APPLICANT:  Alaska Department of Transportation

APPLICATION NO.:  POA-2015-350-M1

WATERWAY:  Sagavanirktok River

This document constitutes my Environmental Assessment, Public Interest Review, Section 404(b)(1) Guidelines Review and Compliance Determination, and Statement of Findings for the proposed work.

1.0 Authority.
This permit action is being taken under authority delegated to the District Engineer by 33 CFR 325.8, pursuant to:
☑ Section 10 of the Rivers and Harbors Act of 1899
☑ Section 404 of the Clean Water Act
☐ Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972

2.0 Proposed Project.

2.1 Project Description from Public Notice:  The project is located between Mile Posts (MP) 379-401 of the Dalton Highway.  The applicant is seeking after the fact authorization for the development of three material sites, all to the east of the Dalton Highway, (MS 65-9-099-2 at MP 390, MS 65-9-040-2, at MP 374.5, and MS 65-9-024-2 at MP 381), authorized under U.S. Army Corps of Engineers (USACE) emergency permitting procedures, (permit number POA-2015-342), on May 27, 2015, as well as the authorization to discharge gravel fill material into 353.2 acres of waters of the United States (U.S.), including wetlands to raise the grade of the Dalton Highway by ten feet between MP 379-401, which was not authorized under the emergency permit.  MS 65-9-099-2 at MP 390 would impact 116.1 acres of wetlands, MS 65-9-040-2 at MP 374.5 would impact 101.6 acres of wetlands, and MS 65-9-024-2 at MP 381 would impact 47.5 acres of wetlands and 26.5 acres of the Sagavanirktok River (Sag River) below the Ordinary High Water (OHW).  The materials excavated from these sites would be used to repair the Dalton Highway to make it passable after the recent flooding of the Sag River.  The road repair work would be performed under Nationwide Permit (NWP) 3, Maintenance.  The ADOT would excavate approximately 100,000 cubic yards of gravel from one or more sites as needed.  MS 65-9-024-2 at MP 381 is located within Section 20 and 29, T. 5 N., R. 14 E., MS 65-9-040-2 at MP 374-375 is located within Sections 22 and 27, T. 4 N., R. 14 E., and MS 65-9-099-2 is located within Section 12, T. 6 N., R. 13 E.  Umiat Meridian; near Latitude 70.031429º N., Longitude 148.6419º W.; North Slope Borough; near Deadhorse, Alaska.  A permit (POA-2013-665) currently exists to raise the grade of the Dalton Highway between MP 401 and 414.  The grade raise would permanently impact 88 acres of waters of the U.S., including wetlands.  The applicant also requests authorization for temporary impacts to 160 acres of wetlands.  The applicant states that the *project is needed because snow drifting on the roadway is common, the existing gravel surface is high maintenance and creates unwanted dust.  Additionally, all culverts would be replaced, where many existing drainage culverts are in need of repair or replacement.  Extensive aufeis formation and flood damage in the spring of 2015 emphasized the need for raising the grade on the Dalton Highway.  Sixteen of the twenty nine culverts are fish passage culverts.  The new fish passage culverts would be replaced with a larger diameter and be installed in the same location as the existing culvert to attempt to maintain the thermal equilibrium that has been established in the 40 years the culvert has been in place.  Creek diversion methods will be determined by the contractor.  Twin 72” and twin 60” diameter flood relief culverts located 40’ and 50’ north of the main crossing will be installed first and the creek will
be pumped through the flood relief culverts during installation of the main culvert. The channel will be lined with Class II riprap with filler material placed in the riprap below OHW.

