



FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
for the Alpine Satellite Development Plan
for the Proposed Greater Mooses Tooth One
Development Project

Volume 2: Chapter 7
Maps

October 2014

Alaska



Cooperating Agencies:

U.S. Bureau of Ocean Energy Management • U.S. Environmental Protection Agency • U.S. Fish and Wildlife Service
U.S. Army Corps of Engineers, Alaska District • State of Alaska • North Slope Borough • Native Village of Nuiqsut

The Bureau of Land Management Today

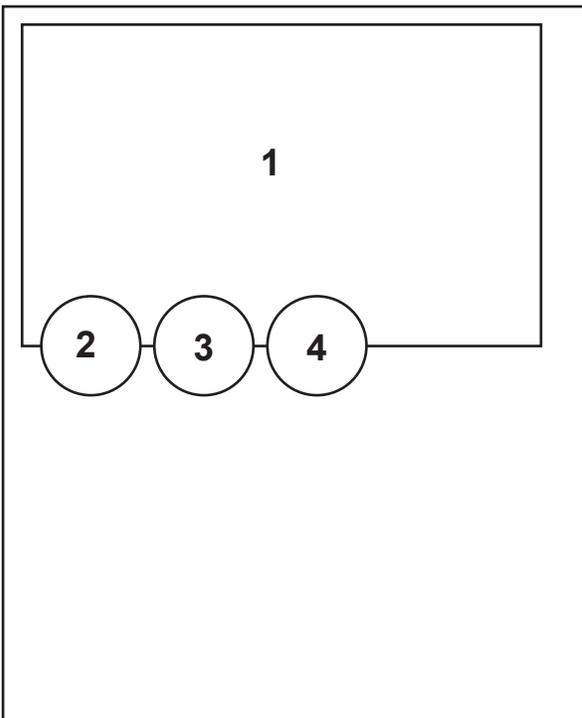
Our Vision

To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission

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

**DOI-BLM-AK-0000-2013-0001-EIS
BLM/AK/PL-15/002+5101+AK9300**



Cover Photos:

1. Aerial of Blackfish Creek downstream from GMT1 Drilling pad, National Petroleum Reserve in Alaska.
2. Caribou, North Slope, Alaska
3. Ice road construction, National Petroleum Reserve in Alaska.
4. Aerial of production pad, North Slope, Alaska.
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Alpine Satellite Development Plan GMT1 Development Project

Final

Supplemental Environmental
Impact Statement

Volume 2: Chapter 7 Maps

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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. DOI Fish and Wildlife Service
U.S. DOI Bureau of Ocean Energy Management
State of Alaska
Native Village of Nuiqsut
North Slope Borough

October 2014

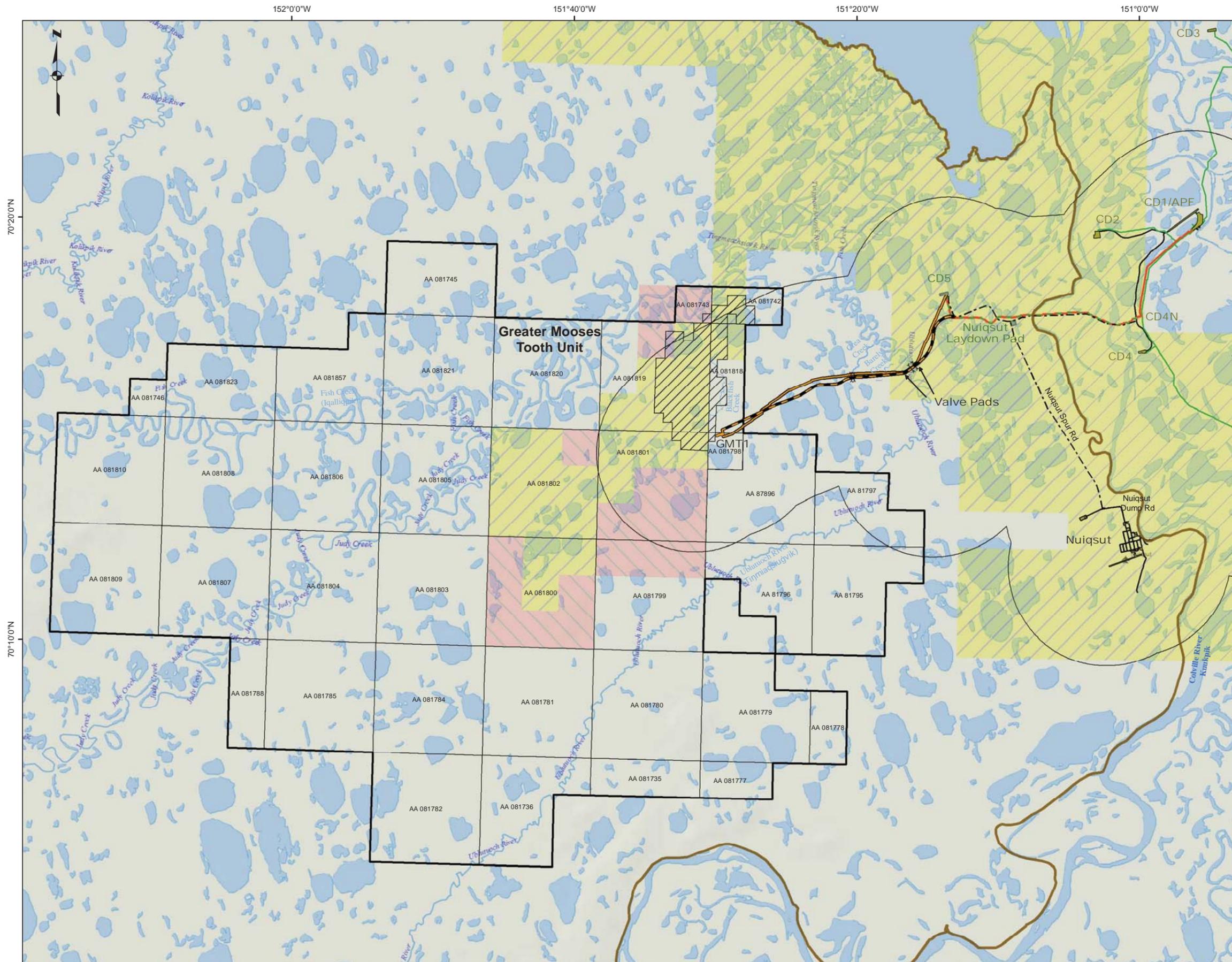
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Map 1.1-1
Greater Mooses Tooth and CPAI Proposed Project

- | | |
|---|---|
| DSEIS Proposed Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Pipeline |
| Pipeline | Road |
| Facility | Facility |
| 14 inch Water ¹ Injection Line | Existing |
| Bridge | Pipeline |
| Boundary | Road |
| Lookout PA | Facility |
| Project Study Area | Surface Land Ownership |
| Unit Boundary | Conveyed |
| Lease Tracts | Selected |
| NPR-A | |

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
 2: Background layer is from Delorme World Imagery 2013

Date: 10/20/2014



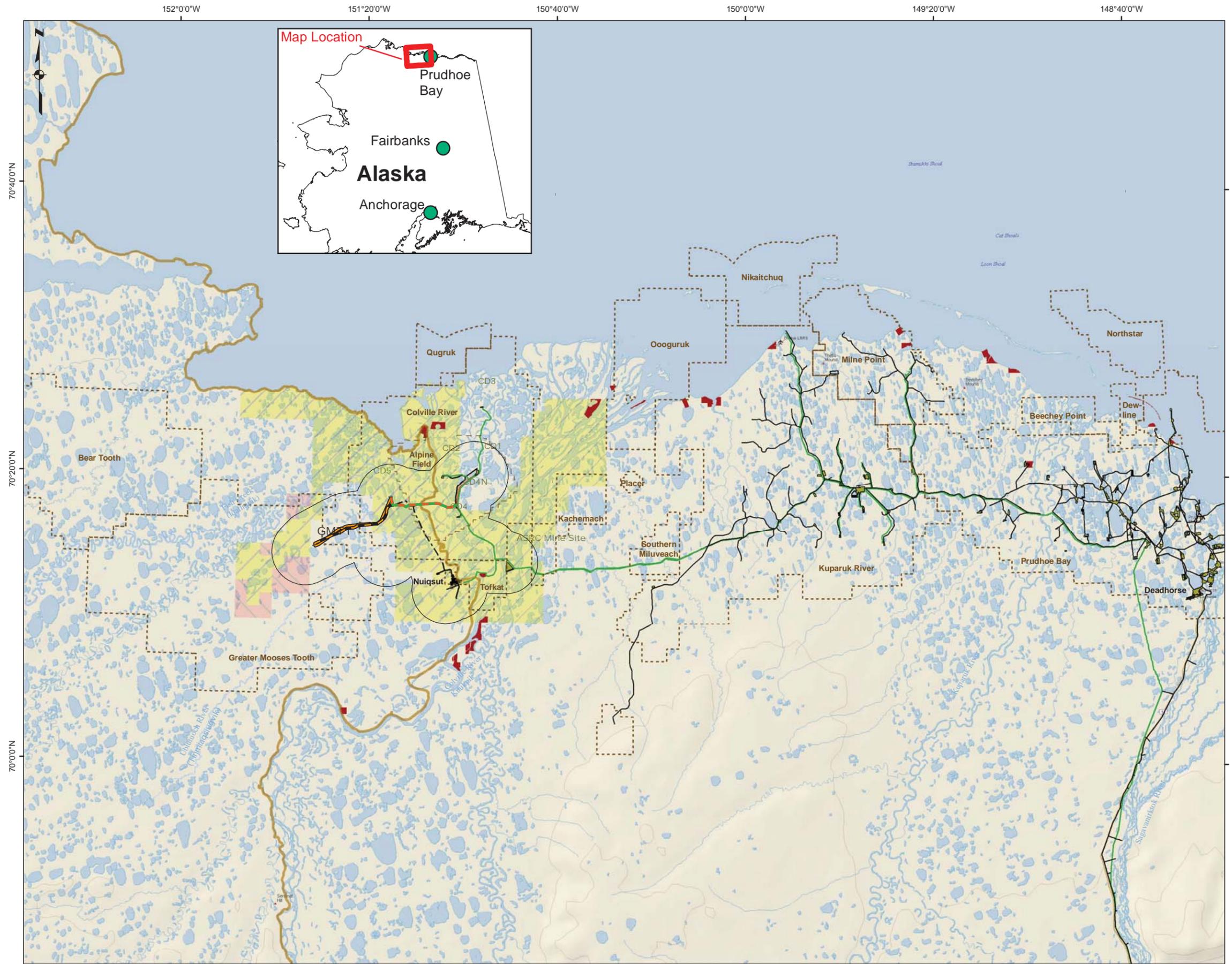
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Map 2.5-1
GMT1 Project Vicinity

- | | |
|---|---|
| DSEIS Proposed Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Pipeline |
| Pipeline | Road |
| Facility | Facility |
| 14 inch Water ¹ Injection Line | Existing Pipeline |
| Bridge | Existing Road |
| Boundary | Facility |
| Project Study Area | Surface Land Ownership |
| Oil & Gas Unit | Kuukpik Lands |
| NPR-A | Conveyed |
| | Selected |
| | Native Allotments |
| | Private |

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
 2: Background layer is from Delorme World Imagery 2013.
 Date: 10/20/2014

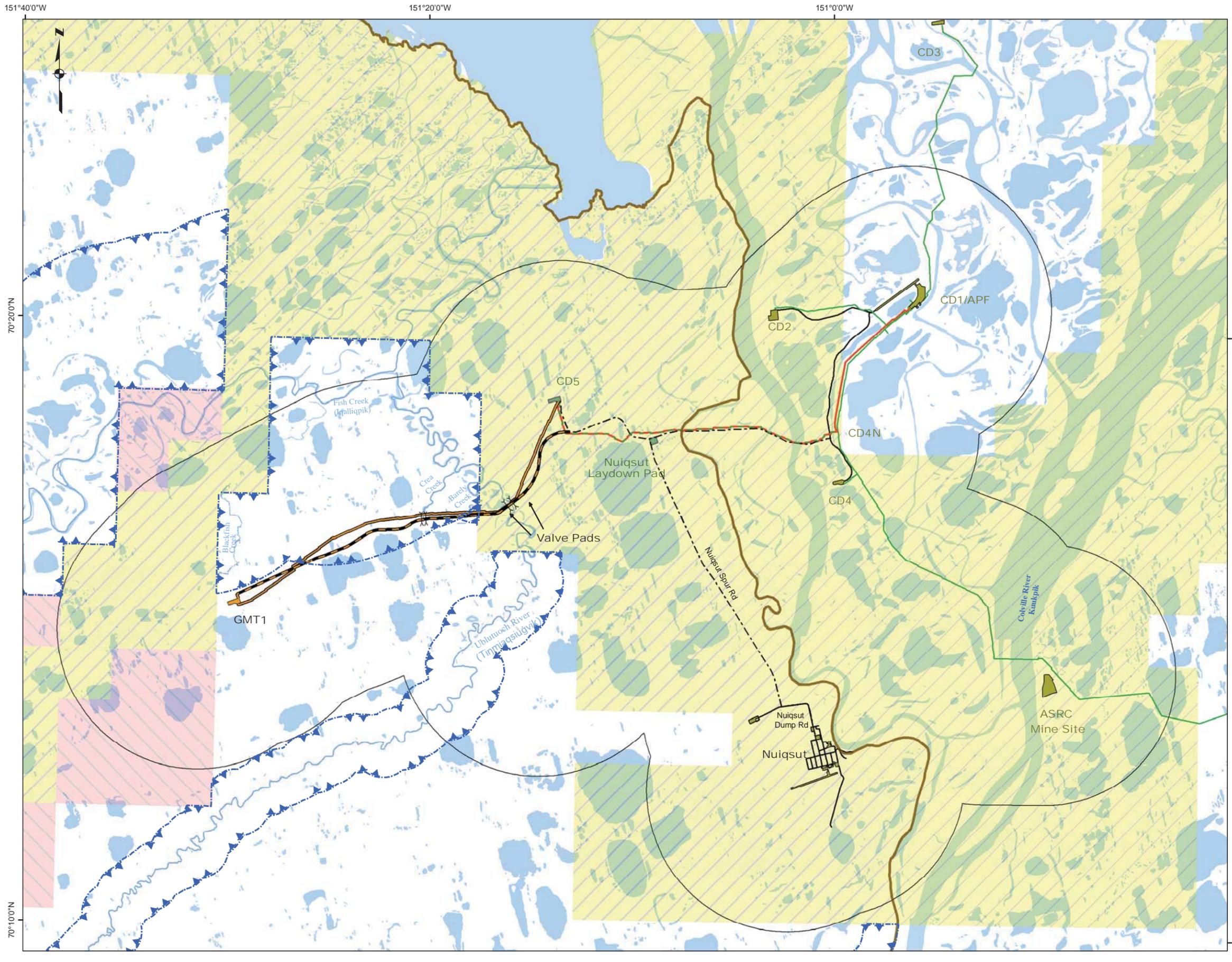


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Map 2.5-2
Alternative A: CPAI
Proposed Project Layout

Alternative A Infrastructure	Proposed or Permitted (not part of GMT1)
Road	Pipeline
Pipeline	Road
Facility	Facility
14 inch Water ¹ Injection Line	Existing
Bridge	Pipeline
Boundaries	Road
NPR-A Project Study Area	Facility
Surface Land Ownership Kuukpik Lands	Conveyed
Fish Creek 3mi Ublutuoch River 0.5mi	Selected

Footnote:
1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/26/2014



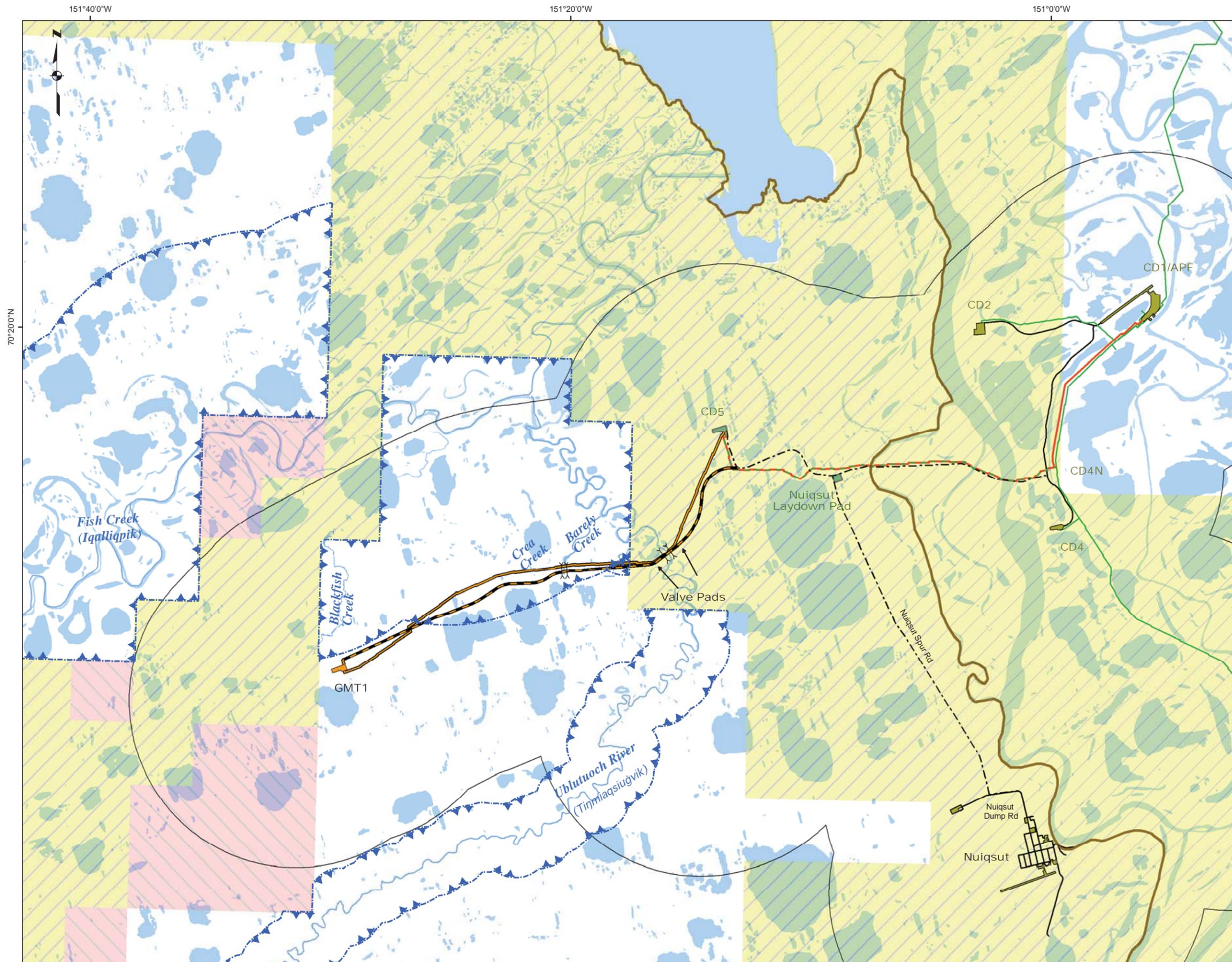
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Map 2.5-3
Fish Creek and Tinmiaqsigvik (Ublutuoch) River Setback Areas

Alternative A Infrastructure	Proposed or Permitted (not part of GMT1)
Road	Pipeline
Pipeline	Road
Facility	Facility
14 inch Water ¹ Injection Line	Existing
Bridge	Pipeline
	Road
	Facility
Boundaries	Surface Land Ownership
NPR-A Project Study Area	Conveyed
	Selected
Setback Areas	
Fish Creek 3mi	
Ublutuoch River 0.5mi	

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
 2: Background layer is from Delorme World Imagery 2013

Date: 10/21/2014



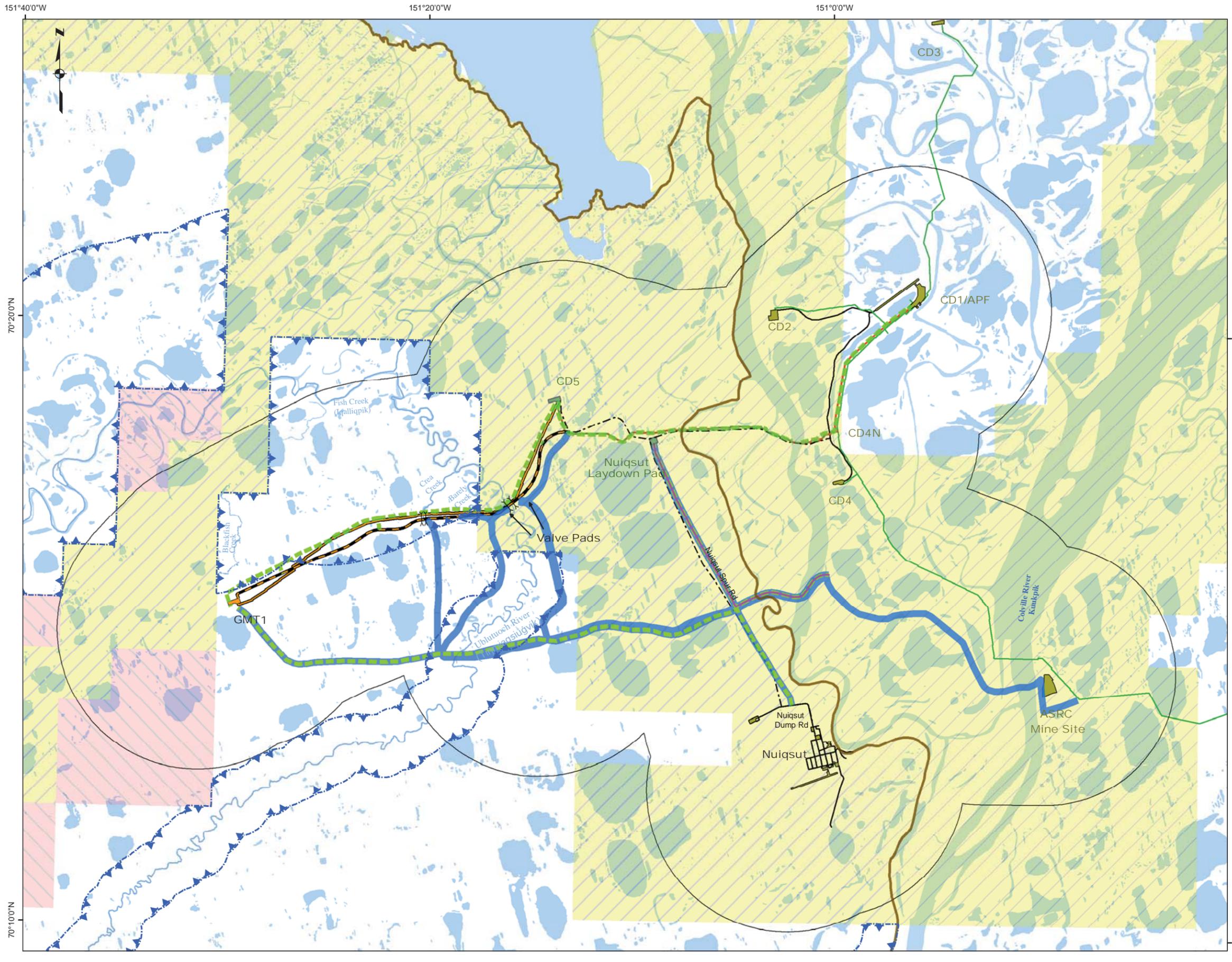
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Map 2.5-4
**Alternative A:
 CPAI Proposed
 Project Ice Roads**

- | | |
|---|---|
| Alternative A Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Pipeline |
| Pipeline | Road |
| Facility | Facility |
| Facility | Existing |
| 14 inch Water ¹ Injection Line | Pipeline |
| Bridge | Road |
| Alternative A Ice Roads | Facility |
| First Year | Surface Land Ownership |
| Second Year | Conveyed |
| Annual resupply Route | Selected |

- Boundaries**
- NPR-A
 - Project Study Area

- Setback Areas**
- Fish Creek 3mi
 - Ublutuoch River 0.5mi

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 10/20/2014
 0 0.5 1 2 3 Miles

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Map 2.5-5

Historic Flights in the Eastern NPR-A, 2008-2013

Legend

- Aircraft Take-offs and Landings
- Village
- Analysis Area
- NPR-A

Year	Number of Flights
2008	1202
2009	1120
2010	1487
2011	1933
2012	777
2013	1758
Total	8277

Source: BLM 2013b

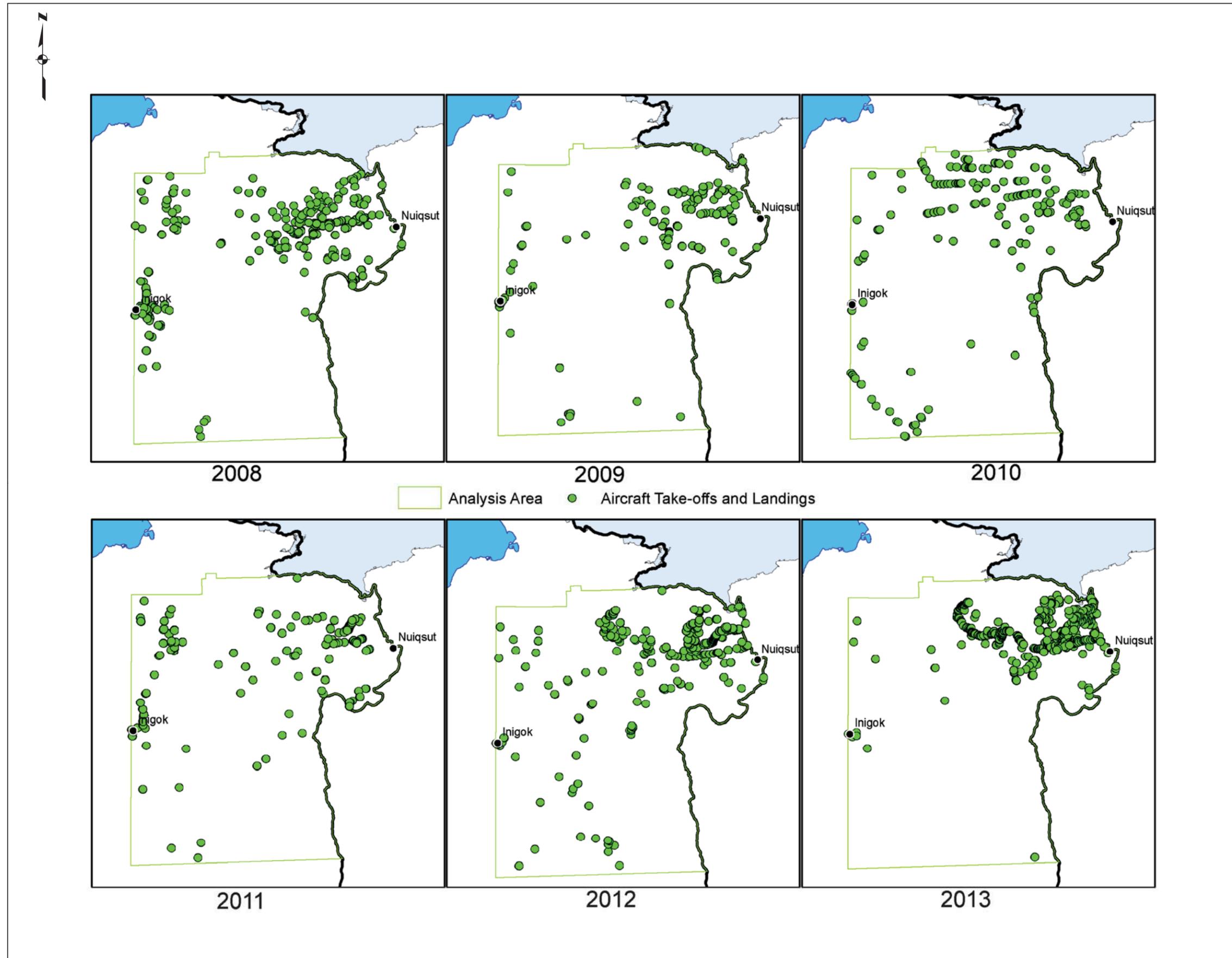
Date: 10/21/2014

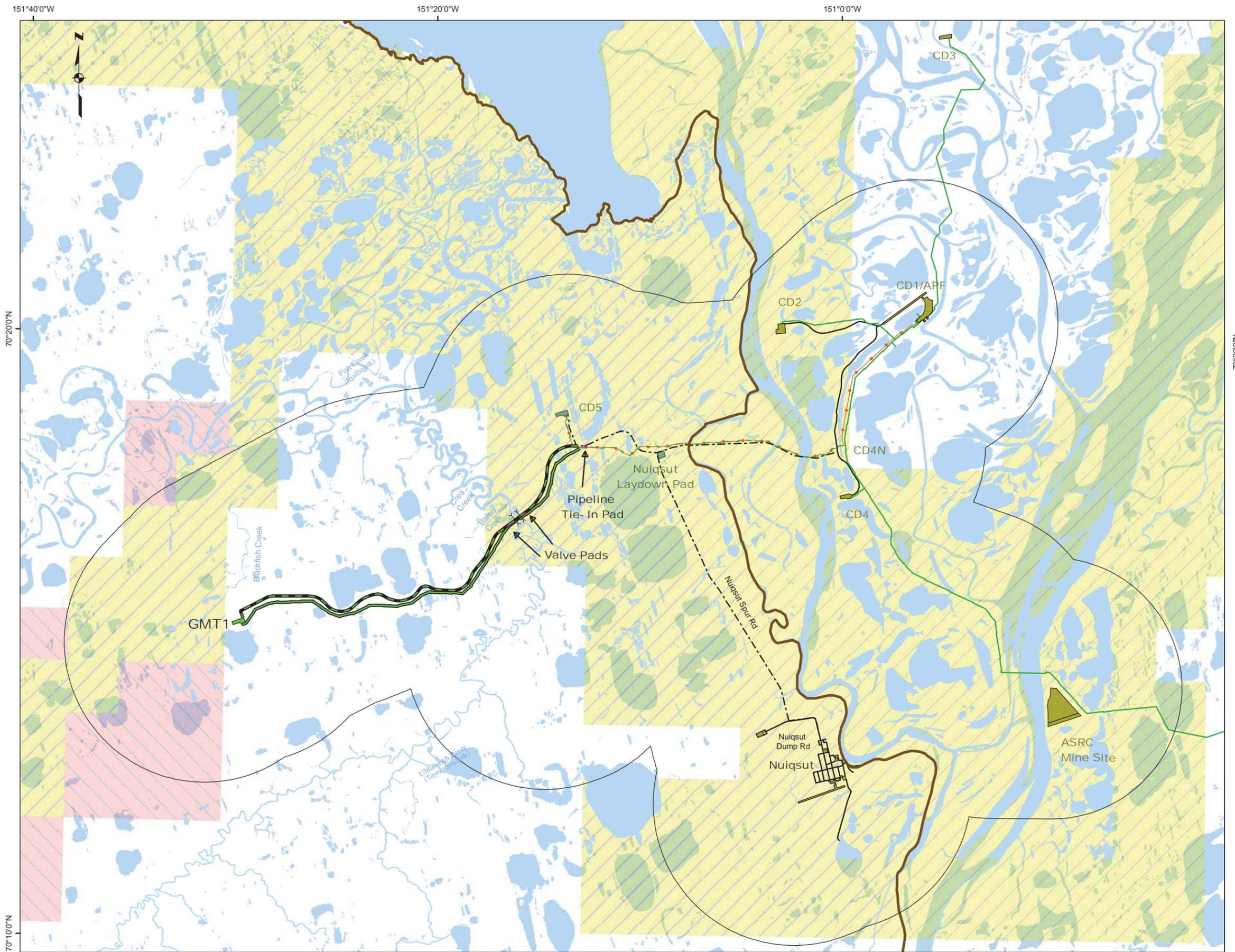
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Map 2.6-1

