STATE OF ALASKA ITB NUMBER 2520N019

AMENDMENT NUMBER 1

Department of Transportation &
Public Facilities
2301 Peger Road
Fairbanks, AK 99709

THIS IS NOT AN ORDER **DATE AMENDMENT ISSUED: 02/11/2020**

ITB TITLE: Crushed Aggregate, D-1, Dalton Highway, Federally Funded

ITB OPENING DATE AND TIME: February 26th, 2020 AT 10:00 AM

This amendment is for informational purposes only and need not be returned to the State.

1. **Remove and replace specifications with the attached revised specifications.**
2. **Remove and replace Bid Schedule with the attached revised Bid Schedule.**
3. **Add Geotech data, labeled as Attachment D.**

No other changes are being made at this time.

Eric Johnson
Procurement Officer
Phone: (907) 451-5102
TDD: (907) 451-2363
FAX: (907) 451-2313

SECTION 101
DEFINITIONS AND TERMS

101-1.03 DEFINITIONS.

ENGINEER. The authorized representative of the Contracting Officer who is responsible for administrating the Contract shall be Henry Cole; phone 907-451-2223 or email Henry.Cole@Alaska.gov. This project takes place in the Dalton Maintenance and Operations District; the Superintendent of which is Jeff Russell; phone 907-451-2207, or email Jeff.Russell@Alaska.gov.

SECTION 104
SCOPE OF WORK

104-1.01 INTENT OF CONTRACT. The intent of the Contract is to produce and stockpile processed aggregate. The site listed below is the location of the final stockpile only; this does not indicate the source or the quality of the material.

The Contractor must: acquire the material sources and all necessary permits; process and stockpile the required aggregate; and pay all associated fees and royalties. Proof of royalty payments shall be required prior to final payment under this Contract. At least seven days prior to mobilization the Contractor shall submit documentation indicating that the material source meets the quality specifications per Section 703 of the Contract.

The location and quantity required are as follows:

TABLE 104-1

Material Site No.	Location	Quantity (CY)	Royalty	Completion Date
65-9-037-2	Dalton Highway mile 125, Bonanza Creek*	25,000	$0	8/15/2020

* Note that this site requires a Mining and Reclamation Plan (MRP) in accordance with Section 106-1.02-5, to be submitted at least 90 days in advance of mobilization. Work in this site will also require a Stormwater Pollution Prevention Plan (SWPPP) in accordance with Section 641.

The Contractor shall take all necessary precautions not to contaminate the materials. Final gradations and quantity measurements for acceptance and payment will be taken at the final location of the completed stockpile.

All stockpiles shall be stacked so that they are easily accessible on all sides with heavy hauling equipment, and, if located in a State Material Site, situated so as not to impact future mining operations in the site.

Geotechnical reports for State material sites may be available from the Engineer. State material reports and geotechnical data are for informational purposes only, and may not accurately

represent the conditions found onsite. Any information provided should not substitute for personal investigation, research and judgment of the bidders.

The bidder is expected to examine carefully the sites of the proposed work and all contract documents before submitting a bid. The submission of a bid shall be considered prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and the requirements of the Contract.

SECTION 105
CONTROL OF WORK

105-1.01 AUTHORITY OF THE ENGINEER. The Engineer has immediate charge of the engineering details of the project and is responsible for Contract administration. The Engineer has authority to reject defective material and suspend work being performed improperly. The Engineer has authority to accept completed work, issue Directives, issue Interim Work Authorizations, issue Change Orders, and recommend Contract payments.

The Engineer will decide all questions about the quality and acceptability of the materials furnished and the work performed by the Contractor, the Contractor's rate of progress, Contract interpretation and all other questions relating to Contract performance.

The Engineer has authority to suspend work for reasons listed under Subsection 108-1.06. If the suspension is to protect workers or the public from imminent harm, the Engineer may orally order the suspension of work. Following an oral order of suspension, the Engineer will promptly give written notice of suspension. In other circumstances, the Engineer will give the Contractor written notice of suspension before suspension of work. A notice of suspension will state the defects or reasons for a suspension, the corrective actions required to stop suspension, and the time allowed to complete corrective actions. If the Contractor fails to take the corrective action within the specified time, the Engineer may:

1. Suspend the work until it is corrected; and
2. Employ others to correct the condition and deduct the cost from the Contract amount.

The Engineer may, at reasonable times, inspect any part of the plant or place of business of the Contractor or any subcontractor that is related to Contract performance, including private or commercial plants, shops, offices, or other places of business.

The Engineer may audit all books and records related to performance of the Contract, whether kept by the Contractor or a subcontractor.

105-1.03 CONFORMITY WITH PLANS AND SPECIFICATIONS. Work performed and materials furnished shall conform to the Specifications and approved Mining Plan and be within specified tolerances. When tolerances are not specified, the Engineer will determine the limits allowed in each case.

All work or material not conforming to the Specifications and approved Mining Plan is considered unacceptable unless the Engineer finds that reasonably acceptable work has been

produced. In this event, the Engineer may allow non-conforming work or material to remain in place, but at a reduced price. The Engineer will document the basis of acceptance and payment by Change Order.

The failure of the Department to strictly enforce the Contract in one or more instances does not waive its right to do so in other or future instances.

If the Contractor fails to promptly correct, remove, or replace unacceptable or unauthorized work as ordered by the Engineer, the Engineer may employ others to remedy or remove and replace the work and will deduct the cost from the Contract payment.

SECTION 106
CONTROL OF MATERIAL

106-1.02 MATERIAL SOURCES.

1. General. The Contractor shall:
    a. produce a sufficient quantity of materials meeting the specifications to complete the project;
    b. As a subsidiary cost: clear and grub, strip, drill and blast, excavate, crush, sort, blend, screen, wash, stockpile, haul, and rehandle material as needed to produce and deliver the specified product;
    c. determine the type of equipment and methods to be used;
    d. expect variations in material quality within the deposits, and procure material only from acceptable portions of the deposit, regardless of source ownership; and
    e. prevent erosion, sedimentation, and pollution within a materials source.

    The Contractor agrees that:
    a. the costs to explore and develop material sources, including all production effort, are subsidiary to the cost of providing the specified material;
    b. the Engineer may order the Contractor to procure material only from certain portions of the source and may reject material from other portions of the source that does not conform to the specifications; and
    c. all material required may not be procurable from any one source and the Contractor may need to change between sources. That contingency is to be factored into the unit bid price for the Contract Item.

2. Inspection and Acceptance. The Contractor shall perform sampling and testing during materials processing and placement in accordance with its Process Control Plan (Subsection 106-1.03-1) and shall obtain acceptable material samples from locations designated within the source.

    The Department will sample and test materials to determine the quality of the source, at its expense, as part of its Acceptance Testing (Subsection 106-1.03.2). The Department will reject materials when the samples do not meet specifications. The Department may reject a proposed materials site when samples do not meet specifications.

3. Awareness Training. The operator of the Contractor's sand and gravel surface mine or other similar materials source shall provide Site-Specific Hazard Awareness Training in compliance with 30 CFR 46.11 for all the Engineer's personnel before beginning operations. All other workers shall be given training in compliance with 30 CFR 46 before exposure to mine hazards. The training must be offered at each surface mine that will be used to supply processed aggregates. A qualified person must provide the training. The training shall be in accordance with the operator's written training plan approved by the Mine Safety and Health Administration, covering the following items:
    a. Site-specific health and safety risks;
    b. Recognition and avoidance of hazards;
    c. Restricted areas;
    d. Warning and evacuation signals;
    e. Evacuation and emergency procedures;
    f. Other special safety procedures; and
    g. A site tour.

    The Contractor shall require the Engineer's personnel to sign the Visitor's Log Book upon completion of the training to indicate that training was provided. Training is a subsidiary cost.

4. Type of Sources. The location(s) identified in Section 104-1.01 are to be the site of the finished stockpile only and do not specify the source or quality of the material to be produced. The Contractor shall supply the required material from one or more of the following types of sources:
    a. Department Furnished Material Sites. The Contractor shall obtain approval from the Engineer prior to any construction activities. Existing stockpiles of material in State sites are not available to the Contractor without prior approval from the Engineer. All stockpiled aggregate including rejected material is property of the State and shall be handled or stockpiled as described in the Contractor's approved Mining Plan, unless directed otherwise by the Engineer. At no time does the Contractor have any ownership of material, including reject, produced under this Contract. The materials in this site are not available for any use other than required by this Contract, unless approved by the Engineer. The Contractor shall be responsible for paying any mineral royalty due, as indicated in Section 104-1.01. Geotechnical information may be available, but should not be considered to be authoritative. All work and development in a Department-Furnished material site shall be in line with the Department's existing site-specific Mining Plan.

    b. Contractor-Furnished Sources. The Contractor is encouraged to use State furnished material sites or work within an approved Right of Way for both mining and for the final stockpile locations. The use of private sources for mining and stockpile storage will require the Contractor to make all necessary agreements (See Subsection 106-1.02.5). When the Contractor elects to use a material site not furnished by the Department, including State-owned land not under the Department's control, the Contractor shall:

1) Acquire the necessary rights and permits to obtain material;
2) Pay as subsidiary costs all related costs to obtain and use material from the source, including, but not limited to, permit fees, mineral royalties and associated hauling costs;
3) Be solely responsible for the quality and quantity of material; and
4) Obtain all necessary rights, permits and plan approvals before clearing or disturbing the ground in the material source. The Contractor shall certify in writing to the Engineer that all permits and clearances relating to the use of the material source have been obtained prior to any work in the material source.

No price adjustment or other compensation will be made for any costs, including increased length of haul, if the Contractor:
1) Chooses to change material sources for any reason;
2) Is unable to produce a sufficient quality or quantity of materials from Contractor-Furnished sources; or
3) Encounters unexpected, unforeseen or unusual conditions within a Contractor-Furnished source.

5. Rights, Permits and Plan Approvals for Material Sources. Before disturbing the site of a material source, the Contractor shall acquire, pay for and provide to the Engineer all necessary rights, permits, and plan approvals indicated in this Subsection and elsewhere in this Contract. For each material site, the Contractor shall:

   a. BLM FUP-Dalton Hwy sites: Submit for the Engineer's comment and approval, no fewer than 90 days prior to mobilization, a draft mining and reclamation plan (MRP). A revised MRP must be submitted within 10 working days of any comments received. During development of each MRP, the Contractor shall consider future activities in the material site and shall maintain access to usable material. The MRP shall include:

      (1) Approval from the landowner (if a Contractor-Furnished source, see Subsection 106-1.02-4-b-2);
      (2) A process control plan (see Subsection 106-1.03-1);
      (3) Plan and cross-sectional views of the site (this includes both the mining and disposal areas);
      (4) Applicable boundary lines, property lines and buffer zones;
      (5) Areas and Depths to be developed (note, development of Department-Furnished sources shall be in accordance with the Department's Mining Plan for that site);
      (6) Locations of access roads, stripping, sorting, waste piles, crushing and plant sites, stockpile sites (including reject material), buffer zones, drainage features, erosion and pollution control features;
      (7) Condition the Contractor will leave the site in after the materials extraction is completed, including reseeding if necessary;
      (8) A Construction General Permit-compliant Storm Water Pollution Prevention Plan, if required by Section 641;

(9) A site-specific Spill Prevention Control and Countermeasures Plan (SPCCP) if required by 40 CFR 112; and

(10) Other information as required by any and all attachments included with bid (ie BLM Mining Plan Review checklist, DOT MRP and/or any site-specific stipulations that may be included).

a. If the material is to be stockpiled in a Contractor-Furnished site or otherwise on private property, the Contractor shall supply the following information in addition to the MRP:

(1) A notarized agreement with the property owner allowing the State full and unfettered access to the stockpile until 12/31/2021. The owner shall certify that they have the authority to sell mineral materials from the property, and shall acknowledge the Department's ownership of the stockpiled material;

(2) A property map of the material site identifying property boundaries, access routes and stockpile location.

106-1.03 TESTING AND ACCEPTANCE. Materials are subject to inspection and testing by the Department at any time before, during or after their incorporation into the stockpile. The Contractor shall remove and replace unacceptable material according to Subsection 105-1.03.

1. Quality Control. The Contractor is responsible for the quality of materials produced under this Contract. Quality Control is process control, and includes all activities needed to ensure that the product meets Contract specifications. Quality control work is subsidiary to the applicable pay items. The Contractor shall perform quality control as follows:
   a. Develop and submit a Process Control plan as part of the MRP (Subsection 106-1.02-5), including testing and frequency, personnel qualifications, equipment descriptions and criteria for corrective actions.
   b. Sample material during production and perform quality control testing, as needed, to ensure materials produced to Contract Specifications. Document all quality control testing and make the results available to the Engineer within three days of sampling.
   c. Due to the nature of this work, it is recommended that the Contractor maintain an on-site materials lab and a WAQTC-certified technician to perform process control. If testing will be done off-site, material processing may need to be suspended pending receipt of results.
2. Acceptance Testing. The Department reserves the right to conduct its own testing of the acceptability of the materials. This testing will be performed at the Department's expense, and copies of the test results may be furnished to the Contractor upon request. The Engineer may elect, at his discretion, to retest materials that have failed the Department's acceptance testing.

3. Minimum Testing Requirements. Tests shall be performed at minimum according to Table 106-1 below. Failing test results not in substantial conformance may be the basis of the Engineer's rejection of the represented material, and no payment will be made for unacceptable material, as outlined in Subsection 105-1.03. The Contractor shall produce and test additional material until the Contract quantity has been fully accepted and

completed. Failing test results shall not be a basis for any time extension or modification to Contract requirements.

TABLE 106-1

Item	Test	Test Number	Specifications	Frequency (min.)
Crushed/ Stockpiled Aggregate	Process Control Gradation & Fracture, by Contractor	AASHTO T27/T11	Refer to 703	1/Source, 1/1,000 C.Y.
	Acceptance, by Engineer	AASHTO T27/T11	Refer to 703	1/ Source, 1/10,000 C.Y.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107-1.07 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. If the Contractor's operation encounters prehistoric artifacts, burials, remains of dwellings, paleontological remains, shell heaps, land or sea mammal bones, tusks or other items potentially of historical significance, the Contractor shall:

1. Immediately cease operations at the site of the find;
2. Immediately notify the Engineer of the find; and
3. Not disturb or remove the finds or perform any further operations at the site until directed by the Engineer.

The Engineer will issue an appropriate Change Order if operations are to be suspended, or extra work is needed to protect the find.

107-1.10 USE OF EXPLOSIVES. The Contractor shall obey all laws, regulations and permits applicable to using, handling, loading, transporting, or storing explosives. When using explosives, the Contractor shall take utmost care not to endanger life, property, new construction, or existing portions of the project and facilities that are to remain in place after the project is complete.

The Contractor shall provide notice to property owners, the traveling public, and utility companies in the vicinity before using explosives. The Contractor shall provide notice to the Federal Aviation Administration when required by law. The Contractor shall notify police and fire authorities in the vicinity before transporting or using explosives. The Contractor shall provide notice sufficiently in advance to enable all potentially affected parties to take whatever steps they may deem necessary to protect themselves and their property from injury or damage.

The Contractor is liable for all property damage, injury, or death resulting from the use of explosives on the project. The Contractor shall indemnify, hold harmless, and defend the State of Alaska from all claims related to the use of explosives on the project, including claims from government agencies alleging that explosives were handled, loaded, transported, used, or stored improperly.

107-1.11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE.

1. Restoring Areas. Areas used by the Contractor, including haul routes, shall be restored to their original condition after the Contractor's operations are completed. The original condition of an area shall be determined as follows: Prior to commencement of operations, the Engineer and the Contractor shall inspect each area and haul route that will be used by the Contractor and take photographs to document their condition. After construction operations are completed, the condition of each area and haul route will be compared to the earlier photographs. Prior to demobilization the Contractor shall repair damages attributed to its operations. The Contractor agrees that all costs associated with repairs shall be subsidiary to other items of work and will not be paid for directly.

2. Material Disposal Sites. Offsite disposal areas may be at locations of the Contractor's choice, provided the Contractor obtains written permission from the land owner for such disposal and a waiver of all claims against the State for any damage to such land which may result therefrom, together with all permits required by law for such disposal. A copy of such permission, waiver of claims, and permits shall be filed with the Engineer before commencing work on private property. The Contractor's selected disposal sites shall also be inspected and approved by the Engineer prior to use of the sites.

3. Property Marks. The Contractor shall:
   a. Be responsible for and protect from disturbance all land monuments and property marks until the Engineer has approved the witnessing or otherwise referenced their locations; and
   b. Not move such monuments or marks without the Engineer's approval.

4. Damage to property. The Contractor shall:
   a. Be responsible for all damage to public or private property resulting from any act, omission, neglect, or misconduct in the manner or method of executing the work;
   b. Be responsible for all damage to public or private property resulting from defective work or materials at any time, before, during, or after project completion; and
   c. Restore all such damaged property to a condition similar or equal to that existing before the damage occurred, at no additional cost to the Department.

5. Protection of Natural Resources. The Contractor shall:
   a. Conduct work in a manner that minimizes disturbance to and protects natural resources in compliance with all federal, state, and local laws and regulations;
   b. When working near designated wetlands, as defined by the Corps of Engineers, place no fill, nor operate equipment outside the permitted area;
   c. When working in or near designated anadromous fish streams, as defined by AS 41.14.840 and AS 41.14.870, place no fill or dredge material, nor operate equipment, within or on the banks of the stream (including fording) except as permitted by a Alaska Department of Fish and Game Fish Habitat Permit issued for the project;
   d. Upon completion, all disturbed slopes, cuts, and banked material shall be flattened to a slope no steeper than a 2:1 or as specified in the Material Sales Agreement governing use of the site. No vertical cuts or slopes shall remain;

e. Existing approaches to material sites and recreational trails shall not be disturbed or obstructed at any time.

6. Hazardous materials. Hazardous materials include but are not limited to petroleum products, oils, solvents, paints, lead based paints, asbestos, and chemicals that are toxic, corrosive, explosive, or flammable. Except as otherwise specified in this Contract, the Contractor shall:
   a. Not excavate, nor use for fill, any material at any site suspected of or found to contain hazardous materials or petroleum fuels;
   b. Not raze and remove, or dispose of structures that contain asbestos or lead-based paints;
   c. Not stockpile, nor dispose of, any material at any site suspected of or found to contain hazardous materials or petroleum;
   d. Report immediately to the Engineer any known or suspected hazardous material discovered, exposed, or released into the air, ground, or water during construction of the project;
   e. Report any containment, cleanup, or restoration activities anticipated or performed as a result of such release or discovery;
7. Protected areas. The Contractor shall not use land from any park, recreation area, wildlife or waterfowl refuge, or any historical site located inside or outside of the project limits for excess fill disposal, staging activities, equipment or material storage, or for any other purposes unless permitted by the Contract or unless all permits and clearances necessary for such work have been obtained by the Contractor.

8. Solid waste. The Contractor shall remove all debris, trash, and other solid waste from the project site as soon as possible and in accordance with the Alaska Department of Environmental Conservation Solid Waste Program.

SECTION 108
PROSECUTION AND PROGRESS

108-1.03 PROSECUTION AND PROGRESS. The Contractor shall meet with the Engineer at either the district maintenance and operations station for which the Contract is for (see Subsection 101-1.03 Engineer) or schedule a teleconference with the Engineer 14 days before mobilization to the project site. The Contractor shall submit the following documents to the Engineer at least three working days before the referenced meeting:

1. A progress schedule in a format acceptable to the Engineer, showing the order in which the Contractor proposes to carry out the work and the contemplated dates on which the Contractor and the subcontractor will start and finish each of the salient features of the work, including any scheduled periods of shutdown. The schedule shall indicate the anticipated hours of operation and any anticipated periods of multiple-shift work;
2. A letter designating the Contractor's Project Superintendent, defining that person's responsibility and authority, and providing a specimen signature;
3. A Mining and Reclamation Plan, as outlined in Subsection 106-1.02-5;
4. A SWPPP, if one is required by Subsection 641, and designated field representatives; and
5. A Process Control Plan, as outlined in Subsection 106-1.03-1.

108-1.07 FAILURE TO COMPLETE ON TIME. For each calendar day that the work is not substantially complete after the completion date has passed, the Engineer shall deduct the full daily charge corresponding to the original Contract amount shown in Table 108-1 from the remaining value of the Contract.

If no money is due the Contractor, the Department may recover these sums from the Contractor, the Surety or both. These are Liquidated Damages, and not penalties. These charges shall reimburse the Department for additional expenses incurred due to the Contractor's failure to complete the work within the time specified.