### Table 1: Summary of Impacts to Waters of the U.S.

<table>
<thead>
<tr>
<th>Project Component:</th>
<th>Wetlands</th>
<th>Sag River</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS 099 at MP 390</td>
<td>116.1 acres</td>
<td></td>
</tr>
<tr>
<td>MS 024 at MP 381</td>
<td>47.5 acres</td>
<td>26.5 acres</td>
</tr>
<tr>
<td><strong>TOTALS:</strong></td>
<td><strong>1636.6 acres</strong></td>
<td><strong>26.5 acres</strong></td>
</tr>
</tbody>
</table>

### 2.1.1 Project Changes Subsequent to Public Notice:

The applicant withdrew their request for a permit for the three material sites as they are not required for the work they need to complete this season on MP 397-401. The Corps issued a permit for impacts to 88 acres of wetlands along the Dalton Highway due to a grade raise of 7 to 10 feet along milepost 397 to 401 on August 26, 2015.

Additional information required to process the permit for the gravel pits was received on September 9, 2015. The applicant submitted a request for a modification to the proposed work authorized under POA-2015-350 to include the development of two material sites. This CDD discusses the current proposal for two material sites.

### 2.1.2 Applicant's Avoidance and Minimization Information:

The following information was submitted by the applicant on September 9, 2015.

a. **Avoidance:** “DOT&PF will avoid additional wetland impacts at material site 65-9-024-2 by mining in-river within an unvegetated gravel bar for material. At this location, DOT&PF estimates 24.0 acres will be mined and stockpiled on a gravel bar within the Sag (Sag) River channel.

   The in-river mining of gravel will reduce the need for an additional 24.0 acres of terrestrial material sources, which would most likely come from sites adjacent to the currently proposed 47.5 acre terrestrial footprint.

   The current terrestrial gravel source will impact 44.5 acres of Moist Sedge Shrub Meadow and 3.0 acres of a previous gravel site that is currently a pond. An expansion of the gravel pit would add at least 24 acres of Moist Sedge Shrub Meadow impacts. Although ABR Inc. (2006) considered these to be low functioning wetlands, mining in-river reduces the final wetland footprint of this project.

   DOT&PF also proposed a third material site at MP 374.5. DOT&PF removed this material site (Material Site 65-9-040-2) from State permitting consideration. This proposed material site location did not have previous terrestrial material extraction, only a road. The removal of this material site by DOT&PF avoids an expected 101.6 acres of wetland impacts. It is anticipated that the material needed for the project will be obtained from the remaining two material sites.”

b. **Minimization:** “BMPs will be required for the entire project to reduce potential sediment runoff into wetland areas. Any stockpiling of material, equipment staging and mobilization, and temporary construction access will avoid adjacent wetlands to the fullest extent practicable. When filling in wetlands, temporary straw waddles, silt fencing, vegetated buffer, or other BMPs will be employed during construction to reduce sediment runoff into temporary impact areas. Embankments will also be contoured and stabilized in accordance with BMPs to further prevent embankment erosion and sediment runoff.

Gravel mining in the Sag River at Material Site 65-9-024-2 will be done using a linear trench method to minimize the risk of channel migration and encourage development of overwintering fish habitat (DOT&PF 2014). Gravel mining will take place in-river during low water when gravel bars are not flooded. A linear trench will be excavated and will not be connected to the active channel until the end of the gravel extraction. The trench will be excavated parallel to the river channel, approximately 150 feet wide and 15-18 feet deep along the total length of the gravel bar. This method will minimize impacts to the active stream channel in the following ways:

1. No sediment outflow to the active channel during mining.
2. No impacts to fish in the active channel.
3. Temporary storage of materials on gravel bars, reducing use of terrestrial floodplain.

2.1.3 Applicant’s Proposed Compensatory Mitigation: “The DOT&PF PRM constitutes the following, as there are no other practicable alternatives: 1) Reclamation of Material Sites, creating habitat through conversion of uplands and wetlands into shallow water ponds, and shallow depressional features within staging areas and other non-pit facilities, and 2) Functional Lift of the Sag River Environment. Each component is detailed below:

1. Reclamation of Material Sites.
   The reclamation of the material sites used for the project will create wildlife habitats through conversion of uplands and wetlands into shallow water ponds with littoral zones. The reclaimed material sites should provide potential habitat for both fish and waterfowl. Yellow-billed Loons (Gavia adamsii) and Spectacled Eiders (Somateria fischeri), both species of concern, will not likely use these sites. The project location is in the southern boundary of their range. Use would also be limited due to the proximity to the Dalton Highway to the two material sites (ABR 2006). In addition, one of the reclaimed ponds has the potential to be connected to the Sag River to provide overwintering fish habitat and reclamation is complete.
   The method of gravel mining in-river and along the floodplains of the Sag River has been used since the 1970’s specifically for the development of Prudhoe Bay infrastructure (Roach 1993, ADF&G 2001), for erosion control projects (Brice 2006), and for maintenance and reconstruction of the Dalton Highway (DOT&PF 2014). ADF&G has been monitoring flooded gravel mine sites since 1986 (Roach 1993). Three gravel mines in the Sag River floodplain that flooded and reconnected to the river contained sufficient under-ice water during the winter to provide wintering habitat for fish (Roach 1993).

   a. Material Site 65-9-099-2
      This site is located between the Dalton highway and Trans Alaska Pipeline System (TAPS) near highway MP 390. A mining cell will be excavated within the material site for the needs of the project. The cell will be mined to a depth of 30 feet. When mining is complete the cell will be allowed to flood and a habitat enhancement project will be initiated to rehabilitate the pit.
      Rehabilitation will include providing a littoral zone around the outer edges of the pond creating valuable habitat for fish and wildlife (Woodward Clyde Consultants 1980). Twenty percent of the final pond surface area will be less than 3 feet in depth to create a shallow water, emergent vegetation area for waterfowl nesting and rearing. Sideslopes into the pond will be slowly tapered so no drop off occurs around the edges. Because of the site location between the highway and TAPS, this pond would not be connected to the Sag River.

   b. Material Site 65-9-024-2
      This material site will include both a terrestrial and in-river component. The terrestrial portion of this material site is located at MP 381 of the Dalton highway, to the east of both the highway and TAPS. A mining cell will be excavated within the material site for the needs of the project. The cell will be mined to a depth of 13-25 feet. When mining is complete the cell will be allowed to flood and a habitat enhancement project will be initiated to rehabilitate the pit.
      Rehabilitation will include providing a littoral zone around the outer edges of the pond providing habitat for fish and wildlife. Twenty percent of the final pond surface area will be less than 3 feet in depth to create a shallow water, emergent vegetation area for waterfowl nesting and rearing. Sideslopes into the pond should be slowly tapered so no drop off occurs around the edges. Based on recommendations from ADF&G, and listed as an objective in the DNR Material Site Contract (DNR 2015), the reclaimed pond may be connected to the Sag River by creation of a small channel to create overwintering fish habitat.
      At both material sites, disturbed areas outside of the pits (stock pile area, parking pad, side roads, etc.) will be reviewed and shallow depressional areas of varying size will be created throughout to accumulate runoff or intersect groundwater. The stripped vegetative mat from mining will be reserved for use in filling the depressional features. The depressions will be shallow in depth with slight grades around the edges (4:1). Minimum size will be approximately 10 feet wide. Drainage will be away from the reclaimed ponds and towards the depressional features. Areas not considered for reclamation will include the access road and areas that are needed for future development.
2. Functional Lift of the Sag River Environment

The in-river mining at this material site will provide functional lift to the Sag River in several ways, including the creation of valuable overwintering fish habitat and channel realignment.

a. Gravel will be excavated as a deep linear trench to help realign the Sag River, keeping it from impacting the adjacent floodplains and infrastructure. The linear trench will be approximately 150 feet wide with a target depth of 15-18 feet along the length of the gravel bar.

b. Gravel mining will create deep water overwintering habitat for fish within the Sag River. Overwintering fish habitat is limited on the North Slope in general (Craig 1989) and the Sag River in particular (Schmidt et. al. 1989; McLean 1993). ADF&G noted the potential for creation of overwintering habitat for fish through gravel extraction and started recommending gravel extraction in-river (Morris 2000). McLean (1993) noted that mining in-river will provide net benefits for fish while avoiding many of the costs and impacts of terrestrial mining. Mining in-river on the Sag River would provide overwintering fish habitat “…for a considerable period of time” (McLean 1993). Although these excavations will be filled from bedload deposition over time, recruitment rates in the Sag River are thought to be low (McLean 1993).

