



U.S. Department of the Interior
Bureau of Land Management

Willow Master Development Plan

Supplemental Environmental Impact Statement

FINAL

Volume 3: Appendix A.2

Figures 3.3.1 to 3.8.7

January 2023

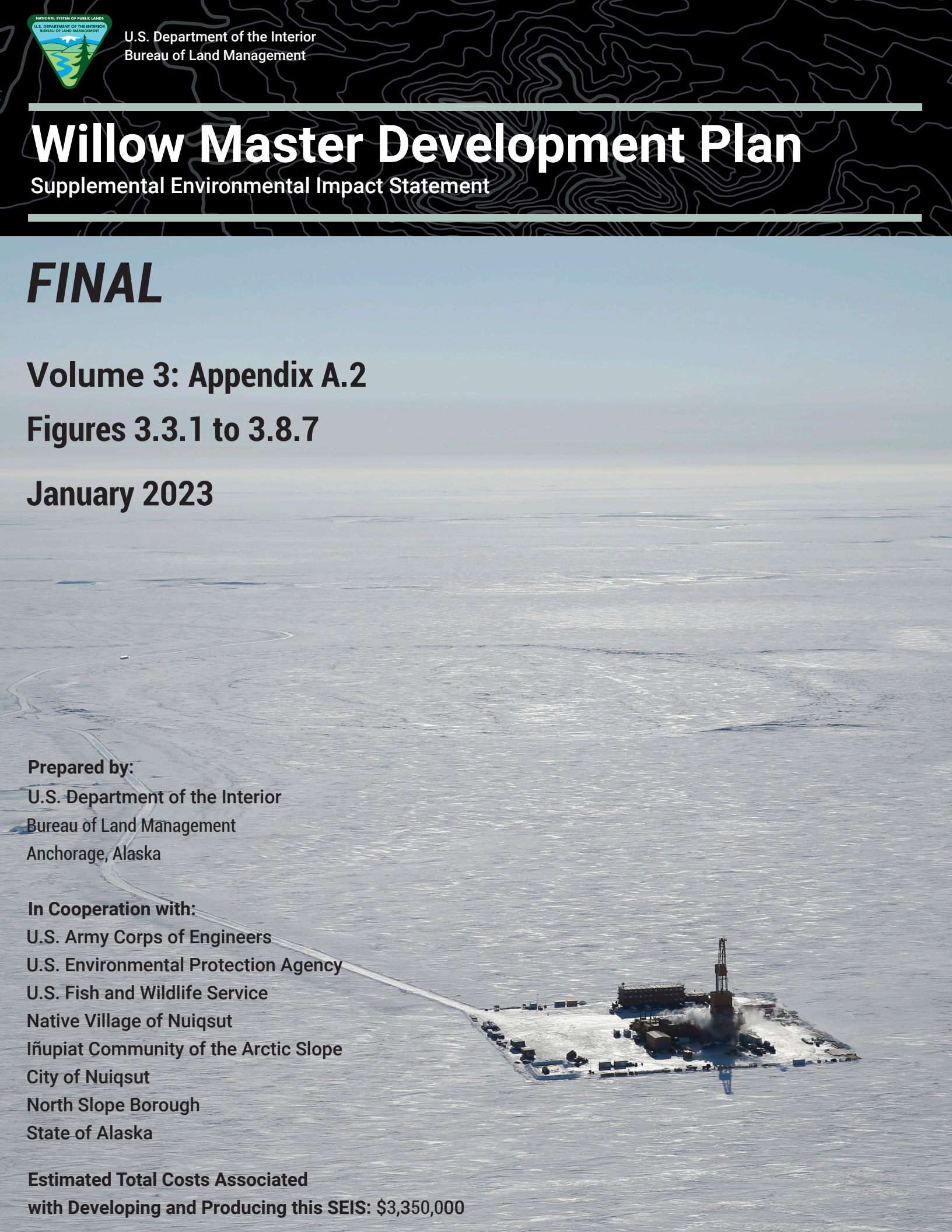
Prepared by:

U.S. Department of the Interior
Bureau of Land Management
Anchorage, Alaska

In Cooperation with:

U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Native Village of Nuiqsut
Iñupiat Community of the Arctic Slope
City of Nuiqsut
North Slope Borough
State of Alaska

**Estimated Total Costs Associated
with Developing and Producing this SEIS: \$3,350,000**



Mission

To sustain the health, diversity, and productivity of the public lands for the future use and enjoyment of present and future generations.

Cover Photo Illustration: North Slope Alaska oil rig during winter drilling.

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BLM/AK/PL-22/032+1610+F010

Willow Master Development Plan

Appendix A.2

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January 2023

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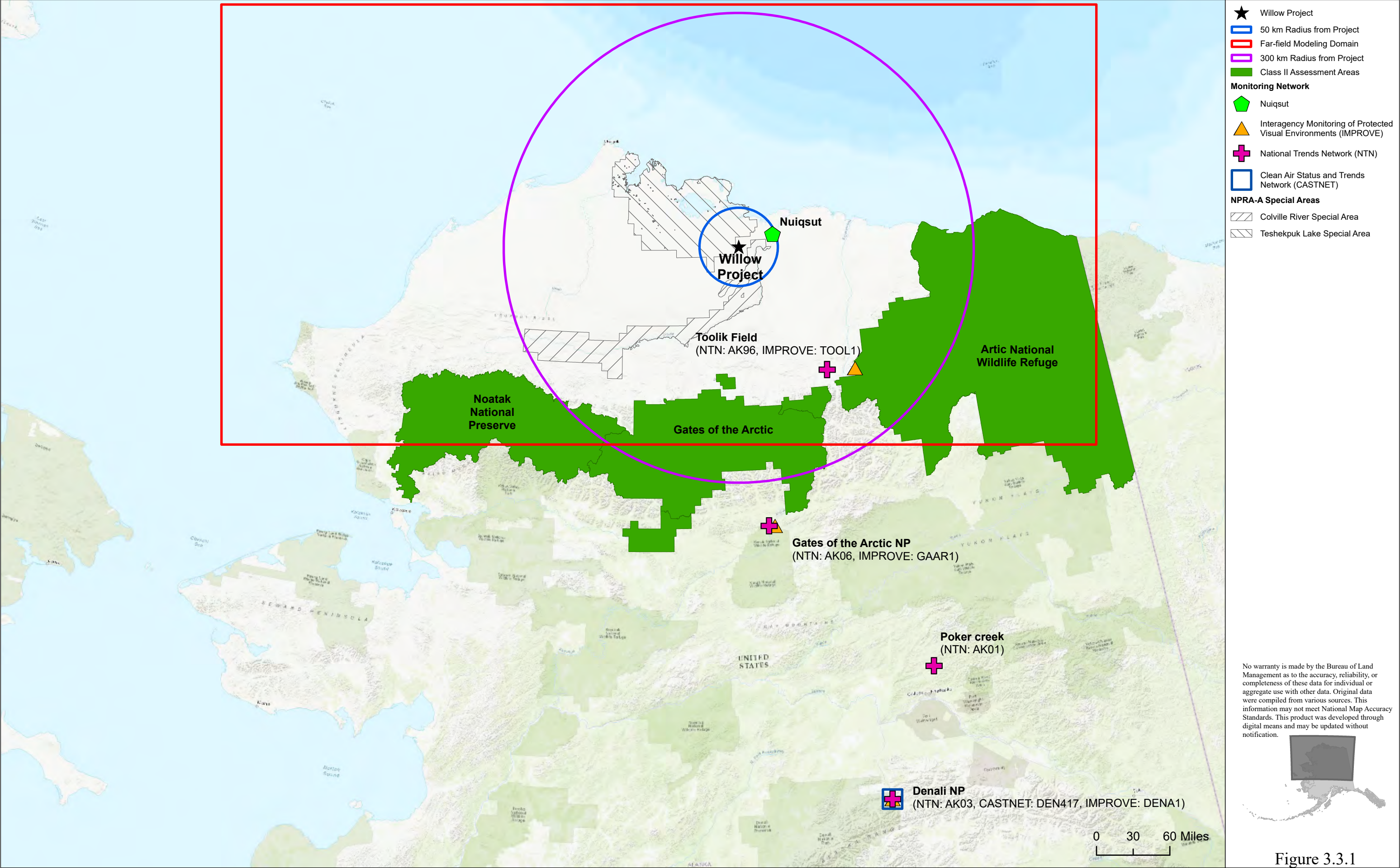
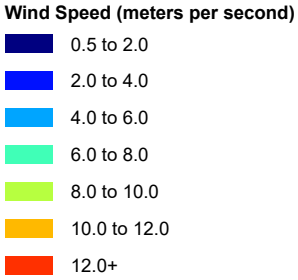
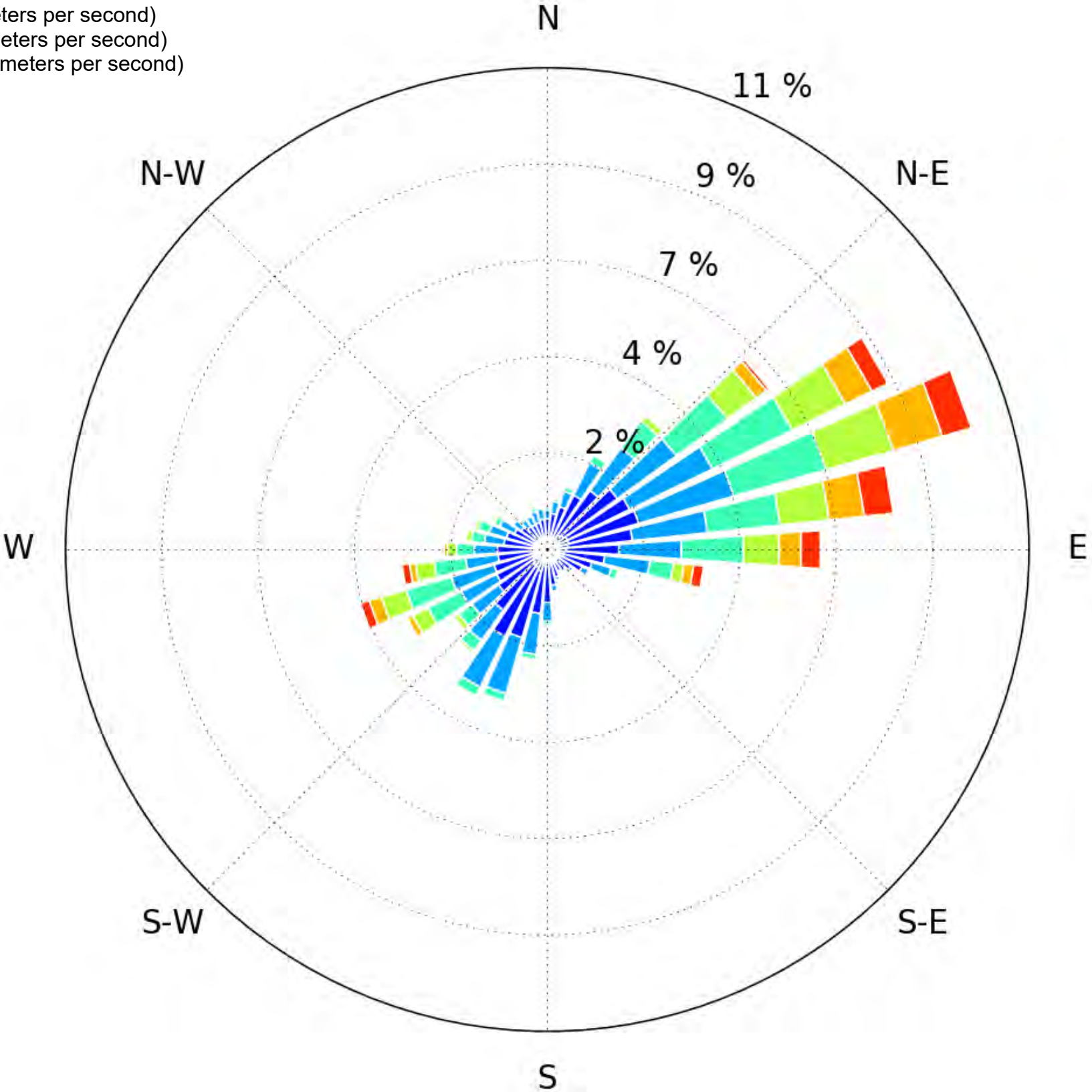