TABLE 108-1:
DAILY CHARGE FOR LIQUIDATED DAMAGES
FOR EACH CALENDAR DAY OF DELAY

Original Contract Amount		Daily charge
From More Than:	Up to and Including:	
$0	$100,000	$300
$100,000	$500,000	$550
$500,000	$1,000,000	$750
$1,000,000	$2,000,000	$1,000
$2,000,000	$5,000,000	$1,500
$5,000,000	----	$2,500

Permitting the Contractor to continue work after the completion date has passed does not waive the Department's right to collected Liquidated Damages under this section.

SECTION 305
STOCKPILED MATERIALS

305-1.01 DESCRIPTION. Produce and stockpile the specified material at the designated stockpile locations shown in Subsection 104-1.01.

305-2.01 MATERIALS. Meet the materials requirements of Subsection 703-2.03.

305-3.01 CONSTRUCTION REQUIREMENTS. Clear and grub the stockpile sites and dispose of all trees, stumps, brush and debris in accordance with the approved Mining and Reclamation Plan. Make the floor of each stockpile site flat and uniform in cross-section, compacted and well-drained. Construct the stockpiles to occupy the smallest feasible areas.

Avoid contamination and segregation of the various sizes of aggregate in each stockpile. Do not push up stockpiled material with a track-type dozer; only rubber-tired vehicles are allowed on the stockpile. Make the completed stockpiles neat and generally tent shaped in form with a single ridge. Make the height or depth of the piles not less than 20 feet on average, with side slopes 1-1/2:1 or steeper.

The Contractor, in the presence of the Engineer, shall verify material site boundaries, archaeological sites, research areas, crushing location, waste areas and review of the reclamation plan prior to any work. All expenses required for above work to produce the materials specified in this Contract shall be subsidiary to other items of work.

305-4.01 METHOD OF MEASURMENT. Stockpiled quantities shall be measured at the direction of the Engineer, by one of the following methods:

1. Average End Area, by the Engineer;
2. Three-Dimensional, by the Engineer;
3. The Engineer, at his sole discretion, may require the Contractor to conduct a final measurement under the supervision of a registered Professional Land Surveyor, at no additional cost to the Department. A stamped and signed volume report will be required, along with a description of the method used.

No allowance will be made for settlement, swell or shrinkage. If the Contractor chooses to demobilize off of the project site prior to final measurements being taken by the Department the Contractor is responsible for assuring that the quantity and quality of material produced meets those required by the Contract.

305-5.01 BASIS OF PAYMENT. All work involved in preparing the stockpile site is subsidiary.

Payment will be made under:

Pay Item	Location	Item Description	Quantity (CY)
1	Dalton Highway mile 125	Crushed Aggregate D-1, modified	25,000

SECTION 641
EROSION, SEDIMENT, AND POLLUTION CONTROL

SWPPP required

641-1.01 DESCRIPTION. This Project requires a Storm Water Pollution Prevention Plan (SWPPP) and associated tasks, including development, design, administration and implementation. Provide project administration and Work relating to control of erosion, sedimentation, and discharge of pollutants, according to Section 641 in the 2017 Standard Specifications for Highway Construction, available here: http://dot.alaska.gov/stwddes/dcsspecs/assets/pdf/hwyspecs/sshc2017.pdf; and any and all other applicable local, state, and federal requirements, including the requirements of the Construction General Permit. All work necessary in this section is subsidiary to the production of aggregate.

SECTION 703
AGGREGATES

703-2.03 AGGREGATE FOR BASE AND SURFACE COURSE. Crushed stone or crushed gravel, consisting of sound, tough, durable pebbles or rock fragments of uniform quality; free from clay balls, vegetable matter or other deleterious matters. Meet the following requirements:

TABLE 703-1

PROPERTY	THRESHOLD	TEST METHOD
L.A. Wear	45% max	AASHTO T96
Degradation Value	45 min	ATM 313
Fracture %	70% min	ATM 305
Liquid Limit	35 max	ATM 204
Plastic Index	10 max	ATM 205
Sodium Sulfate Loss	9 max (5 cycle)	AASHTO T104

Meet the following gradation(s), as determined by AASHTO T27/T11:

TABLE 703-2

Pay Item No.	1
	Percent Passing by Weight
Sieve	CA D-1 Modified
3/4 in.	100
1/2 in.	63 – 89
3/8 in.	54 – 76
No. 4	36 – 56
No. 8	18 – 38
No. 16	12 – 30
No. 50	4 – 18
No. 200	3 – 8

REVISED BID SCHEDULE

Item Number	Description	Quantity	UOM	Unit Price	Extended Price
1	Crushed Aggregate, D-1 Modified, MP 125 Dalton Highway	25,000	CUYD	$_____	$_____
		Total Basic Bid		$_____	

ATTACHMENTS

Attachment A: Material Site Inspection Report MS 65-9-037-2 – 27 Pages
Attachment B: Mineral Material Free Use Permit – 16 Pages
Attachment C: Federal Aid Provisions – 13 Pages
Attachment D: Geotech Data – 37 Pages

CONTRACTOR INFORMATION

GUARANTEED DELIVERY: _____

CONTRACTOR ADDRESS: _____

_____

_____

_____

Contact: _____

Phone: _____

Email: _____

8.8 DHMP 125 (MS 65-9-037-2, BONANZA CREEK EAST)

8.8.1 Location and Access

This site is an existing ADOT&PF material site, MS 65-9-037-2, and is jointly used by APSC as OMS 89-3. It is reached by APSC access road 89-APL/AMS-4 that extends approximately 800 ft east of the highway at DHMP 125. This investigation focused on an area immediately south and east of an alluvial deposit that was recently mined by ADOT&PF. This area is on the north side of the South Fork of Bonanza Creek and reaching it requires traversing on a narrow road bound by piles of overburden to the east and a pond created by recent mining on the west side.

8.8.2 Description and Subsurface Conditions

The portion of the site targeted by this investigation consists of abandoned floodplain deposits of the South Fork of Bonanza Creek. The area is relatively flat except for old channels. The area is forested with moderately dense spruce, a few birch trees and there is some brush. The surficial organic mat is 0.5 to 1.5 ft thick and it is underlain by 0-4.5 ft of silt. The silt is underlain by sandy gravel with cobbles to at least a depth of 30 ft, the maximum depth drilled. The ground surface is generally firm and well-drained although the old channels are wet and spongy. The floodplain is bound by moderately steep silt-mantled slopes underlain by Paleozoic schists and phyillite of the Ruby-Arctic Alaska terrain. Granitic rocks of Cretaceous age outcrop to the north. The recently mined area is bound by high mounds of silty overburden that have been stockpiled.

8.8.3 Clearing and Stripping

This area is covered with scattered spruce trees and little brush. The trees are typically 20 ft high or less. Sphagnum moss is present on some of the surface. The site was apparently used as a dewatering discharge area during the previous mining and some pipes and plastic sheeting remains. The overburden consists of a surficial organic mat and silt layer ranging from 0.5 ft to 5 ft thick.

8.8.4 Hydrogeology

This site is situated in a lowland area with some surface water evident in old channels that are now filled in with organics. A highland area at the edge of a slope and has no evident surface water. The

8.8.4 Hydrogeology

This site is situated in a lowland area with some surface water evident in old channels that are now filled in with organics. A highland area at the edge of a slope and has no evident surface water. The depth of groundwater ranged from 5 to 9 ft in five of the six boreholes. The sixth borehole was frozen throughout and there was no groundwater. Based on the drilling and observations of the recently mined area, there is considerable groundwater that will be recharged readily from subsurface flow in the permeable sediments that underlie the site.

8.8.5 Frozen Ground

This area is characterized as being underlain by discontinuous permafrost. Only one of the six boreholes, the most northerly one, reported permafrost. This borehole was frozen from the surface to 30 ft and also had the thickest overburden.

8.8.6 Land Status

The site is under the jurisdiction of the Bureau of Land Management but this prospective expansion area is within the limit of the ADOT&PF currently permitted area.

8.8.7 Quality of Materials

Laboratory testing results indicate that the soils underlying the overburden consist principally of silty sandy gravel or sandy gravel. The fines content ranges from 1.5% to 15% and averages approximately 6%, adequate for some production of Select Material Type A. The degradation values were 66 and 77, meeting the criteria for all aggregates. The LA Abrasion was 30% and 34% loss and the sulfate soundness was 2.3 to 3.4, all meeting the criteria for all aggregates. Optimum moisture content is 4.6%.

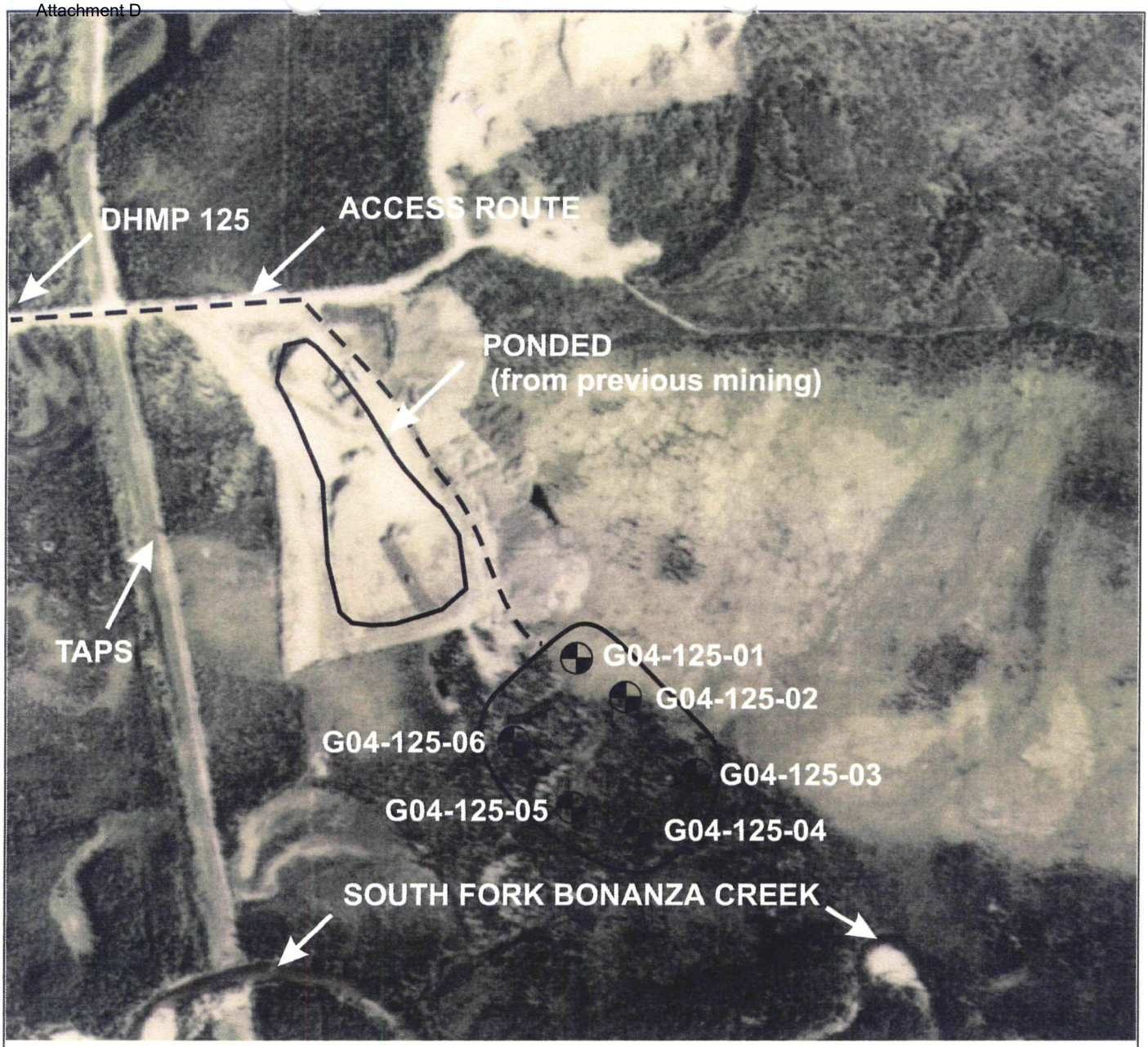
8.8.8 Mining Plan Guidelines

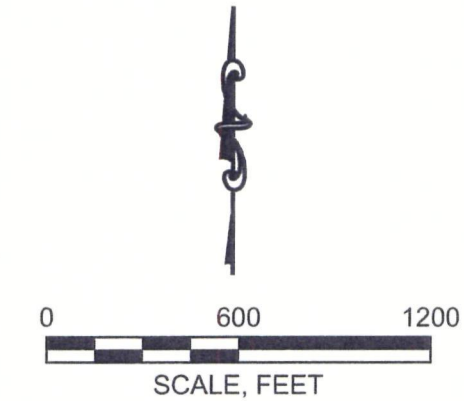
A contractor electing to utilize this site should review permits for fees, royalties, and stipulations. Prior to beginning extraction, a mining plan should be presented for review and approval for the specific area to be mined. This site is adjacent to an existing pit that is currently flooded from past

mining activities and a shallow groundwater table. Evidence from around the site indicates that the most recent mining activities involved extensive water control efforts (ditching, pumps with 10" hose discharging to energy dissipation strictures, dikes to divide the pit). The pit currently impounds an estimated 90 acre-ft of water. The second issue noted in this pit is excessive amounts of thaw-unstable permafrost that has been pushed long distances and stacked along the east edge of the pit. Some reclamation has been attempted via seeding, but the piles don't appear to be conducive to regrading (will not support equipment). The combination of the flooding and the thaw-unstable overburden has made access to a southern expansion difficult under current conditions.

Based on the above obstacles, significant overburden in parts of the site, and proximity of the South Fork of Bonanza Creek, mining will be difficult. The overburden in the expansion area should be dozed to the north and the pit mined deeply to minimize the footprint. A water management plan will be necessary control water discharge to the creek. Overburden stockpiles should be graded to 2H:1V or flatter. The pit slopes should be graded to 1.5H:1 or flatter.

Attachment D





LEGEND:

GAI BOREHOLE LOCATION (APPROX.), TAKEN 5/04

Photo Date: 6-20-2001

Figure **8.8.1**

DALTON HIGHWAY MP 125
BONANZA EAST

ADOT & PF / DALTON HWY / AK

PROJECT NO.: 023-5548.013 FILE: DHMP125.CDR DATE: 06/07/04 DRAWN: BRM

Golder Associates

Looking south across existing pit (ponded) and access road

Overburden berms at south end of existing pit

Coarse ground south of existing pit

Dewatering outlet (from previous mining)

Figure **8.8.4**

DALTON HIGHWAY MP 125
BONANZA EAST

Dalton Hwy/ADOT&PF/AK

TABLE 8.8.1
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION - NORTHERN REGION
LABORATORY TESTING REPORT - BONANZA EAST - DH MP 125

PROJECT NAME:	DALTON H/W MAT'L SITE RECONN.
LEDGER CODE:	30304622
AKSAS NUMBER:	61062
SAMPLED BY:	T. OTTLEY (GOLDER ASSOC.)
SOURCE:	BONANZA EAST - DH MP 125

TEST HOLE NO.		G04-125-01	G04-125-01	G04-125-01	G04-125-02	G04-125-02	G04-125-03	G04-125-03
DEPTH (feet)		1.0-3.0	8.0-15.0	20.0-25.0	2.0-4.0	8.0-15.0	0.5-2.5	5.0-10.0
STATION (LOCATION)		MP 125	MP 125	MP 125	MP 125	MP 125	MP 125	MP 125
OFFSET (feet)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
LAB NO. / SAMPLE NO.		04-7544 / A	04-7545 / B	04-7546 / C	04-7547 / A	04-7548 / B	04-7549 / A	04-7550 / B
DATE SAMPLED		20-May-04	20-May-04	20-May-04	20-May-04	20-May-04	20-May-04	20-May-04
% Passing	3"							
	2"					100		
	1"		99	100		88		92
Gravel	3/4"		96	98		73		84
	1/2"		86	91		52		69
	3/8"	100	77	84		42	100	62
	#4	98	67	61		28	99	47
	#10	92	40	36		19	94	34
Sand	#40	83	22	21	99	14	63	17
	#50	81	19	18	98	13	45	13
	#100	79	14	13	87	9	24	8
	#200	76.5	9.7	9.1	71.1	6.4	15.2	5.0
Hydro	0.02 mm							
	0.005							
	0.002							
LIQUID LIMIT		NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	NP
AASHTO CLASSIFICATION		A-4 (0)	A-1-a	A-1-a	A-4 (0)	A-1-a	A-2-4	A-1-a
SOIL DESCRIPTION		HighlyOrgSi	sl.SiSaGr	sl.SiSaGr	slOrgSaSi	Gr	SiSa	SaGr
NATURAL MOISTURE		415.1			25.3		11.0	
ORGANICS		44.5			2.2		0.8	
SP.GR. (FINE)			2.69			2.71		
SP.GR. (COARSE)			2.70			2.69		
MAX DRY DENSITY (pcf)			140.1			141.5		
OPTIMUM MOISTURE			5.3			4.6		
L.A. ABRASION								30
DEGRADATION FACTOR								66
SODIUM SULF. (CRSE)								0.9
SODIUM SULF. (FINE)								2.5

REMARKS:

1) Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

NOTES:

1) Gr=Gravel or Gravelly, Sa=Sand or Sandy, Si=Silt or Silty, Cl=Clay or Clayey, Org=Organic, sl.=slightly.

TABLE 8.8.1
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION - NORTHERN REGION
LABORATORY TESTING REPORT - BONANZA EAST - DH MP 125

PROJECT NAME:	DALTON H/W MAT'L SITE RECONN.
LEDGER CODE:	30304622
AKSAS NUMBER:	61062
SAMPLED BY:	T. OTTLEY (GOLDER ASSOC.)
SOURCE:	BONANZA EAST - DH MP 125

TEST HOLE NO.		G04-125-04	G04-125-04	G04-125-05	G04-125-05	G04-125-06	G04-125-06	
DEPTH (feet)		2.0-4.0	7.0-10.0	2.0-4.0	5.0-10.0	2.0-5.0	5.0-10.0	
STATION (LOCATION)		MP 125	MP 125	MP 125	MP 125	MP 125	MP 125	
OFFSET (feet)		N/A	N/A	N/A	N/A	N/A	N/A	
LAB NO. / SAMPLE NO.		04-7551 / A	04-7552 / B	04-7553 / A	04-7554 / B	04-7555 / A	04-7556 / B	
DATE SAMPLED		20-May-04	20-May-04	21-May-04	21-May-04	21-May-04	21-May-04	
% Passing	3"		100					
	2"		99		100		100	
	1"		77		62	97	86	
Gravel	3/4"		61		41	88	73	
	1/2"		41		21	61	54	
	3/8"		33		14	46	44	
	#4		21		7	28	25	
	#10	99	15	99	4	18	15	
Sand	#40	97	10	98	3	8	6	
	#50	96	8	97	3	6	4	
	#100	94	5	94	2	4	3	
		94.1	4.0	85.6	1.5	2.9	2.1	
Hydro	0.02 mm							
	0.005							
	0.002							
LIQUID LIMIT		52	NV	NV	NV	NV	NV	
PLASTIC INDEX		NP	NP	NP	NP	NP	NP	
AASHTO CLASSIFICATION		A-5 (7)	A-1-a	A-4 (0)	A-1-a	A-1-a	A-1-a	
SOIL DESCRIPTION		OrgSi	Gr	OrgSi	Gr	slOrgGr	Gr	
NATURAL MOISTURE		109.3		79.2		2.8		
ORGANICS		8.9		6.7		3.3		
SP.GR. (FINE)								
SP.GR. (COARSE)								
MAX DRY DENSITY (pcf)								
OPTIMUM MOISTURE								
L.A. ABRASION			30*		34		34*	
DEGRADATION FACTOR			66*		77		77*	
SODIUM SULF. (CRSE)			0.9*		0.7		0.7*	
SODIUM SULF. (FINE)			2.5*		1.6		1.6*	

REMARKS:

1) Gradation is based on material passing the 3" sieve, according to Alaska Test Method T-7.

NOTES:

1) Gr=Gravel or Gravelly, Sa=Sand or Sandy, Si=Silt or Silty, Cl=Clay or Clayey, Org=Organic, sl.=slightly.

