

MATANUSKA-SUSITNA BOROUGH
LAND AND RESOURCE MANAGEMENT
PALMER, ALASKA



BIDDING AND LEASE DOCUMENTS

OVER-THE-COUNTER
COMMERCIAL MATERIAL LEASE

CML 23-010

MSB007984 – Kashwitna East Gravel, 152 Acres

COMPLETED BIDS MUST BE SUBMITTED NO LATER THAN:
MARCH 1, 2025 @ 2PM

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SECTION I
INSTRUCTIONS TO BIDDER (6 pages)

01. EXAMINATION OF BIDDING DOCUMENTS AND SITE

The Bidder shall examine carefully the Bidding Documents and site of the proposed work before submitting a Bid. The submission of a Bid shall be an admission that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements and accuracy of the Bidding Documents.

The Matanuska-Susitna Borough (Borough) assumes no responsibility for any understanding or representations concerning conditions made by any of its officers, agents, or employees prior to the execution of this Bid document and its contents, unless such understanding or representations are expressly stated in the Bidding Documents or Addenda.

Any interested party submitting a Bid on Borough projects should first review the Borough Debarment/Suspension List. This listing is available on the Borough Website. Any submission of a Bid, with participation or involvement of an individual, company, firm or corporation on this list will render the Bid/proposal as non-responsive.

The Bidder shall include in their Bid sufficient sums to cover all items required by the Lease Agreement and the conditions of the site(s), and shall rely entirely upon their own examination in making their Bid. The submission of a Bid shall be taken as prima facie evidence of compliance with this paragraph.

02. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

Bidders shall notify the Borough Land and Resource Management Division Natural Resource Manager (NRM) promptly of any error, omission, or inconsistency that may be discovered during examination of the Bidding Documents and the proposed site. Requests from Bidders for interpretation or clarification of the Bidding Documents shall be made in writing to the NRM and shall arrive at least four (4) working days prior to the date for opening Bids. Any questions received after this date may not be answered. Oral questions may be presented at a pre-Bid conference if one is provided for in the Bidding Documents. Interpretations, corrections, or changes, if any, to the Bidding Documents shall be made by Addendum. Bidders shall not rely upon interpretations, corrections, and changes made in any other manner, including orally, at the pre-Bid conference. Interpretations, corrections, and changes shall not be binding unless included in an Addendum. All Addenda issued during the time of Bidding shall become part of the Agreement Documents. Questions or requests for clarifications shall be directed to the NRM. Questions or requests for clarification directed to any other member of the Borough staff may be grounds for rejection of Bid as being irregular.

If material required for Bidding purposes by these documents is absent, the Bidder is required to notify the Land and Resource Management Department in writing, or by e-mail to ekrueger@matsugov.us.

NO ORAL QUESTIONS WILL BE ENTERTAINED.

It is the Bidder's sole responsibility to ascertain that they have received all Addenda issued by the Land and Resource Management Division. Addendum will be issued by U.S. Mail, or e-mail. All

Addenda must be acknowledged in the space provided on the Bid Form. If no Addendum has been issued, leave blank or write or type "N/A" on the Bid Form in the space provided.

03. PREPARATION AND SUBMISSION OF BIDS

The Bidder, with their usual legal signature, must sign each Bid, preferably in blue ink. Bids shall be submitted on the Bid forms supplied and must be manually signed. Bids shall be submitted in a sealed envelope with the Invitation Number plainly marked on the front.

Where required on the Bid, Bidders must provide a quote on all items. Failure to do so may disqualify the Bid. When quotes on all items are not required, Bidders shall insert the words "NO BID" in the space provided for any item where no quote is made. If erasures or other changes appear on the forms, the person signing the Bid must initial each such erasure or change.

Bids shall specify a unit or lump sum price, typed or written in ink in numerical form, for each Bid item called for. In case of error in the extension of prices, the unit price will govern. Bids may be rejected if they show any omissions, alteration of the forms, additions not called for, conditional or alternate Bids not called for, or irregularities of any kind.

If more than one Proposal/Bid is offered by any one party, by or in the name of their clerk, partner, or other person, all such Proposals/Bids will be rejected. A party who has quoted prices to an Offeror/Bidder is not thereby disqualified from quoting prices to other Offerors/Bidders, or from submitting a Proposal/Bid directly for the work.

Bidders must submit with their Bid a certified check or money order for 10% of the first year's annual rent. Bidders must also submit evidence of a Borough Business License, State of Alaska Business License, Tax Clearance, and proof of Insurance in the appropriate amounts. The successful Bidder will be expected to execute the Lease Agreement within 5 days of Bid closure. Unsuccessful Bidders will have funds returned once the Lease Agreement is executed by the Borough.

04. BID GUARANTEE - Reserved

05. DIRECTIONS FOR DELIVERY OF BIDS

Envelopes containing the Bid must be sealed, addressed and marked indicating Bid Number, Bid name, and Bid opening time and date, and delivered to:

Matanuska-Susitna Borough
Land Management Division
ATTN: Natural Resource Manager
350 East Dahlia Avenue
Palmer, Alaska 99645

06. BIDDERS CHECK LIST

Bids may not be considered if the documents listed at the bottom of the Bid Form are not completely filled out, signed with original signature(s), and submitted with the Bid.

7. **RECEIPT AND OPENING OF BIDS**

Bids must be received by the Land and Resource Management Division no later than March 1, 2025 at 2pm.

Late Bids will not be considered. Time of Bid receipt will be determined by date and time stamp of the Land Management office.

Electronic transmitted Bids will not be considered unless specifically stated in Bid documents. Modification of Bids already submitted will be considered if received by the NRM prior to Bid closure on March 1, 2025 at 2pm.

No liability will attach to the Borough for the premature opening of, or the failure to open, a Bid not properly addressed and identified.

Bids may be withdrawn on written or electronic request received from Bidder prior to the time specified for Bid closure.

If more than one Bid is offered by any one party, by or in the name of their clerk, partner, or other person, all such Bids will be rejected. A party who has quoted prices to a Bidder is not thereby disqualified from quoting prices to other Bidders, or from submitting a Bid directly for the work.

Bids shall be opened at the close of Bid acceptance. Successful Bidder will be notified within ten (10) working days of Bid opening.

8. **EVIDENCE OF QUALIFICATIONS**

Upon request of the Borough, a Bidder whose Bid is under consideration for the award of the Lease Agreement shall submit promptly to the Borough satisfactory evidence of the Bidder's financial resources, their experience, their performance in completing other projects of a similar nature and the organization and equipment they have available for the performance of the Lease Agreement.

9. **QUALIFIED AND RESPONSIBLE BIDDER**

Before the Bid is considered for award, the NRM reserves the right to determine if a Bidder is qualified and responsible and to require the Bidder to complete a Bidder Qualification Form and/or a current financial statement prepared by a Certified Public Accountant.

The NRM shall determine whether a Bidder is qualified pursuant to MSB 23.10.090

Qualifications of Applicants and Bidders which states:

(A) A Bidder at auction or an applicant to otherwise purchase, lease, or use Borough-owned real property must be a legally competent person under the laws of the State of Alaska. A person acting as agent for an applicant or Bidder must also be a legally competent person, and must, prior to placing a Bid or submitting an application, file with the manager a duly executed power of attorney or other evidence of such agency acceptable to the manager.

(B) A person is not a qualified applicant or Bidder if:

- (1) the person has failed to pay a deposit or payment, including interest at the legal rate, due to the Borough in relation to Borough-owned real property in the previous five years; or
- (2) the person is currently in breach or default on any contract or lease for real property transactions in which the Borough has an interest; or

- (3) the person has failed to perform under a contract or lease involving Borough-owned real property in the previous five years and the Borough has acted to terminate the contract or lease or to initiate legal action; or
 - (4) the person has failed to perform under or is in default of a contract with the Borough; or
 - (5) the person is delinquent in any tax payment to the Borough; or
 - (6) the manager has good cause to believe that the person is unlikely to make payment or responsibly perform under the lease or other contract.
- (C) No Borough-owned real property, nor any interest therein, may be sold, leased, or otherwise transferred to any person who is delinquent in the payment of any obligation to the Borough, nor may the Borough process the application for the sale, lease, or other disposal of real property, or any interest therein.

The NRM shall determine whether a Bidder is responsible on the basis of the following criteria:

- The skill and experience demonstrated by the Bidder in performing Agreements of a similar nature.
- The Bidder's record for honesty and integrity.
- The Bidder's capacity to perform in terms of facilities, personnel and financing.

The Borough reserves the right to require the Bidder to submit information pertaining to its products, service, reputation, and experience, in order to determine, at the Borough's sole discretion, if the Bidder is a qualified/responsible vendor. Past dealings with the Borough and other government agencies will be considered.

A Bidder's representations concerning their qualifications and past dealings as defined above will be construed as a covenant under the Lease Agreement. Should it appear that the Bidder has made any material misrepresentation, the Borough shall have the right to terminate the Lease Agreement for breach, and the Borough may then pursue such remedies as provided in the Lease Agreement or as provided by State statute, Borough code, or as appropriate.

Any determination that a Bidder is non-qualified or non-responsible will be made by the NRM in writing to the Bidder setting forth the reasons for such determination.

10. ACTION ON BIDS

The Borough reserves the right to reject any and all Bids, and to waive any informalities and irregularities in Bidding or award of the Lease Agreement.

Unless otherwise stated in the Bidding documents, a lease, if awarded, shall be issued to the Bidder who submits the highest responsive and acceptable Bid within the requirements of the Bid document.

11. PERFORMANCE BONDS

SEE PERFORMANCE BOND REQUIREMENTS IN SAMPLE LEASE AGREEMENT.

12. INSURANCE

SEE INSURANCE REQUIREMENTS IN SAMPLE LEASE AGREEMENT.

13. ESTIMATES OF QUANTITIES APPROXIMATE ONLY - RESERVED

14. EXECUTION OF LEASE AGREEMENT

The Bidder whose Bid is accepted shall execute the Lease Agreement immediately following the Bid opening, if it's approved by the Borough Assembly. The Agreement shall be considered executed by the successful Bidder when the Lease Agreement is signed by an authorized representative of the Bidder, and the Bond and insurance certificate(s) are received by the NRM.

The date the Lease Agreement is executed by the Borough the rights and obligations provided for in the Lease Agreement shall become effective and binding upon the parties.

15. LESSEE'S WARRANTY - RESERVED

16. CERTIFIED PAYROLL - RESERVED

17. STATE OF ALASKA PREVAILING WAGE SCALE - RESERVED

18. PURCHASER'S VIOLATIONS OF TAX OBLIGATIONS

A. No Agreement shall be awarded to any individual, firm, corporation, or business who is found to be delinquent in any area of taxation, lease, land payment, or rental agreement, with the Borough which has not been remedied within 10 calendar days of receipt of written notice.

B. The Lease Agreement can be terminated for cause if it is determined that the individual, firm, corporation, or business is in arrears of any taxation, lease, land payment, or rental agreement, that is due to the Borough that is not remedied within 10 calendar days of notification by regular mail.

The Borough reserves any right it may have to offset amounts owed by an individual, firm, corporation or business for delinquent Borough taxes, lease, rental agreement, or land sale payments, against any amount owing to the same under an agreement between the Borough and the same.

19. PROTEST OF AWARD OF BID – RESERVED

20. MATANUSKA-SUSITNA BOROUGH BUSINESS LICENSE

Effective January 1996, Matanuska-Susitna Borough Code, Chapter 3.36, requires that all businesses conducting business within the boundaries of the Borough have a current business license issued by the Borough. Prior to any award as a result of this solicitation, the Bidder will be required to provide proof that they have a current Borough Business License or proof that they have applied for one. Copies of MSB 3.36.040 and instructions on obtaining a business license may be obtained at the Collection Counter, Finance Department, or by calling (907) 861- 8632.

21. PROCEDURES FOR AWARD

The Lease Agreement shall be awarded by written notice issued by the NRM to the highest qualified, responsive, and responsible Bidder. The Bid must be approved by the Borough Assembly before the Lease Agreement can be executed.

22. LOCAL BIDDER PREFERENCE - RESERVED

23. THIRD-PARTY FINANCING AGREEMENTS AND/OR ASSIGNMENTS OF PAYMENT NOT ALLOWED

Because of additional administrative and accounting time required of Borough departments/divisions when third party financing agreement and/or assignments of payment are permitted, they will not be allowed under any agreement resulting from this solicitation to Bid.

24. LICENSE REQUIREMENTS

All Bidders and sub-contractors must comply with state of Alaska requirements regarding licensing. Reference the State of Alaska's licensing requirements for performing work under this Lease Agreement.

25. ACCEPTANCE OF LEASE AGREEMENT TERMS AND CONDITIONS

By signing the Bid Form, the Bidder certifies that they have examined and accept the terms and conditions of the Lease Agreement contained in this solicitation. The acceptance is inclusive of, but not limited to, all LEASE REQUIREMENTS, TERMS AND CONDITIONS, GENERAL PROVISIONS, AND SUPPLEMENTAL CONDITIONS, along with any and all conditions contained in the INSTRUCTIONS TO BIDDERS associated with this solicitation. Submission of a Bid in response to this solicitation, certifies that the Bidder is willing to accept these terms and understands that failure to accept these terms will subject the Bidder to forfeiture of the Lease and loss of any Bid guarantee as liquidated damages.

Bidders are encouraged to carefully examine the insurance requirements, any bonding requirements, and any Defense and Indemnification clause contained in the sample Lease Agreement.

26. OVER THE COUNTER SALE

If the successful Bidder fails to pay the monthly lease fee and royalty in the time allotted, the Borough will offer the lease to the next highest qualified Bidder. If the lease is not issued through this Competitive Sealed Bid, it will be offered over-the-counter on a first-come-first served basis.

SECTION II
KASHWITNA EAST GRAVEL LEASE
CML#23-010
SPECIFICATIONS / SCOPE OF WORK

GENERAL INFORMATION: The Matanuska-Susitna Borough (Borough) has received a conditional use permit for material extraction on approximately 152 acres on Parcel Tax ID 20N04W07A001 and 20N04W08A001. An opportunity to Bid on leasing the development and operation of the material site is available. The lease is by sealed Bid and is for the period of ten (10) years with two (2) five (5) year renewal options. The minimum Bid price is \$40,560 annually/\$3,380.00 per month and \$2.00/ton. The lease allows exclusive use of the 152-acre permitted site. The lease offered is for commercial users. Approximately nine million, five hundred thousand (9,500,000) tons of material is estimated to be recoverable on site.

SITE LOCATION: The lease site is shown on the attached map. The Tax ID of the parcels on which the site is located is 20N04W07A001 and 20N04W08A001. The site is near milepost 77 the Parks Highway. The approximate latitude is 61.8421990N and longitude is -150.0547910W.

SPECIFICATIONS: The Lessee shall develop and operate an active material extraction site on the premises, in accordance with the issued CUP, to develop the property as specified in the permit. Lessee shall maximize the recoverable reserves to the extent material extraction will not limit future land uses. Sufficient acreage shall remain at least 10 feet above the seasonal high water table to support structures with a typical septic system. Site should be mined in a way to reduce the cost of the required reclamation, the details of which are up to the Lessee. Timber on the site must be purchased or made available for a timber salvage sale. A stumpage payment of \$9,840.00 is required to dispose of the timber.

Interested parties should review the Sample Lease and Conditional Use Permit packet, as well as visit the site.

Lease will be presented for Assembly consideration before execution by the Borough Manager.

SECTION III

BID FORM (1 Page)

CML#23-010 OVER-THE-COUNTER MATERIAL LEASE

Provide all personnel, material, supplies, equipment, transportation, and all other items as may be required to complete the services identified within the GENERAL INFORMATION entitled *Competitive Sealed Bid MATERIAL LEASE*.

| <u>Sale Name & Number</u> | <u>Approx. Volume and Type</u> | <u>Acres</u> | <u>Rent Bid Amount</u> | <u>Royalty Bid Amount</u> | <u>Legal Description</u> |
|---|---|--------------|---|---------------------------------------|--|
| Kash East Gravel CML#23-010 MSB007984 | Approx. 9,500,000 tons of pit run | 152 | \$ <i>*Minimum Bid \$40,560/year</i> | \$ <i>*Minimum Bid \$2/ton</i> | E1/2NE1/4, E1/2NW1/4NE1/4, E1/2NW1/4NE1/4, NW1/4NE1/4SW1/4NE1/4, E1/2SW1/4NE1/4 Section 7, and E1/2, NW1/4, E1/2SW1/4, T20N, R04W, SM |

By signing below, the Bidder is hereby certifying to the following –

- 1) The Bidder has carefully examined the Bid documents for solicitation number, **MSB007984 CML 23-010, Over-the-Counter Material Lease**; and agrees to lease said property for the amount listed on the Bid form and comply with all requirements of the associated Lease Agreement.
- 2) The individual signing below, the firm association, or corporation of which they are a member, has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive Bidding in connection with this solicitation.
- 3) The individual signing below is authorized by the firm association or corporation to bind such association or corporation to a legal contract.
- 4) The individual signing below, or the firm association or corporation of which they are a member, is not debarred or suspended from doing business with the Matanuska-Susitna Borough.
- 5) The individual signing below, or the firm association or corporation of which they are a member, is acknowledging receipt of the following Addenda Numbers (if no addenda have been issued, either leave blank or write "N/A").
- 6) Completed Bid Packages must be submitted to the MSB Land & Resource Management Division by:
March 1, 2025 @ 2pm.

Addenda numbers being acknowledged:

| | |
|------------------------|--------------------------|
| Company Name | Date |
| Mailing Address | Signature |
| City, State & Zip Code | Title (printed or typed) |
| Phone Number | Email Address |

| | |
|---|--|
| It shall be the responsibility of the Bidder to see that their Bid is received at or before the date and time fixed for opening | To be considered responsive, Bidders should include the following with their Bid; <ul style="list-style-type: none"> ✓ Signed Form (acknowledging Addenda if applicable) ✓ Mat-Su Borough & SOA Business Licenses, Insurance & Tax Clearance ✓ Cashier's Check or Money Order in the full amount of Bid |
|---|--|

SECTION IV

TAX CLEARANCE FORM (1 page)



MATANUSKA-SUSITNA BOROUGH
Community Development Department
350 East Dahlia Avenue Palmer, AK 99645
Phone (907) 861-7869 E-mail: lmb@matsugov.us

Date: _____

PLEASE REPLY BY: _____

REPLY TO BIDDER

Questions Call: Emerson Krueger@ 907-861-7867

TO: X Finance/Collections/Real Property

_____ Taxes/LIDS Bankruptcy/Land Sales

THE LAND & RESOURCE MANAGEMENT DIVISION IS PROCESSING A REQUEST FROM THE FOLLOWING INDIVIDUAL(S) OR ENTITY.

NAME: _____

ADDRESS: _____

PLEASE ADVISE IF YOUR RECORDS INDICATE ONE OR MORE OF THE FOLLOWING CATEGORIES (CHECK ALL THAT APPLY AND PROVIDE ANY COMMENTS BELOW):

_____ Has failed to pay a deposit or payment (including interest), due the borough in relation to borough-owned real property in the previous five (5) years.

_____ Is currently in breach or default on any contract or lease for real property transactions in the borough has an interest.

_____ Has failed to perform under a contract or lease involving borough-owned real property in the previous five years and the borough has acted to terminate the contract or lease or to initiate legal action.

_____ Is delinquent in any tax payment to the Borough.

_____ There is reason to believe that the person is unlikely to make payment or responsibly perform under the lease or other contract.

_____ Other: _____

COMMENTS: _____



Matanuska-Susitna Borough

COMMUNITY DEVELOPMENT DEPARTMENT
LAND & RESOURCE MANAGEMENT DIVISION

GROUND LEASE Earth Materials Site

THIS GROUND LEASE (the "Lease") is entered into this _____ day of _____, 2023, by and between:

MATANUSKA-SUSITNA BOROUGH (hereinafter "Lessor"), a municipal corporation formed under the laws of the State of Alaska, whose mailing address is 350 E. Dahlia Avenue, Palmer, Alaska 99645;

and

_____ (hereinafter "Lessee"); whose mailing address is _____.

The parties agree to the following recitals, which are incorporated into this Lease:

- A. Lessor desires to lease to Lessee, and Lessee desires to lease from Lessor, a parcel of land more specifically described and depicted on **Exhibit A** attached to, and for all purposes made a part of, this Lease (hereinafter "Leased Premises").
- B. The parties desire to adopt this Lease as a complete and final statement of all of the promises, covenants, terms, and conditions in effect and binding between them.
- C. Lessor is entering into this Lease as landowner, exercising its power to manage its own municipal entitlement lands under Alaska Statute (AS) 29.35.010(8), the applicable provisions of the Matanuska-Susitna Borough Code, and the action taken by the Matanuska-Susitna Borough Assembly by ordinance in approving this Lease. The Matanuska-Susitna Borough Community Development Department, Land and Resource Management Division, is responsible for management of Borough-owned real property, timber, and gravel resources including lease origination, management, oversight, and enforcement, under MSB Title 23, and as amended.

In so acting, Lessor is not waiving, and Lessor is explicitly reserving unto itself, all of its governmental authority, sovereignty, and power to enact and enforce laws and regulations governing land use and development, or the conduct of any business or activity, anywhere within the Borough. Nothing in this Lease shall waive or otherwise diminish Lessor's

governmental authority, sovereignty, and power with respect to leased land or Lessee's use or occupancy of it.

- D. The Lessor cannot, and does not through this Lease, make any representations, warranties, or guarantees as to the future results of any land use permits, applications, or proposals, which are governed by MSB Code. This Lease shall be revoked if the Lessee does not acquire all necessary permits, licenses, and approvals for the intended uses.

NOW, THEREFORE, in consideration of the promises and covenants set out below, the parties agree as follows:

Section 1. Leased Premises.

- 1.1 Leased Premises. Lessor, for and in consideration of the rents, covenants and conditions hereinafter specified to be paid, performed and observed by Lessee, leases to Lessee, and Lessee leases from Lessor, the Leased Premises, which is land and improvements situated near milepost 77 Parks Highway, Willow, Alaska and more particularly described and depicted on **Exhibit A**. The land and improvements, together with all rights, easements, privileges, and appurtenances attaching or belonging to the described land, but subject to the reservation contained in Section 1.2 below, is referred to hereafter as the "Leased Premises."
- 1.2 Reservation of Mineral Estate. All oil, gas, coal, other hydrocarbons, geothermal resources, and minerals of whatever nature on, in, or under the Leased Premises are excluded from the Leased Premises and reserved to the Lessor. The mineral estate excludes construction sand and gravel, including all unconsolidated, natural accumulation of typically rounded rock fragments consisting predominately of sand, boulders, cobbles, pebbles, granules or any combination of these fragments.
- 1.3 Rights-of-Way and Easements. Lessor shall have the right to designate or grant rights of way or utility easements across the premises without compensation to Lessee. In the event of destruction or significant interference of any of the Lessee's improvements, Lessee shall be entitled to compensation, and at its option, may terminate this Lease.

Section 2. Use and Occupancy.

- 2.1 Quiet Enjoyment. Upon Lessee's timely payment of all rents and other sums required to be paid by Lessee under this lease, and upon Lessee's full and faithful observance and performance of all of its obligations contained in this Lease, and so long as such observance and performance continues, Lessee shall peaceably hold and enjoy the Leased Premises during the Term without hindrance or interruption by Lessor or anyone lawfully claiming by, through, or under Lessor.
- 2.2 Use of Leased Premises. Lessee specifically agrees that, for the Term, it shall use the Leased Premises for no purpose other than investigating, drilling, mining, and producing aggregates, removal, conveyance via conveyor system, building roads and other structures thereon to produce, stockpile, transport, market, and own such products, and performing any required reclamation activities on the Leased Premises. Lessee's activities shall be in

compliance with Conditional Use Permit 173020220001 (**Exhibit B**). Any change in use will require the prior written approval of Lessor, which may be granted or withheld in its sole and absolute discretion for any reason or for no reason.

- 2.3 Area Plans. Lessee will operate at all time the Leased Premises as an aggregate production and sales company in accordance with Conditional Use Permit 173020220001, attached hereto as **Exhibit B** along with applicable MSB code 17.28 and 17.30, and in accordance with the following existing adopted Meadow Lakes Comprehensive Plan.

To reflect changing times and conditions, a land use allocation decision made as a result of revision to an existing land use plan or decision must be incorporated as an amendment to the terms, covenants, and conditions of this Lease within six (6) months of the land use allocation decision.

- 2.4 Repair and Maintenance. Lessee shall, at Lessee's expense and without notice from Lessor at all times during the Term, keep the Leased Premises and all Improvements now existing or hereafter built on the Leased Premises (including but not limited to exterior building walls, windows, doors, fences, signs, landscaping and yard areas, cut banks, material, stockpiles, waste, refuse disposal equipment and facilities, pavement, curbs, gutters, exterior lighting, and drainage facilities), in good order, condition, maintenance, operability, and repair and of a neat, clean, and pleasing appearance.
- 2.5 Compliance with Laws. Lessee, at all times during the Term, at its own expense, and with all due diligence, shall observe and comply with all laws, ordinances, rules, and regulations that are now in effect or that may later be adopted by any governmental authority (including Lessor), and that may be applicable to the Leased Premises or any Improvement on it or any use of it. This includes all conditions and operational requirements included in Conditional Use Permit 17302022001 (**Exhibit B**), the associated permit application, as well as Planning Commission Resolution Serial Number 22-26.
- 2.6 Authorized Representative. Lessee's principal point of contact for Lessee's operations on the Leased Premises is [REDACTED], 907-____-____. Lessor shall be entitled to communicate directly with the named individual for all matters under this Lease. Lessee shall promptly notify Lessor of any change in the person acting as Lessee's Authorized Representative for the Leased Premises.
- 2.7 Supervision. Lessee shall maintain reasonable and adequate on-site supervision of the Leased Premises at all times to insure that the terms and conditions of this Lease and all applicable federal, state and Borough laws, rules and regulations governing the Leased Premises are enforced.
- 2.8 Signage. Lessee shall not place on the Leased Premises any signage that is unrelated to any business Lessee is operating on the Leased Premises. Lessee's signage for its business shall be limited to one sign visible from the roadway, which must not exceed thirty-six inches (36") in height and seventy-two inches (72") in length. No electioneering or campaign signs of any kind shall be placed upon the Leased Premises.

- 2.9 Utilities. Lessee shall pay for all utility services provided to, consumed, or used on the Leased Premises.
- 2.10 Waste and Wrongful Use. Lessee shall not commit or suffer any strip or waste of the Leased Premises or engage in any unlawful activity, or engage in any unauthorized activity that is unsafe, results in any public or private nuisance thereon, or adversely affect the value, character or utility of Lessor's surrounding property.
- 2.11 Setbacks. Lessee shall observe all building setback requirements applicable to the Leased Premises and shall not construct or maintain any building or other structure whatsoever between any road or other specified rights-of-way boundary of the Leased Premises and any setback along such boundary, except for berms, fences or walls approved by Lessor. Lessor reserves the right to make use of, and to grant utility easements and other rights to third parties in the setback areas of the Leased Premises. Lessee shall observe all designated buffers and material extraction operational requirements as described in Conditional Use Permit 17302022001, the associated permit application, as well as Planning Commission Resolution Serial Number 22-26 (**Exhibit B**).
- 2.12 Lessor's Inspection and Notice of Repairs. As provided under Section 2, Lessee shall repair, maintain, and make good all conditions required under the provisions of this Lease, permit requirements, and applicable laws.

If Lessee refuses or neglects to provide reasonable and necessary repairs or maintenance for the Leased Premises as required under the terms of this Lease to the reasonable satisfaction of Lessor after written demand, then Lessor, without prejudice to any other right or remedy it has under this Lease or otherwise, may perform such reasonable and necessary maintenance work or make such repairs without liability to Lessor for any loss or damage that may accrue to Lessee's merchandise or other property or Lessee's business by reason thereof.

In the event of an emergency, Lessor's notice may be verbally given and followed after-the-fact by written notice within 72 hours. Upon completion of any such repair or maintenance, and no later than thirty (30) days after presentation of an invoice therefore, Lessee shall pay as additional rent Lessor's costs for making such repairs or performing such maintenance, plus fifteen percent (15%) of the repair costs to cover Lessor's overhead.

Section 3. Lease Term.

- 3.1 Lease Term. This Lease shall be and continue in full force and effect for an initial term of ten years (10) years (the "Initial Term") commencing as of 12:01 a.m. on _____, 2023, and expiring at 11:59 p.m. on _____, 2033, unless earlier terminated as provided in this Lease.
- 3.2 Option to Renew. Lessee may apply to renew this Lease for up to two (2) additional periods of up to five (5) years (the "Renewal Term"), which may be granted or withheld in Lessor's sole and absolute discretion. To effectively exercise an option to renew, Lessee must not be in default of any of its obligations at the time of the exercise or at the time of the

commencement of any Renewal Term. The parties must reach agreement on modifying **Exhibit C** (Insurance Requirements) pursuant to Section 12. Lessee must give Lessor written notice of the exercise of an option to renew no later than One Hundred Eighty (180) days prior to the expiration of the Initial Term. Time is of the essence in giving written notice of the exercise of an option to renew; the option to renew shall lapse and be void if Lessee fails to give timely notice of their exercise. During the Renewal Term, all of the provisions of this Lease shall remain in full force and effect, unless otherwise addressed herein, and the rent Lessee shall pay to Lessor shall be adjusted as is provided for below.

- 3.3 “Term” Defined. Whenever used in this Lease, the word “Term” shall mean and include both the Initial Term and any Renewal Term.
- 3.4 Option to Terminate. Notwithstanding any other provision in this Lease, Lessee may terminate this Lease at any time, with or without cause, during the Initial Term or any Renewal Term upon one (1) year written notice to the Lessor.

Section 4. Basic Rent and Royalty.

- 4.1 Basic Rent. Lessee shall pay the following rent (the “Basic Rent”) to Lessor, without deduction and without prior notice or demand. Although stated as an annual rent, the Basic Rent shall be paid in equal monthly installments. The monthly installments shall be paid in advance on or before the first day of each calendar month during the Term, with partial periods prorated on a daily basis. Rent is not required during months when extraction is occurring. The Basic Rent and Royalty shall be as follows:
- 4.1.1 Year 1. The annual Basic Rent is [REDACTED]/100 Dollars ([REDACTED]), payable in monthly installments of [REDACTED]/100 Dollars ([REDACTED]).
- 4.1.2 Year 2 through Year 10. For Lease years two (2) through ten (10), the Basic Rent shall be increased annually by three percent (3%).
- 4.1.3 Renewal Term. [RESERVED]
- 4.2 Royalty Payments. The Royalty shall be paid to the Lessor annually on January 30 for the period from January 1 through December 31 during the Term of this Lease Agreement. The annual payments will be based on the Records of the Amount of Material Extracted. On the January 30 of 2027, 2030, and at the end of the ten (10) year term the Lessor and Lessee will review the schedule of the Amount of Materials Extracted to true up the Royalty payments that were made over the previous years.
- 4.2.1 Royalty. \$ [REDACTED]/100 Dollars ([REDACTED]) per ton of material removed from the Premises.
- 4.2.2 Measure / Records of Materials Extracted. The Lessee shall provide for an annual cross-section survey of the excavated area to determine quantities for that year. use its scale to estimate the weight of material extracted (the “Estimated Amount of Materials Extracted”), and shall maintain records of the weighted materials. On the

January 30 of each year following the Commencement Date, the Lessee shall provide a schedule of the Estimated Amount of Materials Extracted to the Lessor summarizing the mining activity for the previous one-year period running from the prior January 1 to December 31. The records of the weighed materials and the schedules of the Estimated Amount of Materials Extracted are referred to as the "Records".

If any earth materials extracted from the Leased Premises are removed from the Leased Premises before being weighed, gauged, or measured, Lessee shall have all the material weighed, gauged, or measured by the transporting firm and shall furnish Lessor with the transporter's statements of the weights of all shipments during the preceding reporting period. Any written certificate or statement of any transporter concerning any shipment from the Leased Premises and its weight, and any copies of transcripts from the books of any transporter concerning shipments or their weights may be admitted as evidence of those facts in any suit or controversy between Lessee and Lessor.

Lessee shall also furnish Lessor with annual reports on the anniversary date of the Lease on the status of mining development and reclamation efforts to date and current mine maps of the Leased Premises from which earth materials are mined showing area mined, annual cross-section surveys and associated volume/weight calculations, as well as any other pertinent information to determine Royalties.

Upon termination of this Lease or surrender of any part of the Leased Premises, Lessee shall furnish to Lessor an up-to-date report of all mining development and reclamation efforts conducted by Lessee on that part of the Leased Premises. This report shall contain suitable maps and information on the location and extent of surface workings, and other pertinent information, including the following:

- a. The tonnage (or equivalent unit of measure) of all earth materials mined from the Leased Premises.
- b. Such additional data on production and sales as may be necessary to determine Royalty.

Lessee shall, at the sole discretion of Lessor, submit an audit of all transactions, contractual agreements and production, or such other records as Lessor may determine appropriate which are related to establishment of the removed earth material tonnage used to calculate the correct Royalty due the Lessor. The audit may be performed by the Lessor, or contracted for by the Lessor, at Lessor's discretion. The Lessee shall be responsible for the cost of the audit if, based upon the final audit report, any underpayment of royalty calculated before interest is in excess of five percent (5%) of the payment made for the audit period.

- 4.2.3 Site Resource Exploration and Development Reports. In the event any site resource exploration and development studies are conducted under this Lease, the Lessee shall retain and store all factual site resource exploration and development data and

records at a location(s) mutually agreeable with Lessor and Lessee. The Lessor retains the right to examine all such data and records, including representative material samples from boreholes, test pits, etc., along with geologic data, geophysical test and drill holt data, maps, and reports.

Upon termination of this Lease or surrender of any part of the Leased Premises, Lessee shall furnish to Lessor any representative material samples requested by Lessor, and an up-to-date report of any and all site resource exploration and development studies conducted by Lessee on that part of the Leased Premises. Final reports shall contain copies of all factual data generated from any and all site resource exploration and development activities on the Leased Premises as of the date of surrender, including data, records, and materials listed above.

- 4.4 Net Rent and Royalty Intended. The Basic Rent and Royalty provided for under this Lease shall be absolutely net to Lessor. This Lease shall yield net to Lessor the Rent and Royalty specified during the Term of this Lease, not reduced in any way by any costs, expenses and obligations relating to Lessee's use or occupancy of the Leased Premises, which may arise or become due during the Lease Term, except as otherwise expressly provided in this Lease.
- 4.5 Place of Rent and Royalty Payment. All payments of Basic Rent and Royalty shall be delivered to the following address, accompanied by a reference to the lease file number MSB007862, unless Lessor gives Lessee written notice of a different address for rent payments:

Matanuska-Susitna Borough
Land and Resource Management Division
350 East Dahlia Avenue
Palmer, Alaska 99645

Payments shall be effective on the date of Lessor's actual receipt.

- 4.6 Late Payment. Any payment of Basic Rent or Royalty not made within ten (10) days after the date it is due shall be assessed a late fee of \$100 of the amount due. The late fee is not a penalty but is intended to compensate Lessor for the additional costs Lessor will incur as a result of the late payment, the exact amount of such additional costs being extremely difficult and impracticable to ascertain. In addition, all Basic Rent and Royalty, all late charges, and all additional rent specified under this Lease, shall bear interest from the date due to the date of actual payment at the rate of ten and one-half percent (10.5%) per annum or, if less, the maximum amount permitted by law.

Section 5. Security Deposit.

- 5.1 Deposit as Security for Lessee's Performance. As an essential inducement to Lessor to enter into this Lease, Lessee has paid a security deposit in the amount of Fifty Thousand Dollars (\$50,000). This deposit is security for Lessee's full and faithful performance of all its obligations under this Lease. The Lessee shall keep in full force and effect a sufficient lease performance bond to cover the acreage held under this Lease. If the amount becomes

depleted because of any claim or claims, the Lessee shall file a new or additional performance bond as required by the Lessor. The security deposit shall be returned to Lessee within sixty (60) days after the expiration of this Lease if Lessee has fully and faithfully performed all the covenants and terms of this Lease that Lessee is obligated to perform. If Lessee fails to perform all its obligations, Lessor, at its sole option, may apply the security deposit against any costs or damages resulting from Lessee's failure to perform. In the event all or part of the security deposit is so applied, Lessee shall, within ten (10) days of Lessor's demand, pay to Lessor the amount necessary to replenish the security deposit to its original amount.

- 5.2 Deposit Transferable. In the event of a sale or transfer of Lessor's fee title in the Leased Premises, Lessor shall have the right to transfer the security deposit to the purchaser or transferee under the terms of this Lease. With Lessor's transfer of the security deposit to the purchaser or transferee, Lessor shall be automatically released from all liability for the return of the security deposit to Lessee.
- 5.3 Rights Regarding Deposit. Lessor's obligations with respect to the security deposit are those of a debtor and not a trustee. Lessor can commingle the security deposit with Lessor's general funds or the deposits of other tenants. Lessor shall not be required to pay Lessee any interest on the security deposit. Lessee may not assign or encumber the money deposited as security, and neither Lessor nor its successors or assigns shall be bound by any such purported assignments or encumbrances.

Section 6. Condition of Leased Premises at Commencement; Delivery of Possession.

- 6.1 Accepted in Present Condition. Lessee acknowledges that it has had an opportunity to inspect the Leased Premises and conduct any studies or assessments of the Leased Premises that Lessee desired prior to entering into this Lease. Lessee accepts the Leased Premises "AS IS" and "WITH ALL FAULTS." No reliance shall be placed on any opinion, material, or information provided by or through the Lessor, and Lessee does so at its own risk, cost, and expense. Lessor shall have no obligation to install, construct or pay for any improvements of any kind or nature on the Leased Premises for Lessee's benefit at or prior to the commencement of the Term.
- 6.2 No Representations or Warranties. Lessor is making no representation or warranty, express or implied, regarding the Leased Premises or their suitability for Lessee's purposes. Without limiting the foregoing, Lessee specifically acknowledges that Lessor has not warranted or made any representation regarding the social, economic, or environmental aspects of the Leased Premises, including the acreage, soil conditions, utility services, water drainage, physical access, availability of wood supplies now or in the future, natural or artificial hazards that may or may not exist, or the merchantability, suitability or profitability for any use or purpose.
- 6.3 No Liability. Lessor shall have no liability to Lessee, or to Lessee's employees, agents or contractors, or to anyone claiming by, under or through Lessee, regarding the physical condition of the Leased Premises any time during the Term. Lessor has no responsibility for any subsurface conditions, whether known or unknown, natural or man-made to Lessee,

specifically including any adverse soil conditions, any washout, subsidence, avulsion, reliction or settling that may occur to Leased Premises. In consideration for Lessor entering into this Lease, Lessee is expressly assuming the risk of any latent or patent defects or deficiencies in, on or under the Leased Premises, whether the same now exist or arise hereafter. In no event shall Lessee be entitled to any damages whatsoever against Lessor with respect to the physical condition of the Leased Premises, including, but not limited to, actual, special, consequential, lost-profits, or any other category of damages.

- 6.4 Delivery of Possession. Lessor shall deliver possession of the Leased Premises to Lessee on the Commencement Date as defined in Section 3.1 of this Lease.

Section 7. Governmental Authority Retained.

- 7.1 No Waiver of Governmental Power. Nothing in this Lease is intended to, or shall have the effect of, waiving or releasing any power or authority that Lessor has as a governmental body. Lessor has not promised or represented that it will exercise or not exercise its governmental power or authority in any way for the benefit of Lessee or Lessee's interests or the Leased Premises. Lessee also specifically acknowledges that, regardless of the title or position that a person holds with Lessor, no person acting or purporting to on Lessor's behalf has the authority to waive or release the Lessor's power or authority to act as a local government of the State of Alaska.

- 7.2 Lessee and Leased Premises Subject to MSB Code. Lessee and Lessee's use and occupancy of the Leased Premises shall, at all times be subject to the applicable provisions of the MSB Code, as the MSB Code may be amended from time to time. Lessor has not promised or represented that no new provisions will be added to the MSB Code, or that no existing provisions will be revised or repealed in any way. Lessor likewise has not promised or represented that any provisions of the MSB Code will be relaxed or not enforced for Lessee's benefit. Without limiting the foregoing, Lessee specifically acknowledges and agrees that:

7.2.1 The Leased Premises are subject to all applicable land use, permits, or license provisions of federal, state, and local laws, and of all other governmental authorities any additions to or amendments of those provisions.

7.2.2 The Leased Premises and Lessee's use of the Leased Premises are subject to all applicable building, fire, health, safety, and environmental provisions of the MSB Code, as they presently exist or hereafter adopted.

7.2.3 The Leased Premises and Lessee's use of the Leased Premises shall comply with all conditions, requirements, and operational details outlined in Conditional Use Permit 17302022001 (**Exhibit B**), the associated permit application, as well as Planning Commission Resolution Serial Number 22-26.

Section 8. Improvements.

