

**AMBLER MINING DISTRICT ACCESS PROJECT
REQUEST FOR NPS PERMIT
PROPOSED FISH SURVEYS
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: Fisheries Surveys

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.

Fisheries Surveys

Objectives: DOT&PF has contracted DOWL HKM and ABR, Inc., (ABR) to conduct fish surveys for the Ambler Mining District Access Project. Fish Surveys initiated in 2012 provided presence/absence information that will be used to focus additional survey efforts in 2013. The goals of the 2013 aquatic surveys are to:

1. Consult with Alaska Department of Fish and Game (ADF&G) biologists to review focused and priority survey reaches;
2. Perform additional early (June) and late season (August) fish surveys to describe fish assemblages at potential stream crossing locations which were not sampled in 2012;
3. Re-sample select tributaries which yielded no fish in 2012 surveys to rule out the possibility of false negatives; and
4. Perform directed habitat surveys in fish bearing streams identified in 2012 in the area of proposed stream crossings to provide additional data on habitat resources important to fish assemblages.

Timing: Two 1 week trips approximately June 1 – June 7, 2013 and August 23 – August 30, 2013. (Note: only 3 or 4 days per trip are anticipated to involve ground based surveys within GANPP).

Access: Helicopter. The attached map illustrates approximate sampling locations along the major rivers and tributaries. Helicopter landings will be in close proximity to sampling locations. (Precise landing locations to be determined by the pilot based on terrain and safety considerations.)

Lodging: Dahl Creek Camp or Coldfoot

Personnel: 5 field personnel (3 ABR and DOWL HKM biologists, 1 Subsistence Advisor, 1 helicopter pilot)

Field Procedures Surveys to determine the presence of anadromous and resident fish species within streams in the Brooks East Corridor study area will occur in two separate week-long events; one each in June and August 2013. A number of passive and active sampling methods, depending on local aquatic conditions, will be used to sample fish communities within the study area. Survey methods will include use of backpack electrofishers, minnow traps, seines and visual observations.

Consistent with the 2012 surveys conducted within the Study area and approved by ADF&G, backpack electrofishing will be the primary tool used to determine the presence/absence of resident and anadromous fish assemblages in the area of proposed stream crossings. Electrofishing has been determined to be an efficient method for sampling fish communities in headwater streams and is regarded as the most comprehensive and effective method for rapidly detecting fish in lotic systems. ABR will conduct a single-pass electrofishing survey using a battery-powered Smith-Root LR-24 electrofisher to determine fish presence/absence in Study area streams.

Project corridor survey streams will be determined in consultation with DOWL HKM and agency personnel prior to field work. Individual survey reaches on each stream will be established in the field and will include, wherever practical, a length of stream that includes a riffle-run-pool sequence. Each stream study reach length will be equivalent to 40 wetted channel widths or 150m, whichever is greater, to ensure adequate sampling in both smaller and larger wadeable streams. Electrofishing will begin at the downstream end of the reach and proceed upstream moving diagonally across the channel from bank to bank to sample all habitat types present. Fish will be collected using dip nets and placed in holding buckets containing cool, well-oxygenated stream water until identified and enumerated. Backpack electrofishing methods will not be employed in stream reaches where adult salmonids, including trout, char, Dolly varden and grayling are visually observed.

Additional fish sampling methods may be employed in streams where electrofishing is deemed impractical (e.g., deeper waters, low conductivity waters) or where no fish were sampled during 2012 or 2013 electrofishing efforts. At selected survey reaches within the Study Area, ABR will deploy a combination of minnow trapping, or seining to establish the presence or absence of rearing populations of fish. Minnow traps will be deployed at select locations throughout the previously established survey reach (i.e., under cut banks, near larger woody debris, in deep pools, etc.) in numbers deemed sufficient to adequately sample all habitat types available in the reach. Raw salmon eggs will be disinfected by soaking in a 1/100 Betadyne solution for 10 minutes prior to use. Once baited, traps will be allowed to fish overnight and retrieved the following day. Captured fish species will be removed and placed in a holding bucket containing cool, well-oxygenated stream water before being identified and enumerated.