2) * Test was done on combined sample (04-7550 and 04-7552; 04-7554 and 04-7556)

State of Alaska Department of Transportation Northern Region Materials

Attachment D

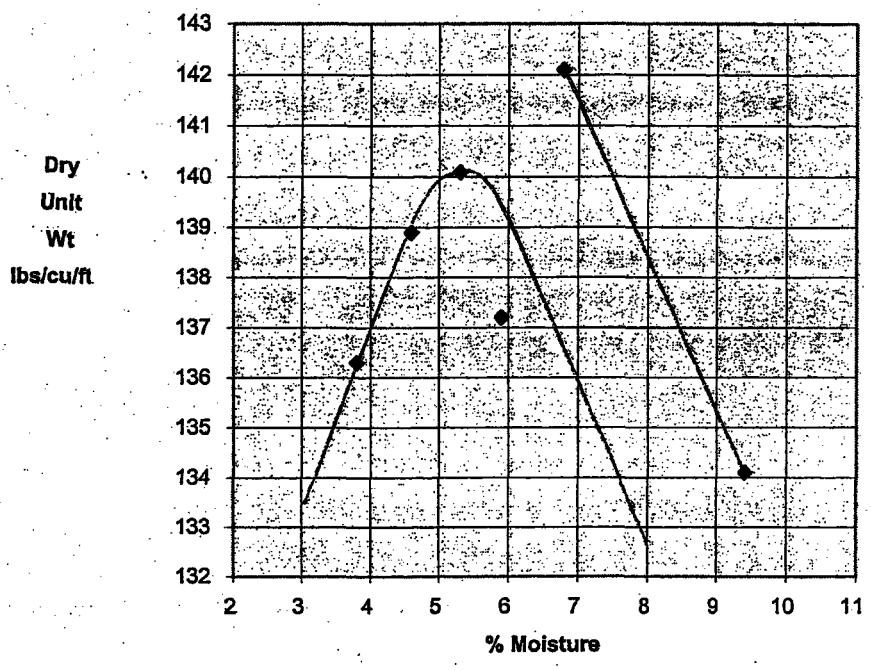
COMPACTION REPORT

Lab Number: 04-7545

Project: DALTON H/W MAT'L SITE RECONN.

Source: MP 125 Field #: B

MOISTURE / DENSITY RELATIONS



Dry Unit Wt.	1	2	3	4	5	ZAV	ZAV
lbs/cu/ft	136.3	138.9	140.1	137.2		134.1	142.1
kg/cu/m	2183	2225	2244	2198		2148	2276
% Moisture	3.8	4.6	5.3	5.9		9.4	6.8
Free Moist.							

ASTM D-1557 / AASHTO T-1800*	Reg. Lab lbs/cu/ft	Reg. Lab kg/cu/m	Field
**Max. Density	140.1		
Opt. Moist	5.3		

*Sector face rammer used

**Without 3/4" Correction

Signature: Steven T. Mierotta 6-Oct-04

Steve Mierotto

Regional Laboratory Supervisor

Accept/Assur Comparison

Accept.	Unaccept

Conforms to Specs

Signature:

Quality Assurance Inspector

State of Alask[illegible]epartment of Transportation Northern Regi[illegible]laterials

Attachment D

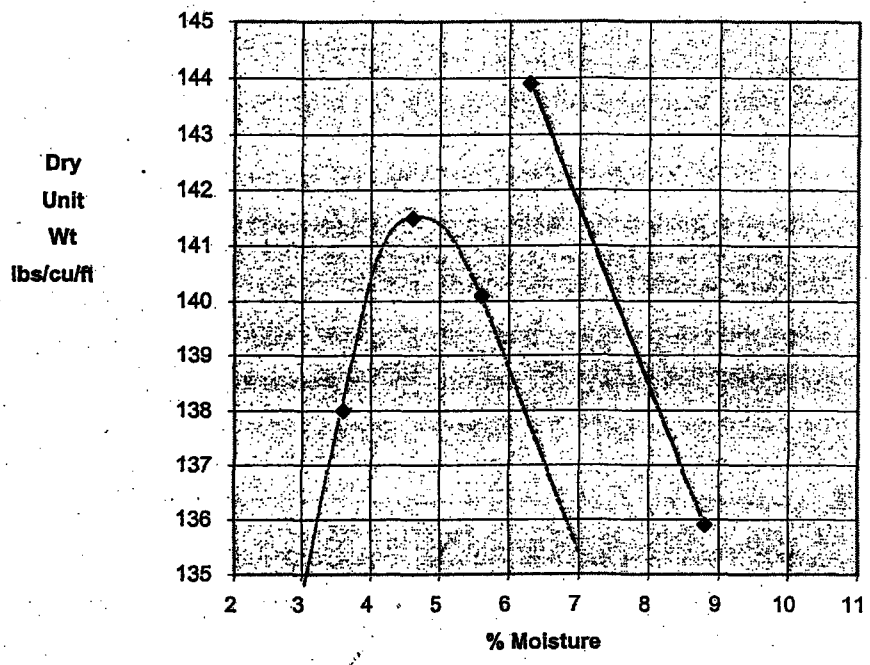
COMPACTION REPORT

Lab Number: **04-7548**

Project: DALTON H/W MAT'L SITE RECONN.

Source: MP 125 *Field #:* B

MOISTURE / DENSITY RELATIONS



Dry Unit Wt	1	2	3	4	5	ZAV	ZAV
lbs/cu/ft	138	141.5	140.1			135.9	143.9
kg/cu/m	2211	2267	2244			2177	2305
% Moisture	3.6	4.6	5.6			8.8	6.3
Free Moist.							

ASTM D-1557	Reg. Lab		
AASHTO T-180D*	lbs/cu/ft	kg/cu/m	Field
**Max. Density	141.5		
Opt. Moist	4.6		

*Sector face rammer used

**Without 3/4" Correction

Accept/Assur Comparison

Conforms to Specs

Signature:

Signature [signature] 10-6-04

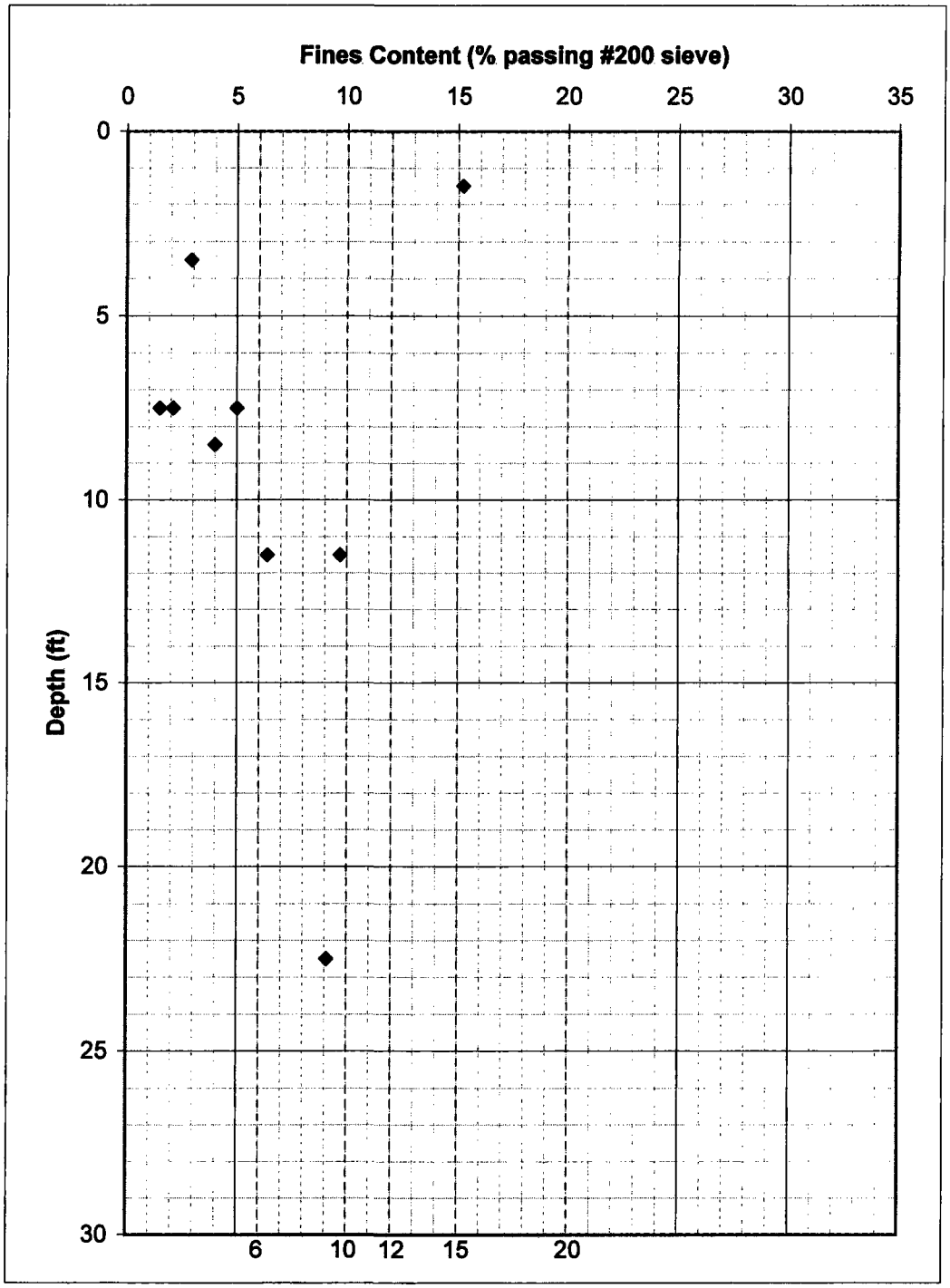
Steve Melerotto

Regional Laboratory Supervisor

Accept	Unaccept

Quality Assurance Inspector

TABLE 8.8.2
FINES CONTENT VERSUS DEPTH
LABORATORY TESTING REPORT - BONANZA EAST - DH MP 125



NOTES: 1) Data does not include any overburden samples.

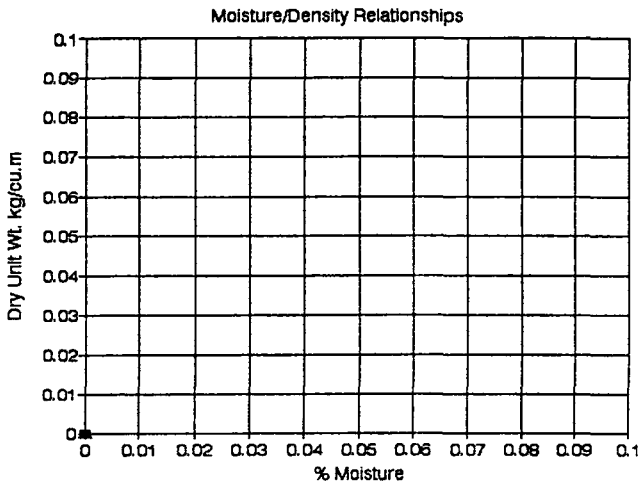
Attachment D

State of Alaska Department of Transportation
Northern Region Materials Lab
SOIL and AGGREGATE REPORT

Project Name:	DALTON HWY MP 111-175 REHAB.	***Lab Number:***	96-4063
Ledger Code:	30844422		
Project Number:	\66005		
Sampled By:	M. GRAHEK		
Source:	M.S. 65-9-037-2	***Test Hole:*** GRAB	***Depth in meters:*** SURFACE
Date Sampled:	7-26-96	***Offset:***	***Station:***

ATM T-7 *SIEVES*	*% PASS*	*TEST No.*	*TEST*	*RESULTS*
+75				
75		AASHTO T-89	LL	
50		AASHTO T-90	PI	
37.5				
25.0			SpG's	
19.0		AASHTO T-85	Coarse	
12.5		LeChatelier	Fine	
9.5				
4.75		ATM T-6	ORGANIC	
2.36		AASHTO T-21	ORG PPM	
2.00				
1.18				
0.850		ATM T-5	MOISTURE	
0.600			SURFACE	
0.425				
0.300				
0.250		AASHTO T-104	SODIUM	
0.180			Coarse	0.7
0.150			Fine	
0.075		AASHTO T-96	LA	27
ATM T-1		ATM T-13	DEG	36
.02mm				
.005mm				
.002mm				

MOISTURE / DENSITY PLOT ASSHTO T-180D



Opt. Moisture:
Max. Density:

Sample	*Dry Unit Wt.*	*% Moist.*	*Free Moist*
1			
2			
3			
4			
5			

ZAV @
ZAV @

AASHTO CLASS:
SOIL DESCRIPTION:
UNIFIED CLASS:

Signature: Maureen Lee
Maureen E. Lee
REGIONAL LAB SUPERVISOR

PRECONSTUCTION ROUTING: Geologists, Regional Lab

Attachment D

State of Alaska Department of Transportation

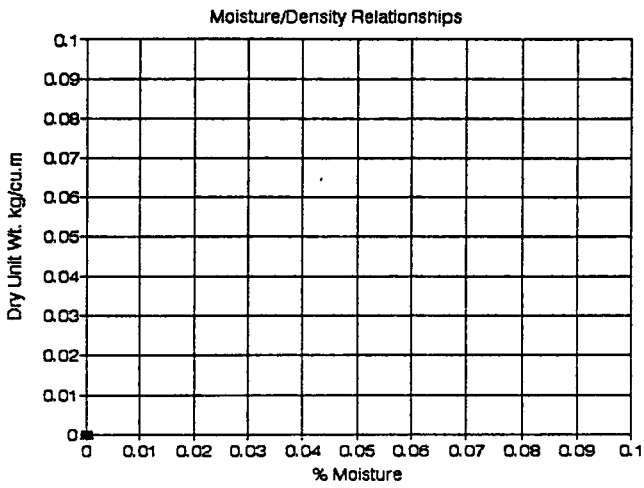
Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Project Name:	DALTON HWY MP 111-175 REHAB.	***Lab Number:***	96-4061
Ledger Code:	30844422		
Project Number:	\66005		
Sampled By:	M. GRAHEK		
Source:	M.S. 65-9-037-2	***Test Hole:*** GRAB	***Depth in meters:*** SURFACE
Date Sampled:	7-26-96	***Offset:***	***Station:***

ATM T-7 *SIEVES*	*% PASS*	*TEST No.*	*TEST*	*RESULTS*
+75				
75		AASHTO T-89	LL	
50		AASHTO T-90	PI	
37.5				
25.0			SpG's	
19.0		AASHTO T-85	Coarse	
12.5		LeChatelier	Fine	
9.5				
4.75		ATM T-6	ORGANIC	
2.36		AASHTO T-21	ORG PPM	
2.00				
1.18				
0.850		ATM T-5	MOISTURE	
0.600			SURFACE	
0.425				
0.300				
0.250		AASHTO T-104	SODIUM	
0.180			Coarse	9.9
0.150			Fine	
0.075		AASHTO T-96	LA	54
ATM T-1		ATM T-13	DEG	37
.02mm				
.005mm				
.002mm				

MOISTURE / DENSITY PLOT ASSHTO T-180D



Opt. Moisture:

Max. Density:

Sample	*Dry Unit Wt.*	*% Moist.*	*Free Moist*
1			
2			
3			
4			
5			

ZAV @

ZAV @

AASHTO CLASS:

SOIL DESCRIPTION:

UNIFIED CLASS:

Signature: Maureen Lee

Maureen E. Lee

REGIONAL LAB SUPERVISOR

PRECONSTUCTION ROUTING: Geologists, Regional Lab

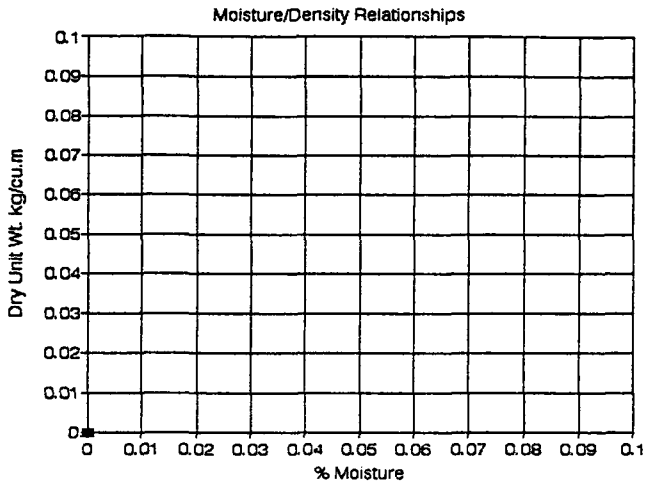
Attachment D

State of Alaska Department of Transportation
Northern Region Materials Lab
SOIL and AGGREGATE REPORT

Project Name:	DALTON HWY MP 111-175 REHAB.	***Lab Number:***	96-4062
Ledger Code:	30844422		
Project Number:	\66005		
Sampled By:	M. GRAHEK 237		
Source:	M.S. 65-9-~~034~~-2	***Test Hole:*** GRAB	***Depth in meters:*** SURFACE
Date Sampled:	7-26-96	***Offset:***	***Station:***

ATM T-7 SIEVES	% PASS	TEST No.	TEST	RESULTS
+75				
75		AASHTO T-89	LL	
50		AASHTO T-90	PI	
37.5				
25.0			SpG's	
19.0		AASHTO T-85	Coarse	
12.5		LeChatelier	Fine	
9.5				
4.75		ATM T-6	ORGANIC	
2.36		AASHTO T-21	ORG PPM	
2.00				
1.18				
0.850		ATM T-5	MOISTURE	
0.600			SURFACE	
0.425				
0.300				
0.250		AASHTO T-104	SODIUM	
0.180			Coarse	1.4
0.150			Fine	
0.075		AASHTO T-96	LA	17
ATM T-1		ATM T-13	DEG	35
.02mm				
.005mm				
.002mm				

MOISTURE / DENSITY PLOT ASSHTO T-180D



Opt. Moisture:
Max. Density:

Sample	*Dry Unit Wt.*	*% Moist.*	*Free Moist*
1			
2			
3			
4			
5			

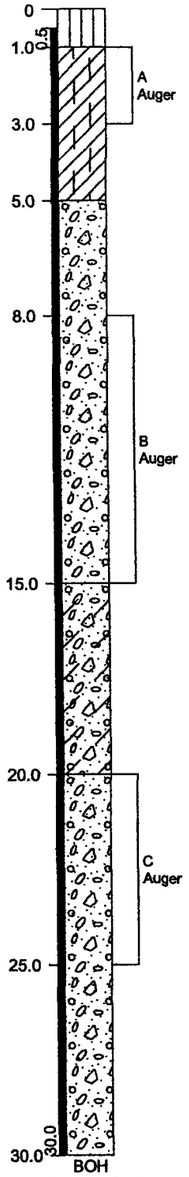
ZAV @
ZAV @

AASHTO CLASS:
SOIL DESCRIPTION:
UNIFIED CLASS:

Signature: Maureen Lee
Maureen E. Lee
REGIONAL LAB SUPERVISOR

PRECONSTUCTION ROUTING: Geologists, Regional Lab

G04-125-01
Location: DALTON HWY MP 125/BONANZA EAST
5/20/04



0.0 - 1.0; Dark brown, frozen below 0.5', wet 0'-0.5', Organic Or Peat, (PT)
1.0 - 5.0; Grayish brown, frozen (ice-rich, Vs-Vu), wet when thawed, Organic Silt w/ Ice, (OL-ML)
04-7544/A, A-4 (0), M.C.=415.1%, Organic=44.5%, p200=76.5, LL=NV, PI=NP, Gravel=2%, Sand=21.5%, Silt=76.5%
5.0 - 15.0; Gray, frozen (Nf to Nbn), moist to wet when thawed, Sandy Gravel to Sl. Silty Sandy Gravel, (GP), No cobbles encountered, mostly 1/2" minus, 0.5" max size

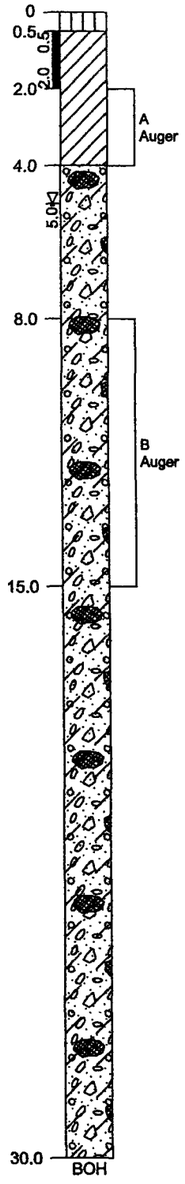
04-7545/B, A-1-a, p200=9.7, LL=NV, PI=NP, Gravel=33%, Sand=57.3%, Silt=9.7%

15.0 - 20.0; Gray, frozen (Nf to Nbn), moist to wet when thawed, Silty Sandy Gravel, (GM)

20.0 - 30.0; Brown, frozen (Nf to Nbn), moist to wet when thawed, Sandy Gravel, (GP), No cobbles encountered
04-7546/C, A-1-a, p200=9.1, LL=NV, PI=NP, Gravel=39%, Sand=51.9%, Silt=9.1%

1) No groundwater encountered while drilling.