Figure 3.3.1

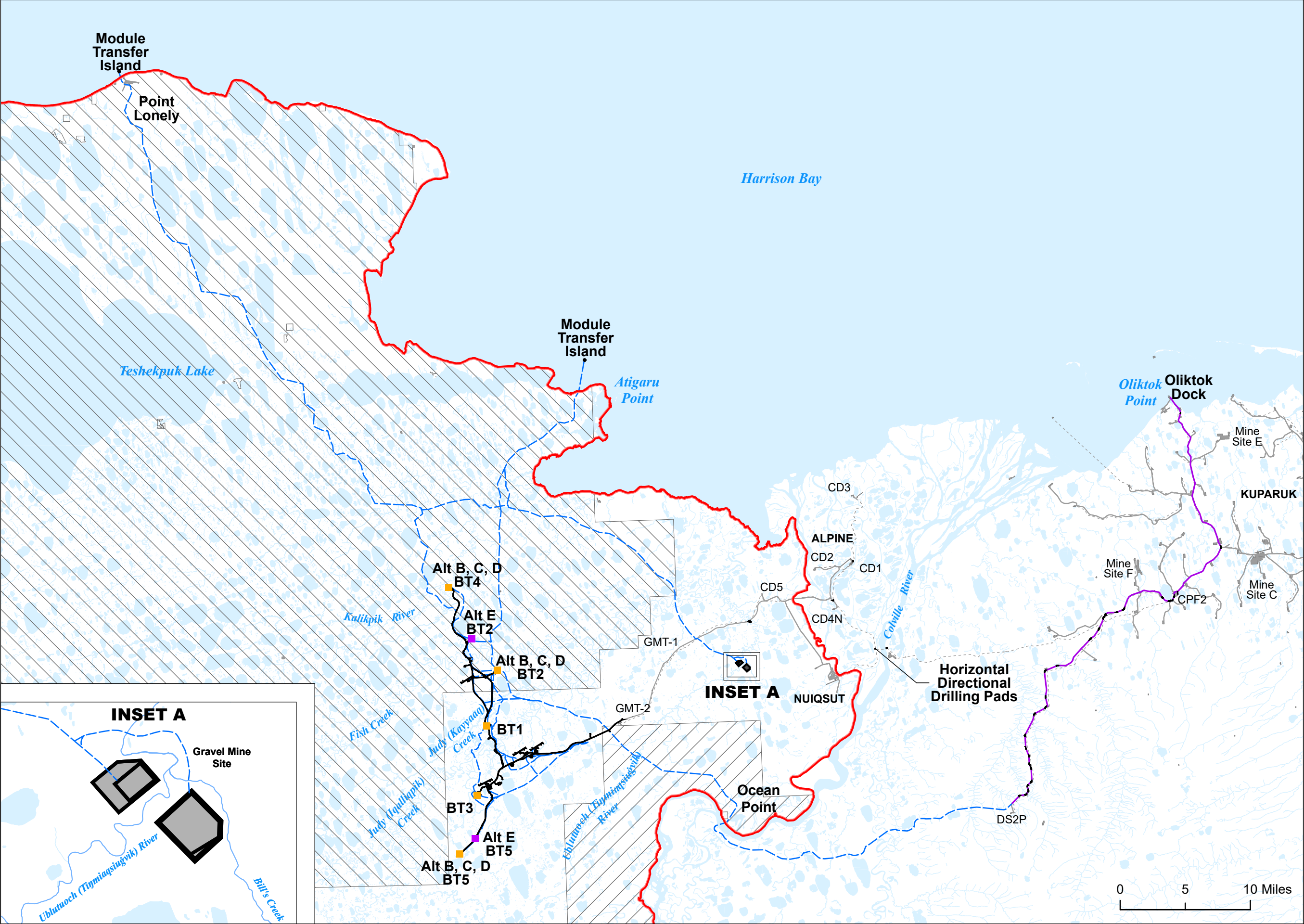


Wind Speed
Total Count: 43,824
Total Calm: 414
Calm: 0.9%
Missing: 1,321
Wind Speed Average: 5.0 (meters per second)
Minimum Wind Speed: 0.5 (meters per second)
Maximum Wind Speed: 22.4 (meters per second)



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Figure 3.3.2



Willow Proposed Development FeaturesB

- Drill Site (Not to Scale)
- Alt E Drill Site (Not to Scale)
- Ice Road
- Option 3 Existing Road
- Gravel Footprint
- Mine Site Excavation

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

Land Designation

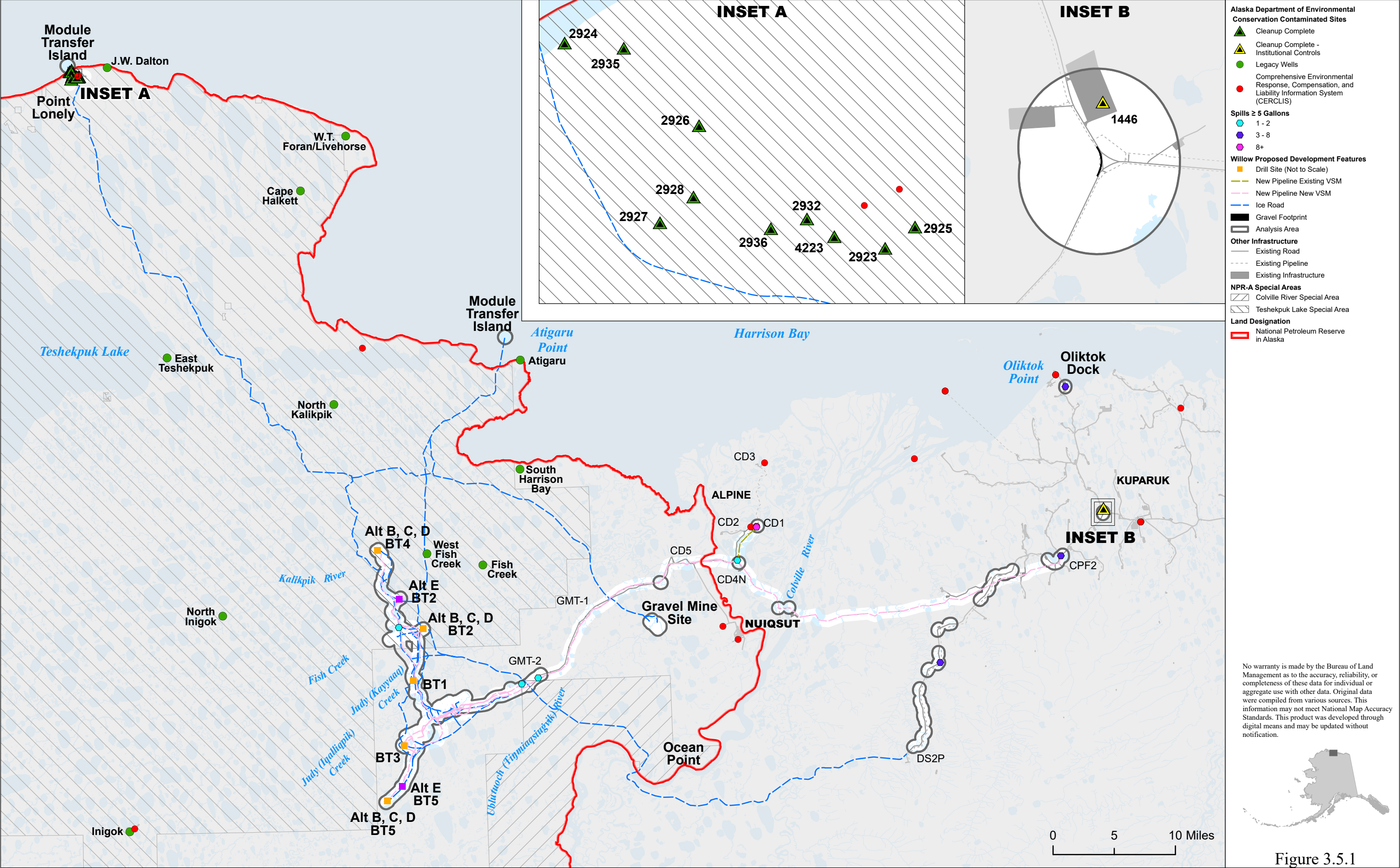
- National Petroleum Reserve in Alaska

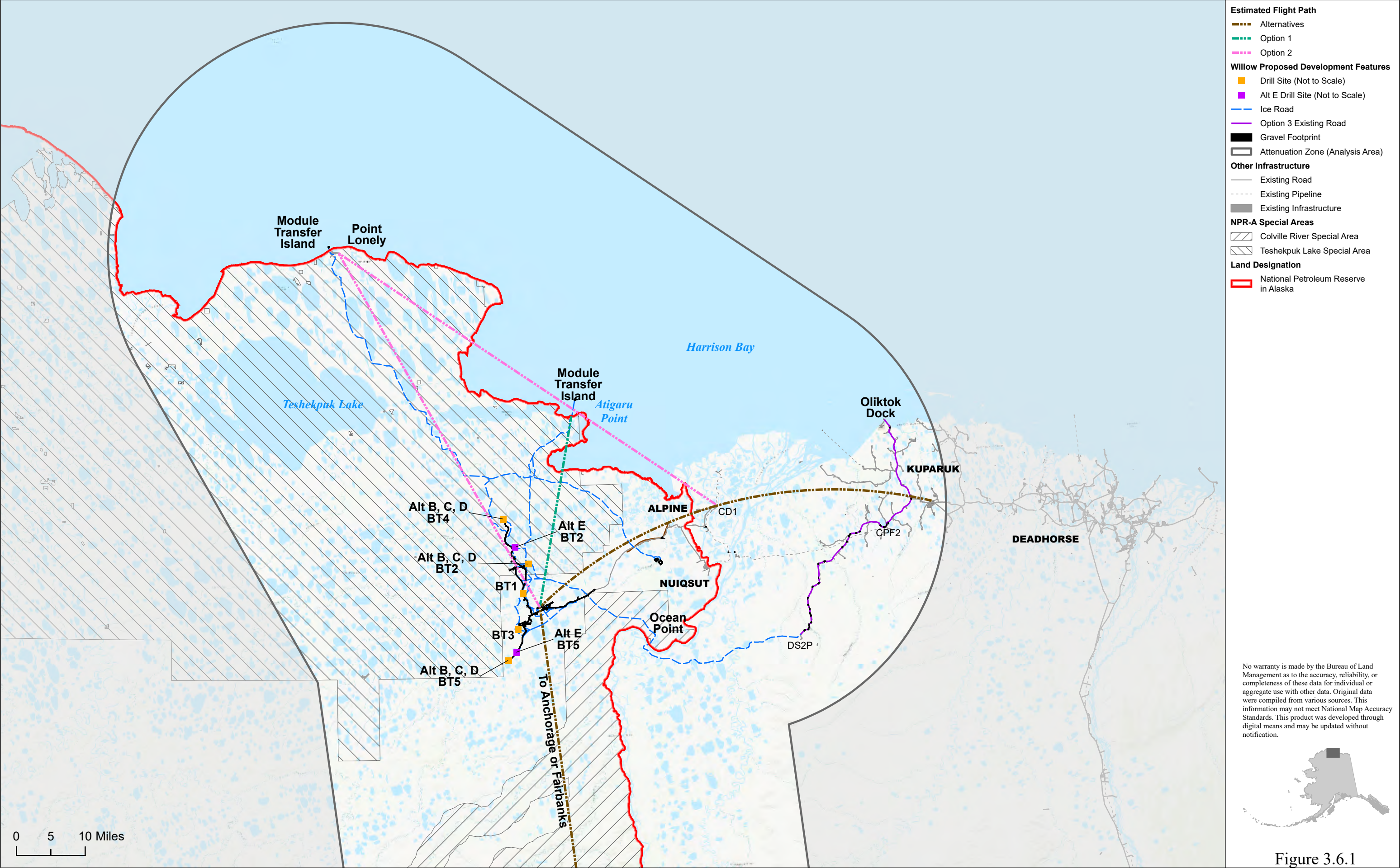
Note:
The analysis area is the area within 328 feet (100 meters) of proposed ground disturbances and ice infrastructure.

