# Appendix F: Revised Geotechnical Report

# **Revised Geotechnical Report**

# ANC South Airpark Cargo Terminal

Anchorage, Alaska

July 2022



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# Revised Geotechnical Report ANC South Airpark Cargo Terminal

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#### 1. Introduction and Project Description

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

A geotechnical investigation was conducted by CRW for McCool, Carlson, and Green Architecture and Design (MCG) working through their agreement with Northlink Aviation, Inc.

The scope of work included:

- Performing a geotechnical investigation which included advancing boreholes and test pits over the approximately 108-acre lot.
- Overseeing laboratory testing of recovered soil samples including moisture content, grain size distribution, and Atterberg Limits.
- Analysis of field observations and testing results.
- Preparing the geotechnical report to provide recommendations.

#### **1.1 Revised Geotechnical Report**

This geotechnical report is the revised version of CRW's final geotechnical report for this same project dated June 15, 2022. This revised report reflects the addition of extruded polystyrene (EPS) foam and an optimizing aircraft asphalt concrete (Table 6-3) and revision to the ground support rigid pavement section (Table 6-2). In addition, an insulated section for the rigid ground support pavement was added (Table 6-8). No other revisions, aside from the report date, were made.

### 2. Site Conditions

The project is located on the south side of ANC, along the north side of Raspberry Road and to the west of South Airpark Drive. The north side of the site is bound by the W Perimeter Road and Runway 25L, to the east is Taxiway Z, and additional woods to the west. The site is approximately 108 acres, with overall dimensions of approximately 2,600 feet by 1,800 feet, with the long dimension oriented roughly east to west.

The site currently consists of tree and grass-covered rolling topography that ranges in elevation from approximately 68 to 145 feet (referenced to the Municipality of Anchorage Vertical Datum, 1972 Adjustment [MOA72]). There are no existing structures on the site. Several areas have been filled and/or cleared to create pads for radio towers that formerly existed on the site. Abandoned underground wires associated with these towers are known to exist on the site. There are several chain-link fences on site.

A gravel pad along the eastern side of the site adjacent to Taxiway Z is reported to have been the location of an asphalt batch plant in the past. The northeast corner of the site has been used as a disposal area for soils and organic material from other parts of ANC, and has been recently used as a snow storage area.

Surface water on the site naturally drains to local topographical lows, some of which are classified as wetlands. Meltwater from the snow storage area collects in an adjacent low spot that is intermittently inundated to depths of four feet or more.

The primary onsite utility is an underground fiber optic line that runs from east to west just north of the existing fence line. Active underground communications and electric utilities are present on the southern edge of the site, running east to west along the north side of Raspberry Road. We understand a septic system maybe present near the Federal Communication Center (FCC) building though more information is needed to confirm its presence. Other utilities could be present but are believed to be abandoned.

### 3. Subsurface Exploration / Field Investigation

A geotechnical investigation was completed between 29 March and 14 April 2022 to assess the project site's existing soil conditions. The investigation drilled and sampled 31 boreholes (BH-01 through BH-32 except BH-07). BH-07 was not drilled due to limited access and permitting restrictions that prevented tree cutting. Borehole logs are presented in Appendix A.

Borehole locations were pre-determined from the conceptual layout plan between CRW and MCG. Field adjustments to some of the borings were made to provide a better access for the drilling equipment and allow for a safer distance between soil borings and utilities.

#### 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. Utilities were located prior to any drilling.

CRW engineers supervised the field exploration program, recovered soil samples, and managed field operations. Borings were advanced to depths ranging from 31.5 to 52 feet below ground surface (BGS). Borehole locations are presented in Figure 1. Note that Figure 1 includes locations of CRW's test pits performed for this project. The test pit findings were summarized in a memo by CRW dated December 2, 2021, and is included in this report as Appendix C.

#### **3.2 Sample Collection**

Soil samples were obtained from the borings by advancing an oversized 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 3-inch O.D. split-spoon sampler as a modified Standard Penetration Test (SPT). The sampler was driven 18 or 24 inches, counted in 6-inch intervals, using a 340-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 field values that have not been corrected for overburden, sampler size, hammer energy, rod length, or other factors.

At locations BH-08, 09, 12, 13, 19, 21, 25, and 28 select split-spoon samples were collected for per- and polyfluoroalkyl substances (PFAS) by ChemTrack Alaska, Inc. (ChemTrack). For results of the environmental analyses, see ChemTrack Alaska's report.

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. Seven piezometers were installed at the site. Piezometer wells (constructed of 1-inch Schedule 80 PVC threaded connections) were installed to varying depths, and were hand-slotted in the lower portions of the wells. All well completions were left with approximately 15 to 52 inches of capped stickup above the ground surface.

All borings were generally restored to original grade while striving to maintain original drainage patterns.

### 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, 380 samples were submitted for testing.

The laboratory testing consisted of soil index tests for water content, grain-size distribution, Atterberg Limits, and Limited Mechanical Analysis (LMA) to determine percentages of gravel, sand, and fines content. 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.

Analysis	Method
Water Content	ASTM D2216
Grain-size Distribution	ASTM D6913
Atterberg Limits	ASTM D4318
Limited Mechanical Analysis	Laboratory procedure

#### Table 4-1 – Laboratory Tests

#### 4.2 Results

All samples were tested for their water content. In granular soils the water content varied between 2 and 32 percent. For silts and silty soils, water contents up to 42 percent were recorded. Higher water contents were observed when organics were present or when surface conditions, such as snow, affected water content results. Several samples with peat were analyzed, and water contents found to vary between 131 and 528 percent.

Native soils are comprised of silts, sandy silts, silty sands, and occasional lenses of sand and, less frequently, clay. Isolated gravel from fine up to 2.5 inches in diameter was observed across the site in native soils.

Twenty four samples were selected for grain-size distribution testing and 131 samples were analyzed by LMA. Fines contents ranged from 2 to 99 percent, and most were above 70 percent.

Thirty five samples were tested for their Atterberg Limits. The results of these tests determined the plasticity indices between 1 and 10, with twenty two testing as non-plastic. Most soils tested were classified as silts, though six were classified as silty clay, one was a lean clay, and one was clayey silt.

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 Municipality of Anchorage (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 project area consists of predominantly brown/tan/gray silt, silt with sand, and sandy silt. In many of the borings, these silts extend from the surface to the maximum depth of drilling (52 feet BGS). Layers of silty sand and sand of variable thickness within the silts were observed in several of the borings in addition to cobbles inferred from drilling action. Multiple borings along the south and to the southwest (BH-01, 02, 06, 09, 15, and 22) encountered granular soils consisting of relatively clean sand and gravel below the silts with the granular soils starting at variable depths. Charcoal pieces or fine charcoal laminations were also frequently observed. The 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.

Peat was encountered in four boreholes: BH-02, 03, 08, and 18. The observed peat ranged in thickness from less than 6 inches to 7.5 feet.

We observed buried wood in BH-26 from approximately 15 feet to 25 feet BGS in an area used in the past for soil disposal, and more recently used for snow storage.

#### **5.3 Groundwater Conditions**

Groundwater, if observed during drilling, is recorded on the borehole logs. Table 5-1 provides a summary of the boreholes with piezometers including 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 at the time of drilling.

Boring Name	Piezometer Total Depth (feet BGS)	Screened Interval (feet BGS)	Depth to Groundwater at Time of Drilling (feet BGS)	Depth to Groundwater More Than 24 Hours After Drilling (feet BGS)
BH-02	50.6	5.6 - 50.6	Not Observed	44.1
BH-12	37.4	22.4 - 37.4	Not Observed	No Water
BH-15	42.9	7.9 - 42.9	Not Observed	No Water
BH-19	45.5	5.5 - 45.5	Not Observed	42.0
BH-21	50.4	5.4 - 50.4	Not Observed	45.9
BH-25	38.0	1.0 - 38.0	Not Observed	No Water
BH-31	37.1	2.4 - 37.1	Not Observed	No Water

#### **5.4 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 (<u>https://hazards.atcouncil.org/</u>), and the United States Geological Survey (USGS) online Unified Hazard Tool (<u>https://earthquake.usgs.gov/hazards/interactive/</u>) 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 are 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 primarily in Zone 3 with a portion of the site close to Raspberry Road being in Zone 2.

Description	Value (Site Class D)
Moment Magnitude, M <sub>w</sub>	9.2
Peak Ground Acceleration, PGA <sub>M</sub>	0.60g
S <sub>s</sub> (0.2 second period acceleration, MOA value)	1.50g
S <sub>1</sub> (1 second period acceleration, MOA value)	0.55g
S <sub>DS</sub> (0.2 second period acceleration)	1.00g
S <sub>D1</sub> (1 second period acceleration)	0.623g

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

#### 5.5 Contaminated Soils

No evidence of contaminated soils was observed during the geotechnical investigation based on olfactory screen during sample recovery. No petroleum odor or sheen was observed on any sample during the investigation. Environmental sampling for PFAS was conducted by ChemTrack. Results of the environmental analyses are discussed in ChemTrack's report and are not included in the geotechnical report.

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#### 6. Geotechnical Engineering Recommendations

Based on our findings and results of our laboratory testing, we have developed recommendations for the project site development including site development, pavements, utilities, building foundations, slopes, excavations, and fill and compaction. We note that these recommendations supersede the recommendations provided in CRW's Test Pit Investigations Findings and Preliminary Geotechnical Recommendations (Appendix C).

#### 6.1 Frost Depth and Permafrost

Seasonal frost was not observed 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 12 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 are 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

Assuming the footings are not bearing on deleterious material, an inspection of blow counts and soil type suggest that the risk of loss of bearing capacity during a seismic event is low.

#### 6.2.3 Liquefaction and Lateral Spreading

We performed an inspection of 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. The unsaturated nature of the onsite soils are difficult to assess for liquefaction potential as typical procedures use empirical approaches which assume saturated soil conditions. Our experience at ANC from the November 2018 earthquake demonstrated that liquefaction generally occurred in saturated soils which further supports our conclusion that liquefaction potential is low for the project site. Based on this, we estimate the potential for earthquake-induced lateral spreading and pressure ridges is also low.

#### **6.3 Shallow 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.

The soils encountered at the project site are conducive to shallow foundations, including spread footings, continuous footings, and mat foundations. We recommend the use of isolated or continuous footings to

carry the expected building loads. 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.

#### 6.3.1 Bearing Capacity and Settlement

The design of shallow foundations must consider the bearing capacity of the underlying soil, as well as the potential for settlement and the effects of seasonal frost action. In general, foundation designs should be consistent with the current editions of the IBC and with any local amendments or requirements.

Perimeter continuous footings and interior spread footings should bear on a minimum of 12 inches of compacted, classified fill consistent with Alaska Department of Transportation and Public Facilities (ADOT&PF) Standard Specification Selected Material Type A placed and compacted in accordance with our recommendations. If our recommendations are followed, the footings maybe designed according to the following criteria.

• Maximum Allowable Bearing Pressure (includes a factor of safety of 3)

0	Perimeter Square Footings, (Dead and Normal Live):	2,500 psf
0	Perimeter Continuous Footings (Dead and Normal Live):	2,000 psf
0	Interior Square Footings, (Dead and Normal Live):	2,000 psf
0	Interior Continuous Footings (Dead and Normal Live):	1,500 psf
0	Transient Loads (Wind and Seismic):	Increase static by 33 percent

• Depth of Embedment

0	Perimeter Footings:	42 inches, minimum
0	Interior Footings:	12 inches, minimum

Perimeter and interior footings are assumed to be warm footings. The depth should be measured from adjacent grade or slab to bottom of footing.

• Settlement (Elastic)

0	Total Settlement:	1.0 inch
0	Differential Settlement:	0.5 inch

These recommendations apply to footings that are isolated from adjacent footings, not eccentrically loaded, and with a minimum width of 1.5 feet and a maximum width of 10.0 feet. The effective bearing area of eccentrically loaded footings will be less than the actual footing dimensions, and may vary depending on anticipated design loads and eccentricity. These values do not apply to footings on a slope. Additional values for footings on slopes can be provided upon request. If additional refinement of the footing design is required, a bearing chart for varying footing sizes can be provided upon request.

#### 6.3.2 Lateral Load Resistance

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 180 psf/foot (pcf). This equivalent fluid pressure includes a factor of safety of 2.0. A friction coefficient of 0.30 is recommended to be used for resistance of footings to lateral sliding.

#### 6.3.3 Uplift Resistance

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 native silty soils near the surface at the site, the pyramid should be defined by a 15-degree angle from a vertical line extending upward and away from the top edge of the footing. For compacted, classified fill, the pyramid should be defined by a 20-degree angle from the vertical oriented upward and away from the top edge of the footing.

#### 6.4 Slab Foundations

For any slab foundations, we recommend the use of a subgrade reaction modulus for design. The modulus of subgrade reaction is not an intrinsic property of the soil, but depends on the dimension and the stiffness of the slab. Assuming our recommendations are followed, a coefficient of subgrade reaction, K1, for a 1-foot diameter plate of 75 pounds per cubic inch (pci) can be used for design if no classified (i.e. granular) fill is placed below the slab. If our recommendations in the next paragraph for fill placement are followed, the slab can be designed for a subgrade reaction of 150 pci. This subgrade reaction can then be used to adjust to a subgrade reaction for the mat foundation per the designer's procedure.

Thickened edge slabs (i.e. perimeter slab footings) should extend a minimum of 12 inches below finished exterior grade to achieve the recommended allowable soil bearing capacity and help resist any lateral forces. We recommend the slab foundation be designed to tolerate a 1-foot cantilever and 2-foot internal span.

In addition, we recommend 12 inches of fill be placed beneath the slab to serve as a capillary break to help maintain a dry slab. We recommend this material be consistent with ADOT&PF Selected Material Type A. A capillary break will help reduce the potential for moisture moving upwards toward the slab, and can also serve as a leveling course.

#### 6.5 Light Pole Foundations

We understand several high-mast lights will be installed as part of the project. We recommend driven pile foundations to transmit the high-mast light loads to the soil with the pile size (diameter and wall thickness) determined based on loads from the lights. The pile foundation design is expected to be primarily based on lateral and frost heaving forces. Due to the diversity of the site, lateral soil profiles should be developed on a case-by-case basis once light locations are selected.

We recommend the pile foundations be installed a minimum depth of 45 feet to resist frost heave unless more rigorous axial pile calculations are performed. We recommend piles be installed via an impact hammer to aid in verification of axial pile capacity during installation. The hammer should be sized such that pile advancement can be achieved without damage. If a different pile installation method is planned, we should be retained to review the pile design and proposed construction methodology. Pile should be driven with an outside cutting shoe and driven within 1 inch horizontal over 48 inches vertical of plumb, unless otherwise specified by the design team.

#### 6.6 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 are ultimately incorporated into the site design.

Retaining walls, including those used for basements or crawl spaces, must be designed to resist lateral earth pressures plus lateral pressure due to 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 in this report assume no hydrostatic pressures 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 (i.e. equivalent fluid pressure) 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 should be designed following the values discussed in Section 6.3.2 above.

For seismic lateral earth pressures, we recommend a fluid density of 30 pcf be added to the active or atrest 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.

We note equivalent fluid pressures are not applicable to braced excavation shoring or tie-back retaining walls. CRW can provide alternate recommendations should these kinds of retaining structures be used.

#### 6.7 Embankment Settlement

We understand portions of the site will be built up with native soils as embankment fill to increase the site's elevation in select areas. We understand the embankment fill will range in thickness from 10 to near 40 feet. The placement and compaction of embankment fill will result in settlement of the existing subgrade below the fill.

The general low- to non-plastic nature of the silts suggests low potential for consolidation behavior, and therefore we expect the majority of settlement to occur during and just after construction. We estimate

that for every 10 feet of fill, settlements will range between 0.5 and 1.0 inch, depending on the actual soil conditions below the embankment. This assumes all organic and deleterious materials below the embankment fill are completely removed prior to fill placement. Additional settlement will occur if organics or deleterious material remain in place.

We note that if positive excess pore pressures develop in the embankment fill during placement, additional time-dependent settlement will occur. The magnitude and time frame of settlement resulting from the dissipation of these excess pore pressures is difficult to assess and can only be evaluated during construction by settlement monitoring.

#### 6.8 Slope Stability

We understand the site grading will require both cut and fill slopes. We recommend cut and fill slopes be no steeper than 3H:1V (horizontal to vertical) for native silty soils and classified fill slopes be no steeper than 2H:1V unless rigorous slope stability analyses are performed. These slope recommendations are based on satisfactory past performance of slopes constructed of similar materials, but not on any other basis. We recommend the designers perform rigorous slope stability analyses to verify adequate factors of safety against slope instability for static, seismic, and construction cases as appropriate. Slopes constructed to a lower standard will need to be flatter. Specific analysis and recommendations can be provided upon request if steeper angles for cut or fill slopes are desired or other materials are used for fill slopes.

Cut and fill slopes at these recommended angles will perform well, though some minor sloughing and rills will likely occur over time due to water runoff/infiltration under static conditions. Based on performance of slopes during the November 2018 earthquake and our experience with past slope stability analyses using similar material, we recommend native silty soil slopes have a minimum of 20 foot horizontal bench approximately every 15 feet of vertical height of slope to improve the seismic performance during strong ground motions. The bench should be graded to provide drainage off the embankment and not allow water to pond.

More detailed seismic slope stability analyses can be performed upon request. Both cut and fill slopes consisting of native silty soils should be protected from erosion via vegetation, rock armoring, or other appropriate means.

#### **6.9 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). Rigid pavements intended only for vehicular traffic were designed using the United States Department of Defense Unified Facilities Criteria (UFC) 3-250-01, *Pavement Design for Roads and Parking Areas* (2016). 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. Planes selected include Boeing B-747, 777, 767, 757, 737, 777-8F, and MD-11. The departures were based on approximately three aircraft per hardstand per day 365 days per year, assuming a two percent growth. As designers refine the operating capacity of the proposed facility, these assumptions should be refined to accurately reflect intended capacity. The pavement analysis was completed using the commercially available program FAARFIELD (version 2.0.7).

Aircraft gross weights in excess of 800,000 pounds are expected for this facility. According to Section 3.5.1 of AC 150/5320-6G, use of a stabilized base or crushed aggregates with a remolded soaked CBR of 100 or greater is required when aircraft gross loads exceed 100,000 pounds. Compacted granular fill has historically performed acceptably under similar use at ANC and is recommended at this site.

We recommend the following asphalt and concrete pavement sections (Tables 6-1 through 6-4); however, further modifications may be required as traffic loading and aircraft weights could vary. 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 10 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 sections below do not consider the use of geogrid or other stabilization to decrease thickness. We are aware the designers may consider using other methods to decrease the pavement thickness as the design advances. CRW's geotechnical engineers will work closely with the designers if other methods are selected.

The designers will need to evaluate separately the transitions from these pavement sections to the existing taxiway pavement sections in addition to the transition from the flexible asphalt pavement sections for the aircraft to the hardstands.

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

Table 6-2 – Rigid Pavement Section (Ground Support Vehicles Only	)
--	---

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

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

Table 6-3 – Flexible Asphalt Pavement Section (Apron – Aircraft Taxiways)

#### Table 6-4 – Rigid Pavement Section (Hardstands)

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

We performed additional analyses for pavement sections incorporating rigid foam insulation to reduce the frost penetration, and potentially the thickness of the pavement section. Including rigid foam insulation in the FAARFIELD analysis resulted in pavement sections for the hardstand and apron aircraft taxiways would need to be thicker than pavement sections without foam. Based on our analyses, rigid foam is not recommended as a thicker pavement section does not result in cost savings.

For the parking lot we developed insulated and uninsulated sections, see Tables 6-5 and 6-6, and insulated sections for ground support vehicles, see Tables 6-7 and 6-8.

 Table 6-5 – Flexible Asphalt Pavement Section (Parking Lot Only)

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

Thickness (inches)	Layer	Type/Material	Compaction (percent)
2	Top/Wearing Course	Asphalt Concrete	-
2	Crushed Aggregate Base	D-1	95
20	Subbase	Selected Material Type A	95
4	Rigid Insulation	XPS or EPS	N/A
6	Subbase	Selected Material Type A	95
	Geotextile Separation Fabric	Separation per ADOT	

Thickness (inches)	Layer	Type/Material	Compaction (percent)
6	Top/Wearing Course	Asphalt Concrete	-
6	Crushed Aggregate Base	D-1	95
12	Subbase	Selected Material Type A	95
4	Rigid Insulation	XPS or EPS	N/A
6	Subbase	Selected Material Type A	95
	Geotextile Separation Fabric	Separation per ADOT	

Table 6-7 – Flexible Insulated Asphalt Pavement Section (Ground Support Vehicles Only)

Table 6-8 – Rigid	<b>Insulated Paveme</b>	nt Section (Grou	nd Support Veh	icles Only)
Tuble 0 0 Tuble	insulated i avenie		na sapport ven	

Thickness (inches)	Layer	Type/Material	Compaction (percent)
10	Top/Wearing Course	Portland Cement Concrete	-
6	Crushed Aggregate Base	D-1	95
12	Subbase	Selected Material Type A	95
4	<b>Rigid Insulation</b>	XPS or EPS	N/A
6	Subbase	Selected Material Type A	95
	Geotextile Separation Fabric	Separation per ADOT	

The designers will need consider transitions carefully as the insulated sections allow minimal frost penetration into the subgrade, whereas uninsulated sections allow considerably more frost penetration into the subgrade. We recommend decreasing from two layers to a single layer of insulation where pavement sections transitions from insulated to uninsulated. We recommend the single layer of insulation extend a minimum of 8 feet beyond the edge of the above insulated pavement sections. We recommend the transitions occur where planes will not traverse. We should be consulted to provide additional recommendations and analyses should planes need to traverse in transition areas.

We note that issues arising from the transition to insulated from uninsulated sections cannot always be prevented, even by using best-practice methods for tapering insulation thickness. These issues may include extreme differential movement at the interface between concrete and pavement or within asphalt pavement sections across the transition. Repeated cycles of freeze-thaw within seasons or between seasons can cause severe pavement distress including cracking. If cracks in the asphalt allow water to infiltrate, subgrade softening can exacerbate pavement distresses. In addition, thaw weakening in the form of water on frozen layers or even on insulation can lead to further degradation of the pavement.

#### 6.10 Rigid Foam Insulation

We recommend rigid foam insulation consist of at least two layers of extruded polystyrene (XPS) or expanded polystyrene (EPS) with a minimum compressive strength of 40 pounds per square inch (PSI) at no more than 10 percent strain and a maximum water absorption of 0.3 percent by volume. We recommend a minimum cover of 18 inches over insulation prior to paving and that insulation be sloped within the pavement section to permit drainage to appropriate drainage structures.

Insulation should be transported, handled, and placed with care to ensure it is not damaged prior to fill placement. The boards should be placed flat, on a smooth, level surface. The use of bedding sand is recommended to achieve a suitable surface. The adjoining ends should be butted closely together and any vertical joints should be staggered during placement.

#### 6.11 Subgrade Drainage and Subdrains

The near-surface soils encountered in our borings were silts or sandy silts that have an estimated frost classification ranging from FG-2 to FG-4 (FAA Frost Group per AC 150/5320-6G, corresponds to MOA frost classification F-2 to F-4). These soils will comprise the subgrade across the majority of the project site. In accordance with Section 3.7 of AC 150/5320-6G, subgrades with a frost classification of FG-4 require the installation of a drainage layer to allow water to drain freely from beneath the structural pavement section.

We recommend that sufficient drainage be achieved by careful grading of the soils beneath the pavement section to create flat, sloping surfaces directing water toward planned drainage features. Undulations created in the silt subgrade surface during construction may result in difficulty compacting classified fill to the specified degree of compaction if the subgrade becomes wet. In the long term, local low spots in the subgrade surface can allow water to be trapped in the base and subbase, weakening the pavement section, and resulting in poor performance.

Due to the dimensions of the site, subdrains may be required to limit subgrade slopes and allow water to efficiently reach storm drains.

#### 6.12 Geotextiles

We recommend that a separation geotextile be used at the base of the pavement sections. The use of a geotextile reduces the effects of thaw weakening, prevents fines migration, and increases lateral drainage at the base of the structural section.

A woven geotextile may provide better stabilization for soil when compared to a non-woven geotextile, however, a non-woven geotextile will provide better separation, preventing the migration of fines, which is important for this site. If a woven geotextile is used, it should meet project specifications and be designed to limit migration of fines into the pavement section. We recommend a non-woven geotextile consistent with ADOT&PF Standard Specifications be used for this project.

Joints should be overlapped or sewed in accordance with the manufacturer's recommendations. If no manufacturer's recommendations are provided, the geotextile should be placed in accordance with the guidance provided in the Federal Highway Administration (FHWA), Geosynthetic Design and Construction Guidelines, Publication No. FHWA-HI-95-038 (FHWA, 1998), as applicable.

The first lift above the separator fabric should be compacted by tracking with equipment or non-vibratory rollers to minimize disturbance of the sensitive subgrade soils. Subgrade soils that are disturbed, pumped, or rutted by construction activity should be removed prior to placement of any classified fill. Equipment should not track over or result in pumping the bottom of the excavation prior to fill placement.

#### 6.13 Reuse of Material

The native silts, sandy silts, and silty sands contain approximately 55 to 99 percent fines, and most were above 70 percent and are moisture sensitive. This material meets only the gradation criteria for ADOT&PF Standard Specification for Selected Material Type C. The native soils have an estimated FAA frost classification ranging from FG-2 to FG-4 (MOA frost classification F-2 to F-4) indicating a medium to high frost susceptible soil. These soils may be salvaged and reused for non-classified fill applications onsite. Any re-used soil should be protected from additional moisture input through the use of plastic tarps or other means. In particular, the native silty soils will become difficult to work with or to drive over should they become wet. We recommend the contractor be diligent during construction to ensure the silty soils remain dry or are permitted to dry prior to traversing over and placing new fill on the native silty soils.

When reusing material, consideration should be given to the ability to excavate, sort, and store reusable materials. This effort may be less efficient and less cost effective than complete removal and replacement with imported materials. Cobbles may be present. If cobbles exceeding 6 inches in any one direction they should be removed, if encountered.

#### 6.14 Utility Recommendations

The satisfactory performance of piped utilities is highly dependent upon the quality of soil below and along the sides of the pipe. 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 existing soils outside the trench to maintain consistent surface behavior. We recommend a separation fabric be used to line all utility trenches to mitigate the potential for fines migration into the trench.

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. Construction Recommendations

#### 7.1 Site Preparation

All earthwork should be performed in accordance with project specifications and with local, state, and federal laws and regulations. Trees, small brush, and surface organics should be removed prior to starting any earthwork.

#### 7.2 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.

Excavations 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 range between 1.6 to 2.1H: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 4.0H: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.

All peat (particularly in the vicinity of BH-02, 03, and 18), organic soil, debris, or frozen soil must be removed from areas beneath the building, aircraft apron, sidewalks, retaining walls, and parking area and replaced with material as recommended in this report and following all project specifications. We note that if the peat remains, settlements below embankments on the order of 2 to 4 feet are expected to occur. If the peats remain, we should be informed and engaged to evaluate settlement magnitudes and rates relative to construction schedules and infrastructure to ensure settlements do not impact the long-term performance of the pavement or other facilities.

We recommend the buried wood encountered in BH-26 be overexcavated and removed prior to site development and taxiway construction. The limits of the excavation are unknown due to the fact that the surrounding borings (BH-19, 20, and 25) did not encounter the buried wood and therefore the extent of the buried wood is unknown. If desired, additional field studies could be performed to try to delineate the limits of the buried wood; however, we understand that the project timeline may not permit this. As such, we recommend the contractor plan to start excavation in the vicinity of BH-26 and proceed to excavate down until mineral soil below the buried wood is exposed. The contractor can then continue excavation of the buried wood deteriorating would no longer influence the apron access to Taxiway Z. We recommend the excavation extend down and away from the toe of the apron access embankment downward at a slope of 1H:2V to the bottom of the buried wood.

We also recommend that excavation bottoms 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 either NFS classified fill if within 6 feet of final grade or footing bottoms. In other cases, native silty soils with appropriate moisture levels can be used.

We recommend that the excavations be performed with equipment that minimizes disturbance of the insitu soils. Excavations should be performed by a backhoe with a smooth-bladed bucket from outside the excavation to minimize disturbance of the subgrade soils. Soils that are disturbed, pumped, or rutted by construction activity should be removed prior to placement of any classified fill.

We recommend foundation excavations extend laterally a minimum of 5 feet beyond the perimeter of the proposed building in every direction and be backfilled and compacted with classified fill following the recommendations of this report.

#### 7.3 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. 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 between 42 and 45.9 feet BGS, and was not observed in the majority of the boreholes. No conventional water table was observed at this site. 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 swales.

Dewatering of the silty soils is not anticipated to be required; however, surficial infiltration could occur during rain events. We expect dewatering of open excavations with sumps and pumps to be sufficient to remove surficial infiltration.

#### 7.4 Fill and Compaction

#### 7.4.1 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.

#### 7.4.2 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 ADOF&PF or with FAA requirements as designated in this report.

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.

#### 7.4.3 Unclassified Fill, Subgrade, and Compaction

The existing soils, consisting primarily of the silts, sandy silts, silty sands, and sands, are expected throughout the site, and are expected to be used as unclassified fill. The existing soils will also be subgrade soils below footings and pavement structural sections.

The natural water content of the near surface silts ranged from 12 to 38 percent which we estimate to be in near to excess of optimum water content for compaction. We expect the silts to have optimum water contents from 13 to 19 percent, though actual compaction testing is required to confirm these values. We note that the natural water content of the existing soils generally exceeded the estimated optimum water content where compared. We expect mechanical mixing or windrowing will be required to reduce the natural water content to achieve compaction. Additional methods, such as chemical stabilization, can be considered upon request.

We recommend all unclassified fill be placed in loose lifts not exceeding 6 inches in thickness with lift thickness adjusted based on the contractor's equipment to achieve the required compaction. Typical equipment recommended for compacting low plasticity soils includes sheepsfoot or pad foot rollers, in addition to control of water content. Each lift of unclassified fill should be compacted to a minimum of 95 percent of its Modified Proctor Maximum Density determined per ASTM D1557 for areas where buildings are constructed and heavy aircraft will traverse. Areas where light vehicular traffic or landscaping occurs, the compaction can be decreased to a minimum of 85 percent. Lightweight or hand-operated compactors should be used near existing infrastructure, if applicable, to avoid damage.

We recommend all subgrade soils be moisture conditioned and roller compacted such that the upper 2 feet achieve a minimum of 85 percent Modified Proctor Maximum Density determined per ASTM D1557.

All native silty soils and classified fill material should be thawed, free from lumps, organics, debris, and other deleterious material and should be durable and sound.

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. No hauling or grading equipment should be used in lieu of standard compaction equipment. Any loosening of compacted material should be replaced and or re-compacted.

#### 7.5 Pile Foundation Construction

Pile installations should be observed by a qualified person to determine they are installed in accordance with our recommendations and the project plans and specifications. An accurate as-built record of each installed pile is recommended as part of the permanent project record. At a minimum, the as-built record should include:

- Pile installation contractor means and methods
- Site and weather conditions for each pile
- Pile embedment depth and cutoff height
- Blow per foot and hammer stroke of pile installation
- Survey as-built of the pile relative to plan location and plumbness
- Record and notes of any changes in subsurface conditions inferred during pile installation
- Notes of any observed or inferred damage to the piles during installation

We recommend a wave equation analysis be performed to evaluate the pile/hammer performance to achieve required pile embedment without damage to the pile. We recommend the pile driving stresses not exceed 90 percent of the yield strength of the pile and that pile penetration rate not exceed 100 blows per foot. We recommend the wave equation analysis be performed by a qualified geotechnical engineer as part of the submittal process and be submitted prior to mobilization of equipment to the site.

#### 8. 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.

Samples will be retained by CRW for six months following the date on which the final report is issued. Other arrangements may be made at the client's request.

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.

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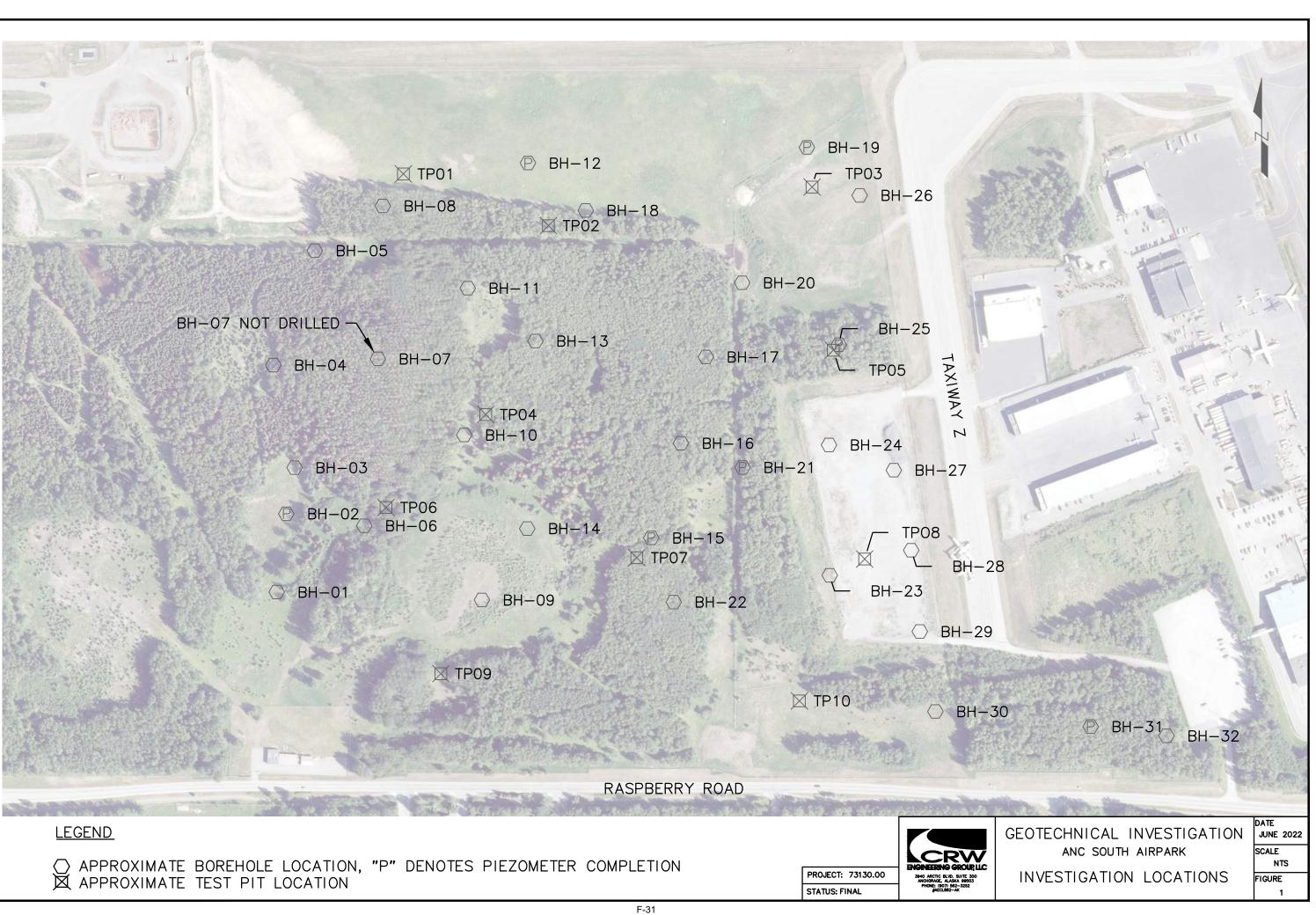
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### Figure



# Appendix A

## **Borehole Logs**

Included in this section:

- 1) Borehole Log Legends
- 2) Borehole Logs

#### **UNIFIED SOIL CLASSIFICATION (ASTM D 2487)**

-		-	
GROUP SYMBOL	SOIL GROUP NAMES &	LEGEN	ND
GW	WELL-GRADED GRAVEL	XÖ	åd
GP	POORLY GRADED GRAVEL		ontains and, ac sand"
GM	SILTY GRAVEL		if soil contains ≥ 15% sand, add "with sand"
GC	CLAYEY GRAVEL		.= <sub>N</sub>
SW	WELL-GRADED SAND		dd
SP	POORLY GRADED SAND		if soil contains ≥ 15% gravel, add "with gravel"
SM	SILTY SAND		f soil c 5% gr "with g
SC	CLAYEY SAND		,
CL	LEAN CLAY		soil d" or e is ndy"
ML	SILT		rained ith san /er type add "sa
OL	ORGANIC CLAY OR SILT		arse-gi add "w whichev 30%, a avelly"
СН	FAT CLAY		ains coarse- > 29%, add " el" for which or for ≥ 30%, or "gravelly
МН	ELASTIC SILT		If soil contains coarse-grained soil from 15% to 29%, aod "with sand" or "with grave!" for whichever type is prominent, or for 2 30%, add "sandy" or "gravelly"
ОН	ORGANIC CLAY OR SILT		ifs from "wi prom
PT	PEAT	$\underline{\vee\!\!/}$	

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."

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#### **OTHER SYMBOLS**

SYMBOL	NAMES & LEGEND		
BLDR	COBBLES AND BOULDERS	X	overlay
FILL	GRANULAR FILL		e or
WD	WOODY DEBRIS	$\mathbb{N}$	nan-made placed
RAP	RECLAIMED ASPHALT PAVEMENT		mar

#### **CRITERIA FOR DESCRIBING MOISTURE CONDITION** (ASTM D 2488)

	1
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

### DESCRIPTIVE TERMINOLOGY FOR

PERCENTAGE	<u>`</u>	í — — — — — — — — — — — — — — — — — — —								
DESCRIPTIVE			Atterberg Limit	PI	Plastic Index	TS	Thaw Consolidation			
TERMS			Consolidation	PID	Photoionization Detector	ΤV	Torvane			
TRACE	0 - 5%	LMA	Limited Mechanical Analysis	Proc	Proctor	TXCD	Consolidated Drained Triaxial			
FEW	5 - 10%	MA	Sieve and Hydrometer Analysis	PP	Pocket Penetrometer	TXCU	Consolidated Undrained Triaxial			
LITTLE	10 - 25%	MC	Moisture Content	P200	Percent Fines (Silt & Clay)	TXUU	Unconsolidated Undrained Triaxial			
SOME	30 - 45%	NP	Non-plastic	SA	Sieve Analysis	VS	Vane Shear			
MOSTLY	50 - 100%	OLI	Organic Loss on Ignition		Specific Gravity	Ω	Soil Resistivity			
LEGEND: FIELD AND LABORATORY TEST ABBREVIATIONS										

COHESIONLESS SOILS(a)

 $N_{60}$ 

(BLOWS/FOOT)(c)

0 - 4

4 - 10

10 - 30

30 - 50

OVER 50

SPT Sampler (2 in. OD, 140 lb hammer)

Oversize Spit Spoon (2.5 in. OD, 140 lb typ.)

Bulk Drive (4 in. OD, 300/340 lb hammer typ.)

Continuous Core (Soil in Hollow-Stem Auger)

Grab Sample from surface / testpit

Heavy Duty Split Spoon (3 in. OD, 300/340 lb typ.)

RELATIVE

DENSITY

LOOSE

DENSE

SS

SSO

HD

ΒD

CA

G

(a)

(b) (c) (d) U,

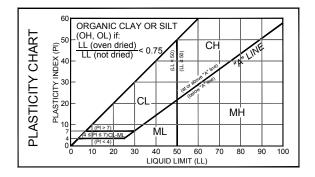
VERY LOOSE

MED DENSE

VERY DENSE

#### 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



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

Soils consisting of gravel, sand and silt, either separately or in combination possessing no characteristics of plasticity, and exhibiting drained

Solis consisting of graver, sand and sin, enter separately of in combination possessing to characteristics of plasticity, and exhibiting undrained behavior. Solis possessing the characteristics of plasticity, and exhibiting undrained behavior. Refer to ASTM D 1586-99 for a definition of N. Undrained shear strength,  $s_u = 1/2$  unconfined compression strength, U<sub>c</sub>. Note that Torvane measures  $s_u$  and Pocket Penetrometer measures

SAMPLER ABBREVIATIONS

CONSISTENCY

VERY SOFT

VERY STIFF

SOFT

STIFF

HARD

MEDIUM

COHESIVE SOILS(b)

N<sub>60</sub>

(BLOWS/FOOT)(c)

0 - 2

2 - 4

4 - 8

8 - 15

15 - 30

OVER 30

С

ΤW

MS

GP

AR

AG

Core (Rock)

Geoprobe

Modified Shelby

Auger Cuttings

Air Rotary Cuttings

Thin Wall (Shelby Tube)

UNCONFINED

COMPRESSIVE

STRENGTH (TSF)<sup>(d)</sup>

0 - 0.25

0.25 - 0.50

0.50 - 1.0

1.0 - 2.0

2.0 - 4.0

OVER 4.0

F-33

	FROZEN SOIL CLAS	SIFICATIO	N (ASTM I	D 408	3)					
1. DESCRIBE SOIL INDEPENDENT O		CLASSIF		THE L	INIFIED SOIL					
FROZEN STATE	MAJOR	MAJOR GROUP			SUBGROU	P	ICE BONDING SYMBOLS			
	DESCRIPTION	DESCRIPTION DESIGNAT		DES	CRIPTION	DESIGNATION	No ice-bonded soil			
	Segregated		Poo	orly bo	nded of friable	N <sub>f</sub>	observed			
	ice not visible by eye	N		ell	No excess ice	Nbn	Poorly bonded or friable			
2. MODIFY SOIL DESCRIPTION B	r		bon		Excess ice	Nbe	Well bonded			
DESCRIPTION OF FROZEN SOIL	F		Indi		ice crystals or lusions	Vx				
	Segregated ice		Ice	Ice coatings on particles		Vc	DEFINITIONS			
	visible by eye (ice less than 25 mm thick)	v		Random or irregularly oriented ice formations		Vr	<u>Candled Ice</u> is ice which has rotted or otherwise formed into long columnar crystals very loosely bonded together.			
				Stratified or distinct oriented ice formatic		Vs	<u>Clear loe</u> is transparent and contains only a moderate number of air bubbles. <u>Cloudy loe</u> is translucent, but essentially sound and non-pervious.			
			Unit	Uniformly distribute		Vu				
3. MODIFY SOIL DESCRIPTION B' DESCRIPTION O					soil inclusions	ICE+soil type	Friable denotes a condition in which material is easily broken up under light to moderate pressure.			
SUBSTANTIAL IC STRATA		ICE			t soil inclusions	ICE	Granular Ice is composed of coarse, more or less equidimensional, ice crystals weakly bonded together.			
	FROST DESIGN S		SIFICATIO	<b>DN</b> <sup>(1)</sup>			<u>Ice Coatings</u> on particles are discernible layers of ice found on or below the larger soil particles			
FROST GROUP <sup>(2)</sup>	GENERAL SOIL TY		% FINER T 0.02 mm I WEIGH	n BY TYPIC		AL USCS CLASS	in a frozen soil mass. They are sometimes associated with hoarfrost crystals, which have grown into voids produced by the freezing action.			
NFS <sup>(3)</sup>	(a) Gravels Crushed stone Crushed rock		0 - 1.5	0 - 1.5		/, GP	<u>Ice Crystal</u> 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.			
	(b) Sands		0 - 3		SV	/, SP	Le Lenses are lenticular ice formations in soil			
PFS <sup>(4)</sup> [MOA NFS] [FAA NFS]	(a) Gravels Crushed stone		1.5 - 3		GV	I, GP	occurring essentially parallel to each other, generally normal to the direction of heat loss and commonly in repeated layers.			
	Crushed rock						Lee Segregation is the growth of ice as distinct lenses, layers, veins and masses in soils,			
[MOA F2] [FAA FG-2] S1	(b) Sands		3 - 10			I, SP	commonly but not always oriented normal to direction of heat loss.			
[MOA F1] [FAA FG-1]	Gravelly soils		3 - 6			V-GM, GP-GM, C, GP-GC	Massive Ice is a large mass of ice, typically			
S1 [MOA F2] [FAA FG-2]	Sandy soils		3 - 6			V-SM, SP-SM, C, SP-SC	nearly pure and relatively homogeneous. <u>Poorly-Bonded</u> signifies that the soil particles are weakly held together by the ice and that the			
F1 <sup>(5)</sup> [FAA FG-1]	Gravelly soils		6 - 10			I-GC, GW-GM, V-GC, GP-GC	frozen soil consequently has poor resistance to chipping or breaking.			
F2 <sup>(5)</sup>	(a) Gravelly soils	,	10 - 20	)	GW-GO	V-GM, GP-GM, C, GP-GC	Porous Ice contains numerous void, usually interconnected and usually resulting from melting at air bubbles or along crystal interfaces			
[FAA FG-2]	(b) Sands 6 - 15		SW-SC, SF	I, SP-SM, SC, P-SC, SM-SC	from presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural					
F3 <sup>(5)</sup>	(a) Gravelly soils	10 -20	0 GM, GC, GM-GC			unity.				
[FAA FG-2] [For Clays, FAA FG-3]	(b) Sands, except very f sands	6 - 15 		SM, SC	C, SM-SC	Thaw-Stable frozen soils do not, on thawing, show loss of strength below normal, long-time				
[. c. c.c., o, i / i / i o o]	(c) Clays, PI>12			CL	, CH	thawed values nor produce detrimental settlement.				
	(a) Silts				ML, MI	H, ML-CL	Thaw-Unstable frozen soils show on thawing,			
F4 <sup>(5)</sup>	(b) Very fine silty sa		Over 1	5		C, SM-SC	significant loss of strength below normal, long-time thawed values and/or significant			
[FAA FG-4]	(c) Clays, PI<12					ML-CL	settlement, as a direct result of the melting of the excess ice in the soil.			
(1) From the LLS Army Corres of Figure	(d) Varved clays or other fine-grained CL or CH layered with ML, MH banded sediments ML-CL, SM, SC, or SM-SC om the U.S. Army Corps of Engineers (USACE), EM 1110-3-138, "Pavement Criteria for Seasonal Frost Conditions", April 1984									
<ol> <li>USACE frost groups directly corresp frost groups come from Table 2-2 in Se</li> <li>Non-frost susceptible</li> </ol>	oond to frost groups in Municipality of Ar	chorage (MOA) E	Design Criteria M	lanual (D	CM). Federal Aviation	Administration (FAA)	frozen soil possesses relatively high resistance to chipping or breaking.			

(2) USACE trost groups directly correspond to frost groups in Municipality of Anchorage (MOA) Design Criteria Manual (DCM). Fee frost groups come from Table 2-2 in Section 2.7 of Advisory Circular (AC) 150/5320-6F, Airport Pavement Design and Evaluation.
 (3) Non-frost susceptible
 (4) Possibly frost susceptible, requires lab test for void ratio to determine frost design classification.
 (5) Consistent with MOA Definition.

added.dwg

debris\_

RAP

Legend \Geotech\_

\_ 00

Report Template\Borehole

Geotechnical

Geotechnical\CRW

ces\Tech

Refer

×1 / L ×



#### LEGEND: FROZEN SOIL CLASSIFICATION

	R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	RE	HOLE BH-01 PAGE 1 OF 2	
		blore Design	PROJEC		ME A	NC South	Airpar	k Ca	irgo T	ermina	al	
			PROJECT LOCATION Anchorage, Alaska									
DATE STARTED 4/11/22 COMPLETED 4/11/22												
DRILLING CONTRACTOR_GeoTek Alaska, Inc.			GROUN	D WA		EVELS:						
DRILLING METHOD_Hollow-Stem Auger				тімі			Not	Obs	serve	d		
LOGGED E	AT END OF DRILLING											
NOTES	AF	TER	DRILL	.ING								
o DEPTH (ft) U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPI E TYPE	NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40	
	1000000000000000000000000000000000000	SILTY GRAVEL WITH SAND, (GM) 50% gravel, 30% sand, 20% fines Brown, moist to wet, subangular gravel up to 1" with organics. Coarse to fine grain sand.		G S1							0	
 ML		SILT WITH GRAVEL, (ML) 20% gravel, 0% sand, 80 fines Brown, moist, fine gravel. Nonplastic.	0%	HD S2	75	1-3-3-3 (6)	-			AL	• O	
5 - SM		SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Brown, moist.		HD S3	67	2-3-4-3 (7)	-				0	
SM	000000000000000000000000000000000000000	SILTY SAND, (SM) 11% gravel, 56% sand, 33% fine Brown, moist, 1" coal seam.	es - M	HD S4	75	3-3-3-6 (6)	-			LMA	▲ O	
_		POORLY GRADED GRAVEL WITH SILT AND SAN (GP-GM) 48% gravel, 47% sand, 5% fines Brown, moist, subrounded gravel up to 1.5". Medium fine grain sand.	IVI	HD S5	75	4-5-4-5 (9)	-			SA	0	
GP- GM - - - - - - - - - - - - - - - - - -		POORLY GRADED SAND WITH SILT, (SP-SM) 7% gravel, 87% sand, 6% fines Brown, moist. Medium to fine grain sand. Color change at 17 feet to sandy black soil.		HD S6	67	4-6-7-8 (13)	-			SA	0	
SM												

(Continued Next Page)



## **BOREHOLE BH-01**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NUMBER 73130.00

**PROJECT NAME** ANC South Airpark Cargo Terminal

	PROJ	ECTI	UMBE	R_73130.00 PR	OJECT L	OCATI	ON Anchor	age, A	lask	a			
	05 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE 10 20 30 4 PL MC LL 10 20 30 4	<u>+0</u>
	  25	SM		SILTY SAND, (SM) 8% gravel, 48% sand, 44% fines Brown, moist. Fine grain sand.	HEST	67	5-7-6-13 (13)				SA		
				POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 55% gravel, 42% sand, 3% fines Brown, moist, subrounded gravel up to 2.5". Coarse to fine grain sand.		67	6-20-24-53 (44)				SA	0	•
56 - 73130_TESTHOLES.GPJ		GP- GM		46% gravel, 44% sand, 10% fines	HESS	92	11-18-19- 26 (37)				SA	0	
CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 73130_TESTHOLES.GPJ		SM		SILTY SAND, (SM) 5% gravel, 50% sand, 45% fines Brown, moist.		100	16-18-11- 10 (29)				LMA	©	
DA LOG - CRW_E		SM		SILTY SAND WITH GRAVEL, (SM) 17% gravel, 66% sand, 17% fines Brown, moist.		100	8-15-17-43 (32)				LMA	•••••••••••••••••••••••••••••••••••••••	
CRW MC				Bottom of borehole at 42.0 feet.			1				1		
$\circ$				Notes:									

CR	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	PAGE 1 OF
CLIENT MCG Exp	olore Design	PROJECT	NAME_/	NC South	Airpar	'k Ca	irgo T	ermina	al
PROJECT NUMBE	<b>R</b> _73130.00	PROJECT	LOCATI	ON Ancho	rage, A	Alask	a		
DATE STARTED_	4/9/22 COMPLETED 4/9/22	GROUND E	LEVAT						
ORILLING CONTR	ACTOR GeoTek Alaska, Inc.	GROUND V	VATER	LEVELS:					
DRILLING METHO	D Hollow-Stem Auger	AT TI	ME OF		No	t Obs	serve	d	
	H CHECKED BY SMH			DRILLING_ LING_44.1					
o DEPTH (ft) U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
- <u>1' 7</u> <u>7</u> 1	PEAT, (PT) 0% gravel, 30% sand, 70% fines Brown, moist, organics. Percentages are for minera component within the peat.	al soil G	i 1						3
PT <u>v</u> v	Woody, fibrous.			1-1-0-0 (1)	_				5
5 <u>v</u> <u>v</u> <u>v</u>	Woody, fibrous.			1-0-0-0 (0)	_				4
	SANDY SILT, (ML) 8% gravel, 26% sand, 66% fine Gray, one to two sand lenses about 1/4" thick.		D <sub>4</sub> 100	1-0-2-1 (2)	2.0 2.0 2.5			LMA	• 0
10 - ML	Nonplastic.		D 100	3-3-5-13 (8)	3.0 3.0 3.5			AL	• • • O
	SILTY GRAVEL WITH SAND, (GM) 45% gravel, 39 sand, 16% fines Gray, subangular gravel up to 2".		2 3 67	1-6-6-10 (12)	_			SA	



#### **BOREHOLE BH-02**

PAGE 2 OF 3

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PROJECT NUMB	ER_73130.00 P	ROJECT LO	CATIO	<b>DN</b> Anchor	age, A	lask	a		
05 DEPTH (ft) U.S.C.S. LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
SP-	POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist. Medium to coarse grain sand. POORLY GRADED GRAVEL WITH SAND, (GP) 60%	HD S7A HD	83	5-9-22-31 (31)					0
	gravel, 35% sand, 5% fines	<u>S7B</u>							
	WELL GRADED GRAVEL WITH SILT AND SAND, (GW-GM) 59% gravel, 36% sand, 5% fines Gray, subrounded gravel up to 1.5".	HD S8	100	7-12-11-13 (23)				SA	0
30	SILTY SAND WITH GRAVEL, (SM) 19% gravel, 53% sand, 28% fines Brown, one silt lens near top of sample 1.5" thick.	HD S9	100	6-15-13-25 (28)				LMA	
	POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 31% gravel, 62% sand, 7% fines Silty at top of sample. One large gravel in spoon.	HD S10	75	11-16-25- 63 (41)				LMA	0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	40% gravel, 52% sand, 8% fines Brown, one silt lense 1/2" from bottom of spoon.	HD S11	100	16-18-29- 31 (47)				LMA	



# **BOREHOLE BH-02**

PAGE 3 OF 3

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ECT	NUMB	ER_73130.00 PR	OJE		CATI	ON Anchor	rage, A	lask	a		
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE I TE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
45	SP- SM		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 31% gravel, 62% sand, 7% fines Silty at top of sample. One large gravel in spoon. (continued)									
		0 0 0	SILTY SAND WITH GRAVEL, (SM) 33% gravel, 48% sand, 19% fines Brown, gravel content increasing with depth. Some sand lenses.		HD S12	95	5-11-42- 50/3"				LMA	
	SM											
	ML	0	SILT WITH SAND, (ML) 0% gravel, 23% sand, 77% fines Gray.		HD S13	92	7-13-14-17 (27)	2.75 3.0 3.25			LMA	O,

Bottom of borehole at 52.0 feet.

Notes:

Completed as piezometer with 1 inch Schedule 80 PVC. Handslotted from 5 to 50 feet. Stickup 19 inches.

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	HOLE BH-0 PAGE 1 OF
CLIEN	<b>Т</b> М	CG E	xplore Design	PROJECT	NAME_	ANC South	Airpar	k Ca	irgo T	ermina	al
PROJI	ECT I	NUME	ER_73130.00	PROJECT	LOCAT	ON Ancho	rage, A	Alask	a		
			4/11/22 <b>COMPLETED</b> _4/11/22								
			RACTOR_GeoTek Alaska, Inc.		WATER	LEVELS:					
			OD_Hollow-Stem Auger			DRILLING					
			IH CHECKED BY SMH			DRILLING_ LING					
	3										
0 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE A 10 20 30 40 PL MC LL 10 20 30 40
_		<u>~ ~</u>	PEAT, (PT) Brown, moist, organics, with some black silt from 0 feet. Ice crystals.		G 51						2
-	PT	<u>~ ~</u>									
_			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, nonplastic. Layer transition inferred fr drilling action.	rom							
5							-				
_					HD 52 83	2-2-3-3 (5)	1.0 1.25 1.5				• O
_	ML					(-)					
_											
-											
10			POORLY GRADED SAND WITH SILT, (SP-SM) 09				_				
			gravel, 90% sand, 10% fines Brown, moist, brown. Fine grain sand.	IVI f	ID 53 88	2-5-5-6					0
			Ŭ			(10)					
-	SP-						-				
_	SM										
15			SILT, (ML) 0% gravel, 0% sand, 100% fines								
-			Brown, moist, nonplastic.		ID 54 75	2-3-4-10 (7)	1.5 1.5 2.0			AL	<b>O</b>
-							-				
	ML										
-											
20											



# **BOREHOLE BH-03**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40
20		Ū		SAM	REO	_oz	POO	⊇			PL MC LL 10 20 30 40
-			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.		) 5 88	5-6-9-8 (15)				LMA	
_ _ 25	ML						2.0				
-					) 3 83 	4-8-10-10 (18)	2.5 3.0			LMA	0
- 30			SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fines Brown, moist.	Инс	)	10-15-24-	>4.5				- CH
_	CL- ML			∧ s7	75	39 (39)	>4.5			AL	
35			POORLY GRADED SAND WITH SILT, (SP-SM) 0%								
-	SP-		gravel, 90% sand, 10% fines Brown, moist. Fine grain sand. Nonplastic fines.		) 3 89	7-20-32 (52)	_				Ŏ
_ _ 40	SM										
<u>+U</u>	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown, moist. Fine grain sand. Bottom of borehole at 41.5 feet.		) 100	11-21-28 (49)					0

Anchorage, Alaska Telephone: (907)	Group, LLC e 300 99503 562-3252						RC	DRE	но	PAGE	<b>3H-U</b> 1 OF 3
IENT MCG Explore Design	P	ROJECT NA	ME_A	NC South	Airpar	k Ca	irgo T	ermina	al		
ROJECT NUMBER_73130.00	P	ROJECT LC	CATI	ON Ancho	rage, A	lask	a				
ATE STARTED 4/12/22 COMP	LETED <u>4/12/22</u> G		EVATI	ON							
RILLING CONTRACTOR GeoTek Alaska, In	с G		ATER I	LEVELS:							
DGGED BY <u>MCH</u> CHECK DTES				RILLING_ LING							
	DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	<u>10</u> F	) <u>20</u> PL MC	; LL
ORGANIC SOIL, (OL) 0 <sup>4</sup> ORGANIC SOIL, (OL) 0 <sup>4</sup> Dark brown, moist, organ	% gravel, 20% sand, 80% fine: nics.	S G S1	-						10	20	<u>30 40</u> 1(
SILTY SAND, (SM) 0% ( Brown, moist. Fine grain	gravel, 57% sand, 43% fines sand.	HD S2	83	2-2-2-4 (4)				LMA	▲ C	)	
5 SM Nonplastic.		HD S3	100	3-3-3-4 (6)	_			AL	•••••••	)	
ML Brown moist, silt content	ravel, 30% sand, 70% fines increasing with depth.	HD S4	100	1-2-3-3 (5)	3.75 3.5 3.5 3.5					0	
0 SILT, (ML) 0% gravel, 10	)% sand, 90% fines	HD S5	100	1-2-4-6 (6)	3.75 3.75 3.75 3.75			LMA		0	
ML       -											
5 SILT WITH SAND, (ML) fines Brown, moist, softer than	0% gravel, 15% sand, 85%	HD S6	100	4-3-3-6 (6)	2.5 2.5 2.5						
0											



## **BOREHOLE BH-04**

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CLIENT MCG Explore Design

PROJECT NUMBER 73130.00

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT LOCATION Anchorage, Alaska

		-	ER_73130.00 F	ROJECTE	_						
05 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	-		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, one sand lens 1.5" thick.	HD S7	75	5-9-12-13 (21)	3.5 35 3.5			LMA	
	-		0% gravel, 10% sand, 90% fines Nonplastic.	HD S8	83	3-5-6-8 (11)	3.5 >4.0 >4.0				0
30 30    	ML		0% gravel, 9% sand, 91% fines Three sand lenses 1/4" thick.	HD S9	100	6-5-9-21 (14)	3.75 4.25 3.75			LMA	▲O
	-		Three sand lenses in sample up to 1/2" thick.	HD S10	100	8-14-25 (39)	>4.5 >4.5 4.0				0
CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 67 - 67 - 67 - 67 - 67 - 67 - 67 -	- SP		0% gravel, 10% sand, 90% fines POORLY GRADED SAND, (SP) 0% gravel, 95% sand 5% fines Brown, moist. Medium grain sand. (Continued Next Page)	HD S11A , HD S11E		3-5-18 (23)	3.5 4.5 2.75				0



# **BOREHOLE BH-04**

PAGE 3 OF 3

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ЕСТ І	NUMBI	ER 73130.00 PRC	JECT L	OCATI	ON Ancho	rage, A	lask	а			_
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE 10 20 30 40 PL MC LL 10 20 30 40	0
  45	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown, moist. Medium grain sand. <i>(continued)</i>									
	SM		SILTY SAND, (SM) 1% gravel, 66% sand, 33% fines Brown, moist. Fine grain sand. SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist.			7-18-36 (54)	>4.5			LMA	0	>>
	ML											
	 ML		SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown, moist, multiple sand lenses.	HD S13	100	7-33-50 (83)	>4.5 >4.5 >4.5			LMA	o	>>_

Bottom of borehole at 51.5 feet.

