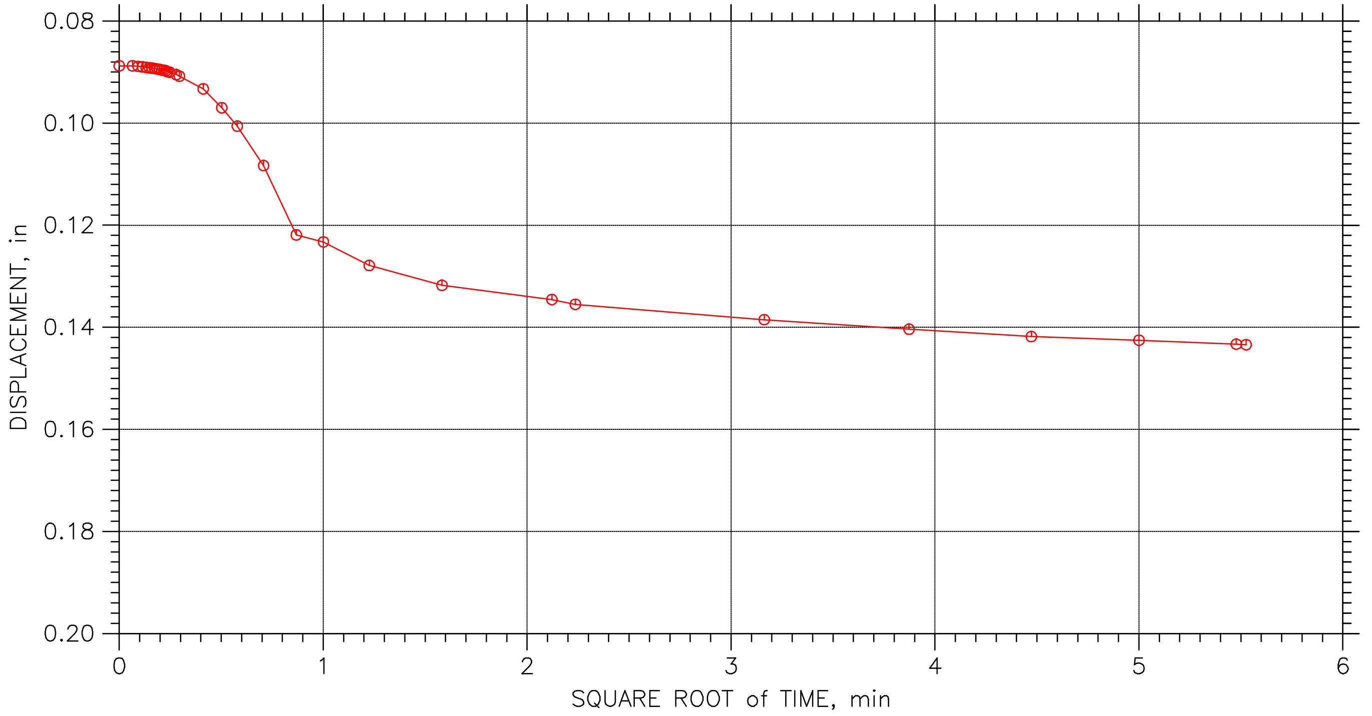
Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf





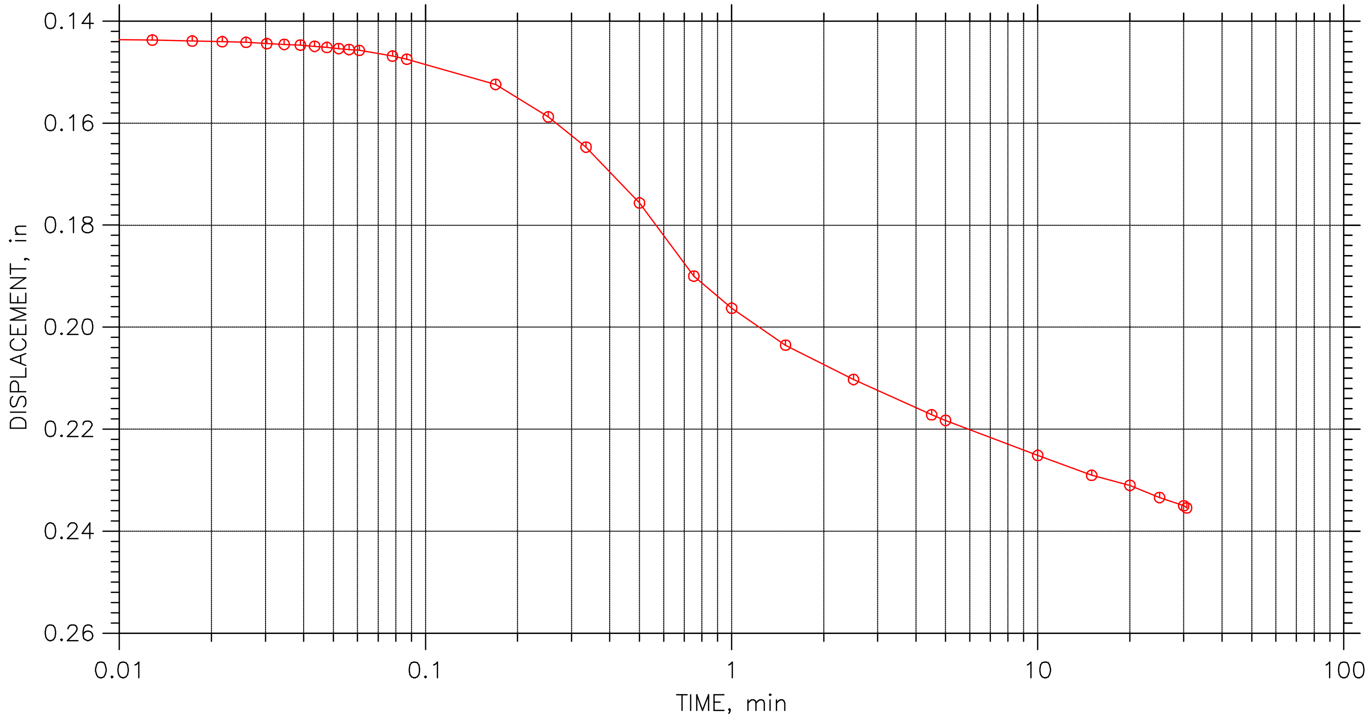
ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

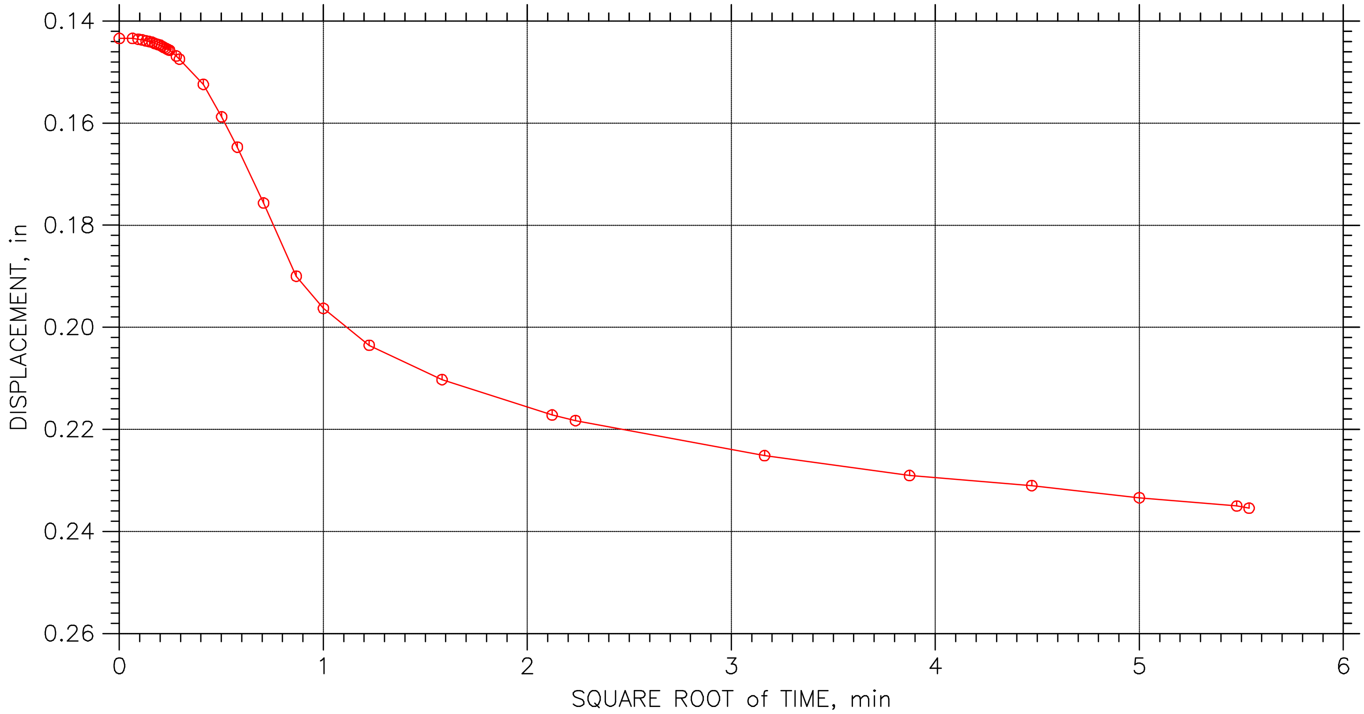
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

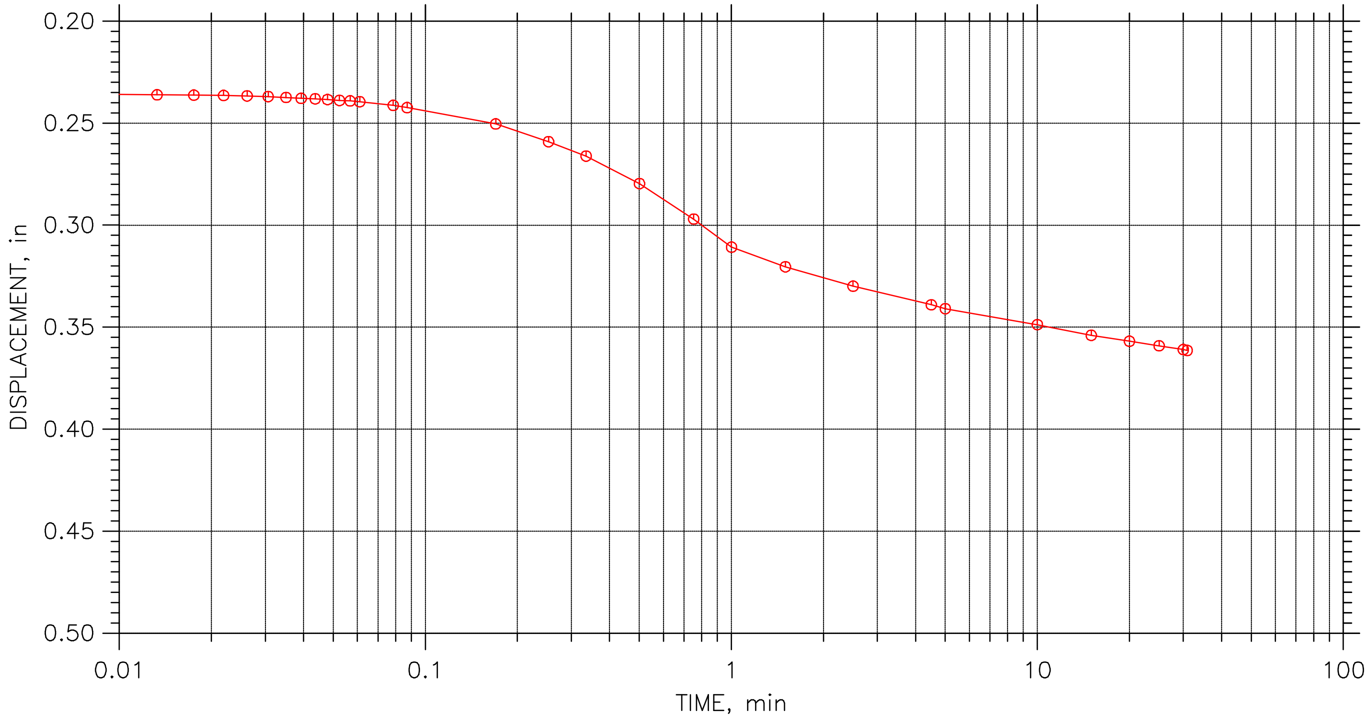
Tue, 26-APR-2022 10:25:13

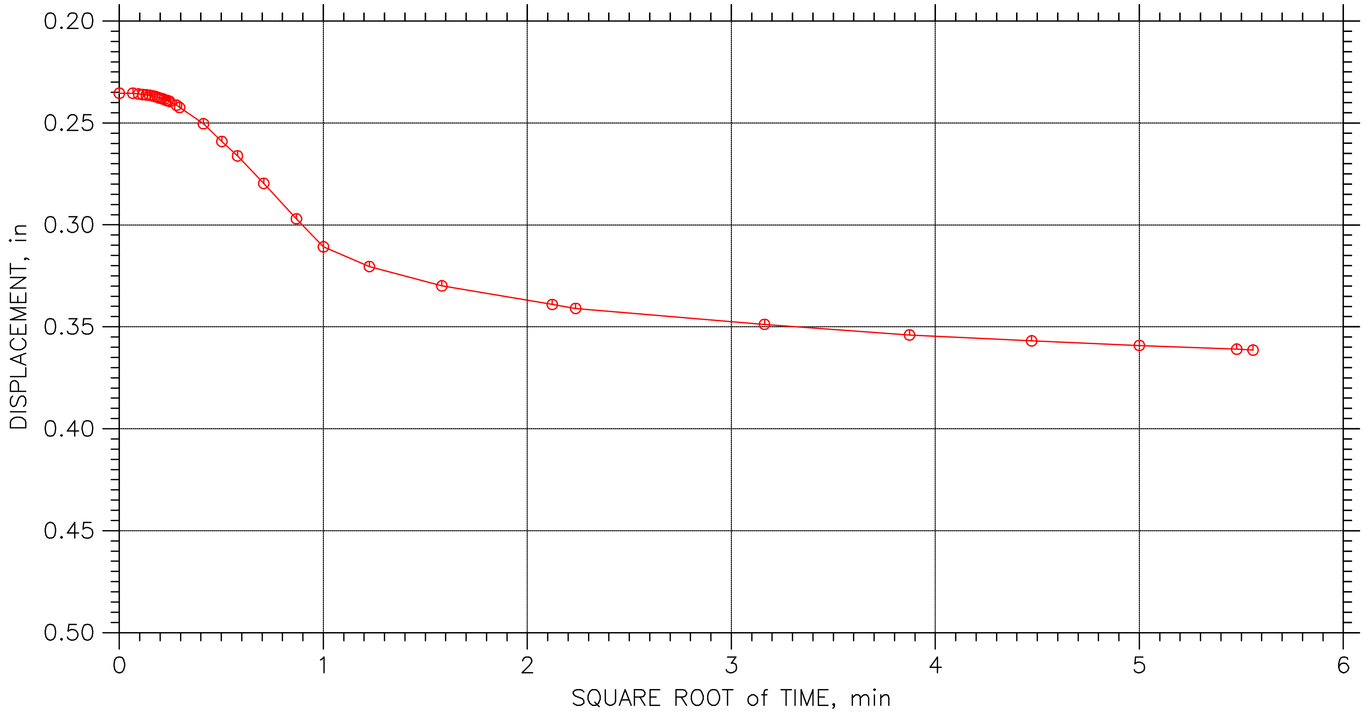
Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

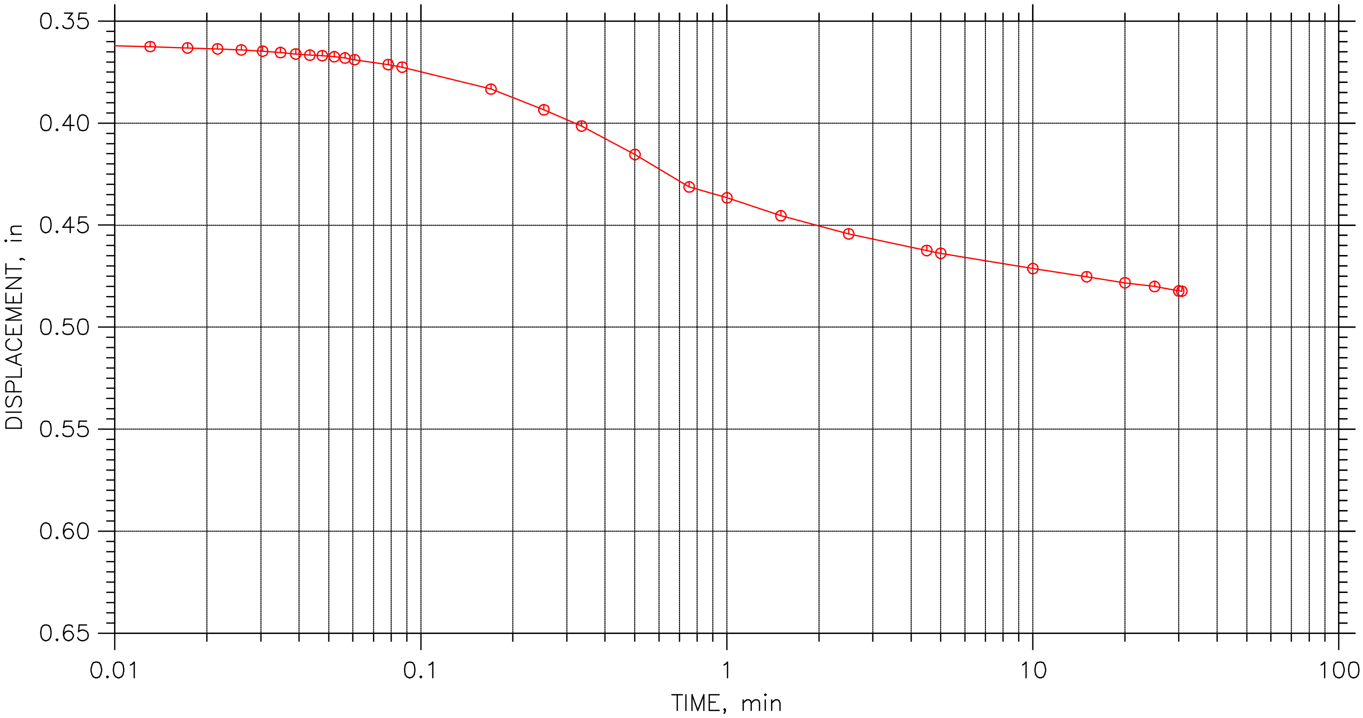
Tue, 26-APR-2022 10:25:14

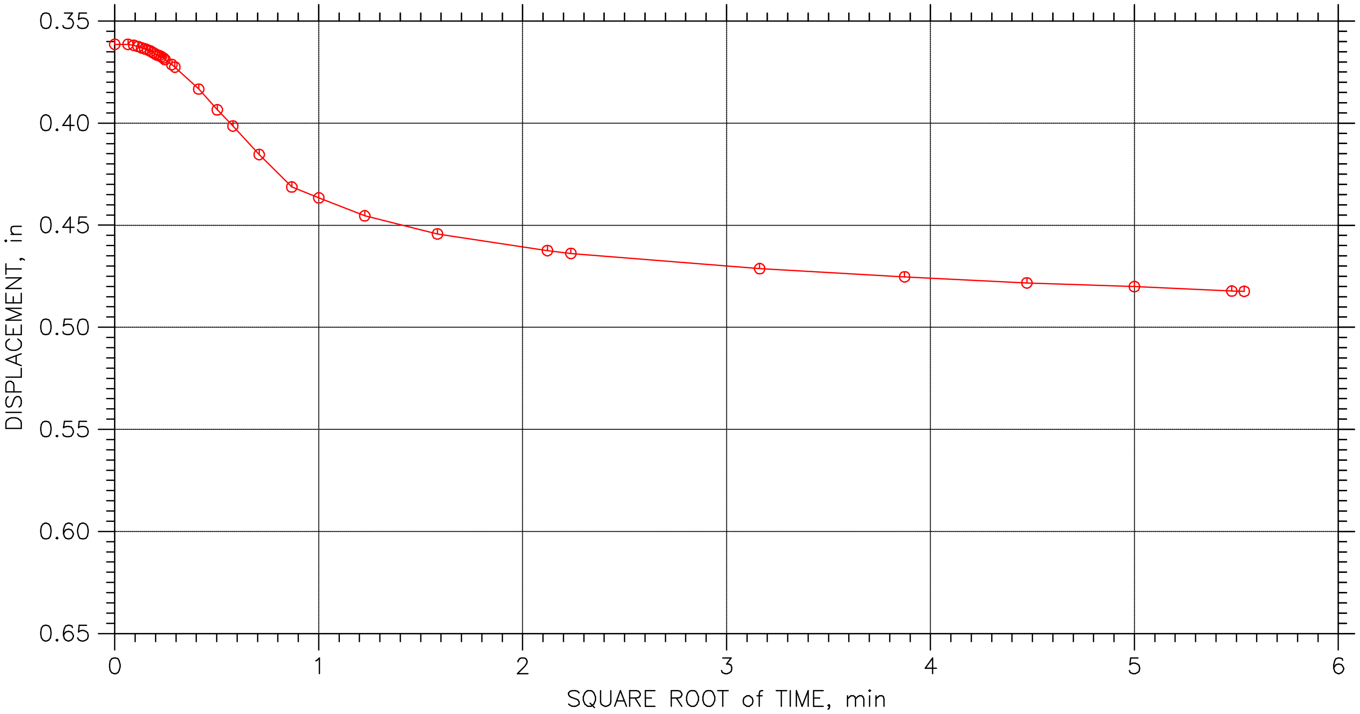
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

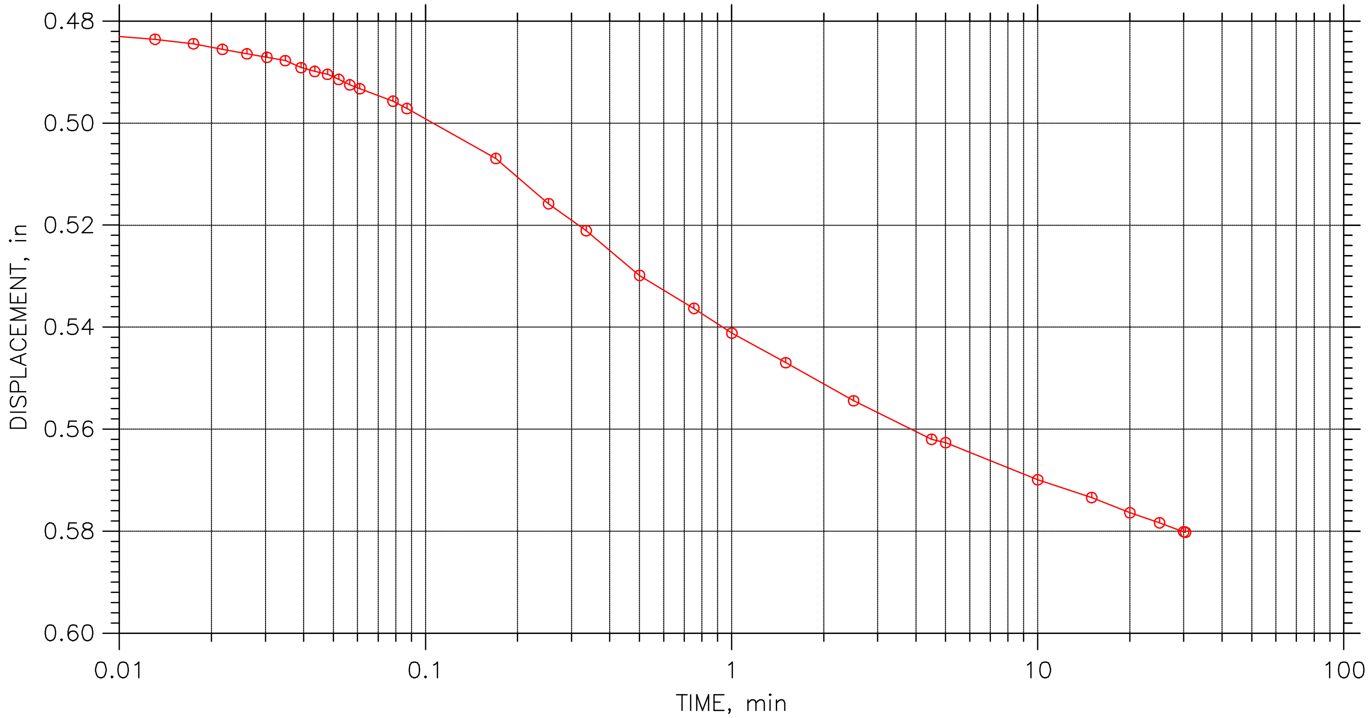
Tue, 26-APR-2022 10:25:15

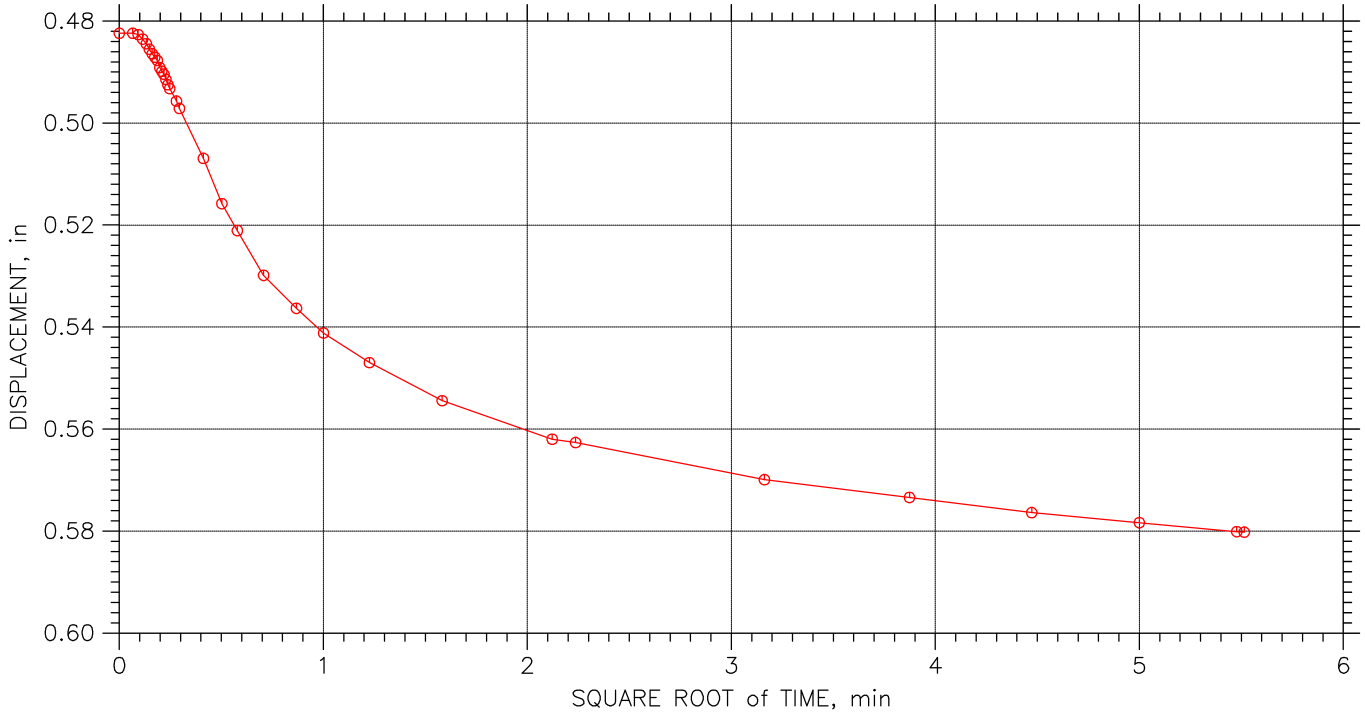
Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

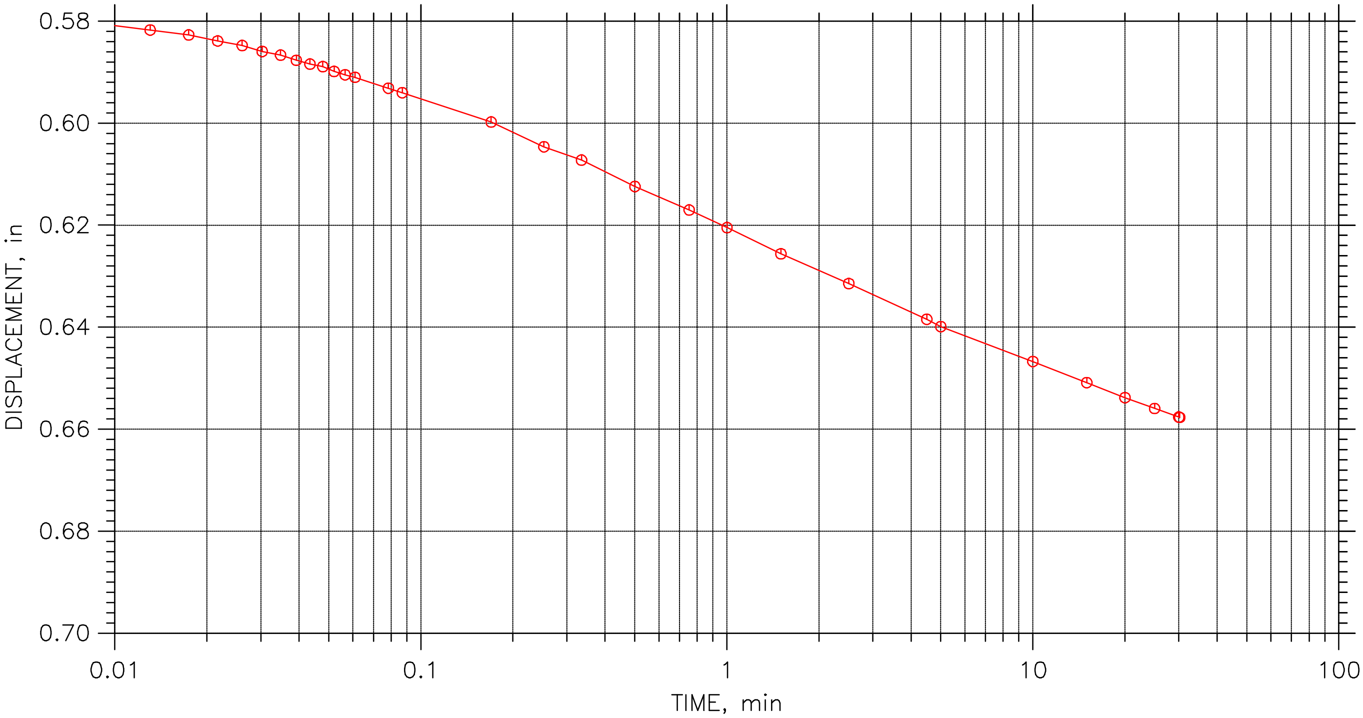
Tue, 26-APR-2022 10:25:16

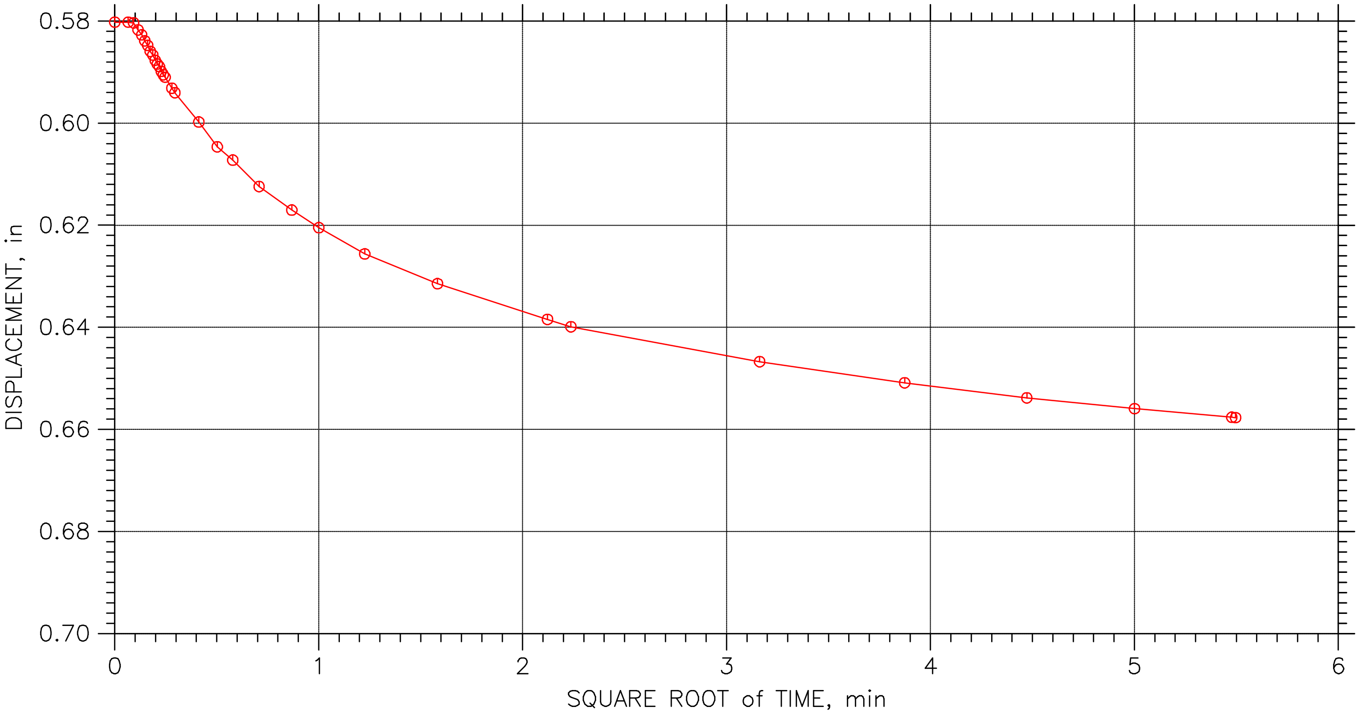
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

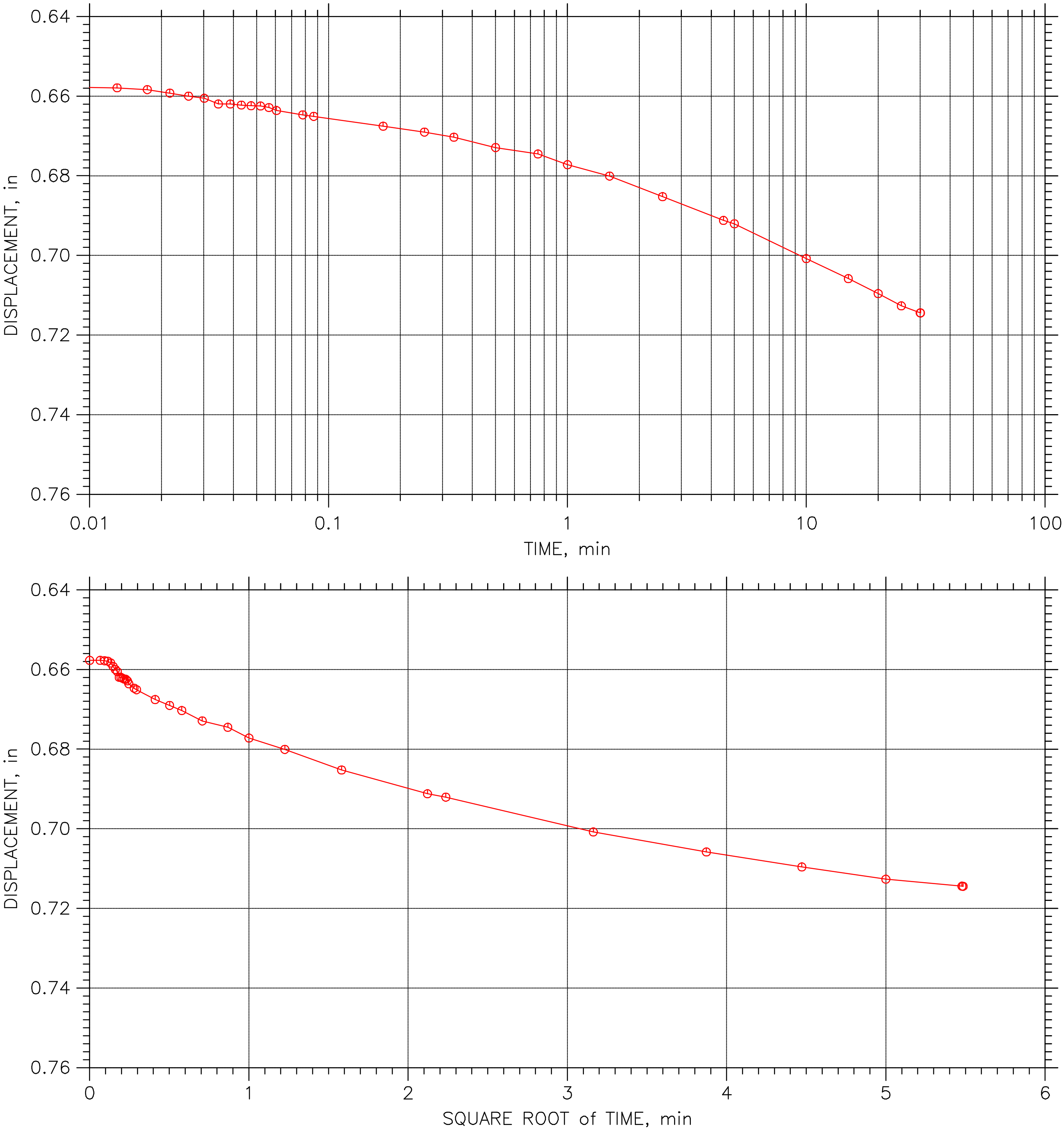
Tue, 26-APR-2022 10:25:18

Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf



Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

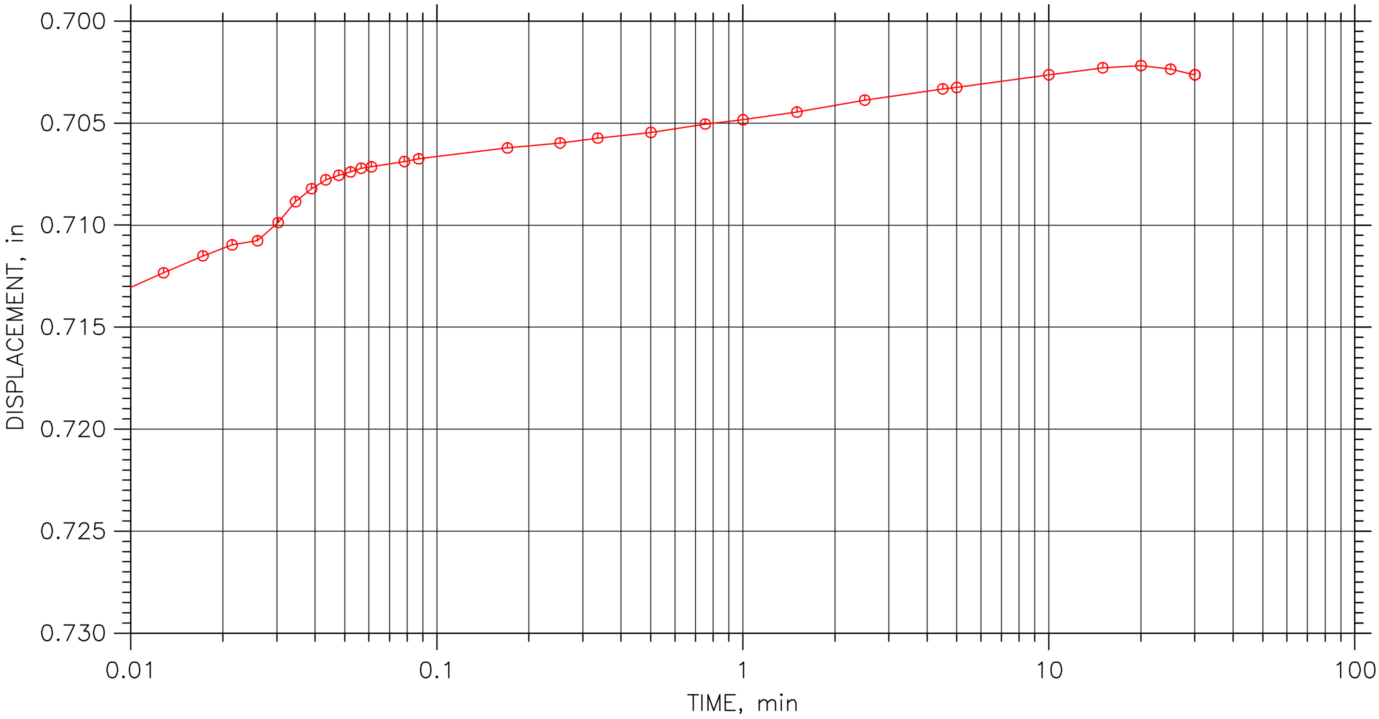
Tue, 26-APR-2022 10:25:19

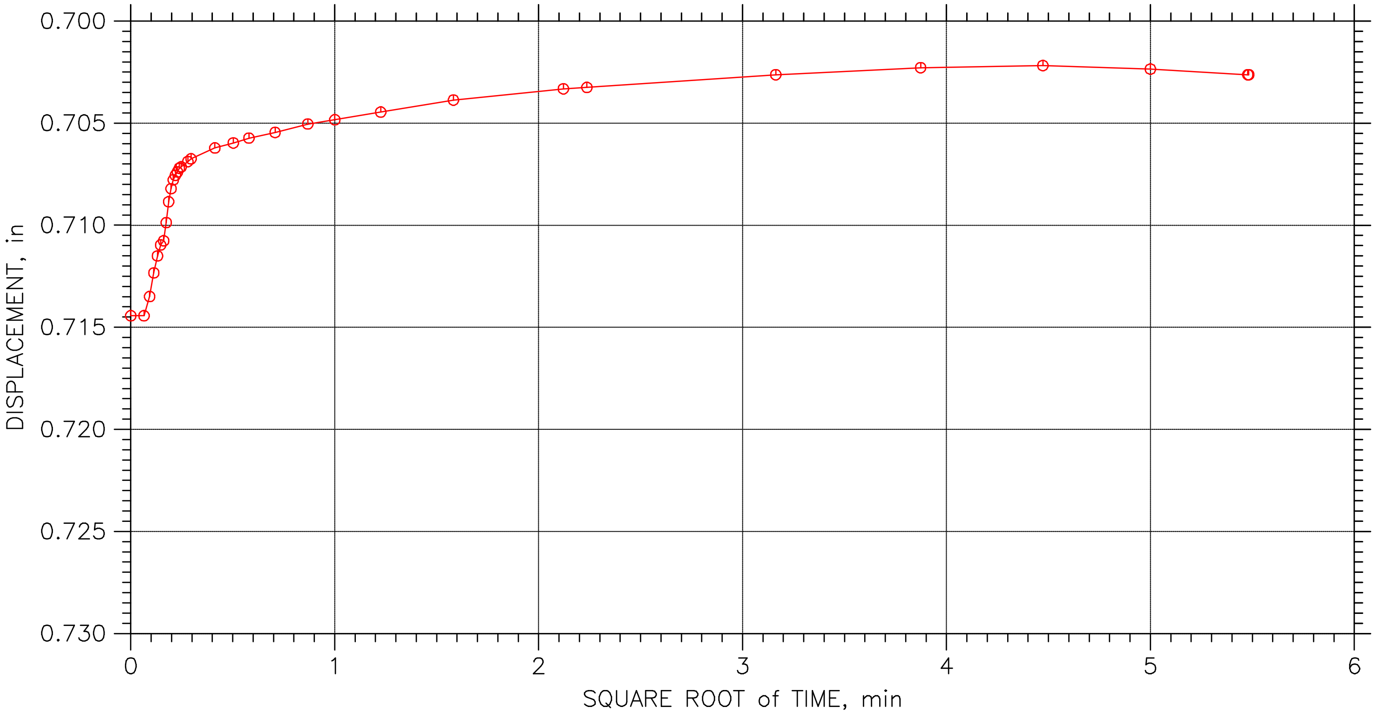
Consolidation Test

TIME CURVES

Constant Load Step 11 of 19

Stress: 32000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

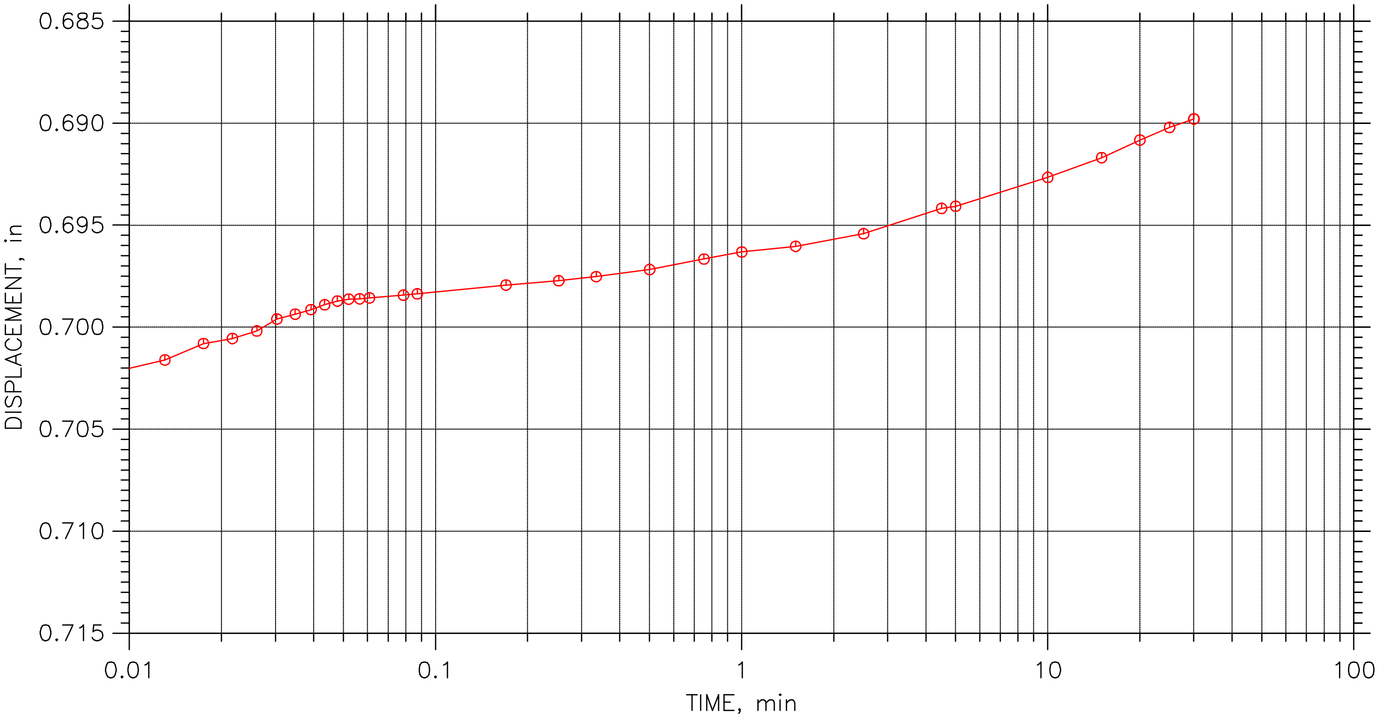
Tue, 26-APR-2022 10:25:20

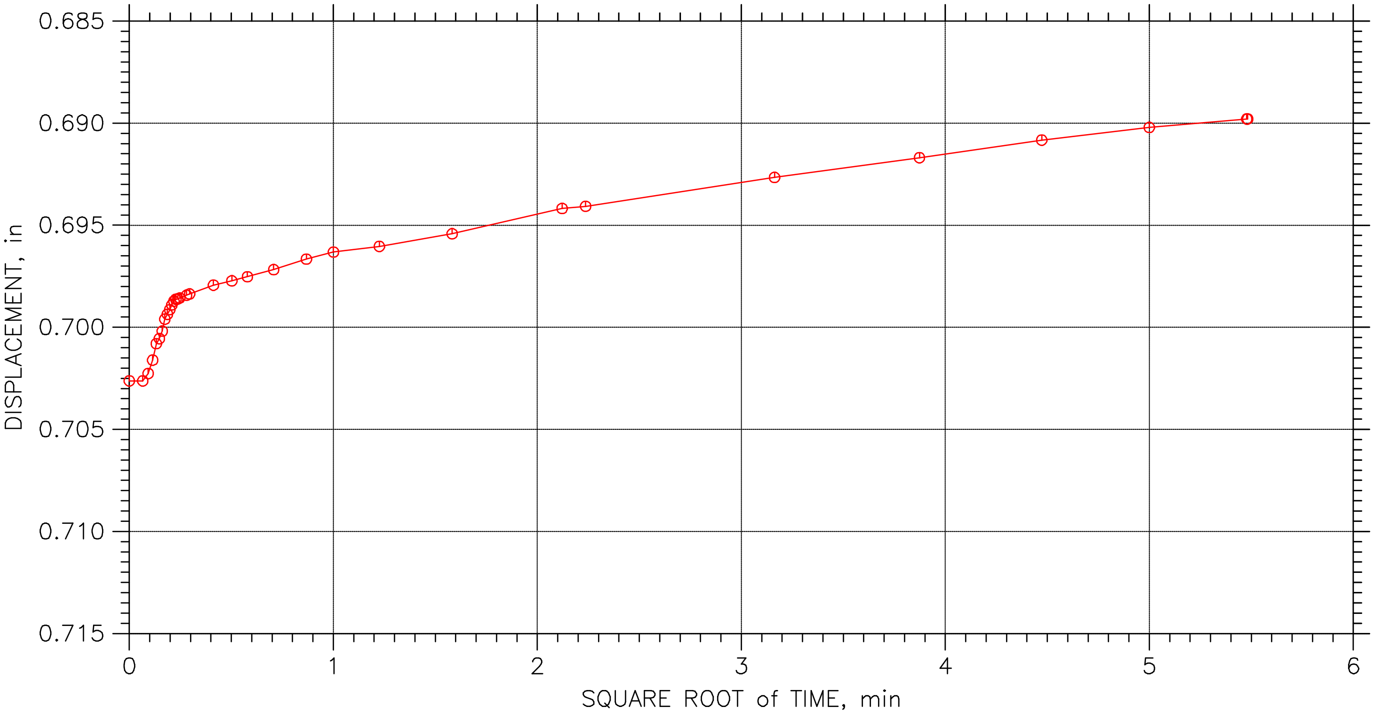
Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

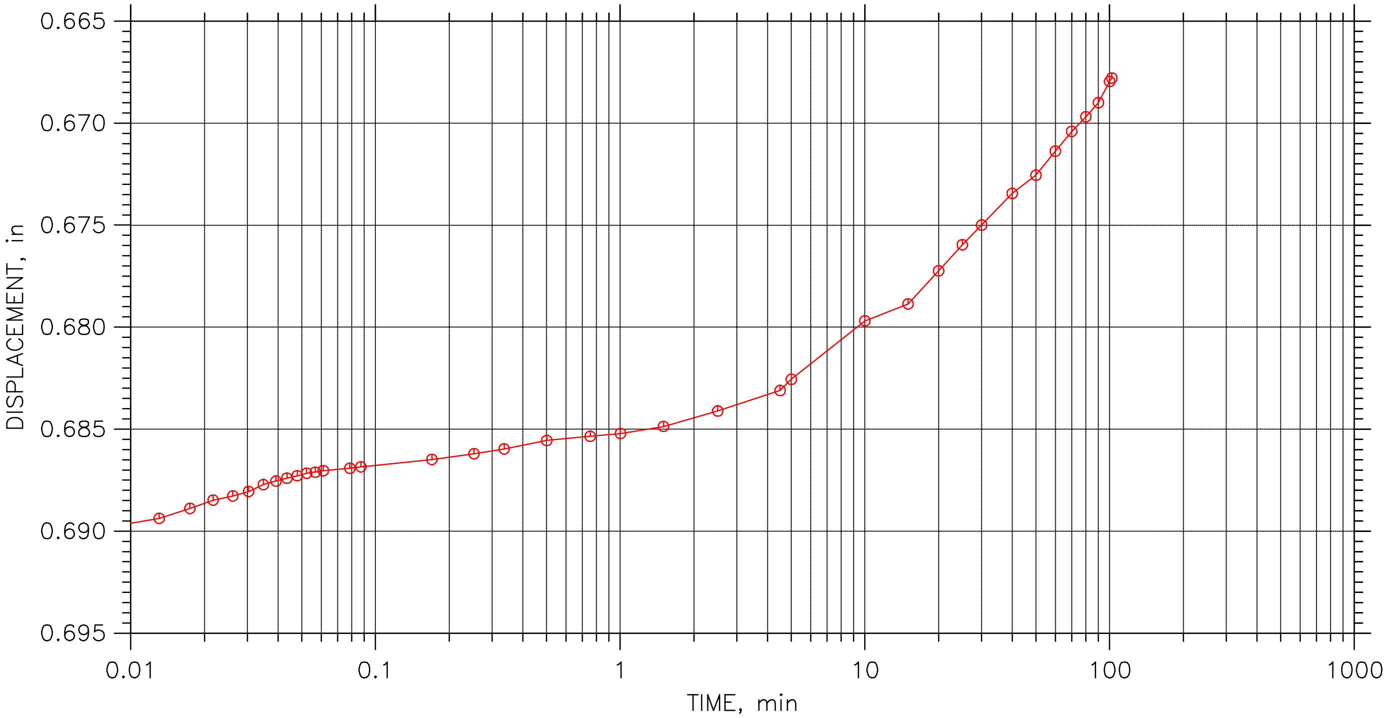
Tue, 26-APR-2022 10:25:21

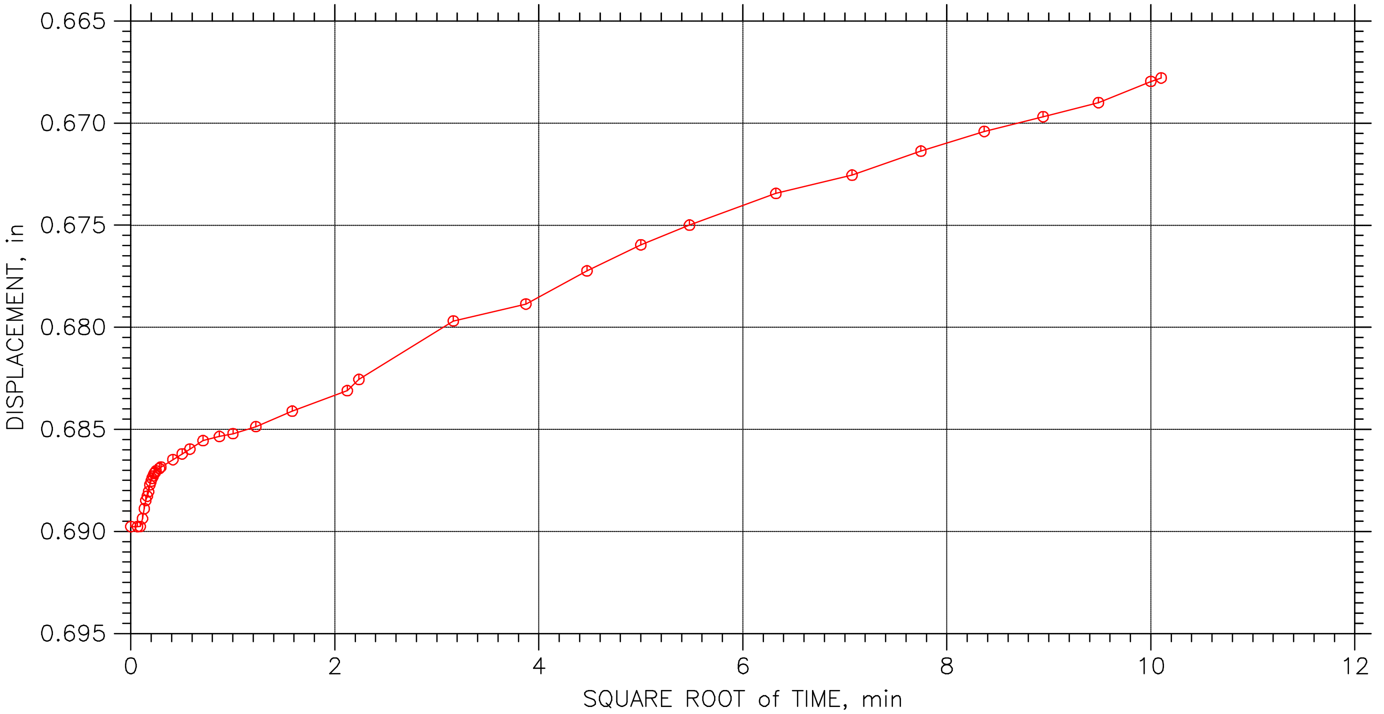
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

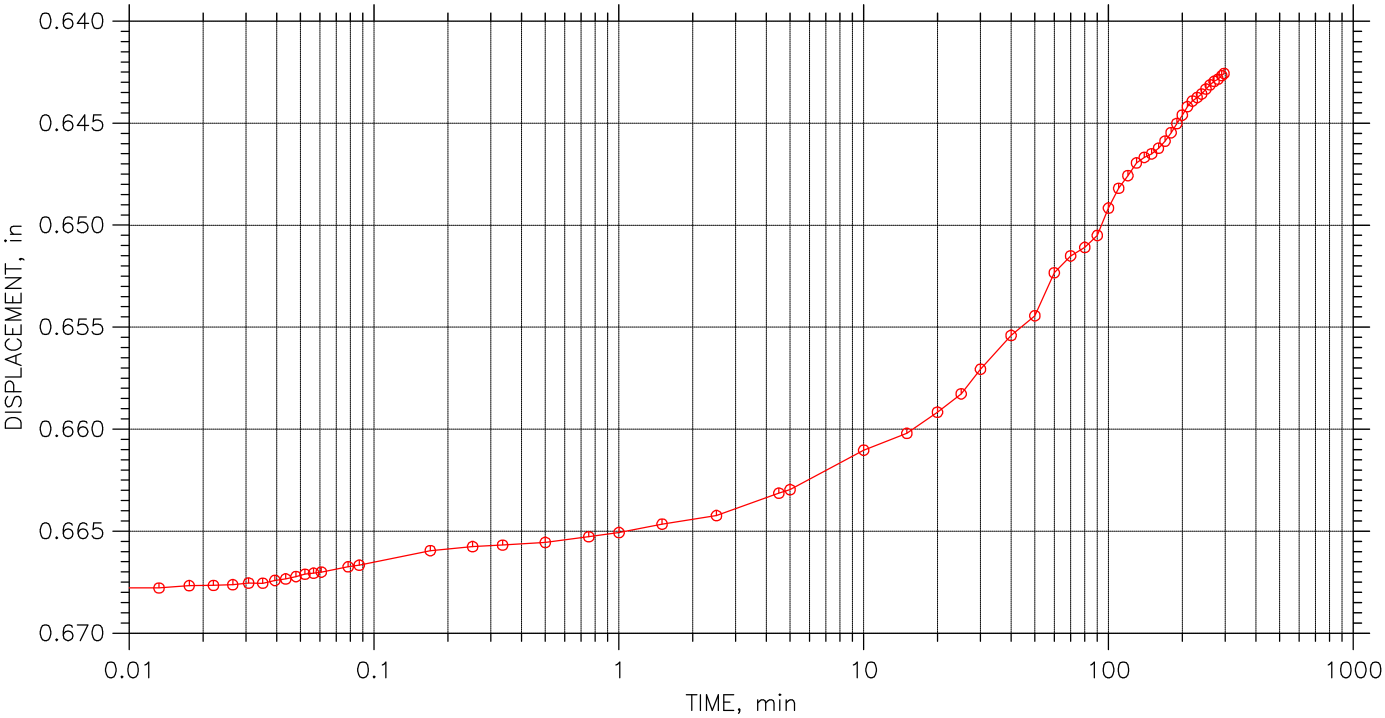
Tue, 26-APR-2022 10:25:23

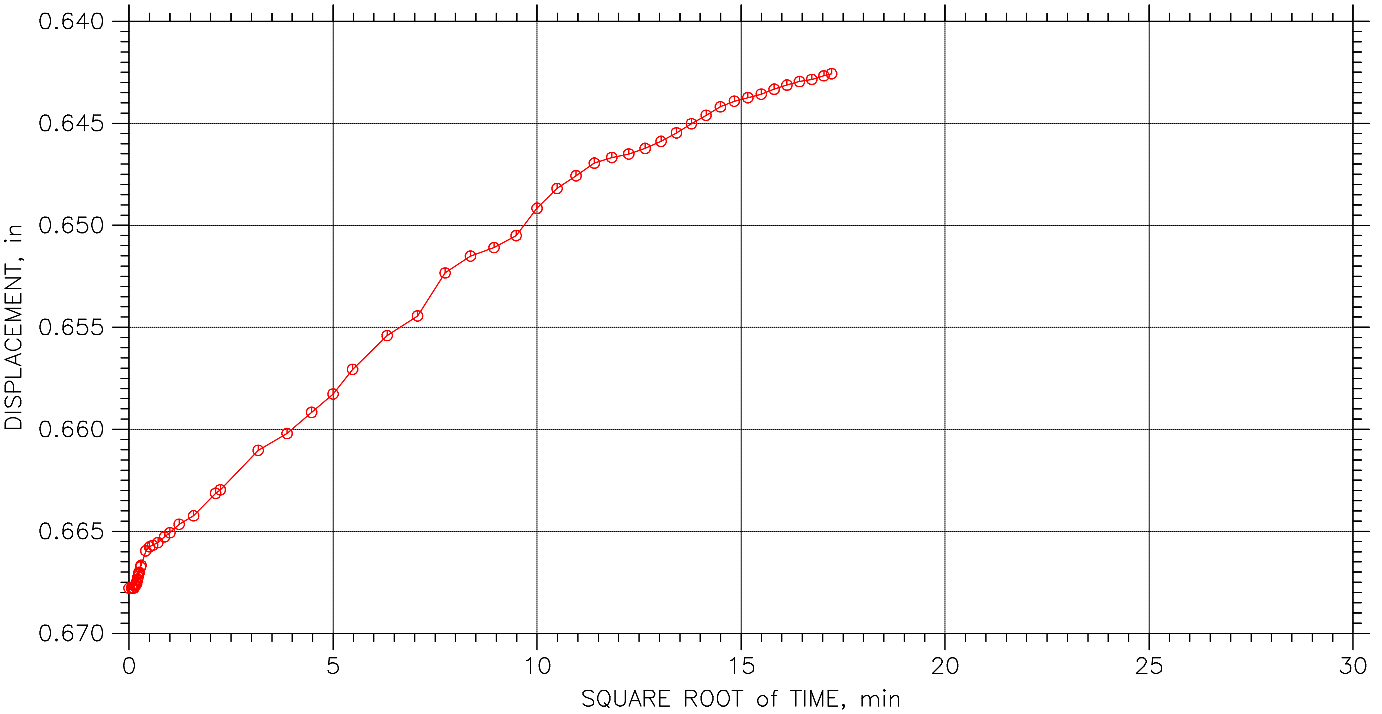
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