Alternative B Layout

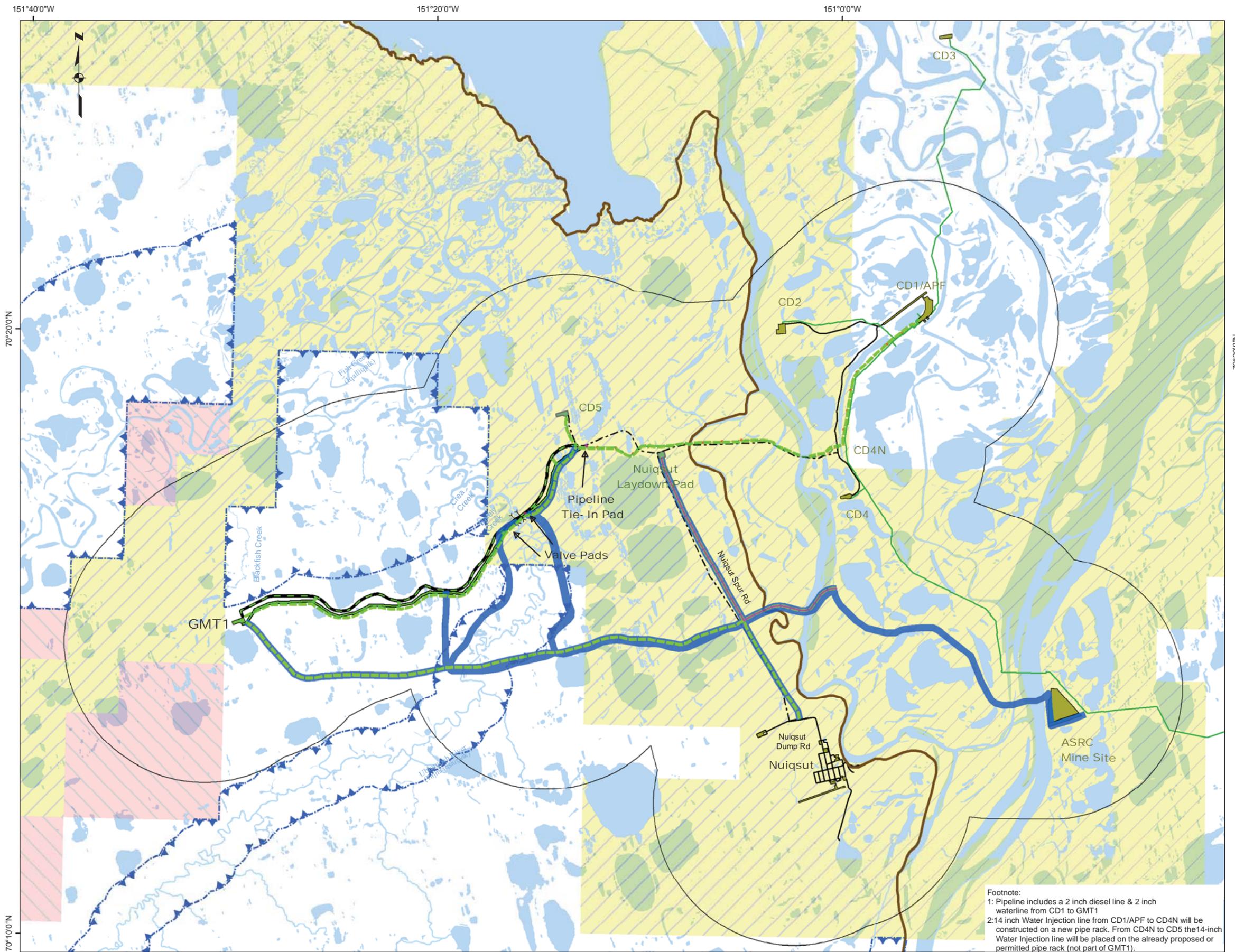
- | | |
|---|--|
| Alternative B Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Road |
| Pipeline | Facility |
| Facility | Existing |
| 14 inch Water ¹ Injection Line | Pipeline |
| Bridge | Road |
| | Facility |
| Boundary | Surface Land Ownership |
| Project Study Area | Kuukpik Lands |
| NPR-A | Conveyed |
| | Selected |

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/28/2014
 Miles

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Map 2.6-2

Alternative B Ice Roads

- | | |
|---|---|
| Alternative B Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Road |
| Pipeline | Facility |
| Facility | Existing |
| 14 inch Water ² Injection Line | Pipeline |
| Bridge | Road |
| Boundary | Surface Land Ownership |
| Project Study Area | Kuukpik Lands |
| NPR-A | Conveyed |
| | Selected |

- Alternative B Ice Roads**
- First Year
 - Second Year
 - Annual resupply Route

- Setback Area**
- Fish Creek 3 mi
Ublutuoch River 0.5 mi

Date: 9/27/2014

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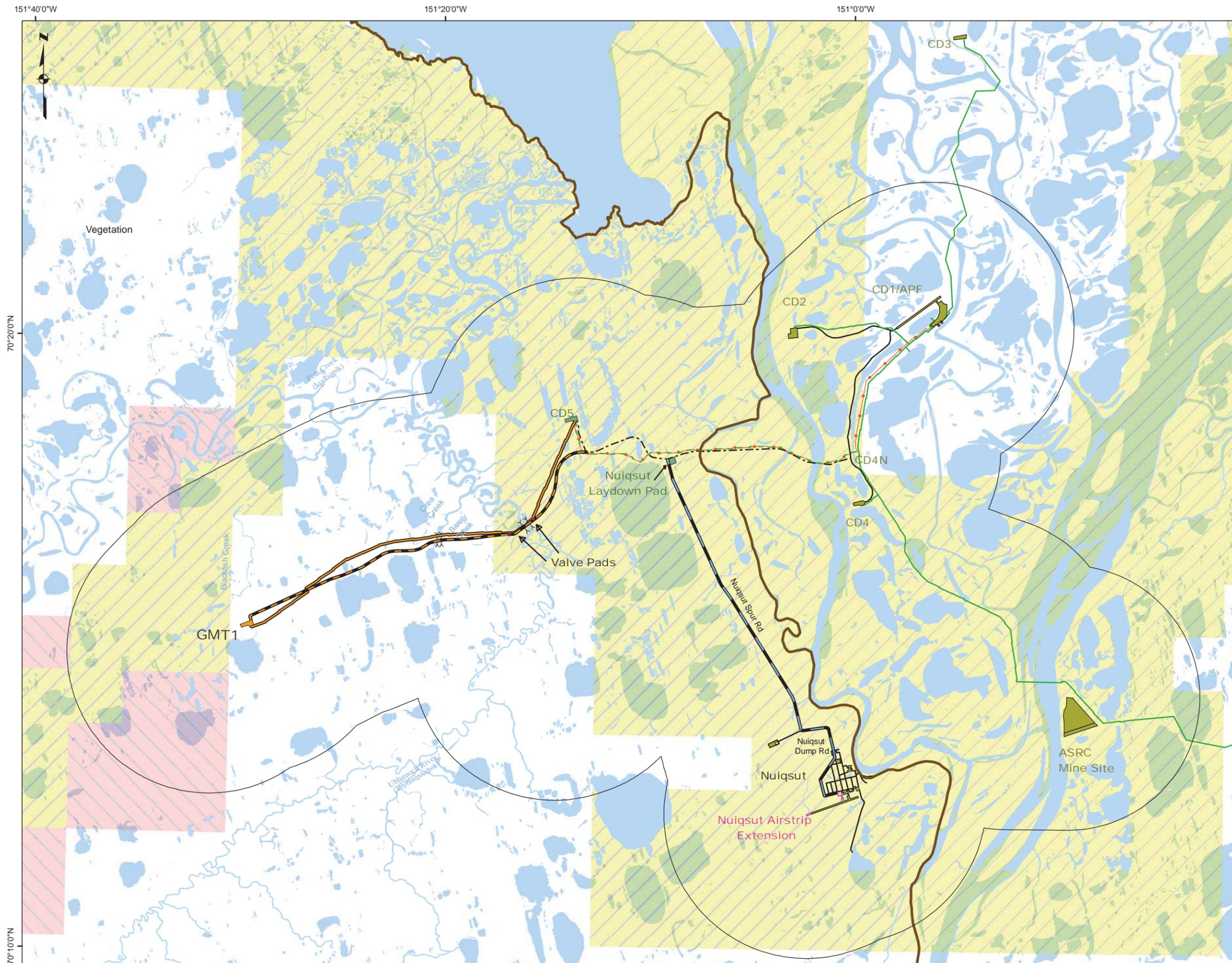
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Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



Map 2.7-1

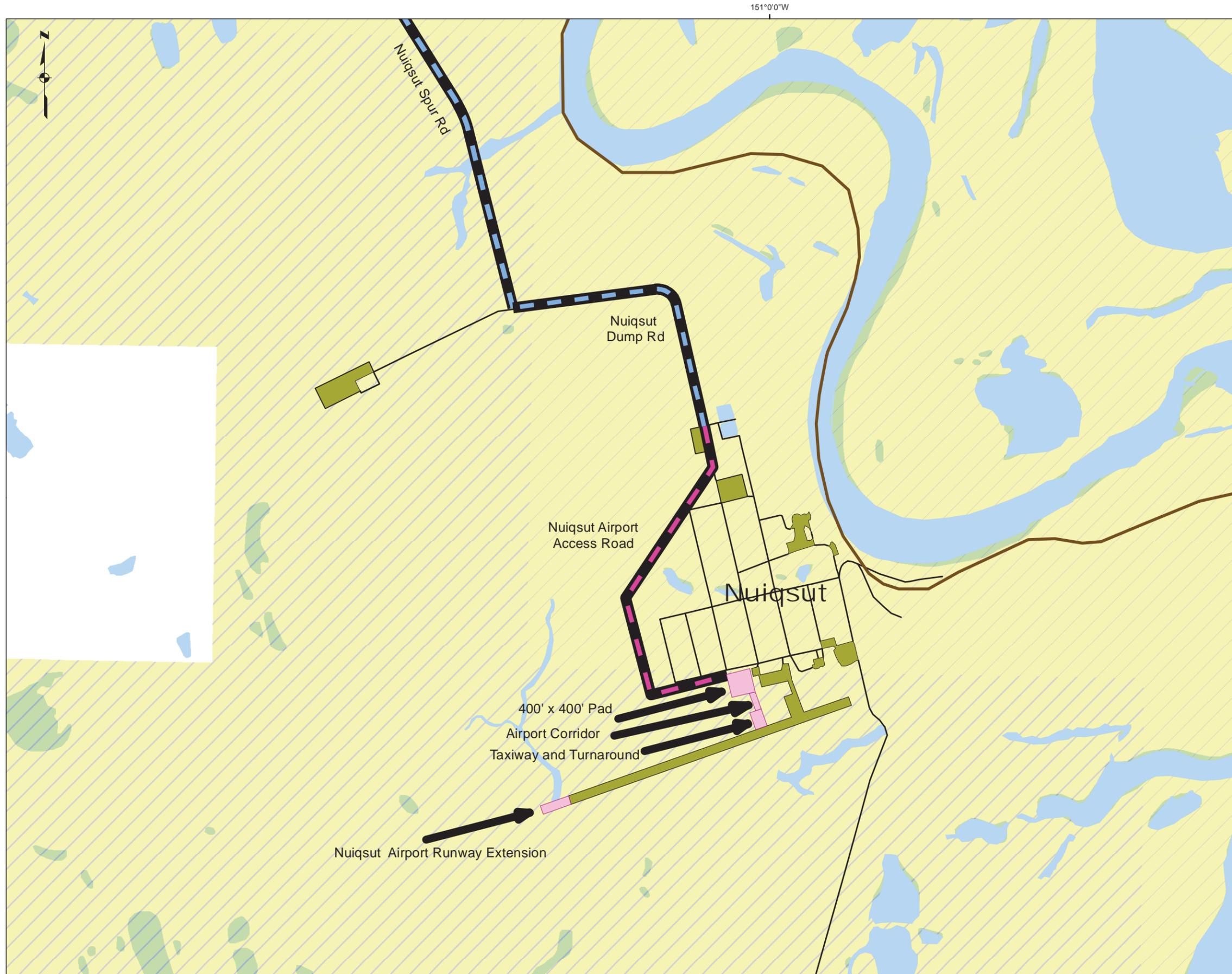
Alternative C Layout

Alternative C Infrastructure	Proposed or Permitted (not part of GMT1)
Road	Road
Pipeline	Facility
Facility	Existing
Nuiqsut Road	Pipeline
Nuiqsut Airport Upgrade Facilities	Road
14 inch Water ¹ Injection Line	Facility
Bridge	Surface Land Ownership
Boundary	Conveyed
Project Study Area	Selected
NPR-A	

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
 2: Nuiqsut Laydown Pad is a 10 acre gravel storage pad.

Date: 9/27/2014

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Map 2.7-2
Alternative C
Nuiqsut Airport Facilities

Alternative C Proposed
 Nuiqsut Infrastructure

-  Nuiqsut Dump and Spur Road Upgrade
-  Nuiqsut Airport Access Road (new)
-  Nuiqsut Airport Upgrade Facilities

Existing

-  Road
-  Facility

Surface Land Ownership

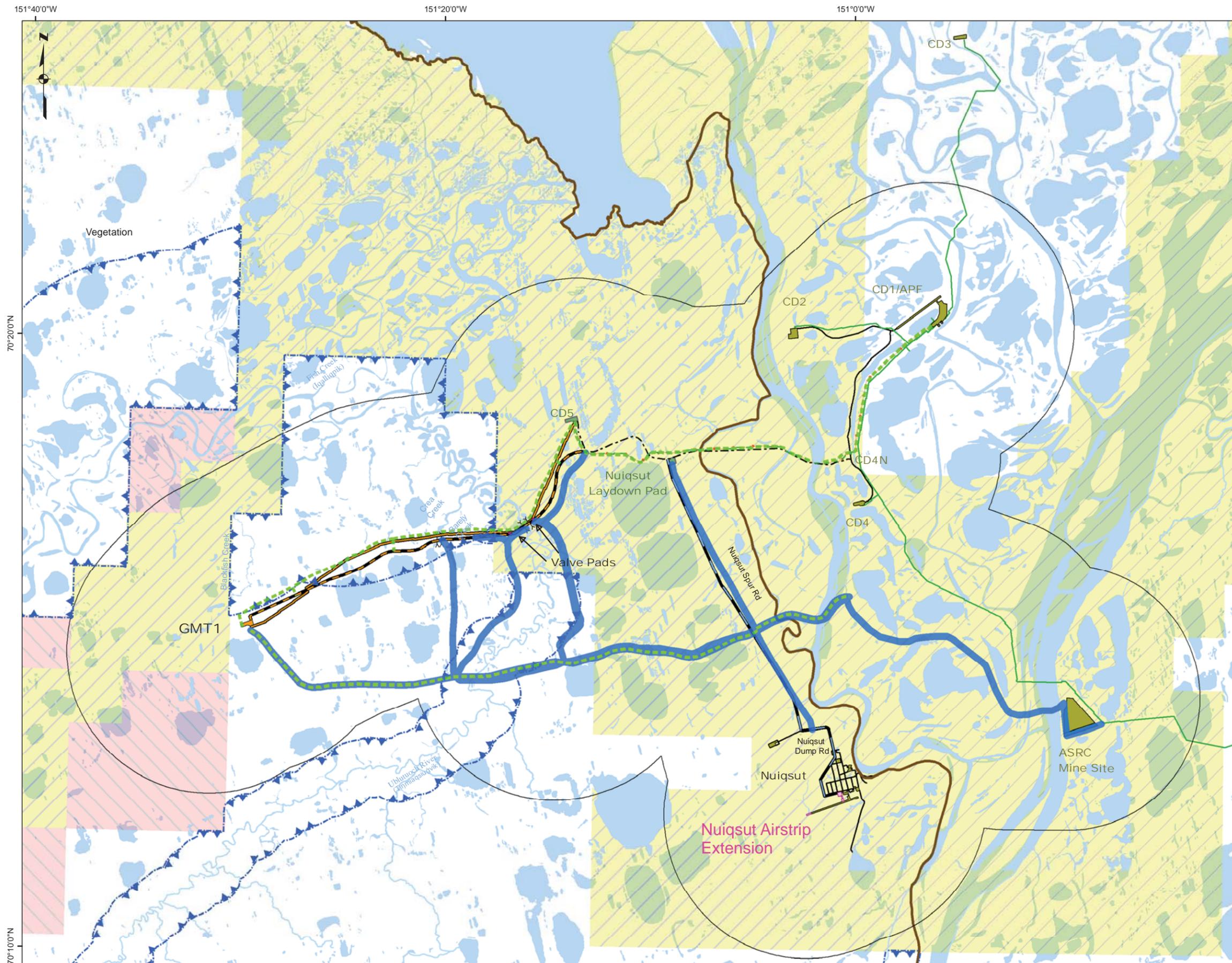
-  Kuukpik Lands
-  Conveyed

Date: 9/26/2014



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Map 2.7-3
Alternative C Ice Roads

Alternative C Infrastructure	Proposed or Permitted (not part of GMT1)
Road	Road
Pipeline	Facility
Facility	Existing
Nuiqsut Road	Pipeline
Nuiqsut Airport Upgrade Facilities	Road
14 inch Water ¹ Injection Line	Facility
Bridge	Surface Land Ownership
Boundary	Conveyed
Project Study	Selected
NPR-A	
Year One Proposed Ice Road	
Year Two Proposed Ice Road	
Setback Area	
Fish Creek 3 mi	
Ubluoch River 0.5 mi	

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).
 2: Nuiqsut Laydown Pad is a 10 acre gravel storage pad.

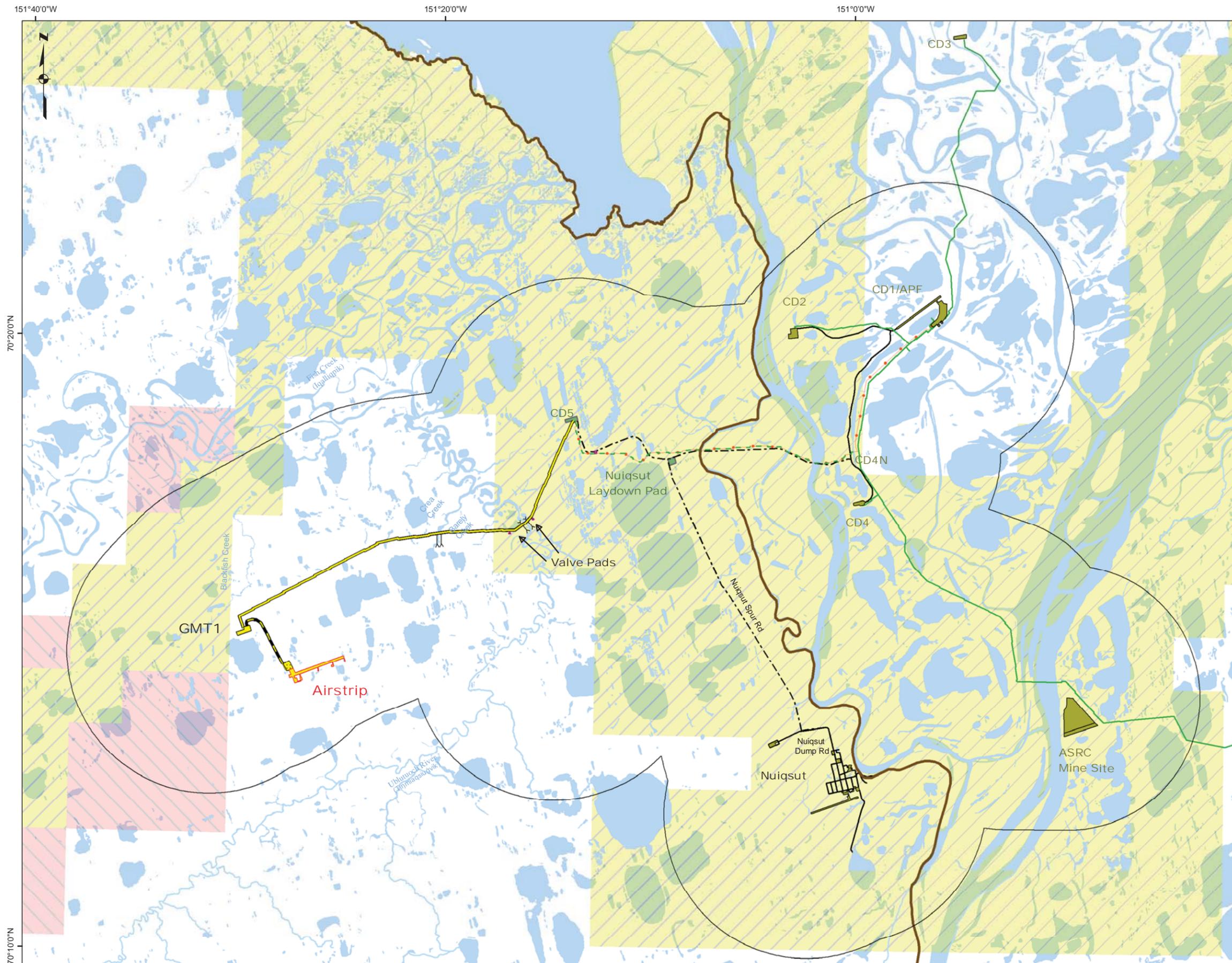
Date: 10/20/2014

0 0.5 1 2 3 Miles

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Map 2.8-1

Alternative D1 and D2 Layout

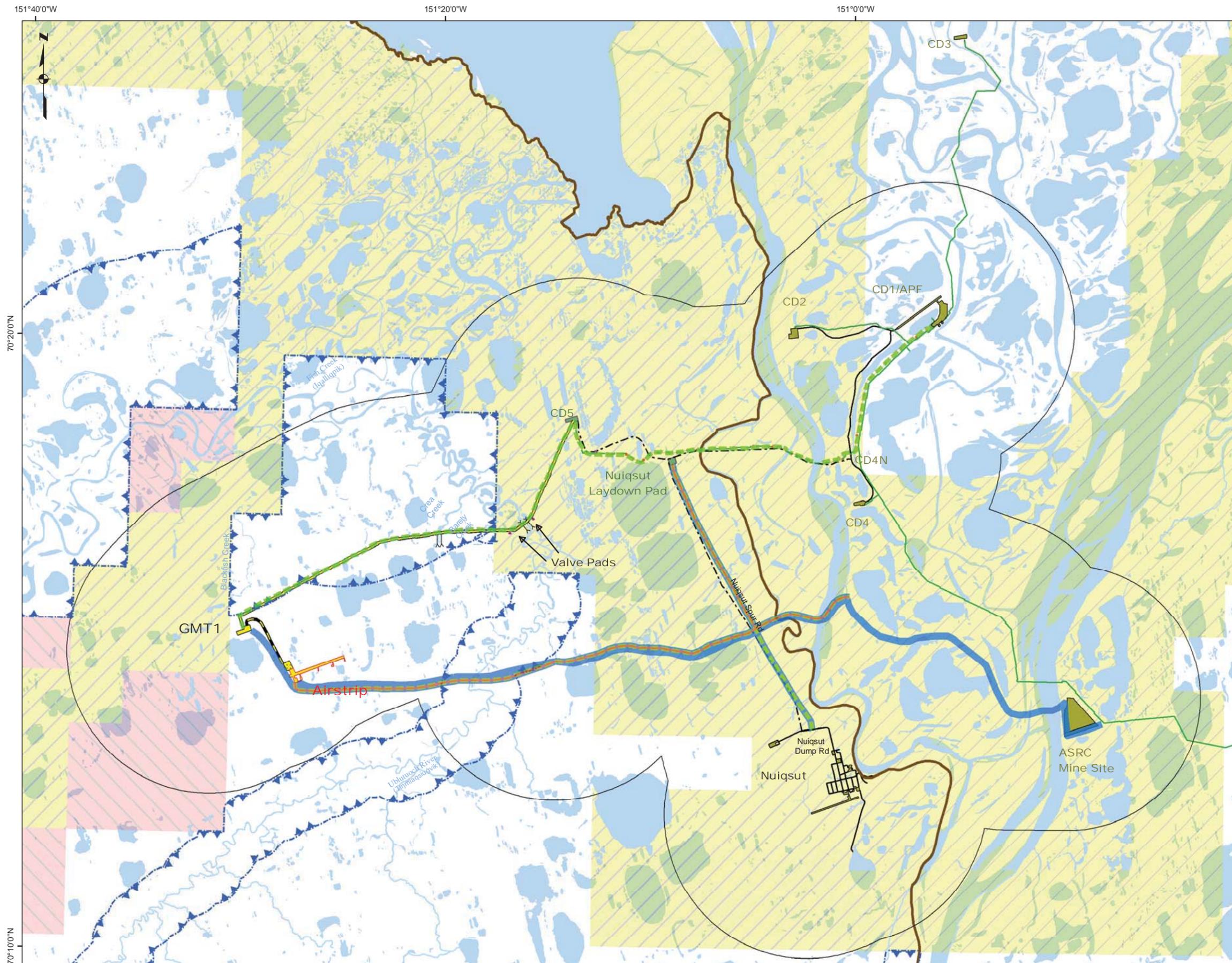
Alternative D1/D2 Infrastructure		Proposed or Permitted (not part of GMT1)	
	Road		Road
	Pipeline		Facility
	Facility		Existing Pipeline
	Airstrip		Existing Road
	Airstrip Occupied Pad common to D1 and D 2		Facility
	AirStrip additional Occupied Pad-for D1	Surface Land Ownership Kuukpiik Lands	
	14 inch Water ^{1,2} Injection Line		Conveyed
	Bridge		Selected
Boundary			
	Project Study Area		
	NPR-A		

Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

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Map 2.8-2
Alternative D1 and D2
Ice Roads

Alternative D1/D2 Infrastructure	Proposed or Permitted (not part of GMT1)
Road	Road
Pipeline	Facility
Facility	Existing
Airstrip	Pipeline
Airstrip Occupied Pad common to D1 and D 2	Road
Airstrip additional Occupied Pad-for D1	Facility
14 inch Water ^{1,2} Injection Line	Surface Land Ownership
Bridge	Kuukpiik Lands
Ice Roads	Conveyed
First Year	Selected
Second Year	
Annual Resupply Road	
Boundary	
Project Study Area	
NPR-A	
Setback Area	
Fish Creek 3 mi	
Ublutuoch River 0.5 mi	

Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/27/2014

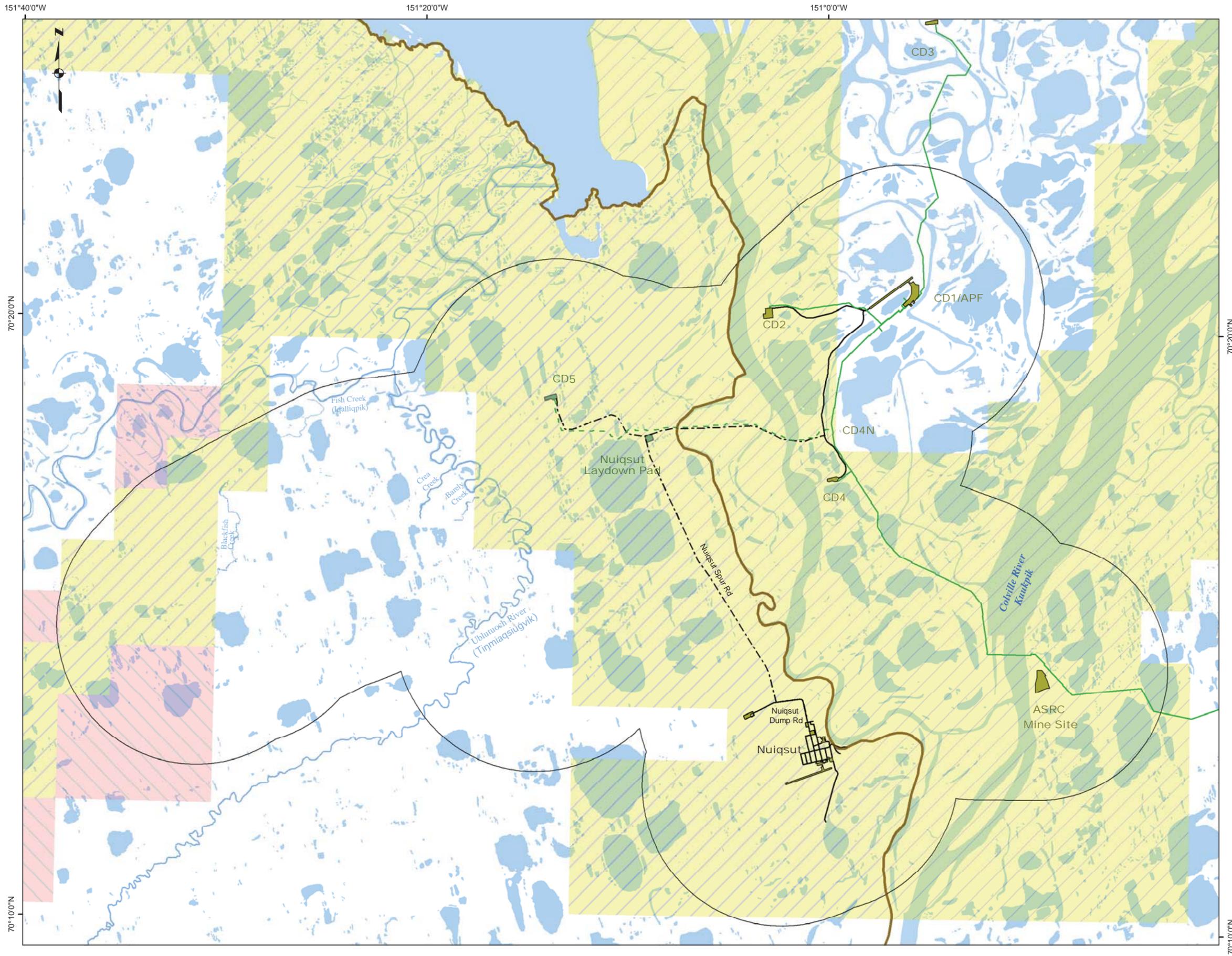
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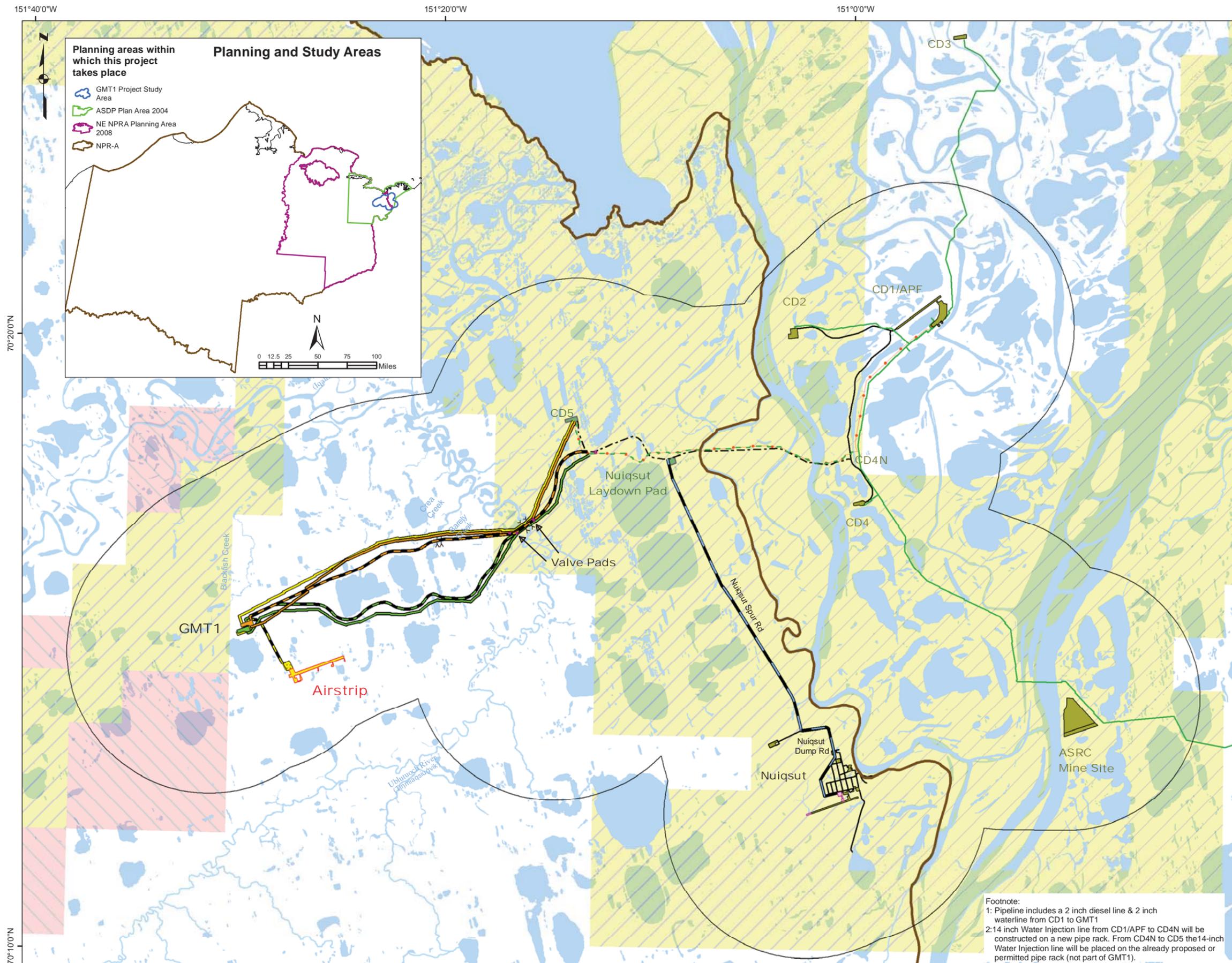
Map 2.10-1
**Alternative E:
 No Action**

- | | |
|---|-------------------------------|
| Proposed or Permitted (not part of GMT1) | Existing |
| Pipeline | Pipeline |
| Road | Road |
| Facility | Facility |
| Boundaries | |
| NPR-A | Surface Land Ownership |
| Project Study Area | Kuukpik Lands |
| | Conveyed |
| | Selected |

Date: 10/21/2014

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



Map 3.1-1

Project Study Area

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
14 inch Water ² Injection Line	14 inch Water ² Injection Line
Bridge	Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
Nuiqsut Road	AirStrip
Nuiqsut Airport Upgrade Facilities	AirStrip Occupied Pad common to D1 and D2
14 inch Water ² Injection Line	AirStrip additional Occupied Pad-for D1
Bridge	14 inch Water ^{1,2} Injection Line
Boundary	Bridge
Project Study Area	Proposed or Permitted (not part of GMT1)
NPR-A	Road
Surface Land Ownership	Facility
Kuukpik Lands	Existing
Conveyed	Pipeline
Selected	Road
	Facility

Date: 9/29/2014
 0 0.5 1 2 3 Miles

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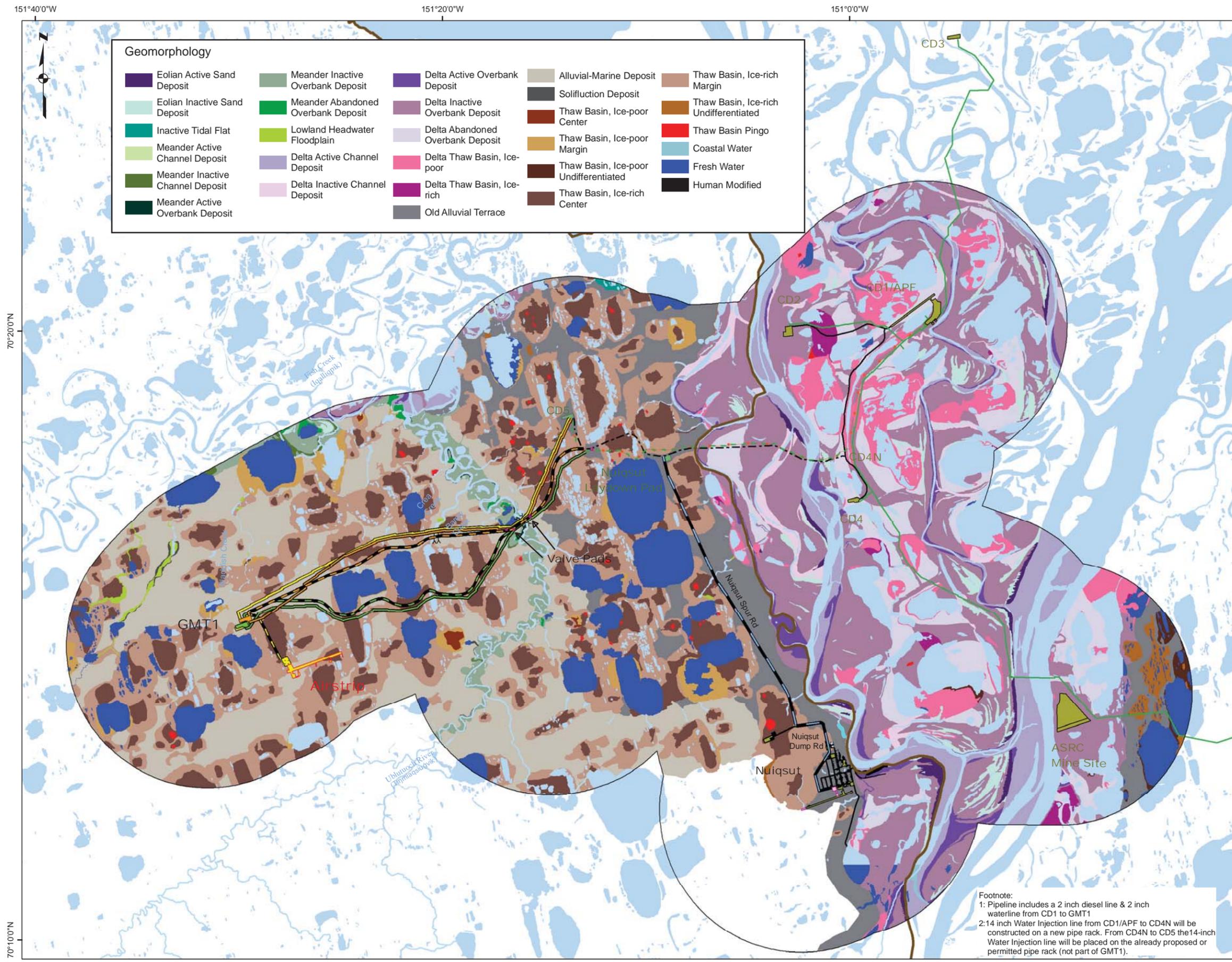
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



Geomorphology			

Map 3.2-1
Geomorphology

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
14 inch Water ² Injection Line	14 inch Water ² Injection Line
Bridge	Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
Nuiqsut Road	AirStrip
Nuiqsut Airport Upgrade Facilities	AirStrip Occupied Pad common to D1 and D2
14 inch Water ² Injection Line	AirStrip additional Occupied Pad for D1
Bridge	14 inch Water ^{1,2} Injection Line
Boundary	Bridge
Project Study Area	Proposed or Permitted (not part of GMT1)
NPR-A	Road
	Facility
	Existing
	Pipeline
	Road
	Facility

Date: 9/27/2014

0 0.5 1 2 3 Miles

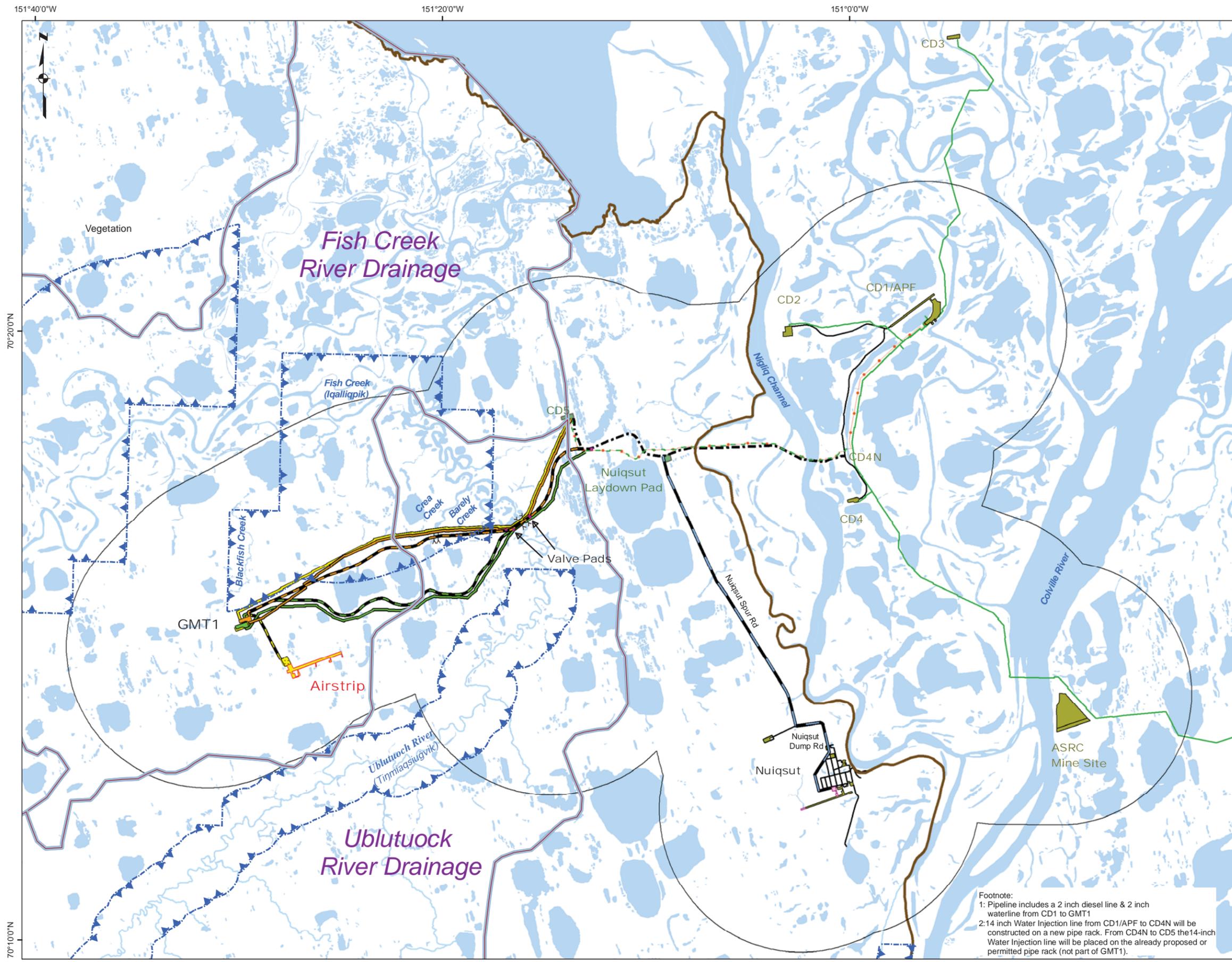
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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska

GMT1 Development Project Supplemental Environmental Impact Statement 2014

Footnote:
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2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



Map 3.2-2
Drainage Basins

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
14 inch Water ² Injection Line	14 inch Water ² Injection Line
Bridge	Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
Nuiqsut Road	AirStrip
Nuiqsut Airport Upgrade Facilities	AirStrip Occupied Pad common to D1 and D2
14 inch Water ² Injection Line	AirStrip additional Occupied Pad-for D1
Bridge	14 inch Water ^{1,2} Injection Line
Proposed or Permitted (not part of GMT1)	Bridge
Road	Boundary
Facility	Project Study Area
Existing Pipeline	NPR-A
Existing Road	
Existing Facility	

Drainage Basins
 Fish Creek 3mi
 Ublutuock River 0.5mi

Date: 10/21/2014

0 0.5 1 2 3 Miles

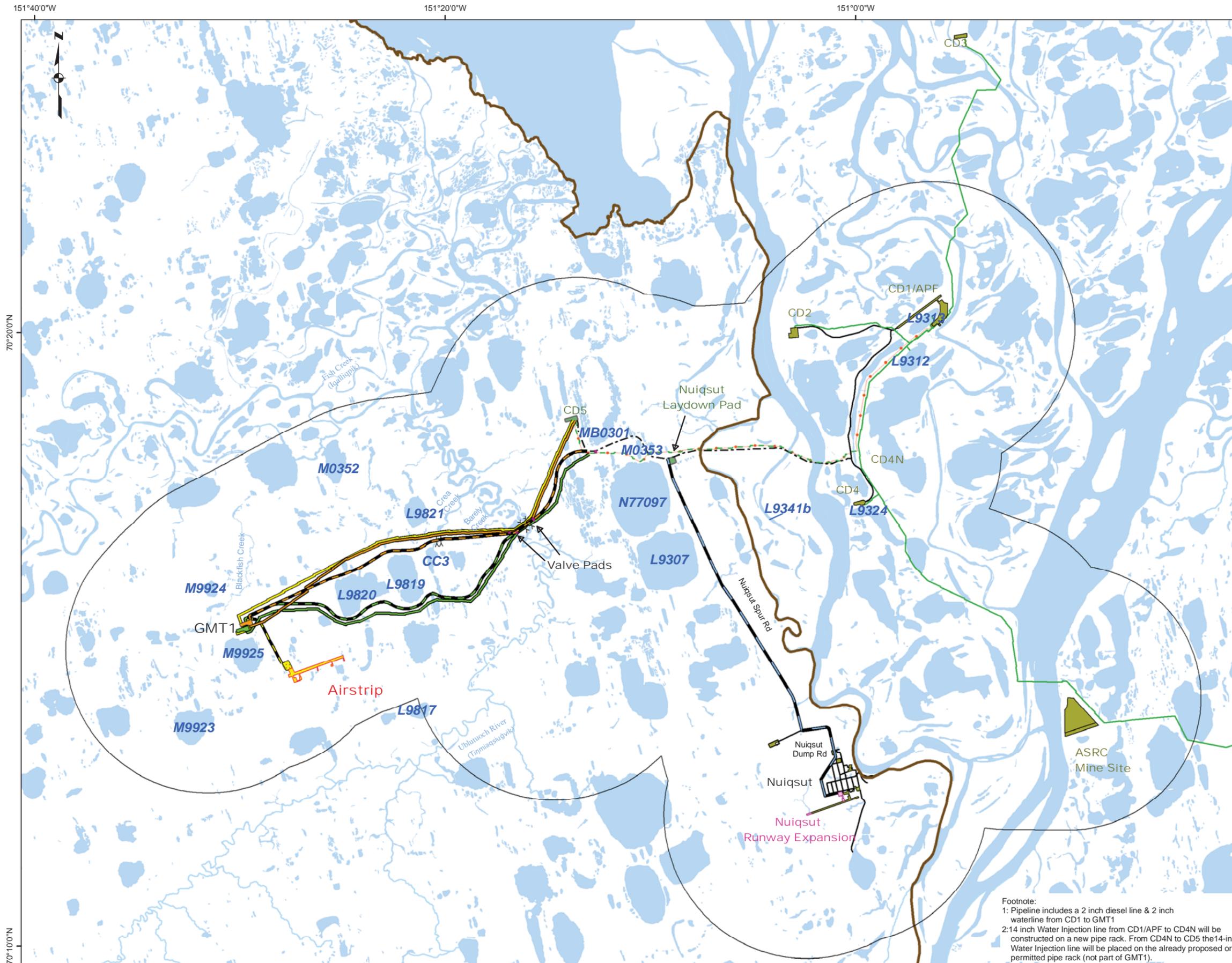
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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

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Footnote:
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Map 3.2-3
Surface Water Bodies

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
14 inch Water ² Injection Line	14 inch Water ² Injection Line
Bridge	Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
Nuiqsut Road	AirStrip
Nuiqsut Airport Upgrade Facilities	AirStrip Occupied Pad common to D1 and D2
14 inch Water ² Injection Line	AirStrip additional Occupied Pad-for D1
Bridge	14 inch Water ^{1,2} Injection Line
Proposed or Permitted (not part of GMT1) Road	Bridge
Facility	
Existing Pipeline	Boundary
Existing Road	Project Study Area
Facility	NPR-A

Date: 10/21/2014
 0 0.5 1 2 3 Miles

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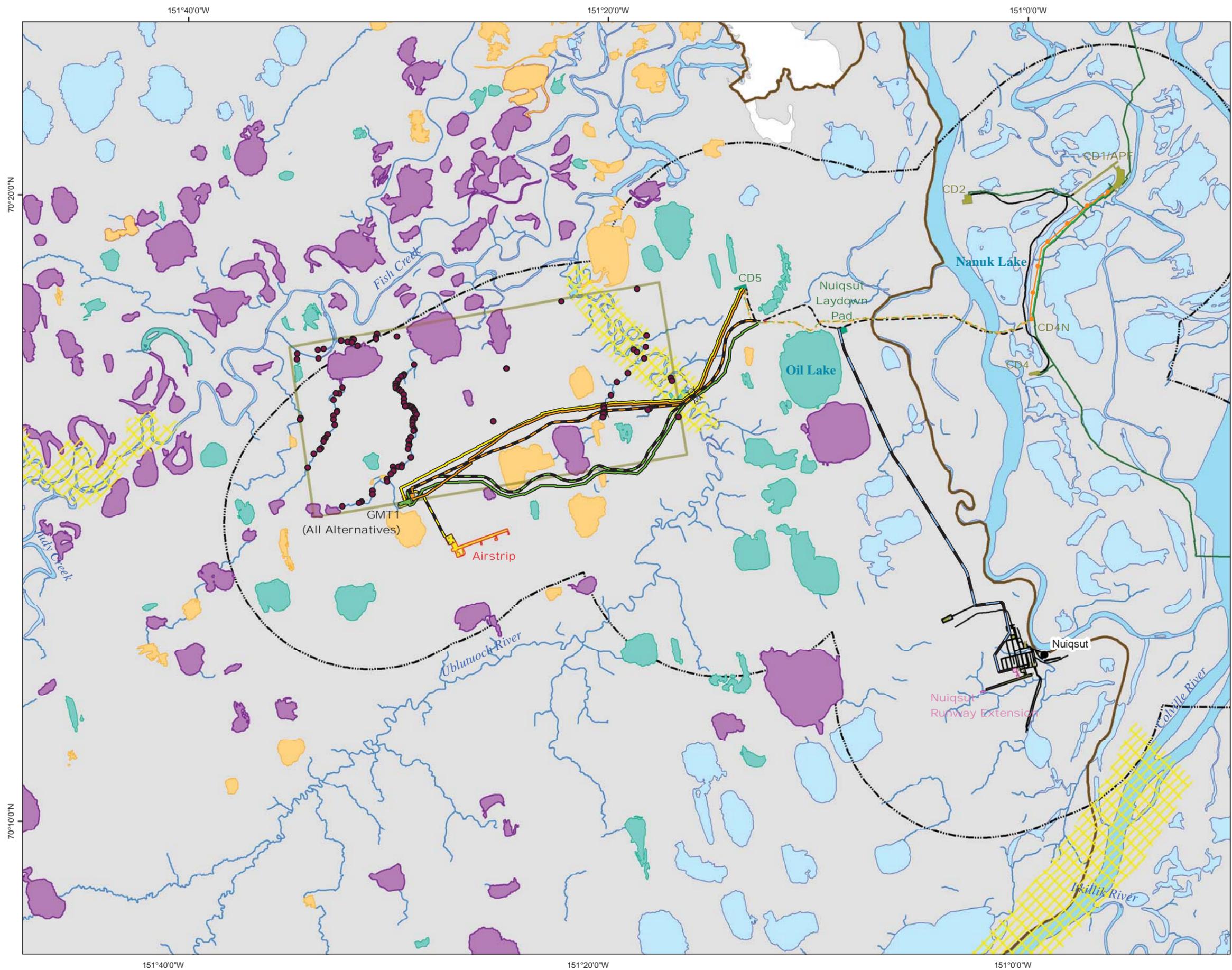
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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GMT1 Development Project Supplemental Environmental Impact Statement 2014

Footnote:
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 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



Map 3.3-1

Potential and Known Fish Overwintering Habitat

- Fish Wintering Areas
- Bedfast Ice Regime
- Transitional Ice Regime
- Floating Ice Regime
- stream pool features with floating ice
- Waterbodies not analyzed
- Jones Project Extent

<p>Alternative A Infrastructure</p> <ul style="list-style-type: none"> Pipeline Road Facility <p>Alternative C Infrastructure</p> <ul style="list-style-type: none"> Pipeline Road Facility <p>Proposed or Permitted (not part of GMT1)</p> <ul style="list-style-type: none"> Pipeline Road Facility <p>GMT1 SEIS Project Areas</p> <ul style="list-style-type: none"> Project Study Area NPR-A 	<p>Alternative B Infrastructure</p> <ul style="list-style-type: none"> Pipeline Road Facility <p>Alternative D1/D2 Infrastructure</p> <ul style="list-style-type: none"> Pipeline Road Facility Airstrip <p>Existing</p> <ul style="list-style-type: none"> Pipeline Road Facility
--	--

Data sources:
 Morris 2003,
 Arp et al. 2012,
 Jones et al. 2013

0 0.5 1 2 3 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

151°40'0"W

151°20'0"W

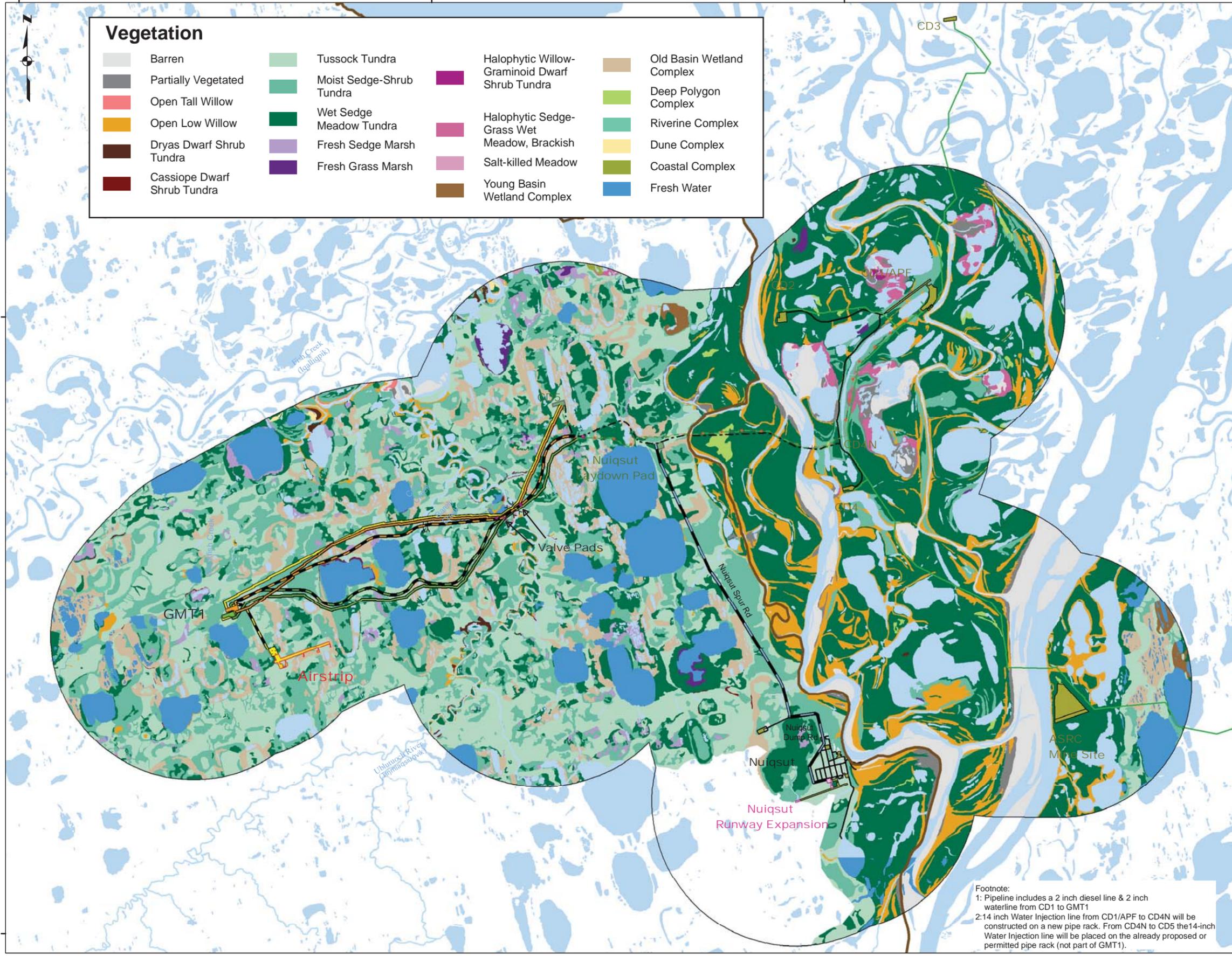
151°0'0"W

70°20'0"N

70°10'0"N

Vegetation

Barren	Tussock Tundra	Halophytic Willow-Graminoid Dwarf Shrub Tundra	Old Basin Wetland Complex
Partially Vegetated	Moist Sedge-Shrub Tundra	Halophytic Sedge-Grass Wet Meadow, Brackish	Deep Polygon Complex
Open Tall Willow	Wet Sedge Meadow Tundra	Salt-killed Meadow	Riverine Complex
Open Low Willow	Fresh Sedge Marsh	Young Basin Wetland Complex	Dune Complex
Dryas Dwarf Shrub Tundra	Fresh Grass Marsh		Coastal Complex
Cassiope Dwarf Shrub Tundra			Fresh Water



Map 3.3-2

Vegetation

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
14 inch Water ² Injection Line	14 inch Water ² Injection Line
Bridge	Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
Nuiqsut Road	AirStrip
Nuiqsut Airport Upgrade Facilities	AirStrip Occupied Pad common to D1 and D2
14 inch Water ² Injection Line	AirStrip additional Occupied Pad-for D1
Bridge	Bridge
Boundary	Proposed or Permitted (not part of GMT1)
Project Study Area	Road
NPR-A	Facility
	Existing
	Pipeline
	Road
	Facility

