

**AMBLER MINING DISTRICT ACCESS PROJECT
REQUEST FOR NPS PERMIT
PROPOSED GEOTECHNICAL SURVEY
GATES OF THE ARCTIC NATIONAL PARK & PRESERVE**

Project Proponents: DOWL HKM as Agent for:

Alaska Department of Transportation and Public Facilities (DOT&PF)
2301 Peger Road, Fairbanks, AK 99709 / 907-451-2288 and

Alaska Industrial Development and Export Authority (AIDEA)
813 West Northern Lights Boulevard, Anchorage, AK 99503 / 907-771-3000

Project Name: Ambler Mining District Access Project

Project Type: Reconnaissance Level Fieldwork for Roadway Design (Pre-NEPA Analysis)

Project Category: Geotechnical Survey

Project Location: The project corridor begins at the Ambler River approximately 6 miles northwest of the Bornite Camp and routes southeast away from the Ambler River then east along the north side of the Cosmos Hills and through Gates of the Arctic National Park & Preserve (GANPP). From the east edge of the Preserve, the corridor continues east, remaining north of the Helpmejack Hills and the Alatna Hills, crossing the Koyukuk River downstream of the confluence with the John River, then following an existing winter trail to the east/southeast along the northern boundary of the Kanuti National Wildlife Refuge to the Dalton Highway near Milepost 136 (Figures 1 through 3). There are two potential routes through the Preserve under present consideration:

- North Option: Passes through GANPP along the north edge of Nutuvukti Lake and south of Walker Lake (25 miles within GANPP).
- South Option: Travels south along the Reed River Valley, crossing the GANPP south of Nutuvukti Lake and exiting the Preserve just north of Norutak Lake (17 miles within GANPP).

Project Description: With the Ambler Mining District Access project, the Alaska Department of Transportation and Public Facilities (DOT&PF) and Alaska Industrial Development and Export Authority (AIDEA) propose to identify, design, and construct a transportation corridor to the Ambler mineral belt. Numerous potential access corridors were initially evaluated based on a broad range of design, construction, and environmental criteria. The initial evaluation of these preliminary corridors led to the refinement and selection of a single study corridor with two alignment options being carried forward for pre-NEPA fieldwork. This corridor, referred to as Brooks East, passes through a challenging array of physical landscapes, geologic features, and varying climatic conditions within the subarctic environment. The corridor crosses numerous streams and rivers, including the Kobuk River, a federally-designated Wild and Scenic River. The corridor length is 203 miles for the north option through the GANPP and 218 miles for the south option.

Field surveys associated with data collection for fisheries, vegetation and wetlands, and river and corridor cross- sections in support of the Ambler Mining District Access project were conducted within GANPP in 2012. In order to more fully understand sensitive resources potentially affected by and affecting the project, DOT&PF proposes continued field investigation of wetland communities and fisheries resources within the Preserve as well as the initiation of field-based studies of additional parameters within GANPP in 2013. These include:

- Aufeis and Breakup Surveys
- Collection of hydrologic and hydraulic data for the Kobuk and Reed Rivers
- Raptor Surveys
- Cultural Resource Reconnaissance Surveys
- Geotechnical Surveys

To facilitate review, each of the aforementioned categories is presented under individual cover.

Field activities will occur intermittently between approximately March 15 and November 15, 2013, and will primarily be supported by piston-powered light aircraft and turbine-powered helicopter. The applicant intends to minimize overlap of the field investigations and the presence of project related staff and air traffic at any one time. Approximate schedules are outlined in each Study Proposal, but are subject to change based on weather and seasonal conditions. A tentative schedule of the combined field activities is appended hereto.

Geotechnical Survey

Objectives: DOT&PF proposes the following work plan to sample material suitability along the proposed Brooks East Corridor. Samples will provide information on foundation soil conditions within mapped terrain units to aid route selection and embankment design.

Timing: One 5-to 10-day work effort within GANPP to occur between July 1 and October 15, 2013.

Access: Helicopter.

Lodging: Dahl Creek Camp or Coldfoot

Personnel: 4 field personnel (2 DOT&PF staff, 1 Subsistence Advisor and 1 helicopter pilot).