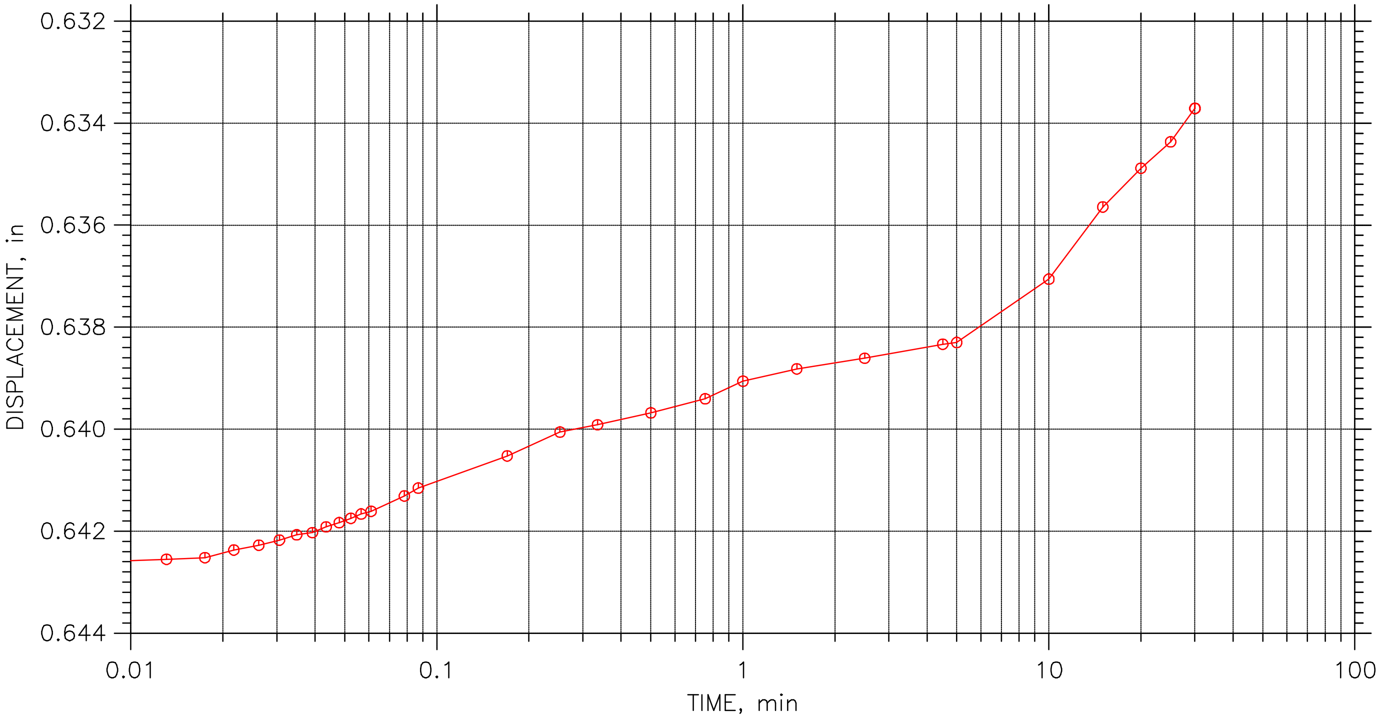
Tue, 26-APR-2022 10:25:24

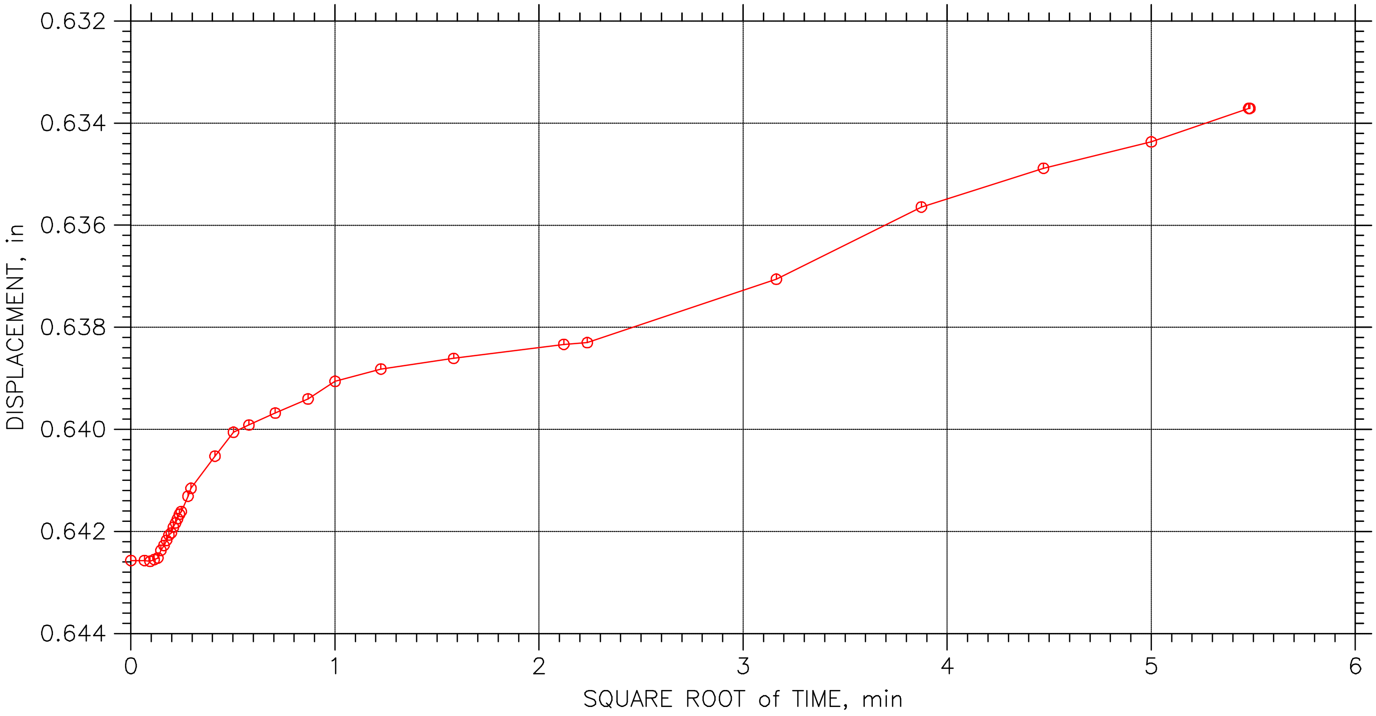
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





Alaska Testlab

Reviewed by

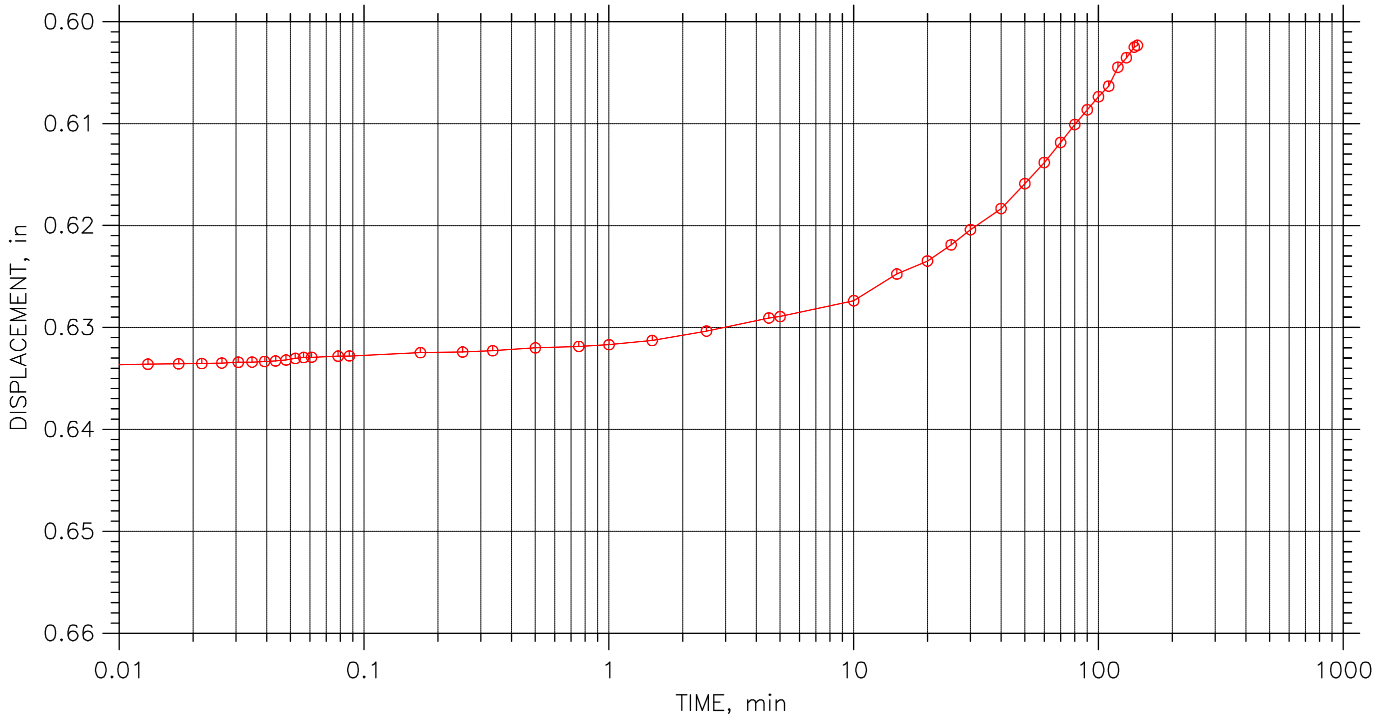
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

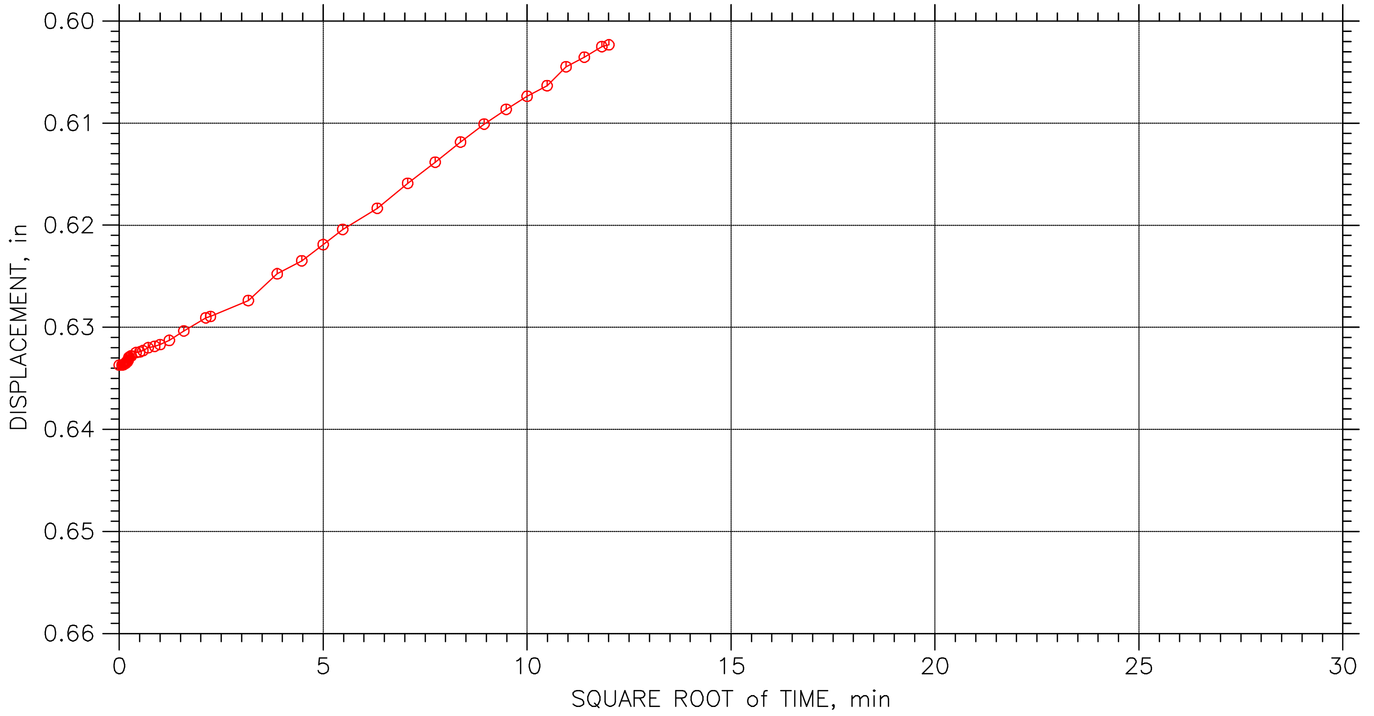
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-08	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
	Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

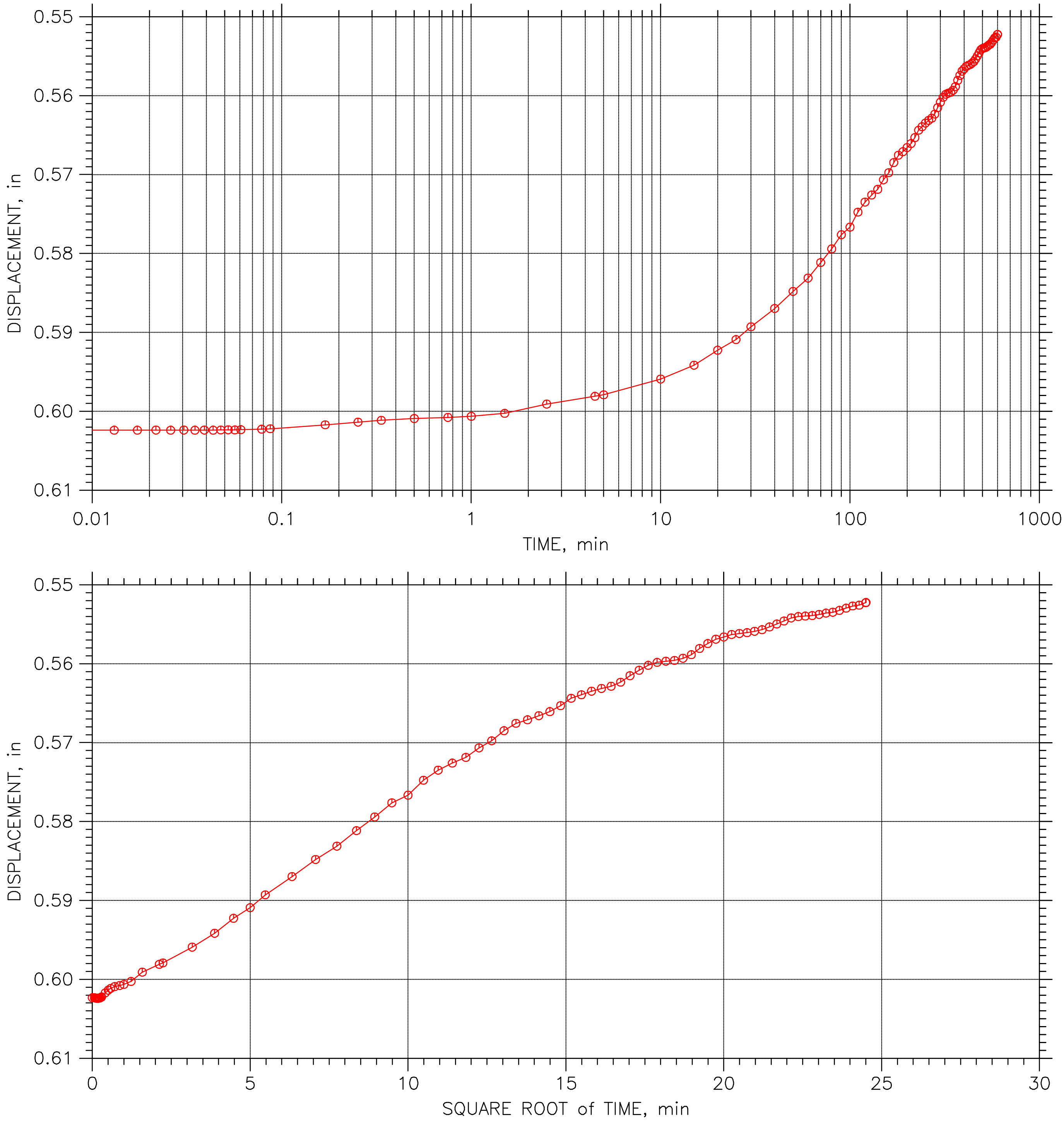
Tue, 26-APR-2022 10:25:27

Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf



Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

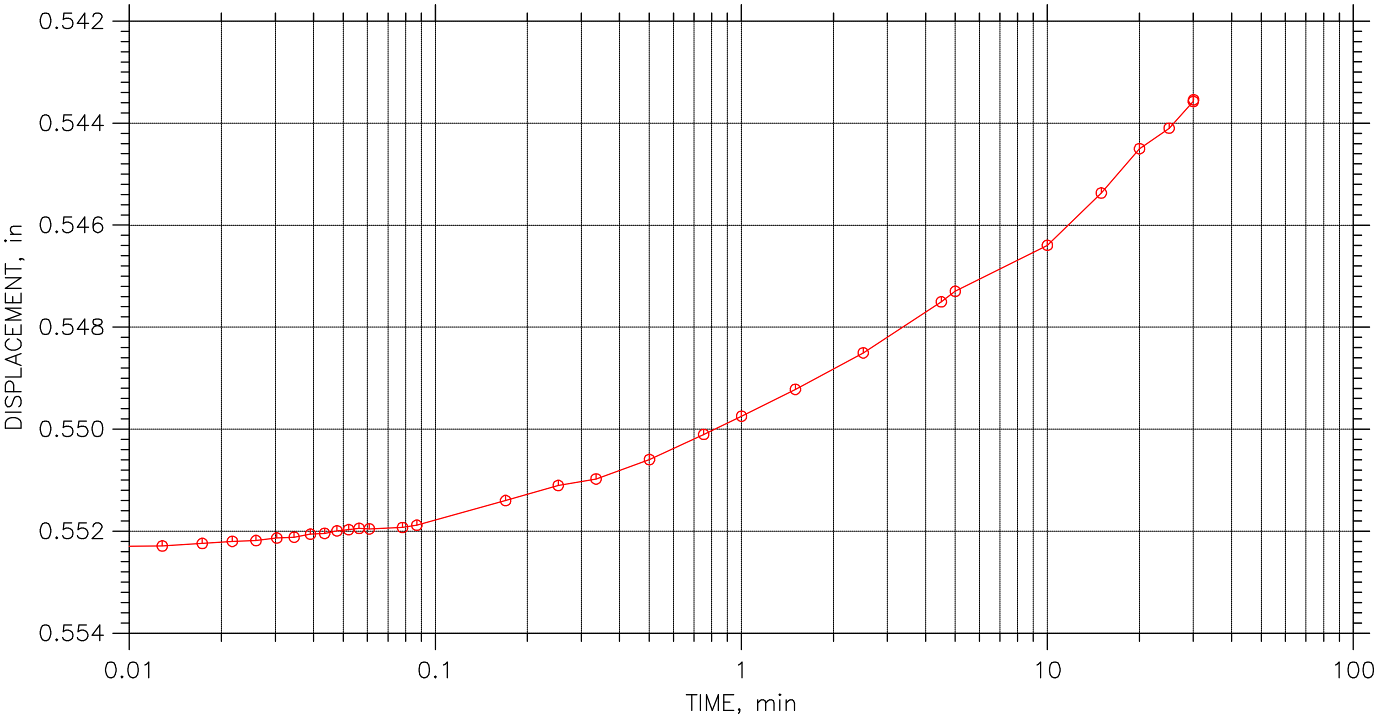
Reviewed by

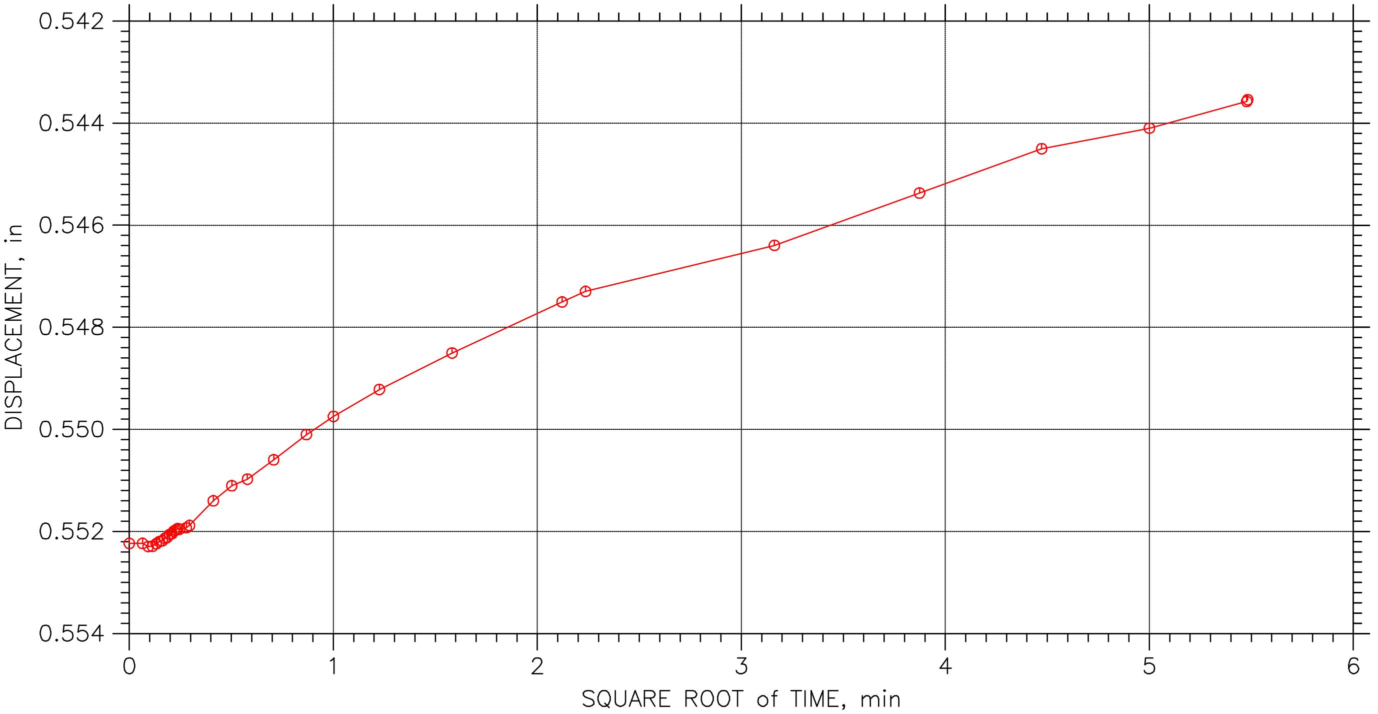
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

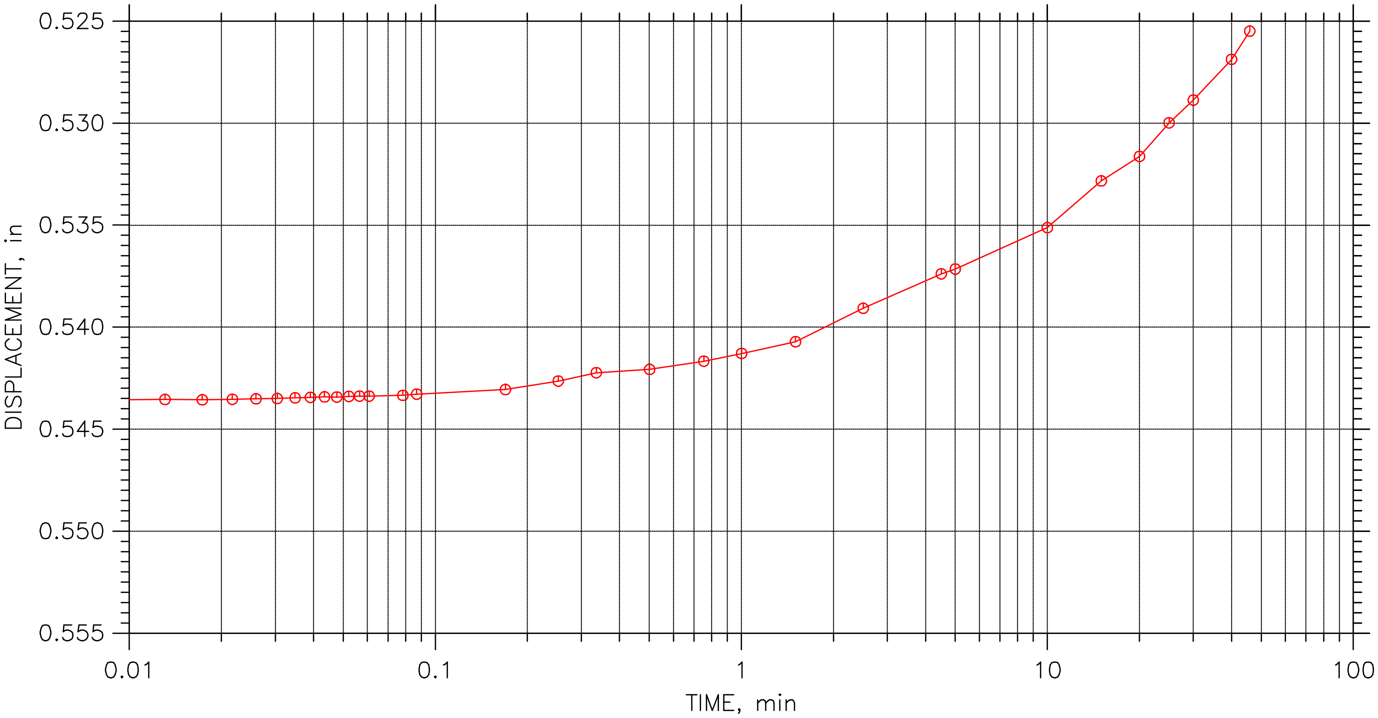
Reviewed by

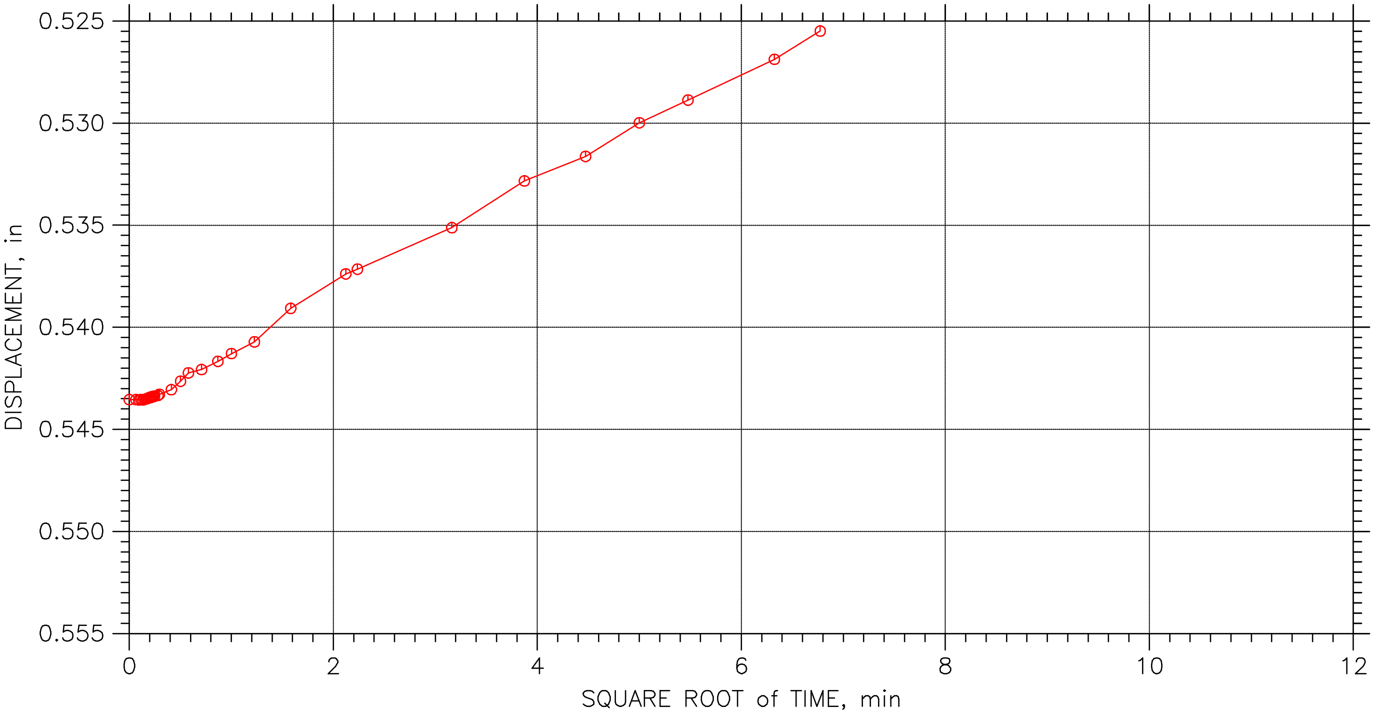
Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-08	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2A	Test Date: 4/11/2022	Test No.: 1
Depth: 2.5-4.5	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

Tue, 26-APR-2022 10:25:31

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

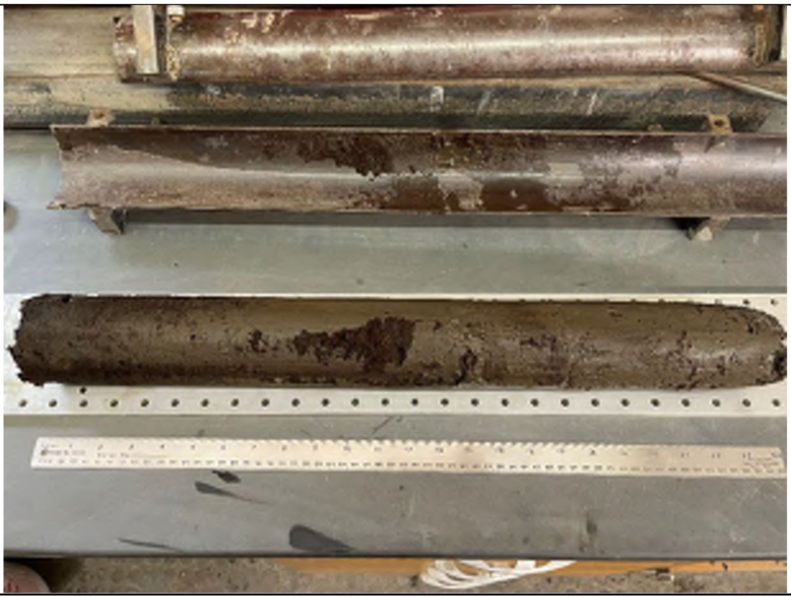
Report No.:	
Issue No.:	1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

73138.00

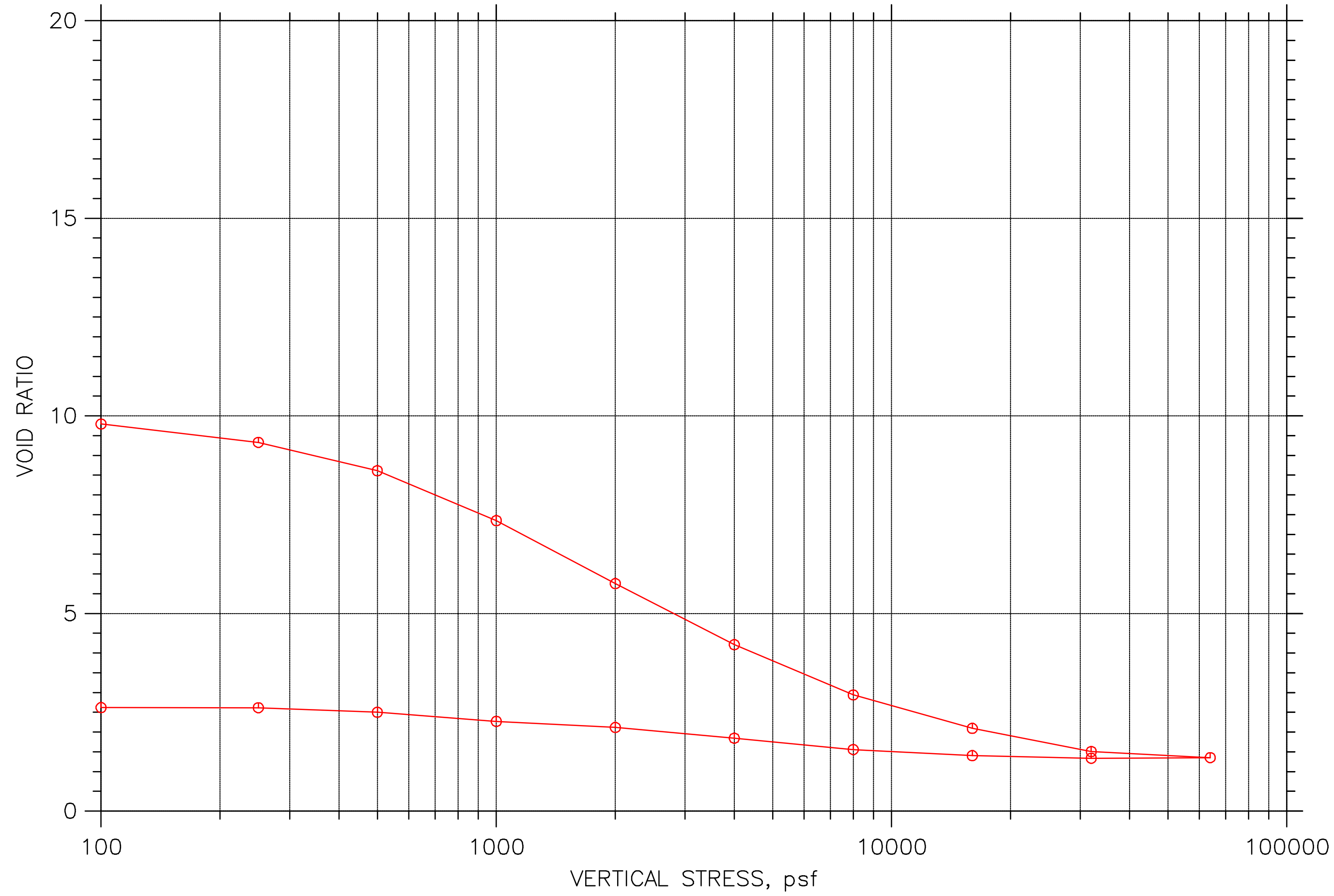
Date Received:	March 21, 2022
Sample #:	22-0261-S02
Material:	BH-08 Sa2A

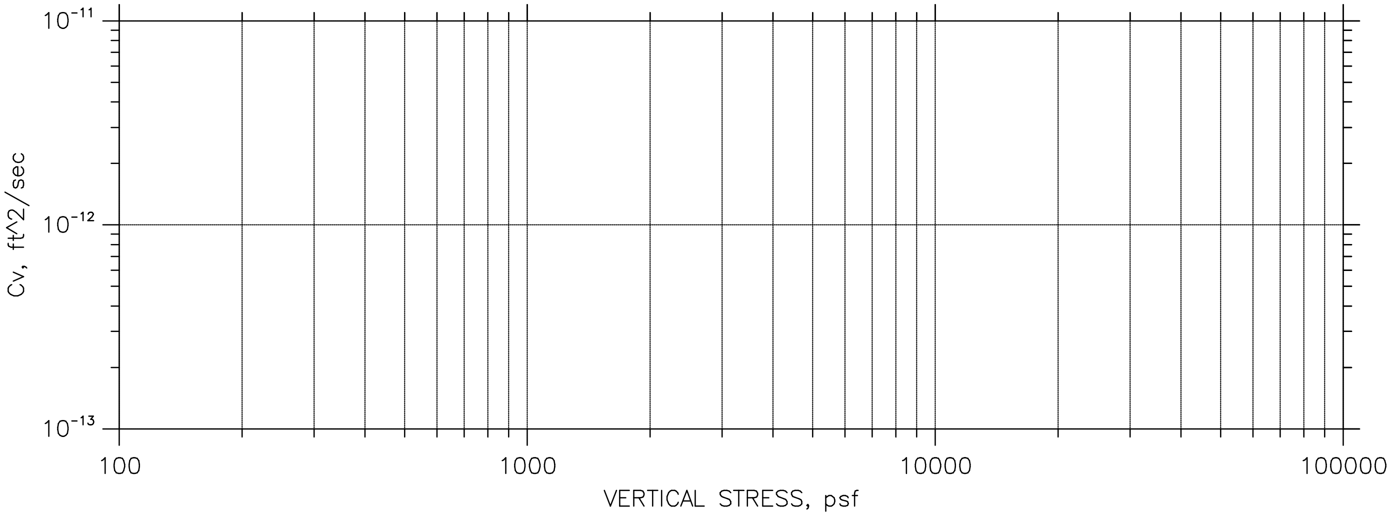


Sample after extraction

Consolidation Test

SUMMARY REPORT





Alaska Testlab

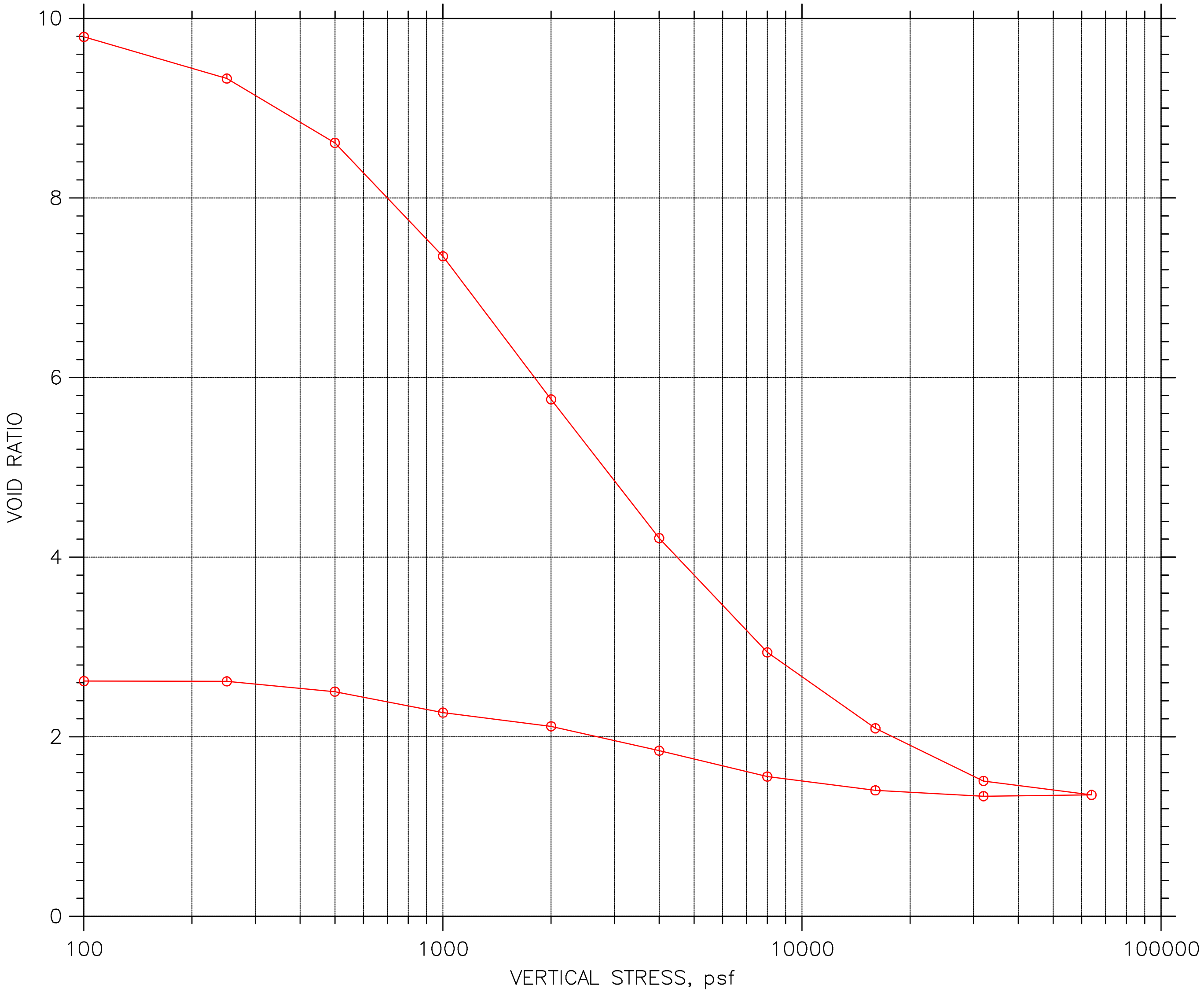
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Thu, 12-MAY-2022 09:08:27

Consolidation Test

SUMMARY REPORT



					Before Test	After Test
Overburden Pressure: 0 psf				Water Content, %	609.87	199.14
Preconsolidation Pressure: 0 psf				Dry Unit Weight, pcf	9.0336	27.601
Compression Index: 0				Saturation, %	97.03	121.66
Diameter: 2.497 in		Height: 0.9998 in		Void Ratio	10.06	2.62
LL: ---	PL: ---	PI: ---	GS: 1.60	Back Pressure, psf	0	0

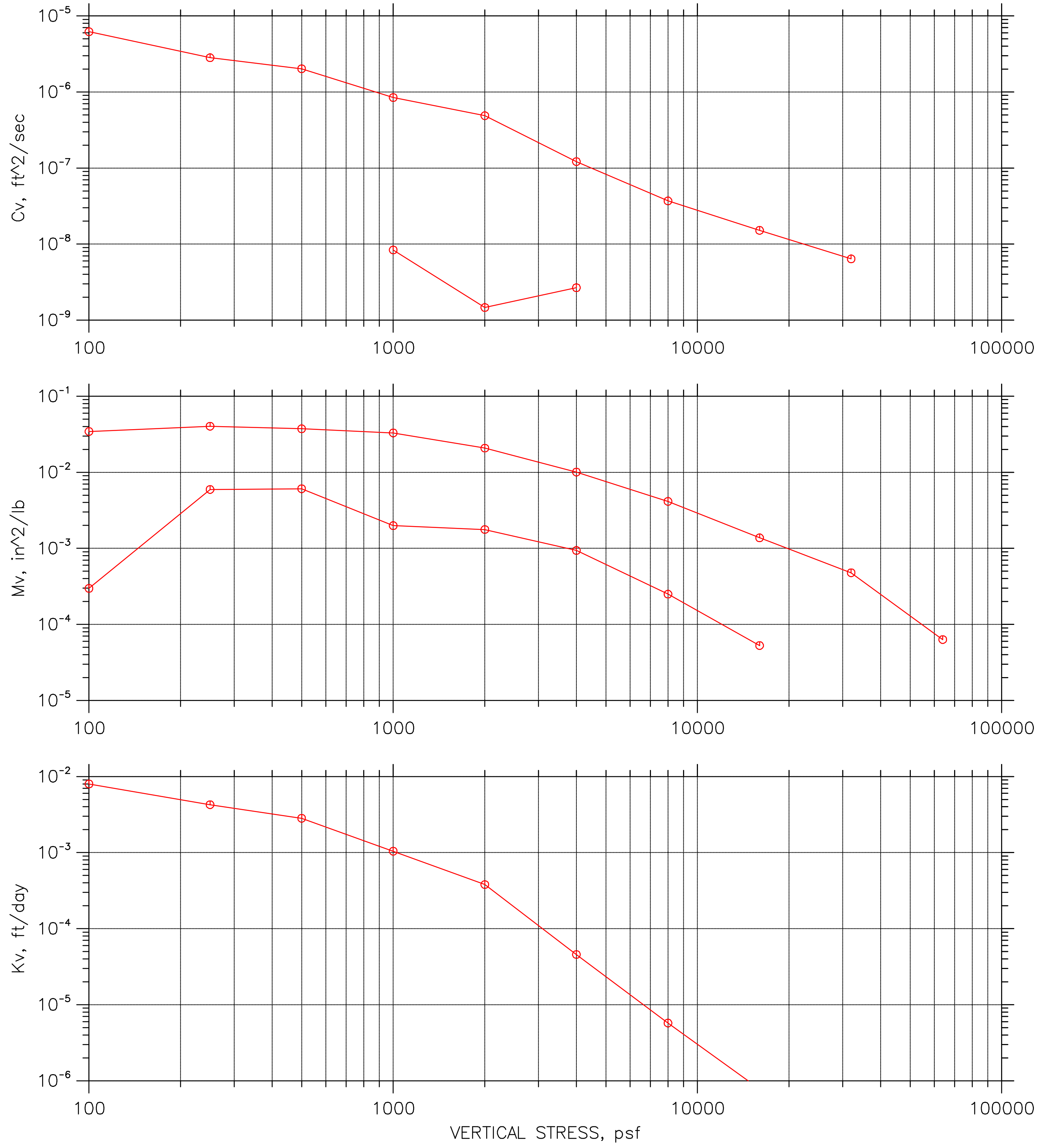
ATL
Alaska Testlab
Reviewed by
MarEKnpsen

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Thu, 12-MAY-2022 09:08:28

Consolidation Test

ROOT of TIME COEFFICIENTS



Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

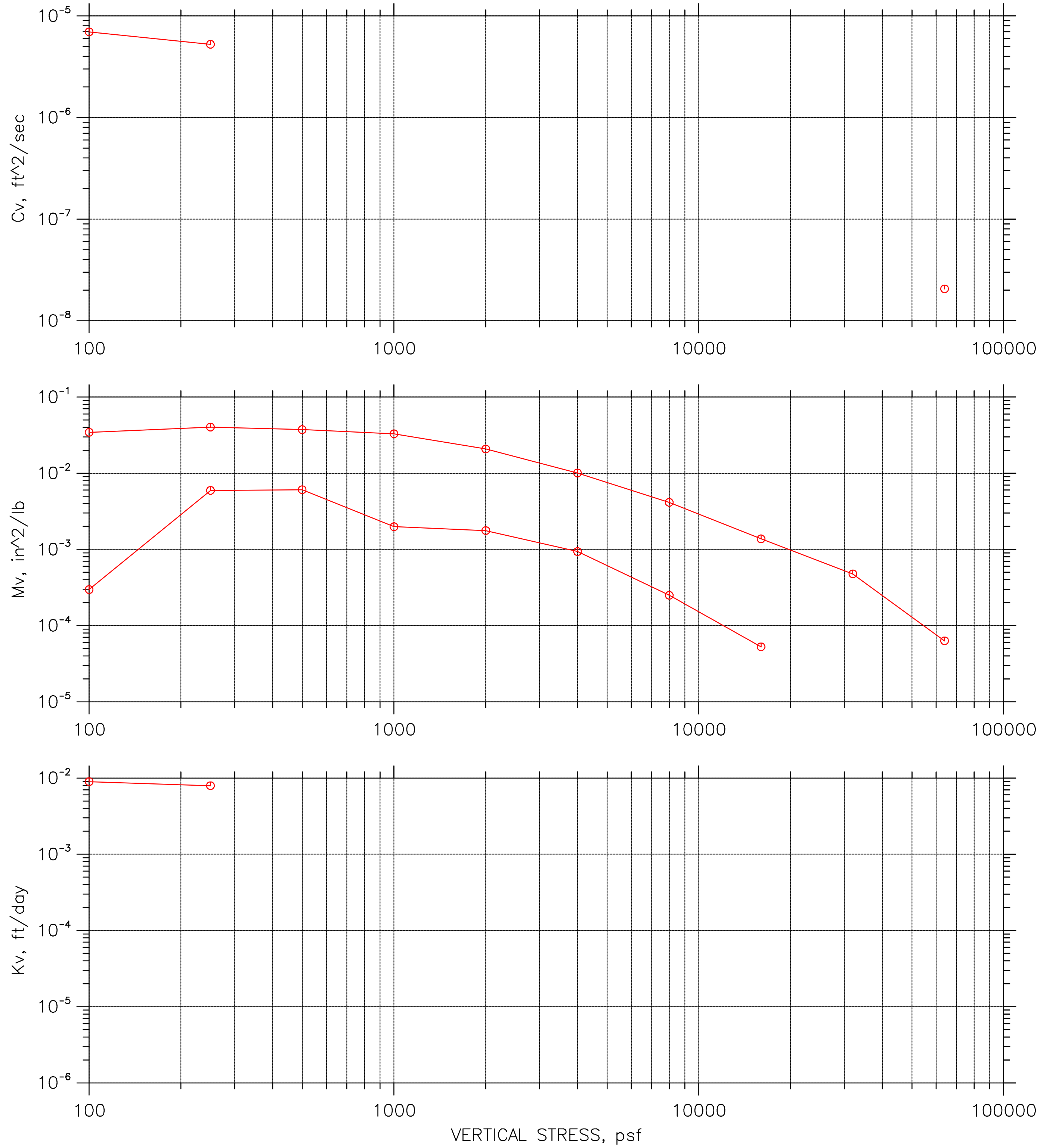
Alaska Testlab

Reviewed by

Thu, 12-MAY-2022 09:08:29

Consolidation Test

LOG of TIME COEFFICIENTS



Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

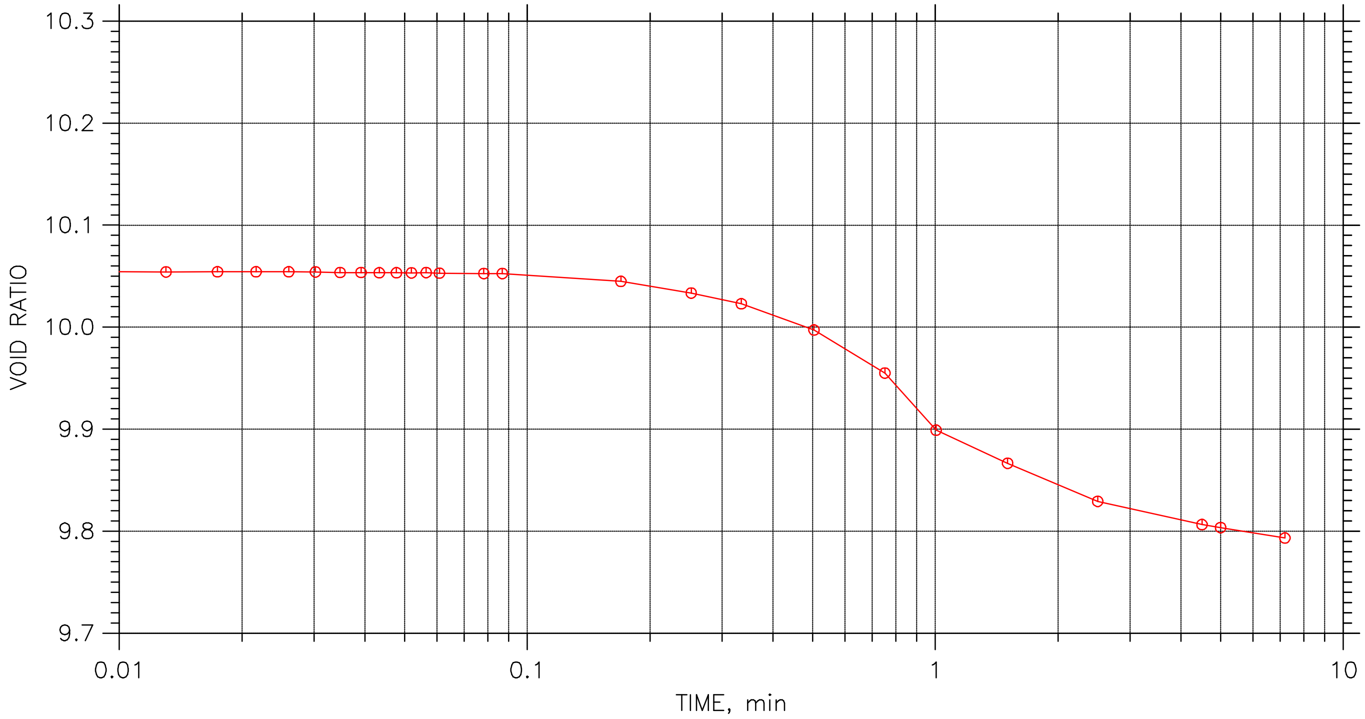
Thu, 12-MAY-2022 09:08:30

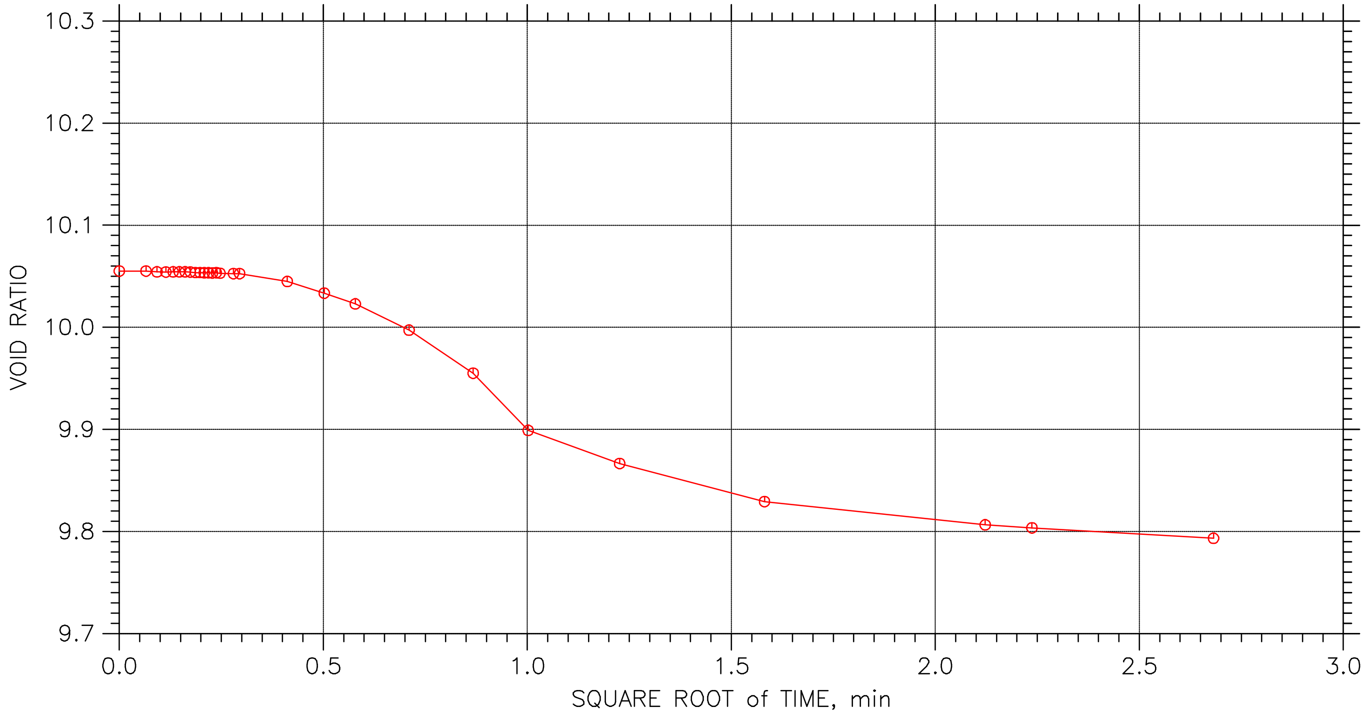
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

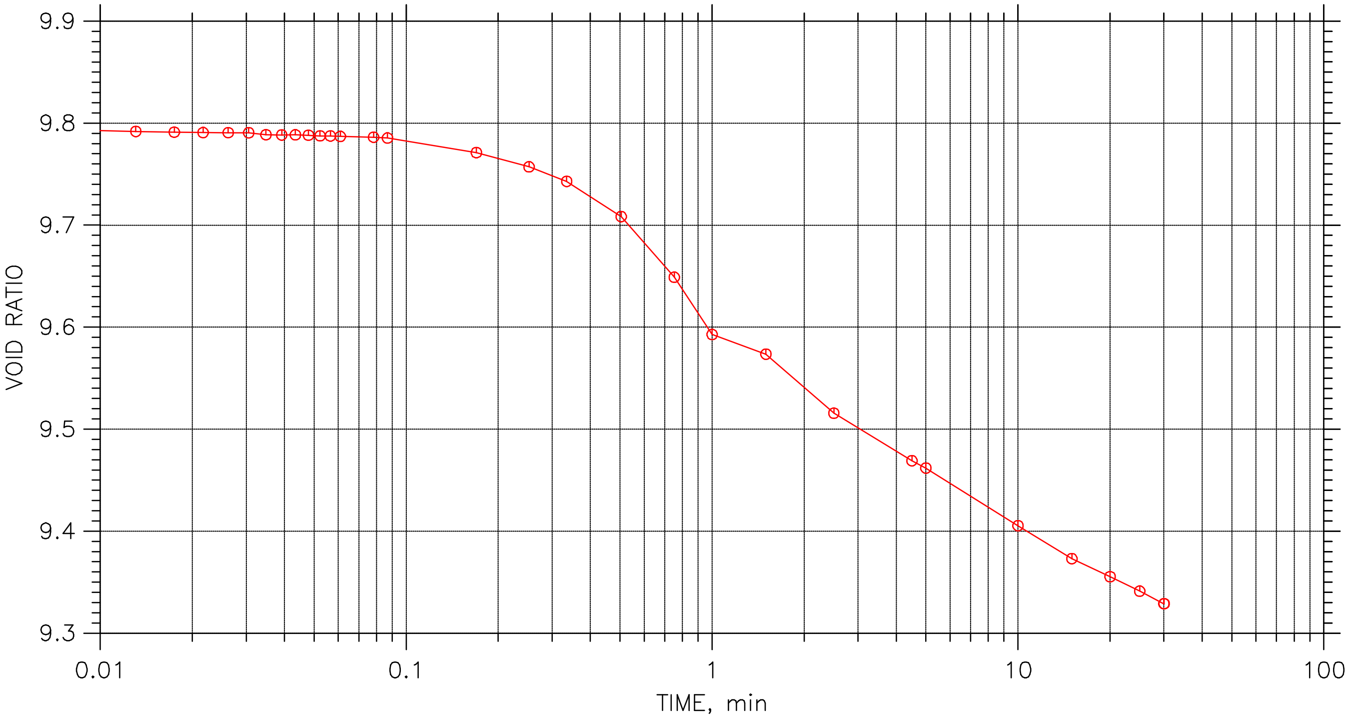
Thu, 12-MAY-2022 09:08:31

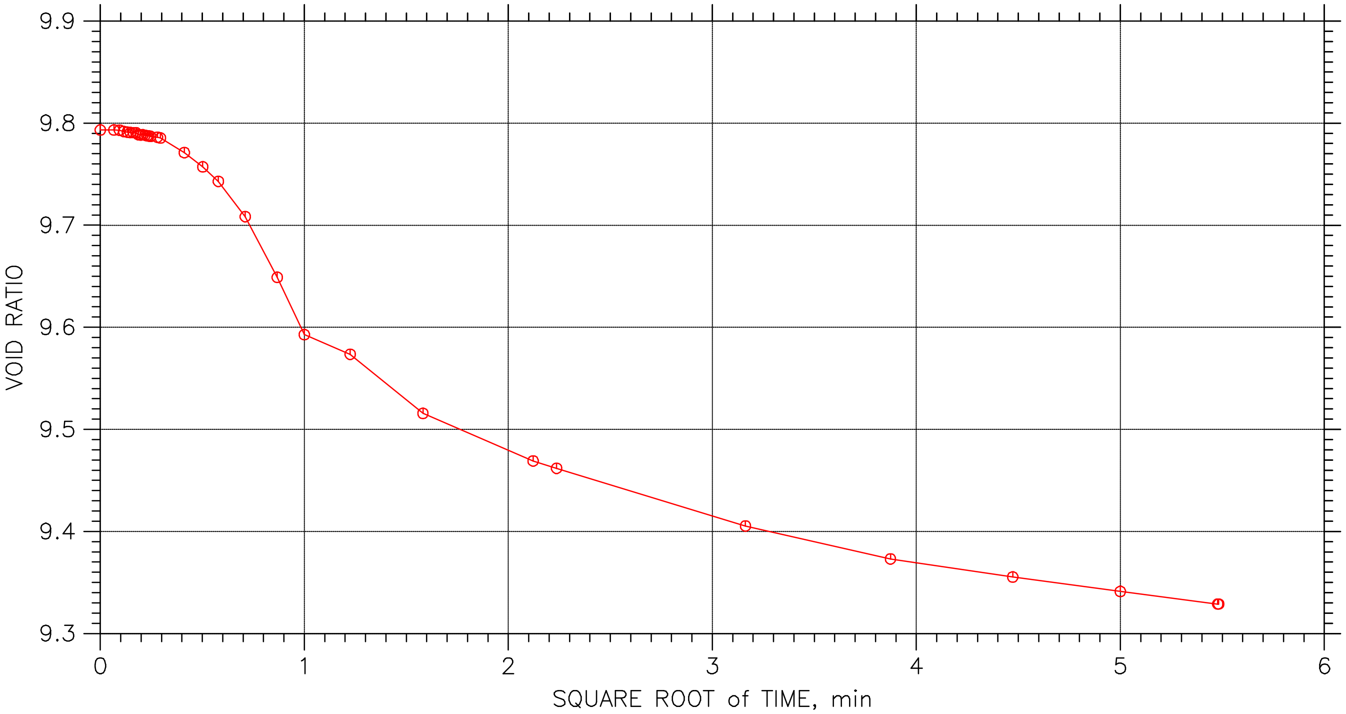
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