Date: 9/27/2014



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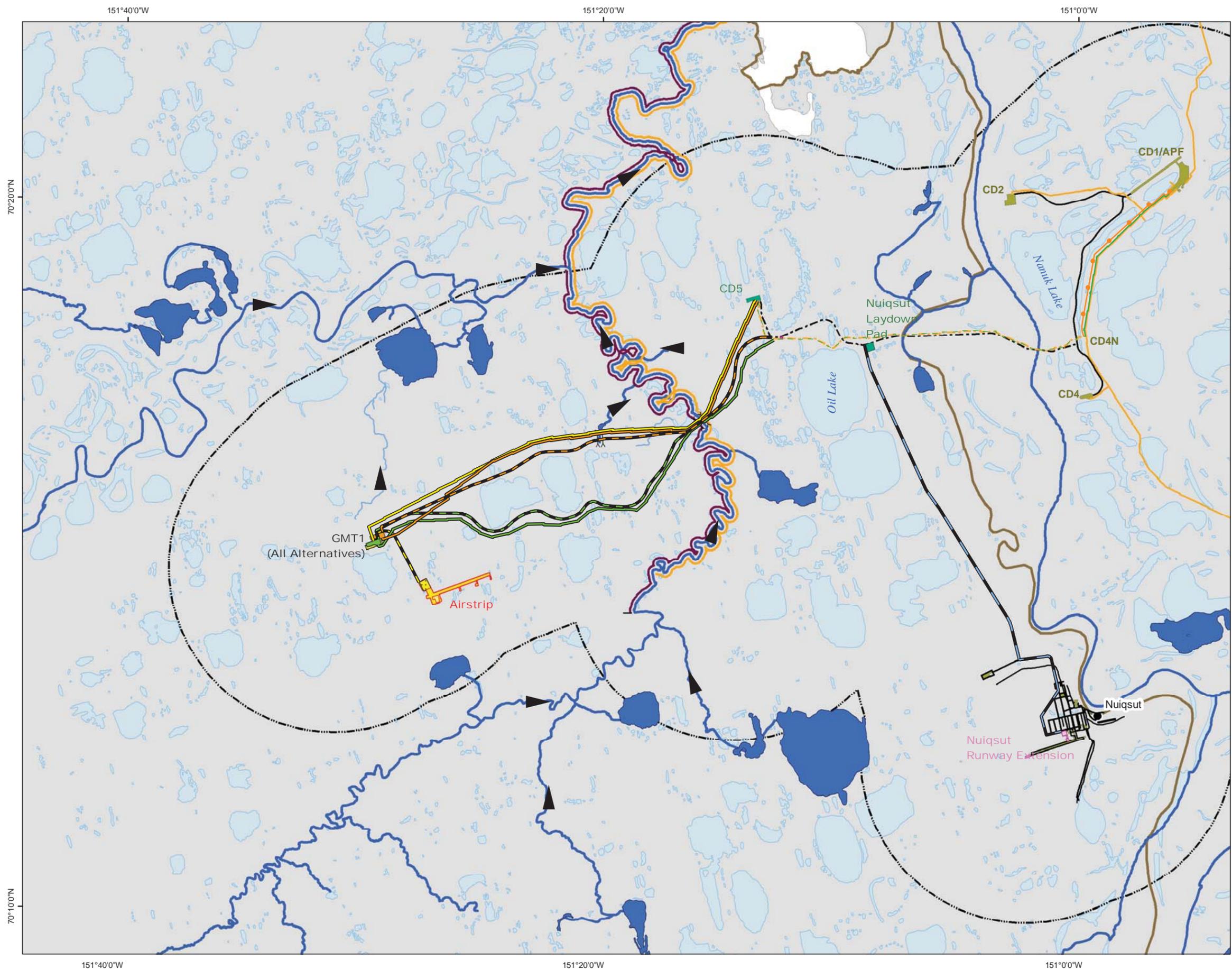
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



Map 3.3-3

Anadromous Waters and Essential Fish Habitat

Anadromous Waters

- Streams (black arrows indicate stream flow direction)
- Lakes

Essential Fish Habitat

- KSp- King salmon present upstream extent
- CSp- Chum salmon & PSp- Pink salmon present upstream extent

Waterbodies

- Lake/Pond

Alternative A Infrastructure	Alternative B Infrastructure
Pipeline	Pipeline
Road	Road
Facility	Facility
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Pipeline	Pipeline
Road	Road
Nuiqsut Spur/Dump/Airport Roads	Facility
Facility	Airstrip
Proposed or Permitted (not part of GMT1)	Existing
Pipeline	Pipeline
Road	Road
Facility	Facility

GMT1 SEIS Project Areas

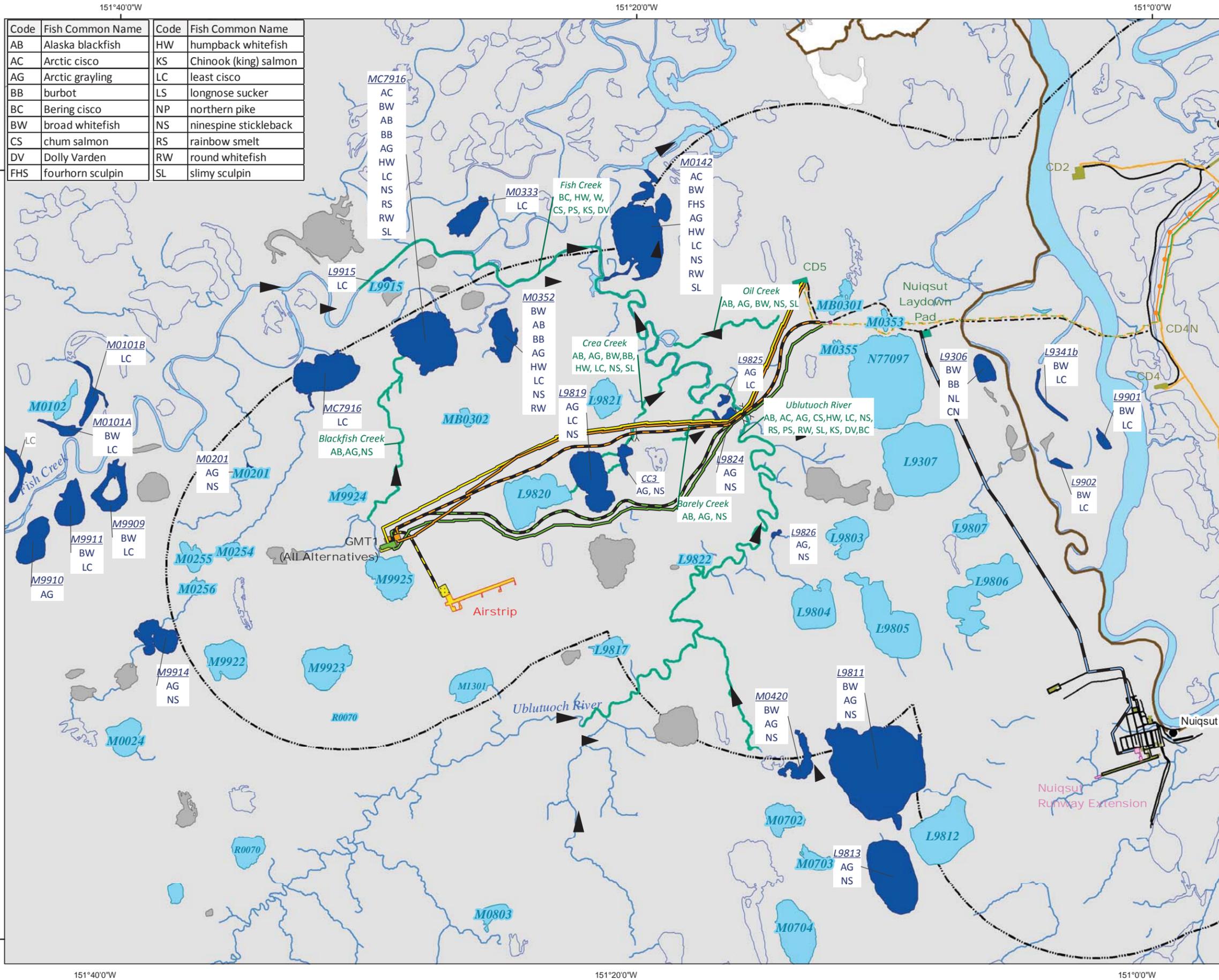
- Project Study Area
- NPR-A

Data Sources:
Anadromous Waters Catalog (ADFG), 2013a

0 1 2 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



Code	Fish Common Name	Code	Fish Common Name
AB	Alaska blackfish	HW	humpback whitefish
AC	Arctic cisco	KS	Chinook (king) salmon
AG	Arctic grayling	LC	least cisco
BB	burbot	LS	longnose sucker
BC	Bering cisco	NP	northern pike
BW	broad whitefish	NS	ninespine stickleback
CS	chum salmon	RS	rainbow smelt
DV	Dolly Varden	RW	round whitefish
FHS	fourhorn sculpin	SL	slimy sculpin

Map 3.3-4

Fish Species Distribution

- Multiple fish species present in river/stream (black arrows indicate stream flow direction)
- Species other than ninespine stickleback seen
- Only ninespine stickleback seen
- Waterbody surveyed - no fish seen
- Waterbody not surveyed

- | | |
|---|---|
| Alternative A Infrastructure | Alternative B Infrastructure |
| Pipeline | Pipeline |
| Road | Road |
| Facility | Facility |
| Alternative C Infrastructure | Alternative D1/D2 Infrastructure |
| Pipeline | Pipeline |
| Road | Road |
| Nuiqsut Spur/Dump/Airport Roads | Facility |
| Facility | Airstrip |
| Proposed or Permitted (not part of GMT1) | Existing |
| Pipeline | Pipeline |
| Road | Road |
| Facility | Facility |

GMT1 SEIS Project Areas

- Project Study Area
- NPR-A

Data Sources:
 Anadromous Waters Catalog (ADFG) 2013a,
 BLM 2014a,
 CPAI 2013f



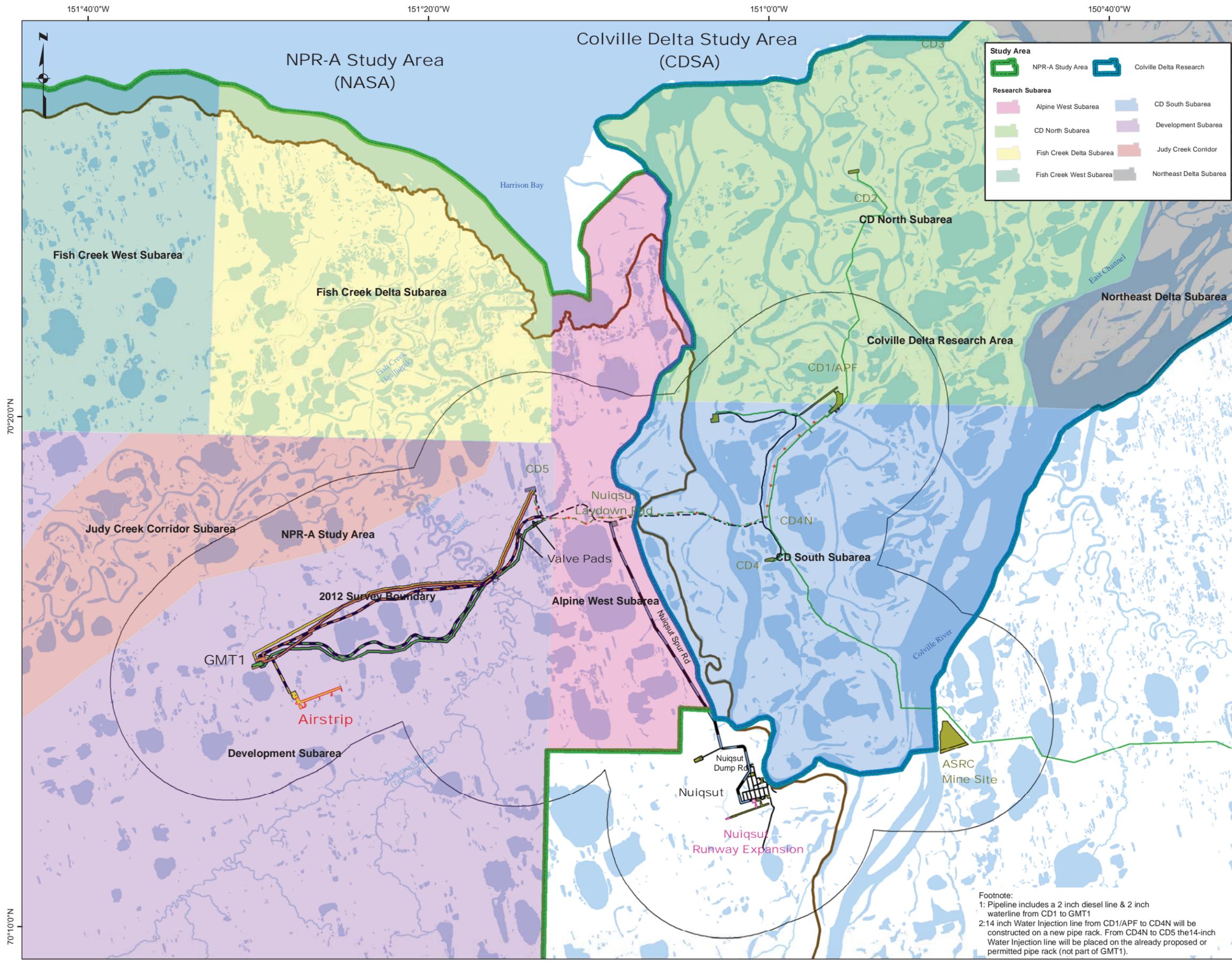
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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Map 3.3-5
Avian Study Areas

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
14 inch Water ² Injection Line	14 inch Water ² Injection Line
Bridge	Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
Nuiqsut Road	AirStrip
Nuiqsut Airport Upgrade Facilities	AirStrip Occupied Pad common to D1 and D2
14 inch Water ² Injection Line	AirStrip additional Occupied Pad-for D1
Bridge	14 inch Water ^{1,2} Injection Line
	Bridge
Boundary	Proposed or Permitted (not part of GMT1)
Project Study Area	Road
NPR-A	Facility
	Existing
	Pipeline
	Road
	Facility

Date: 9/27/2014
 0 0.5 1 2 3 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Footnote:
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151°40'0"W

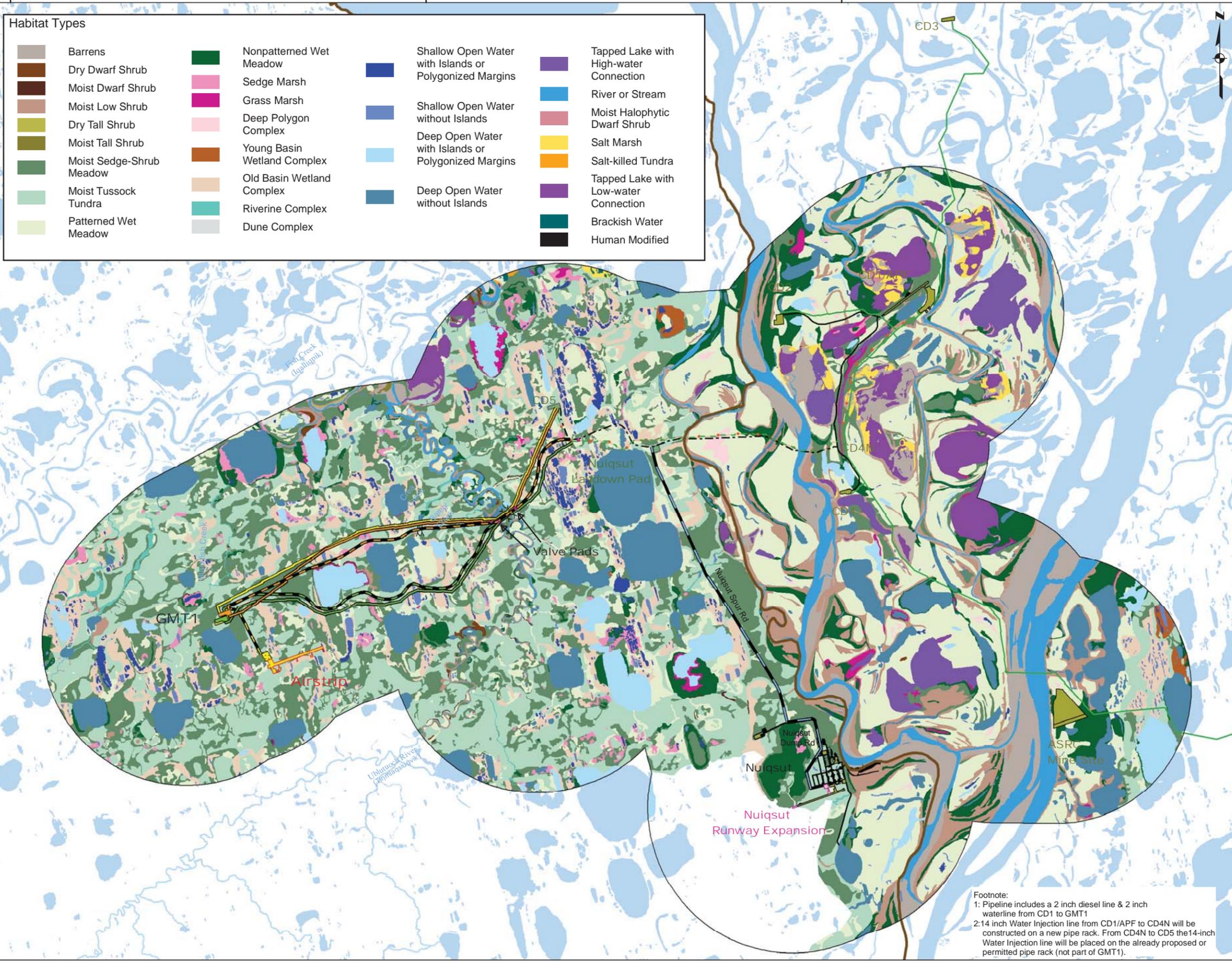
151°20'0"W

151°0'0"W

70°20'0"N

70°10'0"N

Habitat Types			
	Barrens		Nonpatterned Wet Meadow
	Dry Dwarf Shrub		Sedge Marsh
	Moist Dwarf Shrub		Grass Marsh
	Moist Low Shrub		Deep Polygon Complex
	Dry Tall Shrub		Young Basin Wetland Complex
	Moist Tall Shrub		Old Basin Wetland Complex
	Moist Sedge-Shrub Meadow		Riverine Complex
	Moist Tussock Tundra		Dune Complex
	Patterned Wet Meadow		Shallow Open Water with Islands or Polygonized Margins
			Shallow Open Water without Islands
			Deep Open Water with Islands or Polygonized Margins
			Deep Open Water without Islands
			Tapped Lake with High-water Connection
			River or Stream
			Moist Halophytic Dwarf Shrub
			Salt Marsh
			Salt-killed Tundra
			Tapped Lake with Low-water Connection
			Brackish Water
			Human Modified



Map 3.3-6

Wildlife Habitat

Alternative A Infrastructure	Alternative B Infrastructure
Alternative C Infrastructure	Alternative D1/D2 Infrastructure

Date: 9/29/2014

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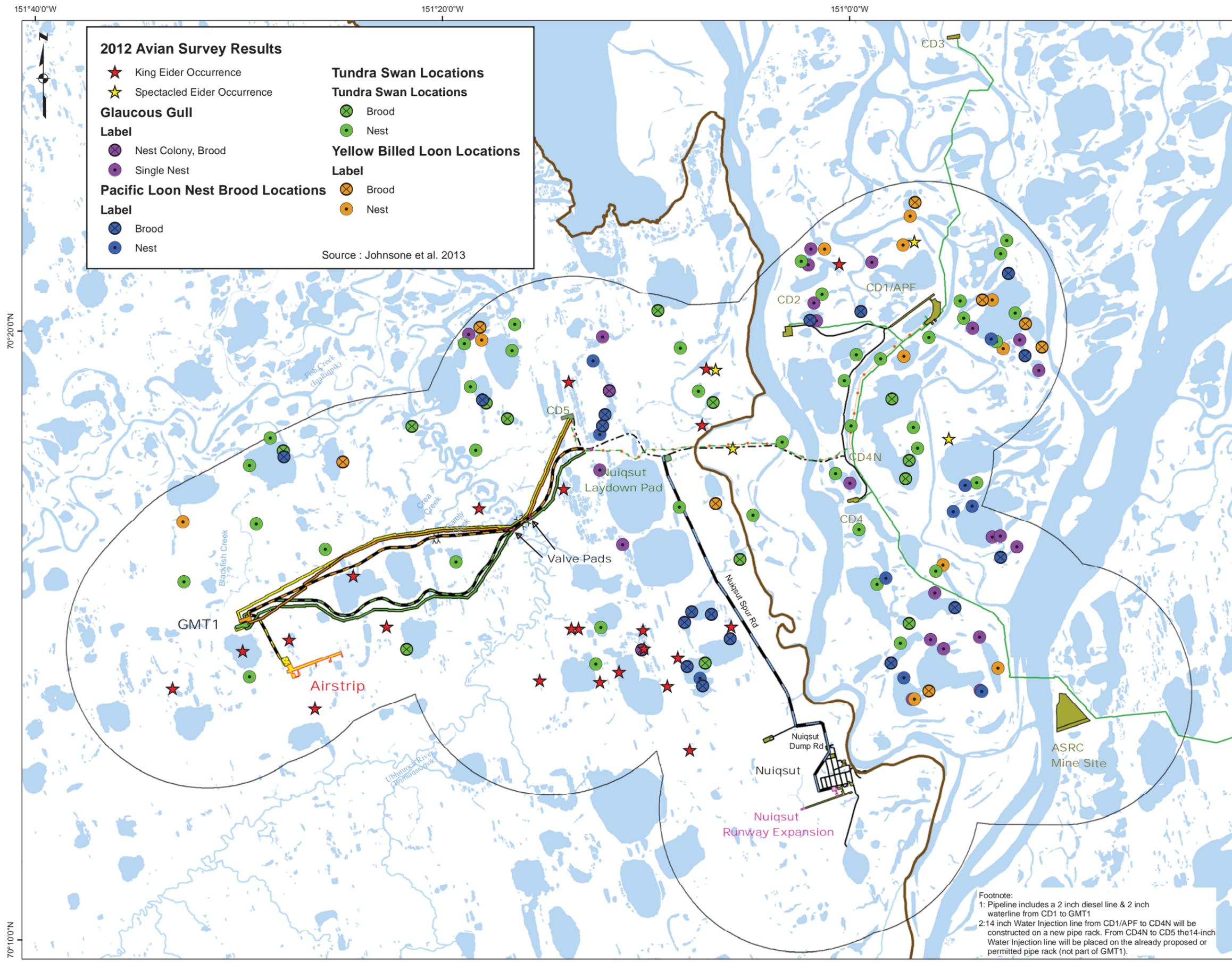
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



2012 Avian Survey Results

- ★ King Eider Occurrence
- ★ Spectacled Eider Occurrence

Glaucous Gull

Label

- ⊗ Nest Colony, Brood
- ⊙ Single Nest

Pacific Loon Nest Brood Locations

Label

- ⊗ Brood
- ⊙ Nest

Tundra Swan Locations

Tundra Swan Locations

- ⊗ Brood
- ⊙ Nest

Yellow Billed Loon Locations

Label

- ⊗ Brood
- ⊙ Nest

Source : Johnstone et al. 2013

Map 3.3-7
2012 Avian Survey

Alternative A Infrastructure	Alternative B Infrastructure
— Road	— Road
— Pipeline	— Pipeline
■ Facility	■ Facility
~ 14 inch Water ² Injection Line	~ 14 inch Water ² Injection Line
⌵ Bridge	⌵ Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
— Road	— Road
— Pipeline	— Pipeline
■ Facility	■ Facility
— Nuiqsut Road	— AirStrip
■ Nuiqsut Airport Upgrade Facilities	■ AirStrip Occupied Pad common to D1 and D2
~ 14 inch Water ² Injection Line	~ 14 inch Water ^{1,2} Injection Line
⌵ Bridge	⌵ Bridge
Boundary	Proposed or Permitted (not part of GMT1)
⬡ Project Study Area	⌵ Road
⬡ NPR-A	■ Facility
	Existing
	— Pipeline
	— Road
	■ Facility

Date: 9/27/2014

0 0.5 1 2 3 Miles

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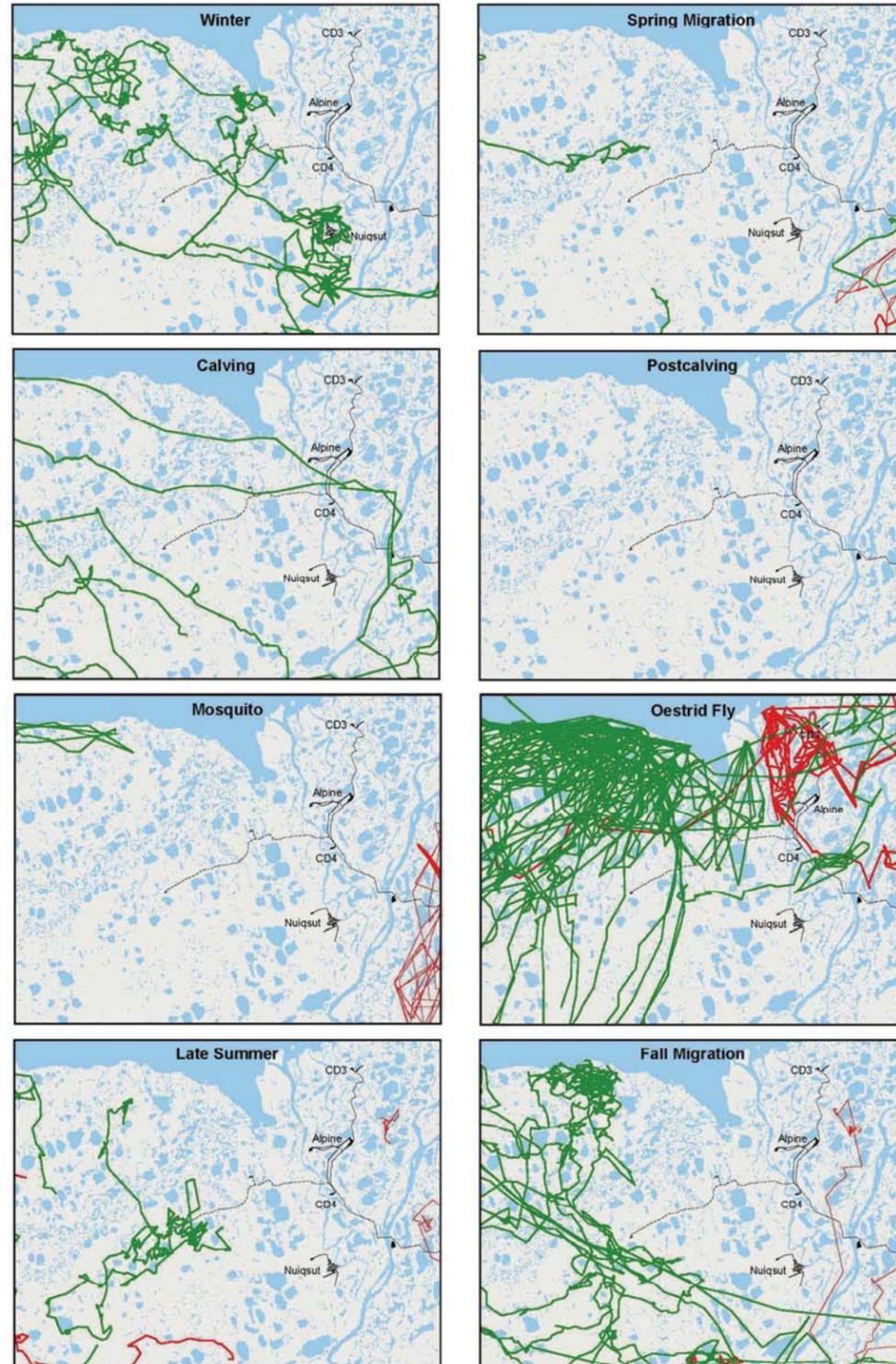


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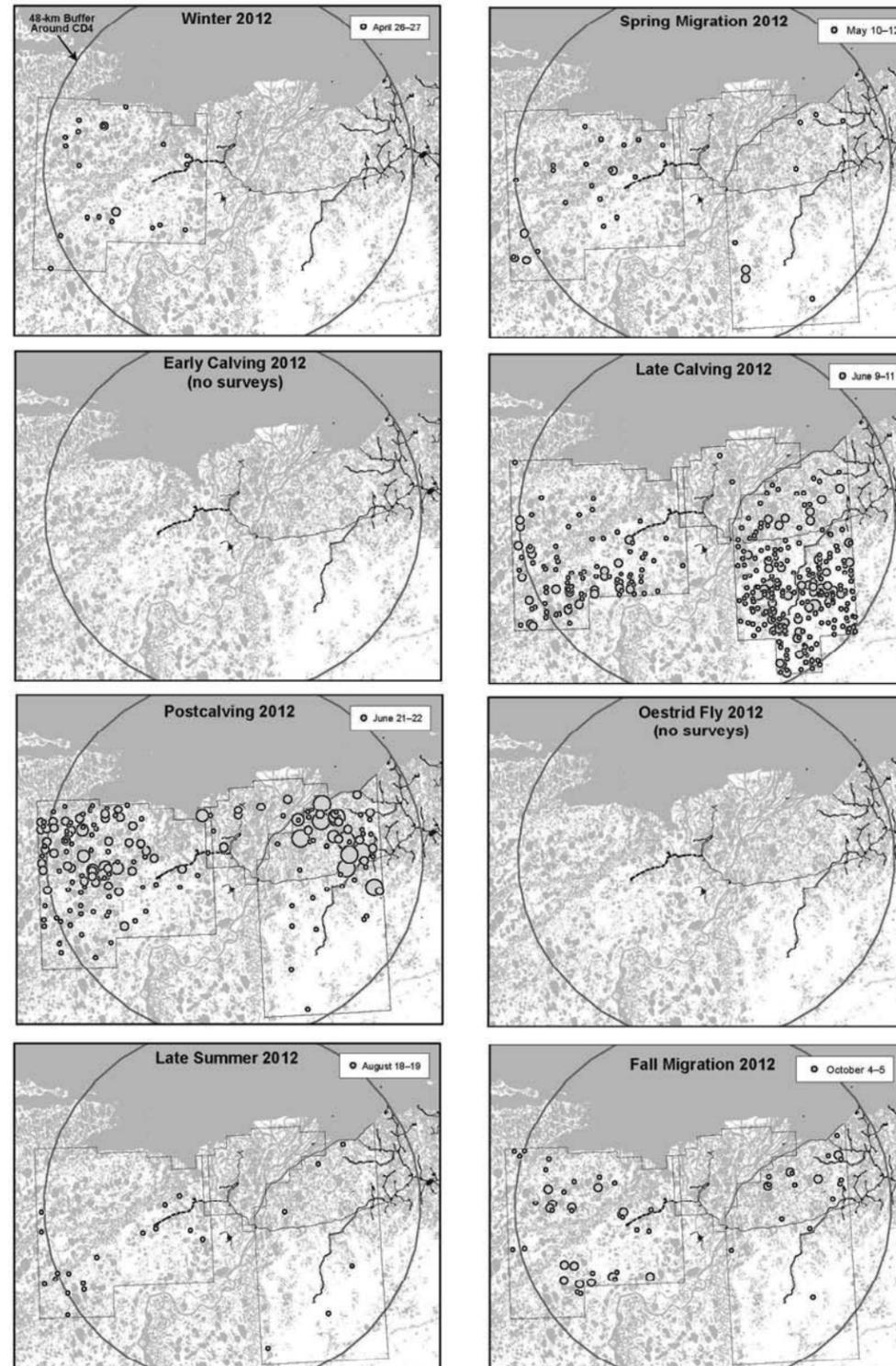
GMT1 Development Project Supplemental Environmental Impact Statement 2014

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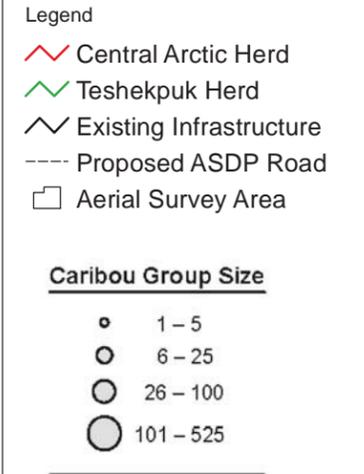
Movements of GPS-collared caribou from the Teshekpuk Herd (2004-2012) and Central Arctic Herd (2003-2006 and 2008-2012) in the vicinity of the proposed ASDP road during 8 different seasons.