ABR will make a special attempt to conduct aerial visual observations for spawning salmon and other adult fish throughout the course of transit between study sites. In streams where adult fish

are observed, no electrofishing will be conducted but an attempt will be made to identify the fish observed. If adults cannot be identified from the ground, a two-person seine haul may be used to ensure complete sampling of any given sample site. In these areas, a 20 foot long, 0.25 inch mesh seine net will be pulled upstream through the established study reach. A minimum of three seine hauls, 50 feet in length, will be conducted throughout the reach. Additional, shorter hauls may be conducted with the specific goal of identifying individual salmonid species. Special care will be taken to avoid disturbance of redds.

Fishing efforts will be focused in the areas of proposed stream crossings in 2013 although additional upstream or downstream sampling may be important and will be considered based on site-specific operations.

All collected fish will be identified to species, enumerated, measured (salmonids fork length; other species; total length) and examined for external abnormalities. The majority of collected fish will be released live, downstream of the sampling location. A small number of verification samples may be fixed in 10% formalin for transfer back to ABR's Anchorage laboratory. These voucher samples will be saved either for lab verification of more difficult to distinguish samples or as a species reference for streams being nominated to the anadromous waters catalog (AWC) (if required).

In the area of critical stream crossings (crossings where anadromous fish are known to exist), ABR will perform a detailed assessment of habitat features. Habitat cross-section stations will be established at the upstream extent of each sampling site and a rapid habitat assessment will be performed based on ADF&G AWC survey methods. Measurements taken at each habitat station will include stream bank-full width, wetted width, cross-sectional depth profiles, stream flow/discharge, substrate type, ambient water chemistry (pH, Temperature, dissolved oxygen and conductivity) and a classification of dominant riparian vegetation present. A detailed log of photographs will be compiled at each habitat station including photos taken of each bank, upstream and downstream directions.