- 8.1 Right to Improve. Lessee, when not in default of its obligations under this Lease shall have the following rights during the Lease Term, to the extent Lessee deems advisable, subject

however to the satisfaction of the other requirements of this Lease and, when required under this Lease, subject to the condition that Lessor's prior approval be obtained:

- 8.1.1 To construct, place or install on the Leased Premises, equipment, structures, utilities, and access necessary for the operation and maintenance of an earth material site as well as the reclamation thereof, in accordance with Section 7.2.3 above in connection with the Use and Occupancy as defined in Section 2.1.
- 8.1.2 To construct, place, or install on the Leased Premises other improvements, including without limitation buildings, structures, fill, paving, landscaping, and other improvements (each an "Improvement and collectively the "Improvements"); and
- 8.1.3 To make such alterations, additions and repairs to the Leased Premises as Lessee may desire.

All Improvements that Lessee constructs, places or installs on the Leased Premises shall remain Lessee's separate property for the duration of the Term of this Lease except as provided for in Section 16.3.

- 8.2 Development Timetable. In developing the Leased Premises, Lessee shall comply with the following timetable (the "Development Timetable"):

[8/03/2024 Onsite operations for the sale and distribution of earth materials on the Leased Premises](#)

- 8.3 Site Work. Prior to the commencement of any site work on the Leased Premises (including any gravel use, timber clearing, grading, or driveway placement), Lessee must:

- 8.3.1 Provide Lessor plans and specifications called for in Section 8.5.2 for review and approval, which will not unreasonably be withheld. The site plan is required to be signed and sealed by an Alaskan registered professional land surveyor, civil engineer, architect, or landscape architect. All plans and specifications must adhere to Conditional Use Permit 17302022001 (**Exhibit B**). Deviations must be clearly noted, justified, and pre-approved in writing by the Lessor. In some cases, deviations may require an amendment of the permit, which can take three to six months. Lessee must comply with all pre-operational requirements specified in Conditional Use Permit 17302022001 (**Exhibit B**).
- 8.3.2 Lessee is obligated to comply with all steps of the approved mining and reclamation plans prior to complete termination of this Lease and return of any bond or deposit. Reclamation efforts and requirements are triggered by termination of the Lease due to time limitation of the Lease, voluntary termination, completion of mining phases, or through default of the Lease agreement by Lessee.

No mining shall take place on the Leased Premises without a Lessor approved mining and reclamation plan developed by Lessee based upon requirements of the Lessor.

Lessee shall reclaim the surface of the leased premises in accordance with the approved mining and reclamation plan. The reclamation shall proceed concurrently with mine production in accordance with this plan and shall be completed following termination of mine operation and prior to the termination of the Lease. Reclamation shall occur on those portions of a mining phase that are complete and are not required for the transport of materials off-site.

8.3.3 A mining and reclamation plan for the Leased Premises shall be developed to insure to the maximum extent practicable that:

- a. Mining and extraction operations do not have significant adverse impacts on air, plant, wildlife, fishery, surface and groundwater resources, and wetlands, or on public safety.
- b. Waste and unused material piles are located, designed, and utilized to minimize the threat to public safety, to minimize impact to resources, to minimize negative effects on aesthetics, and to allow prescribed reclamation.
- c. Future use of the Leased Premises are anticipated to include a public school site. The mining and reclamation plan shall ensure sufficient area and grade exist on the Leased Premises to support a school and associated infrastructure, including a parking area, water supply well, and septic system. Sufficient separation distance between the ground surface post-mining, and the seasonal high water stable must be maintained to allow for a standard school septic system at a reasonable location on the Leased Premises.
- d. The mining and reclamation plan shall include accurate maps, with appropriate scale, and other supporting data showing:
 - i. Location of the proposed mining phases and layout of the operations areas.
 - ii. Description of proposed development of the mining operation area including materials handling and overburden stripping and stockpiling on the Leased Premises.
 - iii. Proposed buildings, utility corridors, roads and auxiliary facilities to be used and/or constructed on the Leased Premises.
 - iv. Land contours, both existing prior to development and proposed after reclamation.
 - v. A description of the proposed reclamation on the Leased Premises including a description of the capacity of the land to support its anticipated uses following reclamation, including a discussion of the capacity of the reclaimed land to support alternative uses after reclamation; and provisions for grading, establishing self-sustaining vegetation and stabilization that will minimize erosion and sedimentation and public health and safety

problems of pits, banks, waste piles, roads upon completion of the mining phase; and provisions for buffer areas, landscaping, and screening.

- vi. Estimated timetables necessary for accomplishing the events contained in the mining and reclamation plan shall be developed by Lessee and approved by Lessor.
 - vii. Evidence that all necessary permits and licenses required by Federal, State, and Local units of government have been obtained, as provided by the Lessee.
- e. The Lessor and Lessee shall meet and discuss the plan prior to commencement of any operations under this Lease. Prior to beginning mining operations each year, a written notice of commencement will be sent to Lessor. Any updates to the mining and reclamation plan shall be submitted to the Lessor for review and approval. Any changes to the mining and reclamation plan shall be approved by the Lessor prior to the start of mining each year. Any changes proposed by Lessee shall be prepared and submitted to Lessor each year. If these changes would result in the need for amendments of any permits or licenses issued by Federal, State, or Local units of government, these amendments shall be obtained prior to commencement of mining in the year in which the amendments become necessary. Any such changes shall not be commenced until Lessor has reviewed and approved such modifications.

8.4 Clearing and Site Materials. With regard to timber, rock, sand, or gravel that is within the Leased Premises, any use of such material for on-site preparation is allowable under this Lease. Prior to any extraction of rock, sand, or gravel for off-site use other than the uses described in Section 2 of the Lease.

Lessee shall comply with permitting requirements of the Land & Resource Management Division for the extraction and off-site use of any rock, sand, or gravel found on the Leased Premises. The issuance of these permits is not guaranteed and may require the approval of the Matanuska-Susitna Borough Assembly. Lessee's application for such permits is evaluated on its own merits in accordance with the established procedures for such permits. Lessor has not promised that Lessee will receive such permits and Lessor will have no liability to Lessee if Lessee fails to qualify for the permits.

Lessee will be required to pay fair market value for any and all resources extracted from Leased Premises, with exception only for those resources used for on-site development of Leased Premises and as to which no payment will be required.

Lessee shall pay to Lessor at the execution of the Lease the fair market value for the timber resource in the amount of Eleven Thousand Two Hundred Sixty Six Dollars (\$11,266) for the stumpage for Phase I. Prior to beginning operations in Phase II, Lessee shall pay to Lessor in the amount of Nine Thousand Eight Hundred Forty Dollars (\$9,840) for the stumpage.

All activities shall be conducted in a manner that complies with all applicable federal, state, and local laws, and will minimize disturbance to the air, land, and water quality within the Leased Premises and surrounding areas. In no event shall activities occur in violation of the requirements of Conditional Use Permit 17302022001 (**Exhibit B**).

8.5 Significant Work.

8.5.1 Definition. "Significant Work" as used in this Section 8.5 means all work on the Leased Premises costing more than One Hundred Thousand Dollars (\$100,000) cumulatively for the planning or design of such work and the labor, materials, equipment of the work, where the work involves the excavation, filling, or other alteration of the grade or drainage of the Leased Premises, and/or involves the construction, demolition, alteration or removal of any Improvement on or from the Leased Premises.

8.5.2 Approval Required. In addition to the requirements of Section 8, Lessee shall not begin any Significant Work without first obtaining Lessor's prior written approval of the preliminary plans for such work, if any, and of the final plans and specifications for such work, which approval shall not be unreasonably withheld. If Lessor does not approve any of Lessee's plans and specifications required to be approved under this Lease, then Lessee shall have the right to terminate this Lease by giving written notice of such termination to Lessor. The preliminary plans and the final plans and specifications shall be prepared by a licensed architect or engineer and shall include, but not be limited to, a detailed plot plan, a landscaping plan, appropriate cross sections, elevations, seasonal high water table elevations, and floor plans indicating building heights, bulk, density, functions, materials, and utility systems, an itemized estimate of the total cost of such work, and a timetable for completion. No approval by Lessor or by its architects or engineers of such preliminary plans or final plans and specifications shall be deemed a warranty or other representation by any of them that the Improvements or other work contemplated thereby are legal, safe, or sound or constitute the highest and best use of the Leased Premises. Lessee acknowledges that, except as provided in Section 16 with respect to removal of Improvements upon expiration of the Term or earlier termination of this Lease, Lessor has not authorized or required, and Lessor does not authorize or require, Lessee to improve the Leased Premises in any manner that permits Lessor's interest in and title to the Leased Premises to become subject to the liens of Lessee's mechanics and materialmen.

8.5.3 Payment and Performance Bonds. Before commencing and project involving any Significant Work, Lessee must furnish a payment and performance surety bond, or other form of Security acceptable to the Lessor in the amount to cover the full expected cost of the contract price of the contractor's respective work on the project. Lessor shall be named as an additional obligee of the bonds and the bonds must be issued by the one or more corporate sureties that are reasonably acceptable to Lessor. The Security agreed upon shall be an absolute and unconditional guaranty of payment and performance. It shall be enforceable against the Security without the necessity of any suit or proceedings on the Lessor's part against the

Lessee. The Lessee shall maintain the Security as long as the Lessor deems necessary, including after this lease expires or is terminated. The security may be adjusted as additional activities or uses occur on the site. Copies of the bonds must be provided to Lessor prior to commencement of any work. The furnishing of the payment and performance bonds shall not limit or modify Lessee' obligation to protect Lessor and the Leased Premises from any liens

- 8.6 Utilities. To the extent Lessor desires to have utility services at the Leased Premises that are not already available on the commencement date of the Term, Lessee shall pay for all the costs of bringing and installing utility services to and on the Leased Premises (including electric, telephone, gas, cable, water, solid waste and sewage disposal). Lessee shall obtain Lessor's prior written approval with respect to the location of any improvement for the provision of utility services on the Leased Premises, which approval shall not be unreasonably withheld. Lessee shall provide Lessor with a recordable, as-built survey stamped by a licensed surveyor within 120 days of the installation of any such improvement, in order for Lessor to grant or dedicate by document an easement for such location. Additional Public Notice is not required under MSB 23.05.025 for the grant or dedication of new utility services specific to Lessee's use of the Leased Premises.

Installation of any onsite water and/or waste water systems shall be in accordance with Alaska Department of Environmental Conservation regulations and stamped by a licensed engineer if applicable. Lessee shall provide all reports, well logs, or any pertinent documentation for the installed waster system and/or onsite wastewater system to Lessor upon completion of installation.

- 8.7 Wetlands. Lessee shall utilize a qualified wetlands delineator to identify the edge of all wetlands on the parcel owned by the Lessor, which contains the Leased Premises. The 100-foot undisturbed vegetative buffer surrounding the identified wetlands adjacent to the extraction site shall be identified and marked by a professional land surveyor, licensed to operate in the State of Alaska, prior to beginning extraction activities.
- 8.8 Amendments to Plans. In performing any work on the Leased Premises, Lessee shall not deviate from Lessor's approved or issued site plan, timber and gravel permits. Any deviation from the approved or issued plans, permits, or designs shall require Lessor's prior written authorization, which shall not be unreasonably withheld, and where appropriate, a signed amendment to this Lease or the governing standards or permits.
- 8.9 Construction Completion. In completing any project involving the construction of Improvements on the Leased Premises, Lessee shall provide to Lessor at Lessee's expense a set of as-built drawings for the completed project. The as-built drawings shall be provided in accordance with any deadline set in the plans and specifications approved by Lessor under Section 8.5.2 above. If no deadline is specified, the as-built drawings will be provided within 90 days of substantial completion of the improvement. In completing any project on the Leased Premises, Lessee shall provide remediation of the construction area, including the removal of all construction debris. Lessee shall also provide site remediation and erosion control of the construction area not included in the plans and specifications (if any). Lessee shall provide to Lessor a written plan for site monitoring to insure

revegetative success. Lessee's site remediation and erosion control shall utilize methods outlined in *A Revegetation Manual for Alaska*, by Stony J. Wright, Alaska Plant Materials Center, Division of Agriculture, Department of Natural Resources, State of Alaska. Lessee's written plan for site monitoring shall include methods to preclude the introduction of species listed on the State of Alaska list of Prohibited and Restricted Noxious Weeds. In completing any project on the Leased Premises, Lessee shall provide remediation, including the removal of all construction debris, so that upon surrender of the premises they will be in as good or better condition as they were in at the

- 8.10 Liens. Lessee shall not permit any mechanic's lien, laborer's lien, or materialmen's liens against the Leased Premises or any Improvements for any labor, materials or equipment furnished to Lessee, or claimed to have been furnished to Lessee, or to Lessee's agents or contractors in connection with work of any character performed or claimed to have been performed on the Leased Premises or Improvements, by or at the direction or sufferance of Lessee. Lessee, however, shall have the right to contest the validity or amount of any such lien or claimed lien. In the event of a lien contest, Lessee shall give Lessor such reasonable security as Lessor may demand to insure payment of the lien or claimed lien and prevent the sale or foreclosure of the Leased Premises or Improvements. The security need not exceed one and one-half times the amount of the lien or Lessee may record the bond contemplated by AS 34.35.072. In any lien contest proceedings, Lessee shall immediately pay any judgment rendered with all proper costs and charges and shall have the lien released or judgment satisfied at Lessee's own expense.

Section 9. Taxes and Assessments.

- 9.1 Taxes, Assessments and Charges. Lessee shall pay, not less than ten (10) days before they become delinquent, all real property taxes, assessments, special assessments or other charges of every description for which the Leased Premises, or any Improvement thereon or any use thereof, are now or during the Term may be assessed or become liable, whether made by governmental authority or by any public utility or community service company, and whether assessed to or payable by Lessor or Lessee, subject to Lessee's option to pay in installments where installment payments are permitted. Payments of real property taxes and assessments due during the first and last years of the Term shall be prorated as of the dates the Term begins and ends. Upon Lessor's request, Lessee shall promptly provide to Lessor true and complete copies of receipts for such real property taxes and assessments evidencing their timely payment.
- 9.2 Annual Taxes Due at Lease Expiration, Default, or Termination. As of January 1st of each year, real property taxes are levied. Upon the Lease expiration, default, or termination, Lessee shall be responsible to pay the annual taxes in full for the current tax year.
- 9.3 New Taxes, Assessments and Charges. If at any time during the Lease Term or renewal term, any new or additional taxes, assessments or any other charges not existing on the effective date of this Lease are assessed against the Leased Premises, or any Improvement thereon, Lessee shall pay not less than ten (10) days before they become delinquent, all of such new taxes, assessments and charges.

- 9.4 Contesting Taxes. Nothing contained in this Lease shall prevent Lessee from contesting in good faith the validity, or the amount of such real property taxes or assessments by appropriate proceedings commenced before such real property taxes or assessments become delinquent. Provided, however, that Lessee shall not commence such proceedings without first giving written notice to Lessor of Lessee's intention to do so not less than ten (10) days before such real property taxes or assessments become delinquent. Lessee shall not be deemed in default under this Lease if such notice is provided to Lessor because of its failure to pay any property taxes or assessments when the taxes or assessments are subject to a pending contest or appeal.
- 9.5 Installment Payments. If there is an option given to pay special assessments in installments, Lessee may elect to pay for such installments as shall accrue during the Term of this Lease. As to permitted installment payments for which the first installment fell due before commencement of the Term, Lessee shall pay all installments falling due during the Term, and Lessor shall pay all installments that fell or will fall due after the Term.

Section 10. Hazardous Materials and Environmental Matters.

- 10.1 Observance of Environmental Laws. Lessee must, at its own expense, comply with all laws, ordinances, regulations and administrative agency or court orders relating to health, safety, noise, environmental protection, waste disposal, hazardous or toxic materials, and water and air quality. In the event any discharge, leakage, spillage, emission or pollution of any type occurs upon or from the Leased Premises during the Term or any holdover thereafter, Lessee shall immediately notify Lessor and shall, at Lessee's own expense, clean and restore the Leased Premises to the satisfaction of Lessor and any governmental body or court having jurisdiction of the matter. **Under no circumstance shall any hazardous material be improperly disposed of on the Leased Premises.**
- 10.2 "Hazardous Material" Defined. For purposes of this Lease, the term "Hazardous Material" means any hazardous or toxic substances, material, or waste, including but not limited to: (1) oil, petroleum products and byproducts, gasoline, diesel fuel, stove oil, kerosene, and other hydrocarbons; (2) those substances, materials and wastes listed in the U.S. Department of Transportation Hazardous Materials Table (49 CFR Part 172.101) or by the U.S. Environmental Protection Agency as hazardous substances (40 CFR Part 302), and amendments thereto; (3) all materials and the release of which must be reported under Title 46 of the Alaska Statutes; and (4) any such other substances, materials and wastes that are or become regulated under any applicable local, state or federal law.
- 10.3 Hazardous Materials on Leased Premises. Lessee may bring, keep, store, use, transfer, and dispense upon the Leased Premises fuel and other petroleum products in connection with the Permitted Use, provided that Lessee complies with all laws regulating such petroleum products. Lessee may bring, keep, store, and use upon the Leased Premises substances used in vehicles, machinery, and equipment necessary or useful to the Permitted Use, provided that such substances will be used, kept and stored in a manner that complies with all laws regulating such substances. Except as provided above, Lessee shall not cause or permit any Hazardous Material to be brought upon, kept, or used in or about the Leased Premises by Lessee, its agents, employees, contractors or invitees without the prior written

consent of Lessor, which Lessor shall not unreasonably withhold. Lessee must demonstrate to Lessor's reasonable satisfaction that such Hazardous Material is necessary or useful to Lessee's business and will be used, kept and stored in a manner that complies with all laws regulating any such Hazardous Materials on the Leased Premises.

- 10.4 Disclosure. At the beginning of the Initial Term of this Lease, Lessee shall inventory and disclose an inventory list of all hazardous materials to which the Lessor has previously consented. Lessee shall not be required to obtain consent from Lessor to use, keep, or store any Hazardous Material on the Leased Premises where the same was consented to by Lessor prior to the Initial Term. On July 1 of each year thereafter, including the year in which this Lease expires or is terminated, Lessee shall inventory and disclose an inventory list to Lessor with the names and amounts of all Hazardous Materials or any combination thereof that were stored or used on the Leased Premises, or that Lessee intends to store or use on the Leased Premises. Lessee shall keep an updated inventory list at all times and disclose to the Lessor any types of Hazardous Materials throughout the year.
- 10.5 Environmental Control Measures. As a part of the development of the Leased Premises, Lessee shall provide to Lessor, for Lessor's review and approval, a Hazardous Materials control plan. The control plan shall specify the materials, equipment, and procedures that Lessee will utilize in handling Hazardous Materials and in seeking to prevent and respond to any spill, release, or discharge of Hazardous Materials. All containers on the Leased Premises holding Hazardous Materials (e.g. tanks, drums, and supply sources for equipment) shall be marked with the contents and Lessee's name. Lessee shall install and maintain secondary containment or a surface liner under all container and vehicle fuel tank inlet and outlet points, hose connections, and hose ends during fueling or other transfers of Hazardous Materials. For this purpose, "secondary containment" means an impermeable diked area or portable impermeable containment structure capable of containing one hundred ten percent (110%) of the volume of the largest container; and "surface liner" means any safe, non-permeable containment designed to catch and hold fluids for the purpose of preventing spills and sized to accommodate a worst-case spill risk. Lessee shall keep at hand during all fueling and all transfers of Hazardous Materials appropriate spill response equipment to respond to a spill.
- 10.6 Environmental Indemnity. Lessee shall indemnify and defend Lessor against all liability, cost, and expense (including, without limitation, any fines, penalties, diminution in value of the Leased Premises, assessment and clean-up costs, judgments, litigation costs and attorneys' fees) incurred by or levied against Lessor as a result of Lessee's breach of this Section 10 or as a result of any discharge, leakage, spillage, emission, or pollution on or discharged from the Leased Premises during the Term of this Lease, without regard to whether such liability, cost, or expense arises during or after the Term of this Lease. Provided, however, that Lessee shall not be required to indemnify Lessor under this Section 10.6 if the parties agree or a court of competent jurisdiction determines that such liability, cost or expense is caused directly and solely by the negligence or intentional misconduct of Lessor. The foregoing indemnity shall survive the expiration or earlier termination of this Lease.

- 10.7. Environmental Assessments and Testing. Prior to the commencement of the first Significant Work defined in Section 8.5.1, Lessee, at its sole cost, may obtain a Limited Phase II Testing (defined below) on the Leased Premises. The results of the Limited Phase II Testing shall be provided to Lessor upon completion and shall be used to establish the baseline for the condition of the Leased Premises at the commencement of the Term. If such Limited Phase II Testing indicates the possible presence of Hazardous Materials, then Lessee may at its option and sole discretion (a) accept the Leased Premises notwithstanding such indication; or (b) terminate this Lease giving Lessor a thirty (30) day notice to terminate.

Lessee, upon Lessor's periodic request, which shall not occur any more frequently than once every five years during the Lease Term, including any Renewal Term(s), shall obtain a Limited Phase II Testing on the Leased Premises. Lessee shall pay for the cost of all such Limited Phase II Testing. Lessee shall provide Lessor with copies of the reports of all Limited Phase II Testing as they are completed.

In addition, during the Term of the Lease, Lessee shall be solely responsible for all costs and expenses associated with the performance of Limited Phase II Testing on the Leased Premises, which may be reasonably required by Lessor, upon the expiration or other termination of this Lease. Such Limited Phase II Testing shall be the basis for determining the extent of any environmental impairment caused by the Lessee's use and occupancy of the Leased Premises.

As used herein, "Limited Phase II Testing" means environmental testing of soil samples in such number and at such locations as determined by an Environmental Engineer, subject to the reasonable satisfaction of Lessor, and with the samples to be tested by a facility reasonably acceptable to Lessor.

- 10.8 Lessor's Environmental Expenses. In the event Lessor shall make any expenditures or incur any obligations for the payment of money in connection with this Section 10 including, but not limited to, attorneys' fees for instituting, prosecuting, or defending any action or proceeding. Such sums paid, obligations incurred, and costs shall be deemed to be additional rent due under this Lease and shall be paid by Lessee to Lessor within ten (10) days of the rendering of an invoice to Lessee. Such amounts if not timely paid shall bear interest at the rate of ten and one-half percent (10.5%) per annum.

Section 11. Default and Remedies.

- 11.1 Events of Default. Each of the following events shall be a default by Lessee and breach of this Lease:

11.1.1 Failure to Perform Lease Obligations. Lessee's abandonment or surrender of the Leased Premises or of the leasehold estate, or failure or refusal to pay when due any installment of Basic Rent, Royalty, or additional rent or any other sum required by this Lease to be paid by Lessee, or to perform as required by any other obligation, covenant or condition of this Lease.

The Lessee is expected to make application for all separate written permissions required by governmental agencies, including but not limited to easements, rights-of-way, stormwater pollution prevention plans, and mining permits prior to extraction under the Lease. Lessee's obligations under this Lease shall not be excused by failure to make timely applications for permits, seasonal road weight restrictions, winter snow conditions, or other conditions that are reasonably foreseeable.

- 11.1.2 Appointment of Receiver. The appointment of a receiver or trustee to take possession of the Leased Premises or improvements or of the Lessee's interest in the leasehold estate or of Lessee's operations on the Leased Premises for any reason.
- 11.1.3 Insolvency, Bankruptcy. An assignment by Lessee for the benefit of creditors or the filing of a voluntary or involuntary petition by or against Lessee under any provision of the U. S. Bankruptcy Code.
- 11.1.4 Material Misrepresentation. A material misrepresentation made to Lessor by Lessee regarding the Agreement, including but not limited to a material misrepresentation by Lessee with respect to the intended use of the premises.
- 11.2 Notice. As a precondition to pursuing any remedy for an alleged default by Lessee, Lessor shall before pursuing any remedy, give notice of the default to Lessee. Each notice of default shall state the alleged event of default and the intended remedy, but the identification of the intended remedy shall not limit Lessor's right to seek or use any other available remedy not identified in the notice. Lessor shall give notice of default to Lessee at its address for notices specified in this Lease. Notice shall be by personal delivery or by mailing by certified mail (return receipt requested) to Lessee.
- 11.3 Lessee's Right to Cure Defaults. Lessee shall have the right to cure any default as provided below:
 - 11.3.1 Payment Default. If the alleged default is nonpayment of rent, royalty, taxes, or other sums to be paid by Lessee under this Lease, Lessee shall have thirty (30) days after the notice is given to cure the default.
 - 11.3.2 Immediate Correction. If, in the reasonable opinion of Lessor, the alleged default substantially endangers either the person or property of Lessor or a third party, or human health or the environment, Lessee shall commence curing the default immediately upon notice and complete the cure within such reasonable time period as is imposed by Lessor or any governmental body having jurisdiction in the matter.
 - 11.3.2 Other Default. For the cure of any other default, Lessee shall promptly and diligently commence curing the default and shall have sixty (60) days after notice is given to complete the cure; provided that if a default reasonably requires more than sixty (60) days to cure, Lessee shall have a reasonable period in which to cure such default so long as Lessee diligently commences and pursues curing the default.

- 11.4 Nonwaiver. Lessor's acceptance of any rents, whether Basic Rent, Royalty, or additional rent, shall not be deemed to be a waiver of any breach by Lessee of any of its covenants or obligations contained in this Lease or of the right of Lessor to reenter the Leased Premises or to declare a forfeiture for any such breach. Waiver by Lessor of any breach by Lessee shall not operate to extinguish the covenant the breach of which is so waived, nor be deemed to be a waiver of the right of Lessor to declare a forfeiture for any other breach thereof or of any other covenant.
- 11.5 Right of Lessor to Protect Against Default. After Lessor provides notice to Lessee (as provided in Sections 11.2 and 11.3) and Lessee fails to observe or perform any of its obligations contained in this Lease, Lessor, at any time thereafter and without notice, shall have the right, but not the obligation, to observe or perform the same for the account and at the expense of Lessee. Lessor shall not be liable to Lessee or anyone claiming by, through, or under it for any loss or damage by reason thereof to the occupancy, business, or property of any of them. All costs and expenses paid or incurred by Lessor in observing or performing such covenant shall constitute additional rent that Lessee shall pay to Lessor with ten (10) days of Lessee's receipt of an invoice therefore.
- 11.6 Lessor's Remedies. If any default by Lessee shall continue uncured following a notice of default as required by this Lease, for the period applicable to the default under Section 11.3 of this Lease, Lessor shall have the following remedies in addition to all other rights and remedies provided by law or equity or other provisions of this Lease, to which Lessor may resort cumulatively or in the alternative. The election of one remedy for any one default shall not foreclose an election of any other remedy for another default or for the same default at a later time.
- 11.6.1 Termination. At Lessor's election, Lessor may terminate this Lease by giving Lessee notice of termination. On the giving of the notice, all Lessees' rights in the Leased Premises and in all Improvements thereon shall terminate, unless Lessor expressly and in writing requires Lessee to remove specified Improvements, in which event Lessee's rights shall continue in the Improvements required to be removed. Promptly after notice of termination, Lessee shall surrender and vacate the Leased Premises and remove all Improvements within one hundred eighty (180) days after termination notice and leave the Leased Premises in a clean and leasable condition, and Lessor may reenter and take possession of the Leased Premises and eject all parties in possession, or eject some and not others, or eject none. If all Improvements are not removed within one hundred eighty (180) days Lessor may, at its sole and absolute discretion, take possession of them subject to any Security Interest or Fixture Mortgage. Termination under this Section 11 shall not relieve Lessee, or any of its guarantors, insurers, or sureties, from the obligation to make payment of any sum then due to Lessor or from any claim for damages previously accrued or then accruing against Lessee.
- 11.6.2 Re-entry Without Termination. Lessor may, at Lessor's election, reenter the Leased Premises, and, without terminating this Lease, at any time and from time to time relet the Leased Premises and Improvements, or any part or parts of them, for the account and in the name of Lessee or otherwise. Lessor may, at Lessor's election,

eject all persons, or eject some and not others or eject none. Any reletting may be for the remainder of the Term or for a longer or shorter term. Lessor may execute any leases made under this provision either in Lessor's name or in Lessee's name, and Lessor shall be entitled to all rents from the use, operation, or occupancy of the Leased Premises or Improvements or both. Lessor shall apply all rents from reletting as provided in Section 11.7 of this Lease. Lessee shall nevertheless pay to Lessor on the due dates specified in this Lease, the equivalent of all sums required of Lessee under this Lease, plus Lessor's expenses, less the proceeds of any reletting. No act by or on behalf of Lessor under this provision shall constitute an acceptance of a surrender or a termination of this Lease unless Lessor gives Lessee specific notice of acceptance of a surrender or termination.

11.6.3 Recovery of Rent and Royalty. Lessor shall be entitled, at Lessor's election, to each installment of rent and royalty, or to any combination of installments for any period before termination, plus late charges and interest at the rate of ten and one-half percent (10.5%) per annum from the due date of each installment. If Lessor elects to relet the Leased Premises without terminating this Lease, the proceeds of such reletting shall be applied, when received, as provided in Section 11.7 of this Lease.

11.6.4 Lessee's Personal Property. Lessor may, at Lessor's election, use Lessee's personal property and trade fixtures on the Leased Premises, or any of such property and fixtures, without compensation and without liability for use or damage, or store them for the account and at the cost of Lessee.

11.6.5 Damages. Lessor shall also be entitled, at Lessor's election, to damages as follows: (1) all amounts that would have fallen due as rent and royalty between the time of termination and the time the property is relet, if it is relet; provided that Lessor shall exert reasonable efforts to relet the property at prevailing market value; (2) the amount, if any, by which the Basic Rent and Royalty under this Lease exceed the rents under any subsequent lease upon reletting calculated over the Term; and (3) all administrative, marketing, brokerage, repairs, cleaning, and similar costs incurred by Lessor necessary or useful to reletting the Leased Premises, or placing it in good and marketable condition.

11.6.6 Lessor's Obligation to Attempt to Relet. Notwithstanding any other provision of this Lease to the contrary, Lessor shall not be entitled to recover rent or damages in the event of Lessee's default unless Lessor exerts reasonable efforts to relet the Leased Premises at prevailing market value.

11.7 Application of Sums Collected by Lessor. Lessor shall apply all proceeds of reletting in the order as follows:

(1st) To the payment of reasonable expenses (including attorneys' costs and fees, brokers' commissions, or both) paid or incurred by, or on behalf of Lessor in recovering possession, placing the Leased Premises and Improvements in good condition, and preparing or altering the Leased Premises or Improvements for reletting;

- (2nd) to the reasonable expense of securing new tenants;
- (3rd) to the fulfillment of Lessee's covenants and obligations to the end of the Lease Term; and
- (4th) to Lessee's uses and purposes.

Section 12. Insurance.

- 12.1 Duration and Requirement. During the entire Term, Lessee shall purchase and maintain all insurance policy or policies specified in **Exhibit C** of this Lease with respect to the Leased Premises, Improvements or appurtenances thereto including but not limited to an earth material extraction site on the Leased Premises, and any and all other business or operations of Lessee (the "Required Insurance") that relate to the Leased Premises and the business operations. Lessee shall ensure that each element of the Required Insurance remains in force and effect for the period specified herein. To the extent the provisions in **Exhibit C** and this section conflict, the terms of **Exhibit C** shall prevail.

Lessor does not warrant or represent that the required coverages and limits required in this Section 12 or in **Exhibit C** are appropriate or adequate to protect Lessee against liability, loss, and/or damage of any type.

Lessor will review the Minimum Coverage Requirements every five (5) years and will adjust the insurance requirements for inflation and compliance with the current uses and operations. Furthermore, any new additions or improvements require Lessor's review of the Minimum Coverage Requirements prior to construction to determine whether an adjustment to the insurance requirements is needed.

- 12.2 Claims-Made Policies. All liability coverages included in the Required Insurance must be written on an occurrence basis unless expressly permitted to be written on a claims-made basis in **Exhibit C**. Any Required Insurance permitted to be written on a claims-made basis and in fact written on such basis shall have a retroactive date of no later than the commencement of construction of Improvements or commencement of the Lessee's business or operations with respect to the Leased Premises, whichever is applicable. All Required Insurance written on a claims-made basis shall provide for the election and purchase of a three (3) year extended reporting period upon: (1) cancellation or nonrenewal of the insurance policy by either the insurer or the insured, except in the case of cancellation or nonrenewal for nonpayment of premium (provided, that the preceding exception shall not relieve Lessee of its obligation to maintain insurance as required under this Lease); or (2) surrender or abandonment of the Leased Premises by the Lessee. The Lessee must have the right to purchase an optional extended reporting period at a predetermined amount for the annual period immediately preceding the triggering event. The Lessee must notify the Lessor as soon as practicable of the Lessee's election not to purchase the extended reporting period, but in no event later than ten (10) days before the right to purchase the extended reporting period expires and offer Lessor the option to purchase the policy on behalf of Lessee at Lessor's expense

- 12.3 Lessor's Insured Status Under Required Insurance. All liability coverages included in the Required Insurance, except for Workers' Compensation and Employers' Liability Protection, must expressly identify Lessor as an additional insured, and must also insure Lessor's Administrator, officers, officials, employees, and volunteers to the broadest extent permissible under applicable law. To the extent legally permissible, such additional insured status shall extend to liability arising out of business activities, products, premises, and operations of Lessee, as well as automobiles owned, leased, hired, or borrowed thereby. Any exclusions in a policy relating to claims made by one insured against another insured or liability assumed under contract shall be removed or amended to make an exception for claims made by or against the Lessor pursuant to this Lease. The Required Insurance shall be primary (and non-contributing with other insurance held by) with respect to Lessor, Lessor's Administrators, officers, officials, employees, and volunteers, and contain no special limitation on the scope of protection afforded to those insureds. The Required Insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- 12.4 Subcontractors. Except for site pollution liability coverage, before any contractor or subcontractor of any tier conducts any activities or operations with respect to the Leased Premises in connection with a contract in the amount of Five Hundred Thousand Dollars (\$500,000) or more, Lessee shall either: (1) ensure inclusion of such contractor and/or subcontractor as an insured under all liability coverages included in the Required Insurance, and subject to all requirements stated herein and in **Exhibit C**; or (2) obtain and provide to Lessor written confirmation that that contractor and/or subcontractor has satisfied all requirements imposed upon Lessee in this Section 12 and/or **Exhibit C**. All coverages applicable to such contractors and subcontractors must include a provision expressly waiving all rights of subrogation against Lessor.
- 12.5 Acceptability of Insurers. All Required Insurance is to be placed with insurers with a Best's rating of no less than A-VII, and which are not subject to any legal or actual prohibition or restriction against the issuance of policies constituting Required Insurance or otherwise applicable to risks, persons, or property situated in the State of Alaska.
- 12.6 Proof of Insurance. Lessee, as part of the Lease Agreement, shall deliver to Lessor certificates of insurance on or before the commencement date of the Initial Term of this Lease, at renewal periods, or at such other date as agreed to in writing by Lessor. Additionally, Lessee shall deliver to Lessor photocopies of the policy or policies of insurance, certificates of insurance, or copies of endorsements as requested by the Lessor from time to time.

Section 13. General Defense and Indemnification and Recovery of Costs.

- 13.1 Lessee's Defense, Indemnity, Save, and Hold Harmless Obligations. Lessee assumes all responsibility, risk, and liability for its activities and use of or contact with the Leased Premises. The Lessee shall defend, indemnify, save, and hold harmless the Lessor, its elected and appointed officials and officers, agents, and employees, from and against any and all demands, causes of action (whether in the nature of an action for damages, indemnity, contribution, government cost recovery, hazardous materials or otherwise),

finances, judgments, suits, claims, actions, proceedings, losses, costs (including full reasonable attorney's fees and costs), expenses, charges, forfeitures, liens, liabilities, settlements, penalties, and damages of any kind or nature whatsoever, including, but not limited, to those alleging personal injury, wrongful death, nuisance property damage, economic loss, damages, violation of statutes, ordinances, constitutions, or other laws, rules, or regulations, contractual claims, environmental contamination (including any disposal, release, spill or discharge or any threatened disposal, release, spill, or discharge of, or contamination by hazardous materials), and environmental noncompliance (including the Lessee's failure to provide all information, make all submissions, and take all steps required by the authority under the environmental laws or any other law concerning any spill, discharge, or contamination), or any other kind of loss, tangible or intangible, sustained by any person, or property arising out of, in connection with, directly or indirectly from, or otherwise incident to Lessee's, Lessee's officers, agents, employees, guests, invitees, licensees, partners, attorneys, suppliers, and subcontractors' Leasehold activities or performance related to this Lease in any way whatsoever or use of or contact with the Leasehold, except to the extent the parties agree or a court determines the sole legal cause of injury or damage is the recklessness or willful misconduct of the Lessor or anyone acting on the Lessor's behalf. This defense and indemnification responsibility includes claims alleging acts or omission by the Lessor or its agents, which are said to have contributed to the losses, failure, violations, or damage. However, the Lessee shall not be responsible for any damages or claim arising from the sole negligence or willful misconduct of the Lessor, its agents, or employees.

13.2 Costs and Expenses of Lessor. Lessee shall pay to Lessor all costs and expenses, including reasonable attorneys' fees, which are: (1) paid or incurred by Lessor but are required to be paid by Lessee under any provision of this Lease; (2) paid or incurred by Lessor in enforcing any covenant of Lessee contained in this Lease, in protecting itself against or remedying any breach thereof, in recovering possession of the Leased Premises or any part thereof, or in collecting or causing to be paid any delinquent rents, real property taxes, assessments, or rates; (3) incurred by Lessor in reviewing any matter for which Lessor's approval is sought and in processing such approval; or (4) incurred by Lessor in connection with any action in any respect related to this Lease, the Leased Premises, or Lessee's actions or omissions on the Leased Premises, other than a condemnation action filed by or against Lessee, to and in which Lessor is made a party but not adjudicated to be at fault. The term "costs and expenses" as used in this Lease shall include, but not be limited to, all of Lessor's out-of-pocket expenditures attributable to the matter involved and reasonable attorneys' fees. Except as otherwise expressly provided in this Lease, all costs and expenses of Lessor shall be payable by Lessee to Lessor within ten (10) days after mailing or personal delivery of invoices therefore to Lessee and shall bear interest from the date which is ten (10) days after the date of such mailing or personal delivery at the rate of ten and one-half percent (10.5%) per annum. Such obligations and interest shall constitute additional rent due and payable under this Lease.

13.3 Other Defense, Indemnity, and Cost Provisions Not Affected. The provisions of Section 13.1 regarding indemnity and the provisions of Section 13.2 regarding costs and expenses are intended to supplement, not supersede, the other provisions of this Lease that

concern Lessee's indemnity obligations and Lessee's obligations to pay for Lessor's costs. Lessee shall fulfill all the indemnity and cost payment obligations owed to Lessor under any of the provisions of this Lease.

- 13.4 The obligations of the Lessee to indemnify, defend, and hold harmless the Lessor under the terms of this Lease shall survive transfer, assignment, or other disposition of an interest in this Lease as well as the expiration, forfeiture, relinquishment, abandonment, or other termination of this Lease.

Section 14. Damage or Destruction to Improvements.

- 14.1 Responsibility upon Damage to or Destruction of Property. In the event a building or any other Improvement situated on the Leased Premises is destroyed or damaged by fire or other casualty, other than through the sole negligence or other sole fault of Lessor, Lessee shall comply in full with one of the following conditions within ninety (90) days of such destruction or damage (or within such other time period as is mutually agreed to in writing):

14.1.1 Restore to Same Condition. Lessee may repair, rebuild, or otherwise reinstate the damaged Improvement(s) in a good and substantial manner and in substantially the same form, as it previously existed. In such event, the Lease shall continue in full force and effect without abatement of rents.

14.1.2 Rebuild to Different Condition. Lessee may repair, rebuild or otherwise reinstate the damaged Improvement(s) in a manner and style different from the previously existing Improvement(s), so long as the plans therefore are approved by Lessor as required under this Lease. In such event, the Lease shall continue in full force and effect without abatement of rents.

14.1.3 Clear Property. Lessee may remove the damaged Improvement(s), in which event Lessee must also place the Leased Premises in the condition specified in Section 16.2 of this Lease. In that event, the Lease shall continue in full force and effect without abatement of rents.

14.1.4 Last of Term. If the casualty occurs to the main building(s) or principal structure(s) on the Leased Premises and the casualty occurs within the last five years of the Initial Term, or during any Renewal Term, Lessee may elect to terminate the Lease by the following:

- i. giving written notice to Lessor of its intention to terminate,
- ii. removing the damaged Improvement(s) and placing the Leased Premises in the condition specified in Section 16.2, and
- iii. paying to Lessor the total amount of rents to come due during the remaining Term of the Lease, applying the rental rate then in effect to the remainder of the Lease Term.

Section 15. Eminent Domain.