In a letter to DNR, the DOT&PF lists three examples of in-river material extraction (as recently as 2006-2011) showing no signs of adverse short or long term hydrological impacts (including head-cutting and channel migration) (DOT&PF 2014). The river bed-load has filled in all previous excavations in two of the three locations.

As noted in both the DOT&PF letter to the DNR (DOT&PF 2014) and the ADF&G North Slope Gravel Pit Performance Guidelines (McLean 1993), the river bed-load is expected to fill in-river excavations over time. DOT&PF plans to continue the use of in-river gravel mining as a means to meet the future gravel needs of maintenance and reconstruction along the Dalton Highway, while avoiding impacts to a variety of terrestrial habitats and wetlands.

DOT&PF’s proposal to fund University of Alaska Fairbanks (UAF) hydrologic studies on the Sag River to quantify potential impacts due to in-river mining will help determine if continued mining in-river is sustainable. The hydrologic studies will likely provide additional guidelines on in-river mining of the Sag River channel, enhance and protect aquatic resources, and protect infrastructure downstream of gravel mining locations.”

2.2 Location: MS 65-9-024-2 at MP 381 is located within Sections 20 and 29, T. 5 N., R. 14 E. at Latitude 69.769 ° N., Longitude 148.6931° W.; and MS 65-9-099-2 at MP 390 is located within Section 12, T. 6 N., R. 13 E. Latitude 69.8901 ° N., Longitude 148.7825° W.; Umiat Meridian; North Slope Borough; near Deadhorse, Alaska.

2.3 Scope of Analysis.

2.3.1 National Environmental Policy Act (NEPA).

2.3.1.1 Factors.
Scout determination for NEPA review is found at 33 CFR 325, Appendix B, Paragraph 7.b. The following factors are considered in determining whether sufficient federal “control and responsibility” exists:

a. Whether or not the regulated activity comprises “merely a link” in a corridor type project: This factor does not apply.
b. Whether there are aspects of the upland facility in the immediate vicinity of the regulated activity which affect the location and configuration of the regulated activity: There are no upland facilities.
c. The extent to which the entire project will be within the Corps jurisdiction: The entire project is located within jurisdictional wetlands.
d. The extent of cumulative Federal control and responsibility: The entire project is located within jurisdictional project, so the entire project is under Corps jurisdiction.

2.3.1.2 Determined Scope for NEPA:

- Only within the footprint of the regulated activity within the delineated water.
- Over entire property.
- Other

2.3.2 National Historic Preservation Act (NHPA) “Permit Area”.

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2.3.2.1 Tests:
All activities are located in waters of the U.S., therefore the permit area and scope for NHPA are the same.

2.3.2.2 Determined Scope (Permit Area) for NHPA: The entire project area is within the scope for NHPA.

2.3.3 Determined Scope (Action Area) for Endangered Species Act (ESA). A Biological Opinion was completed by the USFWS on February 25, 2013. It covered all phases of the Dalton Highway Reconstruction Project from milepost 362-415 and the material sites. The USFWS used the area directly affected by the proposed project as well as the potential material sites along this route, and the area indirectly affected by the proposed project (which they delineated). All consultation on endangered species has been completed. The Corps adopts this as the Action Area for ESA.

2.4 Purpose and Need.

2.4.1 Applicant’s stated purpose and need: The applicant’s stated purpose is to excavate gravel for use in road improvement projects.

2.4.2 Basic project purpose and water dependency [40 CFR 230.10(a)(3)]: The excavation of gravel is not a water dependent activity. The project is sited in a special aquatic site, jurisdictional wetlands; therefore, pursuant to 40 CFR 230.10(a)(3), practicable alternatives not involving special aquatic sites are presumed to be available and less environmentally damaging. Alternatives will be discussed below (see Section 3.0 Alternatives Considered).

