STATEWIDE MATERIAL SITE INVENTORY

MATERIAL SITE INSPECTION REPORT

Federal Project No. STP-000S(530)
AKSAS Project No. 76174

DALTON HIGHWAY

MS 65-9-089-2
Dietrich Quarry

November 12, 2009

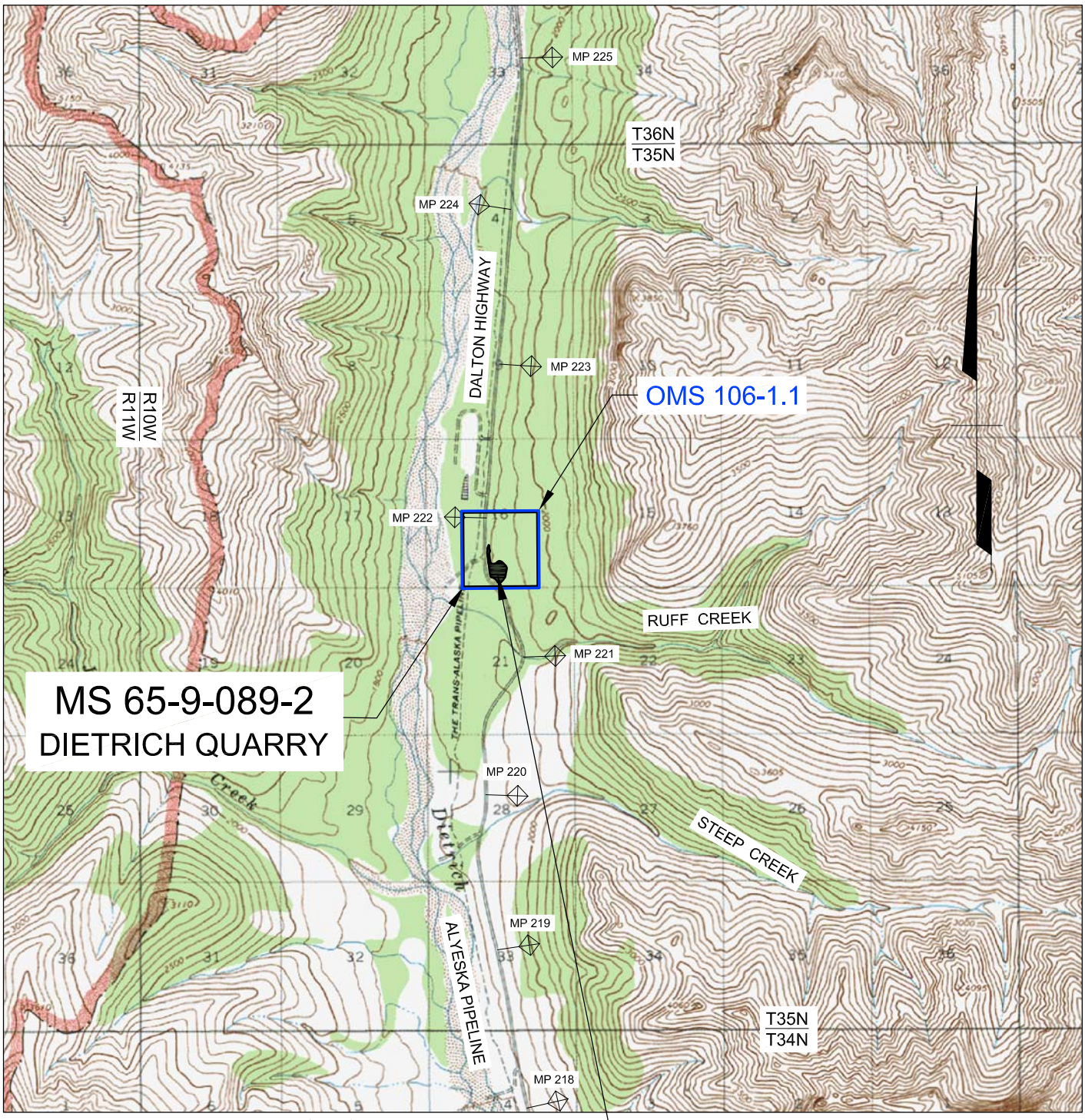
CONTENTS PAGE

CATEGORY:

ACTIVE – OPEN

According to information found in the DOT&PF EDMS system in January 2009 and the BLM case file abstracts, this site lies on Federal lands managed by BLM. The site (MS 106-1.1) was originally developed for construction of the Dalton Highway and Alyeska Pipeline in the 1970's. It is presently a joint-use site, used for Alyeska operations and maintenance (OMS-106-1.1) and for DOT&PF Dalton Highway maintenance and reconstruction (MS 65-9-089-2). Generally, the site is operated under a mining plan prepared by Alyeska dated 2002 that shows a working area for both Alyeska and DOT&PF. The Alyeska permit (F-095114) expires on June 04, 2012. DOT&PF is currently operating under a FUP (F-093021) which expires December 31, 2010. Access Road 106-AMS-1.1B connects the site to the Dalton Highway. The access road lies entirely within the highway right-of-way and permitted work area. The site has produced riprap in the past. The site appears to contain significant quantities of rock and should be retained by DOT&PF for future use.

LOCATION MAP



U.S.G.S. QUADRANGLE: CHANDALAR (D-6)

GPS COORDINATES FROM GOOGLE EARTH

UTM (WGS84-METERS)
ZONE 6: N7,529,138 E381,190
AK STATE PLANE (NAD83-US SURVEY FT)
ZONE 4: N5,063,562 E1,664,596

ACTIVE - OPEN

0 0.5 1 2 3

GRAPHIC SCALE IN MILES