Notes:

Backfilled with cuttings.

		R	21	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	HOLE BH-0 PAGE 1 OF
CLIEN	IT_M	CG E	Expl	ore Design	PROJ		ME_A	NC South	Airpa	'k Ca	argo T	ermina	al
PROJ	ЕСТ І	NUM	BEF	R_73130.00	PROJ	ECT LO	CATIO	ON Ancho	rage, /	Alasł	ka		
DATE	STA	RTE	<b>)</b> _4/	/14/22 COMPLETED 4/14/22	GRO	JND EL	EVATI	ON					
DRILL	ING (	CON	TRA	ACTOR GeoTek Alaska, Inc.	GRO		TER I	EVELS:					
DRILL	ING I	METI	10	D Hollow-Stem Auger		AT TIM	E OF [		No	t Ob	serve	d	
LOGG	ED B	Y D	SN	CHECKED BY SMH			OF D	RILLING					
NOTE	s					AFTER	DRILL	_ING					
DEPTH (ft)	U.S.C.S.	GRAPHIC	2	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE A 10 20 30 40 PL MC LL 10 20 30 40
0	ML			SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, wet, organics. Frozen.		G S1	-						<u>10 20 30 40</u> 3
_				SILT WITH SAND, (ML) 0% gravel, 19% sand, 81% fines Brown/tan, moist, few roots 1/8" diameter. Outside of sample wet likely from thawing ice.		HD S2	88	1-3-2-3 (5)	_			LMA	▲ Ô
5	ML			Top 6 inches of sample wet. Nonplastic.		HD S3	75	2-4-3-4 (7)				AL	O
-				SILT, (ML) 0% gravel, 13% sand, 87% fines Brown/tan, moist, top 6" of sample wet. Crumbles ea under hand pressure. Medium grain sand.	asily	HD S4	88	4-5-5-4 (10)	_			LMA	• 0
<u>10</u> –				Medium grain sand.		HD S5	88	3-4-6-7 (10)	_				<b>A</b> O
-	ML												
<u>15</u> –				0% gravel, 10% sand, 90% fines Less sand than above. Crumbles easily under hand pressure. Nonplastic.		HD S6	75	4-6-6-7 (12)	_			AL	0
_													
20													