ATL
Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

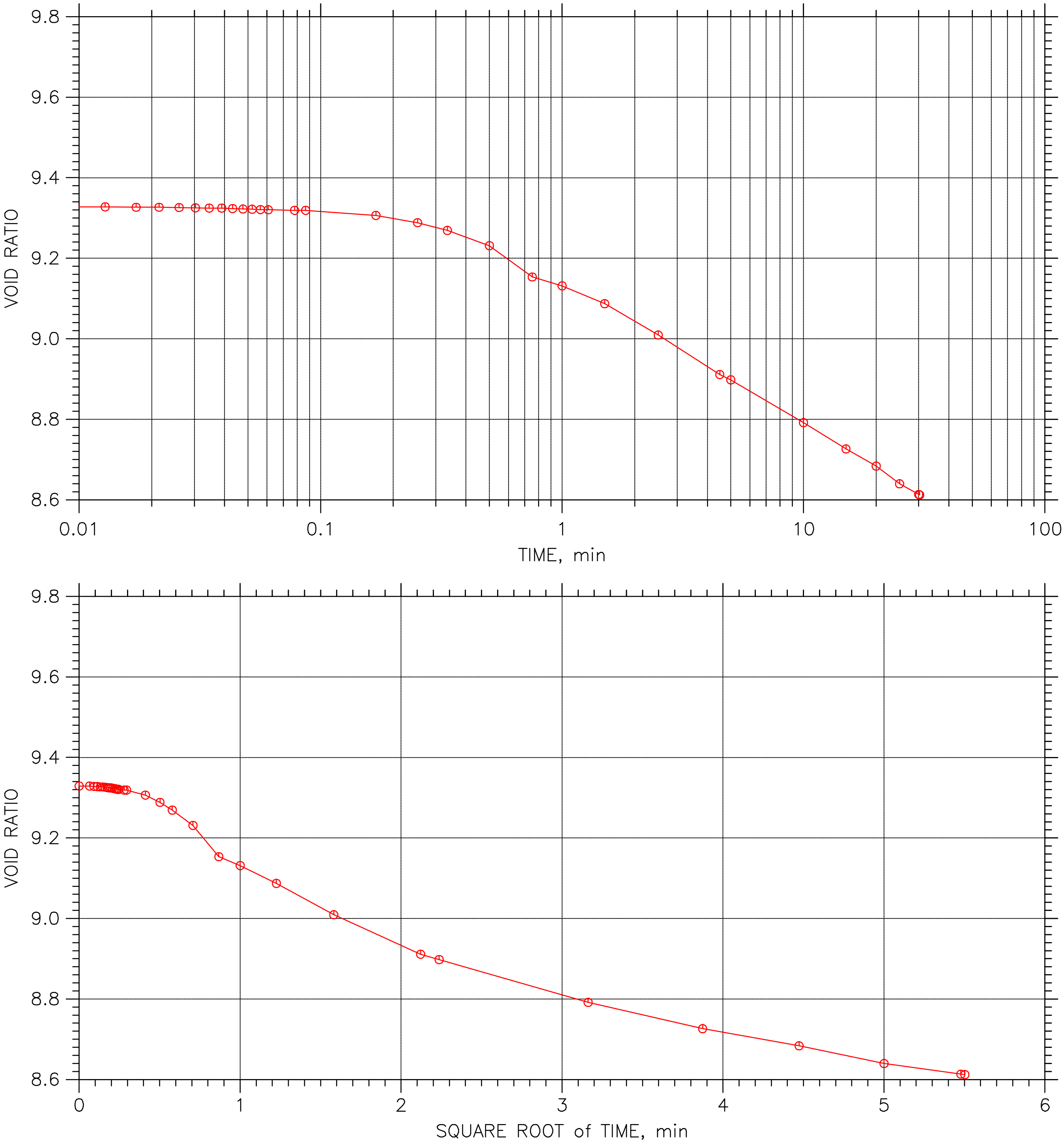
Thu, 12-MAY-2022 09:08:32

Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf



Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

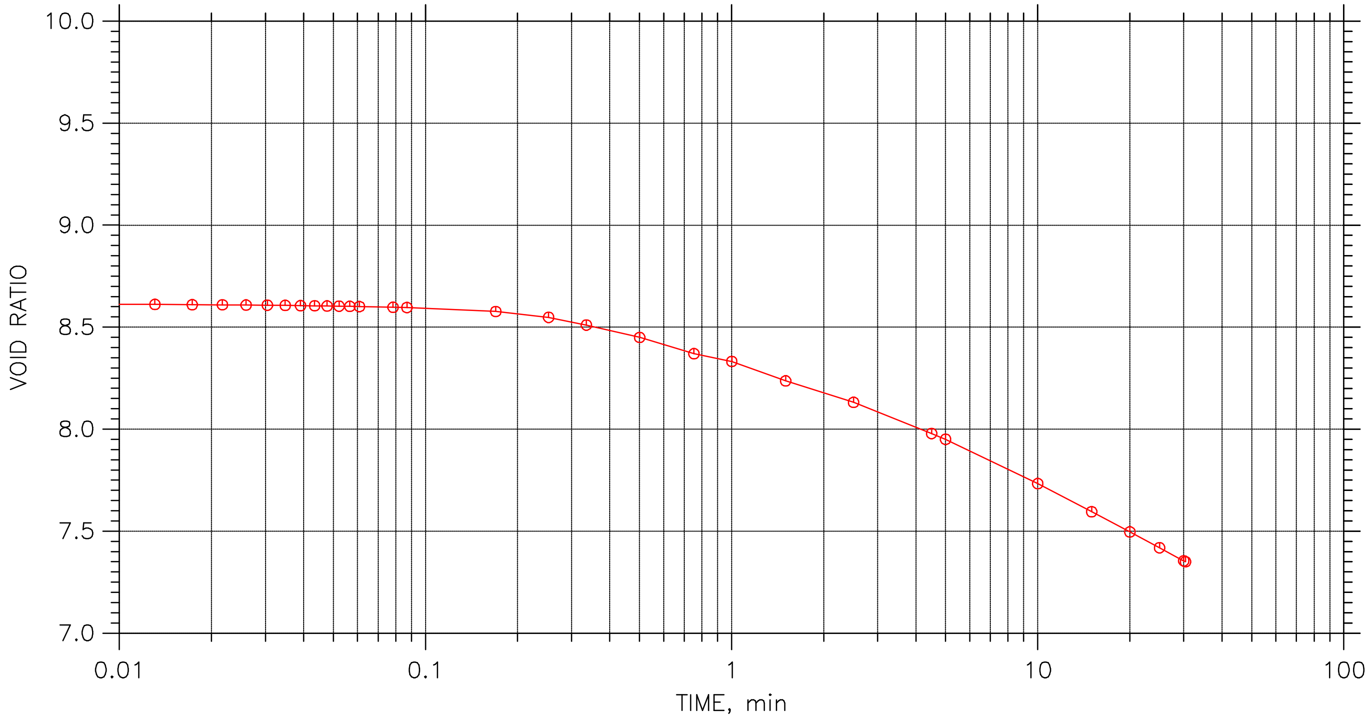
Thu, 12-MAY-2022 09:08:33

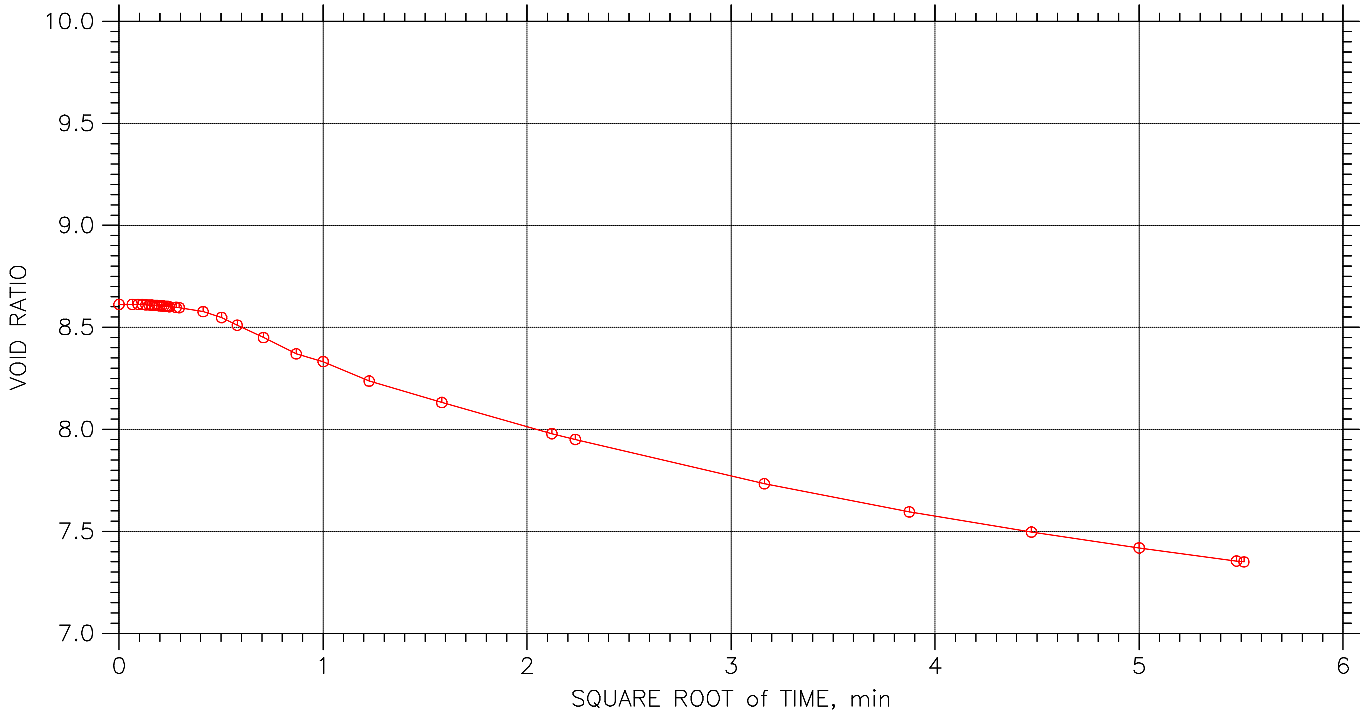
Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

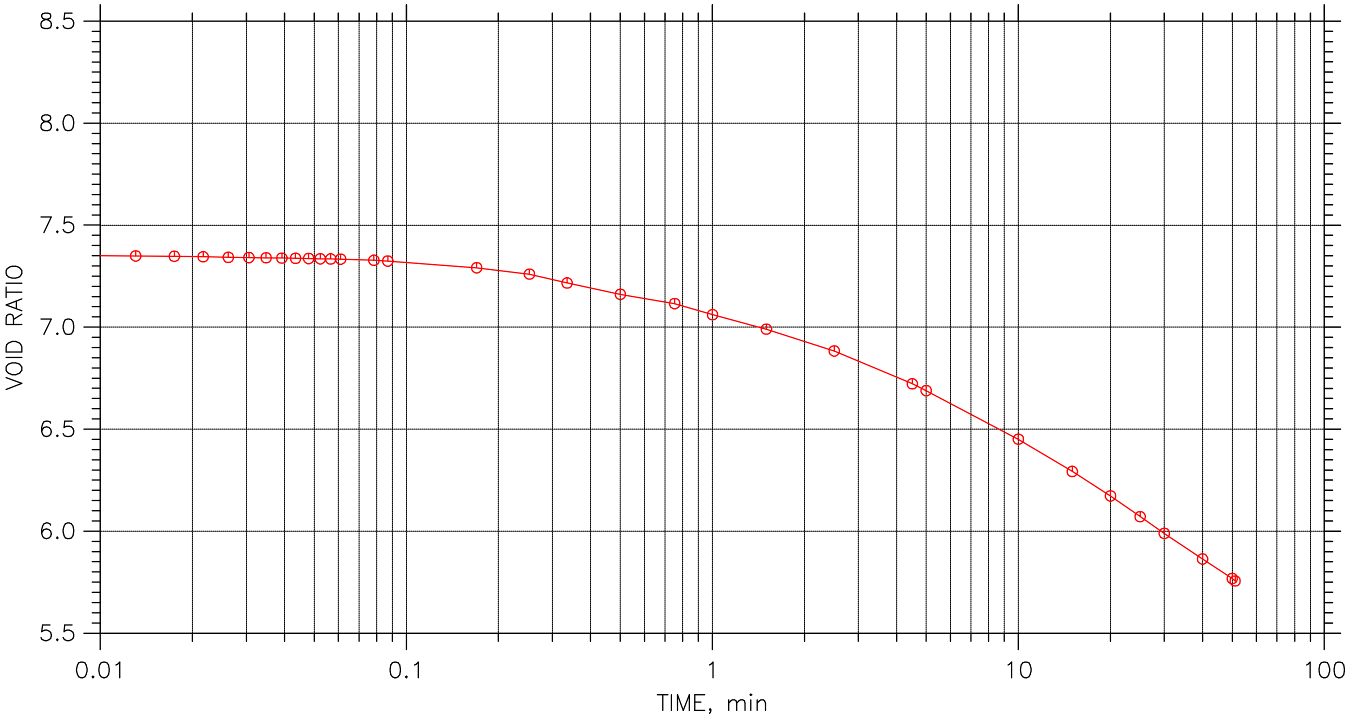
Thu, 12-MAY-2022 09:08:34

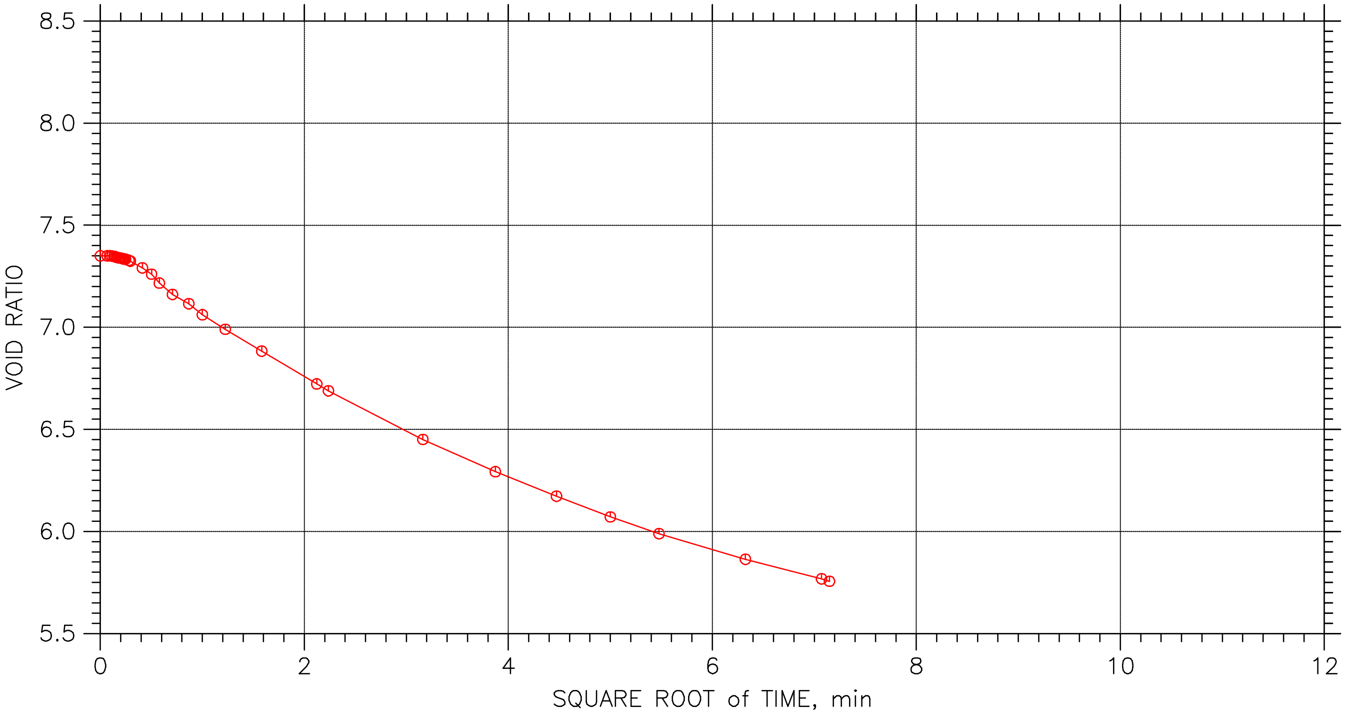
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

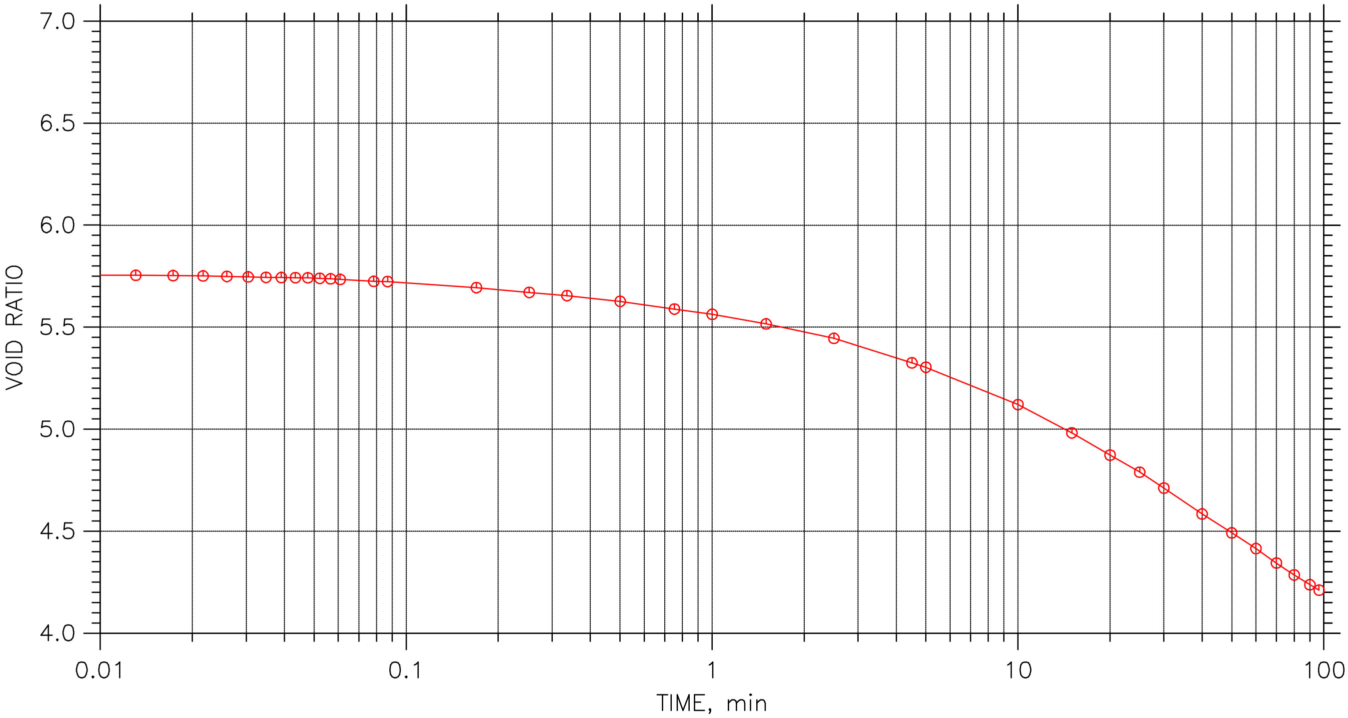
Thu, 12-MAY-2022 09:08:35

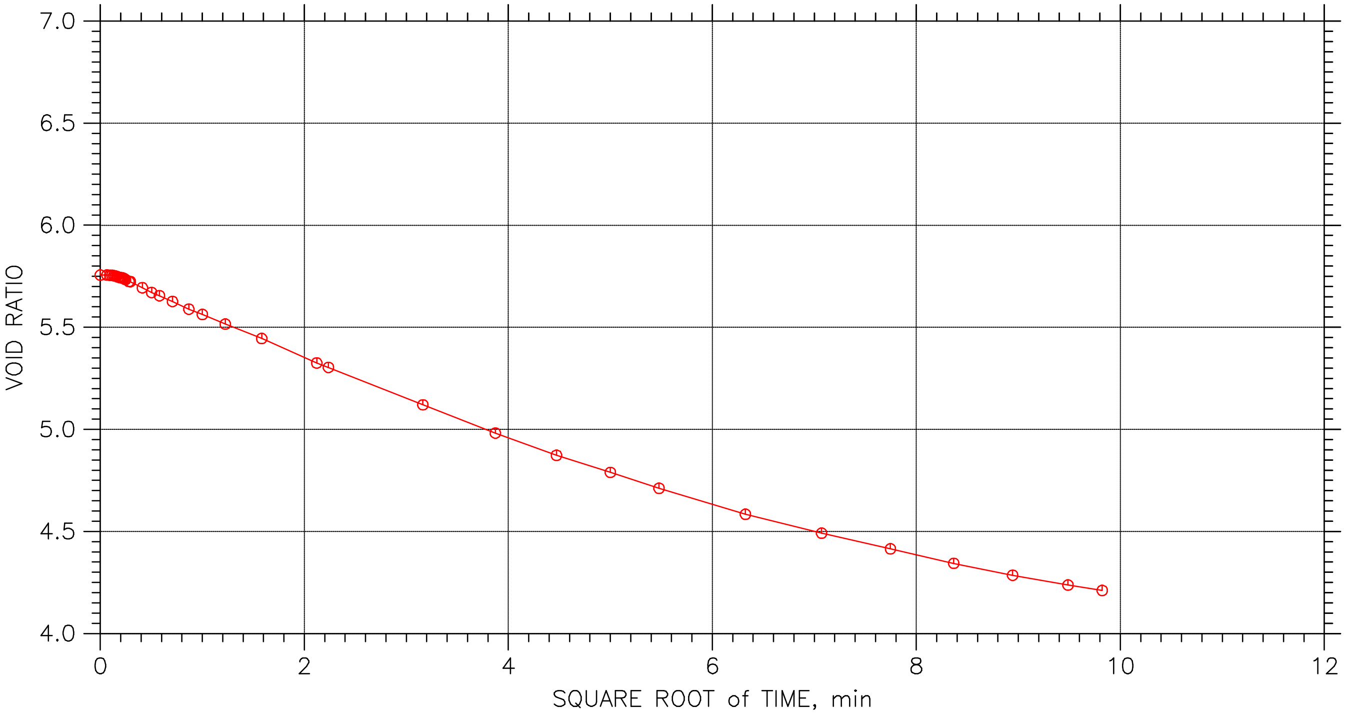
Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf





ATL Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

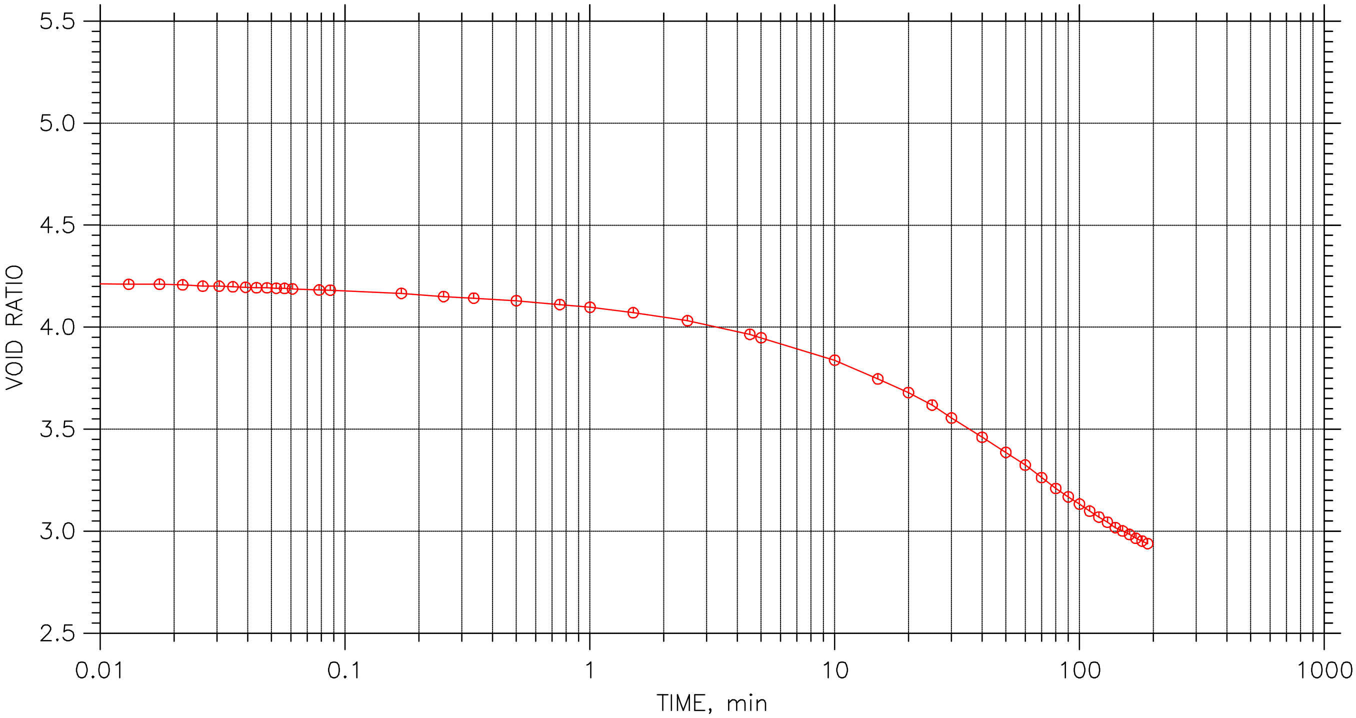
Thu, 12-MAY-2022 09:08:36

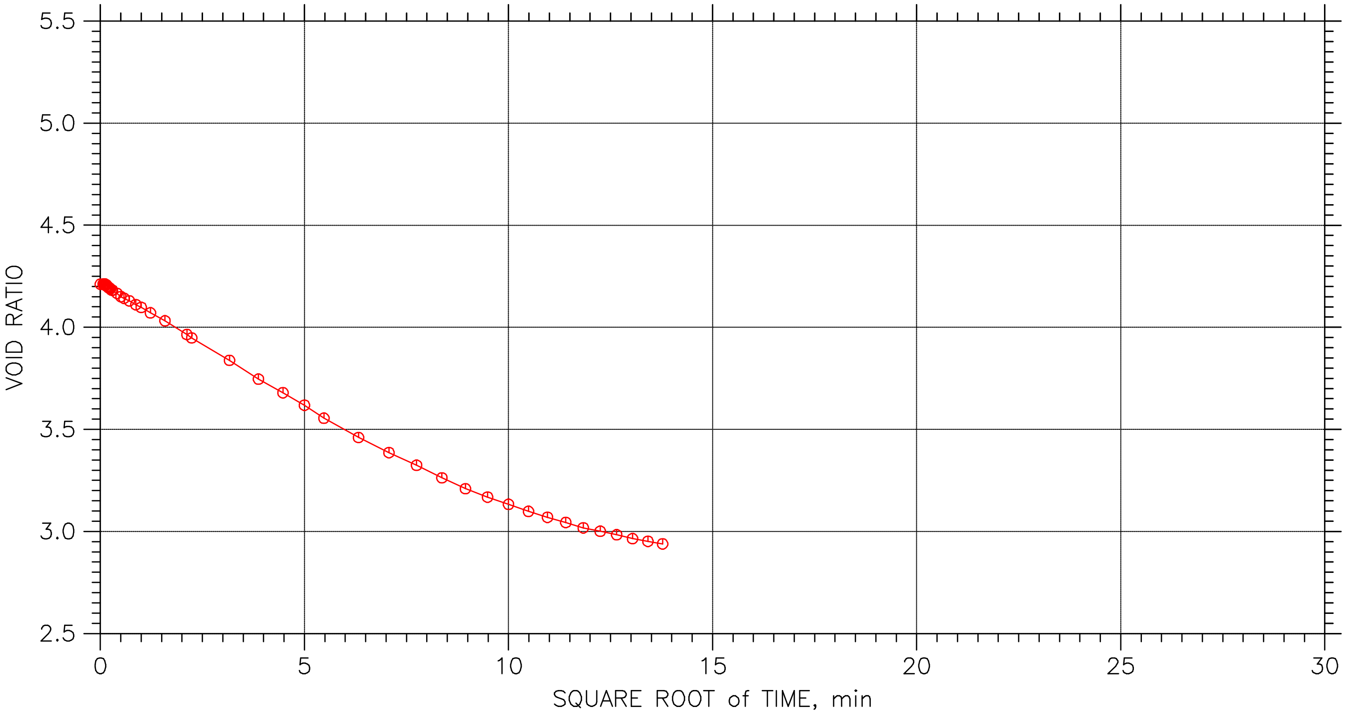
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

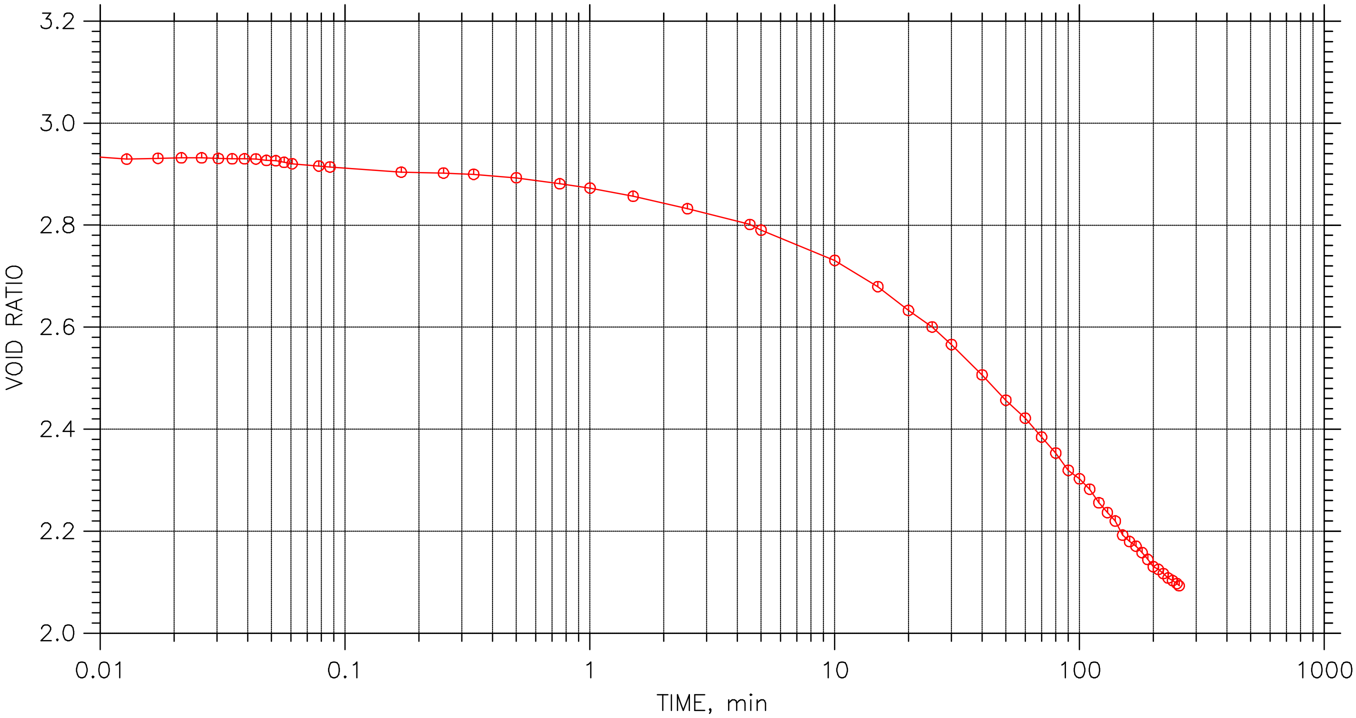
Thu, 12-MAY-2022 09:08:37

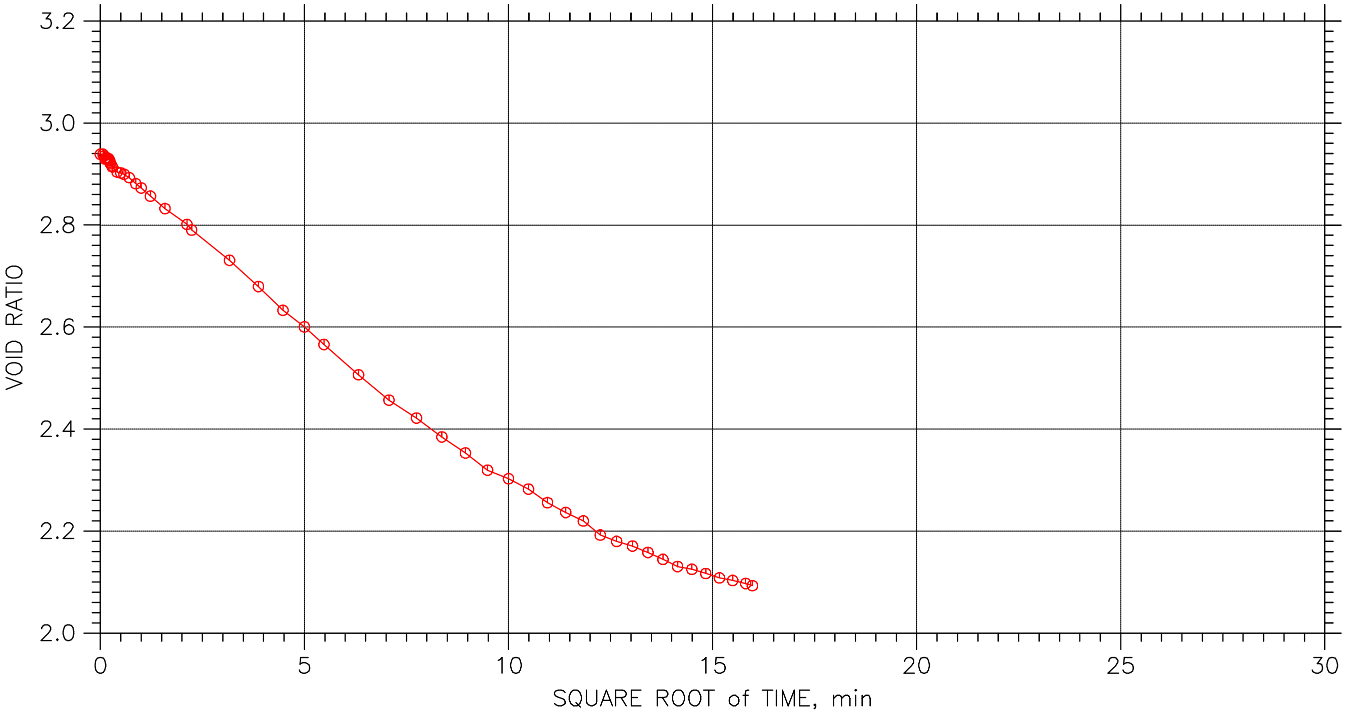
Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf





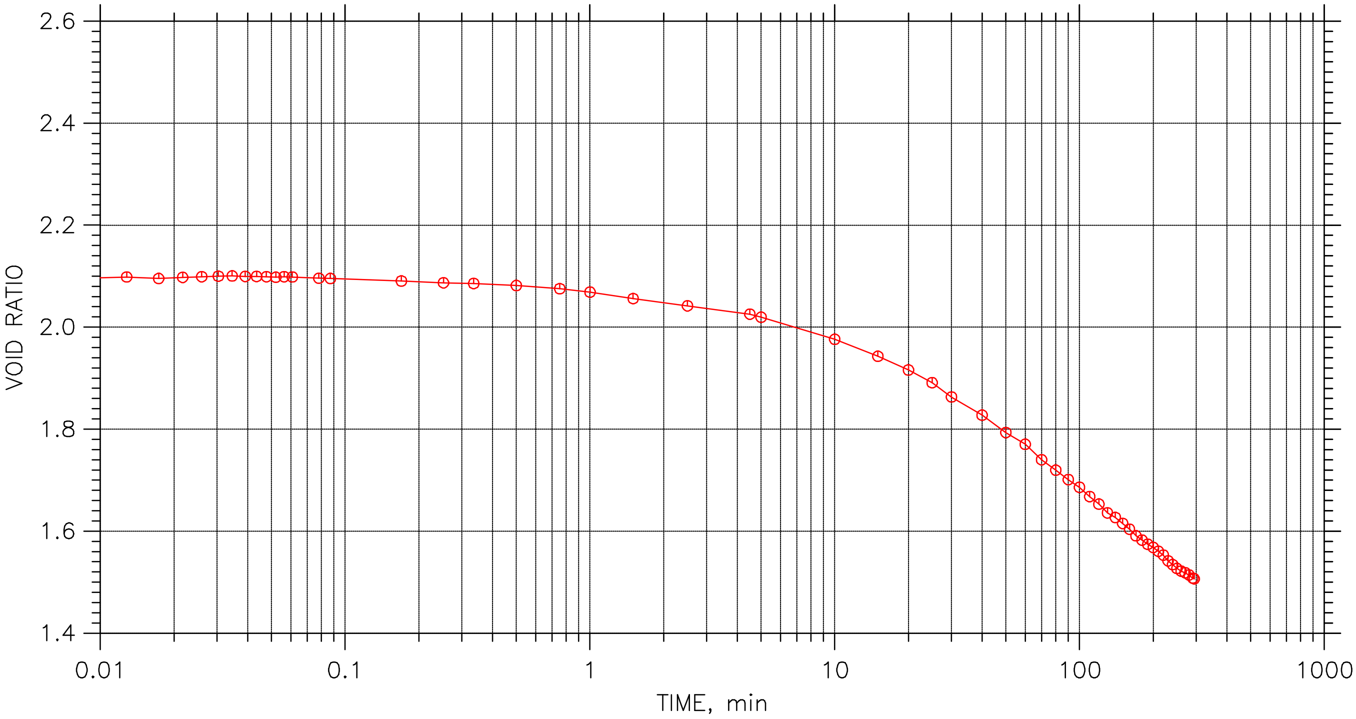
ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

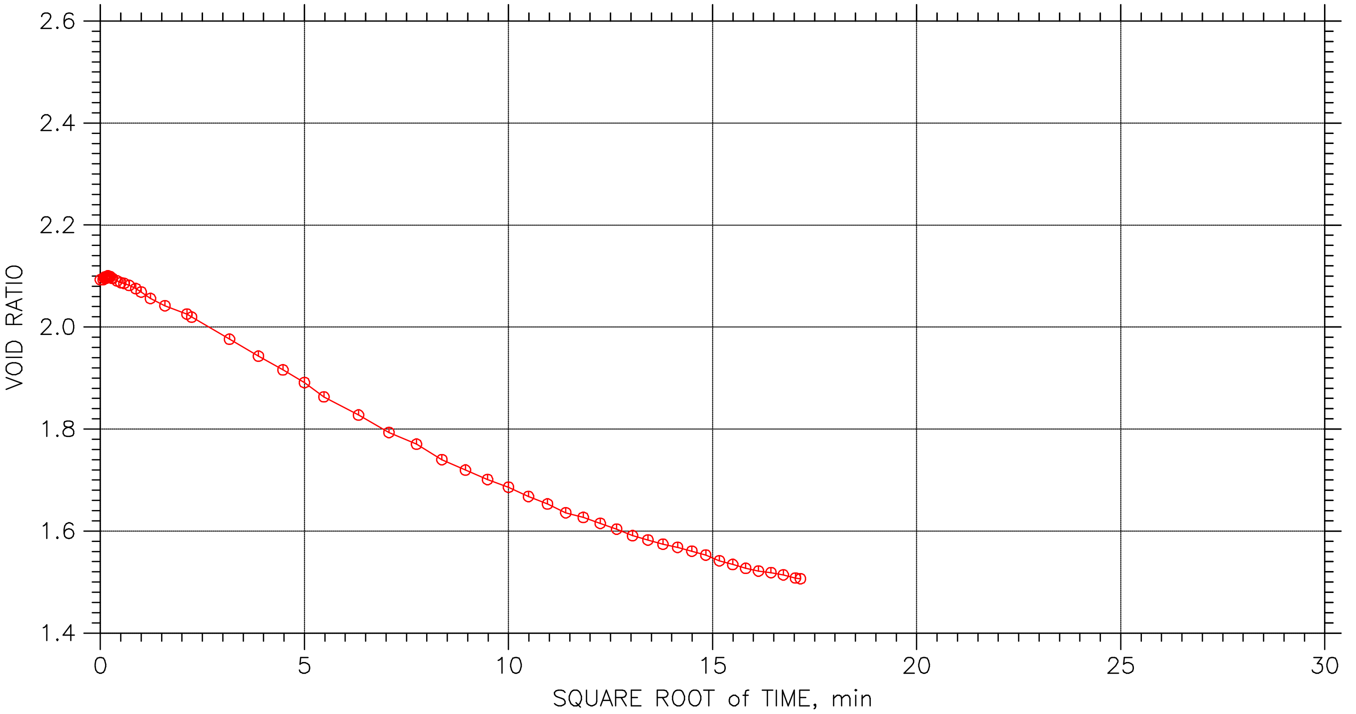
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

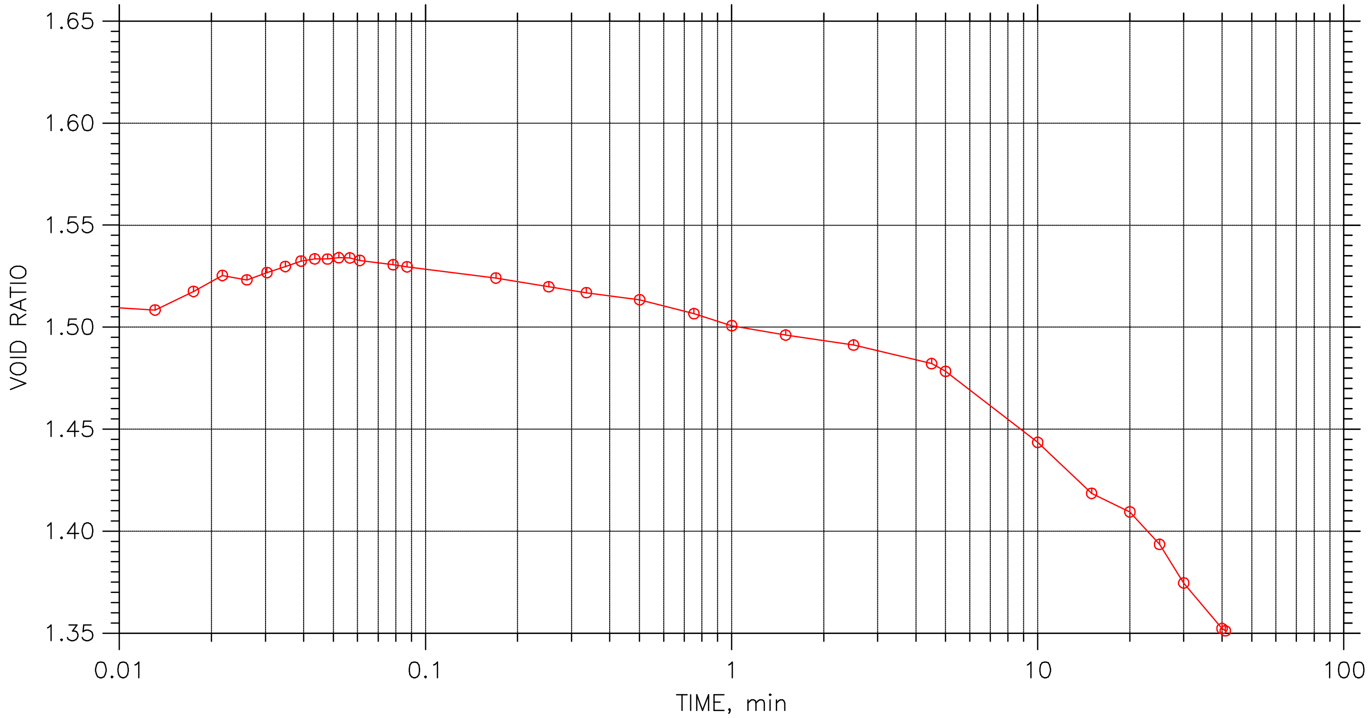
Thu, 12-MAY-2022 09:08:39

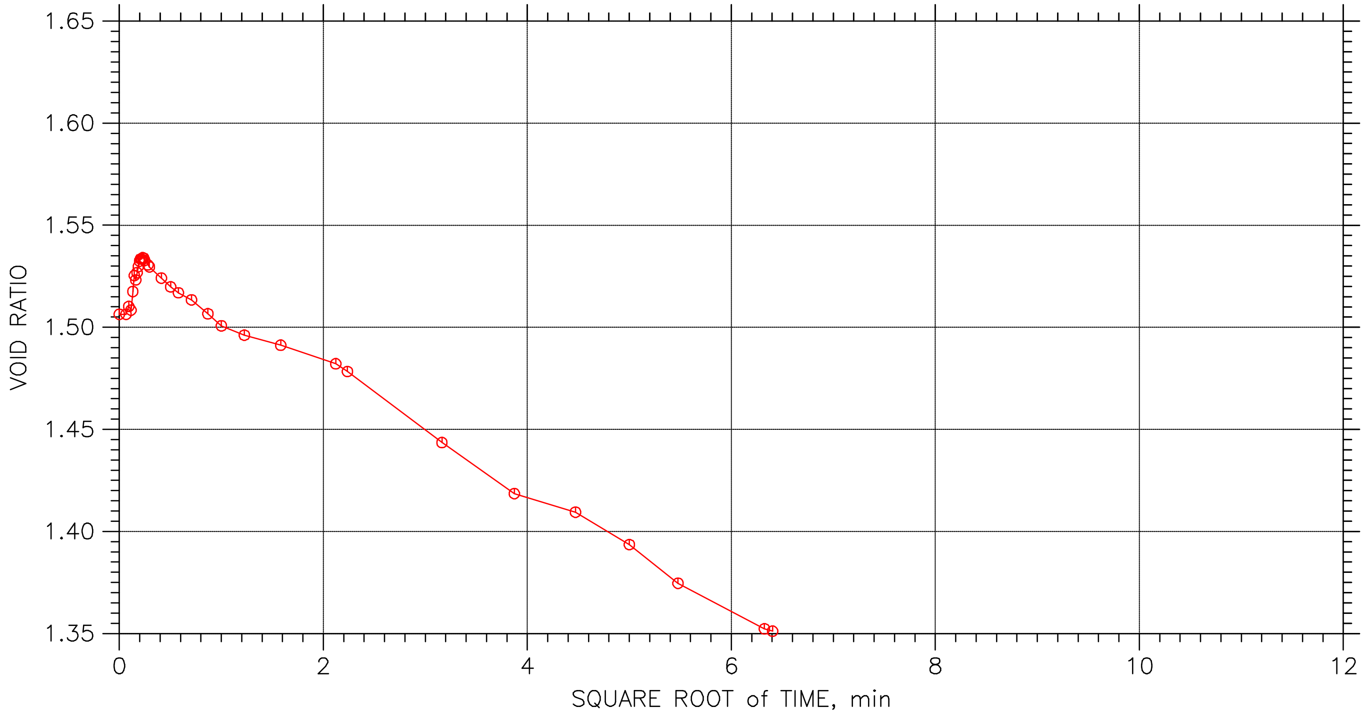
Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

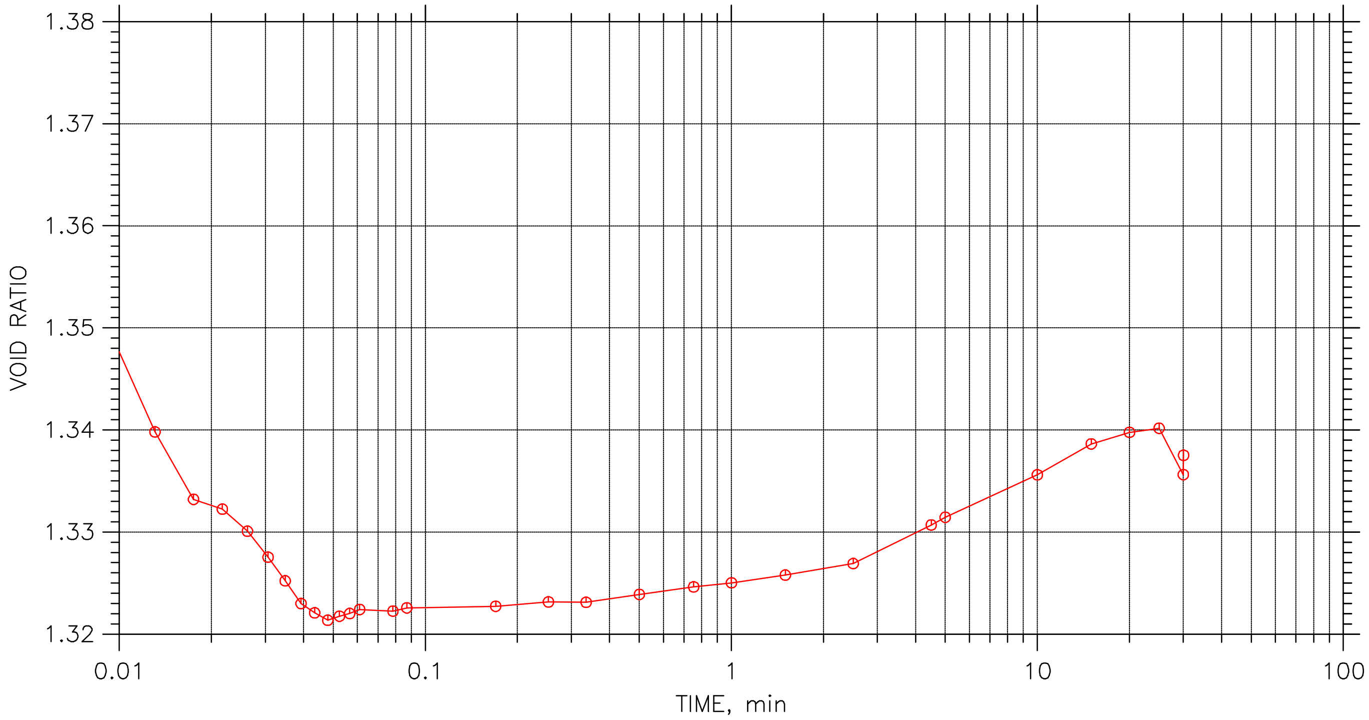
Alaska Testlab

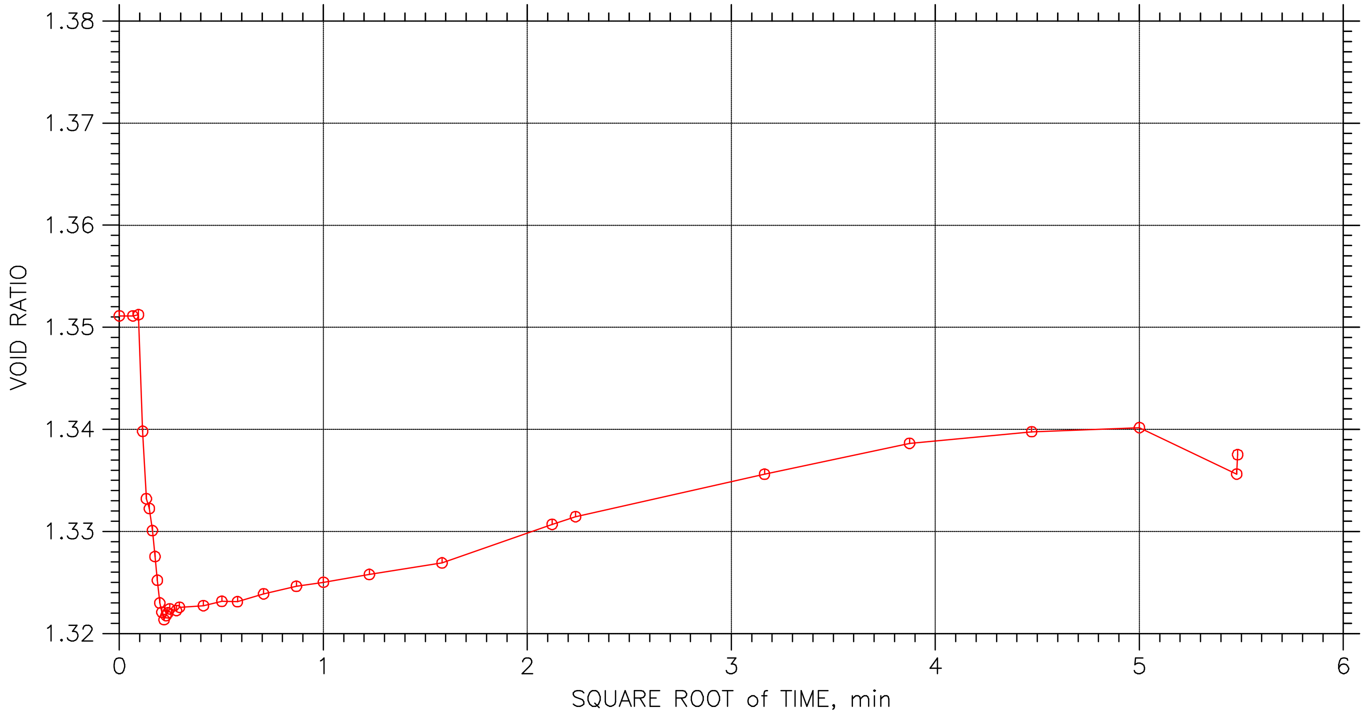
Reviewed by

Thu, 12-MAY-2022 09:08:40

Consolidation Test

TIME CURVES
Constant Load Step 11 of 19
Stress: 32000 psf





ATL
Alaska Testlab
Reviewed by

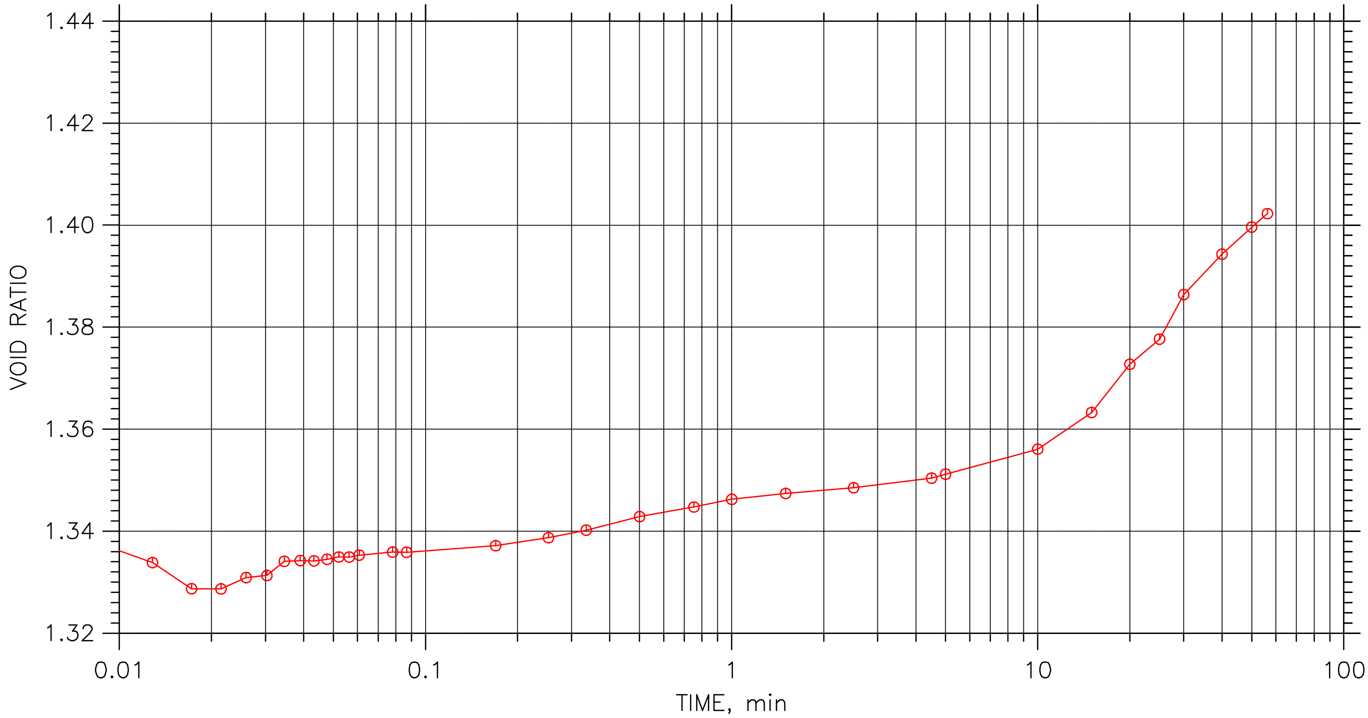
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

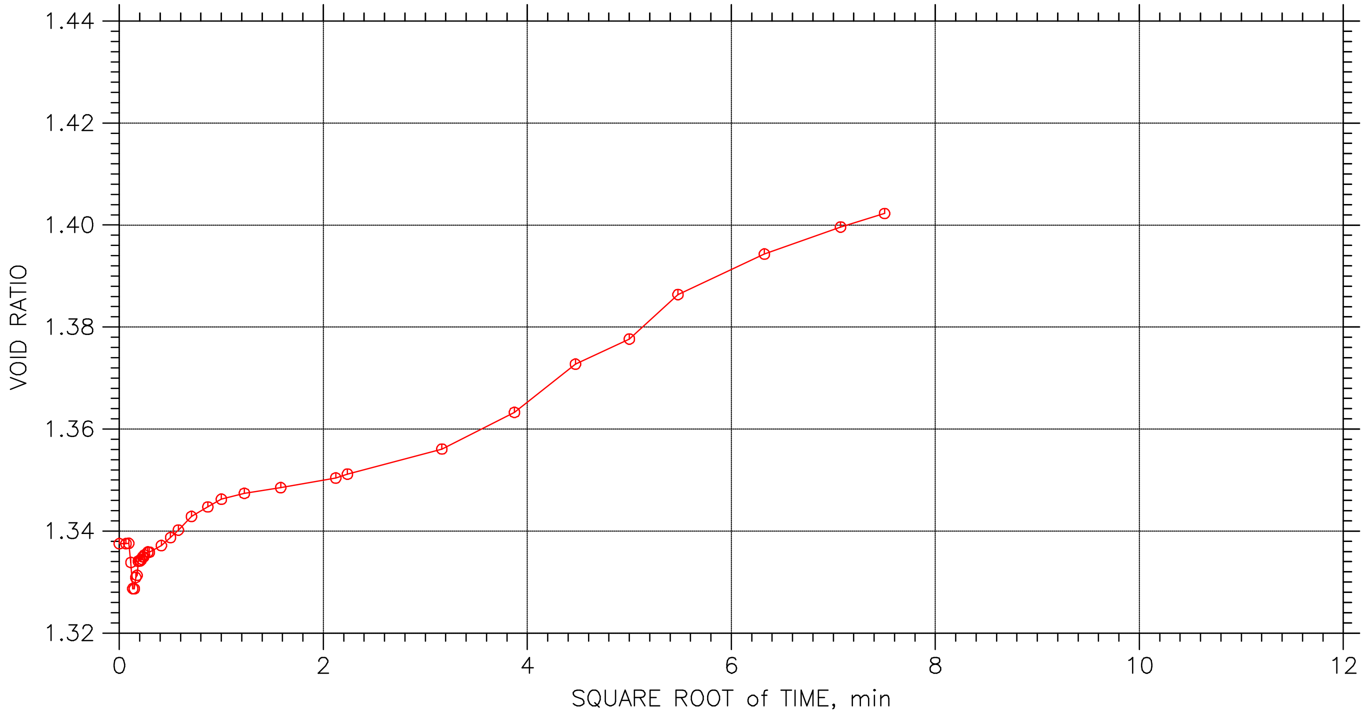
Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf





Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

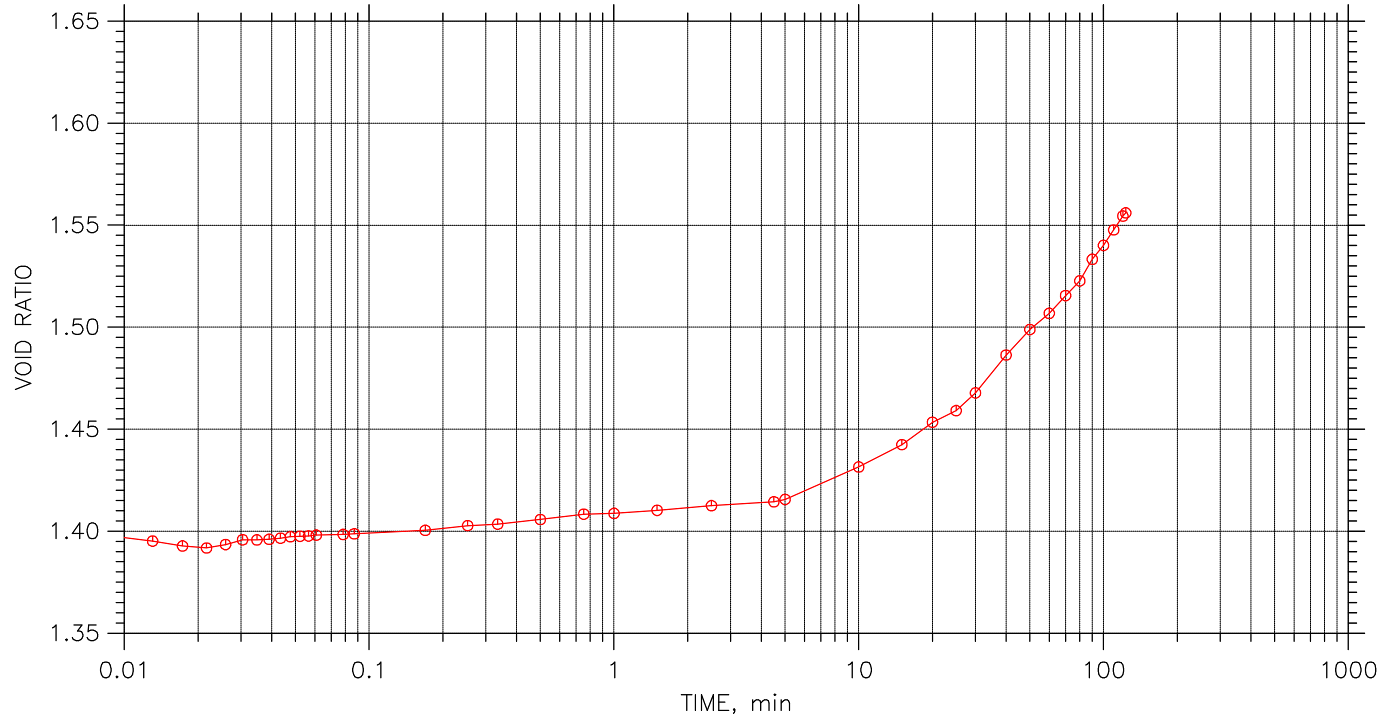
Thu, 12-MAY-2022 09:08:42

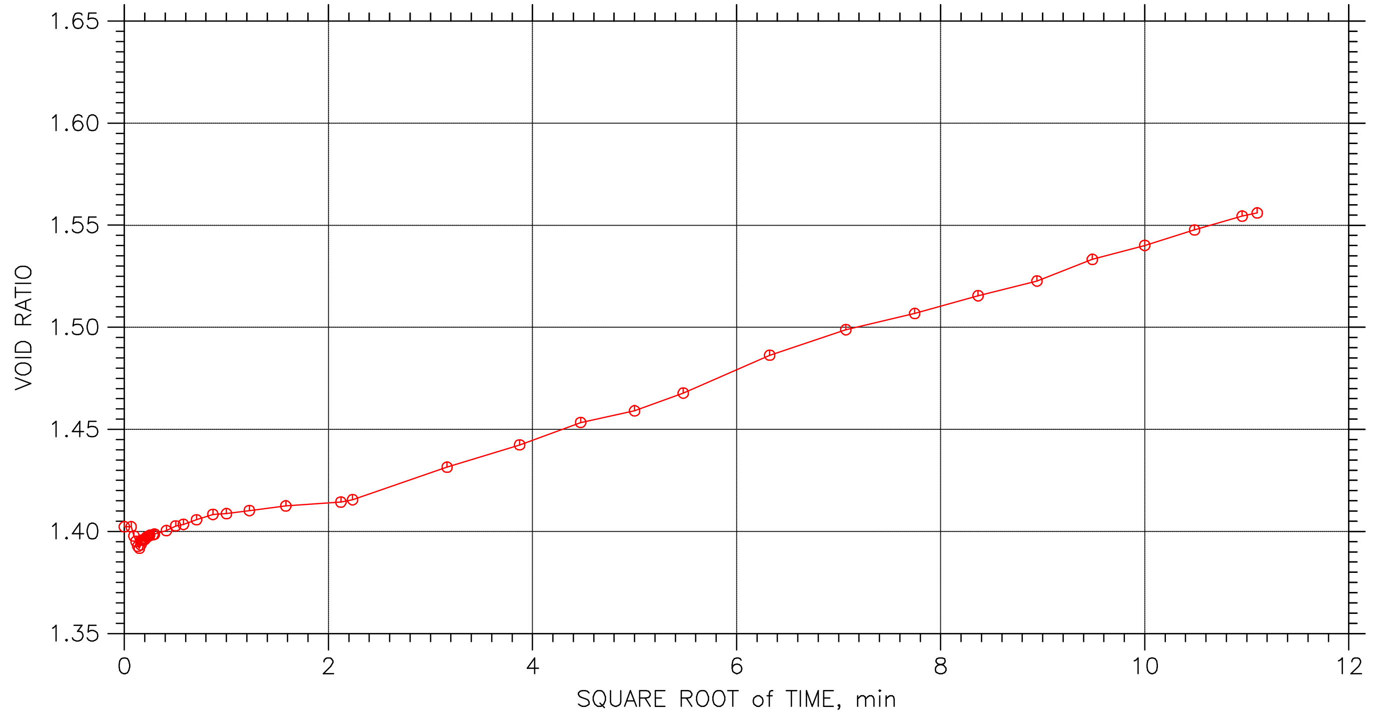
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