BASE MAP CREATED WITH TERRAIN NAVIGATOR PRO

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

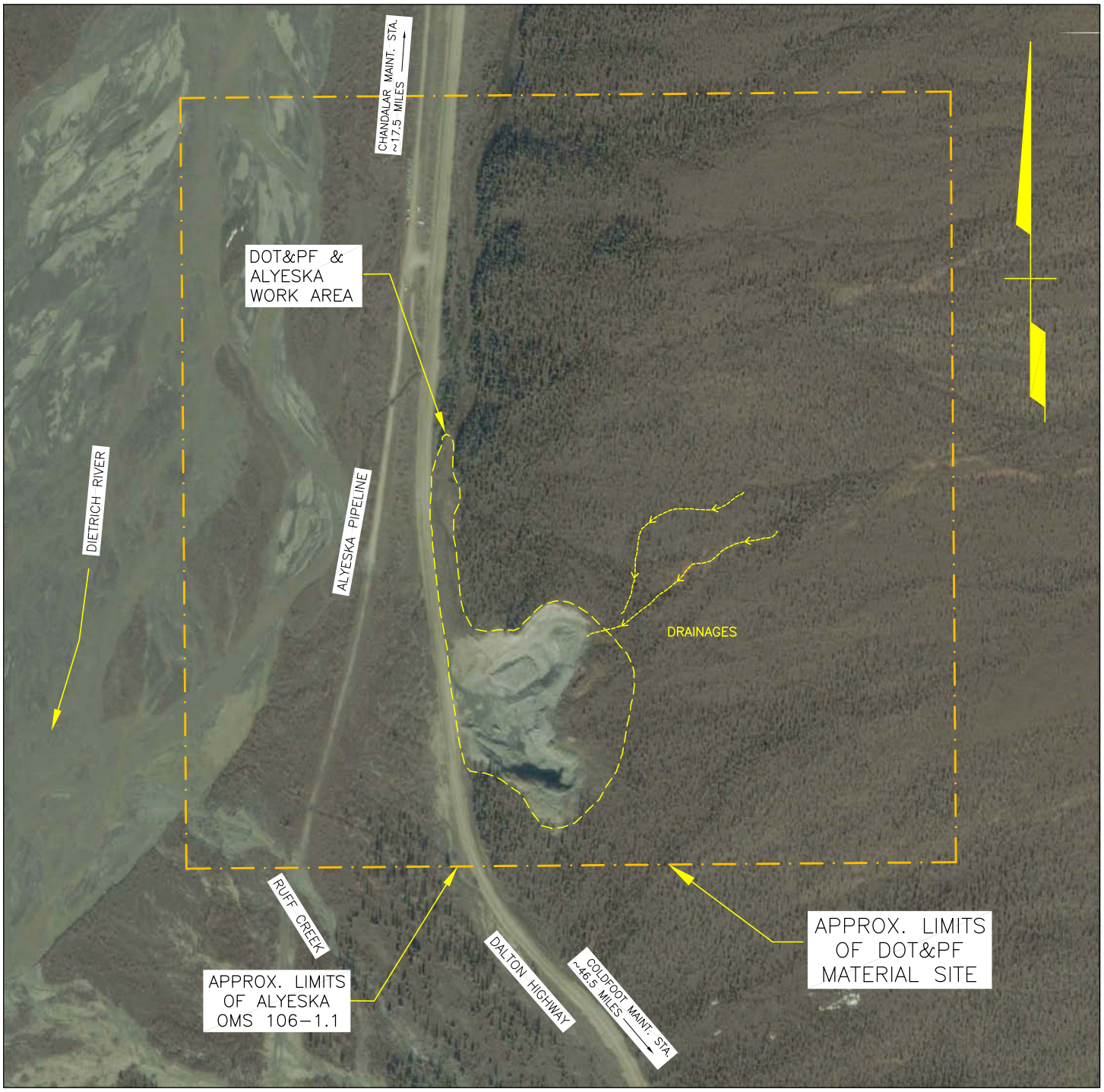
STATEWIDE MATERIAL SITE INVENTORY

MS 65-9-089-2

SCALE	DESIGNED	DRAWN	PAGE
AS SHOWN	P.K.H.	A.T.B.	2
	CHECKED C.H.R.	DATE MAY 2009	

Plotted 1/26/2010 12:58 PM by Aaron Banks Z:\project\1443.03\65_Dalton_Highway\MS 65-9-089-2\acad\geo\acad\MS_Topo_Map_65-2-089-2.dwg

SITE MAP



BASE MAP IS 2005 SATELLITE PHOTOGRAPHY.
THIS IS A PLANNING DOCUMENT ONLY. THE MATERIAL SITE BOUNDARIES SHOWN ON THIS DRAWING ARE APPROXIMATE. OWNERSHIP OF THE LANDS ADJACENT TO THIS SITE ARE UNKNOWN. THE ACCESS ROW SHOULD BE VERIFIED.

ACTIVE - OPEN

0 250 500 1000 1500

GRAPHIC SCALE IN FEET

BASE MAP FROM GOOGLE EARTH PRO 6/01/09

Prepared By:
R&M CONSULTANTS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

STATEWIDE MATERIAL SITE
INVENTORY

MS 65-9-089-2

SCALE	DESIGNED	DRAWN	PAGE
AS SHOWN	P.K.H.	P.K.H.	3A
	CHECKED C.H.R.	DATE JUNE 2009	

Plotted 1/26/2010 1:00 PM by Aaron Banks
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SITE MAP

BASE MAP IS 2005 SATELLITE PHOTOGRAPHY.
THIS IS A PLANNING DOCUMENT ONLY. THE MATERIAL SITE BOUNDARIES SHOWN ON THIS DRAWING ARE APPROXIMATE. OWNERSHIP OF THE LANDS ADJACENT TO THIS SITE ARE UNKNOWN. THE ACCESS ROW SHOULD BE VERIFIED.