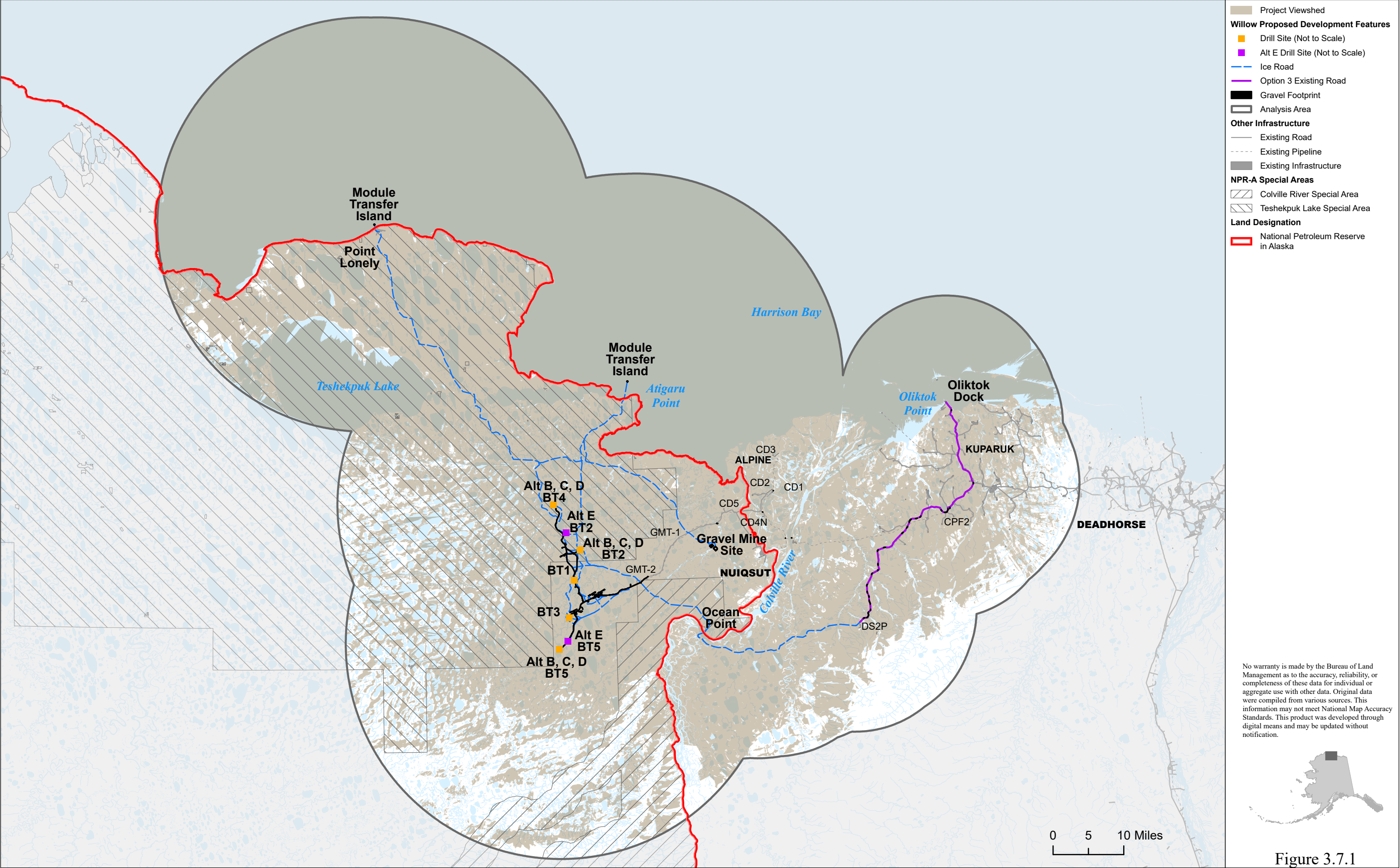
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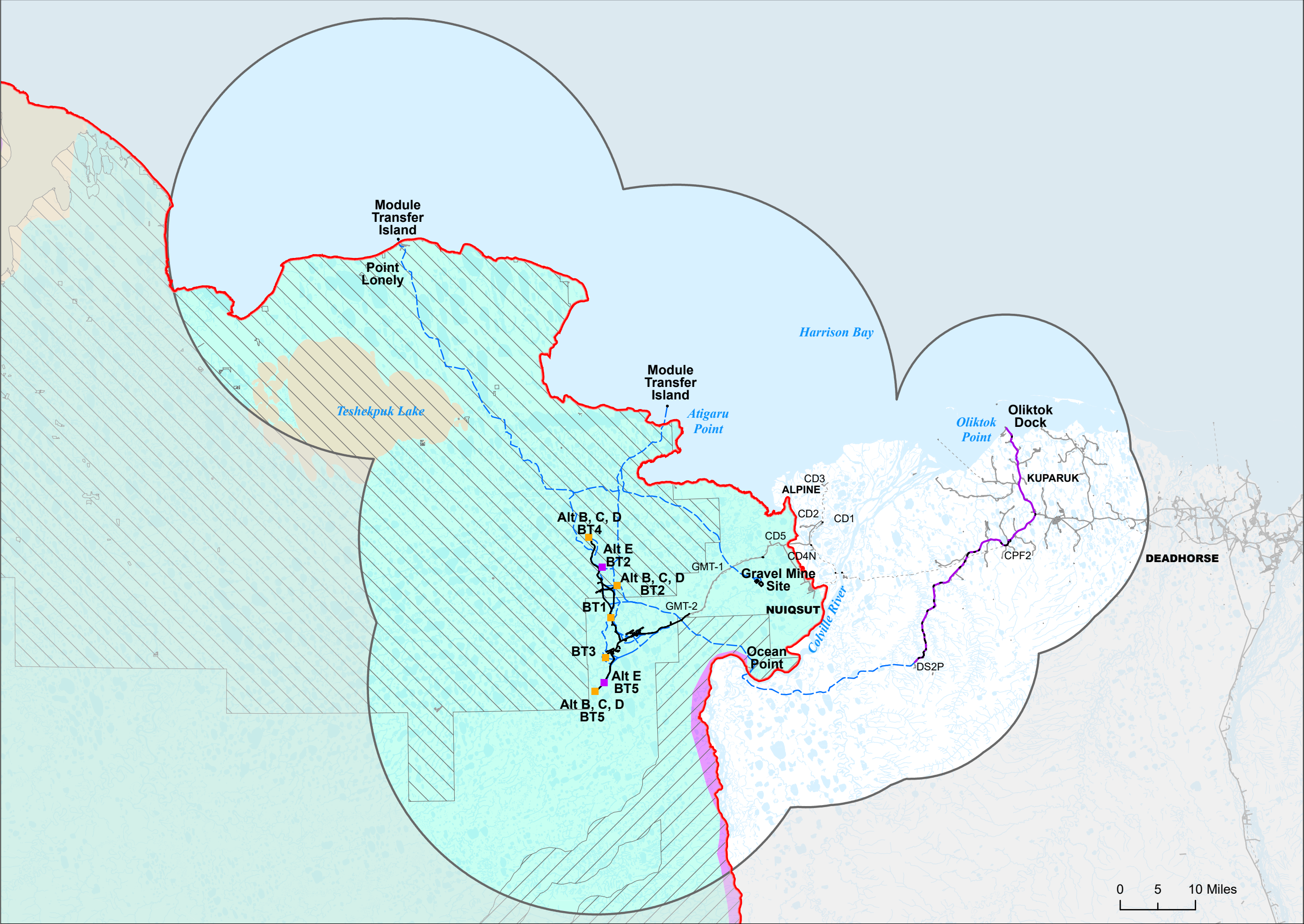


Figure 3.4.1









Visual Resource Inventory

Scenic Quality Classes

- A
- B
- C

Willow Proposed Development Features

- Drill Site (Not to Scale)
- Alt E Drill Site (Not to Scale)
- Ice Road
- Option 3 Existing Road
- Gravel Footprint
- Analysis Area

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

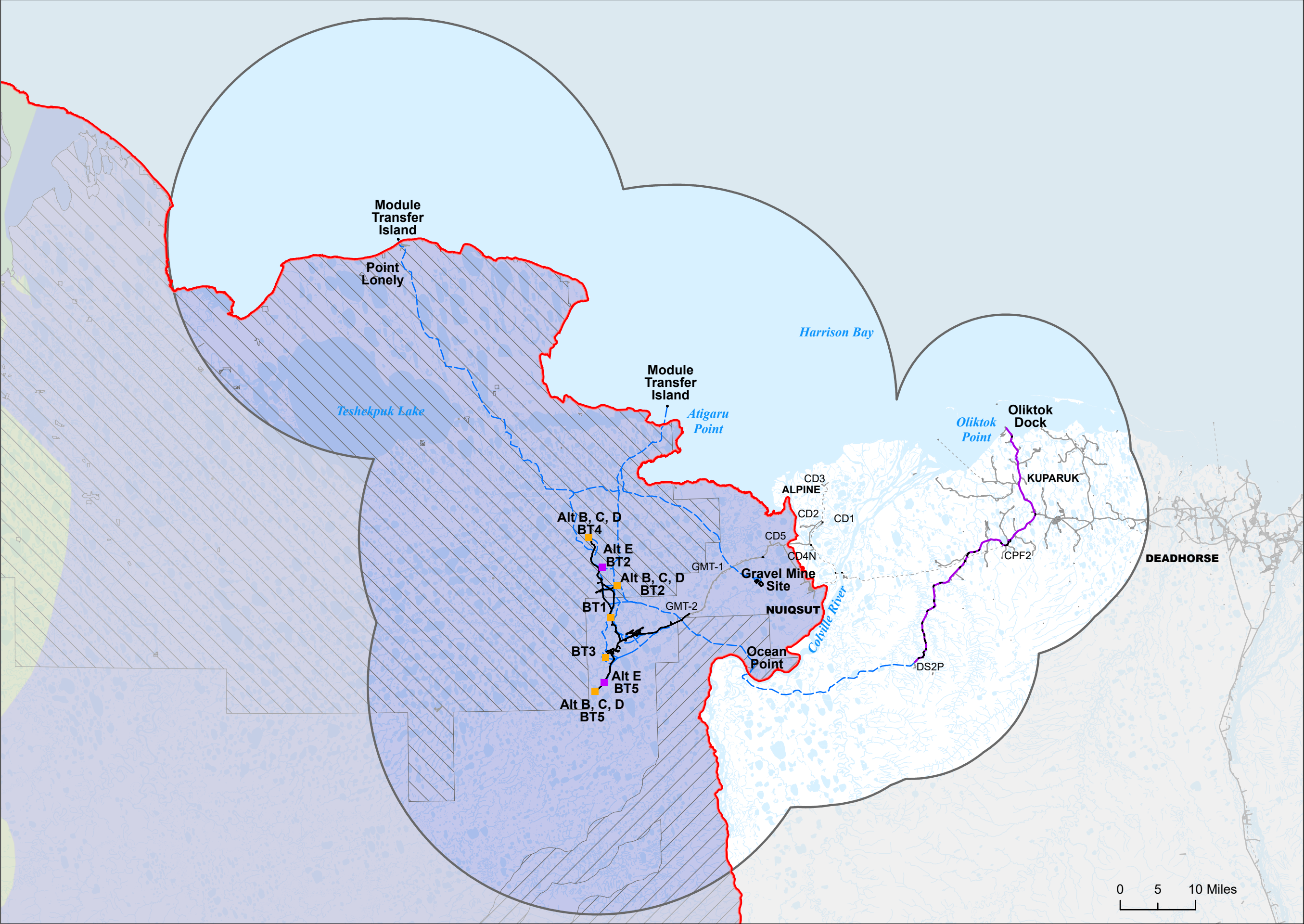
Land Designation

- National Petroleum Reserve in Alaska

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Figure 3.7.2



Visual Resources Inventory

Sensitivity Levels

- High
- Moderate

Willow Proposed Development Features

- Drill Site (Not to Scale)
- Ice Road
- Option 3 Existing Road
- Gravel Footprint
- Analysis Area

