



DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 6898
JBER, AK 99506-0898

July 9, 2018

Regulatory Division
POA-2012-124

Alaska Department of Transportation and Public Facilities (ADOT)
Att: Brett Nelson
2301 Peger Road
Fairbanks, AK 99709

Dear Mr. Nelson:

Enclosed is Department of the Army permit POA-2014-124, Kivalina Lagoon, which would authorize construction of a road, an approach, 2 gravel pads, 2 spur roads and 3 material sites. The beginning of the project is located within Section 21, T. 27N., R. 26 W., Kateel Meridian; USGS Quad Map Noatak C-5; Latitude 67.7301° N., Longitude 164.5442° W.; in Kivalina, Alaska. The end of the project is located within Section 20, T. 28N., R. 25W., Kateel Meridian; USGS Quad Map Noatak D-5; Latitude 67.8031° N., Longitude 164.3873° W.; near Kivalina, Alaska. Also enclosed is a Notice of Authorization which should be posted in a prominent location near the authorized work.

If changes to the plans or location of the work are necessary for any reason, plans must be submitted to us immediately. Federal law requires approval of any changes before construction begins.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Please contact me via email at janet.l.post@usace.army.mil, by mail at the address above, by phone at (907) 753-2831, or toll free from within Alaska at (800) 478-2712, if you have questions. For more information about the Regulatory Program, please visit our website at www.poa.usace.army.mil/Missions/Regulatory.

Sincerely,

A handwritten signature in cursive script that reads "Janet Post".

Janet Post
Project Manager

Enclosures



**This notice of authorization must be
conspicuously displayed at the site of work.**

**United States Army Corps of Engineers
KIVALINA LAGOON**

**A permit to: CONSTRUCT A ROAD, AN APPROACH, 2 GRAVEL PADS, 2
SPUR ROADS AND 3 MATERIAL SITES**

**at: WITHIN SECTION 21, T. 27N., R. 26 W., KATEEL MERIDIAN; USGS QUAD MAP
NOATAK C-5; LATITUDE 67.7301° N., LONGITUDE 164.5442° W.; AND WITHIN
SECTION 20, T. 28N., R. 25W., KATEEL MERIDIAN; USGS QUAD MAP NOATAK D-
5; LATITUDE 67.8031° N., LONGITUDE 164.3873° W.; NEAR KIVALINA, ALASKA.**

**has been issued to: ALASKA DEPARTMENT OF TRANSPORTATION AND
PUBLIC FACILITIES(ADOT)**

on: July 9, 2018 and expires: June 30, 2023

Address of Permittee: ADOT, 2301 PEGER ROAD FAIRBANKS, AK 99709

Permit Number:

POA-2012-124

**FOR: Janet Post
District Commander
Janet Post
Project Manager
REGULATORY DIVISION**

BCF:

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shannon.dewandel@alaska.gov
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Ronald.Benkert@alaska.gov
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julie.smith@alaska.gov
Clifford.larson@alaska.gov
oha.revcomp@alaska.gov
A00ARU.R10@epamail.epa.gov
HCD.Anchorage@noaa.gov
FW7_POANotices@fws.gov

DEPARTMENT OF THE ARMY PERMIT

Permittee: Alaska Department of Transportation (ADOT)

Permit No.: POA-2012-124

Issuing Office: U.S. Army Engineer District, Alaska

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Placement of 195,000 cubic yards of clean gravel, rock, and rip rap into 8.2 acres in the Kivalina Lagoon, a navigable water, to construct: A 3,900 foot long x 22 foot high x 30 foot wide surface x 120 foot base (toe-to-toe) approach.

Placement of 518,000 cubic yards of clean gravel and silts into 66 acres of wetlands to construct: 7.5 mile long x 60 foot wide (toe-to-toe) two lane gravel road with side slopes 3:1 from end of approach to K-Hill; Two permanent staging pads: a 300 foot x 630 foot terminal pad and a 290 foot x 490 foot approach staging pad.

Placement of 17,600 cubic yards of gravel and silts into 2.4 acres of wetlands to construct 2 spur roads to material sites.

Mechanized land clearing to create 3 material sites not to exceed 134.8 acres. The sites are designated: K-Hill Western Site (93.3 acres), Wulik River Relic Channel Source 2-1 (20.3 acres) and Wulik River Relic Channel Source 2-2 (21.2 acres).

Discharge of fill material to rehabilitate 3 material sites: Wulik River Relic Channel Source 2-1 (20.3 acres), Wulik River Relic Channel Source 2-2 (21.2 acres), and K-Hill Western Site (93.3 acres).

All work will be performed in accordance with the attached plan, sheets 1-33, dated June 29, 2018.

Project Location: The beginning of the project is located within Section 21, T. 27N., R. 26 W., Kateel Meridian; USGS Quad Map Noatak C-5; Latitude 67.7301° N., Longitude 164.5442° W.; in Kivalina, Alaska. The end of the project is located within Section 20, T. 28N., R. 25W., Kateel Meridian; USGS Quad Map Noatak D-5; Latitude 67.8031° N., Longitude 164.3873° W.; near Kivalina, Alaska.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **June 30, 2023**

If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. No stockpiling of fill materials shall occur in wetlands or other waters of the U.S. that do not have DA authorization in accordance to the drawings pages 1-33 dated June 29, 2018.
2. Prior to commencement of construction activities within waters of the U.S., the permittee shall clearly identify the permitted limits of disturbance at the project site with highly visible markers (e.g. construction fencing, flagging, silt barriers, etc.). The permittee shall properly maintain such identification until construction is complete and the soils have been stabilized. The permittee is prohibited from conducting any unauthorized Corps-regulated activity outside of the permitted limits of disturbance.
3. Rehabilitation of the material sites shall be performed in accordance with the Kivalina Evacuation Road Rehabilitation Plan (attached). Rehabilitation monitoring reports for K-Hill Western Site and Wulik Relic Channels 2-1 and 2-2 shall be submitted by the permittee yearly, until site rehabilitation is complete and satisfactory to the Corps of Engineers. The reports should include pictures of the area taken between June and August and a brief narrative on visual observations of the area.

These reports should be addressed to:

US Army Corps of Engineers, North Section
CEPOA-RD
PO Box 6898 JBER, Alaska 99506

4. Natural drainage patterns shall be maintained using appropriate culverts and other measures to ensure hydrology is not altered.
5. The Permittee shall use only clean fill material for this project. The fill material shall be free from soils containing any toxic substance in toxic amounts.
6. Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States.
7. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers (Corps), to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
8. Within 60 days of completion of the work authorized by this permit, the Permittee shall complete the attached "Self-Certification Statement of Compliance" form and submit it to the Corps. In the event that the completed work deviates in any manner from the authorized work, the Permittee shall describe the deviations between the work authorized by this permit and the work as constructed on the "Self-Certification Statement of Compliance" form. The description of any deviations on the "Self-Certification Statement of Compliance" form does not constitute approval of any deviations by the Corps.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorization required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Brett D. Welch Env. Manager
(PERMITTEE) AND TITLE

7-9-18
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Janet Post
FOR (DISTRICT COMMANDER)
Colonel Michael S. Brooks
Janet Post, Project Manager
North Branch, Regulatory Division

7-9-18
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions have the transferee sign and date below.

(TRANSFEEE)

(DATE)



**Kivalina Evacuation and School Site Access Road
POA-2012-124**

**Section 10/404 Permit Application
Detail and Plan View Figures**

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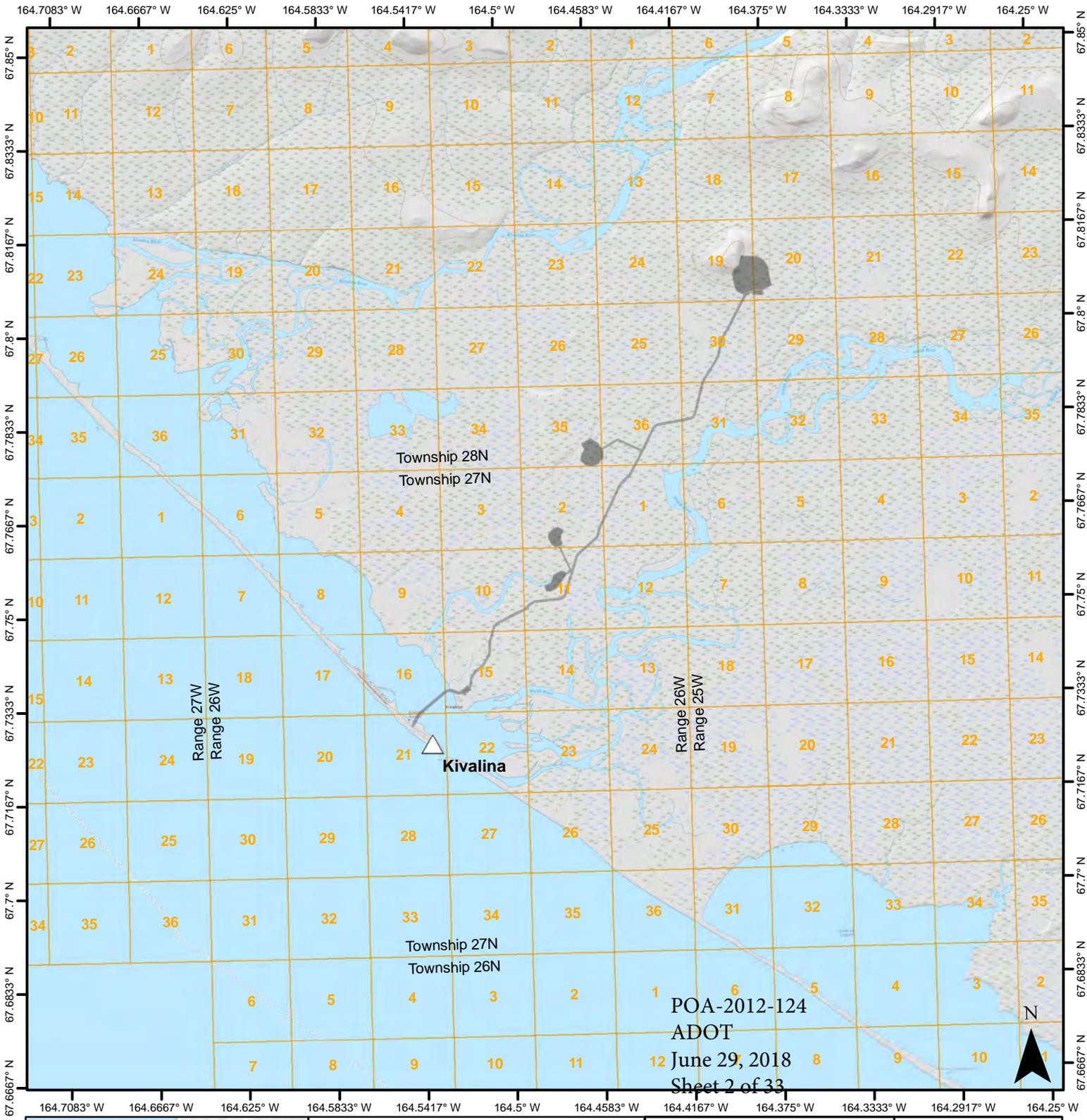
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▲ Populated Place
 ■ Project Area
 □ Public Land Survey Section

Katee River Meridian

Township 27N, Range 25W, Section 6
 Township 27N, Range 26W, Sections 1,2,10,11, 15,16,21
 Township 28N, Range 25W, Sections 19,20,30, 31
 Township 28N, Range 26W, Sections 35,36

		Project Vicinity	
Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road			
File No.: POA-2012-124			
Waterway: Kivalina Lagoon			
Proposed Activity: WOUS Fill for Roadway			
Date: June 15, 2018		Sheet 1 of 32	



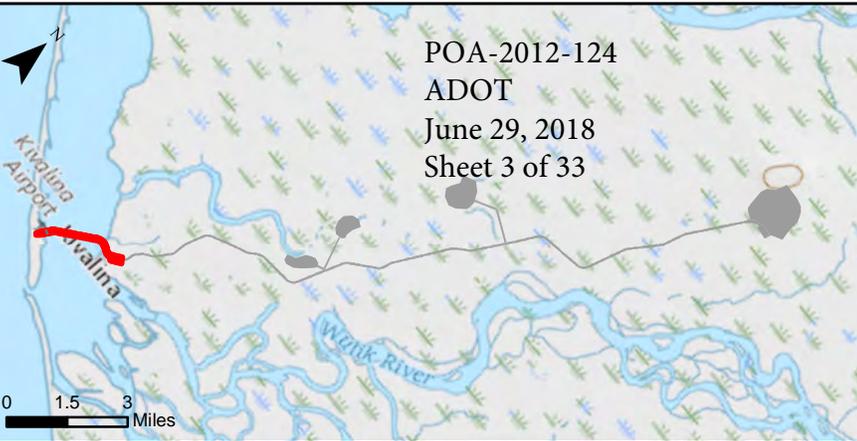
Bridge and Bridge Approach Overview



Bridge and Bridge Approach From SE



Bridge and Bridge Approach From NW



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Bridge and Bridge Approach 3D Render

Applicant: STATE OF ALASKA
 Department of Transportation and Public Facilities
 2301 Peger Rd. Fairbanks, AK 99709