ACTIVE - OPEN

0 100 200 400 600

GRAPHIC SCALE IN FEET

BASE MAP FROM GOOGLE EARTH PRO 6/01/09

Prepared By:
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STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

STATEWIDE MATERIAL SITE INVENTORY

MS 65-9-089-2

SCALE	DESIGNED	DRAWN	PAGE
AS SHOWN	P.K.H.	P.K.H.	3B
	CHECKED C.H.R.	DATE JUNE 2009	

Plotted 1/26/2010 1:04 PM by Aaron Banks
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STATEWIDE MATERIAL SITE INVENTORY
MATERIAL SITE INSPECTION FORM

THIS REPORT IS BASED ON A REVIEW OF EXISTING DATA AND BRIEF FIELD INSPECTIONS. THUS THE DATA CONTAINED HEREIN SHOULD BE CONSIDERED PRELIMINARY AND USED FOR PLANNING PURPOSES ONLY. USERS OF THIS DATA SHOULD VERIFY THE INFORMATION PRIOR TO USING IT FOR DESIGN OR CONSTRUCTION PURPOSES.

IF OTHER IS SELECTED FOR A SECTION, EXPLAIN IT IN SECTION 44. NOTES.
IF AN ANSWER IS UNKNOWN SELECT "UNKNOWN" OR LEAVE BLANK

1. **MS_ID** **65-9-089-2**
   Enter the full material site number e.g.. 65-9-045-2
2. **DATE_INSPECT** 7/23/2009
   Date of field inspection
3. **FLD INSPEC_ORG** AARON BANKS / R&M CONSULTANTS
   Name of inspector / Organization or Company
4. **REGION** NORTHERN
5. **LOCATION** DALTON HIGHWAY
   Name of Highway
   Enter Name of Facility or Secondary Route Name (i.e.Kotzebue Airport, Nash Road, etc.)
6. **MILEPOST** 221.5
   List the closest main highway milepost
7. **NAME** DIETRICH QUARRY
   Enter commonly used name (s), e.g. Hess pit, Gobblers Knob, Midway. List all that apply separated by commas.
8. **MAINT_DIST/STAT** District INTERIOR/DALTON Station CHANDALAR
   Highway Maintenance District and Station, for locations not on highways select other.
9. **QUAD** CHANDALAR D-6
   U.S.G.S. Quad. Map
10. **TOWNSHIP /RANGE** T#S R#E T35N R10W Meridian FM
    Section 16
11. **COOR_UTM**
    ZONE 6
    NORTHING 7,529,138
    EASTING 381,190
    UTM WGS84 - Meters
12. **COOR_STATE_PLANE**
    ZONE 4
    NORTHING 5,063,562
    EASTING 1,664,596
    Alaska State Plane NAD83 - Survey Feet
13. **BOROUGH** UNORGANIZED **TAX ID NO.**
14. **DNR_LAND_USE_PLAN** DALTON HIGHWAY MASTER PLAN
15. **CATEGORY** (To be filled in the office)
15a. **CLASSIFICATION** ACTIVE
15b. **STATUS** OPEN

16. **POTENTIAL_STATUS** SIGNIFICANT

Estimated quantity of material in the site at the time of inspection.

NONE	There appeared to be no useable material in the site.
LIMITED	There appeared to be less than 25,000 c.y. available within the developed site.
SIGNIFICANT	There appeared to be greater than 25,000 c.y. available within the developed site.
EXPANDABLE	There was limited material within the developed site, but there appeared to be significant material outside existing site limits.
UNDEVELOPED	The pit has not been mined (used only for new sites).
CLOSED	There may be useable material left in the pit but it is not available.
UNKNOWN	
OTHER	The site does not fit any of the categories above. Explain in Section 44, Notes.

17. **PRESENT_USERS**

17a. **PRESENT_USER_1** DOT&PF MAINTENANCE

17b. **PRESENT_USER_2** ALYESKA

17c. **PRESENT_USER_3**

18. **PERMITTED _ACREAGE** 160

Area within site permit or R.O.W. boundaries, from permit application or property plat.

19. **DEVELOPED_ACREAGE** 7

Area within an existing pit, excluding spoil berms lying outside the pit, access roads etc. Explain below.

Existing pit and stockpile area.

20. **ACREAGE_COMP_METHOD** FROM MAP/PHOTO

Method used to determine developed acreage.