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

Land Designation

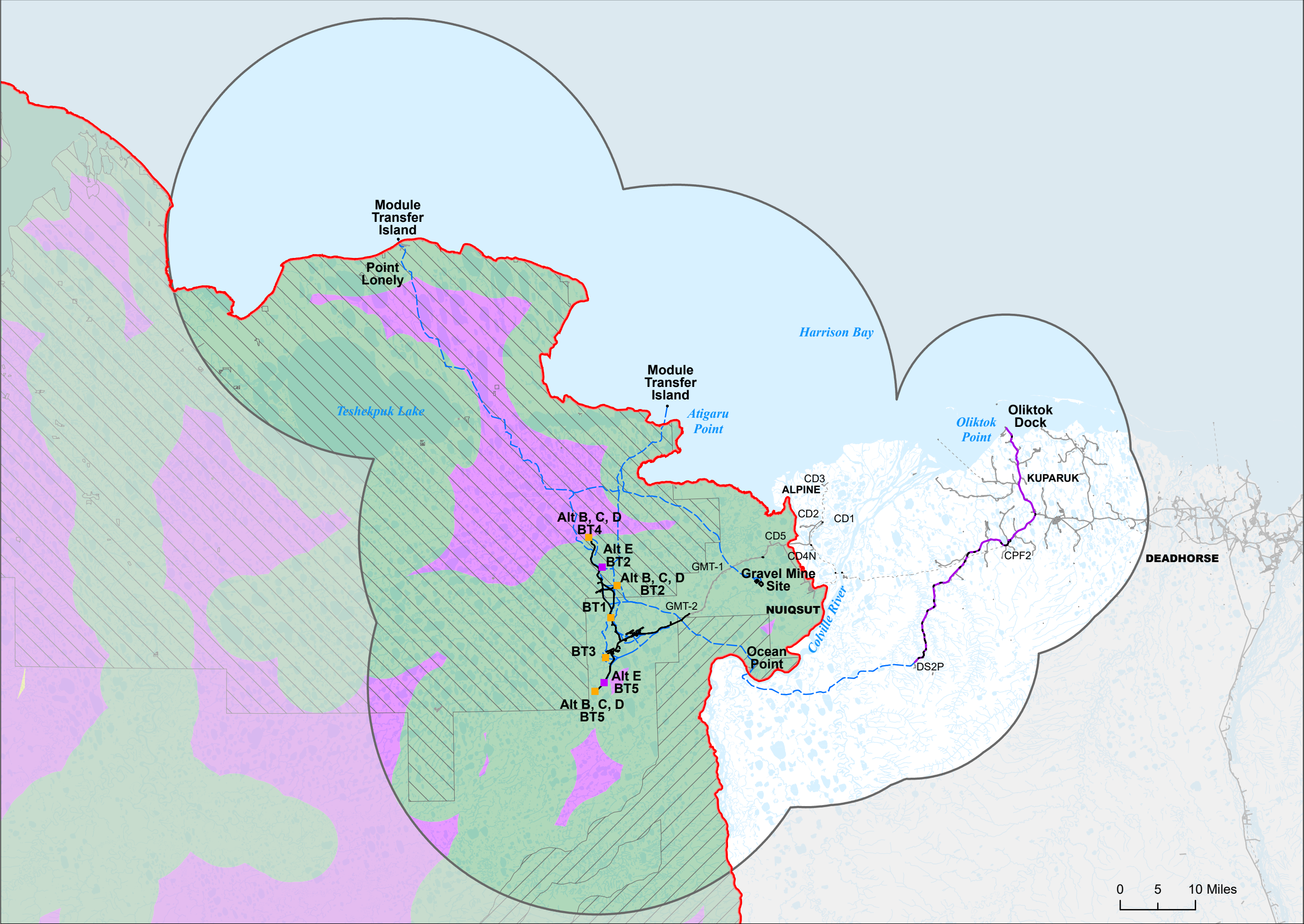
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0 5 10 Miles

Figure 3.7.3



Visual Resource Inventory

Distance Zones

- Foreground
- Background
- Seldom Seen

Willow Proposed Development Features

- Drill Site (Not to Scale)
- Alt E Drill Site (Not to Scale)
- Ice Road
- Option 3 Existing Road
- Gravel Footprint
- Analysis Area

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

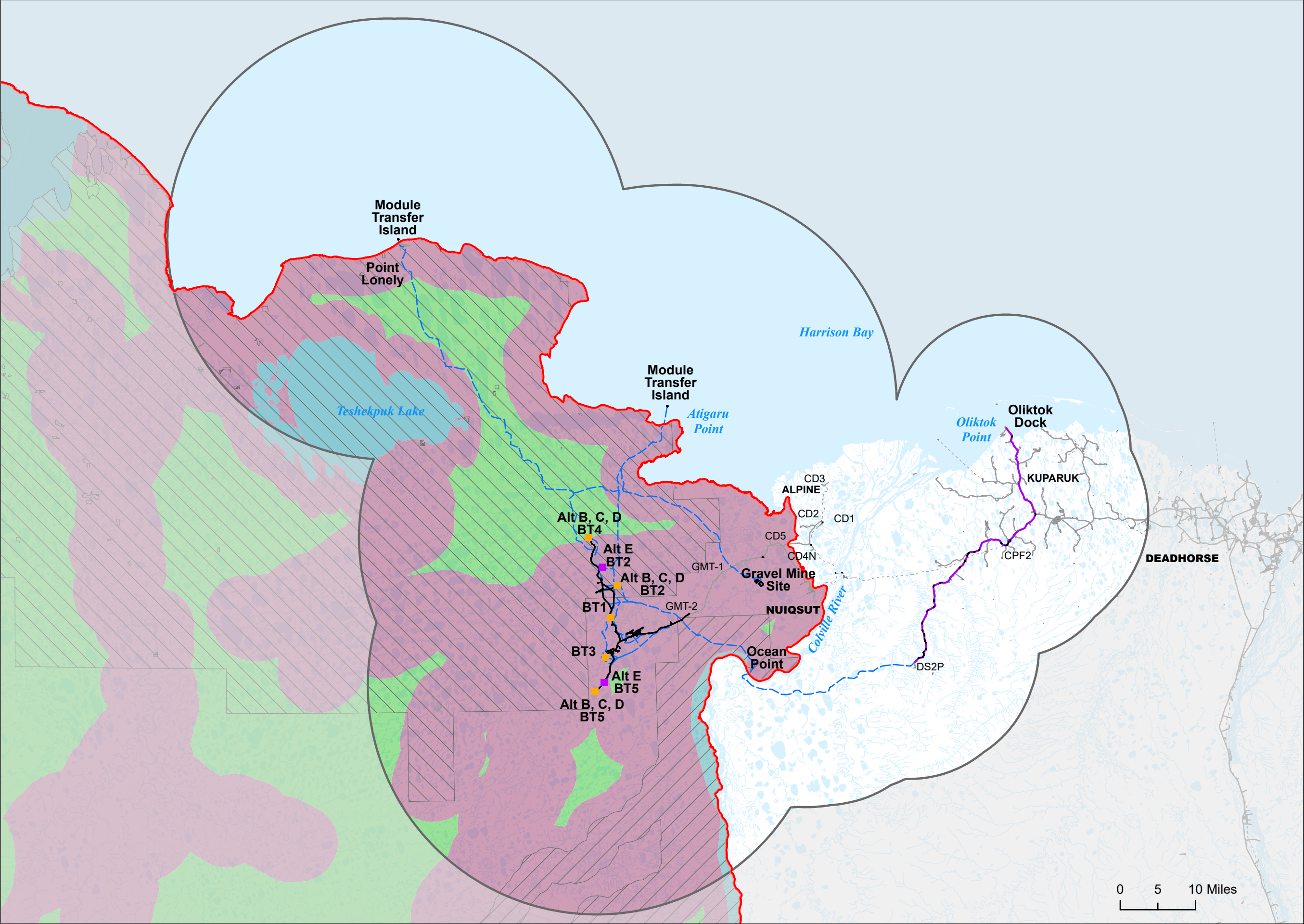
Land Designation

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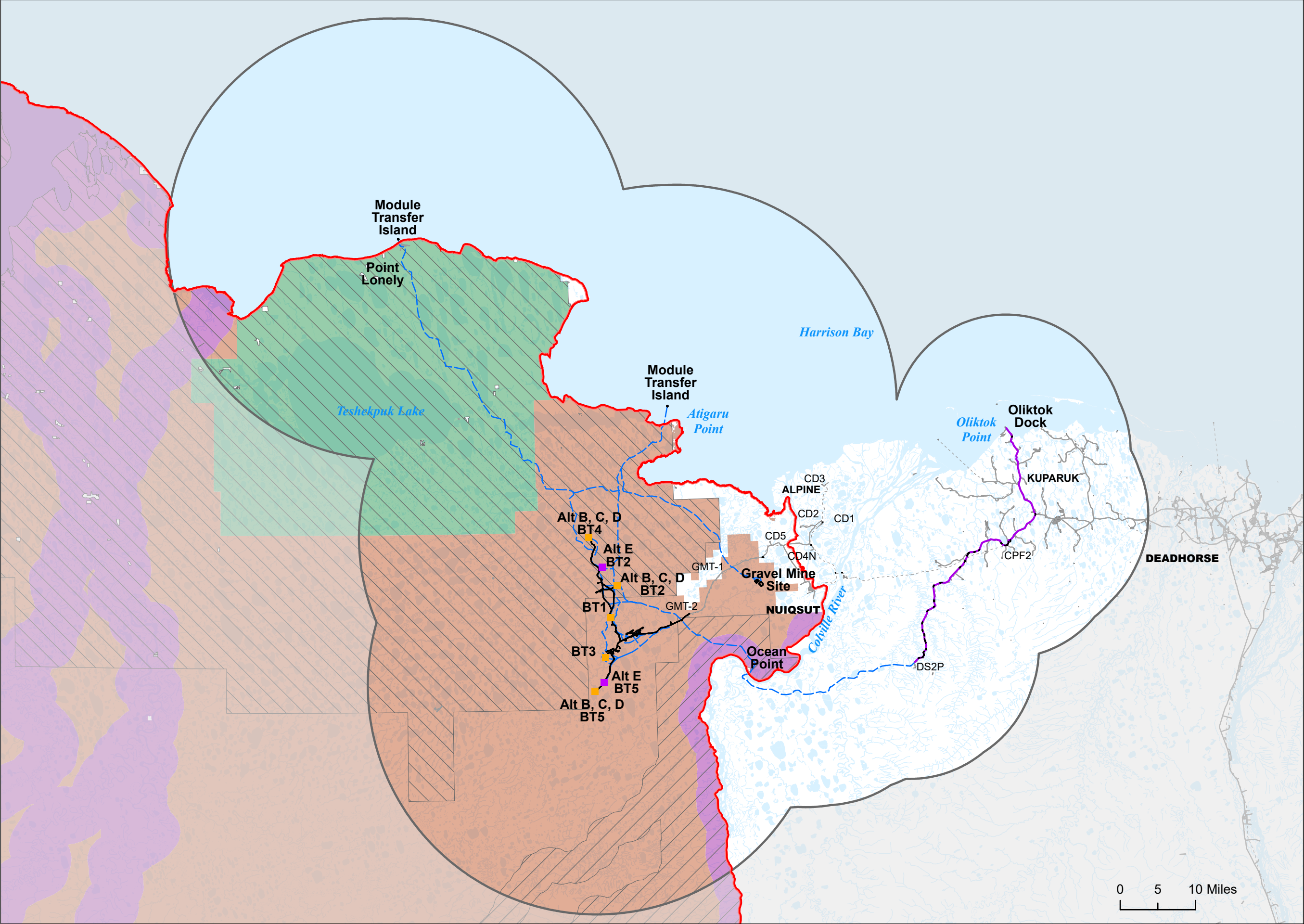
Figure 3.7.4



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Figure 3.7.5



Visual Resource Management Class

Alt_A

- VRM Class 2
- VRM Class 3
- VRM Class 4

Willow Proposed Development Features

- Drill Site (Not to Scale)
- Alt E Drill Site (Not to Scale)
- Ice Road
- Option 3 Existing Road
- Gravel Footprint
- Analysis Area