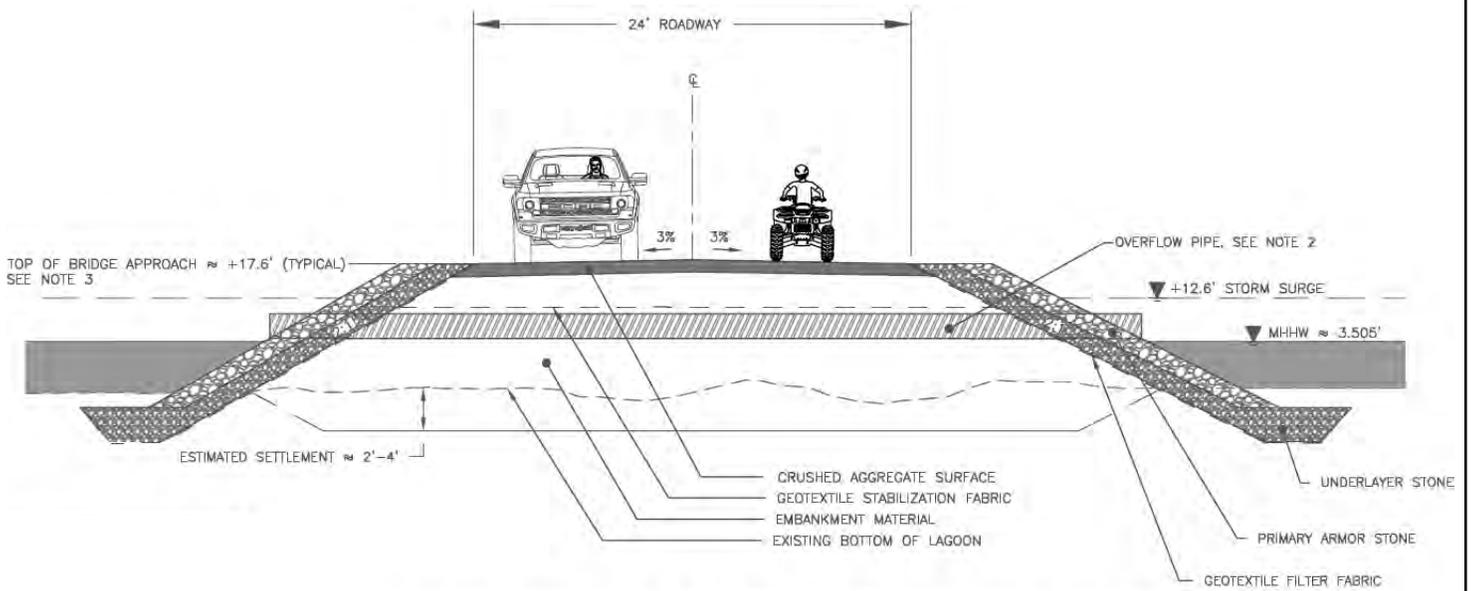
Kivalina Evacuation and School Site Access Road

File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

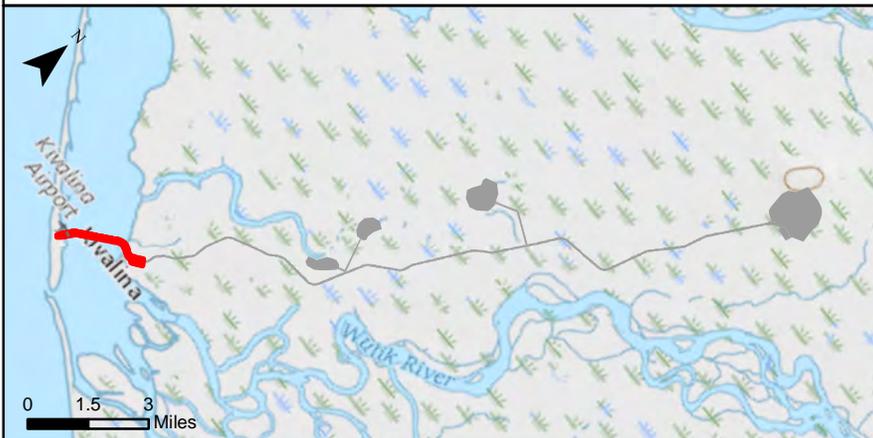


LAGOON CROSSING D: SOLID BRIDGE APPROACH TYPICAL SECTION

NOTES:

1. LAGOON CROSSING D CONSISTS OF SOLID BRIDGE APPROACHES WITH TWO PRIMARY OPENINGS CONSISTING OF A BRIDGE, AND LARGE STRUCTURAL PLATE PIPES. THIS FIGURE DETAILS THE SOLID PORTION OF THE LAGOON CROSSING.
2. OVERFLOW PIPES TO BE PLACED ABOVE MHHW INCREMENTALLY WITHIN THE EMBANKMENT OVER THE LENGTH OF THE BRIDGE APPROACHES.
3. TOP OF BRIDGE APPROACH ELEVATION VARIES FROM APPROX. 17.6-25' TO ACCOMMODATE DRAINAGE STRUCTURES/FEATURES. ELEVATIONS ARE APPROXIMATE AND BASED ON THE NAVD88 VERTICAL DATUM

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Bridge Approach Detail	
Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road	
File No.: POA-2012-124	
Waterway: Kivalina Lagoon	
Proposed Activity: WOUS Fill for Roadway	
Date: June 15, 2018	Sheet 4 of 32

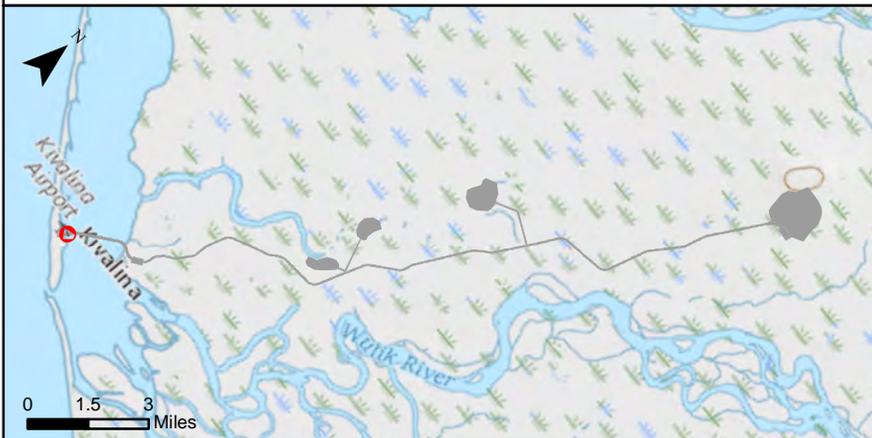
Single-span steel girder bridge

Approximately 180ft single span bridge over 110ft lagoon channel.
12ft clearance at high water for recreational boats.
8 piles, up to 4ft diameter, placed within bridge approach footprint.
No piles in channel.

Example Bridge:



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Bridge Specifications

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709
Kivalina Evacuation and School Site Access Road

File No.: POA-2012-124

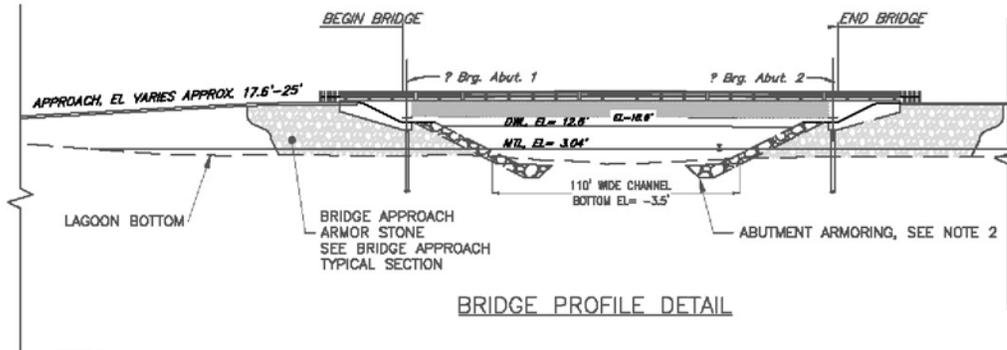
Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

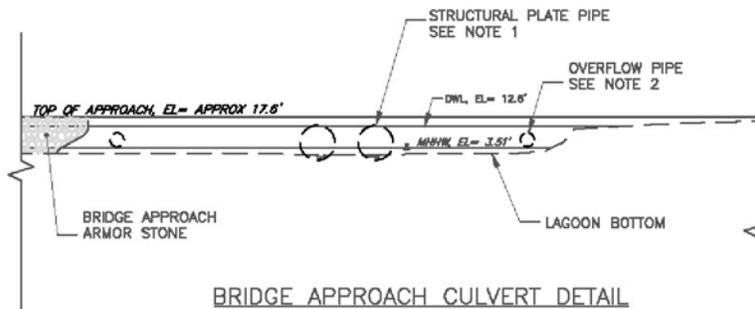
Sheet 5 of 32

BRIDGE APPROACH AND BRIDGE PROFILE VIEW
NTS



NOTE:

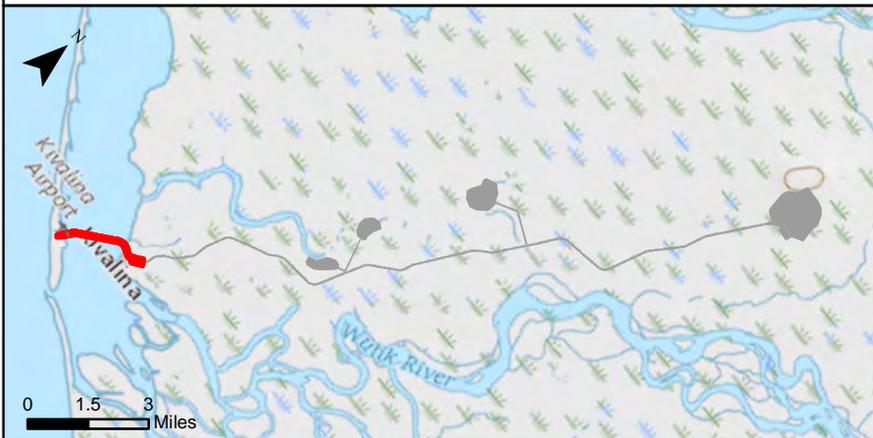
1. BRIDGE TO BE CONSTRUCTED OVER EXISTING 110' WIDE LAGOON CHANNEL, CENTERED APPROXIMATELY 225' EAST OF THE BARRIER ISLAND.
2. BRIDGE ABUTMENTS & FOUNDATION TO CONSIST OF SLOPED EARTHEN EMBANKMENT ARMORED WITH ROCK, OR VERTICAL SHEET PILE WALL, AND BE DESIGNED TO SPAN ENTIRE 110' LAGOON CHANNEL.
3. LOCATION AND DIMENSIONS OF ROCK ARMORING ALONG ABUTMENTS ARE APPROXIMATE, AND WILL BE DESIGNED TO CLOSELY MAINTAIN NATURAL CHANNEL DIMENSIONS TO THE FURTHEST EXTENT PRACTICABLE.
4. ELEVATIONS ARE APPROXIMATE AND BASED ON NAVD88 VERTICAL DATUM



NOTE:

1. LARGE CULVERT(S) TO BE LOCATED ADJACENT EAST END OF SOLID BRIDGE APPROACH. PIPE INVERTS TO BE RECESSED BELOW BOTTOM OF LAGOON AND FILLED WITH 2'-4' THICK ROCK SUBSTRATE.
2. OVERFLOW PIPE(S) INVERTS TO BE PLACED ABOVE MHW AND SPACED INCREMENTALLY OVER LENGTH OF SOLID BRIDGE APPROACH TO PROVIDE CONVEYANCE DURING HIGH WATER EVENTS.

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Bridge and Bridge Approach Profile

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

File No.: POA-2012-124

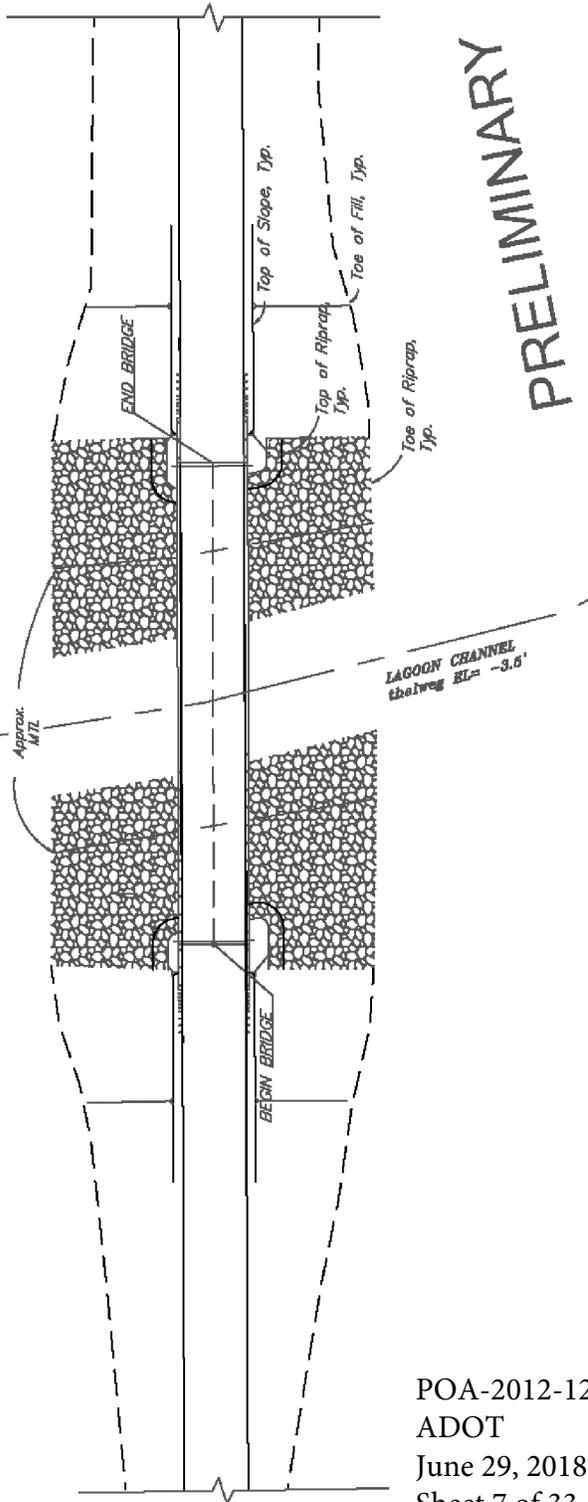
Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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BRIDGE PLAN VIEW
NTS