# **BOREHOLE BH-05**

PAGE 2 OF 2

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

ska	
ODD         O         O         SPT N VA           O         O         SPT N VA         10 20 3           NH         PL MC         10 20 3           10 20 3         10 20 3	0 40
	~~~~
	>>
LMA	

Notes Backfilled with cuttings.

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE		EBH-	
CLIEN PROJI	IT <u>M</u> ECT I	CG Ex	plore Design ER_73130.00	PROJEC	T LO	CATIO	NC South	rage, A	lask	a				
DATE	STA	RTED_	4/8/22 COMPLETED 4/8/22	GROUNI	DEL	EVATI	ON							
ORILL	ING (	CONTR	RACTOR GeoTek Alaska, Inc.		D WA		EVELS:							
			D Hollow-Stem Auger											
			N CHECKED BY SMH				RILLING_							
NOTE	s	1		AF	IER	DRILL	.ING	1						_
o DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	10	T N VALUE <u>20 30 4(</u> <u>MC LL</u> <u>20 30 4(</u>	0
_	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, moist with organics. Possibly frozen and thawed during augering.	d	G S1									
_	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, trace organics.		HD S2	88	1-1-1-1 (2)	1.5 1.5 2.0			AL		ОН	
5	ML		SILT WITH SAND, (ML) 1% gravel, 15% sand, 84% fines Brown, moist.		HD S3	88	1-3-3-3 (6)	3.0 1.75 1.25			LMA		O	-
-	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sar 5% fines Brown/black/white, moist. Medium grain sand. SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist.		HD S4A HD S4B	100	3-2-3-2 (5)	1.0 0.5 1.5					0	
_			Nonplastic.		HD S5	100	2-2-2-3 (4)	1.5 1.75 2.5			AL		0	
- 15	ML													
					HD S6	100	2-2-4-4 (6)	2.5 2.5 2.75				•••	0	
-														
20														



### **BOREHOLE BH-06**

PAGE 2 OF 2

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PRO.		NUMBE	<b>R</b> _73130.00	PROJECT LO	DCATI	ON Ancho	rage, A	lask	a		
0 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist. <i>(continued)</i> SILTY SAND, (SM) 0% gravel, 75% sand, 25% fines Brown, moist. 1" black organic/coal layer at 21.5 fee	s t. HD S7A HD S7B	100	4-4-5-6 (9)	_				0
  25	SM	0) ( 0) ( 0)	POORLY GRADED GRAVEL WITH SAND, (GP) 55	<del></del>			-				·····
	GP		gravel, 41% sand, 4% fines Light gray/gray, moist, subrounded and subangular grave broken to angular up to 2". Medium grain san	d.	88	9-15-29-42 (44)	2			LMA	O
30			POORLY GRADED SAND WITH GRAVEL, (SP) 44 gravel, 52% sand, 4% fines Light gray/gray, moist, subrounded/subangular grav to 1.5". Medium grain sand.		75	7-12-14-28 (26)	3			LMA	0

Bottom of borehole at 32.0 feet.

Notes: Backfilled with cuttings.

CR	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	PAGE 1 OF 2
	plore Design	PROJ		ME_A	NC South	Airpar	k Ca	irgo T	ermina	al
	<b>R</b> _73130.00					rage, A	lask	a		
	4/13/22 COMPLETED 4/13/22									
	RACTOR GeoTek Alaska, Inc.									
	DD Hollow-Stem Auger	-								
	H CHECKED BY SMH				RILLING_ .ING					
o DEPTH (ft) U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	PEAT, (PT) Organic mat.		G S1							
- - - ML	SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist to wet, organics.	-								
5	Environmental sample collected by ChemTrack. SILTY SAND, (SM) 0% gravel, 79% sand, 21% fine		HD S2	88	2-2-2-5 (4)	-			AL	▲
	Brown, moist. Fine grain sand.									····· ···· ···· ···· ····
10 SM			HD S3	67	3-7-10-10 (17)				SA	•
	SANDY SILT, (ML) 0% gravel, 40% sand, 60% fine Brown, moist. Fine grain sand.	es	HD S4	75	3-5-12-16 (17)				LMA	2
- ML										
20										



### **BOREHOLE BH-08**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PROJ	ЕСТІ	NUMBI	ER_73130.00	PROJECT L	OCATI	ON Anchor	age, A	lask	a					
0 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	10	20	1 VALU 30 MC 30	40
	SM		SILTY SAND, (SM) 0% gravel, 67% sand, 33% fine Brown, moist. Fine grain sand.	s HD S5	100	7-19-20-29 (39)				LMA	0			
<u>25</u>  			SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist.	HD S6	100	10-24-30 (54)	>4.5 x 3			AL		C	<b>}</b>	>>/
			Bottom of borehole at 31.5 feet.	HD S7	100	5-12-16 (28)	3.0 3.5 4.0					(		

Notes: Backfilled with cuttings.

CRW MOA LOG - CRW\_DATATEMPLATE\_20190115.GDT - 5/24/22 14:56 - 73130\_TESTHOLES.GPJ

		5/	3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252								HOLE BH-( PAGE 1 OF
CLIENT MC	CG	Expl	lore Design	PROJECT N	AME_/	NC South	Airpar	k Cai	rgo T	ermina	al
				PROJECT LO			rage, A	laska	а		
			/7/22 COMPLETED 4/7/22								
DRILLING C	CON	ITR/	ACTOR GeoTek Alaska, Inc.	GROUND W	ATER	LEVELS:					
			D_Hollow-Stem Auger								
			CHECKED BY <u>SMH</u>			RILLING_ LING					
0 DEPTH (ft) U.S.C.S.	GRAPHIC	FOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE . 10 20 30 40 PL MC LL 10 20 30 40
ML			SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist, few small roots and organics.	G S1	-						
			SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown, moist, trace roots. Medium grain sand.	HD S2	75	1-0-2-2 (2)	-				<b>▲</b> 0
5			SILT, (ML) 0% gravel, 7% sand, 93% fines Brown, moist, trace roots. <1% subrounded gravel up 0.18"	to to HD S3	75	2-3-4-3 (7)	-			SA	• 0
-			Wet spoon likley from melting snow at surface. No gravel.	HD S4	75	3-3-4-3 (7)					▲ O
10 ML			0% gravel, 4% sand, 96% fines Wet spoon likley from melting snow at surface. No gravel. Environmental sample collected by ChemTrack.	HD S5	100	1-3-4-4 (7)	1.5 2.0 1.0			LMA	···• • • • • • • • • • • • • • • • • •
- 15											
- - SP-	0	0	POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) 20% gravel, 74% sand, 6% fines Brown/gray, moist, subrounded gravel up to 3/4". Medium grain sand.	-, HD S6	100	7-7-6-8 (13)	-			SA	0
20 SM		$\bigcirc \tilde{}$									



### **BOREHOLE BH-09**

PAGE 2 OF 3

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PRO	OJECI	NU	MB	R_73130.00 PR	OJECT LO	CATI	ON Anchor	age, A	lask	a			
DEPTH	(II) U.S.C.S.		LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	10 2	N VALUE ▲ 20 30 40
20			,		SAN	REC	02	POO	⊻			PL 10 2	MC LL 20 30 40
-	-			POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) Brown/gray, moist, subrounded and subangular gravel up to 2.5" in Sample S7, broken to angular. Likely cobble insitu.	HD S7	88	5-6-11-10 (17)					0	
- - 25		0 - 0	$\bigcirc$ $\bigcirc$ $\bigcirc$										
-	SN			43% gravel, 51% sand, 6% fines	HD S8	100	6-6-7-9 (13)				SA	• • • • • • • • • • • • • • • • • • •	
- - <u>30</u>	_			GRAVELLY SILT, (ML) 20% gravel, 10% sand, 70%	HD								
.GPJ	 	0 0	,0 0 0	GRAVELLY SILT, (ML) 20% gravel, 10% sand, 70% fines Brown, moist, subrounded gravel up to 2". POORLY GRADED SAND WITH GRAVEL, (SP) 30% gravel, 70% sand, 0% fines Gray/white/black, moist, subrounded gravel up to 2.5", broken to angular. Medium grain sand. 1" black coal	HD S9A HD S9B	100	10-10-10- 12 (20)					0	••••••
- 73130_IESTHOLES.GPJ	_ SF _			layer.									
1 - 5/24/22 14:56 - 5/24/22 14:56 - 6	-	000000		POORLY GRADED GRAVEL WITH SILT AND SAND, (GP-GM) 62% gravel, 33% sand, 5% fines Brown/black/gray, moist, subrounded gravel up to 2.5" with few broken to angular. Medium grain sand.	HD S10	109	18-42-47- 50/4"				LMA	. ()	>>
CRW MOA LOG - CKW_DATATEMPLATE_0190115.GDT - 5/24/22 14:55 - 73130_1_1_1_1_1_1_1_1_1_1_1_1_1_1_1_1_1_1	GP GN -		O (O ) (O										
	SW SN			WELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) 28% gravel, 64% sand, 8% fines Brown/gray, moist, subrounded gravel up to 1.5" broken to angular. Medium grain sand.	HD S11	100	16-15-21- 32 (36)				SA	0	·····
Ś				(Continued Next Page)								:	: : :



### **BOREHOLE BH-09**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

F	PROJ	ECT I	NUMB	ER 73130.00 PR	OJE	CT LO	CATI	ON Anchor	age, A	lask	a						
	UEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	10	) 2 ⊳L	N VAI 0 30 MC 0 30	) 4( LL	0
_	- 45	SW- SM		WELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) 28% gravel, 64% sand, 8% fines Brown/gray, moist, subrounded gravel up to 1.5" broken to angular. Medium grain sand. <i>(continued)</i>	X	HD S12A							0				· · · · · ·
-	_	ML	<u>o), o ol p</u>	SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist. Fine grain sand.		HD S12B	100	4-4-5-5 (9)	1.5 1.5 2.75				·····	C	>		
_	- 50			SANDY SILT, (ML) 2% gravel, 30% sand, 68% fines Brown, moist. Fine and medium grain sand.		HD S13	100	8-12-18-25 (30)				LMA		0			
								(30)									

Bottom of borehole at 52.0 feet.

Notes: Backfilled with cuttings.

		F	21	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	PAGE 1 OF	
CLIEN	т_м	CG	Expl	lore Design	PROJ		AME_/	NC South	Airpar	rk Ca	argo T	Fermin	ial	
				<b>R</b> _73130.00					orage, A	Alasł	ka			
				/8/22 COMPLETED 4/8/22										
				ACTOR GeoTek Alaska, Inc.										
				D Hollow-Stem Auger										
				CHECKED BY SMH				RILLING_ _ING		1				
o DEPTH (ft)	U.S.C.S.	GRAPHIC	LUG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE 10 20 30 40 PL MC LL 10 20 30 40	0
				SILT WITH SAND, (ML) 0% gravel, 15% sand, 85%										Ĭ
-	ML			fines Brown/light brown, moist, roots, twigs, grass.	I	G S1	-							ţ
-				SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist, crumbles under hand pressu	ire.	HD S2	75	2-2-3-4 (5)	_				▲ O	
5				Firmer than above sample. Nonplastic.		HD S3	100	2-3-3-3 (6)	1.25 1.0 1.5			AL	··• • • • • • • • • • • • • • • • • • •	
_	ML			0% gravel, 4% sand, 96% fines		HD S4	100	2-3-2-4 (5)	0.5 0.5 1.75 1.5			LMA	<b>A</b> O	
<u>10</u> –				Wet in middle of sample.		HD S5	100	2-5-4-6 (9)	0.5 1.75 3.5				<b>A</b> O	
-														
<u>15</u> - -	ML			SANDY SILT, (ML) 0% gravel, 43% sand, 57% fines Brown, moist. Fine to medium grain sand. SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.		HD S6A HD S6B	-	3-6-8-11 (14)	1.5			LMA	O _ O	
-	ML													
20										1				



#### **BOREHOLE BH-10**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJE	СТИ	NUMBE	ER_73130.00 F	ROJECT L		ON Ancho	rage, A	Alask	a		
(tt) DEPTH 50	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Brown/gray, moist. Medium grain sand. Black silt. POORLY GRADED SAND, (SP) 0% gravel, 95% sand 5% fines Gray/tan, moist. Medium grain sand.	d, HD S7A HD S7E	100	5-7-9-13 (16)	_				0 0
s  25	SP										
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S8	100	5-5-7-11 (12)	3.0 3.0 4.0 2.75			LMA	<b>O</b>
I  30	ML										
	ML		SANDY SILT, (ML) 0% gravel, 45% sand, 55% fines Brown, moist. Fine grain sand. Bottom of borehole at 32.0 feet.	HD S9A HD S9E	100	4-5-8-11 (13)				LMA	© •

Notes: Backfilled with cuttings.

CR	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	ORE	PAGE 1 OF :
	plore Design	PROJECT NA	AME_/	NC South	Airpar	k Ca	argo T	Termin	al
PROJECT NUMBE	ER_73130.00	PROJECT LO	CATI	ON Ancho	rage, A	Alask	ka		
DATE STARTED_	4/12/22 COMPLETED 4/12/22	GROUND EL	EVAT	ION					
ORILLING CONTR	RACTOR GeoTek Alaska, Inc.	GROUND WA	TER	LEVELS:					
DRILLING METHO	DD_Hollow-Stem Auger	AT TIM	E OF I		No	t Ob	serve	d	
LOGGED BY MC	H CHECKED BY <u>SMH</u>			RILLING_ LING					
o DEPTH (ff) U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DId	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, some organics.	G S1	-						
	SILT WITH SAND, (ML) 0% gravel, 24% sand, 76% fines Brown, moist.	HD S2	100	2-2-3-3 (5)	2.0 2.0 1.75			LMA	<
5	SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist.	HD S3	100	1-3-2-3 (5)	2.0 2.5 2.0 2.5			AL	▲ HD
ML		HD S4	100	4-6-8-8 (14)	-				▲Ŏ
	SANDY SILT, (ML) 0% gravel, 50% sand, 50% fines Brown, moist.	B HD S5	100	3-8-8-10 (16)	-				<b>C</b>
- ML									
15	SILTY SAND, (SM) 0% gravel, 62% sand, 38% fines Brown, moist. Fine grain sand.	s – HD S6	83	3-10-10-10 (20)	- D			LMA	<b>↓</b>
_ SM									
20									



### **BOREHOLE BH-11**

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CLIENT MCG Explore Design

PROJECT NUMBER 73130.00

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ECT	NUMB	ER_73130.00	PRO	JECT LO	CATI	ON Anchor	age, A	lask	a		
05 DEPTH (ft) 50	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
			SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Brown, moist.		HD S7	100	5-8-13-17 (21)					
 	SM				HD S8	100	5-8-9 (17)					•
 <u>30</u> 			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.		HD S9	100	6-20-23 (43)				LMA	0

Bottom of borehole at 31.5 feet.

Notes:

Backfilled with cuttings.

	R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252	BOREHOLE BH-1 PAGE 1 OF 2
PROJECT I	NUMBI		PROJECT NAME_ANC South Airpark Cargo Terminal PROJECT LOCATION_Anchorage, Alaska GROUND ELEVATION_
DRILLING I LOGGED B	METHO BY SM	RACTOR_GeoTek Alaska, Inc. DD_Hollow-Stem Auger H CHECKED BY_SMH	AT TIME OF DRILLING Not Observed
, DEPTH (ft) U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER RECOVERY % (RQD) RECOVERY % (N VALUE) RCOUNTS (RQD) NOALUE) RCOUNTS (RQD) RCOUNTS (RQD) NOALUE RCOVERY % (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RQD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD) RCOUNTS (RDD
0 ORG		ORGANIC MAT, (ORG) SANDY SILT, (ML) 0% gravel, 30% sand, 70% fine Brown, wet, low plasticity from 0 to 1 feet.	
5		SILT, (ML) 0% gravel, 4% sand, 96% fines Brown/gray, moist. Low plasticity.	HD 100 1-1-1-2 (2) LMA ▲
<u>10</u> - - - - ML		0% gravel, 1% sand, 99% fines Brown, moist. Environmental sampling collected by ChemTrack.	HD 3100 2-3-3-3 (6)
<u>15</u> - -		0% gravel, 5% sand, 95% fines Nonplastic.	HD 100 1-1-0-0 0.75 1.0 0.5 AL C



### **BOREHOLE BH-12**

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CLIENT MCG Explore Design

PROJECT NUMBER 73130.00

**PROJECT NAME** ANC South Airpark Cargo Terminal

PRO.	JECT	NUMB	ER_73130.00 P	ROJE	CT LC	CATIO	ON Ancho	rage, A	lask	a				
DEPTH (ff) 50	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE I YPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	10 PL	20 3 MC	ALUE ▲ <u>30 40</u> <u>LL</u> <u>30 40</u>
	- - - ML		SILT, (ML) 0% gravel, 3% sand, 97% fines Brown, moist, low plasticity.		HD S5	100	3-4-4-5 (8)	1.5 2.5 1.5			LMA	<b>A</b>		<b>k</b>
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand		HD S6A HD	100	3-3-7 (10)	-				0		0
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.		S6B			-						
<u>30</u> - · ·	SM		SILTY SAND, (SM) 0% gravel, 67% sand, 33% fines Brown, moist. SILT, (ML) Brown, moist.		HD S7	100	5-10-14 (24)	-			LMA	0		
4:56 - 73130_TESTHOLES	- ML							-						
- 5/24/22 1	_			X	HD S8	100	6-7-9 (16)					<b>a</b>	8	
CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22_14:56 - 73130_TESTHOLES.GPJ			Bottom of borehole at 36.5 feet. Notes: Completed as piezometer with 1 inch Schedule 80 PV Handslotted from 20 to 35 feet. Stickup 19 inches.	C.										

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252	BOREHOLE BH PAGE 1 O	
			xplore Design	PROJECT NAME ANC South Airpark Cargo Terminal	
PROJI	ЕСТ І	NUMB	ER 73130.00	PROJECT LOCATION Anchorage, Alaska	
DATE	STAI	RTED	4/13/22 COMPLETED 4/13/22	GROUND ELEVATION	
RILL	ING (	CONT	RACTOR GeoTek Alaska, Inc.	GROUND WATER LEVELS:	
DRILL	ING I	METH	OD_Hollow-Stem Auger	AT TIME OF DRILLING Not Observed	
			IH         CHECKED BY SMH	AT END OF DRILLING AFTER DRILLING	
0 DEPIH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	A SPT N VALUE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE COUNTS (ISI) N VALUE NO DI CE BOND DI CE BOND CE BOND DI CE BOND DI CE BOND CE BOND	<u>40</u> _L
	ORG		ORGANIC MAT, (ORG)		40
_	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist, organics.		
_	ML		SILT WITH SAND, (ML) 0% gravel, 24% sand, 76% fines Brown, moist.	HD S2 75 2-2-2-3 (4) LMA ▲	
5			SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist. Environmental sample collected by ChemTrack.	HD 83 83 2-3-3-3 (6)	
_	ML		0% gravel, 3% sand, 97% fines	HD 75 2-1-2-2 (3)	
10			SILT WITH SAND, (ML) 0% gravel, 20% sand, 80% fines Brown, moist.		
-	ML			$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
_ 15					
-			SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist, nonplastic.	HD 86 75 3-5-5-6 1.0 1.5 AL 0	
-	ML				
					÷



# **BOREHOLE BH-13**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NUMBER 73130.00

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	IECT	NUMB	ER_73130.00	PRO	JECT LC	CATI	ON Anchor	age, A	lask	a		
05 DEPTH (ft) 50	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
   	ML		SILT, (ML) Brown, moist. 0% gravel, 12% sand, 87% fines		HD S7 HD S8	75	3-4-6-7 (10) 4-7-13-17 (20)	2.0 2.5 2.0			LMA	
 <u>30</u>	-		0% gravel, 6% sand, 94% fines		HD S9	100	5-6-9 (15)	2.0 2.5 2.25				▲ O

Bottom of borehole at 31.5 feet.

Notes: Backfilled with cuttings.

CRW MOA LOG - CRW\_DATATEMPLATE\_20190115.GDT - 5/24/22 14:56 - 73130\_TESTHOLES.GPJ

				Anchorage, Alaska 99503 Telephone: (907) 562-3252	PRO		ME_A	NC South	Airpar	k Ca	irgo T	ermina	al			
loji	ЕСТ І	NUM	BEI	R_73130.00	PRO	JECT LC	CATIO	ON Ancho	rage, A	Alask	a					
TE	STA	RTE	D_4	/7/22 COMPLETED 4/7/22	GRC	OUND EL	EVATI	ON								
RILL	ING (	CON	TR/	ACTOR GeoTek Alaska, Inc.	GRC		TER I	EVELS:								
				D Hollow-Stem Auger												<u>:5 f</u>
				CHECKED BY SMH				RILLING								
DTE	s	-	-				DRILL	_ING	1			1				_
		U				SAMPLE TYPE NUMBER	Υ %	ωŵ	Ľ.				▲ SF	T N VA	ALUE	
(ft)	U.S.C.S.	GRAPHIC	2	MATERIAL DESCRIPTION		19 19 19 19	RECOVERY ( (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	10	20 3	30 40	)
	U.S	BRA				MPL	Q.R.	N	NO E	СШ	٩.	БЩ		MC		
)						SA	R		P	-				MC		r
				SILT WITH SAND, (ML) 5% gravel, 10% sand, 85%	6								10	20 0		<u>′</u>
_				fines Brown, wet, few small roots and organics, visible s	now.	G										55
	ML					S1										55
-														•••	·····	
ŀ				SILT WITH SAND, (ML) 0% gravel, 15% sand, 85%	~	1			1.25							
				fines Brown, wet, few roots. Top 3" of sample frozen, Nb	on.	HD	75	1-0-1-0	0.5					C	>	
_	ML			1/16" communications wire in sample.		μ		(1)	0.25				<b>.</b>		·····	
									-					:		
;			-	SILT WITH SAND, (ML) 0% gravel, 20% sand, 80%					1							
				fines Brown/gray, moist, trace organics up to 1/2", trace	wood	V  но	100	3-3-5-6	3.5					0		
	ML			pieces up to 1" long.		S3	100	(8)	2.25 3.0			LMA				
_						_ \			-							
-				SILT, (ML) 5% gravel, 5% sand, 95% fines					-						:	
_				Blue/gray/brown, wet at top of sample, moist at bot of sample, trace black organics up to 1/8", trace wo	tom	V  нD	100	5-4-6-6	3.0							
	ML			chips up to 1/2".			100	(10)	3.25 3.5					0		
						Δ			-					÷	: :	
0						🖂 но			-						0	
				SILT WITH SAND, (ML) 2% gravel, 26% sand, 72% fines	6	S5A		3-4-5-4								
-				Blue/gray with woodchips and black organics up to Some roots.	1".	HD S5B	100	(9)				LMA	· · · · · <b>A</b> · · · 		0	
						$\mu$			4							
_	ML															
5						h			4							
╞				SILT, (ML) 0% gravel, 8% sand, 92% fines				0 5 5 6								
-				Brown, moist.			100	3-5-5-6 (10)	4.0			LMA	• • • • • •	Ö		
						S6			3.5					-		
1									1							
_	ML															
									1					-	: 1	



CRW MOA LOG - CRW\_DATATEMPLATE\_20190115.GDT - 5/24/22 14:56 - 73130\_TESTHOLES.GPJ

#### **BOREHOLE BH-14**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT	NUMB	ER_73130.00 PI	ROJECT LO	OCATI	ON Ancho	rage, A	lask	a		
00 DEPTH (ff) U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
		SILT, (ML) 1% gravel, 8% sand, 91% fines Brown, moist, trace black organics in upper 3" of sample. Subrounded gravel up to 2" broken to angular.	HD S7	100	4-7-7-5 (14)				LMA	<b>▲</b> 0
		Brown, moist.	HD S8	100	5-10-13-14 (23)	3.25 2.25 2.5				▲O
<u></u> ML		Nonplastic.	HD S9	100	5-7-7-6 (14)	-			AL	·····
 <u>- 35</u> 		0% gravel, 10% sand, 90% fines Medium grain sand.	HD S10	100	4-6-9-9 (15)	1.5 1.5 1.25				·····
40    SM		SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Brown, moist. Fine grain sand. (Continued Next Page)	HD S11	100	6-9-9-10 (18)	-			SA	···•••••••••••••••••••••••••••••••••••



CRW Engineering Group, LLC Anchorage, Alaska 99503 Telephone: (907) 562-3252

## **BOREHOLE BH-14**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	IECT	NUMBI	ER <u>73130.00</u> PRO	JECT LC	CATI	ON Anchor	rage, A	lask	a		
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
  45	SM		SILTY SAND, (SM) 0% gravel, 65% sand, 35% fines Brown, moist. Fine grain sand. <i>(continued)</i>								
	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown/gray, moist. Medium grain sand.	HD S12	100	6-8-8-10 (16)					··O··• <b>A</b> ······

Bottom of borehole at 47.0 feet.

Notes:

Backfilled with cuttings. Auger wet while pulling out of hole at ~25 feet BGS.

CR	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	ORE	PAGE 1 OF 2
CLIENT MCG Ex	plore Design	PROJECT N	AME_A	NC South	Airpar	k Ca	argo T	ermin	al
PROJECT NUMBE	ER_73130.00	PROJECT LO	OCATI	ON Ancho	rage, A	Alask	a		
DATE STARTED_	4/5/22 <b>COMPLETED</b> 4/5/22	GROUND EL	EVATI	ON					
DRILLING CONTR	RACTOR GeoTek Alaska, Inc.								
	DD_Hollow-Stem Auger					t Ob	serve	d	
	N CHECKED BY SMH			NRILLING_ Ling N		erve	ed		
o DEPTH (ft) U.S.C.S. CRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	SILT WITH SAND, (ML) 5% gravel, 10% sand, 85%								
ML	fines Brown/dark brown, moist, few roots and organics. Tr subrounded gravel up to 1/4".	race G S1	-						O
	SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist. One 1/4" root.	HD S2	8	9-8-9-8 (17)	-				
<u>5</u> ML	0% gravel, 4% sand, 96% fines	HD S3	75	8-3-4-4 (7)				LMA	
-		HD S4	88	2-2-4-4 (6)	-				▲ <sup>0</sup>
	SILT WITH SAND, (ML) 0% gravel, 28% sand, 72% fines Brown, crumbles under hand pressure.	HD S5A HD S5B	100	3-3-6-6 (9)	3.5 2.0 2.5			LMA	0
- ML					_				
15	POORLY GRADED SAND WITH SILT, (SP-SM) 1% gravel, 91% sand, 8% fines Brown/gray, moist, trace subrounded gravel up to 3/ One 1/2" black organic layer at ~ 16 feet.	11/1	100	2-3-5-5 (8)	-			SA	○▲
SP- SM		<u>/                                    </u>							
20									



#### **BOREHOLE BH-15**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

						ON Anchor				emma	<u>11</u>
							ugo, /				
05 DEPTH (ff) 50	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	SP- SM		POORLY GRADED SAND WITH SILT, (SP-SM) 16% gravel, 77% sand, 7% fines Brown, moist, subrounded gravel up to 1.5", broken to angular. Medium grain sand.	HD S7	100	4-8-9-11 (17)				LMA	<b>⊙</b> ••• <b>▲</b> ••••••••••••••••••••••••••••••
	SP	• • •	POORLY GRADED SAND WITH GRAVEL, (SP) 35% gravel, 60% sand, 5% fines Brown, moist, subrounded gravel up to 2". Medium to	HD S8A	100	9-13-15-16					0
	- GP		Coarse grain sand. POORLY GRADED GRAVEL WITH SAND, (GP) 67% gravel, 30% sand, 3% fines Dark gray/brown, subrounded gravel up to 2.5" broken t angular. Likely cobbles insitu. Medium to coarse grain sand.	HD S8B	100	(28)				LMA	0
<u>30</u> 	-		SILTY SAND WITH GRAVEL, (SM) 24% gravel, 47% sand, 29% fines Brown, moist, subrounded gravel up to 1.5", broken to angular. Medium grain sand. One black charcoal lens.	HD S9	100	7-7-10-17 (17)				LMA	•••••
2 14:56 - 73130_TESTHOLES.GPJ 50	SM		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist.	нд							
CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 73130 06	_ ML 		SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Brown, moist. Medium grain sand.		-	5-4-5-9 (9)					0
DATATEMPLATE_20	SM		Gravel and few cobbles in drilling returns.								
IOA LOG - CRW_E	- ML		SANDY SILT, (ML) 0% gravel, 39% sand, 61% fines Brown, moist. One 2.5" gravel in top of spoon. Medium grain sand.	HD S11	88	5-2-5-6 (7)				LMA	
RWM			Bottom of borehole at 42.0 feet.								
Ö			Notes								

Completed as piezometer with 1 inch Schedule 80 PVC. Handslotted from 7 to 42 feet. Stickup 18 inches<sub>F-66</sub>

Note

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	PAGE 1 OF
	МС	G E>	xplore Design	PROJECT N	AME_A	NC South	Airpar	k Ca	argo T	ermin	al
PROJEC	TN	UMB	BER 73130.00	PROJECT L	OCATI	ON Ancho	rage, A	lask	ka		
DATE ST	<b>FAR</b>	TED	4/6/22 COMPLETED 4/6/22	GROUND EI	EVATI	ON					
ORILLIN	G C	ONT	RACTOR GeoTek Alaska, Inc.	GROUND W	ATER	LEVELS:					
ORILLIN	GΜ	IETH	OD Hollow-Stem Auger	AT TIN	ie of i		No	t Ob	serve	d	
			SN CHECKED BY SMH								
						_ING					
(ft) (ft)	0.0.0.0	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE 4 10 20 30 40 PL MC LL 10 20 30 40
0 M	1L		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, organics, snow.	G S1							10 20 30 40
-			SILT WITH SAND, (ML) 5% gravel, 10% sand, 80% fines Brown, moist, subrounded to anglar gravel up to 3/4 Medium grain sand. Outside of spoon wet.	11/1		4-5-4-5 (9)	_				
5 M	1L		5% gravel, 15% sand, 80% fines Trace wood material up to 1/4" diameter.	HD S3		4-3-4-5 (7)	_			LMA	<b>A</b>
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S4		2-3-3-4 (6)					• 0
<u>10</u> - -					75	2-4-5-6 (9)	1.5 1.25 1.25				O
_ _ M	1L										
<u>15</u> - -			0% gravel, 8% sand, 92% fines		100	3-3-4-5 (7)	1.0 1.5 1.5			LMA	· · • • • • • • • • • • • • • • • • • •
-											
20											



# **BOREHOLE BH-16**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ECT		<b>R</b> _73130.00	PRO	JECT LC	CATI	ON Ancho	rage, A	lask	a		
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE . 10 20 30 40 PL MC LL → → 1 10 20 30 40
	CL- ML		SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fir Brown, moist.	ines	HD S7	100	3-4-6-8 (10)	3.0 3.0 3.25			AL	
  	ML		SILT, (ML) 0% gravel, 12% sand, 93% fines Brown, moist.		HD S8	100	1-2-3-6 (5)	1.75 1.5 1.0			LMA	•
<u> </u>	CL- ML		SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fir Brown, moist.	 nes	HD S9	100	4-5-7-5 (12)	-			AL	
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist. Bottom of borehole at 37.0 feet.		HD S10	100	4-9-11-12 (20)	2.0 2.5 1.5				•••••
			Notes: Backfilled with cuttings.									

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	HOLE BH-1 PAGE 1 OF
CLIEN	<b>IT</b> _М	CG E	xplore Design	PROJ	ECT NA	AME_A	NC South	Airpar	k Ca	argo T	ermina	al
PROJ	ECT I	NUME	BER_73130.00	PROJ	ECT LO	CATI	ON Ancho	rage, A	Alask	ka		
DATE	STAI	RTED	4/14/22 COMPLETED 4/14/22	GROL	IND EL	EVATI	ON					
DRILL	ING (	CONT	RACTOR GeoTek Alaska, Inc.	GROL		ATER I	LEVELS:					
DRILL	ING I	МЕТН	OD_Hollow-Stem Auger		АТ ТІМ	E OF I		No	t Ob	serve	d.	
LOGG	ED B	Y_D	CHECKED BY SMH			O OF D	RILLING					
NOTE	s				AFTER	DRILI	_ING					
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown/dark brown with small roots and organics.		G S1	<u>د</u>		<u>۵</u>				PL MC LL 10 20 30 40
-			SILT WITH SAND, (ML) 0% gravel, 25% sand, 75% fines Brown, moist, outside of sample wet from melted su Few tiny roots and trace subrounded gravel up to 1	now.	HD S2	88	1-2-1-3 (3)				LMA	• 0
5	ML		10% gravel, 10% sand, 80% fines Subrounded gravel up to 1.5".		HD S3	100	2-3-5-5 (8)	_				▲ O
-	ML		SILT WITH GRAVEL, (ML) 10% gravel, 5% sand, 8 fines Brown, moist, subrounded and broken gravel up to Possibly cobbles insitu.		HD S4	100	2-4-4-4 (8)	-				A C
10		•	SILT, (ML) 1% gravel, 10% sand, 89% fines Brown, moist, trace gravel up 1/2" with one 2.5" rou gravel in spoon. Possibly cobbles insitu.	unded	HD S5	100	3-5-7-7 (12)				LMA	<b>A</b> .O
_												
<u>15</u> –	ML		5% gravel, 0% sand, 95% fines Brown/gray, moist, one piece of 2.5" subrounded bi gravel.	roken	HD S6	100	3-5-6-7 (11)	3.0 2.75 2.25				<b>A</b> O
_												
20												



CRW Engineering Group, LLC CRW Engineering Gloup, LL 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252

### **BOREHOLE BH-17**

PAGE 2 OF 2

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT NUMBER_73130.00	PROJECT LOCATION Anchorage, Alaska
HLdl Crossing Carbon Material description	SAMPLE TYPE RECOVERY % NUMBER RECOVERY % (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RQD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RDD)) (RD
SILT, (ML) 0% gravel, 5% sand, 95% fines Brown/gray, moist. Nonplastic.	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
SILTY SAND, (SM) 0% gravel, 78% sand, 22% fine Gray, moist. Medium grain sand.	HD 83 7-9-12 LMA •

Bottom of borehole at 31.5 feet.

Notes:

Backfilled with cuttings.

CLIENT MCG Explore Design       PROJECT NAME ANC South Airpark Cargo Terminal         PROJECT NUMBER 73130.00       PROJECT LOCATION Anchorage, Alaska         DATE STARTED 4/14/22       COMPLETED 4/14/22         DRILLING CONTRACTOR GeoTek Alaska, Inc.       GROUND WATER LEVELS:         DRILLING METHOD Hollow-Stem Auger       AT TIME OF DRILLING Not Observed.         LOGGED BY DSN       CHECKED BY SMH         NOTES       AFTER DRILLING         H (f)       OPHOND         MATERIAL DESCRIPTION       MATERIAL DESCRIPTION	E BH-1 GE 1 OF 2		RE	BC							Lud Cta 200	CRW Engineering 3940 Arctic Blvd S Anchorage, Alask Telephone: (907)	2V		
DATE STARTED 4/14/22       COMPLETED 4/14/22       GROUND ELEVATION         DRILLING CONTRACTOR GeoTek Alaska, Inc.       GROUND WATER LEVELS:       AT TIME OF DRILLING Not Observed.         DRIGGED BY DSN       CHECKED BY SMH       AT TIME OF DRILLING Not Observed.         NOTES       CHECKED BY SMH       AT END OF DRILLING Not Observed.         NOTES       MATERIAL DESCRIPTION       MATERIAL DESCRIPTION       MATERIAL DESCRIPTION         U       PEAT, (PT) 0% gravel, 10% sand, 90% fines       MONON WATER LEVELS:       AFTER DRILLING Not Observed.         Notes       MATERIAL DESCRIPTION       MATERIAL DESCRIPTION       MATERIAL DESCRIPTION       MATERIAL DESCRIPTION         U       PEAT, (PT) 0% gravel, 10% sand, 90% fines       MONON WATER LEVELS:       MATERIAL DESCRIPTION       <			ermina	irgo To	k Ca	Airpar	C South			PROJE		lore Design	G Explo	т_мс	CLIEN
DRILLING CONTRACTOR GeoTek Alaska, Inc.       GROUND WATER LEVELS:         DRILLING METHOD Hollow-Stem Auger       AT TIME OF DRILLING				a	lask	rage, A	Anchor	ΑΤΙΟ	T LO	PROJE		<b>R</b> _73130.00	MBER	ECT N	PROJ
DRILLING METHOD_Hollow-Stem Auger       AT TIME OF DRILLING Not Observed.         LOGGED BY_DSN       CHECKED BY_SMH         NOTES       AT END OF DRILLING         NOTES       AFTER DRILLING         MATERIAL DESCRIPTION       Image: Start of the start							N	ATIC	) ELE	GROUN	OMPLETED <u>4/14/22</u>	/14/22 COMF	ED_4/1	STAR	DATE
LOGGED BY DSNCHECKED BY SMHAT END OF DRILLINGAFTER DR							VELS:	ER LI	) WA	GROUN	ka, Inc.	ACTOR GeoTek Alaska, I	NTRA	ING C	DRILL
NOTES       AFTER DRILLING         HL       Image: Start Stress of the stress of the start stress of the start stress of the st			l	served	t Obs	No		OF D	TIME	Α	r	D Hollow-Stem Auger	THOD	ING N	DRILL
Hage       i       Dress       Dress       MATERIAL DESCRIPTION       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i       i							LLING_	OF DF	END	Α	HECKED BY SMH	CHEC	DSN	ED B	LOGG
0       PEAT. (PT) 0% gravel, 10% sand, 90% fines Dark brown, moist, previously frozen and thawed while drilling. Includes grass and organics.       Image: Construction of the second s							IG	RILLI	TER	A				S	NOTE
PT       PEAT. (PT) 0% gravel, 10% sand, 90% fines Dark brown, moist, previously frozen and thawed while drilling. Includes grass and organics.       G S1         SM       SILTY SAND. (SM) 1% gravel, 54% sand, 45% fines Dark brown, moist, frozen, includes grass and organics.       HD S22 HD S22 HD       3.0 (3)         ML       O% gravel, 5% sand, 95% fines No roots and rust color.       HD S3       100       2-2-1-2 (3)       3.0 (3)         ML       O% gravel, 5% sand, 95% fines No roots and rust color.       HD S3       100       1-3-5-5 (8)         ML       O% gravel, 75% sand, 25% fines No roots and rust color.       HD S3       100       1-3-5-5 (8)         ML       O% gravel, 77% sand, 23% fines Moist, almost wet.       HD S5       2-45-2       LMA	N VALUE	10 20	OTHER TESTS	DIA	ICE BOND	POCKET PEN. (tsf)	BLOW COUNTS (N VALUE)	(RQD)	NUMBER		RIAL DESCRIPTION	MATERIA	D D D D D D D D D D D D D D D D D D D	U.S.C.S.	
5       Dark brown, moist, frozen, includes grass and organics, Gray with trace rusty red color, moist, trace roots.       SLT, (ML) 0% gravel, 10% sand, 90% fines       100       2-2-1-2       3.0       3.0         5       ML       0% gravel, 5% sand, 95% fines       Image: state	1									nile	previously frozen and thawed wi	Dark brown, moist, prev	<u>71</u>	PT <sup>/</sup>	-
ML       0% gravel, 5% sand, 95% fines No roots and rust color.         HD       100       1-3-5-5 (8)         SILTY SAND, (SM) 0% gravel, 72% sand, 28% fines Brown, moist. Medium grain sand.       HD         HD       88       2-5-3-4 (8)         0% gravel, 77% sand, 23% fines Moist, almost wet.       HD	)	<b>▲</b> 0				3.0		00	S2A HD	s nics/	frozen, includes grass and organ vel, 10% sand, 90% fines	✓ Dark brown, moist, froz SILT, (ML) 0% gravel, 1		SM	_
Brown, moist. Medium grain sand. HD S4 88 2-5-3-4 (8) LMA O M M M M M M M M		···· • • • • • • • • • • • • • • • • •				-		00						ML	5
0% gravel, 77% sand, 23% fines Moist, almost wet.		▲ 0	LMA					88		s	) 0% gravel, 72% sand, 28% fine ium grain sand.	SILTY SAND, (SM) 0% Brown, moist. Medium (			
		0	LMA			-		63	HD S5	X	nd, 23% fines	0% gravel, 77% sand, 2 Moist, almost wet.		SM	<u>10</u>
15       CLAYEY SILT, (CL-ML) 5% gravel, 5% sand, 95% fines         Gray/blue, moist, trace subangular gravel up to 1".       HD         CL-       HD	Đ-I	• • • • • • • • • • • • • • • • • • •	AL			4.0 3.5		00	HD S6	ines	-ML) 5% gravel, 5% sand, 95% f ace subangular gravel up to 1".	CLAYEY SILT, (CL-ML) Gray/blue, moist, trace			<u>15</u> –
														ML	-



#### **BOREHOLE BH-18**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PROJECT NUMBER 73130.00       PROJECT LOCATION Anchorage, Alaska <u>H</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u>	CLIENT	MC	G Ex	plore Design	PRO	JECT NA	ME_/	NC South	Airpar	k Ca	argo T	ermina	1
20       SILT. (ML) 0% gravel, 5% sand, 95% fines         Gray with blue, moist, higher plasticity than above.       HD         10       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       4-5-5-6         100       5-10-14-18         100       5-10-14-18         100       5-10-14-18         100       5-10-14-18         100       5-10-14-18         100       6-16-30-36         100       6-16-30-36         100       6-16-30-36         100       6-16-30-36         100       6-16-30-36         100       6-16-30-36         100       6-16-30-36         100       6-16-30-36         100       6-16-30-36	PROJEC	T N	имв	ER_73130.00	PRO	JECT LC	CATI	ON Anchor	rage, A	Alask	a		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	10 20 30 40 PL MC LL
Bottom of borehole at 32.0 feet.	  25 M	ИL		Gray with blue, moist, higher plasticity than above. 0% gravel, 10% sand, 90% fines Gray/brown with trace rust layering. 0% gravel, 5% sand, 95% fines Brown trace tiny roots in upper 6 inches of sample. Nonplastic.		HD S8	100	(10) 5-10-14-18 (24) 6-16-30-36	>4.5 4.5				
				Bottom of borehole at 32.0 feet.									

Notes: Backfilled with cuttings.

	F	5,	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	PAGE 1 OF
LIENT M	1CG	Exp	blore Design	PROJECT N	AME_A	NC South	Airpar	k Ca	irgo T	ermin	al
ROJECT	NUI	MBE	<b>R</b> _73130.00	PROJECT LO	OCATI	ON Ancho	rage, A	lask	a		
ATE STA	RTE	ED_4	4/5/22 COMPLETED 4/5/22	GROUND EL	EVATI	ON					
RILLING	CO	NTR	ACTOR GeoTek Alaska, Inc.	GROUND W/	ATER I	LEVELS:					
RILLING	ME	тно	D Hollow-Stem Auger								
			N CHECKED BY SMH	AT ENI							
o UEPTIA (ft) U.S.C.S.	GRAPHIC	POG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE 10 20 30 40 PL MC LL 10 20 30 40
_ ML			SILT WITH SAND, (ML) 5% gravel, 10% sand, 85% fines Brown, moist.	G S1	-						
			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, trace roots and organics.	HD S2	100	2-2-2-2 (4)	3.0 4.0 1.5				• 0
5			0% gravel, 12% sand, 88% fines Outside of spoon wet, no roots.	HD S3	88	1-1-2-3 (3)	1.0 1.0 2.0			LMA	▲
-			0% gravel, 5% sand, 95% fines	HD S4	100	2-4-3-5 (7)	-				▲ 0
10 ML			0% gravel, 5% sand, 95% fines Environmental sample collected by ChemTrack.	HD S5	88	2-5-7-7 (12)	-				<b>.</b> 0.
-											
<u>15</u> - -			0% gravel, 3% sand, 97% fines	HD S6	88	3-5-6-8 (11)	3.0 2.5 3.25			LMA	
-											
20											



#### **BOREHOLE BH-19**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT NU	/BER_73130.00	PROJECT LOCATION Anchorage, Alaska
07 DEPTH (ft) U.S.C.S. GRAPHIC		A SPT N VALUE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE SAMPLE TYPE IO 50 30 40 DTHER IO 50 30 40 DTHER IO 50 30 40 IO 50 40 IO
	SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD 100 4-6-6-7 (12)
25	0% gravel, 5% sand, 95% fines	HD S8 88 3-4-4-4 (8) 2.5 2.5
30 ML	0% gravel, 10% sand, 90% fines	HD 100 3-5-6-6 (11) 1.5 2.0 4.0 LMA
35	0% gravel, 5% sand, 95% fines	HD 88 3-4-6-5 (10)
40 ML	SILT WITH SAND, (ML) 0% gravel, 28% sand, 7 fines Brown, moist. Medium grain sand. Friable.	HD 100 4-6-7-9 (13)

F-74



#### **BOREHOLE BH-19**

PAGE 3 OF 3

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PRO	IECT	NUMB	ER_73130.00 PRO	JEC	T LOO	CATIO	ON Anchor	age, A	lask	a					
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	1(	PL N	30 //C L	
	ML		SILT WITH SAND, (ML) 0% gravel, 28% sand, 72% fines Brown, moist. Medium grain sand. Friable. <i>(continued)</i>												
	ML		SANDY SILT, (ML) 0% gravel, 49% sand, 51% fines Brown, moist. Medum to fine grain sand.		HD S12	100	8-13-14-18 (27)				LMA		)	•	

Bottom of borehole at 47.0 feet.

Notes:

Completed as piezometer with 1 inch Schedule 80 PVC. Handslotted from 7 to 47 feet. Stickup 15 inches.

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	HOLE BH-2 PAGE 1 OF
CLIEN	т_м	CG E	xplore Design							ermina	al
			SER 73130.00								
			COMPLETED								
			RACTOR GeoTek Alaska, Inc.								
			OD_Hollow-Stem Auger								
			SN CHECKED BY SMH			LING					
	<u> </u>	1				LING				1	1
o UEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
-	ML		SILT, (ML) 5% gravel, 5% sand, 90% fines Dark brown, moist, organics, subrounded and angula gravel up to 1".	ar G S1							·····
-			SILT WITH SAND, (ML) 5% gravel, 15% sand, 80% fines Brown with rust coloring, moist, subrounded and subangular gravel up to 1/2". SILT WITH SAND, (ML) 3% gravel, 22% sand, 75%		100	3-3-4-5 (7)				LMA	0 •••••
5	ML		fines Gray, moist, trace black organics. 0% gravel, 15% sand, 85% fines Fine to medium grain sand. SILT WITH SAND, (ML) 0% gravel, 20% sand, 80%		00	2-2-1-1 (3)	_				0
_	ML		fines Brown, moist. Wood pieces up to 2". Small fibrous ro Few black organics. Nonplastic.	pots.			_			AL	0
-	ML		SILT WITH SAND, (ML) 1% gravel, 24% sand, 75% fines Brown, moist, some small fibrous roots, no wood pie Fine grain sand.		88	1-0-1-2 (1)				LMA	•
10 _			SILTY SAND, (SM) 0% gravel, 52% sand, 48% fines Brown/tan/gray, moist. Less roots than above and or in top of sample. Medium to fine grain sand.	s hly HD S5	100	1-2-3-2 (5)				LMA	•
- - 15	SM										
-			SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, trace organics.		100	1-3-3-5 (6)	2.5 2.0 3.0 1.5				··• ▲ ···· ⊙ ·····
-	ML										
		$\left  \left  \right  \right $									



### **BOREHOLE BH-20**

PAGE 2 OF 2

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ЕСТ І	NUMBE	<b>R</b> _73130.00	PRO	JECT LC	CATI	ON Anchor	rage, A	lask	a		
05 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	ML		SILT WITH SAND, (ML) 10% gravel, 15% sand, 75 fines Brown/tan/gray with reddish orange layering. Grave to 1" broken to angular.		HD S7	100	4-3-8-9 (11)					•••• <b>A</b> O
 	GM	$\begin{array}{c} \circ \circ$	SILTY GRAVEL WITH SAND, (GM) 36% gravel, 25 sand, 39% fines Brown with few black and orange spots, moist, subrounded to subangular gravel up to 2.75" broker angular. Likely cobbles insitu.		HD S8	100	6-10-11-12 (21)				LMA	·····O···· <b>A</b> ·········
			SILT, (ML) 5% gravel, 5% sand, 90% fines Gray/brown, trace subrounded gravel up to 1/4".		HD S9	100	7-10-12-16 (22)	-				O

Bottom of borehole at 32.0 feet.

Notes:

Backfilled with cuttings.

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	HC		EBH Ge 1 (	
			plore Design	PROJECT	NAME_	ANC South	Airpar	k Ca	irgo T	ermina	al			
PROJE	СТМ	NUMB	ER_73130.00	PROJECT	LOCATI	ON Ancho	rage, A	lask	a					
DATE S	STAF	RTED	4/3/22 COMPLETED 4/3/22	GROUND I	ELEVAT									
RILLI	NG	CONT	RACTOR GeoTek Alaska, Inc.		NATER	LEVELS:								
RILLI	NG	ИЕТН	OD_Hollow-Stem Auger	AT T	IME OF		No	t Obs	serve	d				
			N CHECKED BY SMH			Drilling_ Ling_45.9								
DEP1 (ff)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NI IMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	1	0 20 PL	N VALU	40 LL
0	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, moist. Grass and organics.	s c								0 20	<u>) 30</u>	40
-	 ML		SILT WITH SAND, (ML) 1% gravel, 15% sand, 84% fines Brown, moist, trace roots. Top 3" frozen.	H		1-3-3-3 (6)	2.5 3.0 2.0			LMA	<b>.</b>	0		
5			SILT, (ML) 0% gravel, 6% sand, 94% fines Brown, moist.	H		1-2-2-3 (4)	1.5 4.5 3.5 3.75			LMA		C	)	
-			0% gravel, 5% sand, 95% fines Moist, almost wet. Environmental sample collected by ChemTrack.	H		1-3-3-7 (6)	2.0 1.75 2.0			LMA	<b>▲</b>		0	
10			Drill rig failure at 10 feet BGS. Pull out of hole, repair and drill new borehole 2 feet next to original borehole Restart sampling in adjacent hole at 10 feet BGS. 0% gravel, 5% sand, 95% fines		D 5 100	1-2-5-5 (7)	3.5 3.25 2.75							
	ML													
15			0% gravel, 1% sand, 99% fines Light brown.	HS		3-3-3-6 (6)	_			LMA		0		
-														
20														:



#### **BOREHOLE BH-21**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

	SAMPLE TYPE	001 RECOVERY % (RQD)	STOUNTS COUNTS 3-5-3-7 (8)	DOCKET PEN. (tsf) (tsf)	ICE BOND	DIA	P OTHER TESTS	10 PL	T N VAL 20 30 <u>MC</u> 20 30	
	HD S7	100	3-5-3-7 (8)	1.75			AL	••••	0	
N										
% fines	HD S8A HD S8B	100	3-5-7-8 (12)				LMA	0	0	
% fines	HD S9A HD S9B	100	5-7-8-5 (15)	2.5 2.75 1.5			LMA	0	0	
% fines	HD S10	100	6-12-12-12 (24)					o	•	
" of	HD S11	100	4-8-10-10 (18)				LMA			
	% fines	" of	" of HD S8B HD S8B 100	" of HD 100 4-8-10-10	Monthes       HD S8B       (12)         W fines       HD S9A       100       5-7-8-5 (15)       2.5 2.75         HD S9B       100       5-7-8-5 (15)       2.5 2.75         Monthes       HD S9B       100       6-12-12-12 (24)         W fines       HD S10       100       6-12-12-12 (24)         W HD       100       6-12-12-12 (24)	% fines       HD S8B       (12)         % fines       HD S9A       100       5-7-8-5 (15)       2.5 2.75 1.5         % fines       HD S9B       100       6-12-12-12 (24)       1.5         % fines       HD S10       100       6-12-12-12 (24)       1.5	Monthes       HD S8B       (12)         W fines       HD S9A       100       5-7-8-5 (15)         HD S9B       100       5-7-8-5 (15)       2.5 2.75 1.5         MB S9B       100       6-12-12-12 (24)       1.5         W fines       HD S10       100       6-12-12-12 (24)       1.5         W fines       HD HD       100       4-8-10-10       1.5	Montes       HD S8B       (12)         Montes       HD S9A       (12)         Montes       HD S9A       100       5-7-8-5 (15)       2.5 2.75 1.5         Montes       HD S9B       100       6-12-12-12 (24)       1.5         Work       HD S10       100       6-12-12-12 (24)       1.5         Work       HD HD       100       4-8-10-10       1.15	% fines       HD       (12)         % fines       HD       100       5-7-8-5         HD       100       5-7-8-5         S9B       100       5-7-8-5         HD       100       6-12-12-12         % fines       HD       100         HD       100       6-12-12-12         (24)       HD       100         HD       100       4-8-10-10	HD       (12)         S8B       (12)         Image: Series       Image: Series         HD       100       5-7-8-5         S9B       100       5-7-8-5         2.5       2.75         1.5       Image: Series         HD       100         6-12-12-12       0         Media       0         Image: Series       Image: Series         HD       100       6-12-12-12         Image: Series       Image: Series         Image: HD       100       4-8-10-10



#### **BOREHOLE BH-21**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ЕСТ І	NUMB	ER_73130.00 PRO	JECT LC	CATI	ON Anchor	age, A	lask	a		
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
  _ 45	SM		SILTY SAND, (SM) 0% gravel, 75% sand, 25% fines Brown, moist. Fine grain sand. <i>(continued)</i> 0% gravel, 85% sand, 15% fines Few black organics. Medium to coarse grain sand.			5-8-11-12					0
	ML		SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Brown, moist. Medium grain sand. Bottom of borehole at 47.0 feet.	HD S12B	100	(19)					0

Notes:

Completed as piezometer with 1 inch Schedule 80 PVC. Handslotted from 2 to 47 feet. Stickup 52.5 inches.

CLIENT <u>MCG Ex</u> PROJECT NUMB DATE STARTED	3940 Arctic Blvd Ste 300           Anchorage, Alaska 99503           Telephone: (907) 562-3252           kplore Design           ER_73130.00           4/6/22           COMPLETED 4/6/22										
DATE STARTED				NC South	Airpar	k Car	go Te	ermina	al		
	4/6/22 <b>COMPLETED</b> 4/6/22	PROJECT LC	CATIO	ON Ancho	rage, A	laska	a				
ORILLING CONTI		GROUND EL	EVATI	ON							
	RACTOR GeoTek Alaska, Inc.	GROUND WA		EVELS:							
DRILLING METH	OD_Hollow-Stem Auger	AT TIM	E OF [		Not	Obs	erved				
OGGED BY DS	N CHECKED BY SMH	AT END	OF D	RILLING							
		AFTER	DRILL	.ING							
o DEPTH (ff) U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	PL	N VA 20 30 MC 20 30	0 40
ML	SILT, (ML) 0% gravel, 10% sand, 90% fines Dark brown, moist, some twigs and small roots.	G S1								20 3	<u> </u>
	SANDY SILT, (ML) 0% gravel, 33% sand, 67% fines Brown, moist, trace twigs and roots. Medium grain sa	and. HD S2	63	1-2-2-2 (4)				LMA	<b>▲</b> 0		
5	0% gravel, 15% sand, 85% fines Trace tiny roots and organics. Less organics than above.	HD S3	75	2-2-1-2 (3)	_				O		
- ML	0% gravel, 48% sand, 52% fines	HD S4	75	2-2-3-2 (5)	-			LMA			
10	0% gravel, 37% sand, 63% fines	HD S5	75	2-3-3-3 (6)	0.5 0.25 <0.25			LMA	<u> </u>		
	5% gravel, 20% sand, 75% finesTrace subrounded gravel up to 1/2". SILTY SAND WITH GRAVEL, (SM) 35% gravel, 35% sand, 30% fines Gray/brown, moist, subrounded and subangular grav up to 1". 1/2" black organic layer. Medium to coarse sand.	vel	75	6-10-7-6 (17)	-				0		
20 SM											



#### **BOREHOLE BH-22**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT NUM	BER_73130.00 PR0	DJECT LO	CATIC	ON Ancho	rage, A	lask	а		
05 DEPTH (ft) U.S.C.S. GRAPHIC	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
- - - SP- SM - - - - - - - - - - - - - - - - - -	POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) 36% gravel, 56% sand, 8% fines Brown/gray, subrounded gravel up to 1.5" broken to angular. Medium grain sand.	HD S7	75	5-7-8-11 (15)				LMA	
25 Ø	SILTY SAND, (SM) 1% gravel, 62% sand, 37% fines Brown, moist, trace black organics. Medium grain sand.	HD S8A HD S8B	100	4-5-5-6 (10)				LMA	<b>O</b>
30 - - SP- SM -	POORLY GRADED SAND WITH SILT, (SP-SM) 1% gravel, 93% sand, 6% fines Brown/black/white, moist, trace black orgnics. Trace subrounded gravel up to 1/4". Medium to coarse grain sand.	HD S9	100	4-6-7-7 (13)	-			LMA	
35 - - ML	SANDY SILT, (ML) 0% gravel, 30% sand, 70% fines Brown, moist. Medium grain sand. Varying consistency.	HD S10	100	3-6-7-6 (13)	3.0 2.0				▲ O
40  	0% gravel, 40% sand, 60% fines POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist. Medium grain sand.	HD S11A HD S11B	88	4-6-6-6 (12)	-			LMA	0



#### **BOREHOLE BH-22**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT NUMBER_73130.00 PROJECT LOCATION Anchorage, Alaska															
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE	NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	10 2	N VALUI 0 30 / MC L 0 30 /	40
  45	SP- SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Brown, moist. Medium grain sand. <i>(continued)</i>	6											
			SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown, moist, crumbles easily under hand pressure.			HD S12	100	5-8-11-11 (19)					Ċ		
50	ML														
			0% gravel, 12% sand, 88% fines Moist to dry, crumbles very easily under hand press	sure.		HD S13	100	9-18-16-19 (34)				LMA	O		

Bottom of borehole at 52.0 feet.

Notes: Backfilled with cuttings.

	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	HOLE BH-2 PAGE 1 OF 3		
CLIENT MCG Exp	plore Design								ermina	1		
PROJECT NUMBE		PROJECT LOCATION Anchorage, Alaska GROUND ELEVATION										
	RACTOR GeoTek Alaska, Inc.				DRILLING	No	· Ohe		4			
	DD_Hollow-Stem Auger           N         CHECKED BY SMH				-							
o DEPTH (ft) U.S.C.S. LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	PID	OTHER TESTS	▲ SPT N VALUE A 10 20 30 40 PL MC LL 10 20 30 40		
- GP- 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	POORLY GRADED GRAVEL WITH SILT AND SAN (GP-GM) 62% gravel, 29% sand, 9% fines Dark brown, moist, subrounded gravel up to 1.5", fro	í hr	G S1	-					SA	0		
- ML	SANDY SILT WITH GRAVEL, (ML) 30% gravel, 44 sand, 53% fines Brown, moist, trace black organics and small roots. Subrounded gravel up to 1/4". Medium grained sand One piece of rubber tubing 1/16" diameter.	IV	HD S2	100	2-4-6-8 (10)	_			LMA	• 0		
5 - SM	15% gravel, 15% sand, 70% fines Subrounded gravel up to 1.25". One piece of black plastic. SILTY SAND, (SM) 0% gravel, 70% sand, 30% fine Brown, moist. Fine to medium grain sand.	is a	HD S3A HD S3B	88	2-6-4-4 (10)	-				0		
	POORLY GRADED SAND WITH SILT, (SP-SM) 19 gravel, 89% sand, 10% fines Brown, moist. Medium grain sand.	6	HD S4	75	1-3-3-3 (6)	-			LMA	<b>A</b>		
10	SILT, (ML) 5% gravel, 5% sand, 90% fines Brown, moist. Gravel up to 1/4". Medium grain sand SILTY SAND, (SM) 0% gravel, 85% sand, 15% fine Brown, moist. SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist, crumbles under hand pressu	s	HD S5A HD S5B HD S5C	100	2-3-2-2 (5)	-				0 0		
- ML												
15	SILT WITH SAND, (ML) 0% gravel, 25% sand, 75% fines Light brown/tan, moist, crumbles under hand pressu		HD S6	100	3-4-4-5 (8)	-			LMA	• • • • •		
20												



## **BOREHOLE BH-23**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT	NUMBER	73130.00

PROJECT NUMBE	R_73130.00	PROJECT LOO	CATIO	N Anchor	age, A	lask	а		
0 DEPTH (ft) U.S.C.S. LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
  ML	SILT, (ML) 0% gravel, 5% sand, 95% finesLight brown/tan, moist. Varying consistency. Nonplastic.	HD S7	100	3-5-5-7 (10)	0.5 1.5 0.75			AL	<b>▲</b> 0
	SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Brown, moist. Fine grain sand. SILT, (ML) 0% gravel, 0% sand, 100% fines Brown, moist. Sample moisture content not determine at lab.	HD S8B HD	100	3-3-8-7 (11)	S8A: 2.0 4.0 3.5 3.75 2.0 3.0				0
30	SANDY SILT, (ML) 0% gravel, 33% sand, 67% fines Brown, moist, trace black organics. Medium grain sar		100	3-7-8-9 (15)	4.0 4.5 1.0 1.5			LMA	••••••••••••••••••••••••••••••••••••••
35 ML	SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, moist, with layerings of coarse black/whi sand. One piece of gravel 0.5". Outside of sample sp wet. POORLY GRADED SAND, (SP) 0% gravel, 95% san 5% fines Light gray, moist. Medium grain sand.	oon / HD	100 7	7-14-18-23 (32)					0
40 40 ML	SANDY SILT, (ML) 17% gravel, 39% sand, 49% fines Brown, moist, with layerings of black/white sand and trace black organics. 2.5" pieces of gravel stuck in spoon catcher. Broken and pulverized gravel in botton 3" of spoon. Subrounded and subangular gravel up to 1".	m HD S11	100	6-9-18-25 (27)				LMA	·····



# **BOREHOLE BH-23**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ЕСТ І	NUMB	ER <u>73130.00</u> PRO	PROJECT LOCATION Anchorage, Alaska							
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL H → H 10 20 30 40
45	ML		SANDY SILT, (ML) 17% gravel, 39% sand, 49% fines Brown, moist, with layerings of black/white sand and trace black organics. 2.5" pieces of gravel stuck in spoon catcher. Broken and pulverized gravel in bottom 3" of spoon. Subrounded and subangular gravel up to 1". (continued)								
			WELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) 19% gravel, 69% sand, 12% fines Gray/light brown/black, moist. Subrounded and subangular gravel up to 2". Medium to coarse grain sand. Trace black organics.	HD S12	100	7-9-10-12 (19)				SA	·O···· <b>A</b> ·····
	SW- SM										
	SM		SILTY SAND WITH GRAVEL, (SM) 30% gravel, 40% sand, 30% fines Dark brown, moist, subrounded gravel up to 3/4". 15% gravel, 70% sand, 15% fines Light brown/gray, moist, decreasing coarseness with	HD S13A HD S13B	100	15-23-24- 22 (47)	-				0
			depth. Coarse to fine grain sand Bottom of borehole at 52.0 feet.	<u>/                                    </u>	I	1				I	

Notes: Backfilled with cuttings.

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	PAGE 1 OF 3				
CLIEN	NT M	CG E	xplore Design							ermina	al				
			RACTOR GeoTek Alaska, Inc.				Na	4 O L		ام					
			SN CHECKED BY SMH												
NOTE		1				LING			1	1	1				
o DEPTH (ft)	U.S.C.S.	GRAPHIC I OG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40				
 	GW- GM		WELL GRADED GRAVEL WITH SILT AND SAND, (GW-GM) 55% gravel, 38% sand, 7% fines Brown, moist, subrounded gravel up to 1.5". Frozen 0.5 feet BGS.	S1	-					SA	O				
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Gray/brown, moist, tiny roots.	HD S2A HD S2B	- 75	6-6-4-3 (10)					0				
5			SILT WITH SAND, (ML) 1% gravel, 20% sand, 79%	+/			-								
· _	ML		fines Gray/brown, moist, gravel up to 1/2". Fine grain san	$  \rangle / $	100	5-6-6-5 (12)	3.5 2.5 1.5			LMA	<b>A</b> .O				
-			SILT, (ML) 0% gravel, 5% sand, 95% fines Gray/brown, moist, friable. Fine grain sand.	HD S4		3-6-8-9 (14)	_								
10		-	SILT, (ML) 0% gravel, 0% sand, 100% fines	HD S5A	100	4-6-6-9 (12)	1.5 1.5 1.5				0				
-	ML		Seperated from Sample S5A by 1" of brown soil with woody organics, twigs, and possibly a geotextile lay S5B: Dark gray, moist, firm.	n ⊬∖S5B	<u></u>		_				J				
	   		SANDY SILT, (ML) 1% gravel, 39% sand, 60% fines Gray with rust/brown streaks. Fine grain sand. Trace roots.	HD S6	100	1-2-2-3 (4)	_			LMA	▲O				
-	ML			<u>/                                    </u>											
20															



#### **BOREHOLE BH-24**

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CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PROJECT LOCATION Anchorage, Alaska

PROJECT NUMBER	73130.00

		T							
U.S.C.S. LOG LOG	MATERIAL DESCRIPTION	<ul> <li>SAMPLE TYPE NUMBER</li> </ul>	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DId	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
- CL- ML	SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fines Brown/gray, moist. Trace fine grain sand on outside of sample.	HD S7	100	3-4-5-6 (9)	-			AL	
- - 5	SILT, (ML) 0% gravel, 5% sand, 95% fines Gray, moist, friable.				-				
- - ML		HD S8	100	4-5-6-7 (11)	_				<b>▲</b> O
- - - - - - - - - - - - - - - - - - -	SILT WITH SAND, (ML) 0% gravel, 22% sand, 78% fines Gray, moist.	Инр	100	6-7-8-6	0.5				
ML		S9		(15)	2.0			LMA	
5	SILT, (ML) 0% gravel, 5% sand, 95% fines Gray/brown, wet at top of sample. Trace fine sand. Varying consistency, increasing stiffness with depth.	HD S10	88	5-6-6-6 (12)	1.0 2.0 3.5 >4.5				<b>0</b>
- SM	SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines Brown, wet, black organic streaks. One 1" piece of angular gravel.	HD S11A		4-7-5-7					0
	SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, firm. Trace fine sand.	HD S11B	100	(12)	3.0 3.0 3.5				<b>▲</b> ⊙



#### **BOREHOLE BH-24**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT LOCATION Anchorage, Alaska

PROJECT NUMBER 73130.00

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	10 PL	<sup>-</sup> N VAL 20 30 MC 20 30	40 LL
 _ <u>45</u> 	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist, firm. Trace fine sand. <i>(continued)</i> 0% gravel, 11% sand, 89% fines One 1/2" fine grain sand layer. Nonplastic.	HD S12	100	4-6-10-11 (16)	3.0 3.5 3.5			LMA, AL	· · · · · · · · · · ·	0	
 _ <u>50</u> 	SP		POORLY GRADED SAND, (SP) 0% gravel, 95% sand, 5% fines Brown/white/reddish, moist, trace black organics. Medium grain sand. Bottom of borehole at 52.0 feet.	HD S13	100	6-10-12-12 (22)					0		

Notes:

Backfilled with cuttings.

CR	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE		E BH AGE 1 O	
LIENT MCG Exp	lore Design		ME_A	ANC South	Airpar	k Ca	rgo T	ermina	al		
PROJECT NUMBE	R_73130.00	PROJECT LC	CATI	ON_Ancho	rage, A	lask	а				
DATE STARTED_3	3/30/22 COMPLETED 3/30/22	GROUND EL	EVATI								
DRILLING CONTR.	ACTOR GeoTek Alaska, Inc.		TER	LEVELS:							
ORILLING METHO	D Hollow-Stem Auger	AT TIM	E OF I		Not	t Obs	serve	b			
OGGED BY DSN	CHECKED BY SMH	AT END	OF D								
		AFTER	DRILI	LING N	ot Obs	erve	d				
DEPTH (ft) U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS		7 N VALUI 20 30	
		SAM	REO	_oz	POG	<u> </u>				MC L	L
0 - ML - ML - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0	SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines Brown, moist, organics and twigs, gravel up to 1/2".	G S1	-							20 30	<u>40</u>
  ML	SILT WITH SAND, (ML) 0% gravel, 18% sand, 82% fines Light brown/tan, moist, friable, trace twigs.	HD S2	100	2-4-4-5 (8)	_			LMA	<b>≜</b> O		
5ML	SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist to dry. SANDY SILT, (ML) 2% gravel, 48% sand, 50% fines	HD S3A	100	4-6-6-8 (12)	_			LMA			
	Light brown/tan, moist, trace gravel up to 1".										