Distribution and size of caribou groups during different seasons in the NPR-A, Colville River Delta, and Colville East survey areas, April-October 2012.



Map 3.3-8
 Ranges of the Teshekpuk and Central Arctic Caribou Herds, GPS and Aerial



— Existing Infrastructure
 - - - Proposed ASDP Road
 Source: Lawhead et al. 2012

Date: 10/21/2014

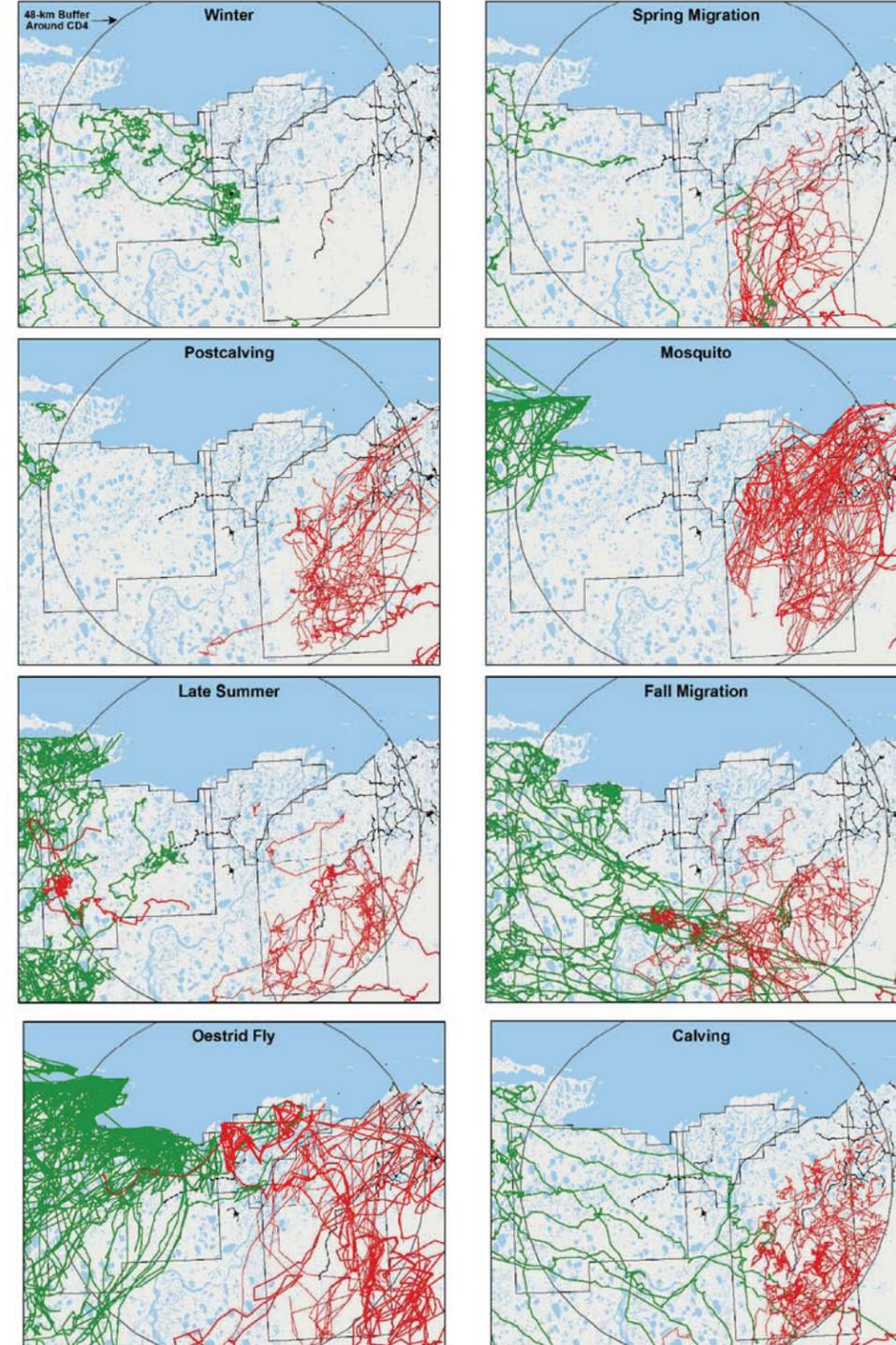
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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Movements of satellite-collared caribou from the Teshekpuk Herd (1990-2012 and Central Arctic Herd (1986-1990 and 2001-2009) in the ASDP study area during 8 different seasons.



Movements of GPS-collared caribou from the Teshekpuk Herd (2004-2012) and Central Arctic Herd (2003-2006, 2008-2012) in the ASDP study area during 8 different seasons.



Map 3.3-9
 Ranges of the Teshekpuk and Central Arctic Caribou Herds, Satellite and GPS

- Legend
- ↗ Central Arctic Herd
 - ↗ Teshekpuk Herd
 - ↗ Existing Infrastructure
 - Proposed ASDP Road
 - Aerial Survey Area
- Source: Lawhead et al. 2012

Date: 10/21/2014

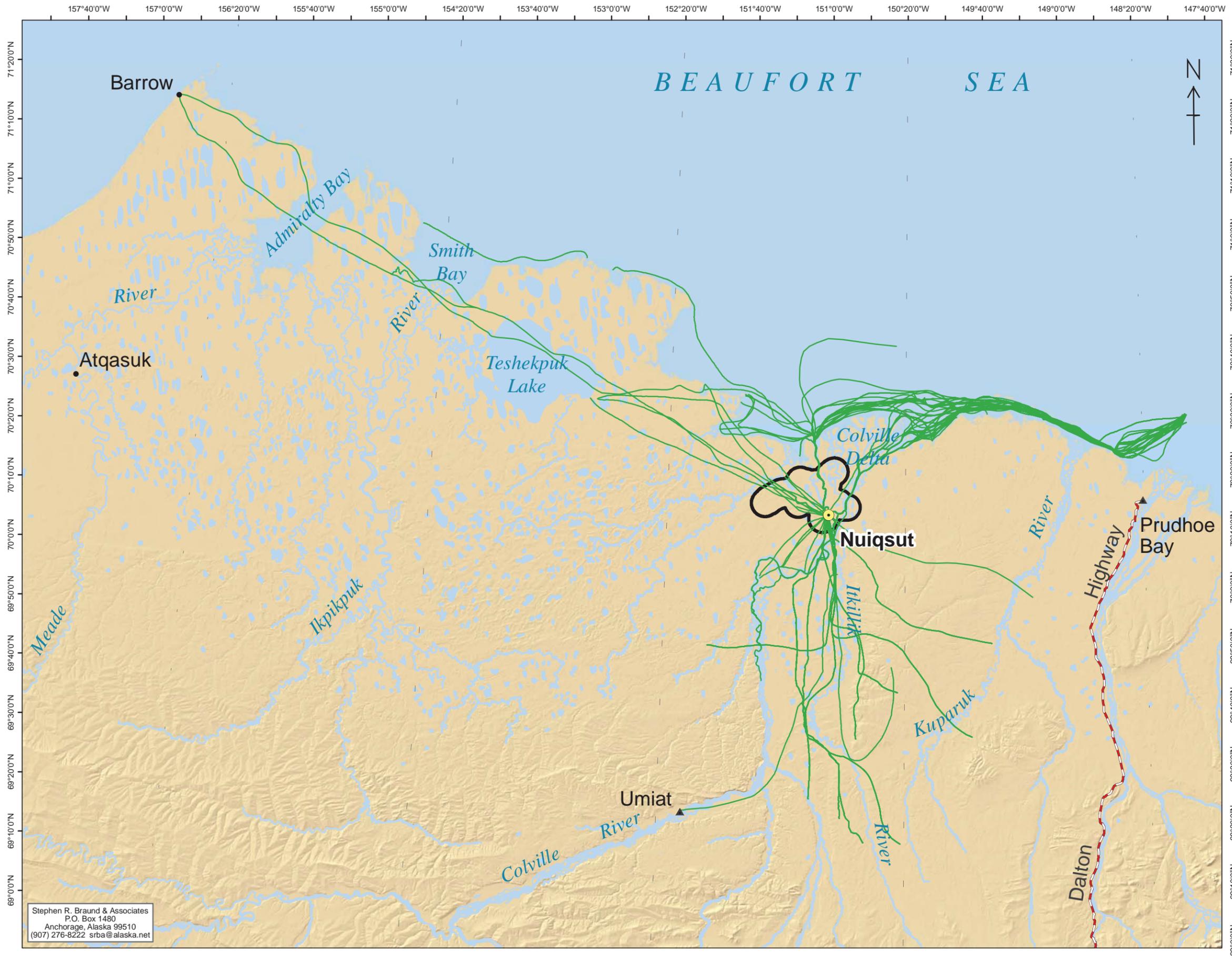
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Map 3.3-10

Nuiqsut Travel Routes

Legend
 — Nuiqsut Travel Route
 (Source: SRBA 2010a)

- Project Study Area
- Subsistence Study Community
- Other Community
- Other Place

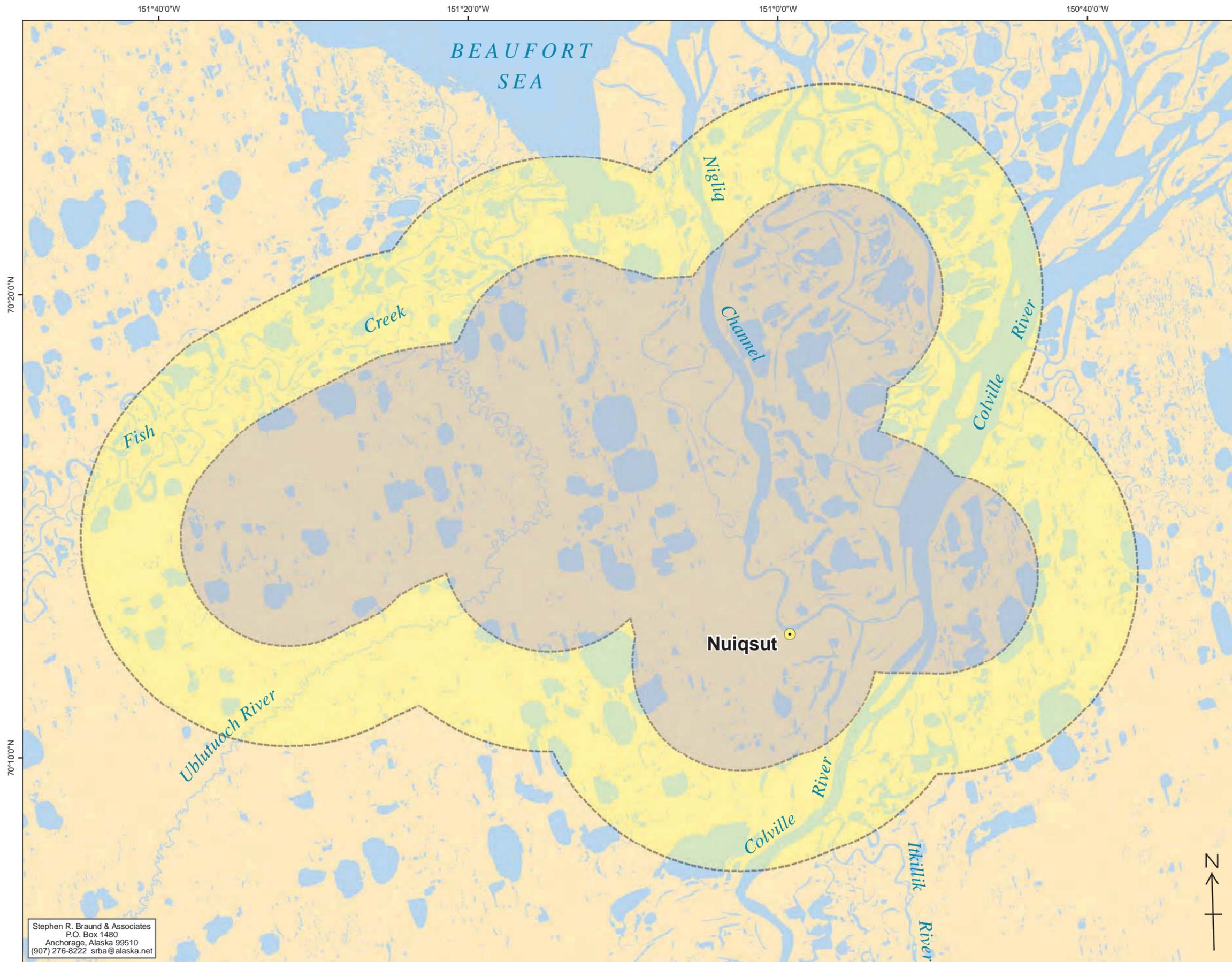
Draft Date: 12/6/2013

0 5 10 20 30 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

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 Anchorage, Alaska 99510
 (907) 276-8222 srba@alaska.net



Map 3.3-11
**Visual and Noise
 Impact Analysis Areas**

- Legend
-  Indirect Impacts Analysis Area (i.e., Project Study Area)
 -  Visual and Noise Impacts Analysis Area
 -  Nuiqsut



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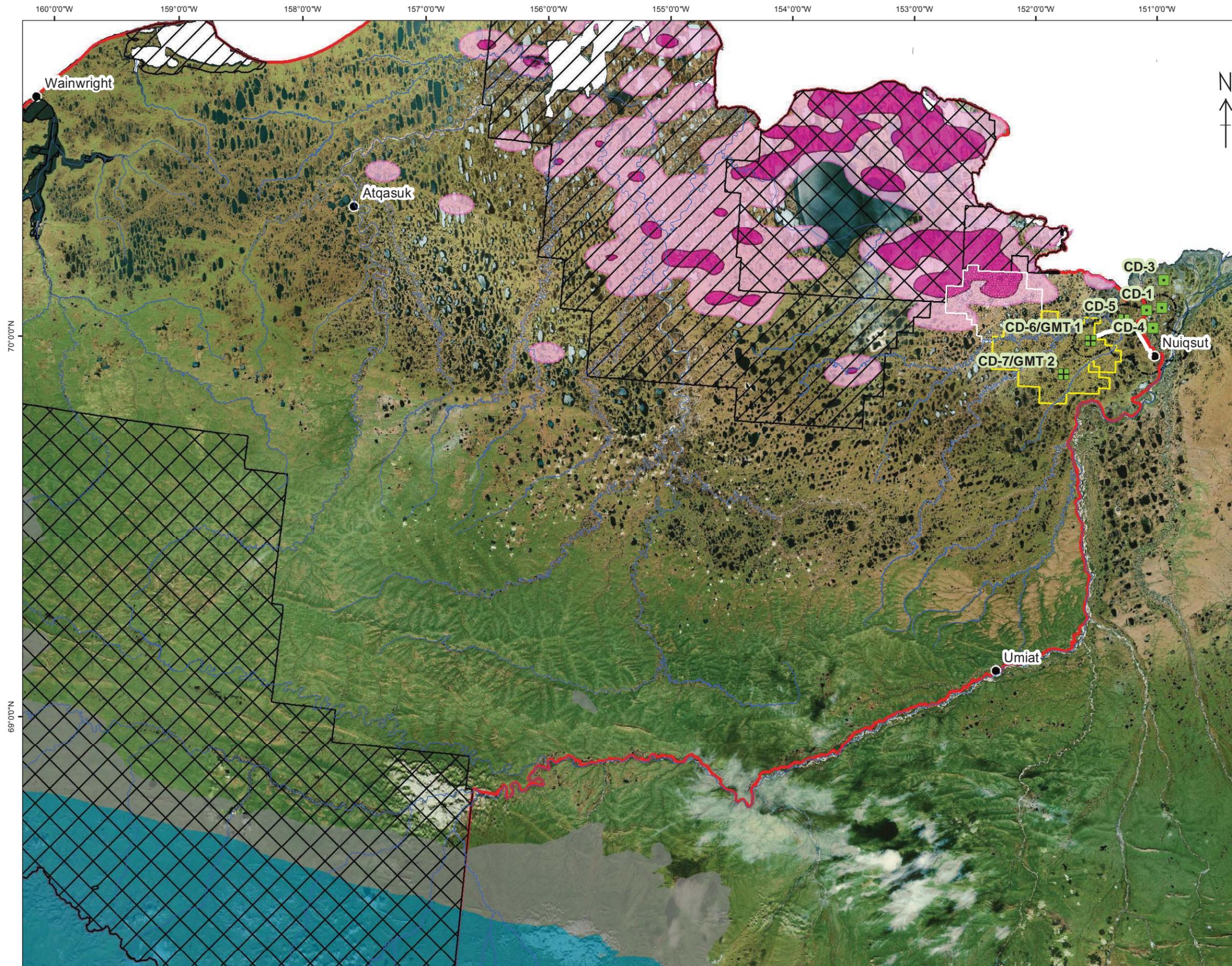
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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 Anchorage, Alaska 99510
 (907) 276-8222 srb@alaska.net



Map 3.3-12

Caribou Summer Areas

**Teshkepkuk Lake Caribou Herd
Mosquito Relief Areas**
(1990-2010 Satellite Telemetry Data)
1-15 July
Kernel Density Analysis - Density Contour

- 50 %
- 95 %

**Western Arctic Caribou Herd
Summer Line Density**
(1988 - 2010)

- 1-2 movement lines crossing each 200 sq mi grid
- >2 movement lines crossing each 200 sq mi grid

Oil & Gas Leasing

- Unavailable
- Unavailable- no new non-subsistence infrastructure
- Greater Mooses Tooth Unit
- Bears Tooth Unit

CONOCO PHILLIPS

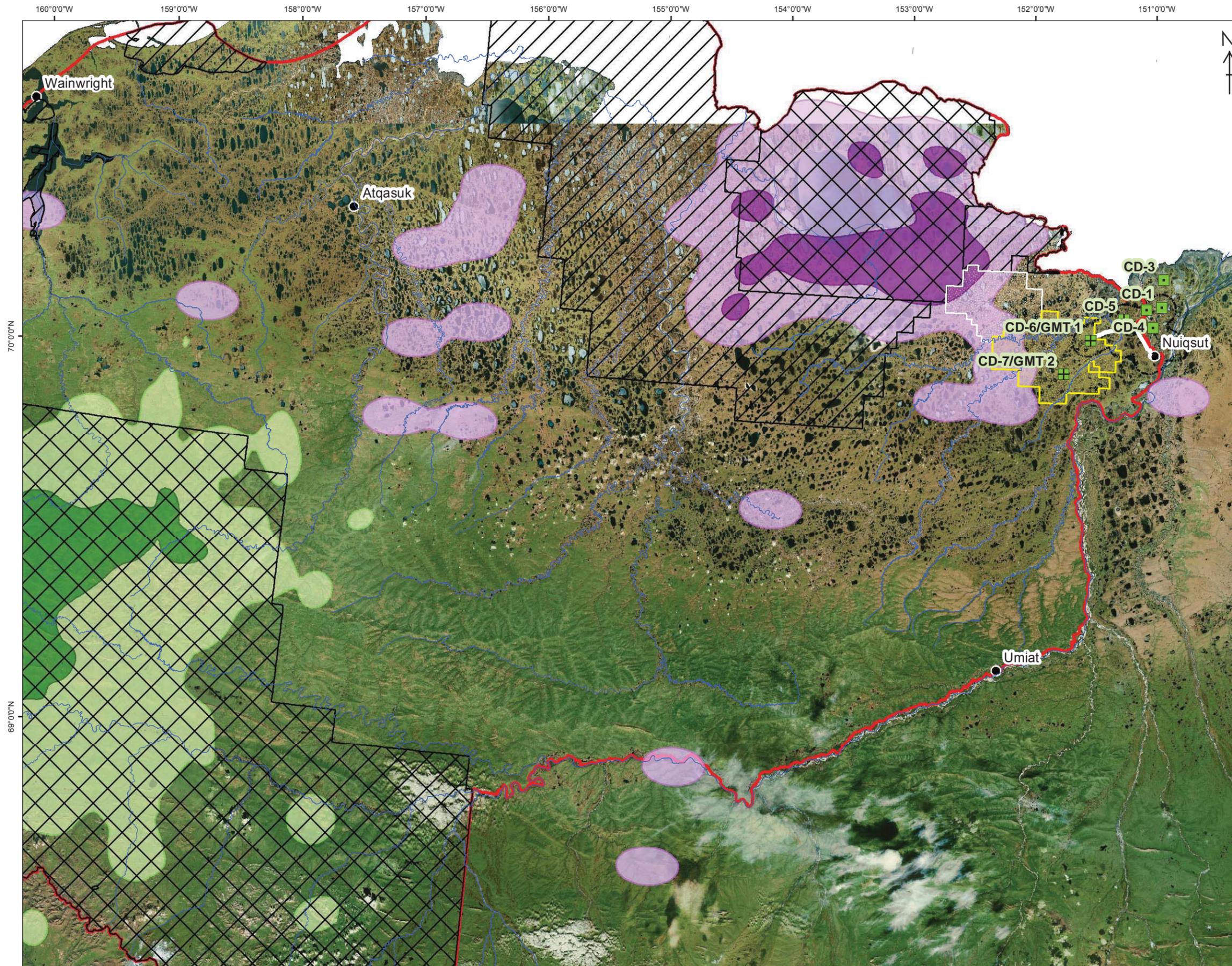
- Existing Facility
- Proposed Facility
- Proposed Roads

NPR-A Boundary

0 5 10 20 30 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



Map 3.3 -13

Caribou Calving Areas

Teshekpuk Lake Caribou Herd Calving Areas

(1990-2010 Satellite Telemetry Data)
Successful Females Only, 1-15 July
 Kernel Density Analysis - Density Contour

- 50 %
- 95 %

Western Arctic Caribou Herd Calving Areas

(1987 - 2010, excluding 1990-1991)
 Kernel Density Analysis - Density Contour

- 50 %
- 95 %

Oil & Gas Leasing

- Unavailable
- Unavailable- no new non-subsistence infrastructure
- Greater Mooses Tooth Unit
- Bears Tooth Unit

CONOCO PHILLIPS

- Existing Facility
- Proposed Facility
- Proposed Roads

NPR-A Boundary



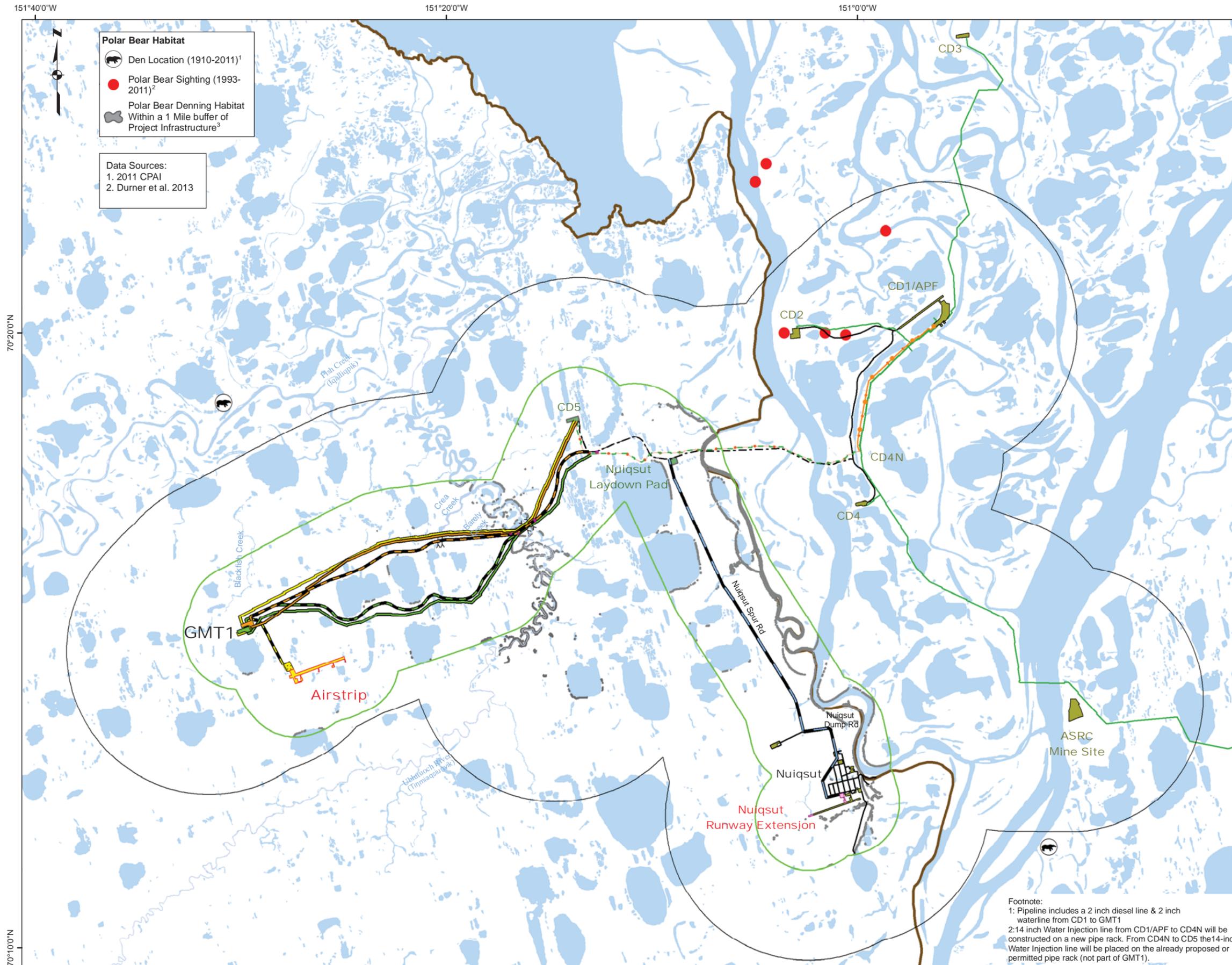
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Map 3.3-14

Polar Bear Habitat

Alternative A Infrastructure		Alternative B Infrastructure	
	Road		Road
	Pipeline		Pipeline
	Facility		Facility
	14 inch Water ² Injection Line		14 inch Water ² Injection Line
	Bridge		Bridge
Alternative C Infrastructure		Alternative D1/D2 Infrastructure	
	Road		Road
	Pipeline		Pipeline
	Facility		Facility
	Nuiqsut Road		AirStrip
	Nuiqsut Airport Upgrade Facilities		AirStrip additional Occupied Pad-for D1
	14 inch Water ² Injection Line		14 inch Water ^{1,2} Injection Line
	Bridge		Bridge
	Existing Pipeline		Proposed or Permitted (not part of GMT1) Road
	Existing Road		Proposed or Permitted (not part of GMT1) Facility
	Existing Facility		
Boundary			
	Project Study Area		
	NPR-A		
	1 Mile Infrastructure Buffer		

Date: 10/21/2014

0 0.5 1 2 3 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

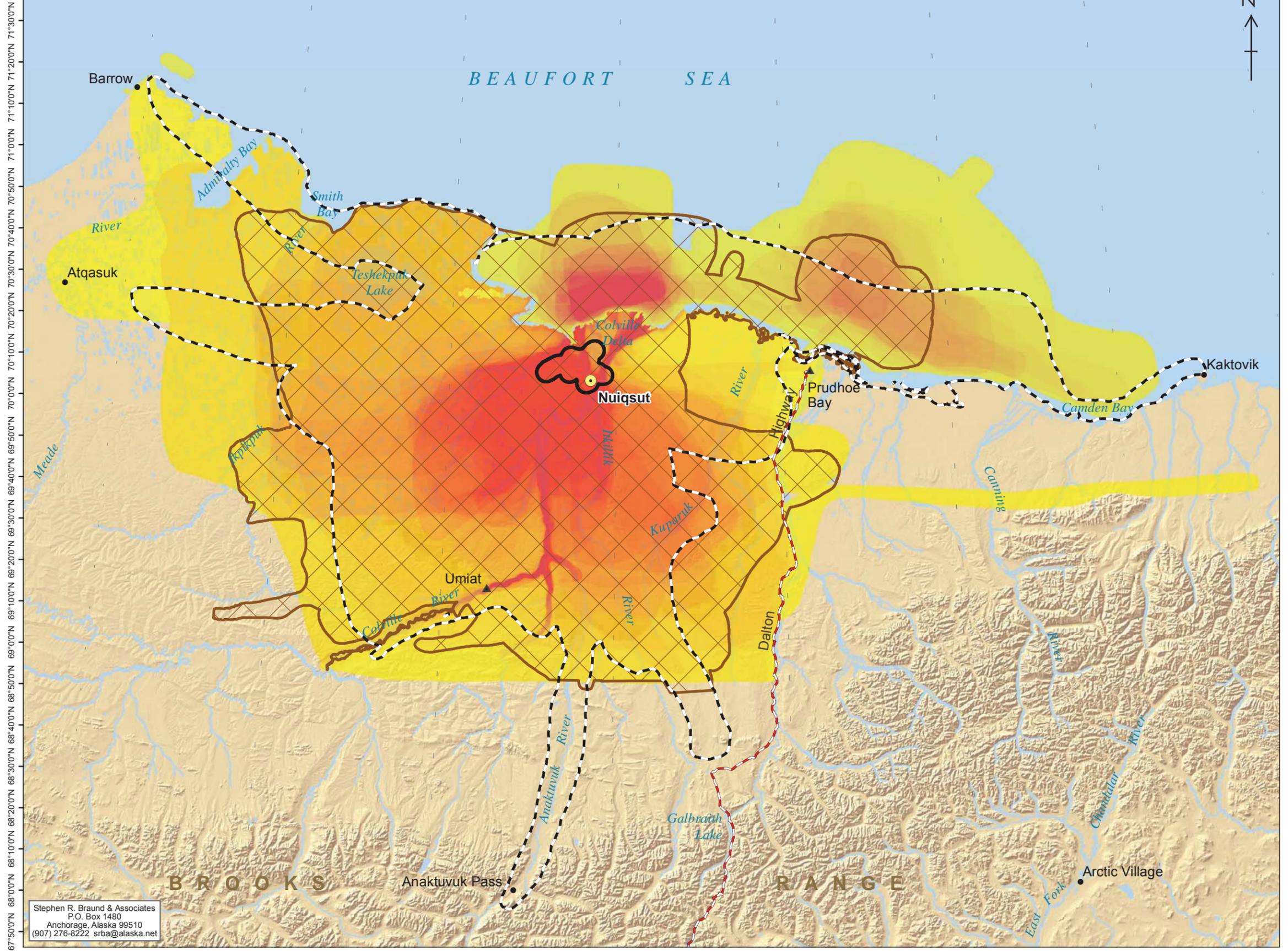


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Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