G04-125-02
Location: DALTON HWY MP 125/BONANZA EAST
5/20/04

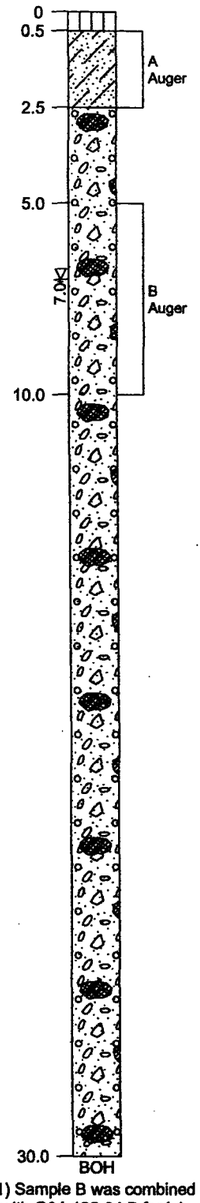


0.0 - 0.5; Dark brown, Organic Or Peat, (PT)
0.5 - 4.0; Gray, frozen, moist to wet when thawed, Silt, (ML)

04-7547/A, A-4 (0), M.C.=25.3%, Organic=2.2%, p200=71.1, LL=NV, PI=Np, Gravel=0%, Sand=28.9%, Silt=71.1%
4.0 - 30.0; Brown, loose, wet, Silty Sandy Gravel w/ Cobbles, (GP-GM), 5" max size

04-7548/B, A-1-a, p200=6.4, LL=NV, PI=NP, Gravel=72%, Sand=21.6%, Silt=6.4%

G04-125-03
Location: DALTON HWY MP 125/BONANZA EAST
5/20/04

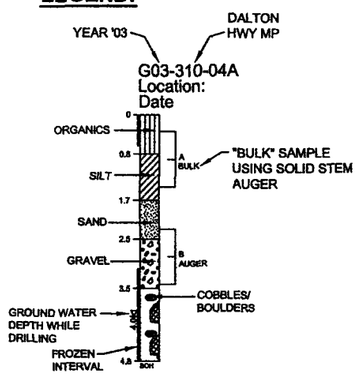


0.0 - 0.5; Dark brown, Organic Or Peat, (PT)
0.5 - 2.5; Brown, moist, Silty Sand, (SP-SM)
04-7549/A, A-2-4, M.C.=11%, Organic=0.8%, p200=15.2, LL=NV, PI=NP, Gravel=1%, Sand=83.8%, Silt=15.2%
2.5 - 30.0; Brown, loose, moist, Sandy Gravel w/ Cobbles, (GP), 5" max size

04-7550/B, A-1-a, p200=5, LL=NV, PI=NP, Gravel=53%, Sand=42%, Silt=5%, LA=30, Degrad=66, SS Coarse=0.9, SS Fine=2.5

1) Sample B was combined with G04-125-04 B for LA, Deg, and SS tests.

LEGEND:



NOTES:
1) All depths are shown in feet.
2) Lithology contacts were often inferred based on drilling action.

PROJECT
ADOT & PF
DALTON HIGHWAY MATERIAL SITES- PHASE III
DH DMP 90 TO 290 and 341 and 344, ALASKA

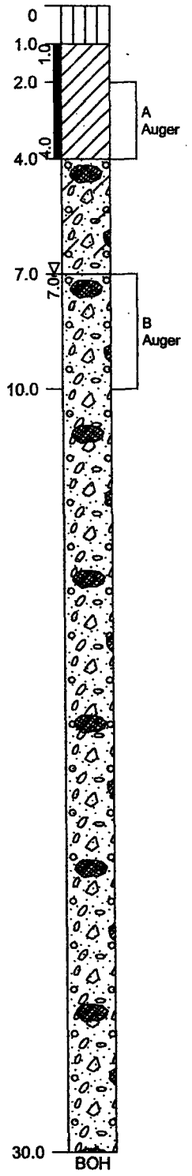
TITLE
SUMMARY OF BOREHOLE LOGS 1-3 MP 125

Golder Associates Anchorage, Alaska

PROJECT No.		023-5548	FILE No.	5548--Phase3_BHS
DESIGN	--	--	SCALE	AS SHOWN REV. 0
CADD	ACM	02/16/05		
CHECK				
REVIEW				

FIGURE 8.8.2

G04-125-04
Location: DALTON HWY MP 125/BONANZA EAST
5/20/04

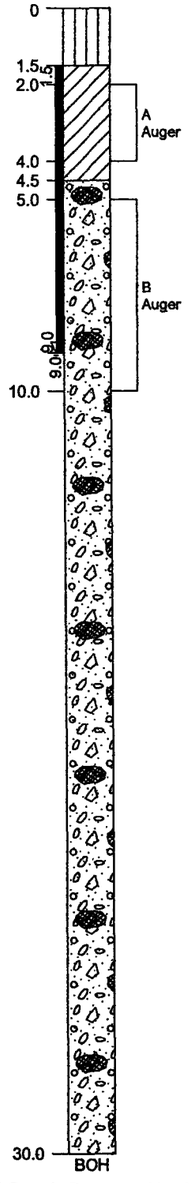


0.0 - 1.0; Dark brown, wet, Organic Or Peat, (PT)
1.0 - 4.0; Gray, frozen (ice rich, Vr-Vs), wet when thawed, Silt, (ML)
04-7551/A, A-5 (7), M.C.=109.3%, Organic=8.9%, p200=94.1, LL=52, PI=NP, Gravel=0%, Sand=5.9%, Silt=94.1%
4.0 - 7.0; Gray, loose, wet, Silty Sandy Gravel w/ Cobbles, (GP-GM)

7.0 - 30.0; Light brown, loose, wet, Sandy Gravel w/ Cobbles, (GP)
04-7552/B, A-1-a, p200=4.0, LL=NV, PI=NP, Gravel=79%, Sand=17%, Silt=4%, LA=30, Degrad=66, SS Coarse=0.9, SS Fine=2.5

1) Sample B was combined with G04-125-03 B for LA, Deg, and SS tests.

G04-125-05
Location: DALTON HWY MP 125/BONANZA EAST
5/20/04

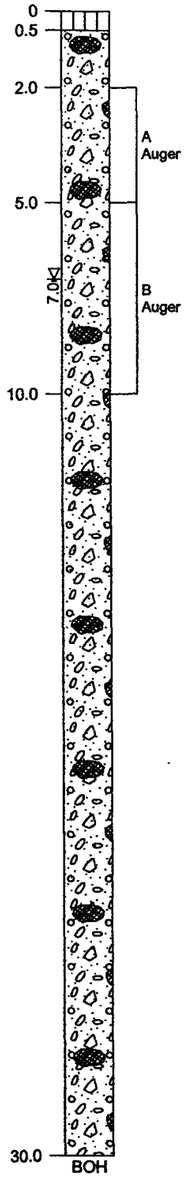


0.0 - 1.5; Dark brown, wet, Organic Or Peat, (PT)

1.5 - 4.5; Gray, frozen (ice rich, Vr-Vs, wet when thawed, Silt, (ML)
04-7553/A, A-4 (0), M.C.=79.2%, Organic=6.7%, p200=85.6, LL=NV, PI=NP, Gravel=0%, Sand=14.4%, Silt=85.6%
4.5 - 30.0; Brown, frozen (ice rich Vx-Vc), wet when thawed, Sandy Gravel w/ Cobbles, (GW), 8" max size
04-7554/B, A-1-a, p200=1.5, LL=NV, PI=NP, Gravel=93%, Sand=5.5%, Silt=1.5%, LA=34, Degrad=77, SS Coarse=0.7, SS Fine=1.6

1) Sample B was combined with G04-125-06 B for LA, Deg, and SS tests.

G04-125-06
Location: DALTON HWY MP 125/BONANZA EAST
5/20/04

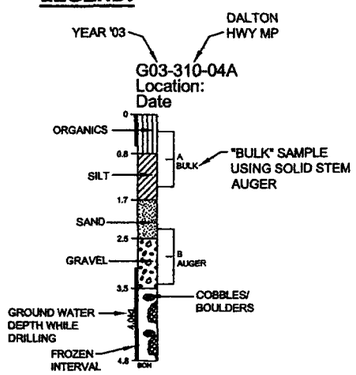


0.0 - 0.5; Dark brown, Organic or Peat, (PT)
0.5 - 30.0; Brown, loose, dry to moist to wet, Sandy Gravel w/ Cobbles, (GP-GW), 7" max size
04-7555/A, A-1-a, M.C.=2.8%, Organic=3.3%, p200=2.9, LL=NV, PI=NP, Gravel=72%, Sand=25.1%, Silt=2.9%

04-7556/B, A-1-a, p200=2.1, LL=NV, PI=NP, Gravel=75%, Sand=22.9%, Silt=2.1%, LA=34, Degrad=77, SS Coarse=0.7, SS Fine=1.6

1) Sample B was combined with G04-125-05 B for LA, Deg, and SS tests.

LEGEND:



NOTES:
1) All depths are shown in feet.
2) Lithology contacts were often inferred based on drilling action.

PROJECT
ADOT & PF
DALTON HIGHWAY MATERIAL SITES- PHASE III
DH DMP 90 TO 290 and 341 and 344, ALASKA

TITLE
SUMMARY OF BOREHOLE LOGS 4-6 MP 125

Golder Associates
Anchorage, Alaska

PROJECT No.		023-5548	FILE No.	5548-Phase3_BHS
DESIGN	--	--	SCALE	AS SHOWN REV. 0
CADD	ACM	02/16/05		
CHECK				
REVIEW				

FIGURE 8.8.3

Attachment D

State of Alaska Dept. of Transportation Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Lab Number: **02-035**

Project: DALTON HWY MP 111-175 REHAB.(111-144 CONST)

Aksas: 66005

Ledger: 30844442

Sampled by: E MASTERS

Date Sampled:

Test Hole:

Station: MP 125

Offset:

Depth:

Field Number: RR-Q-1

Material Site: 65-9-037-2

Other Source:

Item #: 611

Sample of: RIP RAP

Date Rec:

Sample Type QUALITY

Specifications	Tests	Reg Lab	Field Lab	Specs
AASHTO T-89	Liquid Limit			
AASHTO T-90	Plastic Index			
Specific Gravity AASHTO T-85	APP SSD BULK Absorption			
LeChatelier	Fine Agg.			
AASHTO T-104	*Coarse*	0.2		
SODIUM	*Fine*			
AASHTO T-96	LA	16		
ATM T-13	DEG	21		
ATM T-6	Organic by Ignition			
AASHTO T-21	ORGANIC PPM			
ATM T-5	Moisture Content			
ATM T-4 FRACTURE	+4.75mm/+#4 Sgl Face +2.00mm/+#10 Dbl Face +4.75mm/+#4 Dbl Face +2.00mm/+#10 Sgl Face			
ATM T-9	THIN & ELONGATED			
	FLAKINESS INDEX			
	PROCTOR			
	% Deleterious			

mm	inches	Reg Lab	Field	Specs
+75	+3"			
75	3"			
50	2"			
37.5	1 1/2"			
25.0	1"			
19.0	3/4"			
12.5	1/2"			
9.5	3/8"			
4.75	#4			
2.36	#8			
2.00	#10			
1.18	#16			
0.850	#20			
0.600	#30			
0.425	#40			
0.300	#50			
0.250	#60			
0.180	#80			
0.150	#100			
0.075	#200			
Hydro ATM T-1	.02mm .005mm .002mm			

REMARKS:

AASHTO Class:

DOT & PF Soil Descrip:

UNIFIED Class:

Acceptance/Assurance	Acceptable	Unacceptable
Comparison:		
Conforms to Specs:		

Signature:

Quality Assurance Inspector

Signature:

Regional Lab Supervisor

Attachment D

State of Alaska Dept. of Transportation Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Lab Number: 01-455

Project: DALTON HWY MP 111-175 REHAB.(111-144 CONST)

Aksas: 66005

Ledger: 30844442

Sampled by: AS

Date Sampled: 5-Sep-01

Test Hole:

Station:

Offset:

Depth:

Field Number: RR-G-2

Material Site: 65-9-037-2

Other Source:

Item #: 611

Sample of: RIP RAP

Date Rec:

Sample Type QUALITY

Specifications	Tests	Reg Lab	Field Lab	Specs
AASHTO T-89	Liquid Limit			
AASHTO T-90	Plastic Index			
Specific Gravity AASHTO T-85	APP			
	SSD			
	BULK			
	Absorption			
LeChatelier	Fine Agg.			
AASHTO T-104	*Coarse*	1.4		
SODIUM	*Fine*			
AASHTO T-96	LA	22		
ATM T-13	DEG	13		
ATM T-6	Organic by Ignition			
AASHTO T-21	ORGANIC PPM			
ATM T-5	Moisture Content			
ATM T-4 FRACTURE	+4.75mm/+#4 Sgl Face			
	+2.00mm/+#10 Dbl Face			
	+4.75mm/+#4 Dbl Face			
	+2.00mm/+#10 Sgl Face			
ATM T-9	THIN & ELONGATED			
	FLAKINESS INDEX			
	PROCTOR			
	% Deleterious			

mm	Inches	Reg Lab	Field	Specs
+75	+3"			
75	3"			
50	2"			
37.5	1 1/2"			
25.0	1"			
19.0	3/4"			
12.5	1/2"			
9.5	3/8"			
4.75	#4			
2.36	#8			
2.00	#10			
1.18	#16			
0.850	#20			
0.600	#30			
0.425	#40			
0.300	#50			
0.250	#60			
0.180	#80			
0.150	#100			
0.075	#200			
Hydro. ATM T-1	.02mm			
	.005mm			
	.002mm			

REMARKS:

AASHTO Class:

DOT & PF Soil Descrip:

UNIFIED Class:

Acceptance/Assurance	Acceptable	Unacceptable
Comparison:		
Conforms to Specs:		

Signature: _____

Quality Assurance Inspector

Signature: Maureen Lee

Maureen Lee

Regional Lab Supervisor

Attachment D

State of Alaska Dept. of Transportation Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Lab Number: **01-038** Revised

Project: DALTON HWY MP 111-175 REHAB.(111-144 CONST)
Aksas: 66005
Ledger: 30844442
Sampled by: C MILLER
Date Sampled:
Test Hole:
Station:
Offset:
Depth:

Field Number: DHR-Q-1
Material Site: 85-9-037-2
Other Source:
Item #: 203
Sample of: BX
Date Rec:
Sample Type

Specifications	Tests	Reg Lab	Field Lab	Specs
AASHTO T-89	Liquid Limit	NV		
AASHTO T-90	Plastic Index	NP		
Specific Gravity AASHTO T-85	APP	2.70		
	SSD	2.67		
	BULK	2.66		
	Absorption	0.6		
LeChatelier	Fine Agg.			
AASHTO T-104	Coarse	0.1		
SODIUM	Fine	1.7		
AASHTO T-96	LA	31		
ATM T-13	DEG	21		
ATM T-6	Organic by Ignition			
AASHTO T-21	ORGANIC PPM			
ATM T-5	Moisture Content			
ATM T-4 FRACTURE	4.75mm/+#4 Sgl Face			
	.00mm/+#10 Dbl Face			
	+4.75mm/+#4 Dbl Face			
	+2.00mm/+#10 Sgl Face			
ATM T-9	THIN & ELONGATED			
	FLAKINESS INDEX			
	PROCTOR			
	% Deleterious			

mm	inches	Reg Lab	Field	Specs
+75	+3"	2.8		
75	3"	100		
50	2"	97		
37.5	1 1/2"	90		
25.0	1"	78		
19.0	3/4"	69		
12.5	1/2"	54		
9.5	3/8"	46		
4.75	#4	30		
2.36	#8	22		
2.00	#10	20		
1.18	#16	13		
0.850	#20			
0.600	#30	11		
0.425	#40	8		
0.300	#50	5		
0.250	#60	5		
0.180	#80	2		
0.150	#100	1		
0.075	#200	0.6		
Hydro. ATM T-1	.02mm			
	.005mm			
	.002mm			

REMARKS:

AASHTO Class:

DOT & PF Soil Descrip:

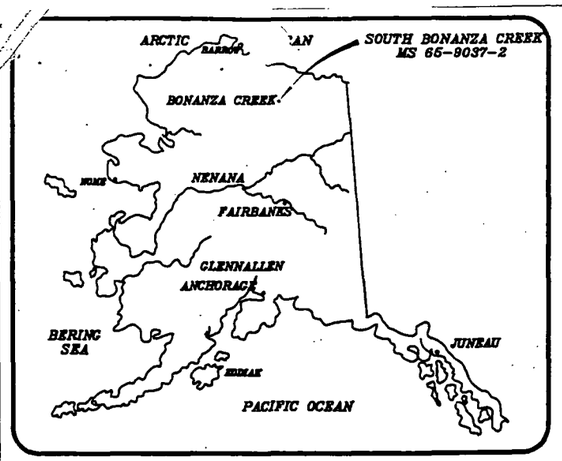
UNIFIED Class:

Acceptance/Assurance	Acceptable	Inacceptable
Comparison:		
Conforms to Specs:		

Signature: _____
Quality Assurance Inspector

Signature: Maureen Lee
Maureen Lee
Regional Lab Supervisor

NO FIELD RESULTS



LOCATION MAP

NOTES:

1. THIS IS A METRIC PROJECT.

2. THE BASIS OF BEARING IS N 9°37'34" E, AS SHOWN ON THE ALYESKA PIPELINE SERVICE COMPANY RIGHT OF WAY DATABASE. REFER TO ANGLE POINT BEARING AND DISTANCE REPORT G-100 ALIGNMENT SHEET 52.

3. THE BASIS OF HORIZONTAL COORDINATES IS PIPELINE PI AP 448 (PG81B)

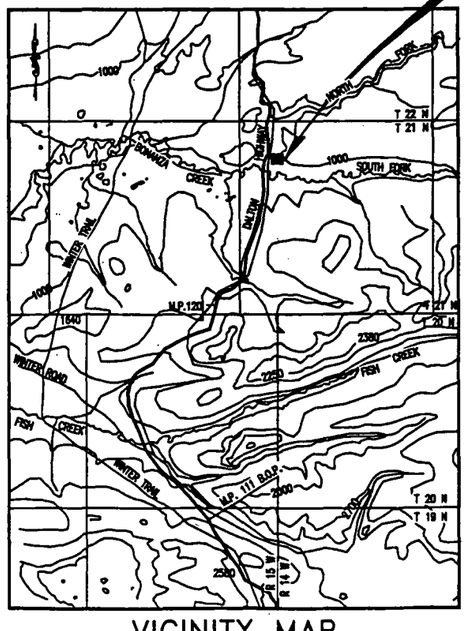
   NAD 27
   LATITUDE: 66°39'35.92182" N
   LONGITUDE: 150°39'18.46812" W

   ALASKA STATE PLANE ZONE 4
   NAD 27 (FEET)
   X 404943.87
   Y 4627807.79

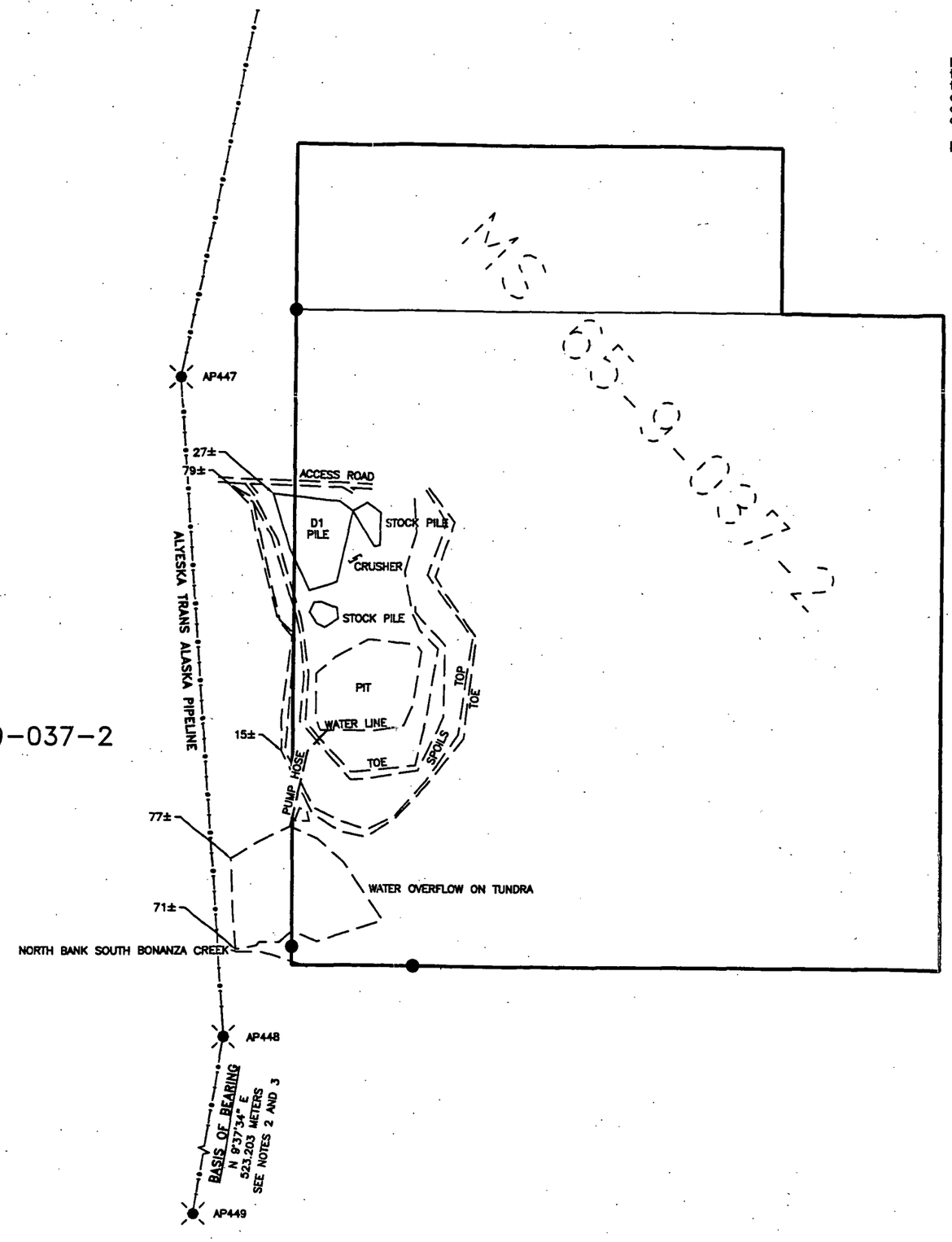
4. THE 5/8" REBAR SET AS SHOWN SHOULD BE CONSIDERED APPROXIMATE MATERIAL SITE BOUNDARY LINES.