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

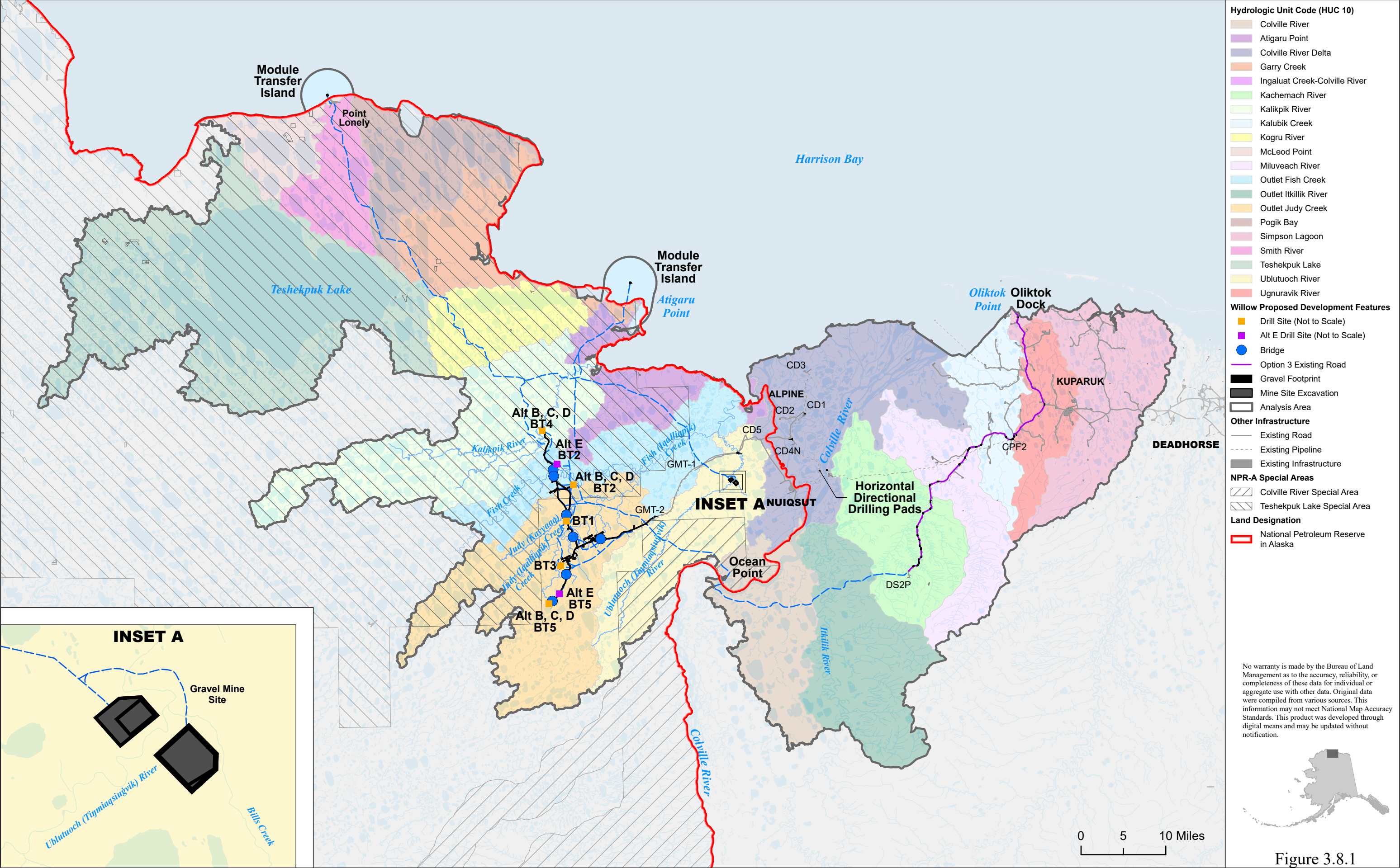
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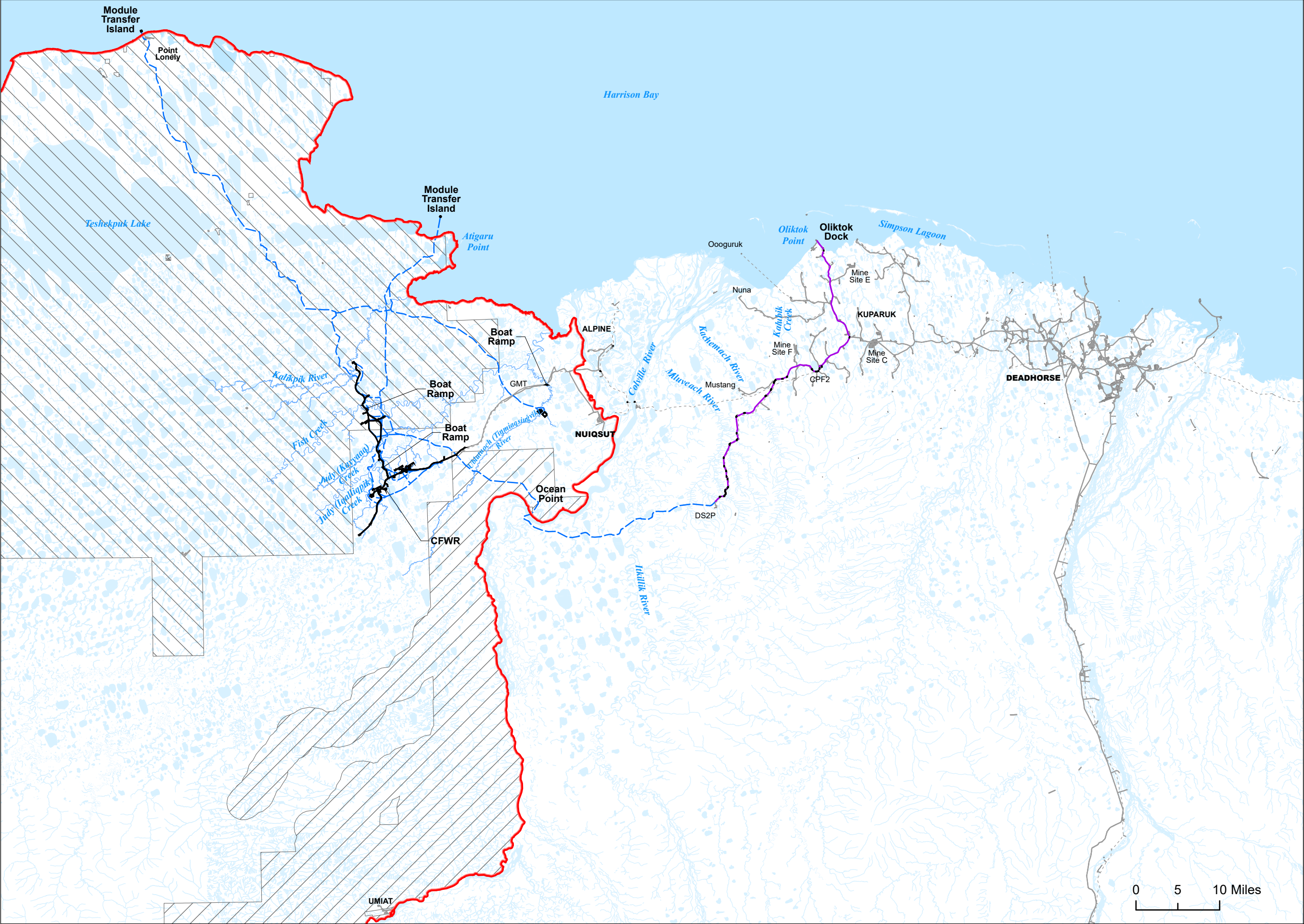
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0 5 10 Miles