Field Procedures:

1. Helicopter landings to transport crew and supplies to and from the area and to ground-truth terrain unit mapping.
2. Transporting fuel by air over GANPP to fuel caches on either side of, but outside the GANPP boundaries.
3. Drilling 2.5" diameter solid-stem auger test holes to determine foundation soil conditions along the two route options. An estimated 25 to 50 holes will be drilled along the cumulative route mileage.
 - a. Test holes will be backfilled with auger cuttings. Samples for laboratory testing will be collected from auger cuttings and transported to a materials testing laboratory.

- b. The auger is man-portable, requires a 2-person crew and is powered by a small Tanaka 2-cycle motor (ice-auger motor). It is capable of drilling to 15' in ideal conditions.
 - c. Test holes will typically be 5-10' deep.
 - d. Typically < 1 gallon of fuel is transported with the drill.
 - e. Daily traverses by a 2-person crew of 5 miles will limit helicopter use and landings.
4. Collecting larger samples than available from the auger cuttings in select locations for proctor and gradation testing.
 - a. Hand tool (shovel, pick) excavations normally 2' x 2' x 2' are required to collect the roughly 100 pounds of material.
 - b. Organic material and un-sampled material will be placed back in the holes.
 - c. Approximately 20 such sites will be sampled, each requiring a helicopter landing.
5. Holes will be focused on specific features that are not yet defined. In many cases, two or 3 holes are drilled in close proximity to see the soil conditions within and outside of a feature.
6. Approximate sampling locations are as illustrated on the attached figure and itemized in Table 1 below. Sampling locations are subject to change based on site specific conditions and NPS recommendations.
7. If artifacts or remains are encountered during any field investigation, work will be terminated at that location and the NPS will be promptly notified.

Results/Deliverable Products

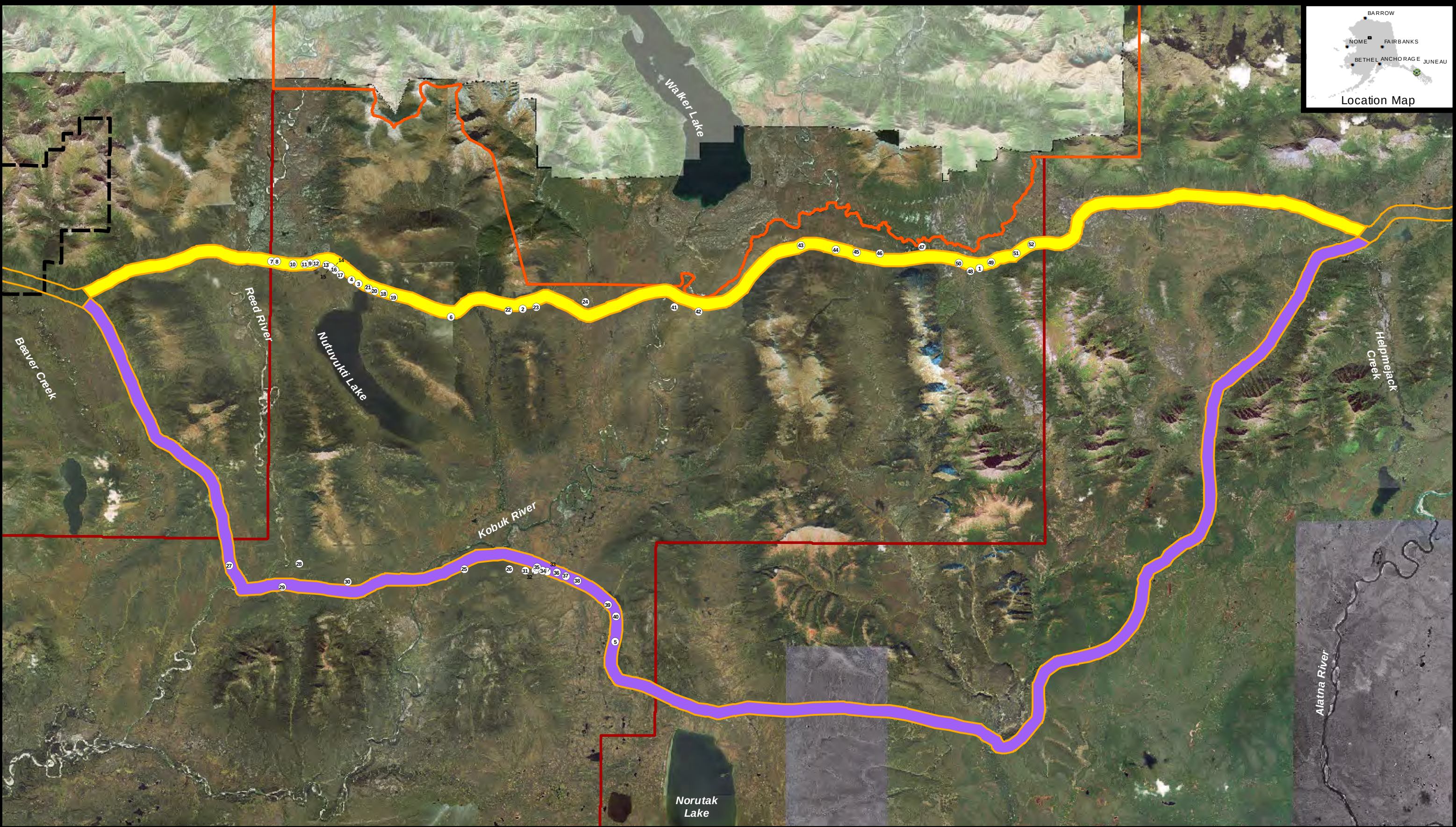
The results and the products to be provided at the conclusion of the study are as follows:

- A geotechnical report summarizing the survey, including boring logs.

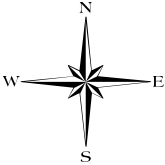
Table 1 Approximate* Locations for Geotechnical Sampling within GANPP						
Map ID	Longitude	Latitude		Map ID	Longitude	Latitude
1	-154.0002186	67.0326516		27	-154.8479676	66.8973950
2	-154.5185019	67.0139268		28	-154.7687072	66.8986709
3	-154.7059333	67.0246018		29	-154.7877007	66.8882163
4	-154.7141955	67.0261880		30	-154.7139143	66.8908704
5	-154.4115583	66.8649826		31	-154.5130247	66.8965268
6	-154.6006304	67.0098783		32	-154.5019938	66.8967568
7	-154.8047171	67.0341856		33	-154.4894312	66.8962876
8	-154.7990378	67.0341054		34	-154.4937028	66.8963883
9	-154.7605999	67.0332749		35	-154.5007399	66.8980236
10	-154.7799239	67.0329648		36	-154.4782055	66.8957302
11	-154.7672672	67.0330444		37	-154.4681544	66.8944062
12	-154.7533531	67.0335435		38	-154.4544364	66.8922159
13	-154.7427232	67.0328326		39	-154.4194796	66.8813575
14	-154.7340818	67.0312256		40	-154.4108404	66.8761919
15	-154.7371850	67.0319487		41	-154.3466155	67.0151032
16	-154.7321595	67.0305760		42	-154.3188812	67.0133106
17	-154.7256411	67.0283156		43	-154.2035120	67.0429108
18	-154.6768513	67.0200869		44	-154.1632800	67.0410236
19	-154.6656844	67.0186296		45	-154.1394543	67.0401339
20	-154.6871570	67.0213801		46	-154.1129317	67.0396245
21	-154.6946482	67.0226844		47	-154.0654044	67.0424514
22	-154.5346055	67.0131998		48	-154.0104469	67.0315575
23	-154.5031662	67.0148098		49	-153.9866442	67.0355801
24	-154.4473866	67.0173450		50	-154.0238239	67.0351915
25	-154.5825141	66.8970032		51	-153.9584219	67.0395180
26	-154.5312852	66.8972893		52	-153.9409229	67.0436460

*Sampling locations are approximate and subject to change based on site specific conditions and NPS guidance.

Potential Landing sites will be centered on sample clusters. Field crews will traverse 5 miles from landing areas to minimize helicopter use.