- 15.1 Definition. The terms "taking" and "to take" (in any of their forms) as used in this Section 15 refer to any competent authority acquiring by the power of eminent domain, including inverse condemnation, all or any part of the Leased Premises or an interest in the Leased Premises, at any time during the Term. The transfer of title effectuating the taking may be either a transfer resulting from the recording of a final order in condemnation or a voluntary transfer or conveyance to the condemning agency or entity under threat of condemnation in avoidance of an exercise of eminent domain, whether made before or while condemnation proceedings are pending. The time of taking shall be determined by application of Alaska law.
- 15.2 Complete Taking. In the event of a taking of all or materially all of the Leased Premises, this Lease shall terminate on the earlier of the vesting of title in, or the taking of possession by, the condemner.
- 15.3 Partial Taking. Subject to the exception set out in Section 15.4 below, if less than materially all of the Leased Premises are taken (a "partial taking"), this Lease shall continue in effect except as to the portion so taken or condemned, but the rent to be paid by Lessee shall thereafter be reduced by the same ratio as the value of the portion of the Leased Premises so taken bears to the value of the Leased Premises before the taking. If no portion of the net usable area of the Leased Premises is taken, or if the portion thereof so taken is subterranean or aerial and does not interfere with the use of the surface, then Lessee shall not be entitled to any adjustment of rent under this Section 15.3.
- 15.4 Partial Taking in Last of Term. If a partial taking renders the remaining Leased Premises unsuitable for the purposes for which Lessee's Improvements were designed or occurs during the last five (5) years of the Initial Term of this Lease or any Renewal Term, then Lessee, upon sixty (60) days written notice to Lessor and compliance with Section 16 of this Lease, and subject to the rights of any Qualified Mortgagee, may terminate this Lease after vesting of title in the condemner or taking of possession by the condemner. If Lessee does so, the rent and other charges under this Lease shall be apportioned as of the date of termination.
- 15.5 Substantial Taking. If a partial taking renders the remaining Leased Premises substantially unsuitable for the purposes for which Lessee's Improvements were designed or is otherwise such as to substantially impair or interfere with Lessee's use of the Leased Premises, then Lessee, subject to the rights of any Qualified Mortgagee, may terminate this Lease as provided in Section 16 after vesting of title in the condemner or taking of possession by the condemner. If Lessee does so, the rent and other charges under this Lease shall be apportioned as of the date of termination.
- 15.6 Disposition of Proceeds on Total Taking. In the event of a total taking, the rights of Lessor and Lessee to share in the net proceeds of any and all awards for land, buildings, or other Improvements and damages shall be in the following order of priority:

- (1st) To Lessor, a sum equal to the fair market value of the fee simple interest in the Leased Premises unencumbered by this Lease or any sublease, and including Lessor's Improvements and excluding Lessee's Improvements.
 - (2nd) To Lessee, a sum representing the fair market value of Lessee's Improvements. In no event shall Lessee be entitled to any claim for its leasehold interest, and any compensation therefore is hereby assigned to Lessor.
 - (3rd) To Lessor, the balance of the award, excluding interest. Interest shall be allocated between the parties in proportion to their respective shares of the total award provided above. If the value of such respective interests of Lessor and Lessee have been separately determined in such condemnation proceeding, the values so determined shall be conclusive upon Lessor and Lessee. If such values have not been so determined, they may be fixed by agreement between Lessor and Lessee, or if the parties cannot agree, then by the Superior Court for the State of Alaska, Third Judicial District at Palmer.
 - (4th) Nothing in this Section 15 shall prohibit the Lessee from seeking and retaining from the condemning authority a separate award for Lessee's own damages to its business and relocation expenses to the extent permitted by law.
- 15.7 Disposition of Proceeds on Partial Taking. In the event of a partial taking, Basic Rents shall be abated as provided in Section 15.3 and the net proceeds of the award shall be divided between Lessor and Lessee as follows:
- 15.7.1 To Lessor, a sum representing the fair market value of the fee simple interest of the part or parts of the Leased Premises so taken, unencumbered by this Lease, including Lessor's Improvements and excluding Lessee's Improvements; plus an amount representing consequential damages to the part or parts of the land remaining after such taking, considered as if vacant and unimproved.
 - 15.7.2 To Lessee, the balance of the award, which shall be applied by Lessee first to restoration of Lessee's Improvements as nearly as reasonably possible to their condition before such taking, unless Lessee terminates this Lease as provided in Section 15.4 and Section 15.5 above, in which case the balance of the award shall be paid to Lessor.
- 15.8 Rights on Termination. Notwithstanding anything in this Lease to the contrary, if Lessee exercises its right to terminate the Lease under Section 15.4 and Section 15.5 above, the award balance that is attributable to Lessee's Improvements, other than the principal balance (if any) and other proper charges due a Qualified Mortgagee, shall belong to Lessor, free of any claim of Lessee. In no event shall Lessee be entitled to any compensation for its Improvements if the taking occurs after expiration of the Term or termination of this Lease.
- 15.9 Temporary Taking. If the whole or any part of the Leased Premises, or of Lessee's interest under this Lease, is taken by any competent authority for its temporary use or occupancy, this Lease shall not terminate by reason thereof and Lessee shall continue to pay all rental

payments and other charges payable by Lessee hereunder, and to perform all other terms, covenants, and conditions contained in this Lease, except to the extent Lessee is prevented from so doing by the terms of the order of the taking authority. In the event of a temporary taking, Lessee shall be entitled to receive the entire amount of the award and shall be obligated, at its sole expense, to restore the Leased Premises as nearly as may be reasonably possible to the condition in which they existed immediately prior to such taking. Provided, however, that if the period of temporary use or occupancy extends beyond the expiration of the Lease Term, the award shall be apportioned between Lessor and Lessee as of said date of expiration, after Lessor shall have received the entire portion of the award attributable to physical damage to the Leased Premises (excluding Lessee's Improvements) and to the restoration thereof to the condition existing immediately prior to the taking or condemnation. Upon expiration of the temporary taking, Lessee shall have the rights and obligations provided in Section 16, including but not limited to removal of Lessee's Improvements within a reasonable time to be negotiated by Lessor and Lessee.

Section 16. Duties at Termination or Expiration

- 16.1 Surrender of Leased Premises. Upon expiration or early termination of this Lease, Lessee shall surrender to Lessor the possession of the Leased Premises. Lessee shall leave the surrendered Leased Premises and any Improvements in a clean and leasable condition. If Lessee fails to surrender the Leased Premises at expiration or termination, Lessee shall defend and indemnify Lessor as per provisions of Section 13 above from all liability and expense resulting from the delay or failure to surrender, including, but not limited to claims made by any succeeding tenant founded on or resulting from Lessee's failure to surrender. In the event of failure or refusal of Lessee to surrender possession of the Leased Premises, Lessor shall have the right to reenter the Leased Premises and remove therefrom Lessee or any person, firm, or corporation claiming by, through or under Lessee and to obtain damages for trespass from Lessee.
- 16.2 Removal of Improvements upon Termination. Upon the expiration or termination of this Lease or any extension thereof, including termination resulting from Lessee's breach ("termination"), Lessee shall leave the Leased Premises in a clean and leasable condition, which shall include removal of all of Lessee's Improvements and the foundations and footings to any Improvements, personal property, trash, vehicles, and equipment, except as noted in Section 16.3 below. Any excavation on the property, including excavation to remove Lessee's Improvements, shall be filled and compacted with material approved by Lessor, which approval shall not be unreasonably withheld. Reclamation shall be completed upon expiration of this lease on those portions of the mining phases that are complete.
- 16.3 Lessor's Option. Lessor may, at its option, allow Lessee to leave some or all of Lessee's Improvements on the Leased Premises upon termination or expiration. If Lessor so elects, such Improvements shall become the property of Lessor upon termination or expiration, without payment or any additional compensation required. The Lessee is obligated to provide the Lessor with a deed of conveyance or other confirmation if required by the Lessor.

- 16.4 Lessor's Improvements. Any improvements owned by Lessor at the commencement of this Lease, or added to the Leased Premises by Lessor after execution of this Lease, shall not be removed by Lessee.
- 16.5 Abandonment of Lessee's Property. In the event of any termination of the Lease including the expiration of its stated Term, all property that Lessee is not required or allowed to leave on the Leased Premises shall, on the tenth (10th) day following termination or expiration, be conclusively deemed abandoned. Abandoned property shall, at the election of Lessor, become the property of Lessor or be destroyed or removed by Lessor.
- 16.6 Liability for Cleanup Expenses and Reclamation. Lessee shall be liable for all costs and expenses incurred by Lessor to remove or destroy abandoned property and Improvements left of the Leased Premises for longer than one hundred eight (180) days after expiration or termination of the Lease, and the removal of trash or other debris left thereon. In addition, nothing in this Lease shall relieve Lessee of any obligation or liability for reclamation or removal of Hazardous Materials or inappropriate fill material placed on the Leased Premises during the term of the Lease, regardless of when such Hazardous Materials or inappropriate fill material is discovered. Reclamation on the property must be accepted in writing by Lessor. All reclamation requirements are the obligation of the Lessee regardless as to the circumstances involved in the releasing of the rights to mine or the termination of the Lease. Forfeiture of mining rights will not relieve the Lessee of any obligation for reclamation of the Leased Premises.

Section 17. Assignments, Subleasing, and Mortgages.

- 17.1 Limitations on Transfer. Lessee shall not voluntarily or by operation of law assign, transfer, mortgage, sublet, or otherwise transfer or encumber (collectively, "Transfer") all or any part of Lessee's interest in this Lease or in the Leased Premises, except in strict compliance with this Section 17. Any attempted assignment, transfer, mortgage, encumbrance or subletting without such compliance shall be void, and shall constitute a breach of this Lease.
- 17.2 Lessee's Right to Assign or Sublease. Lessee shall have the right to assign, sublease, or make any Transfer of Lessee's interest in this Lease and the estate created by this Lease only upon receiving prior written consent of the Lessor and not otherwise. Lessor shall not unreasonably withhold its consent.
- 17.3 Request for Consent to Assignment or Sublease. To request Lessor's approval of any assignment, sublease, or other Transfer, Lessee shall give Lessor reasonable notice of the proposed assignment or sublease with appropriate documentation regarding the proposed, which includes, but not limited to the following: (1) a certified financial statement prepared independently and in accordance with generally accepted accounting principles fairly representing the existing financial condition of the proposed assignee or subtenant; (2) the proposed assignee's or subtenant's prior years' income tax returns; (3) the proposed assignee's or subtenant's business or operations plan for the Leased Premises; and (4) any other or further information Lessor shall request.

Lessee shall pay Lessor the costs and fees Lessor estimates it will incur in evaluating and investigating the proposed assignee's or subtenant's qualifications, which costs and fees shall not exceed Two Thousand Dollars (\$2,000).

17.4 Liability on Transfer. No Transfer, even if the Transfer is made with Lessor's consent, shall operate to relieve Lessee of any obligations under this Lease, whether the same arise before or after the effective date of the Transfer. In the case of an assignment, the assignee shall assume all rights and obligations of Lessee under this Lease, including unsatisfied obligations to cure any delinquency in rent or other charges under this Lease or to perform any repairs or other work or action required by Lessor before the assignment.

17.5 Mortgage of Leasehold Interest. Lessee shall have the right at any time and from time to time, to subject the leasehold estate and any or all of Lessee's Improvements situated on the Leased Premises to one or more mortgages, deeds of trust, or assignments as security for a loan or loans or other obligation of Lessee (each of which is a "Leasehold Mortgage"), provided that:

17.5.1 Subordination. Any Leasehold Mortgage and all rights acquired under it shall be subject and subordinate to each and all the covenants, conditions, and restrictions stated in this Lease, and to all rights and interests of Lessor. **Under no circumstances will Lessor's fee simple interest in the Leased Premises, or Lessor's rights under this Lease or its reversionary interest, ever be subject to or subordinate to the lien or encumbrance of any Leasehold Mortgage. With respect to Lessor's interests, this Lease is specifically intended to be only an unsubordinated ground lease.**

17.5.2 Notice to Lessor. Lessee shall give Lessor prior notice of any such Leasehold Mortgage, and shall accompany the notice with a true copy of the note and the Leasehold Mortgage as proposed for execution. Upon Lessor's written consent to the Leasehold Mortgage and upon execution of the Leasehold Mortgage by all parties, the mortgagee shall become a "Qualified Mortgagee" as that term is used in this Lease.

17.6 Notice of Default and Opportunity to Cure. Upon any default on any of the terms of the Lease by Lessee, Lessor, in addition to notifying Lessee pursuant to Section 11.2, shall also notify each Qualified Mortgagee of the default. Upon receipt of a written notice of default, any such Qualified Mortgagee shall have the length of time set forth in Section 11.3 of this Lease to cure the default. Lessor shall accept any cure provided by a Qualified Mortgagee whether the cure is tendered in the name of or on behalf of Lessee or the Qualified Mortgagee.

17.7 Possession by Mortgagee. A Qualified Mortgagee may take possession of the Leased Premises and vest in the interest of Lessee in the Lease upon the performance of the following conditions:

17.7.1 The payment to Lessor of any and all sums due to Lessor under the Lease, including but not limited to accrued unpaid Basic Rent, Royalty, and additional rent.

17.7.2 The sending of a written notice to Lessor and Lessee of the Qualified Mortgagee's intent to take possession of the Leased Premises and assume the Lease.

17.7.3 The curing of all defaults not remediable by the payment of money within an additional thirty (30) days of the date upon which such default was required to be cured by the Lessee under the terms of this Lease.

17.8 No Liability of Mortgagee Without Possession. A Qualified Mortgagee shall have no liability or obligation under the Lease unless and until it sends to Lessor the written notice described in Section 17.7.2 above. Nothing in this Lease nor in the taking of possession of the Leased Premises and assumption of the Lease by a Qualified Mortgagee or a subsequent assignee shall relieve Lessee of any duty or liability to Lessor under the Lease.

17.9 Subsequent Transfer. In the event a Qualified Mortgagee forecloses the Leasehold Mortgage, any subsequent assignee or transferee of the leasehold estate proposed by the Qualified Mortgagee must be approved by Lessor, whose discretion in the matter shall be complete.

Section 18. General Provisions.

18.1 Lessor's Right to Entry, Inspection, and Repair. Lessor or its authorized agents may enter and inspect the Leased Premises at any time during regular business hours, with or without the presence of Lessee or its authorized representative, after giving twenty-four (24) hours advance notice to Lessee of such inspection. Lessor is specifically authorized to enter the Leased Premises for the purposes of posting notices of non-responsibility for any construction work Lessee undertakes. Lessor's right to inspect shall include, but not be limited to, taking measurements to evaluate extraction progress and depth to water and conducting tests for environmental contamination. All inspections will be conducted in a manner that does not unreasonably interfere with the operation of Lessee's business. In the event of an emergency, Lessor may enter and inspect the Leased Premises on reasonable notice under the circumstances (including no notice to Lessee if the circumstances warrant) and make such repairs or institute such measures, on the account and at the expense of Lessee, as may be necessary to avert or terminate the emergency. An emergency is any action, event, or condition, either extant or imminent, that threatens significant damage to property or injury to persons on or near the Leased Premises, including but is not limited to flood, fire, explosion, earthquake, uncontrolled or dangerous discharge or release of water or other fluids, unauthorized or illegal placement of hazardous or toxic materials on the Leased Premises, and shifting, settling or loss of earth or support on the Leased Premises.

18.2 Notices. Any notice to Lessor or Lessee required or permitted under this Lease shall be given in writing, mailed by registered or certified mail, return receipt requested, and addressed to such party at its mailing address specified on the first page of this Lease, or at such other address as may be specified by the party in writing. In the alternative, any notice may be delivered personally within the State of Alaska to the party. Except as otherwise expressly provided in this Lease, any notice shall be conclusively deemed to have been given five (5) days after the date of mailing or personal delivery. If at any time during the

Term, Lessee is more than one person or entity, any notice given by Lessor to any one person shall constitute notice to all of them, and any agreement or approval with or in favor of Lessor made or given by any of them shall bind all of them.

- 18.3 Disputes; Forum Selection; Attorneys' Fees. In the event of any dispute or decision by Lessor affecting Lessee's interest in the Leased Premises under this Lease, the reconsideration procedure of MSB Code 23.05.090 shall be available.

Lessor and Lessee shall attempt to resolve any dispute through non-binding mediation prior to litigation. Any litigation arising out of this Lease or related to it shall only be brought in the Superior Court for the State of Alaska, Third Judicial District at Palmer, and not elsewhere. Lessor and Lessee consent to the jurisdiction of such court and waive trial by jury. In any litigation, the prevailing party shall be entitled to an award of its full, reasonable attorneys' fees in addition to any other relief the court grants.

- 18.4 Lessor's Approvals and Satisfaction. Except as otherwise provided for in this Lease and except for any amendment to the terms of this Lease, Lessor shall not unreasonably, capriciously, or arbitrarily withhold its consent or approval when its consent or approval is required under this Lease.

- 18.5 Lessor's Conveyance. Lessor retains the absolute and sole unconditional right to convey its fee title in the Leased Premises, or an interest or estate therein.

- 18.6 Integration and Amendments. This Lease, the exhibits to it, and the provisions of the permits and licenses incorporated under it, contain and state the complete and final understanding of every agreement and representation made by or on behalf of Lessor and Lessee with respect to the Leased Premises. No implied covenant or prior oral or written agreement shall be held to vary or supplement the provisions of this Lease. Any modification of any provision of this Lease shall only be effective when it is made in a writing that specifically states it is an amendment of this Lease and that is signed by authorized representatives of both parties. Lessee acknowledges that no representative of Lessor is authorized to modify this Lease unless the provisions of the MSB Code are satisfied, including, where necessary, the approval of the Matanuska-Susitna Borough Assembly.

- 18.7 Severability. If any provision of this Lease is held to be void or otherwise unenforceable, the remaining provisions of this Lease shall remain in full force and effect.

- 18.8 Holdover Tenancy. Unless otherwise amended by Lessor, this Lease does not provide for any holdover tenancy rights by Lessee. If Lessee remains in possession of the Leased Premises after expiration of the Term without the execution of a new lease or an extension of this Lease, or an amendment of this Lease, and if no notice of termination has been delivered by Lessor to Lessee, Lessee shall be deemed to occupy the Leased Premises only as a tenant at will, from month-to-month, upon and subject to all of the provisions of this Lease which may be applicable to a month-to-month tenancy. Provided, however, that the Basic Rent payable during the any holdover tenancy shall be one hundred and fifty percent (150%) of the rental rate in effect immediately prior to expiration of the Term.

- 18.9 Execution and Counterparts. This Lease may be executed in two or more counterparts, each of which shall be an original, and all of which shall constitute one and the same instrument.
- 18.10 Memorandum of Lease. A Memorandum of Lease for providing constructive notice of the Lease shall be recorded in the Palmer Recording District and which recording expense shall be borne by Lessee.
- 18.11 Discriminatory Acts Prohibited. Lessee, in its use and occupancy of the Leased Premises, shall not discriminate against any person or class of persons by reason of sex, race, color, creed, or national origin and shall comply with all federal regulations and laws in regard to discrimination.
- 18.12 Section Headings. The section headings in this Lease are for convenience only and have no other significance.
- 18.13 Authority. For purposes of the terms and conditions of this Lease, the Matanuska-Susitna Borough Manager or designee shall act on behalf of the Borough.

The Borough's Authorized Representative for purposes of this Lease shall be only the following, or the Borough Attorney, and no others unless the Borough notifies Lessee in writing of an additional or substitute Authorized Representative:

Borough Manager
 350 E. Dahlia
 Palmer, Alaska 99645
 (907)861-8689

The Lessee's Authorized Representative for purposes of this Lease shall be only the following, and no others unless the Lessee notifies the Borough in writing of an additional or substitute Authorized Representative:

- 18.14 Binding Effect. This Lease shall be binding upon and shall inure to the benefit of Lessor and Lessee and their respective successors and assigns.
- 18.15 Force Majeure. Any failure to perform by either party due to force majeure shall not be deemed a violation or breach hereof. Forces majeure include interruption, suspension, or interference with the lease caused by acts of God, acts of the public enemy, wars, blockades, insurrections, riots, and similar occurrences.

Section 19. Special Provisions.

- 19.1 Reclamation. Lessee shall develop and submit to the Lessor and the State of Alaska a reclamation plan prior to commencing activities on the Leased Premises. Lessee shall

restore the land as specified in the Conditional Use Permit 17302022001 application (**Exhibit B**). All organic overburden will be retained to support reclamation. Incremental reclamation of those portions of the completed mining phases, not required for continued material extraction, will be completed within 12 months of the mining phase completion. Reclamation shall, at a minimum, comply with the standards contained in MSB 17.28.067 as well as in the Conditional Use Permit (**Exhibit B**). A vegetative buffer, consisting of native tree species will be planted along the western and southern site boundaries to screen the property from the adjacent material site after mining on the Leased Premises is completed.

- 19.2 Reclamation Bond. Lessee shall provide documentation of filing a reclamation bond with the State of Alaska prior to exceeding the State thresholds for when a bond is required.

[SIGNATURE PAGES FOLLOW]

IN WITNESS, WHEREOF, the Lessee and Lessor hereto have executed and acknowledged this Ground lease and its attachments.

LESSEE

ACKNOWLEDGEMENT OF LESSEE

State of Alaska)
) ss.
Third Judicial District)

THIS IS TO CERTIFY that on this _____ day of _____, 2023, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared, _____, of _____, a company, known to me to be the identical individual who executed the foregoing instrument, and they acknowledged before me that they executed the Ground Lease MSB007984 as the free and voluntary act of said company, with full authority to do so and with full knowledge of its contents, for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year above written.

[SEAL]

Notary Public for State of Alaska
My commission expires: _____

LESSOR
MATANUSKA-SUSITNA BOROUGH

Michael Brown, Borough Manager

ACKNOWLEDGEMENT OF LESSOR

State of Alaska)
) ss.
Third Judicial District)

THIS IS TO CERTIFY that on this _____ day of _____ 2023, before me, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared Michael Brown, Borough Manager of the Matanuska-Susitna Borough, a municipal corporation, who is personally known to me, appeared and acknowledged before me that he signed the Ground Lease MSB007862 for and on behalf of the municipal corporation, and acknowledge to me that he signed the same freely and voluntarily for the uses and purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year above written.

[SEAL]

Notary Public for State of Alaska
My commission expires: _____

EXHIBIT A

The Leased Premises are legally described as follows:

Located within the east one half northeast one quarter, east half northwest one quarter northeast one quarter, east one half northwest one quarter northwest one quarter northeast one quarter, northwest one quarter northeast one quarter southwest one quarter northeast one quarter, east one half southwest one quarter northeast one quarter of Section 7, Township 20 North, Range 04 West, and the east half, northwest one quarter, east one half southwest one quarter of Section 8, Township 20 North Range 04 West, Seward Meridian, Alaska shown on Plat # 79-424, recorded September 20 1979, Document Serial No. 1979-011503-0 in the Palmer Recording District, Alaska.

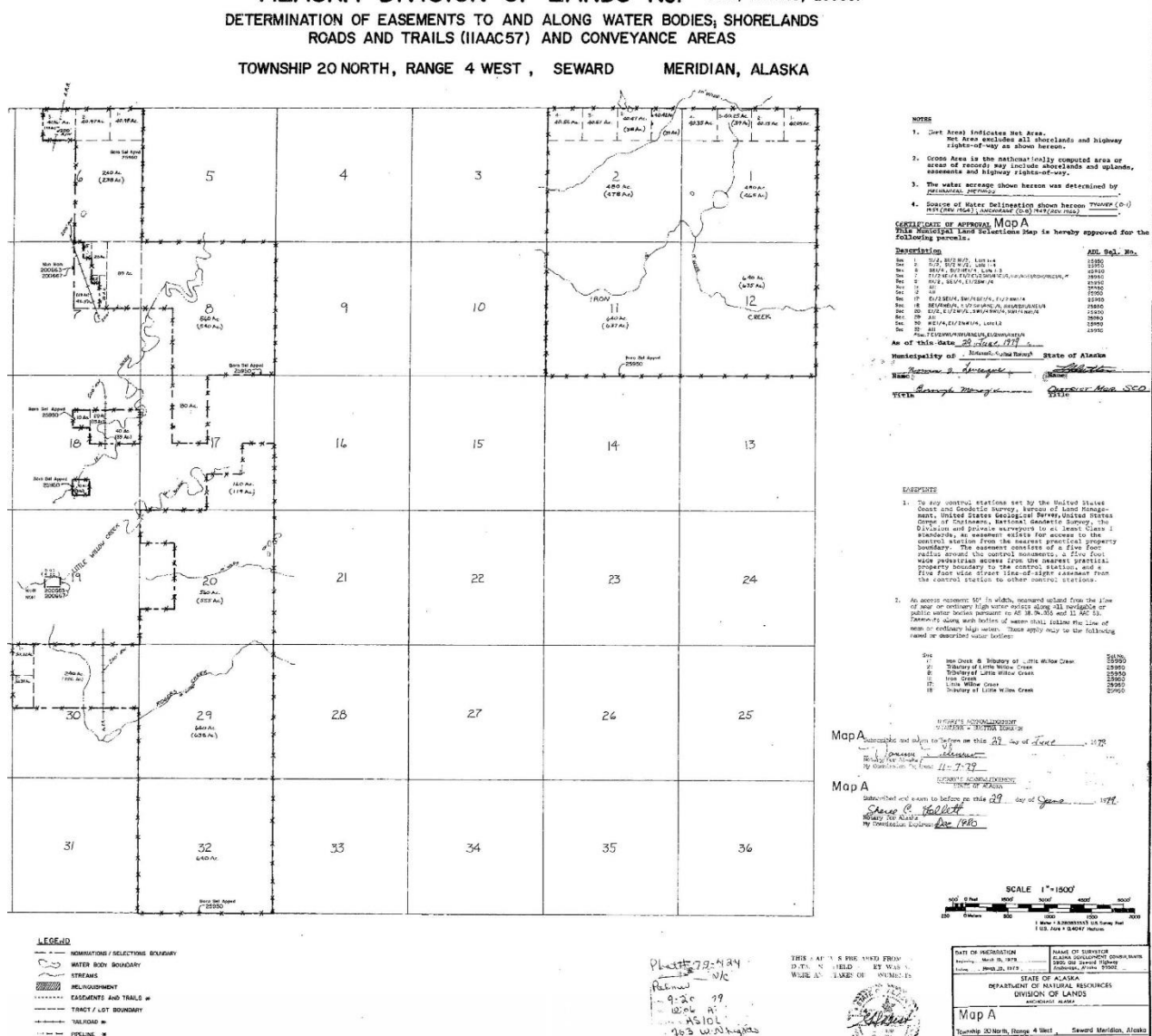


EXHIBIT B

Conditional Use Permit and Supporting Documents



MATANUSKA-SUSITNA BOROUGH

Planning and Land Use Department
350 East Dahlia Avenue • Palmer, AK 99645
Phone (907) 861-7822
www.matsugov.us

CONDITIONAL USE PERMIT FOR EARTH MATERIALS EXTRACTION

PERMIT#: 173020220001

EFFECTIVE DATES: October 3, 2022 – December 31, 2053

PERMITTED SITE: Tax IDs# 20N04W07A001 and 20N04W08A001 (No Street Address); within Township 20 North, Range 4 West, Section 7 and 8, Seward Meridian

**PERMITTEE/
PROPERTY OWNER:** MSB Land & Resource Management Division
350 East Dahlia Avenue
Palmer, AK 99645

ACTION: In accordance with provisions in Matanuska-Susitna Borough Code 17.28 and 17.30, a Conditional Use Permit for earth materials extraction is hereby approved as referenced within this document. This permit is for the extraction of earth material from an approximately 154.5-acre mining site, within the above noted parcels. The total volume of extraction will be approximately 6,390,000 cubic yards. This decision is based on the findings of fact and conclusions of law contained within MSB Planning Commission Resolution No. 22-26, dated October 3, 2022.

Specific conditions of the permit for earth material extraction activities:

1. The operation shall comply with all applicable federal, state, and local regulations.
2. A copy of the approved permit shall be provided to each contractor company working at the site.
3. All aspects of the operation shall comply with the description detailed in the application material and an amendment to the Conditional Use Permit shall be required before any alteration or expansion of the material extraction operation.
4. Material extraction shall be limited to the approximate 152.3-acre area identified in the application material and depicted on the applicant's site plan(s).
5. All applicable State of Alaska Department of Transportation permits and all applicable Alaska Railroad permits shall be obtained and provided to the Borough, prior to beginning any earth materials extraction activities.
6. A US Army Corps of Engineers Jurisdictional Determination shall be obtained before developing the access road. If required by the Jurisdictional Determination, a permit pursuant to Section 404 of the Clean Water Act, 33 U.S.C. 1344 shall be obtained before operating.

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Providing Outstanding Borough Services to the Matanuska-Susitna Community.

7. A qualified wetlands delineator shall identify the edge of all wetlands at the site. The 100-foot undisturbed vegetative buffer surrounding the identified wetlands adjacent to the extraction site shall be identified and marked by a professional land surveyor, licensed to operate in the State of Alaska, prior to beginning extraction activities
8. Vehicles and equipment shall be staged at a designated location and all equipment shall be inspected for leaks at the end of each day.
9. On-site maintenance of vehicles shall be done in an area where all leaks can be contained with drip pans or other discharge prevention devices.
10. Any hazardous materials, drips, leaks, or spills shall be promptly attended to and properly treated.
11. All construction exits shall comply with standard Alaska Pollutant Discharge Elimination System requirements to minimize off-site vehicle tracking of sediments and discharges to storm water.
12. All track-out sediments from the site shall be removed from the right-of-way daily.
13. The operation shall perform dust mitigation techniques as described in the application as-needed to minimize dust impacts to the surrounding areas.
14. The operation may operate 24 hours per day, seven days per week, however, the operation shall comply with the maximum permissible sound level limits allowed in MSB Code, per the requirements of MSB 17.28.060 – Site Development Standards and MSB 8.52 – Noise, Amplified Sound, and Vibration.
15. If cultural remains are found during material extraction activities, the MSB Planning Department shall be contacted immediately so the remains can be documented.
16. A four-foot vertical separation shall be maintained between all excavation and the seasonal high water table.
17. Borough staff shall be permitted to enter onto any portion of the property to monitor compliance with permit requirements. Such access will at minimum, be allowed on demand when activity is occurring and, with prior verbal or written notice, and at other times as necessary to monitor compliance. Denial of access to Borough staff shall be a violation of this Conditional Use Permit.
18. The operation shall comply with the reclamation standards of MSB 17.28.067.
19. If illumination devices are required, they shall not be greater than 20 feet in height, shall utilize downward directional shielding devices, and shall meet the requirements of MSB 17.28.060(A)(6) lighting standards.
20. Authorization for earth material extraction activities approved by this Conditional Use Permit shall expire on December 31, 2053.

The decision may be appealed within 21 days of the date of approval by the MSB Planning Commission in accordance with MSB 15.39 – Board of Adjustment and Appeals.


 Alex Strawn, Director
 Planning & Land Use Department

October 6, 2022
 Date of Issuance

By: Mark Whisenhunt
Introduced: August 15, 2022
Public Hearing: September 19, 2022
Action: Approved

**MATANUSKA-SUSITNA BOROUGH
PLANNING COMMISSION RESOLUTION NO. PC 22-26**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH PLANNING COMMISSION APPROVING A CONDITIONAL USE PERMIT FOR THE EXTRACTION OF APPROXIMATELY 6,390,000 CUBIC YARDS OF EARTH MATERIAL FROM AN APPROXIMATELY 152.3-ACRE SITE WITHIN TWO PARCELS TOTALING APPROXIMATELY 657.5, TAX IDS# 20N04W07A001 AND 20N04W08A001 (NO STREET ADDRESS); WITHIN TOWNSHIP 20 NORTH, RANGE 4 WEST, SECTION 7 AND 8, SEWARD MERIDIAN.

WHEREAS, an application has been received from Emerson Krueger, Natural Resource Manager, on behalf of MSB Land and Resource Management Division for a conditional use permit for the extraction of earth material at Tax IDs# 20N04W07A001 and 20N04W08A001 (No Street Address); within Township 20 North, Range 4 West, Section 7 and 8, Seward Meridian; and

WHEREAS, it is the intent of the MSB to recognize the value and importance of promoting the utilization of natural resources within its boundaries; and

WHEREAS, it is the purpose of MSB Chapter 17.30 to allow resource extraction activities while promoting the public health, safety, and general welfare of the Borough through the regulation of land uses to reduce the adverse impacts of lands uses and development between and among property owners; and

WHEREAS, it is further the purpose of MSB 17.30 to promote orderly and compatible development; and

WHEREAS, MSB 17.30.020(E) requires a conditional use permit for the annual extraction of more than 2,000 cubic yards of earth materials; and

WHEREAS, an Alaska State Department of Revenue mining license is not required for this application, because Alaska law was amended in 2012 and rock, sand and gravel quarries are now exempt from the requirement; and

WHEREAS, an Alaska State Department of Natural Resources (ADNR) mining permit is not required for this application, because the extraction activities will not take place on state land; and

WHEREAS, A reclamation plan has been developed as required by Alaska State Department of Natural Resources (ADNR), pursuant to A.S. 27.19, and has been submitted as part of this application; and

WHEREAS, the application material indicates the site will be developed to contain storm water runoff. Prior to beginning operations, a contractor will be required to develop a detailed storm water pollution prevention plan (SWPPP); and

WHEREAS, a United States Army Corps of Engineers permit pursuant to Section 404 of the Clean Water Act is not required for this application as the applicant is not proposing any extraction

activity to take place within any identified wetlands, lakes, streams, or other waterbodies; and

WHEREAS, the property is located within the Willow Community Area planning area; and

WHEREAS, overall Goal 3 of the Willow Area Community Comprehensive Plan States: "Encourage sustainable economic development, balancing private property rights, use of natural resources, and the protection of our natural environment"; and

WHEREAS, Goal 2 of the Willow Area Community Comprehensive Plan States: "Respect existing private property rights while minimizing impacts to neighboring property owners"; and

WHEREAS, Goal 5 of the Willow Area Community Comprehensive Plan States: "Maintain the quality of Willow's natural environment and scenic beauty, while allowing for necessary improvements to support growth"; and

WHEREAS, Goal E3 of The Matanuska-Susitna Borough Comprehensive Development Plan (2005) states: "Create an attractive environment for business investment"; and

WHEREAS, Policy E3-3 of The Matanuska-Susitna Borough Comprehensive Development Plan (2005) states: "Enhance the transportation infrastructure to reduce travel times and improve transport efficiencies and safety"; and

WHEREAS, the Kashwitna IMD abuts the proposed use to the north. The Alaska Railroad abuts the site directly to the west.

The Parks Highway is located further west. All development not associated with the IMD is located to the west of the proposed use and on the other side of the railroad right-of-way; and

WHEREAS, all parcels abutting the subject properties to the northeast, east, southeast, south, southwest, and west, are undeveloped and range in size from 24 acres to 640 acres; and

WHEREAS, the closest residential structure is located west of the Parks Highway and is approximately 1,000 feet from the boundary of the proposed use; and

WHEREAS, the western parcel (20N04W07A001) is approximately 117.5 acres in size and was classified as a future landfill site in 1985; and

WHEREAS, the eastern parcel (20N04W08A001) is approximately 540 acres in size and was classified as watershed land in 2006. This parcel has approximately 300 acres of wetlands. As proposed, there will be a 100-foot undisturbed vegetative buffer from the wetlands; and

WHEREAS, land uses within one-half mile of the site include industrial, residential, commercial, vacant, and recreational; and

WHEREAS, the proposed operation is not visible from the Parks Highway; and

WHEREAS, according to the application material, water trucks will be used as needed during operations as a dust control measure; and

WHEREAS, according to the application material, earthen berms, vegetation, and below-grade excavation will be used as noise mitigation and visual screening; and

WHEREAS, the application material indicates the site will be developed to contain storm water runoff. Prior to beginning operations, a contractor will be required to develop a detailed storm water pollution prevention plan (SWPPP); and

WHEREAS, the applicant is not proposing to mine below or within four feet of the seasonal high water table; and

WHEREAS, the application material indicates monitoring wells will be used to monitor groundwater on the subject property; and

WHEREAS, according to the application material, slopes will be left at a 2:1 (H:V) or flatter slope which meets the standards of MSB 17.28.067(D) that requires a maximum 50 percent (2:1) slope or the natural stabilized angle of repose of the existing earth material; and

WHEREAS, according to the application material, the proposed hours of operation are expected to be Monday through Sunday from 6:00 a.m. to 11:00 p.m., but may be extended; and

WHEREAS, according to the application material, most material is expected to be transported from the site via railcar, with an estimated 40 vehicle trips per day; and

WHEREAS, according to the application material, the final year of material extraction is estimated to end in 2053; and

WHEREAS, all of the site plan and site development requirements have been provided; and

WHEREAS, the proposed operation will use an existing railroad crossing at Sockeye Avenue; and

WHEREAS, according to the site plan, earth material extraction activities will not take place within 100 feet of any identified wetlands or waterbodies; and

WHEREAS, maps are included in the record identifying surrounding property ownership, existing land uses, wetlands, and waterbodies within one-half mile of the proposed site; and

WHEREAS, a site plan is included in the record showing the location of the earth materials extraction site, including phases of mining within the subject parcel; and

WHEREAS, a topographic contour map, bare earth map, and aerial photography are included in the record. These items show topographic features and vegetation of the subject property and adjacent properties; and

WHEREAS, according to the application material, the proposed permanent and semi-permanent structures associated with the proposed use meet setback requirements; and

WHEREAS, noise levels exceeding the levels in MSB 17.28.060 are prohibited; and

WHEREAS, according to the application material, if lighting is needed, exterior lighting will be located and shielded to direct

the light towards the ground to minimize light spillage onto adjacent properties and upward into the night sky. Illumination or other fixtures mounted higher than 20 feet or 150 watts or more will have downward directional shielding; and

WHEREAS, the Planning Commission has reviewed this application with respect to standards set forth in MSB 17.30 and MSB 17.28; and

WHEREAS, the Planning Commission conducted a public hearing on September 19, 2022 on this matter.

NOW, THEREFORE, BE IT RESOLVED, that the Matanuska-Susitna Borough Planning Commission hereby adopts the aforementioned findings of fact and makes the following conclusions of law supporting approval of Planning Commission Resolution 22-26:

1. All of the requirements to demonstrate compliance with state and federal laws have been met (MSB 17.30.055(A)).
2. The proposed use, with conditions, is consistent with the applicable comprehensive plans (MSB 17.30.060(A)(1)).
3. The proposed use, with conditions, will not detract from the value, character and integrity of the surrounding area (MSB 17.30.060(A)(2)).
4. The application material has met all of the requirements of this chapter (MSB 17.30.060(A)(3)).

5. The proposed use, with conditions, will not be harmful to the public health, safety, convenience and welfare (MSB 17.30.060(A)(4)).
6. Sufficient setbacks, lot area, buffers or other safeguards, with conditions, are being provided (MSB 17.30.060(A)(5)).
7. The surrounding property ownership, existing land uses, and wetlands and water bodies within the notification area have been identified (MSB 17.28.060(A)(1)).
8. The area to be mined, description of the topography and vegetation, and approximate time sequence for the duration of the mining activity have been identified. No permanent, semi-permanent, or portable equipment are anticipated to be located within the required setbacks (MSB 17.28.060(A)(2)).
9. The proposed traffic route and traffic volumes have been identified. An access permit is in place with the State that allows 30 trips per hour to Sockeye Avenue (MSB 17.28.060(A)(3)).
10. Visual screening measures such as vegetation and earthen berms will not be required for the proposed operation (MSB 17.28.060(A)(4)).
11. Noise mitigation measures include proximity alarms, seasonal operation dates and the general location of the

use in proximity to conflicting land uses will ensure that sounds generated from earth material extraction activities do not exceed sound levels set forth in, MSB 17.28.060(A)(5)(a). Noise levels exceeding the levels in 17.28.060(A)(5)(a) are prohibited.

12. The proposed use meets lighting standards in accordance with MSB 17.28.060(A)(6).
13. The operation will not conduct earth material extraction activities within 100 linear feet of any identified wetland, stream, river or other waterbody and the operation will not mine below or within four feet of the seasonal high water table (MSB 17.28.060(A)(7)).

BE IT FURTHER RESOLVED, that the Planning Commission finds this application does meet the standards of MSB 17.30 and MSB 17.28 and does hereby approve the conditional use permit earth material extraction activities with the following conditions:

1. The operation shall comply with all applicable federal, state, and local regulations.
2. A copy of the approved permit shall be provided to each contractor company working at the site.
3. All aspects of the operation shall comply with the description detailed in the application material and an amendment to the Conditional Use Permit shall be

required before any alteration or expansion of the material extraction operation.