Figure 3.7.6





Willow Proposed Development Features

- Ice Road
- Gravel Footprint

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

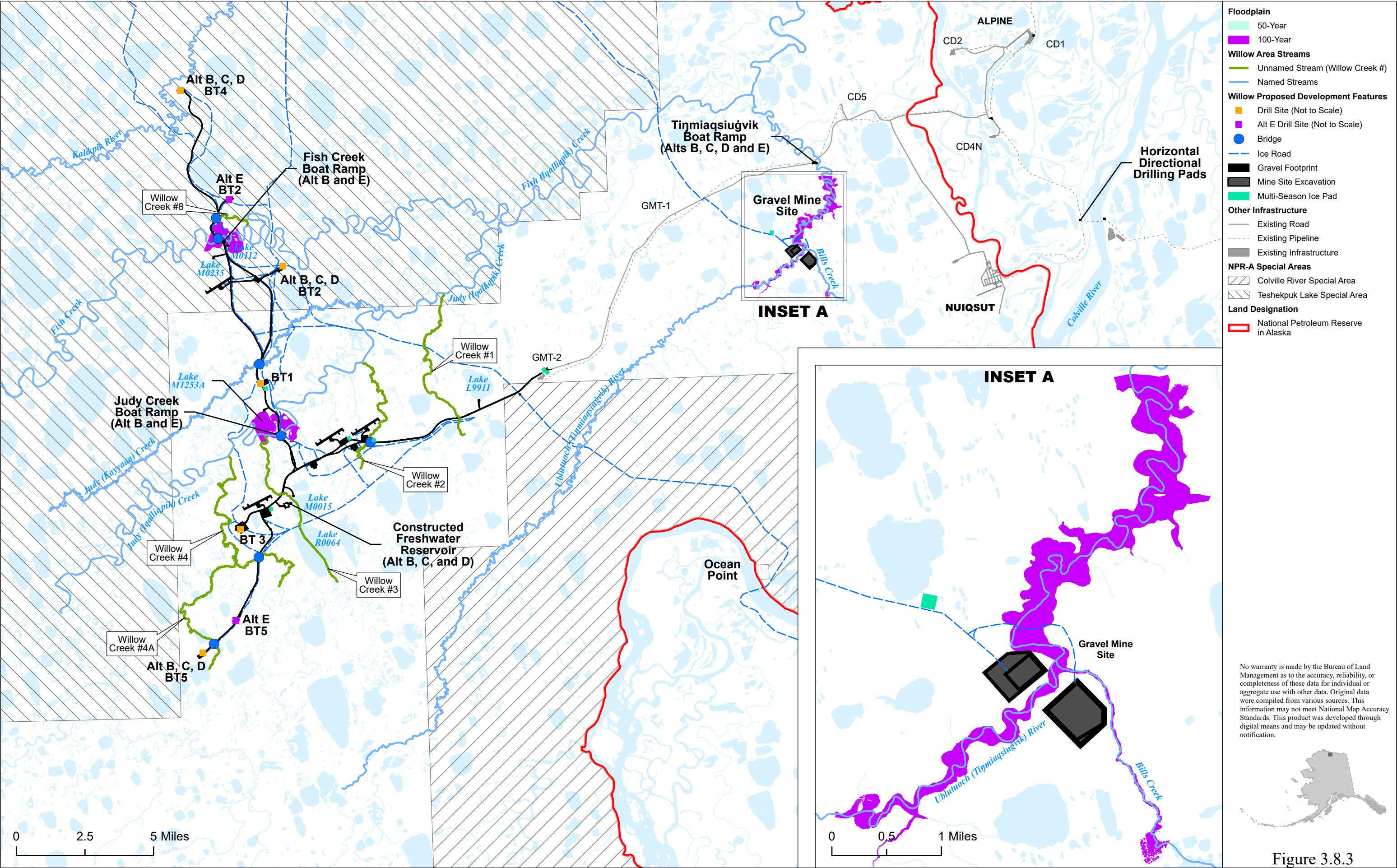
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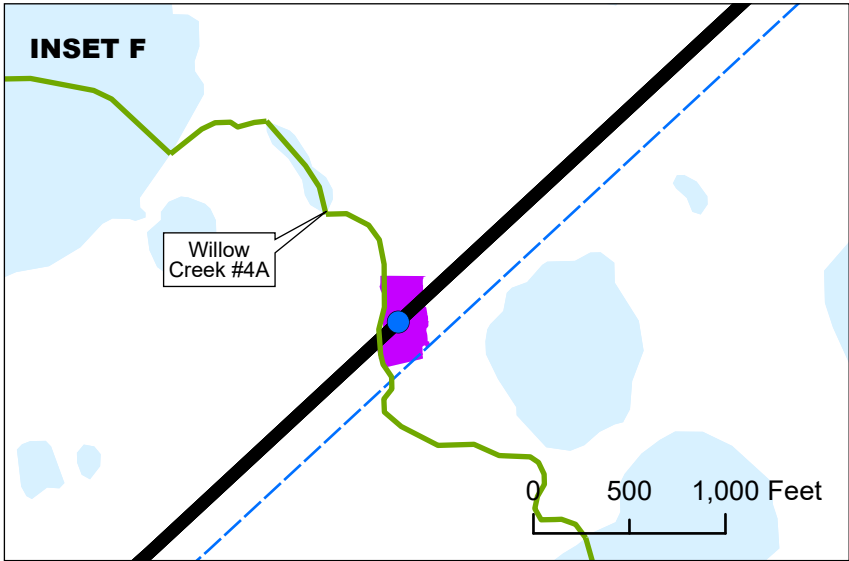
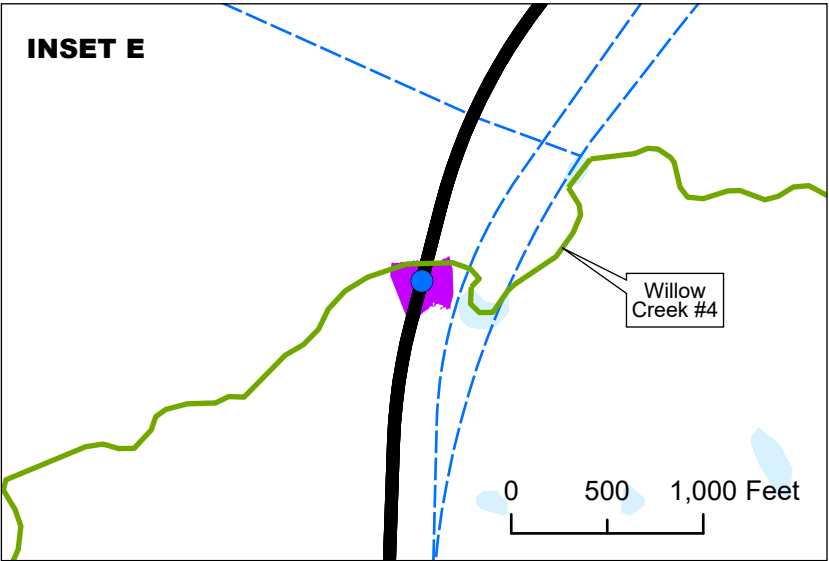
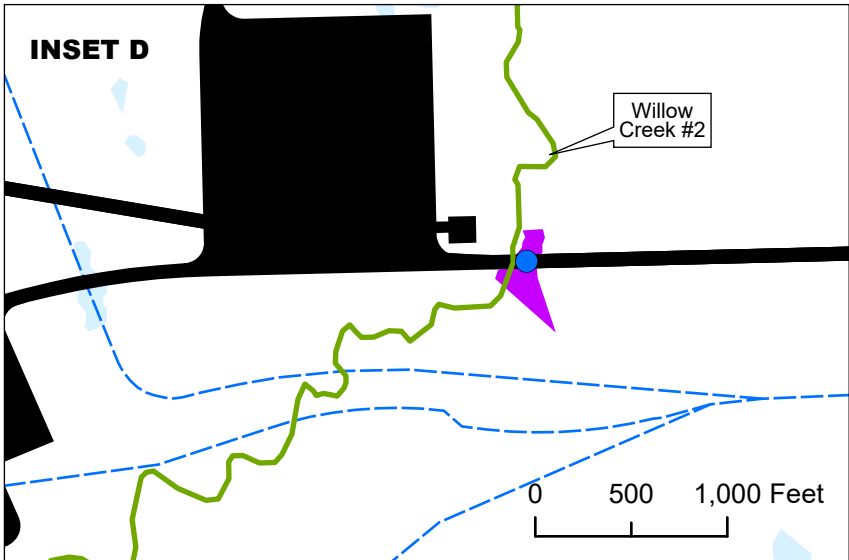
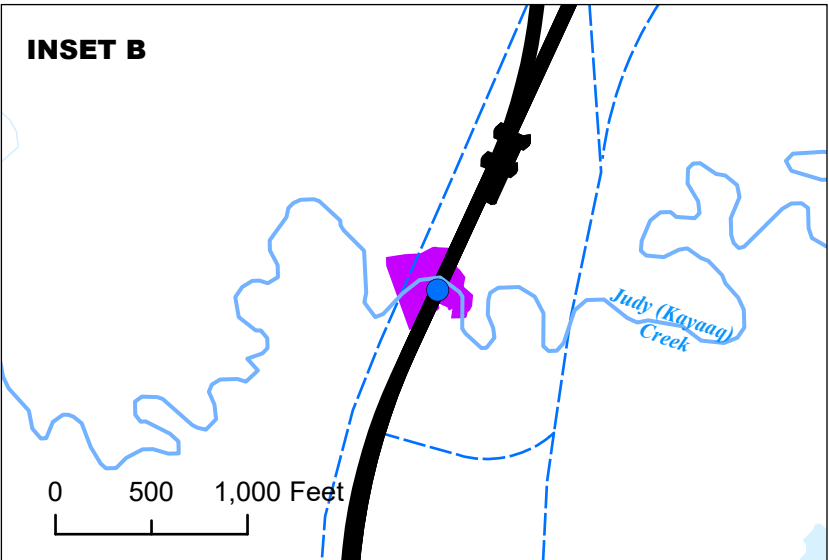
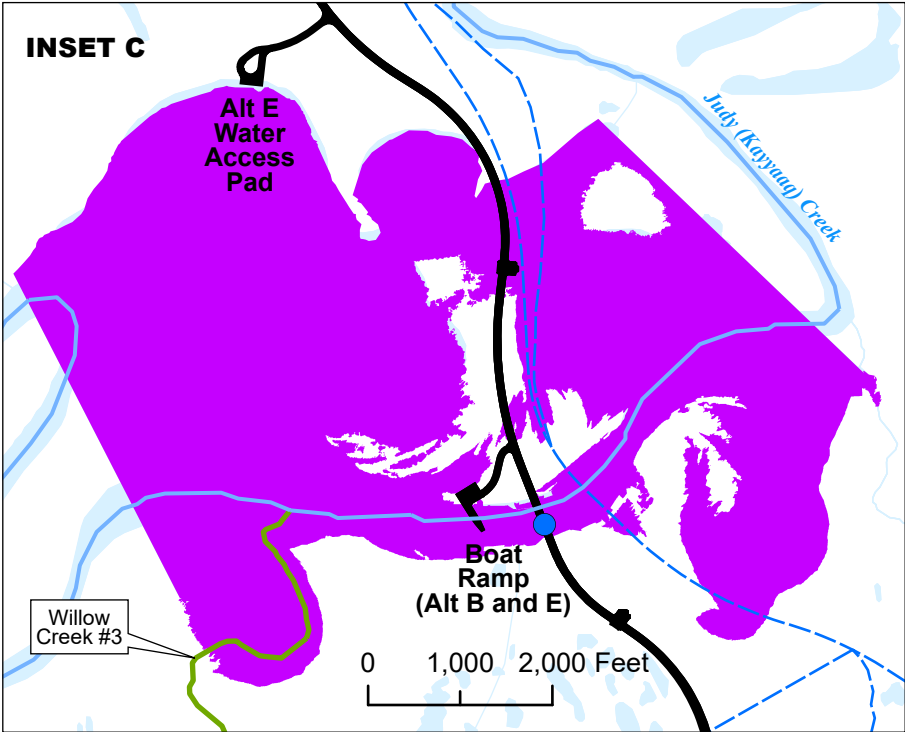
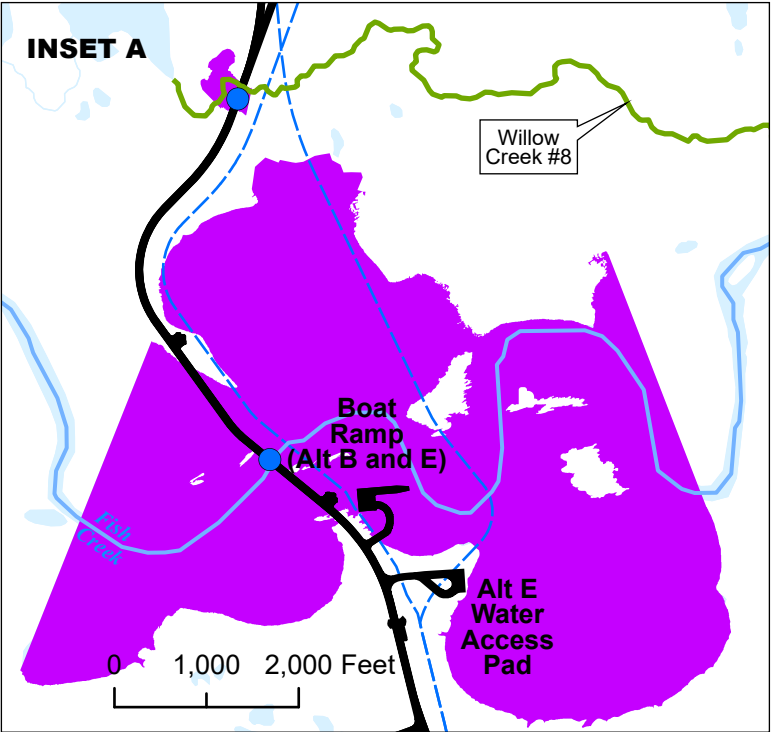
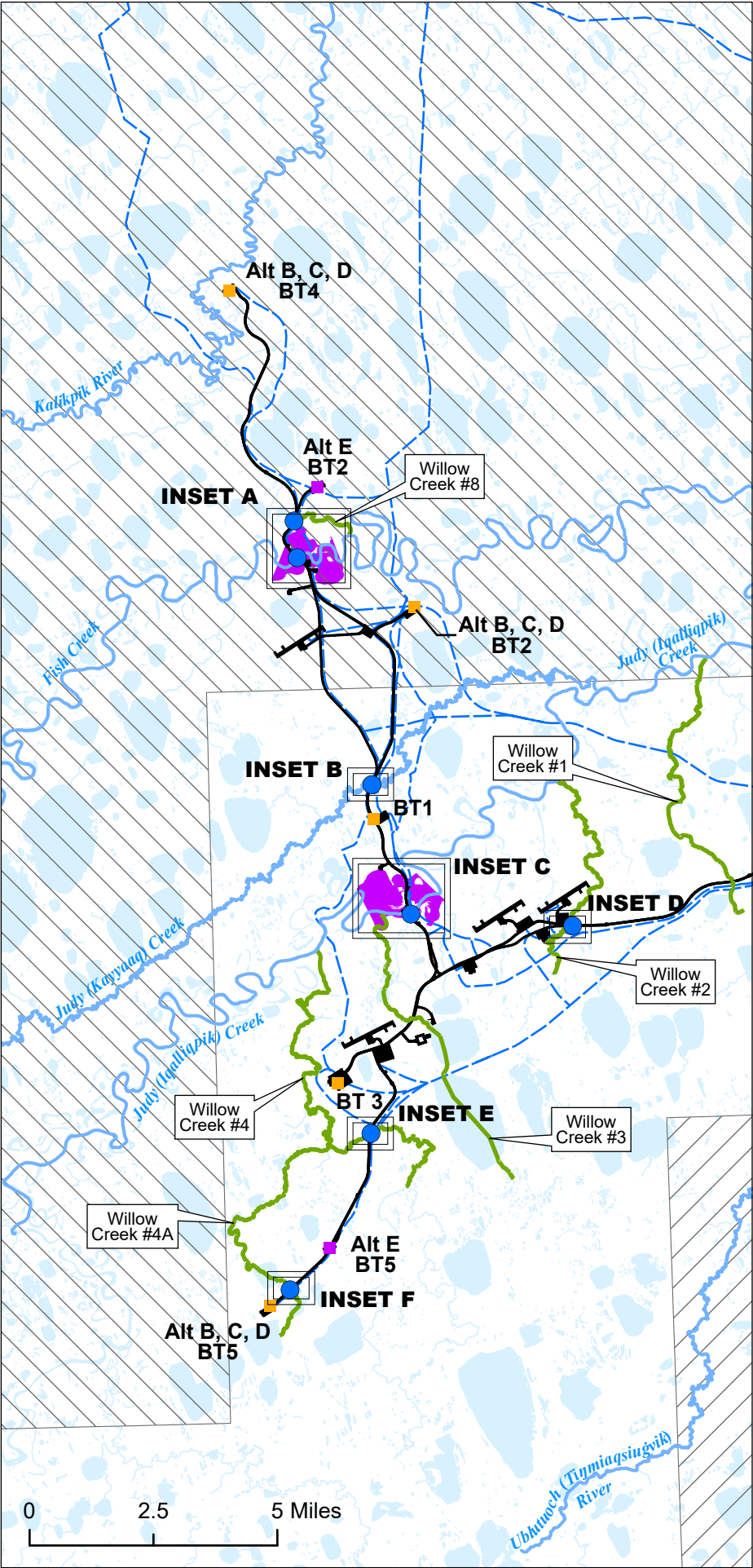
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Figure 3.8.2



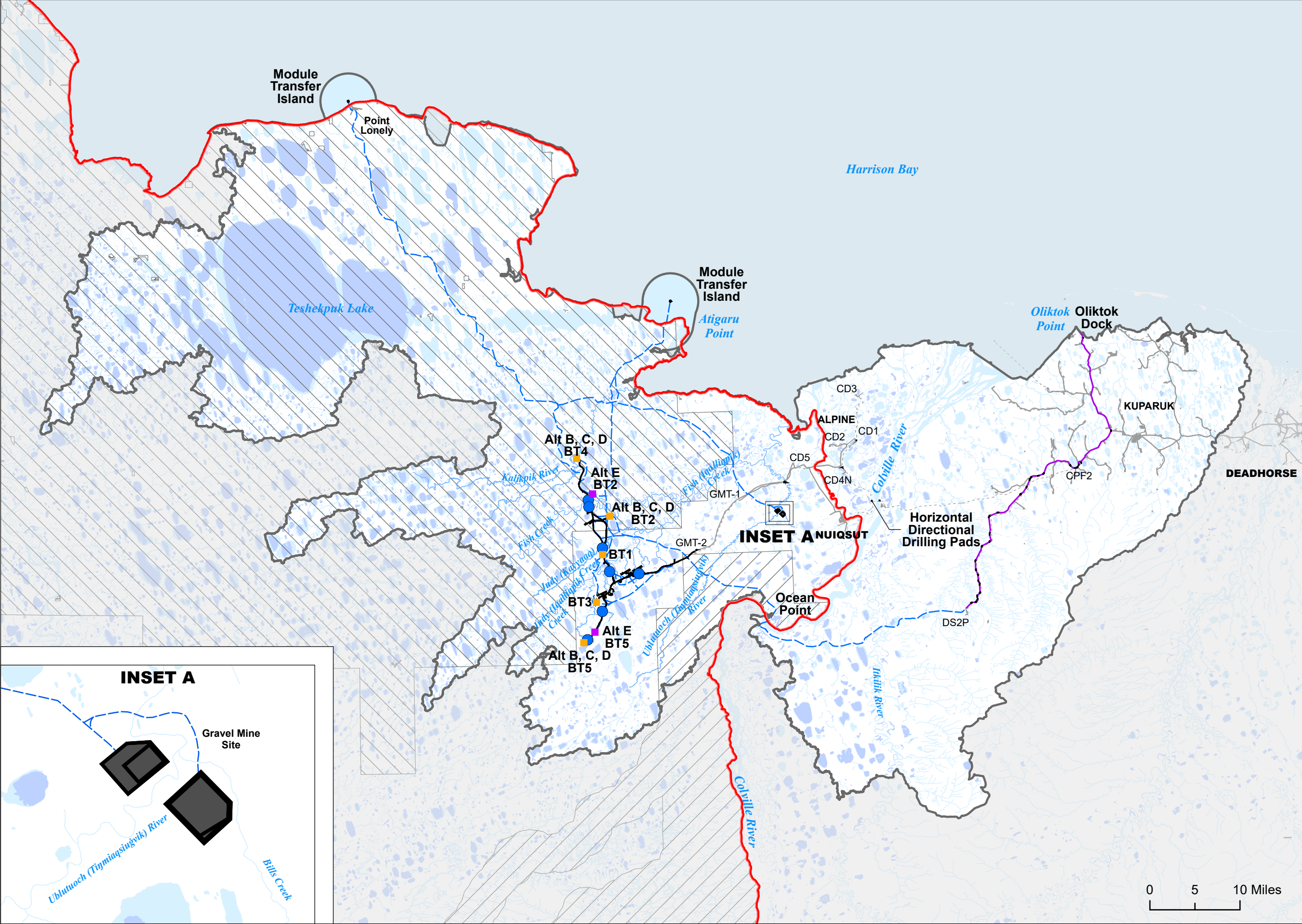


- Floodplain**
- 50-Year
 - 100-Year
- Willow Area Streams**
- Unnamed Stream (Willow Creek #)
 - Named Streams
- Willow Proposed Development Features**
- Drill Site (Not to Scale)
 - Alt E Drill Site (Not to Scale)
 - Bridge
 - Ice Road
 - Gravel Footprint
- NPR-A Special Areas**
- Colville River Special Area
 - Teshkepuke Lake Special Area