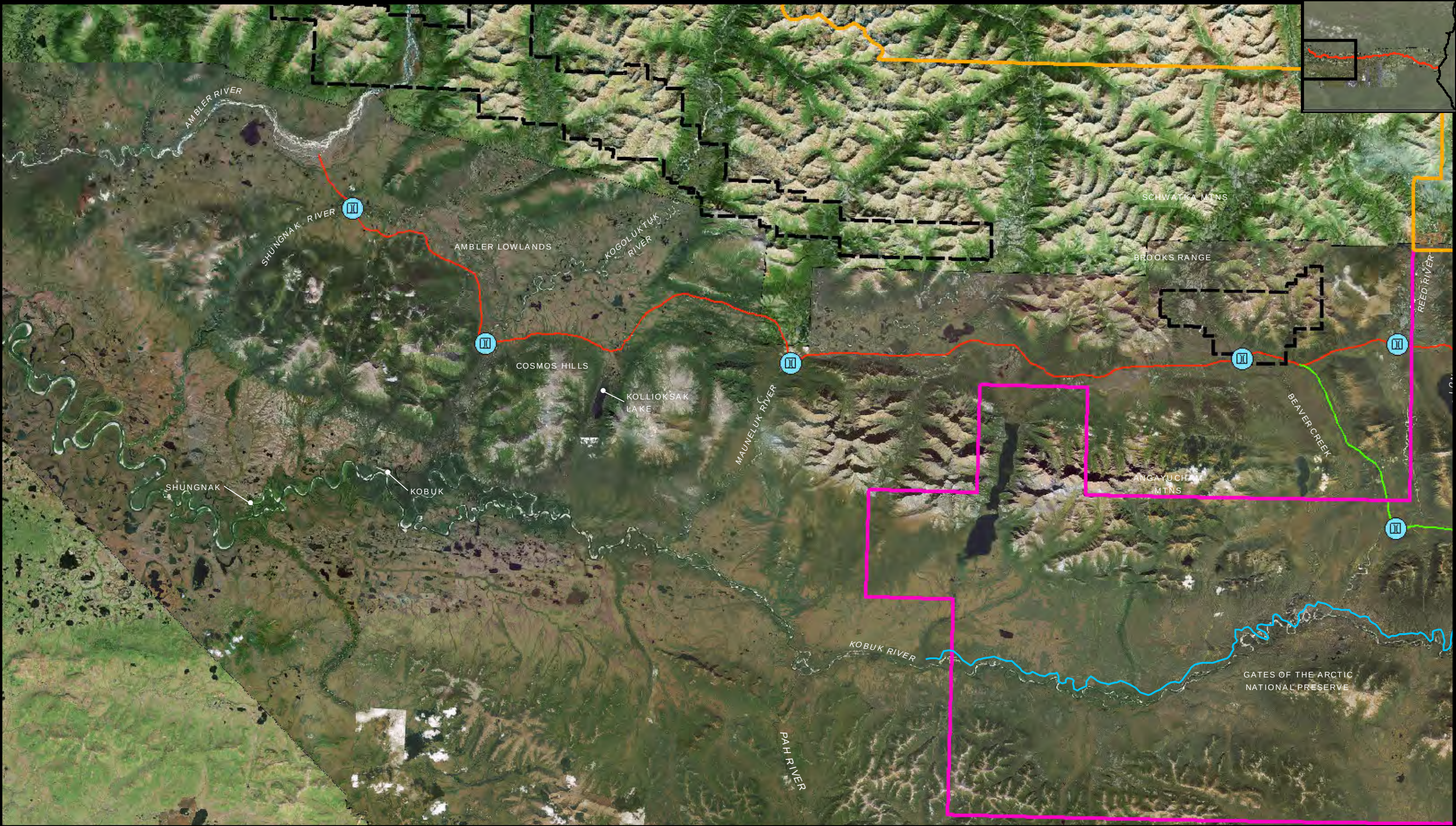


- Ambler Mineral Belt
- Gates of the Arctic National Preserve
- Gates of the Arctic National Park & Preserve
- Study Area (2000-ft wide corridor)
- North Option-25 Miles through GANPP
- South Option-17 Miles through GANPP
- Sample Points

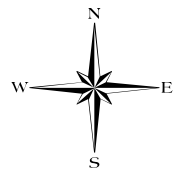


Coordinate System: NAD 1983 Alaska Albers

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES NORTHERN REGION	
AMBLER MINING DISTRICT ACCESS	
2013 BROOKS EAST CORRIDOR - GANPP GEOTECHNICAL INVESTIGATION	
DATE: March 14, 2013	