ML	SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Light brown/tan, moist, crumbles easily. Fine grain sa	Ind. HD S4	88	4-5-5-4 (10)	_						
10					-						
-	Tan/gray, moist to dry, crumbles easily under hand pressure. Environmental sample collected by ChemTrack.	HD S5	100	3-5-5-5 (10)	0.5 0.5 2.0 2.5						
-											
		HD S6	100	2-4-5-6 (9)					••••		
20											



#### **BOREHOLE BH-25**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PROJECT NUMBER 73130.00 PROJECT LOCATION Anchorage, Alaska SAMPLE TYPE NUMBER POCKET PEN. (tsf) % ▲ SPT N VALUE ▲ RECOVERY 9 (RQD) BLOW COUNTS (N VALUE) GRAPHIC LOG ICE BOND U.S.C.S. DEPTH (ft) OTHER TESTS DID 10 20 30 40 MATERIAL DESCRIPTION MC PL LL 40 10 20 30 20 SILT WITH SAND, (ML) 0% gravel, 19% sand, 81% fines HD 4-6-7-6 Tan/gray, moist. LMA 9 88 S7 (13) ML 25 2.5 SILT, (ML) 0% gravel, 5% sand, 95% fines HD Ö ML 3.5 Brown/tan, moist, stiffer than above samples. S8A 3-4-7-10 3.0 100 SILTY SAND, (SM) 0% gravel, 80% sand, 20% fines (11) HD Brown/tan, moist, fine grain sand. Ο S8B SM 30 SILT, (ML) 0% gravel, 5% sand, 95% fines Brown/tan, moist. One small piece of organics. HD 5-8-10-13 100 0 S9 (18)CRW MOA LOG - CRW\_DATATEMPLATE\_20190115.GDT - 5/24/22 14:56 - 73130\_TESTHOLES.GP. ML 35 SILT WITH SAND, (ML) 0% gravel, 14% sand, 86% 2.0 fines 2.75 HD 6-8-13-14 Brown/tan, moist, stiffer than above sample. ML 100 0 LMA S10 4.0 (21)3.5 Bottom of borehole at 37.0 feet. Notes: Completed as piezometer with 1 inch Schedule 80 PVC. Handslotted from 0 to 37 feet. Stickup 17 inches.

CR	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	PAGE 1 OF 3
CLIENT MCG Exp	olore Design	PROJECT N		ANC South	Airpar	k Ca	argo T	ermina	al
PROJECT NUMBE	<b>R</b> _73130.00	PROJECT L	OCATI	ON Ancho	rage, A	lask	a		
DATE STARTED_	4/4/22 COMPLETED 4/4/22	GROUND E	LEVAT						
DRILLING CONTR	ACTOR GeoTek Alaska, Inc.	GROUND W	ATER	LEVELS:					
DRILLING METHO	D Hollow-Stem Auger	AT TI	IE OF		No	t Ob	serve	d	
LOGGED BY DSM	CHECKED BY SMH	AT EN	DOFE	DRILLING					
NOTES		AFTE		LING					
o DEPTH (ft) U.S.C.S. LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
ML	SILT, (ML) 0% gravel, 7% sand, 93% fines Brown/gray, moist, grass.	G S1						LMA	
	GRAVELLY SILT, (ML) 20% gravel, 10% sand, 70% fines Brown, moist, trace grass and roots, two pieces of subrounded and broken to angular gravel 2.5".			4-15-25-10 (40)	-				••••••••••••••••••••••••••••••••••••••
5, , , , , , , , , , , , , , , , ,	SILT WITH SAND, (ML) 5% gravel, 10% sand, 85% fines Brown, moist, one 2.5" piece of pulverized gravel in 3 inches of sample.	IVI HD		25-12-10- 10 (22)	-				0
- <u> </u>	SILT, (ML) 5% gravel, 5% sand, 90% fines Brown, moist, one 1.5" piece of gravel in Sample S4 Nonplastic.	4. HD \$4		4-5-5-6 (10)	_			AL	¢.
10 ML	1% gravel, 12% sand, 87% fines			2-5-5-5 (10)	2.0 3.5 3.5			LMA	<b>.</b>
15 	0% gravel, 5% sand, 95% fines Gray, moist, crumbles easily under hand pressure. Brown, moist, silt with sand, with wood chunks, root twigs, and black organics. Subrounded gravel up to 5" piece of wood stuck in sample spoon upon recov	1/4". / \ S6E ery.	A) 75	5-6-13-7 (19)	-				0
20	Sticks observed in auger cuttings from 15 to 20 feet								



### **BOREHOLE BH-26**

PAGE 2 OF 2

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT	NUMBER	73130.00

PROJ	JECT I	NUMBE	R_73130.00 PRO	JECT LC	CATI	ON Ancho	rage, A	lask	а		
DEPTH (ft) 50	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
	-		Sample contains mostly woody debris. One 4" piece of wood in sample catcher. Large roots and wood pieces in spoon. Soil is brown, moist, mostly silt.	HD S7	38	5-6-6-5 (12)	-				0
	-		Top/brown oilt with woody dobrig	М НД			-				
			Tan/brown silt with woody debris. SILT, (ML) 0% gravel, 5% sand, 95% fines Gray/light gray. Crumbles under hand pressure. Nonplastic.	HD S8A HD S8B	100	5-6-6-8 (12)	-			AL	0
	ML										
	_		1% gravel, 8% sand, 91% fines Gray/light brown, moist.	HD S9	100	4-7-6-13 (13)	3.25 4.0 >4.5			LMA	<b>▲</b> O

Bottom of borehole at 32.0 feet.

Notes: Backfilled with cuttings.

		R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	HOLE BH-2 PAGE 1 OF
			xplore Design	PROJ		ME_A	NC South	Airpar	k Ca	argo T	ermina	al
PROJI	ЕСТ І	NUMB	ER 73130.00	PROJ	IECT LO	CATI	ON Ancho	rage, A	Alask	a		
DATE	STAI	RTED	3/31/22 COMPLETED 3/31/22	GRO	JND EL	EVATI	ON					
DRILL	ING (	CONT	RACTOR GeoTek Alaska, Inc.	GRO		TER	_EVELS:					
			OD_Hollow-Stem Auger				ORILLING	No	t Ob	serve	d	
LOGG	ED B	Y DS	SN CHECKED BY SMH				RILLING					
NOTE	s						_ING					
o DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE . 10 20 30 40 PL MC LL 10 20 30 40
-	GP- GM		POORLY GRADED GRAVEL WITH SILT AND SAN (GP-GM) 52% gravel, 43% sand, 5% fines Dark brown, moist, subrounded and subangular grav up to 1". Frozen with visble ice.	ŕ	G S1	-					LMA	
-	ML CL- ML		SILT WITH SAND, (ML) 0% gravel, 25% sand, 75% fines Dark brown with gray streaks, moist, organics and ro Possible frozen. SILTY CLAY, (CL-ML) 0% gravel, 5% sand, 95% fin Light brown/tan, moist, crumbles.	oots.	HD S2A HD S2B	100	2-5-4-4 (9)	_			AL	O ▲ iÐi
	ML		GRAVELLY SILT WITH SAND, (ML) 25% gravel, 20 sand, 55% fines Dark brown, moist, subrounded and sub angular gra up to 3/4", smal roots and organics. SILT, (ML) 0% gravel, 10% sand, 90% fines Light brown/tan, moist, varying consistency.		HD S3A HD S3B	100	3-4-5-4 (9)	_				0
-			SILTY SAND, (SM) 0% gravel, 79% sand, 21% fines Tan/light brown, moist, breaks easily under hand pressure.	s	HD S4	100	2-3-4-4 (7)	_			LMA	۵
<u>10</u> _ _	SM		0% gravel, 72% sand, 28% fines		HD S5	100	3-4-4-5 (8)	_			LMA	· · · · · · · · · · · · · · · · · · ·
- - 15												
			POORLY GRADED SAND, (SP) 5% gravel, 95% sa 0% fines Light gray/white/black, moist, trace black organics, loose. Medium grain sand.	and,	HD S6	75	3-4-5-5 (9)	-				0
_	SP											
20											1	



#### **BOREHOLE BH-27**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

			ER_73130.00				ON Anchor							
05 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG			NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	10 PL	20 3	
			SILTY SAND, (SM) 0% gravel, 75% sand, 25% fine: Tan/light brown, moist, crumbles easily under hand pressure, trace black organics.	S	HD S7	100	3-5-6-6 (11)				LMA	•••••••••••••••••••••••••••••••••••••••		
_ 25	SM		0% gravel, 61% sand, 39% fines		HD S8	100	4-7-8-7 (15)				LMA		•	
<u> </u>	GM SM		SILTY GRAVEL WITH SAND, (GM) 50% gravel, 20 sand, 30% fines Brown, moist, soil. Medium grain sand. One piece o woody debris 1/16" diameter and 1" long. Gray, pulverized gravel up to 2.5" broken to angular. SILTY SAND, (SM) 0% gravel, 70% sand, 30% fines Brown/tan, moist. Fine grain sand.	ıf	HD S9A HD S9B	100	11-9-9-10 (18)					0	•	
35			0% gravel, 80% sand, 20% fines Light brown/tan, moist to dry. Fine grain sand. Nonplastic. Bottom of borehole at 37.0 feet.		HD S10	100	6-10-9-12 (19)				AL			
			Notes: Backfilled with cuttings.											

H       Si       O       H       Si       O       H       H       Si       10       20       3         0       NATERIAL DESCRIPTION       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H       H			R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	PAGE 1 OF
DATE STARTED         330/22         COMPLETED         330/22         GROUND ELEVATION           DRILLING CONTRACTOR GeoTek Alaska, Inc.         GROUND WATER LEVELS:         GROUND WATER LEVELS:         ATEND OBSIEVED         ATEND OF DRILLING	CLIEN.	т_м	CG Ex	xplore Design	PROJE		ME_A	NC South	Airpar	k Ca	argo T	ermina	al
DRILLING CONTRACTOR GeoTek Alaska, Inc.     GROUND WATER LEVELS:       DRILLING METHOD Holdw-Stem Alager     AT TIME OF DRILLING Not Observed       LOGGED BY DSN     CHECKED BY SMH       NOTES     AT TIME OF DRILLING AFTER DOPLILING AFTER DRILLING AFTER DRIL	PROJE	ЕСТ І	NUME	ER 73130.00	PROJE	CT LC	CATI	ON_Ancho	rage, A	lask	a		
DRILLING METHOD Hollow-Stem Auger       AT TIME OF DRILLING	DATE	STAI	RTED	<u>3/30/22</u> COMPLETED <u>3/30/22</u>	GROUN	D EL	EVATI	ON					
LOGGED BY DSN       CHECKED BY SMH       AT END OF DRILLING         NOTES       AFTER DRILLING       AFTER DRILLING         H       MATERIAL DESCRIPTION       Image: Signature of the second	DRILLI	ING	CONT	RACTOR GeoTek Alaska, Inc.	GROUN	D WA	TER I	EVELS:					
NOTES         AFTER DRILLING           Hate         Solution         Haterial Description         Sand Oet Description         S	DRILLI	ING I	метн	OD_Hollow-Stem Auger	A	г тім	E OF I		No	t Ob	serve	d	
E       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G	LOGGI	ED B	Y DS	SN CHECKED BY SMH	A	r end	OF D	RILLING_					
0         WELL GRADED SAND WITH GRAVEL. (SW) 39% gravel, 59% sand, 2% fines Brown, moist, subrounded gravel up to 3/4"         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10 <t< th=""><th>NOTES</th><th>s</th><th></th><th></th><th>A</th><th>TER</th><th>DRILL</th><th>_ING</th><th></th><th></th><th></th><th></th><th></th></t<>	NOTES	s			A	TER	DRILL	_ING					
5         WELL GRADED SAND WITH GRAVEL, (SW) 39% gravel, 5% sand, 26% fines         G         S           Sww         Small roots, twigs, one large 2" wood chip.         G         S1           Sww         Sill T, (ML) 0% gravel, 5% sand, 95% fines         100         3-1-5-6           Gray, moist, finable.         SILT, (ML) 0% gravel, 5% sand, 95% fines         1.5         0.5           ML         0% gravel, 5% sand, 95% fines         HD         100         6-8-8-6           ML         0% gravel, 5% sand, 95% fines         HD         100         6-8-8-6           ML         SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines         HD         100         4-5-8-6           ML         SANDY SILT, (ML) 10% gravel, 15% sand, 84%         HD         100         4-5-8-6           ML         SANDY SILT, (ML) 10% gravel, 15% sand, 84%         HD         100         4-5-8-6           ML         SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%         HD         100         6-6-9-9           ML         SILT, (ML) 0% gravel, 5% sand, 95% fines         SA         SA         SA           ML         SILT WITH SAND, (ML) 1% gravel, 15% sand, 95% fines         SA         SA         SA           ML         SILT, (ML) 0% gravel, 5% sand, 95% fines         SA         SA         SA </td <td></td> <td>U.S.C.S.</td> <td>GRAPHIC LOG</td> <td>MATERIAL DESCRIPTION</td> <td></td> <td>NUMBER</td> <td>RECOVERY % (RQD)</td> <td>BLOW COUNTS (N VALUE)</td> <td>POCKET PEN. (tsf)</td> <td>ICE BOND</td> <td>DIA</td> <td>OTHER TESTS</td> <td>▲ SPT N VALUE 10 20 30 40 PL MC LL 10 20 30 40</td>		U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE 10 20 30 40 PL MC LL 10 20 30 40
SW     Brown, moist, subrounded gravel up to 3/4"     C     SI       SW     Small roots, twigs, one large 2" wood chip.     HD     100     3-1-5-6       ML     SILT, (ML) 0% gravel, 5% sand, 95% fines     HD     100     3-1-5-6       ML     O% gravel, 5% sand, 95% fines     HD     100     6-8-8-6     0.5       ML     O% gravel, 5% sand, 95% fines     HD     100     6-8-8-6     0.5       ML     O% gravel, 5% sand, 95% fines     HD     100     6-8-8-6     0.5       ML     SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines     HD     100     4-5-8-6       ML     SANDY SILT, (ML) 10% gravel, 15% sand, 84%     HD     100     4-5-8-6       ML     SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%     HD     100     6-6-9-9       ML     SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%     HD     100     6-6-9-9       ML     SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%     HD     100     6-6-9-9       ML     SILT WITH SAND, (ML) 1% gravel, 15% sand, 95% fines     SILT WITH SAND, (ML) 1% gravel, 15% sand, 95% fines     SILT WITH SAND, (ML) 1% gravel, 15% sand, 95% fines       Light brown/gray, moist, trace twigs, trace subrounded gravel     HD     SILT SAND     SILT WITH SAND       ML     SILT, (ML) 0% gravel, 5% sand, 95% fines     SILT SAND <td< td=""><td></td><td></td><td></td><td>WELL GRADED SAND WITH GRAVEL, (SW) 39%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>				WELL GRADED SAND WITH GRAVEL, (SW) 39%									
SW       Small roots, twigs, one large 2" wood chip.       Image: Single content of the second chip.       Image: Single content of the second chip.       Image: Single content of the second chip.         5       SILT, (ML) 0% gravel, 5% sand, 95% fines       Image: Single content of the second chip.       Image: Single content of the second chip.       Image: Single content of the second chip.         6       ML       O% gravel, 5% sand, 95% fines       Image: Single content of the second chip.       Image: Single content of the second chip.       Image: Single content of the second chip.         ML       O% gravel, 5% sand, 95% fines       Image: Single content of the second chip.         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       Image: Single content of the second chip.       Image: Single content of the second chip.       Image: Single content of the second chip.         ML       SANDY SILT, (ML) 10% gravel, 15% sand, 84%       Image: Single content of the second chip.       Image: Single content of the second chip.       Image: Single content of the second chip.       Single content of the second chip.         ML       Single content of the second chip.       Image: Single content of the second chip.         ML	_			Brown, moist, subrounded gravel up to 3/4"		C							
Small roots, twigs, one large 2" wood chip.       Image: Constraint of the second chip.       Image: Constraint of the second chip.         5       SILT; (ML) 0% gravel, 5% sand, 95% fines       Image: Constraint of the second chip.       Image: Constraint of the second chip.         6       ML       0% gravel, 5% sand, 95% fines       Image: Constraint of the second chip.       Image: Constraint of the second chip.         6       0% gravel, 5% sand, 95% fines       Image: Constraint of the second chip.       Image: Constraint of the second chip.       Image: Constraint of the second chip.         ML       0% gravel, 5% sand, 95% fines       Image: Constraint of the second chip.       Image: Constraint of the second chip.       Image: Constraint of the second chip.         ML       SANDY SILT; (ML) 10% gravel, 20% sand; 70% fines       Image: Constraint of the second chip.       Image: Constraint of the second chip.         ML       SANDY SILT; (ML) 10% gravel, 15% sand, 84%       Image: Constraint of the second chip.       Image: Constraint of the second chip.         ML       SILT; WITH SAND; (ML) 1% gravel, 15% sand, 84%       Image: Constraint of the second chip.       Image: Constraint of the second chip.         ML       SILT; (ML) 0% gravel; 5% sand; 95% fines       Image: Constraint of the second chip.       Image: Constraint of the second chip.       Image: Constraint of the second chip.         10       SILT; (ML) 0% gravel; 5% sand; 95% fines       Image: C												SA	0
5       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       3-1-5-6       1.5         ML       O% gravel, 5% sand, 95% fines       HD       100       6-8-8-6       1.5         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       HD       100       6-8-8-6       1.5         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       HD       100       6-8-8-6       1.5         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       HD       100       4-5-8-6       1.5         ML       SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%       HD       100       6-6-9-9       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       6-6-9-9       15         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       6-8-9-9       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       6-8-9-9       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       3-4-4-5       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       3-4-4-5       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       Light brown/gray, moist, crumbles	_	SW			μ		-						
5       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       3-1-5-6       1.5         ML       O% gravel, 5% sand, 95% fines       HD       100       6-8-8-6       1.5         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       HD       100       6-8-8-6       1.5         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       HD       100       6-8-8-6       1.5         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       HD       100       4-5-8-6       1.5         ML       SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%       HD       100       6-6-9-9       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       6-6-9-9       15         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       6-8-9-9       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       6-8-9-9       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       3-4-4-5       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       HD       100       3-4-4-5       100         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       Light brown/gray, moist, crumbles				Small roots, twigs, one large 2" wood chip.					-				
5       NL       SILT, (ML) 0% gravel, 5% sand, 95% fines       IUU       (6)         ML       0% gravel, 5% sand, 95% fines       IUU       (6)         ML       0% gravel, 5% sand, 95% fines       IUU       (6)         ML       0% gravel, 5% sand, 95% fines       IUU       (6)         ML       0% gravel, 5% sand, 95% fines       IUU       IUU       (6)         ML       0% gravel, 5% sand, 95% fines       IUU       IUU       IUU         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       IUU       IUU         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines       IUU       IUU         ML       SANDY SILT, (ML) 10% gravel, 15% sand, 84%       IUU       IUU       IUU         ML       SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%       IUU       IUU       IUU         ML       SILT, WITH SAND, (ML) 1% gravel, 15% sand, 84%       IUU       IUU       SA         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       IUU       IUU       SA       IUU         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines       IUU       IUU       IUU       IUU         SILT, (ML) 0% gravel, 5% sand, 95% fines       IUU       IUU       IUU       IUU       IUU	-				X			3-1-5-6					Ö.
5       ML       Gray, moist, mable.         ML       0% gravel, 5% sand, 95% fines         Environmental sample collected by ChemTrack.       HD         ML       SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines         Brown/gray, moist, subrounded gravel up to 1". Medium to fine grain sand.       HD         ML       SILT WITH SAND, (ML) 1% gravel, 15% sand, 84% fines         Brown/gray, moist, trace twigs, trace subrounded gravel up to 1?". Medium to 1/2". Fine to medium grain sand.         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines         Light brown/gray, moist, crumbles easily under hand pressure.       HD         ML       SILT, (ML) 0% gravel, 5% sand, 95% fines         Light brown/gray, moist, crumbles easily under hand       HD	-		<u>h i fi</u>	SILT, (ML) 0% gravel, 5% sand, 95% fines	$\square$	HD	100						
ML 0% gravel, 5% sand, 95% fines Environmental sample collected by ChemTrack. ML SANDY SILT, (ML) 10% gravel, 20% sand, 70% fines Brown/gray, moist, subrounded gravel up to 1". Medium to fine grain sand. ML SILT WITH SAND, (ML) 1% gravel, 15% sand, 84% fines Brown/gray, moist, trace twigs, trace subrounded gravel up to 1/2". Fine to medium grain sand. ML SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/gray, moist, crumbles easily under hand pressure. ML HD 100 4-5-8-6 (13) SANDY SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/gray, moist, crumbles easily under hand pressure. ML HD 100 3-44-5 (8)	_			Gray, moist, friable.	Ň								
Image: Brown/gray, moist, subrounded gravel up to 1". Medium to fine grain sand.       HD       100       4-5-8-6 (13)         Image: Brown/gray, moist, subrounded gravel, 15% sand, 84%       HD       100       4-5-8-6 (13)         Image: Brown/gray, moist, trace twigs, trace subrounded gravel up to 1/2". Fine to medium grain sand.       HD       100       6-6-9-9 (15)         Image: Brown/gray, moist, trace twigs, trace subrounded gravel up to 1/2". Fine to medium grain sand.       HD       100       6-6-9-9 (15)         Image: Brown/gray, moist, trace twigs, trace subrounded gravel up to 1/2". Fine to medium grain sand.       Image: Brown/gray, moist, trace twigs, trace subrounded gravel to 1/2". Fine to medium grain sand.       Image: Brown/gray, moist, trace twigs, trace subrounded gravel to 1/2". Fine to medium grain sand.       Image: Brown/gray, moist, trace twigs, trace subrounded gravel to 1/2". Fine to medium grain sand.       Image: Brown/gray, moist, trace twigs, trace subrounded gravel to 1/2". Fine to medium grain sand.       Image: Brown/gray, moist, trace twigs, trace subrounded gravel to 1/2". Fine to medium grain sand.       Image: Brown/gray, moist, trace twigs, trace twigs, trace subrounded gravel to 1/2". Fine to medium grain sand.       Image: Brown/gray, moist, trace twigs, trace to 1/2". Fine to 1/2". F	5	ML		0% gravel, 5% sand, 95% fines Environmental sample collected by ChemTrack.			100		0.5 2.0			LMA	<b>..</b>
SILT WITH SAND, (ML) 1% gravel, 15% sand, 84%         fines         Brown/gray, moist, trace twigs, trace subrounded gravel         up to 1/2". Fine to medium grain sand.         ML         15         SILT, (ML) 0% gravel, 5% sand, 95% fines         Light brown/gray, moist, crumbles easily under hand         Pressure.	-			Brown/gray, moist, subrounded gravel up to 1". Medi	ium	HD S4	100						<b>▲</b> Ŏ
Brown/gray, moist, trace twigs, trace subrounded gravel up to 1/2". Fine to medium grain sand.       HD S5       100       6-6-9-9 (15)         ML       ML       Image: Single state stat	10				17								
15     SILT, (ML) 0% gravel, 5% sand, 95% fines       Light brown/gray, moist, crumbles easily under hand pressure.	_			Brown/gray, moist, trace twigs, trace subrounded gra		HD S5	100					SA	····· <b>\</b> O
SILT, (ML) 0% gravel, 5% sand, 95% fines         Light brown/gray, moist, crumbles easily under hand         pressure.         HD         100         3-4-4-5         (8)	-	ML											
	-	- <u>-</u> -		Light brown/gray, moist, crumbles easily under hand			100						•••••••••
	-	IVIL											



#### **BOREHOLE BH-28**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT	NUMBER	73130.00

PROJECT	NUM	BEF	<b>R</b> _73130.00	PROJECT LO	CATI	ON Ancho	rage, A	lask	а		
U.S.C.S.	GRAPHIC	LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
-			SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/gray, moist, firmer than above sample. Nonplastic.	HD S7	100	4-4-5-5 (9)	-			AL	
25 ML			0% gravel, 15% sand, 85% fines Crumbles easily under hand pressure.	HD S8	100	4-5-5-5 (10)	-			LMA	• • • •
30  			SILTY SAND, (SM) 0% gravel, 77% sand, 23% fines Brown, moist, increasing sand content with depth. Medium grain sand.	HD S9	100	4-5-6-7 (11)	-			LMA	
35 ML SM			SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist. SILTY SAND WITH GRAVEL, (SM) 15% gravel, 40% sand, 45% fines Brown, moist, subangular and subroudned gravel up 1". Easily crumbles under hand pressure. Fine grain sand. SILT, (ML) 0% gravel, 0% sand, 100% fines		100	2-4-3-3 (7)	0.5 1.0 2.5 2.75 3.0 3.0				0 0
- ML - 40 - SP- SM			POORLY GRADED SAND WITH SILT, (SP-SM) 1% gravel, 94% sand, 5% fines Brown/black/white, moist. Coarse to medium sand. 2' black coal layer 2" above bottom of sample spoon.	HD S11	100	5-7-7-6 (14)	-			LMA	O <b>A</b>

Note Backfilled with cuttings.

			2\	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	HOLE BH-2 PAGE 1 OF
CLIEN	<b>IT</b> _М	CG I	Exp	lore Design	PRO	JECT N	AME_/	NC South	Airpar	k Ca	irgo T	ermina	al
				<b>R</b> _73130.00									
				/1/22 COMPLETED _4/1/22									
				ACTOR GeoTek Alaska, Inc.									
				D_Hollow-Stem Auger									
				CHECKED BY <u>SMH</u>				RILLING_ _ING					
o DEPTH (ft)	U.S.C.S.	GRAPHIC	LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40
-	GW- GM			WELL GRADED GRAVEL WITH SILT AND SAND, (GW-GM) 62% gravel, 32% sand, 6% fines Brown, moist, subrounded gravel up to 1.5". Frozen 6". 5" cobble in drilling cuttings near surface.	-	G S1	-					SA	0
-	GM ML			SILTY GRAVEL WITH SAND, (GM) 50% gravel, 30 > sand, 20% fines Bown, moist, subrounded gravel up to 1". SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/tan, moist, trace roots.	<u>-</u>	HD S2A HD S2B	88	2-3-4-7 (7)	2.25 2.5 >4.5 3.25				o ▲ o
5	ML ML		Ø.	GRAVELLY SILT WITH SAND, (ML) 30% gravel, 20 sand, 50% fines Brown, moist, subrounded gravel up to 1/2". SILT WITH SAND, (ML) 1% gravel, 18% sand, 81% fines Light brown/tan, moist, trace gravel up to 1". Crumbl		HD S3A HD S3B	88	5-8-8-9 (16)	_			LMA	0 •
-	CL- ML			easily under hand pressure. Fine grain sand. SILTY CLAY, (CL-ML) 3% gravel, 7% sand, 90% fin Tan/light brown, moist.		HD S4	100	6-7-9-9 (16)	4.5 1.25 4.25 2.5			LMA, AL	
<u>10</u> –				SILT, (ML) 0% gravel, 5% sand, 95% fines Dark tan, moist.		HD S5	100	4-5-6-8 (11)	1.5 2.25 2.25 2.25 2.25				
- - 15													
	ML			5% gravel, 5% sand, 95% fines Occasional light gray/red layers, trace fine sand and trace gravel <1/4". Two pieces of black organics and one 1" piece of electrial wire 1/16" diameter. Nonpla	k	HD S6	88	5-6-8-7 (14)				AL	<b>A</b> O.
_													
20													



### **BOREHOLE BH-29**

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CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJECT	NUMBER	73130.00

PROJECT NUMBER_73130.00	PROJECT LOCATION Anchorage, Alaska
ATERIAL DESCRIPTION	BAMPLE TYPE AND BER NUMBER NUMBER NUMBER NUMBER SAMPLE TYPE SAMPLE TYPE SAMPL
SANDY SILT, (ML) 1% gravel, 45% sand, 55% Light brown, moist, trace gravel up to 1/8", few organics up to 1/16" diameter. Fine grain sand.	fines
25 SILT, (ML) 0% gravel, 3% sand, 97% fines Tan/gray, moist, varying consistency.	HD 88 2-4-4-5 (8) LMA
30 0% gravel, 5% sand, 95% fines SANDY SILT, (ML) 0% gravel, 39% sand, 61% Brown, moist. Fine to medium grain sand. ML	HD     S9A,       HD     88       4-4-5-5       (9)
35 POORLY GRADED SAND WITH SILT AND GF (SP-SM) 22% gravel, 72% sand, 6% fines Gray/light gray, moist to dry, subrounded and subangular gravel up to 1". Medium grain sand	RAVEL, HD S10 88 10-8-7-8 (15) SA
40 40 POORLY GRADED SAND WITH SILT, (SP-SN gravel, 93% sand, 7% fines Gray/white/black, moist to dry. Medium grain sa	



### **BOREHOLE BH-29**

PAGE 3 OF 3

CLIENT MCG Explore Design

**PROJECT NAME** ANC South Airpark Cargo Terminal

PROJ	ECT	NUMB	ER_73130.00	PROJ	JECT LC	CATI	ON Anchor	age, A	lask	а		
DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DIA	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL → → ↓ 10 20 30 40
45	SP- SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 93% sand, 7% fines Gray/white/black, moist to dry. Medium grain sand. <i>(continued)</i>	)								
	GM		SILTY GRAVEL WITH SAND, (GM) 40% gravel, 20 sand, 40% fines Brown, moist, subrounded gravel up to 1". Medium g sand. SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.		HD S12A HD S12B	100	3-7-7-10 (14)	1.5 2.5 1.0				0 0
	ML											
	GM		SILTY GRAVEL WITH SAND, (GM) 50% gravel, 369 sand, 14% fines Brown/gray, moist, subrounded and subangular grav up to 2". Medium grain sand.		HD S13	88	7-11-13-13 (24)				SA	

#### Bottom of borehole at 52.0 feet.

Notes: Backfilled with cuttings.

		R	۶V	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252							BC	DRE	HC		EB		
				ore Design								ermina					
DATE ST	AR	RTE	D_4/*	1/22 <b>COMPLETED</b> 4/1/22	GROUND	ELE	VATI	ON									
DRILLIN	G C	ON	TRA	CTOR_GeoTek Alaska, Inc.	GROUND	WA	TER L	EVELS:									
DRILLIN	GN	1ETI	HOD	Hollow-Stem Auger													
				CHECKED BY <u>SMH</u>				RILLING_ .ING		1			1				
o DEPTH (ft) II S C S		GRAPHIC I OG	FOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	1	02	N VA 20 3 MC 20 3	60 4	0
	1			SILT WITH SAND, (ML) 0% gravel, 20% sand, 80%													
· -	-			fines Dark brown, moist, roots and grass.		G 51											
M	L			0% gravel, 15% sand, 85% fines Less roots than above.		HD 32	75	1-2-3-3 (5)	-				<b>A</b>	0			
5 M				SANDY SILT, (ML) 0% gravel, 38% sand, 63% fines Dark brown, moist, few roots, firm.	\  F	HD S3	88	3-4-3-4 (7)	3.0 2.75 3.25 3.75			LMA		0.	-		
 M				SILT WITH SAND, (ML) 0% gravel, 15% sand, 85% fines Dark brown, moist, varying consistency.	V  F	1D 54	88	2-3-3-4 (6)	1.5 2.25 2.5				▲ 	(	Э		
<u>10</u>				SANDY SILT, (ML) 0% gravel, 35% sand, 65% fines Dark brown, moist.	IVI F	ID S5	88	2-4-4-7 (8)	1.5 2.0 2.0 1.5			LMA, AL		. н.	0		
<u>15</u> M _ _	L			0% gravel, 36% sand, 64% fines Light brown/tan. Fine grain sand.	S   ⊢	ID 6A ID 6B	100	3-5-5-6 (10)				LMA	0	0			
_																	
20				(Continued Next Page)					1			1	<u> </u>	:	:	:	2



#### **BOREHOLE BH-30**

PAGE 2 OF 2

CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PROJ	ECT	NUMB	ER <u>73130.00</u> F	ROJECT L	OCATI	ON Ancho	rage, A	lask	a		
0 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE 10 20 30 40 PL MC LL 10 20 30 40
-	SM		SILTY SAND, (SM) 0% gravel, 79% sand, 21% fines Gray/white/black, moist. Medium grain sand.	HD S7	100	3-5-6-4 (11)	-			SA	· <b>○</b> ·▲·····
	ML		SILT, (ML) 0% gravel, 10% sand, 90% fines Brown, moist, crumbles easily under hand pressure.	HD S8A HD S8E	100	4-6-7-9 (13)	-				
30	CL		SANDY SILT, (ML) 0% gravel, 40% sand, 60% fines Brown, moist. Fine grain sand. LEAN CLAY, (CL) 0% gravel, 5% sand, 95% fines Brown, moist, trace subrounded gravel up to 1/4" in catcher of spoon.	HD S9A HD S9E	100	4-3-2-6 (5)	-			AL	© •
- 35 -	 • ML		SANDY SILT, (ML) 0% gravel, 49% sand, 51% fines Brown/tan, moist, subrounded and subangular gravel to 2.5". Fine to coarse sand.	up HD S10	100	3-4-5-5 (9)	-			LMA	.0.4
	1	<u></u>	Bottom of borehole at 37.0 feet. Notes: Backfilled with cuttings.			1					<u></u>

	R	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252	BOREHOLE BH-3 PAGE 1 OF										
			PROJECT NAME ANC South Airpark Cargo Terminal										
ROJECT	NUM	<b>BER</b> _73130.00	PROJECT LOCATION Anchorage, Alaska										
OATE STA	RTE	COMPLETED	GROUND ELEVATION										
		RACTOR GeoTek Alaska, Inc.											
		IOD_Hollow-Stem Auger											
		SN CHECKED BY SMH	AFTER DRILLING Not Observed										
o UEFIN (ft) U.S.C.S.	GRAPHIC	MATERIAL DESCRIPTION	A SPT N VALUE NUMBER A SPT N VALUE NUMBER A SPT N VALUE 10 20 30 40 PL MC LL 10 20 30 40 PL MC LL										
<u> </u>		SILT WITH SAND, (ML) 5% gravel, 15% sand,	85%										
– ML		fines Dark brown/reddish brown, organics, moist.	G S1										
-		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.	HD S2 100 2-4-5-5 4.0 3.5 4.0										
5		0% gravel, 8% sand, 92% fines Varying consistency. Trace gravel up to 1/4".	HD S3 100 4-6-7-8 (13) 2.0 4.5 LMA										
-		0% gravel, 5% sand, 95% fines Crumbles easily under hand pressure.	HD S4 100 5-7-10-10 (17)										
10 - ML		0% gravel, 6% sand, 94% fines Varying consistency.	HD S5 88 3-4-6-5 (10) 2.5										
-													
<u>15</u> - -		0% gravel, 5% sand, 95% fines	HD 88 3-5-5-9 (10)										
-													
20													



#### **BOREHOLE BH-31**

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CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

	PROJECT	NUMBER	73130.00
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PROJ	ECTI	NUMBE	R <u>73130.00</u> PRO	JECT L	OCATI	ON Anchor	rage, A	lask	a					—
05 DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	PL	<sup>-</sup> N VAI 20 30 MC 20 30	) 40 LL	<b>`</b>
  25	SM		SILTY SAND, (SM) 0% gravel, 61% sand, 39% fines Brown, moist, trace black organics. Medium to fine grain sand.		75	3-6-7-12 (13)				LMA	0			
	GM ML SM		SILTY GRAVEL WITH SAND, (GM) 44% gravel, 20%         sand, 36% fines         Brown, moist, subrounded gravel up to 2". Medium grain         sand.         SILT, (ML) 0% gravel, 10% sand, 90% fines         Brown, moist.         SILTY SAND, (SM) 0% gravel, 85% sand, 15% fines         Brown, moist.		100 J	5-8-7-14 (15)	>4.5 4.0 3.75			LMA	0	9		
	ML		SANDY SILT, (ML) 3% gravel, 40% sand, 57% fines Brown, moist, subrounded gravel up to 1". Medium grain sand.	HD S9	100	6-11-15-19 (26)	-			LMA	0	· · · <b>A</b> ·		
CRW MOA LOG - CRW_DATATEMPLATE_20190115.GDT - 5/24/22 14:56 - 73130_TESTHOLES.GPJ 6 1 6 1 1	SP- SM		POORLY GRADED SAND WITH SILT, (SP-SM) 0% gravel, 90% sand, 10% fines Light brown/gray. Coarse to fine sand, increasing fineness with depth. Bottom of borehole at 36.3 feet. Notes: Completed as piezometer with 1 inch Schedule 80 PVC. Handslotted from 1.6 to 36.3 feet. Stickup 19 inches.		, 100	14-32- 50/4"					0			>>> <b>.</b>

CR	CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252						BC	DRE	HOLE BH-3 PAGE 1 OF :
	plore Design	PROJECT N	AME_/	NC South	Airpar	k Ca	argo T	ermina	al
PROJECT NUMBE	ER_73130.00	PROJECT L	OCATI	ON Ancho	rage, A	Alask	ка		
DATE STARTED	4/2/22 COMPLETED 4/2/22	GROUND EL	EVATI	ON					
DRILLING CONTR	RACTOR GeoTek Alaska, Inc.	GROUND W	ATER	LEVELS:					
DRILLING METHO	DD_Hollow-Stem Auger	AT TIN	ie of i		No	t Ob	serve	d	
LOGGED BY DSM	N CHECKED BY SMH	AT EN	d of d	RILLING					
		AFTER		_ING					
DEPTH (ft) U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE A 10 20 30 40 PL MC LL 10 20 30 40
- ML	SANDY SILT, (ML) 10% gravel, 20% sand, 70% find Dark brown, moist, organics, subrounded gravel up 3/4".	es to G S1	_						O
	SILT, (ML) 0% gravel, 12% sand, 88% fines Red/gray rust colored, moist, trace roots.	HD S2		1-2-3-4 (5)	3.0 2.5 4.0			LMA	▲ O
5	0% gravel, 5% sand, 95% fines Less roots than above. Trace black organics.	HD S3		1-3-3-4 (6)	1.5 3.75 3.5				0
-	0% gravel, 6% sand, 94% fines Gray with red/orange/black streaks. One piece of subrounded gravel 1".	HD S4		2-2-5-6 (7)	3.25x3 4.25	3		LMA	<b>▲</b> 0
10 ML	0% gravel, 5% sand, 95% fines Light brown/gray with dew red streaks. One small ro	bot. HD S5	100	2-5-5-5 (10)	3.0 2.0 3.0				····•
-	0% gravel, 5% sand, 95% fines Light brown.	HD S6	100	3-5-5-5 (10)	3.0 3.5 3.25			LMA	<b>A</b> O
20									



## **BOREHOLE BH-32**

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CLIENT MCG Explore Design

PROJECT NAME ANC South Airpark Cargo Terminal

PROJ	ECTI		BER_73130.00	PROJECT LOCATION Anchorage, Alaska								
(II) 20	U.S.C.S.	GRAPHIC LOG		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	ICE BOND	DID	OTHER TESTS	▲ SPT N VALUE ▲ 10 20 30 40 PL MC LL 10 20 30 40	
-			SILT, (ML) 0% gravel, 5% sand, 95% fines Light brown/gray, moist, easily crumbles under hand pressure.	HD S7	100	3-5-5-7 (10)	-				<b>▲</b> · O	
25 -	ML		0% gravel, 5% sand, 95% fines Varying consistency.	HD S8	100	4-7-8-9 (15)	3.5 2.5				▲ © · · · · · · · · · · · · · · · · · ·	
30			0% gravel, 2% sand, 98% fines Moist, almost wet in middle of sample.	HD S9	88	4-4-7-12 (11)	2.5 2.25 3.0			LMA	O	
35	ML		SANDY SILT, (ML) 10% gravel, 20% sand, 70% fine Brown, moist, subrounded gravel up to 1". Fine to medium grain sand.	es – HD S10A	100	6-12-8-9					0	
	ML		SILT, (ML) 0% gravel, 5% sand, 95% fines Brown, moist.			(20)	3.25 2.5 2.25				0	
			Bottom of borehole at 37.0 feet. Notes: Backfilled with cuttings.									

# **Appendix B**

# **Laboratory Results**

Included in this section:

1) Laboratory Results from Alaska Testlab

ATL						4040 B Ancho Phor Fa	lab - Anchorag Street, Suite 102 orage, AK 9950 e: 907-205-198 Ix: 907-782-4409 laskatestlab.con
Material Test F	Report		F	Repo ssue	ort No: ASM:22-0 No: 1	600	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 220 CC: CRW Maria Kamps	re re	he results produced	contained below pertain only to th I, except in full, without the prior with	e items tested below. This repo itten approval of Alaska Testlab	ort should not be or the agency.
Project: South Airpark					Marc	Harpsen	
73130			Т	Review 'itle: Date:	ed By: Maria E Kamı Senior Engine 5/11/2022		
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0600-S01 TH-01 S1	22-0600-S TH-01		22-0600-S03 TH-01 S3	22-0600-S04 TH-01 S4	
Other Test Results							
Description	Method		F	Resul	ts		Limits
Water Content (%) Date Tested	ASTM D2216	33 4/26/2022	4/26/20		11 4/26/2022	12 4/26/2022	
Tested By Group Code	ASTM D2487	Karen Jackson	Karen Jacks	son ML	Karen Jackson	Karen Jackson	
Group Name				Silt			
Liquid Limit				0			
Plasticity Index			V	0 ′es			
Material Proportions Estimated Gravel (%)	ASTM D2487		r	0			
Sand (%)				0			
Fines (%)			1	00			
Tested By	ASTM D2487		Cindy Zickefoo				
Liquid Limit	ASTM D4318		Not Obtainal				
Plastic Limit Plasticity Index			NP (Non-Plast NP (Non-Plast				
Tested By			Cindy Zickefoo				
Date Tested			5/9/20				
Percent Gravel	LMA (Internal Method	d)				11	
Percent Sand						56	
Percent Fines (Silt/Clay)						33	
Group Symbol Group Name						SM Silty sand	
Tested By						John Platt	
Comments							
Soil Classification of Fines (-#200	) in LMAs Assumed	Unless Verified by	Additional Testi	na			
	, <u></u> ,	2					

ATL
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Mate	erial Test I	Report		Report No: ASM:22-0600 Issue No: 1 The results contained below pertain only to the items tested below. This report should not be					
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 22 CC: CRW Maria Kam	.0475			the items tested below. This repo written approval of Alaska Testlab		
Project:	South Airpark					Mar	Aprpsen		
	73130			٦	Reviewe Fitle: Date:	ed By: Maria E Kan Senior Engir 5/11/2022	•		
Samp	le Details								
Sample Client S Date Sa	Sample ID		22-0600-S05 TH-01 S5	22-0600-8 TH-01		22-0600-S07 TH-01 S7	22-0600-S08 TH-01 S8		
Other	Test Results								
Descrip	otion	Method			Result	-		Limits	
Water C Date Te	content (%) sted	ASTM D2216	4 4/26/2022	4/26/20	2 )22	20 4/26/2022	2 4/26/2022		
Tested E	Зу		Karen Jackson	Karen Jack	son	Karen Jackson	Karen Jackson		
Group C Group N		ASTM D2487	GP-GM Ily graded gravel with silt and sand	-SP Poorly graded sand wi		SM Silty sand <sup>p</sup>	GP-GM porly graded gravel with silt and sand		
Atterber Liquid Li	g Limits Estimated imit		Yes	Ň	res	0	Yes		
Plasticity	y Index					0			
Tested E	Зу	ASTM D2487		John F			Cindy Zickefoose		
Method		ASTM D6913	A	-	A	A	A		
	tion Method		Oven Dry	Oven	,	Oven Dry	Oven Dry		
	site Sieving?		Yes		res	Yes	Yes		
•	ing Sieve(s)		No. 4 52.03		o. 4	No. 4	No. 4 31.91		
Cu Cc		ASTM D2487	0.28		.82 .22		0.45		

# Comments

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

						Phone: 907-205- Fax: 907-782- info@alaskatestlab
Material Test R	eport		R	lepo	rt No: ASM:22-0600 No: 1	I
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: South Airpark 73130	, LLC	Project Code: 2204 CC: CRW Maria Kampser	75 Thirpon n R( Ti	e results produced,	ed By: Maria E Kampsen Senior Engineer 5/11/2022	pproval of Alaska Testlab or the agency.
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0600-S09 TH-01 S9	22-0600-S <sup>2</sup> TH-01 S <sup>2</sup>		22-0600-S11 TH-01 S11	
Other Test Results						
Water Content (%) Date Tested Tested By Group Code Group Name Atterberg Limits Estimated Tested By Method Preparation Method Composite Sieving? Separating Sieve(s) Cu Cc		3 4/26/2022 Karen Jackson GP-GM graded gravel with sit and sand Yes Cindy Zickefoose A Oven Dry Yes No. 4	4/26/202 Karen Jackso	5 50 45 5M nd	4 4/26/2022 Karen Jackson 17 66 17 SM Silty sand with gravel John Platt	Limits

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

	ATL												Fax info@ala	: 907-205-198 : 907-782-440 skatestlab.cor
	teria			-					Issue	e No				
lient: Project	3940 A	rctic Blvd age, AK,	ng Group, I ., Ste. 300 99503		-	ct Code: CC: CRW Maria K	220475 ampsen		Reviev	d, exce	ined below pertain only to pt in full, without the prior of Harria E Karr	written approval o Examp- npsen	F Alaska Testlab or	the agency.
									Title: Date:		Senior Engir 5/11/2022	ieer		
Sam	nple De	etails					Othe	er Tes	st Res	ult	S			
	ole ID t Sample	ID	22-0600 TH-01 \$				Date Tester Group Group Atterb Metho Prepa Comp	Conter Tested d By Code Name erg Lim	F its Estin /ethod eving?		Metho ASTM ASTM ly graded grave ed ASTM ASTM	D2216 Karen D2487 el with silt D6913	Result 4 4/26/2022 n Jackson GP-GM and sand Yes A Oven Dry Yes No. 4 52.03	Limits
arti	cle Siz	e Dist	ributio	on										
	100 60 100		20 m	6 m ———	Diameter 2	600		200 µm	100 5	50   	Method: Drying By: Date Tested: Tested By: Sieve Size 3in	John Pla	att assing	Limits
Percentage Passing (by mass)	80         70         60         50         40         30         20         10									-	2in 11⁄2in 11/2in 3⁄3in 3⁄8in No.4 No.10 No.20 No.40 No.60 No.100 No.200		100 100 75 71 61 59 51.7 43 31 19 11 7 5	

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL	

Сс

Date Tested

0.28

5/3/2022

Mat	erial Test Repor	t	Report Issue N	No: MAT:22-0600-S05 o: 1
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		ained below pertain only to the items tested below. This report should not be ept in full, without the prior written approval of Alaska Testiab or the agency.
Project:	South Airpark			MarEtarpsen
			Reviewed	By: Maria E Kampsen
	73130		Title:	Senior Engineer
			Date:	5/11/2022
Other 1	Fest Results			
Descri	ption	Method		Result Limits

ASTM D2487

# Comments

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

Ć																		4040 B Ancho Phon Fa	<b>ab - Anchorage</b> Street, Suite 102 rage, AK 99503 e: 907-205-1987 x: 907-782-4409 laskatestlab.com
Ma	ter	ial	Te	est	Re	epo	ort						Rep Issu	ort Je N	No: MA o: 1	T:22-(	0600-S	06	
Client: Projec	394 Anc	0 Arc	tic Blv je, AK	ing Gr d., Ste (, 9950	. 300	LC			C: CRW	: 22047 Kampsen	5		The resu reproduc	ults conta ced, exc	ained below per ept in full, witho	ut the prior . Han	written approv	ed below. This repc ral of Alaska Testlab	rt should not be or the agency.
	731	30										<b> </b> -	Revie Title: Date:		By: Maria Senio 5/11/	or Engir			
San	nple	Det	ails	;						Oth	ner T	est	Re	sult	ts				
Samp Clien	ole ID t Sam		D		0600- -01 S					Wate Date <u>Test</u> Grou Grou	er Con er Con e Teste ed By up Coc up Nar	itent ( ed le ne		imate	P	ASTM	D2216 Ka D2487	4/26/2022 ren Jacksor SP-SN and with sil	2 2 1 1 t
										Test	rberg I ed By e Teste		s Esti		ed			Ye: John Plat 5/3/2022	t
Parti		Size	DIS	strib	utio	n									Method	J.	ACTM	D6913	
	100 	60		20	- mm	6	Dia	2	60	00	200 - µm	100	0	50	Drying Date Te Tested Sieve S 3in 2in 1½in 1½in	ested: By:	John F	Platt Passing 100 100 100	Limits
S ei e	70 60 50 40 30 20 10 Size	3" 2		1"	1/2"	#	4	#10	#20	#40	#60 #1	00	#200		1in ¾in 1⁄₂in 3/8in No.4 No.10 No.20 No.60 No.100 No.200			100 98 97 96 93.0 89 84 64 26 10 6	
Com	men	its																	

ATL	

	erial Test Repor	t	Report Issue N	No: MAT:22-0600-S06 lo: 1	
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		tained below pertain only to the items tested be cept in full, without the prior written approval of	
Project:	South Airpark			Han Etanps	en
			Reviewed	l By: Maria E Kampsen	
	73130		Title:	Senior Engineer	
			Date:	5/11/2022	
Other <sup>-</sup>	Test Results				
Descri	ption	Method		Result	Limits
Methor	1	ASTM D6913		Δ	

Description	Method	Result	Limits
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Cu	ASTM D2487	2.82	
Сс		1.22	
Date Tested		5/3/2022	

# Comments

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

															Anchora Phone: Fax:	reet, Suite 1 ge, AK 995 907-205-19 907-782-44 skatestlab.co
<b>l</b> at	er	ria	l Te	est	R	epo	ort					Repor Issue	t No: MAT:22-0 No:  1	600-S07		
lient:			nginee					-	ct Code		75	The results co	ontained below pertain only to the prior w			
roject	An	nchora	ctic Blv age, Ał irpark			)			CC: CRW Maria	/ a Kampse	n		Jan	Harpse	$\sum$	
	73	3130										Reviewe Title: Date:	d By: Maria E Kam Senior Engin 5/11/2022	•		
Sam	ple	e De	tails	5						01	her Te	st Resu	lts			
Samp Client		) mple	ID		-0600 1-01 \$	0-S07 S7				Wa Da <u>Te</u> Gro Gro	scription ater Cont te Tested sted By pup Code pup Nam	ent (%) I	ASTM	D2216 4/2 Karen J D2487	SM ty sand	Limits
										Pla Me Pre Co	uid Limit sticity In thod paration mposite parating	Method Sieving?	ASTM		0 0 A ven Dry Yes No. 4	
arti	cle	Siz	e Di	strik	outio	on										
	100 ⊢	0 60		20	— m	6 m —	[	Diameter 2	6	00	200 — µm —	100 50	Method: Drying By: Date Tested: Tested By:	ASTM D69 Oven 5/3/2022 John Platt	13	
	00 - 90 -			••	-		-	-		-	~		<b>Sieve Size</b> 3in	% Pass	<b>ing</b> 100	Limits
	80 -												2in 1½in 1in ³∕₄in		100 100 92 92	
mass	60 -				_								½in 3/8in No.4		92 92 91.9	
e Passinç	50 –												No.10 No.20 No.40		92 91 90	
ercentag	40 –												No.60 No.100 No.200		87 76 44	
ш	30 -															
	20 –															
							-									
	10 —															

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

ATL	

			into@alaskatestlab.com
<b>Material Test Re</b>		Report No: MAT:22-0600-S07 Issue No: 1	
Client: CRW Engineering Group, LL	C Project Code: 220475	The results contained below pertain only to the items tested be reproduced, except in full, without the prior written approval of	
3940 Arctic Blvd., Ste. 300	CC: CRW Maria Kampsen		
Anchorage, AK, 99503	Mana Kampsen		
Project: South Airpark		Maretarps	en
73130		Reviewed By: Maria E Kampsen	
10100		Title: Senior Engineer	
Other Test Results		Date: 5/11/2022	
Description	Method	Result	Limits
Cu	ASTM D2487		
Сс			
Date Tested		5/3/2022	
L			

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

ATL	

Material Test Report					Report No: MAT:22-0600-S08 Issue No: 1				
Client: CRW Engineerin 3940 Arctic Blvc Anchorage, AK,	ng Group, LLC d., Ste. 300	Project Code: 220475 CC: CRW Maria Kampsen			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.				
Project: South Airpark					Mare	Farpser			
73130				Reviewed Title: Date:	By: Maria E Kamp Senior Engine 5/11/2022				
Sample Details			Other Te	st Resul	ts				
Sample ID Client Sample ID	22-0600-S08 TH-01 S8						Limits		
Particle Size Dis	tribution								
100 60 100 90 80 70 80 70 80 70 80 70 80 70 80 90 80 70 80 90 80 70 80 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 80 70 90 90 80 70 90 90 80 70 90 90 90 90 90 90 90 90 90 9	20 6 mm 1' 1/2' #4	Diameter 2 600 	200 µm	100 50	Drying By: Date Tested:	ASTM D6913 Oven 5/3/2022 John Platt <b>% Passing</b> 100 100 82 76 65 58 45.2 37 25 13 7 5 3	Limits		
Commonte									

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL	

.

 Report No: MAT:22-0600-S08

No. 4

31.91

5/3/2022

0.45

Mat	erial Test Repor	ť	Issue No: 1				
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		tained below pertain only to the items tested be cept in full, without the prior written approval of			
Project:	South Airpark			Maretarps	e		
	70400		Reviewed	l By: Maria E Kampsen			
	73130		Title:	Senior Engineer			
			Date:	5/11/2022			
Other <sup>-</sup>	Test Results		_				
Descri	ption	Method		Result	Limits		
Method	ł	ASTM D6913		Α			
Prepar	ation Method			Oven Dry			
Compo	site Sieving?			Yes			

**ASTM D2487** 

Cu Cc

Separating Sieve(s)

Date Tested

### Comments

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL	

Material Test Report						Re	Report No: MAT:22-0600-S09 Issue No: 1						
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503				LC	Project Code: 220475 CC: CRW Maria Kampsen			The r	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.				
Project:		-								Par	Etapse		
	7313	30							Rev Title Dat	e:	By: Maria E Kan Senior Engir 5/11/2022		
Sam	ple	Detail	S				Oth	er Te	st R	esul	ts		
Sample	e ID		22-0600					ription		、 、	Metho		
Client	Sam	ple ID	TH-01 S	39				r Conte Testec		)	ASTM	D2216 4/26/20	3 022
							Teste				ASTM	Karen Jacks	
							Grou	p Code p Nam perg Li	Э		rly graded grave	el with silt and sa	
							Teste Date	ed By Tested	l			Cindy Zickefoo 5/5/20	
Partic	le S	Size Di	istributio	on									
					Diameter						Method:	ASTM D6913	
	100 	60	20 mr	6 m ———	2	600		200 µm —	100	50	Drying By: Date Tested: Tested By:	Oven 5/3/2022 John Platt	
10	00										· · · · · · · · · · · · · · · · · · ·		
9	90 —	<u> </u>									Sieve Size	% Passing	
8	30 —										3in 2in	100 100	C
											1½in 1in	93 90	0
ass)	′0 —		)								³∕₄in ¹∕₂in	87 77	
(by mass)	60 —										3/8in No.4	68 54.5	
ssing	50 —			L X							No.10	46	6
Percentage Passing											No.20 No.40	4 <sup>2</sup> 33	3
entag	10 —										No.60 No.100	23 16	
Der 3	80 —					`	X				No.200	10	
2	20 —												
1	0 —												
Sieve Si	0 ize 3	" 2"	1" 1/2"	#4	#10	#20	#40 #	60 #10	0 #20	00			
Comm	nent	ts											

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL	

Mate	erial Test Repor	t	Report No: MAT:22-0600-S09 Issue No: 1				
Client:	CRW Engineering Group, LLC	Project Code: 220475	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.				
	3940 Arctic Blvd., Ste. 300	CC: CRW Maria Kampsen					
	Anchorage, AK, 99503		1 Et a				
Project:	South Airpark		Maretapper				
	73130		Reviewed By: Maria E Kampsen				
	73130		Title: Senior Engineer				
			Date: 5/11/2022				
Other T	lest Results						
Descrip	otion	Method	Result Limits				
Method		ASTM D6913	A	•			
Prepara	ation Method		Oven Dry				
Compo	site Sieving?		Yes				
Separa	ting Sieve(s)		No. 4				
Cu		ASTM D2487					
Cc							
Date Te	ested		5/3/2022	_			

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL
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Client: CRW Engineering Group, LLC 38940 Archorage, AK, 99503       Project Cade: 220475 0c: 05W Meils Kampen       Marine Cade: 200475 0c: 05W Meils Kampen         73130       Control Bird, Str. 500 Anchorage, AK, 99503       Project Cade: 220475 0c: 05W Meils Kampen       Marine Ed. 900500, Project Oad0100, Project Oad0100, Project Oad0100, Project Oad010,	Material Tes	st Report		Is	eport No: AS sue No: 1					
Project:       South Alipark         73130       Reviewed By: Maria & Kampsen         Title:       Sentor Engineer         Sample ID       22-0599-S01       22-0599-S02       22-0599-S03       22-0599-S04         Client Sample ID       TH-02 S1       TH-02 S3       TH-02 S3       TH-02 S3         Date Sample ID       TH-02 S1       TH-02 S3       TH-02 S3       TH-02 S3         Date Sample ID       ASTM D2216       300       S28       4/28/2022       4/28/2022         Date Tesked By       Katern Jackson       Katern Jackson       Katern Jackson       8         Percent Sand       LMA (Internal Multion)       20       86       66         Group Name       Sandy Sit       Sandy Sit       Johnn Platt       3         Tested By       Johnn Platt       Johnn Platt       Johnn Platt       3	Client: CRW Engineering 3940 Arctic Blvd.,	Group, LLC Ste. 300	CC: CRW	175 The rep	The results contained below pertain only to the items tested below. This report should not be					
Title:       Senior Engineer Botte:         Sample ID Citent Sample ID Date Sampled Citent Sample ID Date Sampled Other Test Results       22-0590-501 TH-02 S3       22-0590-503 TH-02 S4					L	Mar Etang	ise			
Sample ID Date Sampled       22-0599-501 TH-02 S1       22-0599-503 TH-02 S3       22-0599-503 TH-02 S3       22-0599-504 TH-02 S3       TH-02 S3<	73130			Tit	le: Seni	or Engineer				
Sample ID Date Sampled       22-0599-501 TH-02 S1       22-0599-503 TH-02 S3       22-0599-503 TH-02 S3       22-0599-504 TH-02 S3         Other Test Results       Description       Method       So       S28       442       Z1         Description       Method       300       528       442       Z1       Limits         Vater Content (%)       ASTM 0216       300       S28       442       Z1       428/2002         Tested Tested       Caren Jackson       Karen Jackson       Karen Jackson       8       8         Percent Gravel       LMA (Internal Method)       8       66       66         Group Symbol       MM       M       66       66         Group Symbol       MM       MM       53 and y Sitt       30 and y Sitt         Tested By       John Platt       John Platt       John Platt	Sample Details									
Description         Method         300         528         442         277           Date Tested         4/28/202         4/28/202         4/28/202         4/28/202         4/28/202           Tested By         Karen Jackson	Sample ID Client Sample ID Date Sampled									
Water Content (%)         ASTM D2216         300         528         442         27           Date Tested         4/28/022         4/28/022         4/28/022         4/28/022         4/28/022           Tested By         Karen Jackson         Karen Jackson         Karen Jackson         Karen Jackson           Percent Gravel         LMA (Internal Method)         8         8           Percent Fines (SINClay)         66         66           Group Symbol         ML         Group Symbol         ML           Group Symbol         John Platt         Sandy Silt         John Platt	Other Test Result	S								
Date Tested       4/28/2022       4/28/2022       4/28/2022       4/28/2022         Tested By       Karen Jackson       Karen Jackson       Karen Jackson       8         Percent Tisad       26       66       66       66         Group Symbol       ML       ML       ML         Group Symbol       Sandy Silt       3       7         Tested By       Sandy Silt       John Platt       9         Ferent Fine (SIWClay)       Sandy Silt       John Platt       9         Group Symbol       Sandy Silt       John Platt       9         Fested By       Sandy Silt       John Platt       9         Multiple Silt       Sandy Silt       John Platt       9         Sandy Silt       Sandy Silt       John Platt       9         Multiple Silt       Sandy Silt       John Platt       9         Multiple Silt       Sandy Silt       Sandy Silt       John Platt         Sandy Silt       Sandy Silt       Sandy Silt       John Platt         Sandy Silt       Sandy Silt       Sandy Silt       Sandy Silt         Sandy Silt       Sandy Silt       Sandy Silt       Sandy Silt         Sandy Silt       Sandy Silt       Sandy Silt       Sandy								Limits		
Percent Gravel LMA (Internal Method) 26 Percent Fines (SitVClay) 66 Group Symbol ML Group Name Sandy Sit Tested By John Platt	Date Tested	ASTM D2216	4/28/2022	4/28/202	22 4/28	/2022 4	1/28/2022			
	Percent Fines (Silt/Clay) Group Symbol Group Name						66 ML Sandy Silt			
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing		-#200) in LMAs Assumed	d Unless Verified by	Additional Testin	a					

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							4040 B Ancho Phor	lab - Anchorage Street, Suite 102 orage, AK 99503 ie: 907-205-1987 ax: 907-782-4409
							•	laskatestlab.com
Mat	erial Test F	Report			Repo	ort No: ASM:22-( No: 1	)599	
Client:	CRW Engineering Grou		Project Code: 220	0475	The results	contained below pertain only to t I, except in full, without the prior w	he items tested below. This repo rritten approval of Alaska Testlab	rt should not be or the agency.
	3940 Arctic Blvd., Ste. 3	300	CC: CRW					
	Anchorage, AK, 99503		Maria Kamp	osen			av >	
Project:	South Airpark					Man	Apopser	
	73130				Review Title: Date:	ved By: Maria E Kam Senior Engin 5/11/2022	•	
Samp	le Details							
Sample			22-0599-S05	22-0599	-506	22-0599-S07	22-0599-S08	
	Sample ID		TH-02 S5		2 S6	TH-02 S7A	TH-02 S7B	
	ampled							
	Test Results							
Descri	ption	Method			Resul	ts		Limits
Water C	Content (%)	ASTM D2216	23		10	6	5	
Date Te	ested		4/28/2022		2022	4/28/2022	4/28/2022	
Tested			Karen Jackson	Karen Jao		Karen Jackson	Karen Jackson	
Group C		ASTM D2487	ML		GM			
Group N			Silt	Silty gravel with				
Liquid L			0		0			
Plasticit	-		0		0			
Gravel (	. ,		0					
Sand (%	-		0					
Fines (%	,		100					
Tested		ASTM D2487	Karen Jackson					
Liquid L		ASTM D4318	Not Obtainable					
Plastic I			NP (Non-Plastic)					
Plasticit			NP (Non-Plastic)					
Tested	,		Karen Jackson					
Date Te			5/2/2022					
Method		ASTM D6913		0	A			
	ition Method			Ove	n Dry			
	site Sieving?				Yes			
	ing Sieve(s)				No. 4			
Cu Cc		ASTM D2487						

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

	TL						4040 B Ancho Phor Fa	lab - Anchorage Street, Suite 102 orage, AK 99503 ne: 907-205-1987 ax: 907-782-4409 laskatestlab.com
Mat	erial Test F	Report			Repo	ort No: ASM:22-0 9 No: 1	)599	
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503 Project: South Airpark		Project Code: 220475		The results contained below pertain only to the items tested below. This report she reproduced, except in full, without the prior written approval of Alaska Testlab or the Marcharpsen			ort should not be	
	73130			٦	Review Title: Date:	ved By: Maria E Kam Senior Engin 5/11/2022	•	
Samp	le Details							
Date S	e ID Sample ID ampled ' <b>Test Results</b>		22-0599-S09 TH-02 S8	22-0599-8 TH-02		22-0599-S11 TH-02 S10	22-0599-S12 TH-02 S11	
Descri	ption	Method			Resul	ts		Limits