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Figure 3.8.4



Waterbodies

- Winter Liquid Water Availability

Willow Proposed Development Features

- Drill Site (Not to Scale)
- Alt E Drill Site (Not to Scale)
- Bridge
- Option 3 Existing Road
- Gravel Footprint
- Mine Site Excavation
- Analysis Area

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

Land Designation

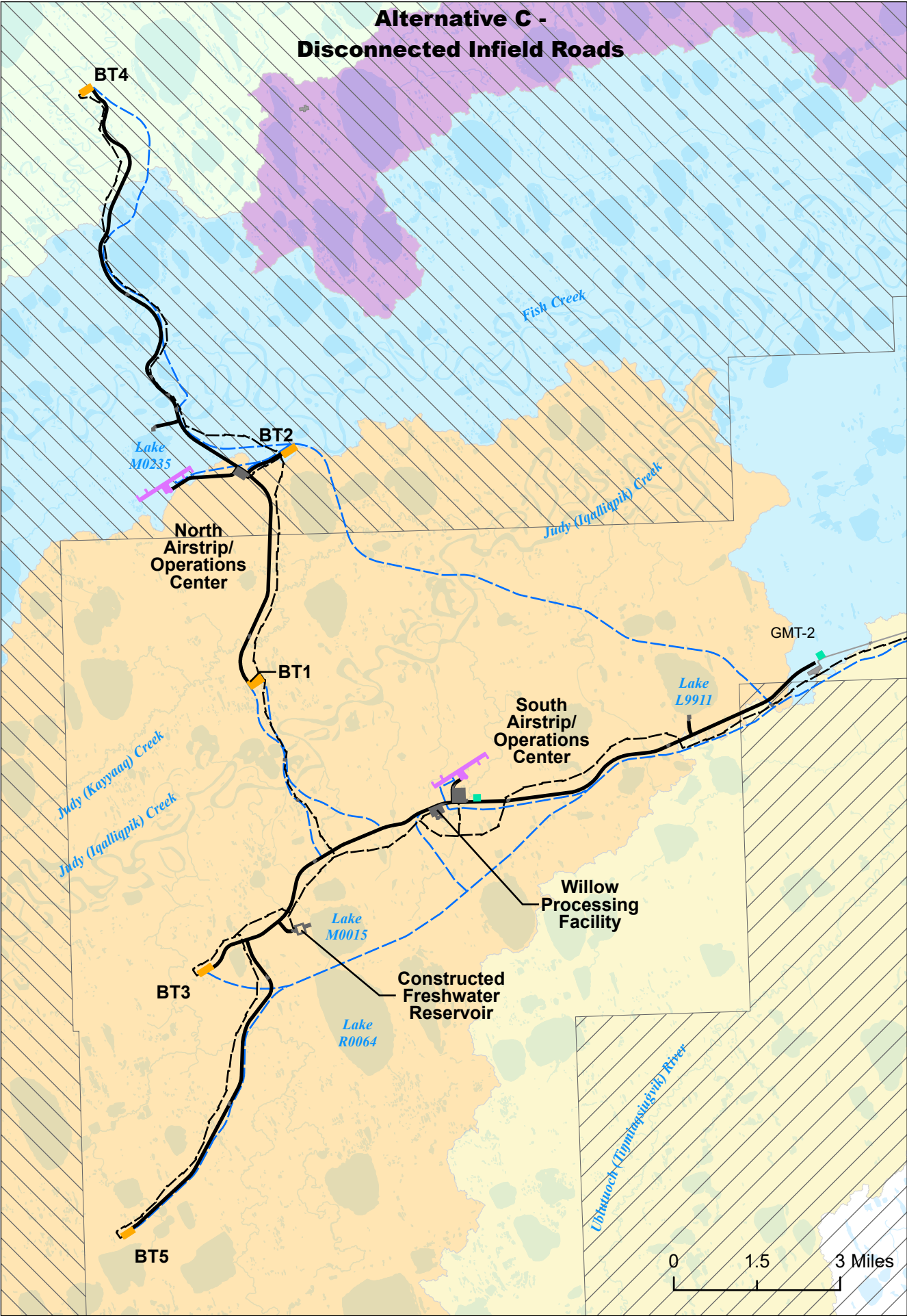
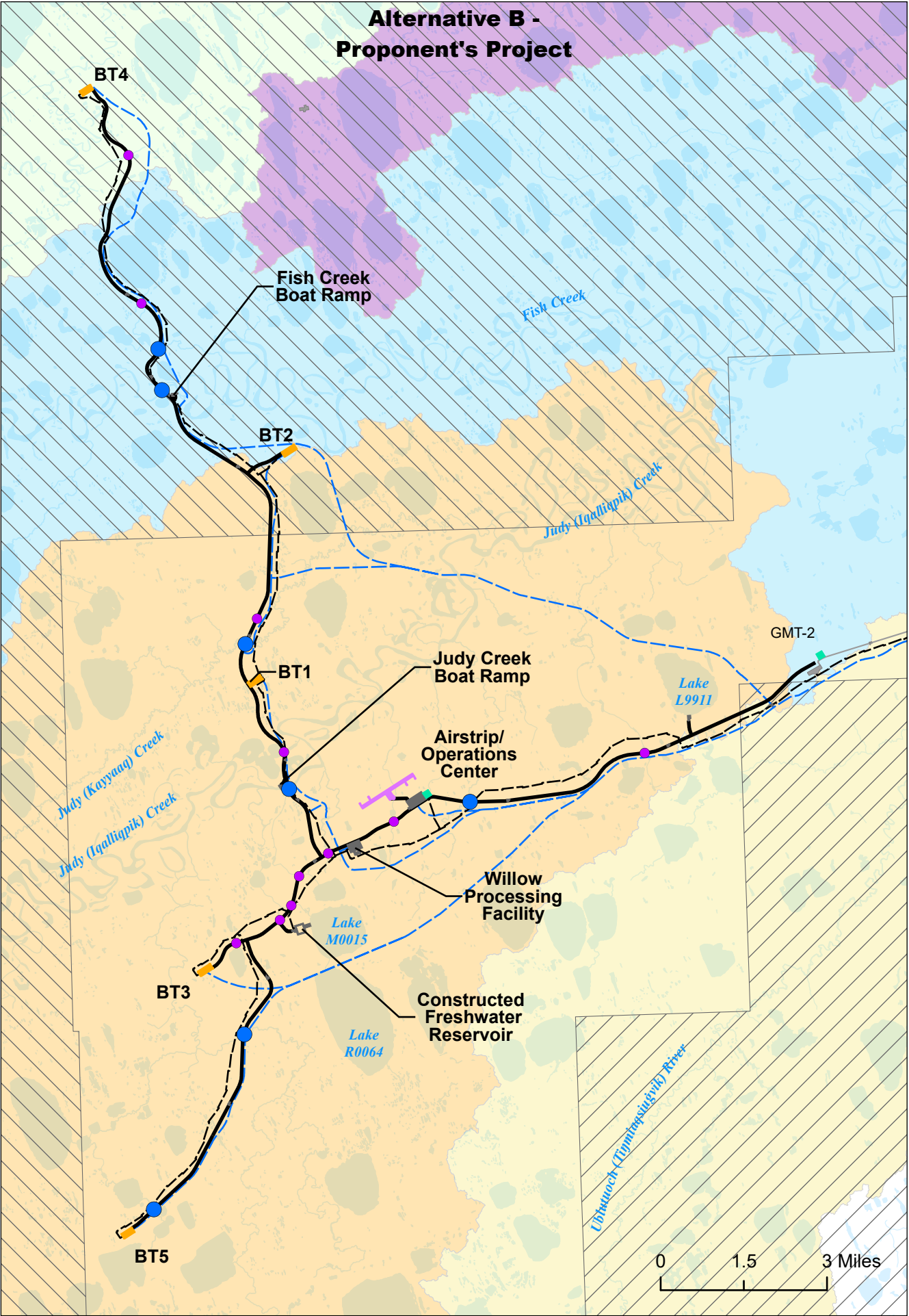
- National Petroleum Reserve in Alaska

Data Source:
North Slope Science Initiative (2009)

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Figure 3.8.5



United States Geological Survey Hydrologic Unit Code (HUC 10)

- Atigaru Point
- Kalikpik River
- Outlet Fish Creek
- Outlet Judy Creek
- Ublutuooh River

Willow Proposed Development Features

- Culvert Battery
- Bridge
- Gravel Road
- Pipeline
- Ice Road
- Airstrip
- Drill Site Pad
- Gravel Pad
- Ice Pad