4. Material extraction shall be limited to the approximate 152.3-acre area identified in the application material and depicted on the applicant's site plan(s).
5. All applicable State of Alaska Department of Transportation permits and all applicable Alaska Railroad permits shall be obtained and provided to the Borough, prior to beginning any earth materials extraction activities.
6. A US Army Corps of Engineers Jurisdictional Determination shall be obtained before developing the access road. If required by the Jurisdictional Determination, a permit pursuant to Section 404 of the Clean Water Act, 33 U.S.C. 1344 shall be obtained before operating.
7. A qualified wetlands delineator shall identify the edge of all wetlands at the site. The 100-foot undisturbed vegetative buffer surrounding the identified wetlands adjacent to the extraction site shall be identified and marked by a professional land surveyor, licensed to operate in the State of Alaska, prior to beginning extraction activities

8. Vehicles and equipment shall be staged at a designated location and all equipment shall be inspected for leaks at the end of each day.
9. On-site maintenance of vehicles shall be done in an area where all leaks can be contained with drip pans or other discharge prevention devices.
10. Any hazardous materials, drips, leaks, or spills shall be promptly attended to and properly treated.
11. All construction exits shall comply with standard Alaska Pollutant Discharge Elimination System requirements to minimize off-site vehicle tracking of sediments and discharges to storm water.
12. All track-out sediments from the site shall be removed from the right-of-way daily.
13. The operation shall perform dust mitigation techniques as described in the application as-needed to minimize dust impacts to the surrounding areas.
14. The operation may operate 24 hours per day, seven days per week, however, the operation shall comply with the maximum permissible sound level limits allowed in MSB Code, per the requirements of MSB 17.28.060 - Site Development Standards and MSB 8.52 - Noise, Amplified Sound, and Vibration.

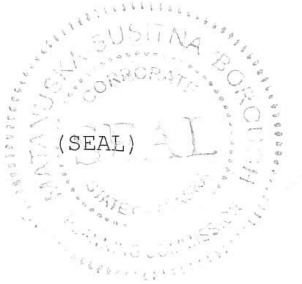
15. If cultural remains are found during material extraction activities, the MSB Planning Department shall be contacted immediately so the remains can be documented.
16. A four-foot vertical separation shall be maintained between all excavation and the seasonal high water table.
17. Borough staff shall be permitted to enter onto any portion of the property to monitor compliance with permit requirements. Such access will at minimum, be allowed on demand when activity is occurring and, with prior verbal or written notice, and at other times as necessary to monitor compliance. Denial of access to Borough staff shall be a violation of this Conditional Use Permit.
18. The operation shall comply with the reclamation standards of MSB 17.28.067.
19. If illumination devices are required, they shall not be greater than 20 feet in height, shall utilize downward directional shielding devices, and shall meet the requirements of MSB 17.28.060(A)(6) lighting standards.
20. Authorization for earth material extraction activities approved by this Conditional Use Permit shall expire on December 31, 2053.

ADOPTED by the Matanuska-Susitna Borough Planning Commission
this 3rd day of October, 2022.

Patricia Chesbro
STAFFORD GLASHAN, Chair
Patricia Chesbro, vice chair

ATTEST

Karol Riese
KAROL RIESE, Planning Clerk



YES: Glenn, Allen, Chesbro, Rubes, Kendig

NO:

Planning Commission Resolution PC 22-26
Adopted: October 3, 2022

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MATANUSKA-SUSITNA BOROUGH

Planning and Land Use Department

Development Services Division

350 East Dahlia Avenue • Palmer, AK 99645

Phone (907) 861-7822 • Fax (907) 861-8158

Email: permitcenter@matsugov.us

**APPLICATION FOR A CONDITIONAL USE PERMIT FOR
EARTH MATERIALS EXTRACTION – MSB 17.30**

Carefully read instructions and applicable borough code. Fill out forms completely. Attach information as needed. Incomplete applications will not be processed.

THIS APPLICATION IS FOR MATERIALS EXTRACTION THAT DOES NOT OCCUR WITHIN FOUR FEET OF THE SEASONAL HIGH WATER TABLE. IF YOUR PLAN INCLUDES EXTRACTION WITHIN FOUR FEET OF THE SEASONAL HIGH WATER TABLE YOU MUST COMPLETE THE APPLICATION SPECIFIC TO THAT PURPOSE.

Application fee must be attached, check one:

\$500 for Administrative Permit (Less than two years or less than 7,000cy annually)

\$1,000 for Conditional Use Permit (More than two years and more than 7,000cy annually)

Prior to the public hearing, the applicant must also pay the mailing and advertising fees associated with the application. Applicants will be provided with a statement of advertising and mailing charges. Payment must be made prior to the application presentation before the Borough Planning Commission.

Subject Property: Township: 20N __, Range: 04W __, Section: 07, 08 __, Meridian: S.M. _____

MSB Tax ID# 20N04W07A001, 20N04W08A001 _____

SUBDIVISION: _____ BLOCK(S): _____, LOT(S): _____

STREET ADDRESS: _____

FACILITY / BUSINESS NAME: MSB Land and Resource Management Division _____

Ownership: A written authorization by the owner must be attached for an agent or contact person, if the owner is using one for the application. Is authorization attached? Yes No N/A

Name of Property Owner

Matanuska-Susitna Borough _____

Mailing: 350 E. Dahlia Avenue _____

Palmer, AK 99645 _____

Phone: Hm _____ Fax _____

Wk 861-7867 _____ Cell _____

E-mail lmb@matsugov.us _____

Name of Agent / Contact for application

Emerson Krueger, Natural Resource Manager _____

Mailing: 350 E. Dahlia Avenue _____

Palmer, AK 99645 _____

Phone: Hm _____ Fax _____

Wk 861-7867 _____ Cell _____

E-mail ekrueger@matsugov.us _____

Description What type(s) of material is being extracted? Pit Run

Total acreage area of all parcels on which the activity will occur: 657.5 acres

Total acreage area of earth material extraction activity: 154.5 acres

Total cubic yards extraction per year: 500,000 (Estimate)

Total projected cubic yards to be extracted: 6,390,000

What is the estimated final year extraction will occur? 2053 unless there are project delays

Required information

1. Attach a plan of sufficient detail to demonstrate compliance with the requirements of MSB 17.28.050 and MSB 17.28.060.

| Plan of Operation | Attached |
|--|----------|
| Provide seasonal start and end dates | x |
| Provide days of the week operations will take place. | x |
| Provide hours of operation. | x |
| Estimated end date of extraction | x |
| Estimated end date of reclamation | x |
| Describe all other uses occurring on the site | x |
| Describe methods used to prevent problems on adjacent properties, such as lateral support (steep slopes), water quality, drainage, flooding, dust control and maintenance of roads; how will the operation monitor the seasonal high water table to stay at least four feet above it | x |
| Provide quantity estimates and topographical information such as cross section drawings depicting depth of excavation, slopes and estimated final grade | x |

2. Submit a site plan. Drawings must be detailed and **drawn to scale**. Drawings under seal of an engineer or surveyor are recommended but not required.

| SITE PLAN REQUIREMENTS | Attached |
|---|----------|
| Identify location of permanent and semi-permanent structures on the site for verification of setback requirements. Include wells and septic systems. | x |
| Depict buffer areas, driveways, dedicated public access easements, and noise buffers (such as fences, berms or retained vegetated areas), and drainage control such as ditches, settling ponds etc. | x |
| Identify wetlands and waterbodies on site and within one mile | x |
| Identify existing surrounding land uses within one mile | x |
| Identify surrounding property ownership (i.e. public vs. private) within one mile of exterior boundaries | x |
| Show entire area intended for gravel/material extraction activity and the boundary of the lot(s) containing the operation. Identify areas used for past and future phases of the activity. Identify phases of proposed mining activities including a map showing the area to be mined, a description of the topography and vegetation, approximate time sequence for mining at particular locations, and general anticipated location of semi-permanent equipment such as conveyor belts, crushers, dredges, batch plants, etc. | x |

| | |
|--|---|
| Road and access plan that includes anticipated routes and traffic volumes. If the level of activity exceeds the minimum levels specified in MSB 17.61.090, traffic standards, a traffic control plan consistent with state regulations may be required | x |
| Visual screening measures that include a detailed description of the type of visual screening to be utilized. Visual screening may include, but is not limited to, berms, natural vegetation, solid fences, walls, evergreen hedges or other means as approved by the commission | x |
| Noise mitigation measures that include a description of measures to be taken by the applicant to mitigate or lessen noise impacts to surrounding properties. Measures shall include, but not be limited to, hours of operation of noise-producing equipment, erecting noise barriers (i.e., berms a minimum of 10 feet in height) between noise-producing equipment and adjacent uses, location of noise-producing equipment (i.e., below grade in excavated pit areas), and measures to utilize equipment with noise reduction features | x |
| Proposed lighting plan | x |
| Other (as required by MSB Planning Department) | x |

3. Submit a reclamation plan including the following:

| Reclamation Plan | Attached |
|--|----------|
| Provided timeline for reclamation at particular locations and that is in compliance with MSB 17.28.067 | x |
| Provide copy of reclamation financial assurance filed with the State of Alaska (If exempt, provide qualifying documents for exemption) | x |

4. Submit documentation of compliance with borough, state and federal laws:

| COMPLIANCE WITH BOROUGH, STATE AND FEDERAL LAWS | Applied for (list file #) | Attached (list file #) or N/A |
|---|-------------------------------|-------------------------------|
| Mining license as required by the Alaska State Department of Revenue, pursuant to A.S.42.65 | | N/A |
| Mining permit as required by the Alaska State Department of Natural Resources (ADNR) if extraction activities are to take place on state land | | N/A |
| Reclamation plan as required by ADNR, pursuant to A.S. 27.19 | | x |
| Notice of intent (NOI) for construction general permit or multi-sector general permit and storm water pollution prevention plan, and other associated permits or plans required by the Environmental Protection Agency (EPA) pursuant to the National Pollutant Discharge Elimination System (NPDES) requirements | To be completed by Contractor | |
| United States Army Corps of Engineers permit pursuant to Section 404 of the Clean Water Act, 33 U.S.C. 1344, if material extraction activity is to take place within wetlands, lakes and streams. | | N/A |
| Other (Such as, driveway / access permits. List as appropriate.) | To be completed by Contractor | |

OWNER'S STATEMENT: I am owner or authorized agent of the following property:

MSB Tax account #(s) 20N04W07A001 & 20N04W08A001 and, I hereby apply for approval of conditional use permit for earth material extraction activities on the property as described in this application.

Revised 4/4/2017

Permit # _____

Page 3 of 4

I understand all activity must be conducted in compliance with all applicable standards of MSB 17.28, MSB 17.30 and with all other applicable borough, state and federal laws, including but not limited to, air quality, water quality, and use and storage of hazardous materials, waste and explosives, per MSB 17.30.055.



I understand that other rules such as local, state and federal regulations, covenants, plat notes, and deed restrictions may be applicable and other permits or authorizations may be required. I understand that the borough may also impose conditions and safeguards designed to protect the public's health, safety and welfare and ensure the compatibility of the use with other adjacent uses.

I understand that it is my responsibility to identify and comply with all applicable rules and conditions, covenants, plat notes, and deed restrictions, including changes that may occur in such requirements.

I understand that this permit may transfer to subsequent owners of this land and that it is my responsibility to disclose the requirements of this status to operators on this property, and to the buyer when I sell the land. Additionally, I agree to comply with 17.30.120 Transfer of Conditional Use Permit, in the event this permit is transferred to a subsequent property owner.

I grant permission for borough staff members to enter onto the property as needed to process this application and monitor compliance. Such access will at a minimum, be allowed when the activity is occurring and, with prior notice, and at other times necessary to monitor compliance.

The information submitted in this application is accurate and complete to the best of my knowledge.

| | | |
|---|-----------------|-----------|
|  | Eric Phillips | 4/24/2022 |
| Signature: Property Owner | Printed Name | Date |
|  | Emerson Krueger | 4/4/2022 |
| Signature: Agent | Printed Name | Date |

EARTH MATERIAL EXTRACTION APPLICATION

MATANUSKA-SUSITNA BOROUGH

East Kashwitna

20N04W07A001 & 20N04W08A001

June 10, 2022

**MATANUSKA-SUSITNA BOROUGH
LAND AND RESOURCE MANAGEMENT DIVISION**

**East Kashwitna
MSB Parcel Tax IDs
20N04W07A001 & 20N04W08A001**

**PROPOSED GRAVEL MINING PLAN OF OPERATIONS
AND SITE PLAN REQUIREMENTS**

The following information is an attachment to the Matanuska-Susitna Borough (MSB) application for Earth Materials Extractions activities that do not occur within four feet of the water table under MSB 17.30, Conditional Use Permit (CUP).

1. Plan of Operation

The Matanuska-Susitna Borough Parcel Tax IDs 20N04W07A001 & 20N04W08A001 are located approximately 0.6 miles east of the Parks Highway near milepost 77. This Proposed Gravel Mining Plan (Plan) details the activities and dates of operation for material extraction proposed to prepare the parcel for future development. Exhibit 1 includes a vicinity map for the parcels.

A Site Plan for the parcels is provided in Exhibit 2, depicting the proposed project area, buffers, and truck haul routes. A vicinity map, site map, the landowners within one-mile, wetlands and waterbodies within one mile, and other features are shown in Exhibits 1-4.

The current plan includes a future borrow source located within the property boundaries. The maximum area proposed for gravel extraction within the two parcels is approximately 152.3 acres. Parcel Tax ID 20N04W07A001 is 117.5 acres. The proposed gravel extraction would occur on approximately 101 acres on this parcel. Parcel Tax ID 20N04W08A001 is 540 acres. The proposed gravel extraction would occur on approximately 51 acres of this parcel. The remaining acreage is set aside as buffers and visual screening. Property surrounding the parcels are a mix of agricultural/industrial to the north, undeveloped, and vacant land to the south and west. The parcel to the north is within an Interim Materials District.

The ultimate goal of the gravel extraction activities is to prepare the parcels for development. The property is owned by the Matanuska-Susitna Borough (MSB). Modifications to the Plan will be submitted to the Land and Resources Management Division (MSB-LRMD), as needed, by the Contractor authorized to develop the site prior to the commencement of any mining activities.

The project is expected to last 30 years, but may need to be extended if delays occur. Full development of the borrow source is anticipated to be complete by 2053. Reclamation of the mined area is required prior to future development. Future development has not been defined at this time. The site will be developed by the proposed material extraction to support such following land uses as residential, commercial, agricultural, and industrial. This location has not been identified for any future public facilities. Incremental reclamation will leave areas where mining has been completed in a vegetated condition suitable for use as public open space. However, given the layout of the mining plan, public recreation on the site will be prohibited until mining is complete for safety reasons.

Material extraction may be competitively bid via contract or lease. The operator of the material extraction project is herein referred to as the Contractor.

Extraction operations will be at the Contractor's discretion and are not seasonally dependent. Hours of operation are expected to be Monday through Sunday from 6:00 a.m. to 11:00 p.m., but may be extended during the construction season.

A section line easement connects the northern boundary of the site to the Parks Highway. This access route may be used as a haul route. There is a constructed railroad crossing and driveway on the Parks Highway at this location. Existing access roads and a railroad siding on the adjoining private material site may be used as part of the extraction operation. Haul routes will be maintained.

The Site Plan illustrates the potential access route. Furthermore, the Site Plan indicates two mining phases. This application is for all mining phases indicated on these drawings.

A development plan will be prepared by the Contractor, based on project needs and request for access and/or use made to the MSB-LRMD. If a modification of the site plan or development plan is required, a modified plan will be submitted to MSB-LRMD to determine if an amendment to the permit will be required. Structures, either permanent or semi-permanent, and processing equipment will be permitted within the site. All contract specifications or use agreements for authorized use of this site shall be required to adhere to the Permit conditions and operational details. Plan deviations must be submitted to the MSB-LRMD by the Contractor for review and approval prior to site development and/or material extraction.

The schedule for excavation and reclamation will be more thoroughly defined by the Contractor developing the site, and will be required in all bid packages. Reclamation will be required. Mined areas will be reclaimed as public open space until such time as future development is proposed.

A 25-foot undisturbed vegetated buffer will be retained in Phase 1 along the northern parcel boundary. The earthen berm will abut the section line easement along the northern boundary of Phase 2. The areas within the section line easement will be left above the grade of the remainder of the subject property to promote road drainage. These areas will be graded to retain storm water runoff on the property.

Retaining an undisturbed 100-foot natural vegetative buffer along all wetlands will prevent any problems, such as erosion, sedimentation, draining, and flooding on property adjoining the boundaries of the site. In addition, these 100-foot buffers may be extended as required by the U.S. Army Corps of Engineers if additional undisturbed buffers are required.

Retaining an undisturbed 25-foot natural vegetative buffer along the western boundary of the site will prevent problems with the adjacent Alaska Railroad. However, if the railroad is to be utilized for hauling material, a portion of this 25-foot buffer may be removed for access to the train cars.

The groundwater table elevation for the site was assessed to be at an elevation of 210-feet by a geotechnical firm in 2021. The Contractor that develops the site will be required to install wells to document the seasonal high water table to ensure the floor of extraction remains at least four feet above it.

2. Site Plan Requirements

The site of the proposed material extraction is isolated. No operational restrictions are deemed necessary to minimize off-site effects of material processing. Material extraction activities will be located close to the working face of the excavation to maximize efficiency. This includes laydown areas and vehicle parking. Laydown areas are locations where material is stored. Mining will commence at the north end of the property and is anticipated to proceed south. Crushers, screening plants, asphalt plants, or batch plants may be used at this location. A screening plant is planned for use in this operation. A screening plant is equipment used to separate materials based on grain size. No earthen berms are anticipated to be required to mitigate. It is not expected to, however, if processing equipment sound levels, measured at the nearest residential properties exceed the sound levels by receiving land use in MSB 17.28.060(A)(5), earthen berms around the equipment will be installed.

Sand and Gravel Extraction Operations

Total excavation of the site is estimated to include approximately 6,390,000 cubic yards of pit-run material and is expected to be excavated between 2023 and 2053. The total acreage from which material will be extracted is approximately 152.3. This excludes the vegetative buffers as well as the wetland buffers. The Borough intends to solicit bids from Contractors to complete material extraction. The volume estimate is based on the best available information. Actual excavation volumes and controls will be determined by the data collected from boreholes and monitoring wells and will be included in the contract for site development.

Conventional bulldozers, track-mounted backhoes, rubber-tired loaders, 10-12 cubic yard (CY) capacity dump trucks, and 18-30 CY capacity side or belly dump trucks will be used in the operation. Typically the hauling will be done using a 25 CY side-dump truck. A majority of the material may be loaded onto trains from the adjacent existing material site. Local material hauling on the road system is anticipated to be 10% of the total annual extraction. An estimated average of 500,000 CY per year will be extracted from the site. Approximately 50,000 CY may be hauled annually via the local road system. Assuming a four-month operational period for local construction projects, six days a week, using 25 CY trucks, this could result in 500 CY per day being hauled off-site. This could be 20 25-yard trucks resulting in 40-trips per day. This is based on the assumption that a majority of the material extracted from the site each year will be transported on the railroad. The anticipated traffic levels indicate no traffic impact analysis is required.

Blasting will not occur on site.

The working depth will typically be approximately 28 feet below original grade, as long as the depth of excavation remains a minimum of four feet above the seasonal high ground water table. Groundwater monitoring will be required by the Contractor to ensure mining activities will not encroach within four feet of the seasonal high ground water level.

Development of the site is anticipated to begin from the north, and will depend on the Contractor selected and their plans for utilization of the material. The mining plan is based on the premise of first developing the approximately 51-acre phase one, providing an approximately 1,681,800 CY. Mining phase one could start as early as 2023, once the timber has been salvaged from the site. The roughly 51-acres in phase one would be excavated and developed into a preliminary

operations area, where material processing and stockpiling would occur. Mining phase two would add additional operational area allowing for greater efficiency in the extraction and processing operations. Mining phase two might be opened up enough to develop rail access if necessary. Although the preliminary geotechnical data suggest the best construction material is in phase one. The majority of phase two will not begin until phase one is reclaimed by spreading soil, fertilizer, and seed. The heterogeneity of the material types in phase two will require the Contractor to selectively extract the material. This is anticipated to reduce the efficiency of the operation and require additional time to complete the larger acreage.

Most of the material extracted may be leaving the site via conveyor to a stockpile adjacent to a railcar loader. Truck haul routes are shown in Exhibit 2 – Site Plan. A water truck and/or sweeper may be used for dust control as needed. Haul routes will be maintained.

The operations area will be situated within the active phase of the excavation to minimize negative off-site effects of processing and handling activities. The operations area is anticipated to shift as the site is developed and is therefore not shown on the Site Plan. Reject material will be stockpiled for future road development in areas adjacent to the section line easement along the northern boundary. Detailed layout of temporary and permanent facilities will be determined by the Contractor hired to develop the site.

The site is currently wooded and undeveloped. The landform for the area indicates the surficial deposits are comprised of a relic river terrace in phase 1 and a typical glaciofluvial deposit comprised of very hilly terrain in phase two. Existing geotechnical data consist of six test pits, excavated in 2021 to an average depth of about 15-feet.

Organic overburden from the site will be stockpiled for use in reclamation.

I. Structures

A 25-foot setback is required from all property lines for structures, permanent or portable facilities, and equipment or material storage per MSB 17.28.070(A). Structures commonly associated with material extraction sites are planned for use within the site boundaries. All structures and processing equipment will be sited within the mining phases in accordance with the required setbacks.

II. Buffer areas and Driveways

Buffers, haul routes and public access easements are shown in Exhibit 2. No driveway permit is anticipated to be required. The Parks Highway Access Development Permit covers the existing driveway at Milepost 77.4. The Contractor will be required to obtain all necessary permits to construct access and development within the section line easements and wetlands. Development within the section line easements will require State authorization. Operations may continue year-round depending on winter weather conditions and demand. Driveways will be maintained during active operational periods. Buffers for this parcel include a 25-foot buffer along the western boundary.

A minimum 100 foot buffer has been incorporated into the Project Area along all mapped wetlands. Additional wetland buffers will be included as required by the U.S. Army Corps of Engineers.

A small portion of the southern boundary of phase one abuts a parcel owned by the Mental Health Trust. An earthen berm will be constructed along the northern boundary of the site. Any work within the section line easements will be appropriately permitted. The areas along the west boundary may be developed for rail access. The limited extent of the material extraction from parcel Tax ID 20N04W08A001 eliminates the need for a buffer along the eastern boundary. Retaining a 25-foot undisturbed vegetative buffer along the northern boundary of phase one will screen it from the agricultural and industrial parcels to the north. The section line easement along the northern boundary of phase two along with an earthen berm will screen the operation from the land to the north. Land to the north is owned and operated by a material extraction contractor. Earthen berms will be constructed along the northern boundary to screen the operation from the parcels to the north. Once mining is complete, the Borough will plant trees along the northern property line to visually screen the subject parcel to the north. This visual screen is included in anticipation of future public use of the site once material extraction is complete. The Contractor will be required to obtain the necessary permits for work within the section lines easements.

All traffic associated with the material extraction will ingress and egress the site from the northern section line easement, via a new connection to the existing driveway and rail crossing, or the Railroad. Vehicle parking will occur within the active mining phase, not within the section line easements.

III. Wetlands and Waterbodies

No wetland areas are located in the area proposed for mining. Exhibit 3 shows all wetlands within a one-mile radius of the proposed mining site.

IV. Existing and Surrounding Land Uses

Property surrounding the site is undeveloped, Borough-owned land to the south, west, and east. There is an undeveloped parcel of Mental Health Trust land to the south. The land north is an existing private material site. Surrounding properties within a one-mile radius are identified in Exhibit 4. A list of all neighboring property owners within this same radius is also provided with this Exhibit.

The Willow Community Comprehensive Plan was reviewed during development of this application. No future uses for this property were identified. The Willow comprehensive plan (adopted 2013) includes a preference for construction of a Parks Highway Bypass. The intent of the bypass is to allow through traffic to go around the designated town center. The Plan suggests a potential route for the highway bypass that takes off from White's Crossing, east of the railroad, rejoining the existing highway near Kashwitna Lake. This route for the bypass may intersect some portion of the proposed material site. However, the proposed mining plan would not leave the property unsuitable for future road construction. In addition, the Alaska Department of Transportation have identified a preferred bypass route which is much shorter than the route in the Plan. The ADOT bypass route would not be close to the proposed material extraction area.

The LRMD is in discussions with ADOT about securing the Borough-owned properties along the Parks Highway for future road projects. The subject parcels are not included in any future Parks Highway projects. The approved Parks Highway Access Development Permit authorizes the existing driveway at milepost 77.4 to be utilized for the proposed haul routes to the subject parcels.

The Contractor shall work with Alaska Railroad to meet their requirements to utilize the existing rail crossing.

The language in the Willow comprehensive plan requires the Borough to work with the Willow Community to identify and reserve parcels for future public facility development. While this has not resulted in identifying the subject parcels for public facilities, the proposed material extraction will leave the parcels in a condition suitable for a future public facility, such as a fire station or park.

The proposed material extraction is in conformance with the Comprehensive Plan and MSB 17.30. The proposed material extraction is intended to prepare the site for future development which could include public facilities. The Reclamation Plan for the site is intended to leave the site in a condition suitable for use as public open space.

The reclamation plan is robust in its requirements for utilization of all organic overburden on site to be retained to support future use of the property for open space. The material extraction activities will not leave a scar or one big hole in the ground. The site will be available for use as public open space until such time as it is developed. The proposed extraction activities are consistent with the Willow Area Community Comprehensive Plan.

The proposed material extraction operation conforms to the approved Borough land classifications: 20N04W07A001 – classified in 1985 for a future landfill. The MSB Department of Public Works has indicated the proposed material extraction on this parcel does not conflict with the designation of this parcel for a future landfill. Material extraction is often required before a parcel can be used as a landfill.

20N04W08A001 – classified in 2006 as watershed lands. This 540-acre parcel includes approximately 300-acres of wetlands. LRMD is working on re-classifying the portion of this parcel identified for future material extraction as resource management. The proposed material extraction on 80-acres of the parcel excludes the 100-foot wetland buffer, required by Borough code to protect water quality. Limited material extraction from a portion of the uplands on this parcel and subsequent reclamation is not anticipated to have any measurable effect on the water quality or wetland habitat.

V. Road and Access Plan

All traffic may ingress and egress the site via a new road connection along the northern boundary of the parcels to an existing permitted driveway on the Parks Highway. Site access is shown in the Site Plan in Exhibit 2. Existing haul routes on the adjacent material site may also be used for site access. Development of a haul route along the north property boundary is expected to require a U.S. Army Corps of Engineers permit for fill in wetlands. The Contractor will be required to obtain and comply with the permit.

Construction-related traffic may be expected to generate up to three trips per hour, during the peak construction season. A majority of the material extracted from the site may be conveyed to a stockpile area adjacent to the railroad and loaded on railcars.

VI. Visual Screening Measures

No residential areas or recreational trails are located in the vicinity of the proposed area of development. Visual screening includes a combination of 25-foot undisturbed vegetative buffers and earthen berms as illustrated in Exhibit 2. A 25-foot undisturbed vegetated buffer will be maintained along the western boundary, along the railroad. A portion of this buffer may be removed if earth materials are to be loaded directly onto the train. The northern boundary of the site includes an earthen berm and a vegetated buffer. The portion of phase one that borders Mental Health Trust property will include an earthen berm. The eastern boundary abuts vacant Borough-owned land.

VII. Noise Mitigation

There are no residential areas or recreational trails located in the vicinity of the proposed area of development. The below-grade excavation will help to attenuate work area noise to acceptable levels consistent with the stipulations of MSB 17.28.060(A)(5). Additionally, haul trucks removing the material from the site will be required to have the appropriate mufflers installed to minimize noise pollution in the adjacent neighborhoods. The remote location will provide additional noise mitigation. Earthen berms around processing equipment will be constructed when off-site noise levels exceeds the levels listed in MSB 17.28.060(A)(5).

VIII. Lighting Plan

Most of the work will be conducted primarily during daylight hours without the need for artificial lighting. The contractor will be required to obtain approval from MSB for any artificial lighting. Lighting may be used to illuminate activities in the work area, if needed. All lighting will be focused away from nearby residential areas and will be directed only onto the work at hand. Exterior lighting must be located and shielded to direct light towards the ground, in order to minimize light spillage onto adjacent properties and upward in to the night sky. Illumination or other fixtures mounted higher than 20 feet or 150 watts or more must have downward directional shielding, in accordance with MSB 17.28.060(A)(6).

IX. Dust Plan

Road dust control is a concern of high priority. The contract for development of this site shall contain a specific bid item to provide watering for dust control.

Borough staff or their agent will monitor conditions throughout construction and direct the construction contractor to water the roadway and haul routes as needed to prevent dust from becoming a problem. It is also anticipated that measures to reduce any by-product dirt transport from the borrow site by vehicle tires will be implemented within the borrow pit. The vegetative buffers are intended to mitigate off-site migration of dust. Mud tracked off-site onto public roads will be swept or washed as necessary.

X. Stormwater Pollution Prevention Plan (SWPPP)

The site will be developed to contain all stormwater runoff. The Contractor will be required to develop and implement a SWPPP and associated permitting for the life of the project. The SWPPP

will be provided to the Borough for review and approval prior to commencement of extraction activities.

XI. Reclamation Plan

The site will be excavated to create a generally flat area with small rolling hills, in order to prepare the site for future development. The site will be available for use as open space once mining is complete. Reclamation of the property will leave the site in a condition suitable for use as public open space until the site is needed for development. To this end, the organic overburden will be stockpiled onsite and used, if necessary, to construct earthen berms for visual screening. The overburden will be distributed over the site upon completion of mining activities and the site will be seeded and fertilized to promote rapid revegetation.

Reclamation of each phase of mining will be completed within four growing seasons after completion. Slopes will be graded to a maximum 50% slope, and graded to blend with surrounding undisturbed topography. All surfaces will be stabilized and protected from erosion. Vegetative cover will be established and maintained over all disturbed areas on the site in conformance with the current Alaska Department of Natural Resources Revegetation Manual for Alaska. Reseeding of reclaimed areas will utilize certified seed suitable for Alaska, free of noxious weeds and undesirable plants identified in 11 AAC 34.020. Sixty percent live cover of the entire reclaimed area will be achieved by the end of the fourth growing season after completion of a mining phase. However, equipment access through each mining phase will be maintained and remain un-reclaimed until mining and reclamation of the last phase is complete.

At least 12” of organic overburden are estimated to be on site based on available data. All organic overburden will be stockpiled onsite and used for reclamation.

The Reclamation Plan and bond will be filed with the State when a contractor is selected to begin extraction activities.

XII. Long-Term Plan

This plan is specifically for the extraction of materials to prepare the site for the future development and open space. The site is classified for watershed lands, resource management, and reserve use. Excavation to level the site for the future public facilities is anticipated to include 6,390,000 cubic yards of pit-run materials. Excavation is expected to take place from 2023 through 2053. The Borough Land and Resource Management Division is requesting this Conditional Use Permit to cover the activities associated with the development of this site.



**Matanuska - Susitna Borough
Land and Resource
Management Division**

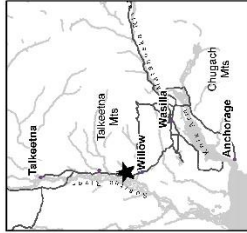


**Kashitna East
Material Extraction
CUP Application**

**Exhibit 1
Vicinity Map**

Legend

- Kashitna East Project Area
- Affected MSB Parcels
- Section Lines
- Parcels



Date: April 2022
 Source: MSB, MSB LRM, AK DOT
 Projection: NAD 83 AK ST PLN Z4
 Location: MSB
 Author: MSE LRM/DJIS

Matanuska - Susitna Borough
Land and Resource
Management Division

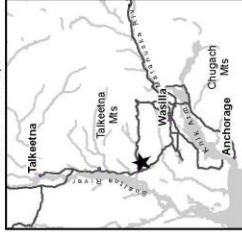


Kashwitna East
Material Extraction
CUP Application

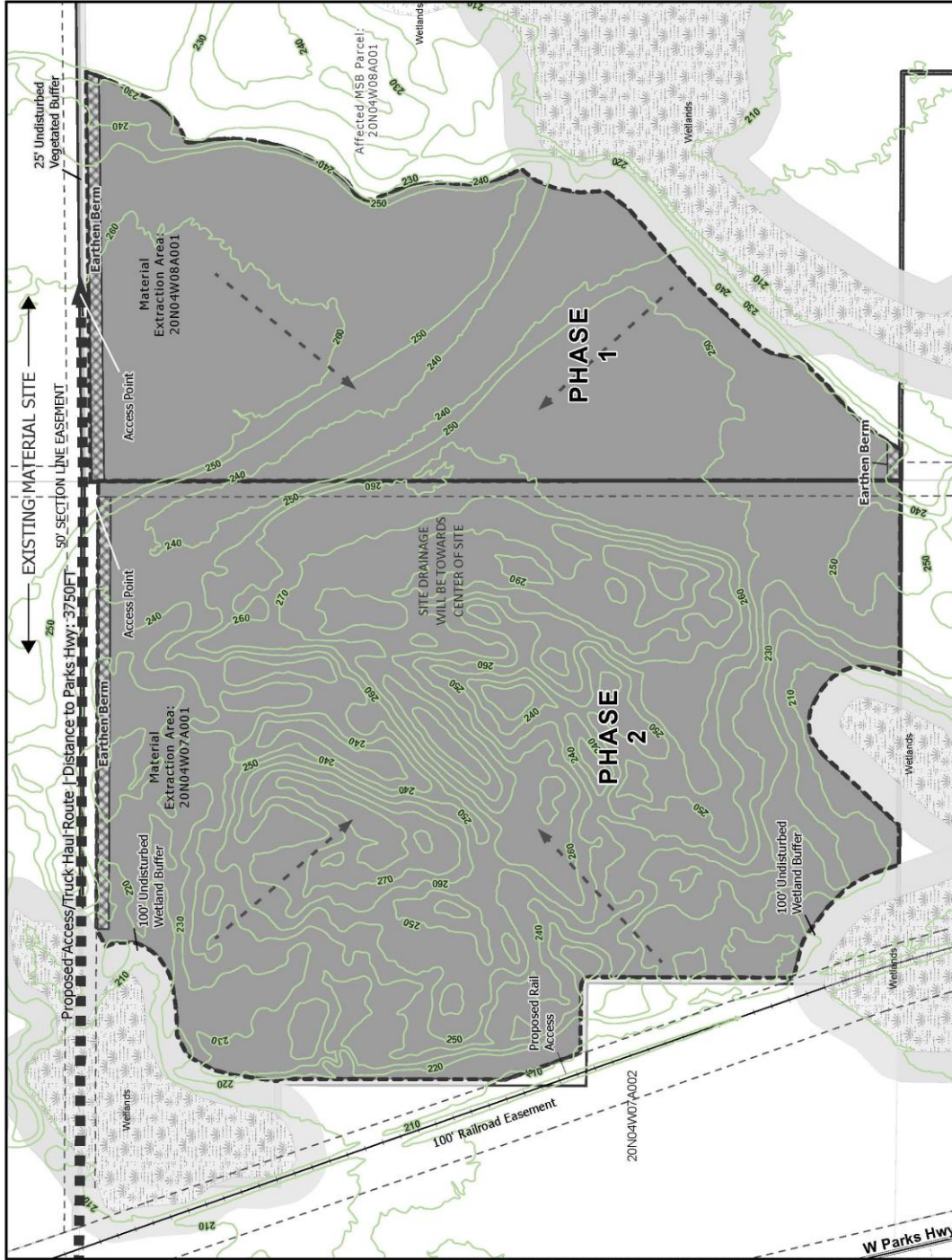
Exhibit 2
Site Plan Layout
Operational Features
Existing Topography
(10' Contours)

- Kashwitna East Project Area
- Material Extraction Area
- PROPOSED ACCESS
- Easements & ROWs
- MSB Wetland Mapping

Project Area boundaries are GIS representations
and have not been surveyed.



Date: June 2022
Source: MSB, MWD, AK DOT
Projection: NAD 83 AK ST PLN Z4
Location: MSB
Author: MSB LRMD/GIS



KASHWITNA EAST – PHASE I MATERIAL SOURCE GEOTECHNICAL EVALUATION

**Prepared for
Matanuska Susitna Borough
Palmer, Alaska**

**By
RECON LLC
565 W. Recon Circ.
Palmer, AK 99645**



RECON Project No. 2022-195

**Steven R. Rowland, PE
Maria C. Sanders, PE**

27 October 2022



27 October 2022

Matanuska-Susitna Borough
350 E. Dahlia Ave.
Palmer, AK 99645

Attn: Emerson Krueger – Natural Resources Manager

Re: Geotechnical Evaluation of the Kashwitna East – Phase I

Mr. Krueger,

RECON LLC (RECON) prepared this report to summarize the findings of the detailed geotechnical investigation completed October 3-8, 2022, to assess a Matanuska-Susitna Borough (MSB) parcel's viability as a material source for highway construction aggregate. The area of interest is identified as Kashwitna East – Phase I and is located on MSB parcel, 20N04W08A001. RECON completed a preliminary geotechnical investigation of this site in 2021 and determined it had significant potential as a high-quality material source, prompting further investigation.

The 2022 investigation included six boreholes drilled by Discovery Drilling, Inc. (Discovery) with a track mounted sonic drill rig. Borehole depths ranged from 50 to 70 feet in total depth. Monitoring wells were installed at four of the six boreholes. An additional four test pits were dug with an excavator and averaged a total depth of 10-feet.

RECON completed a preliminary field reconnaissance on August 26, 2022 to assess drill rig access and finalize test pit and borehole locations. Drill access and drill sites were developed on October 3rd and immediately followed by drilling which was completed on October 8, 2022. This report is a summary of the findings from this investigation, including preferred development strategies and estimated material volumes. The appendices include test pit and borehole logs, material test results, and maps.

The most notable finding from this investigation was the increase in fine content at depths below 10 to 12-feet from the surface. Upon passing through the layer (~10ft thick) of clean gravel and sand, the fine content increased dramatically, and the material classification became variable. RECON concluded that the area of interest, East Kashwitna – Phase I, is a viable source of aggregate for highway construction projects. This includes material for bulk fill and production of crushed aggregate products.



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- Appendix A –Site Map
- Appendix B – Geotechnical Logging Standards & Frost Class
- Appendix C – Test Pit Logs
- Appendix D – Material Test Results
- Appendix E – Material Site Inventory Form



METHODOLOGY

Based on RECON’s experience with this site, the test boring and test pit locations were distributed throughout Phase I in a manner that ensured the site’s overall subsurface condition was captured. To maintain an efficient drill program and limit overall site disturbance, test bore spacing was partially dictated by drill access.

All test pits and test borings were logged in accordance with Standard Practice for Description and Identification of Soils – Visual-Manual Method (ASTM D2488). The sonic drill rig allowed collection of a 4-inch diameter, continuous sample. Material samples for laboratory analysis were selected every 10-feet or when there was a definitive change in material type. All test boring and test pit locations were recorded with a handheld GPS.

Due to the high fine content in the test borings, only sieve analysis was performed on select samples. Using the test bore logs as a guide, material samples were combined as applicable prior to testing. Combining samples of the same material is a method used to obtain a more representative sample of the overall site. Any samples not taken to the lab for analysis were retained by RECON.



Figure 1. TP03 – typical rig set-up at each drill site.



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SITE DESCRIPTION

The area of interest is east of milepost 77 of the Parks Highway and approximately ½ mile east of the Alaska Railroad. A separate MSB parcel is located between Phase I and the railroad. Phase I is approximately 60 acres and located in the northwestern corner of a larger parcel. Drill access was obtained through the private parcel directly north of the MSB parcels. Development of the site is planned to include construction of an access road in a section line easement along the north boundary of the MSB Parcels. See site map in Appendix A.

The subject parcel is heavily vegetated with predominately second growth spruce and birch, their typical base diameter was four to twelve inches. Underbrush consists of grass and minor brush. The terrain within Phase I is relatively flat and is comprised of a relic river terrace and channel where the originally glacially deposited material has been reworked and sorted.



SUBSURFACE CONDITIONS

1.1. TEST PITS

A total of four test pits were excavated; three test pits were completed on the relic terrace, and one was completed in the relic river channel that bisects the terrace. Material encountered in the test pits was consistent and comprised of well-graded gravel with sand. The test pit (TP03), completed in the relic river channel, was noticeably coarser and the cobble content was visually estimated at 15 to 20%, whereas all of the other test pits averaged ~10% cobbles. Overburden depth averaged 2.5-feet and was consistent throughout all of the test pits. Gravel clasts were observed to be competent and generally only chipped after heavy hammering with a rock hammer. The dominate lithologies of the gravel clasts were granite and basalt. No groundwater was observed in any of the test pits at the time of excavation. All test pits were backfilled upon completion.



Figure 2. TP04 – Typical well-graded gravel with sand as observed in the top 10-feet of the relic terrace.



Figure 3. TP03 – Test pit excavated in relic river channel. Noticeably coarser material.

1.2. TEST BORINGS

A total of six test borings were completed: five on the relic terraces and one in the relic river channel. The test borings found the bottom extent of well-graded gravel with sand layer ranged from 10 to 13-feet below existing grade, except for TB03, where the gravel-sand layer extended 20-feet below grade. The lithology of the gravel clasts stayed consistent, but minor iron-oxidation was noted as the boring increased in depth. Once the boring passed through this initial layer of clean gravel and sand the fine content increased and the material type became variable. The material type ranged from silt and silty gravel and sands to short intervals of clean sand and gravel. This extreme variability in material type is typical of glacially deposited material. Each boring intersected a thick silty sand layer at variable depths, 30 to 54-feet below existing grade, once intersected the boring would achieve total depth within this silty sand layer.



Figure 5. TB05 at 34.5' - Example of silty sand with gravel encountered in all test borings with ~32% fines.