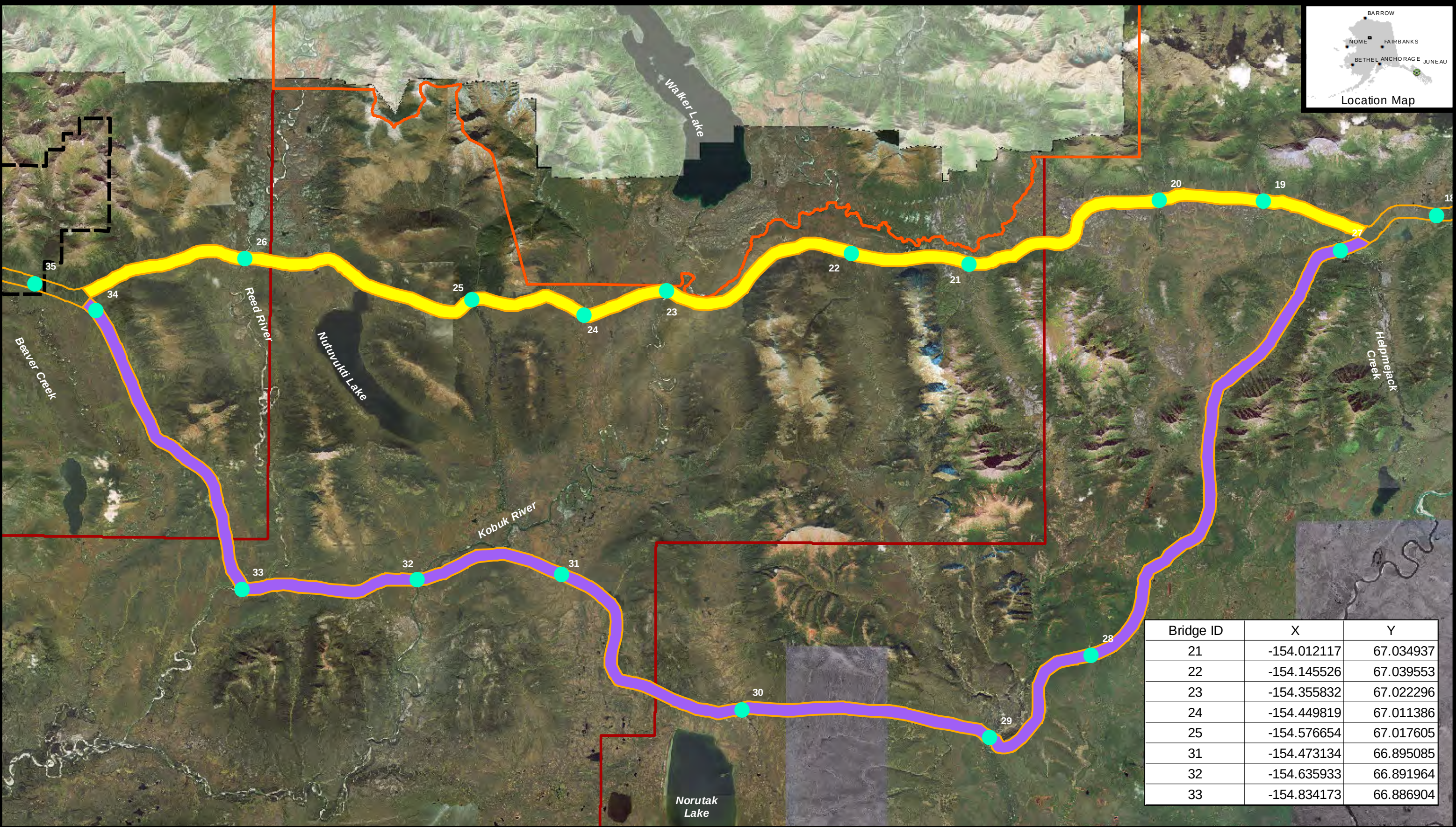
Results/Deliverable Products

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

- A nomination form to the AWC will be prepared and submitted to the ADF&G for each water body where anadromous fish are observed.
- Detailed maps of the survey reaches along with any other necessary supporting documentation for the AWC nomination process.
- A report documenting methods and results of stream and habitat surveys.

Additional Permit Compliance

Prior to beginning 2013 field surveys, ABR will obtain a Fish Resource Permit from ADF&G and a Collection Permit from the National Park Service.



Bridge ID	X	Y
21	-154.012117	67.034937
22	-154.145526	67.039553
23	-154.355832	67.022296
24	-154.449819	67.011386
25	-154.576654	67.017605
31	-154.473134	66.895085
32	-154.635933	66.891964
33	-154.834173	66.886904