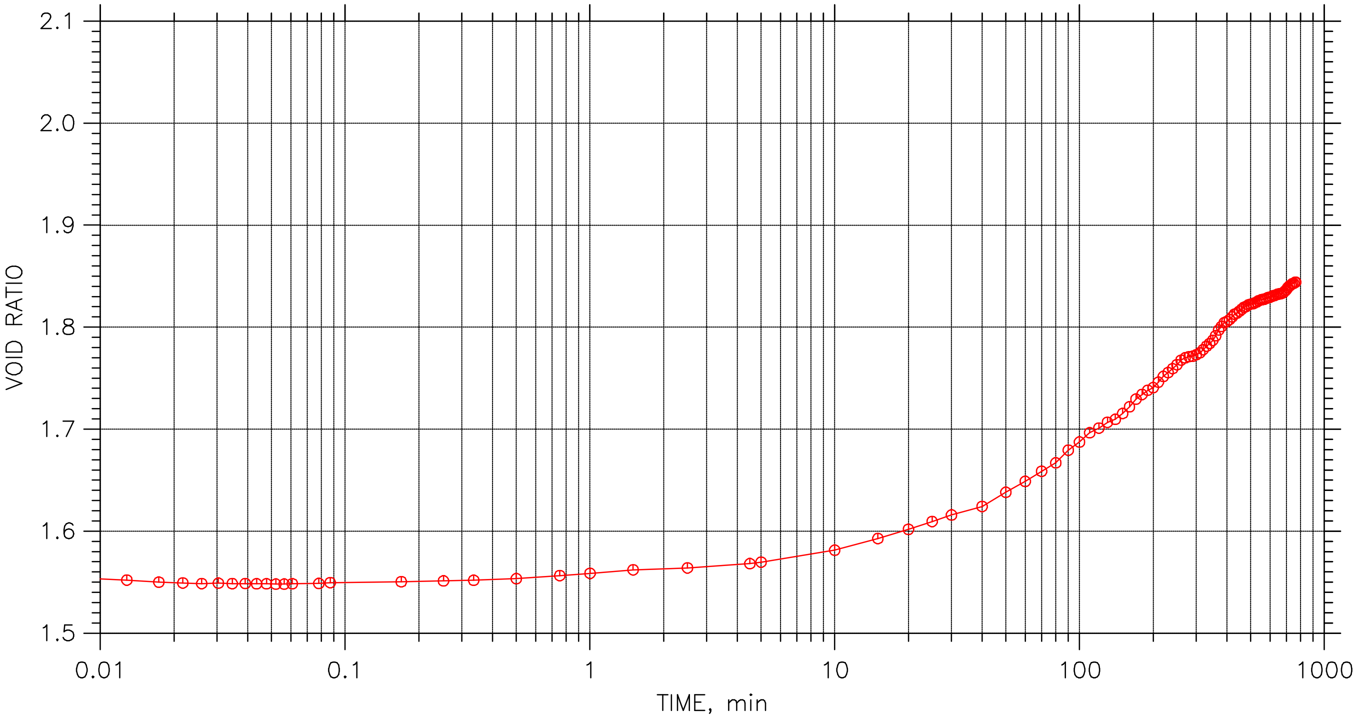
Thu, 12-MAY-2022 09:08:43

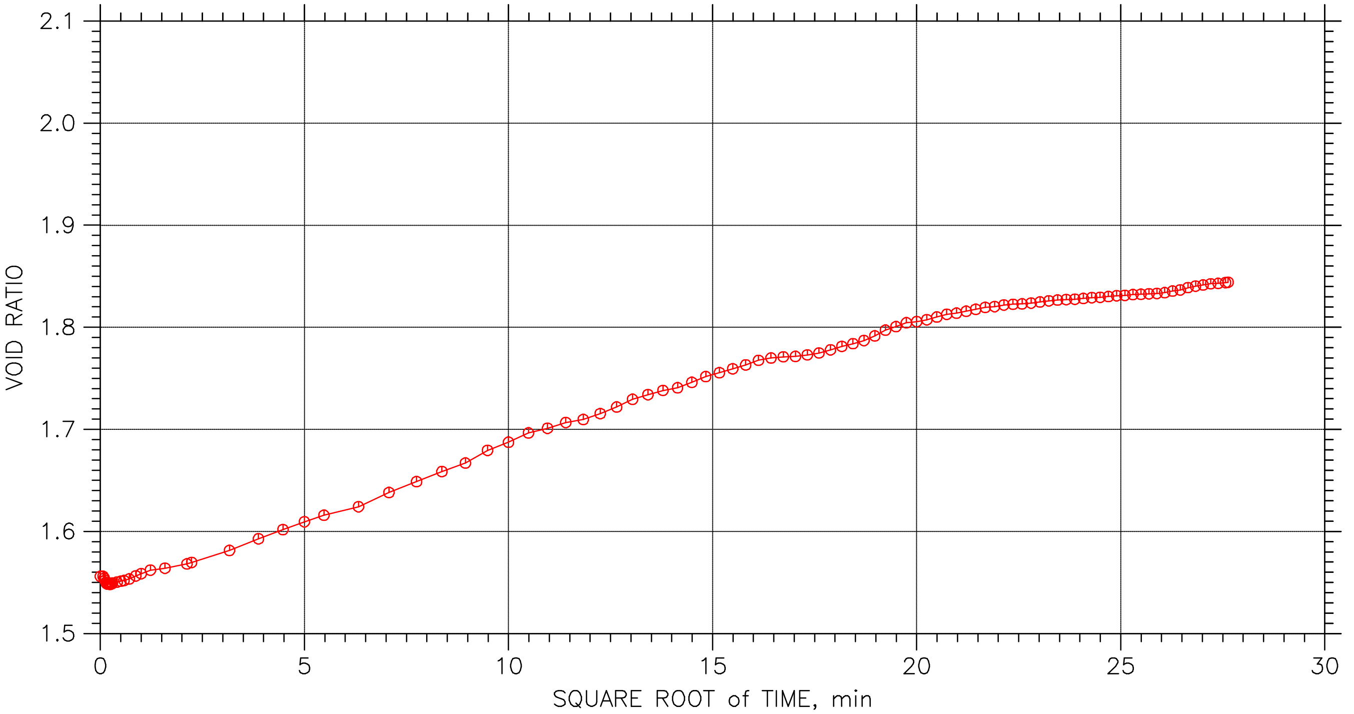
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

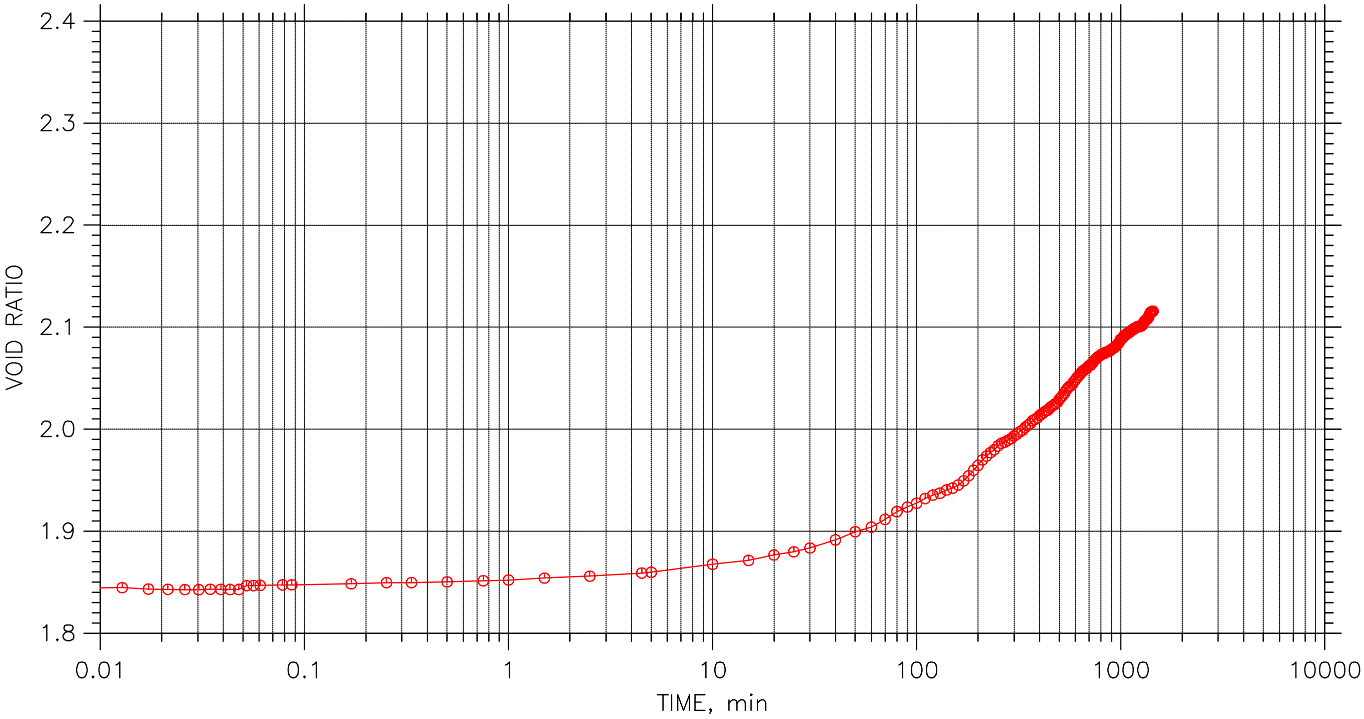
Thu, 12-MAY-2022 09:08:44

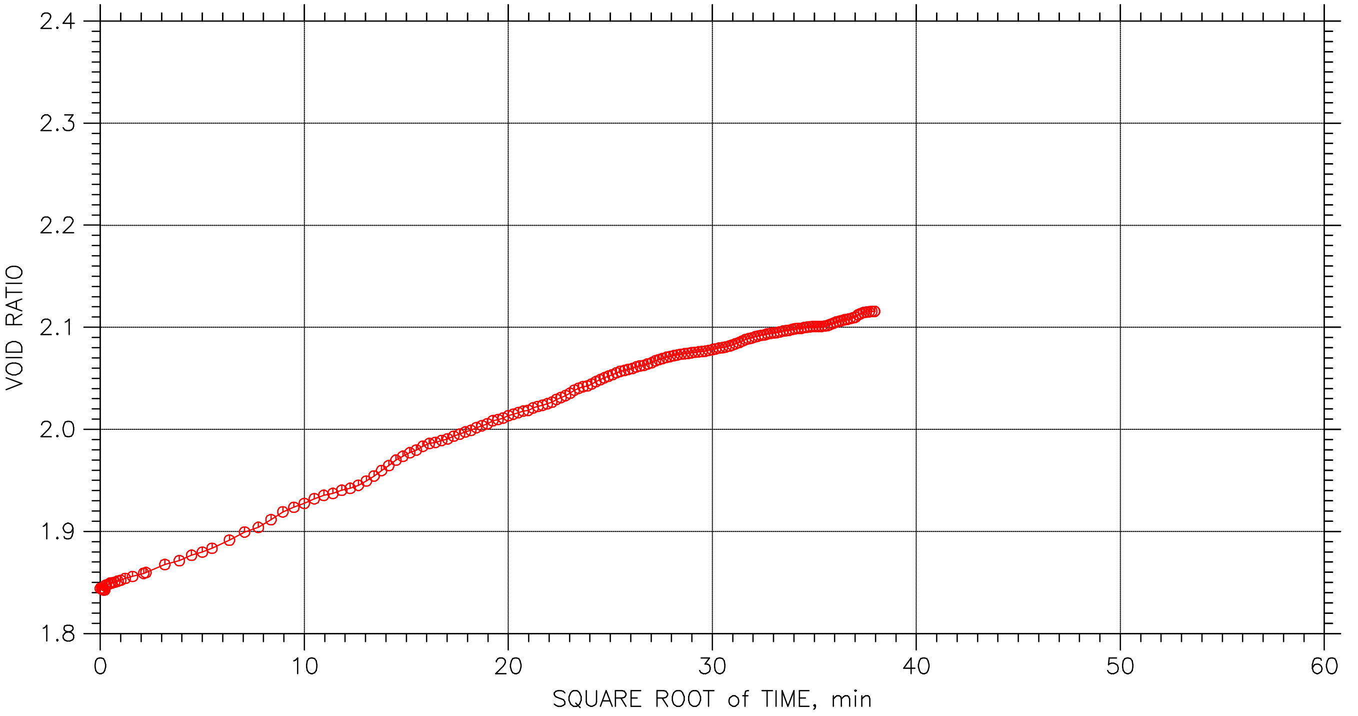
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

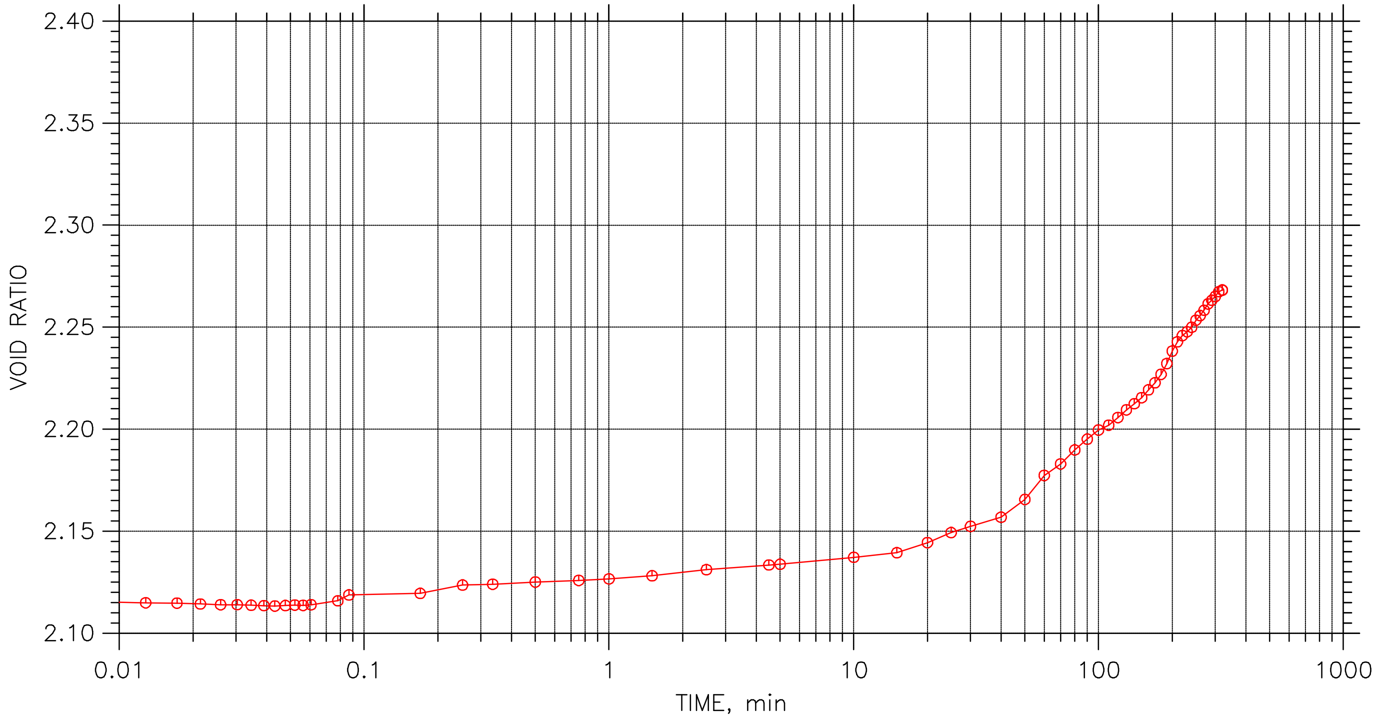
Thu, 12-MAY-2022 09:08:46

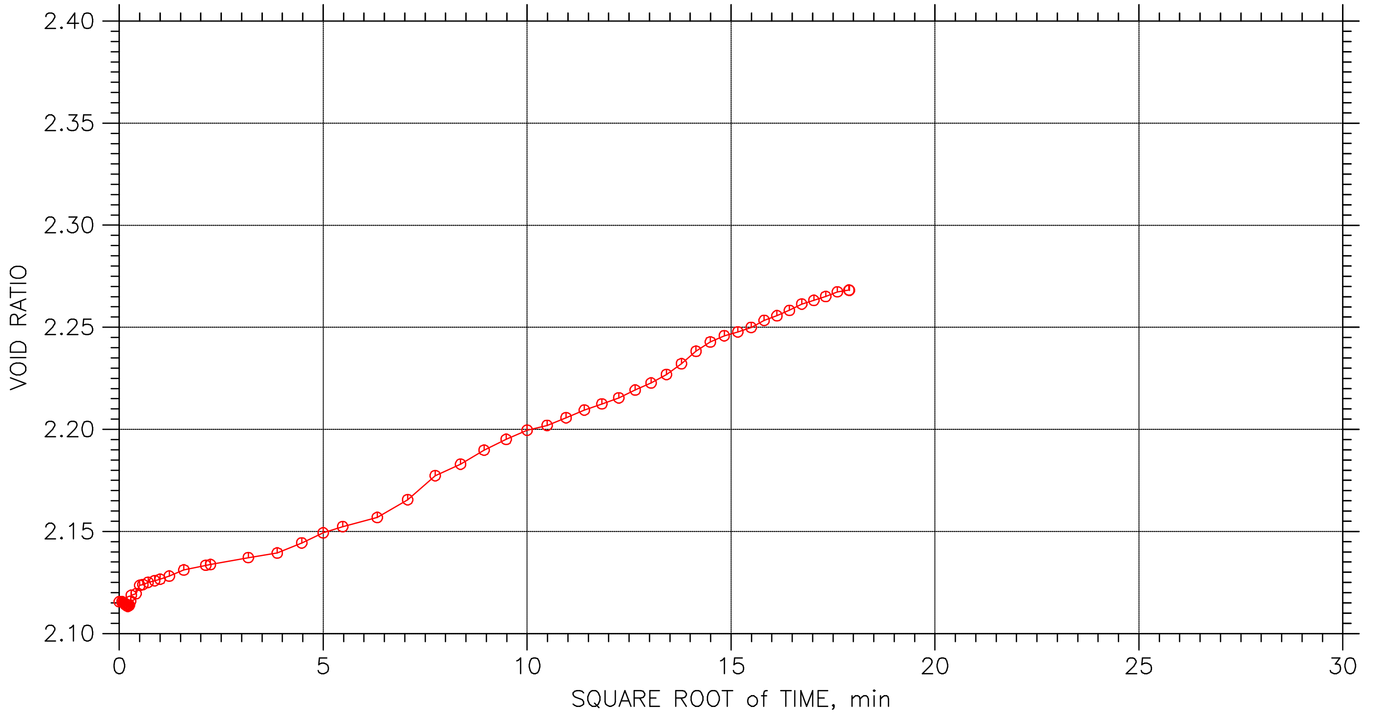
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

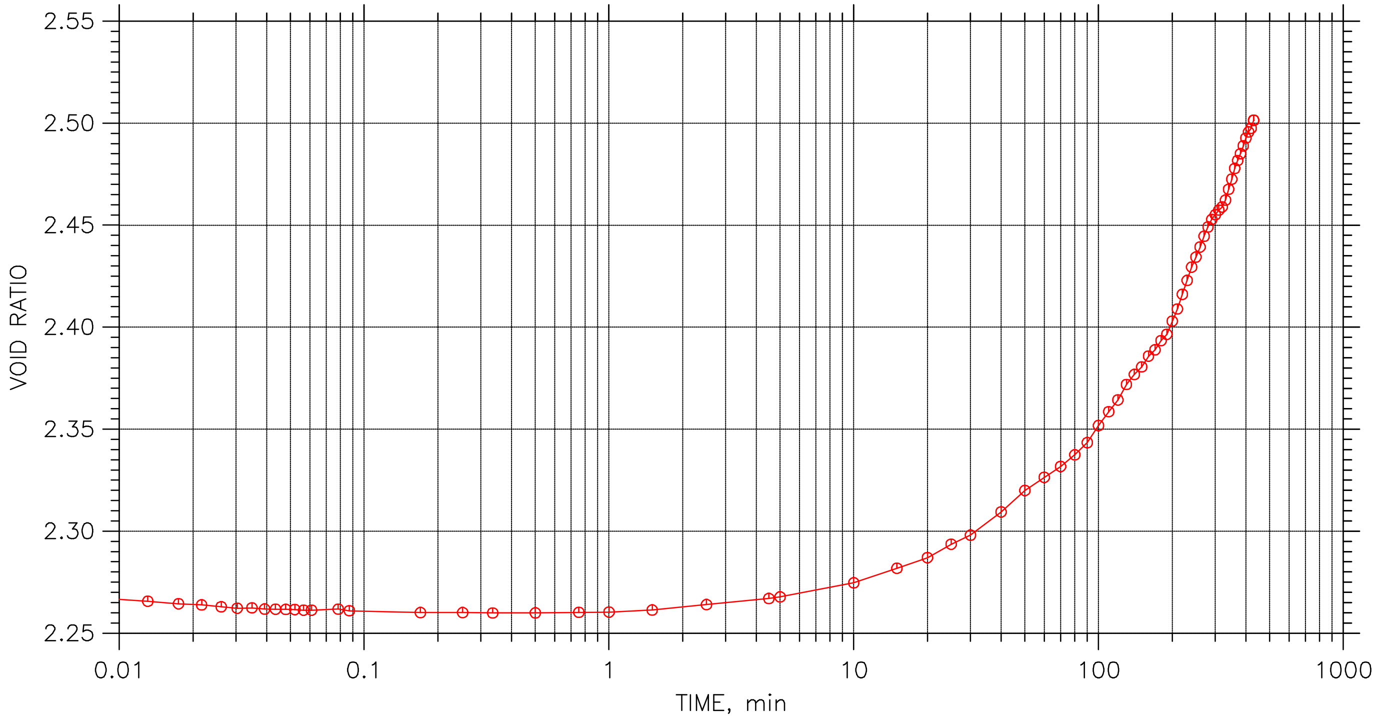
Thu, 12-MAY-2022 09:08:48

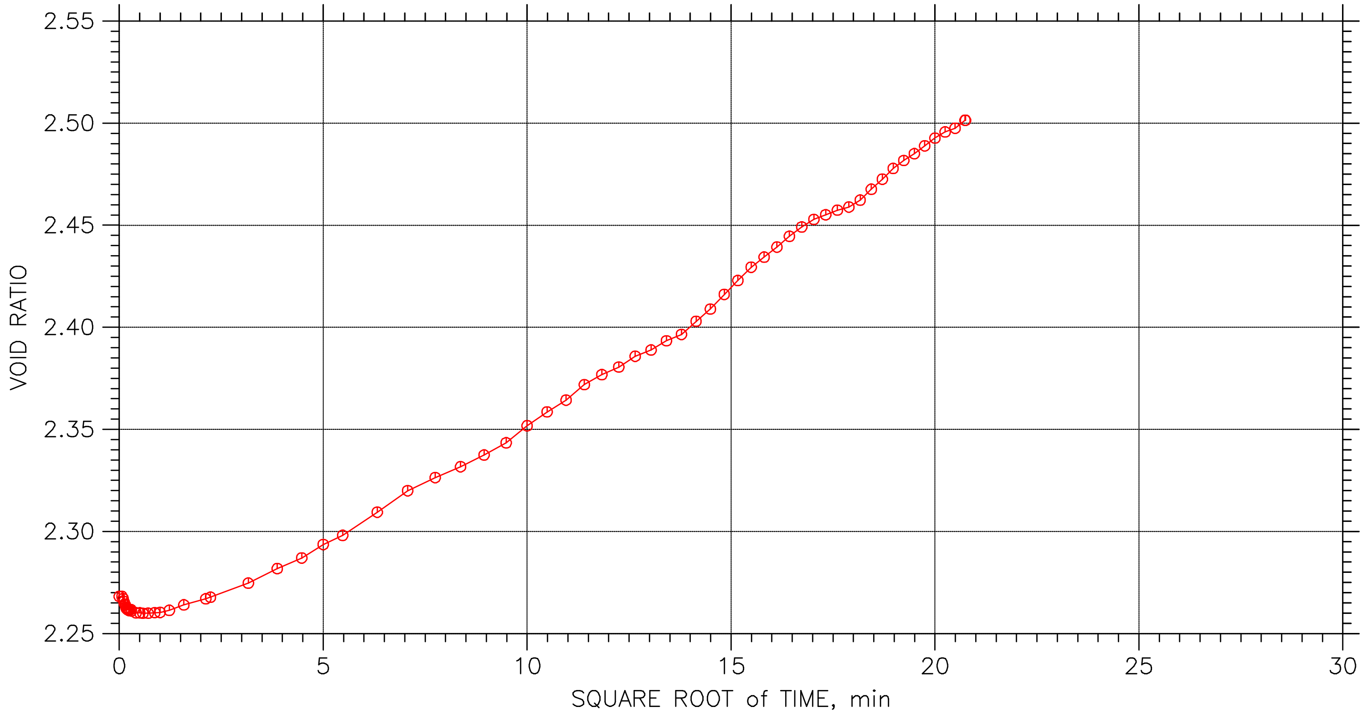
Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf





ATL **Alaska Testlab** Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

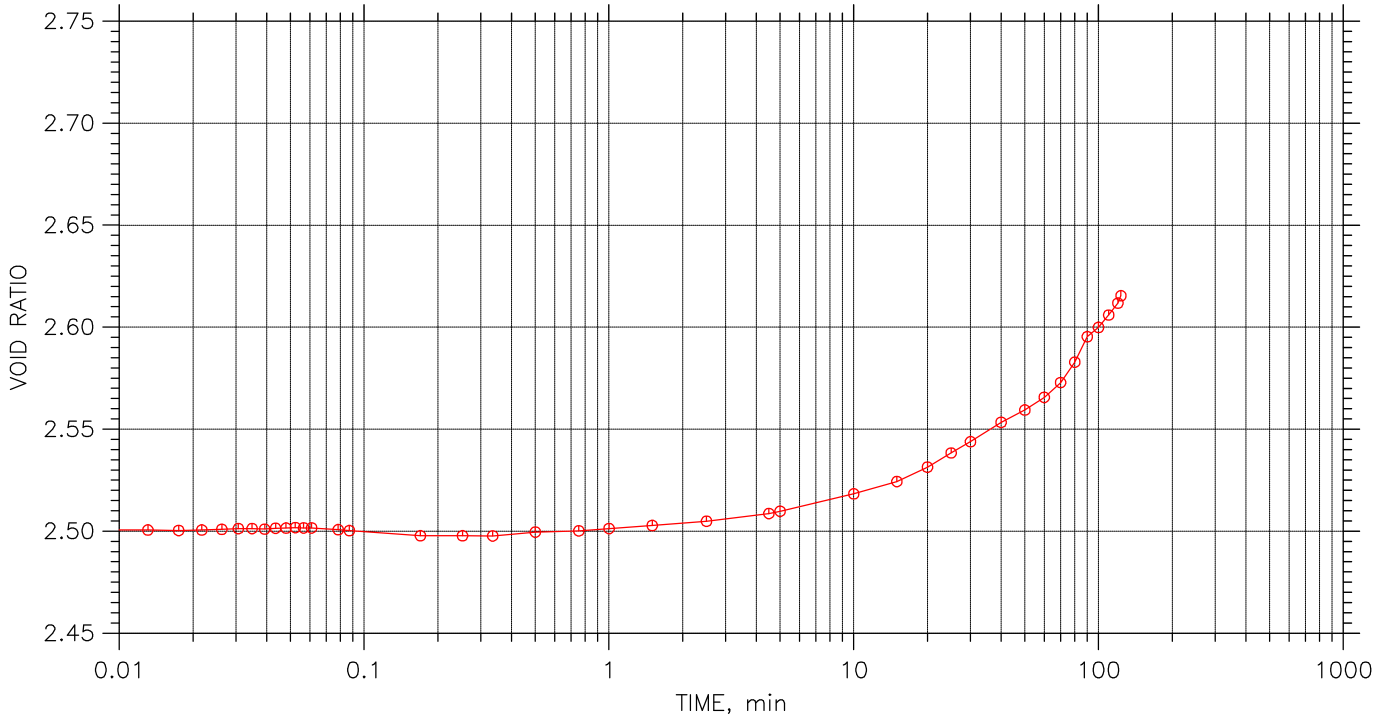
Thu, 12-MAY-2022 09:08:49

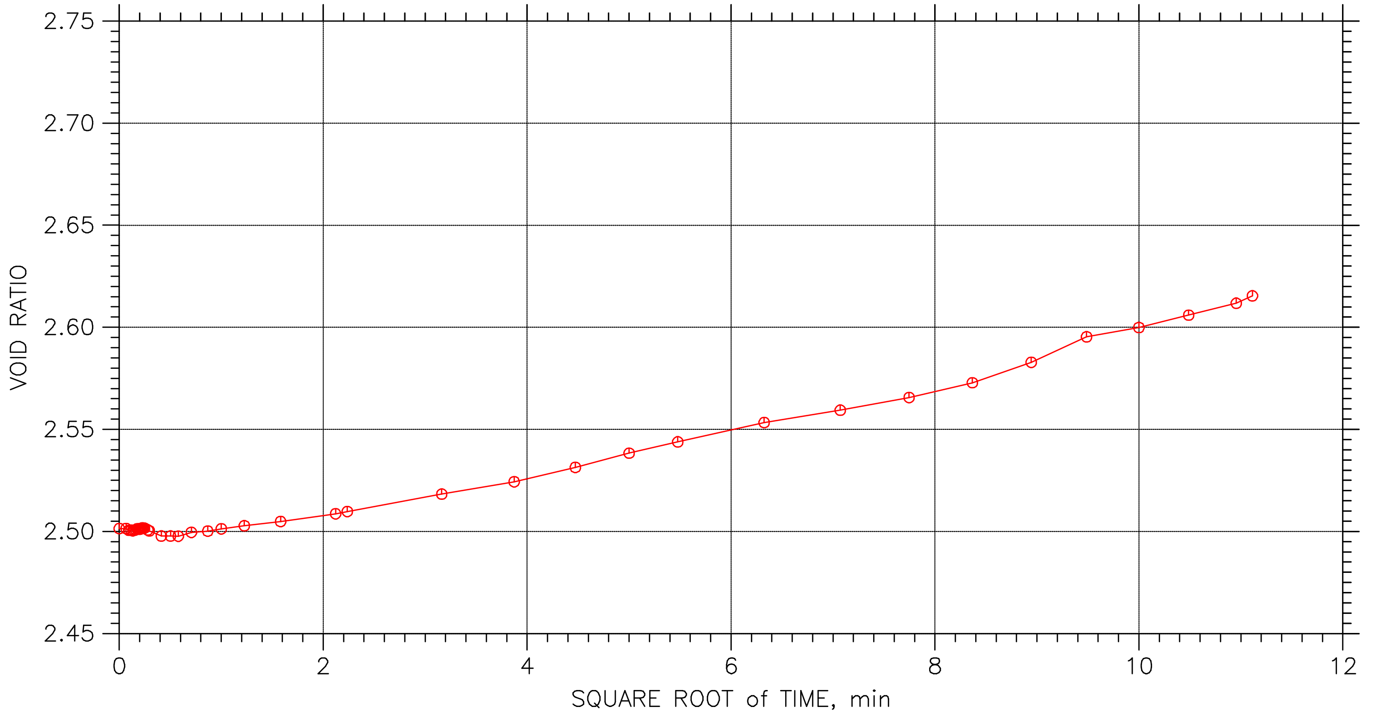
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





ATL
Alaska Testlab
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

Remarks: ASTM D2487: PT Visual Classification: Peat

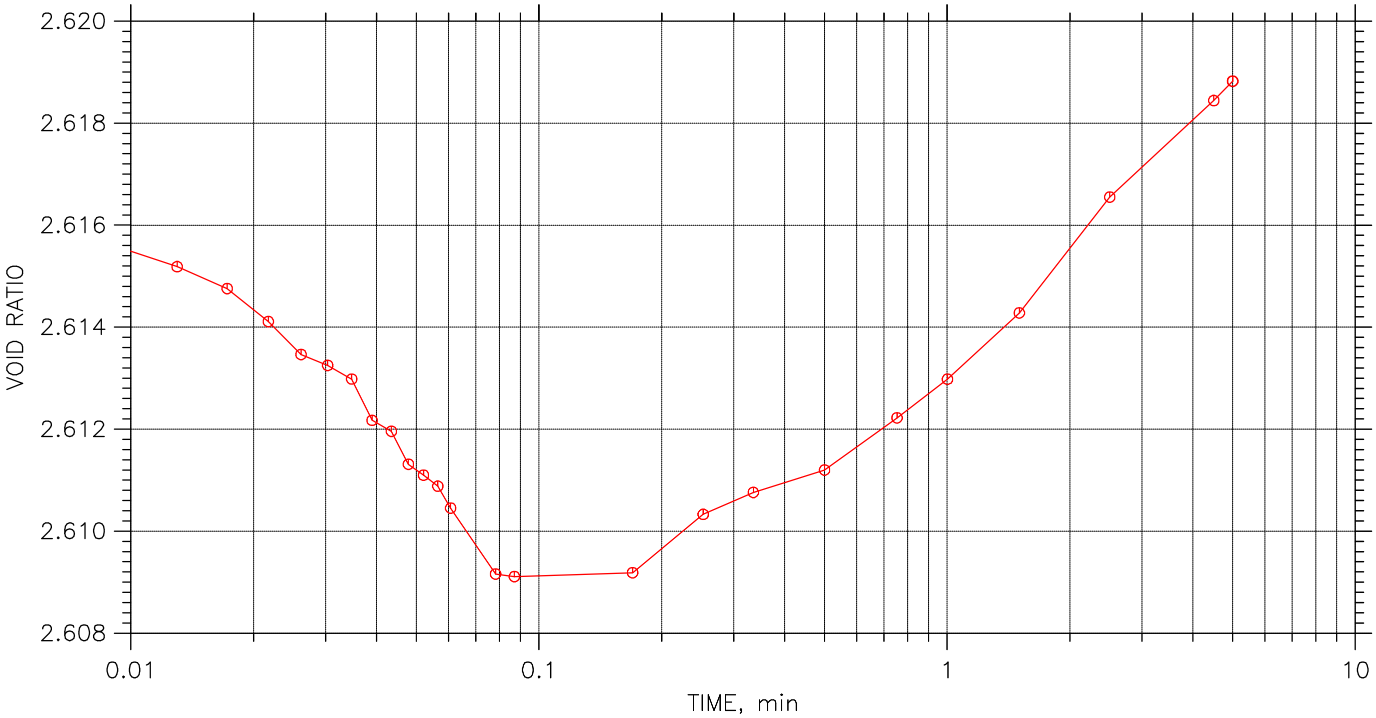
Thu, 12-MAY-2022 09:08:50

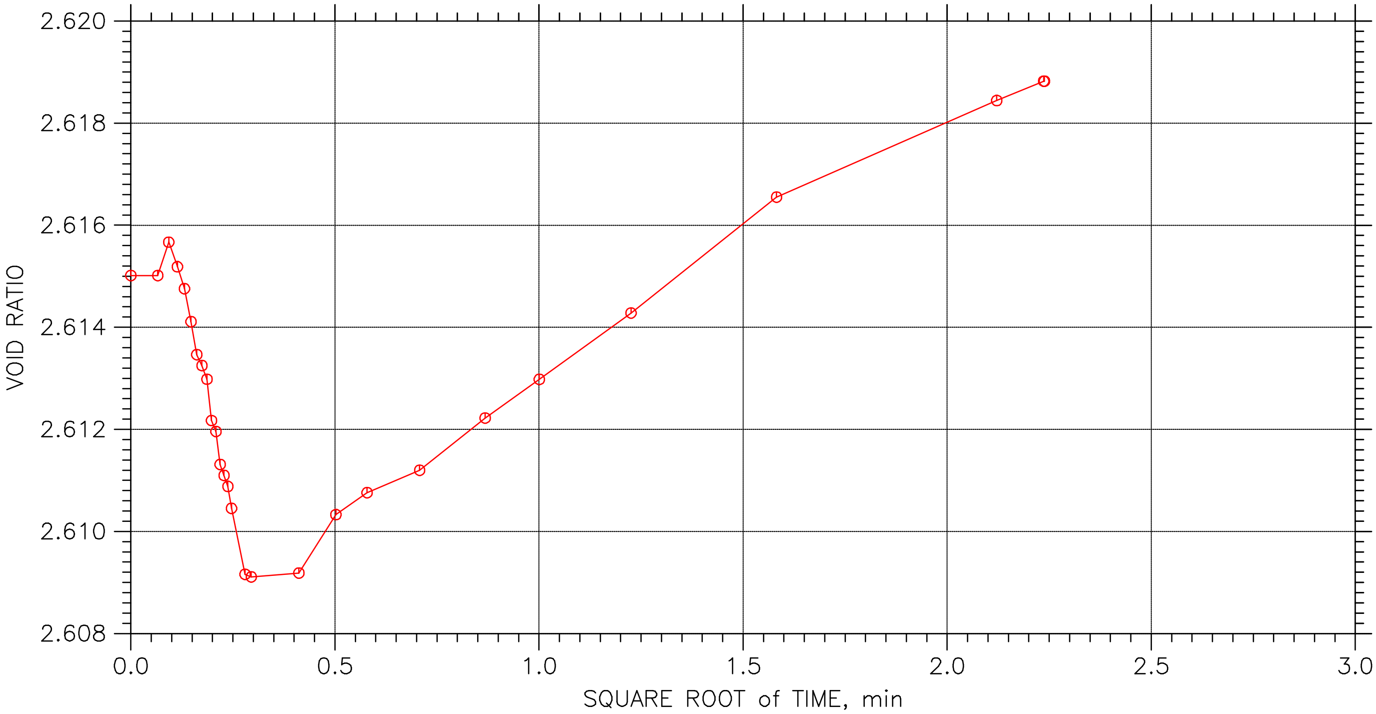
Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf





Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 4/26/2022	Test No.: 1
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

Thu, 12-MAY-2022 09:08:51

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

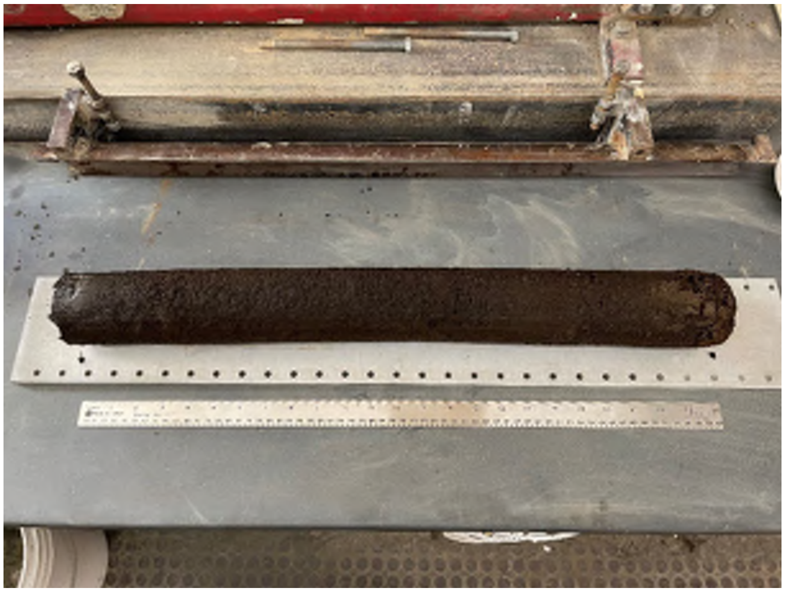
Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

73138.00

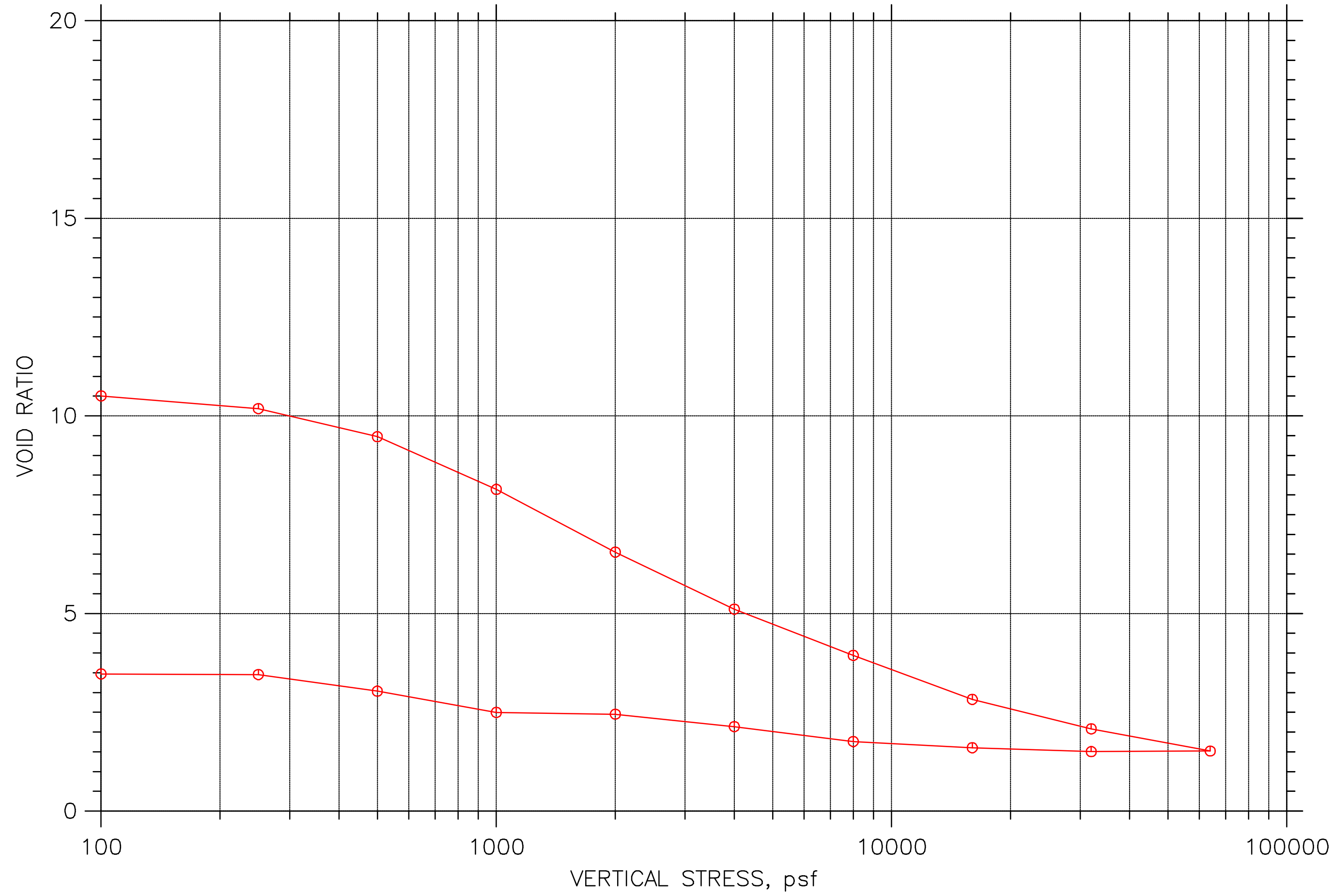
Date Received:	March 21, 2022
Sample #:	22-0263-S02
Material:	BH-10 Sa2

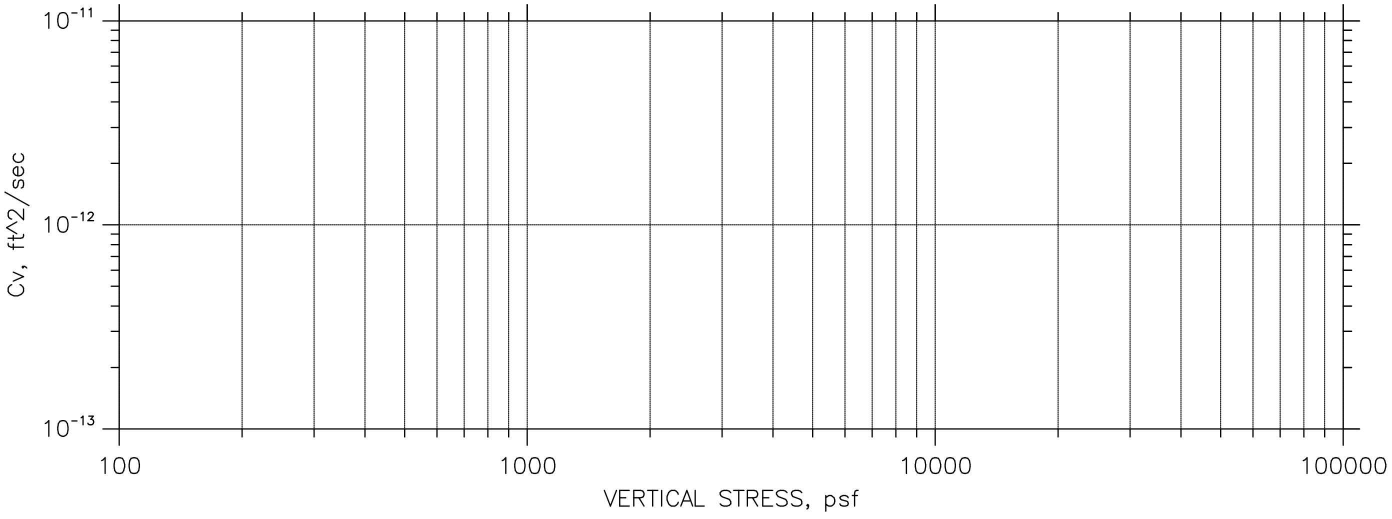
Sample after extraction



Consolidation Test

SUMMARY REPORT





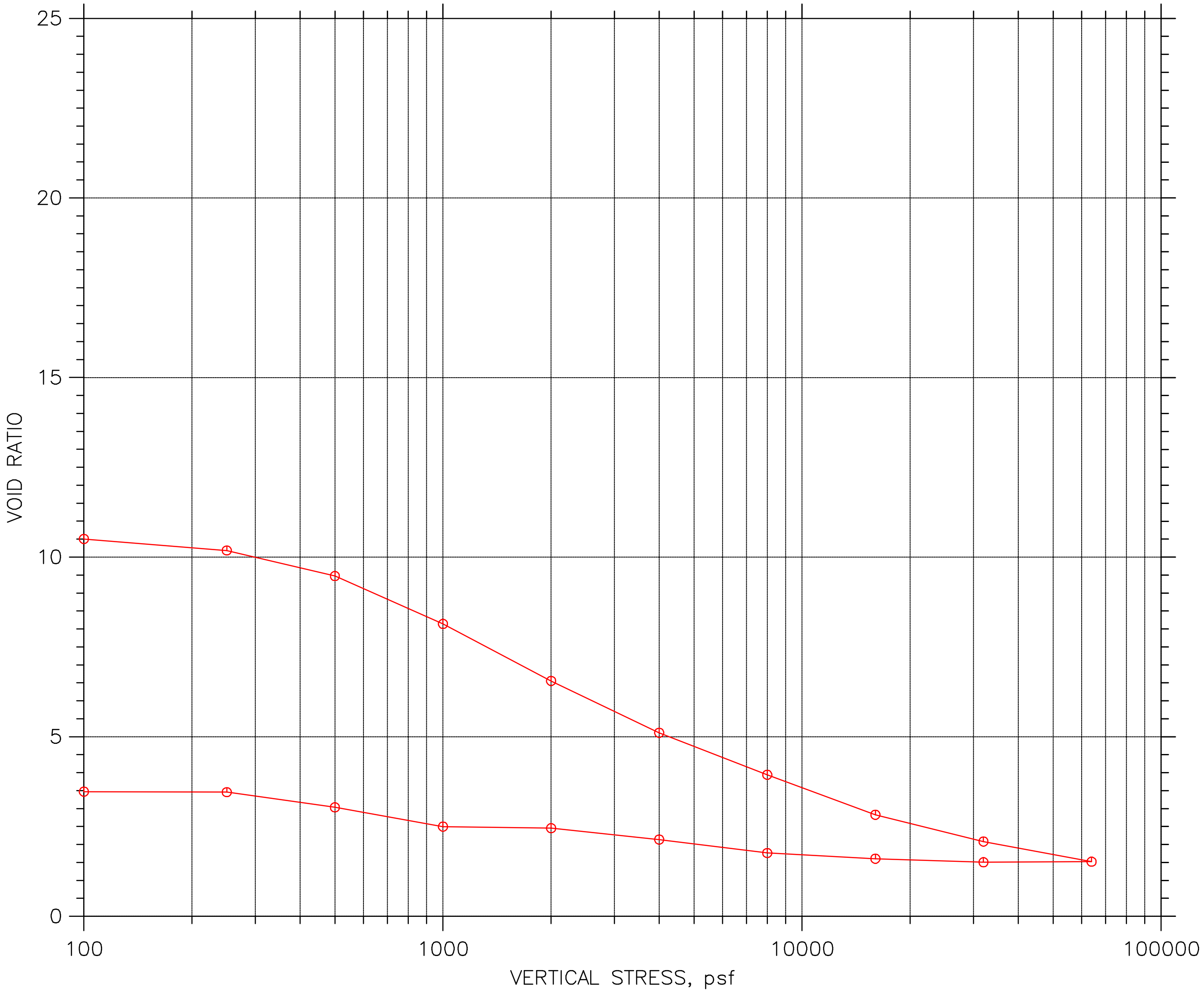
ATL
Alaska Testlab
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Thu, 12-MAY-2022 09:16:23

Consolidation Test

SUMMARY REPORT



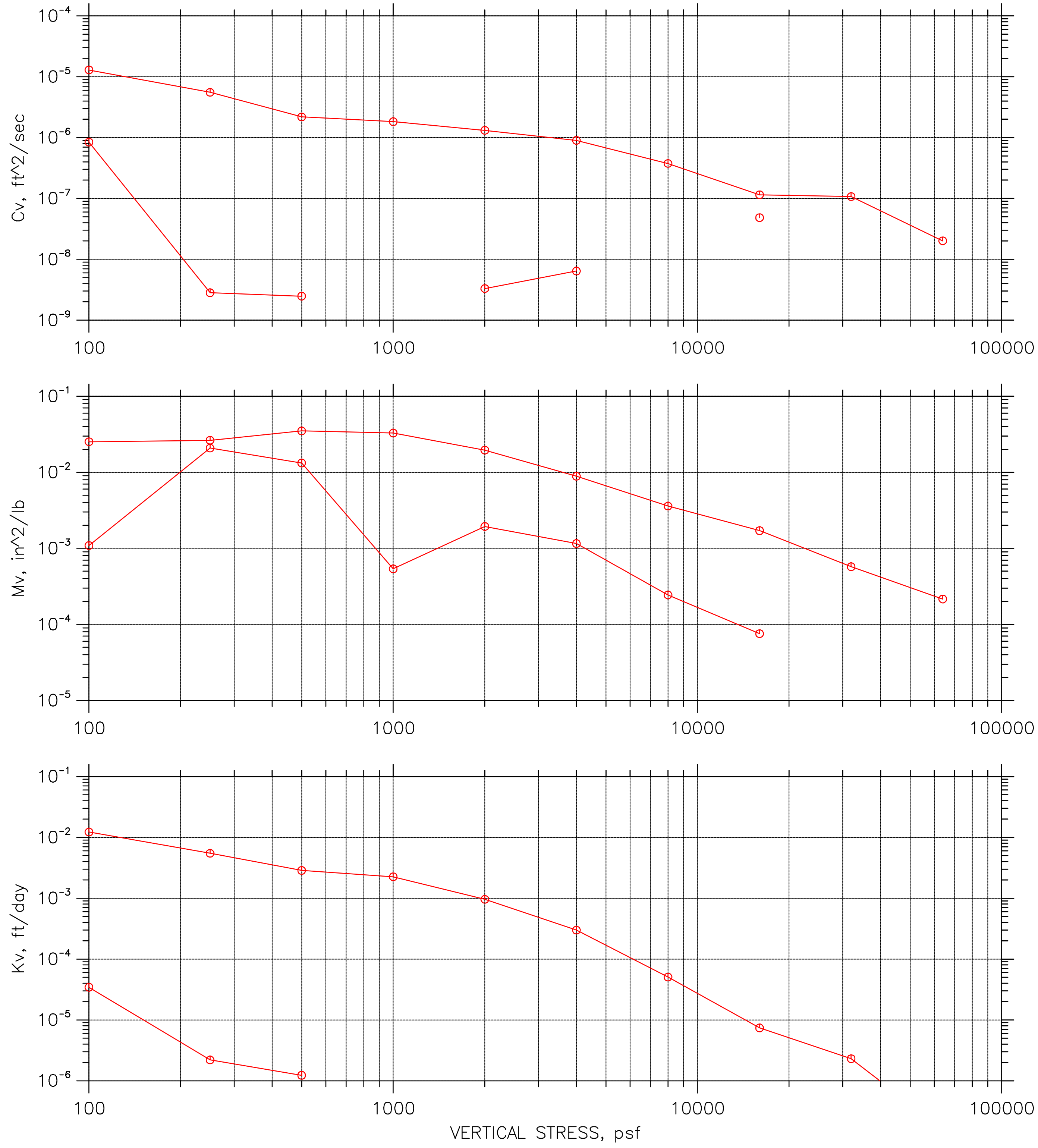
					Before Test	After Test
Overburden Pressure: 0 psf				Water Content, %	578.76	224.72
Preconsolidation Pressure: 0 psf				Dry Unit Weight, pcf	9.0626	23.75
Compression Index: 0				Saturation, %	91.86	110.14
Diameter: 2.497 in		Height: 1.001 in		Void Ratio	10.71	3.47
LL: ---	PL: ---	PI: ---	GS: 1.70	Back Pressure, psf	0	0

ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

Thu, 12-MAY-2022 09:16:23

Consolidation Test

ROOT of TIME COEFFICIENTS

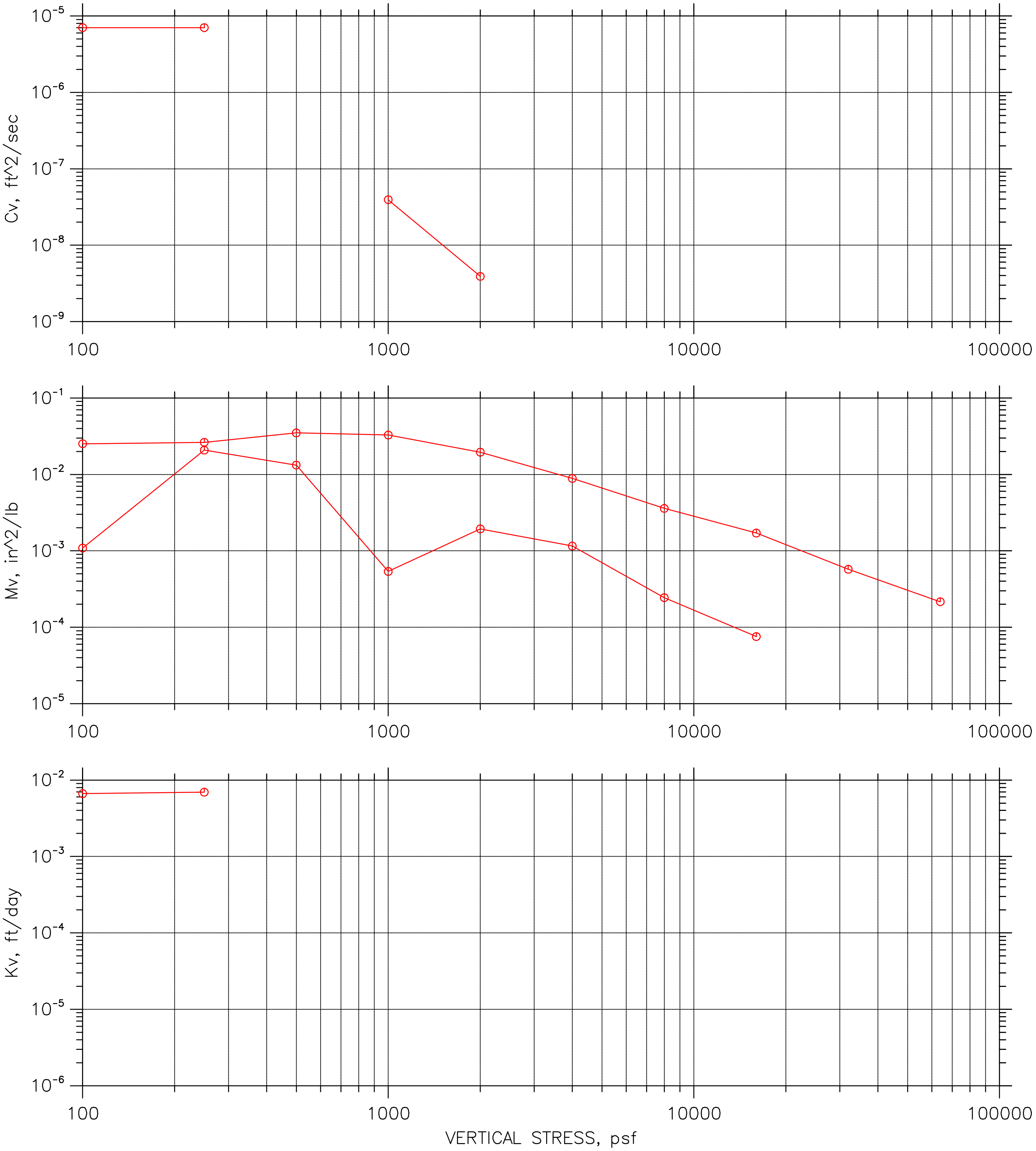


Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

Thu, 12-MAY-2022 09:16:25

Consolidation Test

LOG of TIME COEFFICIENTS



ATL
Alaska Testlab
Reviewed by

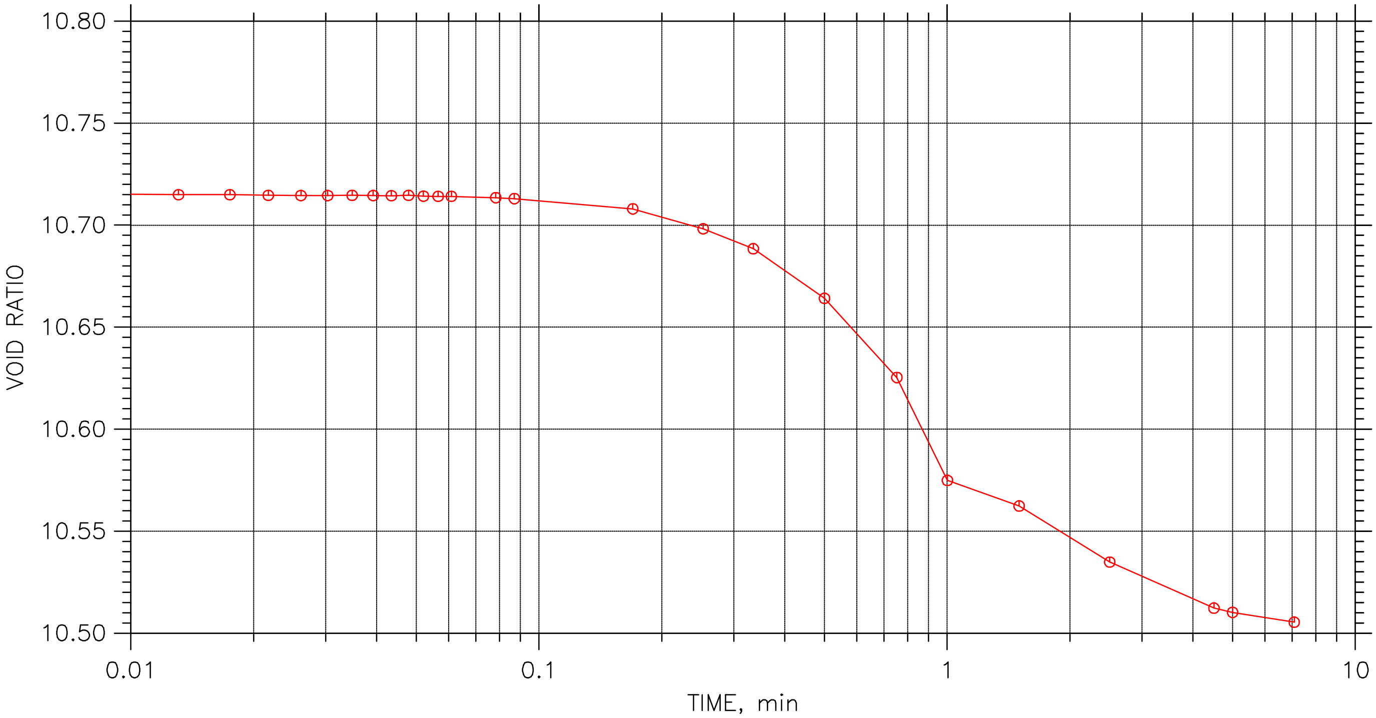
Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