21. **EST_QUAN_AVAIL** 350,000 ROUGH ESTIMATE

Estimated quantity available (b.c.y.), may be based on acreage computed above plus expansion area. Explain computation assumptions and calculations below.

Assuming a 60 foot working depth and an average 3 feet of overburden there is an estimated 103,000 c.y. in the north portion of the pit (1.8 acres x 57 feet x 1,000 c.y. per acre-foot). Assuming a 70 foot working depth and an average 3 feet of overburden there is an estimated 147,000 c.y. in the south portion of the pit (2.2 acres x 67 feet x 1,000 c.y. per acre-foot). Assuming a 75 foot working depth and an average 15 feet of overburden there is an estimated 102,000 c.y. in the eastern portion of the pit (1.7 acres x 60 feet x 1,000 c.y. per acre-foot).

STATEWIDE MATERIAL SITE INVENTORY
MATERIAL SITE INSPECTION FORM

22. **ACCESS_TYPE** EXISTING ROAD / OPEN

NONE	No access road has been built.
EXISTING ROAD / OPEN	Drivable. May have gate.
EXISTING ROAD / REVEG	Can be reopened with little effort.
EXISTING ROAD / CLOSED W/BERMS	Can be reopened with little effort.
EXISTING ACCESS / REMOVED	Can be reopened with much effort.
SNOW ROAD	Can only be accessed during winter.
ICE ROAD	Requires crossing river or lake ice in the winter.
BARGE	Material can only be moved by barge.
OTHER	The site does not fit any of the categories above. Describe in Section 44, Notes.

23. **ACCESS_LENGTH** 100
Approx. length from edge of pit to highway/secondary route (ft.)

24. **VEGETATION**

The undeveloped portion of the site consists of spruce trees up to 6 inches dia., spaced 10 to 15 feet apart, willow shrubs, grasses and a thick lichen/moss mat.

25. **TYPE_1** QUARRY 26. **TYPE_2**

Dominant type Subordinate type
General Types of Materials Available Enter data in Type_2 only if two types of material site available

QUARRY	Bedrock sources requiring blasting
BORROW PIT	Soils or soft bedrock (rippable), above water table
BAILING	Requires production below the water table
RIVER BAR	Sand/gravel bars in active channels

27. **OB_CLASS_1** 3 TO 6 FT. 28. **OB_CLASS_2** >6 FT.
New Site or expansion Area Existing Pit (Spoil)
A site may have both. Data should be based on actual subsurface exploration, otherwise unknown.
Estimated average depth over the area.

NONE	3 TO 6 FT.	UNKNOWN
<3 FT.	>6 FT.	OTHER

29. **OB_TYPE_1** SILT 30. **OB_TYPE_2** SPOIL
New Site or expansion Area Existing Pit (Spoil)
A site may have both.

SILT	PEAT	SOLID WASTE	OTHER
COLLUVIUM	SPOIL	UNKNOWN	

STATEWIDE MATERIAL SITE INVENTORY
MATERIAL SITE INSPECTION FORM

31. **MAT_TYPE_1** BEDROCK — Dominant type

32. **MAT_TYPE_2** _____ — Subordinate type

BEDROCK	Bedrock sources requiring blasting
WEATHER. BEDROCK	Bedrock sources requiring ripping
FLUVIAL	Water deposited sand and gravel, includes glaciofluvial
GLACIAL	Glacial till
COLLUVIAL	Talus slopes, etc.
EOLIAN	Sand Dunes, etc.
SILT	Silt deposits, loess, fluvial, etc.

33. **PERMAFROST_1** UNKNOWN
New Site or Expansion Area

34. **PERMAFROST_2** UNKNOWN
Existing Site

DETECTED IN MOST TEST HOLES
DETECTED IN SOME TEST HOLES
DETECTED IN IMMEDIATE VICINITY
DETECTED IN NO TEST HOLES
DATA OUTDATED
UNKNOWN
OTHER

35. **GROUNDWATER**

During the 2009 site inspection, several drainage paths were observed along the upper rim of the working faces. These drainages appeared to be ephemeral and are most likely active during rain events. The pit floor was observed to be dry, however a few areas with evidence of previous shallow ponding were observed.