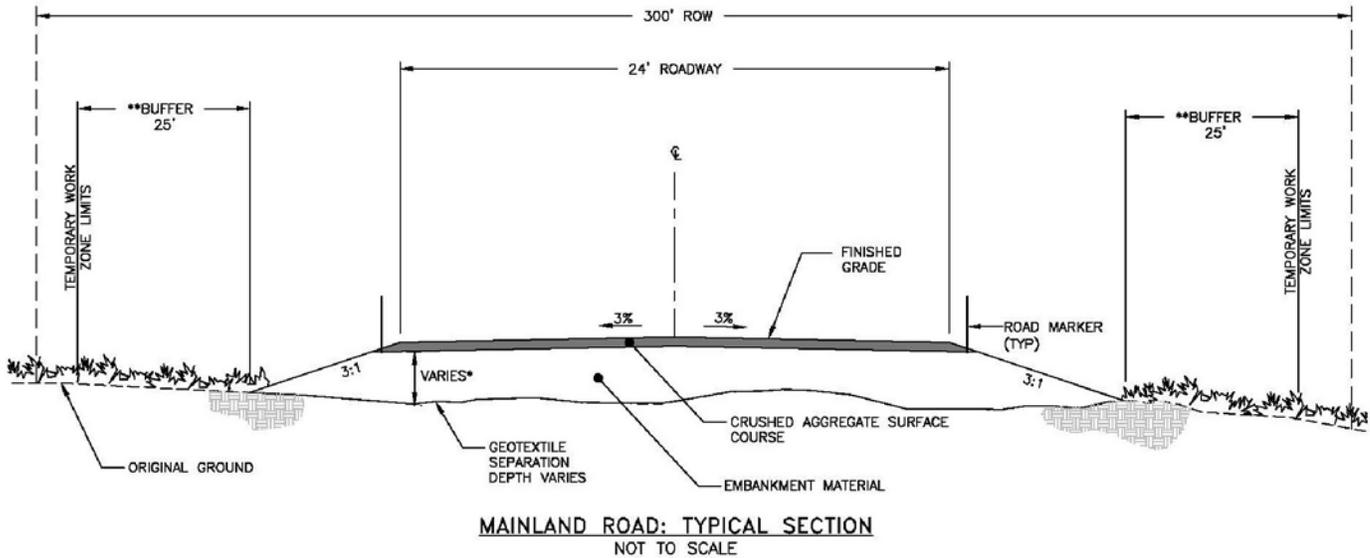


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Bridge Plan Detail

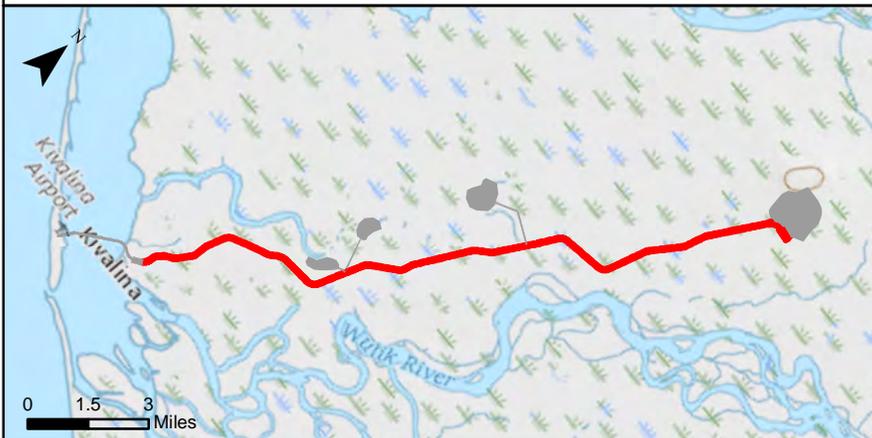
<p>Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road</p>	
<p>File No.: POA-2012-124</p>	
<p>Waterway: Kivalina Lagoon</p>	
<p>Proposed Activity: WOUS Fill for Roadway</p>	
<p>Date: June 15, 2018</p>	<p>Sheet 7 of 32</p>



* EMBANKMENT HEIGHT WILL AVERAGE BETWEEN 5 TO 8 FEET. MINIMUM EMBANKMENT HEIGHT OF 6' MAY BE USED IN AREAS OF POTENTIAL SNOW DRIFTING AND IN AREAS WHERE THERE IS CONCERN OF THAWING UNDERLYING PERMAFROST.

**BUFFER ZONE EXTENDS OUTWARD 25' FROM THE EMBANKMENT TOE. THIS AREA WILL BE USED DURING CONSTRUCTION FOR TEMPORARY EQUIPMENT ACCESS AND WILL ALSO SERVE AS A NATURAL VEGETATIVE SCREEN.

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Roadway Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709
Kivalina Evacuation and School Site Access Road

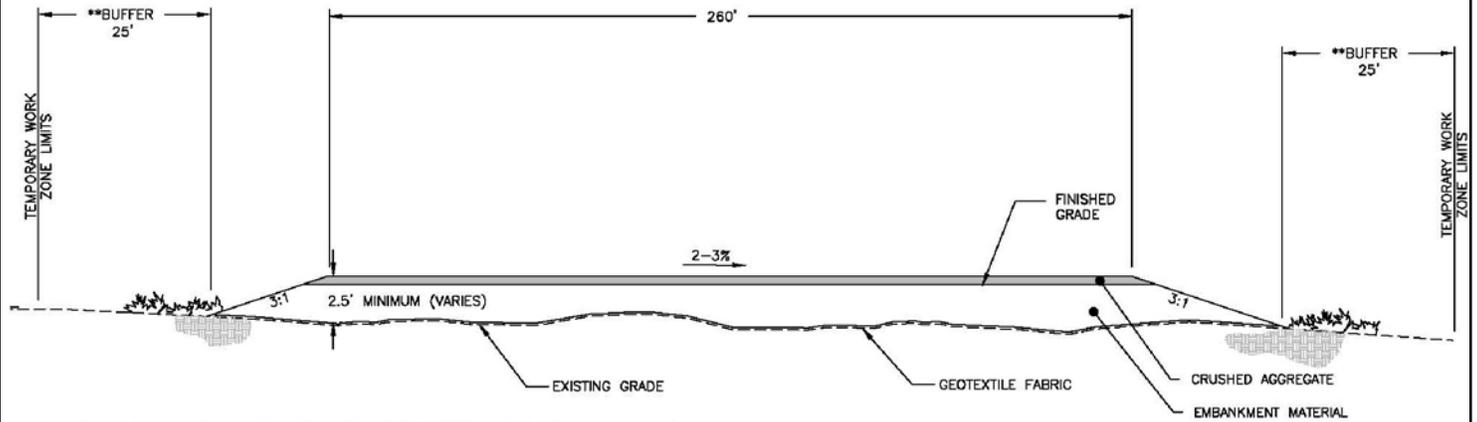
File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

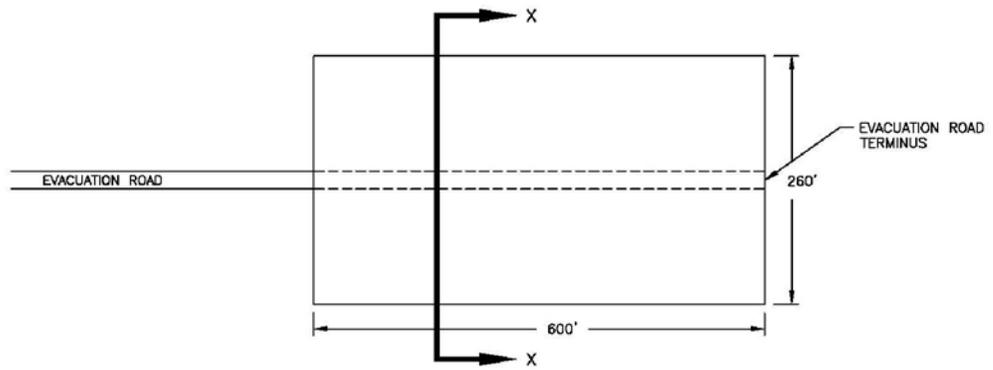
Date: June 15, 2018

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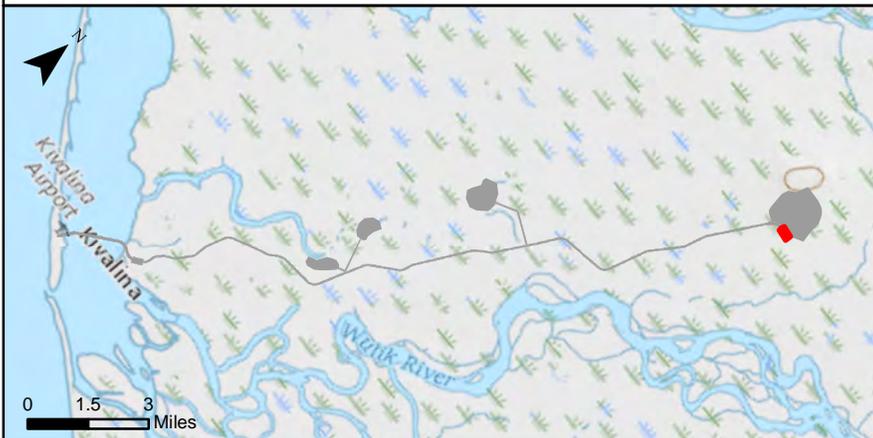
**BUFFER ZONE EXTENDS OUTWARD 25' FROM THE EMBANKMENT TOE. THIS AREA WILL BE USED DURING CONSTRUCTION FOR TEMPORARY EQUIPMENT ACCESS AND WILL ALSO SERVE AS A NATURAL VEGETATIVE SCREEN.

TYPICAL SECTION
SECTION X-X'
NOT TO SCALE



PLAN
NOT TO SCALE

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Terminus Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