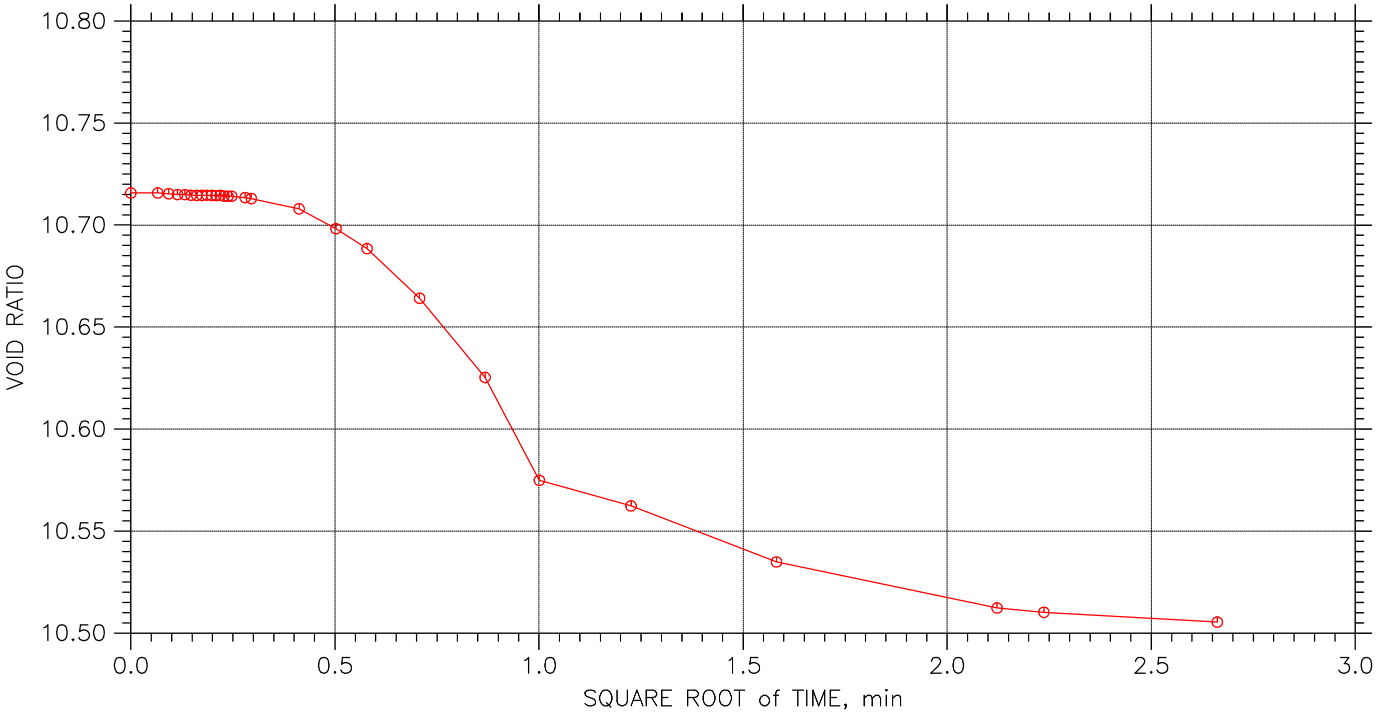
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

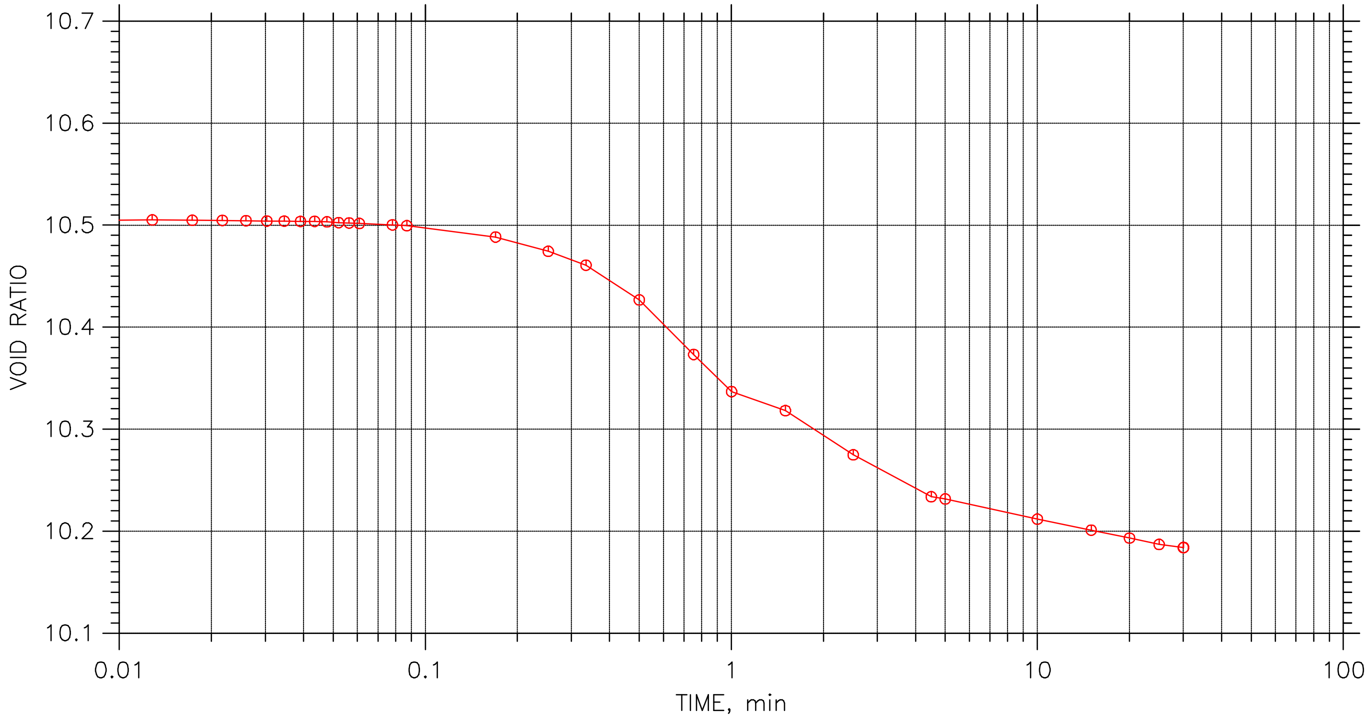
Thu, 12-MAY-2022 09:16:26

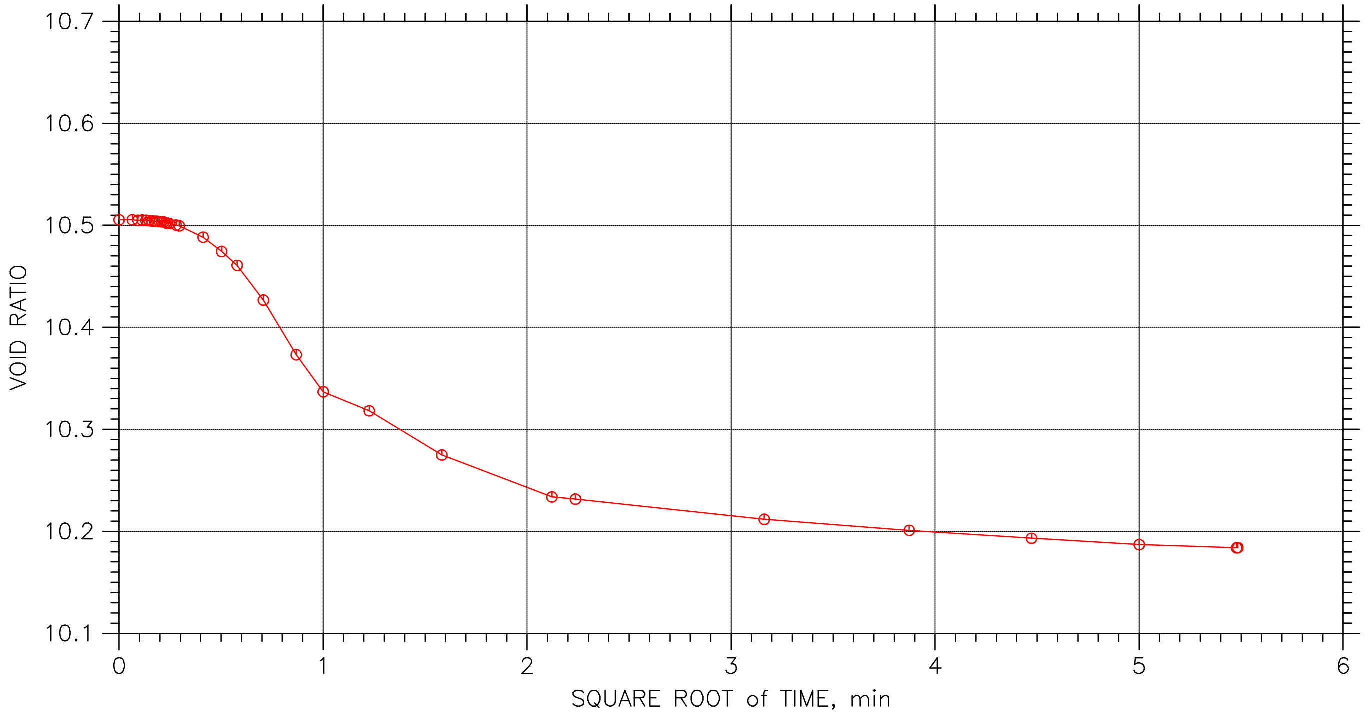
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

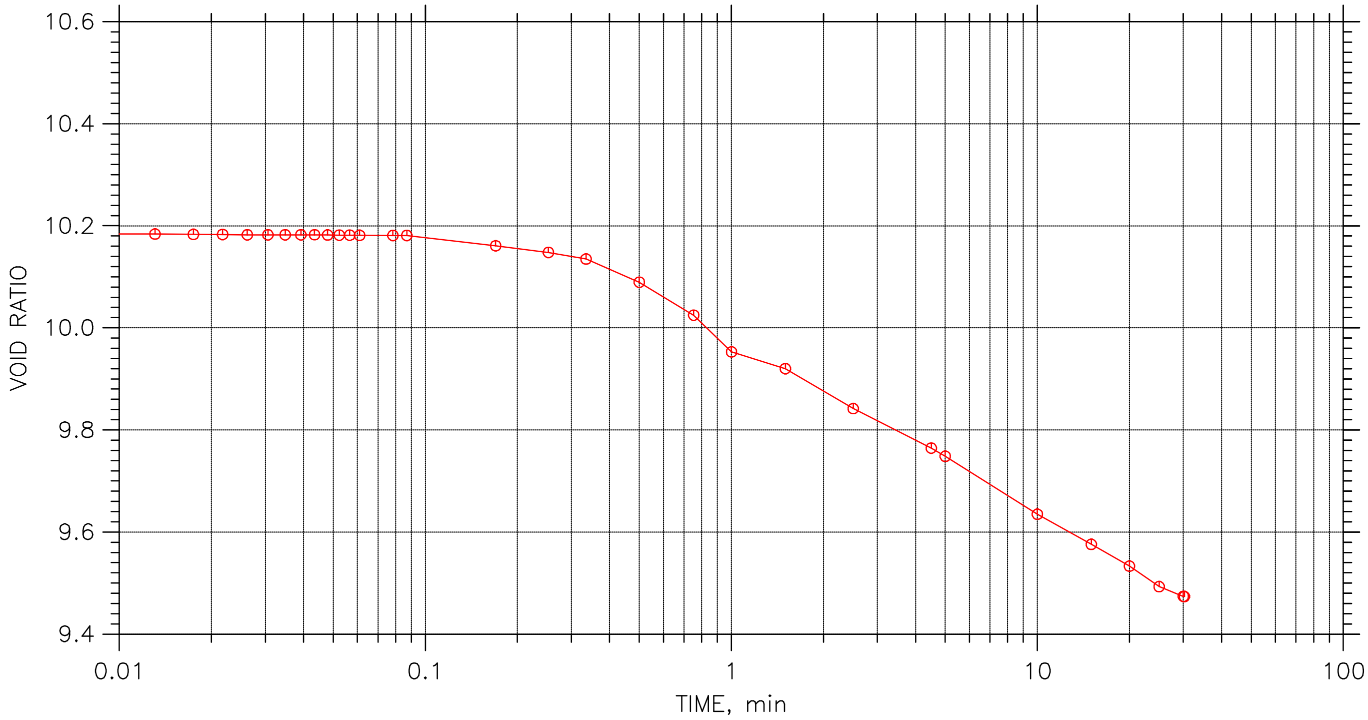
Thu, 12-MAY-2022 09:16:27

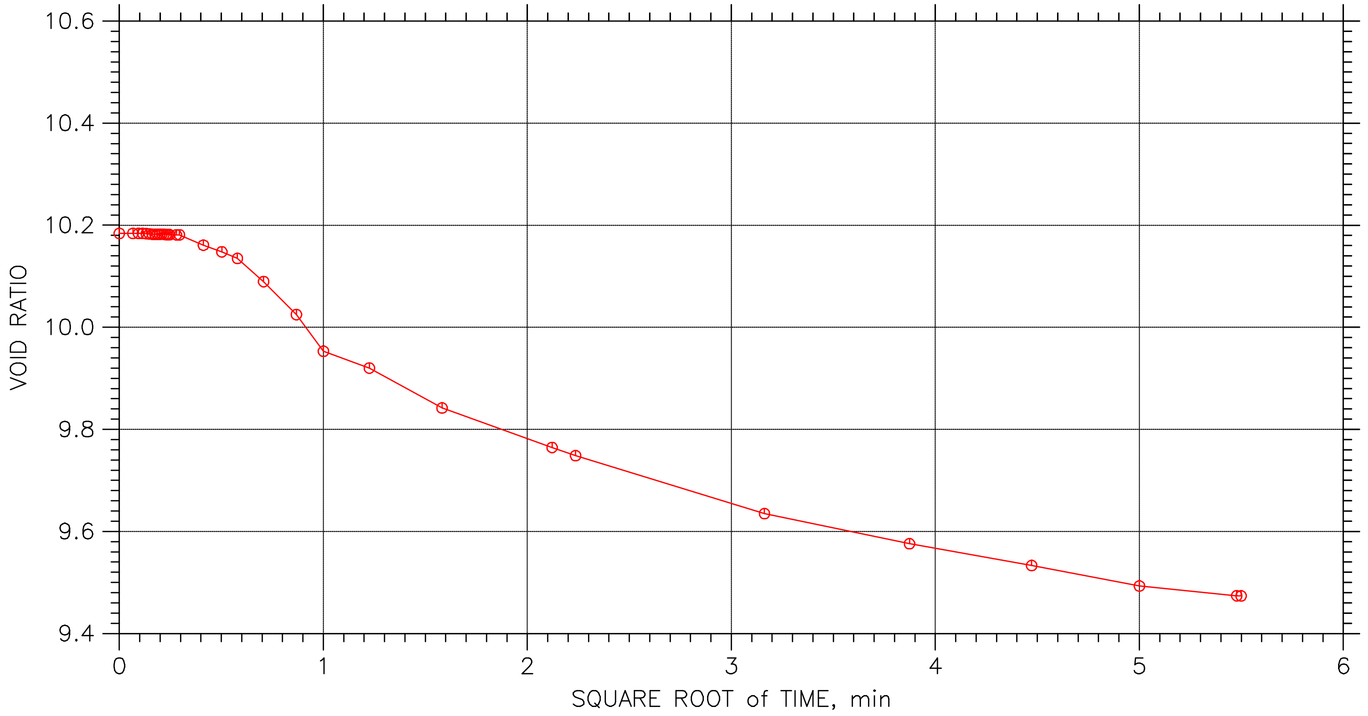
Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf





ATL
Alaska Testlab
Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

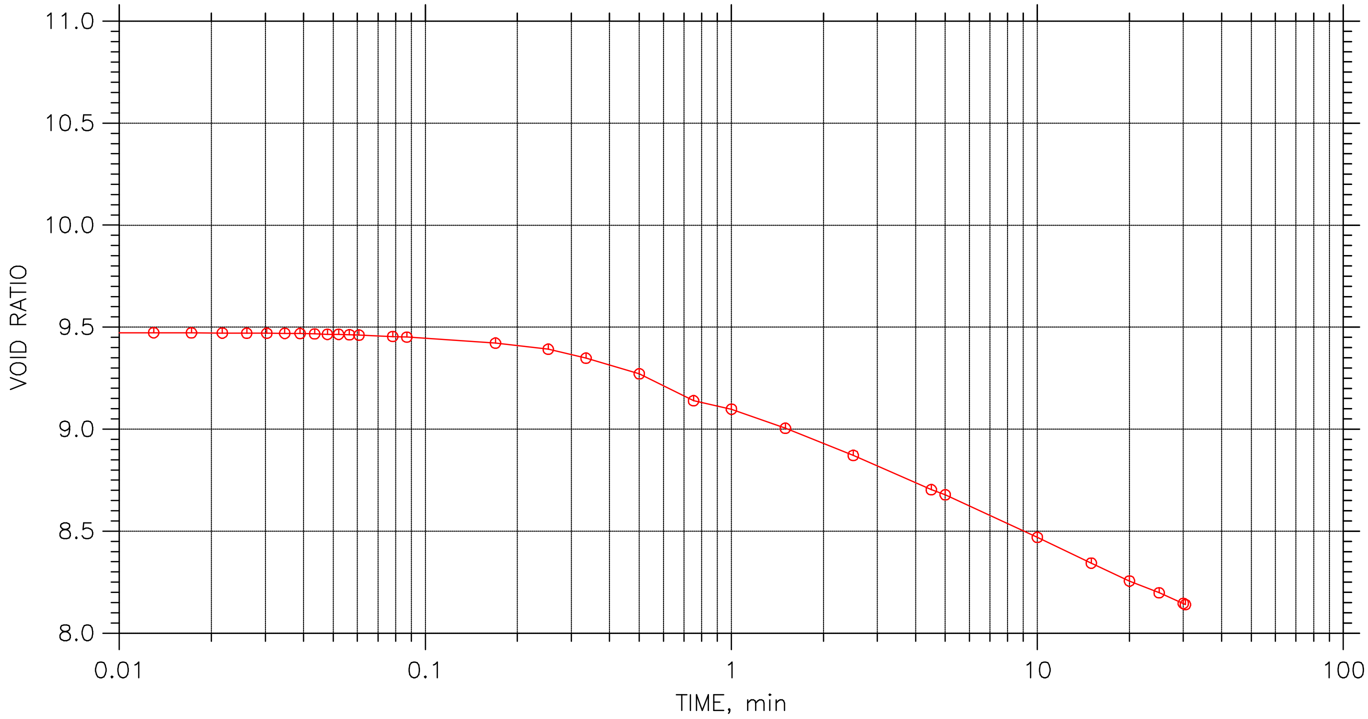
Thu, 12-MAY-2022 09:16:28

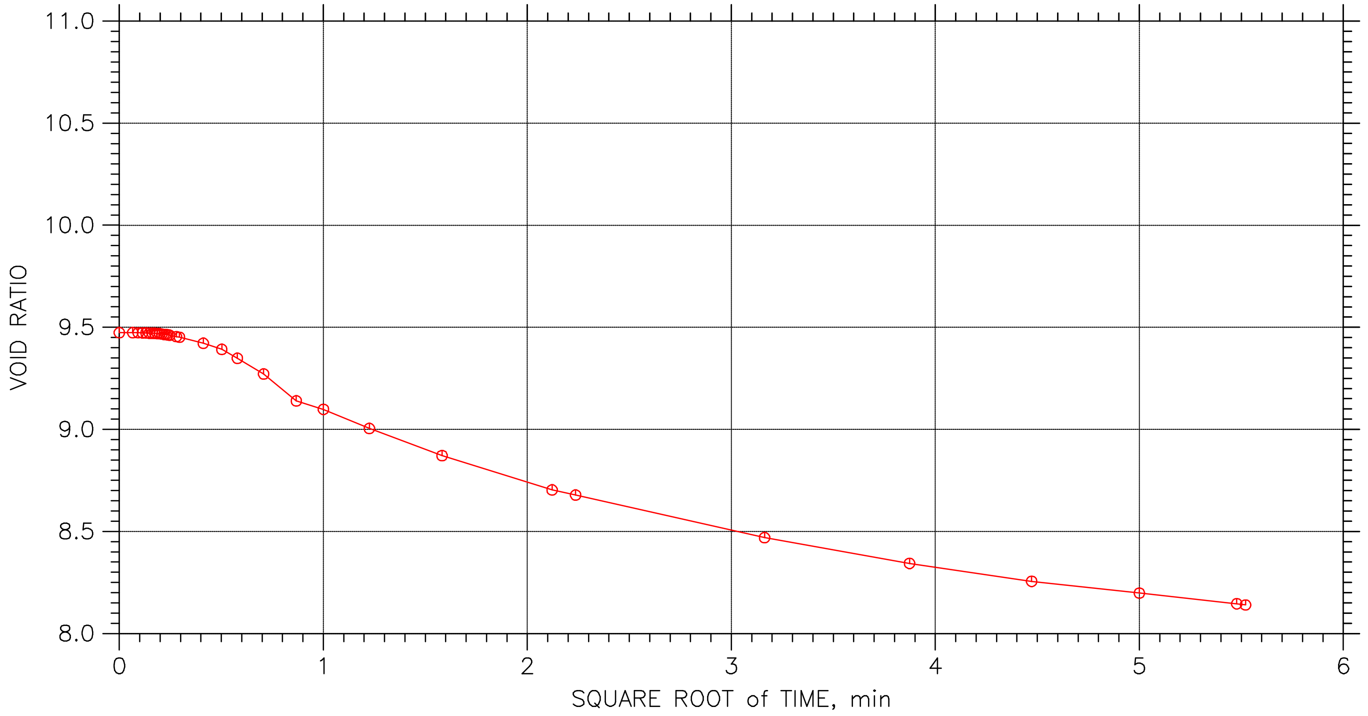
Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

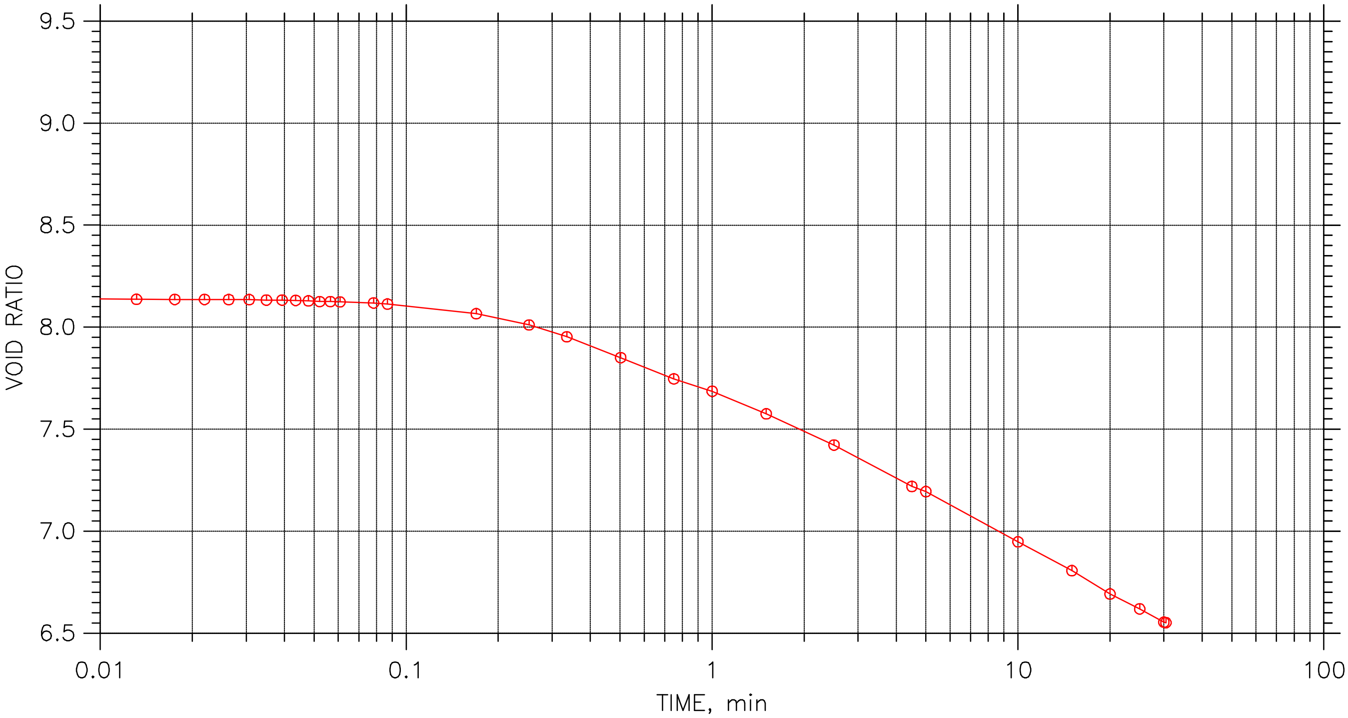
Thu, 12-MAY-2022 09:16:29

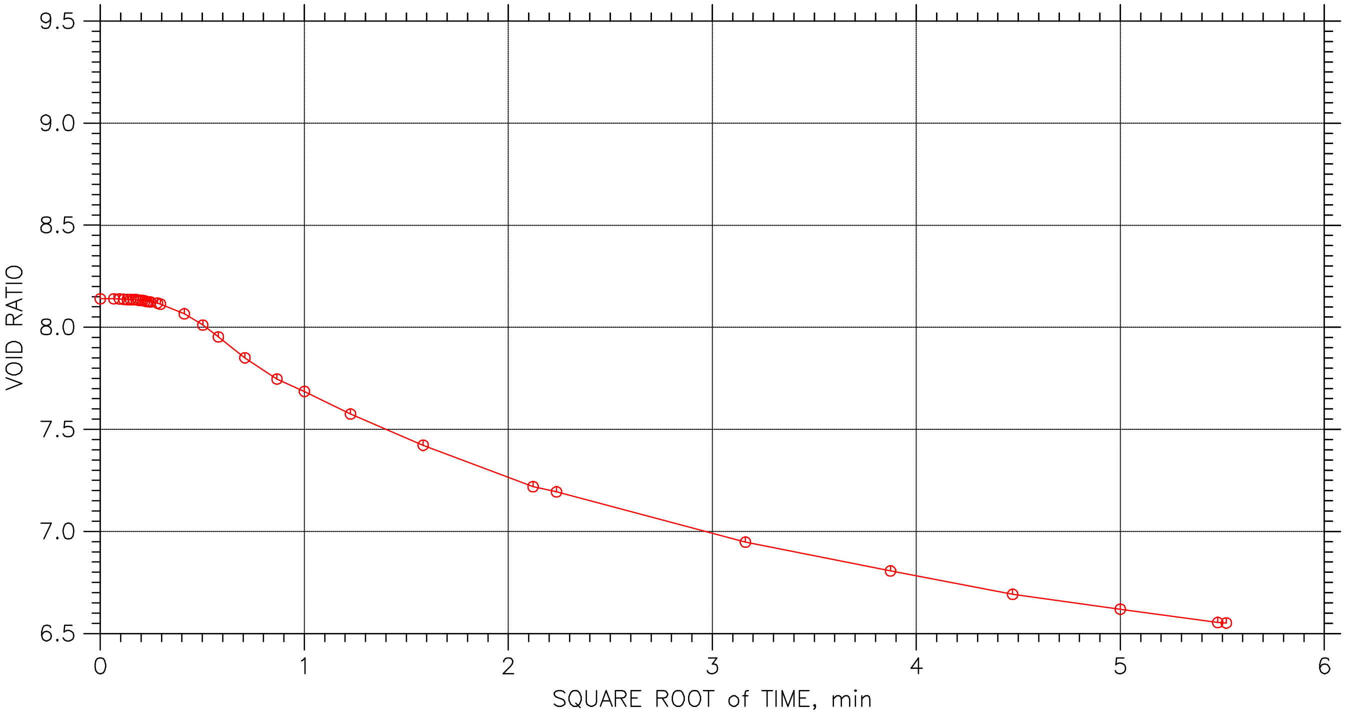
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

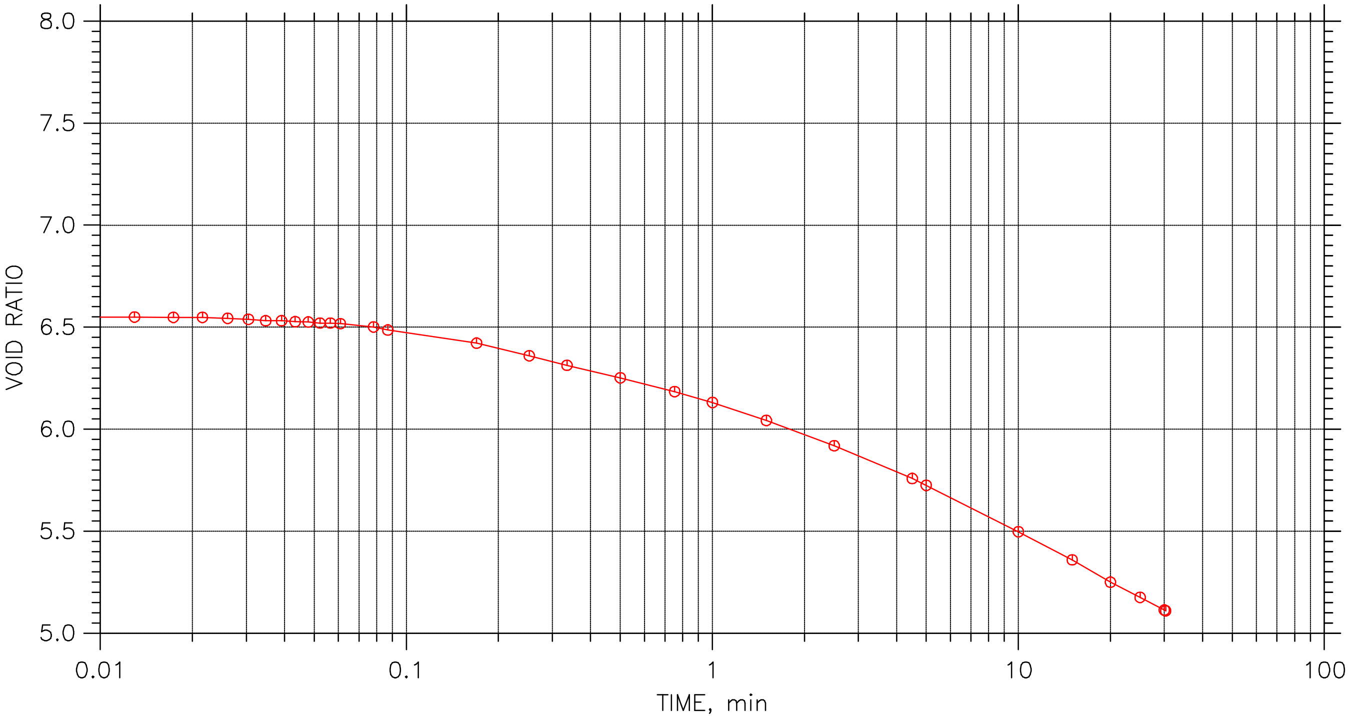
Thu, 12-MAY-2022 09:16:30

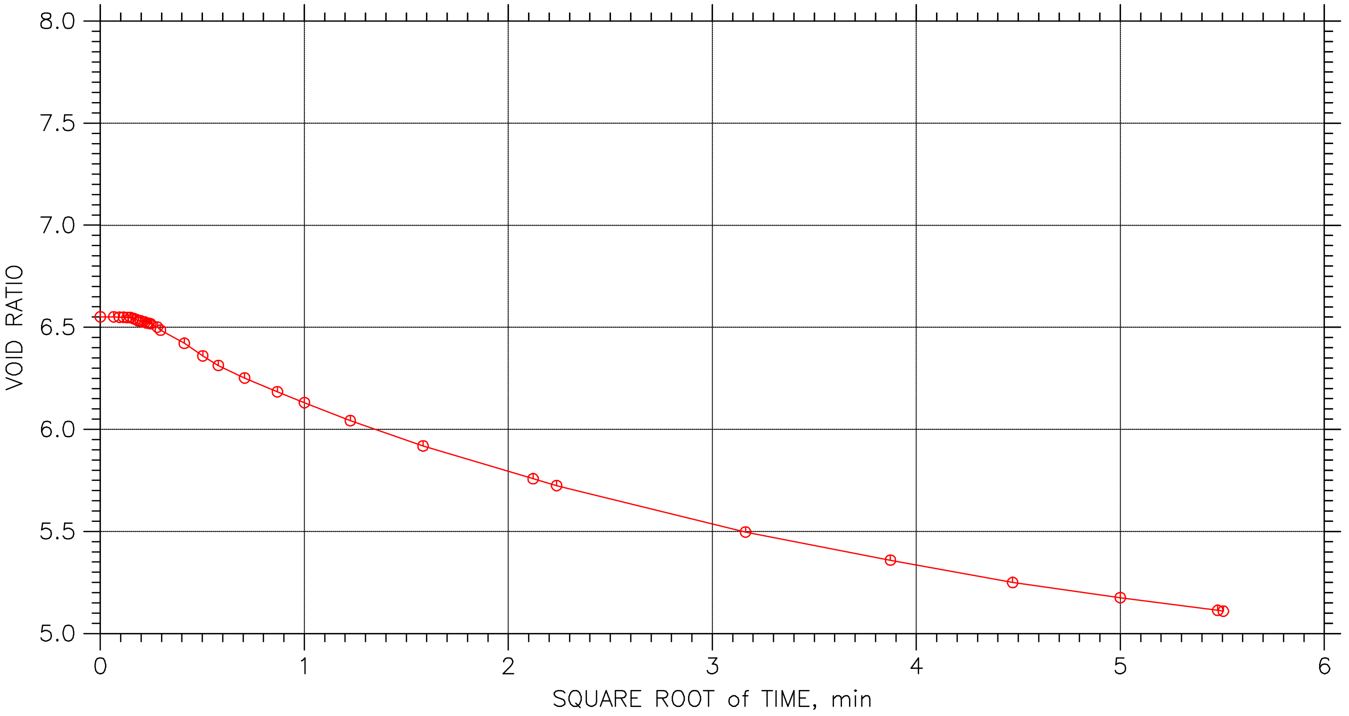
Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

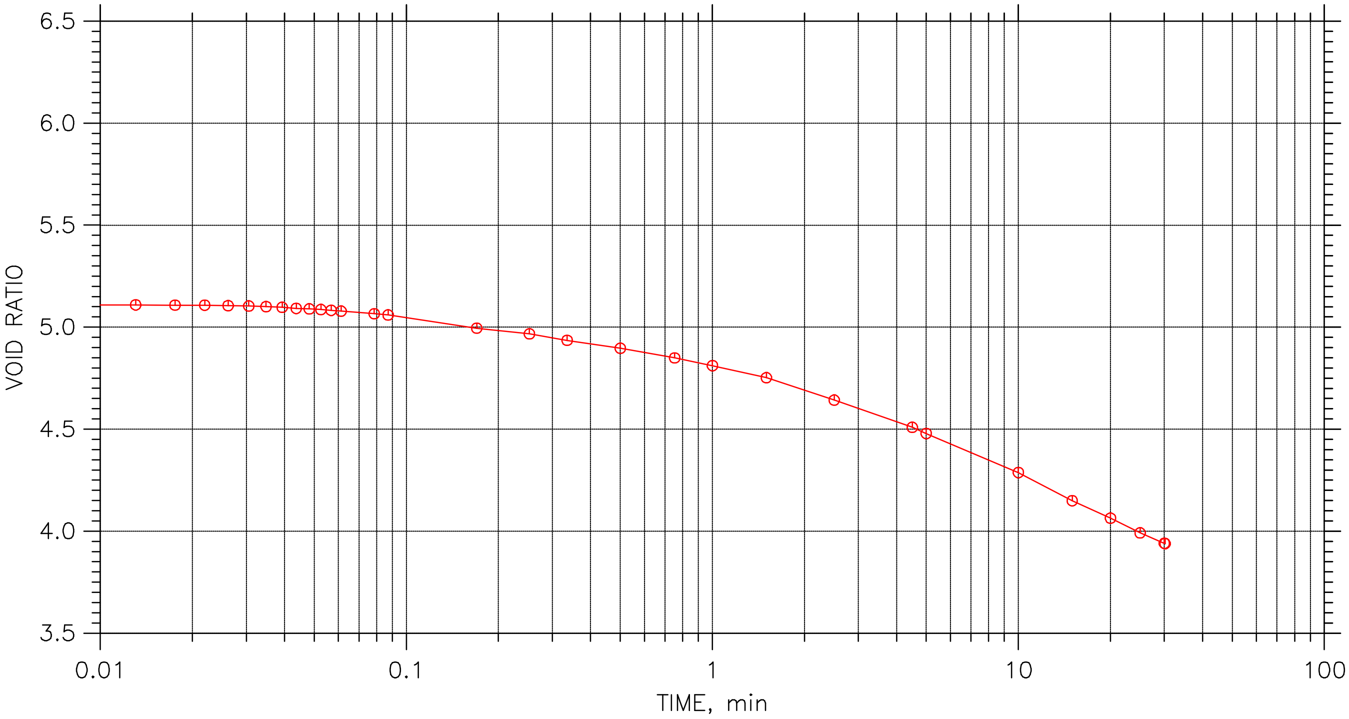
Thu, 12-MAY-2022 09:16:31

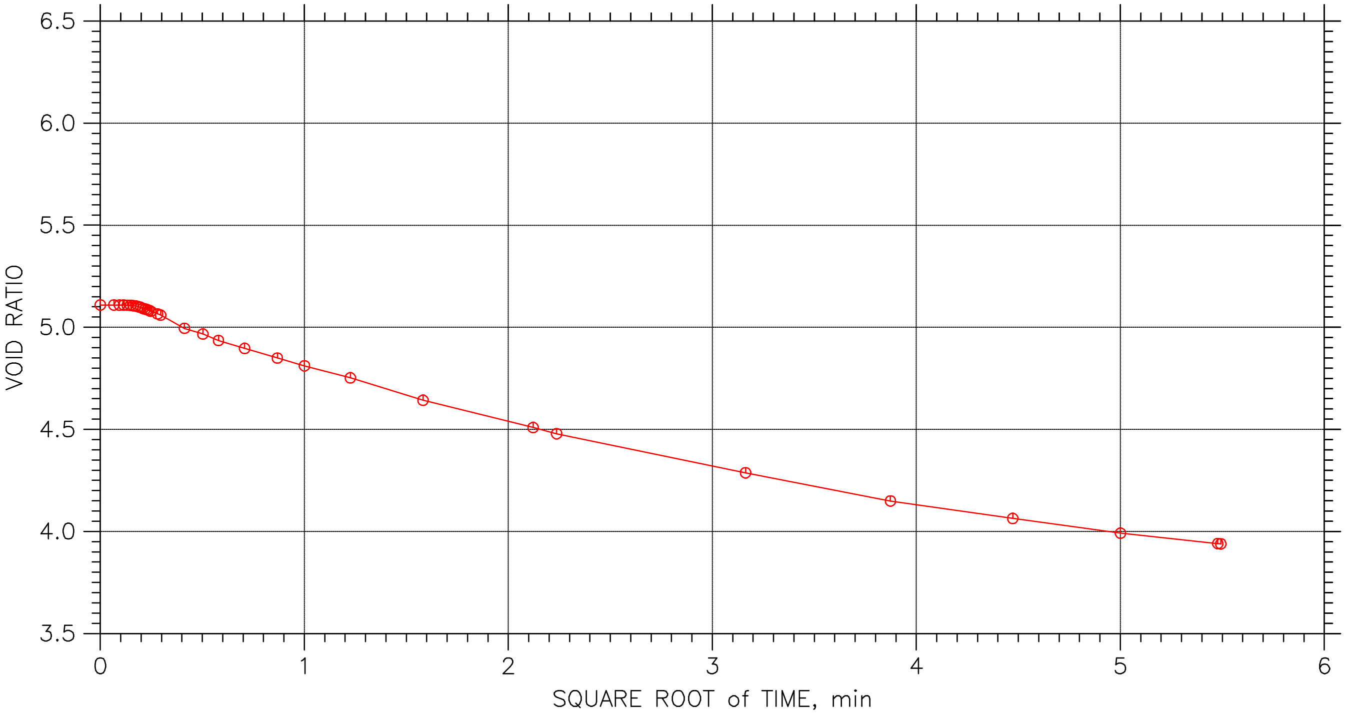
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

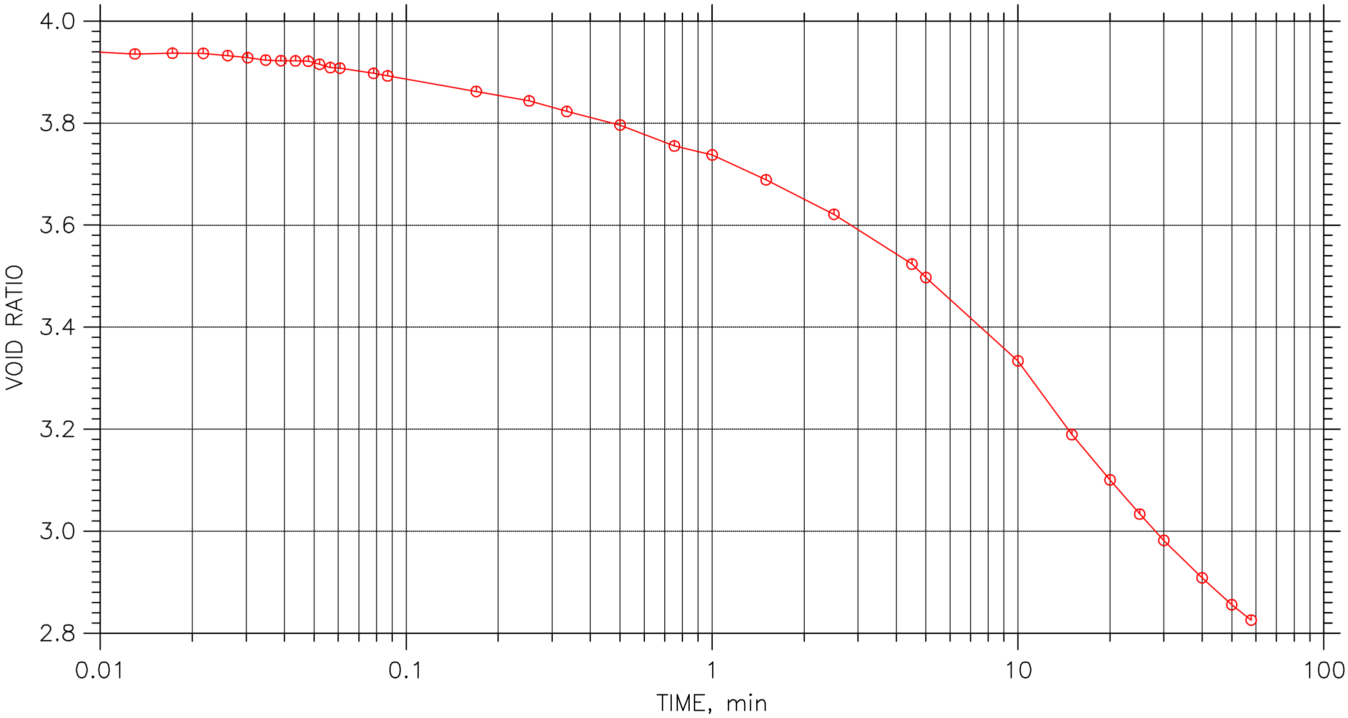
Thu, 12-MAY-2022 09:16:32

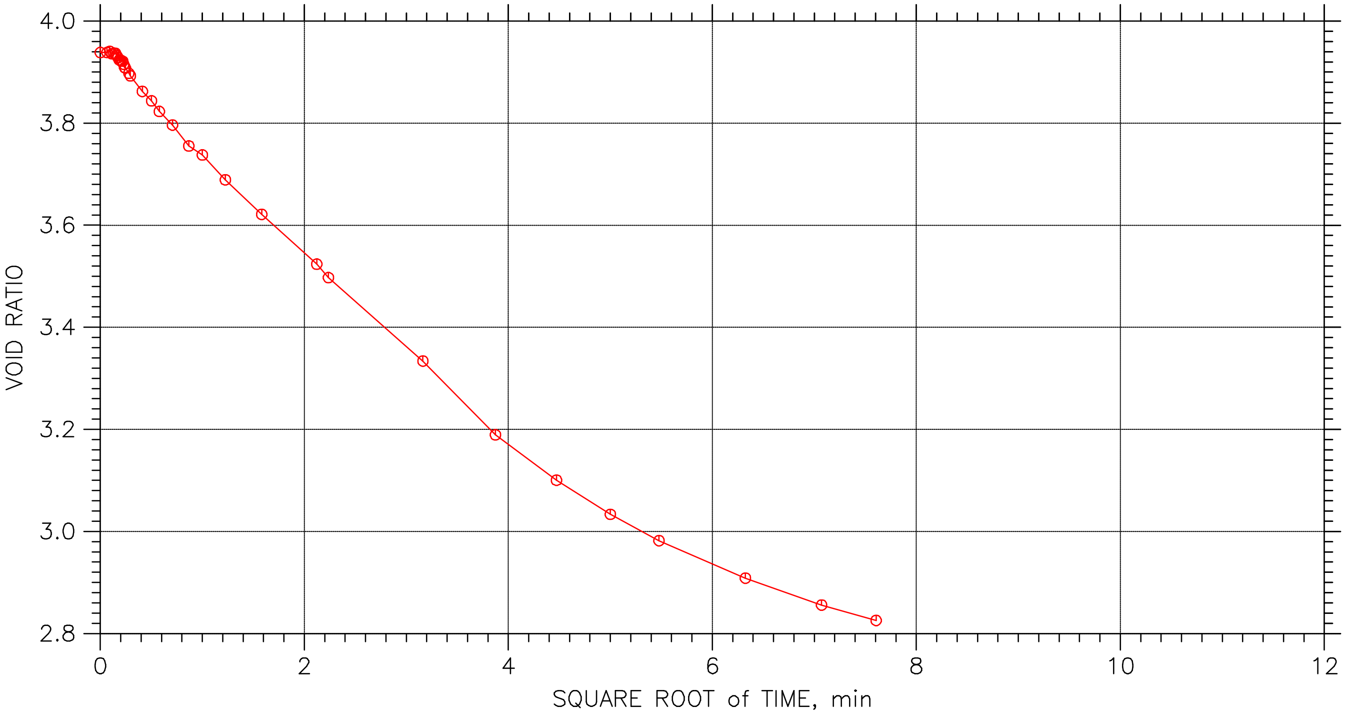
Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

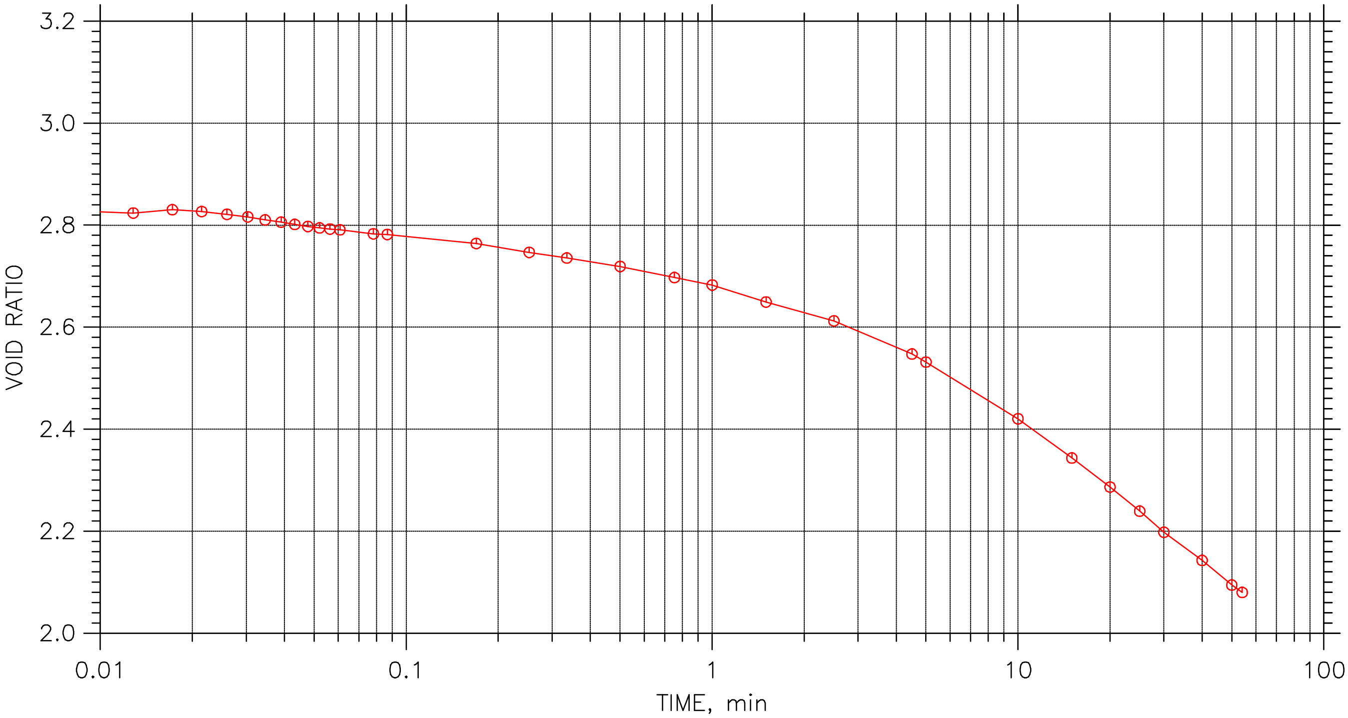
Thu, 12-MAY-2022 09:16:33

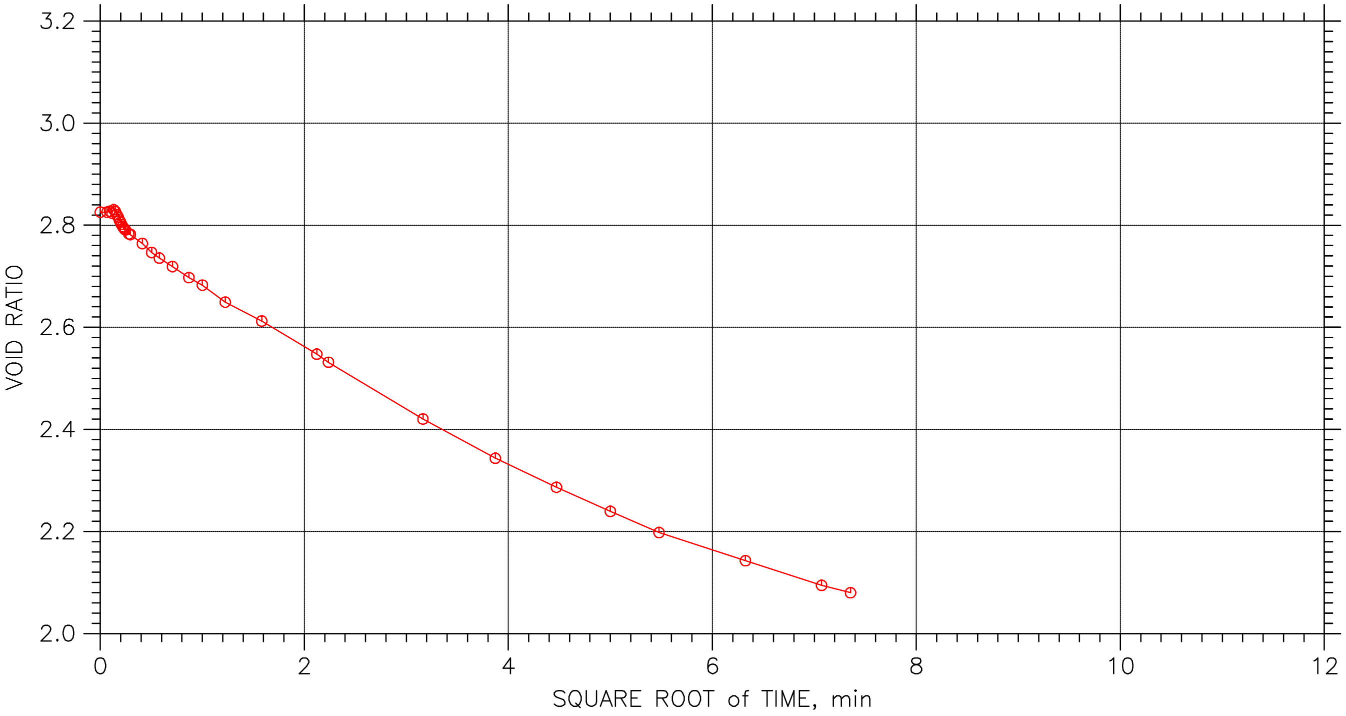
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

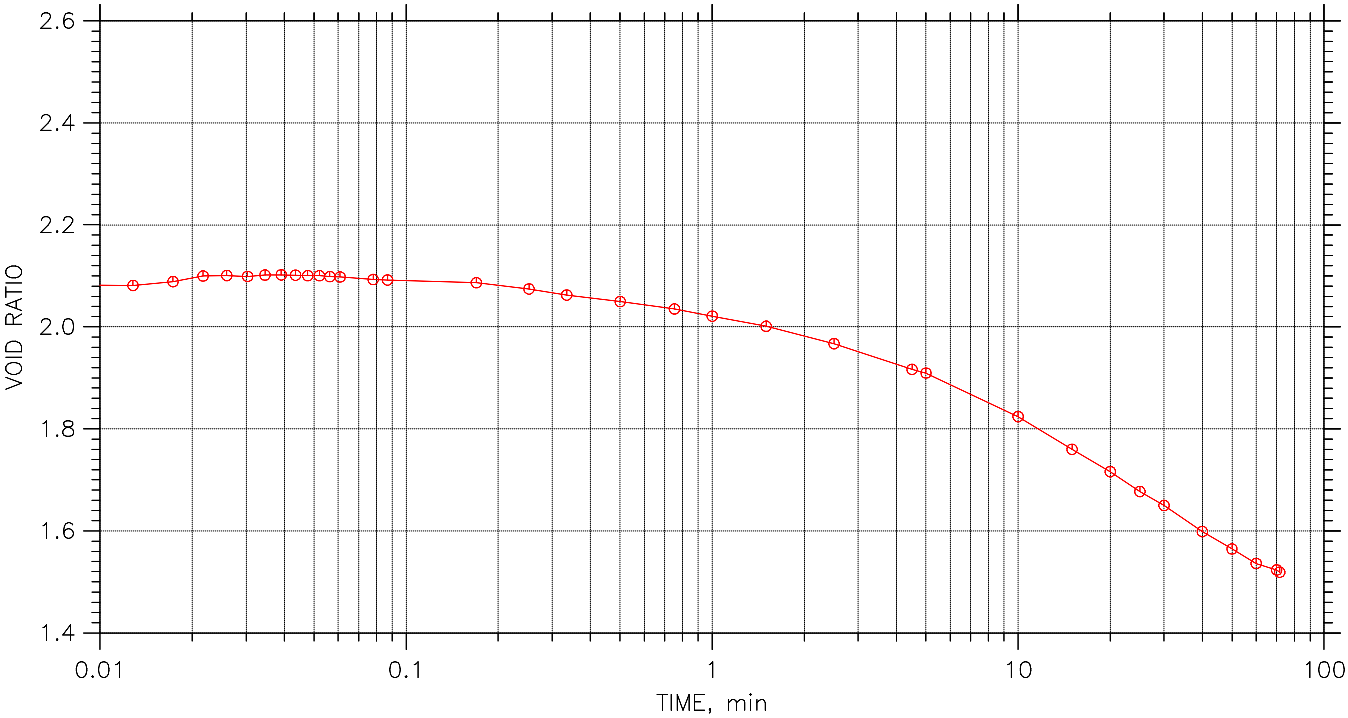
Thu, 12-MAY-2022 09:16:34

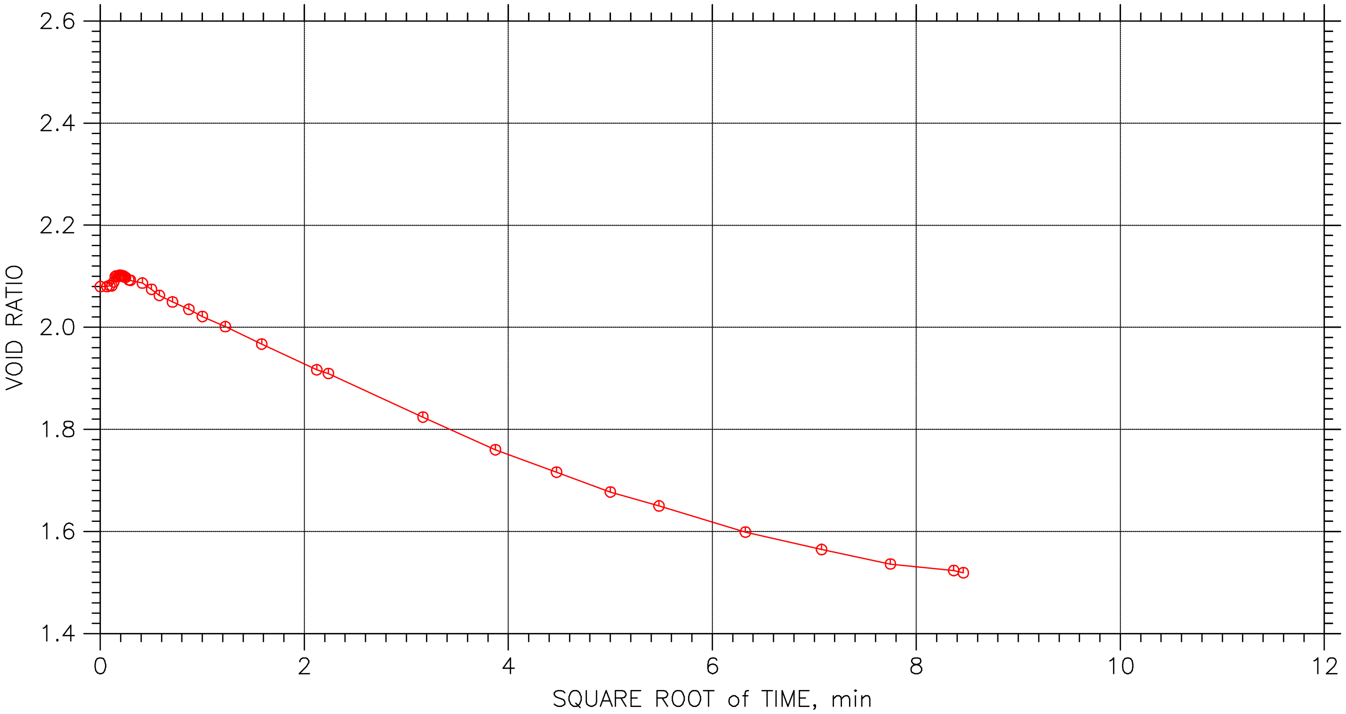
Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf





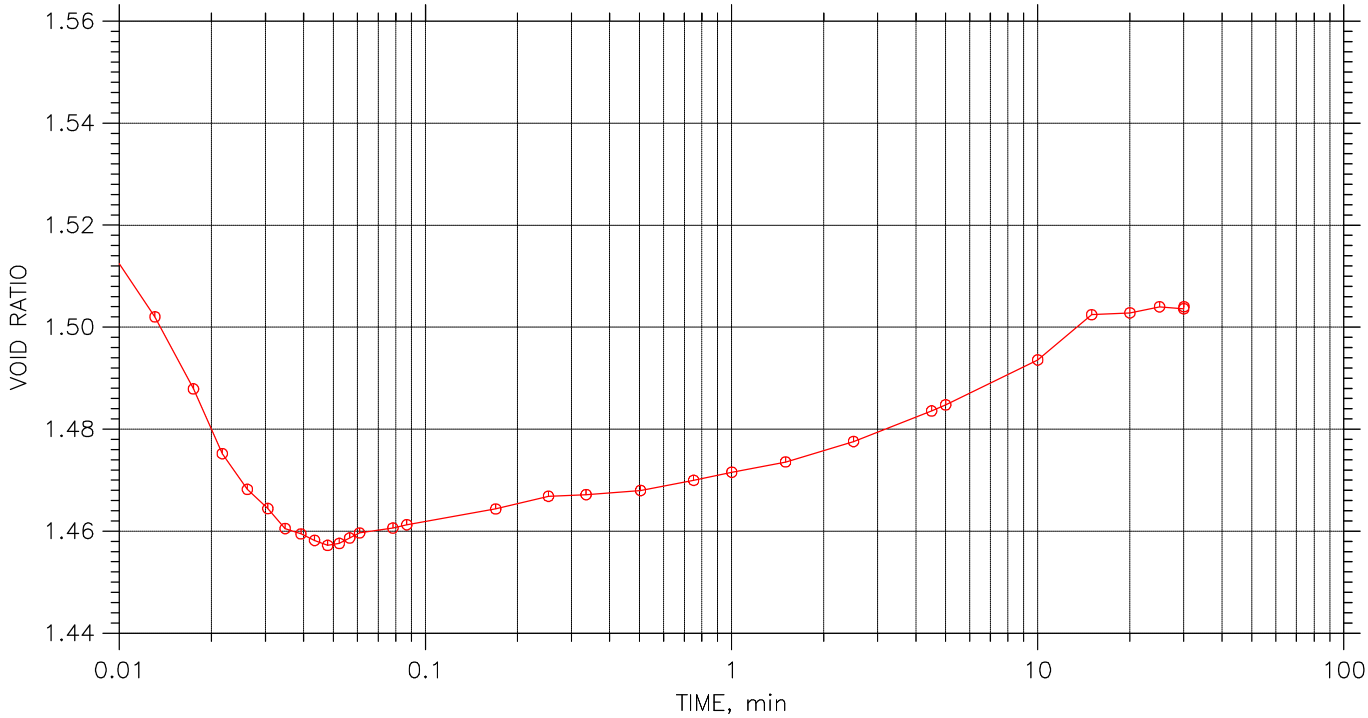
ATL Alaska Testlab	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