5. DISTANCES NOTED ARE FROM THE STAKED WEST BOUNDARY OF THE MATERIAL SITE.

M.S. 65-9-037-2



VICINITY MAP



I hereby certify that I am properly Registered and Licensed to practice Land Surveying in the State of Alaska, and that this plat represents a survey made by me or under my direct supervision, and that the monuments shown hereon actually exist as described, and that all dimensions and other details are correct to the extent shown hereon.

DATE: _____ LS-8689
Registration Number

R Scott Sexton Registered Land Surveyor

STATE OF ALASKA 49TH
R SCOTT SEXTON 8689
REGISTERED PROFESSIONAL LAND SURVEYOR

LEGEND:
- RECOVERED SPIKE
- SET REBAR

FAIRBANKS MERIDIAN

0 60 120 180 240 300
SCALE ~~1:3000~~ 1:6000

DATE: OCTOBER 5, 2001

DATE OF SURVEY	NAME AND ADDRESS:
Beginning: SEPTEMBER 26, 2001 Ending: SEPTEMBER 30, 2001	Department of Transportation and Public Facilities (DOT&PF) 2301 Peger Road Fairbanks, Alaska 99709

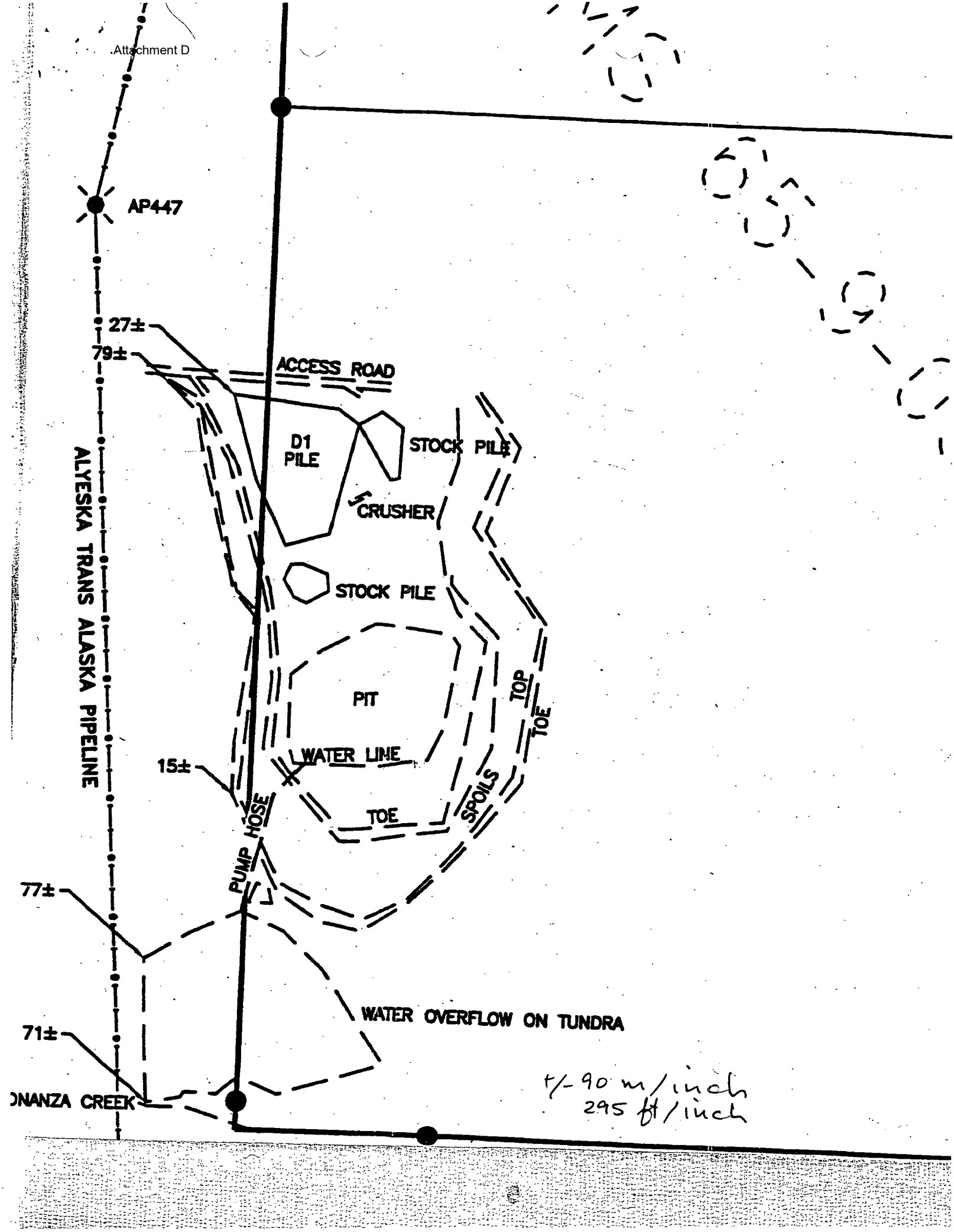
CONTROL DRAWING

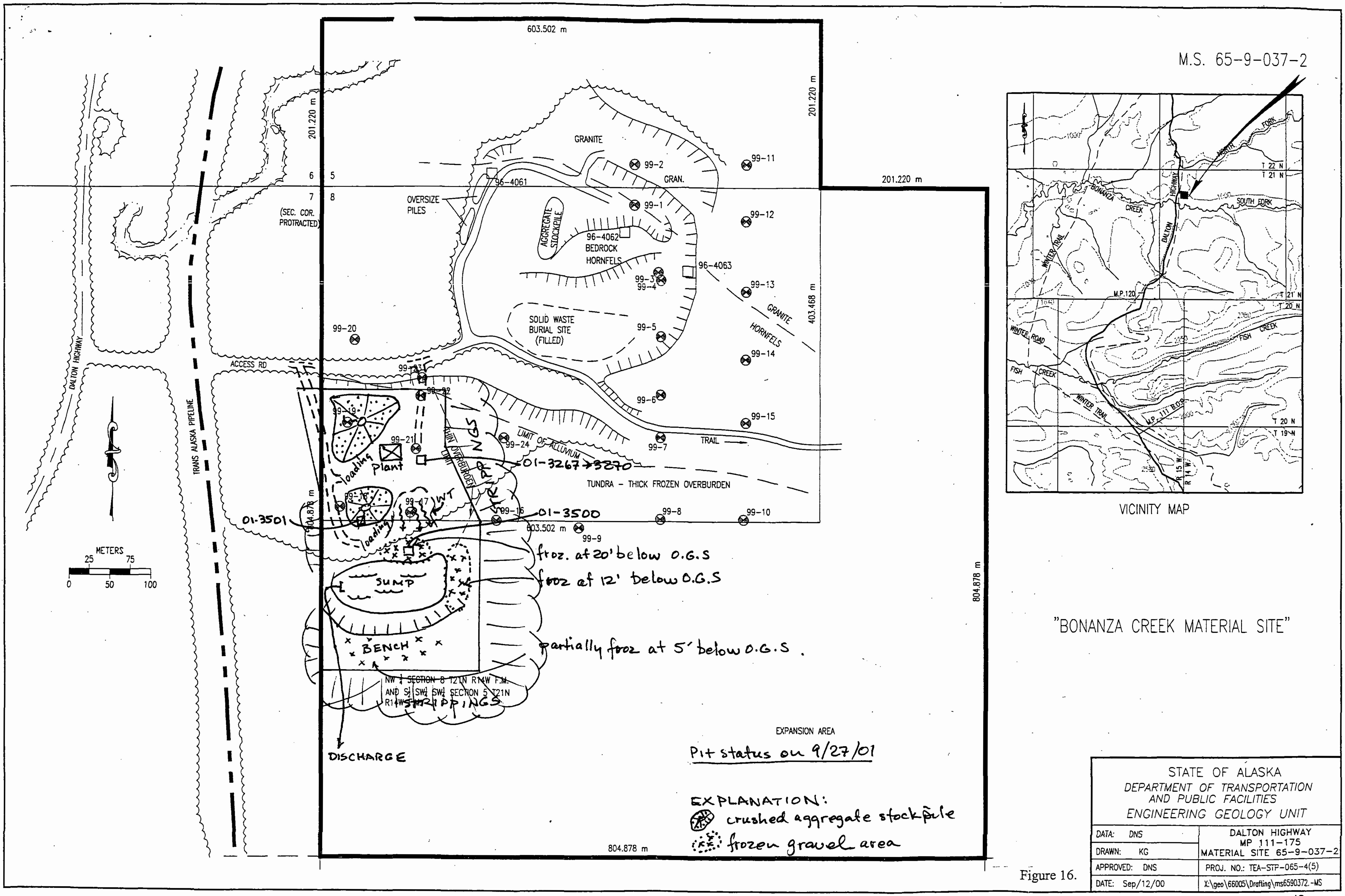
BONANZA CREEK MATERIAL SITE
MS 65-9-037-2
within
T. 21 N., R. 14 W., F.M., SECTIONS 5 AND 8
FAIRBANKS RECORDING DISTRICT

DRAWN BY:	SCALE:	CHECKED BY:	FILE NO.:
mjl	1:3000	RSS	

SHEET 1 OF 1

Attachment D

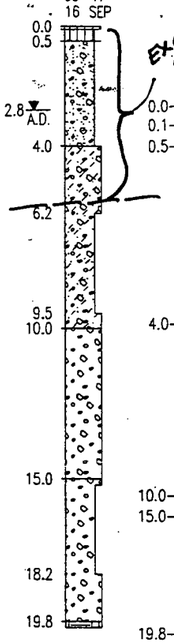




M.S. 65-9-037-2
603.502 m
201.220 m
201.220 m
201.220 m
403.468 m
804.878 m
804.878 m
804.878 m
603.502 m
6 5
7 8
(SEC. COR. PROTRACTED)
GRANITE
GRAN.
GRANITE
HORNFELS
OVERSIZE PILES
AGGREGATE STOCKPILE
96-4061
96-4062
96-4063
BEDROCK HORNFELS
SOLID WASTE BURIAL SITE (FILLED)
99-1
99-2
99-3
99-4
99-5
99-6
99-7
99-8
99-9
99-10
99-11
99-12
99-13
99-14
99-15
99-16
99-19
99-20
99-21
99-22
99-23
99-24
ACCESS RD
DALTON HIGHWAY
TRANS ALASKA PIPELINE
LIMIT OF ALLUVIUM
LIMIT OVERBURDEN
TRAIL
TUNDRA - THICK FROZEN OVERBURDEN
METERS
25 75
0 50 100
NW 1/4 SECTION 8 T21N R14W F.M. AND S1/2 SW1/4 SW1/4 SECTION 5 T21N R14W F.M.
EXPANSION AREA
loading
Plant
WT
STRIPPINGS
SUMP
BENCH
DISCHARGE
01-3267 → 3270
01-3500
01-3501
froz. at 20' below O.G.S
froz at 12' below O.G.S
partially froz at 5' below O.G.S.
Pit status on 9/27/01
EXPLANATION:
crushed aggregate stockpile
frozen gravel area
VICINITY MAP
NORTH FORK
BONANZA CREEK
SOUTH FORK
HIGHWAY
DALTON
WINTER TRAIL
WINTER ROAD
FISH CREEK
FISH CREEK
M.P. 120
M.P. 111 B.O.P.
T 22 N
T 21 N
T 21 N
T 20 N
T 20 N
T 19 N
R 15 W
R 14 W
"BONANZA CREEK MATERIAL SITE"
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
ENGINEERING GEOLOGY UNIT
DATA: DNS
DRAWN: KG
APPROVED: DNS
DATE: Sep/12/00
DALTON HIGHWAY MP 111-175 MATERIAL SITE 65-9-037-2
PROJ. NO.: TEA-STP-065-4(5)
X:\geo\66005\Drafting\ms6590372.-MS

Figure 16.

99-17
16 SEP

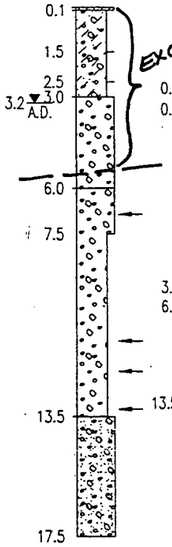


EXCAVATED 9/27/01

MS 65-9-037-2
99-17
16-Sep

0.0–0.1 ORG – lichen, roots, dry soil
0.1– 0.5 ORG – bk sandy Soil
0.5– 4.0 GRAVEL – unfrozen sandy Gravel (<100mm)
SAMPLE 99-3394
(0.1–4.0)
A-1-a
SaGr
SAMPLE 99-3395
(0.1–4.0)
NM = 5.0%
Org = 2.4%
4.0–10.0 GRAVEL – unfrozen Gravel (pred. 12–40mm, up to 100mm) minimal Sand and Si
SAMPLE 99-3396
(6.2–9.5)
A-1-a
Gr
LA = 31
Deg = 37
SSf = 2.8
SSc = 0.5
10.0–15.0 GRAVEL – well-sorted Gravel, wet, sparse cobbles
15.0–19.8 GRAVEL – w/sparse cobbles, wet
SAMPLE 99-3397
(15.2–18.2)
A-1-a
Gr
(drill-washed)
19.8–20.0 BEDROCK – hard Hornfels/Phyllite, refusal

99-18
16 SEP

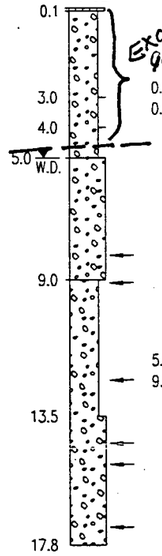


EXCAVATED 9/27/01

MS 65-9-037-2
99-18
16-Sep

0.0– 0.1 ORG – lichen, roots, bk sandy Soil
0.1– 3.0 GRAVEL – unfrozen, sl. sandy, silty Gravel (6mm–40mm)
SAMPLE 99-3398
(0.1–3.0)
A-1-a
Gr
SAMPLE 99-3399
(1.5–2.5)
NM = 1.8%
Org = 1.3%
3.0– 6.0 GRAVEL – (6mm–100mm, ave 20mm), wet
6.0–13.5 GRAVEL – w cobbles, wet
SAMPLE 99-3400
(7.5–13.5)
A-1-a
Gr
13.5–17.5 GRAVEL – sandy, sparse cobbles

99-19
16 SEP

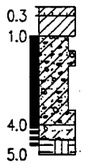


EXCAVATED 9/27/01

MS 65-9-037-2
99-19
16-Sep

0.0– 0.1 ORG – bk Soil, roots
0.1– 5.0 GRAVEL – unfrozen, moist, Gravel (<50mm)
SAMPLE 99-3401
(0.1–5.0)
A-1-a
Gr
LA = 32
Deg = 59
SSf = 2.0
SSc = 0.4
SAMPLE 99-3402
(3.0–4.0)
NM = 2.2%
Org = 1.0%
5.0– 9.0 GRAVEL – well-sorted, minimal fines, sparse cobbles
9.0–17.8 GRAVEL – w/cobbles, wet
SAMPLE 99-3403
(9.0–13.5)
A-1-a
Gr

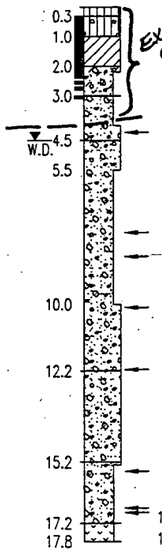
99-20
17 SEP



MS 65-9-037-2
99-20
17-Sep

0.0– 0.3 ORG – moss, roots, bk silty Soil
0.3– 1.0 SILT – bn, moist
SAMPLE 99-3404
(1.0–1.5)
NM = 19.7%
Org = 3.0%
1.0– 4.0 SILT – frozen, sandy w/sparse, v. fine Gravel
SAMPLE 99-3405
(2.0–3.5)
A-4 (0)
SaSi
NP
LL= 26
4.0– 4.5 COLLUVIUM – frozen, silty, Hornfels rubble
4.5– 5.0 BEDROCK – hard Phyllite/Hornfels

99-21
17 SEP

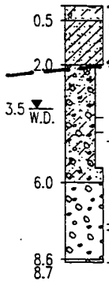


EXCAVATED 9/27/01

MS 65-9-037-2
99-21
17-Sep

0.0– 0.3 ORG – moss, roots, bk Soil
0.3– 1.0 PEAT – w/ice, sparse pebbles
1.0– 2.0 SILT – gy, frozen
2.0– 3.0 GRAVEL – frozen, silty sandy Gravel (<50mm)
3.0– 4.5 GRAVEL –unfrozen sandy Gravel w/cobbles
SAMPLE 99-3406
(2.2–4.0)
A-1-a
sl.SiSaGr
SAMPLE 99-3407
(2.2–4.0)
NM = 8.2%
Org = 0.9%
4.5–12.2 GRAVEL – sandy w/cobbles (250mm +), moist
SAMPLE 99-3408
(5.5–10.0)
A-1-a
SiSaGr
SAMPLE 99-3409
(9.5–10.0)
NM = 8.3%
Org = 0.9%
12.2–15.2 GRAVEL – sandy, finer, less cobbles, wet
15.2–17.2 GRAVEL – sandy, w/dense cobbles and boulders (250mm+), wet
SAMPLE 99-3410
(15.3–17.8)
A-1-b
SiSaGr
17.2–17.8 BEDROCK – soft, weathered Phyllite

99-22
17 SEP

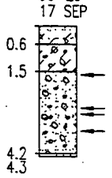


EXCAVATED 9/27/01

MS 65-9-037-2
99-22
17-Sep

0.0– 0.5 COLLUVIUM – coarse Hornfels rubble
0.5– 2.0 SILT – bn sandy
2.0– 6.0 GRAVEL – sandy, silty, <75mm) sparse cobbles
SAMPLE 99-3411
(2.0–5.5)
A-1-b
SaSiGr
NP
LL= 24
SAMPLE 99-3412
(3.8–4.3)
NM = 9.1%
Org = 1.8%
6.0– 8.6 GRAVEL – (<75mm) w/cobbles and boulders
8.6– 8.7 GRAVEL – big boulders (drill refusal)

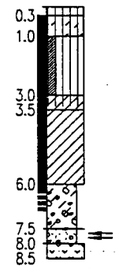
99-23
17 SEP



MS 65-9-037-2
99- 23
17-Sep

0.0– 0.6 COLLUVIUM – coarse Hornfels rubble
0.6– 1.5 GRAVEL – silty (<40mm)
1.5– 4.2 GRAVEL – sandy Gravel w/dense cobble layers and boulders, dry
4.2– 4.3 BEDROCK – v. hard Hornfels/Phyllite