36. **LITHOLOGY_1** SCHIST/PHYLLITE — Dominant type

37. **LITHOLOGY_2** _____ — Subordinate type

IGNEOUS ROCK	Undifferentiated Igneous Rocks
GRANITIC	Granite/Monzonite/Granodiorite
DIORITE/GABBRO	Diorite/Gabbro
BASALT	Dark colored fine-grained Igneous Rocks
GREENSTONE	Altered Volcanic Rocks w/green tint
METAMORPHIC ROCK	Undifferentiated Metamorphic Rocks
SCHIST/PHYLLITE	Includes rocks ranging from slate to schist
GNEISS	Includes hard schistose rocks
MARBLE	
CATACLASTIC	Incl. Valdez Formation Rocks, Kenai Penn.
MÉLANGE	Incl. McHugh Formation Rocks, Kenai Penn.
SEDIMENTARY ROCK	Undifferentiated Sedimentary Rocks
CONGLOMERATE	
SANDSTONE	Includes greywacke, etc.
SHALE/MUDSTONE	
LIMESTONE	
FLUVIAL	River and stream deposits (floodplain), includes outwash.
ALLUVIAL	Alluvial / Debris Fan deposits
GLACIOFLUVIAL	Eskers, kames, etc.
GLACIAL	Till
COLLUVIAL	Talus, etc.
EOLIAN	Sand Dunes, etc.
SILT	Loess, fluvial silts, etc.
OTHER	Explain in Section 44.

38. **MATERIAL_CLASSIFICATION**

ASTM Classification, generally they should range from coarse to fine.

38a.	_____	38c.	_____	38e.	_____	38g.	_____
38b.	_____	38d.	_____	38f.	_____	38h.	_____

39. **COBBLES_AND_BOULDERS**

Test Boring Callout / ASTM Classification, either a. or b. and c. (Can use ranges i.e. 0 to 20)

39a.	CONTAINS		
39b.	Est. % by VOL.		(Est. From Visual Observations)
39c.	MAX. SIZE (in.)		(Observed Size)

40. **AGG_TEST_RESULTS**

Year of test or report- Test result / Year of test or report- Test Results

40a. SG APP COARSE	
40b. SG APP FINE	
40c. ABSORPTION CRSE	
40d. ABSORPTION FINE	
40e. NORDIC ABRASION	
40f. L.A. ABRASION	1999- 29
40g. DEGRADATION (T-13)	
40h. NASO4 LOSS COARSE	
40i. NASO4 LOSS FINE	

41. **POTENTIAL_USABILITY** TYPES A AND B MATERIAL AVAILABLE

Best known potential use of the material, based on records, exploration and laboratory data.

CONCRETE AGGREGATE PRODUCED	The site has produced concrete aggregate
PAVING AGGREGATE PRODUCED	The site has produced paving aggregate
CRUSHED PRODUCTS PRODUCED	Base, Surface Coarse, Subbase, etc. has been produced.
TYPE A AND B MATERIAL AVAILABLE	0 to 10 percent passing 200
TYPE C AVAILABLE	Compactable material
TYPE C NOT AVAILABLE	Uncompactable material (Lower Kuskokwim and Yukon River, etc.)
UNKNOWN	
OTHER	Explain in Section 44.

42. **SPECIAL_PROBLEMS**

Special problems encountered or anticipated with use of the material, based on records, exploration and laboratory data.