Other Infrastructure

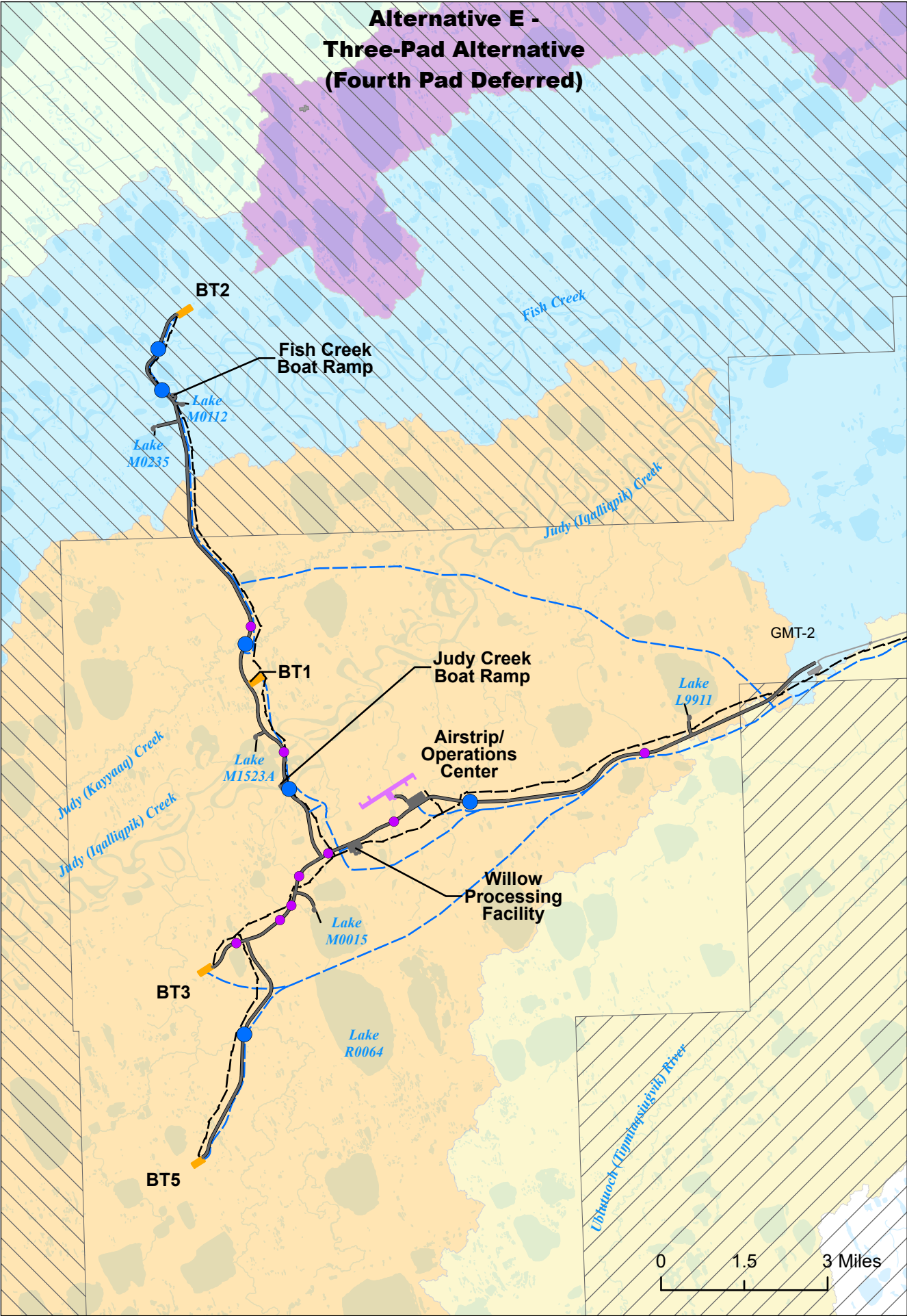
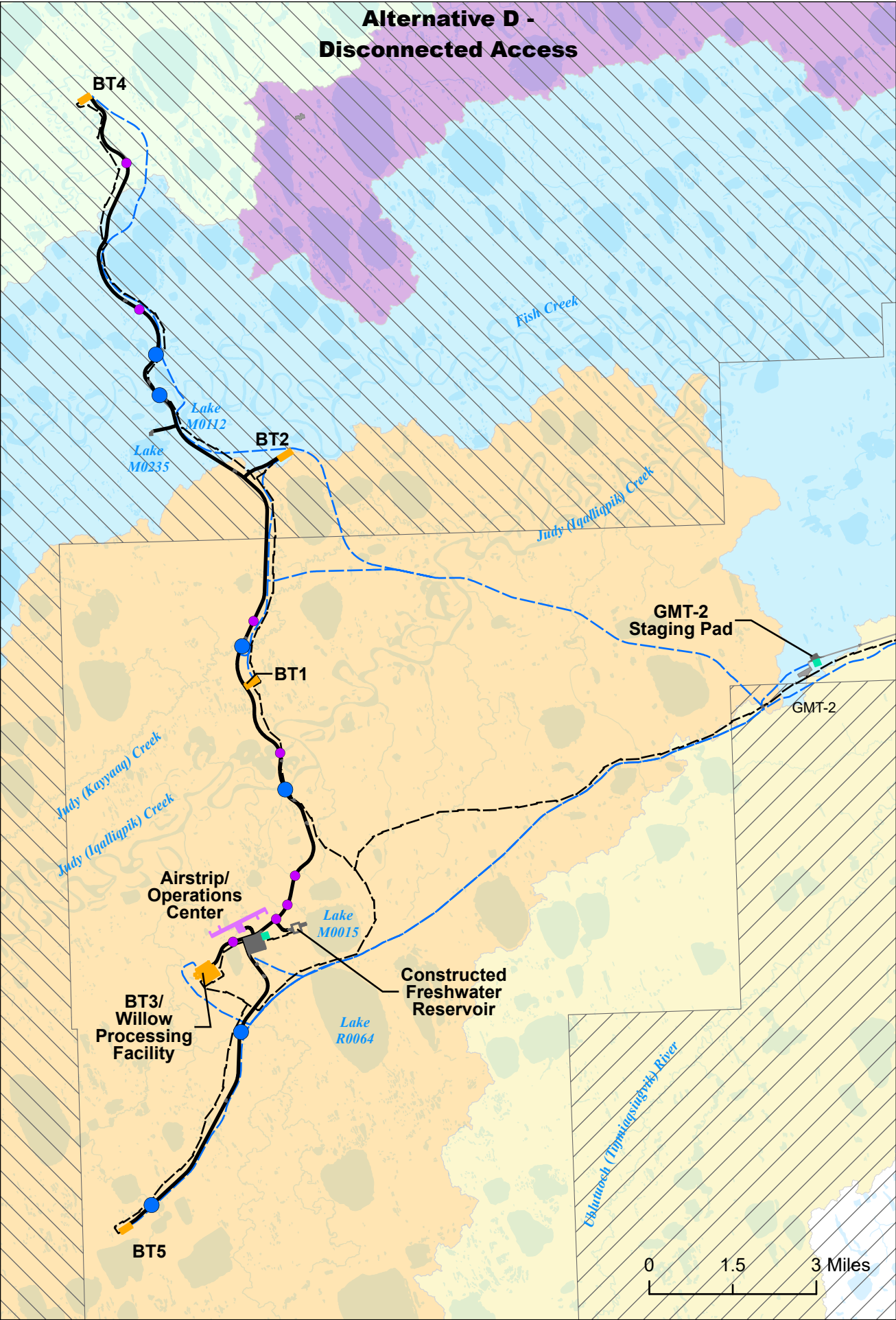
- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

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Figure 3.8.6A



United States Geological Survey
Hydrologic Unit Code (HUC 10)

- Atigaru Point
- Kalikpik River
- Outlet Fish Creek
- Outlet Judy Creek
- Ublutuoch River

Willow Proposed Development Features

- Culverty Battery
- Bridge
- Gravel Road
- Pipeline
- Airstrip
- Drill Site Pad
- Gravel Pad
- Ice Pad

Other Infrastructure

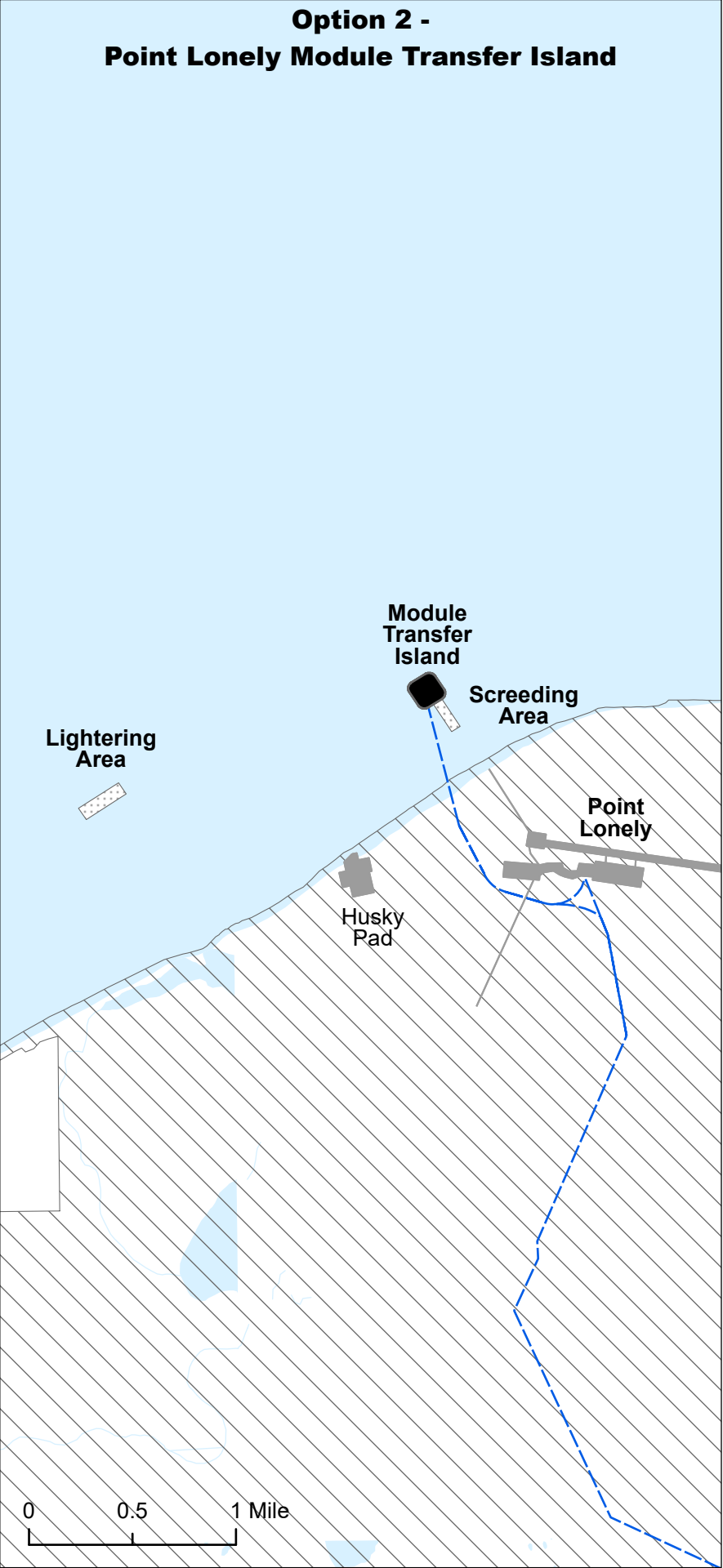
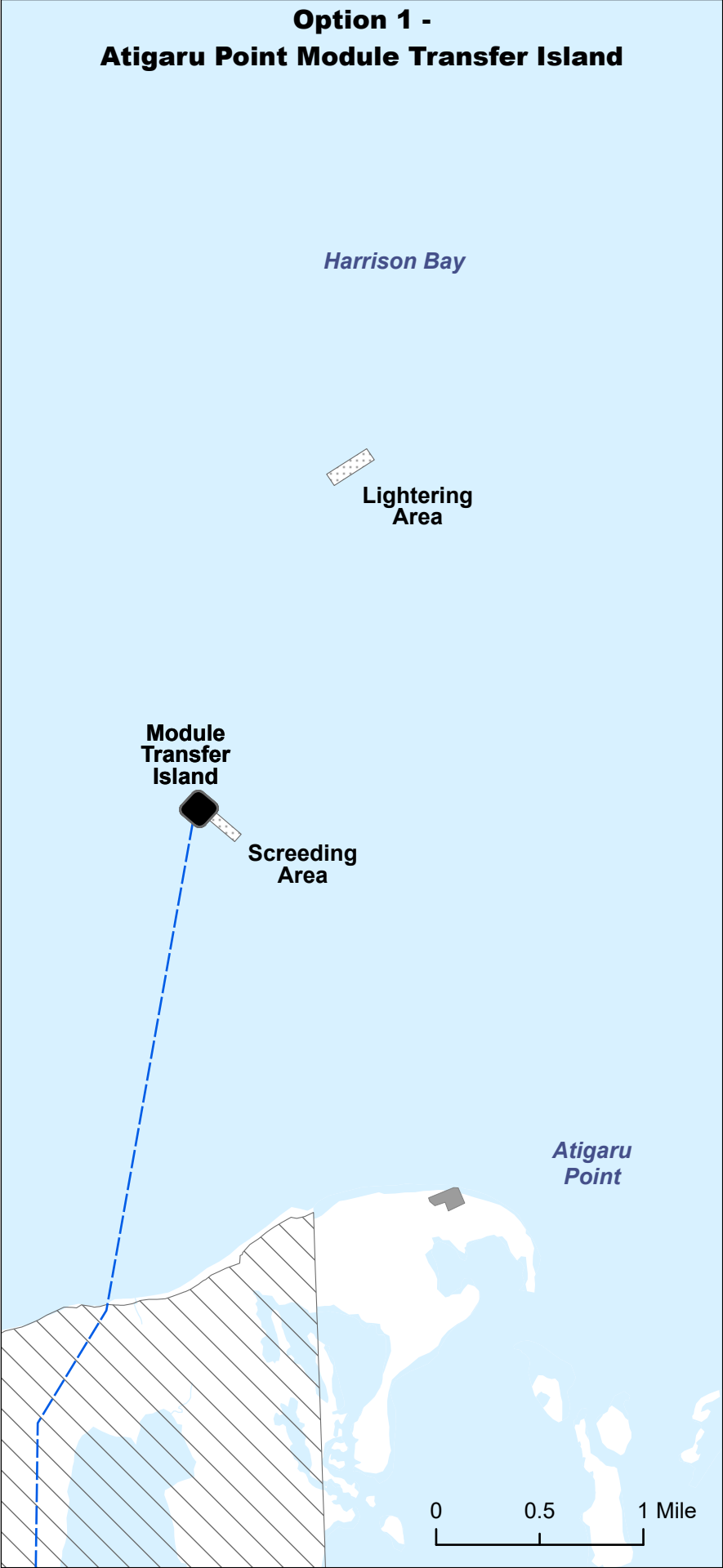
- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Colville River Special Area
- Teshekpuk Lake Special Area

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Figure 3.8.6B



Willow Proposed Development Features

- Ice Road
- Module Transfer Island
- Screeding

Other Infrastructure

- Existing Road
- Existing Pipeline
- Existing Infrastructure

NPR-A Special Areas

- Teshekpuk Lake Special Area

Note:
1. Oliktok Dock activity would occur under all action alternatives and Option 3: Colville River Crossing.

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Figure 3.8.7