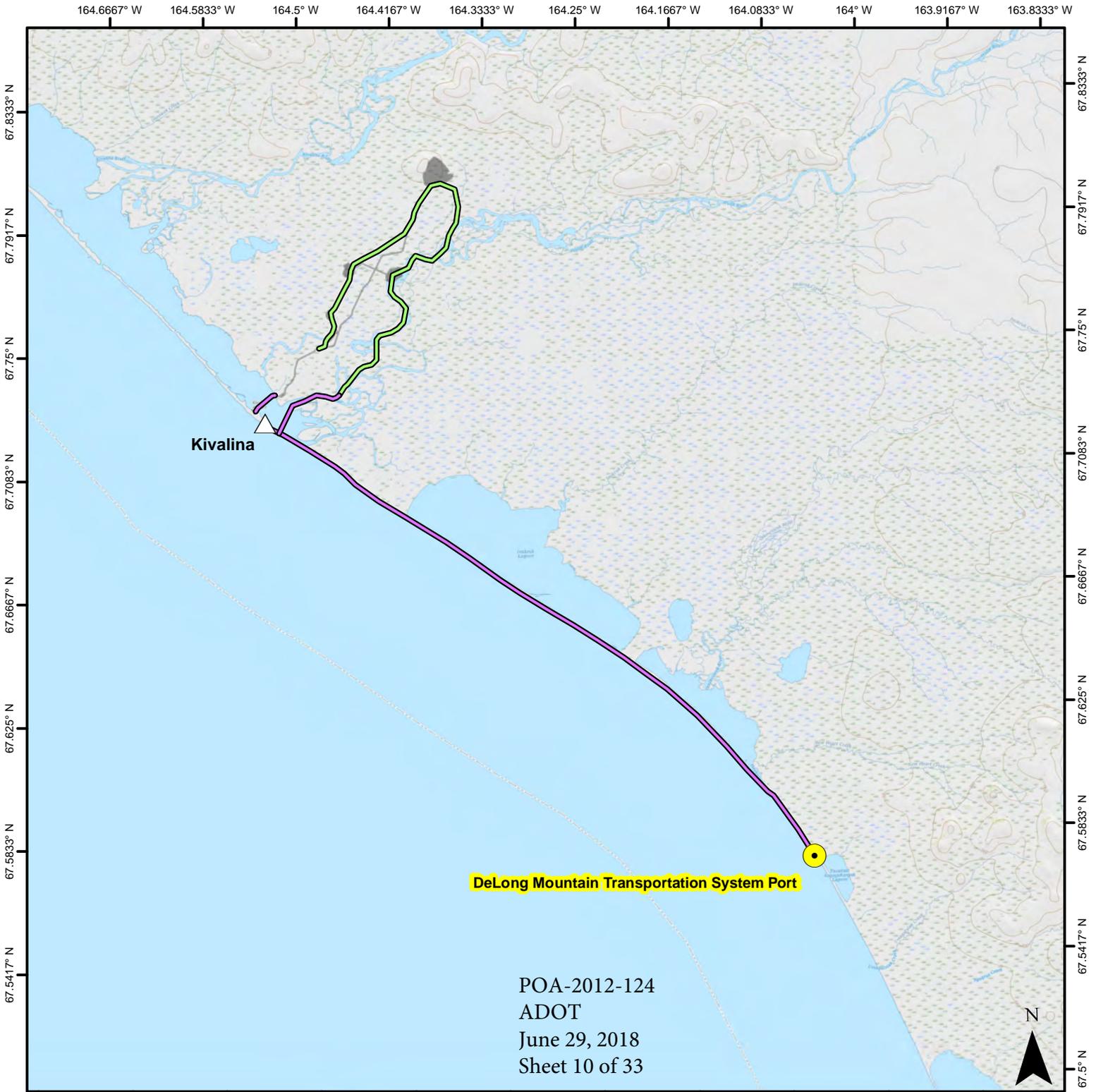
File No.: POA-2012-124

Waterway: Kivalina Lagoon

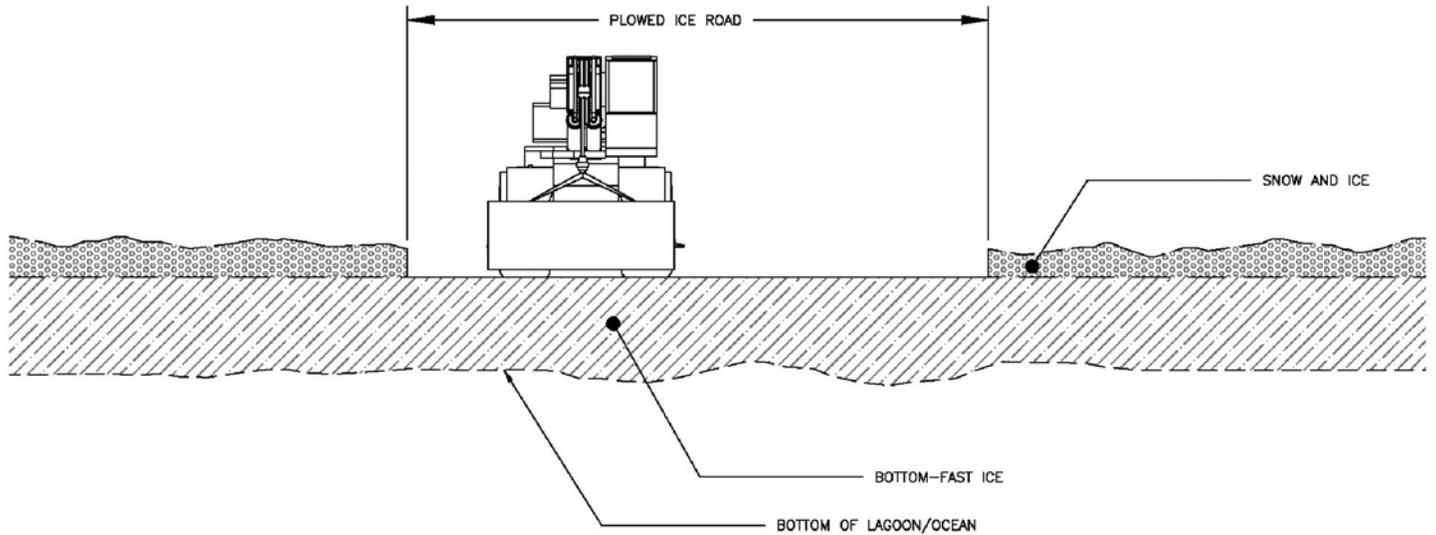
Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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<p>0 100 200 Miles</p>	<ul style="list-style-type: none"> Populated Place Facility Potential Ice Road (Section 10) Potential Ice Road (Non-jurisdictional) Project Area 	<p>0 2 4 Miles</p> <p>Ice Road Plan View</p>
		<p>Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road</p> <p>File No.: POA-2012-124</p> <p>Waterway: Kivalina Lagoon</p> <p>Proposed Activity: WOUS Fill for Roadway</p>
		<p>Date: June 15, 2018</p> <p style="text-align: right;">Sheet 10 of 32</p>

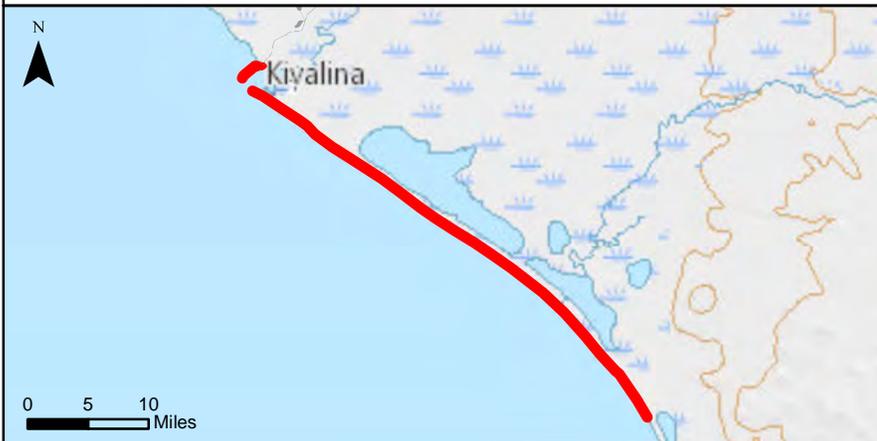


ICE ROAD TYPICAL SECTION

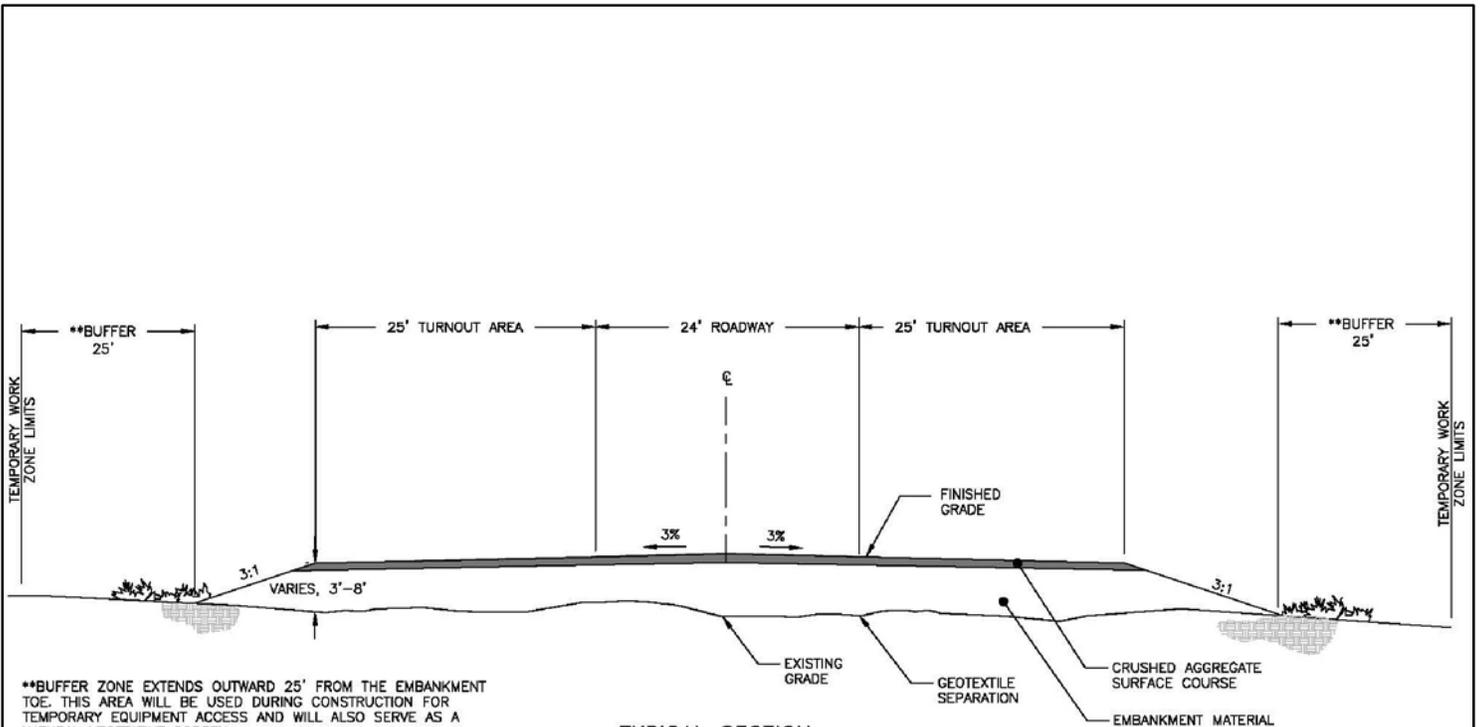
NOTES:

1. ICE ROAD CONSISTS OF PLOWED SURFACE OF BOTTOM-FAST ICE (ICE FROZEN TO LAGOON/OCEAN BOTTOM)
2. BERMS WILL BE IN PLACE IF PLOWING OF ICE SURFACE IS NECESSARY
3. NO FILL PLACED

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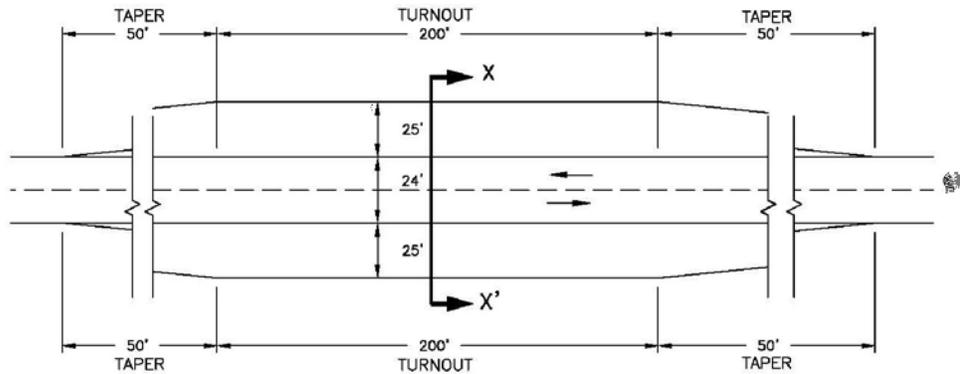


Ice Road Detail	
Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road	
File No.: POA-2012-124	
Waterway: Kivalina Lagoon	
Proposed Activity: WOUS Fill for Roadway	
Date: June 15, 2018	Sheet 11 of 32



**BUFFER ZONE EXTENDS OUTWARD 25' FROM THE EMBANKMENT TOE. THIS AREA WILL BE USED DURING CONSTRUCTION FOR TEMPORARY EQUIPMENT ACCESS AND WILL ALSO SERVE AS A NATURAL VEGETATIVE SCREEN.

TYPICAL SECTION
SECTION X-X'
NOT TO SCALE



NOTE:
TURNOUT LOCATIONS AND NUMBER VARY.

PLAN
NOT TO SCALE

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Turnout Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

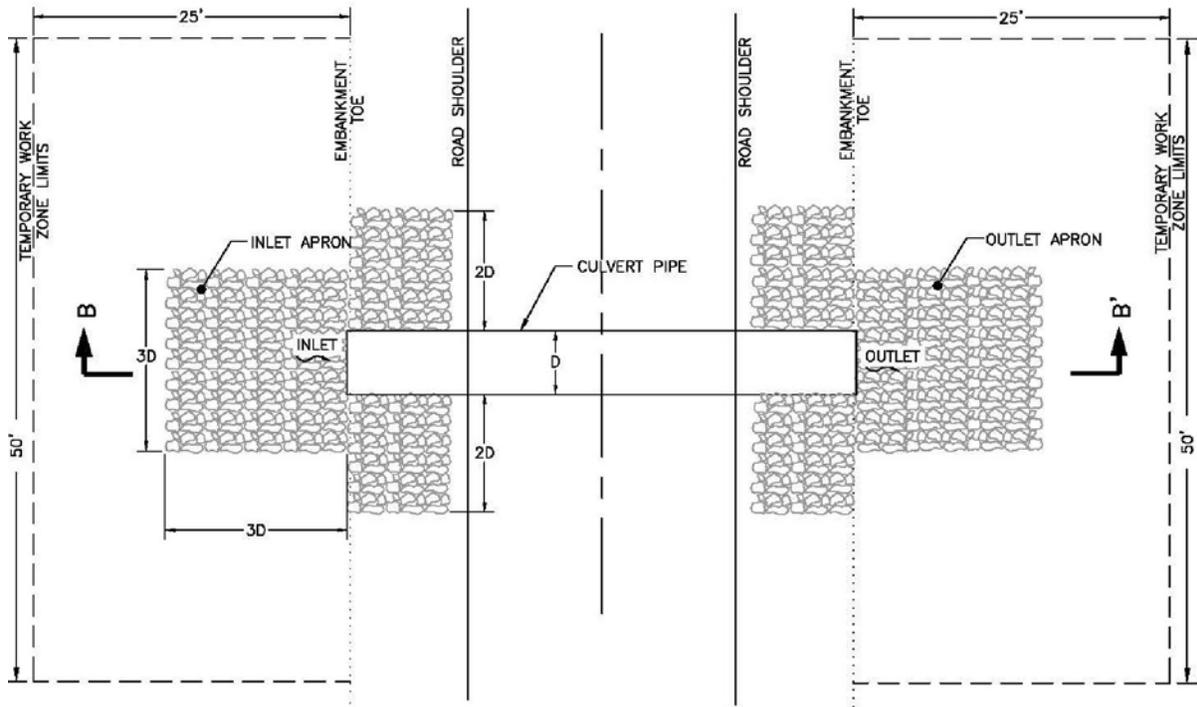
File No.: POA-2012-124

Waterway: Kivalina Lagoon

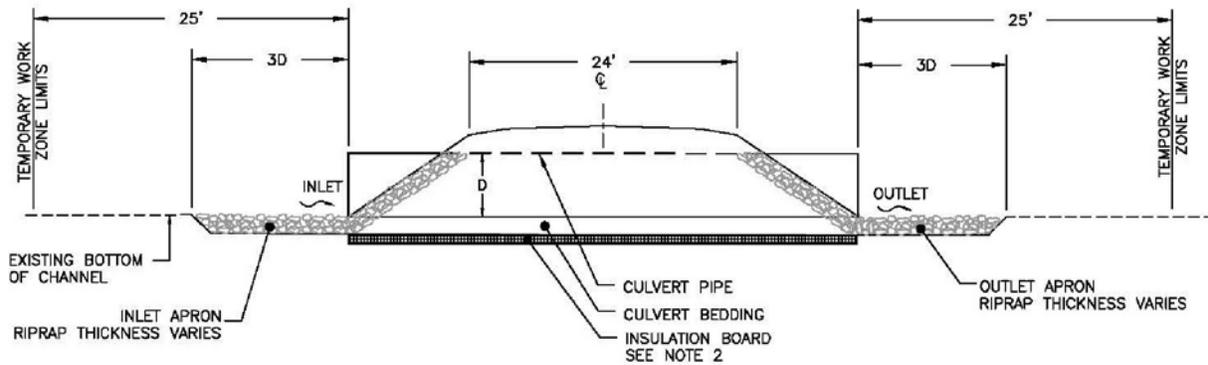
Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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TYPICAL CULVERT APRON DETAIL
NOT TO SCALE