99-24
17 SEP

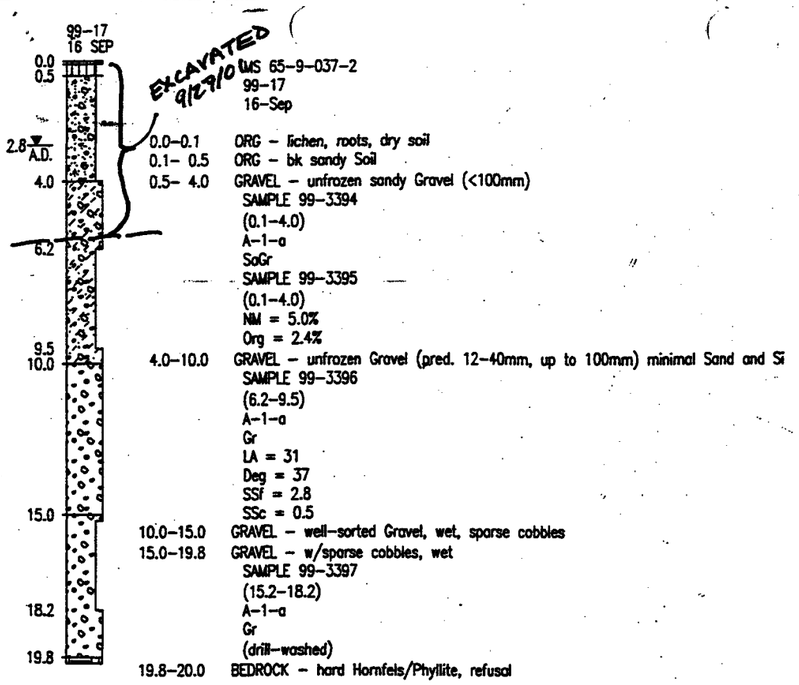


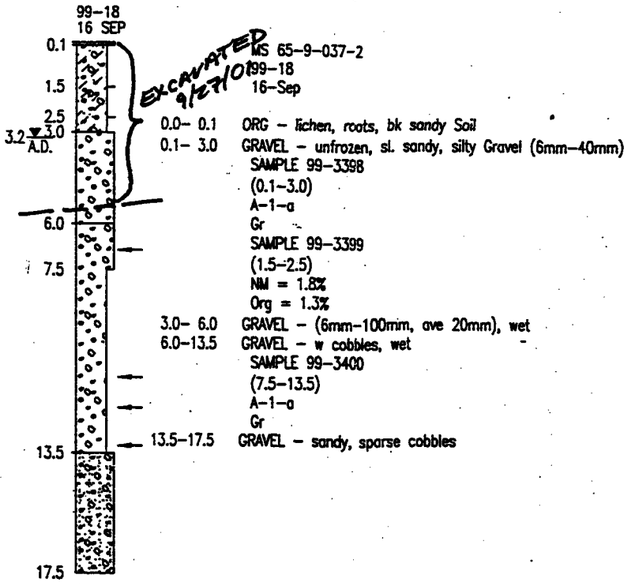
MS 65-9-037-2
99- 24
17-Sep

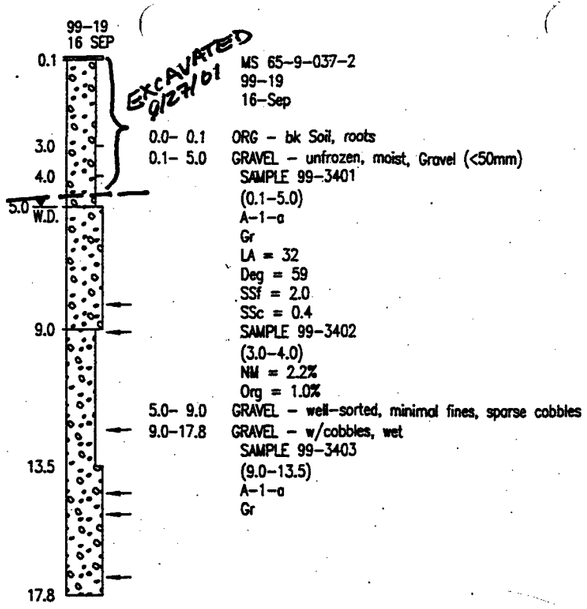
0.0– 0.3 ORG – moss, roots, bk org Soil
0.3– 1.0 ORG – bk sl. silty Soil
1.0– 3.0 PEAT –w/clear Ice (<20%)
3.0– 3.5 MUCK – Bk, highly organic Silt
3.5– 6.0 Gy SILT – frozen
6.0– 7.5 GRAVEL – silty, (<40mm)
SAMPLE 99-3413
(6.0–8.0)
A-2-4
SaSiGr
7.5– 8.0 GRAVEL – sandy w/close-packed cobbles
8.0– 8.5 BEDROCK –soft, weathered Hornfels

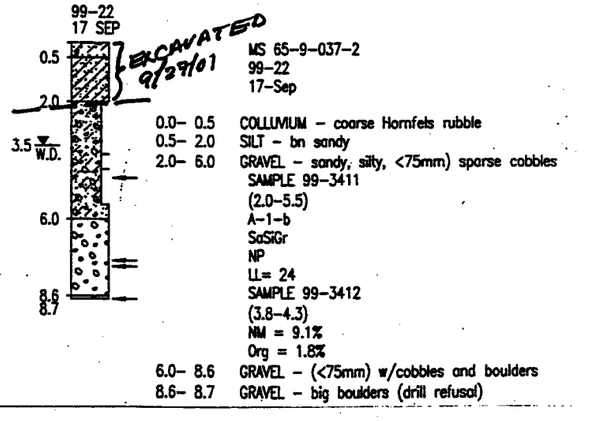
STATE OF ALASKA *DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES* *ENGINEERING GEOLOGY UNIT*	
DATA: GF	DALTON HIGHWAY MP 111–175 MATERIAL SITE 65–9–037–2
DRAWN: JB	
APPROVED: DNS	PROJ. NO.: TEA-STP-065-4(5)
DATE: Aug/14/00	X:\geo\66005\Drafting\ms6590372.-L4

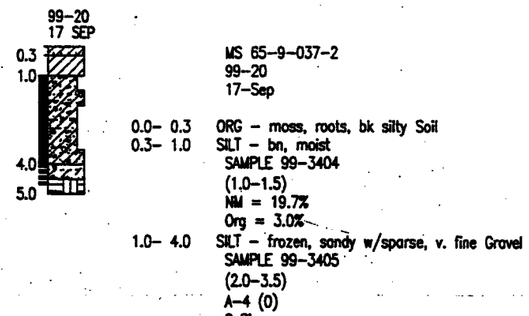
Figure 19.

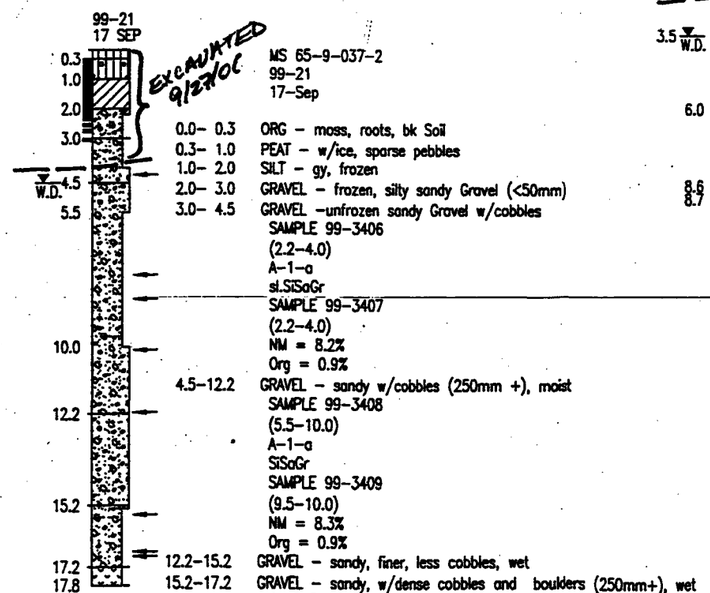


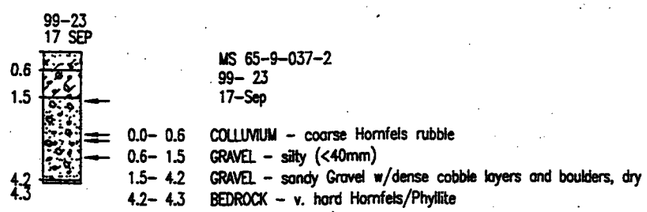


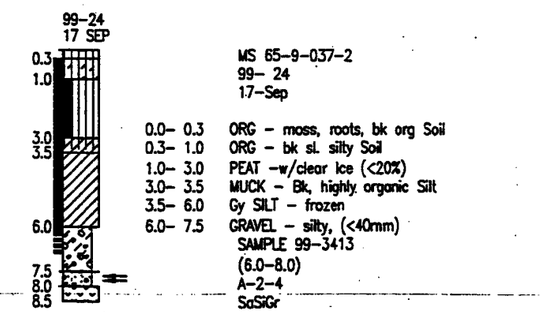












STATE OF ALASKA *DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES* *ENGINEERING GEOLOGY UNIT*	
DATA: GF	DALTON HIGHWAY MP 111–175 MATERIAL SITE 65–9–037–2
DRAWN: JB	
APPROVED: DNS	PROJ. NO.: TEA–STP–065–4(5)
DATE: Aug/14/00	X:\geo\66005\Drafting\ms6590372.-L4

Figure 19.

Attachment D

TESTHOLE		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
DEPTH (feet)		pit	pit	crusher	pit	pit	pit	pit	pit	pit	pit	pit
MATERIAL SITE		65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2
FIELD NO.		01-3267	01-3268	01-3269	01-3270	(01-3270)	(01-3267)	(01-3268)	01-3500	01-3501	01-3502	
LABNUM		01-394	01-395	01-396	01-397	01-398	01-399	01-400	01-552	01-553	01-554	01-555	01-556
DATE SAMPLED		8/1/01	8/1/01	8/1/01	8/1/01	8/24/01	8/24/01	8/24/01	9/27/01	9/27/01	9/27/01	10/3/01	10/15/01
SV75mm	3"	100	100		100				100				
SV50mm	2"	98	98		94				95				
SV37_5mm	1.5"	91	90		90				91				
SV25_0mm	1.0"	79	78	100	82				82				
SV19_0mm	0.75"	71	70	93	73				94			100	100
SV12_5mm	0.5"	60	57	69	60				61			86	87
SV9_5mm	0.375"	53	50	57	52				54			68	70
SV6_35mm	0.25"								45			48	51
SV4_75mm	#4	39	35	39	37				40			39	42
SV2_36mm	#8	29	26	28	28				31			26	29
SV2_00mm	#10	28	25	27	27				30				27
SV1_18mm	#16	24	21	23	23				25			20	24
SV850um	#20												
SV600um	#30	19	16	19	20				19				19
SV425um	#40	16	13	17	17				14				16
SV300um	#50	13	11	14	14				10			11	14
SV250um	#60	11	10	13	13				8				12
SV180um	#80	9	8	11	10				6				10
SV150um	#100	8	7	10	9				6				9
SV75um	#200	5.5	4.6	6.8	5.8				3.5			4.7	5.6
HYDRO_02													
HYDRO_005													
HYDRO_002													
LL		NV	NV	NV	NV				NV			NV	NV
P I		NP	NP	NP	NP				NP			NP	NP
AASHTO CLASS		A-1-a	A-1-a	A-1-a	A-1-a				A-1-a				
TEXTURAL CLASS		SaGr	Gr	sl.SiGr	SaGr				Sa Gr				
MOISTURE CONTENT											7.7		
ORGANIC BY IGNITION													
LeCHAT													
T 85 APPARENT SpG													
PROCTOR DENSITY													
PROCTOR MOISTURE													
L A		35.0	35.0	insuf.	36.0				36.5	29.9			
DEG		28.0	17.0	47.0	61.0	36.0	33.0	36.0	44.0	48.0			
SODIUM CRS		1.9	1.0	1.6	1.5				0.7				
SODIUM FINES		3.1	2.6	2.2	1.9				1.7				
FRACTURE %												67.0	84.5
COMMENT		01-3267 feed pile	01-3268 pit, feed area	01-3269 crusher output	01-3270 pit-run as hauled	re-submit 01-3270 deg	re-submit 01-3267 deg	re-submit 01-3268 deg	pit-run, froz floor, meeting site	stockpile, cover coat ag.	s.a.01-3500	crusher, cover coat ag.	crusher, cover coat ag.

Attachment D

6/01/01 ?

Prev. to June 5 6/1/01?

State of Alaska Dept. of Transportation Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Lab Number: 01-038

Project: DALTON HWY MP 144-175 REHAB
Akaas: 67150
Ledger: 30083642
Sampled by: C MILLER
Date Sampled:
Test Hole:
Station:
Offset:
Depth:

Field Number: DHR-Q-1
Material Site: 65-9-037-2
Other Source:
Item #: 203
borrow B?
Sample of: BX
Date Rec:
Sample Type

Specifications	Tests	Reg Lab	Field Lab	Specs
AASHTO T-89	Liquid Limit	NV		
AASHTO T-90	Plastic Index	NP		
Specific Gravity AASHTO T-85	APP	2.70		
	SSD	2.67		
	BULK	2.66		
	Absorption	0.6		
LeChatelier	Fine Agg.			
AASHTO T-104 SODIUM	Coarse	0.1		
	Fine	1.7		
AASHTO T-96	LA	31		
ATM T-13	DEG	21		
ATM T-6	Organic by Ignition			
AASHTO T-21	ORGANIC PPM			
ATM T-5	Moisture Content			
ATM T-4 FRACTURE	4.75mm/+#4 Sgl Face			
	00mm/+#10 Dbl Face			
	+4.75mm/+#4 Dbl Face			
	+2.00mm/+#10 Sgl Face			
ATM T-9	THIN & ELONGATED			
	FLAKINESS INDEX			
	PROCTOR			
	% Deleterious			

mm	Inches	Reg Lab	Field	Specs
+76	+3"	2.8		
75	3"	103		
50	2"	97		
37.5	1 1/2"	90		
25.0	1"	78		
19.0	3/4"	69		
12.5	1/2"	54		
9.5	3/8"	46		
4.75	#4	30		
2.36	#8	22		
2.00	#10	20		
1.18	#16	16	13?	
0.850	#20			
0.600	#30	11		
0.425	#40	8		
0.300	#50	5		
0.250	#60	3		
0.180	#80	2		
0.150	#100	1		
0.075	#200	0.6		
Hydro. ATM T-1	.02mm			
	.005mm			
	.002mm			

REMARKS:

AASHTO Class:

Acceptance/Assurance	Acceptable	Inacceptable
Comparison:		
Conforms to Specs:		

DOT & PF Soil Descrip:
UNIFIED Class:

Signature: _____
Quality Assurance Inspector

Signature: Madrean Lee
Regional Lab Supervisor

Attachment D

6/1/01

State of Alaska Dept. of Transportation Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Lab Number: **01-089**

Project: DALTON HWY MP 111-175 REHAB.(111-144 CONST)
Aksas: 66005
Ledger: 30844442
Sampled by: C MILLER
Date Sampled: 1-Jun-01
Test Hole:
Station: 20+000
Offset: PROJECT L
Depth:

Field Number: A-SMB-G-4
Material Site: 65-9-037-2
Other Source:
Item #: 203(5)
Sample of: BORROW B
Date Rec:
Sample Type ASSUR/ACCEPT

Specifications	Tests	Reg Lab	Field Lab	Specs
AASHTO T-89	Liquid Limit	NV	NV	
AASHTO T-90	Plastic Index	NP	NP	
Specific Gravity AASHTO T-85	APP			
	SSD			
	BULK			
	Absorption			
LeChatelier	Fine Agg.			
AASHTO T-104 SODIUM	Coarse			
	Fine			
AASHTO T-96	LA			
ATM T-13	DEG			
ATM T-6	Organic by Ignition			
AASHTO T-21	ORGANIC PPM			
ATM T-5	Moisture Content			
ATM T-4 FRACTURE	4.75mm/+#4 Sgl Face			
	00mm/+#10 Dbl Face			
	+4.75mm/+#4 Dbl Face			
	+2.00mm/+#10 Sgl Face			
ATM T-9	THIN & ELONGATED			
	FLAKINESS INDEX			
	PROCTOR			
	% Deleterious			

mm	Inches	Reg Lab	Field	Specs
+75	+3"	0.6	3.7	
75	3"			
50	2"	97	97	
37.5	1 1/2"	94	96	
25.0	1"	82	87	
19.0	3/4"	79	79	
12.5	1/2"	68	69	
9.5	3/8"	62	62	
4.75	#4	48	48	
2.36	#8	41		
2.00	#10	39		
1.18	#16	35		
0.850	#20			
0.600	#30	27		
0.425	#40	21		
0.300	#50	15		
0.250	#60	12		
0.180	#80	8		
0.150	#100	6		
0.075	#200	3.6	3.5	0-10
Hydro. ATM T-1	.02mm			
	.005mm			
	.002mm			

REMARKS:

AASHTO Class: A-1-a
DOT & PF Soil Descrip: SaGr
UNIFIED Class:

Acceptance/Assurance	Acceptable	Inacceptable
Comparison:	✓	
Conforms to Specs:		

Signature: Peter H. Mayo
Quality Assurance Inspector

Signature: Maureen Lee
Maureen Lee
Regional Lab Supervisor

Attachment D

7/14/01

State of Alaska Dept. of Transportation Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Lab Number: 01-265

Project: DALTON HWY MP 111-175 REHAB.(111-144 CONST)

Aksas: 66005

Ledger: 30844442 **Field Number:** A-SMB-G-25

Sampled by: AS **Material Site:**

Date Sampled: 14-Jul-01 **Other Source:**

Test Hole: **Item #:** 203(6)

Station: 17+550 **Sample of:** BORROW

Offset: Lt **Date Rec:**

Depth: BOTTOM B **Sample Type** ASSUR/ACCEPT

Specifications	Tests	Reg Lab	Field Lab	%Specs
AASHTO T-89	Liquid Limit	NV	NV	
AASHTO T-90	Plastic Index	NP	NP	0 – 6
AASHTO T-85	Specific Gravity APP			
	SSD			
	BULK			
	Absorption			
LeChatelier	Fine Agg.			
AASHTO T-104	Coarse			
SODIUM	Fine			
AASHTO T-96	LA			
ATM T-10	SEG			
ATM T-6	Organic by Ignition			
AASHTO T-21	ORGANIC PEM			
ATM T-5	Moisture Content			
ATM T-8	+4.75mm/#4 1 Face			
FRACTURE	+2.00mm/#10 1 Face			
	+4.75mm/#4 2 Face			
	+2.00mm/#10 2 Face			
ATM T-9	THIN & ELONGATED			
	FLAKINESS INDEX			
	PROCTOR			
	% Deleterious			

Sieves	Inches	Reg Lab	Field Lab	%Specs
#75	#3"			
75	3"	100	100	
50	2"	97	99	
37.5	1 1/2"	95	97	
25.0	1"	86	88	
19.0	3/4"	78	81	
12.5	1/2"	68	68	
9.5	3/8"	58	61	
4.75	#4	42	44	
2.36	#8	31		
2.00	#10	30		
1.18	#16	26		
0.850	#20			
0.600	#30	21		
0.425	#40	18		
0.300	#50	14		
0.250	#60	12		
0.180	#80	10		
0.150	#100	9		
0.075	#200	5.7	6.3	0-10
HYDRO	.02mm			
ATM T-7	.005mm			
	.002mm			

REMARKS:

AASHTO Class: A-1-a

DOT & PF Soil Descrip: SaGr

UNIFIED Class:

Acceptance/Assurance	Acceptable	Unacceptable
Comparison:		
Conforms to Specs:		

Signature: _____
Quality Assurance Inspector

Signature: Maureen Lee
Maureen Lee
Regional Lab Supervisor

MS Files Dalton
65-9-037-2

Suppl to
Dal III-175, Rehab.
Material Sites
11/2000

Attachment D

M.S. 65-9-037-2 (ALYESKA 89-3)

LOCATION AND ACCESS

M.S. 65-9-037-2 is approximately 450 m east of the Dalton Highway near MP 125. The work area is connected to the Dalton Highway by a 700 m long, well-maintained gravel road that crosses the buried Trans Alaska Pipeline. A seldom-used, drivable trail exits from the south side of the work area and continues up the South Fork Bonanza Creek valley.

DESCRIPTION

The site is situated on a southwest-facing hillside at the end of a ridge that divides the North Fork and the South Fork of Bonanza Creek drainages. It contains two distinct material sources; an existing bedrock quarry (designated "North Area" in this report) and an undeveloped alluvial deposit south of the access road (designated "South Area").

Including the expansion permitted in 2000, the site area is approximately 76 ha in total size, of which about 9 ha has been developed. The excavated area is a roughly circular shaped pit, 250 m in diameter, with current operations in the north end. The remainder is inactive and is partly revegetated with birch, aspen and spruce regrowth. A 150 m X 60 m area in the south half of the pit has been used for burial of construction waste.