-  Ambler Mineral Belt

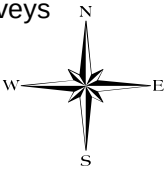
 Gates of the Arctic National Preserve

 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

 Proposed Bridges / Fisheries Surveys



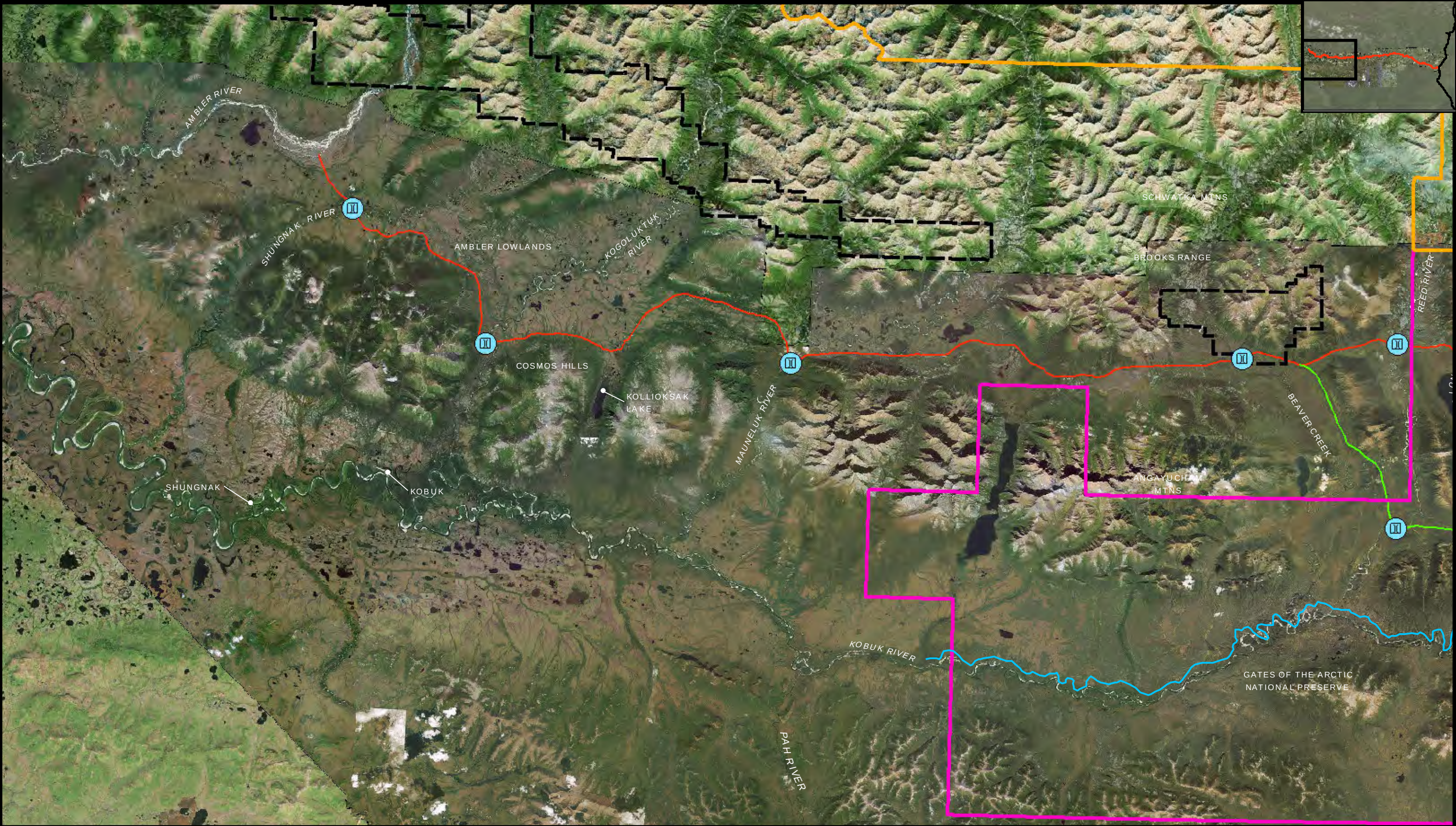
Coordinate System: NAD 1983 Alaska Albers