	Content (%) ested	ASTM D2216	3 4/28/2022 Karen Jackson	4/28/20 Karen Jacks	15 )22	4 4/28/2022 Karen Jackson	4 4/28/2022 Karen Jackson	
Group C Group N	Code Name rg Limits Estimated	ASTM D2487	GW-GM ell-graded gravel with silt and sand Yes John Platt					
Method Prepara Compos	ition Method site Sieving? ing Sieve(s)	ASTM D6913 ASTM D2487	A Oven Dry Yes No. 4 50.48 0.97					
Percent Percent	Sand Fines (Silt/Clay) Symbol Name	LMA (Internal Met		Silty sand with gr John P		31 62 7 SP-SM ty graded sand with silt and gravel Poo John Platt	40 52 8 SP-SM why graded sand with silt and gravel John Platt	

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

ATL
-----

Mat	erial Test F				Report No Issue No:	: ASM:22-0599 1	
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 2204 CC: CRW Maria Kampse		The results contained	below pertain only to the items tested belo full, without the prior written approval of Al	w. This report should not be aska Testlab or the agency.
Project:	South Airpark					Han Exampse	
	73130				Reviewed By: Title: Date:	Maria E Kampsen Senior Engineer 5/11/2022	
Samp	le Details						
Sample Client S Date Sa	Sample ID		22-0599-S13 TH-02 S12	22-0599 TH-02			
Other	Test Results						
Descrip Water C Date Te Tested B	content (%) sted	Method ASTM D2216	17 4/28/2022 Karen Jackson	4/28/ Karen Jac			Limits
Percent Percent	Gravel Sand Fines (Silt/Clay)	LMA (Internal Me			0 23 77 ML		
Group N Tested I	lame		Silty sand with gravel John Platt	Silt with John			
Com	anto						
Comn Soil Clas	<b>1ents</b> sification of Fines (-#200)	in I MAe Accum	ed Unless Varified by		sting		

	ATL				Banar	· No· MAT·22 0	info@ala	: 907-782-440 iskatestlab.co
		Test Repo		- d 000475	Issue I		e items tested below. This report	should not be
ient: oject	-		CC:	ode: 220475 CRW Maria Kampsen			itten approval of Alaska Testlab o Harpsen	
	73130				Reviewed Title: Date:	d By: Maria E Kamp Senior Engine 5/11/2022		
San	nple Detai	ls		Other	Test Resu	lts		
	ole ID t Sample ID	22-0599-S06 TH-02 S6		Date Te Tested Group C Group N Liquid L Plasticit Method Prepara Compos	content (%) sted By Code lame imit	ASTM E ASTM E Silt	02216 10 4/28/2022 Karen Jackson 02487 GM cy gravel with sand 0 0	Limits
arti	icle Size D	Distribution						
		20 6	Diameter 2	600 2 <sup>2</sup> μπ		Drying By: Date Tested:	ASTM D6913 Oven 5/2/2022 John Platt <b>% Passing</b> 100 100	Limits
ass)	80 70 60 50					11/2in 1in 3/4in 3/8in No.4 No.10 No.20 No.40 No.60 No.60 No.100 No.200	90 77 72 65 61 55.1 50 46 42 35 27 16	
Percentage Passing (by m	40 30			۲.				
Percentage Passing (by mass)	30							
Percentage Passing (by m								

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL	

Material Test Repor	t	Report No: MAT:22-0599-S06 Issue No: 1	info@alaskatestlab.co
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503 Project: South Airpark	Project Code: 220475 CC: CRW Maria Kampsen	The results contained below pertain only to the items tested be reproduced, except in full, without the prior written approval of Marcharts	low. This report should not be
73130		Reviewed By: Maria E Kampsen Title: Senior Engineer Date: 5/11/2022	
Other Test Results		<u>u</u>	
Description	Method	Result	Limits
Cu Cc Date Tested	ASTM D2487	5/2/2022	

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL			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:22-05 Issue No: 1	i99-S09
Client: CRW Engineering Group, LLC	Project Code: 220475	The results contained below pertain only to the reproduced, except in full, without the prior writt	
3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	CC: CRW Maria Kampsen	r	
Project: South Airpark		Jane	Harpsen
73130		Reviewed By: Maria E Kamps Title: Senior Enginee	
		Date: 5/11/2022	51
Sample Details	Other Tes	t Results	
Sample ID22-0599-S09Client Sample IDTH-02 S8	Description Water Conten Date Tested Tested By Group Code Group Name	(%) ASTM D ASTM D ASTM D Well-graded gravel	4/28/2022 Karen Jackson 2487 GW-GM
	Atterberg Limi Tested By Date Tested		Yes John Platt 5/7/2022
Particle Size Distribution			
100 60 20 6	ameter 2 600 200 1 ————— µm ———	Drying By: 0 00 50 Date Tested: 5	ASTM D6913 Dven 5/2/2022 John Platt
90		Sieve Size 3in	% Passing Limits
80		2in 1½in	100 100
		1in 3¼in	81 72
Percentage Passing (by mass)		1½in 3/8in	59 54
		No.4 No.10	41.2 31
SE 50		No.20 No.40	22 15
eb et 40		No.60	10
Serce		No.100 No.200	7 5
<u> </u>			
20			
10			
0 Sieve Size 3" 2" 1" 1/2" #4	#10 #20 #40 #60 #100	#200	

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

ATL	

 •

Report No: MAT:22-0599-S09

No. 4

50.48

0.97

5/2/2022

Mat	erial Test Repor	ť	Issue	No: 1		
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		tained below pertain only to the items tested be cept in full, without the prior written approval of a		
Project:				NanEtarpsen		
	73130		Reviewed Title: Date:	By: Maria E Kampsen Senior Engineer 5/11/2022		
Other <sup>-</sup>	Test Results		Date:	OTTIZE		
Descri	ption	Method		Result	Limits	
Method	1	ASTM D6913		А		
	ation Method			Oven Dry		
Compo	site Sieving?			Yes		

**ASTM D2487** 

Cu Cc Date Tested

Separating Sieve(s)

Comments

Sample Size Does Not Meet ASTM Requirements Soil Classification of Fines (-#200) in Sieve Analyses Assumed Unless Verified by Additional Testing No Plasticity Index Test Performed

Material Test F	Report			Issue No:			
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark	•	Project Code CC: CRW Maria		The results contained reproduced, except in	I below pertain only to the it full, without the prior writte	ams tested below. This repo n approval of Alaska Testlab	rt should not be or the agency.
73130				Reviewed By: Title: Date:	: Maria E Kamps Senior Enginee 5/11/2022		
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0601-S01 TH-03 S1	22-0601-S02 TH-03 S2	22-0601-S03 TH-03 S3	22-0601-S04 TH-03 S4	22-0601-S05 TH-03 S5	
Other Test Results							
Description	Method			Results			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	240 4/26/2022 Karen Jackson	23 4/26/2022 Karen Jackson	16 4/26/2022 Karen Jackson	21 4/26/2022 Karen Jackson	20 4/26/2022 Karen Jackson	
Group Code Group Name	ASTM D2487				ML Silt 0		
Liquid Limit Plasticity Index Material Proportions Estimated	ASTM D2487				0 Yes		
Gravel (%) Sand (%) Fines (%)					0 0 100		
Tested By	ASTM D2487				Karen Jackson		
Liquid Limit Plastic Limit Plasticity Index Preparation Method	ASTM D4318				Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Air Dry		
Oversize Removed By Liquid Limit Apparatus Grooving Tool Rolling					Dry Sieving over No. 40 sieve Mechanical Plastic Hand		
Tested By Date Tested					Karen Jackson 5/11/2022		
Percent Gravel Percent Sand	LMA (Internal Me	thod)				0 5	
Percent Fines (Silt/Clay) Group Symbol Group Name Tested By						95 ML Silt John Platt	

Alaska Testlab - Anchorage

ATL							Alaska Testlab - Anchorage 4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com
<b>Material</b>	Test R	leport			Report No Issue No:	o: ASM:22-0601 1	
3940 Arc Anchora	gineering Group ctic Blvd., Ste. 30 ge, AK, 99503		Project Code CC: CRW Maria		The results contained	below pertain only to the items te	ested below. This report should not be oval of Alaska Testlab or the agency.
Project: South Ai	rpark					Maria E Kampsen	rpser
70100					Title: Date:	Senior Engineer 5/11/2022	
Sample Det	ails						
Sample ID Client Sample I Date Sampled			22-0601-S06 TH-03 S6	22-0601-S07 TH-03 S7	22-0601-S08 TH-03 S8	22-0601-S09 TH-03 S9	
Other Test I	Results						
Description		Method			Results		Limits
Water Content (% Date Tested Tested By	<b>b</b> )	ASTM D2216	21 4/26/2022 aren Jackson	21 4/26/2022 Karen Jackson	10 4/26/2022 Karen Jackson	12 4/26/2022 Karen Jackson	
Percent Gravel Percent Sand Percent Fines (Si Group Symbol Group Name Tested By Group Code Group Name Material Proportic Gravel (%) Sand (%)		LMA (Internal Meth	od) 0 5 95 ML Silt John Platt	CL-ML Silty clay Yes 0 0			
Fines (%)		A STM D2497		100 Karen Jackson			
Tested By Liquid Limit Plastic Limit Plasticity Index Preparation Meth Oversize Remove Liquid Limit Appa Grooving Tool Rolling Tested By Date Tested	ed By	ASTM D2487 ASTM D4318		Karen Jackson 24 20 4 Air Dry Dry Sieving over No. 40 sieve Mechanical Plastic Hand Karen Jackson 5/10/2022			

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

Material Test F	Report		Rep	ort No: ASM:22-0 e No:  1	602	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark	p, LLC	Project Code: 2204 CC: CRW Maria Kampse	75 The result reproduce	ts contained below pertain only to the ed, except in full, without the prior w	ne items tested below. This repor	
73130			Revie Title: Date:	ا wed By: Maria E Kam Senior Engin 5/11/2022		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0602-S01 TH-04 S1	22-0602-S02 TH-04 S2	22-0602-S03 TH-04 S3	22-0602-S04 TH-04 S4	
Other Test Results						
Description	Method		Resu			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	106 4/26/2022 Karen Jackson	11 4/26/2022 Karen Jackson	11 4/26/2022 Karen Jackson	25 4/26/2022 Karen Jackson	
Group Code Group Name Liquid Limit Plasticity Index	ASTM D2487			ML Silt 0 0		
Material Proportions Estimated Gravel (%) Sand (%)	ASTM D2487			Yes 0 0		
Fines (%)				100 Karen Jackson		
Tested By Percent Gravel	ASTM D2487 LMA (Internal Metho	d)	0			
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name		-,	57 43 SM Silty sand			
Tested By			John Platt			
Liquid Limit Plastic Limit Plasticity Index Tested By Date Tested	ASTM D4318			Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Karen Jackson 5/11/2022		
Comments						

F-131

Alaska Testlab - Anchorage

ATL
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Material Test	Report		R	Report No: ASM:22-0602 Issue No: 1					
Client: CRW Engineering Gro 3940 Arctic Blvd., Ste. Anchorage, AK, 99503	up, LLC F 300	Project Code: 22047 CC: CRW Maria Kampsen	5 The repr	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.					
Project: South Airpark				Yan	Etapse				
73130			Tit	eviewed By: Maria E Kar le: Senior Engi ate: 5/11/2022					
Sample Details									
Sample ID Client Sample ID Date Sampled		22-0602-S05 TH-04 S5	22-0602-S0 TH-04 S		22-0602-S08 TH-04 S8				
Other Test Results									
Description Water Content (%)	ASTM D2216	23		esults 3 22	23	Limits			
Date Tested		4/26/2022 Karen Jackson	4/26/202 Karen Jackso		4/26/2022 Karen Jackson				
Percent Gravel Percent Sand Percent Fines (Silt/Clay)	LMA (Internal Method	) 0 10 90		0 5 95					
Group Symbol Group Name Tested By		ML Silt John Platt		ML Silt John Platt					

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

ATL
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Material Test Report					Report No: ASM:22-0602 Issue No: 1				
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. Anchorage, AK, 99503	ıp, LLC F	Project Code: 2204 CC: CRW Maria Kampse		The results c	ontained below pertain only to	the items tested below. This repo written approval of Alaska Testlab			
Project: South Airpark					Yan	Etapsen			
73130				Reviewe Title: Date:	d By: Maria E Kan Senior Engir 5/11/2022				
Sample Details									
Sample ID Client Sample ID Date Sampled		22-0602-S09 TH-04 S9	22-0602- TH-04		22-0602-S11 TH-04 S11A	22-0602-S12 TH-04 S11B			
Other Test Results									
Description	Method	10		Result			Limits		
Water Content (%) Date Tested Tested By	ASTM D2216	19 4/26/2022 Karen Jackson	4/26/2 Karen Jacl		14 4/26/2022 Karen Jackson	6 4/26/2022 Karen Jackson			
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Method	i) 0 9 91 ML Silt John Platt							
Comments Soil Classification of Fines (-#200	)) in LMAs Assumed	Unless Verified by	Additional Tes	sting					

ATL
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Client: CRW Engineering Group, LLC       Project Code: 220476       Therdal output of the Method with output of the Method outpu	Material Test Report					Report No: ASM:22-0602 Issue No: 1			
Reviewed By: Maria E Kampsen Tule: Sonior Engineer Date: Sri112022       Sample ID Date Sampl	Client: CRW Engineering Group, 3940 Arctic Blvd., Ste. 300	LLC	CC: CRW	175	The results co	ontained below pertain only to the	items tested below. This rep ten approval of Alaska Testla	port should not be ab or the agency.	
Title: Senior Engineer Date: 5/11/2022         Sample Details         Sample ID       22.0602.513       22.0602.516         Client Sample ID       TH-04 S12A       TH-04 S12B       TH-04 S13         Obta       Mathed       Results       Limits         Description       Method       Results       Limits         Date Tested       Mathed       6       20         Percent Gravel       LiMa (Internal Method)       6       20         Percent Gravel       LMA (Internal Method)       6       20         Percent Gravel       LMA (Internal Method)       Sill visit sand       Sill with sand         Group Symbol       SM       ML       Group Name       Silly Sand       Sill with sand         Tested By       John Platt       John Platt       John Platt       John Platt	Project: South Airpark					Mare -	Hanpsen)		
Sample ID Date Sample ID Date Sample ID Date Sample ID Date Sample ID Description       Method       TH-04 S12A       TH-04 S12B       TH-04 S13         Description       Method       83TM 02218       23       10       Imits         Viter Content (%)       ASTM 02218       22.0602-S13       10       Imits         Content (%)       ASTM 02218       23       4/26/2022       4/26/2022       4/26/2022         Tested Tested       LMA (Internal Method)       1       0       0         Percent Gravel       LMA (Internal Method)       66       20       0         Percent Fines (Sitt/Clay)       33       80       Group Symbol       SM       ML         Group Symbol       SM       ML       John Platt       John Platt       John Platt       John Platt	73130			T	Title:	Senior Engine			
Clent Sample D       TH-04 S12A       TH-04 S12B       TH-04 S13         Date Sampled       Other Test Results       Imits         Water Content (%)       ASTM D2216       9       23       19         Date Sampled       4/26/2022       4/26/2022       4/26/2022       4/26/2022         Tested By       Karen Jackson       Karen Jackson       Karen Jackson       Faren Jackson         Percent Gravel       LMA (Internal Method)       6       20       0         Percent Sand       66       20       0       0         Percent Sand       53       80       0       0         Group Name       Silty Sand       Silt with sand       53       0         Group Name       John Platt       John Platt       John Platt       John Platt	Sample Details								
Description         Method         Results         Limits           Water Content (%)         ASTM D2216         9         23         19           Date Tested         4/26/202         4/26/202         4/26/202         4/26/202           Tested By         Karen Jackson         Karen Jackson         Karen Jackson         Karen Jackson           Percent Travel         LMA (internal Method)         1         0         0           Percent Travel         LMA (internal Method)         66         20           Percent Fires (Sit/Clay)         33         80         Group Symbol         SM         ML           Group Symbol         SM         John Platt         John Platt         John Platt         John Platt	Client Sample ID								
Water Content (%)       ASTM D2216       9       23       19         Date Tested       4/26/2022       4/26/2022       4/26/2022         Tested By       Karen Jackson       Karen Jackson       Karen Jackson         Percent Gravel       LMA (Internal Method)       1       0         Percent Snald       66       20         Percent Fines (Silf/Clay)       33       80         Group Symbol       SM       ML         Group Symbol       SM       ML         Group Symbol       Silty Sand       Silt with sand         Tested By       John Platt       John Platt	Other Test Results								
Percent Sand 66 20 Percent Fines (SitVClay) 33 80 Group Symbol SM ML Group Name Sitly Sand Sitt with sand Tested By John Platt John Platt	Water Content (%) A Date Tested		4/26/2022	4/26/20	23 022	19 4/26/2022		Limits	
	Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name	.MA (Internal Meth	66 33 SM Silty Sand			20 80 ML Silt with sand			
	Comments								
		n LMAs Assume	ed Unless Verified by	Additional Test	ling				

Material Test F	Report		Report No: ASM:22-0606 Issue No: 1					
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 22047 CC: CRW Maria Kampsen	5	The resul	Its contained below pertain only to the ed, except in full, without the prior w	e items tested below. This report	t should not be or the agency.	
Project: South Airpark				Davia	Mars	Hanpsen		
73130				Title: Date:	wed By: Maria E Kam Senior Engin 5/11/2022			
Sample Details								
Sample ID Client Sample ID Date Sampled		22-0606-S01 TH-05 S1	22-0606 TH-0		22-0606-S03 TH-05 S3	22-0606-S04 TH-05 S4		
Other Test Results								
Description	Method	0.40		Resu			Limits	
Water Content (%) Date Tested Tested By	ASTM D2216	319 4/28/2022 Karen Jackson	4/29/2 Karen Jac		18 4/29/2022 Karen Jackson	17 4/29/2022 Karen Jackson		
Group Code Group Name Liquid Limit Plasticity Index	ASTM D2487				ML Silt 0 0			
Material Proportions Estimated Gravel (%) Sand (%) Fines (%)	ASTM D2487				Yes 0 0 100			
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name	LMA (Internal Metho	d)	Silt with s			0 13 87 ML Silt		
Tested By Liquid Limit Plastic Limit Plasticity Index Tested By Date Tested	ASTM D4318		John	<u>Platt</u>	Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Karen Jackson 5/9/2022	John Platt		

#### Form No: 18980, Report No: ASM:22-0606

ATL	
Material Test	-

Material Test Report				Report No: ASM:22-0606 Issue No: 1				
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	ip, LLC	Project Code: 2204 CC: CRW Maria Kampse	75 Th	ne results co	ntained below pertain only to t	he items tested below. This repor ritten approval of Alaska Testlab	t should not be or the agency.	
Project: South Airpark					Yan	Etapse		
73130			Ti	eviewed itle: ate:	d By: Maria E Kam Senior Engin 5/11/2022			
Sample Details								
Sample ID Client Sample ID Date Sampled		22-0606-S05 TH-05 S5	22-0606-S TH-05 \$		22-0606-S07 TH-05 S7	22-0606-S08 TH-05 S8		
Other Test Results								
Description	Method			Results			Limits	
Water Content (%) Date Tested Tested By	ASTM D2216	18 4/28/2022 Karen Jackson	4/29/20 Karen Jacks		18 4/28/2022 Karen Jackson	17 4/28/2022 Karen Jackson		
Group Code	ASTM D2487	Raien Jackson		ML	Raren Jackson	Naren Jackson		
Group Name Liquid Limit				Silt 0				
Plasticity Index				0				
Material Proportions Estimated	ASTM D2487		Y	es				
Gravel (%)				0				
Sand (%)			4	0				
Fines (%)			Karen Jacks	00				
Tested By Liquid Limit	ASTM D2487 ASTM D4318		Not Obtainat					
Plastic Limit			NP (Non-Plast					
Plasticity Index			NP (Non-Plast					
Tested By			Karen Jacks					
Date Tested			5/11/20	22				
Comments								
Soil Classification of Fines (-#200	) in LMAs Assume	ed Unless Verified by	Additional Testi	ng				
Ì		,		-				

ATL
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	Material Test Report				Report No: ASM:22-0606 Issue No: 1				
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503	, LLC F	Project Code: 22047 CC: CRW Maria Kampsen	5	The results cont	tained below pertain only to the sept in full, without the prior writ	items tested below. This	report should not be ttlab or the agency.	
Project:	South Airpark					Mart	Harpsen		
	73130				Reviewed Title: Date:	By: Maria E Kamp Senior Engine 5/11/2022			
Samp	le Details								
	e ID Sample ID ampled		22-0606-S09 TH-05 S9	22-0606- TH-05		22-0606-S11 TH-05 S11			
	Test Results								
		Method			Results			Limits	
Water C Date Tes Tested E	sted	ASTM D2216	17 4/28/2022 Karen Jackson	4/29/2 Karen Jacl		20 4/29/2022 Karen Jackson			
Percent Percent Group S Group N Tested E	Sand Fines (Silt/Clay) lymbol lame	LMA (Internal Method	i) 0 91 ML Silt John Platt			0 94 ML Silt John Platt			
Comm	nents								
	sification of Fines (-#200)	in I MAs Assumed	Lipless Verified by Ar	ditional Tes	stina				

	TL						4040 B Ancho Phor Fa	lab - Anchorage Street, Suite 102 orage, AK 99503 le: 907-205-1987 lax: 907-782-4409 laskatestlab.com
Mate	erial Test F	Report			Report N Issue No:	o: ASM:22-043 · 1	5	
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	o, LLC	Project Code: 2204 CC: CRW Maria Kampse	175 T	The results containe	ed below pertain only to the ite in full, without the prior written		
Project:	South Airpark					Mar E,	Karpsen	
	73130			۲ I	Reviewed By Fitle: Date:	y: Maria E Kampse Senior Engineer 5/2/2022		
Samp	le Details							
Sample Client S Date Sa	Sample ID		22-0435-S01 TH-06 S1	22-0435-9 TH-06		22-0435-S03 TH-06 S3	22-0435-S04 TH-06 S4	
Other	Test Results							
Descrip	otion	Method			Results			Limits
	ontent (%) sted	ASTM D2216	49 4/12/2022 Jeff Smith	4/12/20 Jeff Sn		20 4/12/2022 Jeff Smith		
Group C Group N	code lame	ASTM D2487			ML Silt Yes			
Gravel ( Sand (%	o)				0 0			
Fines (%	-				100			
Tested E Liquid Li Plastic L	mit	ASTM D2487 ASTM D4318		Cindy Zickefoo	28 25			
	/ Index tion Method e Removed By			Air   Dry Sieving over No. 40				
Liquid Li Groovine	mit Apparatus			Mechani Pla	ical stic			
Rolling Tested E Date Te				Ha Cindy Zickefoo 4/29/20				
Percent Percent	Gravel Sand	LMA (Internal Metho	od)			1 15 84		
Group S Group N	lame				S	ML Silt with sand		
Tested E	3y					John Platt		
Comm								

TH-06 Sa4 - Not present Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

ATL					4040 B Ancho Phon Fa	<b>ab - Anchorage</b> Street, Suite 102 rage, AK 99503 e: 907-205-1987 x: 907-782-4409 laskatestlab.com
<b>Material Test F</b>	Report		R	eport No: ASM:22 sue No:  1	-0435	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark	p, LLC	Project Code: 220475 CC: CRW Maria Kampsen	The	results contained below pertain only loduced, except in full, without the pric		
73130			Re Titl Da	0		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0435-S05 TH-06 S4A	22-0435-S0 TH-06 S4		22-0435-S08 TH-06 S6	
Other Test Results						
<b>Description</b> Water Content (%) Date Tested	Method ASTM D2216	4 4/12/2022	2 4/12/202		31 4/12/2022	Limits
Tested By Group Code Group Name Liquid Limit Plasticity Index	ASTM D2487	Jeff Smith	Jeff Smit	h Jeff Smith ML Silt 0 0	Jeff Smith	
Material Proportions Estimated Gravel (%) Sand (%) Fines (%)	ASTM D2487			Yes 0 0 100		
Tested By Liquid Limit Plastic Limit Plasticity Index Preparation Method Oversize Removed By Liquid Limit Apparatus Grooving Tool Rolling Tested By Date Tested	ASTM D2487 ASTM D4318			Cindy Zickefoose Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Air Dry Dry Sieving over No. 40 sieve Mechanical Plastic Hand Cindy Zickefoose 4/26/2022		
Comments						

TH-06 Sa4 - Not present Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing 

ATL
-----

Mate	erial Test F	Report		Iss	Report No: ASM:22-0435 Issue No: 1							
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code: 220475 CC: CRW Maria Kampsen	The re	esults contained below pertain only to duced, except in full, without the prior	o the items tested below. This repo written approval of Alaska Testlab	or the agency.					
Project:	South Airpark				Mar	Etapse						
	73130			Rev Title Date	-							
Samp	le Details											
Sample Client S Date Sa	e ID Sample ID ampled		22-0435-S09 TH-06 S7A	22-0435-S10 TH-06 S7B		22-0435-S12 TH-06 S9						
	Test Results											
Descrip		Method			sults		Limits					
Date Te	content (%)	ASTM D2216	24 4/12/2022	7 4/12/2022		2 4/12/2022						
Tested E			Jeff Smith	Jeff Smith		Jeff Smith						
Percent		LMA (Internal Metho		Jon Oniti	55	44						
Percent	Sand				41	52						
	Fines (Silt/Clay)				4	4						
Group S					GP	SP						
Group N Tested E					Poorly graded gravel with sand John Platt	Poorly graded sand with gravel John Platt						
Comm	nonts											
Soil Clas	a4 - Not present sification of Fines (-#200)	) in LMAs Assumed	Unless Verified by Add	ditional Testing								

Material Test F	Report	Issu	Report No: ASM:22-0587 Issue No: 1							
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 220 CC: CRW Maria Kamp	reproduc	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.						
Project: South Airpark				Mar	Exampsed					
73130			Revie Title: Date:	ewed By: Maria E Kam Senior Engin 5/11/2022						
Sample Details										
Sample ID Client Sample ID Date Sampled		22-0587-S01 TH-08 S1	22-0587-S02 TH-08 S2	22-0587-S03 TH-08 S3	22-0587-S04 TH-08 S4					
Other Test Results										
Description	Method	107	Resi		10	Limits				
Water Content (%) Date Tested Tested By	ASTM D2216	127 4/28/2022 Karen Jackson	17 4/28/2022 Karen Jackson	6 4/28/2022 Karen Jackson	16 4/28/2022 Karen Jackson					
Group Code Group Name Liquid Limit	ASTM D2487		ML Silt	SM Silty sand 0						
Plasticity Index				0						
Material Proportions Estimated Gravel (%)	ASTM D2487		Yes 0							
Sand (%)			0							
Fines (%)			100 Karen Jackson	Cindy Zickofoooo						
Tested By Liquid Limit	ASTM D2487 ASTM D4318		19	Cindy Zickefoose						
Plastic Limit			18							
Plasticity Index			1							
Preparation Method Oversize Removed By			Air Dry Dry Sieving over No. 40 sieve							
Liquid Limit Apparatus			Mechanical							
Grooving Tool			Plastic							
Rolling			Hand							
Tested By			Karen Jackson							
Date Tested			5/9/2022							
Method	ASTM D6913			A						
Preparation Method Composite Sieving?				Oven Dry Yes						
Separating Sieve(s)				No. 4						
Cu	ASTM D2487			110.4						
Сс										
Percent Gravel	LMA (Internal Meth	od)			0					
Percent Sand					40					
Percent Fines (Silt/Clay)					60 ML					
Group Symbol Group Name					Sandy Silt					
Tested By					John Platt					

Alaska Testlab - Anchorage

	TL						4040   Anc Pho	stlab - Anchorage B Street, Suite 102 horage, AK 99503 one: 907-205-1987 Fax: 907-782-4409 alaskatestlab.com
Mat	erial Test F	Renort	Report No: ASM:22-0587					
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 South Airpark	p, LLC	Project Code: 220 CC: CRW Maria Kamp		The results reproduced,	No: 1 contained below pertain only to the it except in full, without the prior writte	Aupsen	
	73130				Title: Date:	Senior Enginee 5/11/2022	r	
Comp	la Dataila				Date.	5/11/2022		
Sample Client S Date Sa	Sample ID ampled		22-0587-S05 TH-08 S5	22-0587 TH-0	-S06 08 S6	22-0587-S07 TH-08 S7		
	Test Results							
Descrip Water C	otion Content (%)	Method ASTM D2216	6		Result 22	t <b>s</b> 23		Limits
Date Te Tested I			4/28/2022 Karen Jackson	/28/ Karen Jac		4/28/2022 Karen Jackson		
Percent Percent Percent Group S Group N Tested I	Gravel Sand Fines (Silt/Clay) Symbol Iame By	LMA (Internal Metho	-					
Gravel ( Sand (% Fines (% <u>Tested I</u>	lame Proportions Estimated %) 6) 6) By	ASTM D2487 ASTM D2487		Karen Jao				
Oversize	Limit y Index tion Method e Removed By imit Apparatus g Tool By	ASTM D4318		Dry Sieving over No. Mecha P Karen Jac	nical lastic Hand			

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

	TL	5														4040 B S Anchor Phone Fax	<b>b - Anchorage</b> treet, Suite 102 age, AK 99503 : 907-205-1987 : 907-782-4409 uskatestlab.com
Mat	eri	al '	Те	st	Re	po	rt						Repor Issue	t No: MAT:22- No: 1	-0587-SC	)3	
Client:	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503								oject Code: 220475 CC: CRW Maria Kampsen			Т	he results co	ontained below pertain only te except in full, without the prio	o the items tested r written approval	l below. This report of Alaska Testlab o	should not be r the agency.
Project:	oject: South Airpark												Man	Etan	rse		
73130								т				Reviewe Fitle: Date:	d By: Maria E Ka Senior Eng 5/11/2022				
Sam	ple	Deta	ails							Oth	er Te	est	Resu	lts			
Sampl	e ID				587-5	603					riptio			Metho		Result	Limits
Client	Sam	ple ID		TH-(	)8 S3					Date Teste		ď	%)			6 4/28/2022 en Jackson	
											p Code p Nam			ASIN	I D2487	SM Silty sand	
										Liquid	d Limit	t				0	
										Plast	icity In	Idex		ASTM	1 D2487	0	
										Teste Date	ed By Teste	d			Cindy	Zickefoose 5/5/2022	
Partic	le S	Size	Dis	tribı	utior												
							Die							Method:	ASTM I	D6913	
1(	100 ⊢−	60	·=	20	- mm	6	Diai	meter 2	600	)	200 µm —	100	) 50	Drying By: Date Tested Tested By:	Oven 5/2/202 John Pl		
	90 —													<b>Sieve Size</b> 3in	% P	assing 100	Limits
٤	30 —										┥			2in 1½in		100 100	
nass)	70										$\left  \right\rangle$			1in ¾in 1½in		100 100 100	
l) guis	50 —													3/8in No.4 No.10		100 99.8 99	
itage Pas	50 — 10 —													No.20 No.40 No.60		97 92 80	
Percer	30 —													No.100 No.200		50 21	
2	20 —												<u>\</u>				
	10 —																
Sieve S	0 ize 3	3" 2"	1		/2"	#4	Ļ	#10	#20	#40 #	60 #10	00 #	<b>‡200</b>				
Comn	nen	ts															

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

ATL	

Mate	erial Test Repor	t	Report No: MAT:22-0587-S03 Issue No: 1						
Client:	CRW Engineering Group, LLC	Project Code: 220475	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.						
	3940 Arctic Blvd., Ste. 300	CC: CRW Maria Kampsen							
	Anchorage, AK, 99503	Mana Rampoon	1 CV >						
Project:	South Airpark		Marczanpsen						
	70400		Reviewed By: Maria E Kampsen						
	73130		Title: Senior Engineer						
			Date: 5/11/2022						
Other 1	lest Results								
Descri	otion	Method	Result Limits						
Method		ASTM D6913	Α	-					
Prepara	ation Method		Oven Dry						
Compo	site Sieving?		Yes						
Separa	ting Sieve(s)		No. 4						
Cu		ASTM D2487							
Cc									
Date Te	ested		5/2/2022	_					

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

Mat	erial Test I	Report		Issue	rt No: ASM:22-04 No: 1					
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	•	Project Code: 220475 CC: CRW Maria Kampsen		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.					
Project:	South Airpark				Marte	Aanpsee				
	73130			Review Title: Date:	ed By: Maria E Kamp Senior Engine 5/2/2022					
Samp	le Details									
Sample Client S Date S	Sample ID		22-0471-S01 TH-09 S1	22-0471-S02 TH-09 S2	22-0471-S03 TH-09 S3	22-0471-S04 TH-09 S4				
Other	Test Results									
Descri		Method		Result			Limits			
Water C Date Te Tested I		ASTM D2216	40 4/12/2022 Jeff Smith	18 4/12/2022 Jeff Smith	25 4/12/2022 Jeff Smith	29 4/12/2022 Jeff Smith				
Group C Group N Liquid L	Code Jame imit	ASTM D2487			ML Silt 0	Jen Smut				
Plasticit Tested I	•	ASTM D2487			U Cindy Zickefoose					
Method Prepara Compos Separat	tion Method site Sieving? ing Sieve(s) al Mass Retained (%)	ASTM D6913			A Oven Dry Yes No. 4 0.00					
Cc										

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

ATL						4040 B Ancho Phon Fa	lab - Anchorag Street, Suite 10: orage, AK 9950: le: 907-205-198 ax: 907-782-440 laskatestlab.con
Material Test	Report			Report I Issue No	No: ASM:22-04 o: 1	471	
Client: CRW Engineering G 3940 Arctic Blvd., St Anchorage, AK, 995 Project: South Airpark	te. 300	Project Code: 22 CC: CRW Maria Kam	20475	The results conta	ained below pertain only to the ept in full, without the prior writ Market	items tested below. This repo ten approval of Alaska Testlab	rt should not be or the agency.
73130			-	Reviewed Fitle: Date:	By: Maria E Kamp Senior Engine 5/2/2022		
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0471-S05 TH-09 S5	22-0471-3 TH-09		22-0471-S07 TH-09 S7	22-0471-S08 TH-09 S8	
Other Test Results							
Description	Method			Results			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	32 4/12/2022 Jeff Smith	4/12/2 Jeff Sr		3 4/12/2022 Jeff Smith	14 4/12/2022 Jeff Smith	
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Metho						
Group Code	ASTM D2487	John That	SP-	SM		SP-SM	
Group Name Atterberg Limits Estimated Tested By			Poorly graded sand with silt and	Yes		r graded sand with silt and gravel Yes Cindy Zickefoose	
Method	ASTM D6913			A		A	
Preparation Method Composite Sieving? Separating Sieve(s)				Dry Yes p. 4		Oven Dry Yes No. 4	
Fractional Mass Retained (%	5)			.00 .36		0.00 40.17	

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

Material Test F	Report		R	Report N	o: ASM:22-047	info@a	ix: 907-782-4409 laskatestlab.com
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark 73130	ıp, LLC Pr	oject Code: 220 CC: CRW Maria Kamp	0475 Tr	eproduced, excep	: 1 ed below pertain only to the ite in full, without the prior writter	approval of Alaska Testlab HarpSer	
Sampla Dataila			C	Date:	5/2/2022		
Sample Details Sample ID Client Sample ID Date Sampled Other Test Results		22-0471-S09 TH-09 S9A	22-0471-5 TH-09 S		22-0471-S11 TH-09 S10	22-0471-S12 TH-09 S11	
DescriptionWater Content (%)Date TestedTested ByPercent GravelPercent SandPercent Fines (Silt/Clay)Group SymbolGroup NameTested ByGroup CodeGroup NameAtterberg Limits EstimatedTested ByMethodPreparation MethodComposite Sieving?Separating Sieve(s)Fractional Mass Retained (%)CuCc	Method ASTM D2216 LMA (Internal Method) ASTM D2487 ASTM D6913 ASTM D2487	11 4/12/2022 Jeff Smith	4/12/20 Cindy Zickefor	ose	-	2 4/12/2022 Jeff Smith SW-SM aded sand with sit and gravel Yes indy Zickefoose A Oven Dry Yes No. 4 0.00 7.56 0.97	Limits

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

ATL
-----

Material Test R	Report		Repo	ort No: ASM:22-0471 e No:  1	
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503	, LLC P	Project Code: 220475 CC: CRW Maria Kampsen	The result	is contained below pertain only to the items tested below d, except in full, without the prior written approval of A	ow. This report should not be laska Testlab or the agency.
Project: South Airpark				Maretapsi	22
73130			Reviev Title: Date:	wed By: Maria E Kampsen Senior Engineer 5/2/2022	
Sample Details					
Sample ID Client Sample ID Date Sampled		22-0471-S13 TH-09 S12A	22-0471-S14 TH-09 S12B	22-0471-S15 TH-09 S13	
Other Test Results					
Description	Method		Resu		Limits
Water Content (%) Date Tested Tested By	ASTM D2216	3 4/12/2022 Jeff Smith	19 4/12/2022 Jeff Smith	13 4/12/2022 Jeff Smith	
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Method)			30 68 ML Sandy Silt John Platt	
Comments			ditional Trating		
Soil Classification of Fines (-#200)	III LIVIAS ASSUMED	uniess verified by Add	ullional resting		

ater	ial Te	est Re	eport	1				t No: MAT:22-047 <sup>,</sup> No:  1		
394 And	10 Arctic Blv chorage, AK uth Airpark		LC	-	Code: 2: CRW Maria Kar		Reviewe Title:	ontained below pertain only to the item except in full, without the prior written a planet of the planet of	pproval of Alaska Testlab or	
amplo	Details					Other Te	Date:	5/2/2022		
imple ID ient San		22-0471 TH-09 S				Description Water Conte Date Tested Tested By Group Code Group Nam Liquid Limit Plasticity Ind Tested By Date Tested	ent (%)	Method ASTM D22 ASTM D24 ASTM D24 Ci	4/12/2022 Jeff Smith 87 ML Silt 0 0	Limit
rticle	Size Dis	stributio		Diameter				Method: AS Drying By: Ov	TM D6913 en	
100 ⊢ 100	60	20 mn	6 n	2	600	200 μm —	100 50	Date Tested: 4/2 Tested By: Joh	6/2022 nn Platt	
90 80 80 90 90 90 90 90 90 90 90 90 90 90 90 90								Sieve Size 3in 2in 1½in 11/2in 3¼in ½in 3/8in No.4 No.10 No.20 No.40 No.60 No.100 No.200 No.200	<b>% Passing</b> 100 100 100 100 100 100 99.6 99 99 99 99 98 96 94 93	Limits

ATL	

Mat	erial Test Repor	t	Report No: MAT:22-0471-S03 Issue No: 1					
Client:	CRW Engineering Group, LLC	Project Code: 220475	The results contained below pertain only to the items tested i reproduced, except in full, without the prior written approval of					
	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	CC: CRW Maria Kampsen		~				
Project:	South Airpark		Mar Etarp.	ser				
	73130		Reviewed By:Maria E KampsenTitle:Senior EngineerDate:5/2/2022					
Other 1	Fest Results							
Descri	ption	Method	Result	Limits				
Method	1	ASTM D6913	A					
Prepara	ation Method		Oven Dry					
Compo	site Sieving?		Yes					
Separa	ting Sieve(s)		No. 4					
Fractio	nal Mass Retained (%)		0.00					
Cu		ASTM D2487						
Cc								
Date Te	ested		4/26/2022					

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

																		4040 B S Anchoi Phone Fax info@ala	ab - Anchorage Street, Suite 102 rage, AK 99503 9: 907-205-1987 4: 907-782-4409 askatestlab.com
Ma	ter	rial	Te	est	Re	epo	ort							Re	eport sue N	No: MAT:22 lo: 1	2-0471-5	606	
Client:	39 Ar	40 Aro nchora	ctic Bl∖ ge, Ak	ring Gr vd., Ste K, 9950	. 300	LC		Proje	<b>CC:</b> C	ode: 2 CRW Maria Ka				The r	esults con	tained below pertain only cept in full, without the pr	to the items tes or written appro	ted below. This repor val of Alaska Testlab o	t should not be or the agency.
Projec		9000 AI	грагк											Rev Title Dat	э:	By: Maria E Ka Senior En 5/2/2022		per	
San	nple	e De	tails	\$							Ot	ner <sup>:</sup>	Tes		esul				
Samp Clien	ole IC	)		22-	0471- -09 S						Des Wat Date Test Grou	cripti er Co e Tes ted By up Co up Na	onten ted y ode ame	nt (%)	) Poo	Meth ASTI ASTI	M D2216	4/12/2022 Jeff Smith SP-SM It and gravel	
											Test	rberg ted By e Tes	у	its E	stimat	ed	Cind	Yes y Zickefoose 4/29/2022	
Parti	cle	Siz	e Di	strib	utio	n													
	<b>100</b> ⊢ 100 −	0 60	•	20	— mm	6 1 —	Di	ameter 2		600		200 - µm	) 1	100	50	Method: Drying By: Date Tested Tested By:	Oven		
	90 -															<b>Sieve Size</b> 3in 2in 1½in	%	<b>Passing</b> 100 100 100	Limits
y mass)	70 -															1in ¾in 1∕₂in 3/8in		100 100 95 91	
Percentage Passing (by mass)	50 -														_	No.4 No.10 No.20 No.40		80.1 67 49 26	
Percentag	40 -															No.60 No.100 No.200		14 8 6	
	20 -																		
	10 -							_						-					
Sieve	0 Size	3" 2	2″	1″	1/2″	#	4	#10	#2	20	#40	#60 #	¢100	#20	0				
Com	ma	nto																	
Soil Cla No Pla	assific	cation	of Fine Test	es (-#20 Perforn	00) in ned	Sieve /	Analys	ses Assi	umed	Unles	ss Vei	rified b	y Ad	dition	al Tes	ting			

ATL	

8.36

0.90

4/26/2022

Mat	erial Test Repor	t	Report Issue N	No: MAT:22-0471-S06 o:  1	
Client:	CRW Engineering Group, LLC	Project Code: 220475		ained below pertain only to the items tested be opt in full, without the prior written approval of	
	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	CC: CRW Maria Kampsen			_
Project:	South Airpark			Maretarps	e)
			Reviewed	By: Maria E Kampsen	
	73130		Title:	Senior Engineer	
			Date:	5/2/2022	
Other <sup>-</sup>	Fest Results				
Descri	ption	Method		Result	Limits
Method	1	ASTM D6913		Α	
Prepar	ation Method			Oven Dry	
Compo	site Sieving?			Yes	
Separa	ting Sieve(s)			No. 4	
Fractio	nal Mass Retained (%)			0.00	

ASTM D2487

Сс Date Tested

Cu

## Comments

Mat	erial Test Report
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503
Project:	South Airpark

Ma	te	eria	al '	Те	st	R	ep	or	t								R	Rep ssi	oort Je N	N lo:	o: MA : 1	T:22	-047	′1-S0	8			
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503				Project Code: 220475 CC: CRW Maria Kampsen			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.					je																
Projec	t:	South	Airp	ark																	-	Mar	E	Lanf	sei	)		
		73130	)														Ti	evie itle: ate:		l By	/: Maria Seni 5/2/2	or Eng						
San	np	ole C	)eta	nils									C	Dth	er 1	<b>Tes</b>			sul	lts								
Samı Clien	ole	ID			22-	0471 -09 \$		8						Vate este Frou Frou ttert este	ed By	ntei ed de me Lim			Poo		grade	Meth ASTN ASTN d san	/ D2 / D2 id wit	487 th silt	4/12/: Jeff S SF and g Zickef	Smith P-SM ravel Yes oose	Lim	its
Parti	icl	le Si	ze	Dis	trib	utic	on							ate	Test	ed									4/29/	2022		
	1 100	-	60		20	— mi	6 m —	6	Diar	neter 2		60	00		200 µm -		100		50	0 0	Metho Drying Date T Fested	By: ested	0 I: 4/	ven		\$		
Percentage Passing (by mass)	<ul> <li>90</li> <li>80</li> <li>70</li> <li>60</li> <li>50</li> <li>40</li> <li>30</li> <li>20</li> </ul>	) ) )																		3 2 1 1 3 3 1 1 3 1 1 1 1 1 1 1 1 1 1 1	Sieve S Bin 2in 1½in 11/2in 11/2in 2/8in No.4 No.40 No.20 No.200 No.200	)		% P	11 56	<b>g</b> 00 92 80 76 65 65 65 49 44 32 17 9 6	Limit	S
Sieve	10 0 Size	)	2"		1″	1/2"		#4		#10	#	¥20	#4	0 #	60 #	100	#2	200										

ATL	

0.00

0.16

40.17

4/26/2022

Mat	erial Test Report	t	Report Issue N	No: MAT:22-0471-S08 lo: 1	
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		tained below pertain only to the items tested be cept in full, without the prior written approval of	
Project:			Reviewed	Han Exampsen	e
	73130		Title: Date:	Senior Engineer 5/2/2022	
Other <sup>-</sup>	Test Results				
Descri	ption	Method		Result	Limits
Compo	l ation Method site Sieving? ting Sieve(s)	ASTM D6913		A Oven Dry Yes No. 4	

ASTM D2487

Cc Date Tested

Cu

Fractional Mass Retained (%)

#### Comments

ATL			Alaska Testlab - Anchorage 4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com
<b>Material Test Repo</b>	rt	Report No: MAT:22-0 Issue No: 1	471-S12
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen	The results contained below pertain only to the	e items tested below. This report should not be ritten approval of Alaska Testlab or the agency.
Project: South Airpark		Reviewed By: Maria E Kam	psen
73130		Title: Senior Engine Date: 5/2/2022	eer
Sample Details	Other Tes	t Results	
Sample ID 22-0471-S12 Client Sample ID TH-09 S11	Description Water Conten Date Tested Tested By Group Code Group Name Atterberg Limi Tested By Date Tested	ASTM I Well-graded sand	D2216 2 4/12/2022 Jeff Smith D2487 SW-SM
Particle Size Distribution			
		Method:	ASTM D6913
100 60 20 6	Diameter 2 600 200 1 μm	Drying By: <sup>00 50</sup> Date Tested: Tested By:	Oven 4/26/2022 John Platt
90       90         90       80         70       70         80       70         10       10         0       10         0       10         0       11       1/2"	4 #10 #20 #40 #60 #100	Sieve Size 3in 2in 1½in 1in ¾in ½in 3/8in No.4 No.10 No.20 No.40 No.60 No.100 No.200 Vo.40 No.200	% Passing         Limits           100         100           100         85           84         81           78         71.6           67         63           53         30           15         8
Comments			

ATL	

0.00

7.56

0.97

4/26/2022

Mat	erial Test Report		Report I Issue No	No: MAT:22-0471-S12 o: 1	
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		ined below pertain only to the items tested be pt in full, without the prior written approval of	
Project:	South Airpark		Deviewed	Yan Etarps	en)
	73130		Title: Date:	By: Maria E Kampsen Senior Engineer 5/2/2022	
Other <sup>-</sup>	Test Results				
Descri	ption	Method		Result	Limits
Compo	l ation Method site Sieving? ting Sieve(s)	ASTM D6913		A Oven Dry Yes No. 4	

ASTM D2487

Cc Date Tested

Cu

Fractional Mass Retained (%)

## Comments

Material Test F			Issue	ort No: ASM:22-04 No: 1		
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen		contained below pertain only to the I, except in full, without the prior writ		
Project: South Airpark			During	Mart	Appper	
73130			Review Title: Date:	ed By: Maria E Kamp Senior Engine 5/2/2022		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0476-S01 TH-10 S1	22-0476-S02 TH-10 S2	22-0476-S03 TH-10 S3	22-0476-S04 TH-10 S4	
Other Test Results						
	Method	50	Resul		10	Limits
Water Content (%) Date Tested Tested By	ASTM D2216	53 4/12/2022 Jeff Smith	19 4/12/2022 Jeff Smith	18 4/12/2022 Jeff Smith	19 4/12/2022 Jeff Smith	
Group Code Group Name Liquid Limit Plasticity Index	ASTM D2487			ML Silt 0		
Material Proportions Estimated Gravel (%) Sand (%)	ASTM D2487			Yes 0 0		
Fines (%) Tested By	ASTM D2487			100 Cindy Zickefoose		
Liquid Limit Plastic Limit Plasticity Index	ASTM D2407 ASTM D4318			Not Obtainable NP (Non-Plastic) NP (Non-Plastic)		
Preparation Method Oversize Removed By Liquid Limit Apparatus				Air Dry Dry Sieving over No. 40 sieve Mechanical Plastic		
Grooving Tool Rolling Tested By Date Tested				Hand Karen Jackson 4/26/2022		
Percent Gravel Percent Sand Percent Fines (Silt/Clay)	LMA (Internal Metho	d)			0 4 96	
Group Symbol Group Name Tested By					ML Silt John Platt	

Alaska Testlab - Anchorage

ATL
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Material Test R Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: South Airpark 73130 Sample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested Tested By	o, LLC	Project Code: 220475 CC: CRW Maria Kampsen 22-0476-S05 TH-10 S5 24 4/12/2022	The results or reproduced, e	ontained below pertain only to the except in full, without the prior wri- and By: Maria E Kamp Senior Engine 5/2/2022 22-0476-S07 TH-10 S6B	e items tested below. This report Iten approval of Alaska Testlab o Harris and the second second second Second Second Second Second Second Second Second Sec	should not be r the agency.
3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: South Airpark 73130 Sample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested	00 Method ASTM D2216	CC: CRW Maria Kampsen 22-0476-S05 TH-10 S5 24	Reviewe Title: Date: 22-0476-S06 TH-10 S6A Results	except in full, without the prior write and By: Maria E Kamp Senior Engine 5/2/2022 22-0476-S07 TH-10 S6B	tten approval of Alaska Testlab of Charles of Alaska Testlab of Seen er 22-0476-S08	should not be or the agency.
73130 Sample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested	ASTM D2216	TH-10 S5 24	Title: Date: 22-0476-S06 TH-10 S6A Results	Senior Engine 5/2/2022 22-0476-S07 TH-10 S6B	er 22-0476-S08	
Sample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested	ASTM D2216	TH-10 S5 24	Title: Date: 22-0476-S06 TH-10 S6A Results	Senior Engine 5/2/2022 22-0476-S07 TH-10 S6B	er 22-0476-S08	
Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested	ASTM D2216	TH-10 S5 24	TH-10 S6A Results	TH-10 S6B		
Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested	ASTM D2216	TH-10 S5 24	TH-10 S6A Results	TH-10 S6B		
<b>Description</b> Water Content (%) Date Tested	ASTM D2216			S		
Water Content (%) Date Tested	ASTM D2216			S		
Date Tested			8		10	Limits
	LMA (Internal Metho	Jeff Smith	4/12/2022 Jeff Smith	24 4/12/2022 Jeff Smith	19 4/12/2022 Jeff Smith	
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By			43 57 ML Sandy silt John Platt			

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

ATL

	erial Test F	-		Issue	rt No: ASM:22-04 No: 1		
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		roject Code: 220475 CC: CRW Maria Kampsen		contained below pertain only to the except in full, without the prior writ		
Project:	South Airpark				Mare	Appper	
	73130			Reviewe Title: Date:	ed By: Maria E Kamp Senior Engine 5/2/2022		
Samp	le Details						
Sample	e ID Sample ID		22-0476-S09 TH-10 S7B	22-0476-S10 TH-10 S8	22-0476-S11 TH-10 S9A	22-0476-S12 TH-10 S9B	
Other	Test Results						
Descrip		Method		Result			Limits
Water C Date Te Tested E		ASTM D2216	2 4/12/2022 Jeff Smith	22 4/12/2022 Jeff Smith	20 4/12/2022 Jeff Smith	10 4/12/2022 Jeff Smith	
Percent		LMA (Internal Method)		0	Jen Onitin	0	
Group S	Fines (Silt/Clay) ymbol			5 95 ML		45 55 ML	
Group N Tested E				Silt John Platt		Sandy silt John Platt	

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

ATL					4040 B Ancho Phon Fa info@a	<b>ab - Anchora</b> Street, Suite 1 orage, AK 995 e: 907-205-19 x: 907-782-44 laskatestlab.co
Material Test I	Report	Re Iss	port No: ASM:22- ue No: 1	0603		
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark		Project Code: 22047 CC: CRW Maria Kampsen	5 The re	suits contained below pertain only to uced, except in full, without the prior Har	the items tested below. This repo	rt should not be or the agency.
73130			Rev Title Date	5		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0603-S01 TH-11 S1	22-0603-S02 TH-11 S2		22-0603-S04 TH-11 S4	
Other Test Results						
<b>Description</b> Water Content (%) Date Tested	Method ASTM D2216	56 4/26/2022	<b>Res</b> 17 4/26/2022		19 4/26/2022	Limits
Tested By		4/20/2022 Karen Jackson	4/20/2022 Karen Jackson		4/20/2022 Karen Jackson	
Group Code Group Name Material Proportions Estimated Gravel (%) Sand (%)	ASTM D2487			ML Silt Yes 0 0		
Fines (%) Percent Gravel	LMA (Internal Meth	od)	0	100		
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By			24 76 ML Silt with sand John Platt			
Liquid Limit Plastic Limit Plasticity Index Preparation Method Oversize Removed By Liquid Limit Apparatus Grooving Tool Rolling Tested By Date Tested	ASTM D4318			15 13 2 Air Dry Dry Sieving over No. 40 sieve Mechanical Plastic Hand Cindy Zickefoose 5/9/2022		
Comments Soil Classification of Fines (-#200						

ATL
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Mat	erial Test F	Report	Report No: ASM:22-0603 Issue No: 1					
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code: 22047 CC: CRW Maria Kampsen	5	The results con	tained below pertain only to the	e items tested below. This repo ritten approval of Alaska Testlab	rt should not be or the agency.
Project:	South Airpark					Man	Farpsen	
	73130				Reviewed Title: Date:	By: Maria E Kam Senior Engin 5/11/2022		
Samp	le Details							
Sample Client S Date Sa	Sample ID		22-0603-S05 TH-11 S5	22-0603 TH-1		22-0603-S07 TH-11 S7	22-0603-S08 TH-11 S8	
Other	Test Results							
Descrip Water C Date Te Tested B	Content (%) ested	Method ASTM D2216	13 4/26/2022 Karen Jackson	4/26/2 Karen Jac		22 4/26/2022 Karen Jackson	14 4/26/2022 Karen Jackson	Limits
Percent Percent	Gravel Sand Fines (Silt/Clay) Symbol Iame	LMA (Internal Meth		Silty S John	0 62 38 SM Sand			
Comn	nents							
	sification of Fines (-#200)	in LMAs Assume	ed Unless Verified by A	dditional Te	sting			

ATL			Alaska Testlab - Anchorag 4040 B Street, Suite 10 Anchorage, AK 9950 Phone: 907-205-198 Fax: 907-782-440 info@alaskatestlab.com
<b>Material Test F</b>	Report		Report No: ASM:22-0603 Issue No: 1
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark 73130		ject Code: 220475 CC: CRW Maria Kampsen	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.           Warehordson           Reviewed By:         Maria E Kampsen           Title:         Senior Engineer           Date:         5/11/2022
Sample Details			<u>.</u>
Sample ID Client Sample ID Date Sampled Other Test Results		22-0603-S09 TH-11 S9	
	Mathad		
Description Water Content (%) Date Tested Tested By		27 4/26/2022 aren Jackson	Results Limits
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Method)	0 5 95 ML Silt John Platt	
Soil Classification of Fines (-#200)	in LMAs Assumed Ur	less Verified by Addition	onal Testing

	TL						4040 B Ancho Phon Fa	<b>ab - Anchorage</b> Street, Suite 102 orage, AK 99503 e: 907-205-1987 x: 907-782-4409 laskatestlab.com
Mat	erial Test F	Report			Report No Issue No:	o: ASM:22-06	04	
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	o, LLC	Project Code CC: CRW Maria		The results contained	I below pertain only to the it	ems tested below. This repo n approval of Alaska Testlab	
Project:	South Airpark				Reviewed By	Maria E Kamps	Apopser	
	73130				Title: Date:	Senior Enginee 5/11/2022		
Samp	le Details							
Date Sa	Sample ID ampled		22-0604-S01 TH-12 S1	22-0604-S02 TH-12 S2	22-0604-S03 TH-12 S3	22-0604-S04 TH-12 S4	22-0604-S05 TH-12 S5	
Other	Test Results							
Descri	otion	Method			Results			Limits
Water C Date Te	content (%) sted	ASTM D2216	33 4/26/2022	25 4/26/2022	16 4/26/2022	22 4/26/2022	28 4/29/2022	
Tested I	Ву	k	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent	Gravel	LMA (Internal Met	hod)	0	0		0	
Percent				4	1		3	
	Fines (Silt/Clay)			96	99		97	
Group S	-			ML	ML		ML	
Group N				Silt	Silt		Silt	
Tested I		ASTM D2487		John Platt	John Platt	ML	John Platt	
Group C Group N		ASTIVI D2407				Silt		
Liquid L						0		
Plasticit						0		
	Proportions Estimated	ASTM D2487				Yes		
Gravel (						0		
Sand (%	(o)					0		
Fines (%	6)					100		
Tested I		ASTM D2487				Karen Jackson		
Liquid L		ASTM D4318				Not Obtainable		
Plastic L						NP (Non-Plastic)		
Plasticit						NP (Non-Plastic)		
Tested I Date Te						Karen Jackson 5/10/2022		
Date Te	sied					5/10/2022		

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

Material Test F	Report	Report No Issue No:	Report No: ASM:22-0604 Issue No: 1			
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code CC: CRW Maria		The results contained	below pertain only to the items tested b full, without the prior written approval o	elow. This report should not be f Alaska Testlab or the agency.
Project: South Airpark					Mar Examp	Ser
73130				Reviewed By: Title: Date:	Maria E Kampsen Senior Engineer 5/11/2022	
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0604-S06 TH-12 S6A	22-0604-S07 TH-12 S6B	22-0604-S08 TH-12 S7	22-0604-S09 TH-12 S8	
Other Test Results						
Description	Method			Results		Limits
Water Content (%) Date Tested Tested By	ASTM D2216	7 4/26/2022 Karen Jackson	31 4/26/2022 Karen Jackson	6 4/26/2022 Karen Jackson	16 4/26/2022 Karen Jackson	
Percent Gravel	LMA (Internal Me		Raren Jackson	0		
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name				67 33 SM Silty Sand		
Tested By				John Platt		
Comments						
Soil Classification of Fines (-#200	) in LMAs Assum	ned Unless Verif	ied by Additional	Testing		

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Material Test Report						Report No: ASM:22-0605 Issue No: 1			
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30		Project Code: 220475		The results contained reproduced, except in	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.			
	Anchorage, AK, 99503	00	CC: CRW Maria	Kampsen					
Project:	South Airpark					Yant	Farpser		
	73130				Reviewed By: Title: Date:	Maria E Kamps Senior Enginee 5/11/2022			
Samp	le Details								
Sample	e ID Sample ID		22-0605-S01 TH-13 S1	22-0605-S02 TH-13 S2	22-0605-S03 TH-13 S3	22-0605-S04 TH-13 S4	22-0605-S05 TH-13 S5		
	Test Results								
Descrip		Method			Results			Limits	
	ontent (%)	ASTM D2216	71	11	15	21	24	Linits	
Date Te			4/26/2022	4/26/2022	4/26/2022	4/26/2022	4/26/2022		
Tested E Group C		ASTM D2487	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson		
Group N									
Percent		LMA (Internal Me	thod)	0		0			
Percent	Sand Fines (Silt/Clay)			24 76		3 97			
Group S				ML		ML			
Group N	lame			Silt with sand		Silt			
Tested E	Зу			John Platt		John Platt			
Comm	nents								
	sification of Fines (-#200)	in LMAs Assum	ned Unless Verif	ied by Additional	Testing				

	TL						4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com		
Mate	erial Test F	Report			Report No: ASM:22-0605 Issue No: 1				
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	o, LLC	Project Code CC: CRW Maria		The results contained	below pertain only to the items tes	ited below. This report should not be val of Alaska Testlab or the agency.		
Project:	South Airpark					Mareta	pser		
	73130				Reviewed By: Title: Date:	Maria E Kampsen Senior Engineer 5/11/2022			
Samp	le Details								
Date Sa	Sample ID ampled		22-0605-S06 TH-13 S6	22-0605-S07 TH-13 S7	22-0605-S08 TH-13 S9A	22-0605-S09 TH-13 S9B			
Other	Test Results								
Descrip Water C Date Tes	ontent (%)	Method ASTM D2216	16 4/26/2022	23 4/26/2022	<b>Results</b> 18 4/26/2022	22 4/26/2022	Limits		
Tested E				Karen Jackson	Karen Jackson	Karen Jackson			
Group C Group N Liquid Li Plasticity	ame mit	ASTM D2487	ML Silt 0 0						
Material Gravel (	Proportions Estimated %)	ASTM D2487	Yes 0 0						
Sand (% Fines (%			100						
Tested E		ASTM D2487 ASTM D4318	Karen Jackson						
Liquid Li Plastic L Plasticity Tested E Date Tes	imit 7 Index 3y		Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Karen Jackson 5/10/2022						
Group S Group N	Sand Fines (Silt/Clay) ymbol ame	LMA (Internal Me	thod)		1 12 87 ML Silt	0 6 94 ML Silt			
Tested E					John Platt	John Platt			
				and have A statistic at the	Teetin				
Soil Clas	sification of Fines (-#200)	In LMAs Assum	ned Unless Verif	ied by Additional	resting				

F-166

Alaska Testlab - Anchorage

ATL
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erial Test F				issue no.	1		
		Project Code:	220475	The results contained	below pertain only to the iter	ms tested below. This repor	t should not be or the agency.
	00	CC: CRW					
•		Mana	Rampsen		10	VN	
South Airpark					Mare,	tarpser	
				Reviewed By:	l Maria E Kampse	'n	
73130				Title:	Senior Engineer		
				Date:	5/2/2022		
		111-14-01	11-14-02	111-14-00	111-14-04	11-14 00A	
Test Results							
tion	Method			Results			Limits
ontent (%)	ASTM D2216	55	29	23	21	36	
sted							
Зу		Jeff Smith	Jeff Smith		Jeff Smith	Jeff Smith	
	LMA (Internal Me	thod)					
ame				Silt with sand			
By				John Platt			