Figure 6. TB02 at 40' - Example of silty gravel with sand encountered in all test borings with est. 15% fines.



1.3. MONITORING WELLS

The water table was typically intercepted within the thick silty sand layer. Four of the six test bores had monitoring wells installed. Each monitoring well consists of a 1-inch diameter PVC pipe with the bottom 5-feet slotted. A 6-inch steel casing with a cap was installed at the surface to protect and secure the PVC. See figure below for typical installation. An additional water well was observed just north of Phase I on the adjoining parcel. This well was also measured to determine depth to groundwater and is included in Table 1.



Figure 7. TB02 - Typical monitoring well installation.

The following table summarizes information pertaining to each monitoring well. Ground elevations were obtained from the publicly available 2011 MSB LiDAR data for the area. Water depth was measured in all the monitoring wells and the offsite well several days after drilling had been completed on October 13, 2022. All water depths were measured using a water level meter. Based on these measurements, the ground water gradient has a general north-south trend. This project scope of work did not include a survey to obtain certifiable groundwater elevations. It is recommended that this be done to confirm the basic observations provided in this report.



| ID | Latitude | Longitude | Ground Elevation (ft) | Monitoring Well Stick-up Height (ft) | Total Depth to Water (ft) | True Depth to Water (ft) | Water Elevation (ft) |
|------|-----------|-------------|-----------------------|--------------------------------------|---------------------------|--------------------------|----------------------|
| MW01 | 61.845993 | -150.056393 | 261.8 | 2.6 | 54.3 | 51.7 | 210.1 |
| TB01 | 61.844268 | -150.055464 | 266.8 | 3.3 | 60.3 | 57.0 | 209.8 |
| TB02 | 61.843496 | -150.051250 | 258.3 | 3.7 | 52.1 | 48.4 | 209.9 |
| TB04 | 61.842083 | -150.055351 | 239.2 | 3.8 | 35 | 31.2 | 208.0 |
| TB06 | 61.838882 | -150.056871 | 249.7 | 3.8 | 47.5 | 43.7 | 206.0 |

Table 1. Summary of monitoring well locations and water elevations.

MATERIAL VOLUMES & DEVELOPMENT STRATEGIES

Kashwitna East – Phase I and II would be developed as a borrow site. No drilling or blasting would be required. RECON recommends dividing Phase I and II by terrain features versus parcel boundaries, see project area map. This is a minor adjustment, making Phase I encompass the relic river terrace and channel in its entirety. The total area for Phase I is approximately 60 acres. Average overburden depth is 2.5-feet or approximately 242,000 cubic-yards of total overburden. The overburden should be stacked in a manner that allows for it to be used for site reclamation.

The clean gravel and sand layer averages 10-feet thick and would generate approximately 1,000,000 cubic-yards of in-place material. This layer of clean material averages approximately 2% fines. Fines are defined as any material passing the #200 (0.075mm) sieve in a standard gradation analysis. The fine content in the silty gravels ranged from 10% to 20%. The silty sand layers had fine content upwards of 30%. When the clean gravel was mixed with the siltier material the fine content was reduced to as little as 9.5%. See sieve analysis for the combined samples of TB03-S02 and TB03-S03. Depending on the intended use of the material, and other material specifications, a maximum of 10 to 12% fines is permitted as outlined in the Alaska Department of Transportation and Public Facilities (DOT) – *Standard Specifications for Highway Construction*.

Based on the test bore logs, an estimated 1.9 million cubic yards of silty gravel and sand is available in Phase I. Due to the wide variability in material type and fine content this volume estimate should be considered a rough order of magnitude. For this material to meet the specifications for highway construction selective mining practices will be required. This will include sorting and cleaning of the siltier material and blending it with the clean gravel and sand.



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REFERENCES

RECON LLC, 2021, *Geotechnical Evaluation of Potential Materials Sites – Select Locales within the Glenn and Parks Highway Corridors*

State of Alaska Department of Transportation and Public Facilities, 2020, *Standard Specifications for Highway Construction*

CONCLUSION

RECON has concluded that Kashwitna East – Phase I is a viable source of aggregate for highway construction projects. Phase I contains approximately one-million cubic yards of clean gravel with sand, and with the use of selective mining practices may be able to generate up to 2.9-million cubic-yards of aggregate.

RECON appreciates the opportunity to perform this geotechnical investigation. Should you require further information concerning the investigation or this report, please contact us at your convenience.

Sincerely,

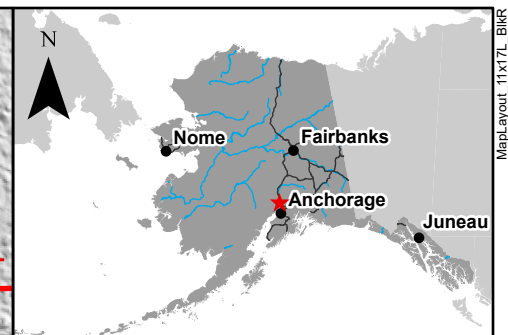
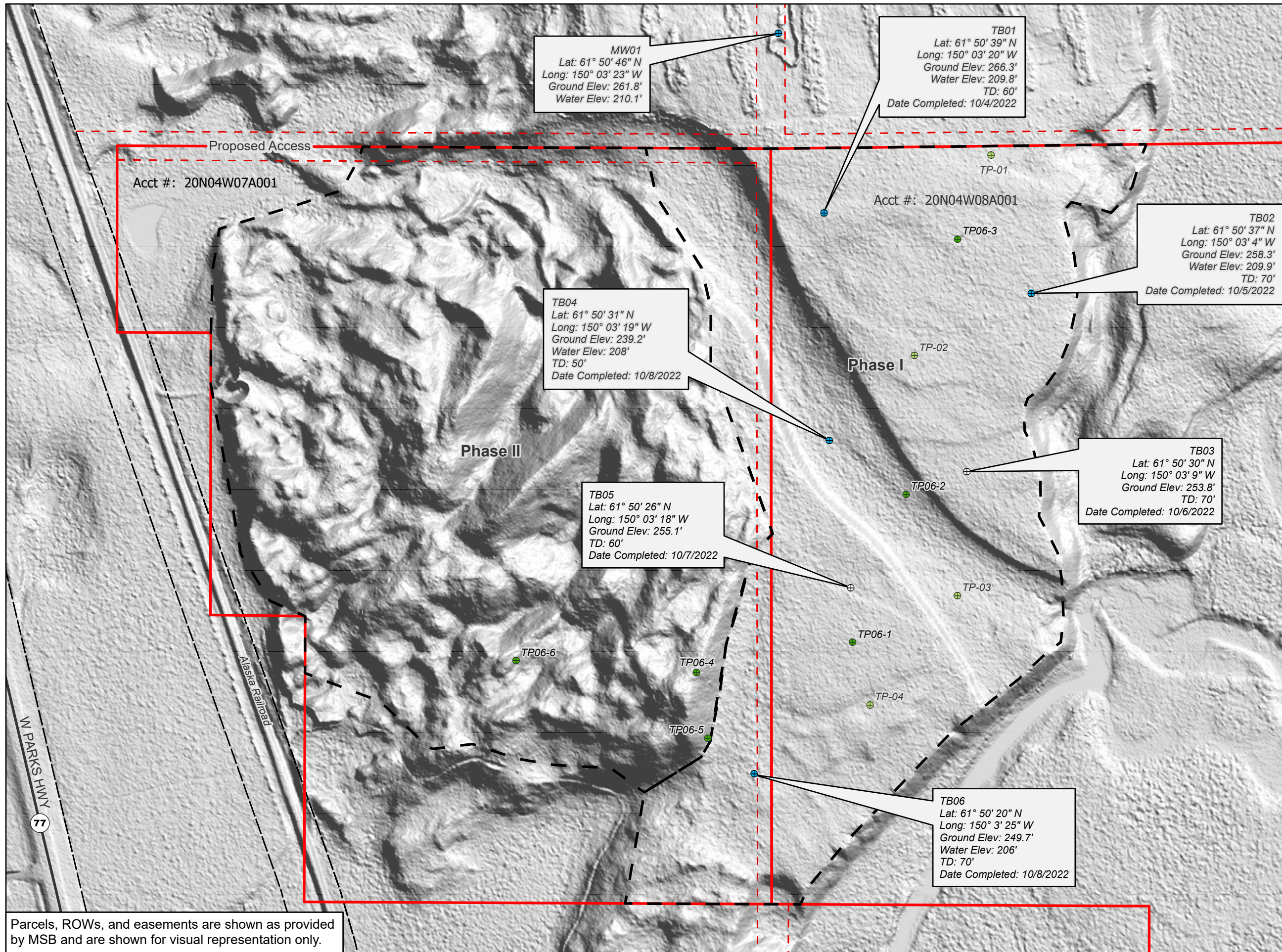
A handwritten signature in blue ink, appearing to read "Steve Rowland".

Steve Rowland, PE



APPENDIX A

MATERIAL SITE MAP



1:50,000,000



**MATANUSKA
 SUSITNA
 BOROUGH**

**Kashwitna East
 Phase I**

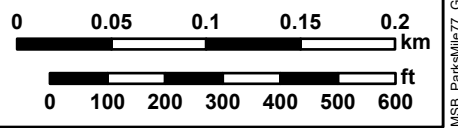
Legend

- 2022 Test Bores**
- Monitoring well installed
 - Monitoring well not installed
 - 2022 Test Pits
 - 2021 Test Pits

- ROW and Easements**
- ROW
 - Section line easement
 - Subject Parcels
 - Material Site Phase Boundary

1" = 333'
 1:4,000
 10/27/2022

Map and Engineering by RECON LLC
 565 W. RECON Cir, Palmer AK 99645
 NAD1983 SPCS AK4 (usft)
 Basemap by MSB (2011)



Parcels, ROWs, and easements are shown as provided by MSB and are shown for visual representation only.

MSB_ParksMile7_Geotech

APPENDIX B

GEOTECHNICAL LOGGING STANDARDS

FROZEN SOILS – NOT VISIBLE

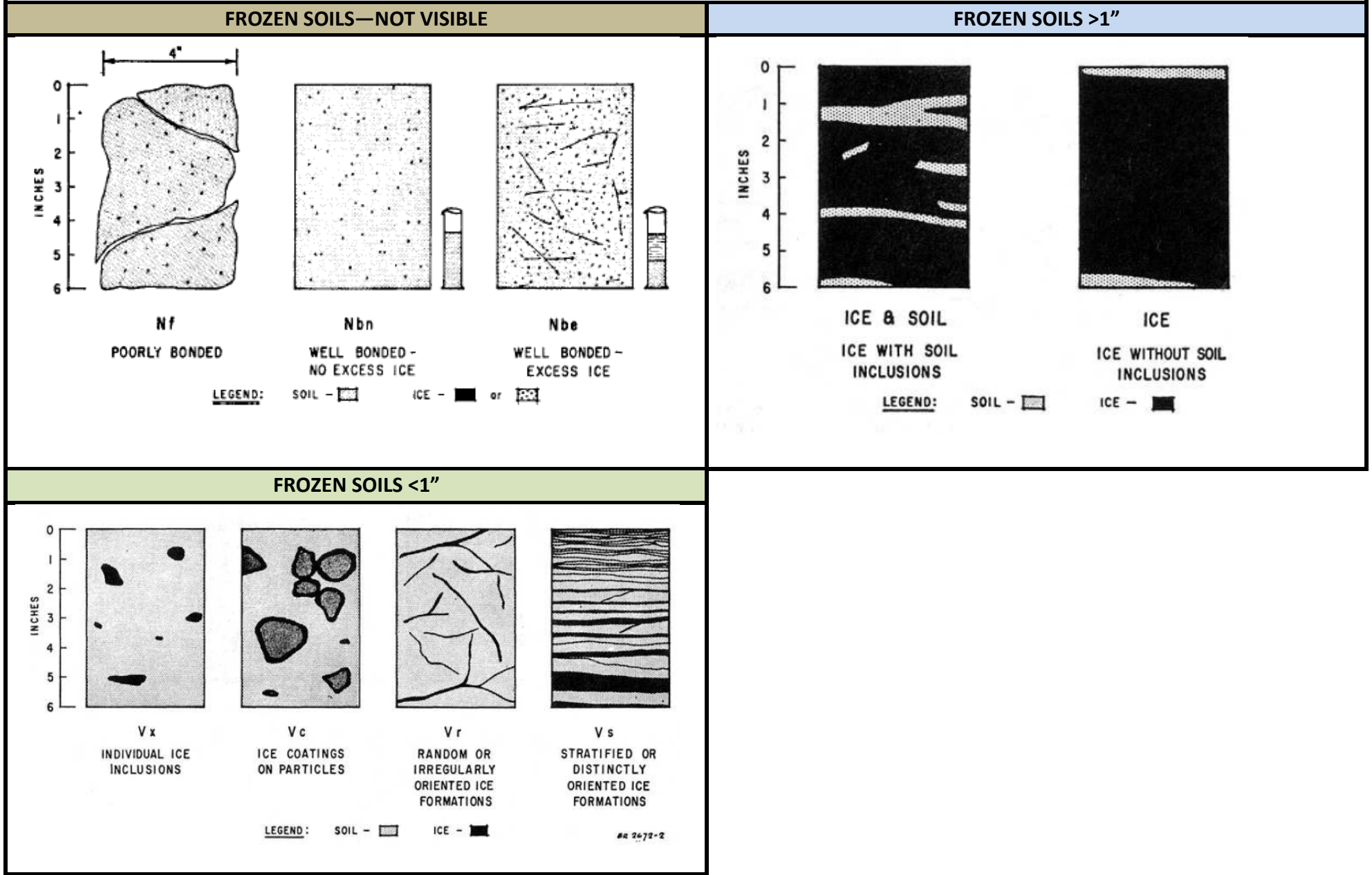
| Group Symbol | Subgroup | | Field Identification |
|--------------|--------------------------|----------------|---|
| | Description | Symbol | |
| N | Poorly bonded or friable | N _f | 1. Identify by visual examination. 2. When visual methods may be inadequate, a simple field test to aid evaluation of volume of excess ice can be made by placing some frozen soil in a small jar, allowing it to melt, and observing the quantity of supernatant water as a percentage of total hand magnifying lens as necessary. 3. For soils not fully saturated, estimate degree of ice saturation; medium, low. Note presence of crystals or of ice coatings around larger particles. |
| | No excess ice | N _b | |
| | Well-bonded | | |

VISIBLE ICE <1”

| Group Symbol | Subgroup | | Field Identification |
|--------------|--|----------------|---|
| | Description | Symbol | |
| V | Individual ice crystal or inclusions | V _x | For ice phase, record the following when applicable: Location Orientation Thickness Length Spacing Hardness Structure Color Size Shape Pattern *Estimate volume of visible segregated ice present as percentage of total sample volume. |
| | Ice coatings on particles | V _c | |
| | Random or irregularly oriented ice formations | V _r | |
| | Stratified or distinctly oriented ice formations | V _s | |
| | Uniformly distributed ice | V _u | |

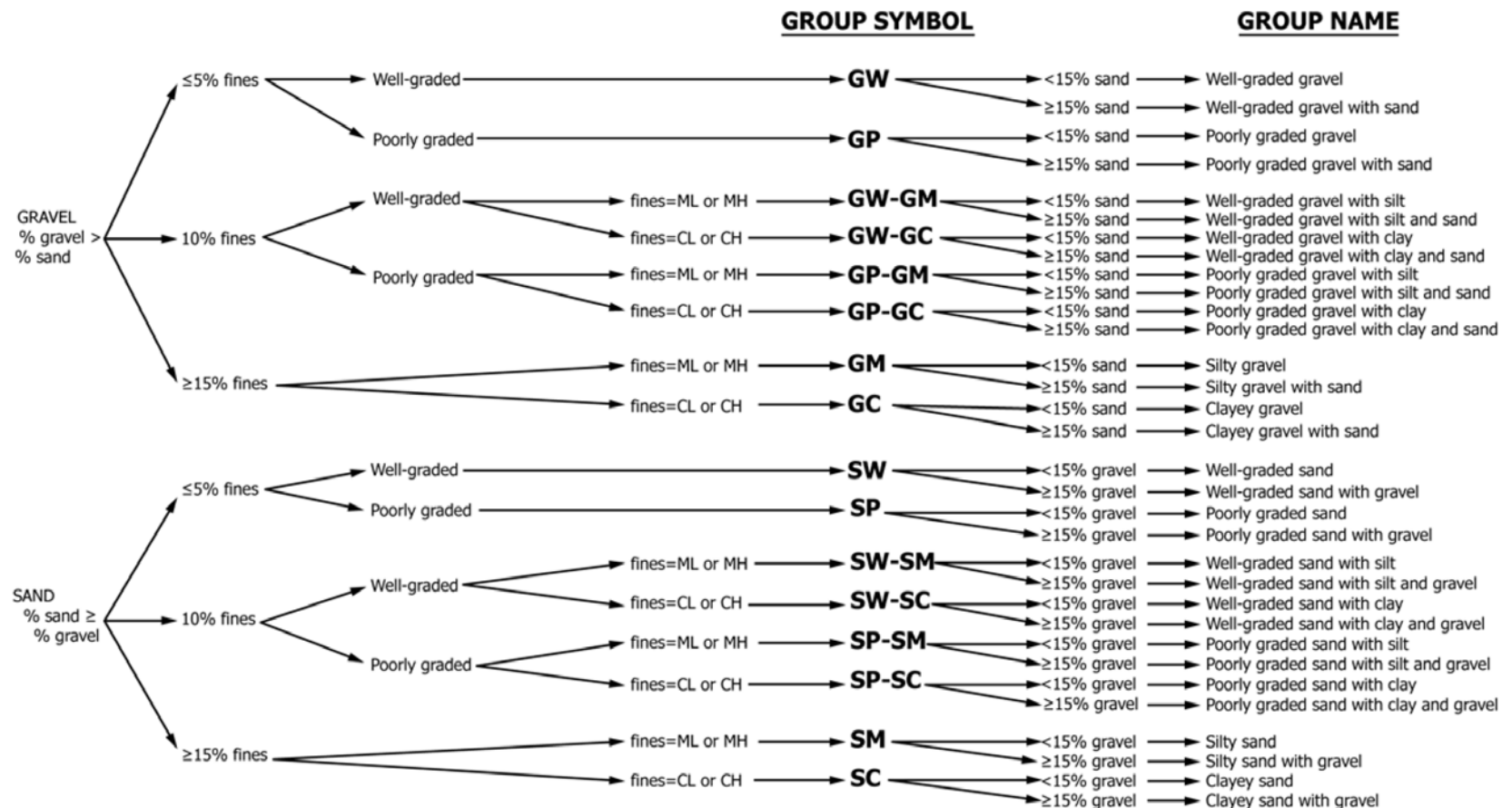
VISIBLE ICE >1”

| Group Symbol | Subgroup | | Field Identification |
|--------------|--------------------------|-----------------|---|
| | Description | Symbol | |
| ICE | Ice with soil inclusions | ICE + soil type | Designate material as ICE and use descriptive terms as follows, usually one item from each group when applicable Hardness HARD SOFT (of mass, not individual crystals) Color (Examples): COLORLESS GRAY BLUE Structure CLEAR CLOUDY POROUS CANDLED GRANULAR STRATIFIED Admixture (Examples): CONTAINS FEW THIN SILT INCLUSIONS |
| | Ice w/o soil inclusions | ICE | |



COARSE-GRAINED SOILS

USCS FLOW CHART

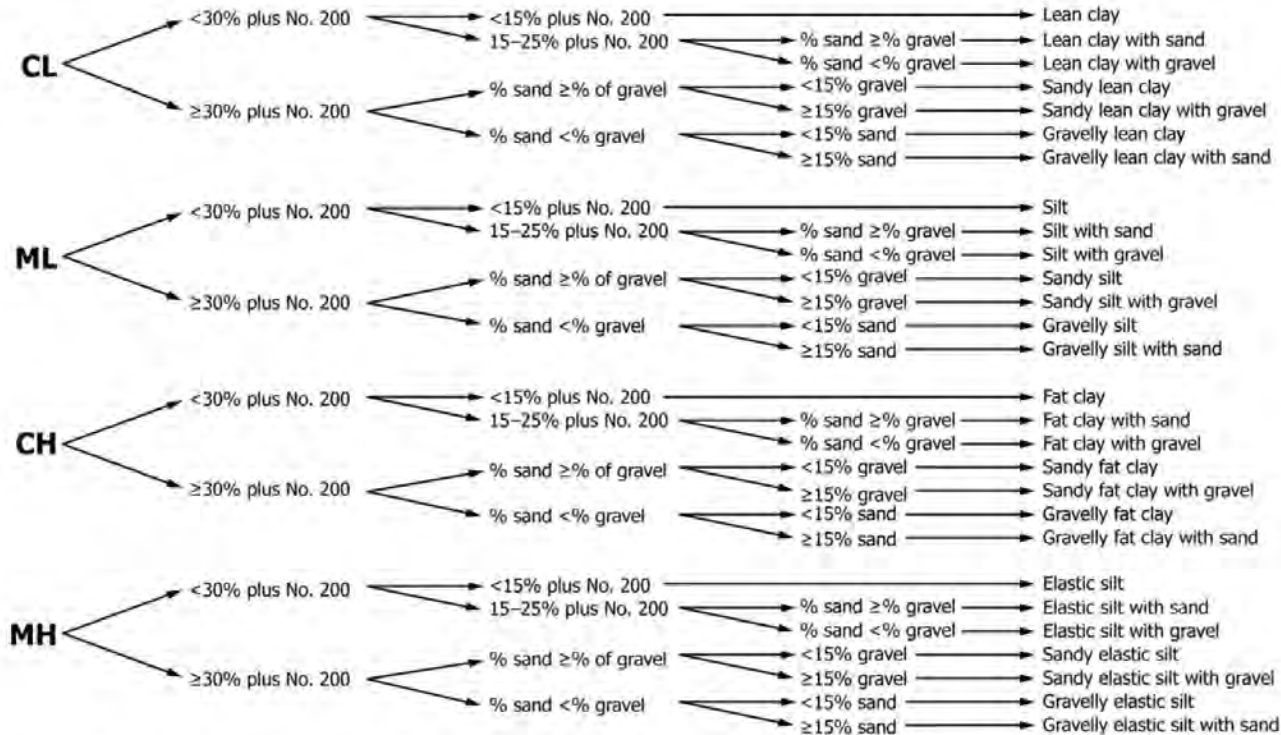


| COARSE-GRAINED SOILS (<50% FINES) | | | |
|---|-----------------------------|--|---|
| <i>More than 50% of the material is larger than No. 200 sieve</i> | | | |
| Descriptive Parameter | | | Field Identification |
| Angularity | Descriptor | Criteria | <p style="text-align: center;">Rounded Angular</p> <p style="text-align: center;">Subrounded Subangular</p> |
| | Angular | Particles have sharp edges and relatively plane sides w/ unpolished surfaces | |
| | Subangular | Particles are similar to angular description but have rounded edges | |
| | Subrounded | Particles have nearly plane sides but have well-rounded corners and edges | |
| | Rounded | Particles have smoothly curved sides and no edges | |
| Shape | Flat | Particles with width/thickness >3 | <p style="text-align: center;">PARTICLE</p> <p style="text-align: center;">W = WIDTH T = THICKNESS L = LENGTH</p> <p style="text-align: center;">FLAT: $W/T > 3$ ELONGATED: $L/W > 3$ FLAT AND ELONGATED: – meets both criteria</p> |
| | Elongated | Particles with length/thickness >3 | |
| | Flat & Elongated | Particles meet criteria for both flat and elongate | |
| | | | |
| <p>1. If particles do not meet criteria, do not mention.</p> <p>2. Indicate fraction of particles that have the shape; i.e. 1/3 of gravel particles are flat.</p> | | | |

FINE-GRAINED SOILS
USCS FLOW CHART

GROUP SYMBOL

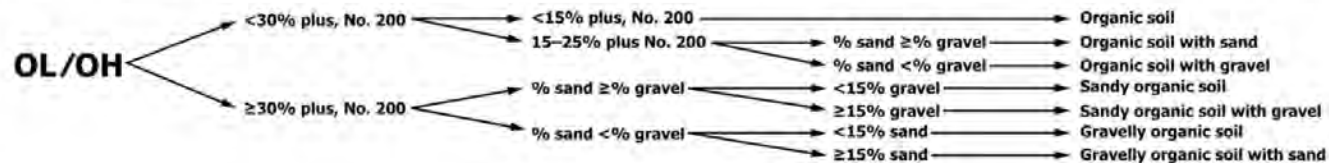
GROUP NAME



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%.
FIG. 1a Flow Chart for Identifying Inorganic Fine-Grained Soil (50% or more fines)

GROUP SYMBOL

GROUP NAME



FINE-GRAINED SOILS

| FINE-GRAINED SOILS | | |
|-----------------------|----------------------|---|
| Descriptive Parameter | Field Identification | |
| Consistency | Descriptor | Criteria |
| | Very soft | Thumb will penetrate soil more than 1 inch |
| | Soft | Thumb will penetrate about 1 inch |
| | Firm | Thumb will indent soil about ¼ inch |
| | Hard | Thumb will not indent soil. Thumbnail readily indents soil |
| | Very Hard | |
| Plasticity | Nonplastic | A 1/8" thread cannot be rolled at any water content |
| | Low | The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit (the moisture content at which a rolled-out thread crumbles at 1/8" dia.) |
| | Medium | The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be re-rolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit. |
| | High | The takes considerable time rolling and kneading the reach the plastic limit. The thread can be re-rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit. |
| Dry Strength | None | The dry specimen crumbles into powder with mere pressure of handling |
| | Low | The dry specimen crumbles into powder with some finger pressure |
| | Medium | The dry specimen breaks into pieces or crumbles with considerable finger pressure |
| | High | The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface. |
| | Very High | The dry specimen cannot be broken between the thumb and a hard surface. |
| Dilatancy | None | There is no visible change in the specimen |
| | Slow | Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing. |
| | Rapid | Water spears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing |

FINE-GRAINED SOILS

cont'd

| | | |
|------------------|---------------|---|
| Toughness | Low | Only slight pressure is required to roll the thread near the plastic limit (the moisture content at which a rolled-out thread crumbles at 1/8" dia). The thread and lump are weak and soft. |
| | Medium | Medium pressure is required to roll the thread to knead the plastic limit. The thread and lump have medium stiffness. |
| | High | Considerable pressure is required to roll the thread to knead the plastic limit. The thread and the lump have very high stiffness. |

**GROUP SYMBOL for
FINE-GRAINED SOILS from MANUAL TESTS**

| Group Symbol | Plasticity | Dilatancy | Toughness | Dry Strength |
|--------------|-------------------|---------------|---------------|-------------------|
| CL | Medium | Now to Slow | Medium | Medium to High |
| ML | Low or Nonplastic | Slow to Rapid | Low | None to Low |
| CH | High | None | High | High to Very High |
| MH | Low to Medium | None to Slow | Low to Medium | Low to Medium |

| SUPPLEMENTARY SOIL DESCRIPTORS | | |
|--------------------------------|--------------------------------------|--|
| Descriptive Parameter | Field Identification | |
| | Descriptor | Criteria |
| Color | Varies | Use simple colors and modifiers, i.e. brown, tan, light orange, medium gray. Munsell Color System may be used |
| Odor | Varies | Only if applicable, if a <i>noticeable</i> odor of organic matter or chemical contaminant. |
| Moisture | Dry | Absence of moisture, dusty, dry to the touch |
| | Moist | Damp, no visible water |
| | Wet | Visible free water, usually soil is below the water table. |
| Cementation | Weak | Crumbles or breaks with handling or little finger pressure |
| | Moderate | Crumbles or breaks with considerable finger pressure |
| | Strong | Will not crumble or break with finger pressure |
| Soil Structure | Varved | Thin repeating layers or laminae grading upward from coarse to fine within each layer. Normally includes a coarser summer layer and a finer winter layer deposited from still water. |
| | Stratified | Alternating layers of varying material or color with layers at least ¼" thick |
| | Laminated | Alternating layers of varying material or color with layers less than ¼" thick |
| | Fissured | Breaks along definite planes of fracture with little resistance to fracturing |
| | Slickensided | Fracture planes appear polished or glossy, sometimes striated |
| | Blocky | Cohesive soil that can be broken down into small angular lumps that resist further breakdown |
| | Lensed | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay |
| Homogeneous | Same color and appearance throughout | |



**NON-COHESIVE SOIL
BLOW COUNTS – DENSITY**

| # of blows/foot | Density |
|-----------------|--------------|
| 0-4 | Very loose |
| 5-10 | Loose |
| 11-30 | Medium dense |
| 31-50 | Dense |
| >50 | Very dense |

**COHESIVE SOIL
BLOW COUNTS – DENSITY**

| # of blows/foot | Density |
|-----------------|------------|
| <2 | Very soft |
| 2-4 | Soft |
| 5-8 | Firm |
| 9-15 | Stiff |
| 16-30 | Very stiff |
| >30 | Hard |

TB- _____ PAGE _____ OF _____

CLIENT _____ PROJECT NAME _____

LATITUDE _____ LONGITUDE _____

DATE STARTED _____ COMPLETED _____ GROUND ELEVATION _____ TOTAL DEPTH _____

DRILLING CONTRACTOR _____ LOGGED BY _____ CHECKED BY _____

DRILLING METHOD _____ HOLE SIZE _____

| DEPTH - FT | SAMPLE INTERVAL | SAMPLE ID | MATERIAL DESCRIPTION | RECOVERY % | BLOW COUNTS | | | | ICE TYPE | % ICE |
|------------|-----------------|-----------|--|------------|-------------|---|---|---|----------|-------|
| | | | | | 1 | 2 | 3 | 4 | | |
| 5 | | | <p>Group Name* (GROUP SYMBOL) -</p> <p>Coarse Grain Material</p> <p>% of cobbles*/boulders, % of gravel, sand or fines,</p> <p>Particle-size range, density, angularity, shape</p> <p>max particle size or dimension, hardness</p> | | | | | | | |
| 10 | | | <p>Fine Grain Material</p> <p>Consistency, Plasticity, Dry Strength, Dilatancy,</p> <p>Toughness</p> | | | | | | | |
| 15 | | | <p>Coarse and Fine Material</p> <p>Color, Odor, Moisture, Cementation, Structure</p> | | | | | | | |
| 20 | | | <p>*Predominate material in Group Name in all CAPS, all other text lowercase</p> <p>*Cobbles 12"-3"</p> <p>*Boulders >12"</p> <p>*Gravel <3"</p> | | | | | | | |
| 25 | | | <p>Visible Ice</p> <p>Symbol - Location; orientation; thickness; length</p> <p>spacing; hardness; structure; color; size; shape;</p> <p>pattern;</p> | | | | | | | |
| | | | <p>ICE</p> <p>Symbol - Hardness; color; structure; admixture</p> | | | | | | | |

LOCATION DESCRIPTION:



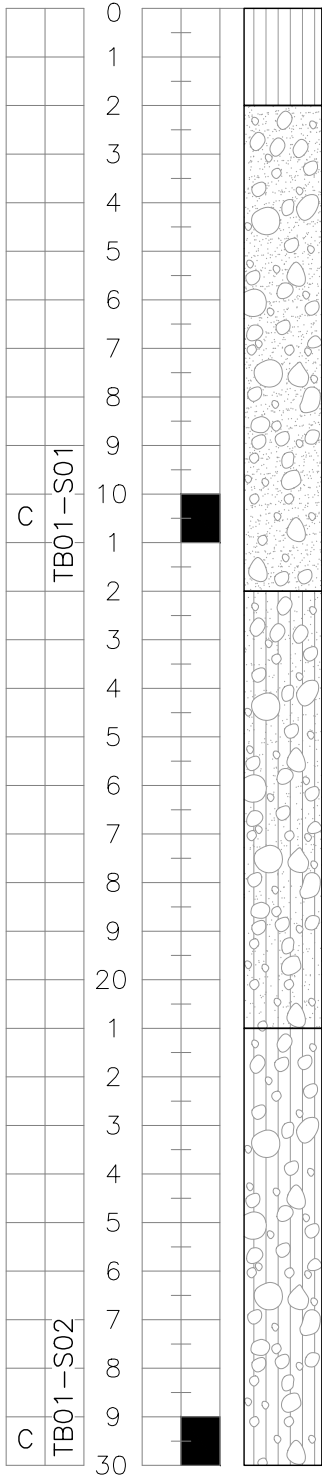
Rowland Engineering Consultants
 565 W. Recon Cir.
 Palmer, AK 99645
 Telephone: (907) 746-3630

APPENDIX C

TEST PIT LOGS

GEOLOGIC LOG TEST BORE: TB01

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 266.8' Total Depth : 60' Bottom Elev.: 206.8' Collar Elev.: 266.8' Reference: _____ | Vegetation: Birch & Spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2866049 E: 1630834 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



0.0' - 2.0' Organic mat and Silt

2.0' - 12.0' Well-graded GRAVEL with sand (GW), subrounded to rounded, dense to very dense, gray, dry, 20 to 30% of gravel clasts granitic, all clasts competent,

12.0' - 21.0' Well-graded GRAVEL with sand and silt (GW-GM), subrounded to rounded, very dense, light gray, dry,

21.0' - 30.0' Silty GRAVEL with sand (GM), subrounded to rounded, very dense, light gray, dry, gravel clasts are primarily a dark, fine-grain igneous rock

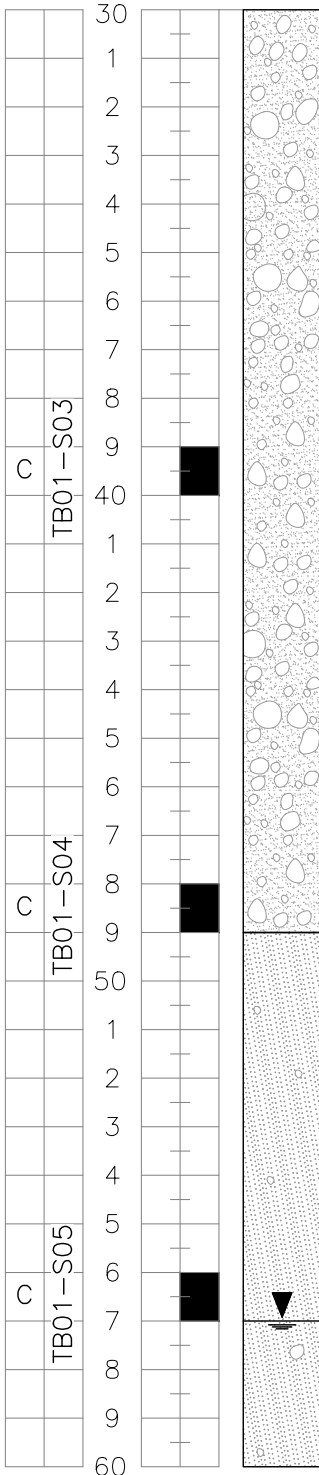
RECON, LLC

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 Palmer, Alaska 99645
 Ph: (907) 746-3630

| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 1 of 2 Log # TB01 |
| Project Name: Kashwitna East Phase I - Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/4/2022 | Date Comp.: 10/4/2022 |

GEOLOGIC LOG TEST BORE: TB01

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 266.8' Total Depth : 60' Bottom Elev.: 206.8' Collar Elev.: 266.8' Reference: _____ | Vegetation: Birch & Spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2866049 E: 1630834 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



30.0' - 49.0' Well-graded GRAVEL with sand and minor silt (GW) subrounded to rounded, very dense, dark gray, dry, trace Fe-Ox



49.0' - 60.0' SAND with trace gravel (SP), coarse to medium grain sand, TD medium dense, dry to wet

57.0' - Water level measured on October 13, 2022

Monitoring well installed. 1" dia. PVC set at 60 ft. Bottom 5 ft slotted
 60.0' - TD

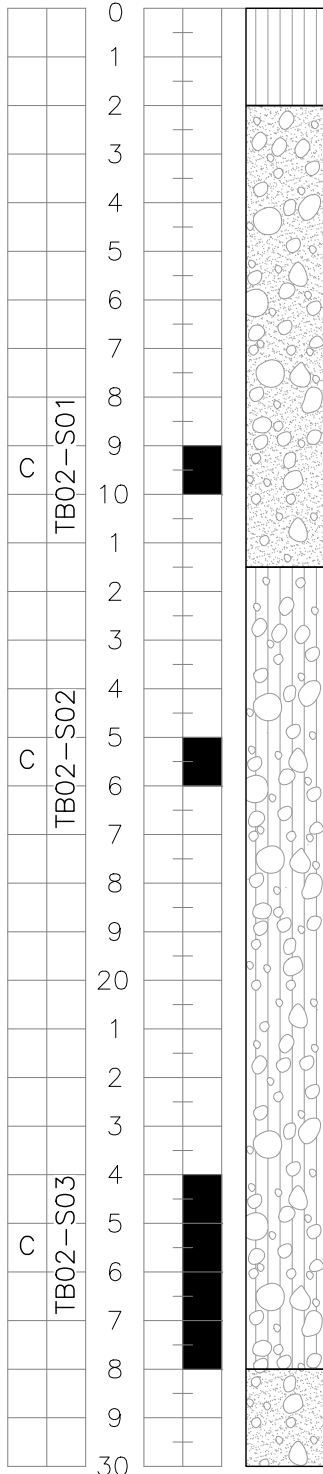
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| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 2 of 2 Log # TB01 |
| Project Name: Kashwitna East Phase I - Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/4/2022 | Date Comp.: 10/4/2022 |

GEOLOGIC LOG TEST BORE: TB02

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 258.3' Total Depth : 70' Bottom Elev.: 188.3' Collar Elev.: 258.3' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2865766 E: 1631562 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



0.0' – 2.1' Organic mat and Silt

2.1' – 11.5' Well-graded GRAVEL with sand (GW), subrounded to rounded, dense to very dense, light gray, dry, gravel clasts hard and primarily granitic and/or basalt, minor alteration and weathering noted

11.5' – 28.0' Silty GRAVEL with sand (GM), subrounded to rounded, very dense, dark gray, dry, minor Fe-Ox



28.0' – 30.0' Well-graded GRAVEL w/ sand (GW)

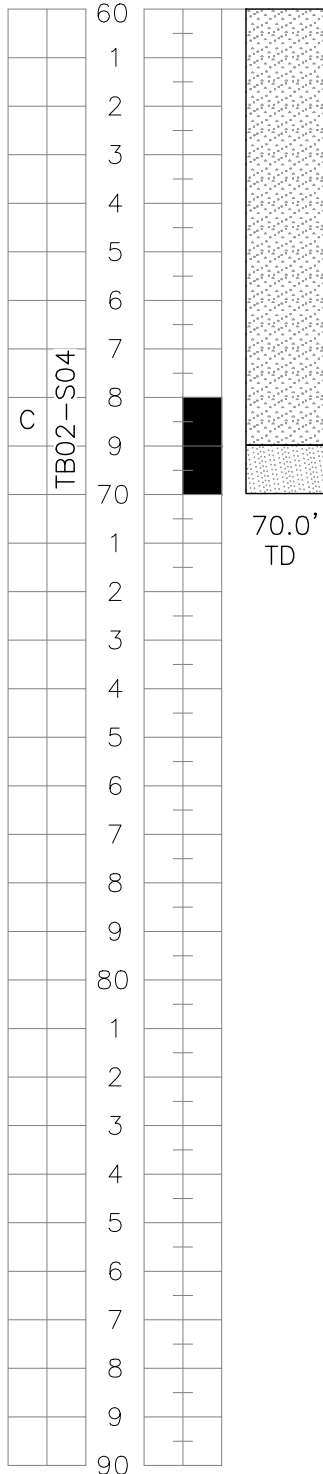
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| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 1 of 3 Log # TB02 |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/5/2022 | Date Comp.: 10/5/2022 |

GEOLOGIC LOG TEST BORE: TB02

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 258.3' Total Depth : 70' Bottom Elev.: 188.3' Collar Elev.: 258.3' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2865766 E: 1631562 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



59.0' – 69.0' Well-graded SAND (SW), brownish-gray, wet, minor Fe-Ox

Monitoring well installed. 1" dia. PVC set at 70 ft. Bottom 5 ft slotted

69.0' – 70.0' Poorly-graded SAND (SP), gray, wet, no Fe-Ox, a significant % of sand grains quartz