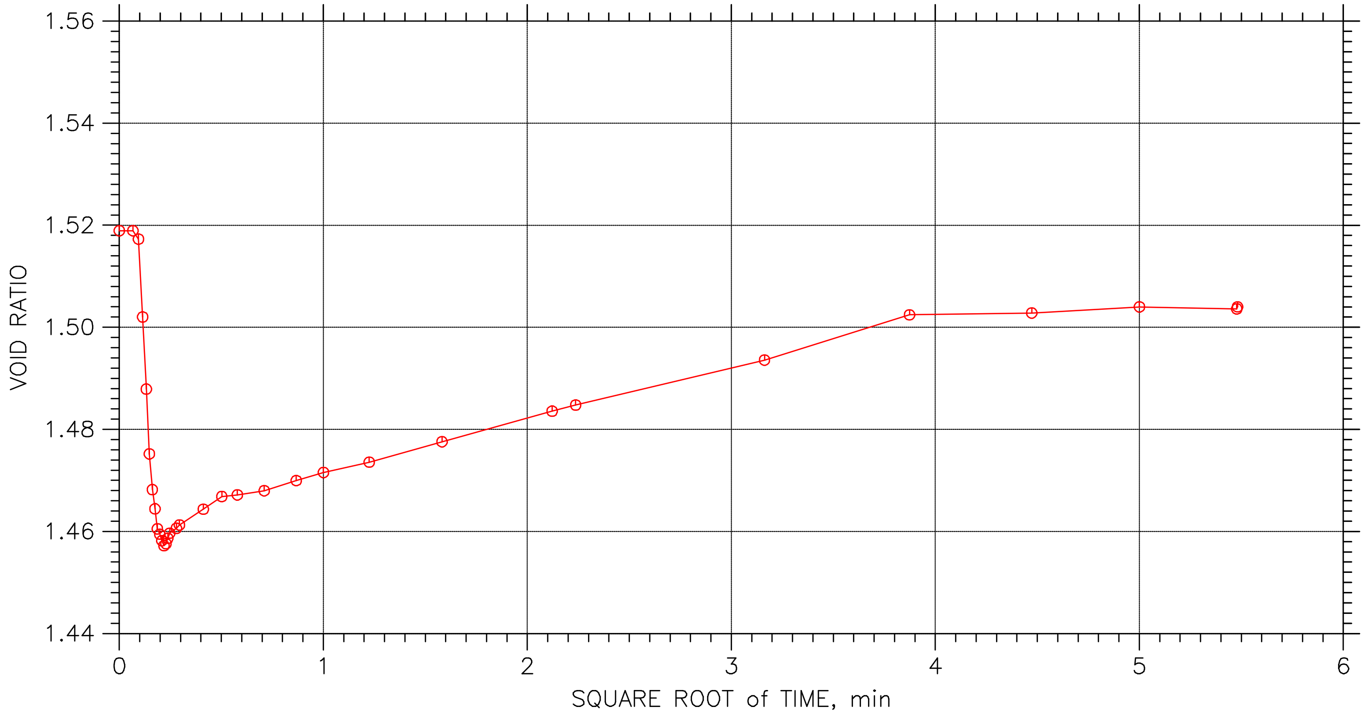
Consolidation Test

TIME CURVES

Constant Load Step 11 of 19

Stress: 32000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

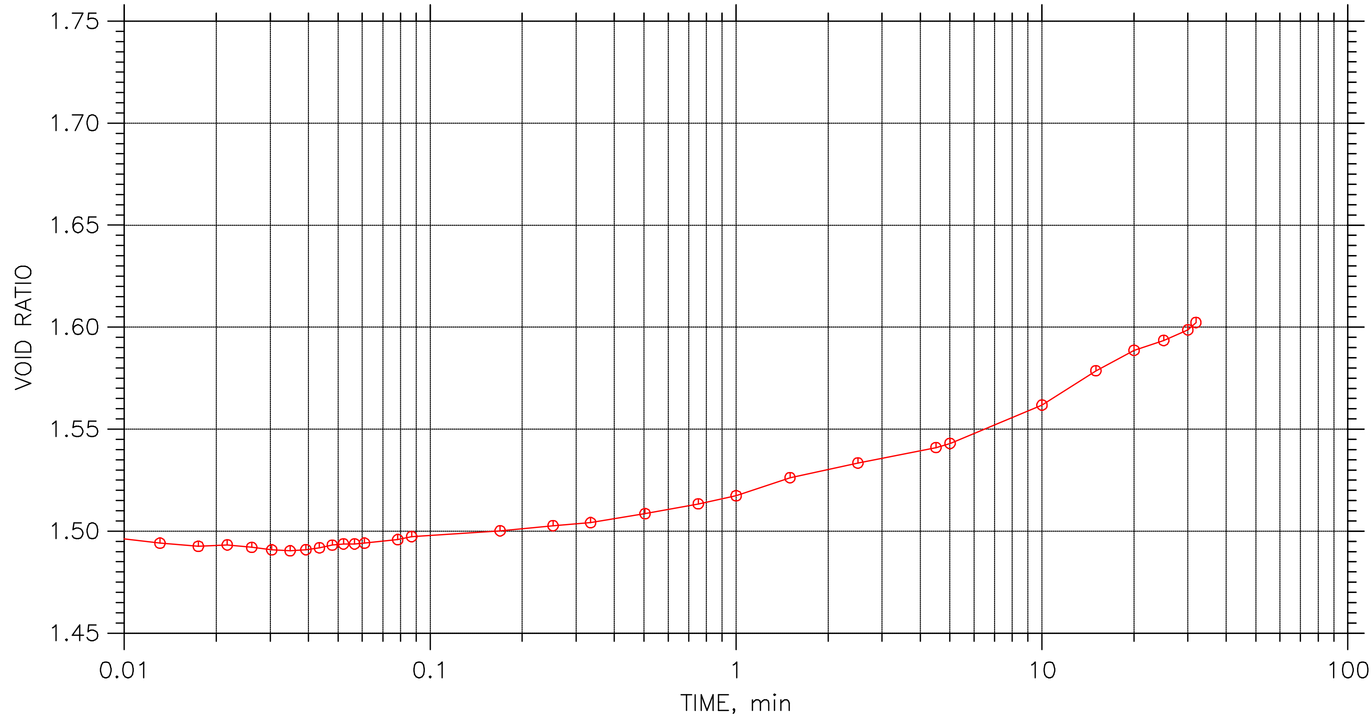
Thu, 12-MAY-2022 09:16:36

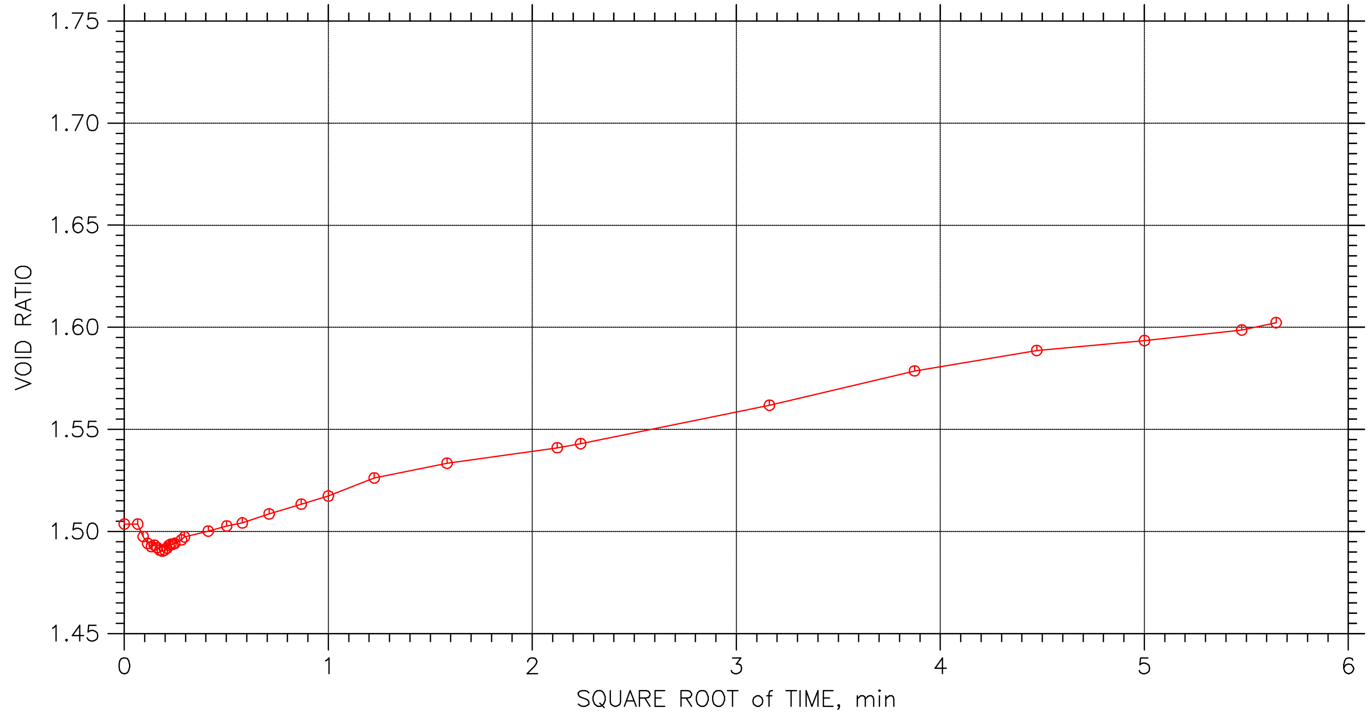
Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf





Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

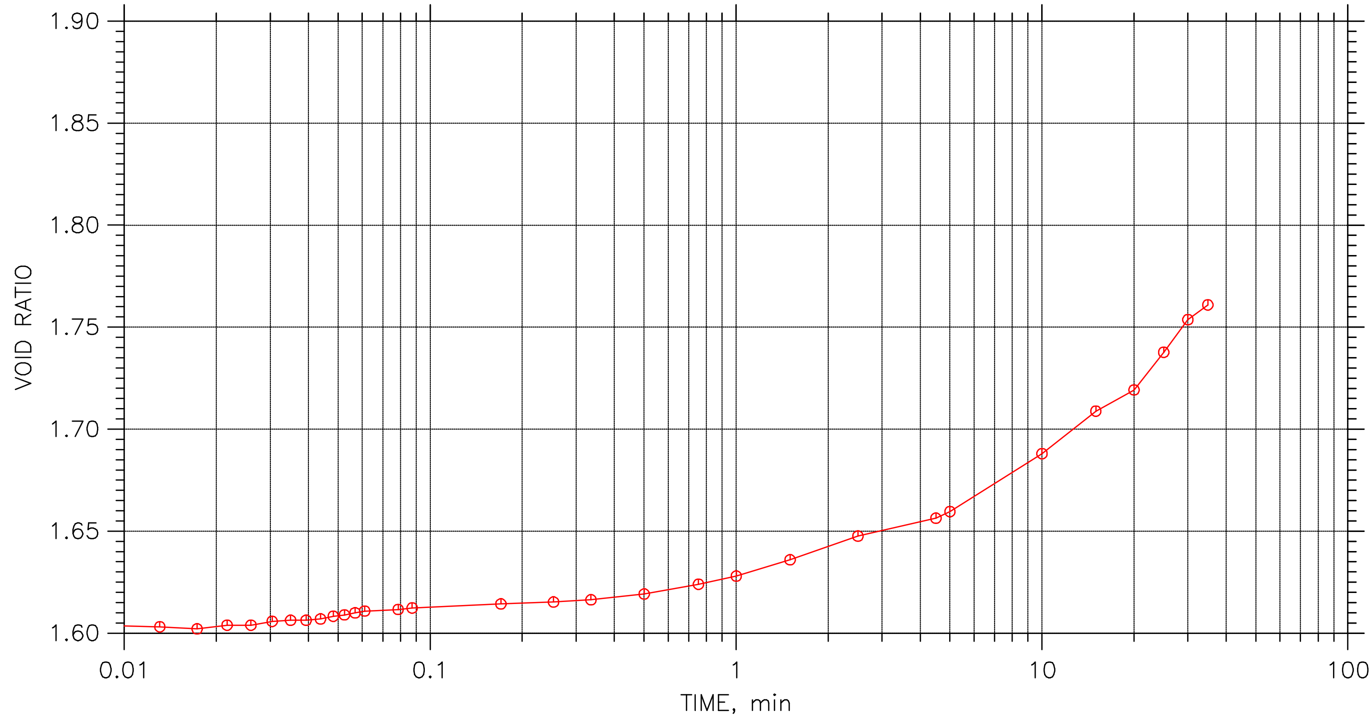
Thu, 12-MAY-2022 09:16:37

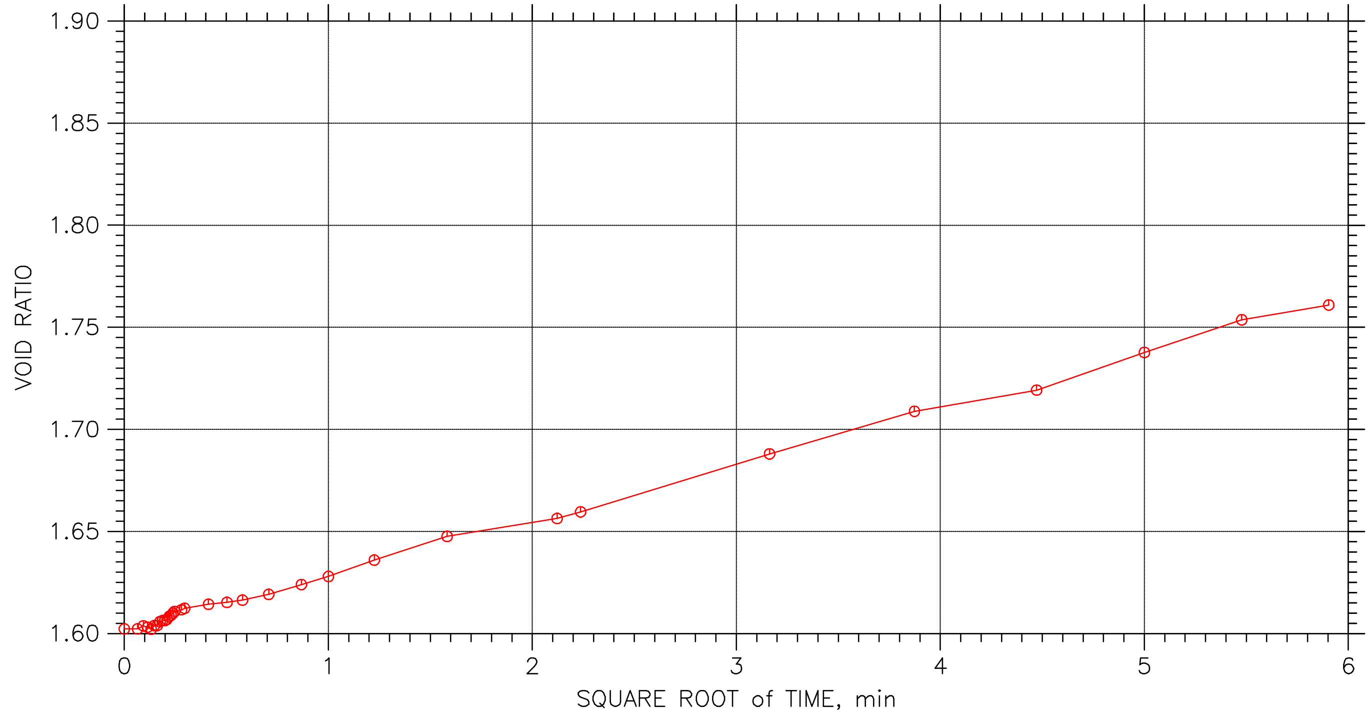
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

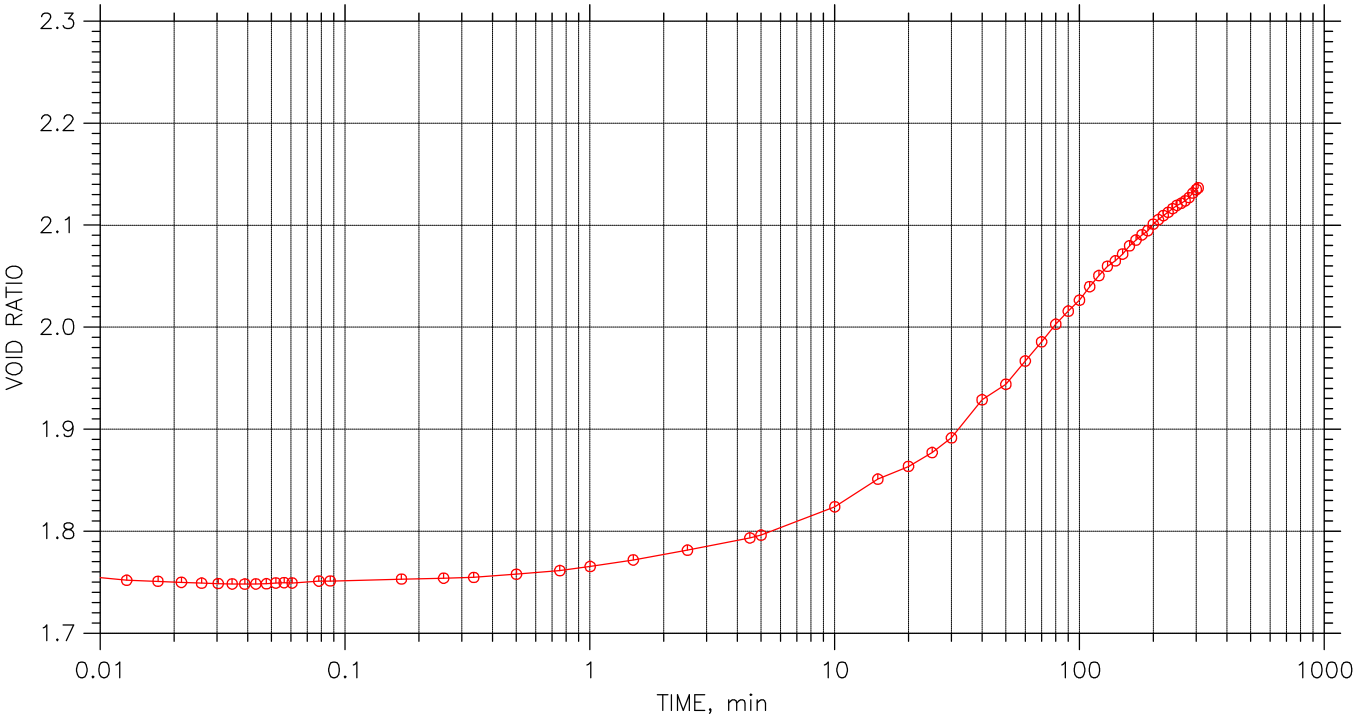
Thu, 12-MAY-2022 09:16:38

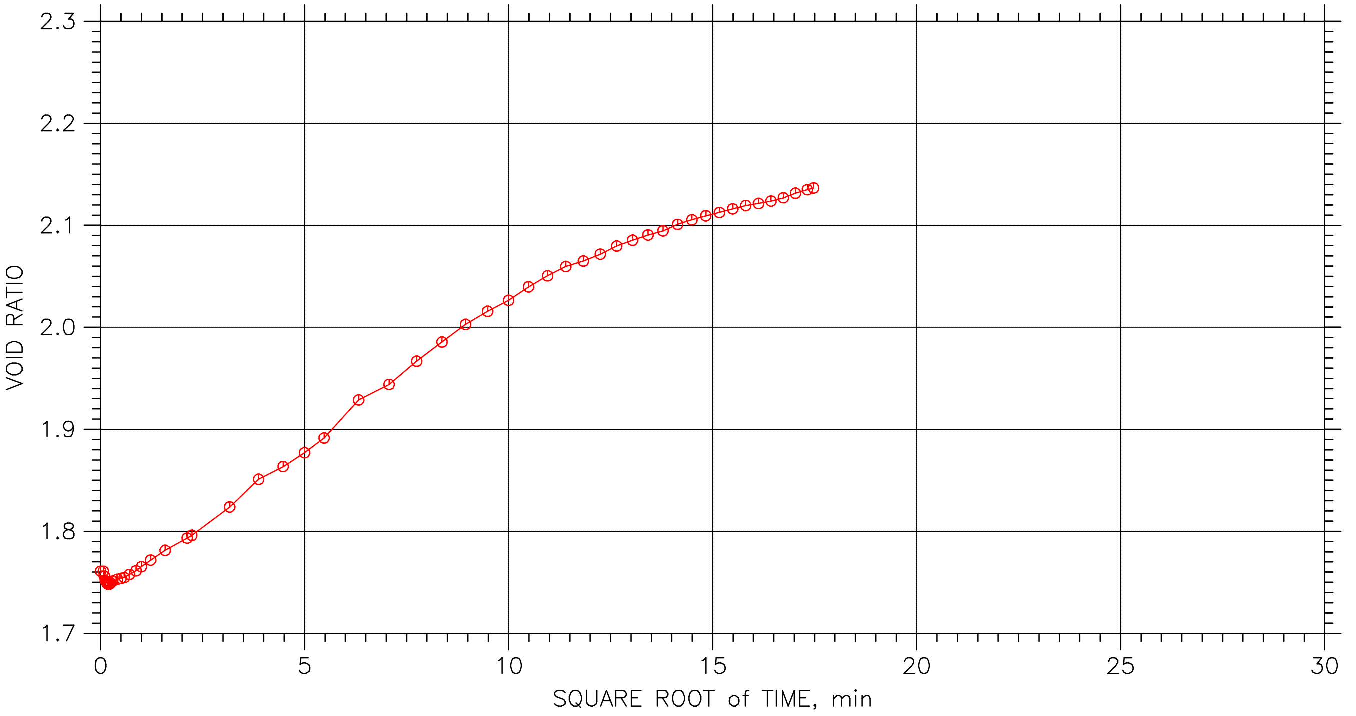
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





ATL

Alaska Testlab

Reviewed by

Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

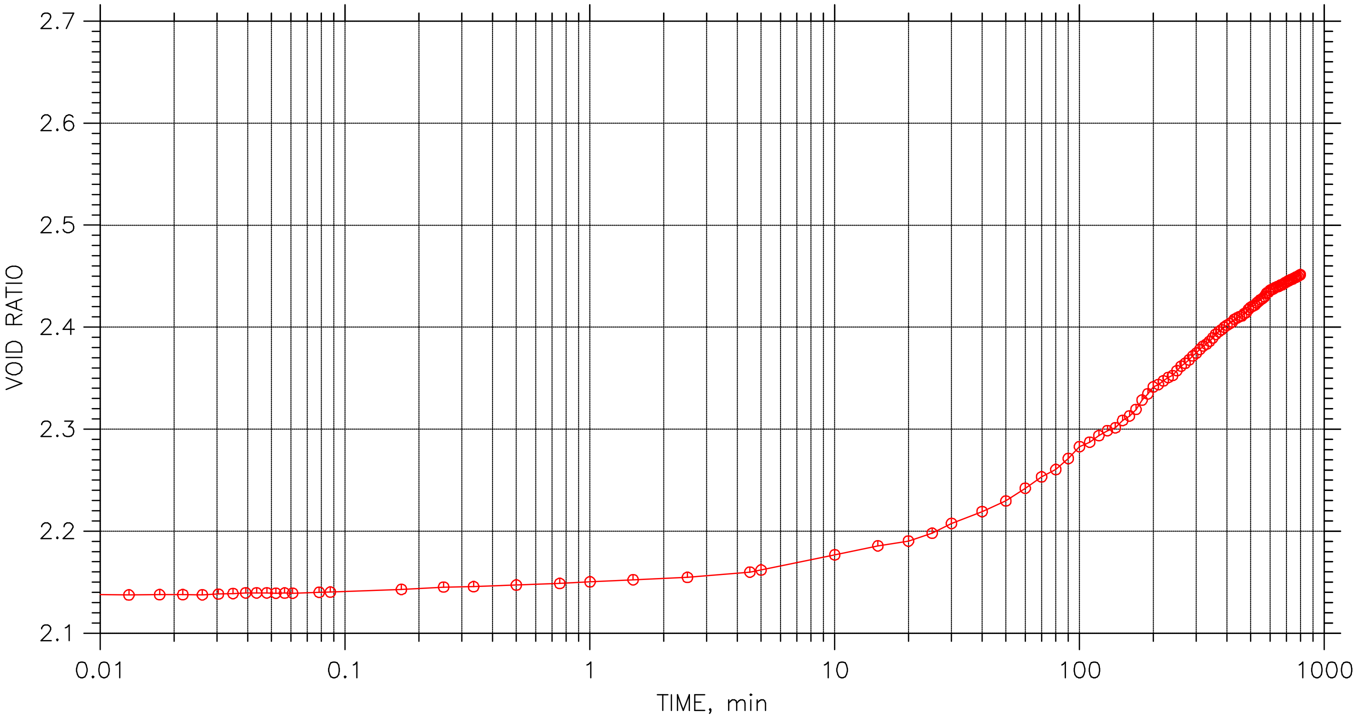
Thu, 12-MAY-2022 09:16:39

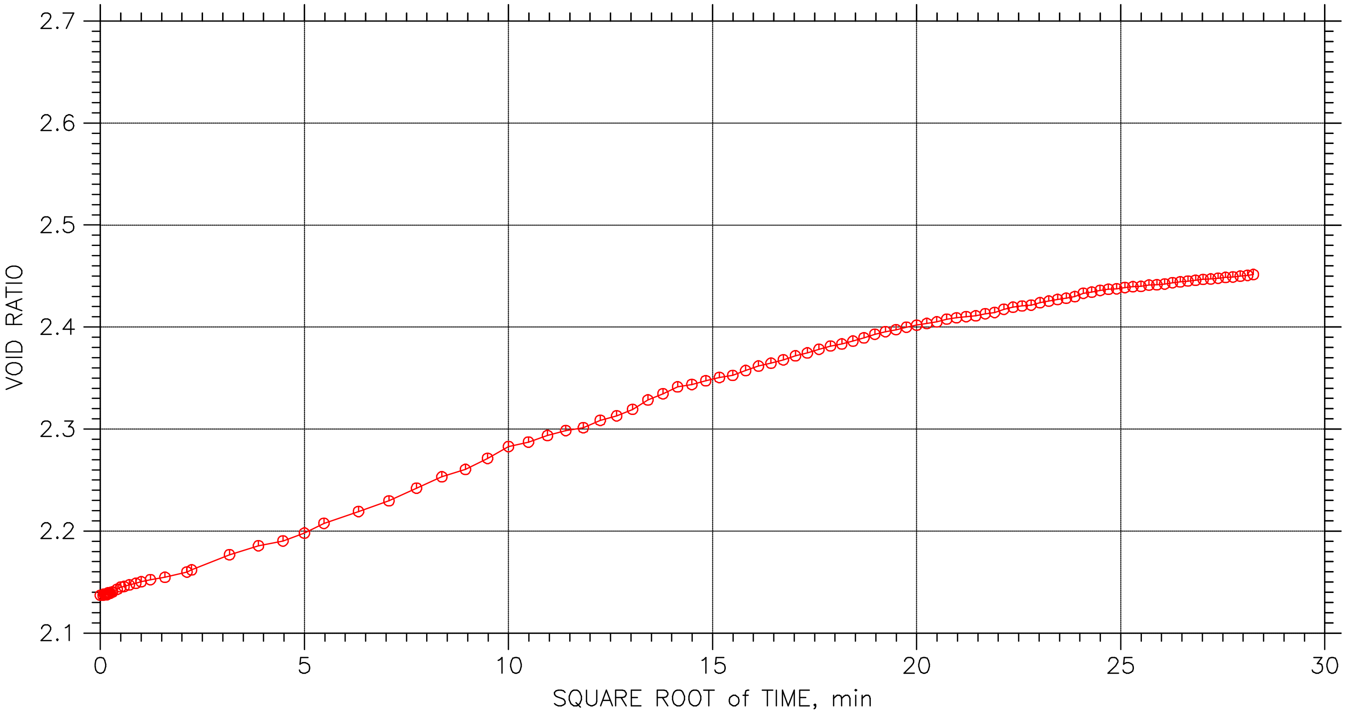
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

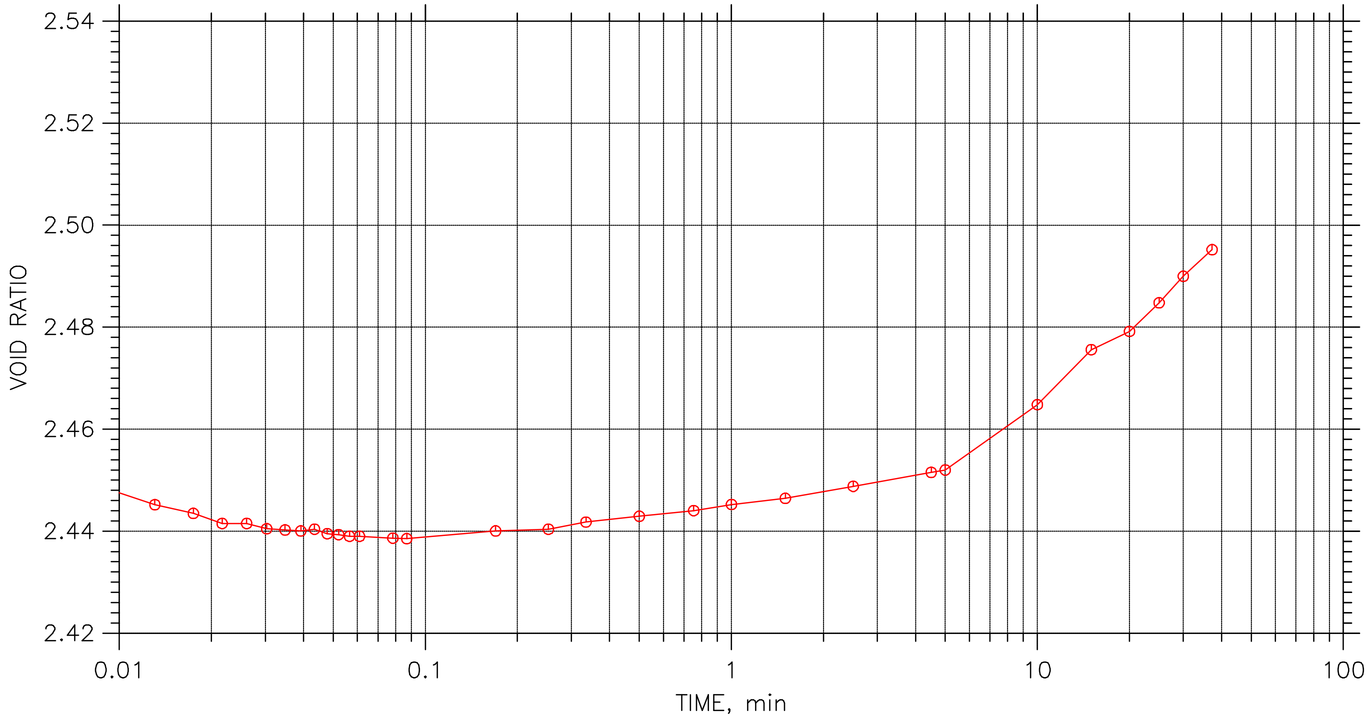
Thu, 12-MAY-2022 09:16:40

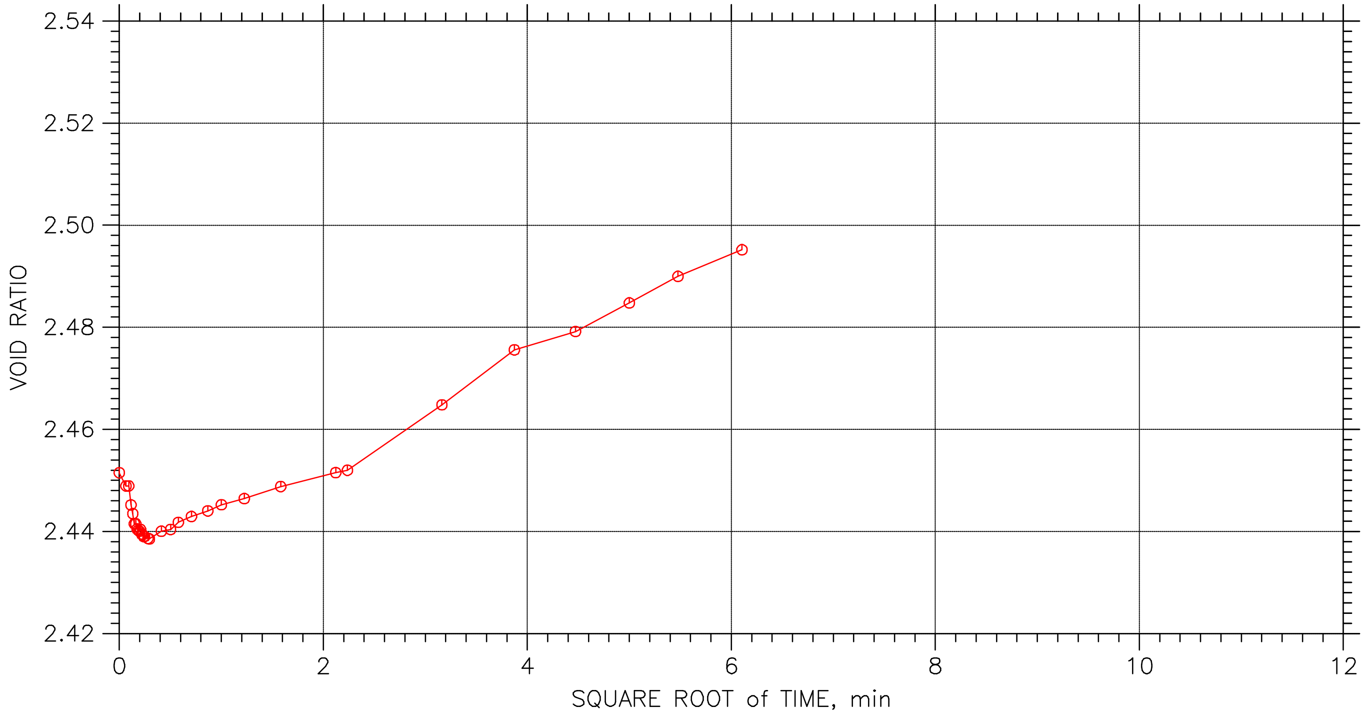
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

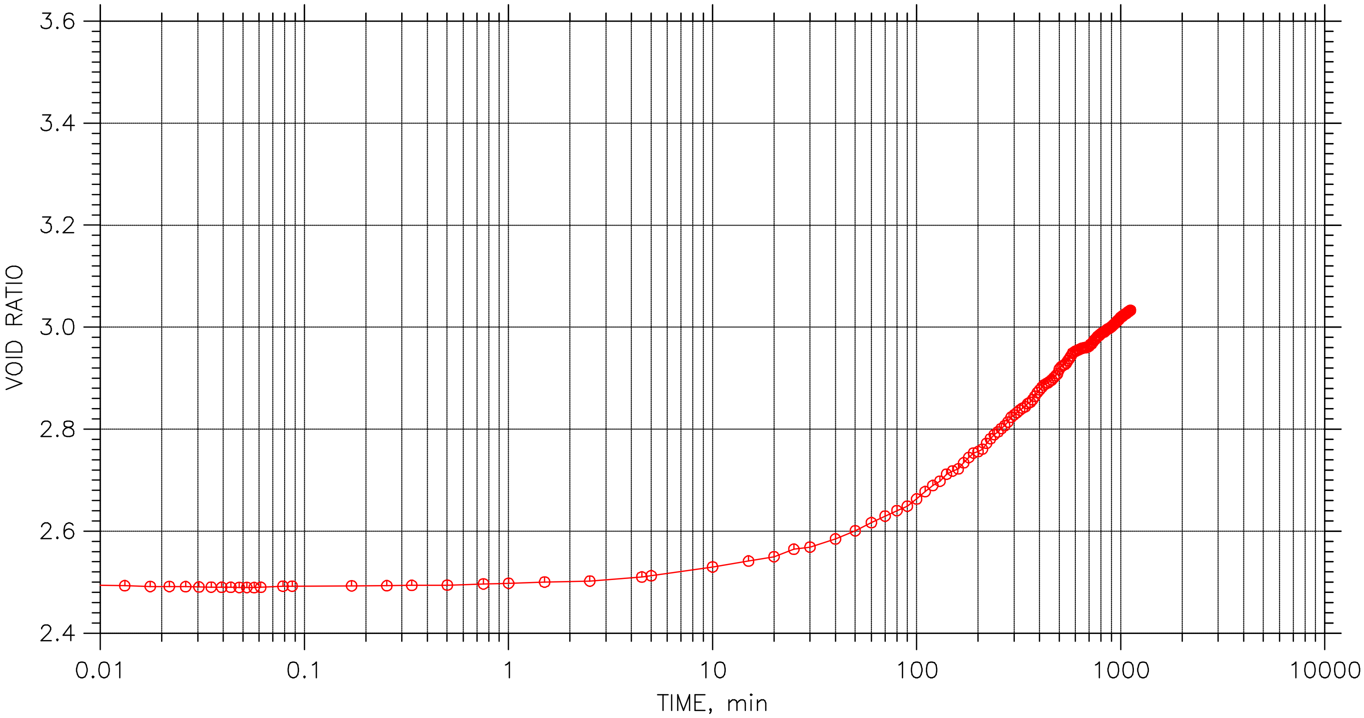
Thu, 12-MAY-2022 09:16:42

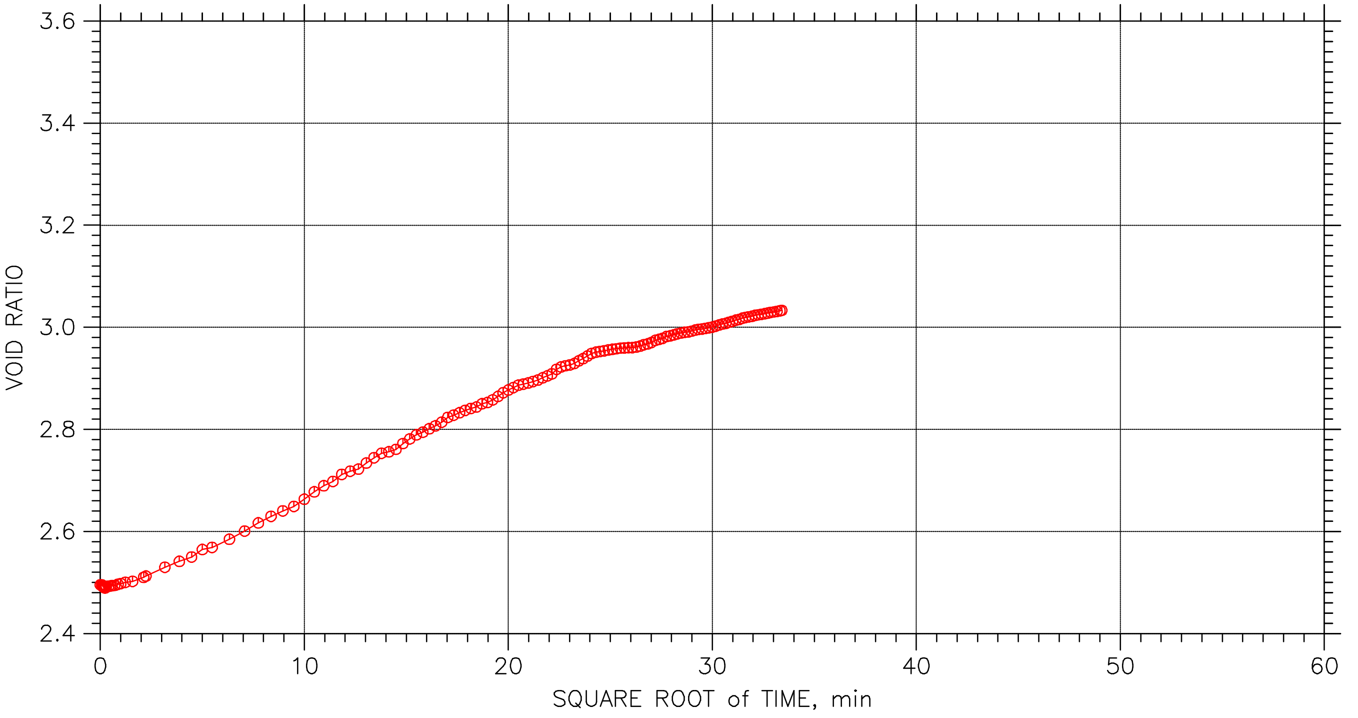
Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

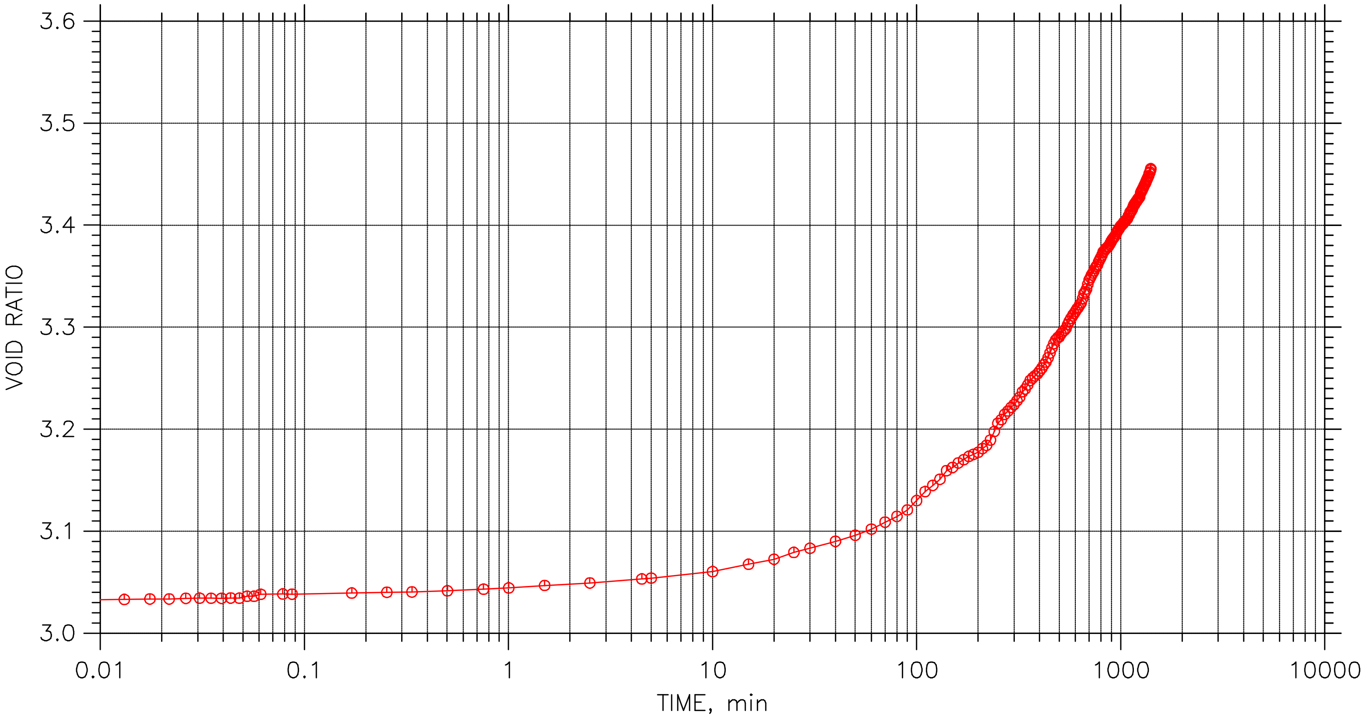
Thu, 12-MAY-2022 09:16:43

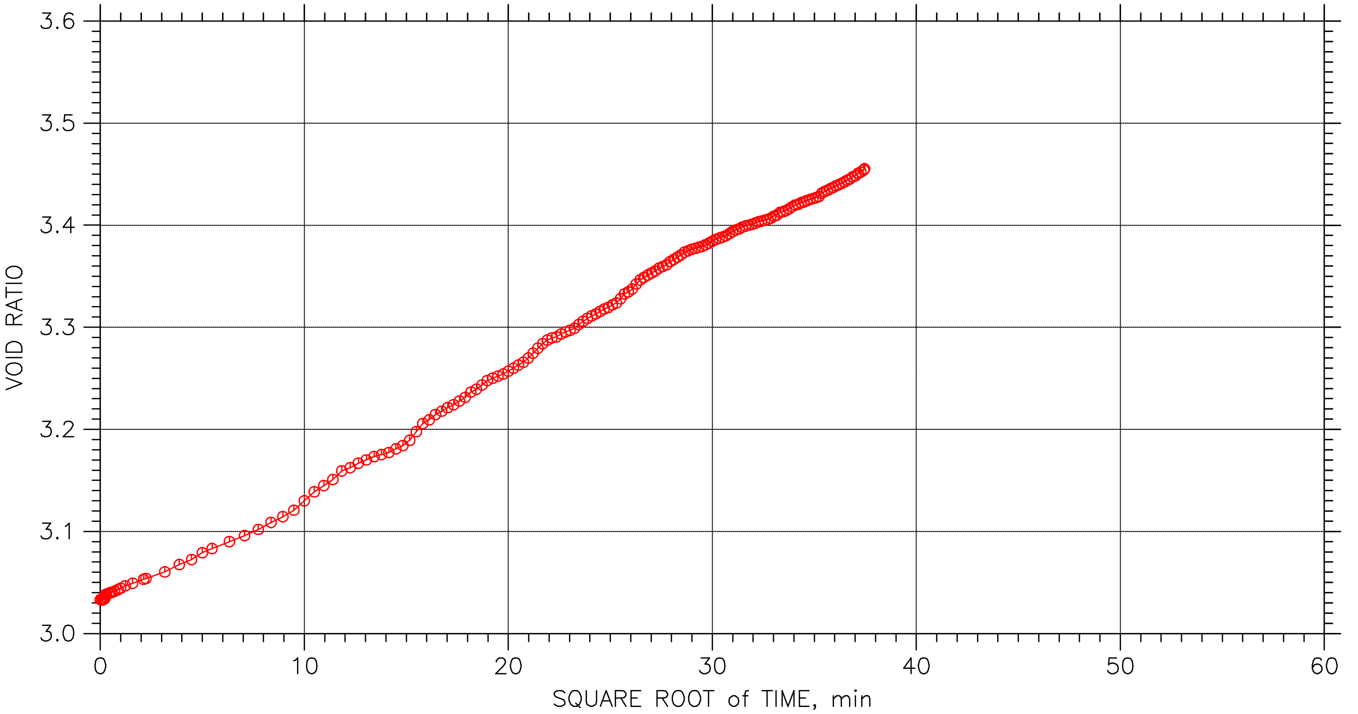
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
Boring No.: BH-10	Tested By: CZ	Checked By: MEK
Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

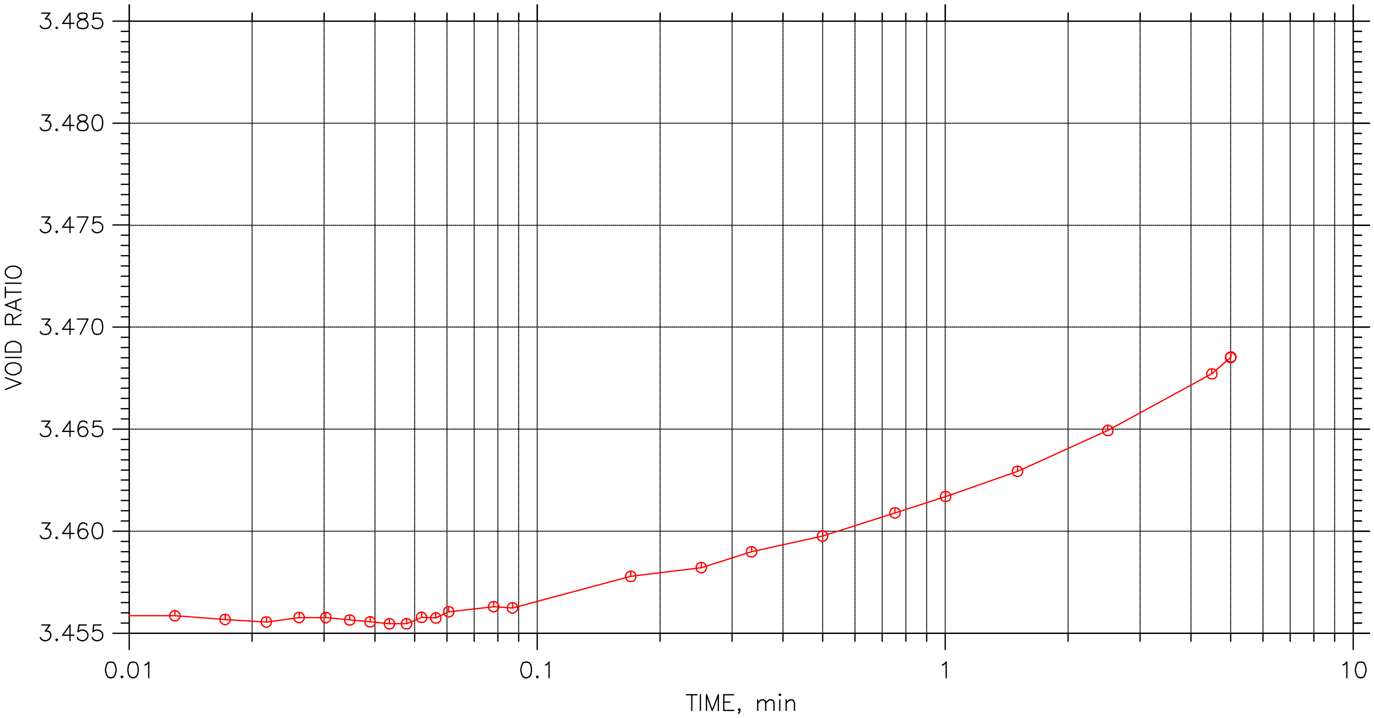
Thu, 12-MAY-2022 09:16:45

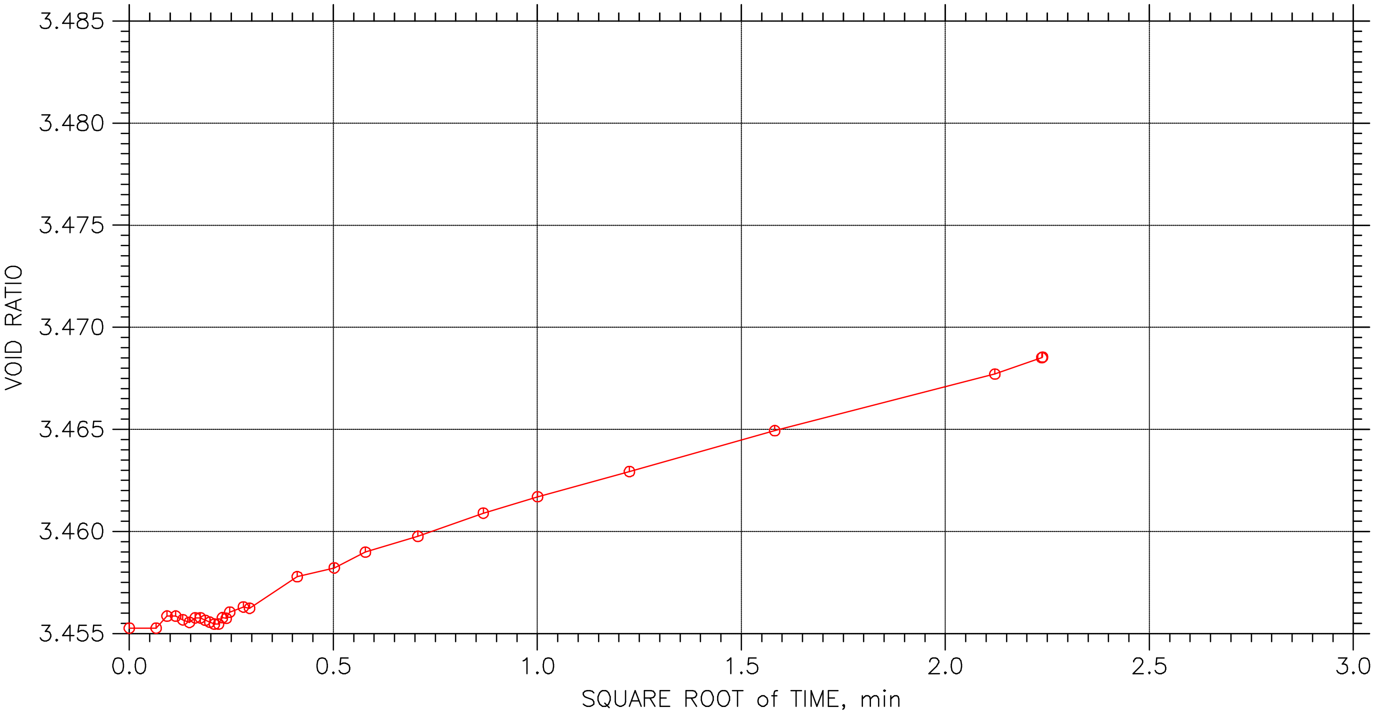
Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf





ATL Alaska Testlab Reviewed by	Project: FedEx BOG	Location: Anchorage, AK	Project No.: 220484
	Boring No.: BH-10	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 2	Test Date: 5/4/2022	Test No.: 2
	Depth: 6.0-7.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

Thu, 12-MAY-2022 09:16:47

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

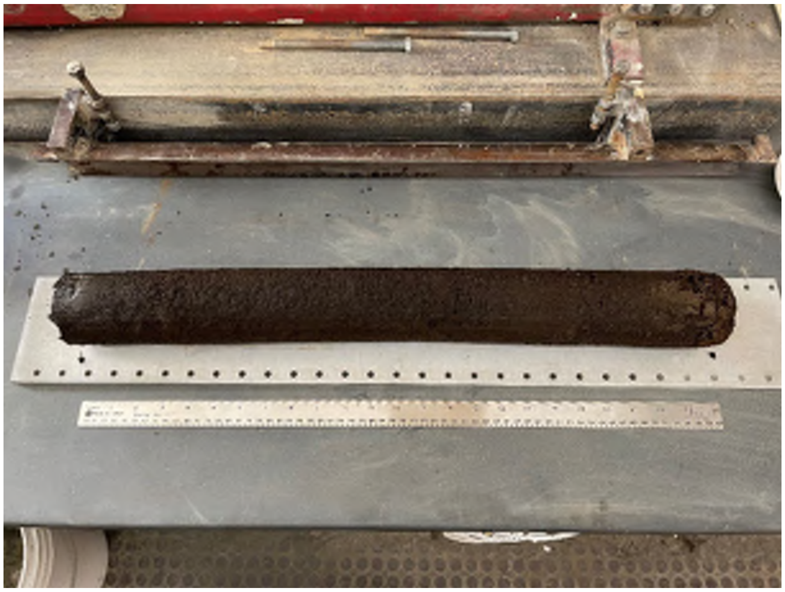
Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

73138.00

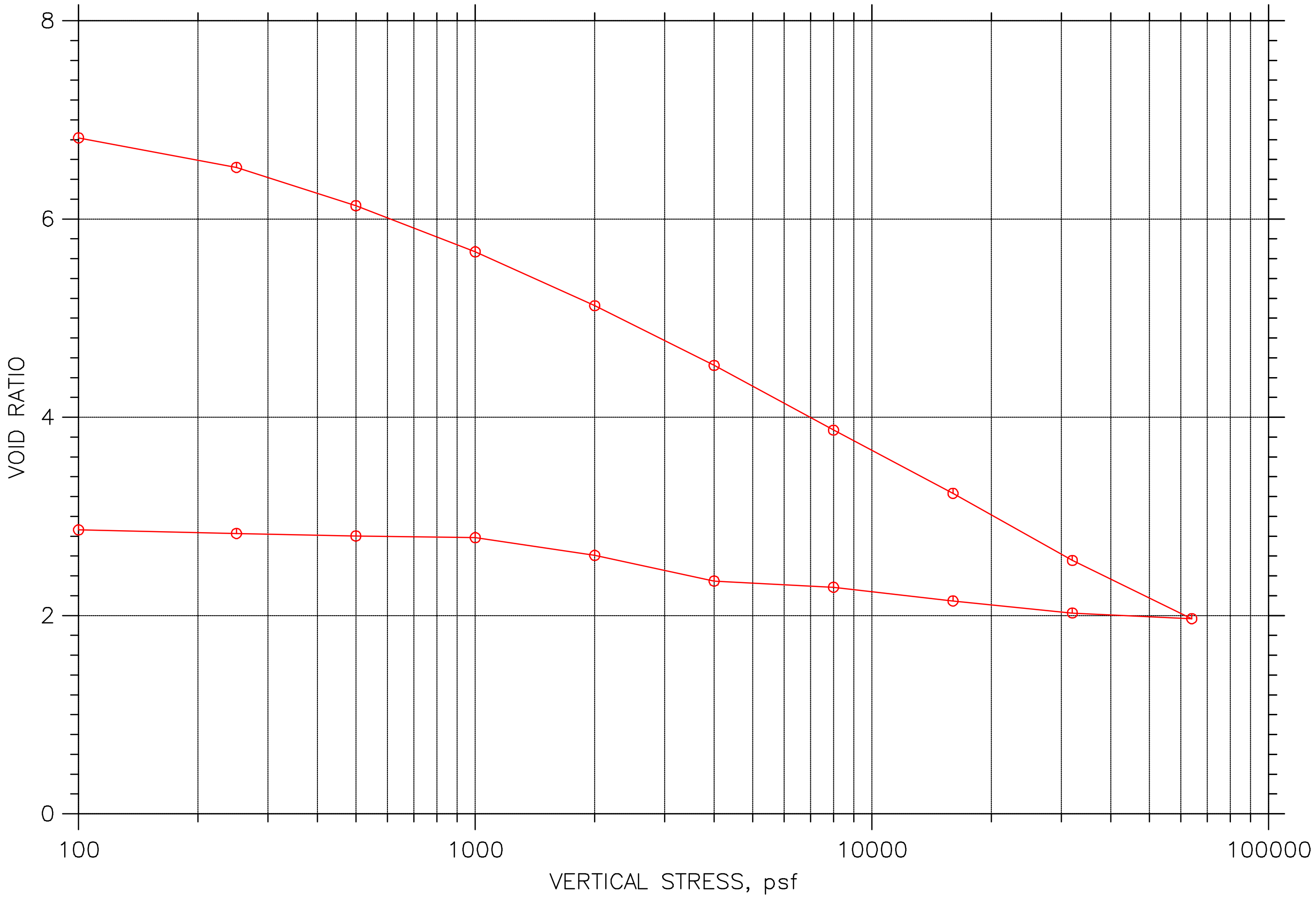
Date Received:	March 21, 2022
Sample #:	22-0263-S03
Material:	BH-10 Sa2

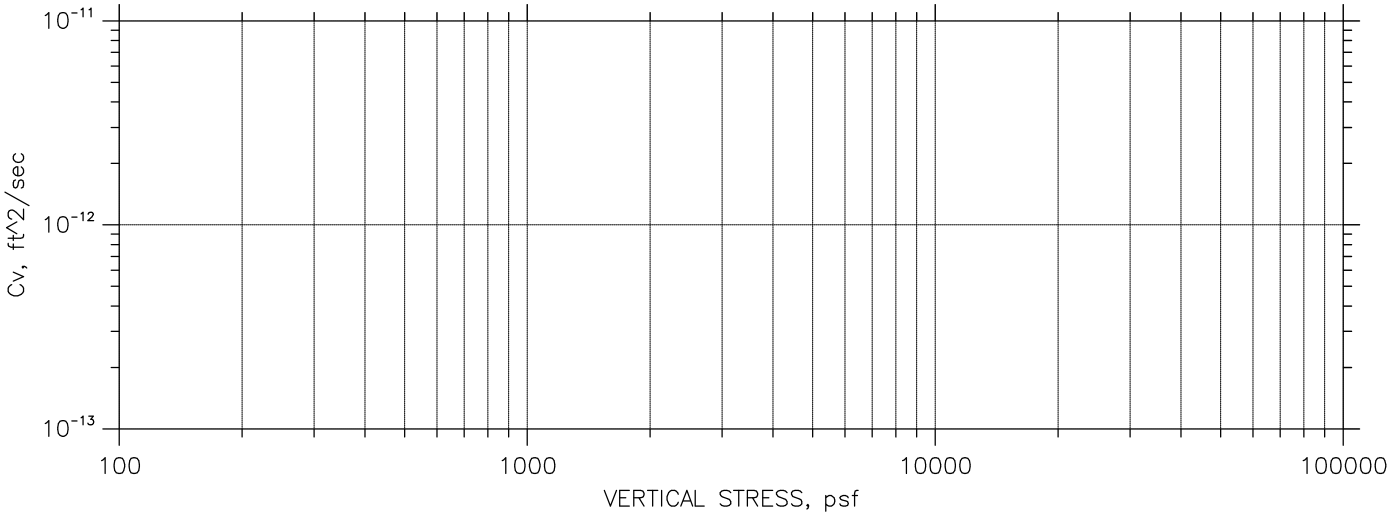
Sample after extraction



Consolidation Test

SUMMARY REPORT



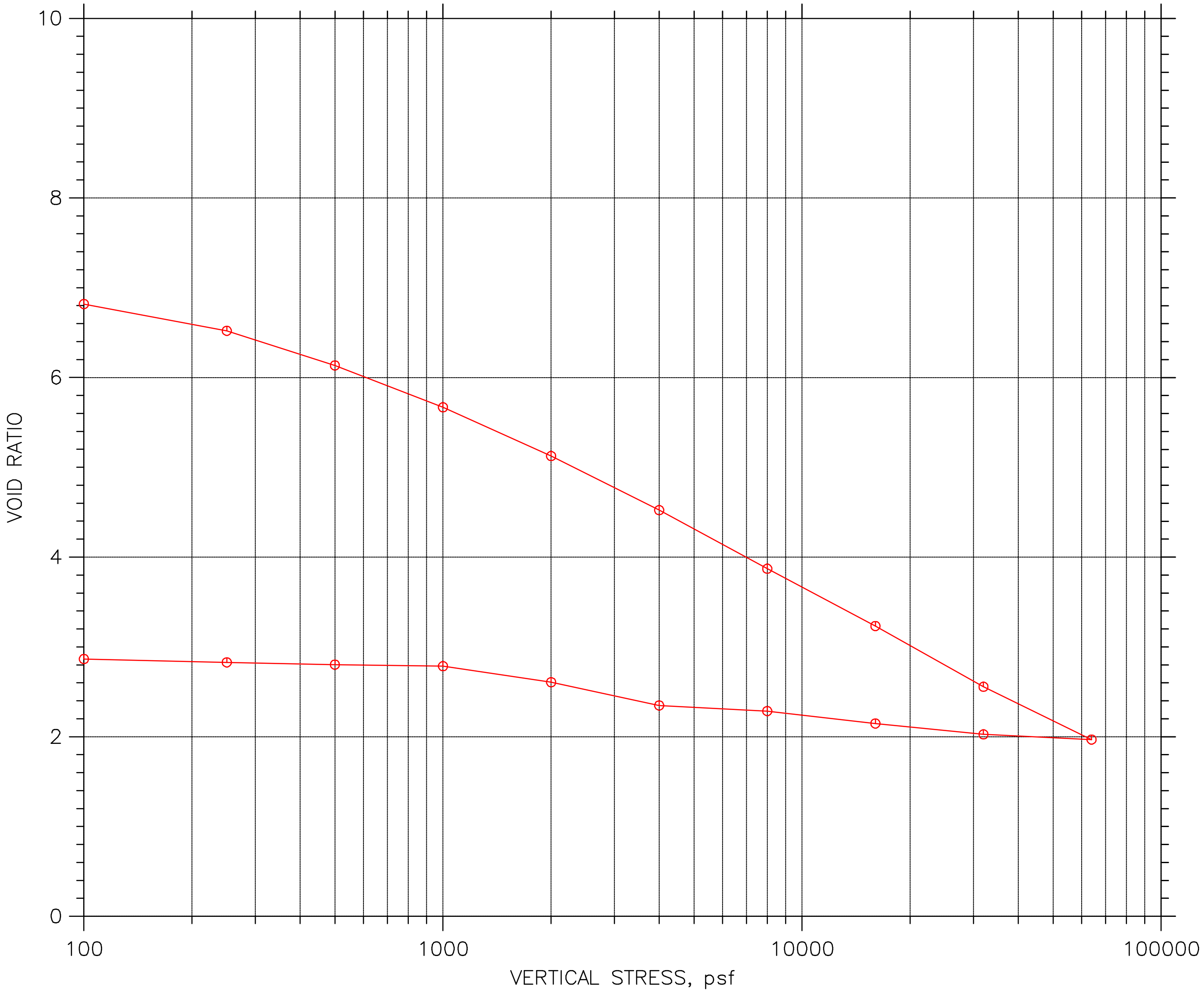


ATL Alaska Testlab	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

Thu, 02-JUN-2022 11:26:32

Consolidation Test

SUMMARY REPORT



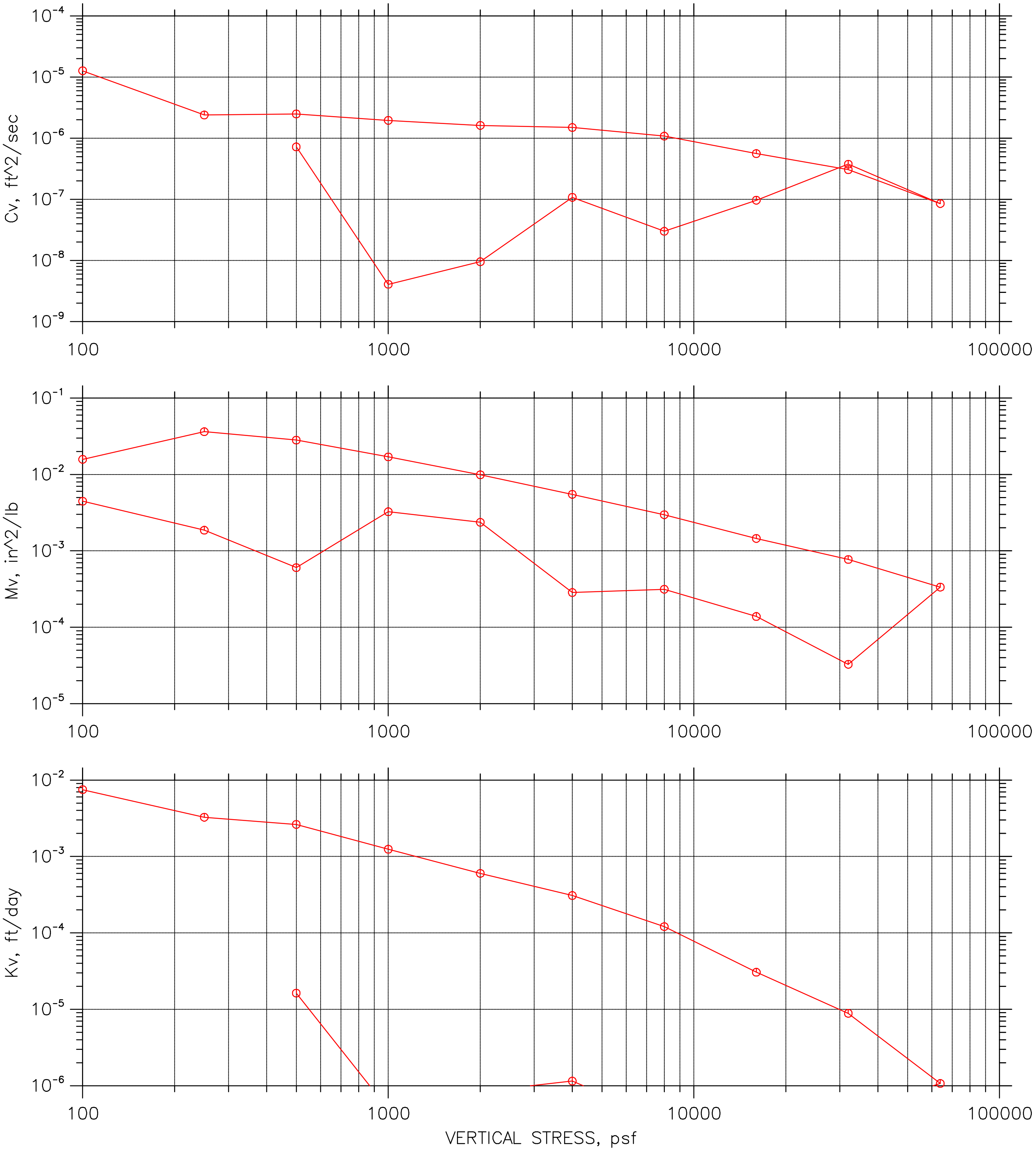
					Before Test	After Test
Overburden Pressure: 0 psf				Water Content, %	264.10	115.43
Preconsolidation Pressure: 0 psf				Dry Unit Weight, pcf	18.164	37.156
Compression Index: 0				Saturation, %	87.97	92.69
Diameter: 2.497 in		Height: 1.001 in		Void Ratio	6.90	2.86
LL: ---	PL: ---	PI: ---	GS: 2.30	Back Pressure, psf	0	0