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION

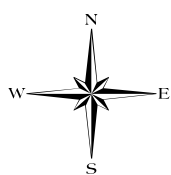
AMBLER MINING DISTRICT ACCESS

2013 BROOKS EAST CORRIDOR - GANPP
FISHERIES SURVEY

DATE: February 19, 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

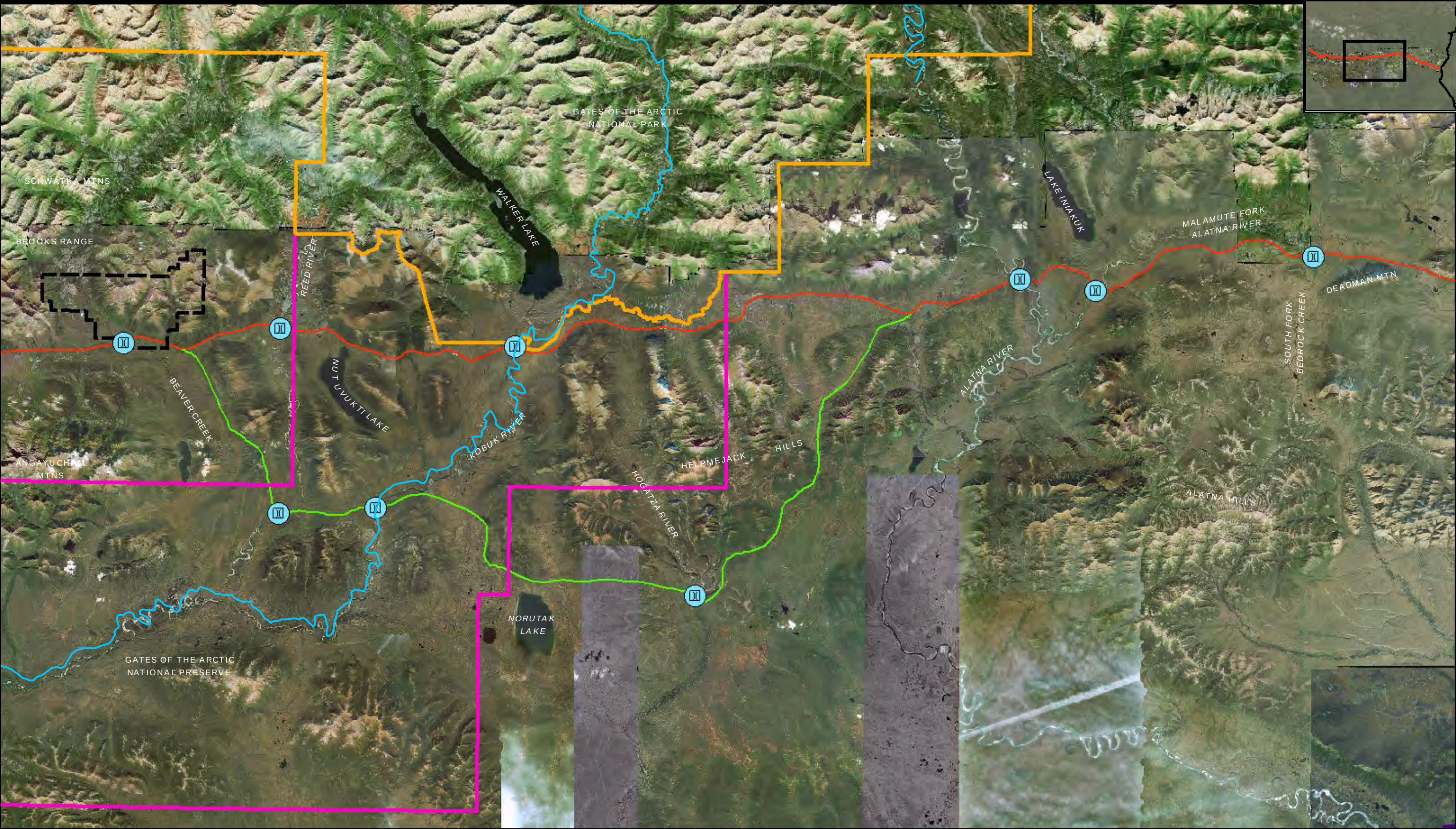
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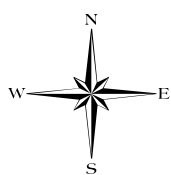
PROPOSED BROOKS EAST CORRIDOR