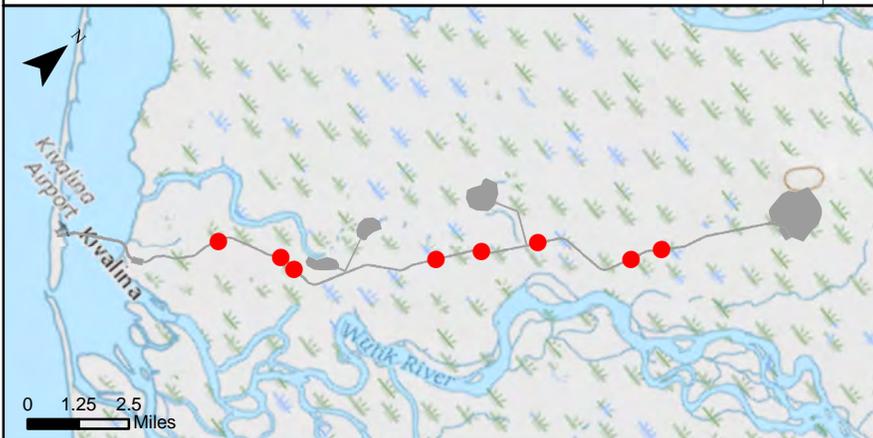


SECTION B-B'
NOT TO SCALE

NOTES:

1. THIS TYPICAL SECTION IS FOR CONVEYANCE STRUCTURES NOT INTENDED FOR FISH PASSAGE. LOCATIONS AND SIZE VARY.
2. INSULATION BOARD TO BE USED IN AREAS OF PERMAFROST
3. INLET, OUTLET, AND FORESLOPE RIPRAP TO BE INSTALLED IN AREAS WHERE EROSION AT CULVERT INVERTS IS A CONCERN. DIMENSIONS ARE APPROXIMATE.
4. FOR ENHANCED HYDRAULIC DESIGN CULVERTS, INVERTS TO BE RECESSED BELOW EXISTING BOTTOM OF CHANNEL TO PROMOTE FISH PASSAGE.

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Non-Fish Passage Culvert Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

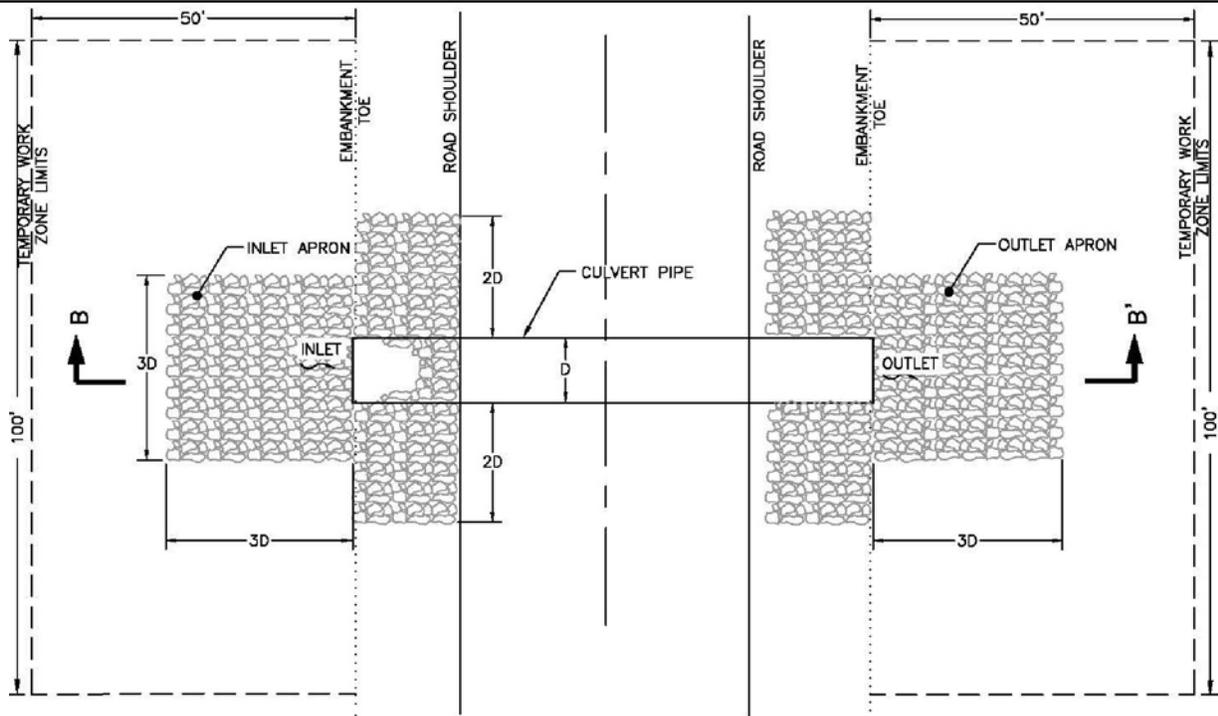
File No.: POA-2012-124

Waterway: Kivalina Lagoon

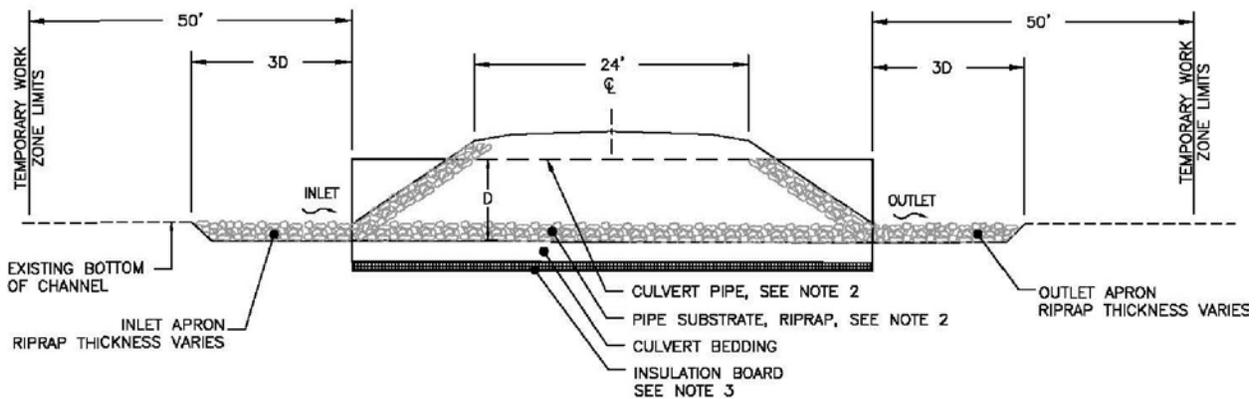
Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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TYPICAL FISH PASSAGE CULVERT APRON DETAIL
NOT TO SCALE



SECTION B-B'
NOT TO SCALE

NOTES:

1. THIS TYPICAL SECTION IS FOR CONVEYANCE STRUCTURES INTENDED FOR FISH PASSAGE. LOCATIONS AND SIZE VARY.
2. CULVERT INVERTS ARE DEPRESSED BELOW THE BOTTOM OF THE EXISTING CHANNEL, AND FILLED WITH RIPRAP SUBSTRATE THROUGH THE LENGTH OF CULVERT TO PROVIDE FISH PASSAGE. THICKNESS VARIES.
3. INSULATION BOARD TO BE USED IN AREAS OF PERMAFROST.
4. INLET, OUTLET, AND FORESLOPE RIPRAP DIMENSIONS SHOWN ARE APPROXIMATE.

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Fish Passage Culvert Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

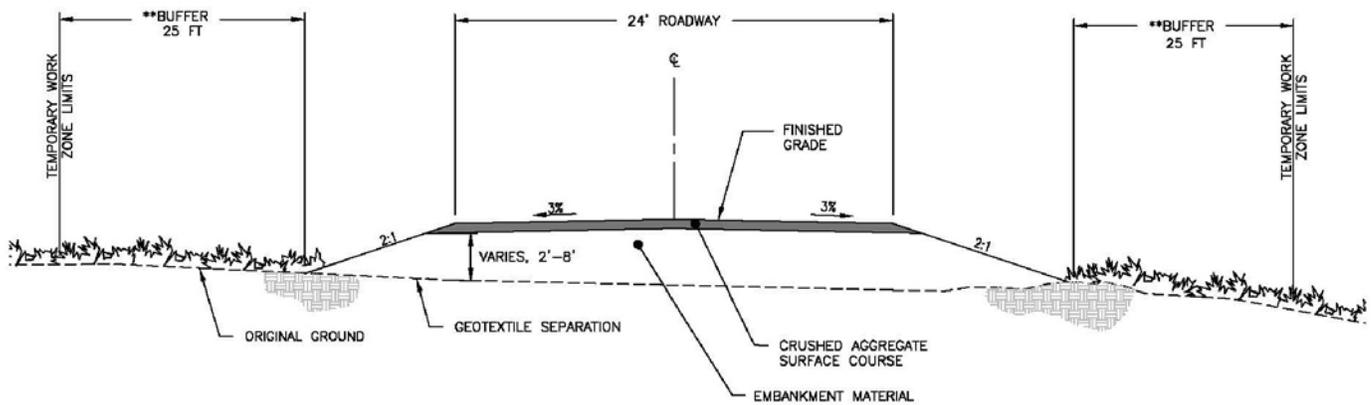
File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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MATERIAL SOURCE SPUR ROAD TYPICAL SECTION
NOT TO SCALE

**BUFFER ZONE EXTENDS OUTWARD 25' FROM THE EMBANKMENT TOE. THIS AREA WILL BE USED DURING CONSTRUCTION FOR TEMPORARY EQUIPMENT ACCESS AND WILL ALSO SERVE AS A NATURAL VEGETATIVE SCREEN.

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June 29, 2018
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Spur Road Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