	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 South Airpark 73130 IE Details ID Sample ID Impled Test Results otion ontent (%) sted By Gravel Sand Fines (Silt/Clay) ymbol ame	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503 South Airpark 73130 ID Sample ID Impled Test Results ID Sample ID Impled Gravel Sand Fines (Silt/Clay) ymbol ame	CRW Engineering Group, LLC Project Code: 3940 Arctic Blvd., Ste. 300 CC: CRW Anchorage, AK, 99503 South Airpark 73130 22-0477-S01 TH-14 S1 ID 22-0477-S01 TH-14 S1 Impled Test Results Project Code: CC: CRW Maria 22-0477-S01 TH-14 S1 Impled 55 4/12/2022 Sy Jeff Smith Gravel LMA (Internal Method) Sand Fines (Silt/Clay) ymbol ame	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503 South Airpark 73130 Project Code: 220475 CC: CRW Maria Kampsen South Airpark 73130 Pebetails ID 22-0477-S01 22-0477-S02 TH-14 S1 TH-14 S1 TH-14 S2 ID Sample ID Test Results Pebetails Pebetails ID CC: CRW Maria Kampsen South Airpark Project Code: 220475 Second Sample ID Sample ID ASTM D2216 S5 29 4/12/2022 Jeff Smith Jeff Smith Samth Sand Fines (Silt/Clay) Sample ID Sample ID	CRW Engineering Group, LLC       Project Code: 220475       The results contained reproduced, except in and the produced, except in and the produced, except in and the produced, except in the produ	CRW Engineering Group, LLC       Project Code: 220475       The results contained below pertain only to the file perduced, except in full, without the prior written         3940 Arctic Blvd., Ste. 300       Anchorage, AK, 99503       South Airpark       June 2000         South Airpark       South Airpark       Reviewed By: Maria E Kampsen       Reviewed By: Maria E Kampsen         73130       Z2-0477-S01       Z2-0477-S02       Z2-0477-S03       Z2-0477-S04         ID       Z2-0477-S01       Z2-0477-S02       Z2-0477-S03       Z2-0477-S04         TH-14 S1       TH-14 S2       TH-14 S3       TH-14 S4         Impled       Method       Results       TH-14 S3         Total Content (%)       ASTM D2216       55       29       23       21         4/12/2022       4/12/2022       4/12/2022       4/12/2022       4/12/2022       4/12/2022         Band       Jeff Smith       Jeff Smith       Jeff Smith       Jeff Smith       Jeff Smith         Gravel       LMA (Internal Method)       0       30       20       50       20       50         Sint with sand       Silt with sand	CRW Engineering Group, LLC       Project Code: 220475         3940 Arctic Blvd., Ste. 300       CC: CRW         Anchorage, AK, 99503       CC: CRW         South Airpark       CC: CRW         73130       CC: CRW         Reviewed By: Maria E Kampsen       Reviewed By: Maria E Kampsen         Title:       Senior Engineer         Date:       5/2/2022         ID       22-0477-S01       22-0477-S02         TH-14 S1       TH-14 S2       TH-14 S3       TH-14 S4         TH-14 S3       TH-14 S4       TH-14 S5A         Impled       TH-14 S1       TH-14 S2       TH-14 S3         Test Results       4/12/2022       4/12/2022       4/12/2022       4/12/2022         Sted       4/12/2022       4/12/2022       4/12/2022       4/12/2022         By       Jeff Smith       Jeff Smith       Jeff Smith       Jeff Smith         Gravel       LMA (Internal Method)       0       0       0         Sand       20       S0       20       50       20         Window       ML       S0       Window       0       0         Silt with sand       Silt with sand       Silt with sand       Silt with sand

		<b>N</b>			Report No	: ASM:22-047	9	askatestlab.
	erial Test F				Issue No:	1		
	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3		Project Code:	220475			ms tested below. This repo approval of Alaska Testlab	
	Anchorage, AK, 99503	000	CC: CRW Maria	Kampsen		1		
	South Airpark					Marte,	Karpsen	
	73130				Reviewed By: Title:	Maria E Kampse Senior Engineer		
					Date:	5/2/2022		
Sampl	e Details							
Sample			22-0477-S06	22-0477-S07	22-0477-S08	22-0477-S09	22-0477-S10	
	ample ID		TH-14 S5B	TH-14 S6	TH-14 S7	TH-14 S8	TH-14 S9	
	Test Results							
Descrip		Method			Results			Limits
	ontent (%)	ASTM D2216	31	22	23	26	17	
Date Tes			4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	
Fested B Percent (			Jeff Smith	Jeff Smith	Jeff Smith 1	Jeff Smith	Jeff Smith	
Percent S		LMA (Internal Met	26 (nod)	0 8	8			
	Fines (Silt/Clay)		72	92	91			
Group Sy			ML	ML	ML			
Group Na			Silt with sand	Silt	Silt			
Tested B			John Platt	John Platt	John Platt			
Group Co		ASTM D2487					ML	
Group Na	ame						Silt	
_iquid Lir	nit						0	
Plasticity	Index						0	
	Proportions Estimated	ASTM D2487					Yes	
Gravel (%							0	
Sand (%)							0	
ines (%							100	
Fested B		ASTM D2487					Cindy Zickefoose	
Liquid Lir		ASTM D4318					Not Obtainable	
Plastic Li							NP (Non-Plastic)	
Plasticity							NP (Non-Plastic)	
	on Method Removed By					ſ	Air Dry Dry Sieving over No. 40 sieve	
	nit Apparatus						Mechanical	
Grooving							Plastic	
Rolling	1001						Hand	
Tested B	v						Karen Jackson	
Date Tes							4/26/2022	

ATL						Alaska Testlab - Anchorage 4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1887 Fax: 907-782-4409 info@alaskatestlab.com		
<b>Material Test</b>	Report		Report No Issue No:	: ASM:22-0477 1				
3940 Arctic Blvd., Ste Anchorage, AK, 9950	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen		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.			
Project: South Airpark					Marchar	pser		
73130				Reviewed By: Title: Date:	Maria E Kampsen Senior Engineer 5/2/2022			
Sample Details								
Sample ID Client Sample ID Date Sampled		22-0477-S11 TH-14 S10	22-0477-S12 TH-14 S11	22-0477-S13 TH-14 S12				
Other Test Results								
Description Water Content (%) Date Tested Tested By Group Code Group Name Liquid Limit Plasticity Index Tested By Method Preparation Method Composite Sieving? Separating Sieve(s) Fractional Mass Retained (%) Cu Cc	Method ASTM D2216 ASTM D2487 ASTM D2487 ASTM D6913	22 4/12/2022 Jeff Smith	7 4/12/2022 Jeff Smith Silty sand 0 0 <u>Cindy Zickefoose</u> A Oven Dry Yes No. 4 0.00	Results 6 4/12/2022 Jeff Smith		Limits		

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

viat	er	rial T	est R	Report				Report Issue I	t No: MAT:22-(	0	laskatestlab.c
Client:       CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503       Project Code: CC: CRW Maria K         Project:       South Airpark         73130			ode: 220475 CRW Maria Kampsen			ntained below pertain only to xcept in full, without the prior v Hau d By: Maria E Karr					
								Title: Date:	Senior Engir 5/2/2022	leer	
	-	e Details					ner Tes	t Resu			
Samp Client		, mple ID	75-04 TH-14	77-S12 • S11		Wat Date Test Grou Grou Liqu Plas	cription er Content e Tested up Code up Name id Limit iticity Inde: ted By e Tested		ASTM ASTM ASTM ASTM	D2216 4/12/2022 Jeff Smith D2487 SM Silty sand (	7 2 1 1 1 1 2 ) 2
arti		Size Di	etribut	ion							
	100 ⊢		20		Diameter 2	600	200 1 - µm	00 50	Method: Drying By: Date Tested:		
1	00	+ + +	+ + +	<b>-</b>	+ + +	T		++++	Tested By:	John Platt	
	90 - 80 - 70 -								Sieve Size 3in 2in 1½in 1in ¾in ½in 3/8in No.4 No.10 No.20 No.40 No.40 No.40	% Passing 100 100 100 100 100 100 100 100 100 10	Limits
Percentage Passing (by mass	60 - 50 - 40 - 30 - 20 - 10 -								No.60 No.100 No.200	92 35	

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

ATL	

Mat	erial Test Repor	t	Report No: MAT:22-0477-S12 Issue No: 1				
Client:	CRW Engineering Group, LLC	Project Code: 220475	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.				
	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	CC: CRW Maria Kampsen		~			
Project:	South Airpark		Mar Etarp.	ser			
	73130		Reviewed By:Maria E KampsenTitle:Senior EngineerDate:5/2/2022				
Other 7	Fest Results						
Descri	ption	Method	Result	Limits			
Method	1	ASTM D6913	A				
Prepara	ation Method		Oven Dry				
Compo	site Sieving?		Yes				
Separa	ting Sieve(s)		No. 4				
Fractio	nal Mass Retained (%)		0.00				
Cu		ASTM D2487					
Cc							
Date Te	ested		4/27/2022				

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

ATL
-----

Material Test F	Report		F	Report No ssue No:	: ASM:22-0478 1	3	
Client: CRW Engineering Grou	ip, LLC F	Project Code: 220475	Т	he results contained	below pertain only to the items full, without the prior written a	s tested below. This report pproval of Alaska Testlab o	t should not be or the agency.
3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	300	CC: CRW Maria Kampsen					
Project: South Airpark					1 E	000	
					Marex	pupple	
			F	Reviewed Bv:	Maria E Kampsen	1	
73130			Т	ïtle:	Senior Engineer		
			C	)ate:	5/2/2022		
Sample Details							
Sample ID		22-0478-S01	22-0478-S		2-0478-S03	22-0478-S04	
Client Sample ID Date Sampled		TH-15 S1	TH-15	S2	TH-15 S3	TH-15 S4	
Other Test Results							
Description	Method		F	Results			Limits
Water Content (%)	ASTM D2216	32		22	17	23	
Date Tested		4/12/2022	4/12/20		4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Sm	nith	Jeff Smith	John Platt	
Percent Gravel	LMA (Internal Method	)			0		
Percent Sand					4		
Percent Fines (Silt/Clay)					96 ML		
Group Symbol Group Name					Silt		
Tested By					John Platt		
Comments							
Soil Classification of Fines (-#200	) IN LIMAS Assumed	Unless Verified by Add	aitional Testi	ng			

ATL					4040 B Ancho Phor Fa	tl <b>ab - Anchorage</b> Street, Suite 102 orage, AK 99503 ne: 907-205-1987 ax: 907-782-4409 alaskatestlab.com
Material Test	Report		R	eport No: ASM:22 sue No:  1	2-0478	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. Anchorage, AK, 99503 Project: South Airpark 73130	up, LLC F 300	Project Code: 220475 CC: CRW Maria Kampsen	Reviewed By: Maria E Kar Title: Senior Engi Date: 5/2/2022		ampsen	rt should not be ⊦or the agency.
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0478-S05 TH-15 S5A	22-0478-S0 TH-15 S5I			
Other Test Results						
Description	Method		Re	esults		Limits
Water Content (%) Date Tested Tested By	ASTM D2216	28 4/12/2022 Jeff Smith	1 4/12/202 Jeff Smit	2 4/12/2022	4/12/2022	
Percent Gravel Percent Sand Percent Fines (Silt/Clay)	LMA (Internal Method			0 8	16 77 7	
Group Symbol Group Name Tested By			M Silt with san John Pla	d	SP-SM Poorly graded sand with silt and gravel John Platt	
Group Code Group Name Atterberg Limits Estimated	ASTM D2487			SP-SM Poorly graded sand with sil Yes	t 5	
Tested By				Cindy Zickefoose		
Method Preparation Method Composite Sieving? Separating Sieve(s) Cu	ASTM D6913 ASTM D2487			A Oven Dry Yes No. 4 3.50	, , ,	
Cc	ASTIVI D2407			1.15		

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

ATL
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al Test R	leport			Report N ssue No	o: ASM:22-0 : 1	478	
Engineering Group	, LLC P	CC: CRW	0475	he results contain	ed below pertain only to th		
Airpark					Mars	Harpsen	
			r I	Title:			
etails							
e ID d		22-0478-S09 TH-15 S8A			22-0478-S11 TH-15 S9	22-0478-S12 TH-15 S10A	
t Results							
	Method						Limits
(%)	ASTM D2216	4/12/2022		)22	4 4/12/2022 Jeff Smith	4/12/2022	
(Silt/Clay)	LMA (Internal Method)			67 30 3	24 47 29		
				Only	sand with gravel John Platt		
	Engineering Group Arctic Blvd., Ste. 30 Irage, AK, 99503 Airpark e ID d t <b>Results</b> (%)	Arctic Blvd., Ste. 300 arage, AK, 99503 Airpark e ID d t Results (%) ASTM D2216 LMA (Internal Method)	Engineering Group, LLC Project Code: 22 Arctic Blvd., Ste. 300 rage, AK, 99503 Airpark etails e ID 22-0478-S09 TH-15 S8A d t Results (%) ASTM D2216 2 4/12/2022 Jeff Smith LMA (Internal Method)	Engineering Group, LLC Arctic Blvd., Ste. 300 irage, AK, 99503 Airpark Engineering Group, LLC Arctic Blvd., Ste. 300 irage, AK, 99503 Airpark Engineering Group, LLC CC: CRW Maria Kampsen Engineering Group, LLC CC: CRW Maria Kampsen Final Kampsen Fin	Method       Results         22-0478-S09       22-0478-S10         TH-15 S8A       TH-15 S8B         Method       Results         (%)       ASTM D2216       2       3         4/12/2022       4/12/2022       3         5/11/2/2022       Jeff Smith       Jeff Smith         Silt/Clay)       Silt/Clay)       3	Issue No: 1         Engineering Group, LLC       Project Code: 220475         Arctic Blvd., Ste. 300       Project Code: CRW       Image AK, 99503         Airpark       Reviewed By: Maria E Kampsen         Airpark       Eviewed By: Maria E Kampsen         Bit       Project Code: 5/2/2022         Etails       Project Code: 220478-S10       22-0478-S10         Bit       Project Code: 5/2/2022       Project Code: 5/2/2022         Etails       Project Code: 22-0478-S10       22-0478-S11         Etails       Project Code: 2       3       4         Code       Results       Project Code: 3       4         Method       Results       Project Code: 5/2/2022       4/12/2022         Method       C       2       3       4         Maria Kampsen       ASTM D2216       2       3       4         Maria Kampsen       ASTM D2216       2       3       4         Maria Kampsen       Astronomous       Astronomous       4       4       2       4       <	Engineering Group, LLC Arctic Blvd., Ste. 300 rage, AK, 99503 Airpark Project Code: 220475 CC: CRW Maria Kampsen Airpark Reviewed By: Maria E Kampsen Title: Senior Engineer Date: 5/2/2022 Petails C2: 0478-S09 TH-15 S8A TH-15 S8B TH-15 S8B TH-15 S9 TH-15 S10A C3 C2: 0478-S10 TH-15 S8B TH-15 S9 TH-15 S10A C3 C3 C2: 0478-S10 TH-15 S8B TH-15 S9 TH-15 S10A C3 C2: 0478-S10 TH-15 S10A C3 C2: 0478-S10 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S10 C2: 0478-S10 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S10 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S10 C2: 0478-S10 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S10 C2: 0478-S11 C2: 0478-S12 C2: 0478-S10 C2: 0478-S11 C2: 0478-S12 C2: 0478-S12 C2: 0478-S10 C2: 0478-S11 C2: 0478-S12 C2: 0478-S10 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0478-S12 C2: 0478-S11 C2: 0478-S12 C2: 0

ATL
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Gliont: CRW Engineering Group, LLC       Project Code: 220475       Inclusion and table in the point of the series of the	Mate	erial Test	Report			Report No Issue No:	o: ASM:22-0478 1	
Title:       Senior Engineer         Date:       5/2/2022         Sample DD       22-0478-S13       22-0478-S14         Client Sample ID       TH-15 S10B       TH-15 S11         Date Sampled       TH-15 S10B       TH-15 S11         Other Test Results       Limits         Water Content (%)       ASTM D2216       7       17         Date Tested       4/12/2022       4/12/2022       Limits         Percent Gravel       LMA (Internal Method)       0       0         Percent Fines (Silt/Clay)       61       39       9         Group Symbol       ML       Sandy silt       5	Client:	CRW Engineering Gro 3940 Arctic Blvd., Ste Anchorage, AK, 9950	oup, LLC . 300	CC: CRW		The results contained	below pertain only to the items tested below. This re	eport should not be tlab or the agency.
Sample ID Client Sample JD Date Sampled22-0478-S13 TH-15 S10B22-0478-S14 TH-15 S11Other SampledTH-15 S10BTH-15 S11DescriptionMethodResultsLimitsVater Content (%) Date TestedASTM D2216717 Date Tested4/12/20224/12/2022Tested ByJeff SmithJeff SmithPercent GravelLMA (Internal Method)0Percent Sand3961Percent Fines (Silt/Clay)61Group SymbolMLGroup NameSandy silt		73130				Title:	Senior Engineer	
Sample ID Client Sample ID Date Sampled22-0478-S13 TH-15 S10B22-0478-S14 TH-15 S11Other Test ResultsTH-15 S10BTH-15 S11DescriptionMethodResultsLimitsVater Content (%) Date TestedASTM D2216717 4/12/20224/12/2022Tested ByJeff SmithJeff SmithPercent GravelLMA (Internal Method)0 390 61 61 Group Symbol0 ML Sandy silt	Samp	le Details						
DescriptionMethodResultsLimitsWater Content (%)ASTM D2216717Date Tested4/12/20224/12/2022Tested ByJeff SmithJeff SmithPercent GravelLMA (Internal Method)0Percent Sand39Percent Fines (Silt/Clay)61Group SymbolMLGroup NameSandy silt	Sample Client S	e ID Sample ID						
Water Content (%)ASTM D2216717Date Tested4/12/20224/12/2022Tested ByJeff SmithJeff SmithPercent GravelLMA (Internal Method)0Percent Sand39Percent Fines (Silt/Clay)61Group SymbolMLGroup NameSandy silt	Other	Test Results						
Percent GravelLMA (Internal Method)0Percent Sand39Percent Fines (Silt/Clay)61Group SymbolMLGroup NameSandy silt	Water C Date Te	ontent (%) sted		4/12/2022		17 2022		Limits
	Percent Percent Percent Group S Group N	Gravel Sand Fines (Silt/Clay) Symbol Iame	LMA (Internal Meth		Sanc	0 39 61 ML ly silt		
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing	Soil Clas	sification of Fines (-#20	00) in LMAs Assume	d Unless Verified by Add	ditional Te	sting		

			)																4040 B Ancho Phon Fa	lab - Anchora Street, Suite 1 orage, AK 995 e: 907-205-19 tx: 907-782-44 laskatestlab.cc
Mat	ter	ial <sup>·</sup>	Те	st I	Re	po	rt						R	epo	rt No	No: MA 5: 1	T:22-	0478-S	07	
Client:       CRW Engineering Group, LLC         3940 Arctic Blvd., Ste. 300         Anchorage, AK, 99503         Project:       South Airpark									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. Watchardson Pertain Content of 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											
	731	30												tle: ate:		Senio 5/2/2	or Engir 022	neer		
	-	Deta	ils							C	)the	er Te	est F	Resi	ult	s				
Samp Clien		ple ID			478-S	507				W D T G G A T	/ater ate T ested roup roup tterbe ested	esteo <u>I By</u> Code Namerg Li	ent (% I e mits E		nate	P	ASTM	D2216 D2487 raded s	Resul 4/12/2022 Jeff Smith SP-SM and with sil Yes Zickefoose 5/2/2022	3 2 1 1 t 5 5
Parti	cle	Size	Dist	ribu	tion	1														
	<b>100</b> ⊢− 100 −−	60	<b>-</b>	20	mm	6	Dia	meter 2	+	600		200 im —	100	50	D	Methoo Drying Date Te Tested	By: ested:	Oven		
is Percentage Passing (by mass)	90	3" 2"	1	· 1	/2"			#10	#20	#4(	) #6	0 #10	0 #2			Sieve S 3in 2in 1½in 1½in 3¼in ½in 3/8in No.4 No.20 No.40 No.40 No.40 No.60 No.100 No.200		%	Passing 100 100 100 100 100 100 98.8 98 96 85 54 27 8	Limits
Com Soil Cla			Fines	(_#200	1) in Si		nalvee	د ۵دوبا	med	nless	/erifie	ad by A	Aditio	nal T	Postin	na				
No Pla							, -	-	-		-	,	-			5				

ATL	

3.50

1.15 4/28/2022

Mat	erial Test Report		Report N Issue No	lo: MAT:22-0478-S07 b: 1	
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		ned below pertain only to the items tested be t in full, without the prior written approval of <i>i</i>	
Project:	South Airpark			Han Exampsen	en
	73130		Title: Date:	Senior Engineer 5/2/2022	
Other 7	Test Results				
Descri	ption	Method		Result	Limits
Compo	l ation Method site Sieving? ting Sieve(s)	ASTM D6913		A Oven Dry Yes No. 4	

**ASTM D2487** 

Cu Cc Date Tested

## Comments

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

ATL
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Mat	erial Test F	Report	Report No: ASM:22-0479 Issue No: 1								
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30	o, LLC	Project Code: CC: CRW Maria	220475 Kampsen	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.						
Project:	Anchorage, AK, 99503 South Airpark					Jan E,	Karpsen				
	73130				Reviewed By: Title: Date:	Maria E Kampse Senior Engineer 5/2/2022	'n				
Samp	le Details										
Sample Client			22-0479-S01 TH-16 S1	22-0479-S02 TH-16 S2	22-0479-S03 TH-16 S3	22-0479-S04 TH-16 S4	22-0479-S05 TH-16 S5				
	Test Results										
Descri	ption	Method			Results			Limits			
	Content (%) ested	ASTM D2216	140 4/12/2022 Jeff Smith	12 4/12/2022 Jeff Smith	6 4/12/2022 Jeff Smith	16 4/12/2022 Jeff Smith	18 4/12/2022 Jeff Smith				
Percent Percent Group S Group N Tested I	Sand Fines (Silt/Clay) Symbol Name	LMA (Internal Me			5 15 80 ML Silt with sand John Platt						
Comn	nents sification of Fines (-#200)										

ATL						4040 B Ancho Phon Fa	<b>ab - Anchorage</b> Street, Suite 102 rage, AK 99503 e: 907-205-1987 x: 907-782-4409 laskatestlab.com
<b>Material Test F</b>	Report			Report No Issue No:	: ASM:22-047 1	'9	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark	ip, LLC	Project Code CC: CRW Maria		The results contained	below pertain only to the ite full, without the prior written		
73130				Reviewed By: Title: Date:	Maria E Kampse Senior Engineer 5/2/2022	n	
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0479-S06 TH-16 S6	22-0479-S07 TH-16 S7	22-0479-S08 TH-16 S8	22-0479-S09 TH-16 S9	22-0479-S10 TH-16 S10	
Other Test Results							
Description	Method			Results			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	15 4/12/2022 Jeff Smith	12 4/12/2022 Jeff Smith	21 4/12/2022 Jeff Smith	13 4/12/2022 Jeff Smith	24 4/12/2022 Jeff Smith	
Percent Gravel Percent Sand	LMA (Internal Me	-		0 12 93			
Percent Fines (Silt/Clay) Group Symbol Group Name		ML Silt		ML Silt			
Tested By Group Code Group Name	ASTM D2487	John Platt	CL-ML Silty clay	John Platt	CL-ML Silty clay		
Material Proportions Estimated Gravel (%) Sand (%)			Yes 0 0		Yes 0 0		
Fines (%) Tested By Liquid Limit	ASTM D2487 ASTM D4318		100 Cindy Zickefoose 25		100 Cindy Zickefoose 26		
Plastic Limit Plasticity Index Preparation Method			20 5 Air Dry		20 6 Air Dry		
Oversize Removed By Liquid Limit Apparatus Grooving Tool Rolling			Washing over No. 40 sieve Mechanical Plastic Hand		Dry Sieving over No. 40 sieve Mechanical Plastic Hand		
Tested By Date Tested			Karen Jackson 4/25/2022		Cindy Zickefoose 4/26/2022		

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

ATL
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Mate	erial Test F	Report			Issue No:			
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code CC: CRW Maria		The results contained reproduced, except in	I below pertain only to the ite full, without the prior written	ems tested below. This repondent of Alaska Testlab	rt should not be or the agency.
Project:	South Airpark					Jane	Apopser	
	73130				Reviewed By: Title: Date:	Maria E Kamps Senior Engineer 5/11/2022		
Samp	le Details							
Sample	e ID Sample ID		22-0623-S01 TH-17 S1	22-0623-S02 TH-17 S2	22-0623-S03 TH-17 S3	22-0623-S04 TH-17 S4	22-0623-S05 TH-17 S5	
Other	Test Results							
Descrip		Method			Results			Limits
Date Te		ASTM D2216	56 4/28/2022	16 4/28/2022	15 4/28/2022	18 4/28/2022	18 4/28/2022	
Tested E Percent		LMA (Internal Me		Karen Jackson	Karen Jackson	Karen Jackson	Karen Jackson	
Percent		LIMA (IIIternai Me	anou)	25			10	
	Fines (Silt/Clay)			75			89	
Group S				ML			ML	
Group N Tested E				Silt with sand John Platt			Silt John Platt	

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

ATL						Alaska Testlab - Anchoragg 4040 B Street, Suite 102 Anchorage, AK 9950 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com
<b>Material Test I</b>	Report			Report No Issue No:	o: ASM:22-0623 1	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark 73130		Project Code CC: CRW Maria		The results contained reproduced, except in Reviewed By Title:	Evelow pertain only to the items tern full, without the prior written appro- temperature Maria E Kampsen Senior Engineer	sted below. This report should not be oval of Alaska Testlab or the agency.
				Date:	5/11/2022	
Sample Details Sample ID Client Sample ID Date Sampled		22-0623-S06 TH-17 S6	22-0623-S07 TH-17 S7	22-0623-S08 TH-17 S8	22-0623-S09 TH-17 S9	
Other Test Results						
	Method			Results		Limits
Water Content (%) Date Tested Tested By Group Code	ASTM D2216 ASTM D2487	15 4/28/2022 Karen Jackson	21 4/28/2022 Karen Jackson ML	21 4/28/2022 Cindy Zickefoose	5 4/28/2022 Karen Jackson	
Group Name Liquid Limit Plasticity Index Gravel (%)			Silt 0 0 0			
Sand (%) Fines (%)			100			
Tested By Liquid Limit Plastic Limit Plasticity Index	ASTM D2487 ASTM D4318		Karen Jackson Not Obtainable NP (Non-Plastic) NP (Non-Plastic)			
Preparation Method Oversize Removed By Liquid Limit Apparatus			Air Dry Dry Sieving over No. 40 sieve Mechanical			
Grooving Tool Rolling Tested By Date Tested			Plastic Hand Karen Jackson 5/9/2022			
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Me	thod)			0 78 22 SM Silty sand John Platt	
Comments				Tooting		
Soil Classification of Fines (-#200	III LIVIAS ASSUM	iea Uniess Veril	ilea by Additional	resung		

ATL
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Client:       CRW Engineering Group, LLC       Project Code: 220475         3940 Arctic Blvd., Ste. 300       Anchorage, AK, 99503       CC: CRW         Project:       South Airpark       Count Airpark         73130       Reviewed By: Maria E Kampsen         Title:       Senior Engineer         Date:       5/11/2022         Sample ID       22-0624-S01       22-0624-S02       22-0624-S03       22-0624-S04         Client Sample ID       TH-18 S1       TH-18 S2A       TH-18 S2B       TH-18 S3	<b>Material Test</b>	Report		R	eport sue N	No: ASM:22-( lo: 1	0624	
T3130       Reviewed By: Wink E Kamper Date: Snite Engineer Date: Snite En	Client: CRW Engineering Gro 3940 Arctic Blvd., Ste	oup, LLC . 300	CC: CRW	75	e results cont	tained below pertain only to	the items tested below. This repor written approval of Alaska Testlab	rt should not be or the agency.
73130       Title::::::::::::::::::::::::::::::::::::	Project: South Airpark					Mar	Etanpsen	
Sample D       22-0624-501       22-0624-502       22-0624-503       22-0624-504         Diate Sampled       TH-18 S1       TH-18 S2A       TH-18 S2B       TH-18 S2B         Diate Sampled       Method       1       133       133       19       18         Diate Sampled       ASTM D2216       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4128/2022       4	73130			Tit	tle:	Senior Engin		
Client Sample ID TH-18 S1 TH-18 S2 TH-18 S2 TH-18 S3 Date Sampled Other Test Results Description Nethod STM D2216 131 138 19 18 Date Tested 4/28/2022 4/28/2022 4/28/2022 4/28/2022 Tested By Karen Jackson Karen Jackson Karen Jackson Karen Jackson Testen Jackson Karen Jackson Testen Jackson S1 (1997) Percent Fines (SIIVClay) 1 0 Percent Fines (SIIVClay) 54 90 Group Symbol SIM ML Group Name Silty Sand Silt Tested By John Platt John Platt	Sample Details							
Description         Method         Results         Limits           Water Content (%)         ASTM D2216         131         138         19         18           Date Tested         4/28/2022         4/28/2022         4/28/2022         4/28/2022         4/28/2022           Tested By         Karen Jackson         Karen Jackson         Karen Jackson         Karen Jackson         Karen Jackson         Karen Jackson           Group Code         ASTM D2487         Group Code         ASTM D2487         Group Name         Ferent Sand         0           Percent Sand         1         0         Percent Sand         Group Name         SM         ML           Group Name         SMUClay)         45         90         Group Name         SM         ML           Group Name         SMIy Sand         SMt         ML         Group Name         SMt Nu         John Platt         John Platt <td>Client Sample ID</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Client Sample ID							
Water Content (%)         ASTM D2216         131         138         19         18           Date Tested By         Karen Jackson         Karen Jackson <t< td=""><td>Other Test Results</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Other Test Results							
Date Tested       4/28/2022       4/28/2022       4/28/2022       4/28/2022         Tested By       Karen Jackson       Karen Jackson       Karen Jackson       Karen Jackson         Group Code       ASTM D2487	Description	Method		R	esults			Limits
Group Code ASTM D2487 Group Name Percent Gave! LMA (Internal Method) 1 0 Percent Fines (SIII/Clay) 45 90 Group Symbol SM ML Group Name Sility Sand Silit Tested By John Platt John Platt	Date Tested	ASTM D2216	4/28/2022	4/28/202	22	4/28/2022	4/28/2022	
Percent Gravel       LMA (Internal Method)       1       0         Percent Fines (Sit/Clay)       45       90         Group Symbol       SM       ML         Group Name       Sitly Slay       John Platt         John Platt       John Platt       John Platt	Group Code	ASTM D2487	Karen Jackson	Karen Jackso	on	Karen Jackson	Karen Jackson	
Percent Sand 54 10 Percent Fines (SitVClay) 45 90 SM ML Group Name Sitly Sand Sitt Tested By John Platt John Platt								
Percent Fines (Silt/Clay) 45 90 Group Symbol SM ML Silty Sand Silt Tested By John Platt John Platt		LMA (Internal Met	hod)	E				
Group Symbol Sitt Group Name Sitty Sand Sitt Tested By John Platt John Platt								
Group Name Tested By John Platt John Platt								
Tested By John Platt John Platt								
Comments								
	-							
Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing	Comments							
		00) in LMAs Assum	ed Unless Verified by	Additional Testin	ıg			

ATL					4040 B Anch Phoi Fi	t <b>lab - Anchorag</b> Street, Suite 10 orage, AK 9950 ne: 907-205-198 ax: 907-782-440 alaskatestlab.co
Material Test F	Report		ls	eport No: ASM:22- sue No: 1		
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 22047 CC: CRW Maria Kampsen		esults contained below pertain only to duced, except in full, without the prior		
Project: South Airpark				Har	Etappe	
73130			Rev Title Dat	5		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0624-S05 TH-18 S4	22-0624-S06 TH-18 S		22-0624-S08 TH-18 S7	
Other Test Results						
Description	Method			sults		Limits
Water Content (%) Date Tested Tested By	ASTM D2216	17 4/28/2022 Karen Jackson	1 4/28/2022 Karen Jacksor	2 4/28/2022	19 4/28/2022 Karen Jackson	
Percent Gravel Percent Sand Percent Fines (Silt/Clay)	LMA (Internal Meth	od) 0 72 28	( 7] 23			
Group Symbol Group Name Tested By		SM Silty Sand John Platt	SN Silty Sand John Plat	b		
Group Code Group Name Material Proportions Estimated Gravel (%) Sand (%)	ASTM D2487			CL-ML Silty clay Yes 0 0		
Fines (%) Tested By Liquid Limit	ASTM D2487 ASTM D4318			100 Karen Jackson 26		
Plastic Limit Plasticity Index Preparation Method Oversize Removed By				21 5 Air Dry Dry Sieving over No. 40 sieve		
Liquid Limit Apparatus Grooving Tool Rolling				Mechanical Plastic Hand		
Tested By Date Tested				Karen Jackson 5/9/2022		
Comments Soil Classification of Fines (-#200)						

ATL				Ala	Anchorage 4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com
<b>Material Test F</b>	Report		Repo	ort No: ASM:22-0624 e No: 1	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3		Project Code: 220475		s contained below pertain only to the items tested bel d, except in full, without the prior written approval of A	
Anchorage, AK, 99503	500	CC: CRW Maria Kampsen			200
Project: South Airpark				Un Etras	
				- Mucharla	
70400			Reviev	ved By: Maria E Kampsen	
73130			Title:	Senior Engineer	
			Date:	5/11/2022	
Sample Details					
Sample ID		22-0624-S09	22-0624-S10		
Client Sample ID		TH-18 S8	TH-18 S9		
Date Sampled Other Test Results					
			<b>D</b>	14 -	I bustés
Description Water Content (%)	Method ASTM D2216	19	<b>Resu</b> 21	Its	Limits
Date Tested		4/28/2022	4/28/2022		
Tested By		-	Karen Jackson		
Percent Gravel Percent Sand	LMA (Internal Method	) 0 10			
Percent Fines (Silt/Clay)		90			
Group Symbol		ML			
Group Name		Silt			
Tested By Group Code	ASTM D2487	John Platt	ML		
Group Name			Silt		
Liquid Limit			0		
Plasticity Index Material Proportions Estimated	ASTM D2487		0 Yes		
Gravel (%)	A01101 D2401		0		
Sand (%)			0		
Fines (%)		Ci	100 ndy Ziekofooso		
Tested By Liquid Limit	ASTM D2487 ASTM D4318		ndy Zickefoose Not Obtainable		
Plastic Limit		Ν	P (Non-Plastic)		
Plasticity Index			P (Non-Plastic)		
Tested By Date Tested		Ci	ndy Zickefoose 5/9/2022		
Date Tested			5/5/2022		
Comments					
Soil Classification of Fines (-#200	) in LMAs Assumed	Unless Verified by Ad	ditional Testing		

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Mate	erial Test F	Report No: ASM:22-0480 Issue No: 1						
	CRW Engineering Group	o, LLC F	Project Code: 220475	Г	he results contained	below pertain only to the item full, without the prior written a	s tested below. This report pproval of Alaska Testlab o	t should not be or the agency.
	3940 Arctic Blvd., Ste. 30	00	CC: CRW		·	·		
	Anchorage, AK, 99503		Maria Kampsen			1 0	/ ~	
Project:	South Airpark					yant	prpser	
				F	Reviewed By:	Maria E Kampser	1	
	73130			٦	Fitle: Date:	Senior Engineer 5/2/2022		
Samp	le Details			n				
Sample	e ID		22-0480-S01	22-0480-8	502 22	2-0480-S03	22-0480-S04	
Client S Date Sa	Sample ID ampled		TH-19 S1	TH-19	S2	TH-19 S3	TH-19 S4	
Other	Test Results							
Descrip	otion	Method		l	Results			Limits
Water C	content (%)	ASTM D2216	42		22	25	26	
Date Te	sted		4/12/2022	4/12/20		4/12/2022	4/12/2022	
Tested E			Jeff Smith	Jeff Sn	nith	Jeff Smith	Jeff Smith	
Percent		LMA (Internal Method	)			0		
Percent						12		
	Fines (Silt/Clay)					88		
Group S						ML		
Group N						Silt		
Tested E	Ву					John Platt		
Comm	nents							
	sification of Fines (-#200)	in LMAs Assumed	Unless Verified by Add	ditional Test	ina			
					3			

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Mat	erial Test F	Report			Issue N	No: ASM:22-0 lo: 1		
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen	1	The results con	tained below pertain only to th	e items tested below. This repor itten approval of Alaska Testlab	t should not be or the agency.
Project:	South Airpark					Marc	Etapsen	
	73130				Reviewed Title: Date:	By: Maria E Kam Senior Engine 5/2/2022		
Samp	le Details							
Sample Client S Date Sa	Sample ID		22-0480-S05 TH-19 S5	22-0480- TH-19		22-0480-S07 TH-19 S7	22-0480-S08 TH-19 S8	
Other	Test Results							
Descrip		Method	22		Results	10		Limits
Date Te	content (%) sted	ASTM D2216	22 4/12/2022	4/12/2	26 2022	19 4/12/2022	25 4/12/2022	
Tested I			Jeff Smith	Jeff S		Jeff Smith	Jeff Smith	
Percent Percent Group S Group N Tested I	Fines (Silt/Clay) Symbol Iame			John I	3 97 ML Silt Platt			
Correct	a anta							
Comn Soil Clas	<b>nents</b> sification of Fines (-#200)	) in LMAs Assume	d Unless Verified by Add	ditional Tes	ting			

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Material Test I			Repor Issue	rt No: ASM:22-04 No: 1	480	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	•	Project Code: 220475 CC: CRW Maria Kampsen	The results c reproduced,	contained below pertain only to the except in full, without the prior writ	items tested below. This reporten approval of Alaska Testlab of	should not be or the agency.
Project: South Airpark				Mart	Hanpsen	
73130			Reviewe Title: Date:	ed By: Maria E Kamp Senior Engine 5/2/2022		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0480-S09 TH-19 S9	22-0480-S10 TH-19 S10	22-0480-S11 TH-19 S11	22-0480-S12 TH-19 S12	
Other Test Results						
Description	Method		Result	S		Limits
Water Content (%) Date Tested Tested By	ASTM D2216	19 4/12/2022 Jeff Smith	21 4/12/2022 Jeff Smith	16 4/12/2022 Jeff Smith	11 4/12/2022 Jeff Smith	
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Method	, 10 90 ML Silt John Platt		0 28 72 ML Silt with sand John Platt	49 51 ML Sandy silt John Platt	

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

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Material Test F	Report		Rep Issu	ort No: ASM:22-0 e No:  1	368	
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code: 220475 CC: CRW Maria Kampsen	The resul	ts contained below pertain only to the ed, except in full, without the prior wri		
Project: South Airpark			Davia	Mart	Apopse	
73130			Title: Date:	wed By: Maria E Kamp Senior Engine 4/28/2022		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0368-S01 TH-20 S1	22-0368-S02 TH-20 S2A	22-0368-S03 TH-20 S2B	22-0368-S04 TH-20 S3A	
Other Test Results						
Description	Method		Resu			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	20 4/11/2022 Jeff Smith	13 4/11/2022 Jeff Smith	18 4/11/2022 Jeff Smith	16 4/11/2022 Jeff Smith	
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Metho			3 22 75 ML Silt with Sand John Platt		
0 a manata						
Comments Soil Classification of Fines (-#200)	) in LMAs Assumed	I Unless Verified by Ad	ditional Testing			
	, L 10 / 100011160	. Chiese Verhied by Aut	and roomly			

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Material Te	est Report		Issue	rt No: ASM:22-03 No: 1		
Client: CRW Engineer 3940 Arctic Blv Anchorage, AK	d., Ste. 300	Project Code: 220475 CC: CRW Maria Kampsen		contained below pertain only to the in except in full, without the prior writte		
Project: South Airpark	, 00000			Jane	Hanpsen	
73130			Reviewe Title: Date:	ed By: Maria E Kamps Senior Enginee 4/28/2022		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0368-S05 TH-20 S3B	22-0368-S06 TH-20 S4	22-0368-S07 TH-20 S5	22-0368-S08 TH-20 S6	
Other Test Resu	ılts					
Description	Method		Result			Limits
Water Content (%) Date Tested	ASTM D2216	38 4/11/2022 Joff Smith	30 4/11/2022 Jeff Smith	14 4/11/2022 Jeff Smith	20 4/11/2022 Jeff Smith	
Tested By Group Code	ASTM D2487	Jeff Smith ML	Jen Smith	Jen Smith	Jen Smith	
Group Name		Silt				
Liquid Limit		0				
Plasticity Index Gravel (%)		0 0				
Sand (%)		0				
Fines (%)		100				
Liquid Limit	ASTM D4318	Not Obtainable				
Plastic Limit		NP (Non-Plastic)				
Plasticity Index		NP (Non-Plastic)				
Preparation Method		Wet				
Oversize Removed By		Hand during mixing on glass plate				
Liquid Limit Apparatus		Mechanical				
Grooving Tool		Plastic Hand				
Rolling Tested By		Karen Jackson				
Date Tested		4/25/2022				
Percent Gravel	LMA (Internal Me		1	0		
Percent Sand		nou)	24	52		
Percent Fines (Silt/Clay	)		75	48		
Group Symbol			ML	SM		
Group Name			Silt with Sand	Silty Sand		
Tested By			John Platt	John Platt		
Comments						

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Mat	erial Test F	Report		Re	port No: ASM:22- ue No: 1	0368	
Client:		p, LLC	Project Code: 2204 CC: CRW Maria Kamps	475	sults contained below pertain only to luced, except in full, without the prior	the items tested below. This rep	ort should not be b or the agency.
Project:	South Airpark				Jan	Etapse	
	73130			Rev Title Date	•		
Samp	le Details						
	e ID Sample ID ampled		22-0368-S09 TH-20 S7	22-0368-S10 TH-20 S8			
	Test Results						
		Method		Res	sults		Limits
Water C Date Te Tested		ASTM D2216	17 4/11/2022 Jeff Smith	11 4/11/2022 Jeff Smith	4/11/2022		
Percent Percent Group S Group N Tested	Sand Fines (Silt/Clay) Symbol Name	LMA (Internal Metho		36 25 39 GM Silty Gravel with Sand John Platt			
Comn	nents						
	sification of Fines (-#200)	) in LMAs Assumed	d Unless Verified by	Additional Testing			

ATL	

	erial Test R	-			t No: ASM:22-03 No: 1		
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen	The results c reproduced,	contained below pertain only to the except in full, without the prior writ	items tested below. This reported approval of Alaska Testlab	t should not be or the agency.
Project:	South Airpark				Mart	Farpser	
	73130			Reviewe Title: Date:	ed By: Maria E Kamp Senior Engine 4/28/2022		
Samp	le Details						
Sample Client S Date Sa	Sample ID		22-0375-S01 TH-21 S1	22-0375-S02 TH-21 S2	22-0375-S03 TH-21 S3	22-0375-S04 TH-21 S4	
	Test Results						
Descrip		Method		Result			Limits
	ontent (%)	ASTM D2216	65	17	20	23	
Date Tes			4/11/2022	4/11/2022	4/11/2022	4/11/2022	
Tested E			Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Group C		ASTM D2487					
Group N				4			
Percent		LMA (Internal Meth	od)	1 15	0	0	
Percent				84	6 94	5	
	Fines (Silt/Clay)			84 ML	94 ML	95 ML	
Group S Group N				Silt with Sand	Silt	SIIt	
Tested E				John Platt	John Platt	John Platt	

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

	r					4040 B S Ancho Phon Fa	ab - Anchora Street, Suite 1 rage, AK 995 e: 907-205-19 x: 907-782-44 askatestlab.cc
Mate	erial Test F	Report		Repor Issue	rt No: ASM:22-03 No:  1	375	
3	CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen	The results of	contained below pertain only to the except in full, without the prior writ	items tested below. This report	t should not be or the agency.
Project: S	South Airpark			Reviewe	Hare ed By: Maria E Kamp	Aprpser	
7	73130			Title: Date:	Senior Engine 4/28/2022		
Sample	e Details						
Sample   Client Sa Date Sar	ample ID		22-0375-S05 TH-21 S5	22-0375-S06 TH-21 S6	22-0375-S07 TH-21 S7	22-0375-S08 TH-21 S8A	
	Test Results						
	ntent (%)	Method ASTM D2216	22	<b>Result</b> 15	25	27	Limits
Date Test Tested By Percent G	y	LMA (Internal Metho	4/11/2022 Jeff Smith	4/11/2022 Jeff Smith 0	4/11/2022 Jeff Smith	4/11/2022 Jeff Smith	
Percent S Percent F Group Sy Group Na	Sand Fines (Silt/Clay) Imbol Ime			1 99 ML Silt			
Tested By Group Co Group Na Liquid Lin Plasticity Gravel (% Sand (%)	ode ame nit Index 6)	ASTM D2487		John Platt	ML Silt 0 0 0 0		
Fines (%) Tested By Liquid Lim	y	ASTM D2487 ASTM D4318		(	100 Cindy Zickefoose Not Obtainable		
Plastic Lir Plasticity Preparatio Oversize	mit Index on Method Removed By nit Apparatus Tool				NP (Non-Plastic) NP (Non-Plastic) Wet and during mixing on glass plate Mechanical Plastic Hand Karen Jackson 4/26/2022		

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

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viate	erial Test F	keport		Issue			
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503		coject Code: 220475 CC: CRW Maria Kampsen	The results or reproduced, e	ontained below pertain only to the except in full, without the prior writ	items tested below. This repor ten approval of Alaska Testlab o	t should not be or the agency.
Project:	South Airpark				Mart	Harpsen	
	73130			Title:	d By: Maria E Kamp Senior Engine		
Parra	la Dataila			Date:	4/28/2022		
Sample	le Details		22-0375-S09	22-0375-S10	22-0375-S11	22-0375-S12	
Client S Date Sa	Sample ID ampled		TH-21 S8B	TH-21 S9A	TH-21 S9B	TH-21 S10	
Other	Test Results						
Descrip		Method		Results			Limits
Date Tes		ASTM D2216	12 4/11/2022 Jeff Smith	13 4/11/2022 Jeff Smith	25 4/11/2022 Jeff Smith	13 4/11/2022 Jeff Smith	
Tested E Percent		LMA (Internal Method)	0				
Percent	Sand		46	69			
	Fines (Silt/Clay)		54	31			
Group S			ML Sandu Silt	SM Silty Sand			
Group N Tested E			Sandy Silt John Platt	Silty Sand John Platt			
<b>Comm</b> Soil Class	<b>ients</b> sification of Fines (-#200)	in LMAs Assumed L	Inless Verified by Adc	litional Testing			

ATL
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<b>Material Test F</b>	Report		Report No: ASM:22-0375 Issue No: 1				
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC P	roject Code: 220475 CC: CRW Maria Kampsen	The resu	ults contained below pertain only to the items teste ced, except in full, without the prior written approva	d below. This report should not be I of Alaska Testlab or the agency.		
Project: South Airpark				Marchan	rser		
73130			Revie Title: Date:	-			
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0375-S13 TH-21 S11	22-0375-S14 TH-21 S12A	22-0375-S15 TH-21 S12B			
Other Test Results							
Description	Method		Res		Limits		
Water Content (%) Date Tested	ASTM D2216	12 4/11/2022	5 4/11/2022	19 4/11/2022			
Tested By Percent Gravel		Jeff Smith	Jeff Smith	Jeff Smith			
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Method)	69 31 SM Silty Sand John Platt					
Comments							
Soil Classification of Fines (-#200)	in LMAs Assumed l	Jnless Verified by Add	ditional Testing				

ATL

Material Test Report           Client:         CRW Engineering Group, LLC         Project Code: 220475				Issue No: 1				
		roject Code: 220475 CC: CRW Maria Kampsen	The results or reproduced, e	ontained below pertain only to the except in full, without the prior writt	items tested below. This report en approval of Alaska Testlab o	should not be or the agency.		
th Airpark				Mart	Farpser)			
30			Reviewe Title: Date:	•				
Details								
ple ID led		22-0481-S01 TH-22 S1	22-0481-S02 TH-22 S2	22-0481-S03 TH-22 S3	22-0481-S04 TH-22 S4			
st Results								
nt (%)	Method ASTM D2216	55 4/12/2022 Joff Smith	13 4/12/2022	13 4/12/2022	12 4/12/2022 Joff Smith	Limits		
rel d s (Silt/Clay) ol	LMA (Internal Method)		0 33 67 ML Sandy silt John Platt		0 48 52 ML Sandy silt John Platt			
	V Engineering Group D Arctic Blvd., Ste. 3 horage, AK, 99503 th Airpark 30 Details ple ID led st Results in t (%) rel d s (Silt/Clay)	V Engineering Group, LLC P D Arctic Blvd., Ste. 300 horage, AK, 99503 th Airpark 30 Details ple ID led st Results n Method nt (%) ASTM D2216 rel LMA (Internal Method) d s (Silt/Clay) pl	V Engineering Group, LLC D Arctic Blvd., Ste. 300 horage, AK, 99503 th Airpark 30 Details ple ID ed st Results Method ht (%) ASTM D2216 55 4/12/2022 Jeff Smith rel LMA (Internal Method) d s (Silt/Clay) pl	Vengineering Group, LLC     Project Code: 220475       0 Arctic Blvd., Ste. 300     CC: CRW       horage, AK, 99503     Reviewe       30     Reviewe       30     22-0481-S01       Oetails       Polect     Stere       St Results     Results       Method     Results       Method     Results       Method     State       Method     State <td>Issue No: 1       W Engineering Group, LLC     Project Code: 220475       O Arctic Blvd., Ste. 300     CC: CRW Maria Kampsen       Aborage, AK, 99503     Maria Kampsen       30     Geviewed By: Maria E Kampsen       30     Title: Senior Enginee Date: 5/2/2022       Details       22-0481-S01     22-0481-S02       22-0481-S01     TH-22 S2       TH-22 S1     TH-22 S2       TH-22 S2     TH-22 S3       Ied     Method       ASTM D2216     55       1     4/12/2022       Jeff Smith     Jeff Smith       Jeff Smith     Jeff Smith       Jeff Smith     Jeff Smith       Jeff Smith     33       s (Silt/Clay)     67       ol     ML       Sandy silt</td> <td>V Engineering Group, LLC Project Code: 220475 0 Arctic Blvd., Ste. 300 horage, AK, 99503 th Airpark 30 Details 22-0481-S01 22-0481-S01 22-0481-S02 22-0481-S02 22-0481-S02 22-0481-S02 22-0481-S03 22-0481-S02 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 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Smith     33       s (Silt/Clay)     67       ol     ML       Sandy silt	V Engineering Group, LLC Project Code: 220475 0 Arctic Blvd., Ste. 300 horage, AK, 99503 th Airpark 30 Details 22-0481-S01 22-0481-S01 22-0481-S02 22-0481-S02 22-0481-S02 22-0481-S02 22-0481-S03 22-0481-S02 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 22-0481-S03 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Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

ATL
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Material Test Report				Report No: ASM:22-0481 Issue No: 1					
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503	, LLC P	roject Code: 220475 CC: CRW Maria Kampsen	Th	e results contained	below pertain only to the	items tested below. This repor en approval of Alaska Testlab	t should not be or the agency.	
Project:	South Airpark					Mart	Harpsen		
	73130			Ti	eviewed By tle: ate:	Maria E Kamps Senior Enginee 5/2/2022			
Samp	le Details								
Sample Client S Date Sa	Sample ID		22-0481-S05 TH-22 S5	22-0481-S0 TH-22 S6		2-0481-S07 TH-22 S6B	22-0481-S08 TH-22 S7		
Other	Test Results								
Descrip		Method			esults			Limits	
Water Co Date Tes Tested B		ASTM D2216	12 4/12/2022 Jeff Smith	4/12/202 Jeff Smi		7 4/12/2022 Jeff Smith	3 4/12/2022 Jeff Smith		
Percent Percent Percent Group S	Gravel Sand Fines (Silt/Clay) ymbol	LMA (Internal Method)	37 63 ML				36 56 8 SP-SM		
Group N Tested E			Sandy sillt John Platt			Poorly	graded sand with silt and gravel John Platt		
Comm	ents								
	sification of Fines (-#200)	in LMAs Assumed L	Jnless Verified by Add	ditional Testir	ng				

ATL
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	erial Test F	-		Issu	ort No: ASM:22-04 le No: 1		
	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen	The resu reproduc	Its contained below pertain only to the ed, except in full, without the prior writ	items tested below. This report ten approval of Alaska Testlab o	t should not be or the agency.
	South Airpark				Mart	Harpsen	
	73130				wed By: Maria E Kamp		
	10100			Title: Date:	Senior Engine 5/2/2022	er	
Sampl	le Details						
Sample Client S Date Sa	Sample ID		22-0481-S09 TH-22 S8A	22-0481-S10 TH-22 S8B	22-0481-S11 TH-22 S9	22-0481-S12 TH-22 S10	
Other	Test Results						
Descrip		Method		Res			Limits
Date Tes		ASTM D2216	5 4/12/2022	10 4/12/2022	5 4/12/2022	19 4/12/2022	
Tested B Percent		LMA (Internal Metho	Jeff Smith	Jeff Smith 1	Jeff Smith 1	Jeff Smith	
Percent			u)	62	93		
	Fines (Silt/Clay)			37	6		
Group S				SM	SP-SM		
Group Na Tested B				Silty sand John Platt	Poorly graded sand with silt John Platt		
comm	onto						

ATL
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				No: 1		
CRW Engineering Group 940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen	The results c reproduced, d	ontained below pertain only to the except in full, without the prior wri	e items tested below. This repor tten approval of Alaska Testlab	t should not be or the agency.
South Airpark				Mark	Farpser	
3130			Reviewe Title: Date:			
e Details			-			
D Imple ID		22-0481-S13 TH-22 S11A	22-0481-S14 TH-22 S11B	22-0481-S15 TH-22 S12	22-0481-S16 TH-22 S13	
lest Results						
ion	Method		Result	S		Limits
ntent (%) ed	ASTM D2216	9 4/12/2022 Jeff Smith	4 4/12/2022 Jeff Smith	17 4/12/2022 Jeff Smith	11 4/12/2022 Jeff Smith	
ravel and ines (Silt/Clay) mbol me	LMA (Internal Method	)	0 90 10 SP-SM Iy graded sand with silt John Platt		0 12 88 ML Silt John Platt	
	Anchorage, AK, 99503 South Airpark '3130 <b>Details</b> Dample ID npled <b>Fest Results</b> ion ntent (%) ed , ravel and ines (Silt/Clay) mbol me	South Airpark 3130 D Details D	Maria Kampsen South Airpark '3130 <b>2 Details</b> <b>D</b> 22-0481-S13 TH-22 S11A mpled <b>Test Results</b> <b>ion</b> Method ntent (%) ASTM D2216 9 ed 4/12/2022 Jeff Smith iravel LMA (Internal Method) and ines (Silt/Clay) mbol me Poor	4940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503     CC: CRW Maria Kampsen       South Airpark     Reviewe Title: Date:       '3130     22-0481-S13 TH-22 S11A       D     22-0481-S13 TH-22 S11A       Potails     22-0481-S13 TH-22 S11A       Cest Results     71-22 S11A       Inpled     9       Arctic Blvd., ASTM D2216     9       ed     4/12/2022       Jeff Smith     Jeff Smith       ravel     LMA (Internal Method)     0       and     90       ines (Silt/Clay)     10       mbol     SP-SM	1940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503     CC: CRW Maria Kampsen     Image: Comparison of the	1990 Arctic Blvd., Ste. 300 Archorage, AK, 99503     CC: CRW Maria Kampsen     WWW       3130     WWW     Reviewed By: Maria E Kampsen Title: Senior Engineer Date: 5/2/2022       2     Details       D     22-0481-S13     22-0481-S14     22-0481-S15     22-0481-S16       Imple ID     TH-22 S11A     TH-22 S11B     TH-22 S12     TH-22 S13       npled     TH-22 S11A     TH-22 S11B     TH-22 S12     TH-22 S13       Notest Results     Setting     Setting     Setting       Impled     ASTM D2216     9     4     17     11       ed     4/12/2022     4/12/2022     4/12/2022     4/12/2022       Intent (%)     ASTM D2216     9     4     17     11       ed     4/12/2022     4/12/2022     4/12/2022     4/12/2022       Intent (%)     ASTM D2216     9     4     17     11       ed     4/12/2022     4/12/2022     4/12/2022     4/12/2022       Intent (%)     ASTM D2216     9     0     0       and     90     12     12       ines (Silt/Clay)     10     88       mbol     SP-SM     ML       me     Pooty graded sand with silt     Silt

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

Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: South Airpark							
3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503	, LLC				ort No: ASM:22- e No:  1		
Project: South Airpark	0	Project Code: 22 CC: CRW Maria Kamp	r	The result reproduce	s contained below pertain only to d, except in full, without the prior	the items tested below. This repo written approval of Alaska Testlab	rt should not be or the agency.
				_	to a	of the ge	
73130			T	Reviev Title: Date:	ved By: Cindy Zickel Materials Te 5/24/2022		
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0347-S01 TH23 S1	22-0347-5 TH23		22-0347-S03 TH23 S3A	22-0347-S04 TH23 S3B	
Other Test Results							
	Method ASTM D2216	4		<b>Resu</b> 17	<b>Its</b> 13	5	Limits
Date Tested Tested By		4/16/2022 Cindy Zickefoose	4/16/20 Cindy Zickefo		4/16/2022 Cindy Zickefoose	4/16/2022 Cindy Zickefoose	
Group Code Group Name Atterberg Limits Estimated	ASTM D2487	GP-GM rly graded gravel with silt and sand Yes					
Tested By		Cindy Zickefoose					
Nethod Preparation Method	ASTM D6913	A Oven Dry					
Composite Sieving?		Yes					
Separating Sieve(s)		No. 4					
Fractional Mass Retained (%) Cu	ASTM D2487	0.00 74.44					
Cc		7.24					
Percent Gravel Percent Sand	LMA (Internal Met	hod)		30 44			
Percent Fines (Silt/Clay)				53			
Group Symbol				ML			
Group Name Tested By			Sandy silt with gr John F	ravel Platt			
rested by			301111	au			

ATL	

Material Test Report					Report No: ASM:22-0347 Issue No: 1				
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code: 220 CC: CRW Maria Kamp		The results of	ontained below pertain only to t	he items tested below. This repor vritten approval of Alaska Testlab		
Project:	South Airpark					Par	Etapse		
	73130				Reviewe Title: Date:	ed By: Maria E Kam Senior Engin 4/27/2022			
Samp	le Details								
Sample Client S Date Sa	e ID Sample ID ampled		22-0347-S05 TH23 S4	22-0347 TH23		22-0347-S07 TH23 S5B	22-0347-S08 TH23 S5C		
Other	Test Results								
Date Te	content (%) sted	Method ASTM D2216	5 4/16/2022	4/16/2		5 4/16/2022	15 4/16/2022	Limits	
Tested E Percent		LMA (Internal Met	Cindy Zickefoose	Cindy Zickef	oose (	Cindy Zickefoose	Cindy Zickefoose		
Percent Percent Group S Group N Tested E	Fines (Silt/Clay) Symbol Iame		89 10 SP-SM Poorly Graded Sand with Sitt John Platt						
Comm	nents								
	a8C - Sample not present								

Pring Group, LLC Project Code: 220475 CC: GRW Maria Kampsen The results contained to the polor writen approval of Ataka Testato or the approv W., 99503 Produced, except in full, without the polor writen approval of Ataka Testato or the approv W., 99503 Produced, except in full, without the polor writen approval of Ataka Testato or the approv W., 99503 Produced, except in full, without the polor writen approval of Ataka Testato or the approv W., 99503 Produced, except in full, without the polor writen approval of Ataka Testato or the approval Reviewed By: Maria E Kampsen Title: Senior Engineer Date: 4/27/2022 Produced, except in full, without the polor writen approval of Ataka Testato or the approv Produced, except in full, without the polor writen approval of Ataka Testato or the approval Reviewed By: Maria E Kampsen Title: Senior Engineer Date: 4/27/2022 Condy Zickefoose Cindy Zickefoose LMA (Internal Method) 25 y) ASTM D2487 Kit Sitt with Sand John Platt ASTM D2487 Cindy Zickefoose ASTM D2487 Cindy Zickefoose ASTM D2487 Not Obtainable NP (Non-Plastic) NP	Aaterial Test P Filent: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark 73130 Cample Details Sample ID Client Sample ID Cl	ар, LLC	CC: CRW	0475 Iss	ue No: 1 sults contained below pertain only to the	the items tested below. This repo	
Intro Group, LCO     Project Odde. 220473     repediated, eeepd in full, without the pion within appoint of Attacka Teatab or the agency       K, 99503     CC: CW     Maria Kampsen       With Kampsen     With Kampsen     Without the pion within appoint of Attacka Teatab or the agency       Reviewed By: Maria E Kampsen     Title:     Senior Engineer       Date:     4/27/2022       22-0347-S10     22-0347-S11     22-0347-S12       TH23 S6     TH23 S7     TH23 S8A       Ults     Item of the second of	3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark 73130 Cample Details Sample ID Client Sample ID Date Sampled Dther Test Results Description Water Content (%) Date Tested Fested By Percent Gravel Percent Gravel Percent Fines (Silt/Clay) Group Symbol		CC: CRW	reprodu			
Reviewed By: Maria E Kampsen Title:       Senior Engineer Date:         22-0347-S09 TH23 S6       22-0347-S10       22-0347-S11       22-0347-S12         22-0347-S09 TH23 S6       TH23 S7       TH23 S8A       TH23 S8B         ults         Limit         Astmosphere: Date:         Astmosphere: TH23 S6         Uts         Limit         Astmosphere: TH23 S6         Clickefoose         Clickefoose         Clickefoose         Clickefoose         Clindy Zickefoose         O         O         O         O         O         O         O         O         O         O         O         O <tr< th=""><th>Troject: South Airpark 73130 Cample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested Fested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol</th><th></th><th></th><th></th><th>100</th><th></th><th></th></tr<>	Troject: South Airpark 73130 Cample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested Fested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol				100		
Title:     Senior Engineer / 4/27/2022       22-0347-S09 TH23 S6     22-0347-S10 TH23 S7     22-0347-S11 TH23 S8A     22-0347-S12 TH23 S8A       Interstein Senior Engineer / 4/16/2022       Method     Results     Itimit       ASTM D2216     15     22     27     11       ASTM D2487     Cindy Zickefoose     Cindy Zickefoose     Cindy Zickefoose       y)     75     Silt with Sand John Platt     0     0       ASTM D2487     ML       Silt       O       O       ASTM D2487       Wet       Method       NP (Non-Plastic) NP (Non-Plastic)       NP (Non-Plastic) NP (Non-Plastic)       Wet       Method Net/       ASTM D2487       Wet       Method Net/       Method NP (Non-Plastic)       NP (Non-Plastic)       NP (Non-Plastic) <td>Sample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested Tested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol</td> <td></td> <td></td> <td></td> <td>Mar</td> <td>Etapse</td> <td></td>	Sample Details Sample ID Client Sample ID Date Sampled Other Test Results Description Water Content (%) Date Tested Tested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol				Mar	Etapse	