Alaska Testlab Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

Thu, 02-JUN-2022 11:26:33

Consolidation Test

ROOT of TIME COEFFICIENTS



ATL
Alaska Testlab

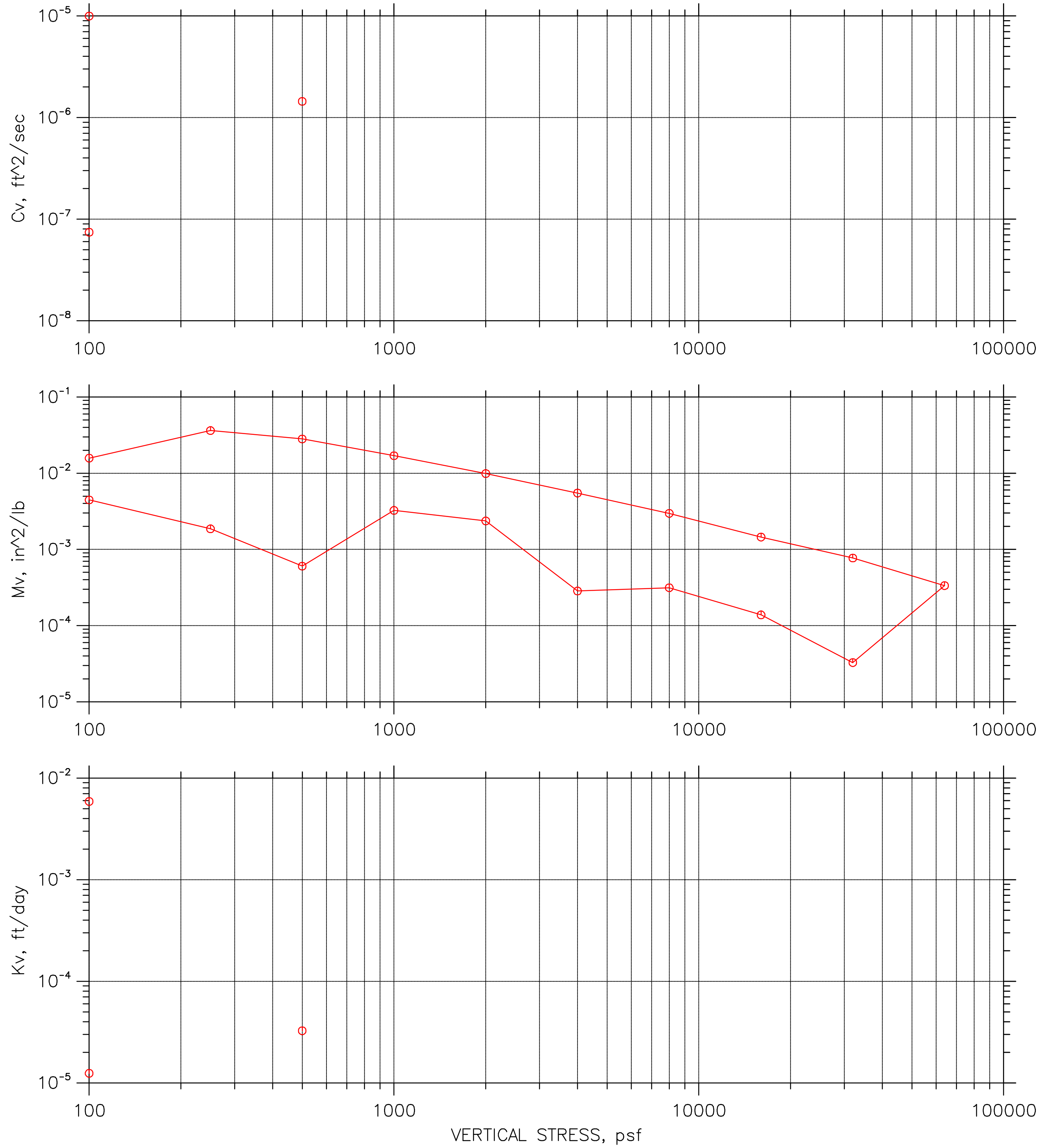
Reviewed by

Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		
Displacement at End of Primary		

Thu, 02-JUN-2022 11:26:34

Consolidation Test

LOG of TIME COEFFICIENTS



Alaska Testlab Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		
	Displacement at End of Primary		

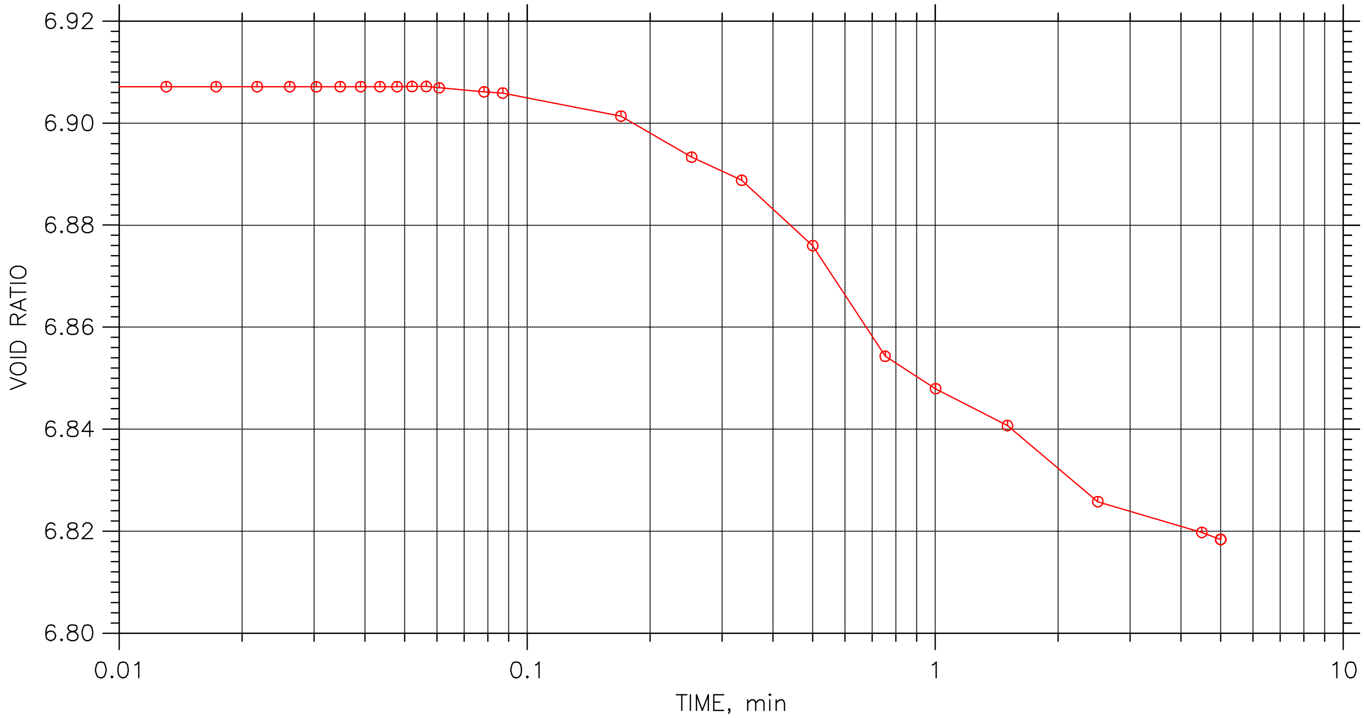
Thu, 02-JUN-2022 11:26:35

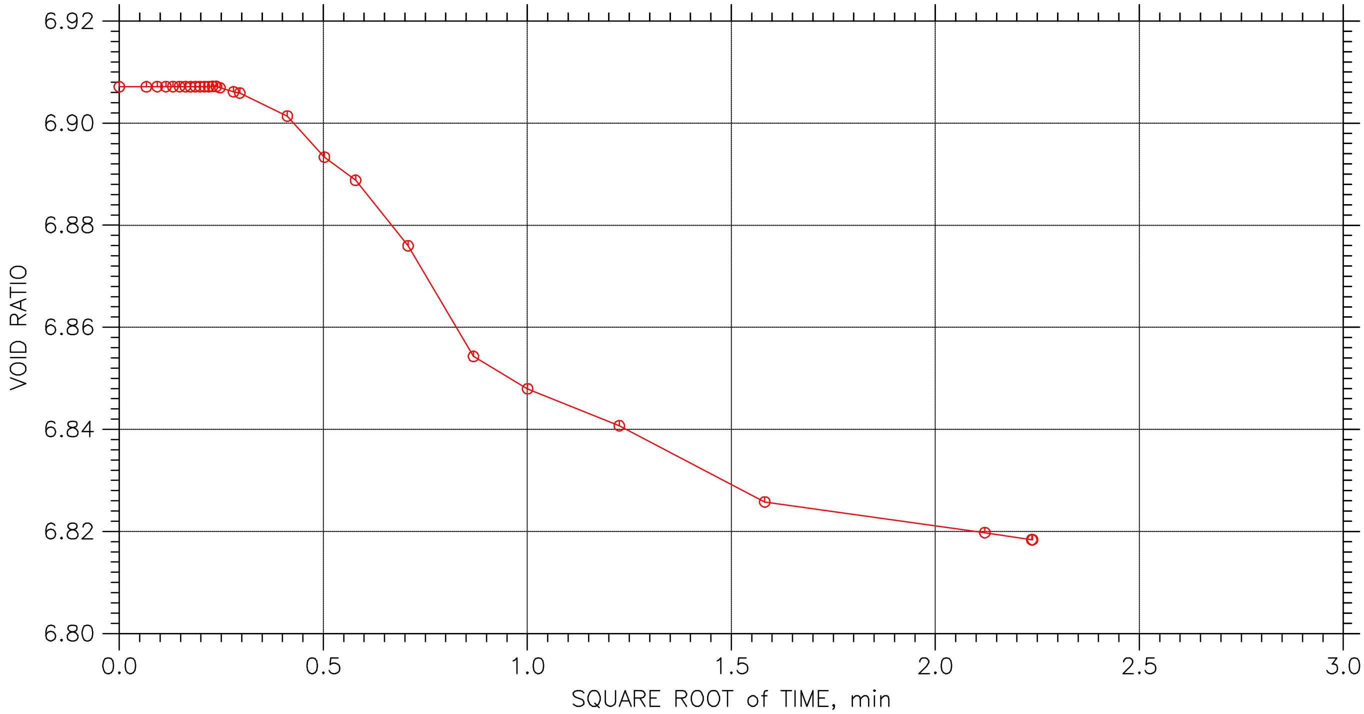
Consolidation Test

TIME CURVES

Constant Load Step 1 of 19

Stress: 100 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL
Alaska Testlab

Reviewed by

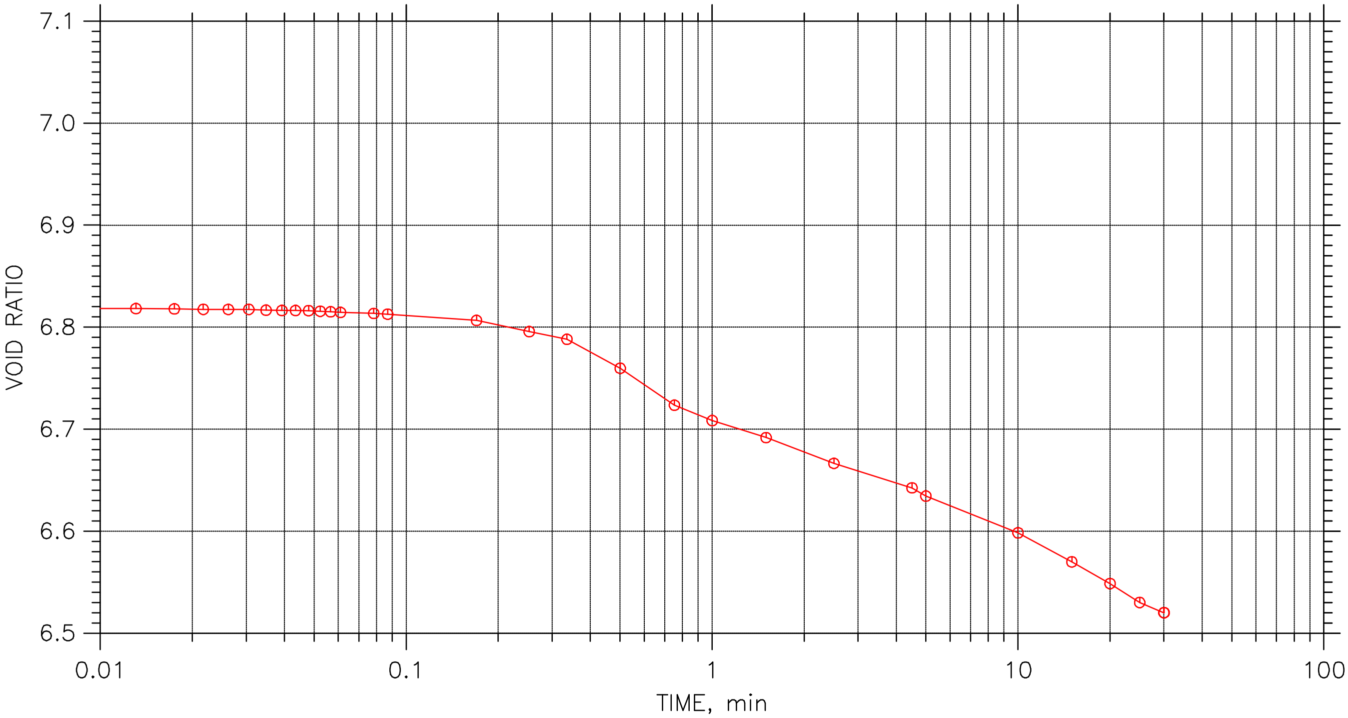
Thu, 02-JUN-2022 11:26:36

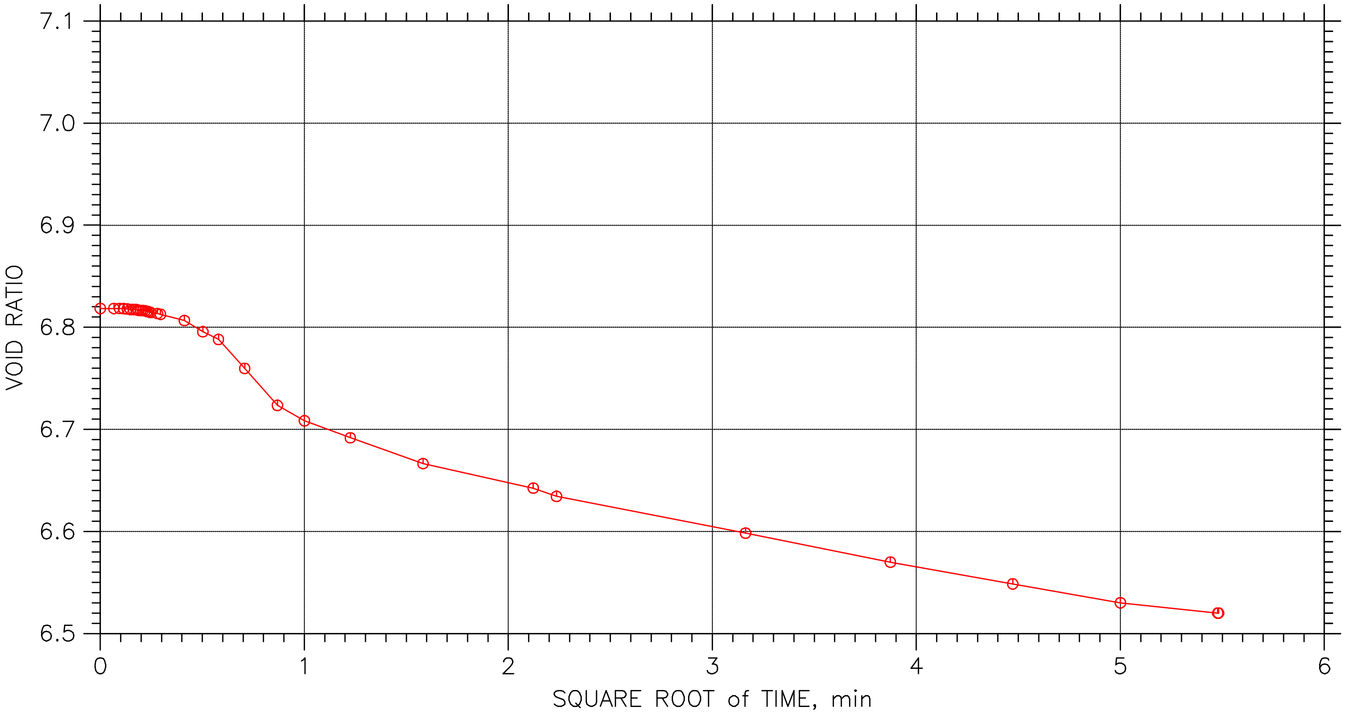
Consolidation Test

TIME CURVES

Constant Load Step 2 of 19

Stress: 250 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

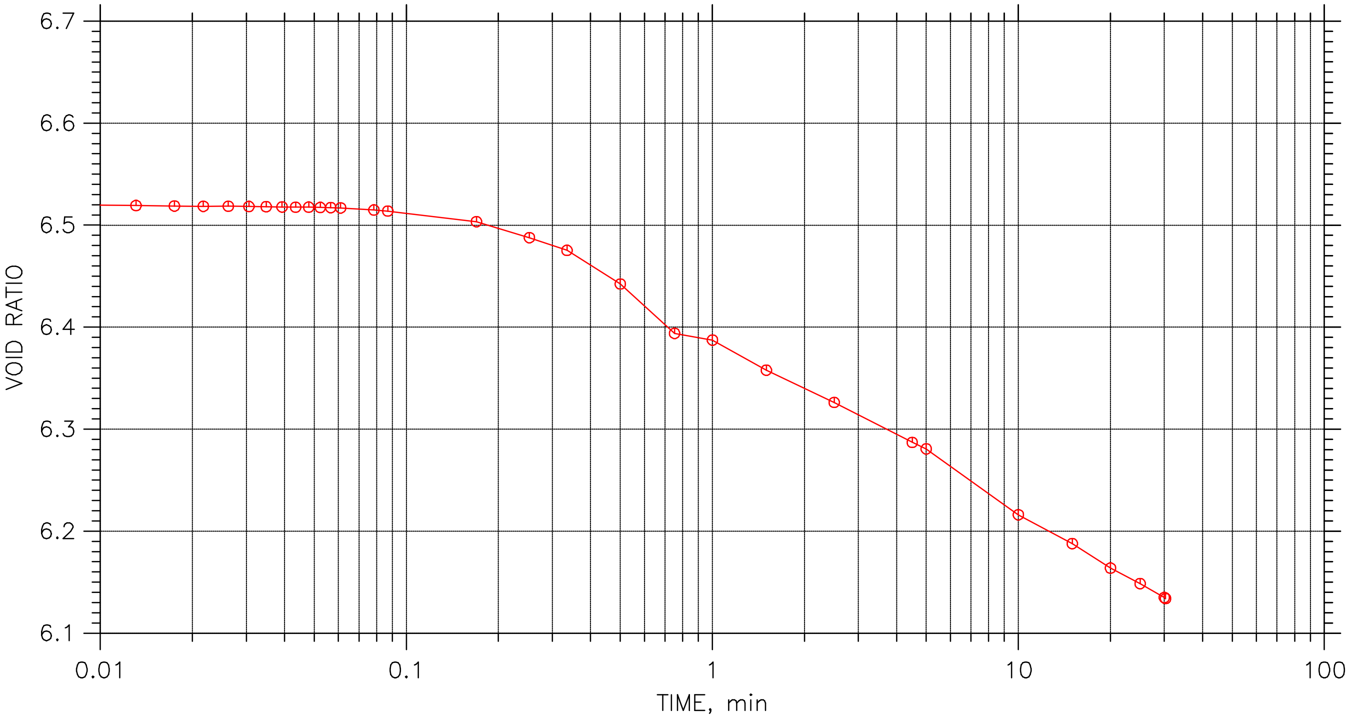
Thu, 02-JUN-2022 11:26:37

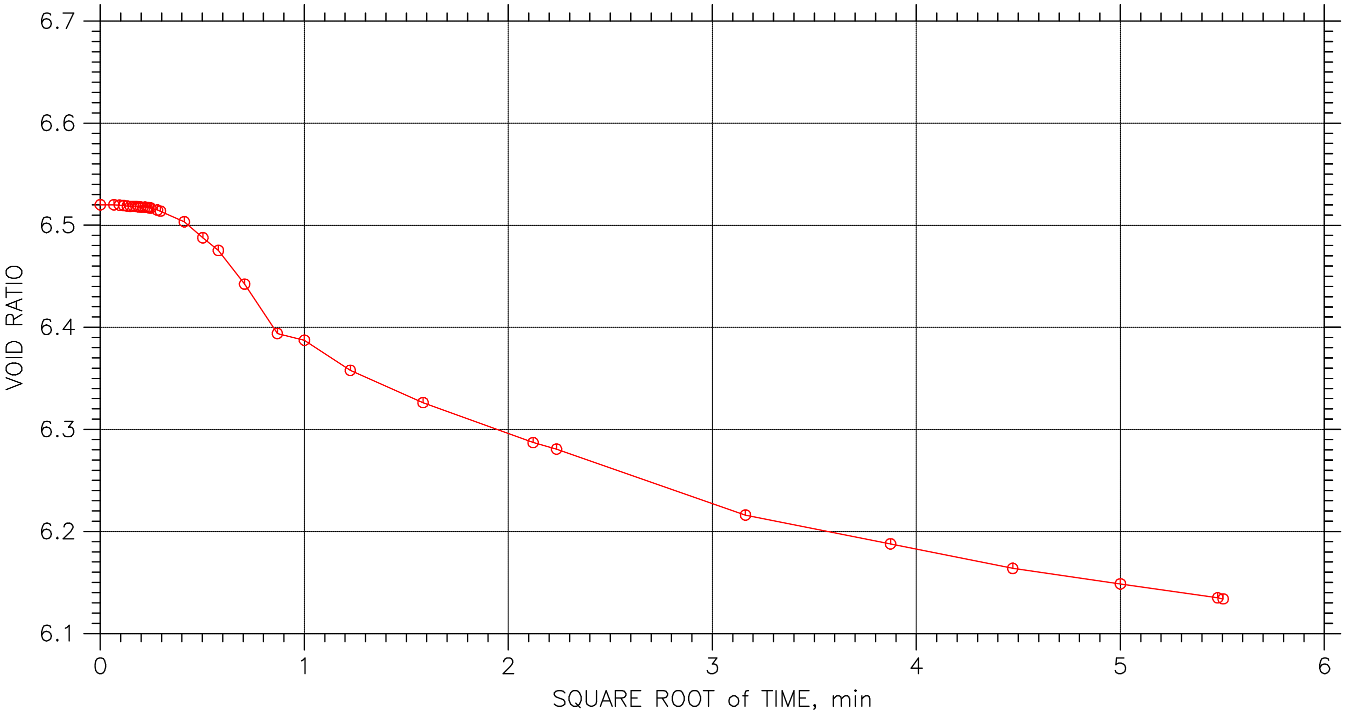
Consolidation Test

TIME CURVES

Constant Load Step 3 of 19

Stress: 500 psf





Alaska Testlab Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

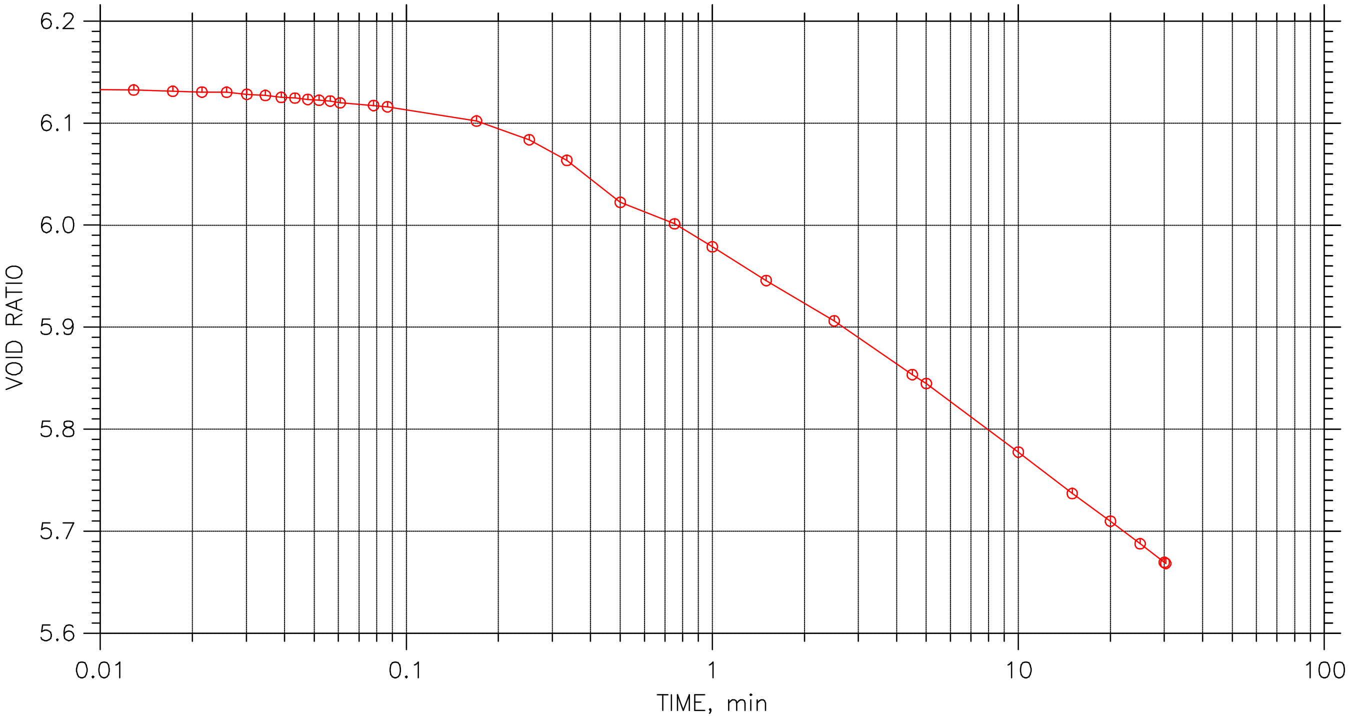
Thu, 02-JUN-2022 11:26:38

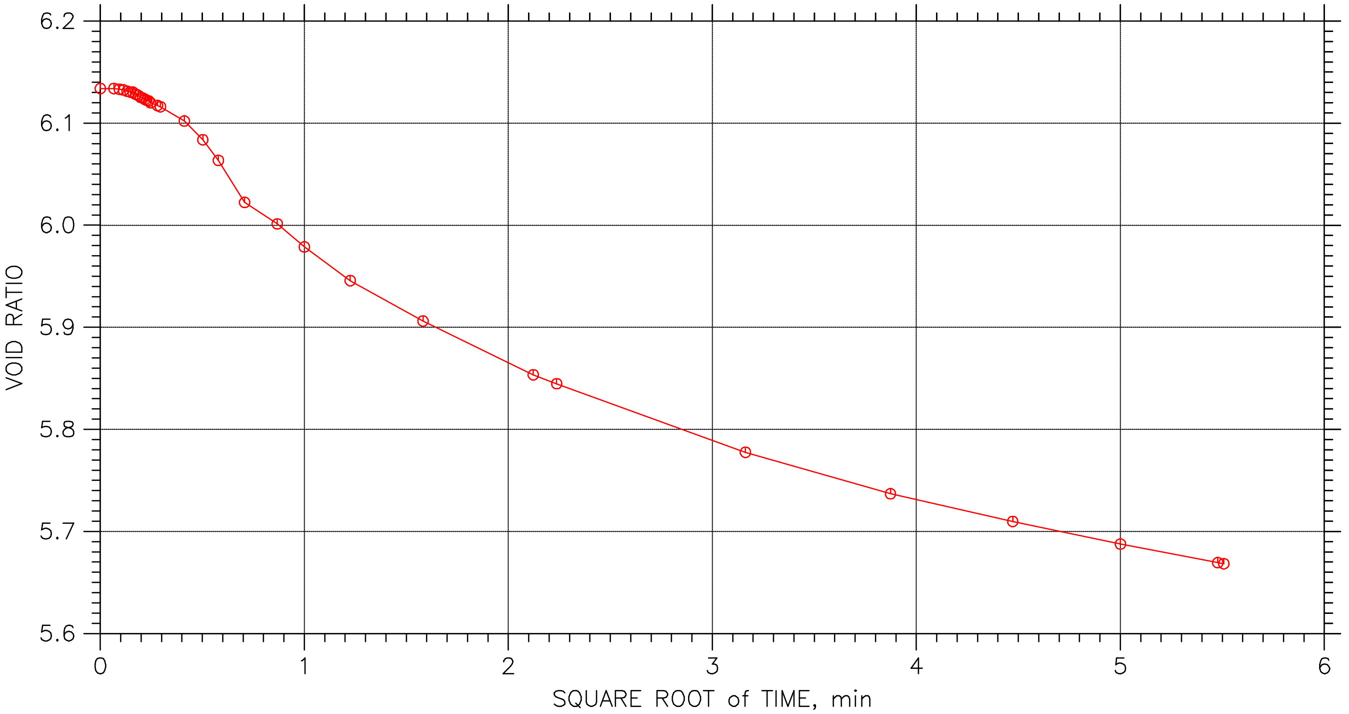
Consolidation Test

TIME CURVES

Constant Load Step 4 of 19

Stress: 1000 psf





Alaska Testlab Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

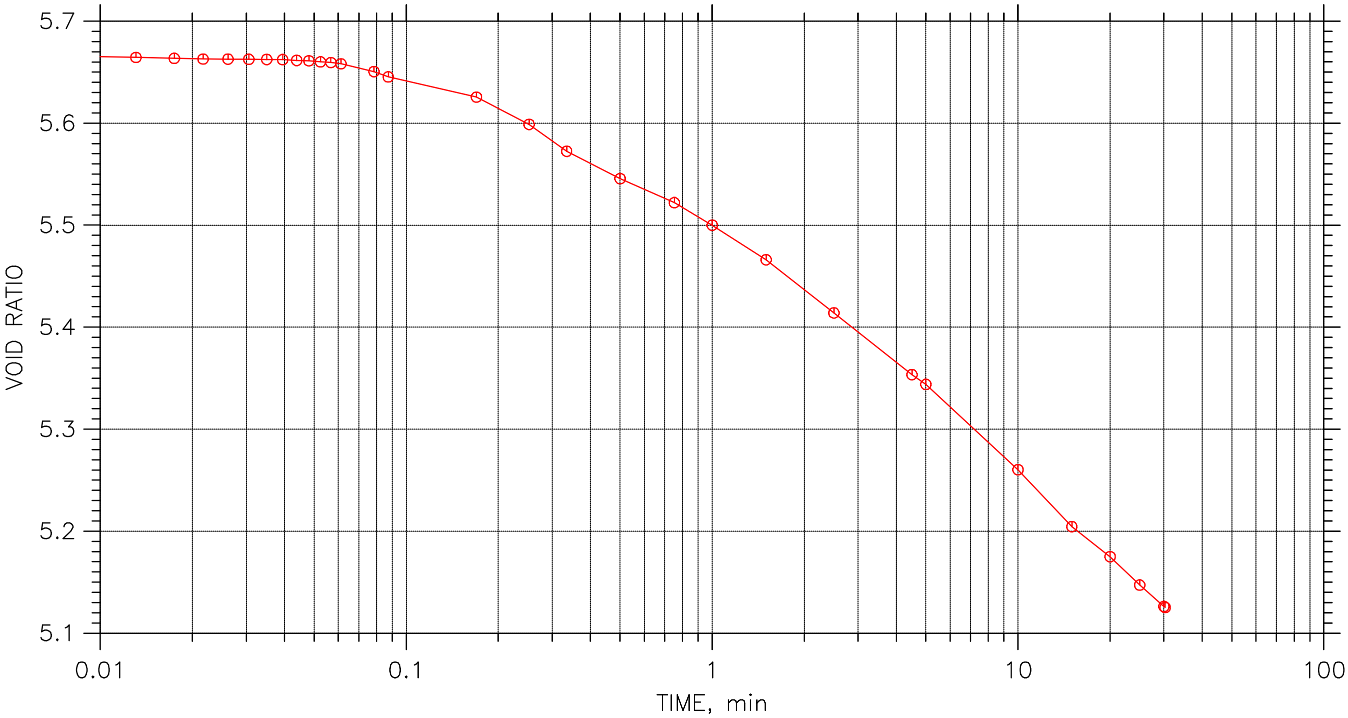
Thu, 02-JUN-2022 11:26:39

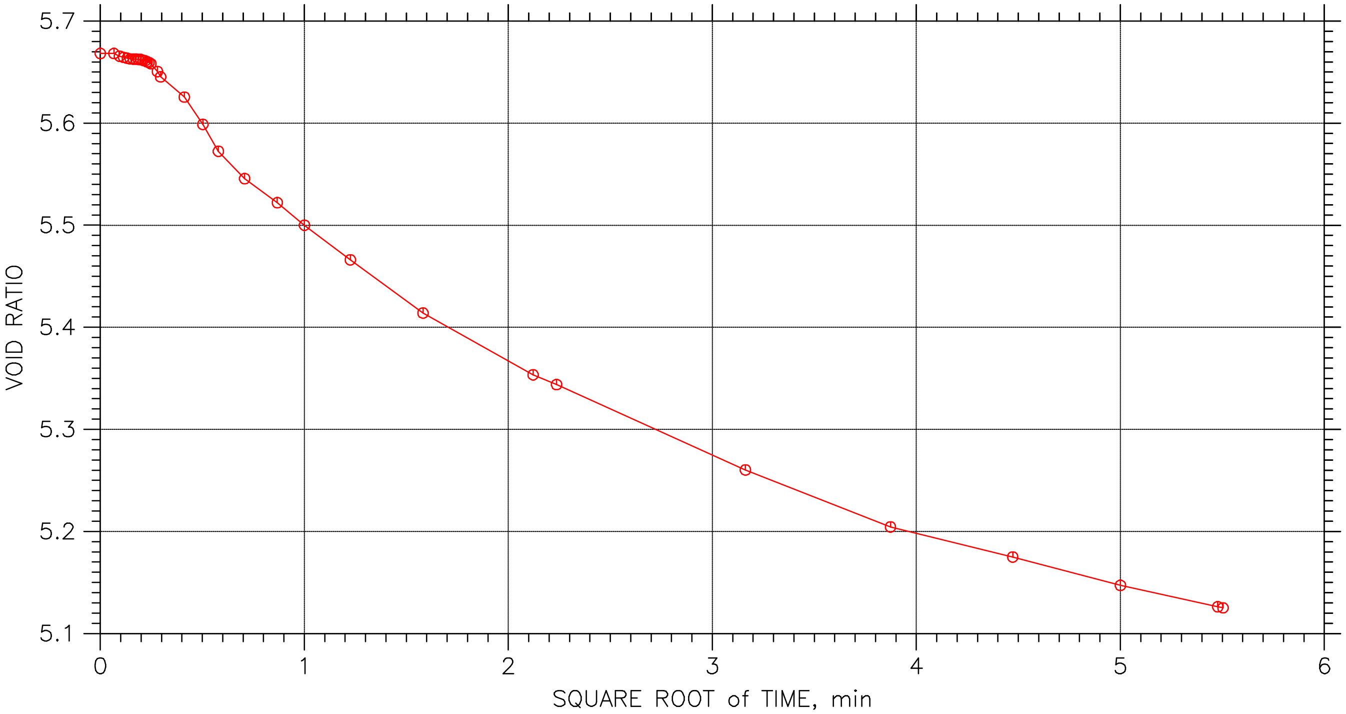
Consolidation Test

TIME CURVES

Constant Load Step 5 of 19

Stress: 2000 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL
Alaska Testlab

Reviewed by

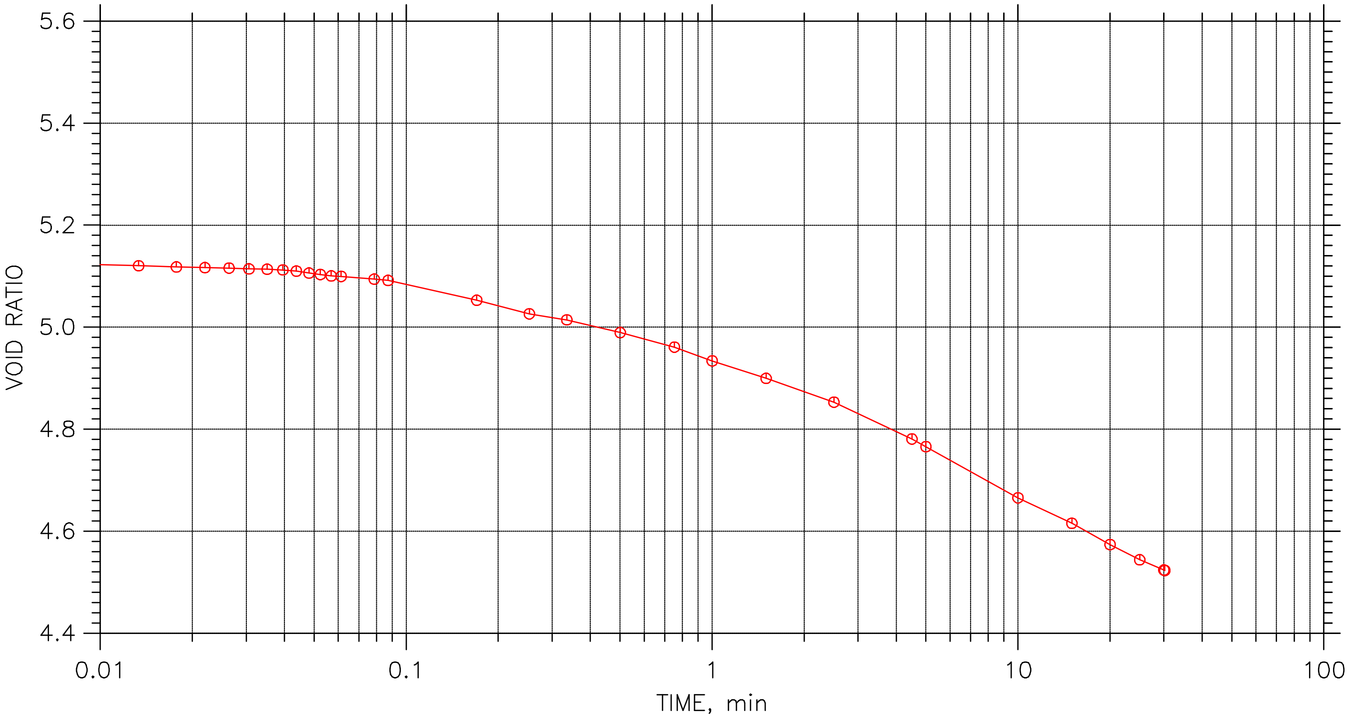
Thu, 02-JUN-2022 11:26:40

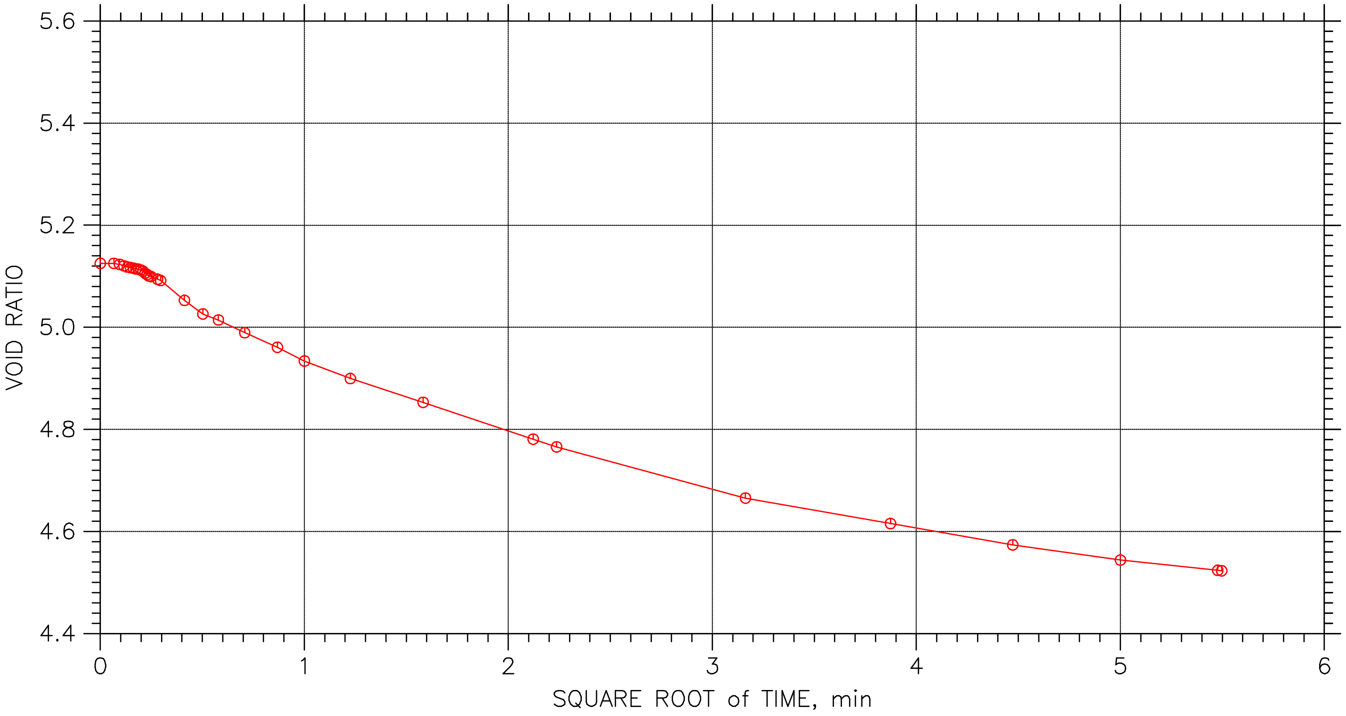
Consolidation Test

TIME CURVES

Constant Load Step 6 of 19

Stress: 4000 psf





Alaska Testlab Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

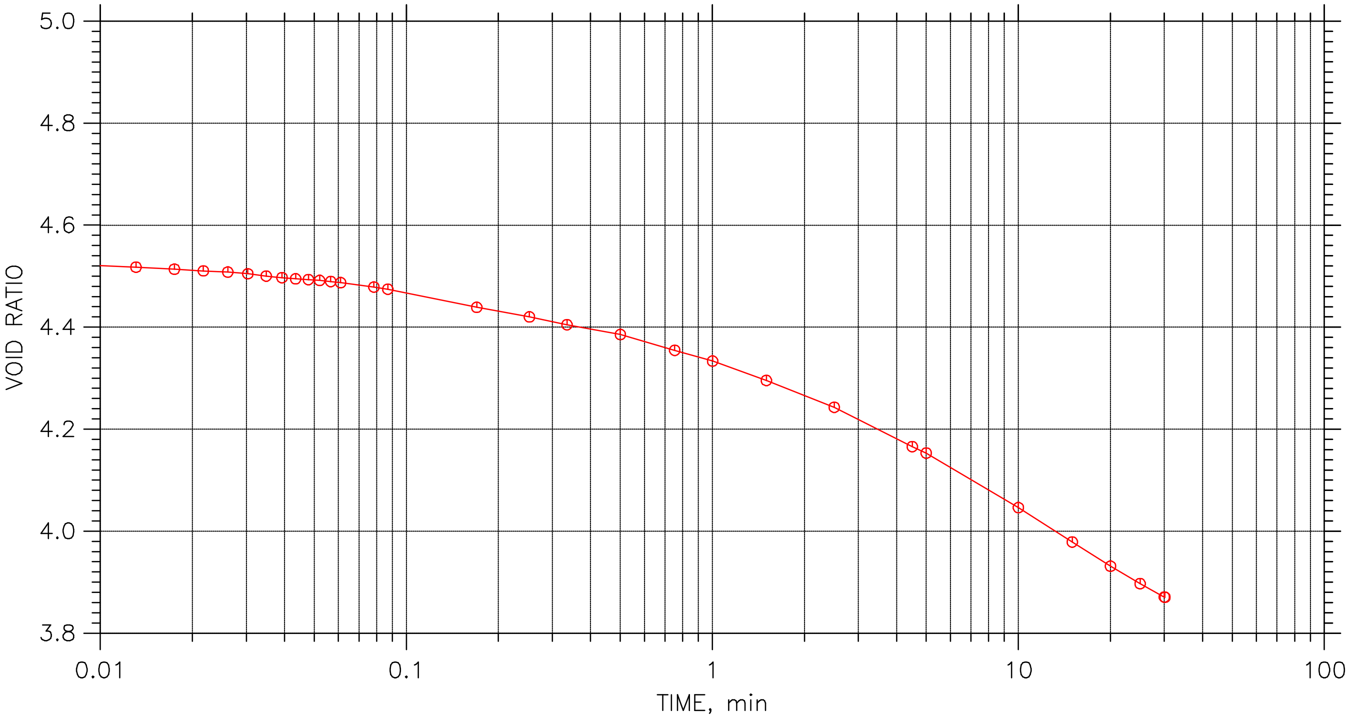
Thu, 02-JUN-2022 11:26:41

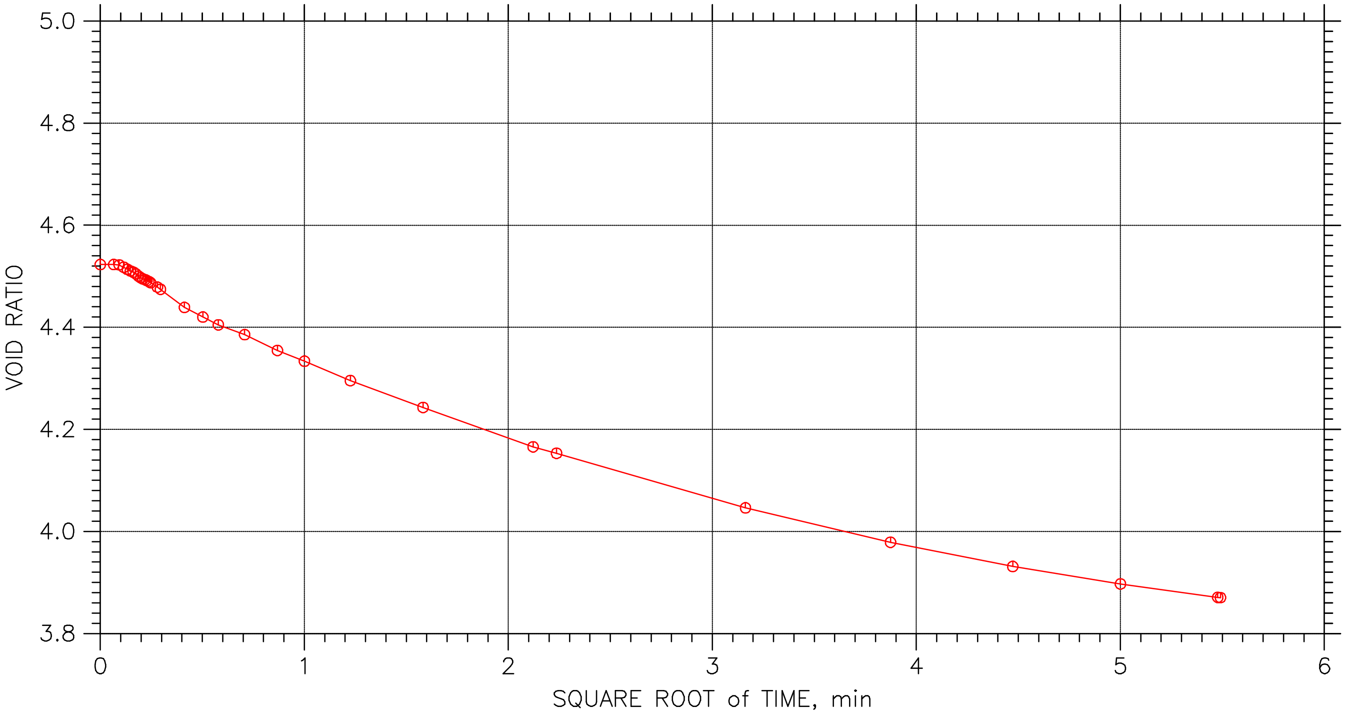
Consolidation Test

TIME CURVES

Constant Load Step 7 of 19

Stress: 8000 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:

Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)