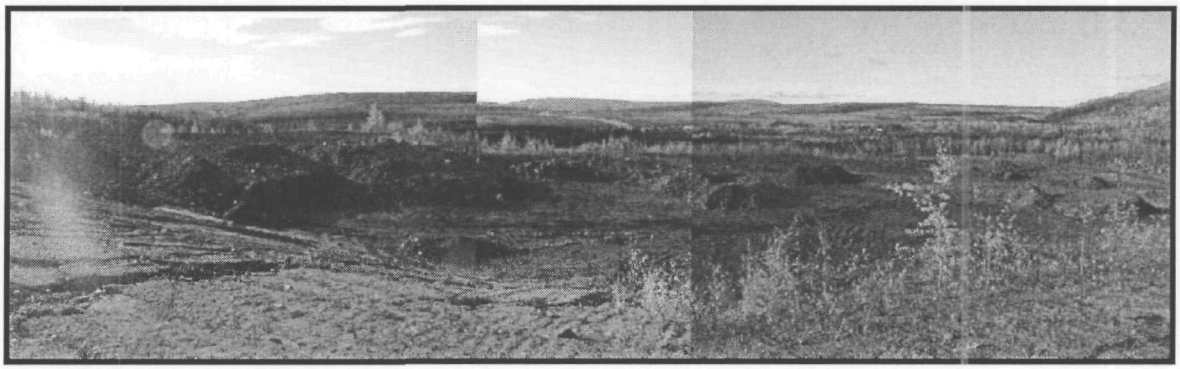


Figure 14. Photo: M.S. 65-9-037-2.
Looking south from Test Hole 99-2 site. Current work area in foreground.

North Area:

The bedrock quarry site is located on the contact zone between grey, hornfels-altered phyllite and soft granite. The contact, dipping moderately toward the south, runs in a northwesterly direction along the northern margin of the pit. The phyllite has been subjected to varying degrees of hornfels alteration due to proximity of the granite intrusive, making it slightly harder and more resistant to weathering in that area. Conversely, the granite is very soft and easily weathered, probably due to its interaction with the adjacent phyllite during intrusion.

South Area:

The undeveloped area south of the access road contains a deposit of alluvial gravel in the South Fork Bonanza Creek valley. Within the present boundaries, the alluvial deposit is 7.2 ha in area. The western 3.6 ha has unfrozen, uniform, coarse gravel near surface, with maximum thickness greater than 19 m. In the east portion, the gravel is overlain by up to 13 m of frozen peat and frozen muck (organic silt).

DEVELOPMENT

This material site was developed in the 1970s during construction of the Pipeline and Dalton Highway. At least 300,000 cu m of borrow and rock has been extracted from the existing worked area. Identifiable rock and overburden waste is less than 20,000 cu m, stockpiled south of the access road.

Current operations are sporadic, involving occasional excavation of fractured grey phyllite/hornfels from a working face near the northeast edge of the pit. A stockpile of crushed, 50mm (-) aggregate and a large pile of apparent oversize screen reject up to 150mm are in place. A small amount of 1m (+) oversize material is piled along the access road on the west side of the pit.

A small area of soft granite bedrock was stripped at the far northern margin of the pit, probably for exploration. It has been stabilized and recontoured to control erosion.

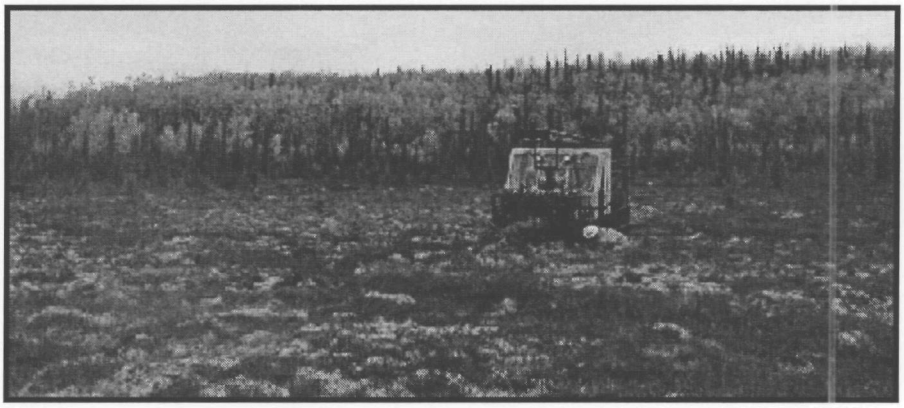


Figure 15. Photo: M.S. 65-9-037-2.

Tundra-covered portion of the South Area. The existing pit (in the North Area) is beyond the trees in the background.

WATER TABLE AND PERMAFROST

North Area:

No permafrost was identified in the existing pit or toward the east on the ridge. The mossy, forested area west of the pit appears to be mostly underlain by permafrost. The only ground water encountered in drilling was impounded water at 2.5 m below surface in a small sump area of the pit floor.

South Area:

Of the South Area, the eastern half is covered by thick organic overburden which is permanently frozen with abundant free ice. The western half is unfrozen. In all parts of

the alluvial area, active ground water is consistent between 2.8 m and 5.0 m deep (depending on topography), or is confined beneath the base of permafrost.

LAND AND PERMIT STATUS

BLM Free Use Permit No. F74044 is in effect, covering the area described as follows: NW¼ of Section 8 and S½ SW¼ SW¼ and SW¼ SE¼ SW¼ of Section 5 T21N R14W F.M. This includes an expansion of the area boundaries, under a permit amendment issued in 2000. The permit further requires that any expansion outside of the existing work area will require archeological clearance.

This site is used jointly, under agreement with AKDOT&PF and Alyeska, and the site is within the Trans Alaska Pipeline System (TAPS) Corridor. The current work area is within 402 m (¼ mile) of the Pipeline centerline the nearest margin of the southern (gravel site) area will be within 100 m. Significant development within the site, particularly including blasting, will need to be coordinated with Alyeska.

The southern area is on lands classified as wetlands and excavations in that area will require a Corps of Engineers, Section 404 permit.

GEOTECHNICAL INVESTIGATION

Geotechnical investigations for the purpose of this report were conducted by AK DOT Northern Region Design and Engineering Geologists Mike Grahek in 1996 and Gary Fitch in 1999. These programs included surface sampling in 1996 and twenty-four 150 mm solid stem auger boreholes, drilled in 1999. Results of 60 lab analyses for materials qualities are presented.

QUALITY OF MATERIALS

North Area:

The pit is known to have provided borrow, screened aggregate, and quarried rock at least to Class II riprap. A small amount of oversize waste up to 2 m in dimension is evident stored along margins of the pit. Because of the brittle, fractured nature of the rock, however, it would probably not provide a sufficient proportion of large sizes to produce riprap except as a by-product. Whether it has been used for crushed aggregate is not known.

Rock quality tests from surface samples in the pit are as follows:

Rock type:	LA Abrasion Loss (AASHTO T-96)	Degradation (ATM T-13)	Sodium Sulf. crse. (AASHTO T-104)
hornfels	17	35	1.4
phyllite	27	36	0.7
granite	54	37	9.9

Colluvial material on the property has varying qualities depending on the content of fines derived from decaying granite. The decomposed granite (grus) and granite–derived colluvium east of the pit were found to have a high clay content and plasticity index values of 18, 22, and 27 (see holes 99-11 and 99-14). This material might be useable as borrow, Selected Material, Type C. Classification of the weathered hornfels/phyllite

rubble and silty hornfels-derived colluvium with no granitic component is in the A-1-b to A-2-4, (non-plastic) range.

South area:

Alluvial materials in the south area are predominantly A-1-a to A-2-4 gravel and sandy gravel. They are generally coarser with thinner overburden west of hole 99-16, with an average of 33% in the 12.5 mm to 50 mm size range (ATM T-7). This area has dense layers of cobbles estimated at least 150 mm in size. Rock qualities tests of gravel are as follows:

	LA Abrasion Loss (AASHTO T-96)	Degradation (ATM T-13)	Sodium Sulf. crse. (AASHTO T-104)
alluvial (TH99-17)	31	37	0.5
alluvial (TH99-19)	32	59	0.4

MINING PLAN RECOMMENDATIONS

North Area:

Only bedrock in the north half of the existing pit floor can be excavated in order to avoid areas of buried waste in the south part. An abrupt scarp which runs across the pit (2 to 4 m lower on the south side) marks the approximate dividing line. Below the near-surface rubble and fractured zone, the hornfels/phyllite bedrock probably will require blasting.

Hornfels/phyllite bedrock in the southeast wall of the pit can be mined into the hill. Haulage and material handling could be over buried waste areas if a sufficient thickness of fill is maintained to keep the buried material undisturbed.

South Area:

In the area of holes 99-17, 18, 19, 21, gravel is at or near surface with minimal or no overburden to be stripped. From hole 99-16 eastward, frozen organic silt deposits from 3.0 to 9.0 m thick makes mining the underlying gravel impractical. Excavations in the alluvial deposits beneath the valley floor will encounter rapid water infiltration below 3 to 5 m and will likely require "bailing" gravel from an inundated pit.

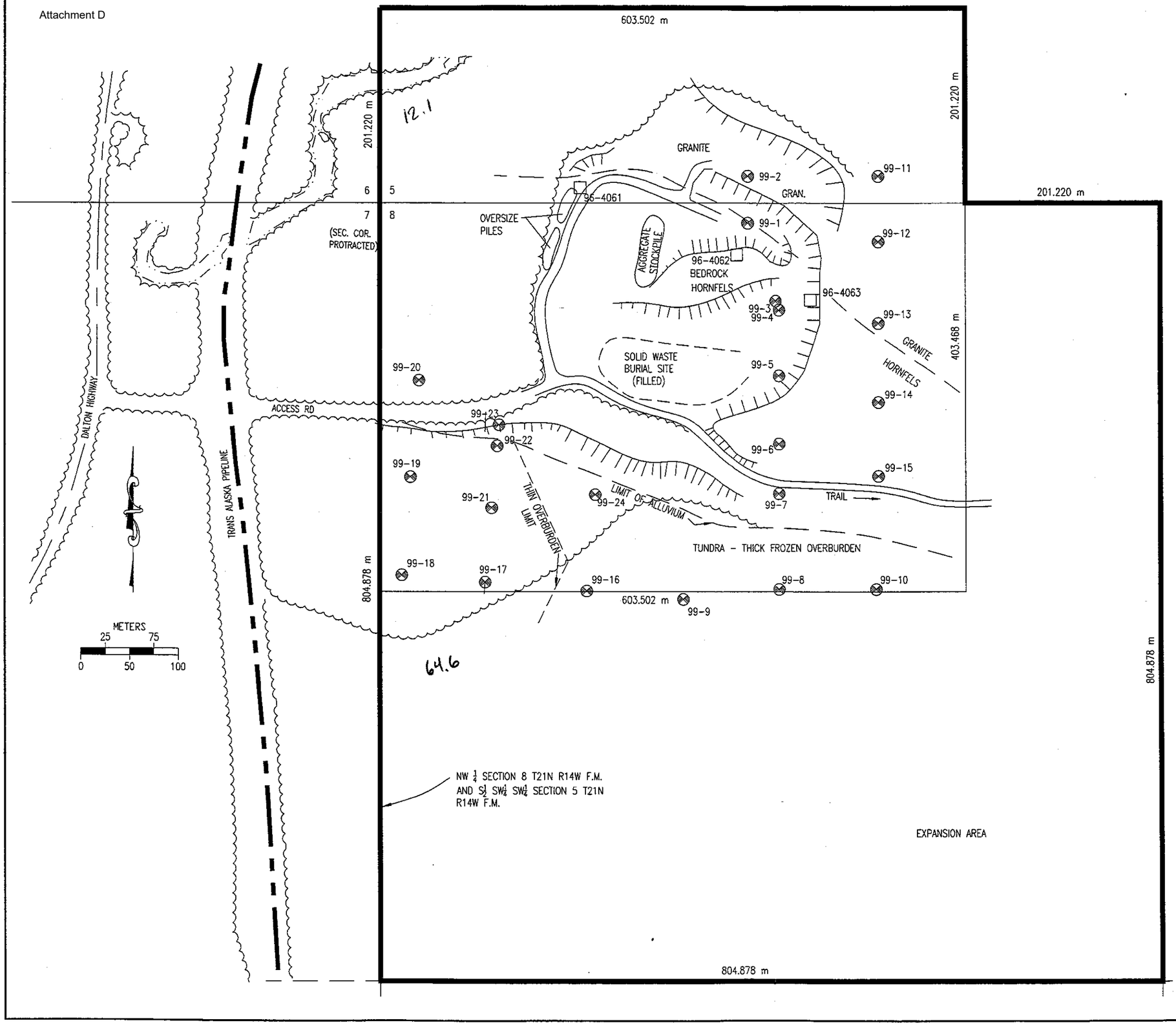
REHABILITATION PLAN RECOMMENDATIONS

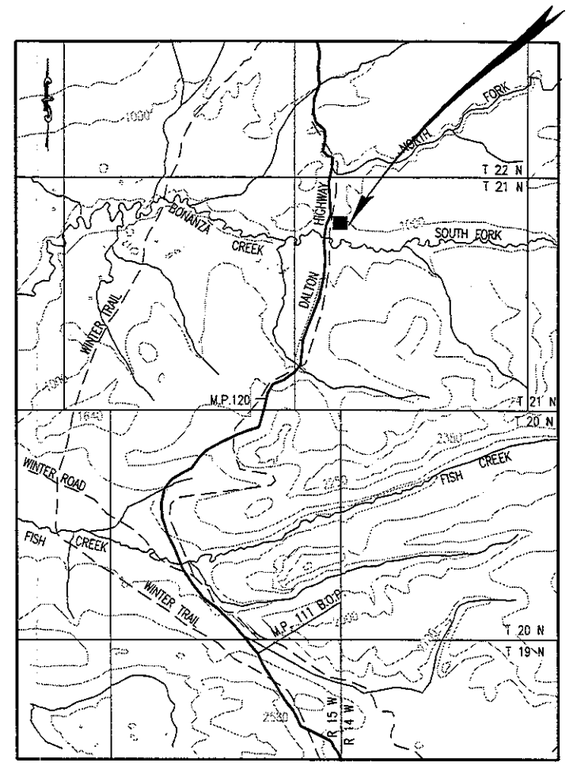
In the North Area, any sloped exposures in the soft, weathered granite will be prone to rapid erosion. Maintaining those areas to control runoff and erosion will be necessary during and after excavation. All slopes should be stabilized to promote natural revegetation.

In the South Area gravel source, walls in the flooded pit should be left at a stable angle of repose and allowed to revegetate naturally. Slough, subsidence or erosion of loose material in the pit walls should not be allowed to progress beyond the material site boundaries. Particular care must be exercised during and after excavation, to maintain ground stability in any areas where the Trans Alaska Pipeline structure might be affected.

Attachment D

M.S. 65-9-037-2





VICINITY MAP

"BONANZA CREEK MATERIAL SITE"

STATE OF ALASKA *DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES* *ENGINEERING GEOLOGY UNIT*	
DATA: DNS	DALTON HIGHWAY MP 111-175 MATERIAL SITE 65-9-037-2
DRAWN: KG	
APPROVED: DNS	PROJ. NO.: TEA-STP-065-4(5)
DATE: Sep/12/00	X:\geo\66005\Drafting\ms6580372.-MS

Figure 16.

99-1
13 SEP

MS 65-9-037-2
99- 1
13-Sep

0.0- 1.0 FILL - mixed Silt and Hornfels rubble
1.0- 2.0 FILL - silty, coarse Hornfels rubble
2.0- 7.0 COLLUVIUM - Silt and v. sparse Hornfels fragments
SAMPLE 99-3437
(3.0-6.0)
A-4 (0)
GrSaSi
NP
LL= 27

99-2
13 SEP

MS 65-9-037-2
99- 2
13-Sep

0.0- 1.5 COLLUVIUM - silty sandy Grus, Granite fragments <150mm
1.5- 4.0 BEDROCK - v. soft weathered Granite
SAMPLE 99-3358
(1.5-3.6)
A-1-b
SiGrSa
22% -.075mm
NP
SAMPLE 99-3359
(1.5-3.6)
NM = 5.1%
Org =0.97%
4.0- 5.0 BEDROCK - v. soft weathered Granite
5.0- 6.0 BEDROCK - mod hard Granite

99-3
13 SEP

MS 65-9-037-2
99- 3
13-Sep

0.0- 1.0 FILL - Hornfels rubble and rd org Silt
1.0- 2.5 FILL - silty, coarse Hornfels rubble
2.5- 2.7 BEDROCK - v. hard, Hornfels

99-4
13 SEP

MS 65-9-037-2
99- 4
13-Sep

0.0- 0.2 FILL - rd org Silt
0.2- 3.0 FILL - bn silty, sandy, close-packed Hornfels rubble
SAMPLE 99-3360
(1.2-3.5)
A-2-4
SaSiGr
33% -.075mm
3.0- 6.0 BEDROCK - soft, decomposed Hornfels, wet
6.0- 10.8 BEDROCK - v soft, decomposed Hornfels
SAMPLE 99-3361
(6.6-7.5)
NM = 30.5%
Org = 0.5%
SAMPLE 99-3362
(8.8-10.8)
A-2-4
SiGrSa
25% -.075mm

99-5
13 SEP

MS 65-9-037-2
99- 5
13-Sep

0.0- 1.0 FILL - silty soil and coarse Hornfels rubble
1.0- 2.0 FILL - coarse Hornfels rubble, refusal

99-6
13 SEP

MS 65-9-037-2
99- 6
13-Sep

0.0- 0.2 ORG - bn silty org Soil, dry
0.2- 5.0 COLLUVIUM - Bn sandy Silt and sparse Hornfels/Phyllite fragments
SAMPLE 99-3363
(2.0-4.5)
NM = 6.3%
Org = 1.8%
SAMPLE 99-3364
(2.0-4.5)
A-4-(0)
SaSi
45% -.075MM
5.0- 9.0 COLLUVIUM - gy Silt and Hornfels fragments, dry
9.0-13.6 COLLUVIUM - gy Silt and Hornfels fragments, dry
SAMPLE 99-3365
(9.0-10.8)
A-4 (0)
GrSaSi
NP
13.6-14.0 BEDROCK - hard Hornfels, refusal

99-7
14 SEP

MS 65-9-037-2
99- 7
14-Sep

0.0- 1.0 FILL - Roadbed, bn Silt and Hornfels rubble
1.0- 3.0 COLLUVIUM - silty sandy Soil and sparse Hornfels rubble, dry
3.0- 6.8 COLLUVIUM - silty sandy Soil, sparse Hornfels rubble, wet
SAMPLE 99-3367
(2.0-4.0)
A-2-4
SaSiGr
6.8- 7.2 COLLUVIUM - Clay and Hornfels rubble
7.2- 7.8 COLLUVIUM - Clay,Silt and dense Hornfels rubble
7.8- 8.5 BEDROCK - hard Hornfels
8.5- 9.0 BEDROCK - soft Hornfels
6.0-10.0 BEDROCK - hard Hornfels
10.0-11.0 BEDROCK v. soft Hornfels
11.0-11.5 BEDROCK - hard Hornfels

99-8
14 SEP

MS 65-9-037-2
99- 8
14-Sep

0.0- 0.6 ORG MAT moss, lichen, roots, tundra
0.6- 4.5 PEAT - frozen org and ice (30%)
4.5- 6.6 ORG - bk sl. sandy, org Silt (Muck) and clear ice (30%)
6.6- 8.3 COLLUVIUM - silty sandy Hornfels rubble, froz
8.3- 9.5 COLLUVIUM - Silt, Sand and coarse Hornfels rubble, wet
9.5-10.7 GRAVEL -bk silty sandy Gravel (<40mm)
SAMPLE 99-3368
(9.5-10.7)
A-1-a
sl.SiSaGr
SAMPLE 99-3369
(10.0-10.5)
NM = 11.9%
Org = 1.3%

99-9
14 SEP

MS 65-9-037-2
99- 9
14-Sep

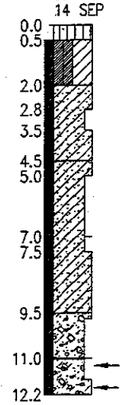
0.0- 1.0 ORG MAT- moss, lichen, roots, tundra
1.0- 5.0 PEAT - sl. silty, froz w/ice
5.0- 6.5 MUCK - bk, highly org Silt
6.5- 9.0 MUCK - bk highly org Silt, coarse Hornfels fragments and ice, wet
9.0-10.5 SAND - bk silty gravelly, w/Cobbles.
10.5-13.2 SAND - bk silty Sand and fine gravel
SAMPLE 99-3370
(10.5-12.2)
A-2-4
SiGrSa
26% -.075mm
SAMPLE 99-3374
(10.5-12.2)
NM = 37.8%
Org = 2.4%

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
ENGINEERING GEOLOGY UNIT

DATA: GF	DALTON HIGHWAY MP: 111-175 MATERIAL SITE 65-9-037-2
DRAWN: JB	
APPROVED: DNS	PROJ. NO.: TEA-STP-065-4(5)
DATE: Aug/14/00	X:\geo\66005\Drafting\ms6590372.-t2

Figure 17.