70.0'
TD

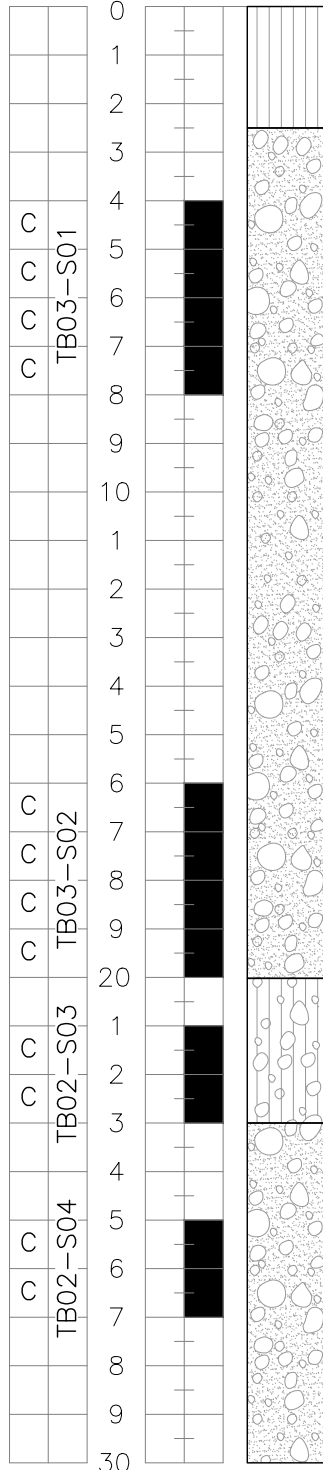
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| | | |
|--|--------------------------------|--|
| Project No.: 2022-195 | Sheet 3 of 3 Log # TB02 | |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | | |
| Location: Parks Hwy MP 77 | | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS | |
| Logged by: MCS | Contractor: Discovery Drilling | |
| Date Begun: 10/5/2022 | Date Comp.: 10/5/2022 | |

GEOLOGIC LOG TEST BORE: TB03

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 253.8' Total Depth : 70' Bottom Elev.: 183.8' Collar Elev.: 253.8' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2865140 E: 1631335 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



0.0' – 2.7' Organic mat and Silt

2.7' – 20.0' Well-graded GRAVEL with sand (GW), subrounded to rounded, very dense, gray-brown grading to light gray to dark gray, dry, trace Fe-Ox

20.0' – 23.0' Silty GRAVEL with sand (GM), subrounded to rounded, very dense, dark gray, damp

23.0' – 33.0' Well-graded GRAVEL w/ sand (GW-GM) minor silt, subrounded to rounded, very dense, gray, dry

27.0' – Lost shoe @ 27', tripped out and moved rig over a few feet

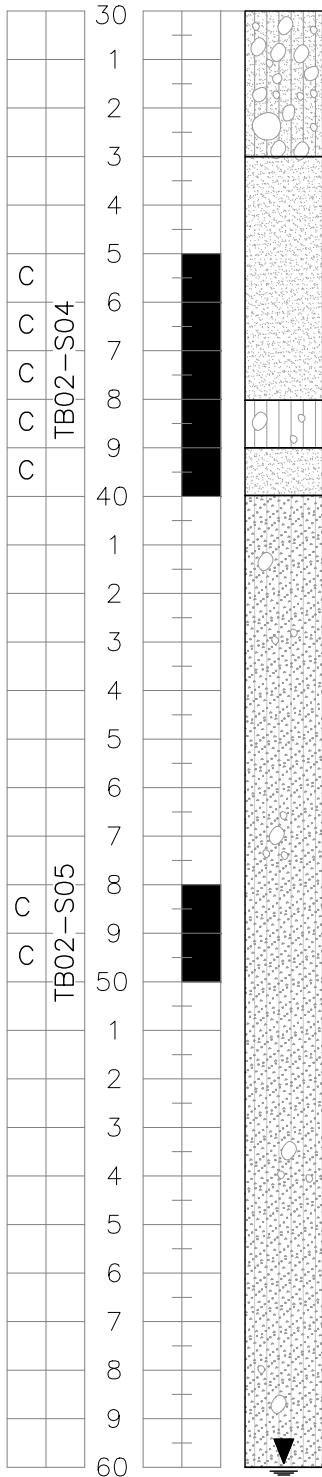
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| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 1 of 3 Log # TB03 |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/5/2022 | Date Comp.: 10/5/2022 |

GEOLOGIC LOG TEST BORE: TB03

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 253.8' Total Depth : 70' Bottom Elev.: 183.8' Collar Elev.: 253.8' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2865140 E: 1631335 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



23.0' - 33.0' Well-graded GRAVEL w/ sand (GW-GM) minor silt, subrounded to rounded, very dense, gray, dry

33.0' - 38.0' Fine-grain SAND (SP), soft, gray, saturated
 33.0' - 39.0' Confined aquifer

38.0' - 39.0' SILT w/ gravel (ML), very firm, gray, wet

39.0' - 40.0' Fine-grain SAND (SP)

40.0' - 66.0' Well-graded SAND (SW) w/ minor gravel and silt, subrounded to rounded, medium dense to dense, brownish gray, damp to wet, minor Fe-Ox

60.0' - Estimated water level at time of drilling

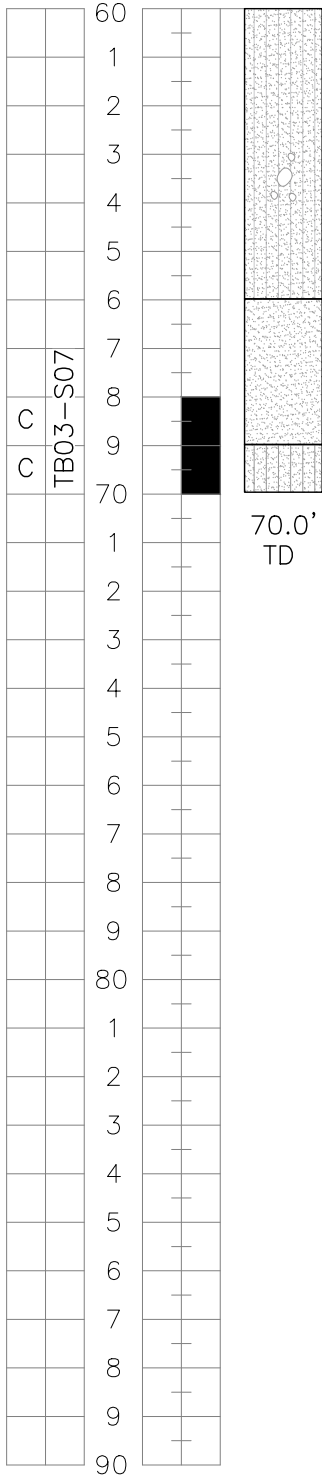
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| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 2 of 3 Log # TB03 |
| Project Name: Kashwitna East Phase I - Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/5/2022 | Date Comp.: 10/5/2022 |

GEOLOGIC LOG TEST BORE: TB03

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 253.8' Total Depth : 70' Bottom Elev.: 183.8' Collar Elev.: 253.8' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2865140 E: 1631335 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



40.0' – 66.0' Well-graded SAND (SW) w/ minor gravel and silt, subrounded to rounded, medium dense to dense, brownish gray, damp to wet, minor Fe-Ox

66.0' – 69.0' Fine-grain SAND (SP), very dense, gray, wet

69.0' – 70.0' Silty SAND (SM), fine-grain, very dense, gray, wet



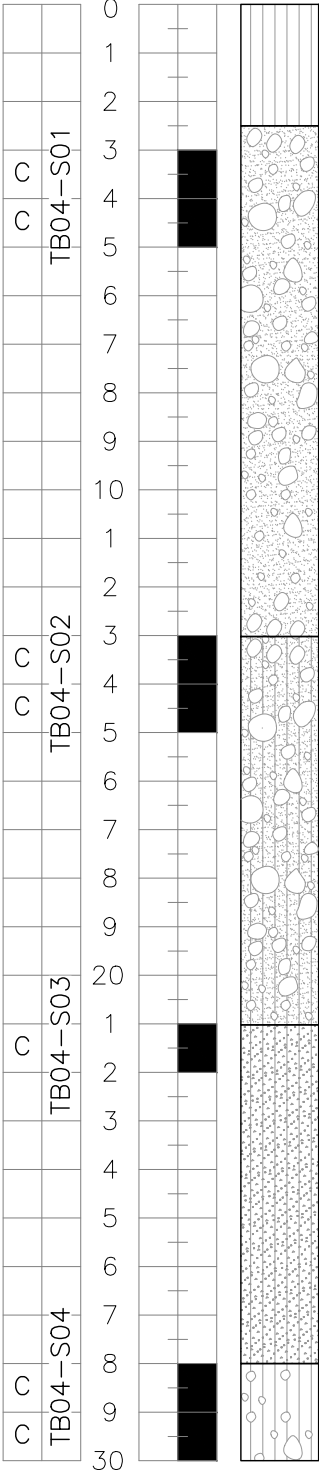
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| | | |
|--|--------------------------------|--|
| Project No.: 2022-195 | Sheet 3 of 3 Log # TB03 | |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | | |
| Location: Parks Hwy MP 77 | | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS | |
| Logged by: MCS | Contractor: Discovery Drilling | |
| Date Begun: 10/5/2022 | Date Comp.: 10/5/2022 | |

GEOLOGIC LOG TEST BORE: TB04

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|----------------------|--|-----------------------|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 239.2' | Vegetation: Birch & spruce avg. dia. 12" | Location: MSB Parcel |
| | | | | | | Total Depth : 50' | Remarks: _____ | Acct # 20N04W08A001 |
| | | | | | | Bottom Elev.: 189.2' | | |
| | | | | | | Collar Elev.: 239.2' | | N: 2865249 |
| | | | | | | Reference: _____ | | E: 1630853 |
| | | | | | | | | Coord.: AKSP Z4 NAD83 |



0.0' - 2.6' Organic mat and Silt

2.6' - 13.0' Well-graded GRAVEL with sand (GW), subrounded to rounded, very dense, gray-brown, dry, trace Fe-Ox and minor silt

13.0' - 21.0' Silty GRAVEL w/ sand (GM), subrounded to rounded, very dense, gray, dry, minor Fe-Ox

21.0' - 28.0' Well-graded SAND w/ silt (SW-SM), subrounded to rounded, medium dense, grayish-brown, dry, minor Fe-Ox

28.0' - 30.0' SILT w/ sand and gravel (ML), very firm, gray, damp

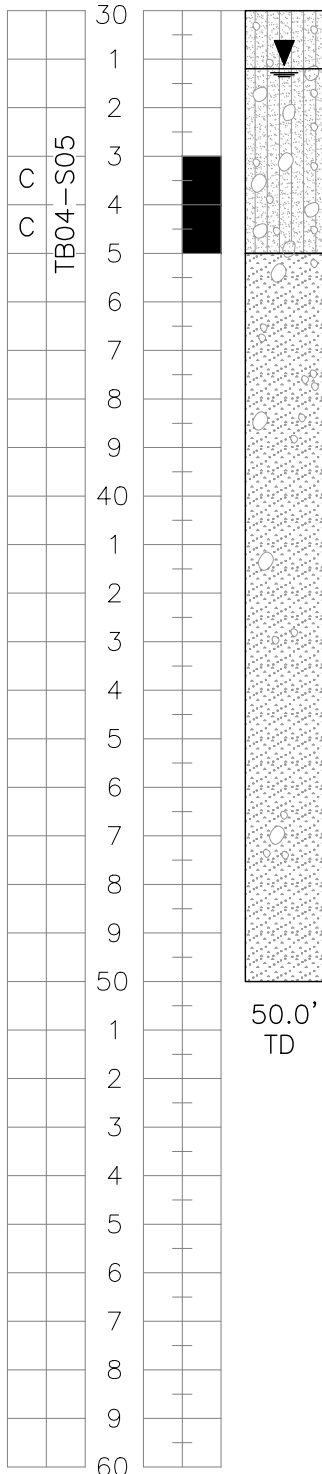
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Palmer, Alaska 99645
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Project No.: 2022-195 Sheet 1 of 2 Log # TB04
Project Name: Kashwitna East Phase I - Geotechnical Evaluation
Location: Parks Hwy MP 77
Method Used: Sonic continuous 4" sample Rig Type: Geoprobe 8150LS
Logged by: MCS Contractor: Discovery Drilling
Date Begun: 10/8/2022 Date Comp.: 10/8/2022

GEOLOGIC LOG TEST BORE: TB04

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 239.2' Total Depth : 50' Bottom Elev.: 189.2' Collar Elev.: 239.2' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2865249 E: 1630853 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



30.0' – 35.0' Silty SAND w/gravel (SM)

31.2' – Water level measured on October 13, 2022

35.0' – 50.0' Well-graded SAND (SW) w/ minor gravel, subrounded to rounded, medium dense, brownish gray, wet, grading from fine grain to coarse grain sand

Monitoring well installed. 1" dia. PVC set at 50 ft. Bottom 5 ft slotted



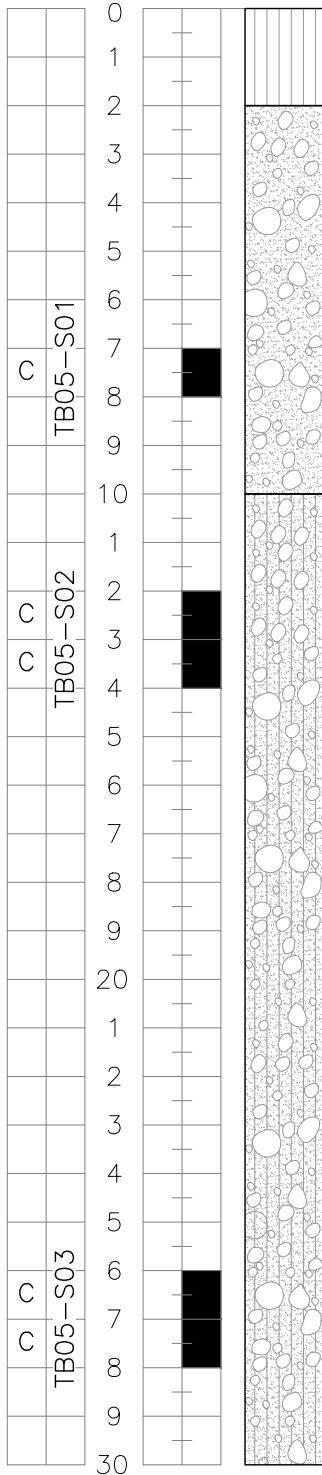
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| | | |
|--|--------------------------------|--|
| Project No.: 2022-195 | Sheet 2 of 2 Log # TB04 | |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | | |
| Location: Parks Hwy MP 77 | | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS | |
| Logged by: MCS | Contractor: Discovery Drilling | |
| Date Begun: 10/8/2022 | Date Comp.: 10/8/2022 | |

GEOLOGIC LOG TEST BORE: TB05

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 255.1' Total Depth : 60' Bottom Elev.: 195.1' Collar Elev.: 255.1' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2864733 E: 1630928 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



0.0' - 2.0' Organic mat and Silt

2.0' - 10.0' Well-graded GRAVEL with sand (GW), subrounded to rounded, dense to very dense, brown-gray, dry, all clasts compotent, primarily granitic clasts

10.0' - 31.0' Well-graded GRAVEL with sand and silt (GM), subrounded to rounded, very dense, light gray, dry, gravel clasts vary from compotent to a small percentage of weathered grus, silt content increasing with depth

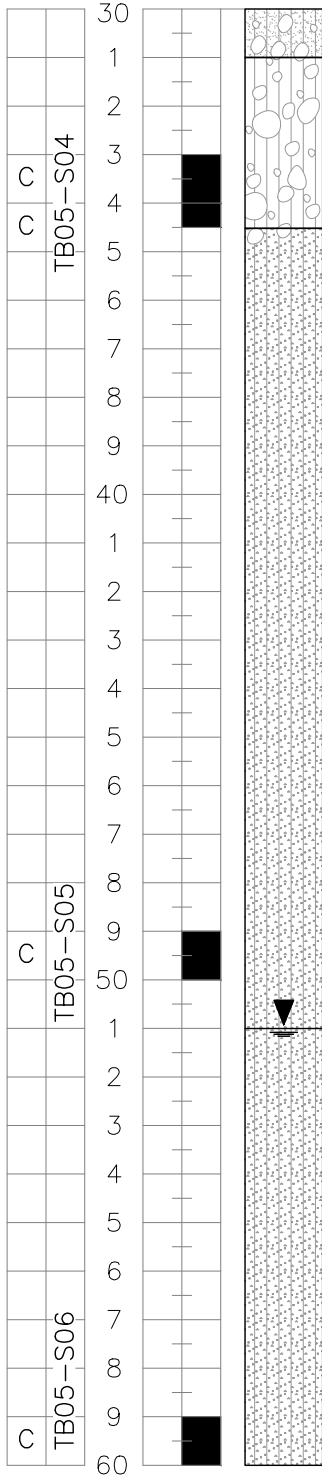
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Project No.: 2022-195 Sheet 1 of 2 Log # TB05
 Project Name: Kashwitna East Phase I - Geotechnical Evaluation
 Location: Parks Hwy MP 77
 Method Used: Sonic continuous 4" sample Rig Type: Geoprobe 8150LS
 Logged by: MCS Contractor: Discovery Drilling
 Date Begun: 10/7/2022 Date Comp.: 10/7/2022

GEOLOGIC LOG TEST BORE: TB05

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 255.1' Total Depth : 60' Bottom Elev.: 195.1' Collar Elev.: 255.1' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2864733 E: 1630928 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|



10.0' - 31.0' cont'd from sheet 1

31.0' - 34.5' SILT w/ gravel and sand (ML), very firm, medium gray, damp, gravel clasts are well-graded and subrounded and rounded

34.5' - 60.0' Well-graded silty SAND (SM), very dense, medium gray TD grading to tan, dry to wet



51.0' - Estimated water level at time of drilling

60.0' - TD

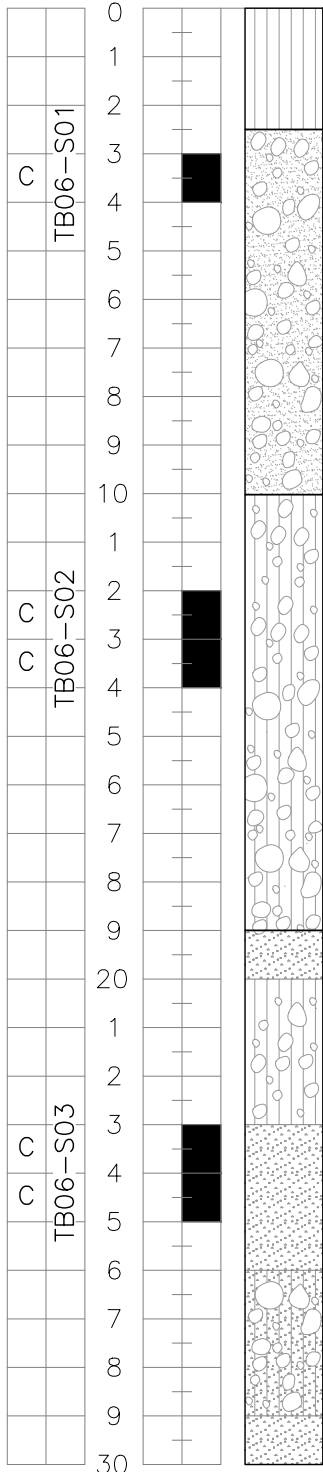
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 Ph: (907) 746-3630

| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 2 of 2 Log # TB05 |
| Project Name: Kashwitna East Phase I - Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/7/2022 | Date Comp.: 10/7/2022 |

GEOLOGIC LOG TEST BORE: TB06

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 249.7' Total Depth : 70' Bottom Elev.: 179.7' Collar Elev.: 249.7' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2864080 E: 1630589 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



0.0' - 2.5' Organic mat and Silt

2.5' - 10.0' Well-graded GRAVEL with sand (GW), subrounded to rounded, very dense, dark gray, dry

10.0' - 19.0' Well-graded GRAVEL with silt and sand (GM), subrounded to rounded, very dense, light to dark gray, dry

19.0' - 30.0' Well-graded silty GRAVEL w/ sand (GM) to well-graded sand (SW), dark to light gray, dry, stratified

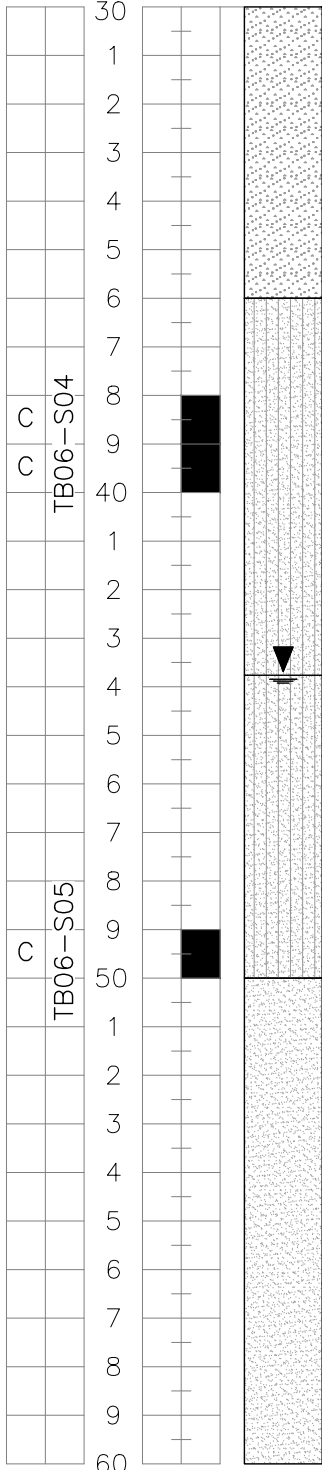
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| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 1 of 3 Log # TB06 |
| Project Name: Kashwitna East Phase I - Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/7/2022 | Date Comp.: 10/8/2022 |

GEOLOGIC LOG TEST BORE: TB06

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 249.7' Total Depth : 70' Bottom Elev.: 179.7' Collar Elev.: 249.7' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2864080 E: 1630589 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



30.0' - 36.0' Well-graded SAND (SW), brown-gray, dry

36.0' - 50.0' Silty SAND (SM), fine grain, very dense, light gray, dry

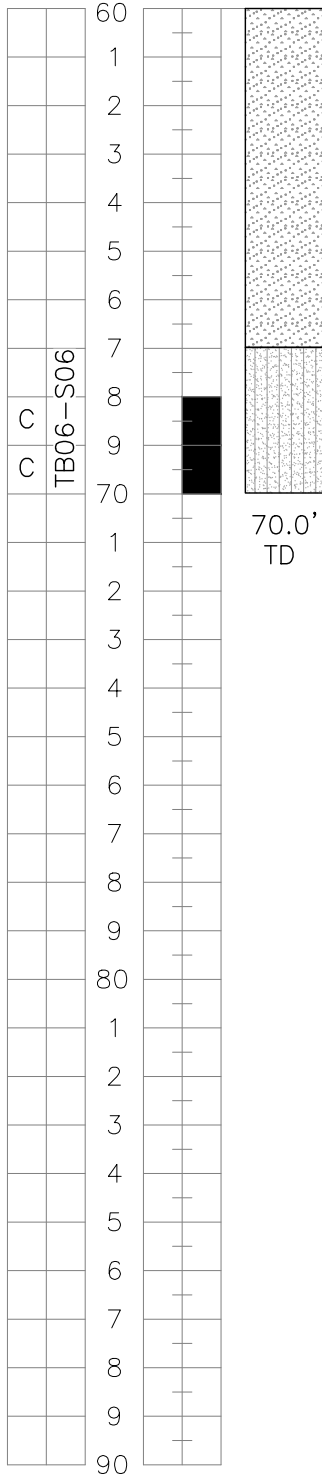
43.7' - Water level measured on October 13, 2022

50.0' - 60.0' Poorly graded SAND (SP), fine to medium grain sand, dense, damp gray

| | |
|--|---|
| <b style="font-size: 1.2em;">RECON, LLC 565 W. Recon Cir. Palmer, Alaska 99645 Ph: (907) 746-3630 | Project No.: 2022-195 Sheet 2 of 3 Log # TB06 Project Name: Kashwitna East Phase I - Geotechnical Evaluation Location: Parks Hwy MP 77 Method Used: Sonic continuous 4" sample Rig Type: Geoprobe 8150LS Logged by: MCS Contractor: Discovery Drilling Date Begun: 10/7/2022 Date Comp.: 10/8/2022 |
|--|---|

GEOLOGIC LOG TEST BORE: TB06

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 249.7' Total Depth : 70' Bottom Elev.: 179.7' Collar Elev.: 249.7' Reference: _____ | Vegetation: Birch & spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2864080 E: 1630589 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



60.0' – 67.0' Well-graded sand (SW), medium dense, brown-gray, wet, minor Fe-Ox

67.0' – 70.0' Silty sand (SM), fine grain, very dense, gray, wet

Monitoring well installed. 1" dia. PVC set at 70 ft. Bottom 5 ft slotted



RECON LLC
 Kashwitna MS
 TB06 10-20FT
 10.07.2022 02:07 PM
 61.83887, -150.09653
 Altitude: 348ft

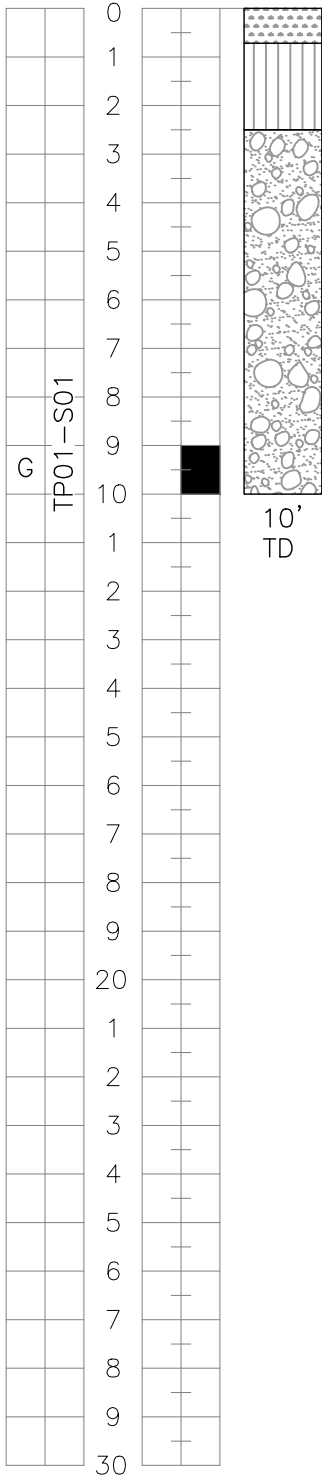
RECON, LLC

565 W. Recon Cir.
 Palmer, Alaska 99645
 Ph: (907) 746-3630

| | |
|--|--------------------------------|
| Project No.: 2022-195 | Sheet 3 of 3 Log # TB06 |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | |
| Location: Parks Hwy MP 77 | |
| Method Used: Sonic continuous 4" sample | Rig Type: Geoprobe 8150LS |
| Logged by: MCS | Contractor: Discovery Drilling |
| Date Begun: 10/7/2022 | Date Comp.: 10/8/2022 |

GEOLOGIC LOG TEST PIT: TP01

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 258.1' Total Depth : 10' Bottom Elev.: _____ Collar Elev.: _____ Reference: _____ | Vegetation: Birch & Spruce avg. dia. 12" Remarks: _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2866251 E: 1631421 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|



0.0' – 0.7' Organic mat

0.7' – 2.7' SILT (ML), reddish tan grading to brownish gray, wet

2.7' – 10.0' Well-graded GRAVEL with sand (GW),
 60% gravel
 30% sand
 10% cobbles
 subrounded to rounded, dense to very dense, gray, dry,
 20 to 30% of gravel clasts granitic, all clasts competent,
 no sloughing of pit walls

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Terrain consist of a relic river terrace.



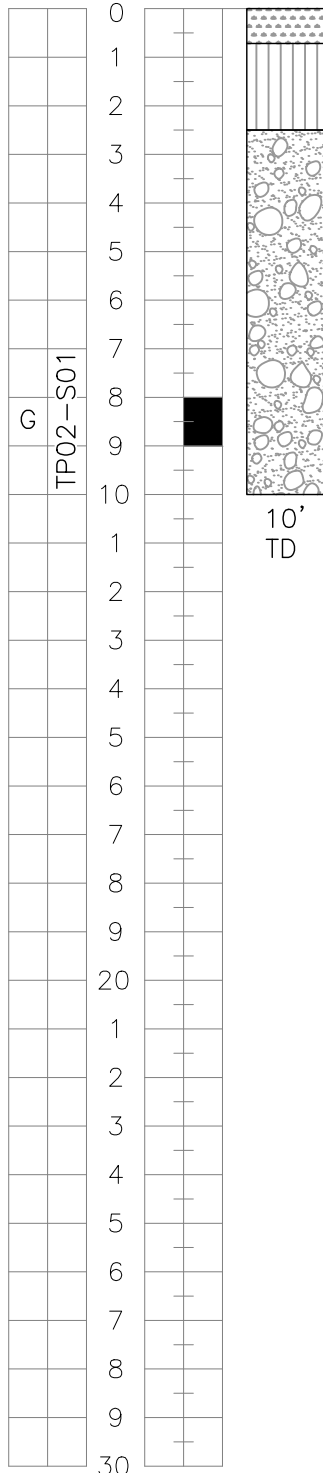
RECON, LLC

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 Palmer, Alaska 99645
 Ph: (907) 746-3630

| | | |
|--|--------------------------|------------|
| Project No.: 2022-195 | Sheet 1 of 1 | Log # TP01 |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | | |
| Location: Parks Hwy MP 77 | | |
| Method Used: Hydraulic excavator | Rig Type: Kubota KX040-4 | |
| Logged by: MCS | Contractor: _____ | |
| Date Begun: 10/03/2022 | Date Comp.: 10/03/2022 | |

GEOLOGIC LOG TEST PIT: TP02

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 261.4' Total Depth : 10' Bottom Elev.: _____ Collar Elev.: _____ Reference: _____ | Vegetation: Birch & Spruce avg. dia. 12" Remarks: _____ _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2865548 E: 1631152 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|--|---|



0.0' – 0.6' Organic mat
 0.6' – 2.7' SILT (ML), reddish tan, wet

2.7' – 10.0' Well-graded GRAVEL with sand (GW),
 60% gravel
 30% sand
 10% cobbles
 subrounded to rounded, dense to very dense, gray, dry,
 20 to 30% of gravel clasts granitic, all clasts competent,
 no sloughing of pit walls

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Terrian consist of a relic river terrace.



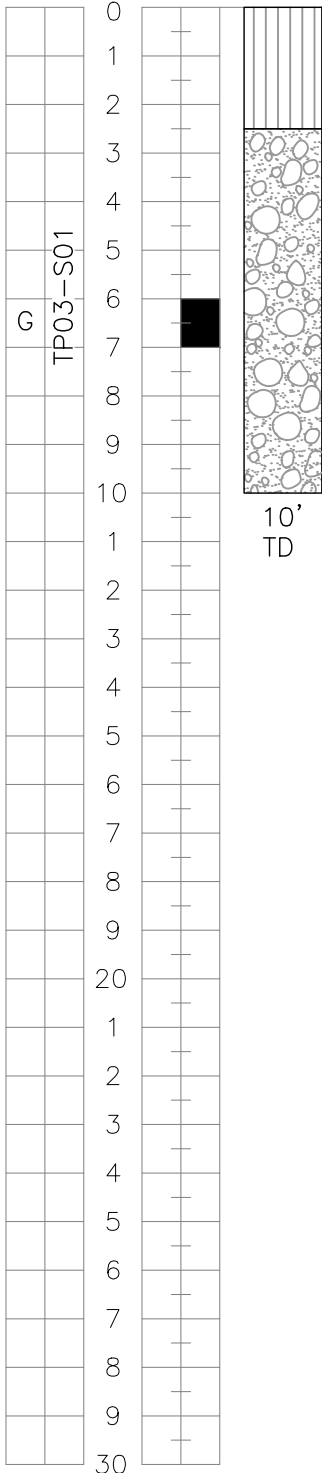
RECON, LLC

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 Palmer, Alaska 99645
 Ph: (907) 746-3630

| | | |
|--|--------------------------|------------|
| Project No.: 2022-195 | Sheet 1 of 1 | Log # TP02 |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | | |
| Location: Parks Hwy MP 77 | | |
| Method Used: Hydraulic excavator | Rig Type: Kubota KX040-4 | |
| Logged by: MCS | Contractor: _____ | |
| Date Begun: 10/03/2022 | Date Comp.: 10/03/2022 | |

GEOLOGIC LOG TEST PIT: TP03

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 238.8' Total Depth : 10' Bottom Elev.: _____ Collar Elev.: _____ Reference: _____ | Vegetation: Birch & Spruce avg. dia. 12" Remarks: _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2864705 E: 1631303 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|



0.0' – 2.6' SILT (ML) and minor organic mat, reddish brown grading to gray-brown, wet

2.6' – 10.0' Well-graded GRAVEL with sand (GW),
 60–65% gravel
 20% sand
 15–20% cobbles
 subrounded to rounded, dense to very dense, dark gray, damp,
 20 to 30% of gravel clasts granitic, all clasts competent,
 no sloughing of pit walls, minor Fe-Ox

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Terrain consist of a relic river channel.



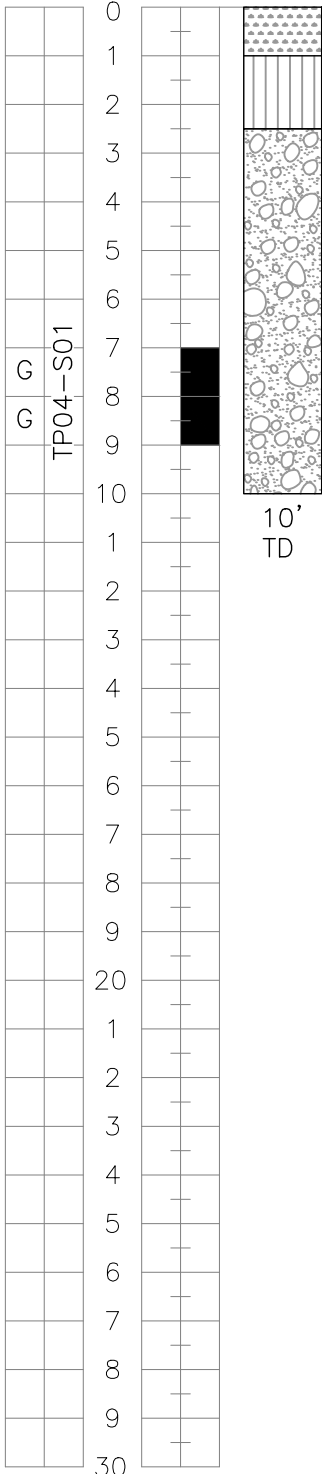
RECON, LLC

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 Ph: (907) 746-3630

| | | |
|--|--------------------------|------------|
| Project No.: 2022-195 | Sheet 1 of 1 | Log # TP03 |
| Project Name: Kashwitna East Phase I – Geotechnical Evaluation | | |
| Location: Parks Hwy MP 77 | | |
| Method Used: Hydraulic excavator | Rig Type: Kubota KX040-4 | |
| Logged by: MCS | Contractor: _____ | |
| Date Begun: 10/05/2022 | Date Comp.: 10/05/2022 | |

GEOLOGIC LOG TEST PIT: TP04

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 250.0' Total Depth : 10' Bottom Elev.: _____ Collar Elev.: _____ Reference: _____ | Vegetation: Birch & Spruce avg. dia. 12" Remarks: _____ _____ | Location: MSB Parcel Acct # 20N04W08A001 _____ N: 2864322 E: 1630996 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|



0.0' - 1.0' Organic mat
 1.0' - 2.7' SILT (ML), reddish tan grading to tan, wet
 2.7' - 10.0' Well-graded GRAVEL with sand (GW),
 65% gravel
 30% sand
 5% cobbles
 subrounded to rounded, very dense, brown-gray, dry, 20 to 30% of gravel clasts granitic, all clasts competent, no sloughing of pit walls

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Terrian consist of a relic river terrace.



RECON LLC
 Kaawitna MS
 TP04
 10/07/2022 02:26 PM
 61.83856, 158.05454
 49.96.3308

SW

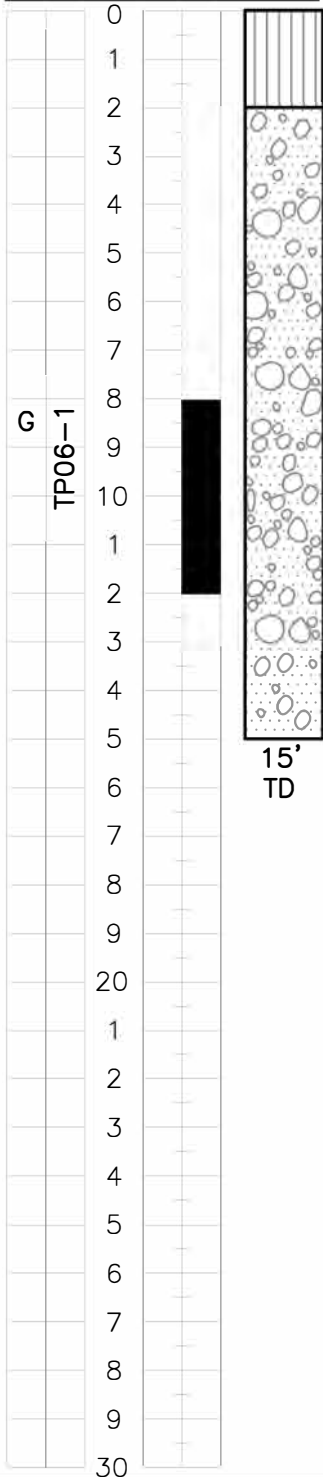
RECON, LLC

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 Palmer, Alaska 99645
 Ph: (907) 746-3630

Project No.: 2022-195 Sheet 1 of 1 Log # TP04
 Project Name: Kashwitna East Phase I - Geotechnical Evaluation
 Location: Parks Hwy MP 77
 Method Used: Hydraulic excavator Rig Type: Kubota KX040-4
 Logged by: MCS Contractor:
 Date Begun: 10/07/2022 Date Comp.: 10/07/2022

GEOLOGIC LOG TEST PIT: TP06-1

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 255' Total Depth : 15' Bottom Elev.: Collar Elev.: Reference: | Vegetation: 2nd Growth Birch Remarks: | Location: Parks Hwy 77 Acct # 20N04W08A001 N: 2864541 . 7 E: 1630930.73 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|---|



0.0' – 2.0' Silt, brown, soft to med. firm, moist. Trace organics.

2.0' – 15.0' Well sorted, coarse sandy gravel w/ cobbles, dense, gray, dry

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Terrain consist of a relic river terrace.



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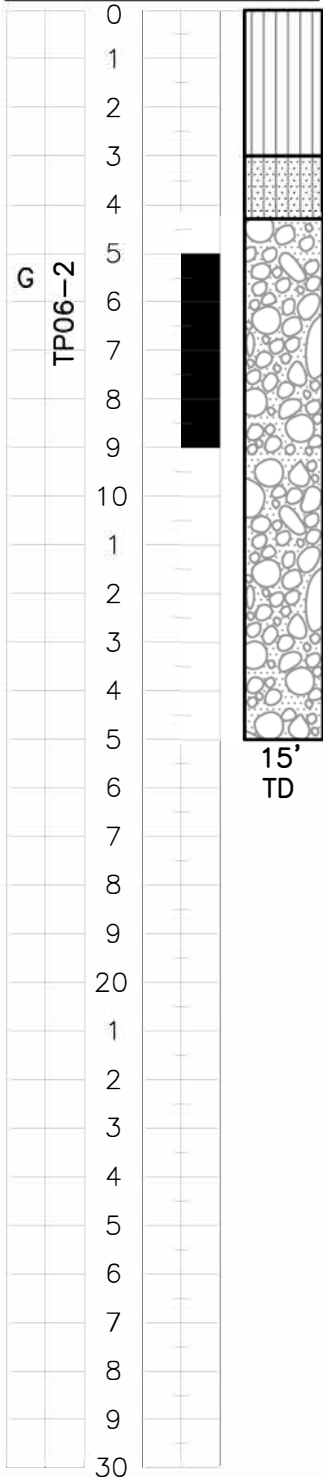
Project No.: 2021-162
 Project Name: MSB Material Site Geotech
 Location: Parks Hwy MP 77
 Method Used: Hydraulic excavator
 Logged by: MCS & SRR
 Date Begun: 06/03/21

Sheet 1 of 6 Log # TP06-1

Rig Type: CASE CX1450
 Contractor: K&H
 Date Comp.: 06/03/21

GEOLOGIC LOG TEST PIT: TP06-2

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|--|---|--|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 240 Total Depth : 15' Bottom Elev.: Collar Elev.: Reference: | Vegetation: 2nd Growth Birch Remarks: | Location: Parks Hwy 77 Acct # 20N04W08A001 N: 2865061 .34 E: 1 631118.31 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|--|---|--|



0.0' - 3.0' Silt, brown, soft to med. firm, moist. Trace organics.

3.0' - 4.3' Silty sand, gray med. firm to firm, dry

4.3' - 15.0' Well sorted, coarse sandy, cobble gravel w/boulders, boulder dia. up to 18-20", dense, dry. Min. sloughing near bottom of trench.

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Terrain is a level area in a relic river channel.