Remarks: ASTM D2487: PT Visual Classification: Peat

Alaska Testlab

Reviewed by

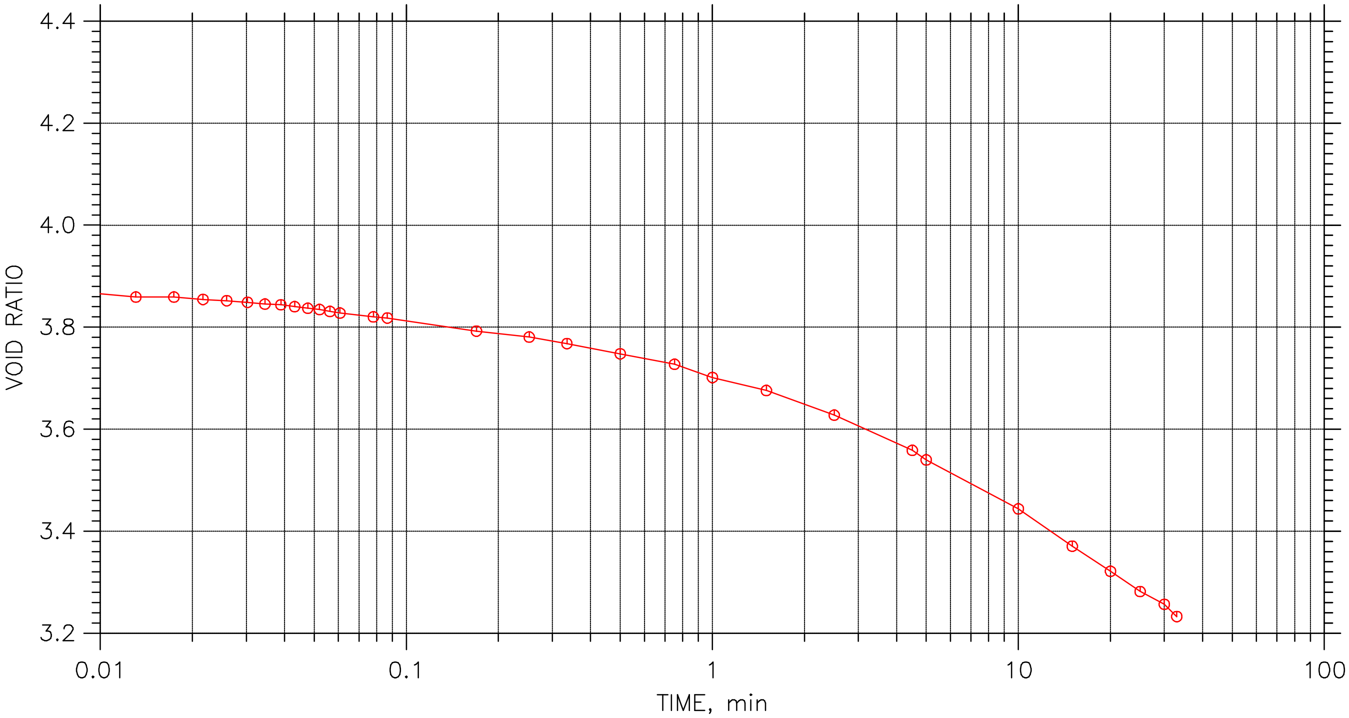
Thu, 02-JUN-2022 11:26:42

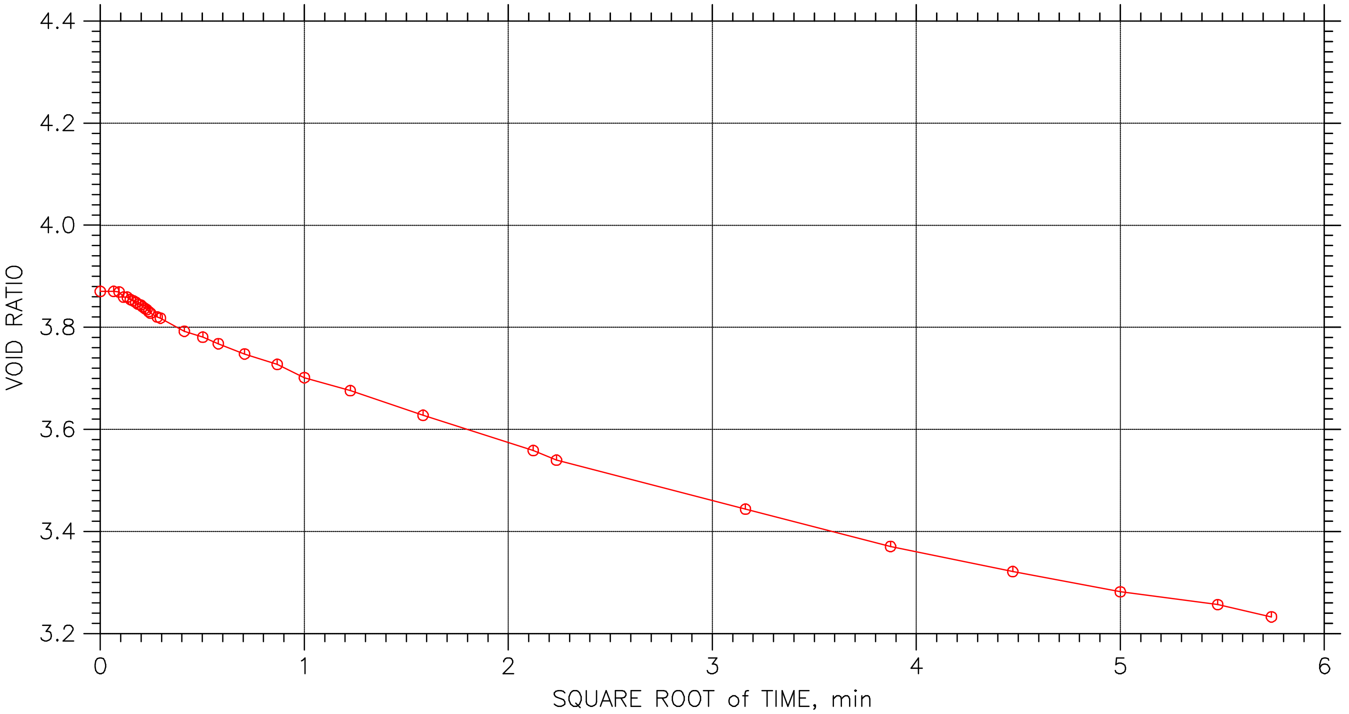
Consolidation Test

TIME CURVES

Constant Load Step 8 of 19

Stress: 16000 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

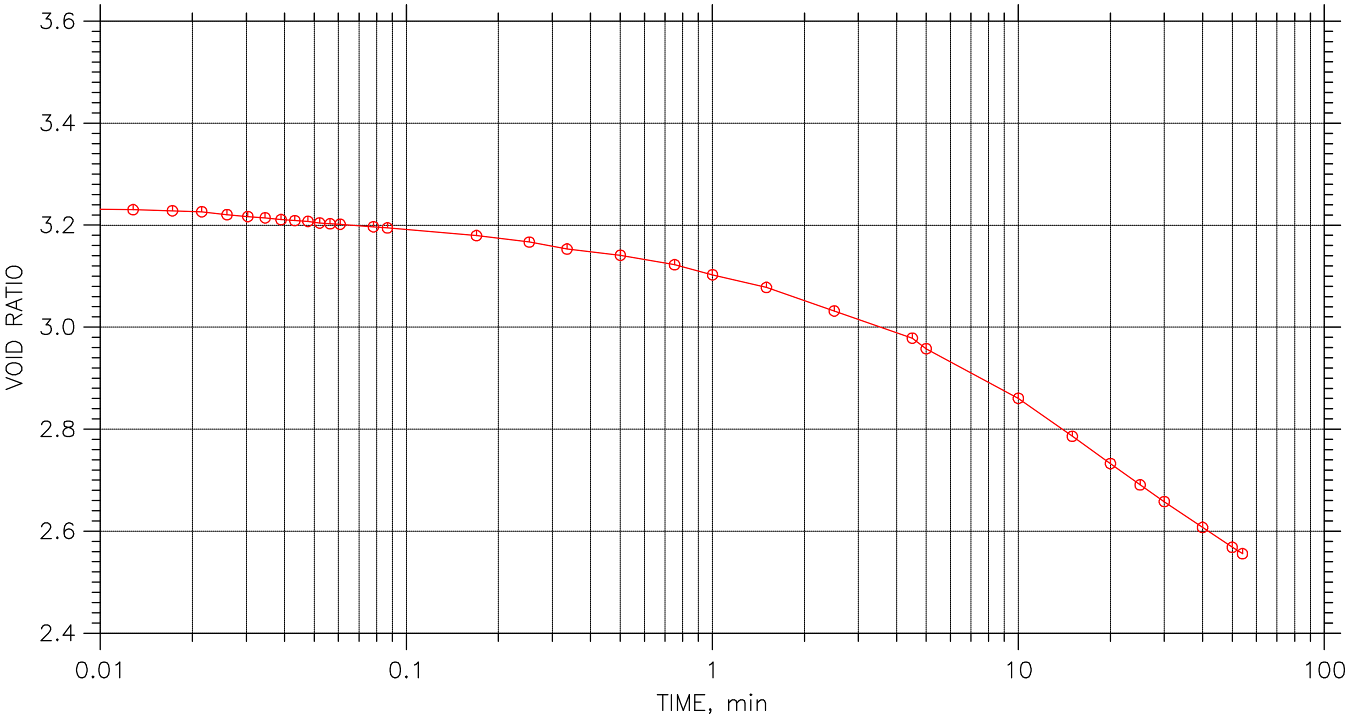
Reviewed by

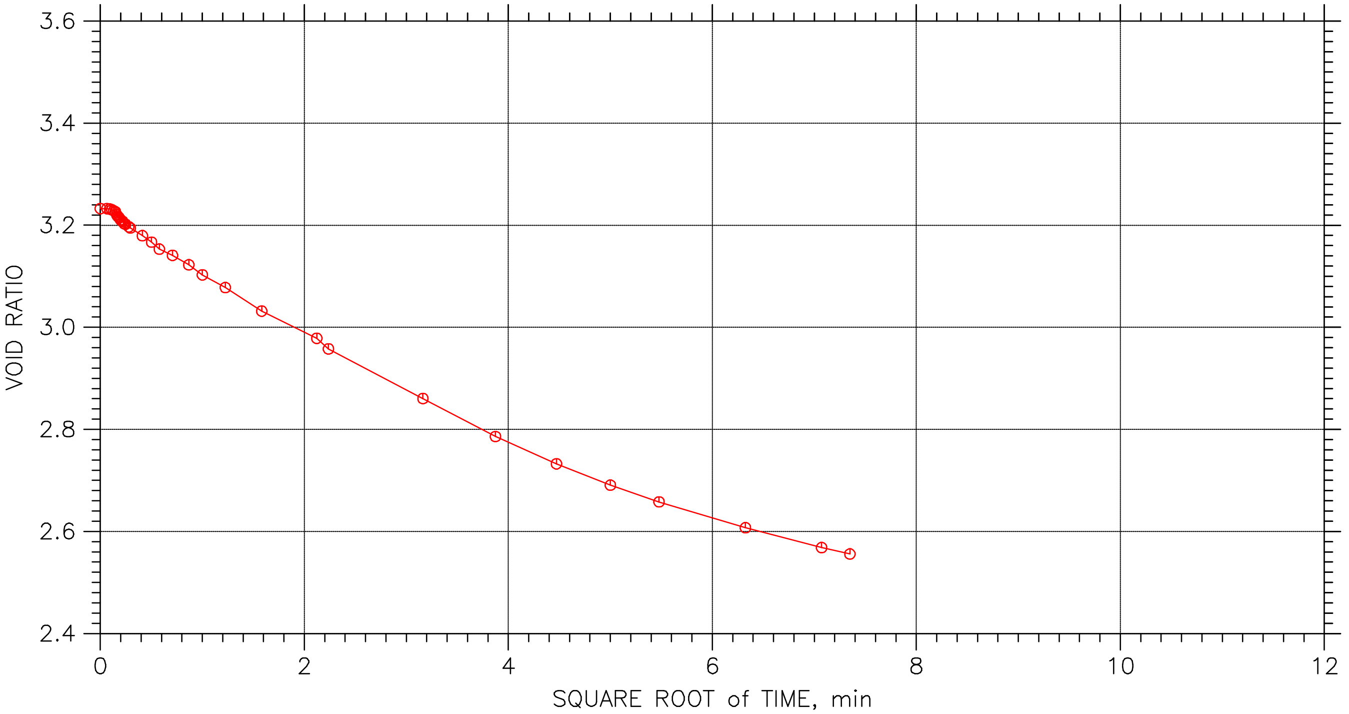
Consolidation Test

TIME CURVES

Constant Load Step 9 of 19

Stress: 32000 psf





Alaska Testlab Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

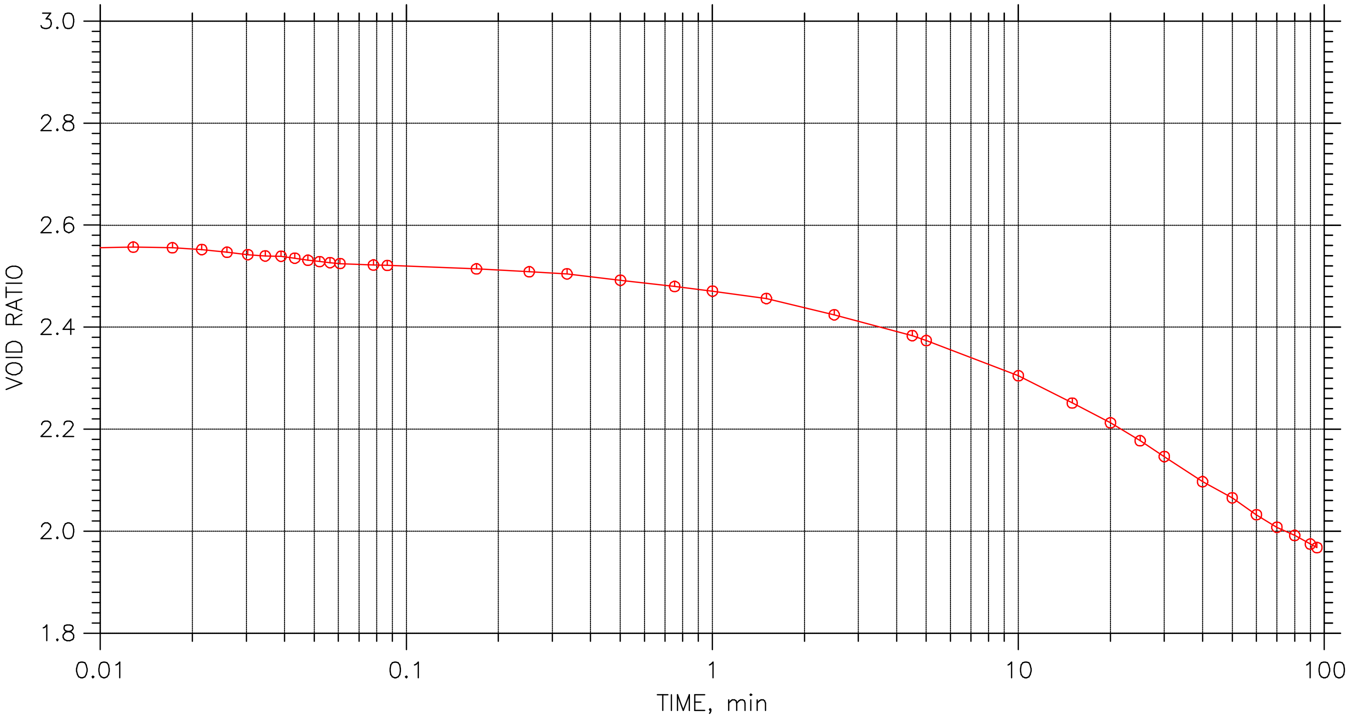
Thu, 02-JUN-2022 11:26:44

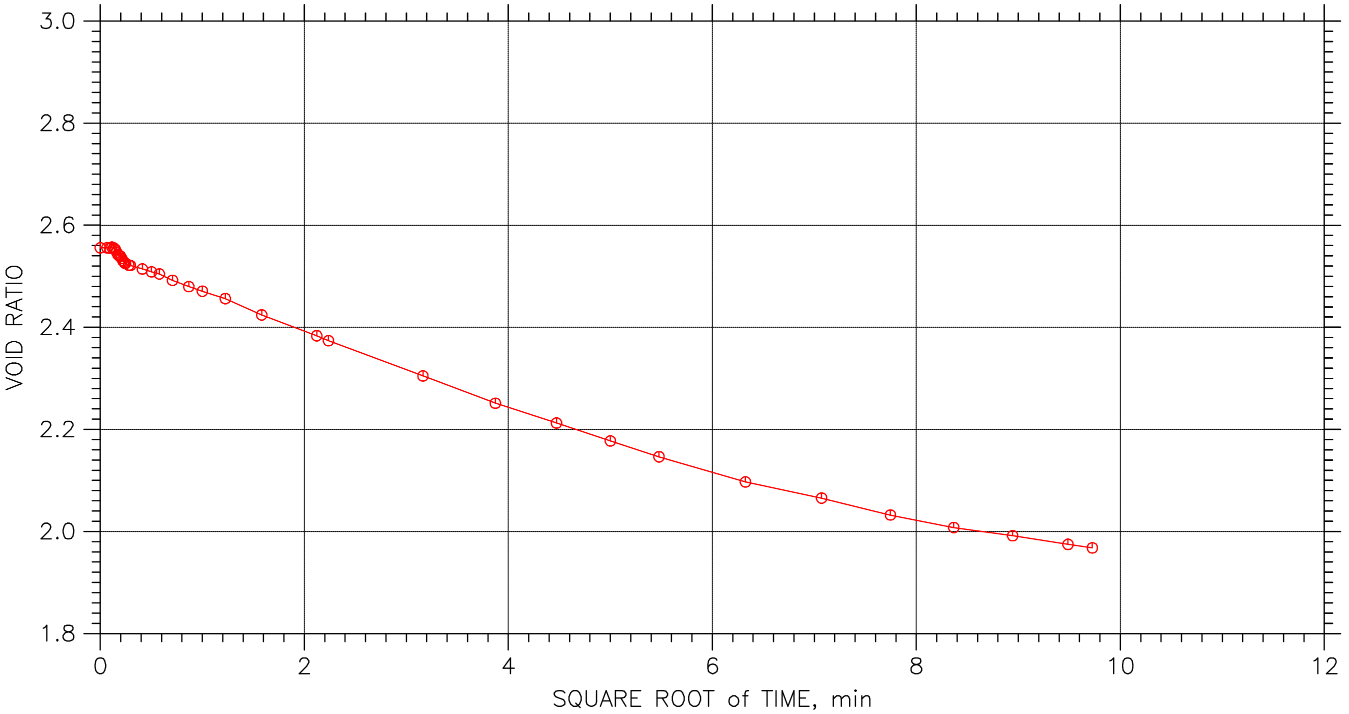
Consolidation Test

TIME CURVES

Constant Load Step 10 of 19

Stress: 64000 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Reviewed by

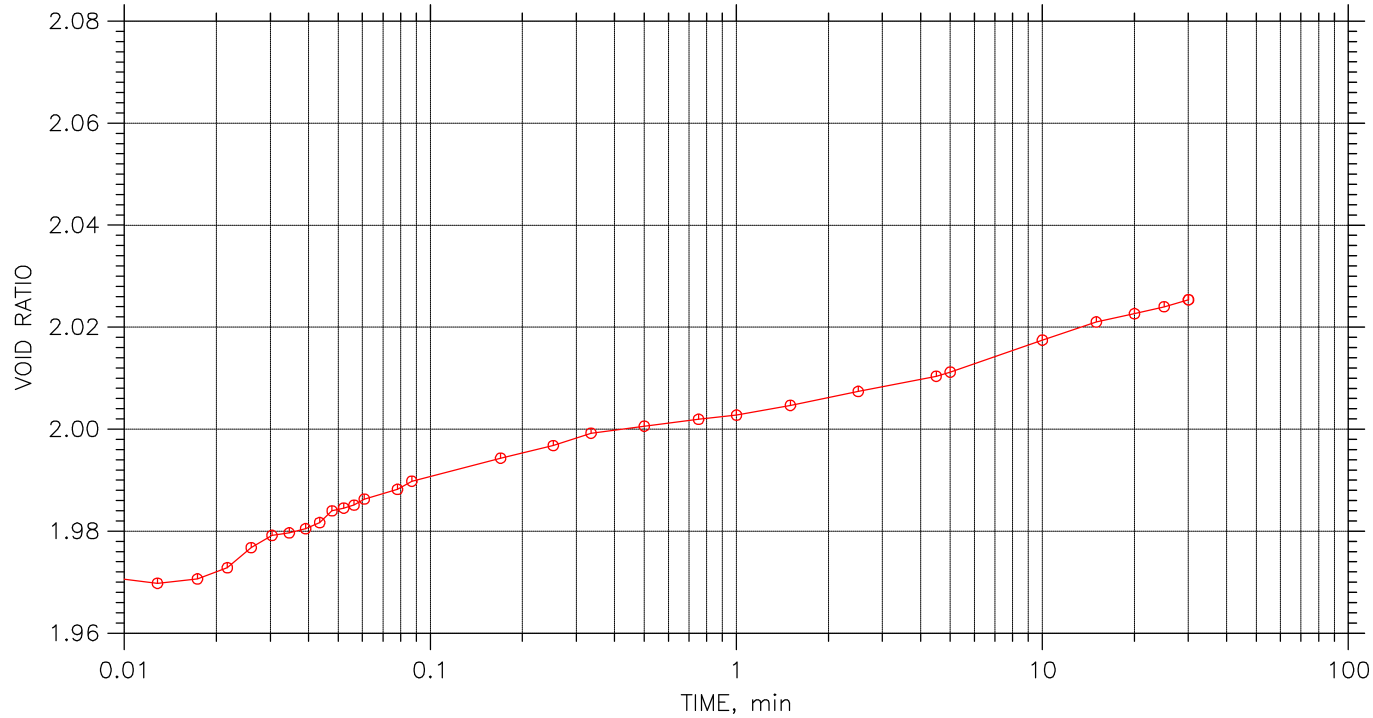
Thu, 02-JUN-2022 11:26:45

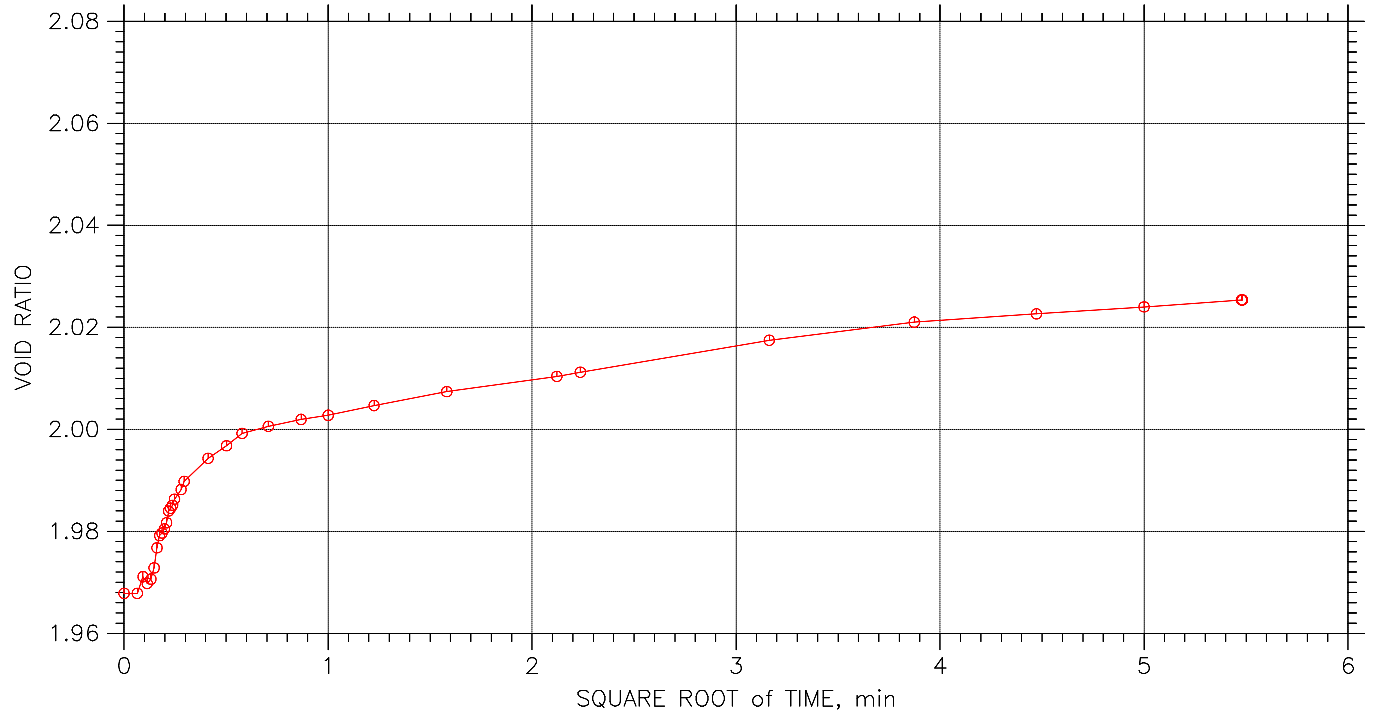
Consolidation Test

TIME CURVES

Constant Load Step 11 of 19

Stress: 32000 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

ATL Alaska Testlab

Reviewed by

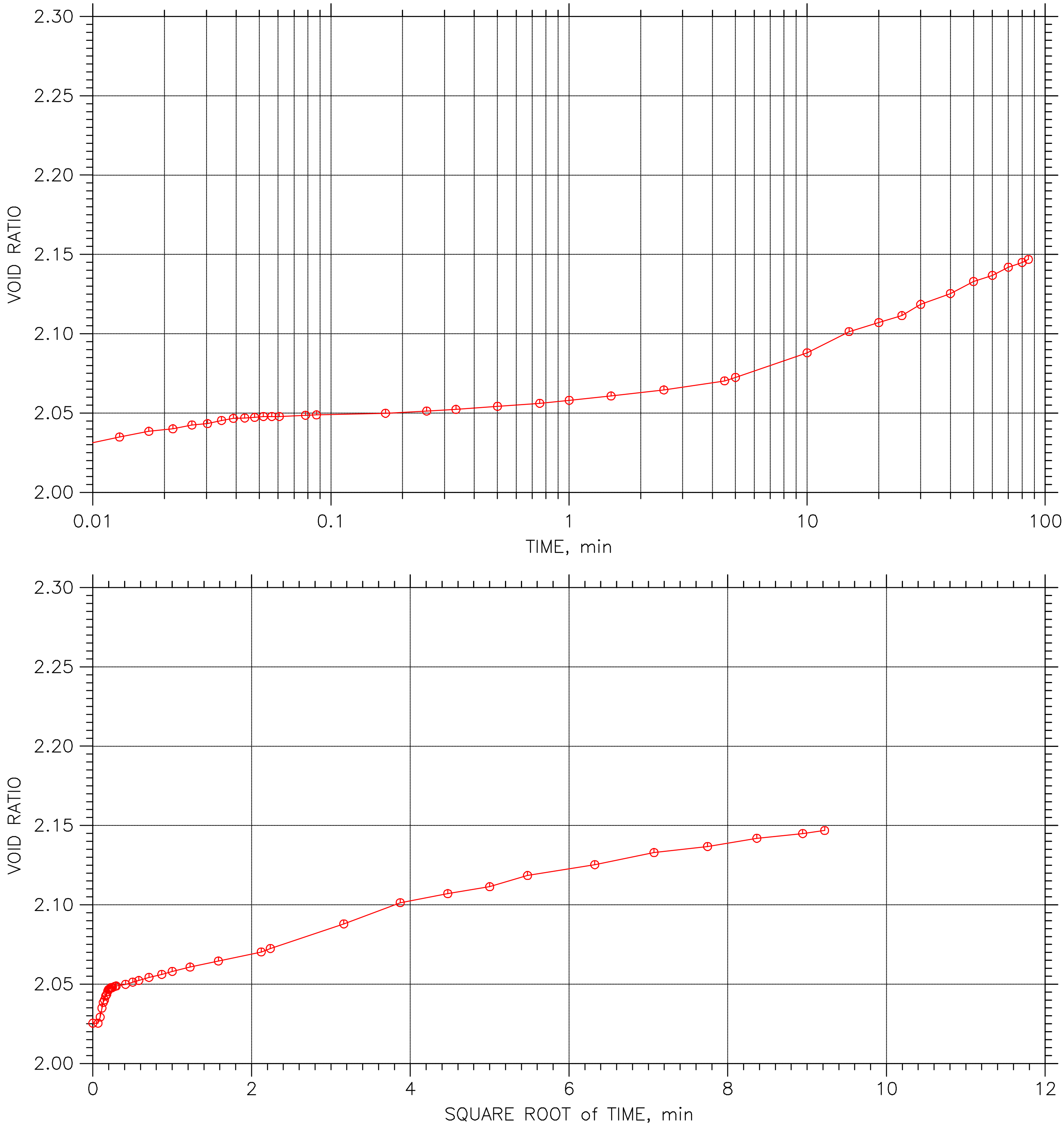
Thu, 02-JUN-2022 11:26:46

Consolidation Test

TIME CURVES

Constant Load Step 12 of 19

Stress: 16000 psf



Alaska Testlab

Reviewed by

Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

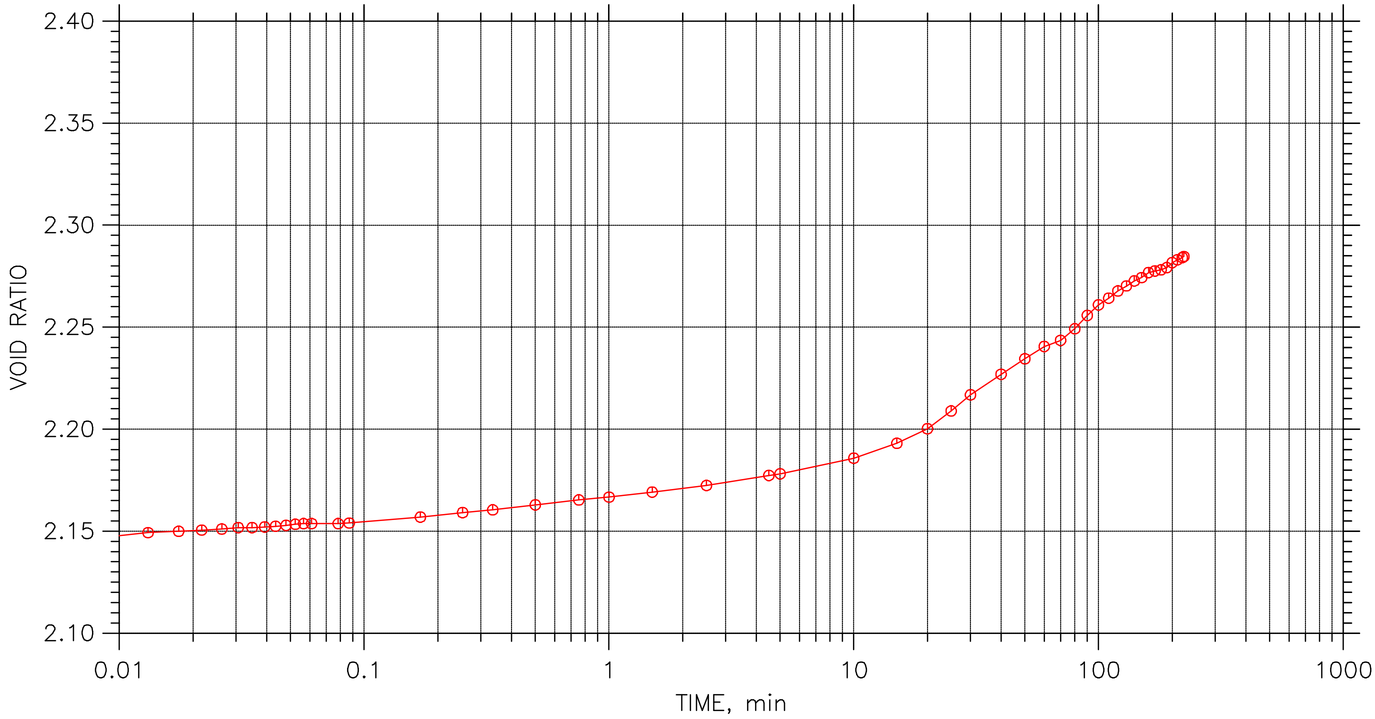
Thu, 02-JUN-2022 11:26:47

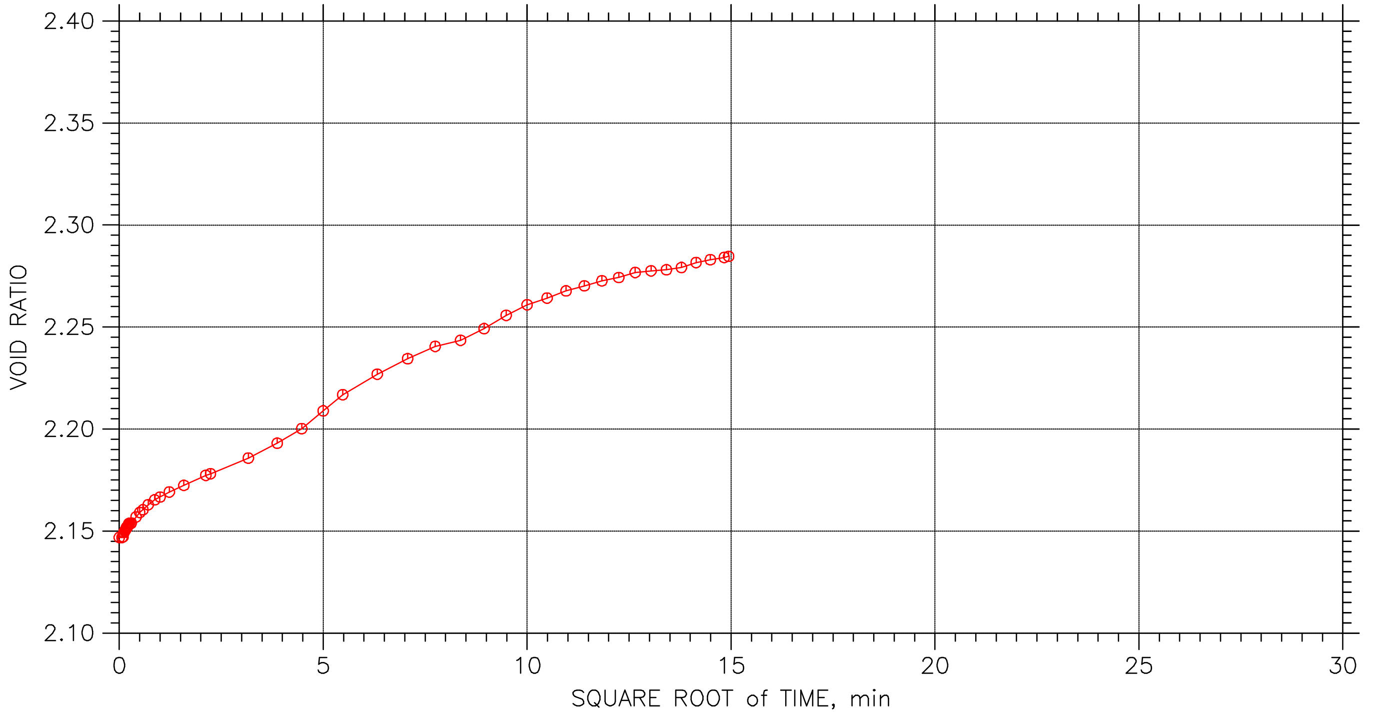
Consolidation Test

TIME CURVES

Constant Load Step 13 of 19

Stress: 8000 psf





ATL Alaska Testlab	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
Reviewed by	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

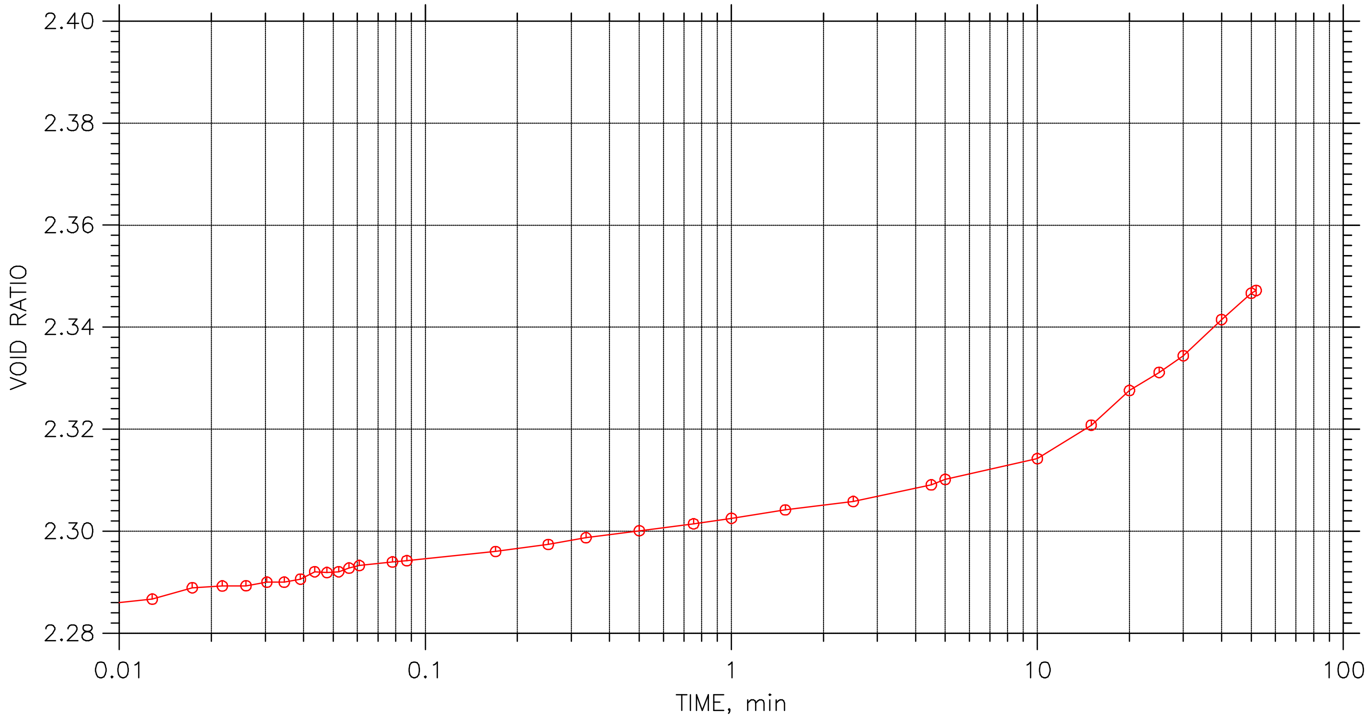
Thu, 02-JUN-2022 11:26:48

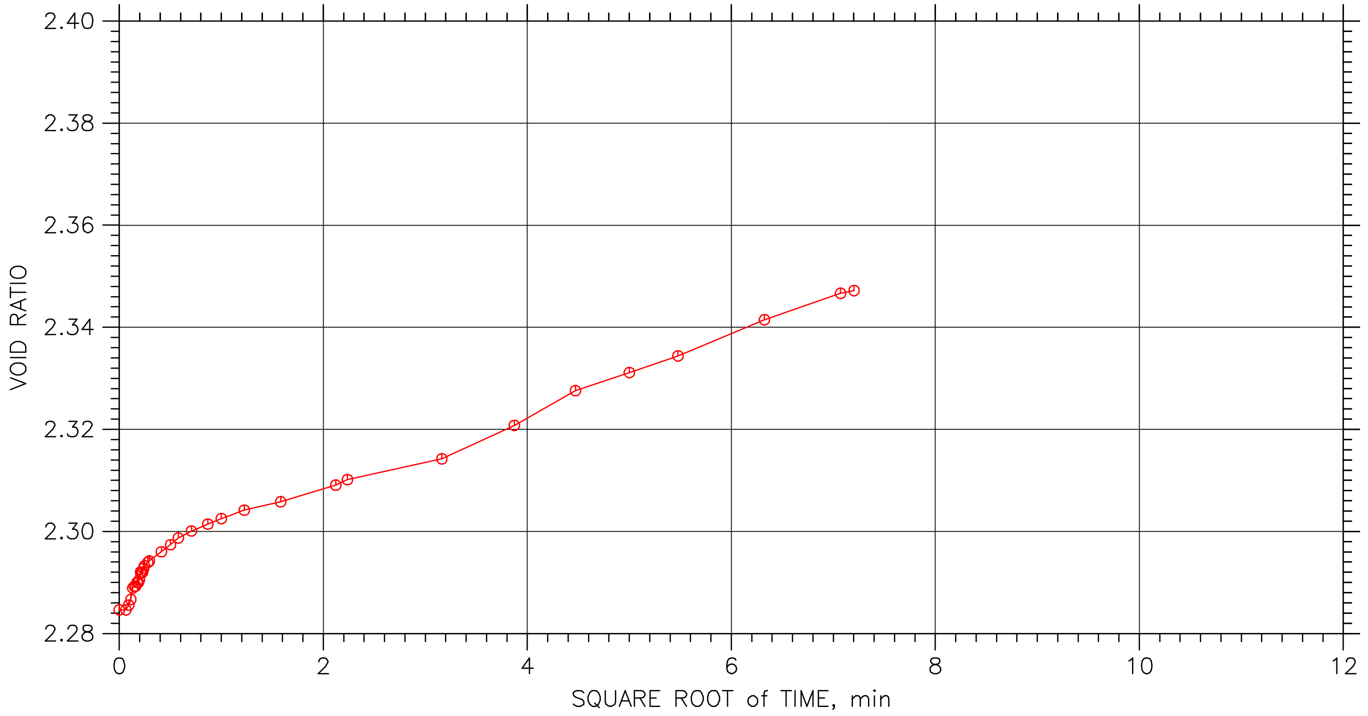
Consolidation Test

TIME CURVES

Constant Load Step 14 of 19

Stress: 4000 psf





ATL
Alaska Testlab
Reviewed by
Max E Kaspsen

Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

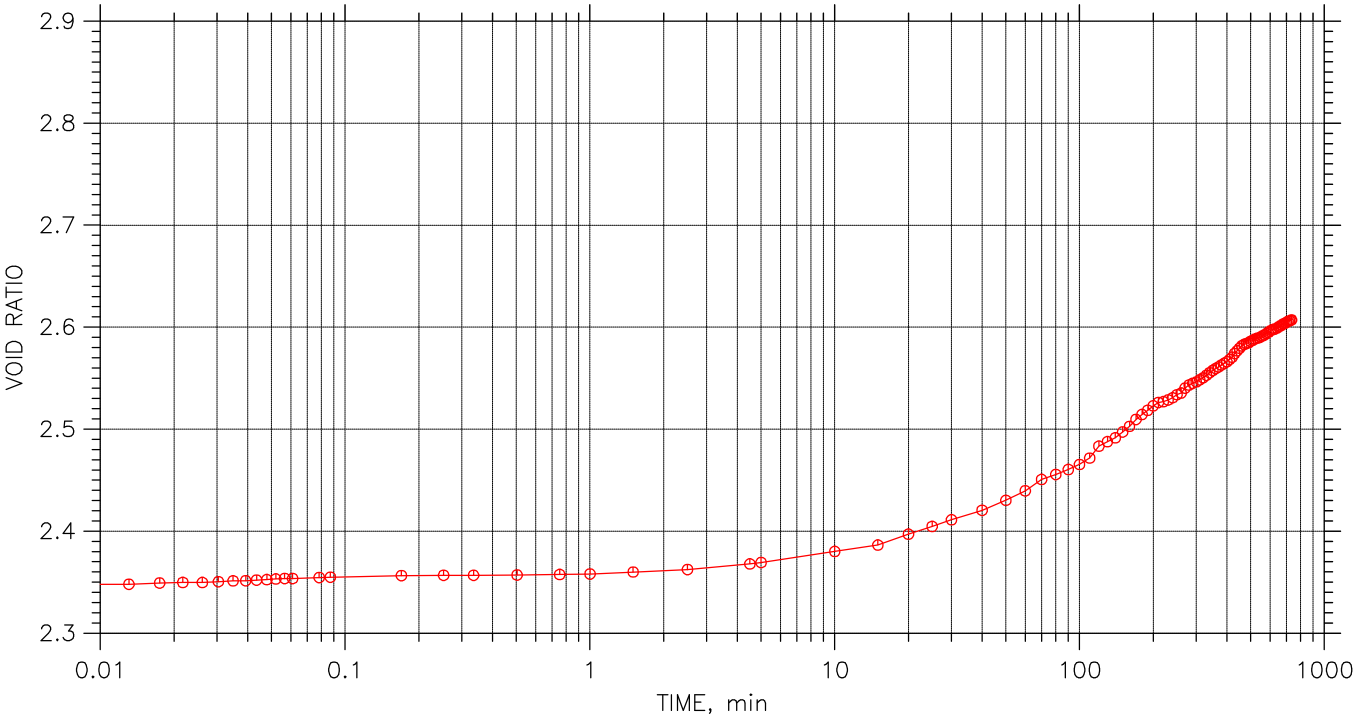
Thu, 02-JUN-2022 11:26:49

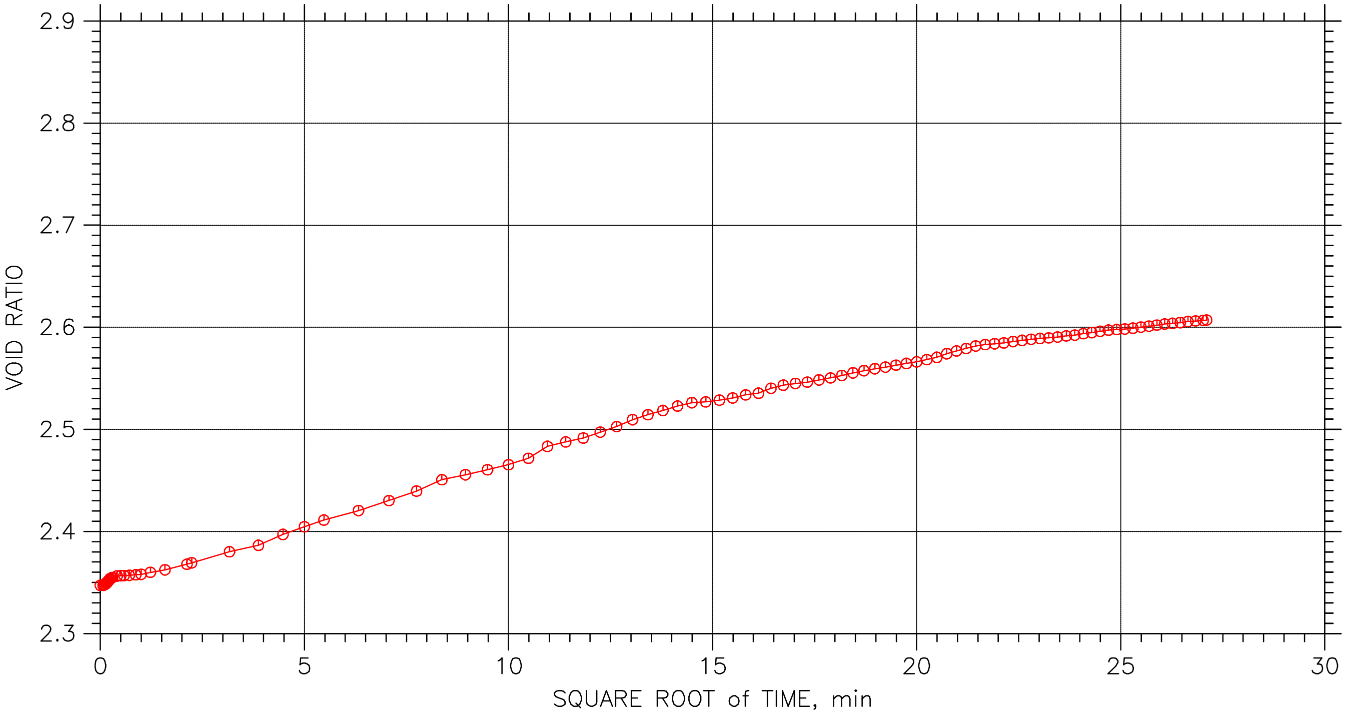
Consolidation Test

TIME CURVES

Constant Load Step 15 of 19

Stress: 2000 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

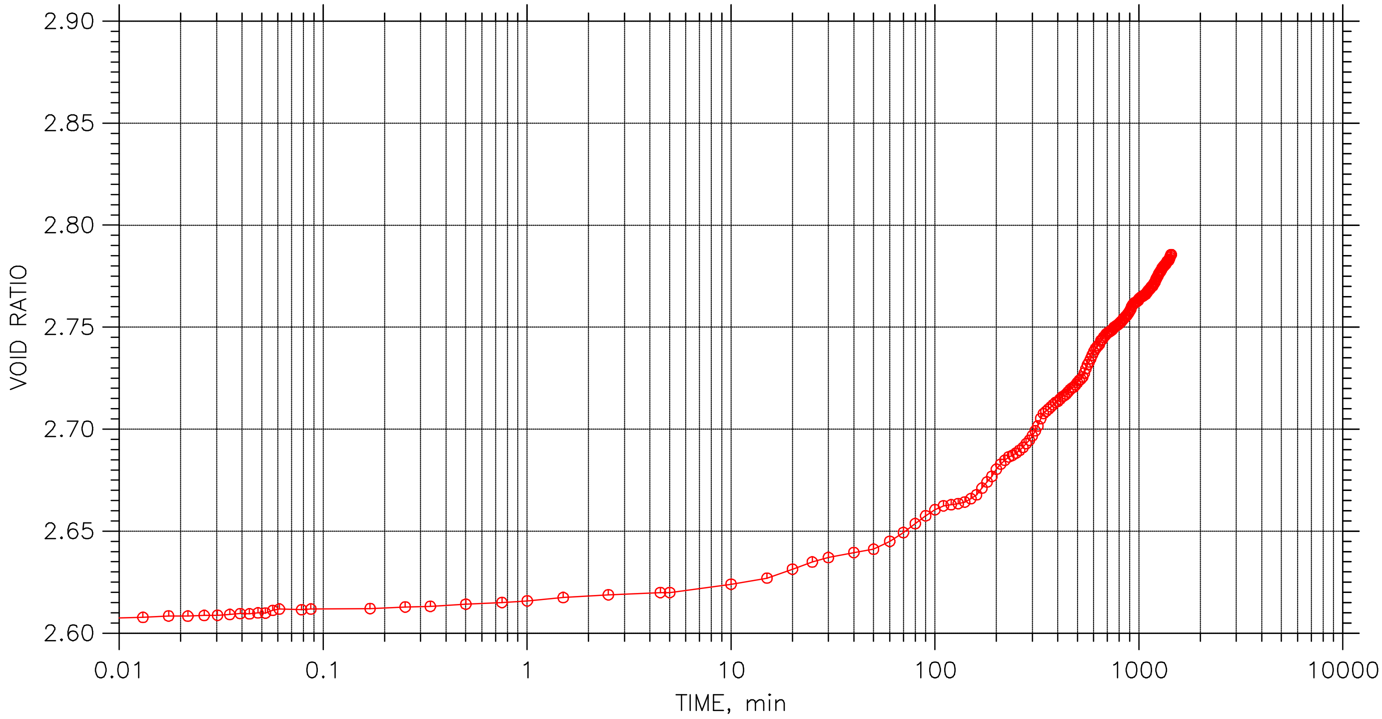
Thu, 02-JUN-2022 11:26:50

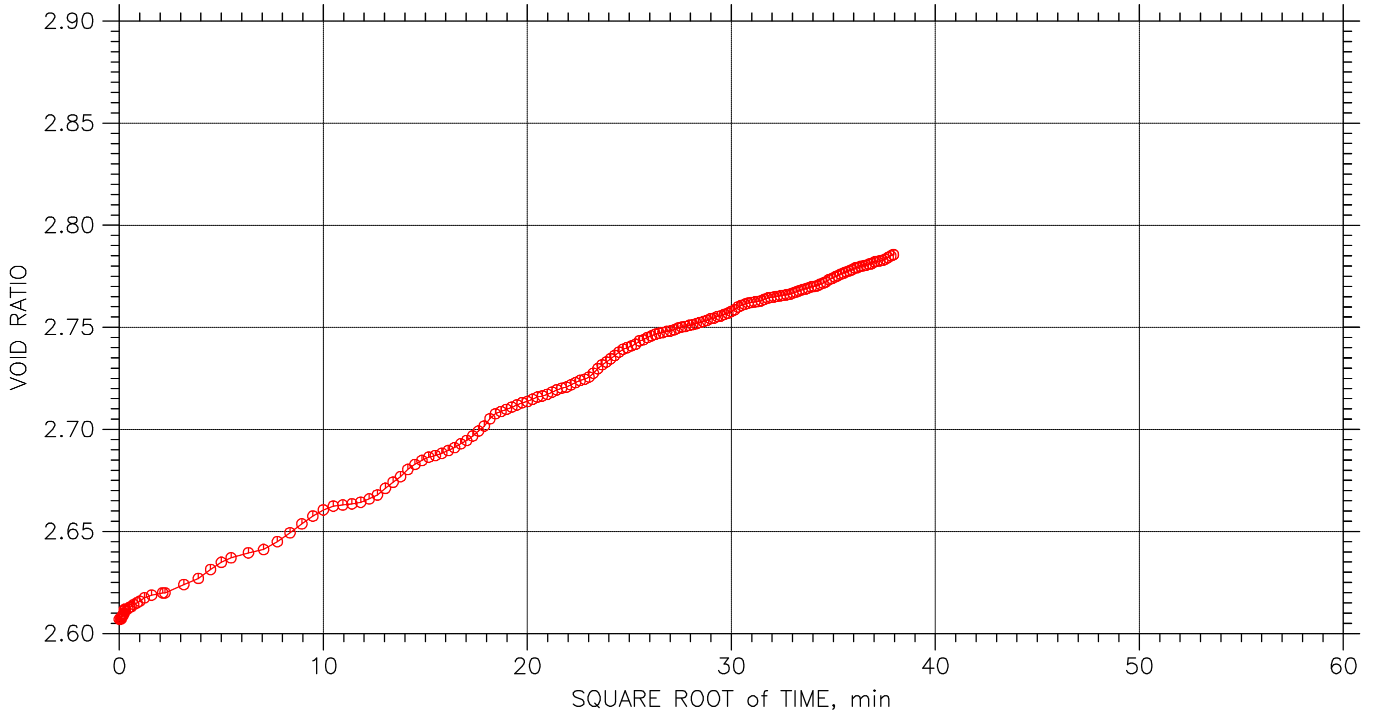
Consolidation Test

TIME CURVES

Constant Load Step 16 of 19

Stress: 1000 psf





ATL Alaska Testlab Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

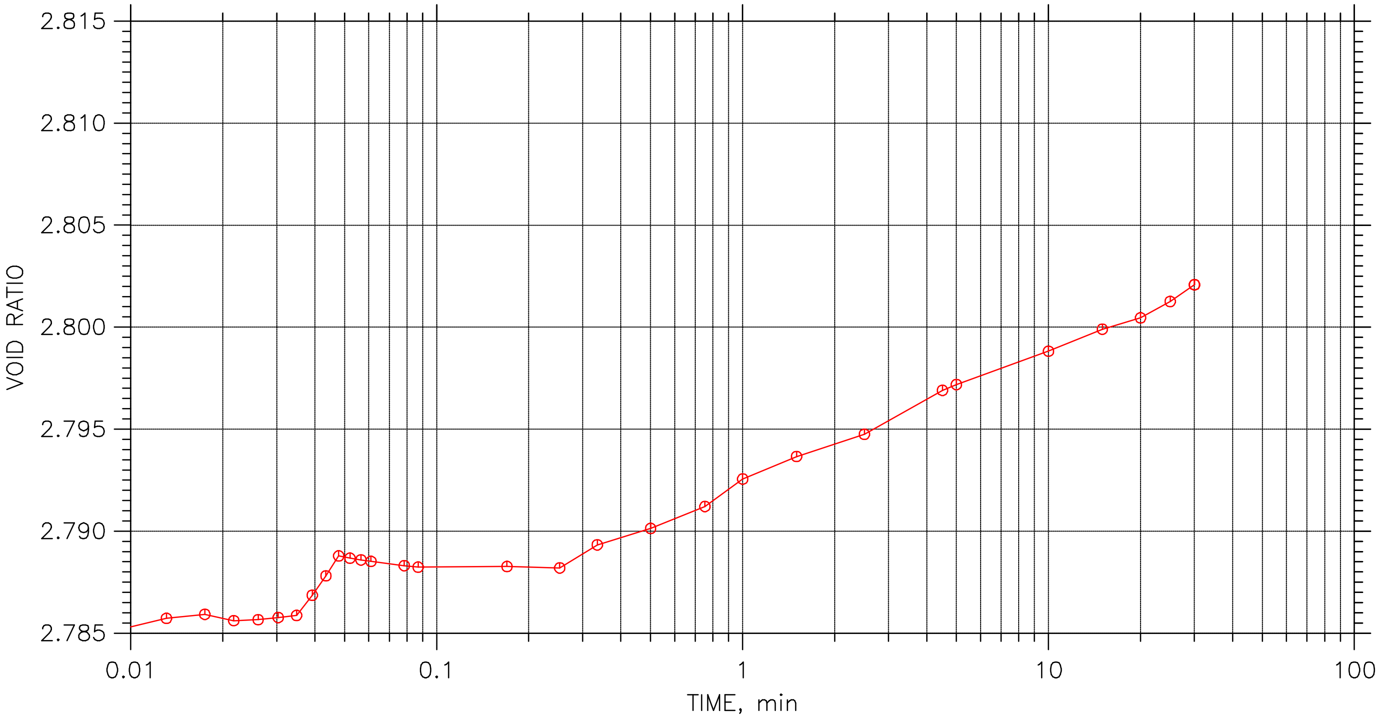
Thu, 02-JUN-2022 11:26:52

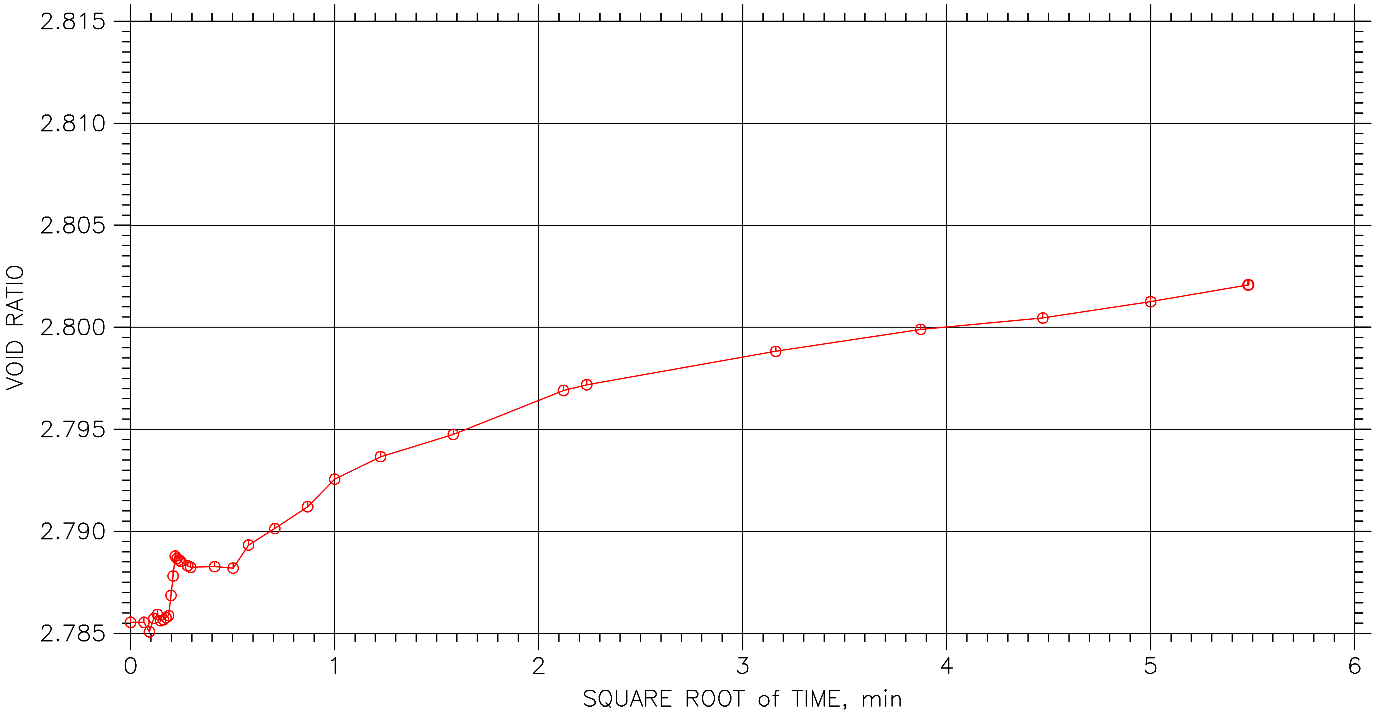
Consolidation Test

TIME CURVES

Constant Load Step 17 of 19

Stress: 500 psf





Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Alaska Testlab

Reviewed by

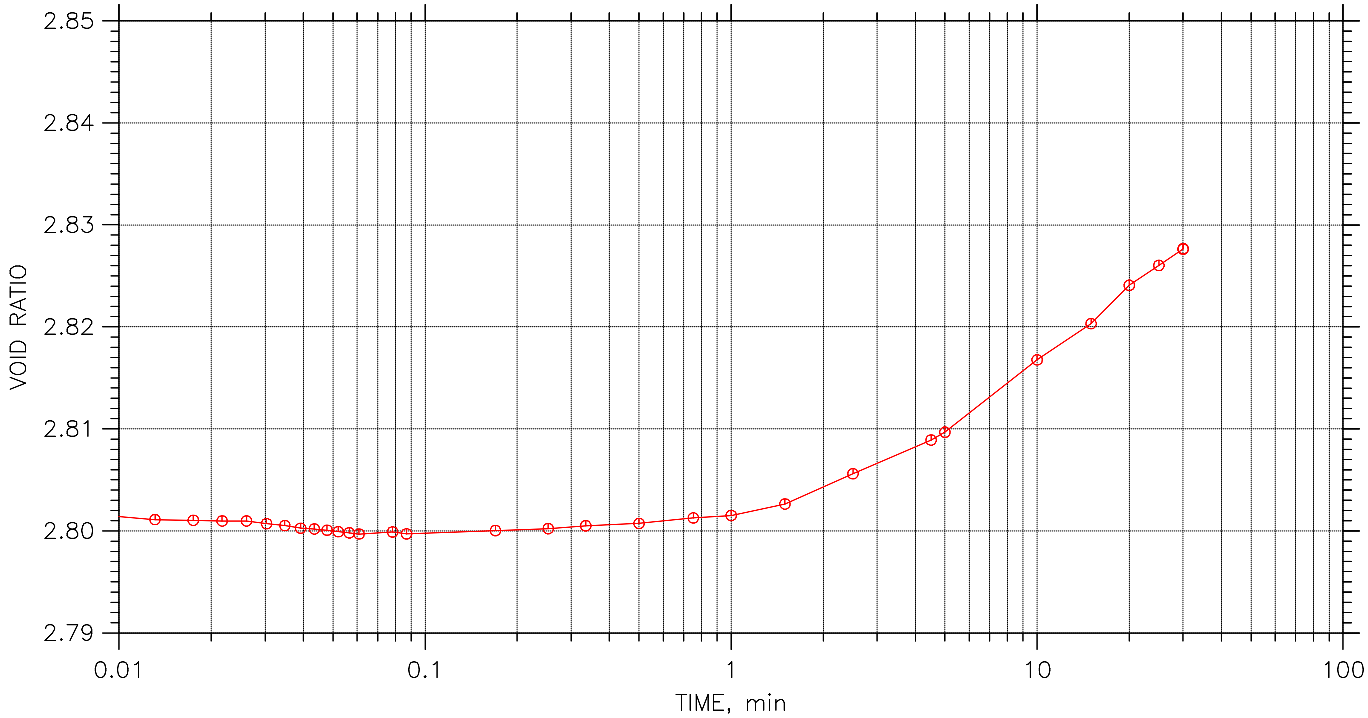
Thu, 02-JUN-2022 11:26:54

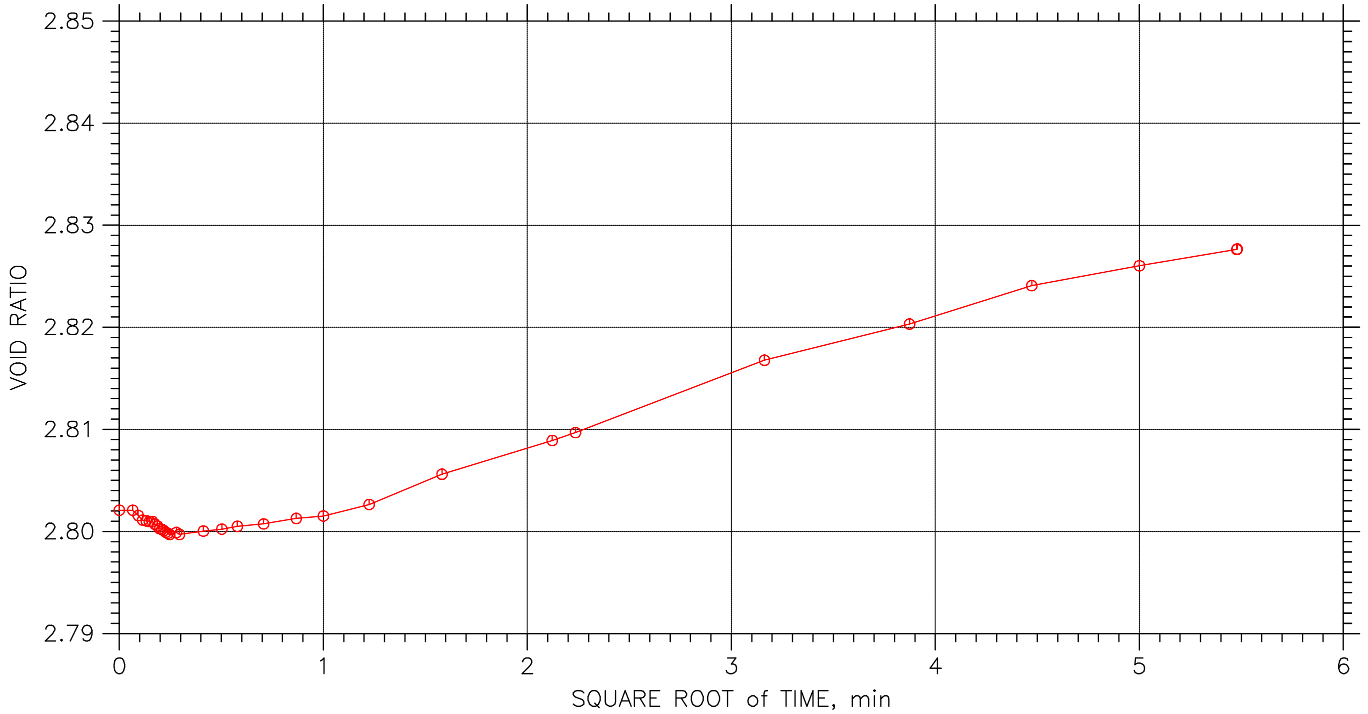
Consolidation Test

TIME CURVES

Constant Load Step 18 of 19

Stress: 250 psf





Alaska Testlab			
Reviewed by	Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
	Boring No.: 12	Tested By: CZ	Checked By: MEK
	Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
	Depth: 4.0	Sample Type: Shelby	Elevation:
	Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
	Remarks: ASTM D2487: PT Visual Classification: Peat		

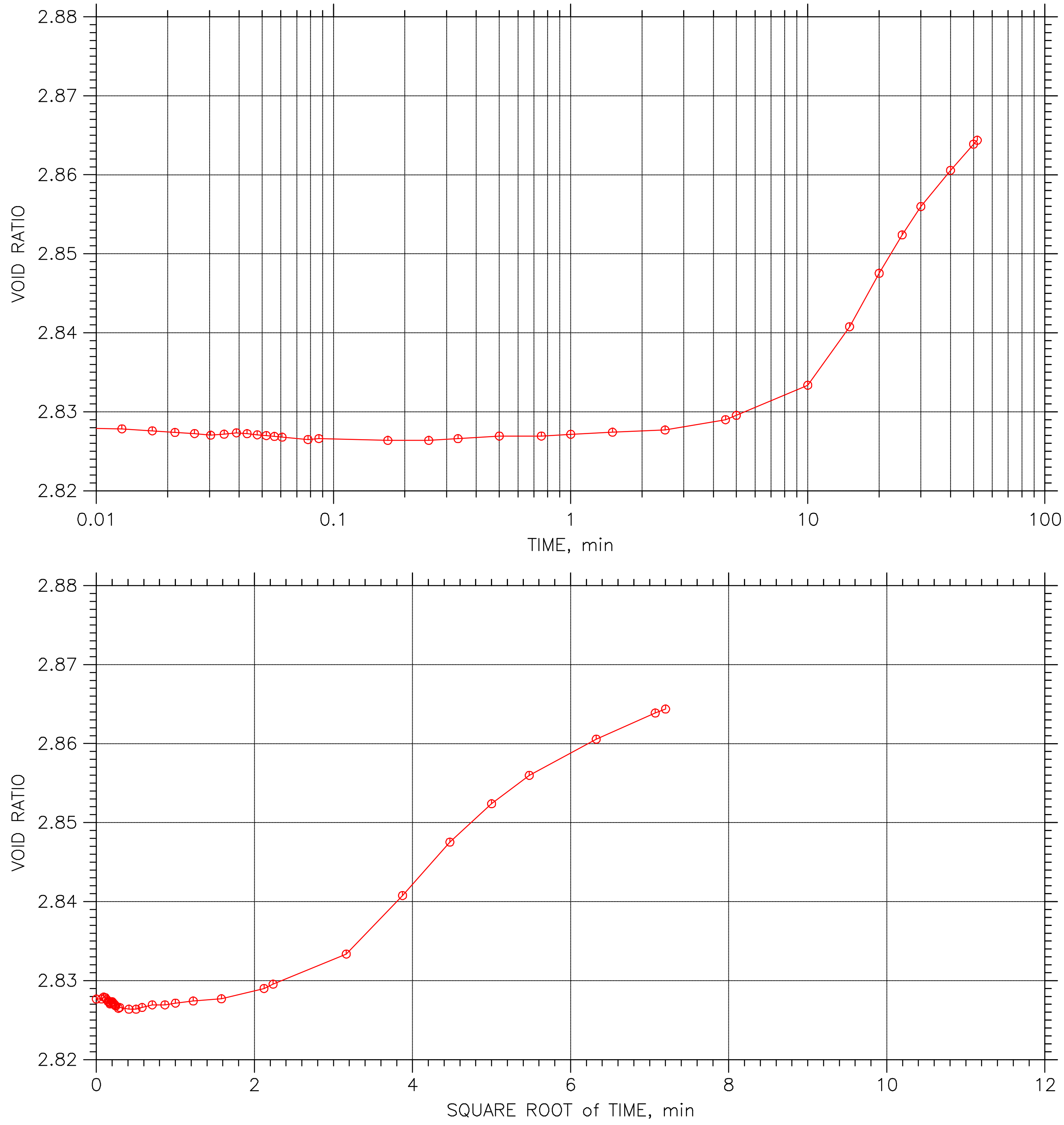
Thu, 02-JUN-2022 11:26:55

Consolidation Test

TIME CURVES

Constant Load Step 19 of 19

Stress: 100 psf



Alaska Testlab

Reviewed by

Project: FedEx Bog	Location: Anchorage, AK	Project No.: 220484
Boring No.: 12	Tested By: CZ	Checked By: MEK
Sample No.: Sa 3A	Test Date: 5/7/2022	Test No.: 1
Depth: 4.0	Sample Type: Shelby	Elevation:
Description: ASTM D2435 One-Dimensional Consolidation of Soils (Method A)		
Remarks: ASTM D2487: PT Visual Classification: Peat		

Thu, 02-JUN-2022 11:26:56

Alaska Testlab – Anchorage
4040 B Street, Suite 102
Anchorage, AK 99503
Phone: 907-205-1987
Fax: 907-782-4409
info@alaskatestlab.com

Shelby Photo Log

Report No.:	
Issue No.:	1

Client: CRW Engineering Group, LLC
3940 Arctic Blvd., Ste. 300
Anchorage, AK, 99503

Project: FedEx Bog

73138.00

Date Received:	March 21, 2022
Sample #:	22-0265-S03
Material:	BH-12 Sa3A

Sample after extraction