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 |



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

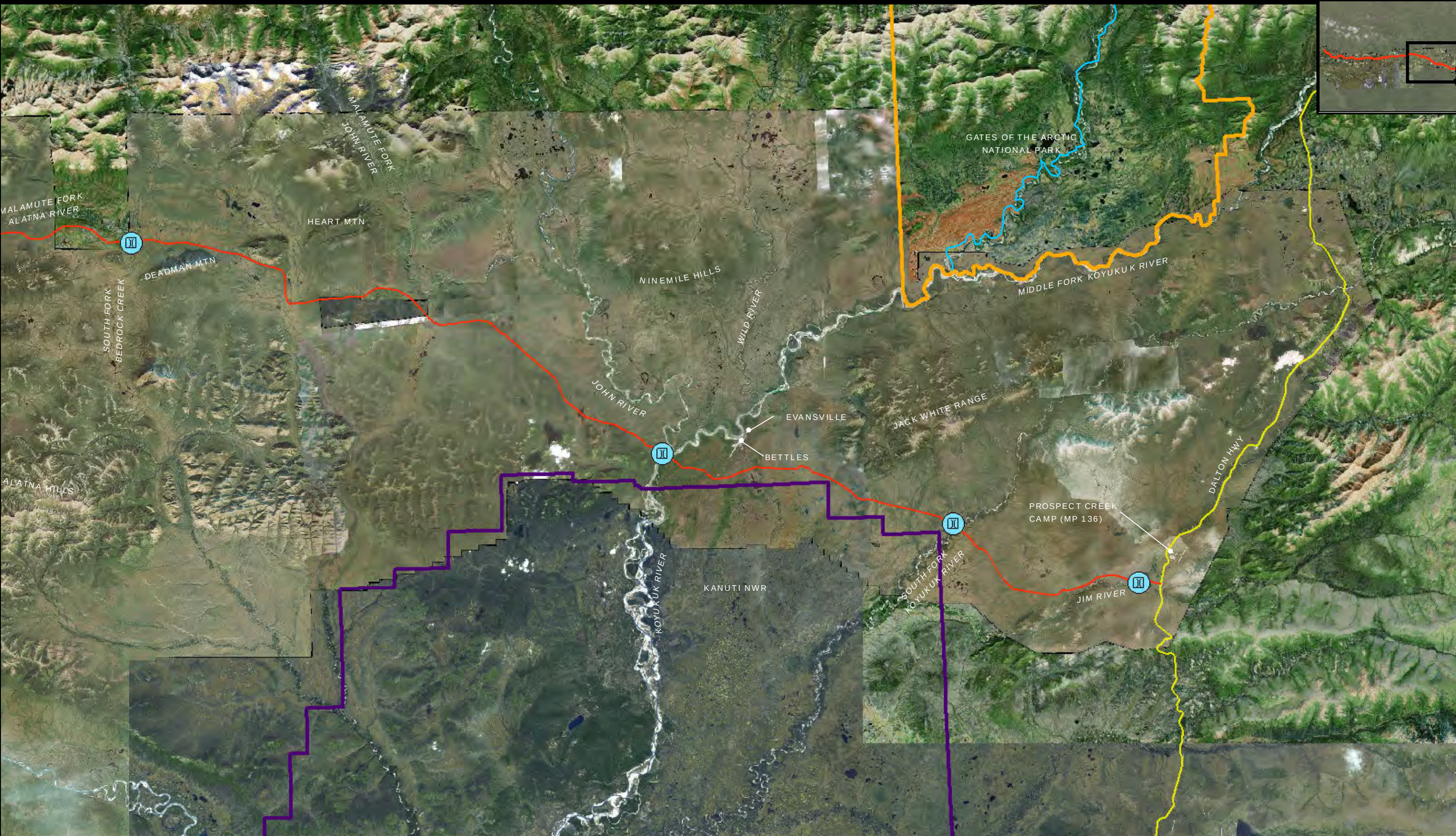
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PROPOSED BROOKS EAST CORRIDOR

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)
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 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.