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 Ph: (907) 746-3630

Project No.: 2021-162
 Project Name: MSB Material Site Geotech
 Location: Parks Hwy MP 77
 Method Used: Hydraulic excavator
 Logged by: MCS & SRR
 Date Begun: 06/03/21

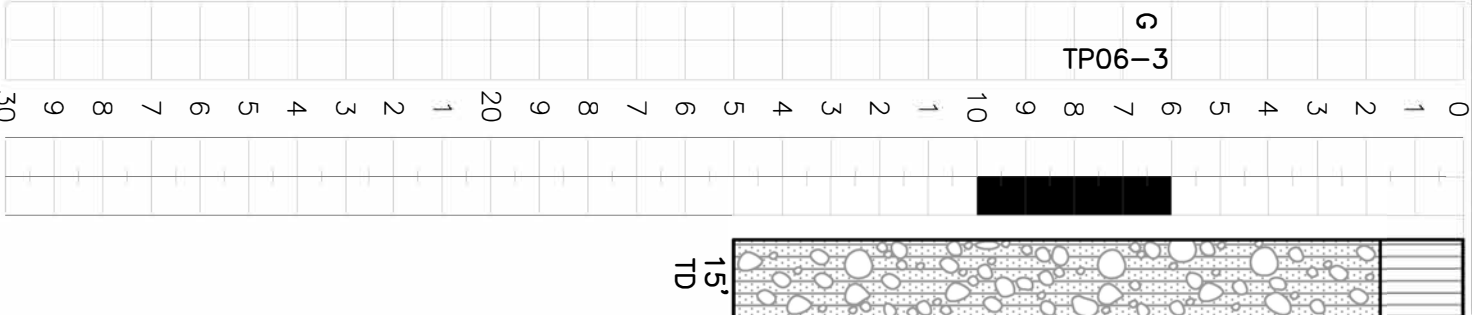
Sheet 2 of 6 Log # TP06-2

Rig Type: CASE CX1450
 Contractor: K&H
 Date Comp.: 06/03/21

GEOLOGIC LOG TEST PIT: TP06-3

| |
|-----------------|
| Sample Method |
| Sample Number |
| Depth In Feet |
| Sample Interval |
| Frozen Interval |
| Graphic Log |

| | | |
|-------------------|------------------------|------------------------|
| Ground Elev.: 262 | Vegetation: Grass, 2nd | Location: Parks Hwy 77 |
| Total Depth : 15' | Growth birch | Acct # 20N04W08A001 |
| Bottom Elev.: | Remarks: | N: 2865956.7 |
| Collar Elev.: | | E: 1631299.1 |
| Reference: | | Coord.: AKSP Z4 NAD83 |



0.0' – 1.8' Silt, brown, soft to med. firm, moist. Trace organics.

1.8' – 15.0' Well sorted sandy, silty, gravel w/ cobbles, dense, dry. No boulders.

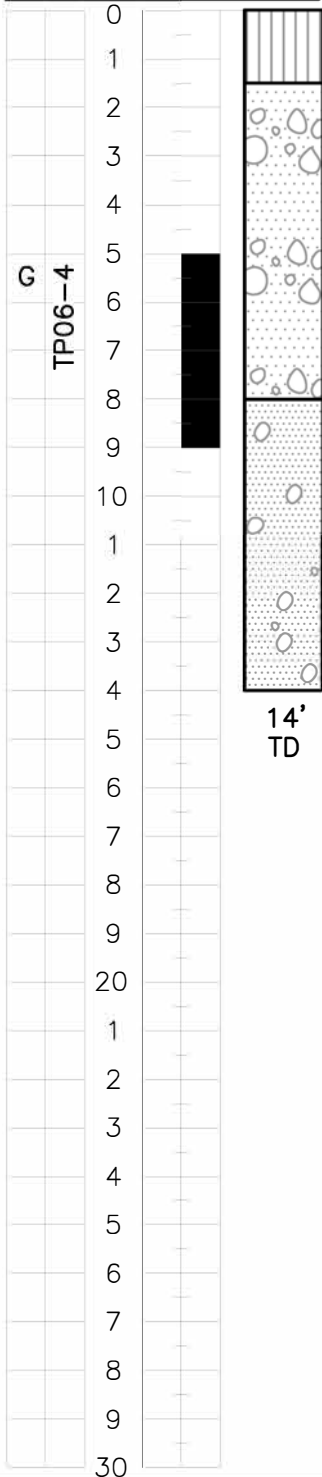
Notes: No groundwater observed at time of excavation. Coordinates from handheld GPS. Ground elevation from MSB 2011 LIDAR data. Terrain is a relic river terrace.



| | | | |
|--|---|------------------------------|--|
| RECON, LLC 565 W. Recon Cir. Palmer, Alaska 99645 Ph: (907) 746-3630 | Project No.: 2021-162 Project Name: MSB Material Site Location: Parks Hwy MP 77 Method Used: Hydraulic excavator Logged by: MCS & SRR Date Begun: 06/03/21 | Sheet 3 of 6 Log # TP06-3 | Rig Type: CASE CX1450 Contractor: K&H Date Comp.: 06/03/21 |
|--|---|------------------------------|--|

GEOLOGIC LOG TEST PIT: TP06-4

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|--|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 300' Total Depth : 14' Bottom Elev.: Collar Elev.: Reference: | Vegetation: 2nd Growth Birch Remarks: | Location: Parks Hwy 77 Acct # 20N04W07A001 N: 2864435.7 E: 1 630382.39 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|--|



0.0' - 1.6' Silt, brown, soft to med. firm, moist. Trace organics.

1.6' - 7.9' Stratified, coarse sand w/ silt & gravel, gray, dense, dry

7.9' - 14.0' Medium grained sand w/ silt & gravel, gray, dense, dry

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Test pit located on furthest E ridge top within the relic glacial moraine.



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 Ph: (907) 746-3630

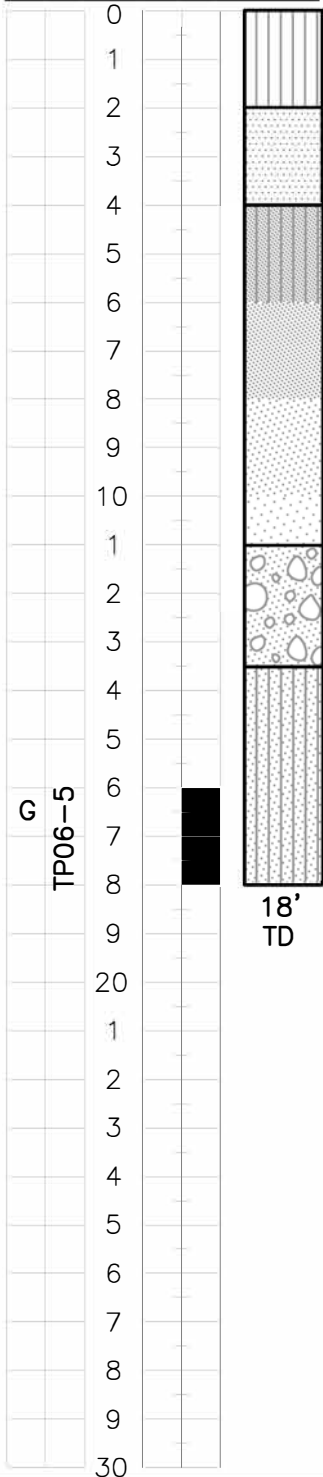
Project No.: 2021-162
 Project Name: MSB Material Site Geotech
 Location: Parks Hwy MP 77
 Method Used: Hydraulic excavator
 Logged by: MCS & SRR
 Date Begun: 06/03/21

Sheet 4 of 6 Log # TP06-4

Rig Type: CASE CX1450
 Contractor: K&H
 Date Comp.: 06/03/21

GEOLOGIC LOG TEST PIT: TP06-5

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|--|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 260' Total Depth : 18' Bottom Elev.: Collar Elev.: Reference: | Vegetation: 2nd growth Birch Remarks: | Location: Parks Hwy 77 Acct # 20N04W07A001 N: 2864205.03 E: 1630422.47 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|--|



0.0' – 2.0' Silt, brown, soft to med. firm, moist. Trace organics.

2.0' – 3.9' Medium grain sand, brown, med. firm to firm, dry

3.9' – 11.0' Grading from fine silty sand to medium/coarse sand, gray, dense, dry.

11.0' – 13.5' Medium to coarse grained sandy gravel, gray, dense, dry

13.5' – 18.0' Medium grained silty sand, gray, dense, dry

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Test pit located on steep E facing slope approx. 44%



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 Ph: (907) 746-3630

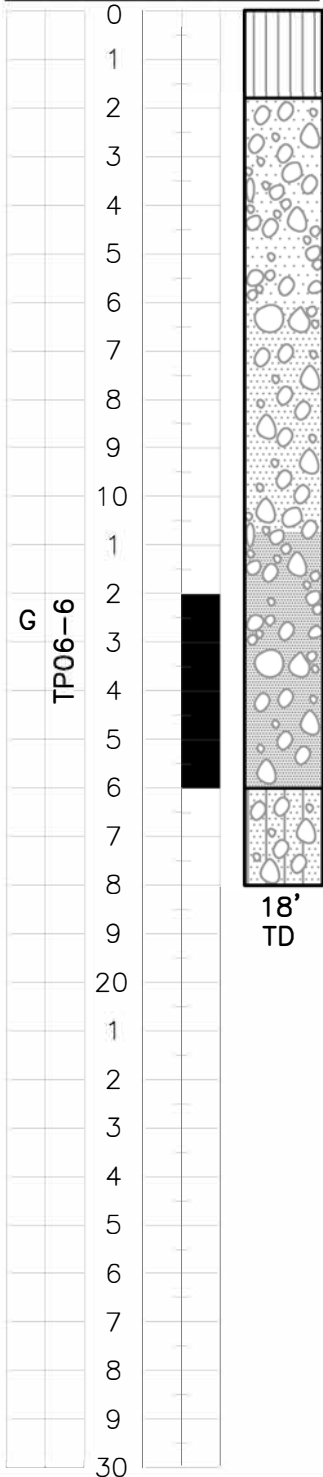
Project No.: 2021-162
 Project Name: MSB Material Site Geotech
 Location: Parks Hwy MP 77
 Method Used: Hydraulic excavator
 Logged by: MCS & SRR
 Date Begun: 06/03/21

Sheet 5 of 6 Log # TP06-5

Rig Type: CASE CX1450
 Contractor: K&H
 Date Comp.: 06/03/21

GEOLOGIC LOG TEST PIT: TP06-6

| | | | | | | | | |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|--|
| Sample Method | Sample Number | Depth In Feet | Sample Interval | Frozen Interval | Graphic Log | Ground Elev.: 256' Total Depth : 18' Bottom Elev.: Collar Elev.: Reference: | Vegetation: 2nd Growth Birch Remarks: | Location: Parks Hwy 77 Acct # 20N04W07A001 N: 2864476.92 E: 1629749.54 Coord.: AKSP Z4 NAD83 |
|---------------|---------------|---------------|-----------------|-----------------|-------------|---|---|--|



0.0' - 1.7' Silt, brown, soft to med. firm, moist, Trace organics.

1.7' - 16.0' Sandy gravel w/ cobbles and silt, gray, dense, dry. Sand grades from coarse to fine.

16.0' - 18.0' Sandy silt w/ gravel, gray, dense to very dense, damp. Difficult digging for excavator.

Notes: No groundwater observed at time of excavation. Coordinates from hand held GPS. Ground elevation from MSB 2011 LiDAR data. Test pit on slope of small depression in middle of moraine feature.



RECON, LLC

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 Palmer, Alaska 99645
 Ph: (907) 746-3630

Project No.: 2021-162
 Project Name: MSB Material Site Geotech
 Location: Parks Hwy MP 77
 Method Used: Hydraulic excavator
 Logged by: MCS & SRR
 Date Begun: 06/03/21

Sheet 6 of 6 Log # TP06-6

Rig Type: CASE CX1450
 Contractor: K&H
 Date Comp.: 06/03/21

APPENDIX D

MATERIAL TEST RESULTS

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1266
LOCATION: TB2-S2+TB2-S3+TB5-S3

DATE TAKEN: 10/7/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 15.0-28.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | 100 |
| 2" | 50.8 | 97 |
| 1" | 25.4 | 85 |
| 3/4" | 19.0 | 78 |
| 1/2" | 12.7 | 68 |
| 3/8" | 9.5 | 63 |
| #4 | 4.75 | 53 |
| #10 | 2.00 | 46 |
| #20 | 0.85 | 39 |
| #40 | 0.425 | 29 |
| #60 | 0.25 | 22 |
| #100 | 0.15 | 18 |
| #200 | 0.075 | 14.8 |

% Gravel: 47.0
% Sand: 38.2
% Fines: 14.8
D60: 8.03
D30: 0.47
D10:
Cu:
Cc:
%.02 mm:
% Moisture: 4.1
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

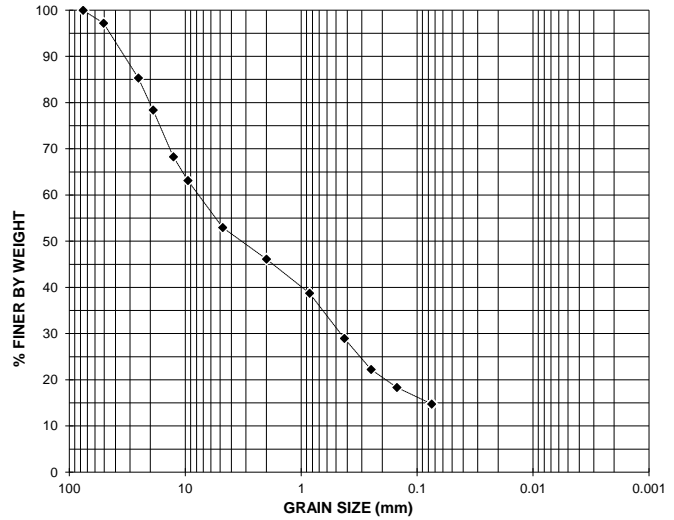
(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

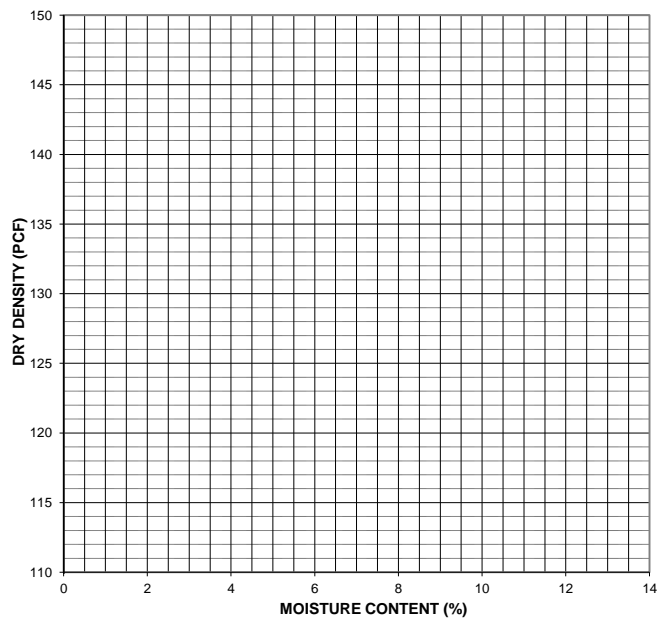
CLASSIFICATION: Silty Gravel w/Sand
USC: GM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



JOHN A. BUZDOR, P.E. 10/12/2022

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1267
LOCATION: TB2-S7+TB3-S7+TB6-S6

DATE TAKEN: 10/8/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 68.0-70.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | |
| 2" | 50.8 | |
| 1" | 25.4 | |
| 3/4" | 19.0 | 100 |
| 1/2" | 12.7 | 100 |
| 3/8" | 9.5 | 100 |
| #4 | 4.75 | 99 |
| #10 | 2.00 | 99 |
| #20 | 0.85 | 98 |
| #40 | 0.425 | 92 |
| #60 | 0.25 | 66 |
| #100 | 0.15 | 40 |
| #200 | 0.075 | 18.1 |

% Gravel: 0.5
% Sand: 81.4
% Fines: 18.1
D60: 0.23
D30: 0.12
D10:
Cu:
Cc:
% .02 mm:
% Moisture: 19.0
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

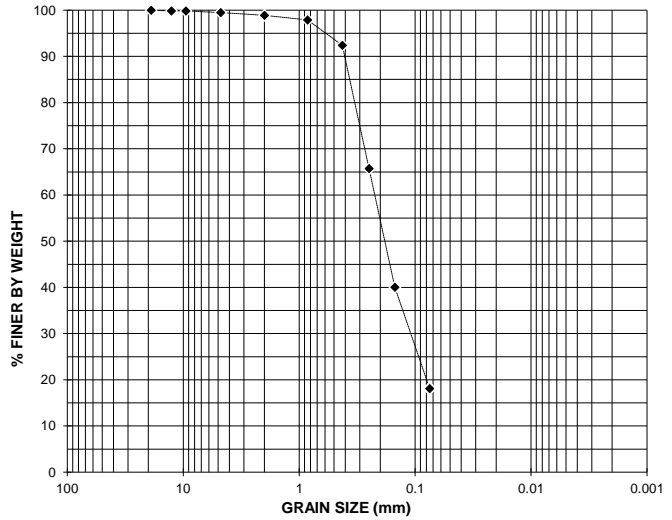
(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

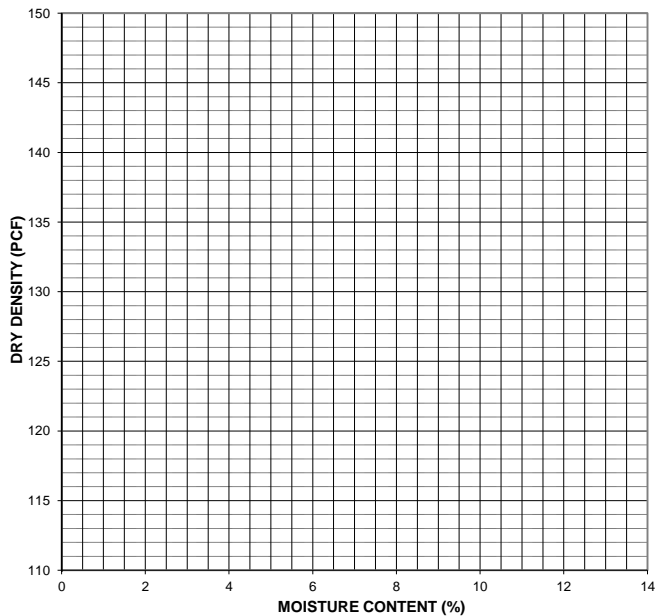
CLASSIFICATION: Silty Sand
USC: SM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1268
LOCATION: TB3-S2+TB3-S3

DATE TAKEN: 10/8/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 16.0-27.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | |
| 2" | 50.8 | 100 |
| 1" | 25.4 | 76 |
| 3/4" | 19.0 | 65 |
| 1/2" | 12.7 | 55 |
| 3/8" | 9.5 | 50 |
| #4 | 4.75 | 41 |
| #10 | 2.00 | 35 |
| #20 | 0.85 | 28 |
| #40 | 0.425 | 20 |
| #60 | 0.25 | 15 |
| #100 | 0.15 | 12 |
| #200 | 0.075 | 9.5 |

% Gravel: 59.2
% Sand: 31.3
% Fines: 9.5
D60: 15.79
D30: 1.18
D10: 0.09
Cu: 178.7
Cc: 1.0

% .02 mm:
% Moisture: 2.4
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM D1557)

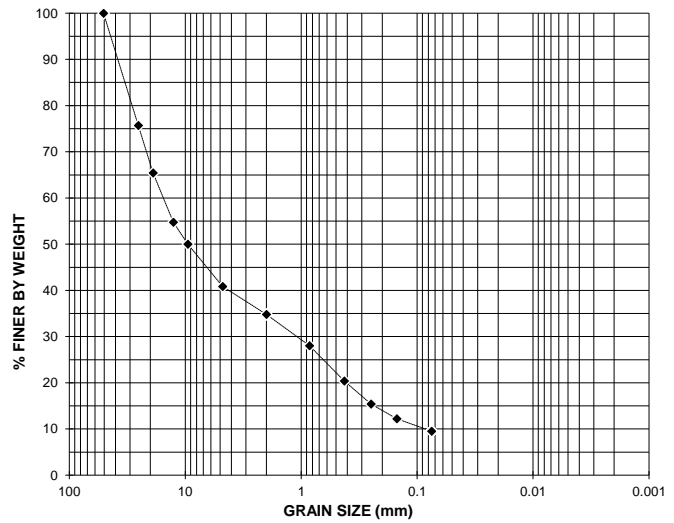
Dry Den (U):
Dry Den (C):
M% (U):
M% (C):

SpG (assumed):
M-D Test Method:

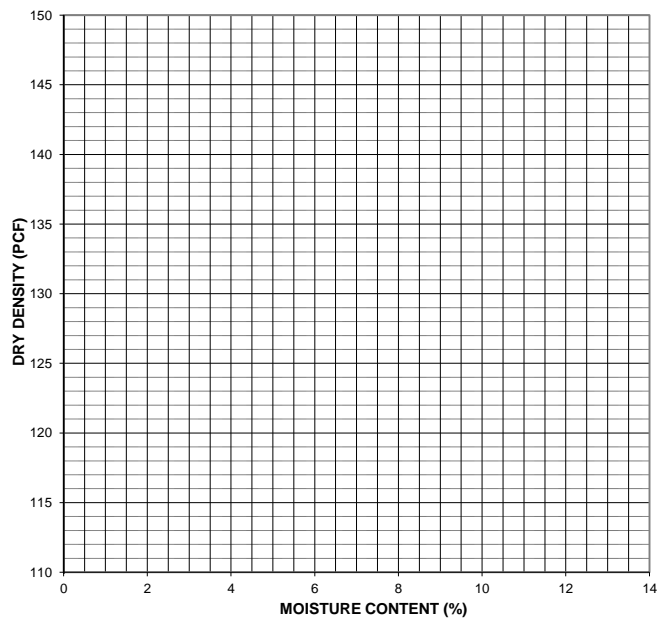
CLASSIFICATION: Well Graded Gravel w/Silt & Sand
USC: GW-GM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



JOHN A. BUZDOR, P.E. 10/12/2022

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1269
LOCATION: TB5-S2+TB6-S2

DATE TAKEN: 10/7/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 12.0-14.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | |
| 2" | 50.8 | 100 |
| 1" | 25.4 | 87 |
| 3/4" | 19.0 | 79 |
| 1/2" | 12.7 | 68 |
| 3/8" | 9.5 | 62 |
| #4 | 4.75 | 49 |
| #10 | 2.00 | 40 |
| #20 | 0.85 | 32 |
| #40 | 0.425 | 24 |
| #60 | 0.25 | 18 |
| #100 | 0.15 | 14 |
| #200 | 0.075 | 10.6 |

% Gravel: 50.7
% Sand: 38.7
% Fines: 10.6
D60: 8.77
D30: 0.75
D10: 0.25
Cu:
Cc:

% .02 mm:
% Moisture: 2.9
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM D1557)

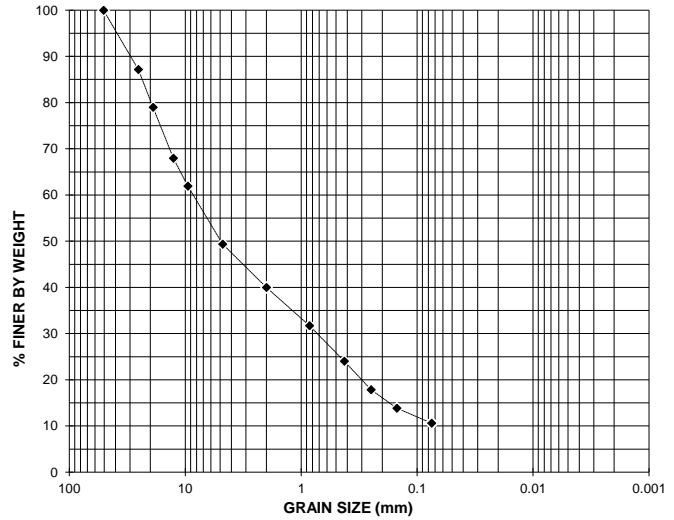
Dry Den (U):
Dry Den (C):
M% (U):
M% (C):

SpG (assumed):
M-D Test Method:

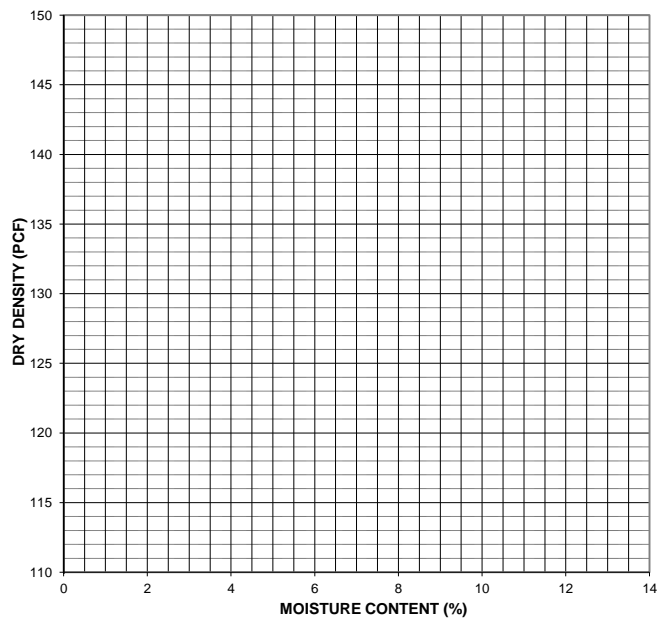
CLASSIFICATION: Poorly Graded Gravel w/Silt & Sand
USC: GP-GM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



JOHN A. BUZDOR, P.E. 10/12/2022

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-405
CLIENT: RECON
SAMPLE NO.: 22P1270
LOCATION: TB5-S4+TB3-S5

DATE TAKEN: 10/8/2022
DATE TESTED: 10/12/2022
TESTED BY: DEM
REVIEWED BY: JAB
DESCRIPTION: 33.0-40.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | 100 |
| 2" | 50.8 | 97 |
| 1" | 25.4 | 92 |
| 3/4" | 19.0 | 87 |
| 1/2" | 12.7 | 82 |
| 3/8" | 9.5 | 80 |
| #4 | 4.75 | 74 |
| #10 | 2.00 | 68 |
| #20 | 0.85 | 64 |
| #40 | 0.425 | 58 |
| #60 | 0.25 | 50 |
| #100 | 0.15 | 41 |
| #200 | 0.075 | 32.0 |

% Gravel: 26.1
% Sand: 41.9
% Fines: 32.0
D60: 0.58
D30: 0.06
D10: 0.06
Cu:
Cc:

% .02 mm: 20.1
% Moisture: 11.4

Fine Modulus:

(ASTM D4318)

Liquid Limit:

Plastic Limit:

Plastic Index:

(ASTM C127)

Bulk SpG:

SSD SpG:

Apparent SpG:

% Absorption:

(ASTM C128)

Bulk SpG:

SSD SpG:

Apparent SpG:

% Absorption:

(ASTM D1557)

Dry Den (U):

Dry Den (C):

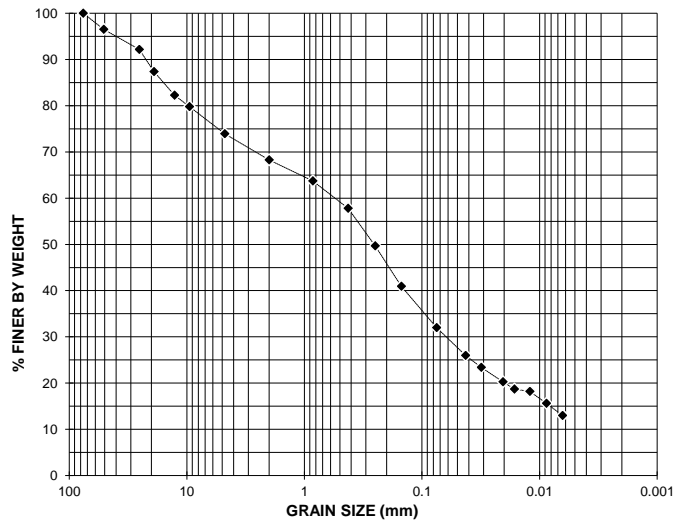
M% (U):

M% (C):

SpG (assumed):

M-D Test Method:

GRAIN SIZE DISTRIBUTION

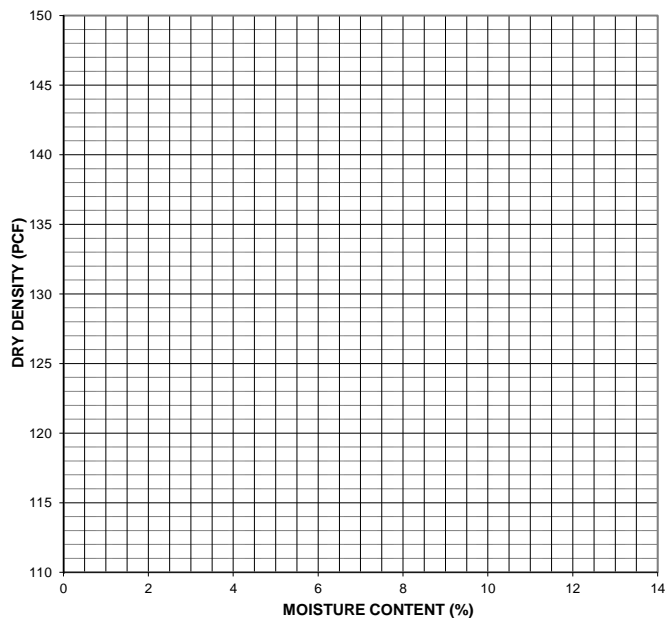


HYDROMETER TEST

(ASTM D422)

| Elapsed Time (min) | Diameter (mm) | Total % Passing |
|--------------------|---------------|-----------------|
| 0 | | |
| 0.5 | 0.056 | 31.2 |
| 1 | 0.043 | 26.0 |
| 2 | 0.031 | 23.4 |
| 5 | 0.021 | 20.3 |
| 8 | 0.016 | 18.7 |
| 15 | 0.012 | 18.2 |
| 30 | 0.009 | 15.6 |
| 60 | 0.006 | 13.0 |
| 250 | | |
| 1440 | | |

MOISTURE-DENSITY RELATIONSHIP



CLASSIFICATION: Silty Sand w/Gravel
USC: SM
FROST CLASS: F3

Remarks:

JOHN A. BUZDOR, P.E. 10/12/2022

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1271
LOCATION: TB5-5+TB1-S5+TB2-S6+TB5-S6

DATE TAKEN: 10/8/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 49.0-60.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | |
| 2" | 50.8 | 100 |
| 1" | 25.4 | 100 |
| 3/4" | 19.0 | 99 |
| 1/2" | 12.7 | 99 |
| 3/8" | 9.5 | 98 |
| #4 | 4.75 | 98 |
| #10 | 2.00 | 97 |
| #20 | 0.85 | 96 |
| #40 | 0.425 | 88 |
| #60 | 0.25 | 61 |
| #100 | 0.15 | 31 |
| #200 | 0.075 | 14.6 |

% Gravel: 2.4
% Sand: 83.0
% Fines: 14.6
D60: 0.25
D30: 0.15
D10:
Cu:
Cc:
%.02 mm:
% Moisture: 16.7
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

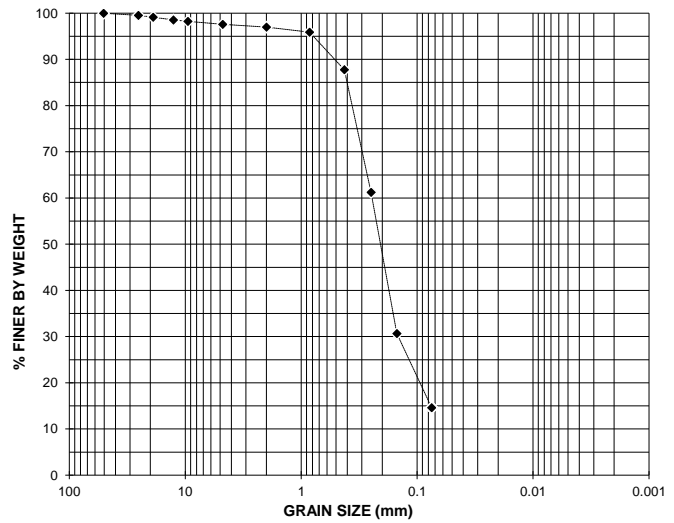
(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

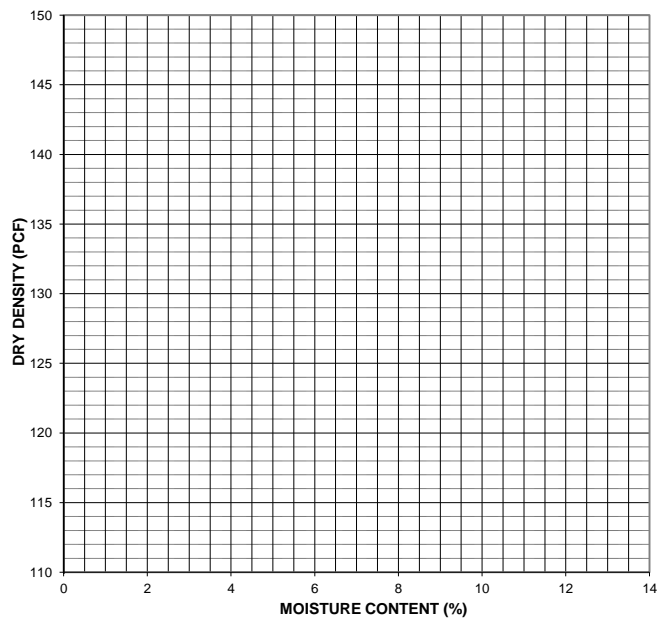
CLASSIFICATION: Silty Sand
USC: SM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



JOHN A. BUZDOR, P.E. 10/12/2022

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1272
LOCATION: TP4-S1+TP2-S1+TP1-S1

DATE TAKEN: 10/7/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 7.0-10.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | 100 |
| 2" | 50.8 | 70 |
| 1" | 25.4 | 50 |
| 3/4" | 19.0 | 43 |
| 1/2" | 12.7 | 34 |
| 3/8" | 9.5 | 30 |
| #4 | 4.75 | 22 |
| #10 | 2.00 | 17 |
| #20 | 0.85 | 13 |
| #40 | 0.425 | 7 |
| #60 | 0.25 | 4 |
| #100 | 0.15 | 2 |
| #200 | 0.075 | 1.5 |

% Gravel: 77.9
% Sand: 20.6
% Fines: 1.5
D60: 38.01
D30: 9.60
D10: 0.62
Cu: 61.6
Cc: 3.9
%.02 mm:
% Moisture: 2.3
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

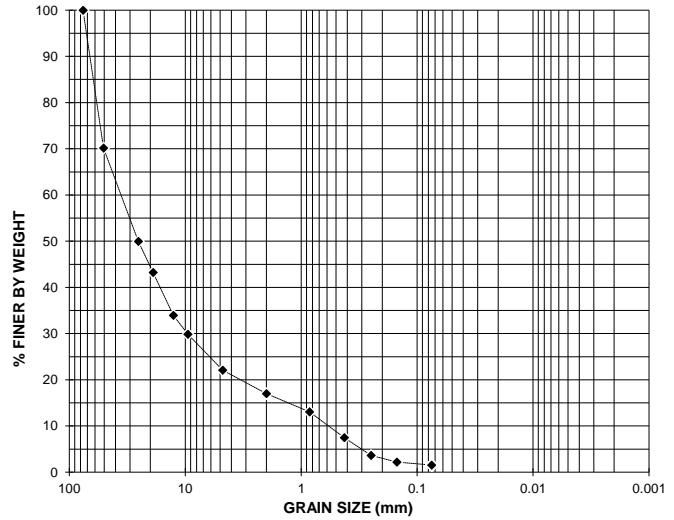
(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

GRAIN SIZE DISTRIBUTION

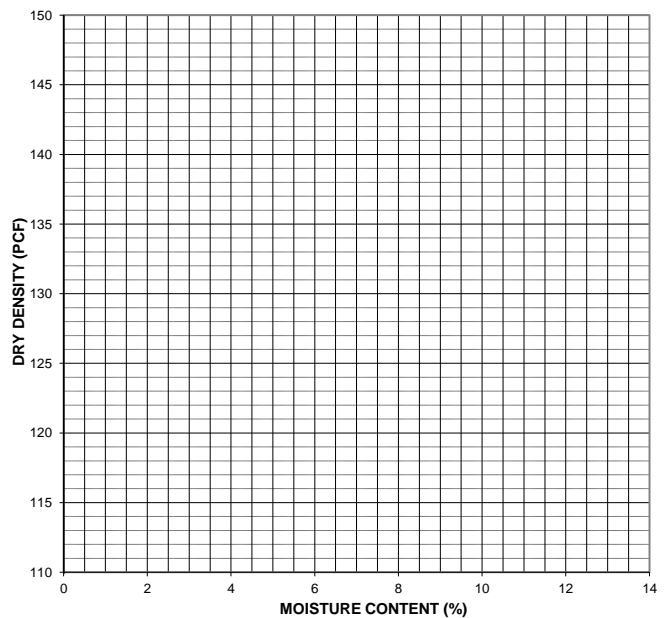


HYDROMETER TEST

(ASTM D422)

| Elapsed Time (min) | Diameter (mm) | Total % Passing |
|--------------------|---------------|-----------------|
| 0 | | |
| 0.5 | | |
| 1 | | |
| 2 | | |
| 5 | | |
| 8 | | |
| 15 | | |
| 30 | | |
| 60 | | |
| 250 | | |
| 1459 | | |
| 2750 | | |

MOISTURE-DENSITY RELATIONSHIP



CLASSIFICATION: Poorly Graded Gravel w/Sand
USC: GP
FROST CLASS:

Remarks:

JOHN A. BUZDOR, P.E. 10/12/2022

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1273
LOCATION: TB1-S2

DATE TAKEN: 10/4/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 29.0-30.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | 100 |
| 2" | 50.8 | 90 |
| 1" | 25.4 | 71 |
| 3/4" | 19.0 | 65 |
| 1/2" | 12.7 | 58 |
| 3/8" | 9.5 | 55 |
| #4 | 4.75 | 49 |
| #10 | 2.00 | 43 |
| #20 | 0.85 | 38 |
| #40 | 0.425 | 33 |
| #60 | 0.25 | 28 |
| #100 | 0.15 | 24 |
| #200 | 0.075 | 20.7 |

% Gravel: 50.9
% Sand: 28.4
% Fines: 20.7
D60: 14.59
D30: 0.32
D10:
Cu:
Cc:
%.02 mm:
% Moisture: 1.2
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

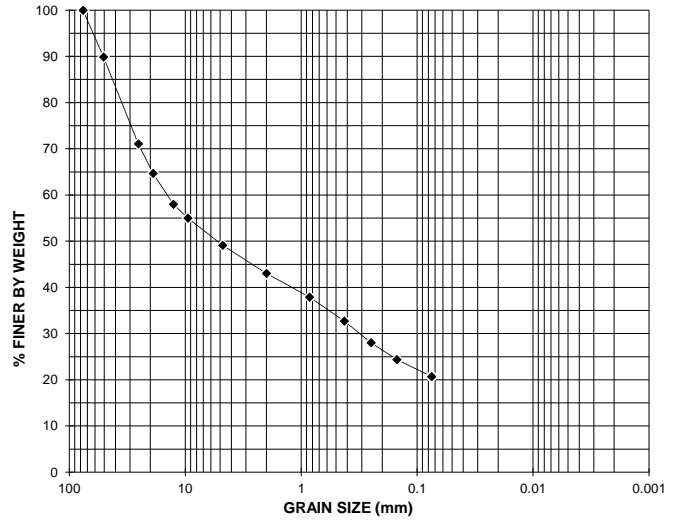
(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

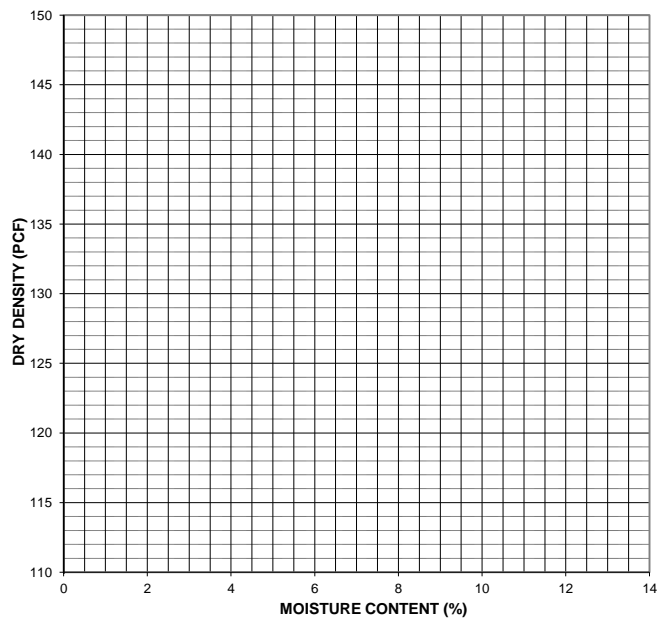
CLASSIFICATION: Silty Gravel w/Sand
USC: GM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