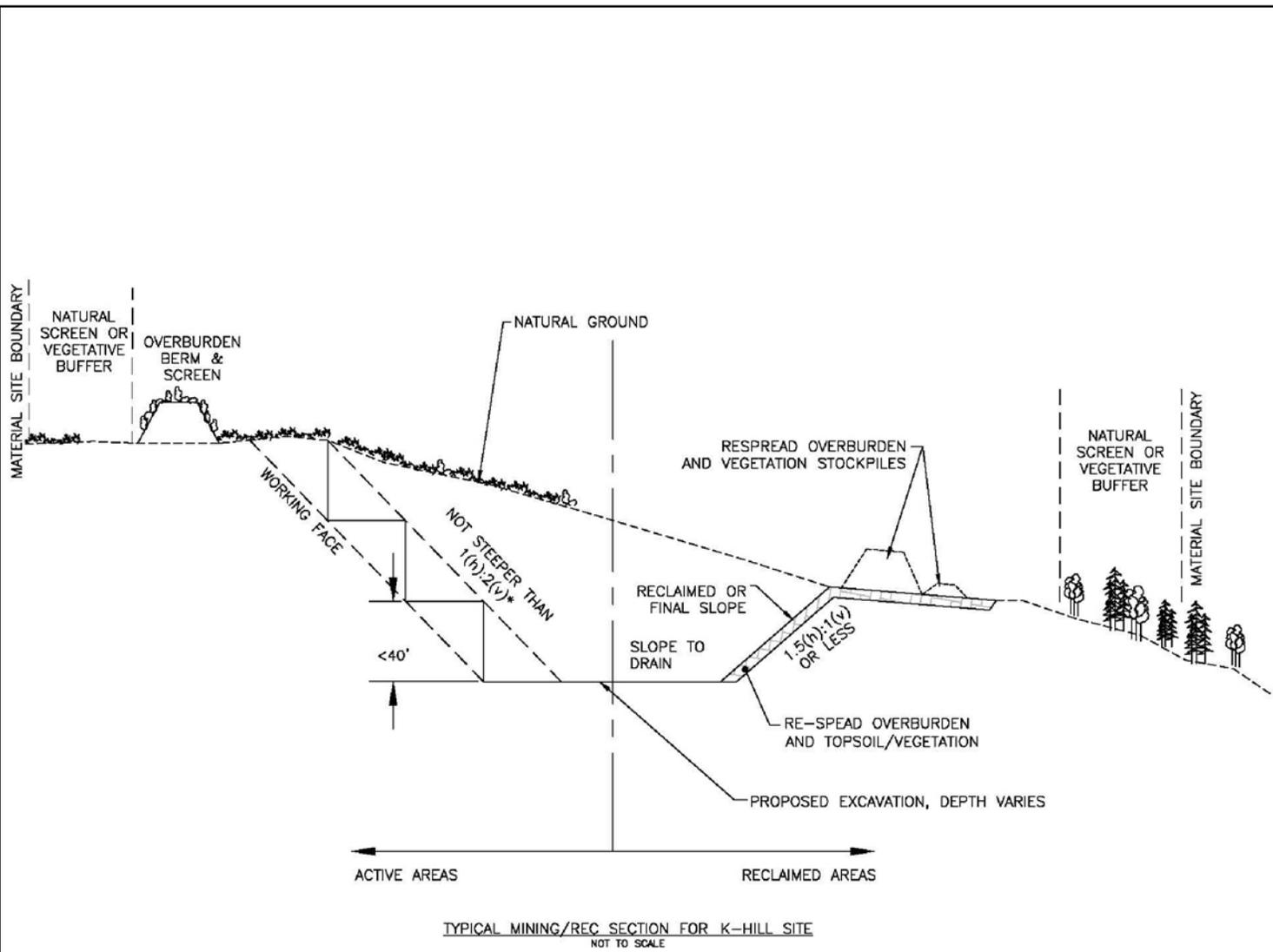
File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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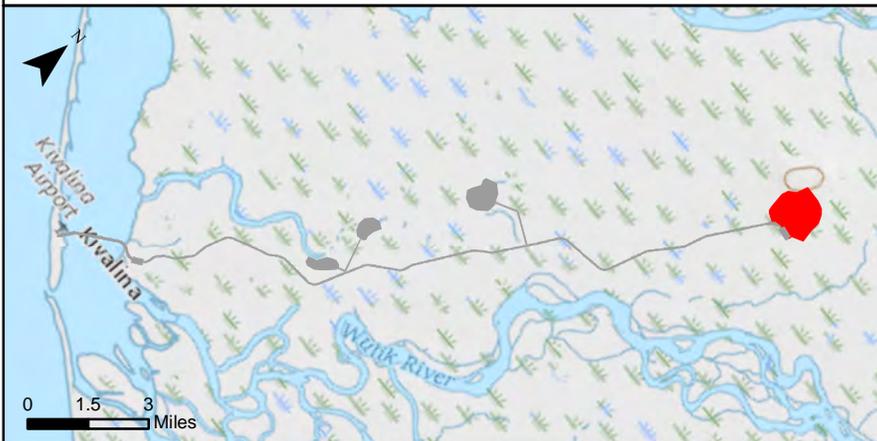


* MAXIMUM SLOPE ANGLE DEPENDS ON SITE-SPECIFIC PARAMETERS AND WILL BE DETERMINED BY THE CONTRACTOR.

**PRIMARY MINING METHOD WITHIN UPLANDS QUARRY SITE WOULD INVOLVE BLASTING AND RIPPING OF ROCK AND CONSOLIDATED MATERIAL.

PRELIMINARY

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K-Hill Material Site Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

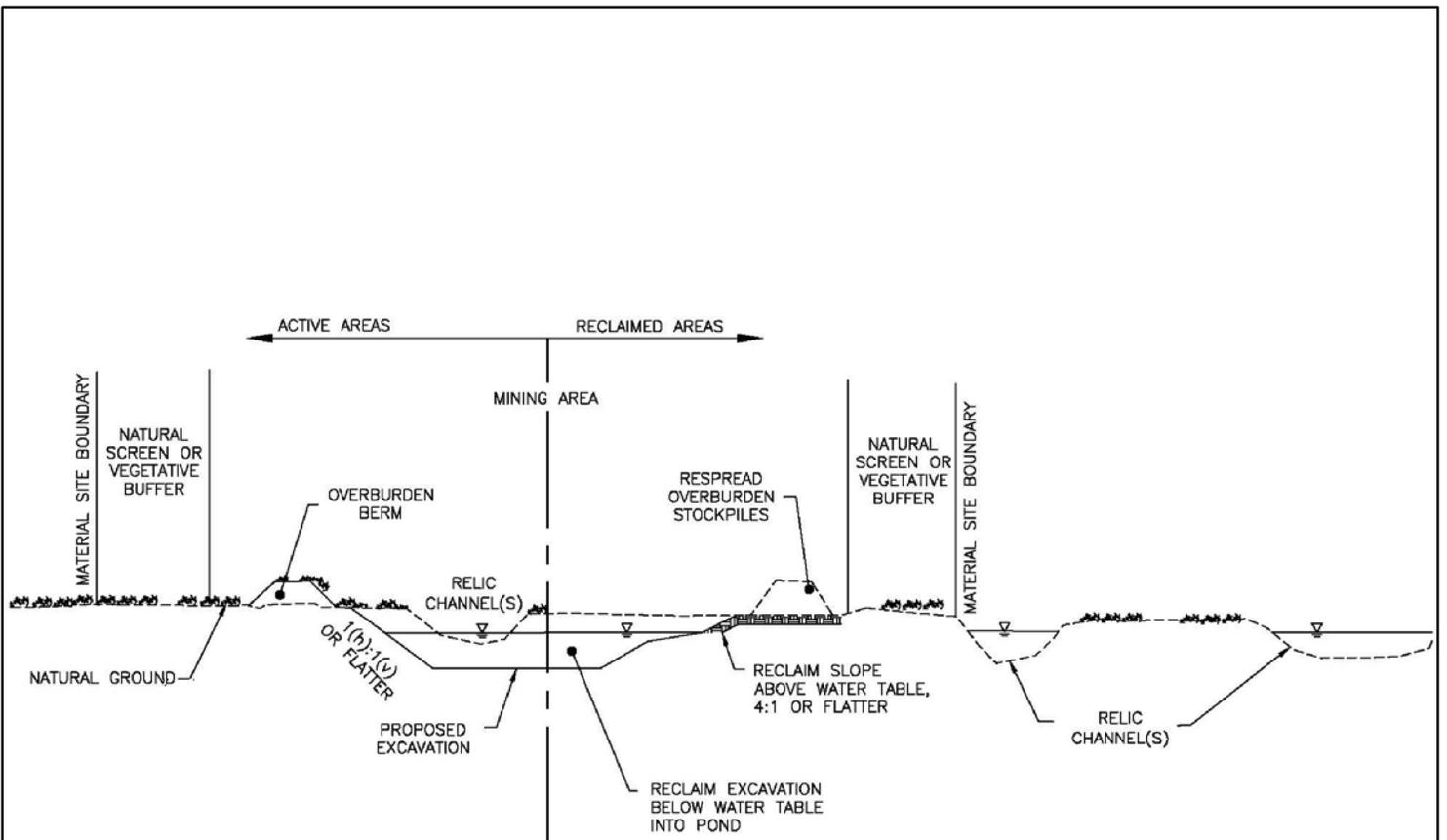
File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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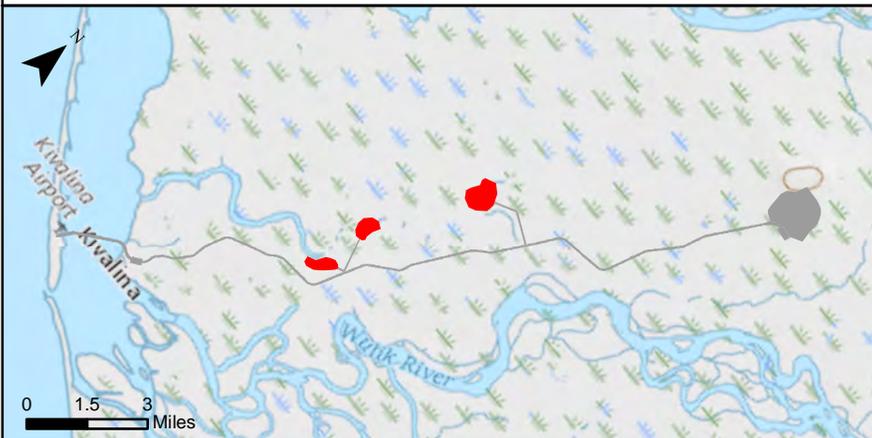


TYPICAL MINING/REC SECTION: WULIK RELIC CHANNEL SOURCES 1 & 2
NOT TO SCALE

NOTES:

1. MINING ACTIVITIES TO OCCUR WITHIN AND ADJACENT TO RELIC CHANNEL(S) ABOVE AND BELOW THE WATER TABLE.
2. MINED AREAS TO BE RECLAIMED INTO DEEP WETLAND PONDS TO IMPROVE FISH OVERWINTERING HABITAT. RECLAIMED PONDS MAY BE CONNECTED TO EXISTING RELIC CHANNELS TO PROVIDE POTENTIAL OVERWINTERING HABITAT FOR JUVENILE FISH.

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Wulik Relic Channel Material Site Detail

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

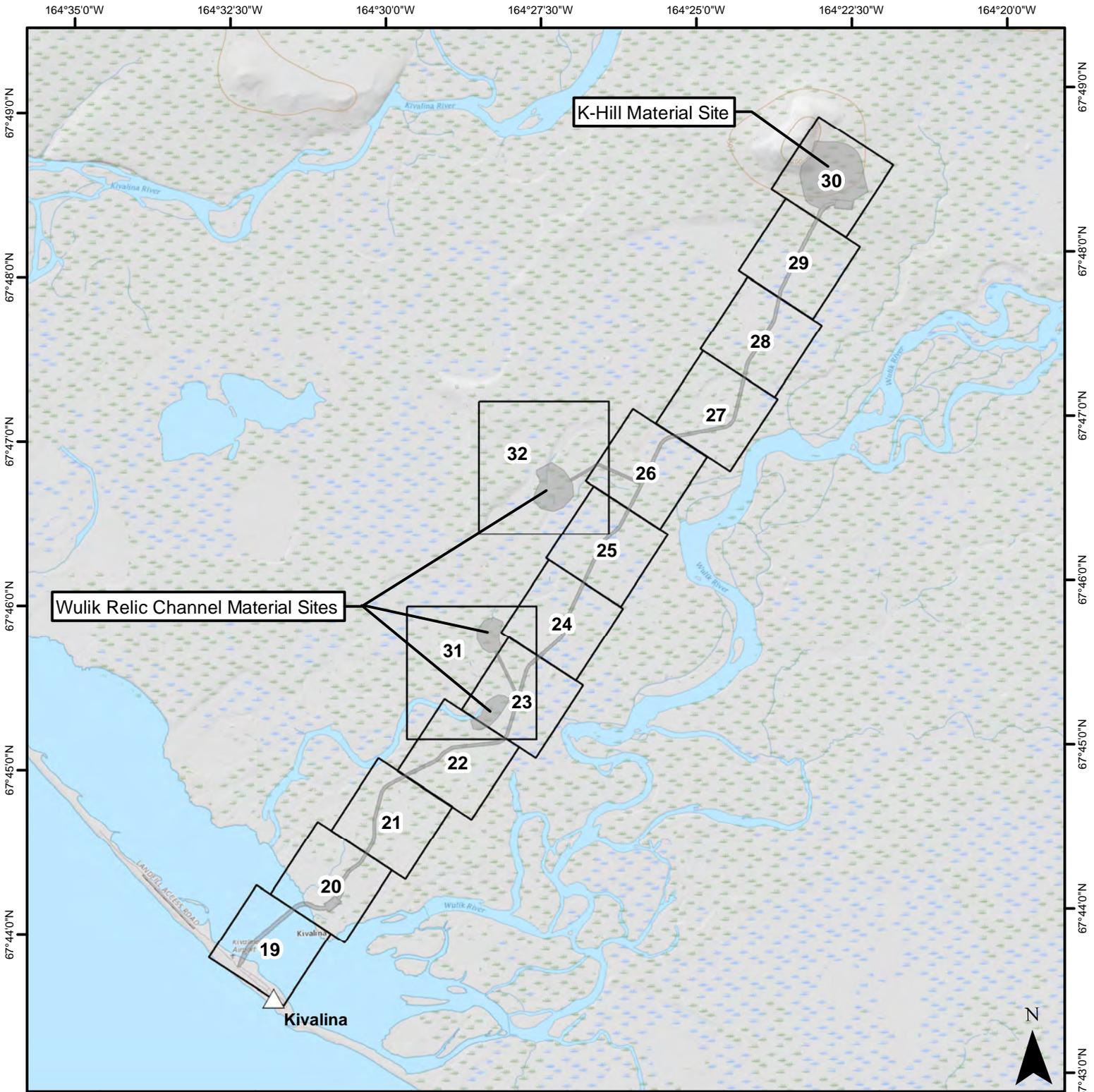
File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

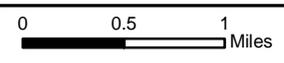
Date: June 15, 2018

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- Populated Place
- Project Area
- Sheet Index

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Applicant: STATE OF ALASKA
 Department of Transportation and Public Facilities
 2301 Peger Rd. Fairbanks, AK 99709
 Kivalina Evacuation and School Site Access Road