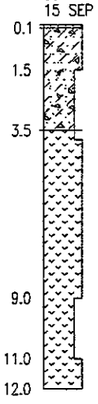
99-10
14 SEP



MS 65-9-037-2
99-10
14-Sep

0.0- 0.5 ORG MAT moss, lichen, roots, tundra
0.5- 2.0 ICE and Gy SILT
2.0- 4.5 Gy org sandy SILT
SAMPLE 99-3373
(2.8-3.5)
NM = 47.9%
Org = 3.6%
4.5- 9.5 Bn sandy SILT
SAMPLE 99-3371
(5.0-7.5)
A-4(0)
SaSi
47% -.075mm
SAMPLE 99-3372
(7.0-7.5)
NM = 58.7%
Org = 2.6%
9.5-11.0 silty sandy GRAVEL (<25mm)
SAMPLE 99-3375
(9.7-11.7)
A-1-a
sl.SiSaGr
12% -.075mm
SAMPLE 99-3376
(9.7-11.7)
NM = 17.2%
Org = 1.4%
11.0-12.2 silty sandy GRAVEL w/Cobbles (<250mm)

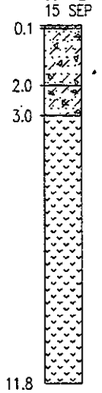
99-11
15 SEP



MS 65-9-037-2
99-11
15-Sep

0.0- 0.1 ORG - rd org Soil
0.1- 3.5 COLLUVIUM - decomposed Granite (Grus)
SAMPLE 99-3377
(1.5-3.5)
A-2-6 (1)
ClGrSa
PI= 18
LL= 40
SAMPLE 99-3378
(1.5-3.8)
NM = 9.4%
3.5-12.0 BEDROCK - v. soft decomposed Granite
SAMPLE 99-3379
(9.0-11.0)
A-2-7
SaClGr
PI= 22
LL= 42
SAMPLE 99-3380
(9.0-11.0)
NM = 7.8%

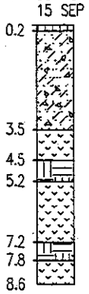
99-12
15 SEP



MS 65-9-037-2
99-12
15-Sep

0.0- 0.1 ORG - bk silty Soil
0.1- 2.0 COLLUVIUM - silty Grus, dry
2.0- 3.0 COLLUVIUM - Grus, and Granite fragments, dry
3.0-11.8 BEDROCK - v. soft and mod soft Granite, dry

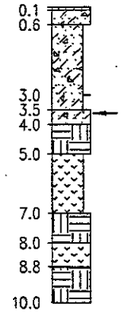
99-13
15 SEP



MS 65-9-037-2
99-13
15-Sep

0.0- 0.2 ORG - bk Soil
0.2- 3.5 COLLUVIUM - Grus, dry
3.5- 4.5 BEDROCK - soft Granite
4.5- 5.2 BEDROCK - mod hard Granite
5.2- 7.2 BEDROCK - soft Granite
7.2- 7.8 BEDROCK - hard Granite
7.8- 8.6 BEDROCK - mod soft Granite

99-14
15 SEP



MS 65-9-037-2
99-14
15-Sep

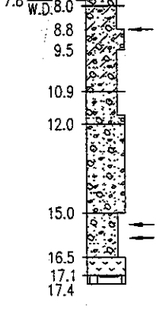
0.0- 0.1 ORG - bk Soil
0.1- 0.6 COLLUVIUM - rd oxidized silty Soil and Hornfels fragments
0.6- 3.5 COLLUVIUM - silty Soil and Hornfels rubble
SAMPLE 99-3381
(0.6-3.5)
A-2-6(2)
ClSaGr
25% -.075mm
PI = 27
*proctor
SAMPLE 99-3382
(3.0-3.5)
NM = 5.9%
Org = 2.1%
3.5- 4.0 COLLUVIUM - Silty coarse Hornfels rubble
4.0- 5.0 BEDROCK - mod hard Hornfels
5.0- 7.0 BEDROCK - soft Hornfels, dry
SAMPLE 99-3383
(5.0-7.0)
A-1-b
SiGrSa
22% -.075mm
7.0- 8.0 BEDROCK - hard Hornfels
8.0- 8.8 BEDROCK - soft Hornfels
8.8-10.0 BEDROCK - v. hard Hornfels

99-15
15 SEP

MS 65-9-037-2
99-15
15-Sep

0.0- 0.1 ORG - thin bk Soil and roots
0.1- 1.0 COLLUVIUM - rd sandy Silt
1.0- 3.0 COLLUVIUM - bn sandy Silt w/sparse Hornfels fragments, dry
3.0- 6.0 COLLUVIUM - silty sandy Hornfels rubble, dry
SAMPLE 99-3384
(3.0-5.0)
A-2-4
SiGrSa
30% -.075mm
SAMPLE 99-3385
(3.0-5.0)
NM = 4.3%
Org = 1.1%
6.0- 8.5 COLLUVIUM - silty, sandy, Hornfels dense rubble
8.5- 8.8 BEDROCK - v. hard Hornfels
SAMPLE 99-3386
(6.5-8.5)
A-2-4
SiSaGr
28% -.075mm
LL= 26

99-16
16 SEP



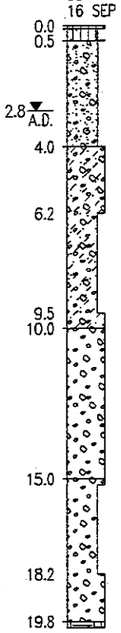
MS 65-9-037-2
99-16
16-Sep

0.0- 0.5 ORG MAT - moss, roots, tundra bushes
0.5- 2.0 PEAT w/clear Ice (>20%) and Bn Silt
2.0- 3.2 SILT - gy sandy w/Ice (<10%)
3.2- 6.0 GRAVEL - silty sandy Gravel (<75mm)
SAMPLE 99-3387
(3.5-5.5)
A-1-a
sl.SiSaGr
SAMPLE 99-3388
(5.0-5.5)
NM = 10.5
Org = 0.6
6.0- 7.0 GRAVEL - frozen silty sandy Gravel (<75mm)
SAMPLE 99-3389
(6.0-8.8)
A-1-b
SiSaGr
SAMPLE 99-3390
(6.0-8.8)
NM = 9.2%
Org = 0.6%
7.0- 8.0 GRAVEL - frozen sandy silty Gravel w/cobbles
8.0-10.9 GRAVEL - unfrozen sandy silty Gravel w/cobbles
SAMPLE 99-3391
(9.5-11.7)
A-1-b
SiGrSa
SAMPLE 99-3392
(9.5-11.7)
NM = 9.5%
Org = 0.7%
10.9-12.0 GRAVEL - sandy, less coarse Gravel, wet
12.0-15.0 GRAVEL, sandy, (<40mm)
15.0-16.5 GRAVEL - sandy Gravel (<25mm), w/cobbles
SAMPLE 99-3393
(15.-16.5)
A-1-b
SiGrSa
16.5-17.1 BEDROCK - soft weathered Hornfels
17.1-17.4 BEDROCK - hard Hornfels/Phyllite

Figure 18.

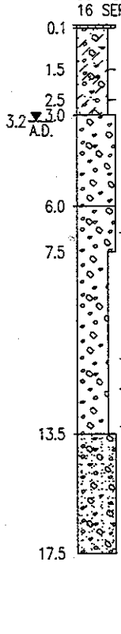
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
ENGINEERING GEOLOGY UNIT

DATA: GF	DALTON HIGHWAY MP 111-175 MATERIAL SITE 65-9-037-2
DRAWN: JB	
APPROVED: DNS	PROJ. NO.: TEA-STP-065-4(5)
DATE: Aug/14/00	X:\geo\66005\Drafting\ms6590372.-L3



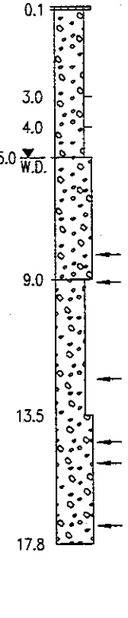
MS 65-9-037-2
99-17
16-Sep

0.0–0.1 ORG – lichen, roots, dry soil
0.1– 0.5 ORG – bk sandy Soil
0.5– 4.0 GRAVEL – unfrozen sandy Gravel (<100mm)
SAMPLE 99-3394
(0.1–4.0)
A–1–a
SaGr
SAMPLE 99-3395
(0.1–4.0)
NM = 5.0%
Org = 2.4%
4.0–10.0 GRAVEL – unfrozen Gravel (pred. 12–40mm, up to 100mm) minimal Sand and Si
SAMPLE 99-3396
(6.2–9.5)
A–1–a
Gr
LA = 31
Deg = 37
SSf = 2.8
SSc = 0.5
10.0–15.0 GRAVEL – well–sorted Gravel, wet, sparse cobbles
15.0–19.8 GRAVEL – w/sparse cobbles, wet
SAMPLE 99-3397
(15.2–18.2)
A–1–a
Gr
(drill–washed)
19.8–20.0 BEDROCK – hard Hornfels/Phyllite, refusal



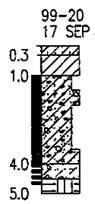
MS 65-9-037-2
99-18
16-Sep

0.0– 0.1 ORG – lichen, roots, bk sandy Soil
0.1– 3.0 GRAVEL – unfrozen, sl. sandy, silty Gravel (6mm–40mm)
SAMPLE 99-3398
(0.1–3.0)
A–1–a
Gr
SAMPLE 99-3399
(1.5–2.5)
NM = 1.8%
Org = 1.3%
3.0– 6.0 GRAVEL – (6mm–100mm, ave 20mm), wet
6.0–13.5 GRAVEL – w cobbles, wet
SAMPLE 99-3400
(7.5–13.5)
A–1–a
Gr
13.5–17.5 GRAVEL – sandy, sparse cobbles



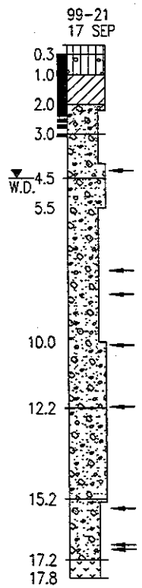
MS 65-9-037-2
99-19
16-Sep

0.0– 0.1 ORG – bk Soil, roots
0.1– 5.0 GRAVEL – unfrozen, moist, Gravel (<50mm)
SAMPLE 99-3401
(0.1–5.0)
A–1–a
Gr
LA = 32
Deg = 59
SSf = 2.0
SSc = 0.4
SAMPLE 99-3402
(3.0–4.0)
NM = 2.2%
Org = 1.0%
5.0– 9.0 GRAVEL – well–sorted, minimal fines, sparse cobbles
9.0–17.8 GRAVEL – w/cobbles, wet
SAMPLE 99-3403
(9.0–13.5)
A–1–a
Gr



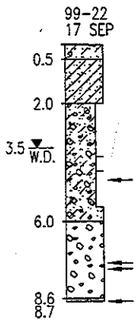
MS 65-9-037-2
99–20
17–Sep

0.0– 0.3 ORG – moss, roots, bk silty Soil
0.3– 1.0 SILT – bn, moist
SAMPLE 99–3404
(1.0–1.5)
NM = 19.7%
Org = 3.0%
1.0– 4.0 SILT – frozen, sandy w/sparse, v. fine Gravel
SAMPLE 99–3405
(2.0–3.5)
A–4 (0)
SaSi
NP
LL= 26
4.0– 4.5 COLLUVIUM – frozen, silty, Hornfels rubble
4.5– 5.0 BEDROCK – hard Phyllite/Hornfels



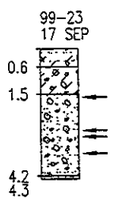
MS 65-9-037-2
99–21
17–Sep

0.0– 0.3 ORG – moss, roots, bk Soil
0.3– 1.0 PEAT – w/ice, sparse pebbles
1.0– 2.0 SILT – gy, frozen
2.0– 3.0 GRAVEL – frozen, silty sandy Gravel (<50mm)
3.0– 4.5 GRAVEL –unfrozen sandy Gravel w/cobbles
SAMPLE 99–3406
(2.2–4.0)
A–1–a
sl.SiSaGr
SAMPLE 99–3407
(2.2–4.0)
NM = 8.2%
Org = 0.9%
4.5–12.2 GRAVEL – sandy w/cobbles (250mm +), moist
SAMPLE 99–3408
(5.5–10.0)
A–1–a
SiSaGr
SAMPLE 99–3409
(9.5–10.0)
NM = 8.3%
Org = 0.9%
12.2–15.2 GRAVEL – sandy, finer, less cobbles, wet
15.2–17.2 GRAVEL – sandy, w/dense cobbles and boulders (250mm+), wet
SAMPLE 99–3410
(15.3–17.8)
A–1–b
SiSaGr
17.2–17.8 BEDROCK – soft, weathered Phyllite



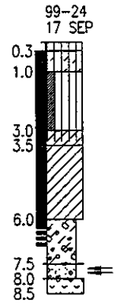
MS 65-9-037-2
99–22
17–Sep

0.0– 0.5 COLLUVIUM – coorse Hornfels rubble
0.5– 2.0 SILT – bn sandy
2.0– 6.0 GRAVEL – sandy, silty, <75mm) sparse cobbles
SAMPLE 99–3411
(2.0–5.5)
A–1–b
SaSiGr
NP
LL= 24
SAMPLE 99–3412
(3.8–4.3)
NM = 9.1%
Org = 1.8%
6.0– 8.6 GRAVEL – (<75mm) w/cobbles and boulders
8.6– 8.7 GRAVEL – big boulders (drill refusal)



MS 65–9–037–2
99– 23
17–Sep

0.0– 0.6 COLLUVIUM – coarse Hornfels rubble
0.6– 1.5 GRAVEL – silty (<40mm)
1.5– 4.2 GRAVEL – sandy Gravel w/dense cobble layers and boulders, dry
4.2– 4.3 BEDROCK – v. hard Hornfels/Phyllite



MS 65–9–037–2
99– 24
17–Sep

0.0– 0.3 ORG – moss, roots, bk org Soil
0.3– 1.0 ORG – bk sl. silty Soil
1.0– 3.0 PEAT –w/clear Ice (<20%)
3.0– 3.5 MUCK – Bk, highly organic Silt
3.5– 6.0 Gy SILT – frozen
6.0– 7.5 GRAVEL – silty, (<40mm)
SAMPLE 99–3413
(6.0–8.0)
A–2–4
SaSiGr
7.5– 8.0 GRAVEL – sandy w/close–packed cobbles
8.0– 8.5 BEDROCK –soft, weathered Hornfels

Figure 19.

STATE OF ALASKA *DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES* *ENGINEERING GEOLOGY UNIT*	
DATA: GF	DALTON HIGHWAY MP 111–175 MATERIAL SITE 65–9–037–2
DRAWN: JB	
APPROVED: DNS	PROJ. NO.: TEA–STP–065–4(5)
DATE: Aug/14/00	X:\geo\66005\Drafting\ms6590372.–L4

Attachment D

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION - NORTHERN REGION
LABORATORY TESTING REPORT

PROJECT NAME: DALTON 111-114
PROJECT NUMBER:
AKSAS NUMBER: 66005
SAMPLED BY: G Fitch

TEST HOLE		99-2	99-2	99-4	99-4	99-4	99-6	99-6
DEPTH (meters)		1.5-3.6	1.5-3.6	1.2-3.5	6.6-7.5	8.8-10.8	2.0-4.5	2.0-4.5
STATION (LOCATION)								
OFFSET								
MATERIAL SITE		65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2	65-9-037-2
LAB NO.		99-3358	99-3359	99-3360	99-3361	99-3362	99-3363	99-3364
DATE SAMPLED		13-Sep-99	13-Sep-99	13-Sep-99	13-Sep-99	13-Sep-99	13-Sep-99	13-Sep-99
% Passing *	75 mm			100				
	50			99				
	25.0			96		100		
Gravel	19.0			94		99		100
	12.5	100		90		98		99
	9.5	99		86		96		98
	4.75	92		76		86		94
	2.00	76		65		70		85
Sand	0.425	48		51		47		64
	0.300	43		49		43		61
	0.150	32		43		36		54
Silt/Clay	0.075	22.3		33.9		25.5		44.9
	0.020							
Hydro	0.005							
	0.002							
LIQUID LIMIT		NV		27	NV	NV		26
PLASTIC INDEX		NP		NP	NP	NP		NP
AASHTO CLASS.		A-1-b		A-2-4		A-2-4		A-4 (0)
SOIL DESCRIPTION		SiGrSa		SaSiGr		SiGrSa		SaSi
NATURAL MOISTURE			5.1		30.5		6.3	
ORGANICS			1.0	2.81	0.5		1.8	
SP.GR. (FINE)				2.70				
SP.GR. (COARSE)								
MAX DRY DENSITY								
OPTIMUM MOISTURE								
L.A. ABRASION								
DEGRADATION FACTOR								
SODIUM SULF. (CRSE)								
SODIUM SULF. (FINE)								
REMARKS:		grus		Si Hf Colluv		Hf Colluv		Si + Hf Colluv
				*proctor				
				(following)				

* Gradation is based on material passing the 75mm" sieve, according to Alaska Test Method T-7,
All borehole samples collected with a 6 inch (15.24 cm) dia. solid-stem auger.

Attachment D

State of Alaska Department of Transportation
Northern Region Materials Lab
SOIL and AGGREGATE REPORT

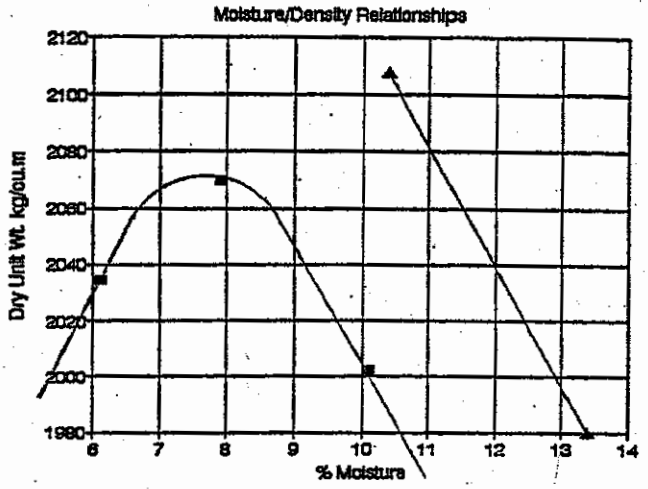
Lab #: 99-3358

Project Name:	DALTON HWY MP 111-175 REHAB.		
Ledger Code:	30844422	**Date Sampled:**	
Project Number:		**Test Hole:**	99-2
Sampled By:	G FITCH	**Offset:**	
Material Site:	65-9-037-2	**Depth in meters:**	1.5-3.6
Other Source:		**Station:**	

ATM T-7 SIEVES	% PASS
+75	
75	
50	
37.5	
25.0	
19.0	
12.5	100
9.5	99
4.75	92
2.36	80
2.00	76
1.18	67
0.850	
0.600	55
0.425	48
0.300	43
0.250	40
0.180	35
0.150	32
0.075	22.3
ATM T-1	
.02mm	
.005mm	
.002mm	

TEST No.	TEST	RESULTS
AASHTO T-89	LL	NV
AASHTO T-90	PI	NP
AASHTO T-85 LaChatelier	SpG's Coarse	
	Fine	
ATM T-9 AASHTO T-21	ORGANIC ORG PPM	
ATM T-8	MOISTURE	
AASHTO T-104	SODIUM Coarse	
	Fine	
AASHTO T-96	LA	
ATM T-13	DEG NORDIC	

MOISTURE / DENSITY PLOT AASHTO T-180D



Opt. Moisture: 7.8
Max. Density: 2072

Sample	Dry Unit Wt.	% Moist.	Free Moist
1	2034.4	6.1	
2	2069.7	7.9	
3	2002.4	10.1	
4			
5			

ZAV 1980 @ 13.4
ZAV 2108 @ 10.4

AASHTO CLASS: A-1-b
D.O.T. & P.F. SOIL DESCRIPTION: SlGrSa
UNIFIED CLASS:

Signature: Maureen E. Lee
Maureen E. Lee
REGIONAL LAB SUPERVISOR

PRECONSTUCTION ROUTING: Geologists, Regional Lab