22-0347-S09 TH23 S6     22-0347-S10 TH23 S7     22-0347-S11 TH23 S8A     22-0347-S12 TH23 S8A       Ults       Method     Results     Limit       ASTM D2216     15     22     27     11       4/16/2022     4/16/2022     4/16/2022     4/16/2022     4/16/2022       Cindy Zickefoose     Cindy Zickefoose     Cindy Zickefoose     Cindy Zickefoose       V)     75     ML     Cindy Zickefoose     Cindy Zickefoose       y)     75     ML     Cindy Zickefoose     Cindy Zickefoose       stimated     ASTM D2487     ML     Cindy Zickefoose     Cindy Zickefoose       ASTM D2487     ML     0     0     0       0     0     0     0     0       3timated     ASTM D2487     Cindy Zickefoose     Cindy Zickefoose       ASTM D2487     Cindy Zickefoose     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0 <td< td=""><td>Sample ID Client Sample ID Date Sampled Dther Test Results Description Nater Content (%) Date Tested Tested By Percent Gravel Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol</td><td></td><td></td><td>Title</td><td>: Senior Engir</td><td></td><td></td></td<>	Sample ID Client Sample ID Date Sampled Dther Test Results Description Nater Content (%) Date Tested Tested By Percent Gravel Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol			Title	: Senior Engir		
TH23 S6 TH23 S7 TH23 S8A TH23 S8B  Ults  Method ASTM D2216  ASTM D2216  LMA (Internal Method)  y)  ASTM D2487  ASTM D2487  ASTM D2487  ASTM D2487  ASTM D2487  Cindy Zickefoose  ASTM D2487  Cindy Zickefoose  NP (Non-Plastic)  NP	Client Sample ID Date Sampled Dther Test Results Description Water Content (%) Date Tested Tested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol						
Method         Results         Limit           ASTM D2216         15         22         27         11           4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022           Cindy Zickefoose         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2022         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021         4/16/2021	Other Test Results         Description         Water Content (%)         Date Tested         Tested By         Percent Gravel         Percent Sand         Percent Fines (Silt/Clay)         Group Symbol						
ASTM D2216       15       22       27       11         4/16/2022       4/16/2022       4/16/2022       4/16/2022         Cindy Zickefoose       Cindy Zickefoose       Cindy Zickefoose       Cindy Zickefoose         LMA (Internal Method)       0       25       25         y)       75       ML       Silt with Sand John Platt	Nater Content (%) Date Tested Fested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol						
ASTM D2216       15       22       27       11         4/16/2022       4/16/2022       4/16/2022       4/16/2022         Cindy Zickefoose       Cindy Zickefoose       Cindy Zickefoose       Cindy Zickefoose         LMA (Internal Method)       0       25       25         y)       75       ML       Silt with Sand John Platt	Nater Content (%) Date Tested Fested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol	Method		Res	ults		Limits
LMA (Internal Method) 25 y) ML Silt with Sand John Platt ASTM D2487 ASTM D2487 ML Silt O O Stimated ASTM D2487 ASTM D2487 Cindy Zickefoose ASTM D2487 Cindy Zickefoose ASTM D2487 Cindy Zickefoose ASTM D4318 NP (Non-Plastic) NP (Non-Plasti	Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol		4/16/2022	22 4/16/2022	27 4/16/2022	4/16/2022	
y) 75 ML Silt with Sand John Platt ASTM D2487 ML stimated ASTM D2487 Yes 0 0 ASTM D2487 Yes 0 0 0 ASTM D2487 Cindy Zickefoose ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-	Percent Sand Percent Fines (Silt/Clay) Group Symbol		· · · · · · · · · · · · · · · · · · ·	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
ML Silt with Sand John Platt ASTM D2487 ML Silt 0 0 stimated ASTM D2487 Metanical ASTM D2487 Cindy Zickefoose ASTM D2487 Cindy Zickefoose ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-Plastic) NP (Non-Plastic) Wet Mechanical Plastic Hand Karen Jackson	Group Symbol	LMA (Internal Me	(iii)u)				
Silt with Sand John Platt ASTM D2487 ASTM D2487 ASTM D2487 ASTM D2487 ASTM D2487 ASTM D2487 Cindy Zickefoose ASTM D2487 Cindy Zickefoose ASTM D4318 NP (Non-Plastic) NP (Non-Pla							
ASTM D2487 ML Silt 0 0 0 0 ASTM D2487 Yes 0 0 0 ASTM D2487 Cindy Zickefoose ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-Plastic) NP (Non-Plastic) Vet Mechanical pushed through No. 40 Sima Mechanical Plastic Hand Karen Jackson							
ASTM D2487 ML Silt 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Group Name Fested By						
stimated ASTM D2487 Yes 0 0 0 0 0 0 0 0 0 0 0 0 0	Group Code	ASTM D2487		ML			
stimated ASTM D2487 Yes 0 0 100 ASTM D2487 Cindy Zickefoose ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-Plastic) NP (Non-Plastic) NP (Non-Plastic) NP (Non-Plastic) NP (Non-Plastic) Wet Mechanical Plastic Hand Karen Jackson	Group Name			Silt			
stimated ASTM D2487 Yes 0 0 100 ASTM D2487 Cindy Zickefoose ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-Plastic) NP (Non-Plastic) Wet Mechanical Plastic Hand Karen Jackson	₋iquid Limit						
0 0 100 ASTM D2487 Cindy Zickefoose ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Wet Mechanically pushed through No. 40 Simu Mechanical Plastic Hand Karen Jackson	Plasticity Index						
0 100 ASTM D2487 Cindy Zickefoose ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Wet Mechanically pushed through No. 40 Simure Mechanical Plastic Hand Karen Jackson	Material Proportions Estimated Gravel (%)	ASTM D2487					
100 ASTM D2487 Cindy Zickefoose ASTM D4318 NP (Non-Plastic) NP (Non-Plastic) Wet Mechanically pushed through No. 40 Simure Mechanical Plastic Hand Karen Jackson	Sand (%)						
ASTM D4318 Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Wet Mechanically pushed through No. 40 Mechanical Plastic Hand Karen Jackson	Fines (%)						
NP (Non-Plastic) NP (Non-Plastic) Wet Mechanically pushed through No. 40 Generation Mechanical Plastic Hand Karen Jackson	rested By	ASTM D2487					
NP (Non-Plastic) Wet Mechanically pushed through No. 40 Tieve Mechanical Plastic Hand Karen Jackson	₋iquid Limit	ASTM D4318					
Wet Mechanically pushed through No. 40 Mechanical Plastic Hand Karen Jackson	Plastic Limit						
, Mechanically pushed through No. 40 Sieven Mechanical Plastic Hand Karen Jackson	Plasticity Index						
Mechanicaal Plastic Hand Karen Jackson			I				
Plastic Hand Karen Jackson				Mechanical			
Karen Jackson	Grooving Tool			Plastic			
	Rolling						
4/15/2022	•						
	Date Tested			4/15/2022			
				Me Karen	chanical Plastic Jackson	ithrough No. 40 chanical Plastic Hand Jackson	ithrough No. 40 chanical Plastic Hand Jackson
	omments						

ATL
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Mat	erial Test F	Report			Rep Issu	ort No: ASM:22- le No: 1	-0347	
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code: 2204 CC: CRW Maria Kamps		The resu	Its contained below pertain only to	o the items tested below. This repo written approval of Alaska Testlab	rt should not be or the agency.
Project:	South Airpark					Man	Etapse	
	73130				Revie Title: Date:	wed By: Maria E Kar Senior Engi 4/27/2022		
Samp	le Details				1			
Sample Client			22-0347-S13 TH23 S8C	22-0347 TH2	-S14 3 S9	22-0347-S15 TH23 S10A	22-0347-S16 TH23 S10B	
	Test Results							
Descri	ption	Method			Resu	ults		Limits
	Content (%)	ASTM D2216		4/40/	23	14	4	
Date Te Tested				4/16/2 Cindy Zickef		4/16/2022 Cindy Zickefoose	4/16/2022 Cindy Zickefoose	
Percent Percent Group S Group N Tested	Sand Fines (Silt/Clay) Symbol Iame	LMA (Internal Meth	lod)	Sand John				
Comn								
TH-23 S	a8C - Sample not present	t						

Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: South Airpark			E			0	laskatestlab.com
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503				Rep	ort No: ASM:22- e No:  1	0347	
Floject. Oodul Alipant		Project Code: 22 CC: CRW Maria Kam	20475	The result	ts contained below pertain only to	the items tested below. This repr written approval of Alaska Testlat	rt should not be or the agency.
73130				Reviev Title: Date:	wed By: Maria E Kar Senior Engi 4/27/2022	•	
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0347-S17 TH23 S11	22-0347- TH23		22-0347-S19 TH23 S13A	22-0347-S20 TH23 S13B	
Other Test Results							
Description	Method			Resu			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	16 4/16/2022 indy Zickefoose	4/16/2 Cindy Zickefo		5 4/16/2022 Cindy Zickefoose	4 4/16/2022 Cindy Zickefoose	
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Method	,					
Group Code Group Name	ASTM D2487		SW Well-graded sand with silt an	-SM d gravel			
Atterberg Limits Estimated				Yes			
Method Preparation Method Composite Sieving? Separating Sieve(s) Fractional Mass Retained (%)	ASTM D6913		N	A Dry Yes lo. 4 0.00			
Cu Cc	ASTM D2487						

TH-23 Sa8C - Sample not present

ATL	

Mat	erial To	est Re	port				Re	eport sue N	No: MAT:22-( o: 1	0347-S01		
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503			-	-	Code: 220 CRW Maria Kamps		The	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.				should not be the agency.
Project: South Airpark									Man	Etaps	e	
	73130						Re <sup>s</sup> Titl Dat	e:	By: Maria E Kan Senior Engir 4/26/2022			
Sam	ple Details	6			C	ther Te	est R	esul	ts			
Sampl Client	e ID Sample ID	22-0347-5 TH23 S1	501		W D T G G A T	escription dater Cont ate Tested ested By roup Code roup Nam tterberg Li ested By ate Tested	ent (% d e mits E	Poo	Metho ASTM ASTM rly graded grave ed	D2216 4 Cindy Zi D2487 el with silt a Cindy Zi	Result 4 /16/2022 ckefoose GP-GM and sand Yes ckefoose /16/2022	Limits
Partic	cle Size Di	stributior	า									
10		20 mm	6	iameter 2	600	200 — µm —	100	50	Method: Drying By: Date Tested: Tested By:	ASTM D6 Oven 4/15/2022 Jeff Smith	2	
Percentage Passing (by mass)	90	1" 1/2"	#4	#10 #	¥20 #40	) #60 #10	0 #20		Sieve Size 3in 2in 1½in 1½in 3/8in No.4 No.10 No.20 No.40 No.60 No.100 No.200 No.200	% Pa	ssing 100 100 92 83 73 63 38.4 25 20 16 13 11 9	Limits

ATL	

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 Report No: MAT:22-03/7-S01

0.00

7.24

74.44

4/15/2022

Mat	erial Test Repor	t	Issue N	lo: 1		
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		tained below pertain only to the items tested be pept in full, without the prior written approval of		
Project:	South Airpark 73130		Reviewed Title: Date:	By: Maria E Kampsen Senior Engineer 4/26/2022	ier)	
Other <sup>-</sup>	Test Results		Duto.	1120/2022		Ī
Descri	ption	Method		Result	Limits	
Compo	l ation Method site Sieving? ting Sieve(s)	ASTM D6913		A Oven Dry Yes No. 4		

ASTM D2487

Separating Sieve(s) Fractional Mass Retained (%) Cu Cc Date Tested

Comments

	erial	Tes	st R	epo	rt			Repor Issue	t No: MAT:22-0	9	askatestlab.c
ient:	CRW Eng 3940 Arct Anchorag South Air	jineering ic Blvd., e, AK, 99	Group, Ste. 300	LLC	Proje	ct Code: CC: CRW Maria H	220475 Kampsen	The results c reproduced, r	ontained below pertain only to t	he items tested below. This report ritten approval of Alaska Testlab o Harpsen	
	73130							Title: Date:	Senior Engin 4/26/2022		
Sam	ple Det	ails					Other T	est Resi	ılts		
ampl client	ie iD Sample I		22-034 TH23 S	-			Method Preparatio Composite Separating	tent (%) ed ne \ .imits Estima n Method Sieving?	ASTM	D2216 4 4/16/2022 Cindy Zickefoose D2487 SW-SM with silt and gravel Yes	
artic	cle Size	Distr	ibuti	on							
	100 60 00 90		20 m	6 nm	Diameter 2	60	0 200 μm –		Drying By: Date Tested: Tested By: Sieve Size 3in 2in	Oven 4/16/2022 Jeff Smith <b>% Passing</b> 100 100	Limits
-	80 70 60 50 40								11/2in 11/2in 3/2in 3/8in No.4 No.10 No.20 No.40 No.60 No.100 No.200	95 95 92 91 87 81.1 70 56 40 26 17 12	
Percentage Pa	30										

ATL	

				into@alaskatestlab.com
Mat	erial Test Report		Report No: MAT:22-0347-S18 Issue No: 1	
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen	The results contained below pertain only to the items tested belo reproduced, except in full, without the prior written approval of Al	w. This report should not be aska Testlab or the agency.
Project:	South Airpark		Man Etanpse	
	73130		Reviewed By:Maria E KampsenTitle:Senior EngineerDate:4/26/2022	
Other	Test Results			
Descri	ption	Method	Result	Limits
Cu		ASTM D2487		
Cc Date T	ostod		4/16/2022	
	esteu		4/10/2022	

ATL					4040 B Ancho Phor Fa	lab - Anchorag Street, Suite 1( orage, AK 995( e: 907-205-198 ax: 907-782-440 laskatestlab.co
Material Test F	Report		Rep	oort No: ASM:22- ue No: 1	0344	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		Project Code: 22047 CC: CRW Maria Kampsen	The res	ults contained below pertain only to ced, except in full, without the prior	the items tested below. This repo	ort should not be or the agency.
Project: South Airpark				Jan	Etapsen	
73130			Revie Title: Date:	ewed By: Maria E Kan Senior Engir 4/26/2022		
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0344-S01 TH-24 S1	22-0344-S02 TH-24 S2A	22-0344-S03 TH-24 S2B	22-0344-S04 TH-24 S23	
Other Test Results						
Description	Method		Res			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	7 4/14/2022 Karen Jackson	4 4/14/2022 Karen Jackson	21 4/14/2022 Cindy Zickefoose	18 4/14/2022 Cindy Zickefoose	
Group Code Group Name Atterberg Limits Estimated	ASTM D2487	GW-GM Il-graded gravel with silt and sand Yes		·		
Tested By		Cindy Zickefoose				
Method Preparation Method Composite Sieving? Separating Sieve(s)	ASTM D6913	A Oven Dry Yes No. 4				
Fractional Mass Retained (%) Cu Cc	ASTM D2487	0.00 67.84 1.46				
Percent Gravel Percent Sand Percent Fines (Silt/Clay)	LMA (Internal Meth				1 20 79	
Group Symbol Group Name Tested By					ML Silt with Sand John Platt	
Comments						

Mat	erial Test F	Report		Report No: ASM:22-0344 Issue No: 1						
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	)475 osen	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.						
Project:	South Airpark					Mar	Etapse			
	73130				Review Title: Date:	ed By: Maria E Kan Senior Engir 4/26/2022				
Samp	le Details									
	e ID Sample ID ampled		22-0344-S05 TH-24 S24	22-0344 TH-24		22-0344-S07 TH-24 S5B	22-0344-S08 TH-24 S6			
Other	Test Results									
Descri		Method	10		Resul			Limits		
Date Te		ASTM D2216	16 4/14/2022	4/14/2 Oin du Zielesf		17 4/16/2022	23 4/16/2022			
Tested Percent Percent Percent Group S	Gravel Sand Fines (Silt/Clay)	LMA (Internal Met	Cindy Zickefoose hod)	Cindy Zickefo	oose	Cindy Zickefoose	Cindy Zickefoose 1 39 60 ML			
Group N Tested							Sandy Silt John Platt			
Comn										
Soil Clas	sification of Fines (-#200)	) in LMAs Assume	ed Unless Verified by	y Additional Tes	sting					

ATL						4040 B Ancho Phor Fa info@a	lab - Anchorage Street, Suite 102 orage, AK 99503 ie: 907-205-1987 ix: 907-782-4409 laskatestlab.com			
Material Test I	Report			Report No: ASM:22-0344 Issue No: 1						
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark		Project Code: 22 CC: CRW Maria Kamp		The resu	its contained below pertain only to ed, except in full, without the prior	the items tested below. This repo written approval of Alaska Testlab	ort should not be or the agency.			
73130				Revie Title: Date:	wed By: Maria E Kar Senior Engi 4/26/2022					
Sample Details										
Sample ID Client Sample ID Date Sampled		22-0344-S09 TH-24 S7	22-0344 TH-2	I-S10 24 S8	22-0344-S11 TH-24 S9	22-0344-S12 TH-24 S10				
Other Test Results										
Description	Method			Resu	ults		Limits			
Water Content (%) Date Tested Tested By	ASTM D2216	16 4/16/2022 Cindy Zickefoose	/16/ Cindy Zickef	17 2022 foose	22 4/16/2022 Cindy Zickefoose	25 4/16/2022 Cindy Zickefoose				
Group Code Group Name Material Proportions Estimated	ASTM D2487	CL-ML Silty clay Yes								
Fines (%) Tested By	ASTM D2487	100 Cindy Zickefoose								
Liquid Limit Plastic Limit Plasticity Index Preparation Method Oversize Removed By Liquid Limit Apparatus Grooving Tool	ASTM D4318	24 19 5 Wet fechanically pushed through vo. 40 eiava Manual Plastic								
Rolling Tested By Date Tested		Hand Cindy Zickefoose 4/23/2022								
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Me	thod)			0 22 78 ML Silt with Sand John Platt					
Comments Soil Classification of Fines (-#200	) in LMAs Assum	ed Unless Verified b	y Additional Te	sting						

							4040 B Ancho Phon Fa	<b>ab - Anchorage</b> Street, Suite 102 rage, AK 99503 e: 907-205-1987 x: 907-782-4409 askatestlab.com			
Mate	erial Test F	Report			Report No: ASM:22-0344 Issue No: 1						
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 South Airpark	Project Code: 220 CC: CRW Maria Kamp		The results contained below pertain only to the items tested below. This report should not b reproduced, except in full, without the prior written approval of Alaska Testlab or the agency.							
	73130				Revie Title: Date:	5					
Samp	le Details										
Sample	e ID Sample ID		22-0344-S13 TH-24 S11A	22-0344 TH-24		22-0344-S15 TH-24 S12	22-0344-S16 TH-24 S13				
	Test Results										
Descrip		Method	05		Resu			Limits			
Date Te		ASTM D2216	25 4/16/2022		30 /2022	21 4/16/2022	4 4/16/2022				
Tested E Liquid Li Plastic L Plasticity	imit .imit	ASTM D4318	Cindy Zickefoose	Cindy Zicke	foose	Cindy Zickefoose Not Obtainable NP (Non-Plastic) NP (Non-Plastic)	Cindy Zickefoose				
Tested E	sted										
Percent Percent Group S Group N Tested E	Sand Fines (Silt/Clay) Symbol Iame	LMA (Internal Mei	hod)			0 11 89 ML Silt John Platt					

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

	TL
Mat	erial Test Repo
Client:	CRW Engineering Group, LLC

Ma	laterial Test Report												Report No: MAT:22-0344-S01 Issue No: 1																		
Client:	:	CRW 3940 / Ancho	Eng Arcti	inee c Blv	ring ( vd., S	Grou Ste. 3	p, Ll			Project Code: 220475 CC: CRW Maria Kampsen				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.																	
Projec	t:	South	Airp	bark										Mar Etarpsen																	
	73130										Reviewed By: Maria E Kampsen Title: Senior Engineer Date: 4/26/2022																				
San	an	ole D	)et	ails	5										Ot	he	r To	es			sul	ts									
Sample DetailsSample ID22-0344-5Client Sample IDTH-24 S1					Other Tes:DescriptionWater ContentDate TestedTested ByGroup CodeGroup NameAtterberg LimitTested ByDate Tested			MethodResultLimitst (%)ASTM D221674/14/20224/14/2022Karen JacksonASTM D2487GW-GMWell-graded gravel with silt and sandSand																							
Parti	icl	e Si	ze	Di	stri	bu	tio	n																		A 0.7					
		H	60		20	)	mm	6		Dia	meter 2			600		2 - µi	200 m —	1	00		50 ⊣	D D	ate T	g By:	d:	ASTI Over 4/12/ John	ר 2022/	2			
Percentage Passing (by mass)	100 90 80 70 60 50 40 30 20 10																					3 2 1 3 1 3 7 2 3 N N N N N N N N N	ieve in ½in %in 0.4 0.20 0.40 0.20 0.40 0.20	0		%	% Pas	9 6 5 45 2 2 1 1 1	00 00 00 03 01 05 57	Limi	ts
Sieve	0 Siz		2"		1″	1/	2″		#4		#10	:	#20	#	#40	#60	) #1(	00	#20	00											

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 Report No: MAT:22-0344-S01

0.00

1.46 4/12/2022

67.84

Mat	erial Test Repor	t	Issue N	lo: 1		
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		tained below pertain only to the items tested be pept in full, without the prior written approval of		-
Project:	South Airpark 73130		Reviewed Title: Date:	By: Maria E Kampsen Senior Engineer 4/26/2022	ier)	
Other <sup>-</sup>	Test Results		Щ			
Descri	ption	Method		Result	Limits	
Compo	l ation Method site Sieving? ting Sieve(s)	ASTM D6913		A Oven Dry Yes No. 4		

ASTM D2487

Separating Sieve(s) Fractional Mass Retained (%) Cu Cc Date Tested

Comments

ATL
AIL

Mat	erial Test F	Report		Report No: ASM:22-0345 Issue No: 1					
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503	o, LLC	Project Code: 220 CC: CRW Maria Kamp	)475	The results of	contained below pertain only to	the items tested below. This repor written approval of Alaska Testlab	t should not be or the agency.	
Project:	South Airpark					Jan	Etapser		
	73130			r	Reviewe Fitle: Date:	ed By: Maria E Kan Senior Engir 4/26/2022			
Samp	le Details								
Sample Client			22-0345-S01 TH-25 S1	22-0345-5 TH-25		22-0345-S03 TH-25 S3A	22-0345-S04 TH-25 S3B		
Other	Test Results								
Descri		Method			Result			Limits	
Water C Date Te Tested I		ASTM D2216	58 4/16/2022 Cindy Zickefoose	4/16/20 Cindy Zickefo		12 4/16/2022 Cindy Zickefoose	12 4/16/2022 Cindy Zickefoose		
Percent Percent Group S Group N Tested I	Fines (Silt/Clay) Symbol Jame			Silt with Sa John P			48 50 ML Sandy Silt John Platt		
Comn	nents								
	sification of Fines (-No.20	0) in LMAs Assun	ned Unless Verified	by Additional Te	esting				

Mate	erial Test F	Report			Issue I	t No: ASM:22-0 No: 1	J345	
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code: 220 CC: CRW Maria Kamp		The results co	ntained below pertain only to	he items tested below. This repor vritten approval of Alaska Testlab	t should not be or the agency.
Project:	South Airpark					Yan	Etapsen	
	73130				Reviewe Title: Date:	d By: Maria E Kam Senior Engir 4/26/2022		
Samp	le Details							
Sample Client S Date Sa	e ID Sample ID ampled		22-0345-S05 TH-25 S4	22-0345- TH-25		22-0345-S07 TH-25 S6	22-0345-S08 TH-25 S7	
Other	Test Results							
Descrip		Method			Results			Limits
	ontent (%)	ASTM D2216	9		9	8	12	
Date Te			4/16/2022	4/16/2 Cindy Zickofa		4/16/2022	4/16/2022	
Tested E Percent		I MA (Internal Mat	Cindy Zickefoose	Cindy Zickefo	ose C	indy Zickefoose	Cindy Zickefoose 0	
Percent		LMA (Internal Met	nou)				19	
	Fines (Silt/Clay)						81	
Group S	Symbol						ML	
Group N							Silt with Sand	
Tested E	Зу						John Platt	
Comm								
Soil Clas	sification of Fines (-No.20	00) in LMAs Assu	med Unless Verified	by Additional T	esting			

ATL
-----

Material Test	Report			Issue N	NO: ASM:22-1 0: 1	J343	
Client: CRW Engineering Gro 3940 Arctic Blvd., Ste. Anchorage, AK, 99503	300	Project Code: 220 CC: CRW Maria Kamp		The results cont	ained below pertain only to	the items tested below. This repor written approval of Alaska Testlab o	t should not be or the agency.
Project: South Airpark					Yan	Etanpsen	
73130				Reviewed Title: Date:	By: Maria E Kan Senior Engir 4/26/2022		
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0345-S09 TH-25 S8A	22-0345- TH-25		22-0345-S11 TH-25 S9	22-0345-S12 TH-25 S10	
Other Test Results							
Description Water Content (%)	Method ASTM D2216	29	4406	Results 4	13	11	Limits
Date Tested Tested By Percent Gravel		4/16/2022 Cindy Zickefoose	4/16/2 Cindy Zickefo		4/16/2022 ndy Zickefoose	4/16/2022 Cindy Zickefoose 0	
Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Met					14 86 ML Silt with Sand John Platt	
Comments							
Soil Classification of Fines (-No.2	200) in LMAs Assu	med Unless Verified	by Additional T	esting			
1							

4 ....

ATL					4040 B S Ancho Phone Fa: info@al	ab - Anchorage Street, Suite 102 rage, AK 99503 e: 907-205-1987 k: 907-782-4409 askatestlab.com
Material Test F	Report		Issue	rt No: ASM:22-03 No: 1		
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		roject Code: 220475 CC: CRW Maria Kampsen	The results of reproduced,	contained below pertain only to the except in full, without the prior writ	items tested below. This repor ten approval of Alaska Testlab	t should not be or the agency.
Project: South Airpark 73130			Reviewe Title: Date:	ed By: Maria E Kamp Senior Engined 4/28/2022		
Sample Details			Dale.	4/20/2022		
Sample ID Client Sample ID Date Sampled		22-0376-S01 TH-26 S1	22-0376-S02 TH-26 S2	22-0376-S03 TH-26 S3	22-0376-S04 TH-26 S4	
Other Test Results						
Description Water Content (%) Date Tested Tested By	Method ASTM D2216	29 4/11/2022 Jeff Smith	<b>Result</b> 17 4/11/2022 Jeff Smith	t <b>s</b> 15 4/11/2022 Jeff Smith	20 4/11/2022 Jeff Smith	Limits
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name	LMA (Internal Method)					
Tested By		John Platt			ML	
Group Code Group Name Liquid Limit Plasticity Index Material Proportions Estimated Gravel (%)	ASTM D2487 ASTM D2487				ML Silt 0 Ves 0	
Sand (%) Fines (%) Tested By	ASTM D2487			(	0 100 Cindy Zickefoose	
Liquid Limit Plastic Limit Plasticity Index Preparation Method Oversize Removed By Liquid Limit Apparatus Grooving Tool Rolling Tested By Date Tested	ASTM D4318			н	Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Wet and during mixing on glass plate Mechanical Plastic Hand Cindy Zickefoose 4/26/2022	
<b>Comments</b> Soil Classification of Fines (-#200)						

ATL	

Materi	al Test R	eport			Report N ssue No	lo: ASM:22- ):  1	0376	
Client: CRW 3940 Anch	/ Engineering Group, ) Arctic Blvd., Ste. 300 norage, AK, 99503	LLC F	Project Code: 220475 CC: CRW Maria Kampsen	Т	he results contai	ned below pertain only to	the items tested below. This repor written approval of Alaska Testlab	
Project: Sout	h Airpark					Mar	Appper	
7313	30			۲	Reviewed E Title: Date:	By: Maria E Kan Senior Engir 4/28/2022		
Sample D	etails							
Sample ID Client Samp Date Sample	ed		22-0376-S05 TH-26 S5	22-0376-S TH-26 S		22-0376-S07 TH-26 S6B	22-0376-S08 TH-26 S7	
Other Tes	st Results							
Description		Method		I	Results			Limits
Water Conten Date Tested Tested By	it (%) /	ASTM D2216	20 4/11/2022 Jeff Smith	4/11/20 Jeff Sn		33 4/11/2022 Jeff Smith	35 4/11/2022 Jeff Smith	
Percent Grave Percent Sand Percent Fines Group Symbo Group Name Tested By	s (Silt/Clay)	.MA (Internal Method	) 1 12 87 ML Silt John Platt					
Comment Soil Classificat		n LMAs Assumed	Unless Verified by Add	ditional Test	ing			

ATL					Alaska Testlab - Anchora 4040 B Street, Suite Anchorage, AK 995 Phone: 907-205-14 Fax: 907-782-44 info@alaskatestlab.c
Material Test F	Report		Repo Issue	ort No: ASM:22-0376 No: 1	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3		Project Code: 22047 CC: CRW	5 The results	contained below pertain only to the items te I, except in full, without the prior written appro	
Anchorage, AK, 99503 Project: South Airpark		Maria Kampsen		1) Etc	
			Deview	of Dur Maria E Kampaan	4-su
73130			Title: Date:	ved By: Maria E Kampsen Senior Engineer 4/28/2022	
Sample Details					
Sample ID Client Sample ID		22-0376-S09 TH-26 S8A	22-0376-S10 TH-26 S8B	22-0376-S11 TH-26 S9	
Date Sampled Other Test Results					
Description	Method		Resul		Limits
Water Content (%) Date Tested Tested By	ASTM D2216	21 4/11/2022 Jeff Smith	15 4/11/2022 Jeff Smith	26 4/11/2022 Jeff Smith	
Group Code Group Name Liquid Limit	ASTM D2487		ML Silt 0		
Plasticity Index Material Proportions Estimated Gravel (%) Sand (%)	ASTM D2487		0 Yes 0 0		
Fines (%) Tested By	ASTM D2487	C	100 indy Zickefoose		
Liquid Limit Plastic Limit Plasticity Index Preparation Method	ASTM D4318		Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Wet		
Oversize Removed By Liquid Limit Apparatus Grooving Tool Rolling		Hai	nd during mixing on glass plate Mechanical Plastic Hand		
Tested By Date Tested			Karen Jackson 4/26/2022		
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Method	1)		1 8 91 ML Silt John Platt	
Comments Soil Classification of Fines (-#200)			1.110		

Matorial Tost F	Ponort			Report No	: ASM:22-034	18	
Material Test F	-			Issue No:	1	ms tested below. This repo	rt abould pat bo
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 3		Project Code		reproduced, except in	full, without the prior writter	approval of Alaska Testlab	or the agency.
Anchorage, AK, 99503	00	CC: CRW Maria	Kampsen		1	1	
Project: South Airpark					J E	La asa	
					-Mare	paper	
				Reviewed By:	Maria E Kampse	en	
73130				Title:	Senior Engineer		
				Date:	4/26/2022		
Sample Details							
Sample ID		22-0348-S01	22-0348-S02	22-0348-S03	22-0348-S04	22-0348-S05	
Client Sample ID Date Sampled		TH-27 S1	TH-27 S2A	TH-27 S2B	TH-27 S3A	TH-27 S3B	
Other Test Results							
Description	Method			Results			Limits
Specific Gravity (at 20°C)	ASTM D 854						
Method							
Passing 4.75mm (No.4) (%) Test temperature (°C)							
Water Content (%)	ASTM D2216	5	34	22	24	19	
Date Tested		4/16/2022	4/16/2022	4/16/2022	4/16/2022	4/16/2022	
Tested By Percent Gravel	LMA (Internal Me	Cindy Zickefoose (thod) 52	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	
Percent Sand	LINA (IIIterriai Me	43					
Percent Fines (Silt/Clay)		5					
Group Symbol	P	GP-GM porly Graded Gravel with Silt					
Group Name Tested By		John Platt					
Group Code	ASTM D2487	-		CL-ML			
Group Name				Silty clay			
Material Proportions Estimated Fines (%)				Yes 100			
Tested By	ASTM D2487			Cindy Zickefoose			
Liquid Limit	ASTM D4318			25			
Plastic Limit Plasticity Index				21 4			
Preparation Method				Wet			
Oversize Removed By				Mechanically pushed through			
Liquid Limit Apparatus				Manual Plastic			
Grooving Tool Rolling				Hasuc			
Tested By				Cindy Zickefoose			
Date Tested				4/23/2022			
Comments							

Alaska Testlab - Anchorage

ATL
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Material Test Report						Report No: ASM:22-0348 Issue No: 1					
Client:	CRW Engineering Group		Project Code	: 220475	The results contained	below pertain only to the ite	ems tested below. This repo n approval of Alaska Testlab	rt should not be			
	3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		CC: CRW		reproduced, except in	I I I I I I I I I I I I I I I I I I I		or the agentoy.			
Project:	South Airpark					Hant	Kanpsen				
	73130				Title:	Maria E Kampse Senior Engineer					
					Date:	4/26/2022					
Samp	le Details										
	e ID Sample ID ampled		22-0348-S06 TH-27 S4	22-0348-S07 TH-27 S5	22-0348-S08 TH-27 S6	22-0348-S09 TH-27 S7	22-0348-S10 TH-27 S8				
	Test Results										
Descri		Method			Results			Limits			
	Content (%)	ASTM D2216	9	8	3	7	9	Linits			
Date Te			4/16/2022	4/16/2022	4/16/2022	4/16/2022	4/16/2022				
Tested I	Ву		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose				
Percent		LMA (Internal Me		0	•	0	0				
Percent			79	72		75	61				
	Fines (Silt/Clay)		21	28		25	39				
Group S			SM	SM		SM	SM				
Group N			Silty Sand	Silty Sand		Silty Sand	Silty Sand				
Tested I	Ву		John Platt	John Platt		John Platt	John Platt				
Comn	nents										
N/A											
1											

	TL					404 A inf	Testlab - Anch 40 B Street, Sui nchorage, AK Phone: 907-205 Fax: 907-782 o@alaskatestla
Mat	erial Test	Report			Report No	o: ASM:22-0348 1	
Client:	CRW Engineering Gro 3940 Arctic Blvd., Ste Anchorage, AK, 9950	oup, LLC . 300	Project Code CC: CRW Maria		The results contained	below pertain only to the items tested below. Th full, without the prior written approval of Alaska T	
Project:	South Airpark					MarEtapser	)
	73130				Reviewed By: Title: Date:	Maria E Kampsen Senior Engineer 4/26/2022	
Samp	le Details						
Sample Client S Date Sa	e ID Sample ID ampled		22-0348-S11 TH-27 S9A	22-0348-S12 TH-27 S9B	22-0348-S13 TH-27 S10		
Other	Test Results						
Descrip	ption	Method			Results		Limit
	Content (%)	ASTM D2216	7	7	9		
Date Te	ested		4/16/2022	4/16/2022	4/16/2022		
Tested I			Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose		
Group C		ASTM D2487			ML		
Group N					Silt		
Liquid L					0		
Plasticit	•				0		
Fines (%	/				100		
Tested I		ASTM D2487			Karen Jackson Not Obtainable		
Liquid L Plastic L		ASTM D4318					
Plastic L Plasticit					NP (Non-Plastic)		
	-				NP (Non-Plastic) Karen Jackson		
Tested I	БУ				Nateri Jackson		

Limits

# Comments

Date Tested

N/A

4/15/2022

				_			4040 B Ancho Phon Fa info@al	<b>ab - Anchorage</b> Street, Suite 102 rage, AK 99503 e: 907-205-1987 x: 907-782-4409 askatestlab.com
Mat	erial Test F	Report		F	Repo	ort No: ASM:22- No: 1	0346	
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	Project Code: 220 CC: CRW Maria Kamp	0475	ne results	contained below pertain only to	the items tested below. This repo written approval of Alaska Testlab	
Project:	South Airpark 73130			Т	itle:	/ed By: Maria E Kan Senior Engir		
				D	ate:	4/26/2022		
-	le Details							
Date Sa	Sample ID ampled		22-0346-S01 TH-28 S1	22-0346-S TH-28 S		22-0346-S03 TH-28 S2B	22-0346-S04 TH-28 S3	
Other	Test Results							
	content (%)	Method ASTM D2216	6		<b>Resul</b> 31	20	18	Limits
Date Te Tested I			4/16/2022 Cindy Zickefoose	4/16/20 Cindy Zickefoo		4/16/2022 Cindy Zickefoose	4/16/2022 Cindy Zickefoose	
Group C Group N	Code	ASTM D2487	SW Well-graded sand with gravel					
Atterber	g Limits Estimated		Yes					
Method	tion Method	ASTM D6913	A Oven Dry					
Compos	site Sieving?		Yes					
	ing Sieve(s)		No. 4 0.00					
Cu Cu Cc	al Mass Retained (%)	ASTM D2487	13.83 1.23					
Percent	Gravel	LMA (Internal Me					0	
Percent	Sand Fines (Silt/Clay)						5 95	
Group S							95 ML	
Group N	lame						Silt	
Tested I	Ву						John Platt	
Comn	nents							

N/A

Material Test F	Renart		F	Rep	ort No: ASM:22-	•	laskatestlab.c
Client: CRW Engineering Grou		Project Code: 220	1475 Th	ne resul	e No: 1 Its contained below pertain only to ed, except in full, without the prior		
3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	800	<b>CC:</b> CRW Maria Kamp					
Project: South Airpark		·			Jan	Etapse	
73130			Т	teviev itle: ate:	wed By: Maria E Kan Senior Engir 4/26/2022		
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0346-S05 TH-28 S4	22-0346-S TH-28 \$		22-0346-S07 TH-28 S6	22-0346-S08 TH-28 S7	
Other Test Results							
Description	Method		-	Resu			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	20 4/16/2022 Cindy Zickefoose	4/16/20 Cindy Zickefoo		13 4/16/2022 Cindy Zickefoose	16 4/16/2022 Cindy Zickefoose	
Group Code	ASTM D2487		ſ	ML			
Group Name Liquid Limit			Silt with sa	nd 0			
Plasticity Index				0			
Tested By	ASTM D2487		John Pl				
Method Preparation Method	ASTM D6913		Oven D	A			
Composite Sieving?				'es			
Separating Sieve(s)			No				
Fractional Mass Retained (%)			0.	00			
Cu Cc	ASTM D2487						
Liquid Limit	ASTM D4318					Not Obtainable	
Plastic Limit						NP (Non-Plastic)	
Plasticity Index Tested By						NP (Non-Plastic)	
Date Tested							

ATL
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Mate	erial Test F	Report			Issue N	No: ASM:22- No: 1		
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 South Airpark	p, LLC	Project Code: 220 CC: CRW Maria Kamp		The results con	ntained below pertain only to	the items tested below. This repo written approval of Alaska Testlab	ort should not be or the agency.
	73130				Reviewed Title: Date:	By: Maria E Kan Senior Engir 4/26/2022		
Samn	le Details							
Sample Client S Date Sa	e ID Sample ID ampled		22-0346-S09 TH-28 S8	22-0346- TH-28		22-0346-S11 TH-28 S10A	22-0346-S12 TH-28 S10B	
Other	Test Results							
Descrip Water C Date Te Tested B	content (%) sted	Method ASTM D2216	17 4/16/2022 Cindy Zickefoose	4/16/2 Cindy Zickefo		20 4/16/2022 indy Zickefoose	16 4/16/2022 Cindy Zickefoose	Limits
Percent Percent	Gravel Sand Fines (Silt/Clay) Symbol Iame	LMA (Internal Me	thod) 15 85 ML Silt John Platt	Silty S John	SM			
Comm	nents							
N/A								

ATL						Alaska Testlab - Anchorage 4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com
<b>Material Test F</b>	Report		Γ	Report No Issue No:	: ASM:22-0346	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark 73130	p, LLC	Project Code: 220 CC: CRW Maria Kamp	sen	The results contained reproduced, except in Reviewed By:	below pertain only to the items tes full, without the prior written appro Maria E Kampsen	ted below. This report should not be val of Alaska Testlab or the agency.
				Title: Date:	Senior Engineer 4/26/2022	
Sample Details						
Sample ID Client Sample ID Date Sampled		22-0346-S13 TH-28 S10C	22-0346- TH-28			
Other Test Results						
Description         Water Content (%)         Date Tested         Tested By         Percent Gravel         Percent Sand         Percent Fines (Silt/Clay)	Method ASTM D2216 ( LMA (Internal Metho	25 4/16/2022 Cindy Zickefoose od)	4/16/2 Cindy Zickefo			Limits
Group Symbol Group Name Tested By			SP Poorly Graded Sand John	P-SM with Silt		

N/A

ent:				ng Grou		_	rt	Proiec	t Code:	2204	75	_	Issue The results	conta	ined below pertain only to	the items tested b	elow. This report	
	394 Anc	0 Arctio	c Blvc e, AK,	l., Ste. 99503	300			-	C: CRW	Kampser			reproduced	, exce	pt in full, without the prior of the prior o			the agency.
	731	30											Review Title: Date:	ed I	l By: Maria E Kan Senior Engir 4/26/2022			
an	nple	Deta	ails							Ot	her T	est	Res	ult	S			
	ole ID t Sam	nple ID	)	22-0 TH-2						Wa Dat Tes Gro	ter Con e Teste ted By up Coc	tent ed le	(%)		Metho ASTM ASTM	D2216 2 Cindy Z D2487	Result 6 1/16/2022 ickefoose SW	Limits
										Atte	up Nar erberg L hod		s Estim	nate	Well-grad ed ASTM	ed sand w	ith gravel Yes A	
										Pre Cor Sep	paration posite parating ctional	Siev Siev	ving? ve(s)	inec			Oven Dry Yes No. 4 0.00	
rti	cle \$	Size	Dis	tribu	Itio	n												
	100 ⊢ 100	60	<b>.</b>	20	- mm	6	Diar	neter 2	60	00	200 – µm –	10	0 50	D	Method: Drying By: Date Tested: Tested By:	ASTM De Oven 4/7/2022 John Pla		
	90 —														<b>Sieve Size</b> 3in 2in	% Pa	<b>ssing</b> 100 100	Limits
	80														1½in 1in ¾in		100 100 100	
(uy IIIdoo	60 —					Ì	\								½in 3/8in No.4		92 86 61.1	
	50 —						$\setminus$								No.10 No.20 No.40		39 20 12	
reiceiiiage rassiiig (by iiiass)	40 —						```								No.60 No.100 No.200		8 5 2	
-	30																	
	10 —																	
													4					

ATL	)

Mat	erial Test Report		Report No Issue No:	o: MAT:22-0346-S01 1
Client:	CRW Engineering Group, LLC	Project Code: 220475		d below pertain only to the items tested below. This report should not be n full, without the prior written approval of Alaska Testlab or the agency.
	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	CC: CRW Maria Kampsen		
Project:	South Airpark			MarEtarpser
			Reviewed By	: Maria E Kampsen
	73130		Title:	Senior Engineer
			Date:	4/26/2022
Other 1	lest Results			

Description	Method	Result	Limits
Cu	ASTM D2487	13.83	
Сс		1.23	
Date Tested		4/7/2022	

# Comments

		<b>FL</b>																							Anchor Phone Fax info@ala	<b>b - Anchorag</b> Street, Suite 10 age, AK 9950 907-205-198 907-782-440 askatestlab.co
Ма	te	eri	al	Te	es	t l	Re	)p	0	rt										R	epor sue	t N Nc	No: MAT:22	0346-S0	6	
Client	: ( ; ;	CRV 394( Ancl	V Eng ) Arc norag	ginee tic Bl\ je, Ak	ring /d., S	Grou Ste.	up, L 300	_			Pr		ct Cc c: C N	RW		204 <sup>-</sup> npsei				The	results co	ontai	ined below pertain only t pt in full, without the prio	o the items tested written approval	I below. This report of Alaska Testlab o	should not be r the agency.
i ojec		7313		<b>P 0</b>																Tit		ed E	By: Maria E Ka Senior Eng 4/26/2022	•	Su	
San	np	le	Det	ails	\$											Ot	he	r T	es	u	lesu	llt				
Samı Clien			ple I	D			346- 28 S		0						-	Wa Dat Gro Gro Liqu Pla Tes	ter sted oup oup uid stic	ptic Cor este By Coc Nar Lim ity I By este	iten ed le ne it nde	t (%	))		ASTM	I D2216 Cindy I D2487	Result           19           4/16/2022           Zickefoose           ML           t with sand           0           John Platt           4/1/2022	Limits
Part	icl	e S	Size	Di	stri	ibu	itio	n																		
	<b>1</b> 100	00 ⊢	60		2	0	- mr		6	Dia	amete 2	er		6	00			200 m –	1	00	50 		Method: Drying By: Date Tested Tested By:	ASTM I Oven : 4/8/202 John Pl	2	
	90 80															•	<b>`</b> •			<b>_</b>	•		<b>Sieve Size</b> 3in No.4 No.10	% P	<b>assing</b> 100 98.8 98	Limits
(by mass)	70 60																						No.20 No.40 No.60 No.100 No.200		97 94 91 88 84	
Percentage Passing (by mass)	50 40																						10.200			
Perceni	30																									
	20										_							-								
	10 0																									
Sieve			"						#4		#10	)	#2	20	#	40	#6	0 #1	00	#2	00					
Com	m	ent	ts																							
N/A																										

ATL	

Mate	erial Test Repor	t	Report No: MAT:22-0346-S06 Issue No: 1					
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen	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.					
Project:	South Airpark		MarEtarpsen					
	73130		Reviewed By:Maria E KampsenTitle:Senior EngineerDate:4/26/2022					
Other 1	lest Results							
Descri	ption	Method	Result Limits					
Method		ASTM D6913	Α	_				
Prepara	ation Method		Oven Dry					
Compo	site Sieving?		Yes					
Separa	ting Sieve(s)		No. 4					
Fraction	nal Mass Retained (%)		0.00					
Cu		ASTM D2487						
Cc								
Date Te	ested		4/8/2022					

ATL
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Materi	al Test F	Report			Report No: ASM:22-0377 Issue No: 1							
Client: CRV	V Engineering Group	o, LLC	Project Code: 220475			t should not be or the agency.						
	) Arctic Blvd., Ste. 3	00	CC: CRW									
Anch	norage, AK, 99503		Maria Kampsen									
Project: Sout	h Airpark			Man Apropser								
					Reviewe	d By: Maria E Kamps	sen					
7313	30				Title: Date:	Senior Enginee 4/28/2022	er					
Sample D	)etails											
Sample ID			22-0377-S01	22-0377	-S02	22-0377-S03	22-0377-S04					
Client Samp	ole ID		TH-29 S1	TH-29		TH-29 S2B	TH-29 S3A					
Date Sampl												
Other Tes	st Results											
Description		Method			Result	5		Limits				
Water Conter	nt (%)	ASTM D2216	4		4	17	13					
Date Tested			4/11/2022	4/11/		4/11/2022	4/11/2022					
Tested By			Jeff Smith	Jeff S	Smith	Jeff Smith	Jeff Smith					
Group Code		ASTM D2487	GW-GM									
Group Name		We	II-graded gravel with silt and sand									
Atterberg Lim	its Estimated		Yes									
Tested By			John Platt									
Method		ASTM D6913	А									
Preparation M	lethod		Oven Dry									
Composite Si	eving?		Yes									
Separating Si	eve(s)		No. 4									
Fractional Ma	iss Retained (%)		0.00									
Cu		ASTM D2487	54.00									
Cc			2.74									

	TL						4040 B Ancho Phon Fa	lab - Anchorage Street, Suite 102 orage, AK 99503 e: 907-205-1987 ix: 907-782-4409 laskatestlab.com
Mat	erial Test F	Report			Report N Issue No	o: ASM:22-0	0377	
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 South Airpark	o, LLC I	Project Code: 220 CC: CRW Maria Kamps	)475	he results contair	ed below pertain only to t	the items tested below. This repo written approval of Alaska Testlab	
	73130			г	Reviewed B Fitle: Date:	y: Maria E Kam Senior Engin 4/28/2022	•	
Samp	le Details							
	e ID Sample ID ampled		22-0377-S05 TH-29 S3B	22-0377-9 TH-29		22-0377-S07 TH-29 S5	22-0377-S08 TH-29 S6	
Other	Test Results							
Descrip Water C Date Te	content (%)	Method ASTM D2216	15 4/11/2022	l 4/11/20	Results	19 4/11/2022	32 4/11/2022	Limits
Tested I			Jeff Smith	Jeff Sn		Jeff Smith	Jeff Smith	
Group S Group N	Sand Fines (Silt/Clay) Symbol Iame	LMA (Internal Method	i) 1 18 81 ML Silt with Sand John Platt	CL- Silty c John P	lay			
Oversize Liquid L Groovin Rolling	imit Limit y Index tion Method e Removed By imit Apparatus g Tool	ASTM D4318	John Platt	N Hand during mixing on glas: Mechan Pla Ha	23 18 5 Vet splate scal stic and		Not Obtainable NP (Non-Plastic) NP (Non-Plastic) Wet Hand during mixing on glass plate Mechanical Plastic Hand	
Tested I Date Te Group C Group N Liquid L Plasticit Gravel ( Sand (% Fines (%	sted Code Jame imit y Index %) 6) 6)	ASTM D2487		Cindy Zickefor 4/26/20			Karen Jackson 4/26/2022 ML Silt 0 0 0 0 0 0 100	
Tested I	Зу	ASTM D2487					Cindy Zickefoose	

viate	erial Test F	Report			Repo Issue	rt No: ASM:22-037 No: 1	7				
	CRW Engineering Grou		Project Code: 22047	5	The results contained below pertain only to the items tested below. This report sl reproduced, except in full, without the prior written approval of Alaska Testlab or I						
	3940 Arctic Blvd., Ste. 3	300	CC: CRW								
	Anchorage, AK, 99503		Maria Kampsen			10	V				
Project:	South Airpark					Yares	popser				
	70400				Review	ed By: Maria E Kampse	n				
	73130				Title:	Senior Engineer					
					Date:	4/28/2022					
Sampl	e Details										
Sample	ID		22-0377-S09	22-0377	-S10	22-0377-S11	22-0377-S12				
	ample ID		TH-29 S7	TH-2	9 S8	TH-29 S9A	TH-29 S9B				
Date Sa	mpled										
Other	Test Results										
Descrip		Method			Result			Limits			
	ontent (%)	ASTM D2216	9		17	21	4				
Date Tes			4/11/2022	4/11/		4/11/2022	4/11/2022				
Tested B			Jeff Smith	Jeff S		Jeff Smith	Jeff Smith				
Percent C		LMA (Internal Metho			0						
Percent S			45 55		3 97						
Group Sy	Fines (Silt/Clay)		ML		ML						
Group Na			Sandy Silt		Silt						
Tested B			John Platt	John							
Group Co		ASTM D2487	oonin'n laat	00111	1 latt		ML				
Group Na							Sandy silt				
Liquid Lin							0				
Plasticity							0				
Tested B		ASTM D2487					John Platt				
Method		ASTM D6913					А				
Preparati	on Method						Oven Dry				
	te Sieving?						Yes				
	ng Sieve(s)						No. 4				
Fractiona	I Mass Retained (%)						0.00				
Cu		ASTM D2487									

	erial Test I	-		Issue	rt No: ASM:22-03 No: 1		
	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 South Airpark		Project Code: 22047 CC: CRW Maria Kampsen	5 reproduced	contained below pertain only to the , except in full, without the prior writ Haufe		
	73130			Review Title: Date:	ed By: Maria E Kamp Senior Engine 4/28/2022		
Samp	le Details						
Date Sa	Sample ID ampled		22-0377-S13 TH-29 S10	22-0377-S14 TH-29 S11	22-0377-S15 TH-29 S12A	22-0377-S16 TH-29 S12B	
Other	Test Results						
Date Te	ontent (%) sted	Method ASTM D2216	2 4/11/2022 Jeff Smith	<b>Resul</b> 2 4/11/2022 Jeff Smith	<b>ts</b> 23 4/11/2022 Jeff Smith	16 4/11/2022 Jeff Smith	Limits
Tested E Group C Group N Atterberg Tested E	ode lame g Limits Estimated	ASTM D2487	y graded sand with silt and gravel Yes John Platt	Jen Sman			
Method Preparat Compos Separati Fraction	tion Method ite Sieving? ng Sieve(s) al Mass Retained (%)	ASTM D6913	A Oven Dry Yes No. 4 0.00				
Cu <u>Cc</u> Darcant	Croud	ASTM D2487	6.66 0.42	0			
Percent Percent Percent Group S Group N Tested E	Sand Fines (Silt/Clay) ymbol ame	LMA (Internal Meth		0 93 7 SP-SM oorly Graded Sand with Silt John Platt			

ATL			4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com
<b>Material Test F</b>	Report		Report No: ASM:22-0377 Issue No: 1
Client: CRW Engineering Grou	-	Project Code: 220475	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.
3940 Arctic Blvd., Ste. 3		CC: CRW	
Anchorage, AK, 99503		Maria Kampsen	
Project: South Airpark			MarEtarpser
73130			Reviewed By: Maria E Kampsen
10100			Title: Senior Engineer Date: 4/28/2022
			Date. 4/20/2022
Sample Details			
Sample ID		22-0377-S17	
Client Sample ID		TH-29 S13	
Date Sampled Other Test Results			
	Mathad		Results
Description Water Content (%)	Method ASTM D2216	7	Results Limits
Date Tested	AGTW DZZ TO	4/11/2022	
Tested By		Jeff Smith	
Group Code	ASTM D2487	GM	
Group Name		Silty gravel with sand	
Atterberg Limits Estimated Tested By		Yes John Platt	
Method	ASTM D6913	A	
Preparation Method		Oven Dry	
Composite Sieving?		Yes	
Separating Sieve(s)		No. 4	
Fractional Mass Retained (%)	ASTM D2487	0.00	
Cu Cc	ASTIVI D2407		
Comments			
Soil Classification of Fines (-#200	) in LMAs Assum	ed Unless Verified by Additi	onal Testing

Alaska Testlab - Anchorage

														4040 B Si Anchora Phone: Fax:	<b>b - Anchorage</b> treet, Suite 102 age, AK 99503 : 907-205-1987 : 907-782-4409 iskatestlab.com
Mat				est I	-	port		ect Code:	220476			rt No: MAT: No: 1			should not be
Project:	394 And Sol	40 Arc chora	tic Blv ge, AK	d., Ste. 3 , 99503	300	,	-	CC: CRW	Z20473	ſ	reproduced,	, except in full, without the set of the set	he prior written approva	al of Alaska Testlab or	•the agency.
Sam	nlo		taile						Oth	or To	Date:	4/28/20	-		
Samp Client	- e ID	)		22-0	377-S 29 S1	01			Desc Wate Date Teste Grou Atter Teste	cription er Conte e Tested ed By up Code up Name	ent (%) e nits Estim	As As Well-graded	ethod STM D2216 STM D2487 gravel with s	Result 4 4/11/2022 Jeff Smith GW-GM ilt and sand Yes John Platt 4/15/2022	Limits
Partic	le	Size	e Dis	stribu	ition										
	100 ⊢ 00 90	60		20	- mm -	6	Diameter 2	60	10	200 - µm —	100 50	Method: Drying B Date Tes Tested B Sieve Siz	y: Oven ted: 4/15/2( sy: John P		Limits
	30 — 70 —				\							3in 2in 1½in 1in ⅔∕in	/	100 100 100 96 90	
sing (t	60 — 50 —					 \						1∕₂in 3/8in No.4 No.10 No.20 No.40		68 57 37.9 28 22 16	
Percentage	40 — 30 —											No.60 No.100 No.200		12 9 6	
	20 —														
Sieve S	10 0 ize	3″ 2	"	1″ 1	/2"	#4	#10	#20	#40 #	#60 #100	) #200				
Comr Soil Clas No Plast	ssific	ation o	of Fine Test F	s (-#200 Performe	) in Sie	eve Analy	/ses Assu	imed Unl	ess Veri	ified by A	dditional T	esting			

#### Form No: 18909, Report No: MAT:22-0377-S01

ATL	

0.00

2.74

54.00

4/15/2022

Mat	erial Test Report		Report Issue N	No: MAT:22-0377-S01 o: 1	
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		ined below pertain only to the items tested be ppt in full, without the prior written approval of	
Project:	South Airpark		Destaura	Hantharps	e)
	73130		Reviewed Title: Date:	By: Maria E Kampsen Senior Engineer 4/28/2022	
Other <sup>-</sup>	Test Results				
Descri	ption	Method		Result	Limits
Compo	l ation Method site Sieving? ting Sieve(s)	ASTM D6913		A Oven Dry Yes No. 4	

ASTM D2487

Cc Date Tested

Cu

Fractional Mass Retained (%)

### Comments

<b>N</b> at		ria	ιт	est	Re	port					Repor	t No: MAT:22-0377	0	skatestlab.c
lient:	Cl	RW E	nginee	ring C	roup, Ll	-		t Code:	22047	5		NO: 1 ontained below pertain only to the items except in full, without the prior written ap		
roject:	Ar	nchora	age, A	K, 995	te. 300 03		c	C: CRW Maria Maria	Kampsen			HanEt	appen	
	73	130									Reviewe Title: Date:	d By: Maria E Kampsen Senior Engineer 4/28/2022		
Sam	ple	e De	etail	S					Oth	ner Test	t Resu	lts		
ampl Client			ID		2-0377- H-29 SS				Wate Date Test Grou Liqu Plas Test	cription er Content e Tested up Code up Name id Limit ticity Indes ed By e Tested		Method ASTM D221 ASTM D248 ASTM D248	4/11/2022 Jeff Smith 37 ML Sandy silt 0 0	Limits
artio	10( ⊢			<b>stri</b> 20	outio	6	Diameter 2	60	0	200 10 µm	00 50	Drying By: Ove Date Tested: 4/15		
	00 -											Sieve Size	<b>% Passing</b> 100	Limits
	90 -											2in	100	
:	80 -										\	1½in 1in ¾in	100 100 100	
:												1in ¾in ½in 3/8in No.4	100 100 100 100 99.8	
:	80 -											1in ¾in 1⁄₂in 3/8in No.4 No.10 No.20	100 100 100 99.8 100 100	
:	80 - 70 - 60 -											1in ⅔in ⅓8in No.4 No.10 No.20 No.40 No.60 No.100	100 100 100 99.8 100 100 100 98 86	
ercentage Passing (by mass)	80 - 70 - 60 - 50 -											1in ⅔in ⅓8in No.4 No.10 No.20 No.40 No.60	100 100 100 99.8 100 100 100 98	
Percentage Passing (by mass)	80 - 70 - 60 - 50 - 40 -											1in ⅔in ⅓8in No.4 No.10 No.20 No.40 No.60 No.100	100 100 100 99.8 100 100 100 98 86	
Percentage Passing (by mass)	80 - 70 - 600 - 50 - 40 - 330 -											1in ⅔in ⅓8in No.4 No.10 No.20 No.40 No.60 No.100	100 100 100 99.8 100 100 100 98 86	

ATL	

Mate	erial Test Repor	t	Report No: MAT:22-0377-S12 Issue No: 1	
Client:	CRW Engineering Group, LLC	Project Code: 220475	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.	
	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	CC: CRW Maria Kampsen		
Project:	South Airpark		Mar Hanpsen	
			Reviewed By: Maria E Kampsen	
	73130		Title: Senior Engineer	
			Date: 4/28/2022	
Other 1	Fest Results			
Descri	ption	Method	Result Limits	
Method	1	ASTM D6913	Α	
Prepara	ation Method		Oven Dry	
Compo	site Sieving?		Yes	
Separa	ting Sieve(s)		No. 4	
Fraction	nal Mass Retained (%)		0.00	
Cu		ASTM D2487		
Cc				
Date Te	ested		4/15/2022	-

																		2	4040 B Si Anchora Phone: Fax:	<b>b - Anchorage</b> treet, Suite 102 age, AK 99503 907-205-1987 907-782-4409 skatestlab.con
Ma	ter	ial	Те	st l	Rej	oor	t						R	eport sue N	t No: N No: 1	MAT:2	2-0377-	S13		
Client: Projec	39 An <b>t:</b> So	40 Arcti chorage	c Blvo e, AK,	ng Grou d., Ste. 99503		2	P	-	Code: CRW Maria	: 2204 Kampse			Re Tit	e results cor roduced, ex	ntained belo xcept in full, d By: M Si	without the p				
San	nple	Deta	ails							0	the	r Te	st R	Resu	lts					
Samı Clien		) nple IC	)		377-S 29 S10					Wa Da Te Gr Gr Att	ater ( ate Te sted oup oup terbe	Code Name erg Lir	ent (% e mits E			AST	hod M D221 M D248 nd with s	6 4/1 <sup>,</sup> Jeff 7 § silt and Joh	Result 2 1/2022 5 Smith SP-SM gravel Yes n Platt 5/2022	Limits
Parti	icle	Size	Dis	tribu	tion															
S Percentage Passing (by mass)	100 100 90 80 70 60 50 40 30 20 10 0 Size				- mm -	6	Diamet 2		60	200		200 m			Date Test	ng By: Teste ted By: ve Size n 1 10 20 40 50 100	Over d: 4/15 John	/2022 9 Platt <b>6 Pass</b> i		Limits
Sieve	Size	3" 2"		1″ 1	/2"	#4	#1(	0	#20	#40	#60	) #100	0 #2	00						
Com Soil Cla			Fine	s ( <i>-</i> #200	)) in Sie	eve Ana	alyses A	ssum	ed Un	less V	erifie	d by A	dditio	nal Tes	sting					
No Pla	sticity	Index 7	est P	erforme	ed		-					-			-					

ATL	

0.00

6.66

0.42

4/15/2022

Mat	erial Test Report		Report I Issue No	No: MAT:22-0377-S13 p: 1	
Client:	CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	Project Code: 220475 CC: CRW Maria Kampsen		ined below pertain only to the items tested be pt in full, without the prior written approval of	
Project:	South Airpark		Deviewerd	Hantharps	en)
	73130		Title: Date:	By: Maria E Kampsen Senior Engineer 4/28/2022	
Other <sup>-</sup>	Test Results				
Descri	ption	Method		Result	Limits
Compo	l ation Method site Sieving? ting Sieve(s)	ASTM D6913		A Oven Dry Yes No. 4	

ASTM D2487

Cc Date Tested

Cu

Fractional Mass Retained (%)

### Comments

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

												2	4040 B Si Anchora Phone: Fax:	<b>b - Anchorage</b> treet, Suite 102 age, AK 99503 : 907-205-1987 : 907-782-4409 askatestlab.com
Ма	ter	ial T	est F	Report					R	Report ssue N	No: MAT:22-( No: 1	0377-S17		
Client		RW Engine	-		-	Code: 2	20475	;	The	e results cor	ntained below pertain only to accept in full, without the prior	the items tested below. written approval of Alas	This report : ka Testlab or	should not be r the agency.
		40 Arctic B ichorage, A		00	CC	CRW Maria Ka	mpsen				1	-1/ -		
Projec	t: So	outh Airpark									Mar	Hanpsen	$\supset$	
	73	130								eviewec itle:	By: Maria E Kan Senior Engir			
									U	ate:	4/28/2022			
	-	e Detail								Resu				
	ple ID nt Sar	) nple ID		377-S17 9 S13				riptio	<b>n</b> tent (%	%)	Metho ASTM	d F D2216	Result 7	Limits
		•					Date	Teste		,		4/1	1/2022	
							Teste Grou	<u>р Cod</u>	е		ASTM		Smith GM	
							Grou	p Nan	ne	<b>-</b>		lty gravel witl		
							Teste		imits E	Estimat	lea	Joh	Yes n Platt	
							Date	Teste	d			4/14	4/2022	
Part	icle	Size Di	istribut	tion										
					Diameter						Method:	ASTM D691	13	
	100	60	20	6	2	600		200	100	50	Drying By: Date Tested:	Oven 4/15/2022		
	⊢ 100 ⊣			mm ———		+		µm —			Tested By:	John Platt		
	90 -						_				<b>Sieve Size</b> 3in	% Passi	i <b>ng</b> 100	Limits
	80 -										2in		100	
	80										1½in 1in		93 86	
s)	70 -			<b>ر</b>			_				³∕₄in		80	
Percentage Passing (by mass)				N I							½in 3/8in		71 63	
(by	60 -										No.4	Ę	50.3	
Issing	50 -										No.10 No.20		40 33	
Je Pa											No.40		27	
entaç	40 -										No.60 No.100		22 18	
Pero	30 -										No.200		14	
	30													
	20 -								L					
										•				
	10 -													
	0													
Sieve	Size	3″ 2″	1″ 1/:	2" #4	#10	#20	#40 #	#60 #1	00 #2	200				
														<u> </u>
Com	mei	nts												
N/A														

ATL	

<b>Material Test Repor</b>	rt	Report No: MAT:22-0377-S17 Issue No: 1				
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage AK 00502	Project Code: 220475 CC: CRW Maria Kampsen	The results contained below pertain only to the items tested be reproduced, except in full, without the prior written approval of a				
Anchorage, AK, 99503 <b>Project:</b> South Airpark		Man Exporpser				
73130		Reviewed By:Maria E KampsenTitle:Senior EngineerDate:4/28/2022				
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		4/15/2022				

ATL						4040 B Ancho Phon Fa	lab - Anchorage Street, Suite 102 orage, AK 99503 e: 907-205-1987 ax: 907-782-4409 laskatestlab.com		
Material Test F	Report			Report No: ASM:22-0385 Issue No: 1					
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: South Airpark	p, LLC	Project Code: CC: CRW Maria	220475 Kampsen	The results contained below pertain only to the items tested below. This report shou reproduced, except in full, without the prior written approval of Alaska Testlab or the					
73130				Reviewed By: Title: Date:	Maria E Kampse Senior Engineer 4/28/2022				
Sample Details									
Sample ID Client Sample ID Date Sampled		22-0385-S01 TH-30 S1	22-0385-S02 TH-30 S2	22-0385-S03 TH-30 S3	22-0385-S04 TH-30 S4	22-0385-S05 TH-30 S5			
Other Test Results									
Description Water Content (%) Date Tested	Method ASTM D2216	46 4/11/2022	16 4/11/2022	<b>Results</b> 14 4/11/2022	20 4/11/2022	21 4/11/2022	Limits		
Tested By Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Meth	Jeff Smith hod)	Jeff Smith	Jeff Smith 0 38 62 ML Sandy Silt John Platt	Jeff Smith	Jeff Smith 0 35 65 ML Sandy Silt John Platt			