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| Brooks East Corridor
203 Miles-25 Miles through GANPP | Existing Roads | Gates of the Arctic National Park
(National Wilderness Preservation System) |
| Southern Brooks East Corridor Option
218 Miles-17 Miles through GANPP | Large Bridges | Gates of the Arctic National Preserve
(National Park Service) |
| Ambler Mineral Belt | Wild and Scenic River | Kanuti National Wildlife Refuge |



0 2 4 8
Miles

Source:
Gates of the Arctic: DNR
Wild and Scenic River: DNR
Aerial Imagery: i-Cubed 2012
Background Image: alaskamapped.org
Coordinate System: NAD 1983 Alaska Albers

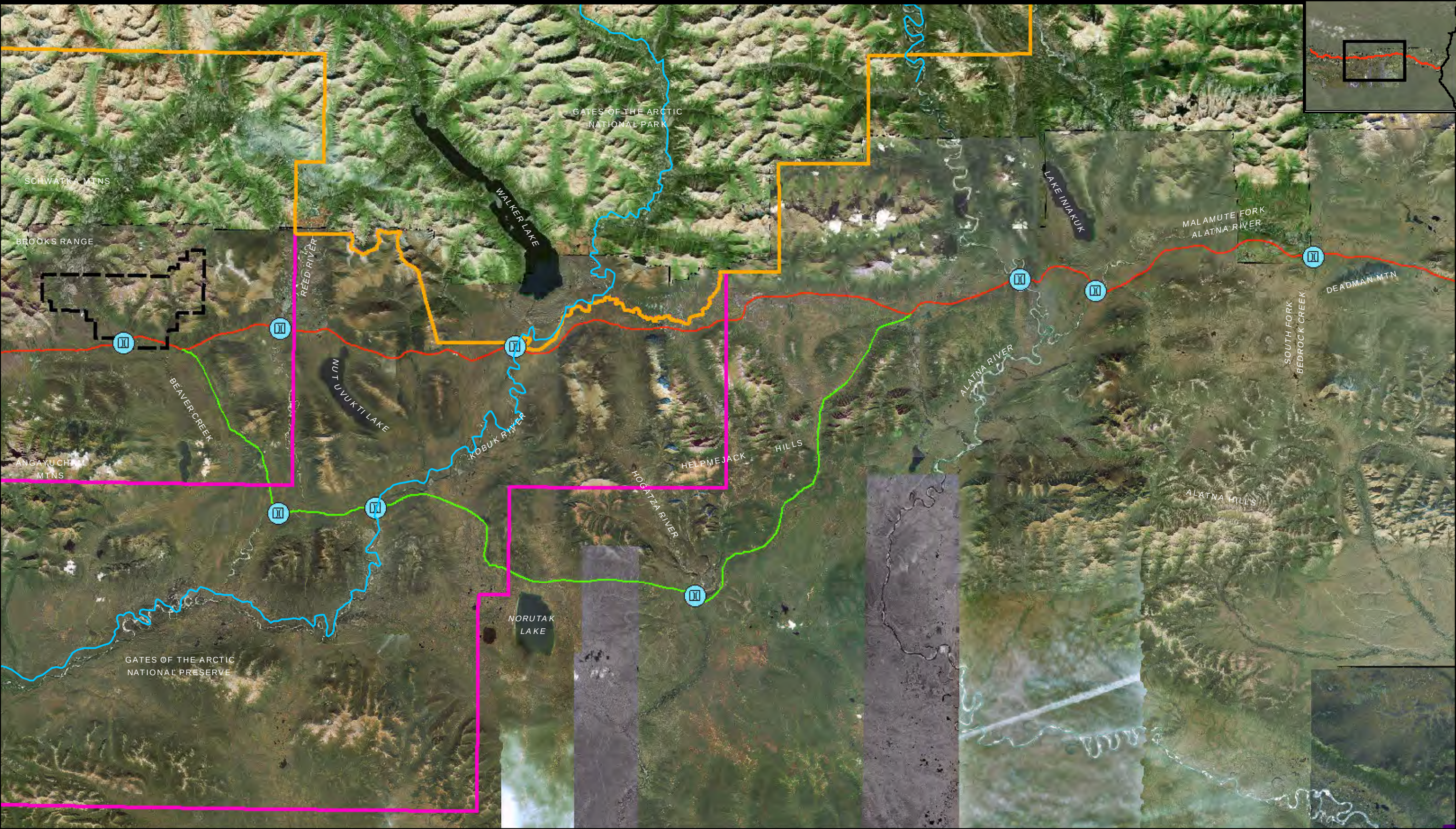
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION

AMBLER MINING DISTRICT ACCESS

PROPOSED BROOKS EAST CORRIDOR

DATE: February 25, 2013

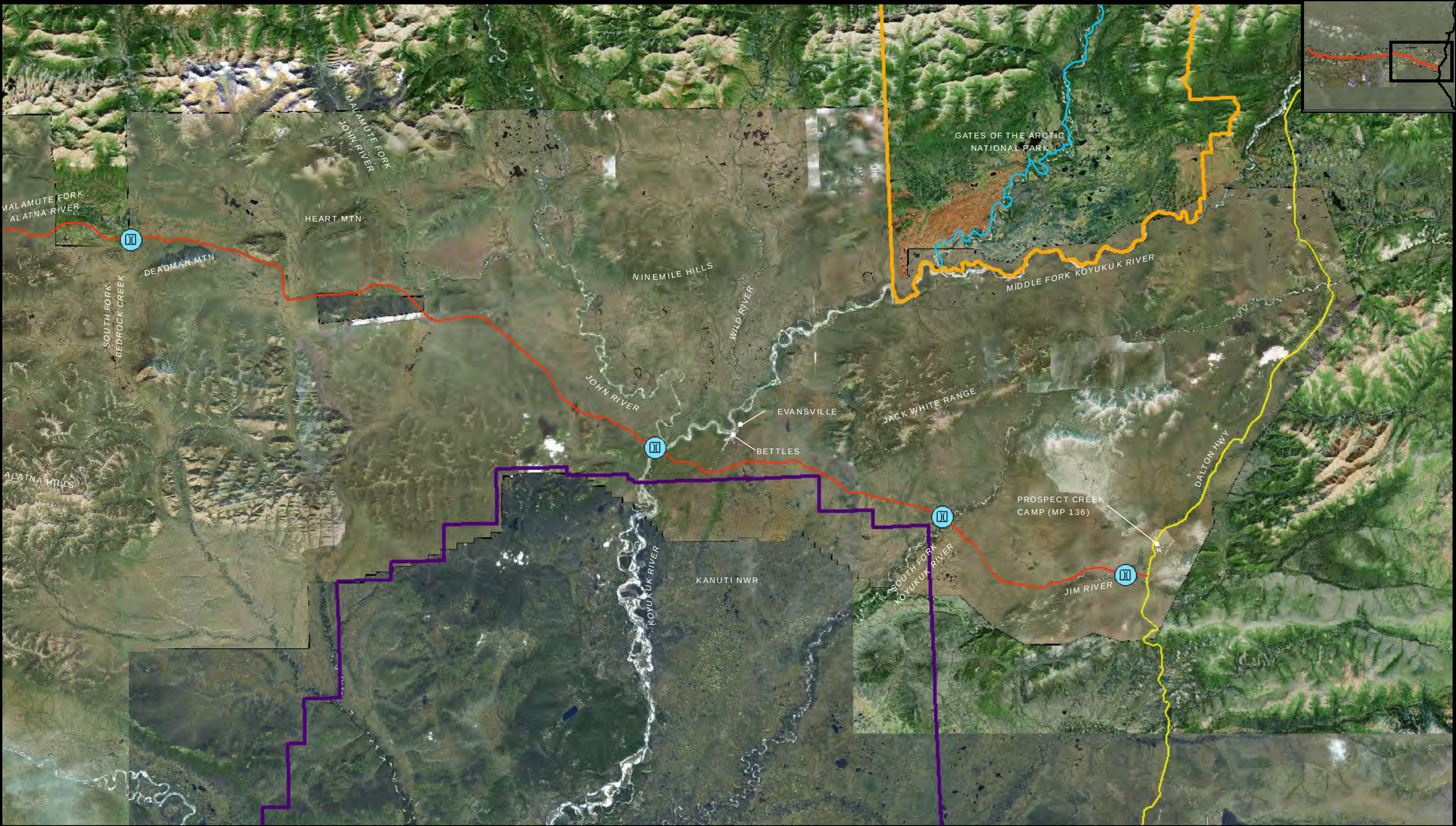
Figure 1



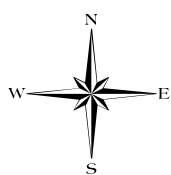
Brooks East Corridor 203 Miles-25 Miles through GANPP	Existing Roads	Gates of the Arctic National Park (National Wilderness Preservation System)
Southern Brooks East Corridor Option 218 Miles-17 Miles through GANPP	Large Bridges	Gates of the Arctic National Preserve (National Park Service)
Ambler Mineral Belt	Wild and Scenic River	Kanuti National Wildlife Refuge