2.4.3 Overall project purpose [40 CFR 230.10(a)(2) and 2009 HQ SOP page 15]: To excavate gravel for use in road improvement projects.

2.4.4 Changes to project purpose and need, as determined by the Corps, [33 CFR 325 App. B paragraph 9b(4)]: None.

2.5 Site description; existing conditions: The proposed project is located on the North Slope of Alaska on the Dalton Highway Corridor in an area comprised almost entirely of wetlands.

MS 65-9-099-2: “This site was predominantly Moist and Wet Sedge meadows (200.2 acres, 74.3%) and Moist Sedge-Dwarf shrub (51.7 acres, 19.2%). One impoundment (5.9 acres) occurs in the middle of the study area on the south side of an access road. Most of the other open water and emergent wetlands occur adjacent to the access road and the Dalton Highway (Figure 9). Overall, they make up 11.4% (30.6 acres) of the total area. Uplands were rare (<1 %), and were probably remnants of old river terraces. The soils were poorly drained sand and silt loams with an O organic horizon (2 in.) in the Moist Sedge Meadow communities, with a thicker O horizon (9–12 in.) composed primarily of sedge peat in the Wet Sedge meadows. In some cases, buried limnic horizons were found, indicating some of these areas had previously been ponds. Depth to permafrost was highly variable, ranging from 8-26 in.

Although MS-099 is the second largest material site being evaluated, it is dominated by a single habitat type, Moist Sedge-Shrub Meadow, which covers more than 85% of the site. The large impoundment may provide some foraging habitat for waterfowl and shorebirds, although it does not have a well-developed emergent fringe. The wetlands that surround the impoundment are a disturbed Moist Grass-Herb Meadow habitat, dominated by Arctagrostis latifolia that appears to have been seeded. Natural ponds, however, also occur on the site in several habitat types: Pond, Shallow Open Water with Islands or Polygonized Margins, and Young Basin Wetland Complex. These ponds and other aquatic tundra habitats (Aquatic Sedge with Deep Polygons, Aquatic Sedge Marsh, and Nonpatterned Wet Meadow) may have moderate to high value for foraging and nesting waterfowl, shorebirds, ptarmigan, and passerines. During the field survey, Long-billed dowitchers and Pectoral sandpipers were found in these habitats. This site also likely receives use by spring-staging waterfowl and other waterbirds that would use the impoundment and basin complexes if they were ice-free earlier than the surrounding tundra. The proximity of this site to the Peregrine Falcon nesting area on nearby Franklin Bluffs suggests that it could be used by falcons hunting ducks and other avian prey species. Use of the site for foraging by caribou and muskoxen is likely.” (Wetlands and Habitat Assessment of Proposed Dalton Highway MP 362-414 Material Sites, North Slope, Alaska. Final Report, Prepared for ADOT by ABR, Inc. November 2003).
MS-65-9-024-2: “A total of six wetland types and NWI classes were identified in the proposed material site which is within the Sagavinirkitok River riparian corridor and contains several channels of the river….The river bars are barren or partially vegetated(<30% cover). Other common wetlands types identified include Moist Sedge-Shrub Meadow (PEM/SS1B), and Wet Graminoid Meadow (PEM1B). The primary value of wetlands within the proposed material site is as fish and wildlife habitat. Side channels of the Sagavanirktok River support populations of several fish species including the Anadromous Dolly Varden char (salvelinus malma), Broad (Coregonus Nasus) and Humpback (C. Oidschian) Whitefish, and Arctic Cisco (C. autumnalis). Other species include Arctic Grayling (Thymallus arcticus), Slimy Sculpin (Cottus cognatus), and Ninespine Stickleback (Pungitius pungitius).