ORGANIC CONTENT	The material is very difficult to compact.
HIGHLY WEATHERED GRAVEL	The gravel is highly weathered and may break down when handled.
BREAKS DOWN UNDER USE	Material breaks down on grade.
SENSITIVE TO WATER CONTENT	Material is sensitive to water content, i.e.. some glacial tills, soft bedrock.
VARIABLE MATERIAL	Deposit contains mixture of suitable and unsuitable material.
POSSIBLE CONTAMINATION	Site may be contaminated by petroleum products or hazardous materials.
CONTAINS ASBESTOS	Site contains naturally occurring asbestos.
POTENTIAL ASBESTOS	Site in area where naturally occurring asbestos is mapped.
ACID ROCK DRAINAGE	Site contains rock susceptible to producing acid rock drainage.
OTHER	Explain in Section 44, Notes.

43. **RIPRAP** PREVIOUS PRODUCTION

Class II or larger. Does not include production for erosion control riprap for ditches or culverts.

PREVIOUS PRODUCTION	There is a record of production.
POSSIBLE FURTHER INVESTIGATION NEEDED	The site is a bedrock quarry containing hard rock
NOT POSSIBLE	The site has soft rock or soil.
UNKNOWN	
OTHER	Explain in Section 44, Notes.

44. **NOTES**

Note number of item being discussed.

28. Numerous spoil piles were noted within the existing pit during the 2009 site inspections. Some portions of the spoil piles appear greater than 70 feet thick and were apparently utilized as ramps to reach working faces within the quarry.

State of Alaska Department of Transportation

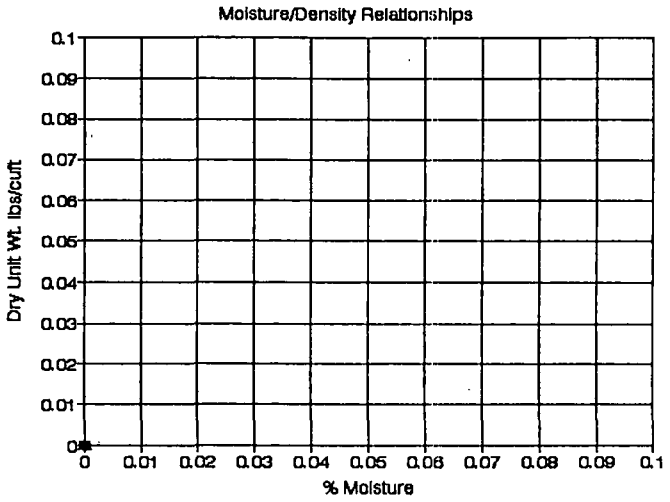
Northern Region Materials Lab

SOIL and AGGREGATE REPORT

Project Name:	DALTON HWY COLDFOOT-ATIGUN PASS	***Lab Number:***	**99-1037**
Ledger Code:	30238742		
Project Number:			
Sampled By:	J D BENNETT		
Source:	65-9-089-2	***Test Hole:*** GRAB	***Depth:*** 0.0-0.5
Date Sampled:	9-24-99	***Offset:***	***Station:*** MI 222.7

ATM T-7 SIEVES	% PASS	TEST No.	TEST	RESULTS
+3"				
3"		AASHTO T-89	LL	
2"		AASHTO T-90	PI	
1 1/2"				
1"			SpG's	
3/4"		AASHTO T-85	Coarse	
1/2"		LeChatelier	Fine	
3/8"				
#4		ATM T-6	ORGANIC	
#8		AASHTO T-21	ORG PPM	
#10				
#16				
#20		ATM T-5	MOISTURE	
#30			0.0-0.5	
#40				
#50				
#60		AASHTO T-104	SODIUM	
#80			Coarse	
#100			Fine	
#200		AASHTO T-96	LA	29
ATM T-1		ATM T-13	DEG	
.02mm			MISC TEST	
.005mm				
.002mm				

MOISTURE / DENSITY PLOT AASHTO T-180D



Opt. Moisture:

Max. Density:

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

ZAV @

ZAV @

AASHTO CLASS:

D.O.T & P.F. SOIL DESCRIPTION:

UNIFIED CLASS:

PELITIC LIMESTONE

Signature: Maureen Lee

Maureen E. Lee

REGIONAL LAB SUPERVISOR

PRECONSTUCTION ROUTING: Geologists, Regional Lab