Source:
Gates of the Arctic: DNR
Wild and Scenic River: DNR
Aerial Imagery: i-Cubed 2012
Background Image: alaskamapped.org
Coordinate System: NAD 1983 Alaska Albers

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES NORTHERN REGION	
AMBLER MINING DISTRICT ACCESS	
PROPOSED BROOKS EAST CORRIDOR	
DATE: February 25, 2013	Figure 2



- | | | |
|--|-----------------------|--|
| Brooks East Corridor
203 Miles-25 Miles through GANPP | Existing Roads | Gates of the Arctic National Park
(National Wilderness Preservation System) |
| Southern Brooks East Corridor Option
218 Miles-17 Miles through GANPP | Large Bridges | Gates of the Arctic National Preserve
(National Park Service) |
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0 2 4 8
Miles

Source:
Gates of the Arctic: DNR
Wild and Scenic River: DNR
Aerial Imagery: i-Cubed 2012
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STATE OF ALASKA
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AMBLER MINING DISTRICT ACCESS

PROPOSED BROOKS EAST CORRIDOR

DATE: February 25, 2013

Figure 3

Ambler Access 2013 Fieldwork

Draft Schedule

April 3 - 10: UAF Basin Scale Snow Survey - UAF

- 7 days helicopter access; 2 staff; 1 pilot

Mid-May: Breakup Survey

- 5-day helicopter survey; 3 staff; 1 Subsistence Advisor; 1 pilot

May 8-May 26: Spring Breakup Survey River Gaging - UAF

- 10-14 day daily helicopter access; 2 staff; 1 pilot

1st week of June: Fish Surveys

- 7 days; 4 staff; 1 Subsistence Advisor; 1 pilot
- 3 days within GANPP, 8 landing sites proposed, each to be visited on two or three successive days

June 10-20: Bird surveys (Raptor Nest Aerial Surveys) – R44

- 7 days; 2 staff; 1 pilot
- No landing proposed in GANPP

July 5 -7: Additional H&H in GANPP on Kobuk and Reed Rivers

- 3-day helicopter survey within GANPP; 3 staff; 1 Subsistence Advisor; 1 pilot
- Approximately 8 landing sites proposed

July 10 – 22: JD Level Wetlands Delineation

- 14 days; 6 staff, 1 Subsistence Advisor, 1 pilot
- 5 days within GANPP

Mid July: Summer River Gaging – UAF

- 2 day helicopter access within GANPP; 2 staff; 1 pilot
- Kobuk River landing site

July 15-25: Bird surveys (Raptor Nest Aerial Surveys) – R44

- 5 days; 2 staff; 2 pilot/mechanic
- No landing proposed with GANPP

July 23 – August 1: Archaeological Reconnaissance Trip

- 10 days; 3 staff; 1 Subsistence Advisor; 1 pilot
- Approximately 5 days within GANPP, 30 landing sites proposed

August 2 - 16: JD Level Wetlands Delineation

- 14 days; 6 staff, 1 Subsistence Advisor, 1 pilot
- Approximately 5 days within GANPP

Ambler Access 2013 Fieldwork

Draft Schedule

3rd week of August 17 -24: Fish Surveys

- 7 days; 4 staff; 1 Subsistence Advisor, 2 pilot/mechanic
- 3 days within GANPP, 8 landing sites proposed, each to be visited on two or three successive days

Mid-September: Fall River Gaging/Winterizing – UAF

- 3 day helicopter access; 2 staff; 1 pilot
- Kobuk River landing site

Timing of all surveys will be coordinated with ADF&G and NPS, and will depend on local conditions. Annual variability in conditions could alter survey schedule by 2-4 weeks.