JOHN A. BUZDOR, P.E. 10/12/2022

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-405
CLIENT: RECON
SAMPLE NO.: 22P1274
LOCATION: TB4-S2

DATE TAKEN: 10/8/2022
DATE TESTED: 10/12/2022
TESTED BY: DEM
REVIEWED BY: JAB
DESCRIPTION: 13-15 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | |
| 2" | 50.8 | |
| 1" | 25.4 | 100 |
| 3/4" | 19.0 | 86 |
| 1/2" | 12.7 | 73 |
| 3/8" | 9.5 | 68 |
| #4 | 4.75 | 60 |
| #10 | 2.00 | 54 |
| #20 | 0.85 | 48 |
| #40 | 0.425 | 41 |
| #60 | 0.25 | 32 |
| #100 | 0.15 | 26 |
| #200 | 0.075 | 21.3 |

% Gravel: 39.8
% Sand: 38.8
% Fines: 21.3
D60: 4.67
D30: 0.21
D10: 0.01
Cu: 704.7
Cc: 1.4
%.02 mm: 15.1
% Moisture: 4.3

Fine Modulus:

(ASTM D4318)

Liquid Limit:

Plastic Limit:

Plastic Index:

(ASTM C127)

Bulk SpG:

SSD SpG:

Apparent SpG:

% Absorption:

(ASTM C128)

Bulk SpG:

SSD SpG:

Apparent SpG:

% Absorption:

(ASTM D1557)

Dry Den (U):

Dry Den (C):

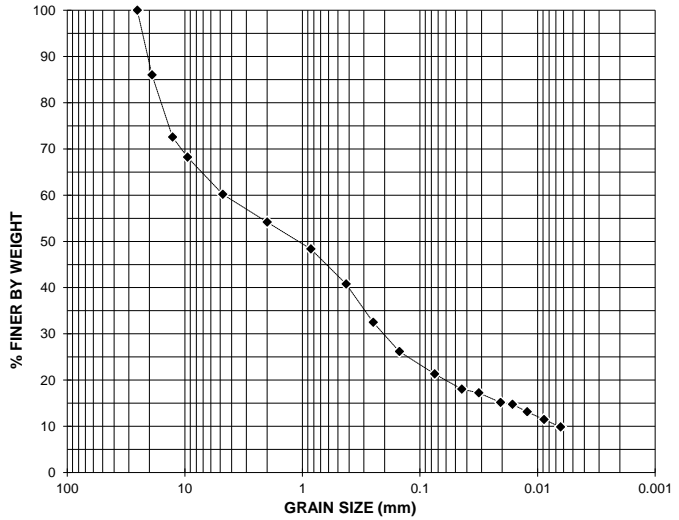
M% (U):

M% (C):

SpG (assumed):

M-D Test Method:

GRAIN SIZE DISTRIBUTION

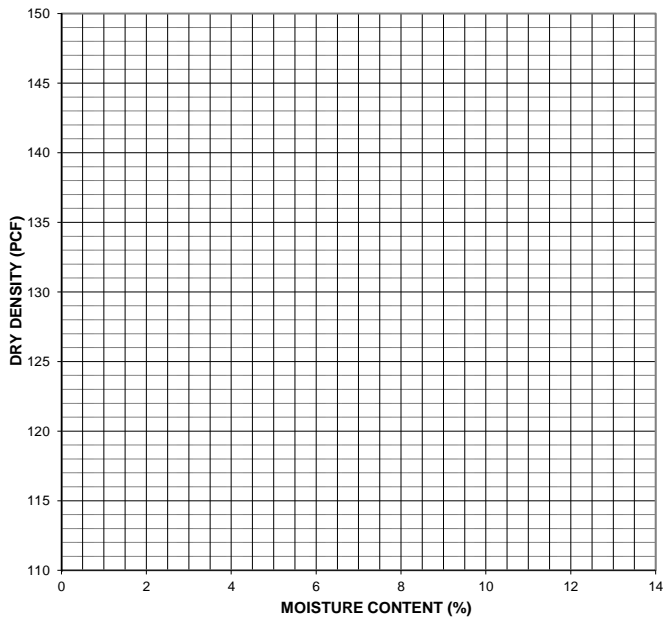


HYDROMETER TEST

(ASTM D422)

| Elapsed Time (min) | Diameter (mm) | Total % Passing |
|--------------------|---------------|-----------------|
| 0 | | |
| 0.5 | 0.060 | 20.5 |
| 1 | 0.044 | 18.0 |
| 2 | 0.032 | 17.2 |
| 5 | 0.021 | 15.2 |
| 8 | 0.016 | 14.8 |
| 15 | 0.012 | 13.1 |
| 30 | 0.009 | 11.5 |
| 60 | 0.006 | 9.8 |
| 250 | | |
| 1440 | | |

MOISTURE-DENSITY RELATIONSHIP



CLASSIFICATION: Silty Gravel w/Sand
USC: GM
FROST CLASS: F2

Remarks:

JOHN A. BUZDOR, P.E. 10/12/2022

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1275
LOCATION: TB4-S5

DATE TAKEN: 10/8/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 32.0-34.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | 100 |
| 2" | 50.8 | 96 |
| 1" | 25.4 | 91 |
| 3/4" | 19.0 | 87 |
| 1/2" | 12.7 | 83 |
| 3/8" | 9.5 | 80 |
| #4 | 4.75 | 73 |
| #10 | 2.00 | 66 |
| #20 | 0.85 | 61 |
| #40 | 0.425 | 55 |
| #60 | 0.25 | 47 |
| #100 | 0.15 | 39 |
| #200 | 0.075 | 30.5 |

% Gravel: 27.3
% Sand: 42.1
% Fines: 30.5
D60: 0.79
D30:
D10:
Cu:
Cc:
%.02 mm:
% Moisture: 9.4
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

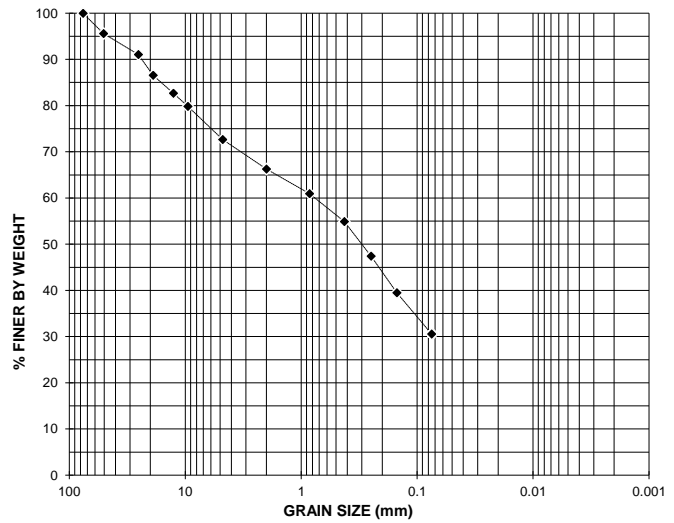
(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

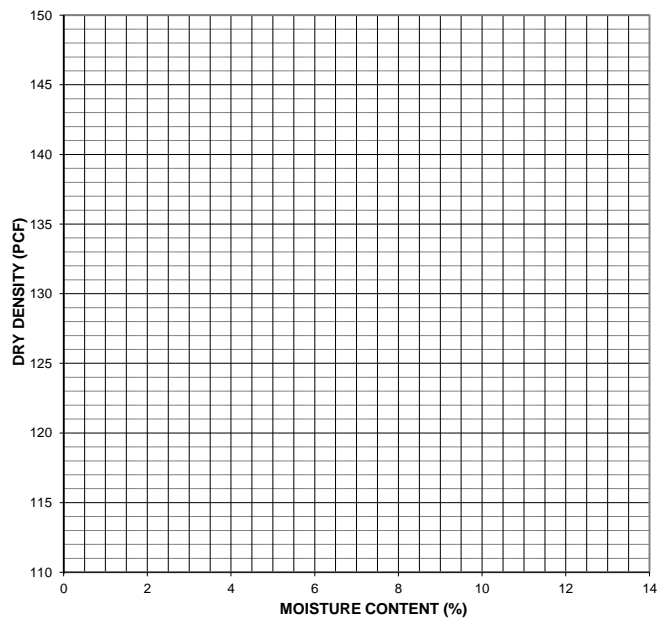
CLASSIFICATION: Silty Sand w/Gravel
USC: SM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



JOHN A. BUZDOR, P.E. 10/16/2022

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1276
LOCATION: TB4-S3

DATE TAKEN: 10/8/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 21.0-22.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | |
| 2" | 50.8 | 100 |
| 1" | 25.4 | 97 |
| 3/4" | 19.0 | 95 |
| 1/2" | 12.7 | 91 |
| 3/8" | 9.5 | 89 |
| #4 | 4.75 | 85 |
| #10 | 2.00 | 82 |
| #20 | 0.85 | 75 |
| #40 | 0.425 | 55 |
| #60 | 0.25 | 29 |
| #100 | 0.15 | 16 |
| #200 | 0.075 | 10.0 |

% Gravel: 14.8
% Sand: 75.3
% Fines: 10.0
D60: 0.53
D30: 0.26
D10: 0.08
Cu: 7.1
Cc: 1.6
%.02 mm:
% Moisture: 8.3
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

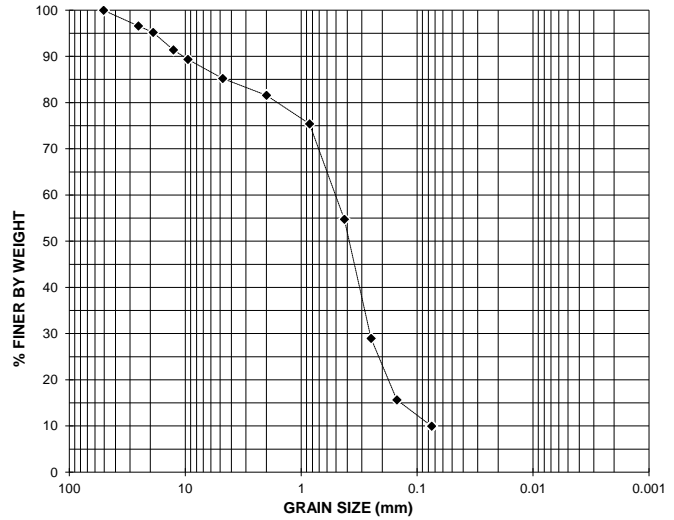
(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

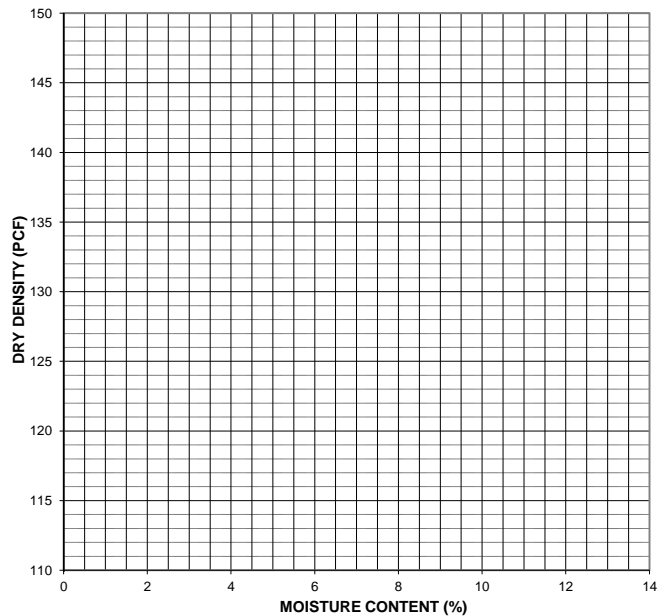
CLASSIFICATION: Well Graded Sand w/Silt
USC: SW-SM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



JOHN A. BUZDOR, P.E. 10/12/2022

AGGREGATE/SOILS TEST REPORT

PROJECT: KASHWITNA
PROJECT NO.: 22-415
CLIENT: RECON
SAMPLE NO.: 22P1277
LOCATION: TP3-S1

DATE TAKEN: 10/5/2022
DATE TESTED: 10/11/2022
TESTED BY: DEM
REVIEWED BY: JAB
DEPTH: 6.0-7.0 FT

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | 100 |
| 3" | 76.2 | 90 |
| 2" | 50.8 | 57 |
| 1" | 25.4 | 37 |
| 3/4" | 19.0 | 34 |
| 1/2" | 12.7 | 29 |
| 3/8" | 9.5 | 26 |
| #4 | 4.75 | 21 |
| #10 | 2.00 | 17 |
| #20 | 0.85 | 13 |
| #40 | 0.425 | 8 |
| #60 | 0.25 | 5 |
| #100 | 0.15 | 3 |
| #200 | 0.075 | 2.4 |

% Gravel: 79.4
% Sand: 18.2
% Fines: 2.4
D60: 76.20
D30: 14.31
D10: 0.58
Cu: 130.6
Cc: 4.6
%.02 mm:
% Moisture: 2.5
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

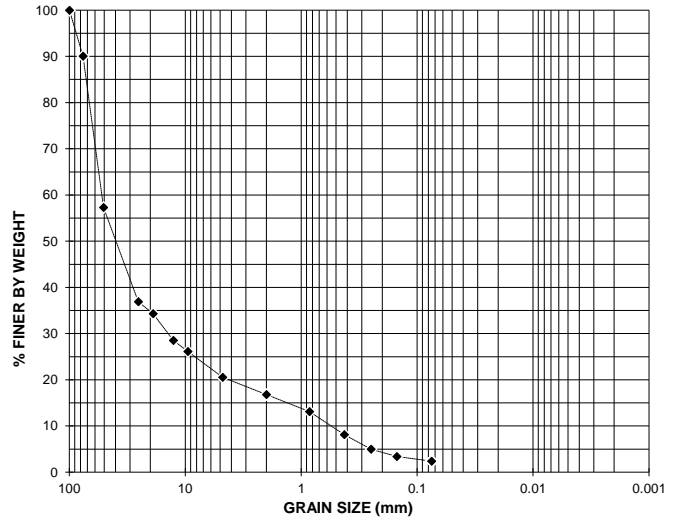
(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

GRAIN SIZE DISTRIBUTION

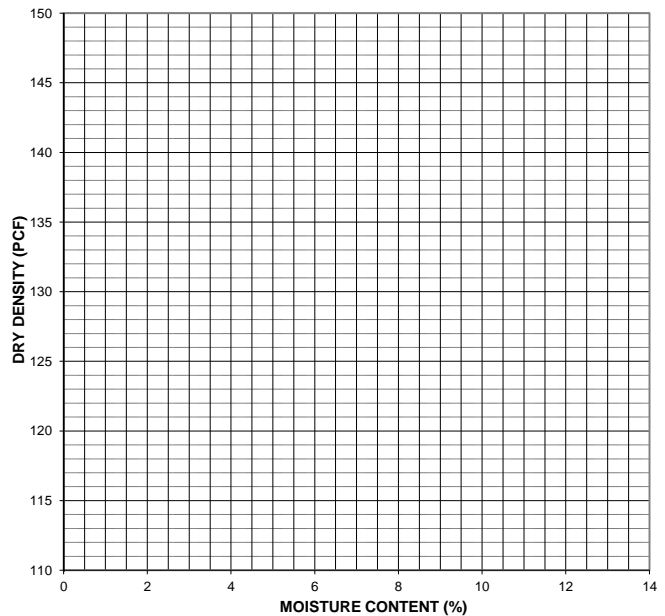


HYDROMETER TEST

(ASTM D422)

| Elapsed Time (min) | Diameter (mm) | Total % Passing |
|--------------------|---------------|-----------------|
| 0 | | |
| 0.5 | | |
| 1 | | |
| 2 | | |
| 5 | | |
| 8 | | |
| 15 | | |
| 30 | | |
| 60 | | |
| 250 | | |
| 1459 | | |
| 2750 | | |

MOISTURE-DENSITY RELATIONSHIP



CLASSIFICATION: Poorly Graded Gravel w/Sand
USC: GP
FROST CLASS:

Remarks:

JOHN A. BUZDOR, P.E. 10/12/2022

PROJECT: 2021 TEST SVCS
 PROJECT NO.: 21-400-4
 CLIENT: RECON
 SAMPLE NO.: 21P294
 LOCATION: MS06-PARKS MP 77

DATE TAKEN: 6/2/2021
 DATE TESTED: 6/5/2021
 TESTED BY: NP
 REVIEWED BY: JAB
 DESCRIPTION: TP06-1, 2 & 3 COMBINED

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | 100 |
| 2" | 50.8 | 87 |
| 1" | 25.4 | 65 |
| 3/4" | 19.0 | 57 |
| 1/2" | 12.7 | 45 |
| 3/8" | 9.5 | 39 |
| #4 | 4.75 | 29 |
| #10 | 2.00 | 22 |
| #20 | 0.85 | 17 |
| #40 | 0.425 | 10 |
| #60 | 0.25 | 5 |
| #100 | 0.15 | 3 |
| #200 | 0.075 | 1.7 |

% Gravel: 71.1
% Sand: 27.2
% Fines: 1.7
D60: 21.38
D30: 5.23
D10: 0.43
Cu: 49.6
Cc: 3.0
% .02 mm:
% Moisture: 2.9
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

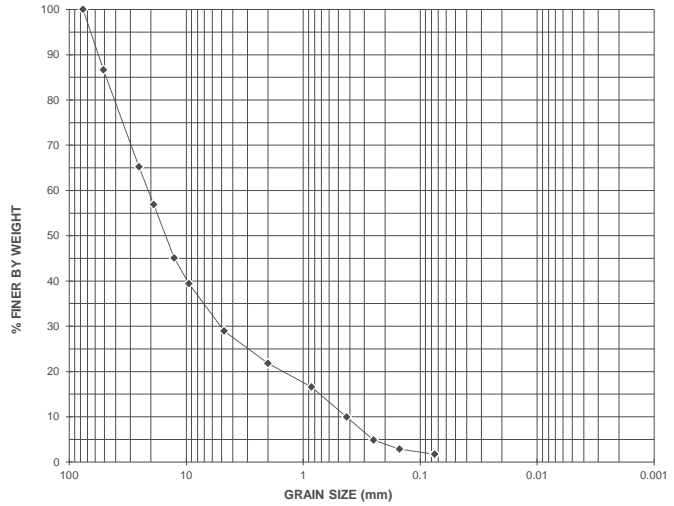
(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

GRAIN SIZE DISTRIBUTION

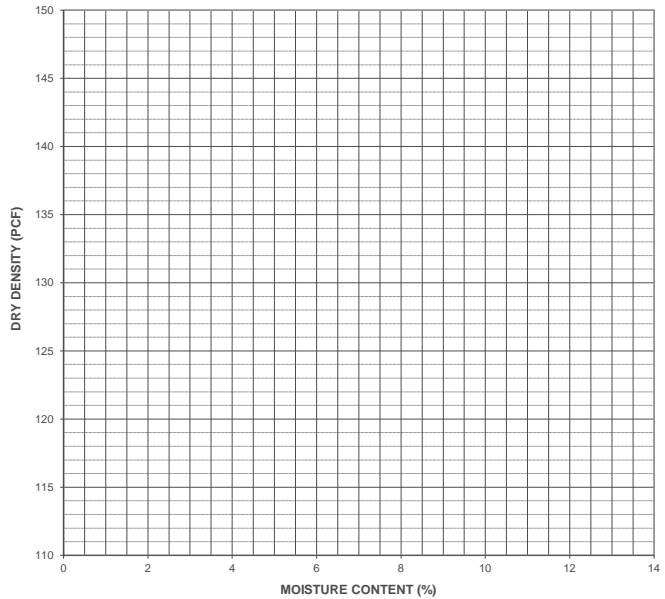


HYDROMETER TEST

(ASTM D422)

| Elapsed Time (min) | Diameter (mm) | Total % Passing |
|--------------------|---------------|-----------------|
| 0 | | |
| 0.5 | | |
| 1 | | |
| 2 | | |
| 5 | | |
| 8 | | |
| 15 | | |
| 30 | | |
| 60 | | |
| 250 | | |
| 1440 | | |

MOISTURE-DENSITY RELATIONSHIP



CLASSIFICATION: Well Graded Gravel w/Sand
USC: GW
FROST CLASS:

Remarks: //LL, L, /; L N6 //L, M, , /

JOHN A. BUZDOR, P.E. 6/14/2021

PROJECT: 2021 TEST SVCS
PROJECT NO.: 21-400-4
CLIENT: RECON
SAMPLE NO.: 21P293
LOCATION: MS06-PARKS MP 77

DATE TAKEN: 6/2/2021
DATE TESTED: 6/5/2021
TESTED BY: NP
REVIEWED BY: JAB
DESCRIPTION: TP06-4

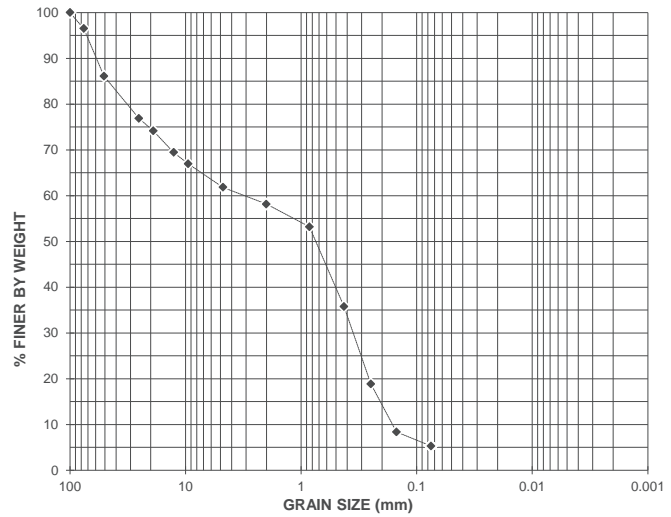
SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | 100 |
| 3" | 76.2 | 97 |
| 2" | 50.8 | 86 |
| 1" | 25.4 | 77 |
| 3/4" | 19.0 | 74 |
| 1/2" | 12.7 | 69 |
| 3/8" | 9.5 | 67 |
| #4 | 4.75 | 62 |
| #10 | 2.00 | 58 |
| #20 | 0.85 | 53 |
| #40 | 0.425 | 36 |
| #60 | 0.25 | 19 |
| #100 | 0.15 | 8 |
| #200 | 0.075 | 5.3 |

% Gravel: 38.2
% Sand: 56.5
% Fines: 5.3
D60: 3.38
D30: 0.37
D10: 0.17
Cu: 20.4
Cc: 0.2
% .02 mm:
% Moisture: 3.8
Fine Modulus:
(ASTM D4318)
Liquid Limit:
Plastic Limit:
Plastic Index:

GRAIN SIZE DISTRIBUTION



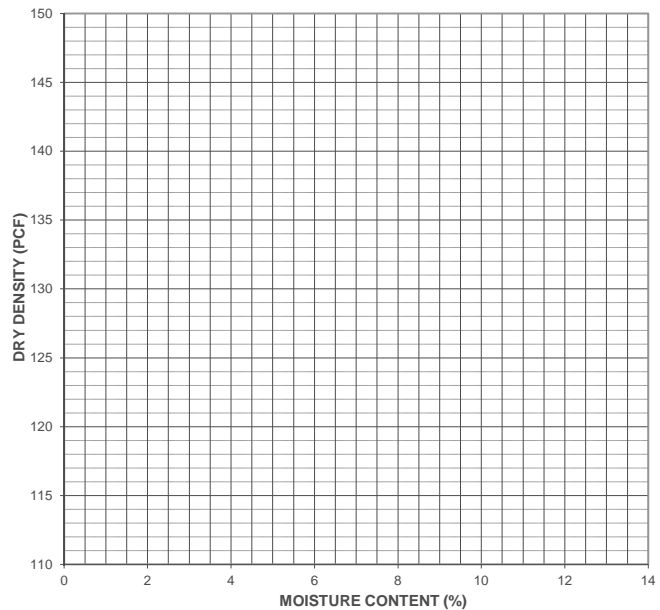
HYDROMETER TEST

(ASTM D422)

| Elapsed Time (min) | Diameter (mm) | Total % Passing |
|--------------------|---------------|-----------------|
| 0 | | |
| 0.5 | | |
| 1 | | |
| 2 | | |
| 5 | | |
| 8 | | |
| 15 | | |
| 30 | | |
| 60 | | |
| 250 | | |
| 1440 | | |

(ASTM C127)
Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:
(ASTM C128)
Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:
(ASTM D1557)
Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

MOISTURE-DENSITY RELATIONSHIP



CLASSIFICATION: Poorly Graded Sand w/Silt & Gravel
USC: SP-SM
FROST CLASS:

Remarks:

JOHN A. BUZDOR, P.E. 6/7/2021

PROJECT: 2021 TEST SVCS
 PROJECT NO.: 21-400-4
 CLIENT: RECON
 SAMPLE NO.: 21P296
 LOCATION: MS06-PARKS MP 77

DATE TAKEN: 6/2/2021
 DATE TESTED: 6/8/2021
 TESTED BY: NP
 REVIEWED BY: JAB
 DESCRIPTION: TP06-5

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | |
| 3" | 76.2 | 100 |
| 2" | 50.8 | 97 |
| 1" | 25.4 | 86 |
| 3/4" | 19.0 | 82 |
| 1/2" | 12.7 | 78 |
| 3/8" | 9.5 | 75 |
| #4 | 4.75 | 70 |
| #10 | 2.00 | 67 |
| #20 | 0.85 | 63 |
| #40 | 0.425 | 53 |
| #60 | 0.25 | 34 |
| #100 | 0.15 | 21 |
| #200 | 0.075 | 13.6 |

% Gravel: 29.8
% Sand: 56.6
% Fines: 13.6
D60: 0.74
D30: 0.22
D10:
Cu:
Cc:
% .02 mm:
% Moisture: 5.9
Fine Modulus:

(ASTM D4318)

Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

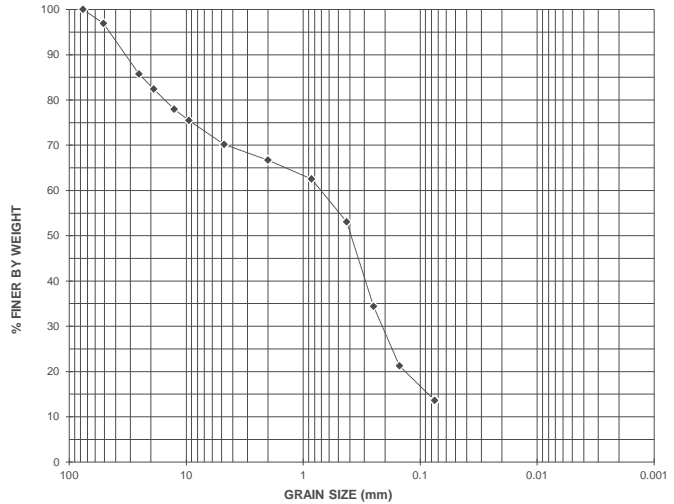
(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM D1557)

Dry Den (U):
Dry Den (C):
M% (U):
M% (C):
SpG (assumed):
M-D Test Method:

GRAIN SIZE DISTRIBUTION

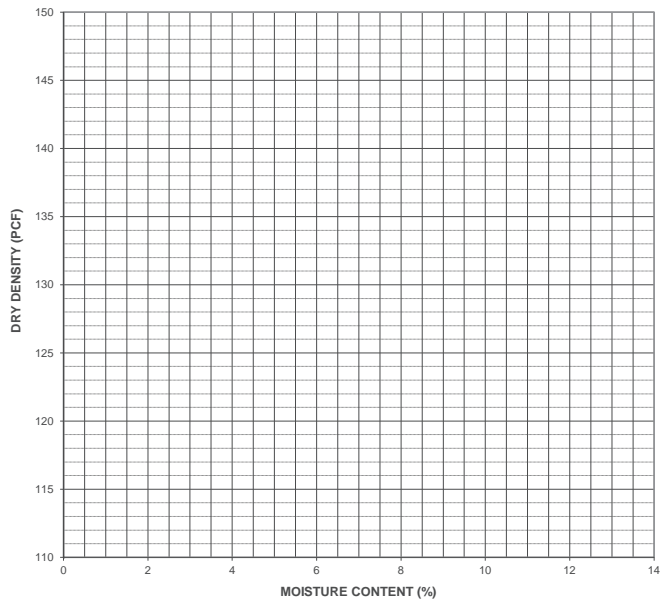


HYDROMETER TEST

(ASTM D422)

| Elapsed Time (min) | Diameter (mm) | Total % Passing |
|--------------------|---------------|-----------------|
| 0 | | |
| 0.5 | | |
| 1 | | |
| 2 | | |
| 5 | | |
| 8 | | |
| 15 | | |
| 30 | | |
| 60 | | |
| 250 | | |
| 1440 | | |

MOISTURE-DENSITY RELATIONSHIP



CLASSIFICATION: Silty Sand w/Gravel
USC: SM
FROST CLASS:

Remarks:

JOHN A. BUZDOR, P.E. 6/14/2021

PROJECT: 2021 TEST SVCS
PROJECT NO.: 21-400-4
CLIENT: RECON
SAMPLE NO.: 21P297
LOCATION: MS06-PARKS MP 77

DATE TAKEN: 6/2/2021
DATE TESTED: 6/8/2021
TESTED BY: NP
REVIEWED BY: JAB
DESCRIPTION: TP06-6

SIEVE ANALYSIS TEST

(ASTM D422)

| Sieve Size | Diameter (mm) | Total % Passing |
|------------|---------------|-----------------|
| 6" | 152.4 | |
| 4" | 100.0 | 100 |
| 3" | 76.2 | 92 |
| 2" | 50.8 | 86 |
| 1" | 25.4 | 74 |
| 3/4" | 19.0 | 69 |
| 1/2" | 12.7 | 61 |
| 3/8" | 9.5 | 60 |
| #4 | 4.75 | 49 |
| #10 | 2.00 | 44 |
| #20 | 0.85 | 36 |
| #40 | 0.425 | 28 |
| #60 | 0.25 | 21 |
| #100 | 0.15 | 15 |
| #200 | 0.075 | 10.6 |

% Gravel: 50.6
% Sand: 38.7
% Fines: 10.6
D60: 10.18
D30: 0.54
D10:
Cu:
Cc:
% .02 mm:
% Moisture: 3.1
Fine Modulus:

(ASTM D4318)
Liquid Limit:
Plastic Limit:
Plastic Index:

(ASTM C127)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM C128)

Bulk SpG:
SSD SpG:
Apparent SpG:
% Absorption:

(ASTM D1557)

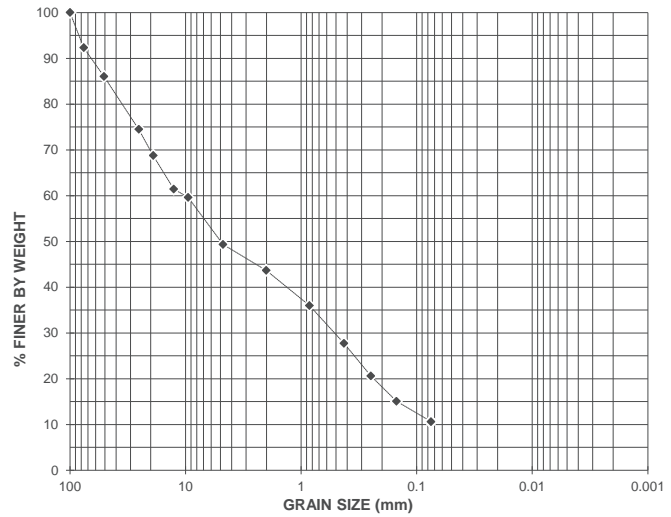
Dry Den (U):
Dry Den (C):
M% (U):
M% (C):

SpG (assumed):
M-D Test Method:

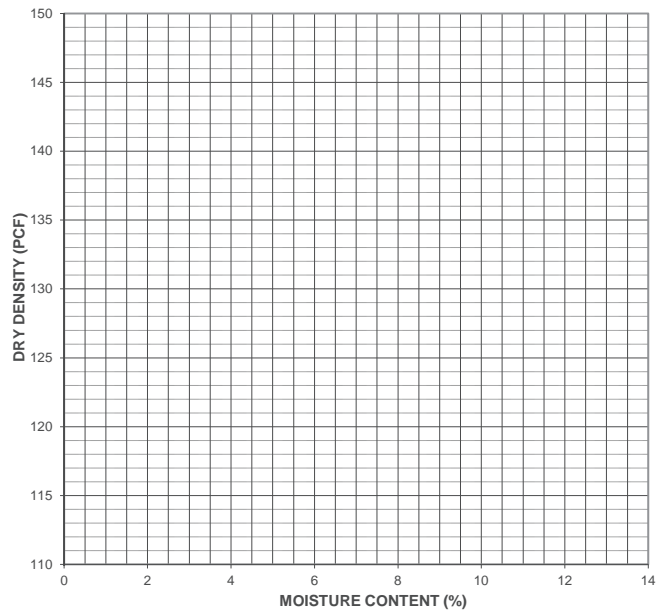
CLASSIFICATION: Poorly Graded Gravel w/Silt & Sand
USC: GP-GM
FROST CLASS:

Remarks:

GRAIN SIZE DISTRIBUTION



MOISTURE-DENSITY RELATIONSHIP



APPENDIX E

MATERIAL SITE INVENTORY FORM

| KASHWITNA EAST – PHASE I | | | |
|-------------------------------------|--|----------------|--------------------|
| MATERIAL SITE INVENTORY FORM | | | |
| GENERAL | | | |
| Material Site ID | Kashwitna East – Phase I | Date Inspected | October 3-18, 2022 |
| Field Inspector | RECON LLC - S. Rowland & M. Sanders | | |
| LOCATION | | | |
| Highway and Milepost | Parks Highway MP 77 | | |
| Township/Range | T20N, R4W | Meridian | Seward |
| Section | 8 | | |
| MSB Account # | 20N04W08A001 | | |
| SITE DESCRIPTION | | | |
| Acres | 60 | | |
| Access | Development of the site is to include construction of an access road in a section line easement along the north boundary of the MSB Parcels. | | |
| Vegetation | The parcel is heavily vegetated with predominately second growth spruce and birch, average diameter 4 to 12 inches. Underbrush consists of grass and minor brush. | | |
| Groundwater Permafrost | Groundwater elevation averages 208-feet. The general groundwater gradient is north to south through the site. No Permafrost encountered in test borings. | | |
| Terrain Description | This site is relatively flat and comprised of a relic river terrace and channel where the originally glacially deposited material has been reworked and sorted. | | |
| Geology | The relic river terrace contains well-graded cobble gravel with sand for the first 10 to 20-feet then transitions to a variable material zone (glacial till) ranging from silt with gravel to small zones of clean gravel and sand. The glacial till overlays a silty sand and sand layer. | | |
| Additional Notes | The historic Knik-Talkeetna trail was located along the southern portion of the western parcel. | | |

| PROPOSED MINING PLAN | | | |
|--|--|--------------------------|-------------|
| Type of Material Site | Borrow site – applies to area on relic river terrace | | |
| Type of Overburden | Silt loam | Depth of Overburden (ft) | 2.0 to 2.7 |
| Estimated size (acres) | 60 | Estimated volume (cyds) | 2.9 million |
| Describe volume calculation | The clean gravel and sand layer averages 10-feet thick and would generate approximately 1 million cyds of in-place material. The silty gravel layer variable in thickness and content, but based on test borings, it averages 20-feet thick and may generate an additional 1.9 million cyds of material. | | |
| Notes: Potential issues, special problems, etc. | To meet material specifications for highway construction aggregate, selective mining practices will be required, including sorting and cleaning of siltier material. | | |
| MATERIAL TESTING | | | |
| Material Classification | GW-GM | | |
| Boulders and Cobbles (Est % by Vol., Max size) | Trace amount of boulders, max dia. 18- 20". Estimate cobbles at 10 to 20% | | |
| Aggregate Test Results (Year of test result – Test result) | | | |
| Apparent SG of Coarse | | | |
| Apparent SG of Fine | | | |
| Absorption Coarse | | | |
| Absorption Fine | | | |
| Nordic Abrasion | | | |
| L.A. Abrasion | | | |
| Degradation (T-13) | | | |
| NaSO ₄ Loss Coarse | | | |
| NaSO ₄ Loss Fine | | | |

EXHIBIT C

INSURANCE

(Lessee)

It is specifically agreed between the parties executing this Agreement that it is not intended by any of the provisions of the Agreement to create in the public or any member thereof a third party benefit hereunder, or to authorize anyone not a party to this Agreement to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Agreement.

It is highly recommended that the Lessee confer with their respective insurance companies or brokers to determine if their insurance program complies with the Borough's Insurance requirements.

The Lessee shall procure and maintain the following insurance:

A. Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. Insurance Services office form number CG 0001 (Edition 4/13) covering Commercial General Liability.
2. Insurance Services office form number CA 0001 (Edition 4/13) covering Automobile Liability, symbol 1 "any auto."
3. Worker's Compensation insurance as required by the State of Alaska and Employers Liability Insurance.

B. Minimum Limits of Insurance

Lessee shall maintain limits no less than:

1. General Liability:

\$2,000,000 combined single limit per occurrence for bodily injury, property damage, personal injury, and advertising injury. The minimum general aggregate limit of \$2,000,000 and shall apply separately per project aggregate.

General liability insurance shall be maintained in effect throughout the term of the Agreement.

If the general liability insurance is wrote on a claims made form, the Lessee shall provide insurance for a period of two years after termination or expiration of this Agreement. The policy(s) shall evidence a retroactive date, no later than the beginning of this Agreement.

2. Auto Liability:

Auto Liability for “any auto” (including owned, non-owned, and hired auto), written on an insurance industry standard form (CA0001 or its equivalent), with \$2,000,000 combined single limit per accident for bodily injury and property damage.

3. Workers’ Compensation and Employers Liability:

Workers’ Compensation shall be statutory as required by the State of Alaska. Employer's liability shall be endorsed to the following minimum limits:

Bodily injury by Accident - \$500,000 each accident
Bodily injury by Disease - \$500,000 each employee
Bodily injury by Disease - \$500,000 policy limit

4. Excess Liability:

In order to meet the required minimum limits of insurance it is permissible for the Lessee to combine an excess liability or umbrella policy with the general liability, or auto liability or employer’s liability. In the instance where the Lessee purchases an excess liability or umbrella policy, the occurrence limit and the aggregate limit may be of the same amount.

C. Deductibles and Self-Insured Retention

Prior to the agreement effective date, any deductible or self-insured retention must be declared and approved by the Borough. Lessee may be requested to demonstrate how the deductible or self-insured retention will be funded in the event of a claim. At the option of the Borough, the Lessee shall reduce or eliminate such deductibles or self-insured retention as respects the Borough, its officers, officials, employees and volunteers; or the Lessee shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. Other Insurance Provisions

The policies are to contain, or endorsed to contain, the following provisions:

1. General Liability, Automobile Liability

a. The Borough, its Administrator, officers, officials, employees and volunteers shall be covered as additional insured as respects: liability arising out of activities performed by or on behalf of the Lessee; products and completed operations of the Lessee premises owned, occupied or used by the Lessee or automobiles owned, leased, hired or borrowed by the Lessee. The coverage shall contain

no special limitation on the scope of protection afforded to the Borough, its Administrator, officers, officials, employees, and volunteers.

- b. The Lessee's insurance coverage shall be primary insurance as respects the Borough, its Administrator, officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by the Borough, its Administrator, officers, officials, employees, and volunteers shall be excess of the Lessee insurance and shall not contribute to it.
- c. The Lessee's insurance shall apply separately to each insured against whom the claim is made or suit is brought, except with respect to the limits of the insurer's liability.

2. Workers' Compensation and Employer's Liability

The insurer shall agree to waive all rights of subrogation against the Borough, its Administrator, officers, officials, employees, and volunteers for losses arising from work performed by the Lessee or any subcontractor of the Lessee in relation to this Agreement.

3. All Insurance

Each insurance policy required by this Agreement shall be endorsed to state that coverage shall not be suspended, voided, or canceled by either party, reduced in coverage or in limits except after 30 days prior written notice for nonpayment of premium or fraud on the part of the Lessee; or, 60 days prior written notice for any other reason by certified mail, return receipt requested has been given to the Borough. The Lessee shall mail such notice to the attention of the Borough's Land and Resource Management Division.

E. Acceptability of Insurers

Insurance is to be placed with insurers with a Best's rating of no less than A-VII.

F. Verification of Coverage

Lessee shall furnish the Borough with certificates of insurance and with certified copies of all endorsements effecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates are to be on forms acceptable to the Borough. All certificates are to be received and approved by the Borough before work commences. The Borough reserves the rights to require complete, certified copies of all required insurance policies, at any time.

G. Subcontractors and Sublessee's

Lessee shall include all subcontractors and sublessees as insured under its policies or shall furnish separate certificates and endorsements for each subcontractor and sublessees naming the Borough as additionally insured. All coverage for subcontractors and sublessees shall be subject to all requirements stated herein.

H. Lapse in Insurance Coverage

A lapse in insurance coverage, any change that restricts, reduces insurance provided, or changes name of insured without Borough approval is a material breach of this agreement, which shall result in immediate termination of the agreement.