158°20'0"W 157°40'0"W 157°0'0"W 156°20'0"W 155°40'0"W 155°0'0"W 154°20'0"W 153°40'0"W 153°0'0"W 152°20'0"W 151°40'0"W 151°0'0"W 150°20'0"W 149°40'0"W 149°0'0"W 148°20'0"W 147°40'0"W 147°0'0"W 146°20'0"W 145°40'0"W 145°0'0"W 144°20'0"W 143°40'0"W 143°0'0"W 142°20'0"W



Map 3.4-1
Nuiqsut Contemporary Subsistence Use Areas, All Resources

- Legend
- All Resources, 1973-1986 (Source: Pedersen 1986)
 - All Resources, 1994-2003 (Source: SRBA 2003)
- Nuiqsut Combine Subsistence Use Areas
- Heavy Use
 - Moderate Use
- Project Study Area

Date: 12/6/2013

0 5 10 20 30 Miles

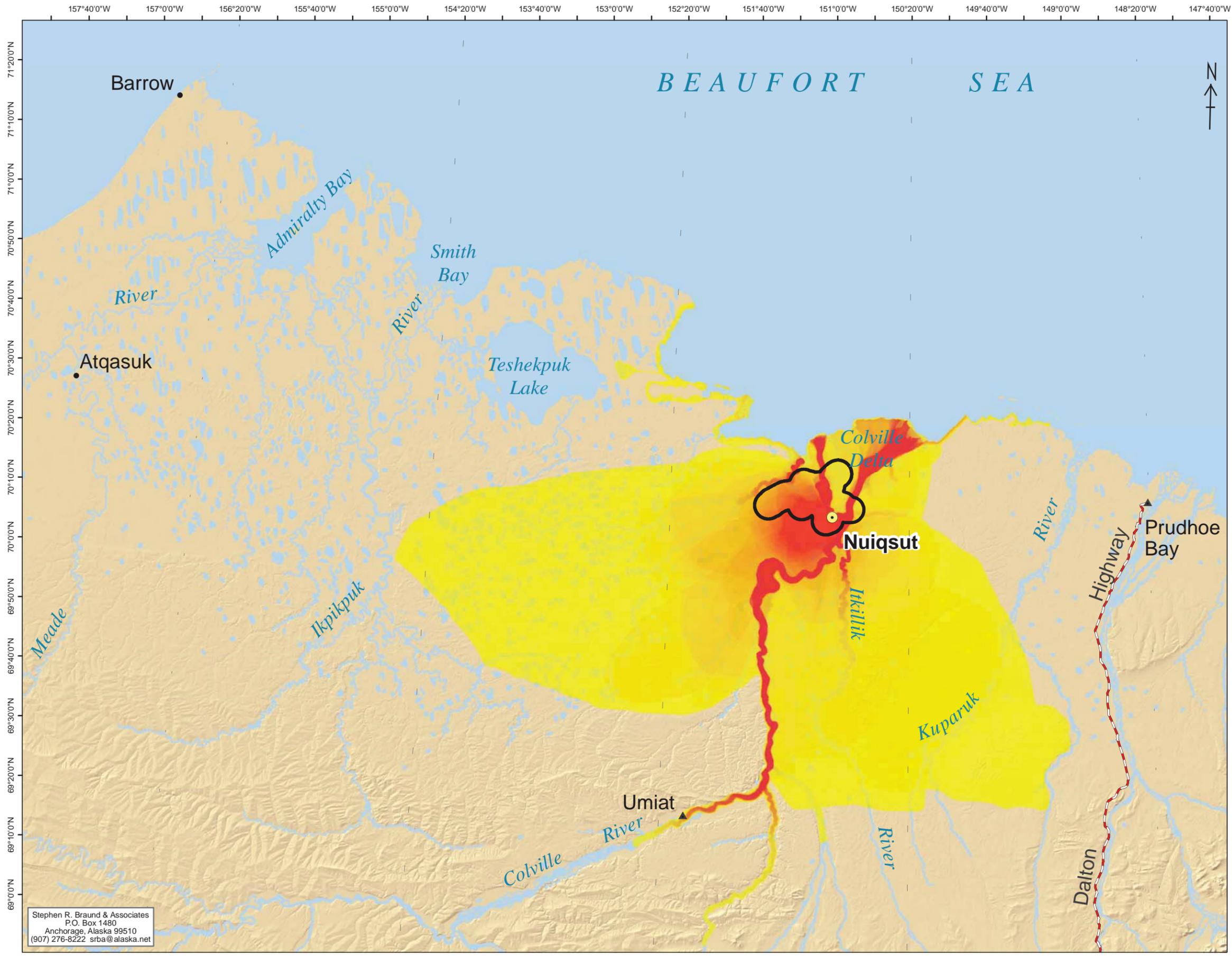
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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



Stephen R. Braund & Associates
P.O. Box 1480
Anchorage, Alaska 99510
(907) 276-8222 srba@alaska.net

67°50'0"N 68°0'0"N 68°10'0"N 68°20'0"N 68°30'0"N 68°40'0"N 68°50'0"N 69°0'0"N 69°10'0"N 69°20'0"N 69°30'0"N 69°40'0"N 69°50'0"N 70°0'0"N 70°10'0"N 70°20'0"N 70°30'0"N 70°40'0"N 70°50'0"N 71°0'0"N 71°10'0"N 71°20'0"N 71°30'0"N



Map 3.4-2
Nuiqsut Caribou Subsistence Use Areas, 2008-2011

Legend

Caribou Subsistence Use Areas

- Heavy Use
- Moderate Use

Project Study Area

Date: 12/6/2013

0 5 10 20 30 Miles

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158°20'0"W 157°40'0"W 157°0'0"W 156°20'0"W 155°40'0"W 155°0'0"W 154°20'0"W 153°40'0"W 153°0'0"W 152°20'0"W 151°40'0"W 151°0'0"W 150°20'0"W 149°40'0"W 149°0'0"W 148°20'0"W 147°40'0"W 147°0'0"W 146°20'0"W 145°40'0"W 145°0'0"W 144°20'0"W 143°40'0"W 143°0'0"W 142°20'0"W



Map 3.4-3
Nuiqsut Historic and Lifetime Subsistence Use Areas, All Resources

- Legend**
- All Resources, Lifetime (Source: Pedersen 1979)
 - All Resources, Early 1970s (Source: Brown 1979)

- Project Study Area
- Subsistence Study Community
- Other Community
- Other Place

Date: 12/6/2013

0 5 10 20 30 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

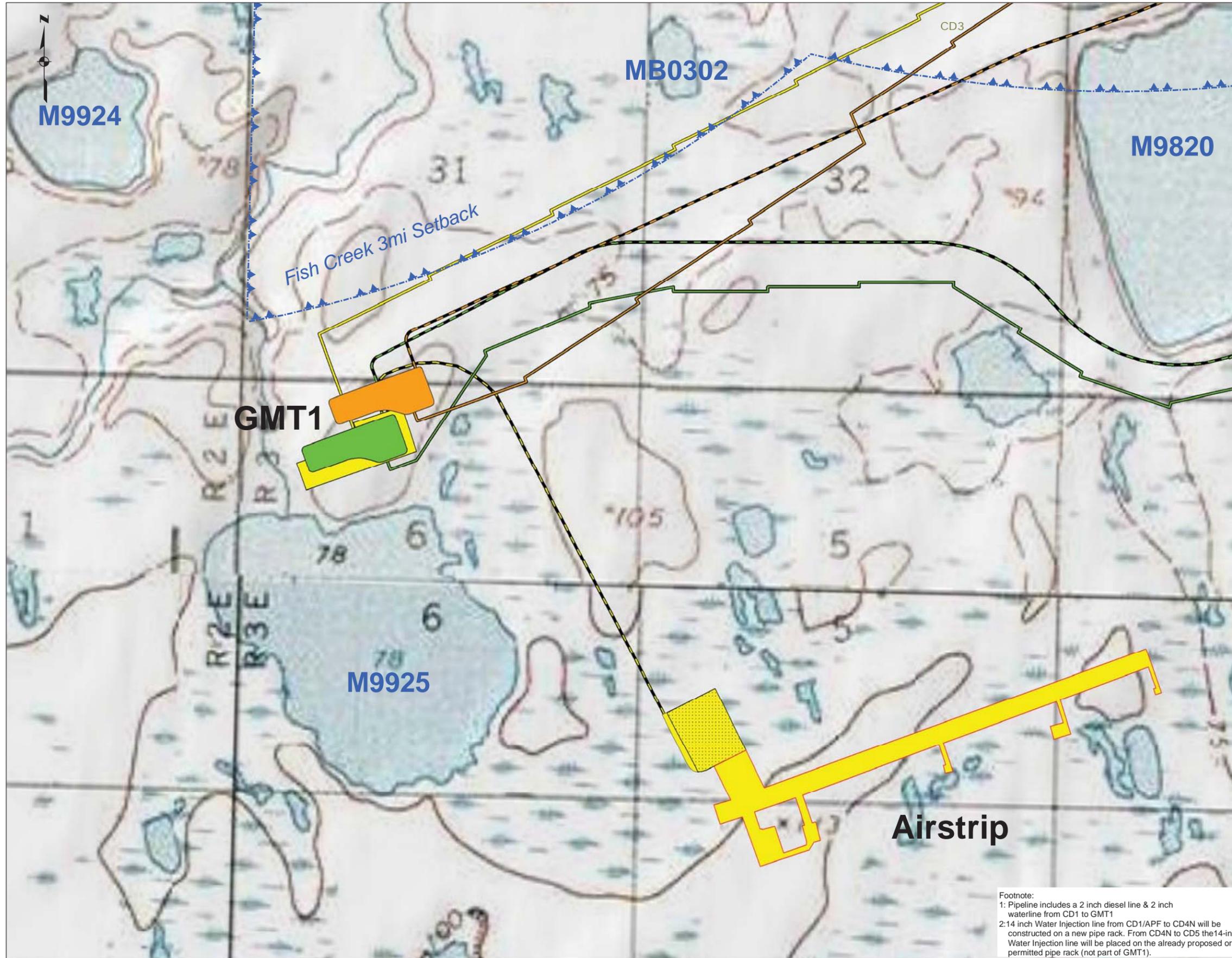


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Map 4.2-1

Water Resources Near the GMT1 Pad

Alternative A Infrastructure		Alternative B Infrastructure	
	Road		Road
	Pipeline		Pipeline
	Facility		Facility

Alternative C Infrastructure		Alternative D1/D2 Infrastructure	
	Road		Pipeline
	Pipeline		Road
	Facility		Facility
			AirStrip
			AirStrip Occupied Pad-D1
			AirStrip Occupied Pad-D2

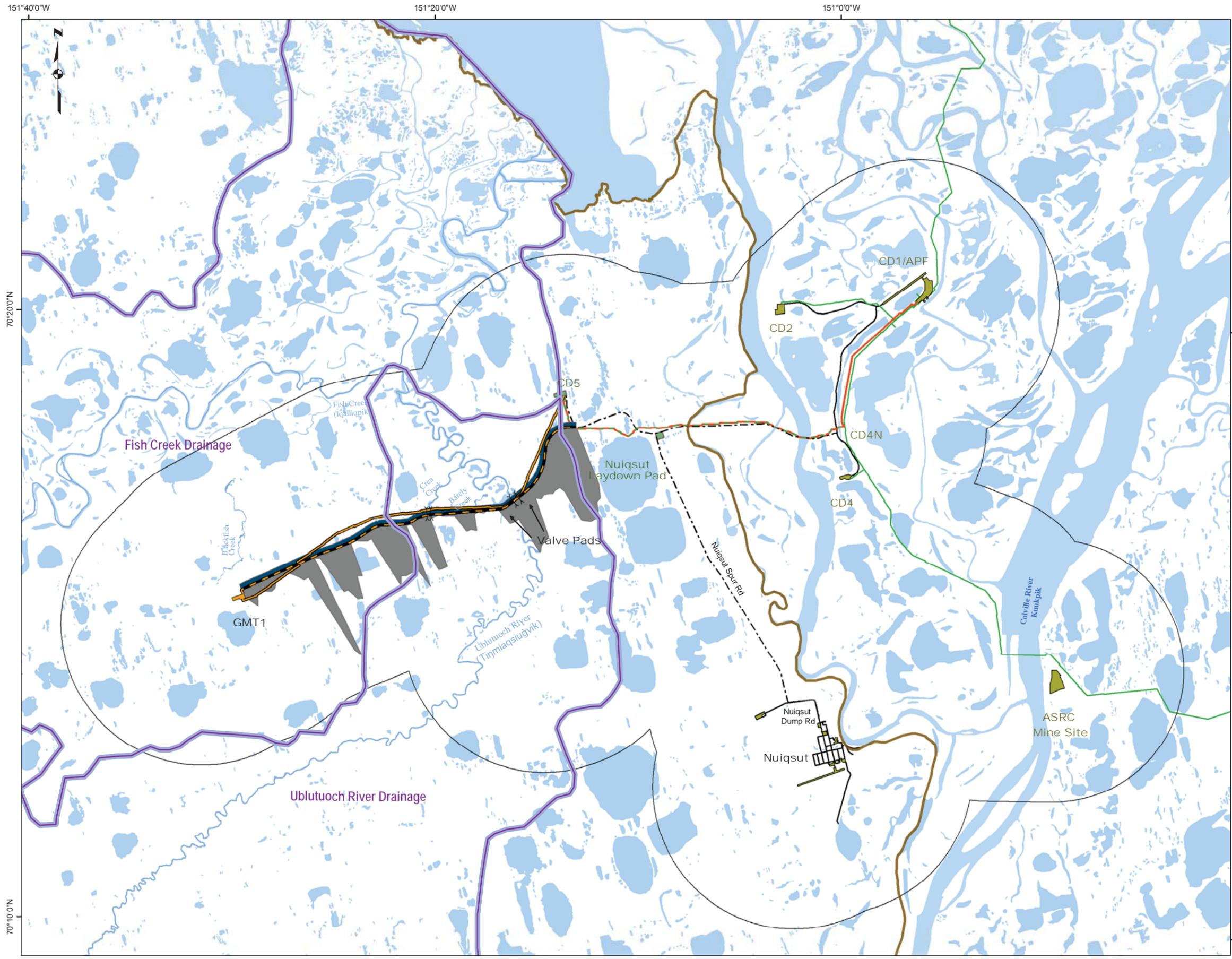
Setback Area
 Fish Creek 3mi

Date: 9/27/2014
 0 400 800 1,600 2,400 Feet

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



Map 4.2-2
Alternatives A and C
Potential Inundation Analysis

- | | |
|---|---|
| Alternative A Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Pipeline |
| Pipeline | Road |
| Facility | Facility |
| 14 inch Water ¹ Injection Line | Existing Pipeline |
| Bridge | Existing Road |
| | Existing Facility |

- Boundaries**
- NPR-A Project Study Area
 - Drainage Basins

- Potential Inundation Area**
- Decreased Inundation Area
 - Potential Inundation Area

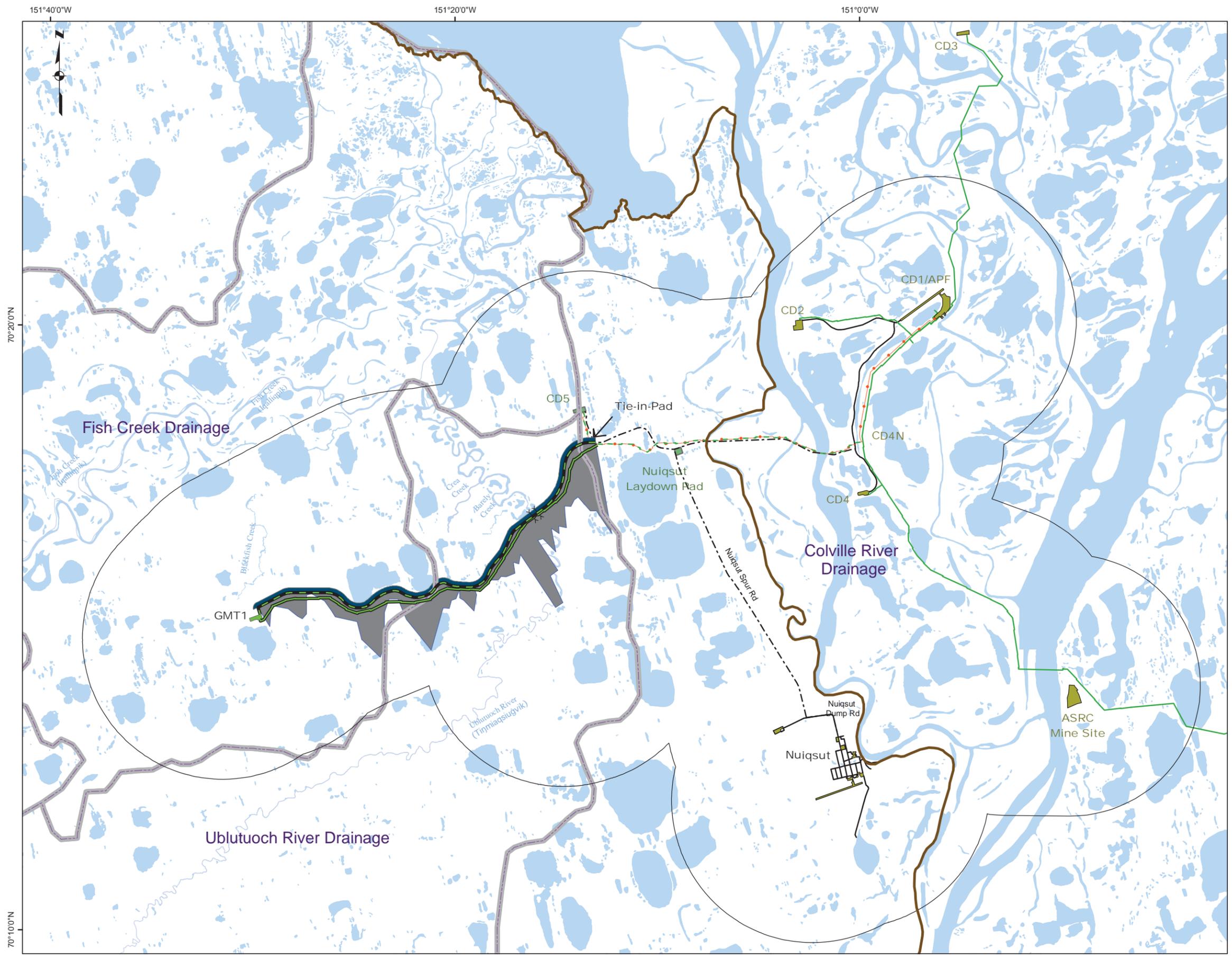
Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/29/2014

0 0.5 1 2 3 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



Map 4.2-3
Alternative B
Potential
Inundation Analysis

- | | |
|---|---|
| Alternative B Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Pipeline |
| Pipeline | Road |
| Facility | Facility |
| 14 inch Water ¹ Injection Line | Boundary |
| Bridge | Drainage Basin |
| Existing | Project Study Area |
| Pipeline | NPR-A |
| Road | |
| Facility | |

Potential Inundation Area

- Decreased Inundation Area
- Potential Inundation Area

NOTE: ROUGH ORDER OF MAGNITUDE ESTIMATE OF MAXIMUM INUNDATION

Footnote:
 1: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Draft Date: 9/28/2014



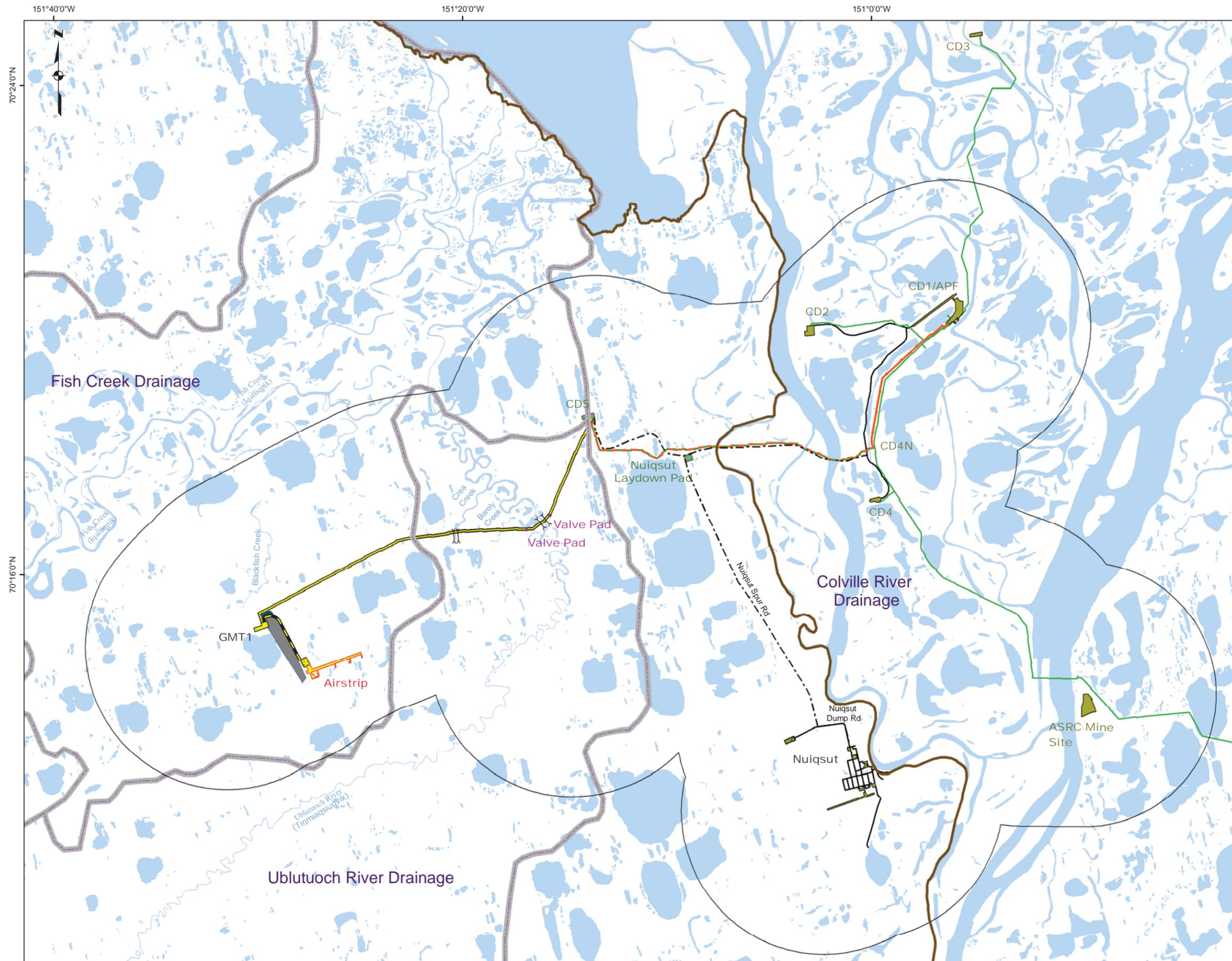
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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Map 4.2-4
**Alternatives D1 and D2
 Potential Inundation Analysis**

- | | |
|---|---|
| Alternative D1/D2 Infrastructure | Proposed or Permitted (not part of GMT1) |
| Road | Pipeline |
| Pipeline | Road |
| Facility | Facility |
| Facility | Existing |
| Facility | Pipeline |
| Facility | Road |
| Facility | Facility |
| 14 inch Water ^{1,2} Injection Line | Boundary |
| Bridge | Drainage Basin |
| | Project Study Area |
| | NPR-A |

- Potential Inundation Area**
- Decreased Inundation Area
 - Potential Inundation Area

NOTE: ROUGH ORDER OF MAGNITUDE ESTIMATE OF MAXIMUM INUNDATION

Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

Date: 9/29/2014



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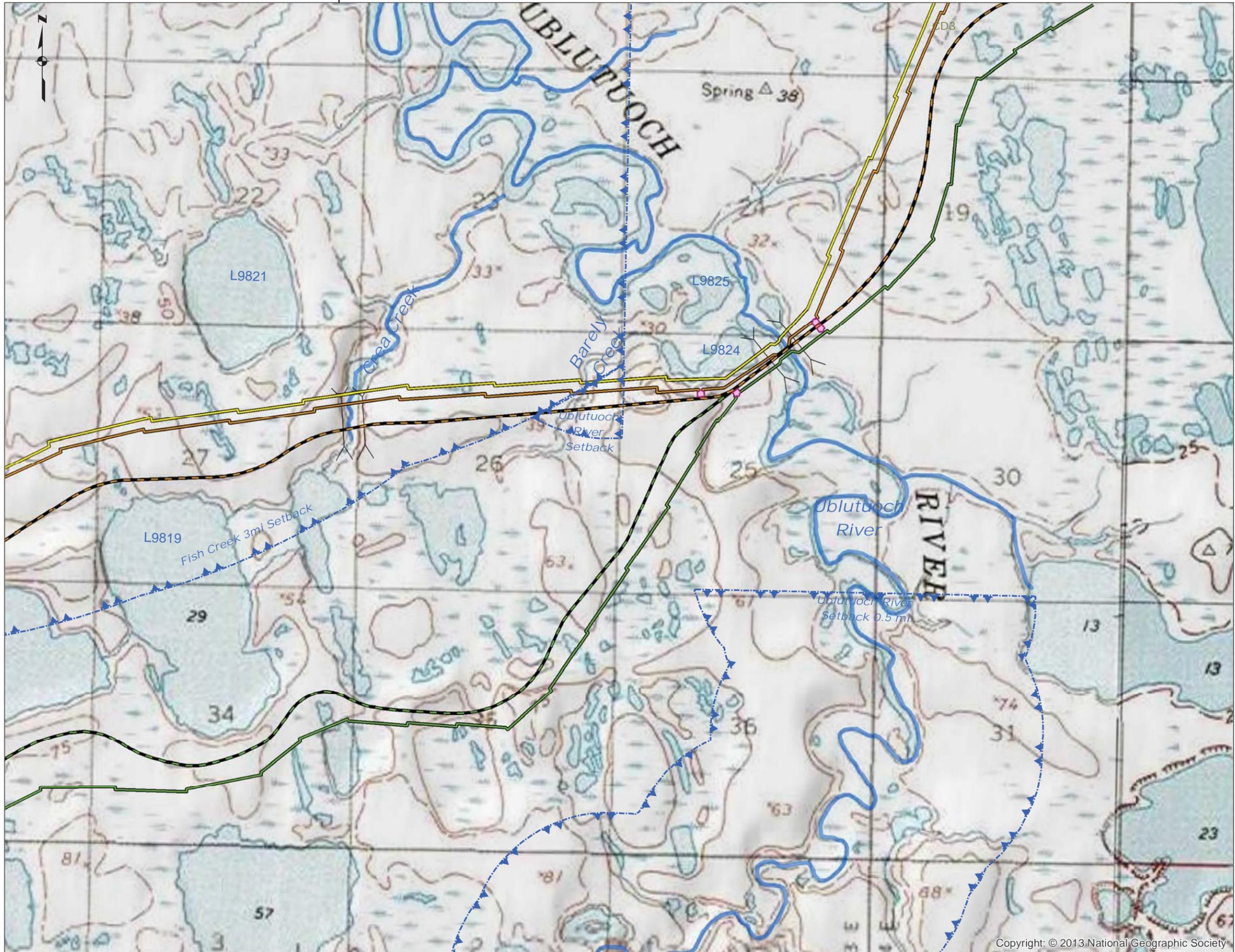
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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151°20'0"W



Map 4.2-5
Road and Pipeline Crossings:
Tinġmiaqsġvik (Ublutuoch) River,
Crea Creek and Barely Creek

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Pipeline Valvepad	Facility
Bridge	Bridge
	Pipeline Valvepad
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Pipeline
Pipeline	Pipeline Valvepad
Pipeline Valvepad	Bridge
Bridge	