Liquid Limit Plastic Limit Plasticity Index Preparation Method Oversize Removed By Liquid Limit Apparatus Grooving Tool Rolling Tested By Date Tested	ASTM D4318					17 14 3 Wet Hand during mixing on glass Mechanical Plastic Hand Cindy Zickefoose 4/26/2022			

ATL				Demonthin	- A OM 00 000	4040 B Ancho Phor Fa info@a	lab - Anchorage Street, Suite 102 orage, AK 99500 e: 907-205-1987 ax: 907-782-4409 laskatestlab.com
Material Test F	Report			Report No   Issue No:	: ASM:22-038	5	
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503	, LLC	Project Code: CC: CRW Maria	220475 Kampsen	The results contained	below pertain only to the iter full, without the prior written	ms tested below. This repo approval of Alaska Testlab	ort should not be or the agency.
Project: South Airpark				Reviewed By:	Maria E Kampse	ApropSee	
73130				Title: Date:	Senior Engineer 4/28/2022		
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0385-S06 TH-30 S6A	22-0385-S07 TH-30 S6B	22-0385-S08 TH-30 S7	22-0385-S09 TH-30 S8A	22-0385-S10 TH-30 S8B	
Other Test Results							
Description	Method			Results			Limits
Water Content (%) Date Tested	ASTM D2216	17 4/11/2022	5 4/11/2022 Joff Create	4 4/11/2022	7 4/11/2022 Jaff Smith	13 4/11/2022	
Tested By Percent Gravel	LMA (Internal Met	Jeff Smith	Jeff Smith 0	Jeff Smith	Jeff Smith	Jeff Smith	
Percent Sand	LINA (IIIternal Met	liou)	36				
Percent Fines (Silt/Clay)			64				
Group Symbol			ML				
Group Name			Sandy Silt				
Tested By			John Platt				
Group Code	ASTM D2487			SM			
Group Name				Silty sand			
Liquid Limit				0			
Plasticity Index				0			
Tested By	ASTM D2487			John Platt			
Method	ASTM D6913			A			
Preparation Method				Oven Dry			
Composite Sieving?				Yes			
Separating Sieve(s)				No. 4			
Fractional Mass Retained (%)				0.00			
Cu	ASTM D2487						
<u>Cc</u>							

TH-30 Sample 9 - not present Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

							info@alaskatestlab.co
Mate	erial Tes	t Report			Report No Issue No:	: ASM:22-0385 1	
Client:	CRW Engineering		Project Code:	220475	The results contained	below pertain only to the items tested below full, without the prior written approval of A	
	3940 Arctic Blvd., S		CC: CRW	Kampsen			
	Anchorage, AK, 99	9503	IVIAI IA	Kampsen		1 CV	
Project:	South Airpark					Marcharpse	2 L
	73130				Reviewed By: Title:	Maria E Kampsen Senior Engineer	
					Date:	4/28/2022	
Samn	le Details				- 10		
			22-0385-S11	22-0385-S12	22-0385-S13	22-0385-S14	
Sample	Sample ID		TH-30 S9	TH-30 S9A	TH-30 S9B	22-0365-514 TH-30 S10	
Date Sa			111 00 00		111 00 000		
	Test Results	S					
Descrip	otion	Method			Results		Limits
	ontent (%)	ASTM D2216		10	29	4	
Date Te				4/11/2022	4/11/2022	4/11/2022	
Tested E Group C	1	ASTM D2487		Jeff Smith	Jeff Smith CL	Jeff Smith	
Group N		A01101 D2401			Lean clay		
Gravel (					0		
Sand (%					0		
Fines (%					100		
Tested E Liquid Li		ASTM D2487 ASTM D4318			Cindy Zickefoose 29		
Plastic L		ASTM D4316			19		
Plasticity					10		
-	tion Method				Wet		
	e Removed By				Hand during mixing on glass		
	imit Apparatus				Mechanical		
Grooving Rolling	g 1001				Plastic Hand		
Tested E	Зv				Karen Jackson		
Date Te	,				4/25/2022		
Percent		LMA (Internal Met	hod)			0	
Percent						49	
Group S	Fines (Silt/Clay)					51 ML	
Group S						Sandy Silt	
Tested E						John Platt	

#### TH-30 Sample 9 - not present Soil Classification of Fines (-#200) in LMAs Assumed Unless Verified by Additional Testing

Alaska Testlab - Anchorage

			>							_			Anchora Phone: Fax:	reet, Suite 1 age, AK 995 907-205-19 907-782-44 skatestlab.co
Mat	tei	ria	l T	es	t Ro	epor	t			Repor Issue	t No: MAT:22-0 No: 1	385-S0	8	
Client:	C	RW	Engine	eering	Group, I	LLC	Project 0		220475	The results of	ontained below pertain only to the except in full, without the prior w			
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Samp	le II	C		2	2-0385				Descriptio	n	Method	-	Result	Limits
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									Tested By			D0407	Jeff Smith	
									Group Cod Group Nan	ne	ASTMI	D2487	SM Silty sand	
									Liquid Limi Plasticity Ir				0	
									Tested By		ASTM I	D2487	John Platt	
									Date Teste	d			4/24/2022	
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							Diameter				Method:	ASTM I	D6913	
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	90 - 80 - 70 -	•					2	600			Date Tested: Tested By: Sieve Size 3in 2in 1½in 1in ¾in ½in	4/23/20 John Pl	att <b>assing</b> 100 100 100 100 100 100	Limits
	90 80						2	600			Date Tested: Tested By: Sieve Size 3in 2in 1½in 1½in 3¼in ½in 3/8in ¼in	4/23/20 John Pl	att 2 <b>assing</b> 100 100 100 100 100 100 100 100	Limits
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	90 90 80 70 60						2				Date Tested: Tested By: Sieve Size 3in 2in 1½in 1½in 3/8in ¼in No.4 No.10 No.20 No.40 No.60	4/23/20 John Pl	att <b>assing</b> 100 100 100 100 100 100 100 10	Limits
ercentage Passing (by mass)	+ 90 - 90 - 80 - 70 - 60 - 50 -						2				Date Tested: Tested By: Sieve Size 3in 2in 1½in 1½in 3/8in ¼in ½in 3/8in ¼in No.4 No.10 No.20 No.40	4/23/20 John Pl	att Passing 100 100 100 100 100 100 100 100 100 10	Limits
Percentage Passing (by mass)	+ 100 - 90 - 80 - 70 - 60 - 50 - 40 - 30 -						2				Date Tested: Tested By: Sieve Size 3in 2in 1½in 1½in 3/8in ½in 3/8in ¼in No.4 No.10 No.20 No.40 No.60 No.100	4/23/20 John Pl	att <b>assing</b> 100 100 100 100 100 100 100 10	Limits
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Percentage Passing (by mass)	+ 100 - 90 - 80 - 70 - 60 - 50 - 40 - 30 -										Date Tested: Tested By: Sieve Size 3in 2in 1½in 1½in 3/8in ½in 3/8in ¼in No.4 No.10 No.20 No.40 No.60 No.100	4/23/20 John Pl	att <b>assing</b> 100 100 100 100 100 100 100 10	Limits
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Mat	erial Test Repor	t	Report No: MAT:22-0385-S08 Issue No: 1				
Client:	CRW Engineering Group, LLC	Project Code: 220475	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.				
	3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503	CC: CRW Maria Kampsen					
Project: South Airpark			Man Etapsen				
			Reviewed By: Maria E Kampsen				
	73130		Title: Senior Engineer				
			Date: 4/28/2022				
Other 7	Fest Results						
Descri	ption	Method	Result Limits				
Method	1	ASTM D6913	Α				
Prepara	ation Method		Oven Dry				
Compo	site Sieving?		Yes				
Separa	ting Sieve(s)		No. 4				
Fraction	nal Mass Retained (%)		0.00				
Cu		ASTM D2487					
Cc							
Date Te	ested		4/23/2022				

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

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Material Test F	Report			Report No ssue No:	: ASM:22-038 1	6	
Client: CRW Engineering Group	p, LLC F	Project Code: 220475	Т	he results contained	below pertain only to the iten full, without the prior written	ns tested below. This report approval of Alaska Testlab o	t should not be or the agency.
3940 Arctic Blvd., Ste. 3	00	CC: CRW Maria Kampsen					
Anchorage, AK, 99503		mana Rampoon			10	V	
<b>Project:</b> South Airpark					Mares	popser	
73130				-	Maria E Kampse	n	
73130				ïtle: )ate:	Senior Engineer 4/28/2022		
Sample Details							
Sample ID		22-0386-S01	22-0386-5		2-0386-S03	22-0386-S04	
Client Sample ID Date Sampled		TH-31 S1	TH-31	S2	TH-31 S3	TH-31 S4	
Other Test Results							
Description	Method		F	Results			Limits
Water Content (%)	ASTM D2216	40		20	20	16	
Date Tested		4/12/2022	4/12/20		4/12/2022	4/12/2022	
Tested By		Jeff Smith	Jeff Sm	nith	Jeff Smith	Jeff Smith	
Percent Gravel	LMA (Internal Method	)			0		
Percent Sand					8		
Percent Fines (Silt/Clay)					92		
Group Symbol					ML		
Group Name					Silt		
Tested By					John Platt		
Comments							
Soil Classification of Fines (-#200)	) in LMAs Assumed	Unless Verified by Ado	ditional Testi	ng			

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Material Test Report					Report No: ASM:22-0386 Issue No: 1				
Client:	ent: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503		Project Code: 220475 CC: CRW Maria Kampsen		The results contained below pertain only to the items tested belo reproduced, except in full, without the prior written approval of Al			ow. This report should not be Jaska Testlab or the agency.	
Project:	South Airpark					Man	Etapsen		
	73130			·	Reviewed B Title: Date:	y: Maria E Kar Senior Engii 4/28/2022			
Samp	le Details								
Sample Client			22-0386-S05 TH-31 S5	22-0386-3 TH-31		22-0386-S07 TH-31 S7	22-0386-S08 TH-31 S8A		
	Test Results								
Descri	ption	Method			Results			Limits	
Water C Date Te Tested I		ASTM D2216	17 4/12/2022 Jeff Smith	4/12/2 Jeff Sr		5 4/12/2022 Jeff Smith	9 4/11/2022 Jeff Smith		
Percent	Gravel	LMA (Internal Metho		<u> </u>	Indi	0 61	44 20		
Group S			94 ML			39 SM	36 GM		
Group N Tested I			Silt John Platt			Silty Sand John Platt	Silty Gravel with Sand John Platt		

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Material Test F		Report No: ASM:22-0386 Issue No: 1					
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: South Airpark	o, LLC	Project Code: 220475 CC: CRW Maria Kampsen		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.			
73130			·	Reviewed By Title: Date:	: Maria E Kampser Senior Engineer 4/28/2022	1	
Sample Details							
Sample ID Client Sample ID Date Sampled		22-0386-S09 TH-31 S8B	22-0386- TH-31 \$		2-0386-S11 TH-31 S9	22-0386-S12 TH-31 S10	
Other Test Results							
Description	Method			Results			Limits
Water Content (%) Date Tested Tested By	ASTM D2216	19 4/12/2022 Jeff Smith	4/12/2 Jeff Si		13 4/12/2022 Jeff Smith	3 4/12/2022 Jeff Smith	
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Group Name Tested By	LMA (Internal Methor	d)			3 40 57 ML Sandy Silt John Platt		
Commonto							
Comments Soil Classification of Fines (-#200)	in LMAs Assumed	Unless Verified by Add	ditional Tes	tina			
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011 4 -	erial Test F	keport			Issu	ort No: AS le No: 1			
Client:	CRW Engineering Group		Project Co	de: 220475	The resu reproduc	Its contained below pe ed, except in full, witho	rtain only to the items t out the prior written app	ested below. This report roval of Alaska Testlab o	t should not be or the agency.
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	Anchorage, AK, 99503		IVI	ana Kampsen			1 OK	1 -	
Project:	South Airpark					C.	Marta	-psee	
					Revie	wed By: Maria	a F Kampsen		
	73130				Title:	Seni	or Engineer		
					Date:	4/28/	/2022		
	le Details								
Sample	e ID Sample ID		22-0387-S01 TH-32 S1	22-0387-S02 TH-32 S2	22-0387-S03 TH-32 S3	22-0387-S04 TH-32 S4	22-0387-S05 TH-32 S5	22-0387-S06 TH-32 S6	
Date Sa			111 02 01	111 02 02	111 02 00	111 02 04	111 02 00	111 02 00	
	Test Results								
Descrip		Method			Resu	ults			Limits
Water C	ontent (%)	ASTM D2216	19	23	21	23	19	21	
Date Te	sted		4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/12/2022	4/11/2022	
Tested E	Зу		Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	Jeff Smith	
Percent	Gravel	LMA (Internal Me	thod)	0		0		0	
Percent	Sand			12		6		5	
Percent	Fines (Silt/Clay)			88		94		95	
Group S				ML		ML		ML	
Group N				Silt		Silt		Silt	
Tested E				John Platt		John Platt		John Platt	

F-252

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Mat	erial Test F	Report			Rep	oort No: AS ue No: 1	SM:22-0387		
Client:	CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	p, LLC	<b>CC:</b> CI	de: 220475 RW aria Kampsen	The res	sults contained below p	ertain only to the items to nout the prior written app	ested below. This repo roval of Alaska Testlab	ort should not be or the agency.
Project:	South Airpark					,	Hantha	pser)	
	73130				Revi Title: Date	Sen	ia E Kampsen ior Engineer 3/2022		
Samp	le Details								
	e ID Sample ID ampled		22-0387-S07 TH-32 S7	22-0387-S08 TH-32 S8	22-0387-S09 TH-32 S9	22-0387-S10 TH-32 S10A	22-0387-S11 TH-32 S10B		
Other	Test Results								
Descri	ption	Method			Res	ults			Limits
Water C Date Te Tested		ASTM D2216	17 4/12/2022 Jeff Smith	20 4/12/2022 Jeff Smith	24 4/12/2022 Jeff Smith	12 4/12/2022 Jeff Smith	25 4/12/2022 Jeff Smith		
Percent		LMA (Internal Me			0				
Percent					2 98				
Group S	Fines (Silt/Clay) Symbol				98 ML				
Group N					Silt				
Tested					John Platt				
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# Appendix C

# Test Pit Investigation Findings and Preliminary Geotechnical Recommendations

Included in this section:

1) Memo from CRW summarizing the Test Pit Findings and Preliminary Geotechnical Recommendations



# Memorandum

Date:	December 2, 2021
То:	Matt Van Goethem, MCG Explore Design
From:	Steven Halcomb, PE, GE, D.GE (CRW)
Project:	ANC South Airpark
Project No:	CRW #73130.00
Subject:	Test Pit Investigation Findings and Preliminary Geotechnical Recommendations

# Introduction

CRW Engineering Group, LLC (CRW) is pleased to present this memo of our limited geotechnical investigation at the proposed lease lot at ANC (Figure 1). We understand that future infrastructure includes aircraft ramps, paved vehicle travel ways and parking areas, a vehicle wash facility, and a multipurpose building. This memo presents a summary of our field activities, test pit logs (Attachment 1), results of laboratory analysis of soil samples collected from test pits (Attachment 2), and preliminary geotechnical recommendations. A full geotechnical investigation is planned to address future infrastructure needs.

# **Field Investigation**

Test pits were completed on November 10, 2021 to evaluate subsurface conditions in the upper 10 feet below ground surface (BGS) across the site. The investigation program was developed to provide initial information for the purpose of applying for a Municipality of Anchorage (MOA) Fill and Grade Permit in addition to informing the future geotechnical investigation. Additional geotechnical investigations should be performed prior to design to ensure that sufficient geotechnical information is available to support all site plan and foundation design decisions.

Test pits were excavated with a Kubota U55-4 owned and operated by Pioneer Earthworks, LLC. Logging and sampling of soils was performed by engineers Ali Sacks and Dillon Noad of CRW. Chris Dearing of GMC Contracting, Inc. also observed excavation of the test pits. Prior to commencement of field activities, utility locates were coordinated by CRW through the utility locate service "811". ANC Operations were notified when field work started and stopped.

Ten test pit locations were selected based on the preliminary site plan and located in the field using handheld mobile devices with publicly available location services.

At each test pit location, the excavation was advanced using a toothed bucket to the maximum depth the excavator was capable without benching, approximately 10 to 11 feet BGS. Test pits were backfilled with excavated soil and smoothed to preserve original slope and drainage. The presence of fill, surface water, and groundwater were noted on field test pit logs. Test pit locations were surveyed during the topographic survey conducted by CRW.

# **Site Conditions**

The proposed site is predominately forested with birch and spruce, except in areas previously cleared or filled. Several areas have been built up with fill of varying types. In the center of the area, a large circular pad has been built up of fill, and is covered only with grass, shrubs, and young spruce. Slopes at the edge of this pad range from 1H:1V to less than 4H:1V. The eastern side of the lease lot has been filled and/or leveled in the past. The northeast corner appears to have been filled fairly recently, while the central portion of the east end of the lot is a gravel pad that reportedly was used to stage and operate a hot mix

plant. The natural terrain is rolling, generally climbing as it approaches the east-west runways at ANC, though the center of the lease area contains some of the highest elevations.

While most of the site is currently unused and undeveloped, there is an active FAA fiber-optic cable buried within the lease boundaries along the north side of the lease area.

# Historical Geotechnical Information and General Geology

Historical geotechnical investigations noted predominantly silt and silty sand in areas with native soil. The silt can be up to 20 feet thick. Granular soils are present at varying depths.

Maps of surficial geology in Anchorage (USGS, 2021; Schmoll and Dobrovolny, 1972) show the surface soils as Quaternary-age unconsolidated sediments described as predominantly fine sand and some clay. Adjacent areas are designated as geologic units that include sand and gravel or Bootlegger Cove clays, and may occur beneath or interbedded with the silt identified as the predominant surface deposit in the lease area (Schmoll and Dobrovolny, 1972).

# **Laboratory Testing and Results**

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 1. In total, 33 samples were submitted for testing.

The laboratory testing consisted of soil index tests for water content, Atterberg limits, and Limited Mechanical Analysis (LMA) to determine percentages of gravel, sand, and fines content. 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, see Attachment 1.

Results of the laboratory testing are presented in Attachment 2.

Analysis	Method	Number of Samples		
Water Content	ASTM D2216	33		
Atterberg Limits	ASTM D4318	5		
Limited Mechanical Analysis	Laboratory procedure	10		

# Table 1 – Laboratory Tests

# Findings

Near surface conditions at test pit locations across the site consisted of 3 to 12 inches of a brown organic mat at all but one location (TP-08). The mat included grasses, roots, leaves, and other organic material. TP-08 was clear of organic mat, and the top 3.5 feet comprised of gravel with silt and sand with few cobbles and RAP up to 7 inches in diameter.

Soil lithologies below the organic mat were variable across the site. In general, test pits located near the center of site (TP-04, TP-05, TP-06, and TP-07) contained mainly brown/tan moist silts immediately below the organic mat that extended to the bottom of the test pits. During laboratory testing, moisture contents of these silts ranged from 11 to 22 percent, and one sample in TP-05 contained 99 percent fines. In TP-04, TP-06, and TP-07, the silt layer was underlaid by sands with silt, silty sands with gravel, and gravels with silt and sand that continued to the depth of excavation.

December 2, 2021 ANC South Airpark Test Pit Investigation Findings and Preliminary Geotechnical Recommendations

TP-10 was also found to be mostly silt beginning at 2 feet BGS and gradually transitioning to silty sands with gravel by 8.5 feet BGS. 5 percent cobbles up to 9 inches in diameter were observed below 8.5 feet BGS.

TP-01, TP-02, and TP-09 contained diverse soil lithologies with several transitions and layers identified during excavation. Layers ranged from 1 to 4 feet in thickness and included silts, gravels with silt and/or sand, sands with gravel, silty sands with or without gravel, sandy silts with gravel, and silty gravel. Notably, TP-01 contained only trace amounts of gravel from 1.5 to 4.5 feet BGS, and TP-09 contained 5 percent cobbles up to 5 inches below 9 feet BGS. Laboratory testing of soil samples in TP-01, TP-02, and TP-09 resulted in moisture contents ranging from 7 to 30 percent.

TP-03 and TP-08 appear to be partly comprised of non-native soils. TP-03 was found to have gray/brown silt with sand to 9.5 feet BGS, and silt with gravel from 9.5 ft BGS to the bottom of excavation. TP-08 was predominantly silts and silty clays with sand that may have been previously consolidated, though excavations revealed some organics and roots as deep as 10 feet BGS. Subrounded to rounded cobbles were observed in both TP-03 and TP-08, up to 7 inches in diameter. Laboratory testing on samples in TP-03 and TP-08 resulted in moisture contents ranging from 4 to 24 percent. Fines content testing on one sample from both TP-03 and TP-08 resulted in 77 and 94 percent, respectively.

Groundwater level was not identified in any test pit, except for TP-09 in which groundwater was observed at 10.5 feet BGS. Soil samples at this depth were found to be wet, however the test pit did not noticeably fill with water during excavation.

Frozen ground was noted in TP-03, TP-09, and TP-10 to a maximum thickness of 6 inches BGS.

# **Preliminary Geotechnical Recommendations**

We have developed the following preliminary geotechnical recommendations based on our findings from materials in the test pits and current understanding of the site development.

# Site Preparation, Excavation, and Drainage

We recommend the site be cleared of trees and brush and grubbed of the organic mat prior to starting earthwork operations. All earthwork should be performed in accordance with project specifications and with local, state, and federal laws and regulations, 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). We recommend the exposed subgrade be smoothed prior to placement of any geotextile or fill.

Excavations above the water table may stand relatively steeply initially but fail suddenly without warning. 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. As the insitu soils dry they will tend to ravel and slough to their natural angle of repose which we estimate to range from 1.9 to 2.0H:V (horizontal to vertical). Below the water table, or if surface water is allowed to enter the trench, soils may soften, squeeze, slump over time or due to disturbance, to slopes of 2.5 to 3.0H:1V or flatter.

Excavations should be performed by a backhoe with a smooth-bladed bucket from outside the excavation to minimize disturbance of the moisture-sensitive mineral subgrade soils.

Excavations may experience seepage due to shallow, perched water or surface runoff, and should be monitored during construction. Measures should be taken to prevent surface water runoff from entering the excavation including the ground around open excavations should be contoured to direct

surface water away from the excavations. Grading should be designed to prevent ponding of surface water except where retention ponds or similar devices are intended.

# **Subgrade Preparation**

We recommend a Class 2 woven separation geotextile consistent with the Municipality of Anchorage (MOA) Standard Specification (M.A.S.S.) be placed directly on top of the subgrade soils prior to classified fill placement. This geotextile will provide reinforcement and minimize migration of fine-grained subgrade soils into placed fill. The geotextile should be placed and joined according to the manufacturer's recommendations. If no manufacturer's recommendations are provided, the geotextile should be placed in accordance with guidance provided in the Federal Highway Administration (FHWA), *Geosynthetic Design and Construction Guidelines*, Publication No. FHWA-HI-95-038, as applicable.

The first lift above the separator fabric should be compacted by tracking with equipment or nonvibratory rollers to minimize disturbance of the sensitive subgrade soils. Subgrade soils that are disturbed, pumped, or rutted by construction activity should be removed prior to placement of any classified fill. Equipment should not track over or result in pumping the bottom of the excavation before imported fill is placed.

Subgrade soils and imported fill 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.

# Reuse of Material, Classified Fill, and Compaction

We understand the contractor may choose to use the existing on-site material as backfill to aid with cut and fill volumes. Existing soils at the site consist of predominantly silt, sandy silt, and silty sand with a low plastic index indicating dramatic changes in soil behavior with minor variations in water content. Existing soils may be re used to fill and grade the site, however the contractor should be prepared to properly handle the silty soils including keeping them dry during earthwork operations and compaction. The natural water content of the silts ranged from 18 to 30 percent which we estimate to be in excess of optimum water content for compaction. We expect this silt to have optimum water contents from 15 to 18 percent and dry densities from 107 to 112 pounds per cubic feet (PCF) though actual compaction testing is required to confirm these values. We expect mechanical mixing or windrowing will be required to reduce the natural water content to achieve compaction. Additional methods, such as chemical stabilization, can be considered on request.

We recommend reused silty soils be placed in loose lifts not exceeding 6 inches in thickness with lift thickness adjusted based on the contractor's equipment to achieve the required compaction. Typical equipment for low plasticity soils consist of sheepsfoot or pad foot rollers which is recommended to achieve compaction, in addition to control of water content. In general, each lift of silty soils should be compacted to a minimum of 95 percent of its Modified Proctor Maximum Density, determined per ASTM D1557, for areas where buildings and heavy aircraft will traverse. Areas where light vehicular traffic or landscaping occurs, the compaction can be decreased to a minimum of 85 percent. Lightweight or hand-operated compactors should be used near existing infrastructure, if applicable, to avoid damage.

We recommend classified fill be clean, well-graded sand and gravel with a frost classification of nonfrost susceptible (NFS). The gradation of the classified fill should be consistent with M.A.S.S. Type II and II-A material. 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 95 percent of its Modified Proctor Maximum Density, determined per ASTM D1557. Lightweight or hand-operated compactors should be used near existing infrastructure, if applicable, to avoid damage.

All native silty soils and classified fill material should be thawed, free from lumps, organics, debris, and other deleterious material and should be durable and sound.

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. No hauling or grading equipment should be used in lieu of standard compaction equipment. Any loosening of compacted material should be replaced and or re-compacted.

# Cut and Fill Slopes

We recommend cut and fill slopes be no steeper than 2H:1V (horizontal to vertical) for classified fill assuming the fill is compacted following our recommendations and 3H:1V for native silty soils. Specific analysis and recommendations can be provided on request if other materials are used during design or construction.

We recommend native silty soils have a minimum of 20 foot horizontal bench approximately every 15 feet of vertical height of slope to improve the seismic performance during strong ground motions. The bench should be graded to still provide drainage and not pond water.

Cut and fill slopes at these recommended angles will perform well though some minor sloughing and rills will likely occur over time due to runoff/infiltration under static conditions. During strong ground motions, minor displacements are expected with the primary effect anticipated to be rotational failures of the slope edges. More detailed seismic slope stability analyses can be performed on request.

# Limitations and Closure

The information submitted in this report is based on our interpretation of data from a limited geotechnical investigation performed for this project. The observations and conclusions contained in this report are based on site conditions as they were observed at the time of the field work and data acquisition. It is presumed that the data collected is representative of the subsurface conditions as described in this memorandum. If conditions are found to differ, we should be notified immediately to review any 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 field data, discrete samples, or advancing borings/test pits. The client and contractor should be aware of this risk and account for contingency accordingly.

This report was prepared by CRW Engineering Group, LLC 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 memo.

# Attachments

- Figures (1) Site Map
- Attachment 1 Test Pit Logs and Log Legend

December 2, 2021 ANC South Airpark Test Pit Investigation Findings and Preliminary Geotechnical Recommendations

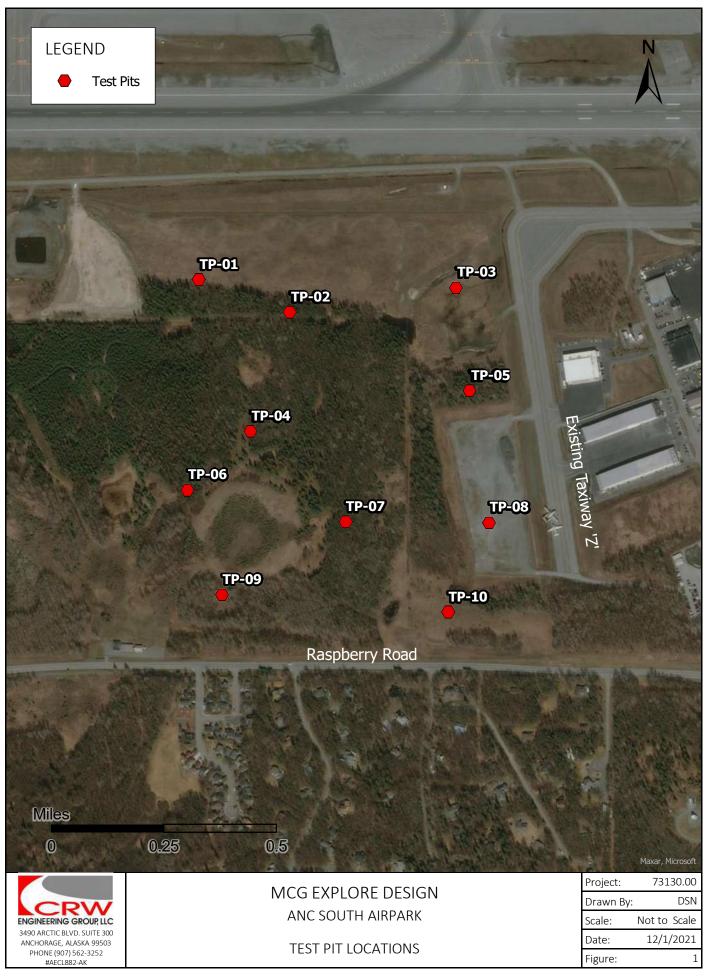
• Attachment 2 – Laboratory Reports

# References

Schmoll, H.R. and Dobrovolny, E. 1972. Generalized Geologic Map of Anchorage and Vicinity, Alaska.

USGS Geologic map of Alaska. Retrieved November 2021: <u>https://alaska.usgs.gov/science/geology/state\_map/interactive\_map/AKgeologic\_map.html</u>

# **Figures**



# **Attachment 1**

# **Test Pit Logs**

Included in this section:

- 1) Legend
- 2) Test Pit Logs

# **UNIFIED SOIL CLASSIFICATION (ASTM D 2487)**

GROUP SYMBOL	SOIL GROUP NAMES &	LEGEN	ND
GW	WELL-GRADED GRAVEL	送	gq
GP	POORLY GRADED GRAVEL		soil contains 5% sand, ac 'with sand"
GM	SILTY GRAVEL	0	if soil contains ≥ 15% sand, add "with sand"
GC	CLAYEY GRAVEL		·= ^I
SW	WELL-GRADED SAND		, pp
SP	POORLY GRADED SAND		soil contains 5% gravel, a with gravel"
SM	SILTY SAND		if soil contains ≥ 15% gravel, add "with gravel"
SC	CLAYEY SAND		.= <del>(</del>
CL	LEAN CLAY		soil d" or e is ndy"
ML	SILT		ained : ith san /er type add "sa
OL	ORGANIC CLAY OR SILT		arse-gr add "w vhichev 30%, a tvelly"
СН	FAT CLAY		If soil contains coarse-grained soil from 15% to 25%, add "with sand" or "with gravel" for whichever type is prominent, or for 2 30%, add "sandy" or "gravelly"
MH	ELASTIC SILT		oil cont 15% tc th grav inent, c
ОН	ORGANIC CLAY OR SILT		ifs from prom
PT	PEAT	<u>\\/</u>	

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."

### OTHER SYMBOLS

SYMBOL	NAMES & LEGE	ND	
BLDR	COBBLES AND BOULDERS	X	overlay
FILL	GRANULAR FILL		e or
WD	WOODY DEBRIS	$\mathbb{K}$	lan-made placed
RAP	RECLAIMED ASPHALT PAVEMENT		mar

### **CRITERIA FOR DESCRIBING MOISTURE CONDITION** (ASTM D 2488)

	1
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

# DESCRIPTIVE TERMINOLOGY FOR

ENGINEERING GROUP, LLC

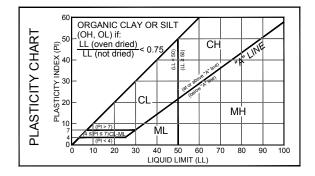
3940 ARCTIC BLVD. SUITE 300 ANCHORAGE, ALASKA 99503 PHONE: (907) 562-3252 #AECL882-AK

Ē

PERCENTAGE	S (ASTM D 248	3)	LABORATORY TEST ABBREVIATIONS						
DESCRIPTIVE	RANGE OF	AL	Atterberg Limit	PI	Plastic Index	TS	Thaw Consolidation		
TERMS	PROPORTION	Conso	Consolidation	PID	Photoionization Detector	ΤV	Torvane		
TRACE	0 - 5%	LMA	Limited Mechanical Analysis	Proc	Proctor	TXCD	Consolidated Drained Triaxial		
FEW	5 - 10%	MA	Sieve and Hydrometer Analysis	PP	Pocket Penetrometer	TXCU	Consolidated Undrained Triaxial		
LITTLE	10 - 25%	MC	Moisture Content	P200	Percent Fines (Silt & Clay)	ΤΧυυ	Unconsolidated Undrained Triaxial		
SOME	30 - 45%	NP	Non-plastic	SA	Sieve Analysis	VS	Vane Shear		
MOSTLY	50 - 100%	OLI	Organic Loss on Ignition	SpG	Specific Gravity	Ω	Soil Resistivity		

### 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



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

)											
COHESIONLES			ESS SOILS	(a)		COHES	SIVE SOILS	b)			
	overlay ਨ		RELAT DENS	ΓIVE ITY (I	N <sub>60</sub> BLOWS/FC	OT) <sup>(c)</sup>	CONSISTENCY	۱ BLOWS)	I <sub>60</sub> ⊱FOOT) <sup>(c)</sup>	UNCONFIN COMPRESS STRENGTH (1	IVE
×.	ade		VERY L	OOSE	0 - 4		VERY SOFT	0	- 2	0 - 0.25	
	man-made or placed		LOOSE		4 - 10		SOFT	2 - 4		0.25 - 0.50	
	Ë		MED DI	ENSE	10 - 30	)	MEDIUM	4	- 8	0.50 - 1.0	
			DENSE		30 - 50	)	STIFF	8 -	15	1.0 - 2.0	
			VERY [	DENSE	OVER 5	50	VERY STIFF	15	- 30	2.0 - 4.0	
							HARD		R 30	OVER 4.0	
		(a	Soils con behavior.		, sand and silt,	either sep	arately or in combination pos	sessing no c	haracteristics of	plasticity, and exhibitin	g drained
-		(b) (c)	) Soils pos				ind exhibiting undrained beha	vior.			
			) Undraine				npression strength, U <sub>c</sub> . Note t	hat Torvane	measures su and	d Pocket Penetrometer	measures
			U <sub>c</sub> .			-	LER ABBREVIAT	IONS	-		
			SS	SPT Samp	oler (2 in. O	r (2 in. OD, 140 lb hammer)			Core (Rock)		
			SSO	Oversize 8	Spit Spoon	Spoon (2.5 in. OD, 140 lb typ.)			Thin Wall (Shelby Tube)		
			HD	HD Heavy Duty Split Spoon (3 in			n. OD, 300/340 lb typ	.) MS	Modified	Shelby	
			BD	Bulk Drive	(4 in. OD,	300/34	0 lb hammer typ.)	GP	Geoprobe		
			CA	Continuou	s Core (So	il in Ho	llow-Stem Auger)	AR	Air Rotar	y Cuttings	
R			G	Grab Sam	ple from su	from surface / testpit			Auger Cu	ittings	
				L	ABORAT	ORY	TEST ABBREVIA	TIONS			
AL	Atterb	erç	j Limit		PI	Plasti	c Index	TS	Thaw Cons	olidation	
Consol	Conso	olid	ation		PID	Photo	ionization Detector	TV	Torvane		
LMA	Limite	d N	lechanic	al Analysis	Proc	Procto	or	TXCD	Consolidate	ed Drained Triax	ial
MA	Sieve	an	d Hydror	meter Analy	sis PP	Pocke	et Penetrometer	TXCU	Consolidate	ed Undrained Tri	axial
MC	Moist	ure	Content		P200	Perce	nt Fines (Silt & Clay)	τχυυ	Unconsolida	ated Undrained	Triaxial
NP	Non-p	Non-plastic			SA	Sieve	Analysis	vs	Vane Shea	r	
OLI	I Organic Loss on Ignition				SpG	Speci	fic Gravity	Ω	Soil Resisti <sup>,</sup>	vity	
	•							•			
	LEG	E١	ND: FI	ELD AN	D LABC	DRAT	FORY TEST A	BBRE	<b>/IATION</b>	S	

	FROZEN SOIL CLAS	SIFICATIO	N (ASTM D	4083)					
1. DESCRIBE SOIL INDEPENDENT O		CLASSIF	Y SOIL BY TH ASSIFICATIO	HE UNIF					
FROZEN STATE	MAJOR	GROUP	GROUP SUBGROUP			P	ICE	BONDING SYMBOLS	
	DESCRIPTION	DESIGNAT		DESCRI	PTION	DESIGNATION		No ice-bonded soil	
	Segregated		Poorl	y bonde	ed of friable	N <sub>f</sub>		observed	
	ice not visible by eye	N	Well		excess ice	Nbn		Poorly bonded or friable	
2. MODIFY SOIL DESCRIPTION B	(		bonde	E	xcess ice	Nbe		Well bonded	
DESCRIPTION OI FROZEN SOIL	F		Indivi	dual ice inclusi	crystals or ions	Vx		•	
	Segregated ice		Ice co	patings of	on particles	Vc		DEFINITIONS	
	visible by eye (ice less than 25 mm thick)	v			irregularly formations	Vr	otherwise f	e is ice which has rotted or ormed into long columnar crystals, y bonded together.	
					distinctly formations	Vs	moderate n	transparent and contains only a umber of air bubbles.	
			Unifo	rmly dis	tributed ice	Vu	and non-pe		
3. MODIFY SOIL DESCRIPTION BY DESCRIPTION O		105	Ice v	vith soil	inclusions	ICE+soil type		otes a condition in which material is en up under light to moderate	
SUBSTANTIAL IC STRATA		ICE	Ice without soil inclusions		ICE	<u>Granular Ice</u> is composed of coarse, mor less equidimensional, ice crystals weakly bonded together.			
	FROST DESIGN S		SIFICATION	N <sup>(1)</sup>			of ice found	s on particles are discernible layers l on or below the larger soil particles	
FROST GROUP <sup>(2)</sup>	GENERAL SOIL TY		% FINER TH 0.02 mm B WEIGHT			AL USCS CLASS	associated	soil mass. They are sometimes with hoarfrost crystals, which have voids produced by the freezing	
NFS <sup>(3)</sup>	(a) Gravels Crushed stone Crushed rock	ne 0 - 1.5		0 - 1.5 GW, GP		/, GP	<u>Ice Crystal</u> is a very small individual ice parti visible in the face of a soil mass. Crystals ma be present alone or in a combination with oth ice formations.		
	(b) Sands		0 - 3	0 - 3 SW		/, SP		are lenticular ice formations in soil	
PFS <sup>(4)</sup> [MOA NFS] [FAA NFS]	(a) Gravels Crushed stone		1.5 - 3	- 3 GV		I, GP	generally n and commo	ssentially parallel to each other, ormal to the direction of heat loss only in repeated layers.	
	Crushed rock				014		lenses, laye	ation is the growth of ice as distinct ers, veins and masses in soils,	
[MOA F2] [FAA FG-2] S1	(b) Sands		3 - 10		-	/, SP	commonly direction of	but not always oriented normal to heat loss.	
[MOA F1] [FAA FG-1]	Gravelly soils		3 - 6			V-GM, GP-GM, C, GP-GC	Massive Ice	is a large mass of ice, typically	
S1 [MOA F2] [FAA FG-2]	Sandy soils		3 - 6			V-SM, SP-SM, C, SP-SC	Poorly-Bon	and relatively homogeneous. <u>ded</u> signifies that the soil particles held together by the ice and that the	
F1 <sup>(5)</sup> [FAA FG-1]	Gravelly soils		6 - 10			1-GC, GW-GM, V-GC, GP-GC	frozen soil chipping or	consequently has poor resistance to breaking.	
F2 <sup>(5)</sup>	(a) Gravelly soils	;	10 - 20		GW-GO	V-GM, GP-GM, C, GP-GC	interconneo melting at a	contains numerous void, usually ted and usually resulting from iir bubbles or along crystal interfaces	
[FAA FG-2]	(b) Sands		6 - 15			SM, SW-SM, SP-SM, SC, SW-SC, SP-SC, SM-SC		from presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural	
F3 <sup>(5)</sup>	(a) Gravelly soils		10 -20		GM, GC	C, GM-GC	unity.		
[FAA FG-2] [For Clays, FAA FG-3]	(b) Sands, except very fine silty sands (c) Clays, PI>12		6 - 15	6 - 15 SM, SC		C, SM-SC	show loss of	e frozen soils do not, on thawing, of strength below normal, long-time ues nor produce detrimental	
					CL	., CH	settlement.		
	(a) Silts				ML, MI	H, ML-CL		able frozen soils show on thawing,	
F4 <sup>(5)</sup>	(b) Very fine silty sa		Over 15		SM, SC	C, SM-SC	significant l	oss of strength below normal, nawed values and/or significant	
[FAA FG-4]	(c) Clays, PI<12					ML-CL	settlement,	as a direct result of the melting of ice in the soil.	
	(d) Varved clays or other fi banded sediment	s			ML-CL, SM,	red with ML, MH, SC, or SM-SC	Well-Bonde	Ice in the soil. ad signifies that the soil particles are Id together by the ice and that the	
<ol> <li>From the U.S. Army Corps of Engine</li> <li>USACE frost groups directly corresp frost groups come from Table 2-2 in Se</li> <li>Non-frost susceptible</li> </ol>	ond to frost groups in Municipality of Ar	chorage (MOA) D	esign Criteria Man	ual (DCM).	Federal Aviation	Administration (FAA)	frozen soil	possesses relatively high resistance or breaking.	

 (2) USACE trost groups directly correspond to frost groups in Municipality of Anchorage (MOA) Design Criteria Manual (DCM). Fee frost groups come from Table 2-2 in Section 2.7 of Advisory Circular (AC) 150/5320-6F, Airport Pavement Design and Evaluation.
 (3) Non-frost susceptible
 (4) Possibly frost susceptible, requires lab test for void ratio to determine frost design classification.
 (5) Consistent with MOA Definition. ı (FAA)

added.dwg

debris\_

RAP

Legend \Geotech\_

\_ 00

Report Template\Borehole

Geotechnical

Geotechnical\CRW

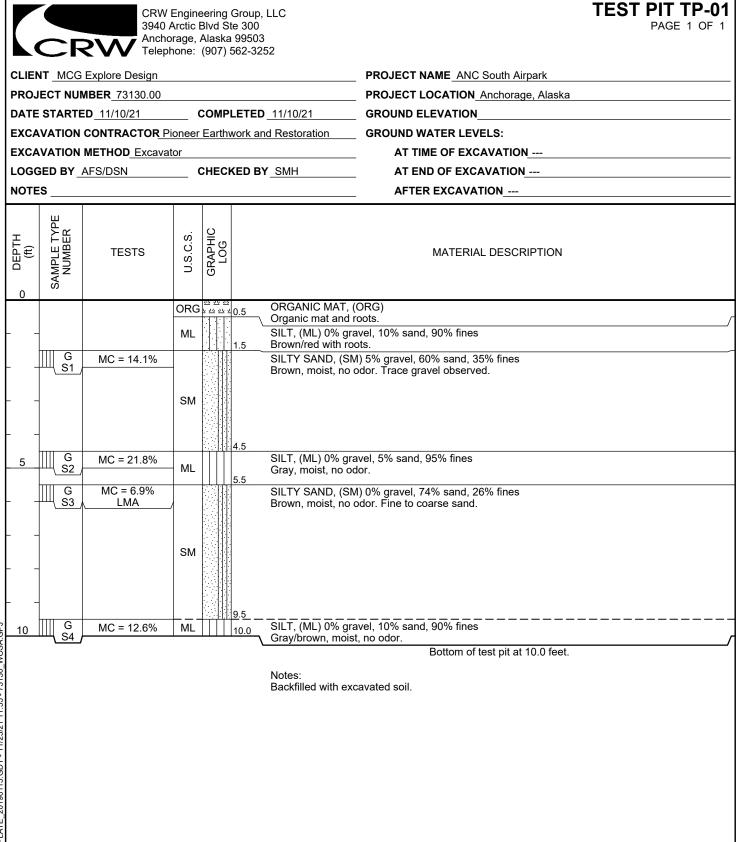
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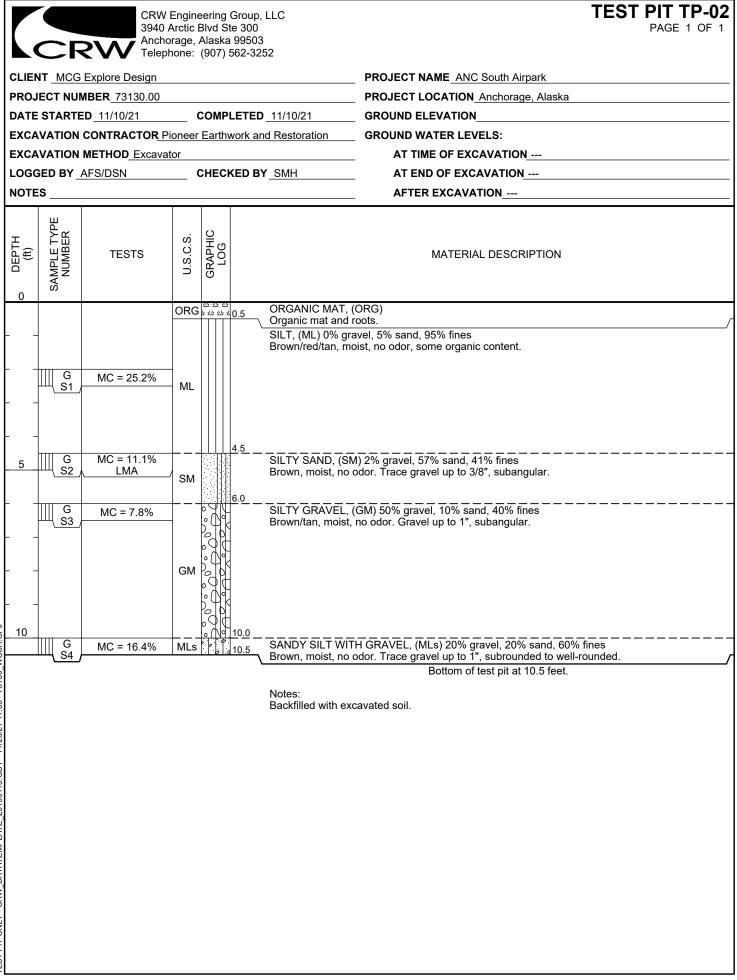
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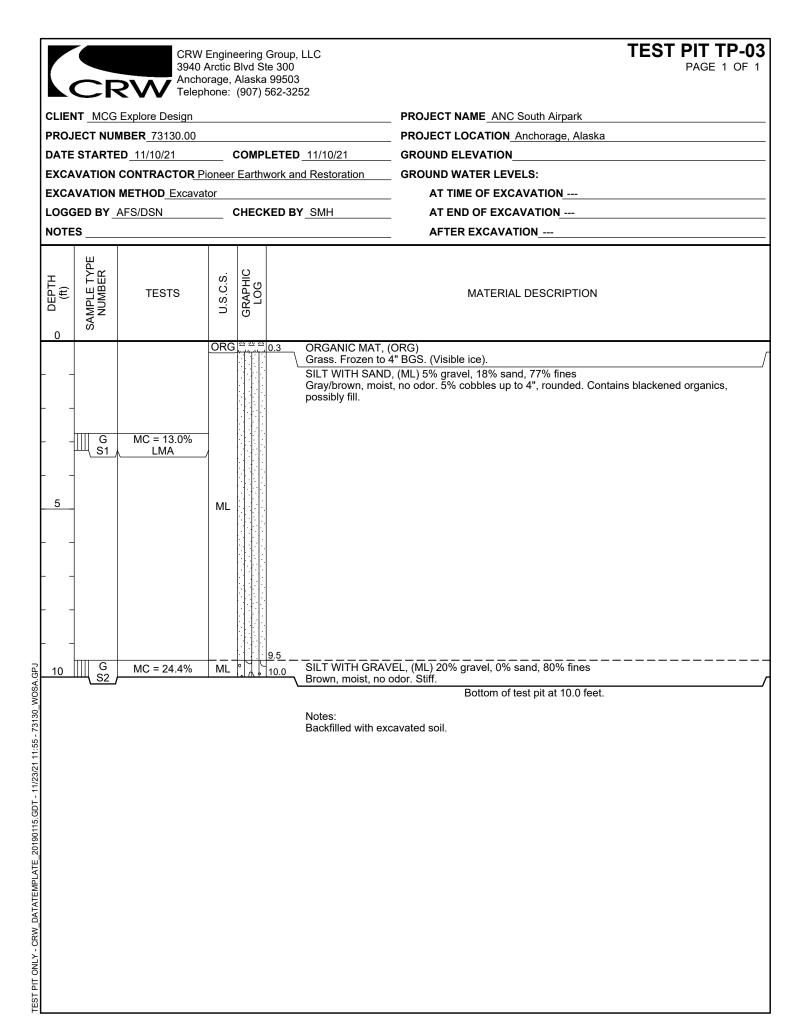
# LEGEND: FROZEN SOIL CLASSIFICATION

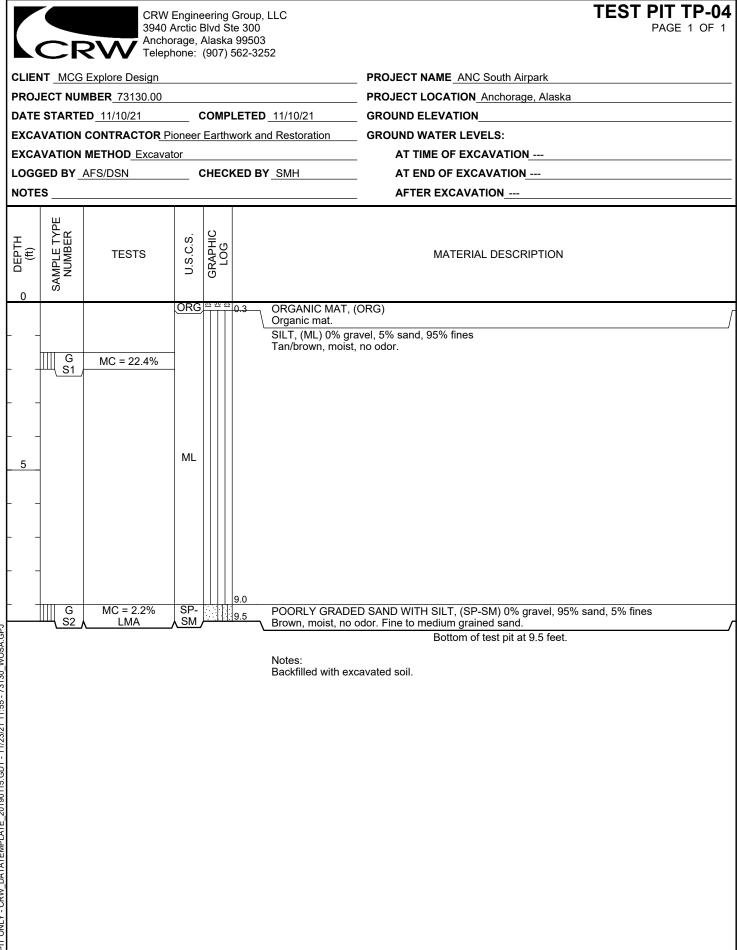


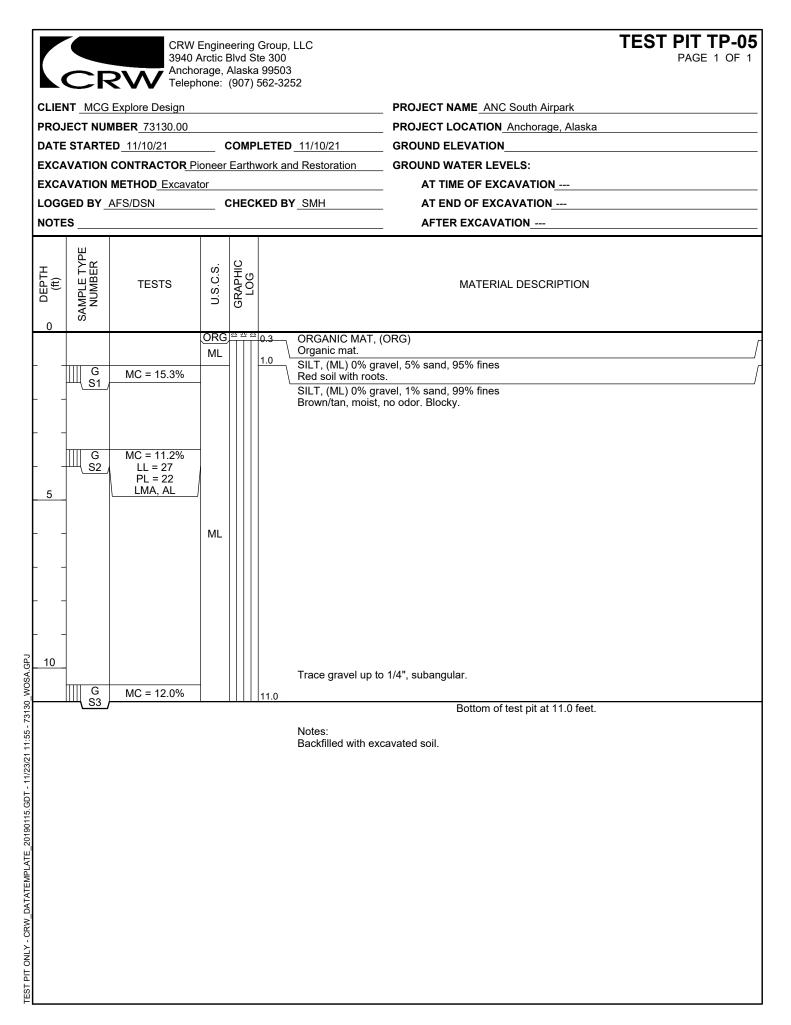
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TEST PIT ONLY - CRW DATATEMPLATE 20190115.GDT - 11/23/21 11:55 - 73130 WOSA.GP.



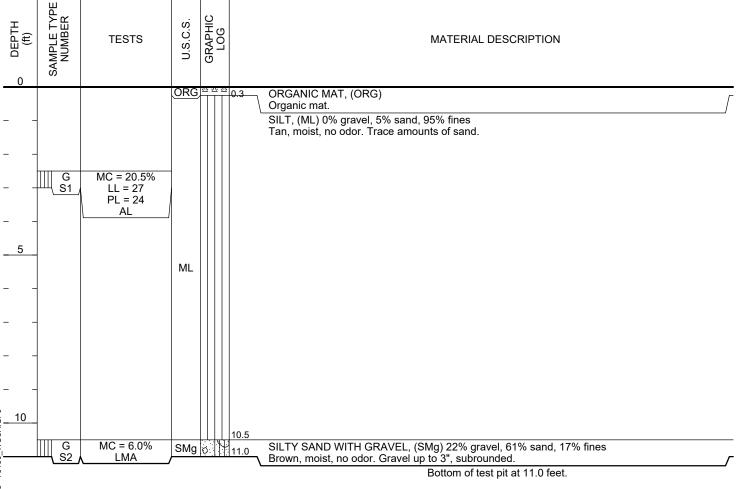




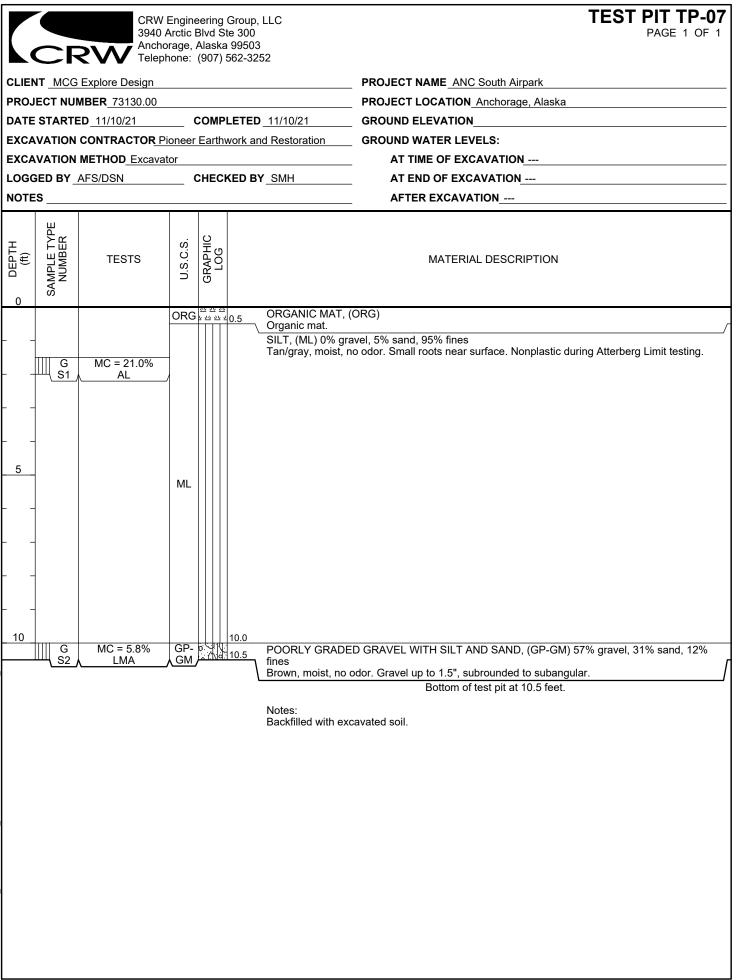


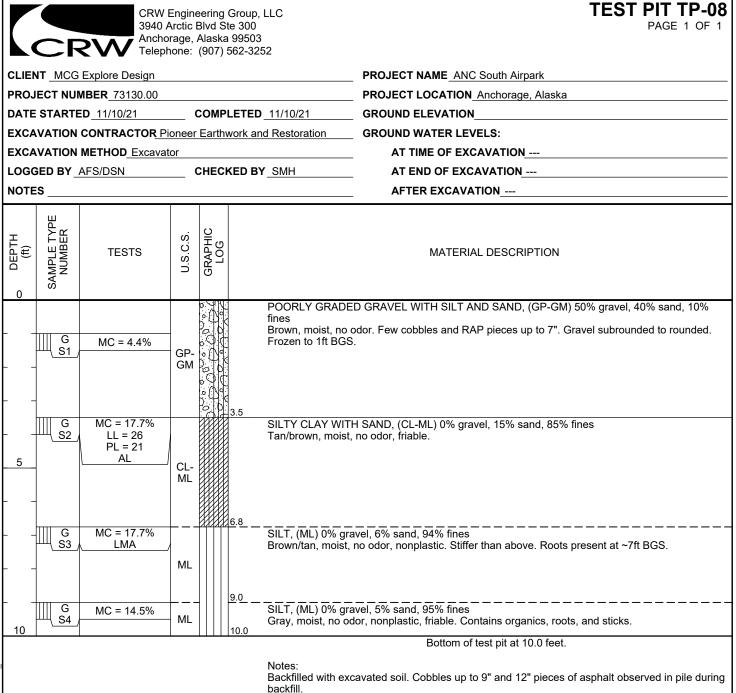
CRW Engineering Group, LLC 3940 Arctic Blvd Ste 300 Anchorage, Alaska 99503 Telephone: (907) 562-3252

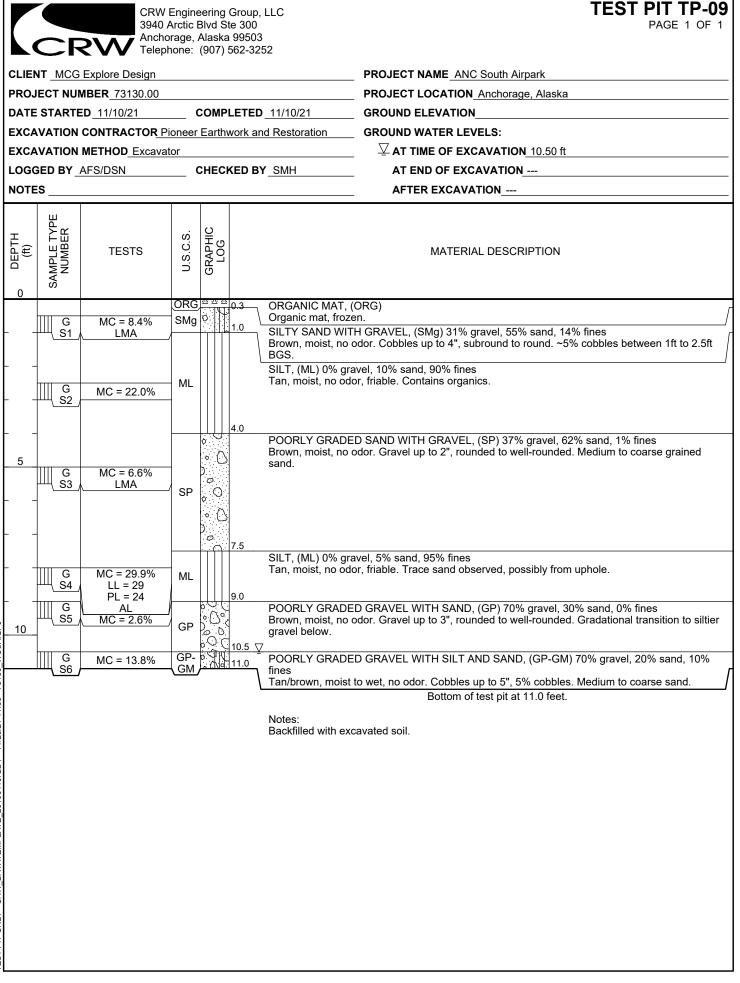
CLIENT MCG Explore Design	PROJECT NAME ANC South Airpark
PROJECT NUMBER 73130.00	PROJECT LOCATION Anchorage, Alaska
DATE STARTED 11/10/21 COMPLETED 11/10/21	GROUND ELEVATION
EXCAVATION CONTRACTOR Pioneer Earthwork and Restoration	GROUND WATER LEVELS:
EXCAVATION METHOD Excavator	AT TIME OF EXCAVATION
LOGGED BY AFS/DSN CHECKED BY SMH	AT END OF EXCAVATION
NOTES	AFTER EXCAVATION

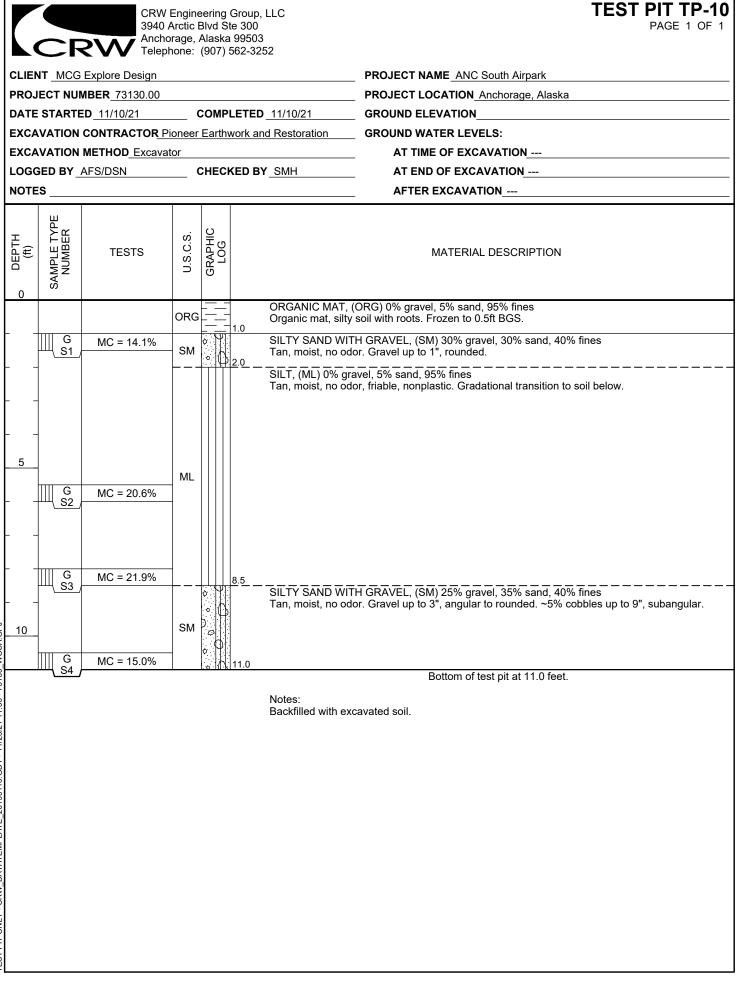


Notes: Backfilled with excavated soil.









# Attachment 2

# **Laboratory Results**

Included in this section:

1) Laboratory Results from Alaska Testlab

AT								ska Testlab - Anchorage 4040 B Street, Suite 102 Anchorage, AK 99503 Phone: 907-205-1987 Fax: 907-782-4409 info@alaskatestlab.com
Mate	rial Test F	Report			Rep	ort No: ASI	N:21-3358	
Client: CRW Engineering Group, LLC 3940 Arctic Blvd., Ste. 300 Anchorage, AK, 99503 Project: ICA South		p, LLC Project Code: 210413		The resu		tain only to the items tested below at the prior written approval of Air Oscolory		
					Revie Title: Date:		r Lage ratory Supervisor 2/2021	_
Sample	Details				"			
Sample IE Client Sar Date Sam	) nple ID		<b>21-3358-S01</b> TP-01 Sample 1	21-3358-S02 TP-01 Sample 2	21-3358-S03 TP-01 Sample 3	21-3358-S04 TP-01 Sample 4		
Other T	est Results							
Descriptio		Method			Res	ults		Limits
Water Cont Method Tested By	ent (%)	ASTM D 2216	14.1 B Cindy Zickefoose	21.8 B Cindy Zickefoose	6.9 B Cindy Zickefoose	12.6 B Cindy Zickefoose		
Group Sym Group Nam		ASTM D 2487			SM Silty sand			
Percent Gr Percent Sa	avel nd ies (Silt/Clay)	LMA (Internal Me	thod)		0 74 26 SM John Platt			

# Comments

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

ATL							4040 Anc Phi info@	stlab - Anchorage B Street, Suite 102 horage, AK 99503 one: 907-205-1987 Fax: 907-782-4409 galaskatestlab.com
<b>Material Test</b>	Report			Re	port No: sue No: 1	ASM:21-33	59	
Client: CRW Engineering G 3940 Arctic Blvd., St Anchorage, AK, 995 Project: ICA South	roup, LLC e. 300	<b>CC</b> : C	de: 210413 RW Geotech laria Kampsen teven Halcomb	The r	esults contained be	low pertain only to the	items tested below. This re en approval of Alaska Test	
				Rev Title Dat		Dscar Lage ₋aboratory Sup I 1/22/2021	pervisor	
Sample Details								
Sample ID Client Sample ID Date Sampled		21-3359-S01 TP-02 Sample 1	21-3359-S02 TP-02 Sample 2	21-3359-S03 TP-02 Sample 3				
Other Test Results								
Description	Method				sults			Limits
Water Content (%) Method Tested By	ASTM D 2216	25.2 B Cindy Zickefoose	11.1 B Cindy Zickefoose	7.8 E Cindy Zickefoos	3	6.4 B		
Group Symbol Group Name	ASTM D 2487		SM Silty sand					
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Tested By	LMA (Internal Me	thod)	2 57 41 SM John Platt					
,								

# Comments

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

F-278

ATL			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:21-3360 Issue No: 1
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. Anchorage, AK, 99503 Project: ICA South	up, LLC Project Co 300 CC: C	ode: 210413 RW Geotech Iaria Kampsen teven Halcomb	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: Oscar Lage Title: Laboratory Supervisor Date: 11/22/2021
Sample Details			
Sample ID Client Sample ID Date Sampled	21-3360-S01 TP-03 Sample 1	21-3360-S02 TP-03 Sample 2	
Other Test Results			
Description	Method		Results Limits
Water Content (%) Method	ASTM D 2216 13.0 B	24.4 B	
Tested By	Cindy Zickefoose	Cindy Zickefoose	
Group Symbol Group Name	ASTM D 2487 ML Silt with sand		
Percent Gravel	LMA (Internal Method) 5		
Percent Sand	18		
Percent Fines (Silt/Clay)	77 ML		
Group Symbol Tested By	John Platt		
Comments			
Soil Classification of Fines (-#200	)) in Sieve Analyses Assumed	Unless Verified	by Additional Testing

ATL		Alaska Testlab - Anchorag 4040 B Street, Suite 10 Anchorage, AK 9950 Phone: 907-205-198 Fax: 907-782-440 info@alaskatestlab.co
Material Test F	Report	Report No: ASM:21-3361 Issue No: 1
Client: CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: ICA South	p, LLC Project Code: 210413	
Comula Dataila		Date. 11/22/2021
Sample Details Sample ID Client Sample ID Date Sampled	21-3361-S01 21-3361-S0 TP-04 Sample 1 TP-04 Sample	
Other Test Results		<b>-</b>
Description Water Content (%) Method Tested By Group Symbol	Method         State           ASTM D 2216         22.4         2.1           B         B         B           Cindy Zickefoose         Cindy Zickefoose           ASTM D 2487         SP-SM	B 30
Group Name	Poorly graded sand wi	sili
Percent Gravel Percent Sand Percent Fines (Silt/Clay) Group Symbol Tested By	9	5 M
Comments		
	in Sieve Analyses Assumed Unless Verif	ied by Additional Testing

F-280

Material Test R	-			Report No	o: ASM:21-3362 : 1	
CRW Engineering Group 3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503 Project: ICA South		<b>CC:</b> C	de: 210413 RW Geotech aria Kampsen leven Halcomb	reproduced, except	d below pertain only to the items tested below. Thi in full, without the prior written approval of Alaska T y: Oscar Lage Laboratory Supervisor 11/22/2021	
ample Details						
Sample ID Client Sample ID Date Sampled		<b>21-3362-S01</b> TP-05 Sample 1	21-3362-S02 TP-05 Sample 2	21-3362-S03 TP-05 Sample 3		
Other Test Results						
Description	Method ASTM D 2216	15.3	11.2	Results 12.0		Limits
Water Content (%) Method	ASTIVI D 2210	15.3 B	B	B		
Fested By		Cindy Zickefoose	Cindy Zickefoose	Cindy Zickefoose		
Group Symbol	ASTM D 2487		ML Silt			
Group Name Liquid Limit	ASTM D4318		27			
Plastic Limit			22			
Plasticity Index			5			
Preparation Method Dversize Removed By			Wet Mechanically pushed			
iquid Limit Apparatus			through No. 40 sieve Mechanical			
Grooving Tool			Plastic			
Rolling Fested By			Hand Cindy Zickefoose			
Date Tested			11/18/2021			
Percent Gravel	LMA (Internal Met	thod)	0			
Percent Sand			1 99			
Percent Fines (Silt/Clay) Group Symbol			ML			
Tested By			John Platt			

Material Test I	Report		Report No: ASM:21-3363 Issue No: 1	
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503 Project: ICA South	300 <b>CC</b> : C	ode: 210413 RW Geotech taria Kampsen teven Halcomb	The results contained below pertain only to the items test reproduced, except in full, without the prior written approx Reviewed By: Oscar Lage Title: Laboratory Superviso Date: 11/22/2021	ral of Alaska Testlab or the agency.
Sample Details			<u>u</u>	
Sample ID Client Sample ID Date Sampled	21-3363-S01 TP-06 Sample 1	21-3363-S02 TP-06 Sample 2		
Other Test Results			<b>-</b> <i>v</i>	
Description Water Content (%)	Method           ASTM D 2216         20.5	6.0	Results	Limits
Method Tested By	B Cindy Zickefoose	B Cindy Zickefoose		
Group Symbol	ASTM D 2487 ML	SM		
Group Name Approximate maximum grain size	ASTM D 4318	Silty sand with gravel		
Material retained on 425µm (No. 40) (%)				
Method of Removal Grooving Tool Type	Sieving Plastic			
Specimen preparation method	Wet			
Drying Method				
Special selection process	NA			
Rolling Method for PL	Hand 20.5			
As Received Water Content (%) Liquid Limit Device Type	Mechanical			
Liquid Limit	27			
Plastic Limit	24			
Plasticity Index	3			
Liquid Limit Procedure Tested By	Multipoint (A) Cindy Zickefoose			
Percent Gravel	LMA (Internal Method)	22		
Percent Sand		61		
Percent Fines (Silt/Clay)		17		
Group Symbol Tested By		SM Cindy Zickefoose		

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Cilent: CRW Engineering Group, LLC 3940 Archorage, AK, 99503 Project: ICA South Project: ICA South Been Indone Sample D C:::WW Cancer South Sout	Material Test R	eport		Issue No: 1		
Sample ID       21-3384-S02         Client Sample D       TP-07 S-1         Date Sampled       TP-07 S-1         Other Test Results       E         Description       Method       E         Water Content (%)       ASTM D 2216       21.0       5.8         Method       B       B         Tested By       Cindy Zickefosse       Cindy Zickefosse         Group Symbol       ASTM D 2487       ML       GP-GM         Approximate maximum grain size       ASTM D 4318       Method       B         Method of Removal       Sile Prosty graded grant with       Approximate maximum grain size       ASTM D 4318         Method of Removal       Sieving       Group Name       Group Name       Sieving         Group Name       Sieving       Group Name       Sieving       Group Name         Approxing Tool Type       Plastic       Specime preparation method       Wet         Drying Method       21.0       Liquid Limit Device Type       Mechanical         Liquid Limit       N/A       Plastic Limit       Plastic Limit         Plastic Limit       N/P       Plasticity Index       NP         Plasticity Index       NP       Precent Gravel       LMA (Internal Method)       57 </th <th>3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503</th> <th>0 CC: CRW Maria</th> <th>/ Geotech a Kampsen</th> <th>Reviewed By: 0 Title:</th> <th>I, without the prior written approval of Alask Discar Lage Laboratory Supervisor</th> <th></th>	3940 Arctic Blvd., Ste. 30 Anchorage, AK, 99503	0 CC: CRW Maria	/ Geotech a Kampsen	Reviewed By: 0 Title:	I, without the prior written approval of Alask Discar Lage Laboratory Supervisor	
Sample ID       21-3364-S01       21-3364-S02         Client Sample ID       TP-07 S-1       TP-07 S-2         Date Sample D       TP-07 S-1       TP-07 S-2         Date Sample D       TP-07 S-1       TP-07 S-2         Date Sample D       Method       Results       Limits         Description       Method       B       B       E         Tested By       Cindy Zickelosse       Cindy Zickelosse       Cindy Zickelosse       Cindy Zickelosse         Group Name       Silt Porty gawd gaw with       ASTM D 4318       ASTM D 4318       Method       B         Method of Removal       Sieving       Group Name       Sieving	Sample Details			•		
Description         Method         Results         Limits           Water Content (%)         ASTM D 2216         21.0         5.8         5.8           Method         B         B         B         5.8         5.8           Tested By         Cindy Zickefoose	Sample ID Client Sample ID Date Sampled					
Water Content (%)         ASTM D 2216         21.0         5.8           Method         B         B           Tested By         Cindy Zickeloose         Cindy Zickeloose           Group Symbol         ASTM D 2487         ML         GP-GM           Group Name         Silt Pooly graded gravel with         Silt Pooly graded gravel with         Silt Pooly graded gravel with           Approximate maximum grain size         ASTM D 4318         Silt Pooly graded gravel with         Silt Pooly graded gravel with           Method of Removal         Sieving         Grooup Name         Sieving           Grooving Tool Type         Plastic         Special selection process         NA           Rolling Method for PL         Hand         As Received Water Content (%)         21.0           Liquid Limit Device Type         Mechanical         Liquid Limit Device Type         Mechanical           Liquid Limit Procedure         Multipoint (A)         Plastic Limit         NP           Plasticity Index         NP         Sitter Siter Siter Sitter Sitter Sitter Sitter Siter Sitter Sitter	Other Test Results					
Group Name     Silt Poorly graded gravel with       Approximate maximum grain size Material retained on 425µm (No. 40) (%)     ASTM D 4318       Method of Removal     Sieving       Grooving Tool Type     Plastic       Specimen preparation method     Wet       Drying Method     Wet       Special selection process     NA       Rolling Method for PL     Hand       As Received Water Content (%)     21.0       Liquid Limit Device Type     Mechanical       Liquid Limit     N/A       Plasticity Index     NP       Plasticity Index     NP       Plasticity Index     NP       Protect Gravel     LMA (Internal Method)       Percent Gravel     LMA (Internal Method)       Percent Fines (Silt/Clay)     31       Percent Fines (Silt/Clay)     12       Group Symbol     GP-GM	Water Content (%) Method	ASTM D 2216 21.0 B	В	Results		Limits
AsTM D 4318 Material retained on 425µm (No. 40) (%) Method of Removal Sieving Grooving Tool Type Plastic Specimen preparation method Wet Drying Method Special selection process NA Rolling Method for PL Hand As Received Water Content (%) 21.0 Liquid Limit Device Type Mechanical Liquid Limit N/A Plastic Limit N/A Plastic Limit NP Plasticity Index NP Liquid Limit Procedure Multipoint (A) Tested By Cindy Zicketoose Percent Gravel LMA (Internal Method) 57 Percent Sand 31 Percent Fines (Silt/Clay) GP-GM	- 1 2					
Grooving Tool TypePlasticSpecimen preparation methodWetDrying MethodVetSpecial selection processNARolling Method for PLHandAs Received Water Content (%)21.0Liquid Limit Device TypeMechanicalLiquid LimitN/APlastic LimitNPPlastic LimitNPPlastic Limit ProcedureMultipoint (A)Tested ByCindy ZickefoosePercent GravelLMA (Internal Method)57Percent Fines (Silt/Clay)12Group SymbolGP-GM	Approximate maximum grain size		cill and cand			
Special selection processNARolling Method for PLHandAs Received Water Content (%)21.0Liquid Limit Device TypeMechanicalLiquid LimitN/APlastic LimitNPPlastic LimitNPLiquid Limit ProcedureMultipoint (A)Tested ByCindy ZickefoosePercent GravelLMA (Internal Method)57Percent Sand31Percent Fines (Silt/Clay)12Group SymbolGP-GM	Grooving Tool Type Specimen preparation method	Plastic				
Liquid LimitN/APlastic LimitNPPlasticity IndexNPLiquid Limit ProcedureMultipoint (A)Tested ByCindy ZickefoosePercent GravelLMA (Internal Method)57Percent Sand31Percent Fines (Silt/Clay)12Group SymbolGP-GM	Special selection process Rolling Method for PL As Received Water Content (%)	Hand 21.0				
Liquid Limit Procedure     Multipoint (A)       Tested By     Cindy Zickefoose       Percent Gravel     LMA (Internal Method)     57       Percent Sand     31       Percent Fines (Silt/Clay)     12       Group Symbol     GP-GM	Liquid Limit Plastic Limit	N/A NP				
Percent Sand31Percent Fines (Silt/Clay)12Group SymbolGP-GM	Liquid Limit Procedure	Multipoint (A)				
Tested By John Platt	Percent Sand Percent Fines (Silt/Clay)	LMA (Internal Method)	31 12			
	Tested By		John Platt			

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Material Test I	Report			Rep Issu	ort No: ASM:21-336 ie No: 1	5
Client: CRW Engineering Grou 3940 Arctic Blvd., Ste. Anchorage, AK, 99503 Project: ICA South		<b>CC:</b> C M	de: 210413 RW Geotech aria Kampsen teven Halcomb	Revie Title:	ewed By: Oscar Lage Laboratory Supe	ns tested below. This report should not be approval of Alaska Testlab or the agency.
Pomple Deteile				Date:	11/22/2021	
Sample Details Sample ID Client Sample ID Date Sampled		21-3365-S01 TP-08 Sample 1	21-3365-S02 TP-08 Sample 2	21-3365-S03 TP-08 Sample 3	21-3365-S04 TP-08 Sample 4	
Other Test Results						
Description Water Content (%) Method Tested By		4.4 B Cindy Zickefoose	17.7 B Cindy Zickefoose CL-ML	Resu 17.7 B Cindy Zickefoose	ults 14.5 B Cindy Zickefoose	Limits
Group Symbol Group Name	ASTM D 2487		Silty clay	ML Silt		
Approximate maximum grain size Material retained on 425µm (No. 40) (%) Method of Removal Grooving Tool Type Specimen preparation method Drying Method Special selection process Rolling Method for PL As Received Water Content (%) Liquid Limit Device Type Liquid Limit Plastic Limit Plastic Limit Plasticity Index Liquid Limit Procedure Tested By Percent Gravel Percent Fines (Silt/Clay) Group Symbol Tested By	ASTM D 4318	ihod)	Sieving Plastic Wet NA Hand 17.7 Mechanical 26 21 5 Multipoint (A) Cindy Zickefoose	0 6 94 ML John Platt		
omments oil Classification of Fines (-#200	) in Sieve Analys	es Assumed	Unless Verified	d by Additional	Testing	

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Mate	CRW Engineering Grou	-	Project C	ode: 210413				tested below. This repo	
	3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503		CC:	CRW Geotech Maria Kampsen Steven Halcomb	reprodu	iced, except in full, with	out the prior written app	oroval of Alaska Testlab	or the agency.
Project:	ICA South				Revie Title: Date		ar Lage pratory Superv 2/2021	isor	
Samp	le Details								
Sample Client S Date Sa	Sample ID		21-3366-S01 TP-09 Sample 1		21-3366-S03 TP-09 Sample 3	21-3366-S04 TP-09 Sample 4	21-3366-S05 TP-09 Sample 5	21-3366-S06 TP-09 Sample 6	
	Test Results								
Descrip		Method	_		Res		_		Limits
Water C Method	ontent (%)	ASTM D 2216	8.4 B		6.6 B	29.9 B	2.6 B	13.8 B	
Tested E	3v	(	⊐ Cindy Zickefoose			D Cindy Zickefoose	Cindy Zickefoose	D Cindy Zickefoose	
Group S	/	ASTM D 2487	SN		SP	ML		0	
Group N	-		ty sand with grave	1	Poorly graded sand with	Silt			
Percent		LMA (Internal Met			gravel 37				
Percent			55		62				
	Fines (Silt/Clay)		14 SM		1 SP				
Group S Tested E	-		John Plat		John Platt				
Approxima	ate maximum grain size ined on 425µm (No. 40) (%)	ASTM D 4318		<u> </u>	John Hatt				
Grooving	of Removal g Tool Type en preparation method					Sieving Plastic Wet			
Drying N						Wet			
	selection process					NA			
	lethod for PL					Hand			
	ed Water Content (%)					29.9			
	mit Device Type					Mechanical			
Liquid Li Plastic L						29 24			
Plastic L						24 5			
	mit Procedure					Multipoint (A)			
Tested E						Cindy Zickefoose			

# Comments

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

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ATL	
AIL	

Material Test Report							Report No: ASM:21-3367 Issue No: 1					
Client:	CRW Engineering Group 3940 Arctic Blvd., Ste. 3 Anchorage, AK, 99503	Project Code: 210413 CC: CRW Geotech Maria Kampsen Steven Halcomb			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.							
Project:	oject: ICA South				Reviewed By: Oscar Lage Title: Laboratory Supervisor Date: 11/22/2021							
Samp	le Details											
	e ID Sample ID ampled		21-3367-S01 TP-10 Sample 1	21-3367-S02 TP-10 Sample 2	<b>21-336</b> TP-10 Sa		21-3367- TP-10 Sam					
Other	Test Results											
Descri Water C Method	Content (%)	Method ASTM D 2216	14.1 B	20.6 B		<b>Res</b> 21.9 B		5.0 B		Limi	its	

# Comments