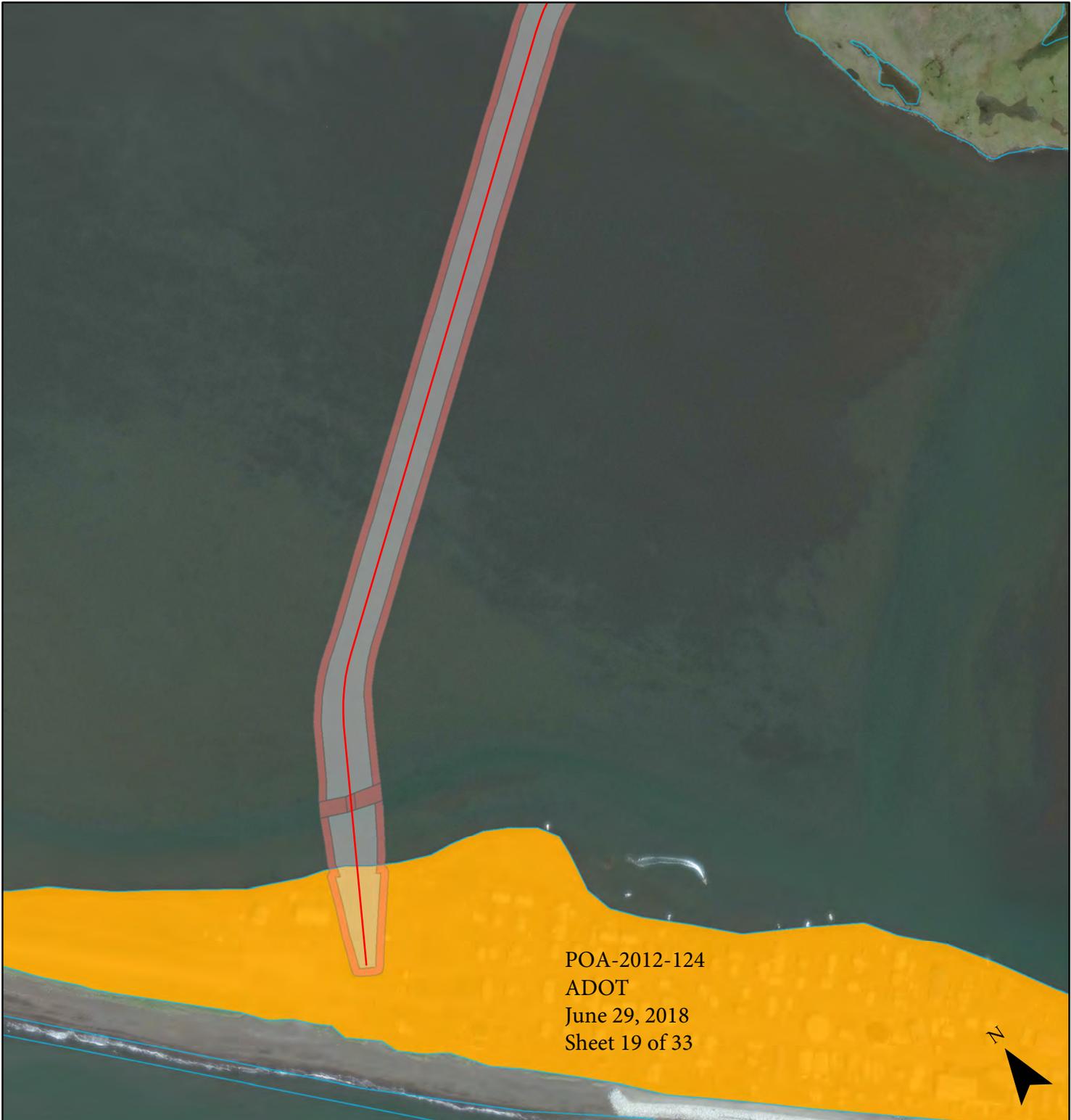
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Waterway: Kivalina Lagoon

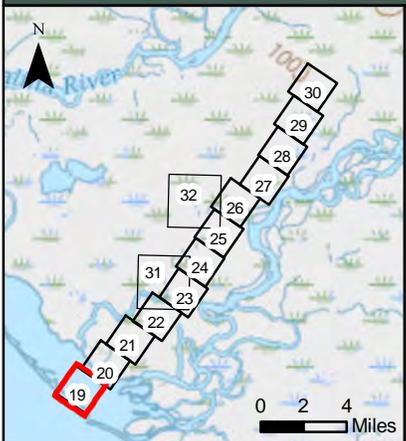
Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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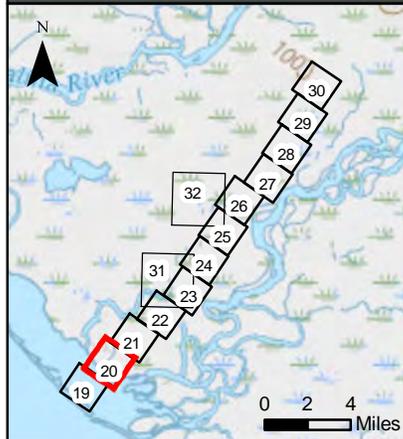


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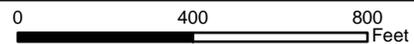


- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping**
- Wetland
 - Water
 - Upland

0 400 800 Feet		Plan View
Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road		
File No.: POA-2012-124		
Waterway: Kivalina Lagoon		
Proposed Activity: WOUS Fill for Roadway		
Date: June 15, 2018	Sheet 19 of 32	



- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping**
- Wetland
 - Water
 - Upland



Plan View

Applicant: STATE OF ALASKA
Department of Transportation and Public Facilities
2301 Peger Rd. Fairbanks, AK 99709

Kivalina Evacuation and School Site Access Road

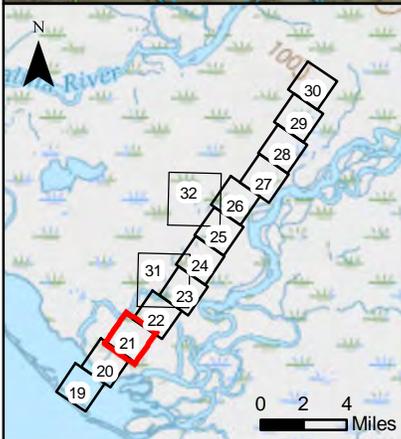
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Waterway: Kivalina Lagoon

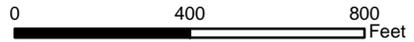
Proposed Activity: WOUS Fill for Roadway

Date: June 15, 2018

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- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping**
- Wetland
 - Water
 - Upland



Plan View

Applicant: STATE OF ALASKA
 Department of Transportation and Public Facilities
 2301 Peger Rd. Fairbanks, AK 99709
 Kivalina Evacuation and School Site Access Road

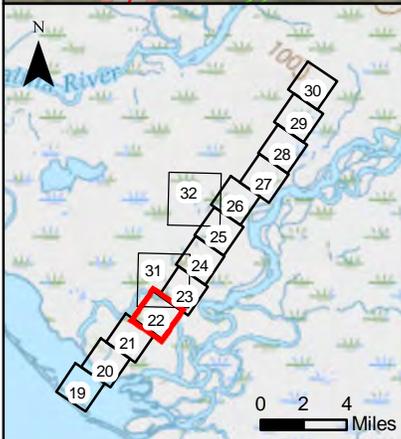
File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

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- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping**
- Wetland
 - Water
 - Upland

0 400 800 Feet **Plan View**

Applicant: STATE OF ALASKA
 Department of Transportation and Public Facilities
 2301 Peger Rd. Fairbanks, AK 99709
 Kivalina Evacuation and School Site Access Road

File No.: POA-2012-124

Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

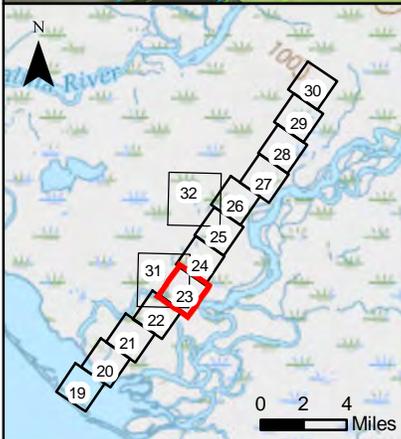
Date: June 15, 2018

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Wulik Relic Channel
Material Site

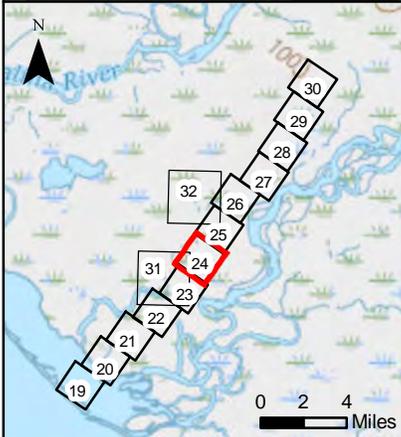


- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping**
- Wetland
 - Water
 - Upland
- POA-2012-124
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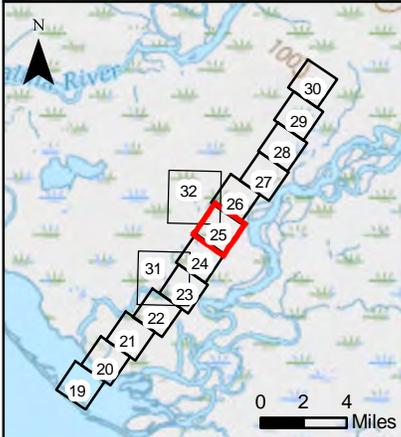
Plan View

<p>Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709</p> <p>Kivalina Evacuation and School Site Access Road</p>	
<p>File No.: POA-2012-124</p>	
<p>Waterway: Kivalina Lagoon</p>	
<p>Proposed Activity: WOUS Fill for Roadway</p>	
<p>Date: June 15, 2018</p>	<p>Sheet 23 of 32</p>



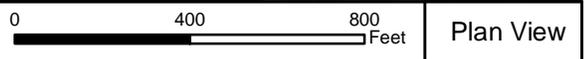
- Culvert Location
 - Road Centerline
- Impact Type**
- ▭ Roadway & Bridge Approach Cut/Fill
 - ▭ Material Site Cut/Fill
 - ▭ Work Area
- Wetland Mapping**
- ▭ Wetland
 - ▭ Water
 - ▭ Upland
- POA-2012-124
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0 400 800 Feet		Plan View
Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road		
File No.: POA-2012-124		
Waterway: Kivalina Lagoon		
Proposed Activity: WOUS Fill for Roadway		
Date: June 15, 2018	Sheet 24 of 32	

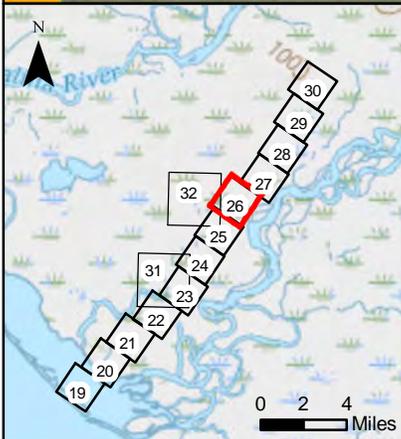


- Culvert Location
 - Road Centerline
- Impact Type**
- ▭ Roadway & Bridge Approach Cut/Fill
 - ▭ Material Site Cut/Fill
 - ▭ Work Area
- Wetland Mapping**
- ▭ Wetland
 - ▭ Water
 - ▭ Upland

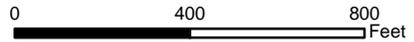
POA-2012-124
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Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road	
File No.: POA-2012-124	
Waterway: Kivalina Lagoon	
Proposed Activity: WOUS Fill for Roadway	
Date: June 15, 2018	Sheet 25 of 32

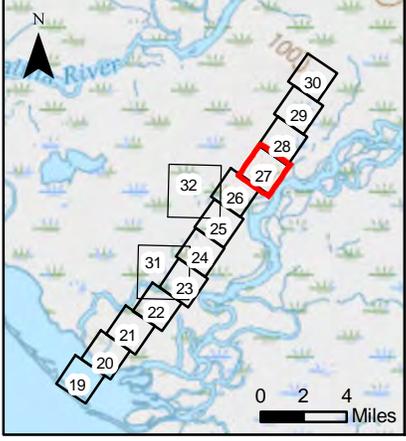


- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping**
- Wetland
 - Water
 - Upland
- POA-2012-124
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Plan View

Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road	
File No.: POA-2012-124	
Waterway: Kivalina Lagoon	
Proposed Activity: WOUS Fill for Roadway	
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● Culvert Location
 — Road Centerline

Impact Type

- Roadway & Bridge Approach Cut/Fill
- Material Site Cut/Fill
- Work Area

Wetland Mapping

- Wetland
- Water
- Upland

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0 400 800 Feet
 Plan View

Applicant: STATE OF ALASKA
 Department of Transportation and Public Facilities
 2301 Peger Rd. Fairbanks, AK 99709
 Kivalina Evacuation and School Site Access Road

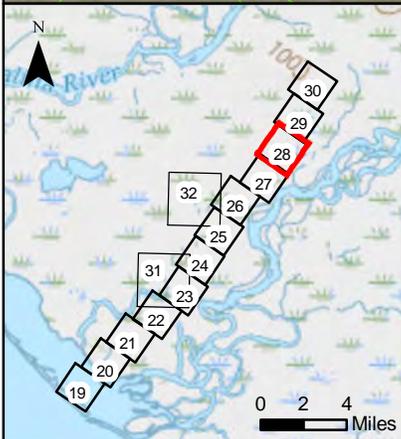
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Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