Setback Area
 Fish Creek 3mi
 Ublutuoch River 0.5mi

Date: 10/21/2014



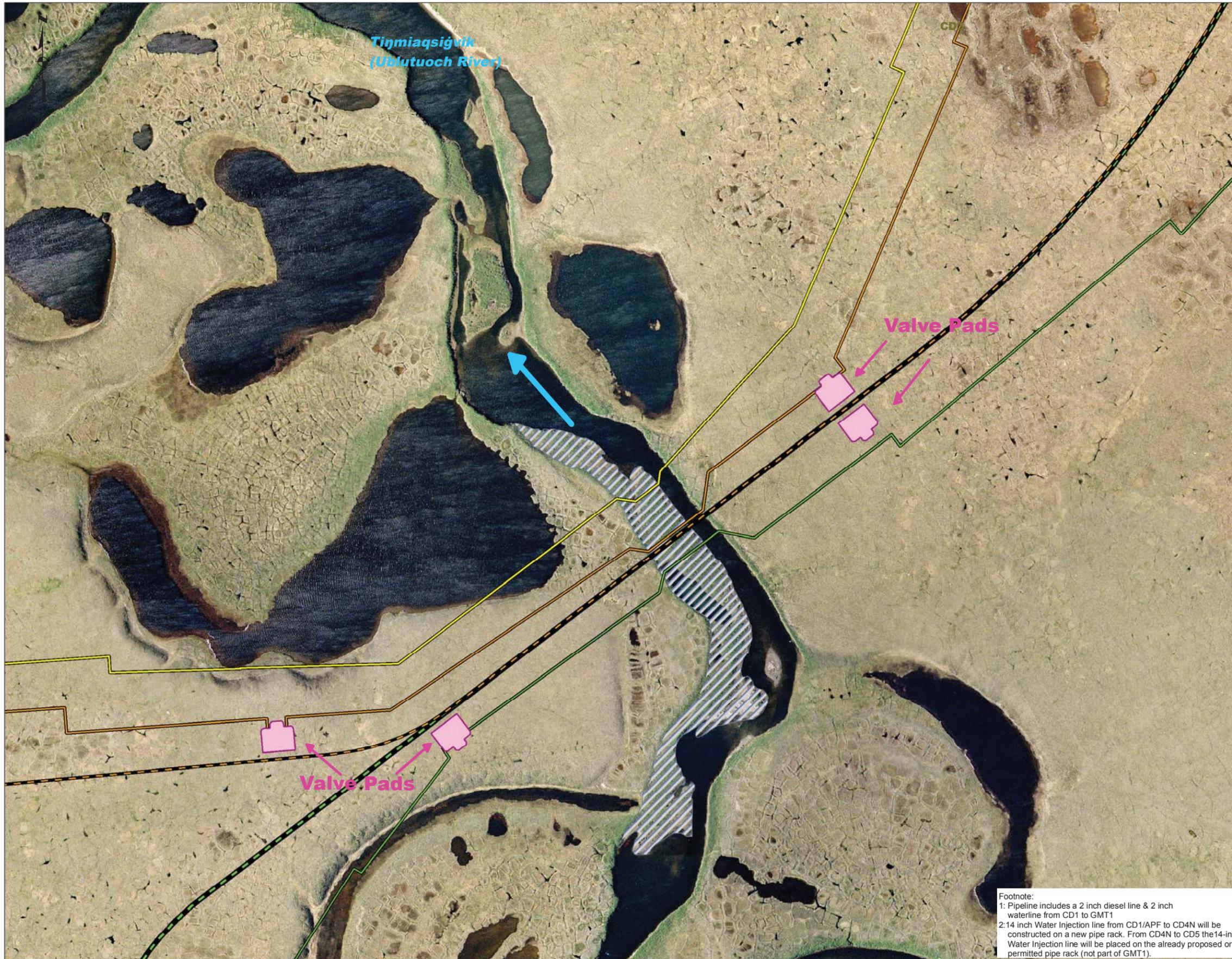
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Map 4.2-6
 Road and Pipeline Crossings:
 Tinmiaqsigvik (Ublutuoch)
 River Crossing

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Pipeline Valvepad	Pipeline Valvepad

Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Pipeline
Pipeline	Pipeline Valvepad
Pipeline Valvepad	

- Hydrology
- Water Flow Direction of Gradient
 - Lower Flood Plain Area

Date: 9/29/2014

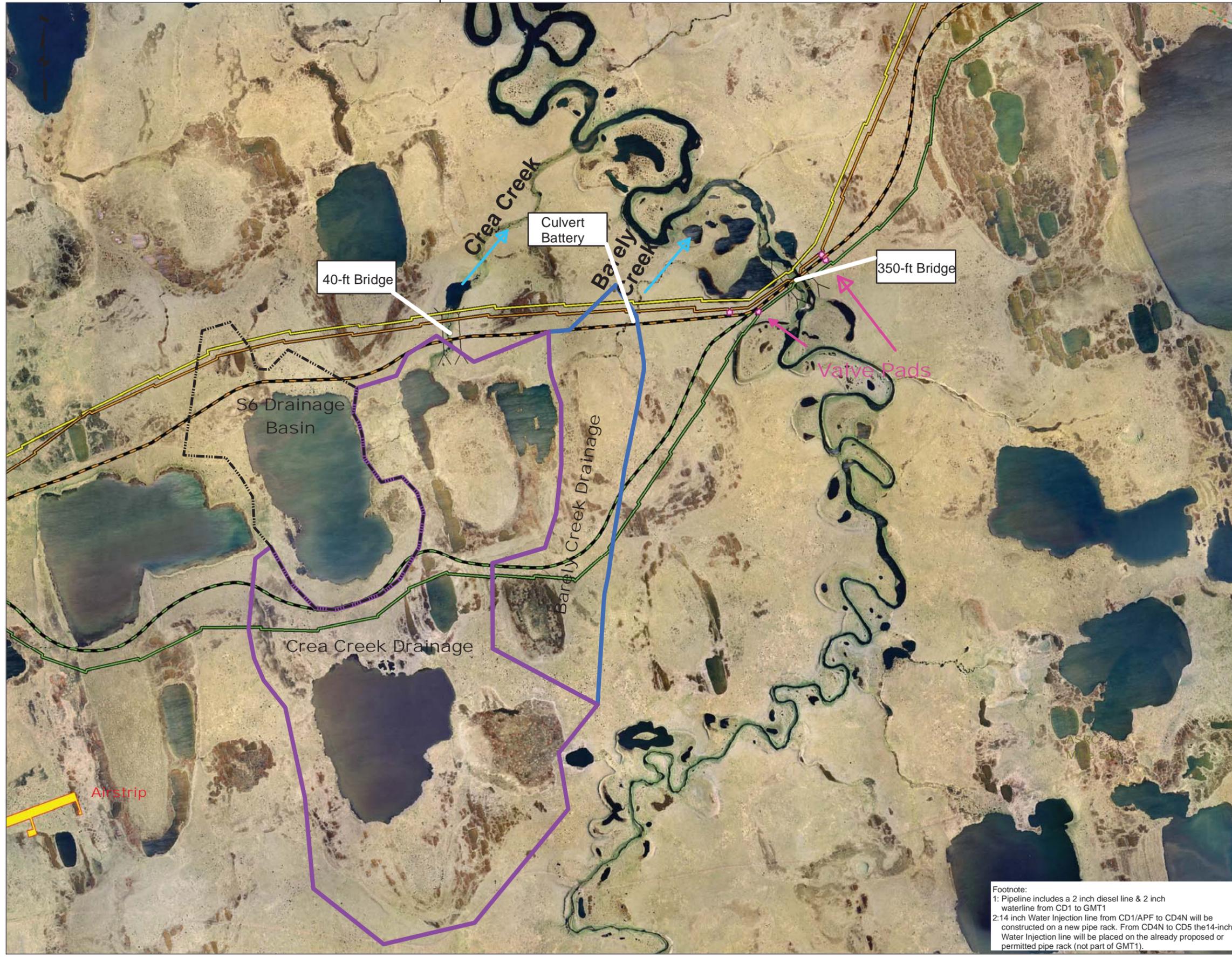
0 140 280 560 840 Feet

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

151°20'0"W



Map 4.2-7
Crea Creek and Barely
Creek Drainage Basins

- | | |
|-------------------------------------|-------------------------------------|
| Alternative A Infrastructure | Alternative B Infrastructure |
| Road | Road |
| Pipeline | Pipeline |
| Bridge | Bridge |

- | | |
|-------------------------------------|---|
| Alternative C Infrastructure | Alternative D1/D2 Infrastructure |
| Road | Pipeline |
| Pipeline | AirStrip |
| Bridge | Bridge |

- Creek_Drainage**
- Barely Creek Drainage
 - Crea Creek Drainage
 - S6 Drainage Basin

Direction of water flow

Date: 9/27/2014
 0 0.125 0.25 0.5 0.75 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Footnote:
 1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
 2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).

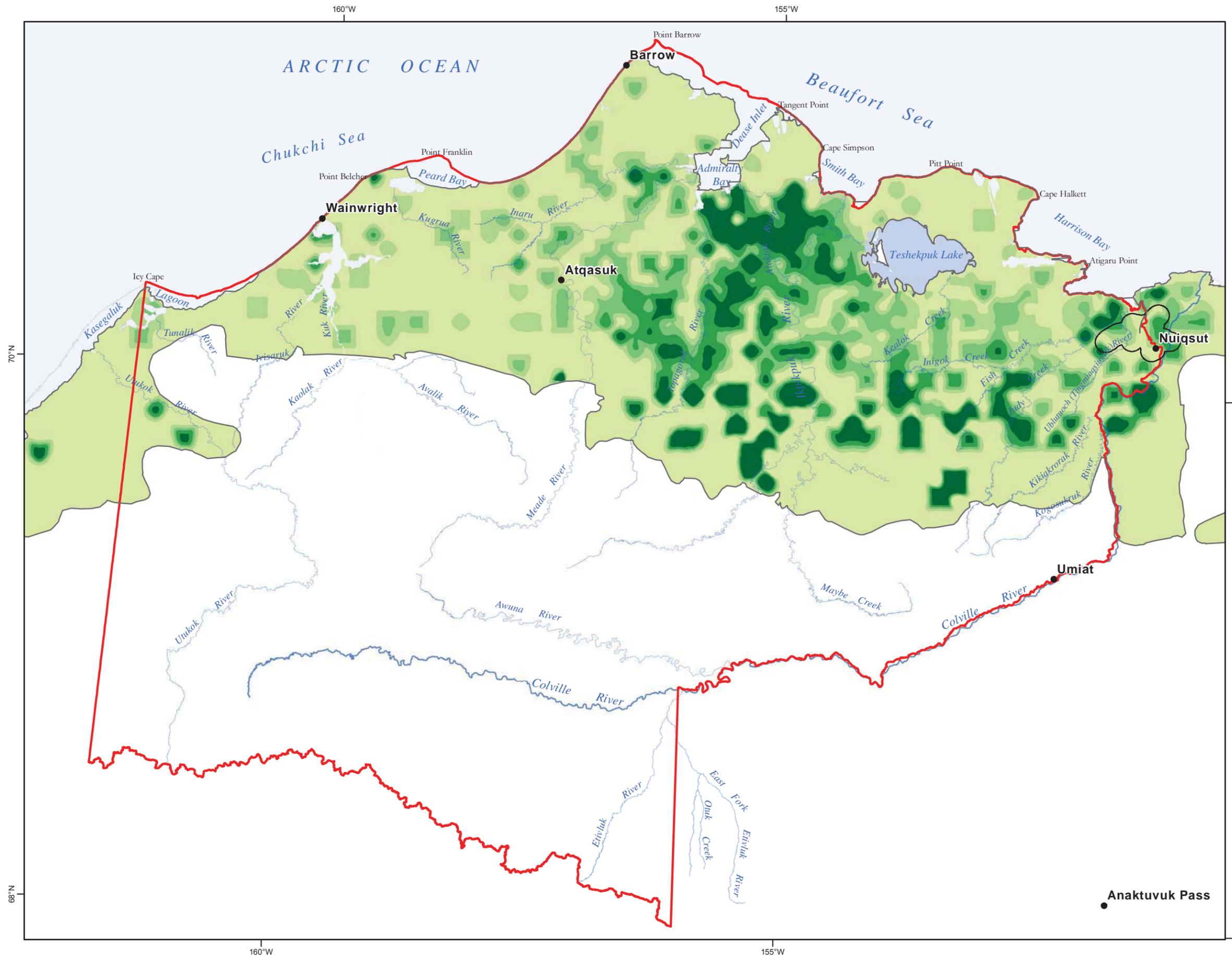


Figure 4.3-1
 Yellow Billed Loon Estimated Relative Onshore Density Within The Arctic Coastal Plain, 1993-2010

Source: USFWS - 2010b

YELLOW-BILLED LOON
Estimated Relative Onshore Density (1993-2010)

- Birds per Square Kilometer
- 0.19 - 0.38
 - 0.11 - 0.18
 - 0.06 - 0.10
 - 0.02 - 0.05
 - 0.00 - 0.01

- Survey Area Boundary
- GMT1 Project Study Area
- NPR-A Boundary



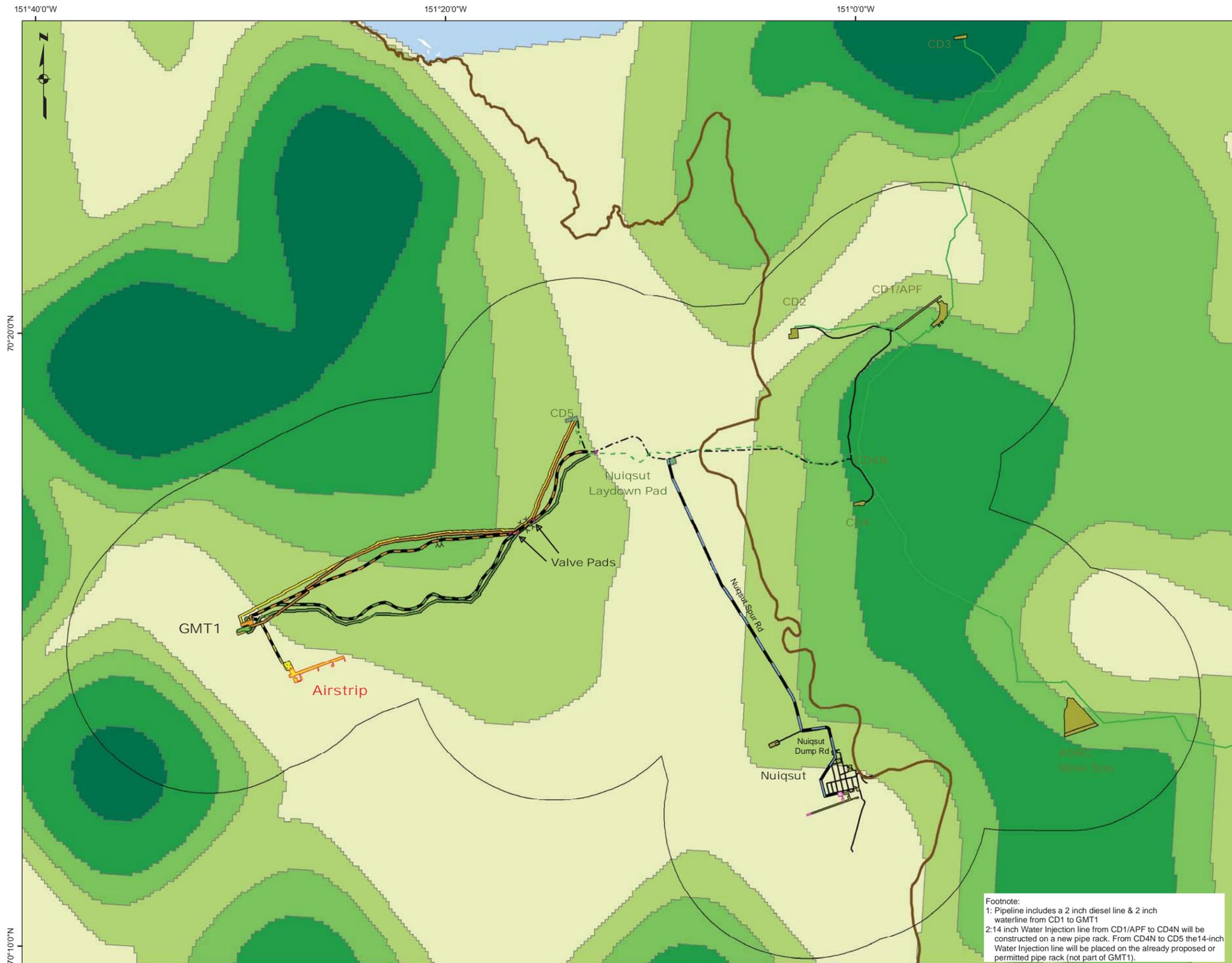
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Projection: Albers Conic Equal Area referencing NAD83



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Map 4.3-2
Yellow-billed Loon
Estimated Relative Onshore
Density within the
Project Study Area, 1993-2010

Alternative A Infrastructure	Alternative B Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
14 inch Water ² Injection Line	14 inch Water ² Injection Line
Bridge	Bridge
Alternative C Infrastructure	Alternative D1/D2 Infrastructure
Road	Road
Pipeline	Pipeline
Facility	Facility
Nuiqsut Road	AirStrip
Nuiqsut Airport Upgrade Facilities	AirStrip Occupied Pad common to D1 and D2
14 inch Water ² Injection Line	AirStrip additional Occupied Pad-for D1
Bridge	14 inch Water ^{1,2} Injection Line
Boundary	Bridge
Project Study Area	

Yellow Billed Loons
Estimated Relative
Onshore Density
(1993-2010)

	0.00-0.01
	0.02-0.05
	0.06-0.10
	0.11-0.18
	0.19-0.38

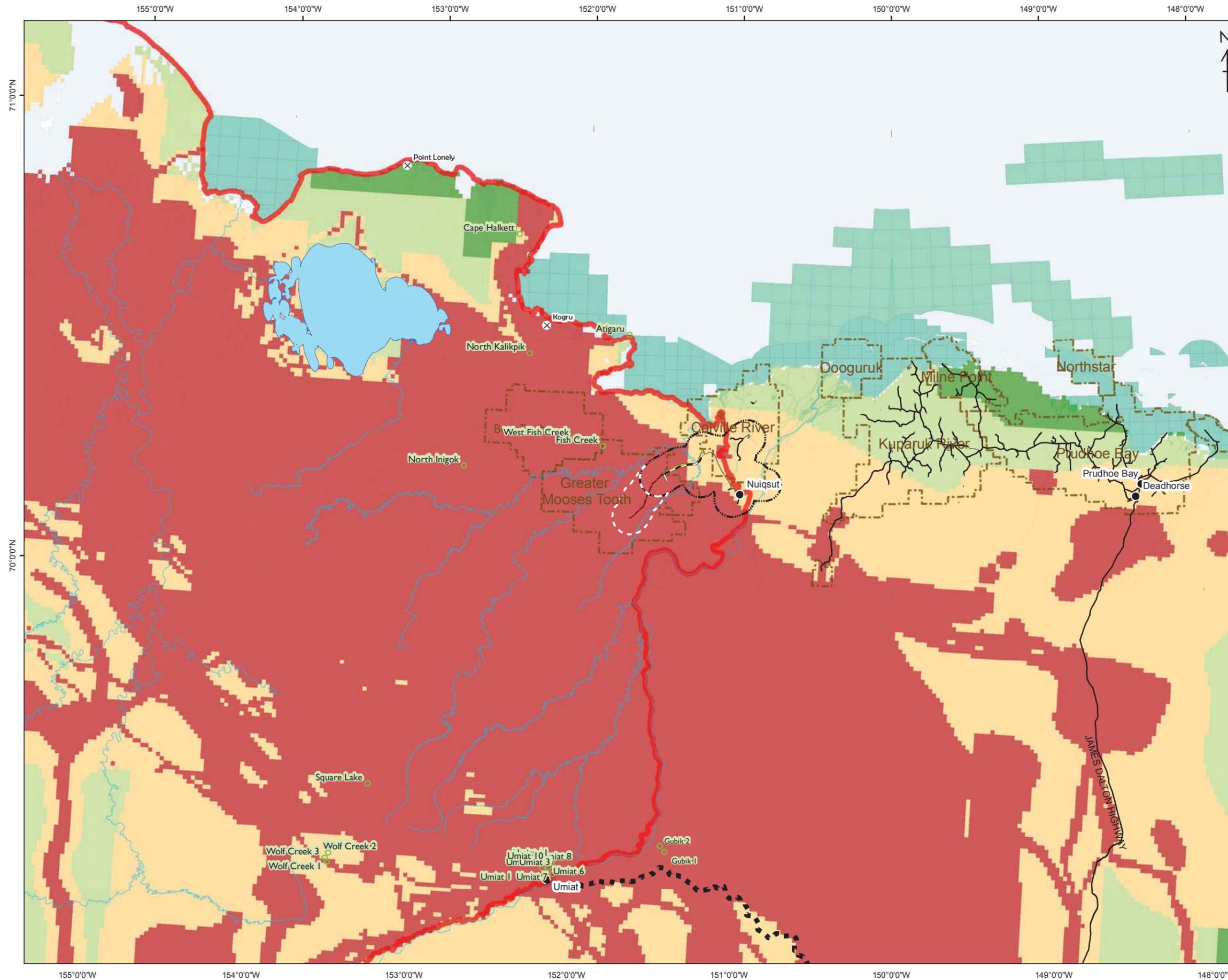
Date: 9/29/2014 Source: USFWS 2010b

0 0.5 1 2 3 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

Footnote:
1: Pipeline includes a 2 inch diesel line & 2 inch waterline from CD1 to GMT1
2: 14 inch Water Injection line from CD1/APF to CD4N will be constructed on a new pipe rack. From CD4N to CD5 the 14-inch Water Injection line will be placed on the already proposed or permitted pipe rack (not part of GMT1).



Map 4.3-3
Teshekpuk Caribou Herd Females: Fall Migration Movements Relative to Potential New Infrastructure

Teshekpuk Caribou Herd Males Fall Migration Movements
 Brownian Bridge Analysis

- Low use
- Moderately-low use
- Moderately-high use
- High use

Data analysis by Lincoln Parrett of ADF&G
 Data gathered cooperatively by ADF&G, NSB, and BLM

Existing Oil & Gas Infrastructure

- Above Ground
- Existing Facility
- Oil & Gas Unit

Proposed Infrastructure

- GMT-1 Alt. A
 - Pipeline
 - Access Road
 - Nuiqsut Spur Road
- GMT-2
 - Road
 - Pipeline

GMT1 SEIS Project Areas

- Project Study Area
- GMT2 2.5-Mile Buffer

- Proposed Foothills West Route (Road to Umiat)
- Offshore Leases- BOEM
- Offshore Leases- State of Alaska
- Formerly Used Military Sites
- Legacy Wells NPR-A
- NPR-A

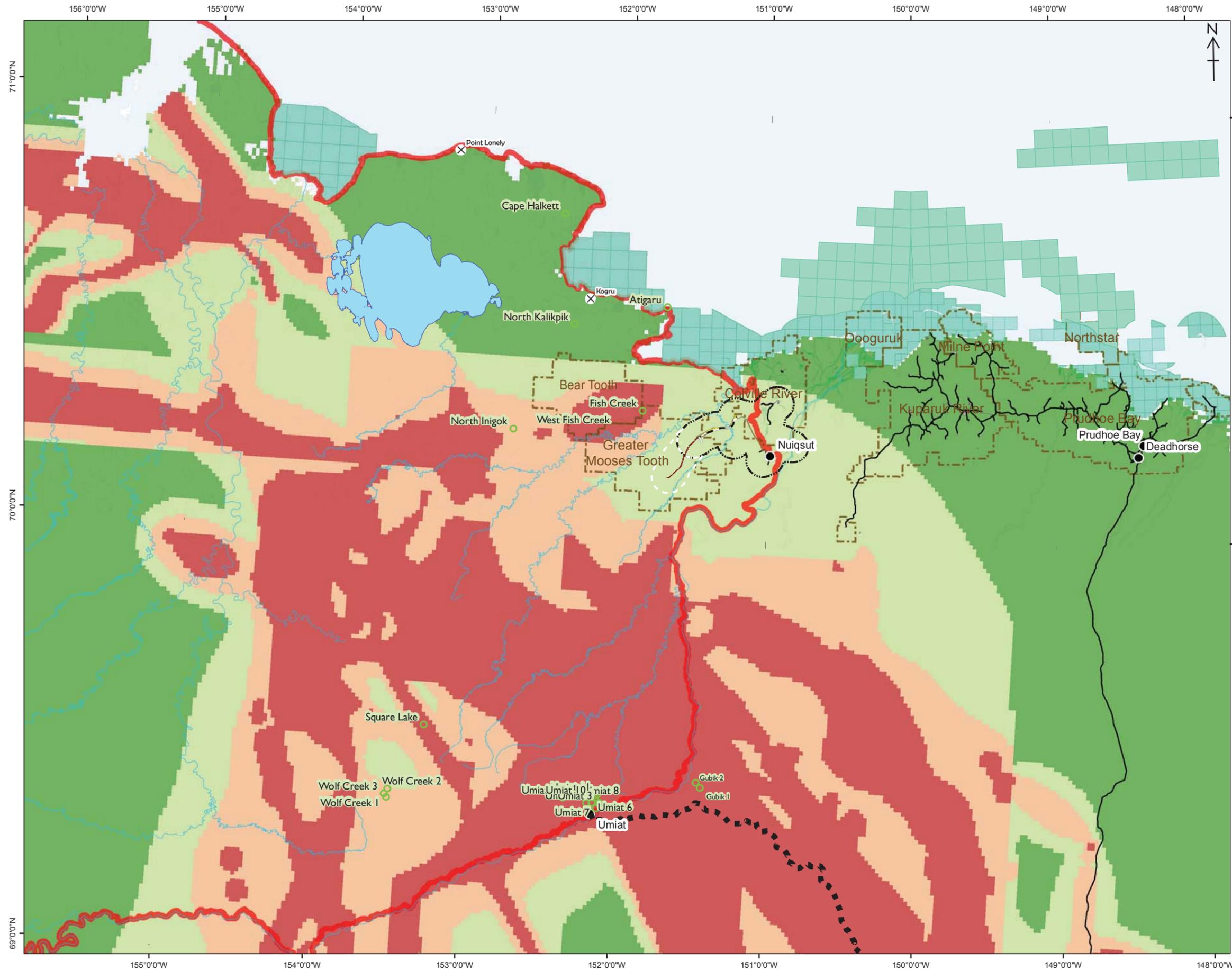
0 4 8 16 24 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet

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Map 4.3-4
Teshekpuk Caribou Herd Males: Fall Migration Movements Relative to Potential New Infrastructure

Teshekpuk Caribou Herd Males Fall Migration Movements
 Brownian Bridge Analysis

- Low use
- Moderately-low use
- Moderately-high use
- High use

Data analysis by Lincoln Parrett of ADF&G
 Data gathered cooperatively by ADF&G, NSB, and BLM

Existing Oil & Gas Infrastructure

- Above Ground
- Existing Facility
- Oil & Gas Unit

Proposed Infrastructure

<p>GMT-1 Alt. A</p> <ul style="list-style-type: none"> Pipeline Access Road Nuiqsut Spur Road 	<p>GMT-2</p> <ul style="list-style-type: none"> Road Pipeline
---	---

GMT1 SEIS Project Areas

- Project Study Area
- GMT2 2.5-Mile Buffer

- Proposed Foothills West Route (Road to Umiat)
- Offshore Leases- BOEM
- Offshore Leases- State of Alaska
- Formerly Used Military Sites
- Legacy Wells NPR-A
- NPR-A



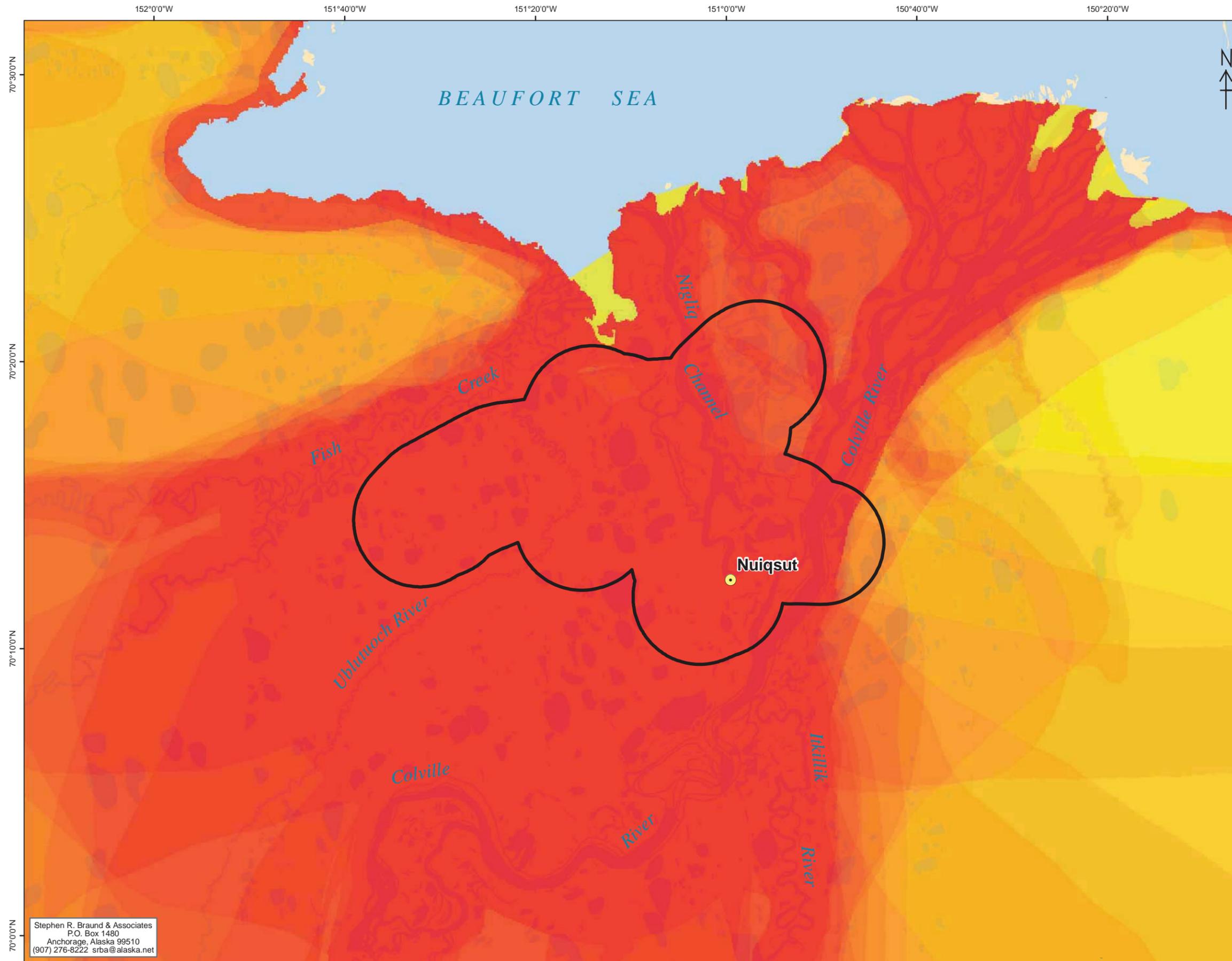
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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Map 4.4-1
 Caribou Subsistence Use Areas In
 The Project Study Area, 1995-2006

Legend
 High Overlapping Subsistence Use
 Areas, Caribou, 1995-2006
 Low (Source: SRBA 2010a)

In Nuiqsut, 94 caribou use areas
 were reported by 32 respondents.
 Use areas extend beyond the
 extent of this map.