In addition, the potential for the dominant wetlands type, River/Barren Complex, to serve as a groundwater recharge and/or discharge area is high. The potential for the wetlands within the material site to serve other wetlands functions is low.”(Wetlands Determination and Wildlife Habitat Evaluation for the Dalton Highwa MP 362-414 Rehabilitation Project, Final Report, Prepared for ADOT by ABR, Inc., May 2006).

“The permafrost prevents soil drainage and produces a perched water table in the tundra outside the river channel. Summer thaw depth typically ranges from 12-30 inches, but can range up to 6 feet in well-drained and barren mineral soils and gravel roads and pads…. The habitats include migratory staging areas for birds; nesting, feeding and brood rearing sites for birds; foraging sites for small mammals; foraging habitat for caribou and to a lesser extent, muskoxen; escape cover for birds and mammals; and feeding and rearing habitat for fish.” (Wetlands Determination and Wildlife Habitat Evaluation for the Dalton Highway MP 362-414 Rehabilitation Project, Final Report, Prepared for ADOT&PF by ABR, Inc., May 2006).


3.1 No action: The no action alternative would be permit denial. There would be no work done to excavate gravel for use in road improvement projects.

3.2 Other project designs: The applicant considered use of terrestrial wetlands sites only. This would have increased impacts to Wetlands by 24.0 acres. Excavation of material from the Sag River results in temporary impacts, as opposed to permanent impacts in wetlands.

3.3 Other sites: To reduce transportation costs and increase the efficiency of the project, each material site is located near the Dalton Highway project corridor. The two material sites proposed have existing access roads. By selecting material sites with existing roads, the DOT&PF avoids wetland impacts associated with new road construction. In addition, these two sites have been mined for material in the past and have existing ponds created from gravel mining.

3.4 Least Environmentally Damaging Practicable Alternative (LEDPA): The Corps has determined that the applicant has clearly demonstrated that due to the prevalence of wetlands on the north slope of Alaska, no practicable alternatives exist, including alternative sites or construction methods that would not result in impacts to special aquatic sites. The material sites chosen use, to the maximum extent practicable, existing roads and previously disturbed sites. The excavation of gravel from the Sag River reduces permanent impacts to waters of the U.S., including wetlands.

4.0 Public Involvement. We received a complete application on May 27, 2015. A public notice describing the project was issued and posted on our website on June 18, 2015. The public notice expired on July 17, 2015.

4.1 Comments received:

4.1.1 Federal Agencies.

4.1.1.1 U.S. Environmental Protection Agency (EPA): No comments were received.

4.1.1.2 U.S. Fish and Wildlife Service (USFWS): The USFWS commented on Friday July 17, 2015 stating that the proposed project was covered under ESA consultation that occurred February 25, 2013
and covered all phases of the Dalton Highway Reconstruction Project from milepost 362-415, including the material sites.

4.1.1.3 National Marine Fisheries Service (NMFS): No comments were received.

4.1.1.4 U.S. Coast Guard (USCG): No comments were received.

4.1.2 State Agencies.

4.1.3.1 Alaska Department of Fish and Game – Division of Habitat (ADF&G): No comments received during the Public Notice period. Fish and Game informed the Corps in an email dated 9/17/2015 that they just received an application for a Fish Habitat Permit for MS-024 and would provide the Corps with a copy once issued.

4.1.3.2 Alaska Department of Natural Resources (ADNR): No comments received.

4.1.3.3 ADNR, Office of History and Archaeology (OHA): No comments were received. Consultation with SHPO was completed by the Federal Highway Administration (FHWA). See additional discussion on historic properties in Section 5.1.30 of this document.