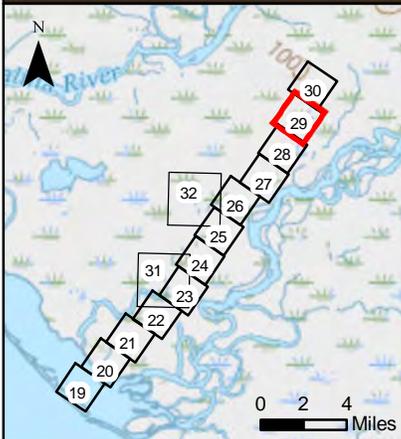
Date: June 15, 2018

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- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping** POA-2012-124
- Wetland
 - Water
 - Upland
- ADOT
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		Plan View
Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road		
File No.: POA-2012-124		
Waterway: Kivalina Lagoon		
Proposed Activity: WOUS Fill for Roadway		
Date: June 15, 2018	Sheet 28 of 32	



● Culvert Location
 — Road Centerline

Impact Type

- ▭ Roadway & Bridge Approach Cut/Fill
- ▭ Material Site Cut/Fill
- ▭ Work Area

Wetland Mapping

- ▭ Wetland
- ▭ Water
- ▭ Upland

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0 400 800 Feet
 Plan View

Applicant: STATE OF ALASKA
 Department of Transportation and Public Facilities
 2301 Peger Rd. Fairbanks, AK 99709
 Kivalina Evacuation and School Site Access Road

File No.: POA-2012-124

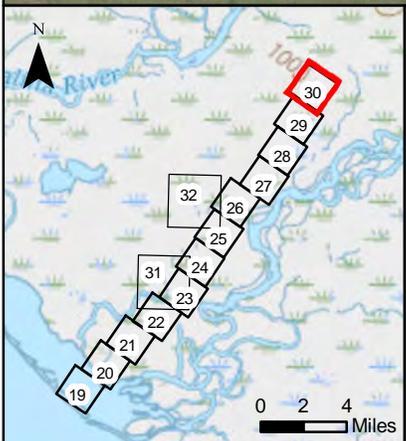
Waterway: Kivalina Lagoon

Proposed Activity: WOUS Fill for Roadway

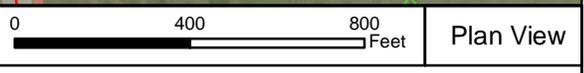
Date: June 15, 2018	Sheet 29 of 32
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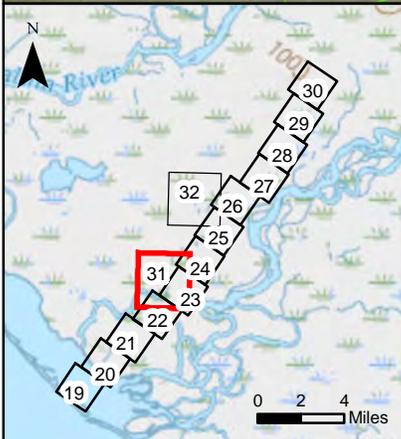
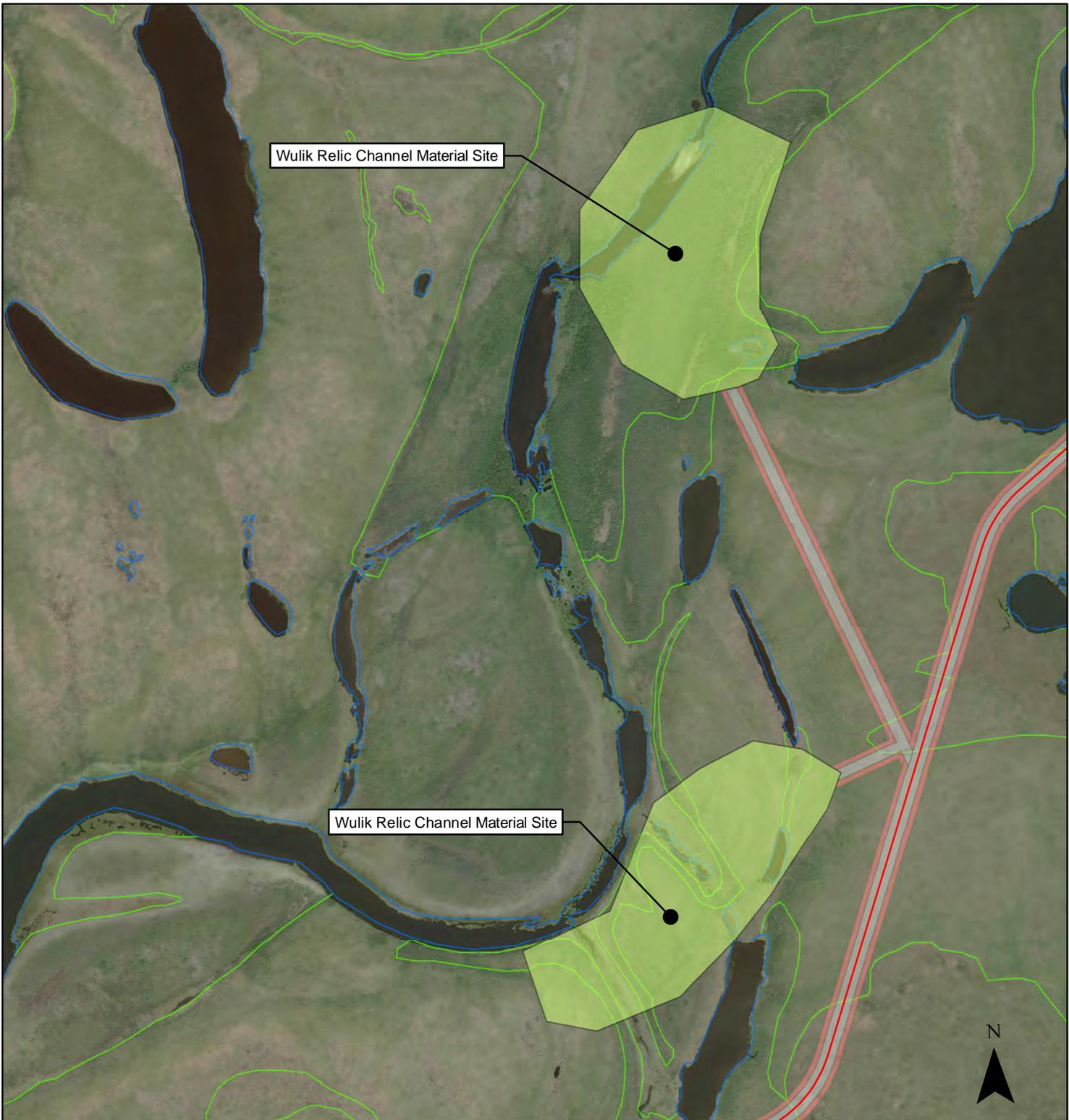
K-Hill Material Site



- Culvert Location
 - Road Centerline
- Impact Type**
- Roadway & Bridge Approach Cut/Fill
 - Material Site Cut/Fill
 - Work Area
- Wetland Mapping**
- Wetland
 - Water
 - Upland
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Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road	
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Waterway: Kivalina Lagoon	
Proposed Activity: WOUS Fill for Roadway	
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	Culvert Location
	Road Centerline
Impact Type	
	Roadway & Bridge Approach Cut/Fill
	Material Site Cut/Fill
	Work Area
Wetland Mapping	
	Wetland
	Water
	Upland
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		Plan View
Applicant: STATE OF ALASKA Department of Transportation and Public Facilities 2301 Peger Rd. Fairbanks, AK 99709 Kivalina Evacuation and School Site Access Road		
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Waterway: Kivalina Lagoon		
Proposed Activity: WOUS Fill for Roadway		
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Kivalina Evacuation Road

Rehabilitation Plan

POA-2012-124

June 7, 2018

Kisimigiqtuq Hill (K-Hill) Western Site

The Kisimigiqtuq Hill (K-Hill) Western site totaling 93.3 acres is anticipated to provide materials for armor rock and crushed surfacing material. Rehabilitation will include land contouring and revegetation.

The site shall be rehabilitated as follows:

- Reduce high walls to stable slopes: No slopes exceed 3H:1V.
- Remove or reclaim temporary storm water control structure(s).
- Reestablish natural drainage ways to minimize erosion.
- Reestablish natural vegetation to achieve long-term stability and rehabilitation. Plant species shall include 'Arctared' RedFescue (*Festuca rubra*and), 'Norcoast' Bering Hairgrass (*Deschampsia beringensis*) and Annual Rye (*Lolium multiflorum*) in the following mixture: 50% Red Fescue, 30% Bering Hairgrass, and 20% Annual Rye. Broadcast State of Alaska approved seed mixtures at a rate of 40 pounds per acre with a standard.
- 20-20-20 Nitrogen-Phosphorous-Potassium (N:P:K) fertilizer (fertilizer rate of 450 pounds per acre).
- Overburden/top soil will be redistributed as evenly as possible to help promote successful revegetation.
- Vehicle and/or equipment use on newly graded slopes and reseeded areas will be discouraged using signage and flagging where practicable.

Wulik Relic Channels

Wulik Relic Channel Source 2-1 and 2-2 total 41.5 acres and would provide material

for embankment construction. Rehabilitation will include land contouring, revegetation, flooding for creation of ponds and wetlands, and pond littoral margin habitat improvement for fish and wildlife enhancement.

The site shall be rehabilitated as follows:

- Each cell will be allowed to flood and a habitat enhancement project initiated to rehabilitate the site.
- A littoral zone will be created around outer edges of each pond to create a diversity of wildlife habitats.
- Twenty percent of the final pond surface area will be less than 3 feet in depth to create areas suitable for shallow water emergent vegetation to develop for waterfowl nesting and rearing.
- Side slopes into the ponds will be gradually tapered so no abrupt drop off occurs around the pond periphery.
- Ponds, and any islands within them will be irregularly shaped to increase edge habitat.
- All work areas will be graded to encourage natural variation of wetland hydrology, and native shrub recruitment and regrowth, as observed along river bars of the Kivalina and Wulik Rivers.

Figure 1: Wulik Relic Channel Rehabilitation

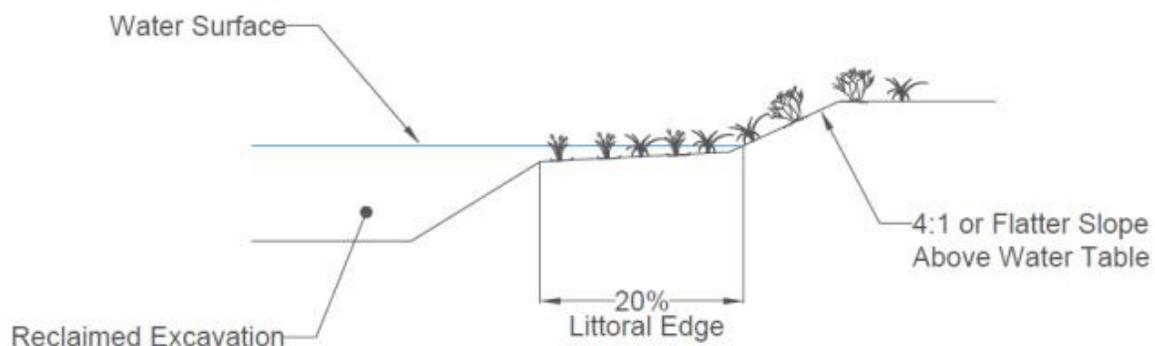
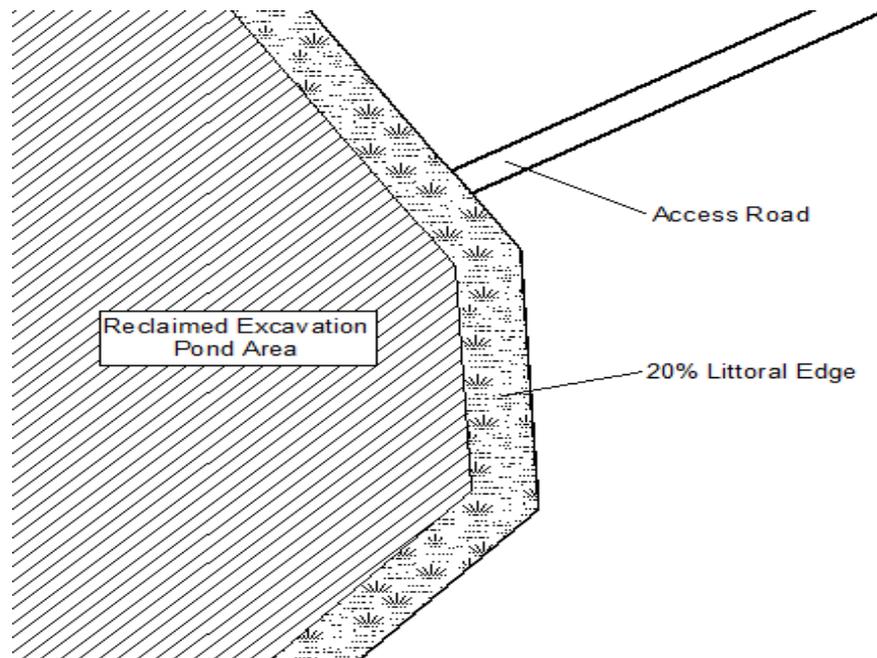


Figure 2: Wulik Relic Channel Rehabilitation



Evacuation Road

- Road side slopes will be broadcasted with State of Alaska approved seed mixtures to create grassy side slopes.

Monitoring Reports

- Monitoring reports for K-Hill Western Site and Wulik Relic Channels 2-1 and 2-2 shall be submitted annually by the permittee until site rehabilitation is complete and satisfactory to the Corps of Engineers. The reports should include pictures of the area taken between June and August of each year and a brief narrative on visual observations of the area.

These reports should be addressed to:

US Army Corps of Engineers
North Section
CEPOA-RD
PO Box 6898