Project Study Area
 Subsistence Study Community

0 1 2 4 6 Miles

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 as to the accuracy, reliability, or completeness of these
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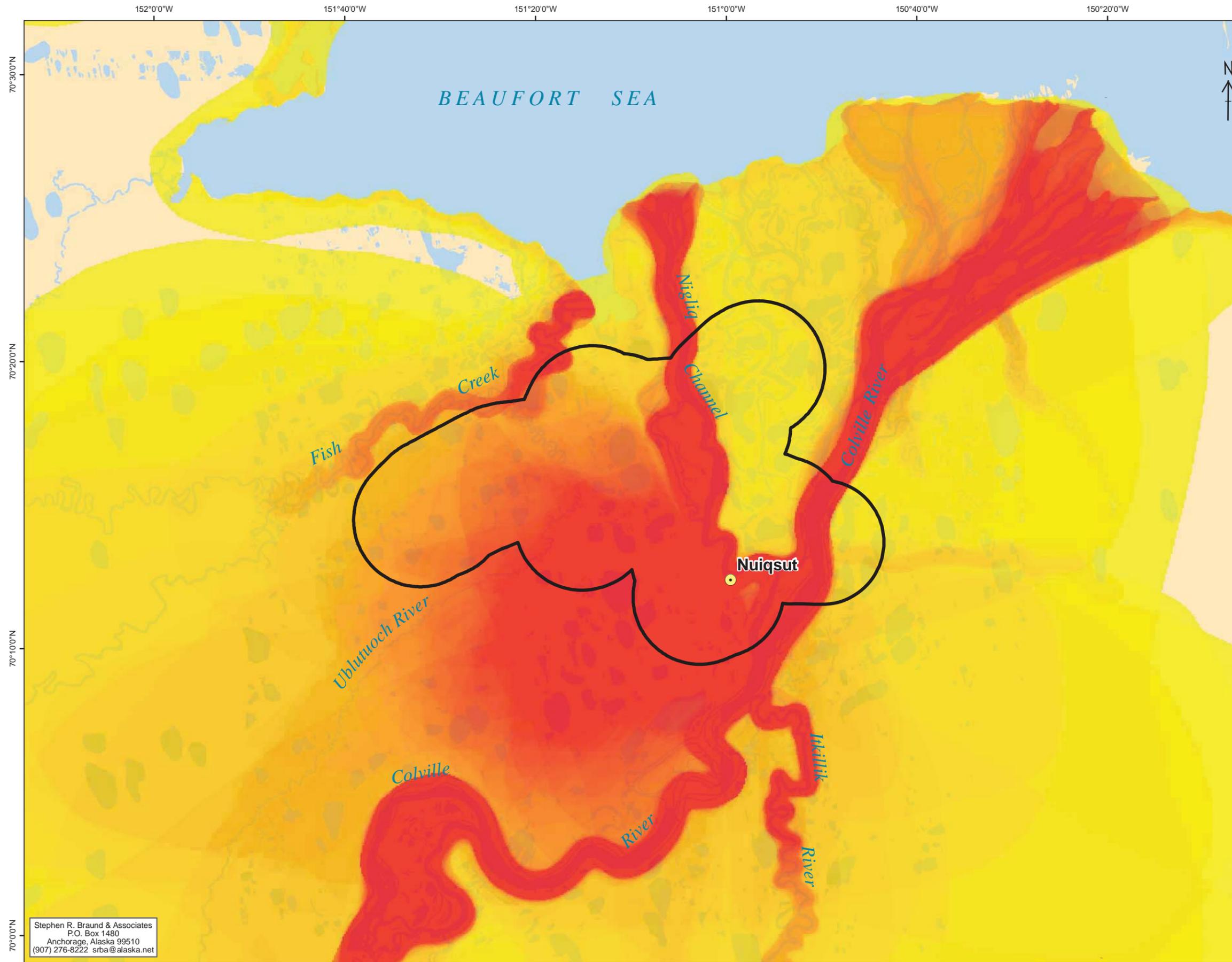
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Map 4.4-2
 Caribou Subsistence Use Areas In
 The Project Study Area, 2008-2011

Legend
 High Overlapping Subsistence Use
 Low Areas, Caribou, 2008-2011

Source: SRBA 2010b, 2011a,
 2012, 2013b

SRB&A interviewed 96 active
 harvesters from March 2009 through
 November of 2011. The harvesters
 reported 731 use areas. Use areas
 extend beyond the extent of this map.

Project Study Area
 Subsistence Study Community

Date: 12/9/2013

0 1 2 4 6 Miles

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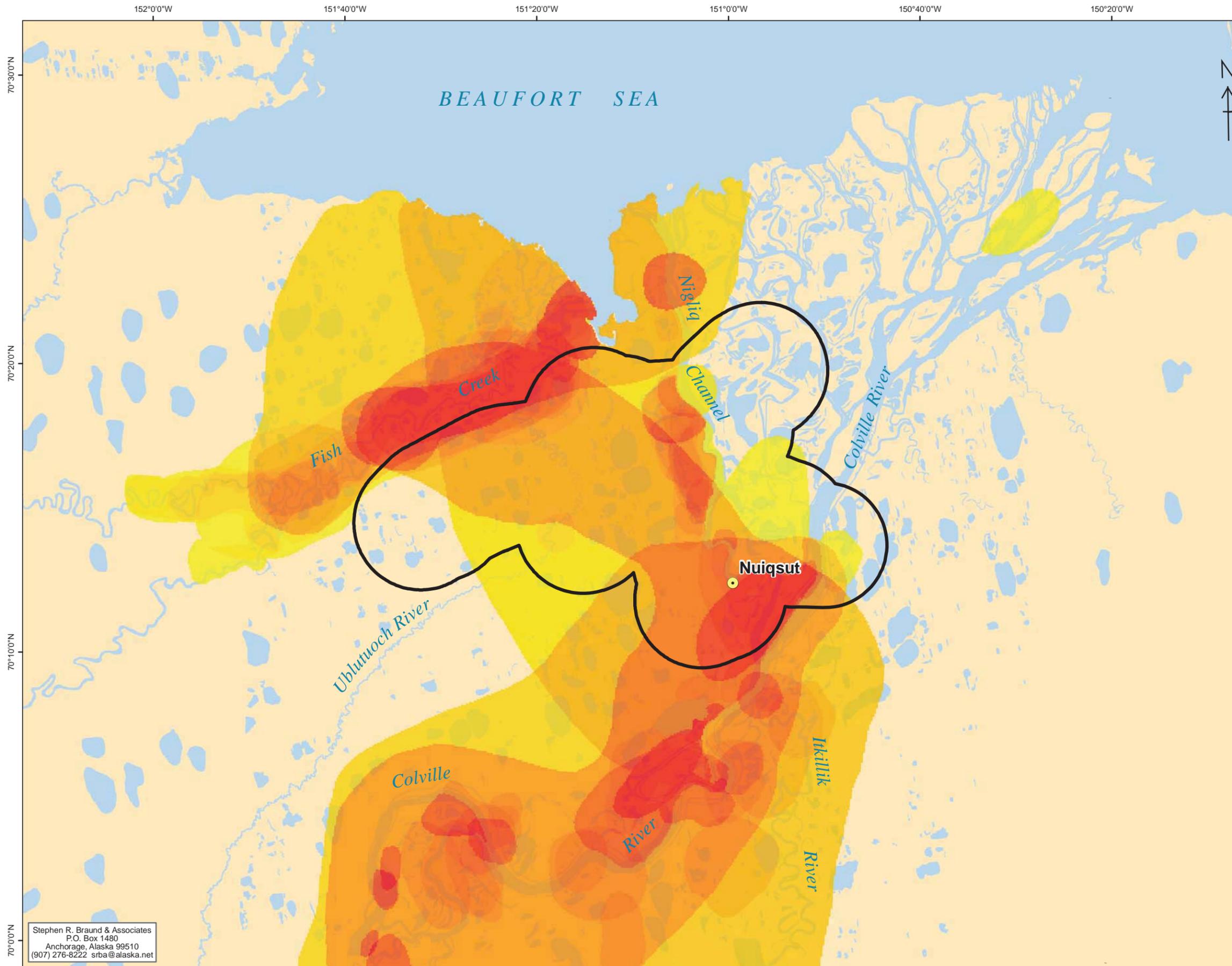
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Map 4.4-3
 Geese Subsistence Use Areas in the Project Study Area, 1995-2006

Legend
 High Overlapping Subsistence Use Areas, Geese, 1995-2006
 Low (Source: SRBA 2010a)

In Nuiqsut, 179 geese use areas were reported by 33 respondents. Use areas extend beyond the extent of this map.

Project Study Area
 Subsistence Study Community

Draft Date: 12/9/2013



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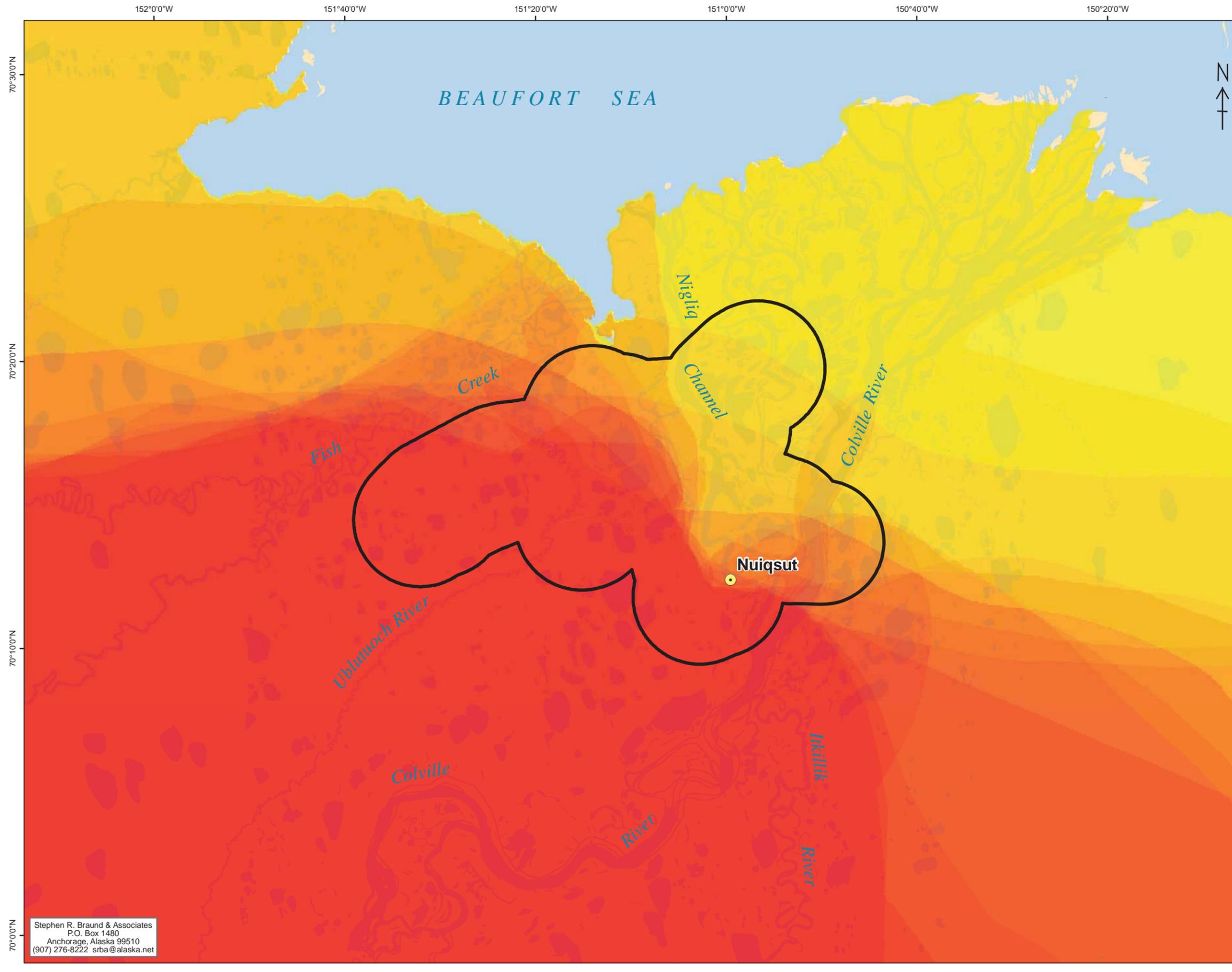
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Map 4.4-4
 Wolf and Wolverine Subsistence
 Use Areas in the Project Study
 Area, 1995-2006

Legend
 High Overlapping Subsistence Use
 Areas, Wolf and Wolverine,
 1995-2006
 Low (Source: SRBA 2010a)

In Nuiqsut, 69 wolf and wolverine
 use areas were reported by
 24 respondents. Use areas extend
 beyond the extent of this map.

- Project Study Area
- Subsistence Study Community

Draft Date: 12/9/2013



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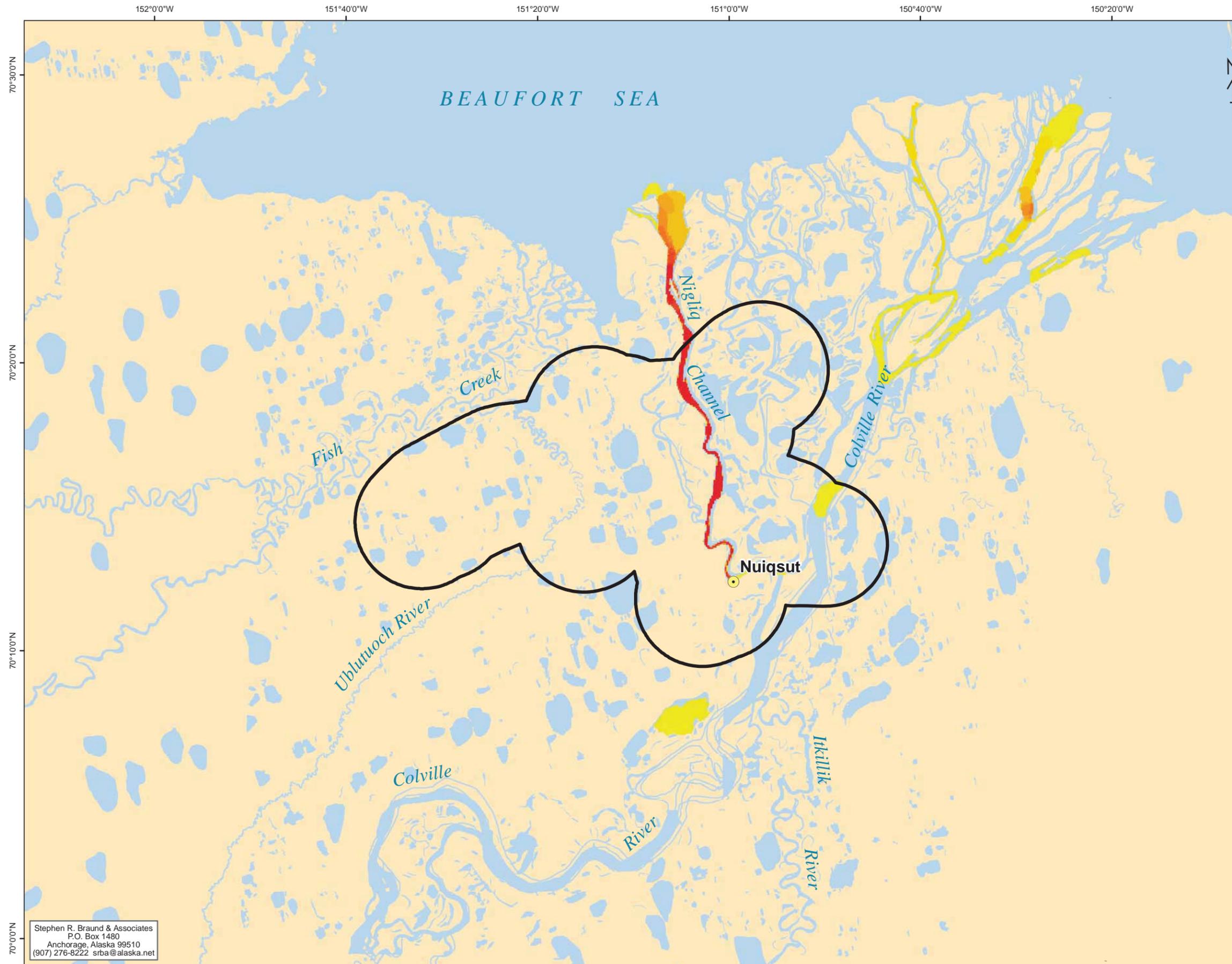
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Map 4.4-5
 Arctic Cisco Subsistence
 Use Areas in the Project
 Study Area, 1995-2006

Legend
 High Overlapping Subsistence Use
 Areas, Arctic Cisco, 1995-2006
 Low (Source: SRBA 2010a)

In Nuiqsut, 66 Arctic Cisco use areas
 were reported by 33 respondents.
 Use areas extend beyond the
 extent of this map.

Project Study Area
 Subsistence Study Community

Draft Date: 12/9/2013



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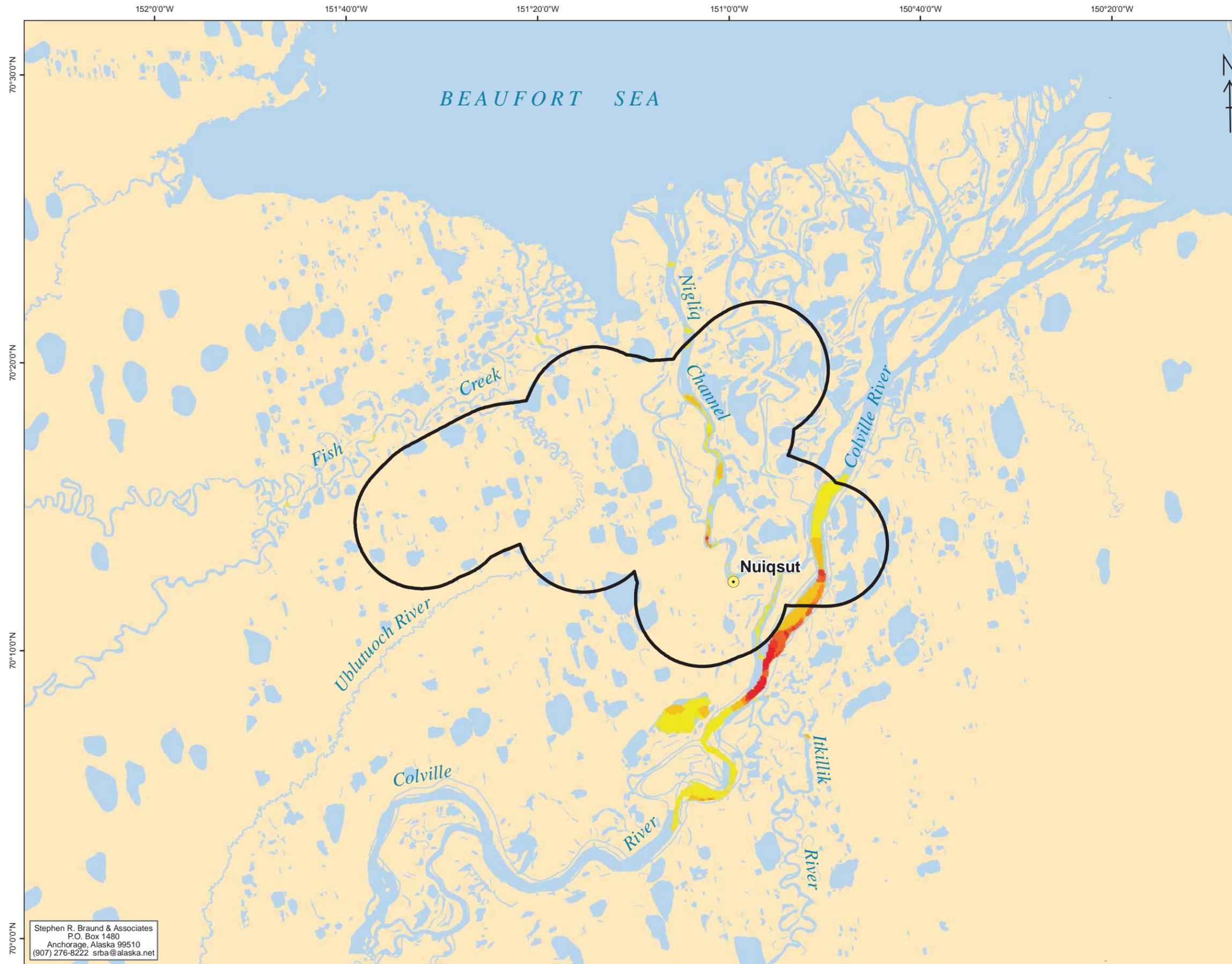
NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet



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Map 4.4-6
 Burbot Subsistence Use Areas in
 the Project Study Area, 1995-2006

Legend
 High Overlapping Subsistence Use
 Areas, Burbot, 1995-2006
 Low (Source: SRBA 2010a)

In Nuiqsut, 62 burbot use areas
 were reported by 30 respondents.
 Use areas extend beyond the
 extent of this map.

Project Study Area
 Subsistence Study Community

Draft Date: 12/9/2013



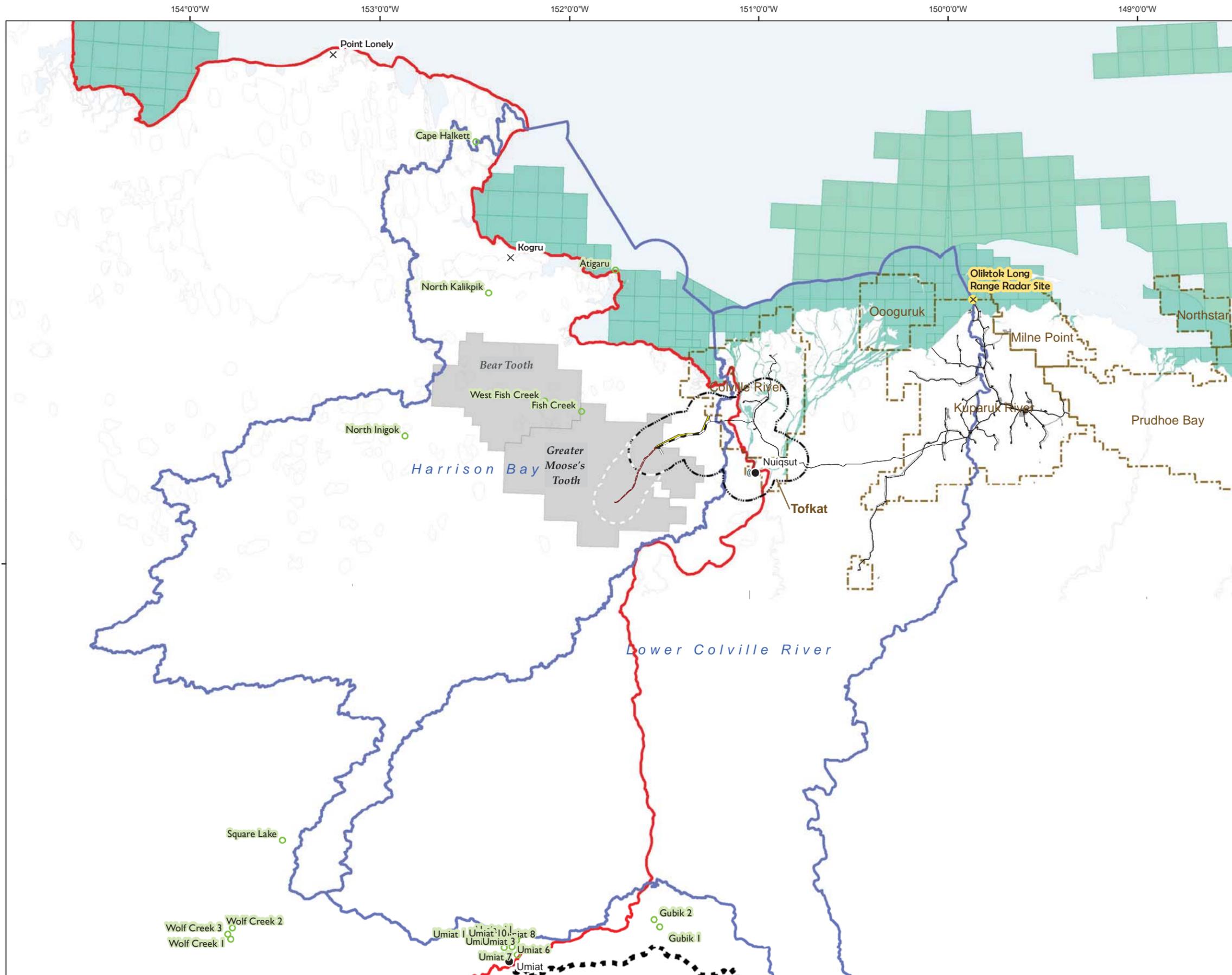
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Map 4.6-1

Oil & Gas Infrastructure

Existing Oil & Gas Infrastructure

- Above Ground
- Existing Facility

Oil & Gas Producing Units

- Production Status
- Not Producing
 - ▤ Producing

Proposed Infrastructure

- | | |
|---------------------|--------------|
| GMT-1 Alt. A | GMT-2 |
| Pipeline | Road |
| Access Road | Pipeline |
| Nuiqsut Spur Road | |

GMT1 SEIS Project Areas

- ▭ Project Study Area
- ▭ GMT2 2.5-Mile Buffer

■ Proposed Foothills West Route (Road to Umiat)

- Offshore Leases- BOEM
- Offshore Leases- State of Alaska

- Active Military Site
- Formerly Used Military Sites
- Legacy Wells NPR-A
- Hydrologic Units (HUC8)
- NPR-A



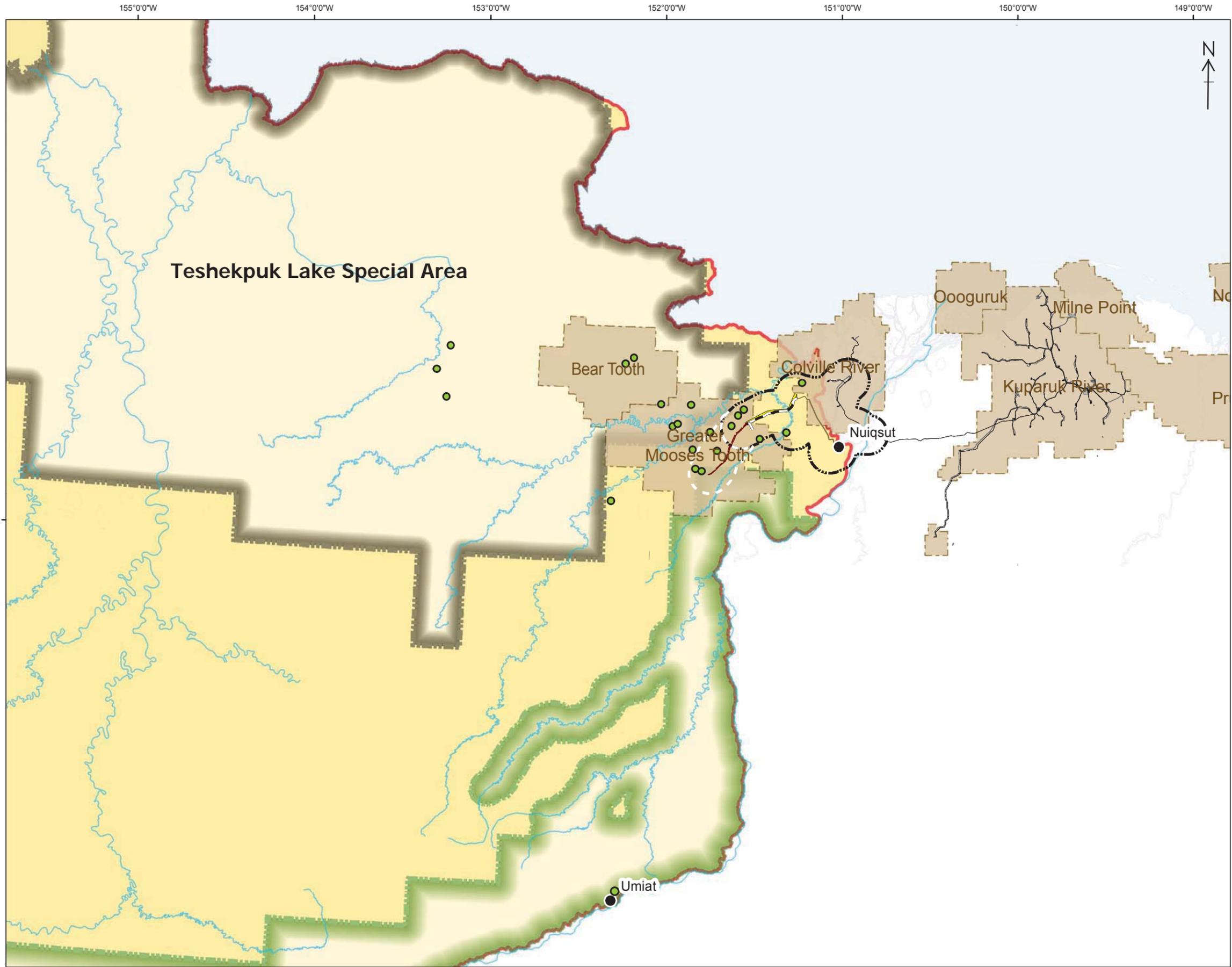
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Map 4.6-2
**Oil and Gas
 Exploratory Wells
 and NPR-A Special Areas**

- Exploratory Well
- NPR-A Special Areas**
 - Colville River Special Area
 - Teshekpuk Lake Special Area
- Existing Oil & Gas Infrastructure**
 - Above Ground
 - Existing Facility
- Oil & Gas Producing Units**
- Proposed Infrastructure**
 - GMT-1 Alt. A
 - Pipeline
 - Access Road
 - Nuiqsut Spur Road
 - GMT-2
 - Road
 - Pipeline
- GMT1 SEIS Project Areas**
 - Project Study Area
 - GMT2 2.5-Mile Buffer

 NPR-A

0 8 16
 Miles

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NAD 1983 StatePlane Alaska 4 FIPS 5004 Feet