4.1.3.4 Alaska Department of Environmental Conservation (ADEC): The 401 Cert was received on July 28, 2015.

4.1.3.5 Other State Agencies: None

4.1.4 Local Agencies: None

4.1.5 Federally Recognized Tribes:

4.1.6 Organizations: None

4.1.7 Individuals: None

4.1.8 Public Meeting: No public meetings were conducted.

4.1.9 Public Hearing: No requests for public hearing were received.

4.1.10 Site visit □ was/□ was not conducted.

4.2 Other Issues Identified by the Corps: None

4.3 Evaluation and Consideration of Comments. No substantive comments were received.

4.3.1 Issues/comments forwarded to the applicant. □ NA □ Yes.

4.3.2 Applicant replied/provided views. □ NA □ Yes.

4.3.3 Comments not discussed further in this document as they are outside the Corps’ purview: None

5.0 Analysis of Beneficial and Detrimental Impacts to the Environment and the Public Interest, and Factual Determinations for Discharges of Dredged or Fill Material. [33 CFR 320.4(a-r), 33 CFR 325 App B, and 40 CFR 230.11 and 230.20 - 230.77]

5.1 Factors.

5.1.1 Physical substrate determinations and Substrate: MS 65-9-099-2 at MP 390 would impact 116.1 acres of wetlands and MS 65-9-024-2 at MP 381 would impact 47.5 acres of wetlands and 26.5 acres of the Sag River below Ordinary High Water (OHW) (For a total of 163.6 acres of wetlands and 26.5 acres of the Sag River). Soils in the project area are underlain by continuous permafrost. The proposed
project would result in the excavation and filling of 163.6 acres of soils that consist of thick, fibric organic material over saturated silt loam deposits, and would result in the excavation of 26.5 acres of gravel substrates within the Sag River, a Section 10 waterway. The applicant has proposed rehabilitation of the material site using stockpiled organics. In this way some of the organic substrates will be saved and re-used to assist in the re-establishment of vegetation.

5.1.2 Water circulation, fluctuation and salinity determinations, Current patterns and water circulation, and Salinity gradients: The proposed project will result in the development of two material sites. The Sag River is a braided glacial fed river with a very high sediment load. The excavation of a deep trench, the purpose of which is to establish deep water overwintering habitat to fish would result in some changes to current patterns. The project is designed to minimize the potential for the establishment of a new thalweg and main channel. It is anticipated that the excavated areas would fill in over time and any changes would not be outside of the natural variability in flow patterns within the Sag River. The excavation of material sites in terrestrial wetlands would not impact water circulation or fluctuation. Salinity gradients are not a concern as this project is not located near marine waters.

5.1.3 Suspended particulate/turbidity determinations: The Sag River is a braided glacial fed river with a very high sediment load. The excavation of a portion of the channel would not result in more than minimal changes to suspended particulate and turbidity levels in the immediate vicinity of the excavation. Any changes would be short term and within the natural variability of the channel. Excavation of material sites in terrestrial wetlands would result in the formation of the pond. The applicant has proposed to use Best Management Practices (BMPs) that would reduce the potential for the spread of sediments into adjacent wetlands.

5.1.4 Water (nutrients, chemical content, dissolved gas, pH, temperature), water quality: The Alaska Department of Environmental Conservation issued a Water Quality Certification of Reasonable Assurance (Cert) on July 27, 2015, which the Corps finds conclusive with regards to water quality issues.

5.1.5 Flood hazards, floodplain values, Normal water fluctuations, wetlands as storage for storm and flood waters: The ecological functions provided at the impact site include floodwater storage. The formation of the pond would not adversely affect floodwater storage. As floods occur, the pond itself may be able to store more floodwaters than the wetlands can currently, depending on the water level in the pond. However, there would be no vegetation available to slow floodwater movement or trap sediments. The pond itself may be susceptible to erosion depending on the size of the flood. The applicant would temporarily store gravel below ordinary high water, but above the level of flowing water in the Sag River on an exposed gravel bar. Any material would be removed before freeze up and the area restored to its pre-disturbance topography. This would be made a condition of the permit, if issued. Although there are no mapped floodplains for the Sag River, given the extent of the flooding last summer Impacts to floodplain values are not contrary to the public interest.

5.1.6 Floodplain management (functions, degradation of floodplain values and functions, practicable alternatives): There are no mapped floodplains for the Sag River. Flooding of the Sag River occurred in 2015 and overtopped and damaged the Dalton Highway. Impacts to the Sag River channel would be temporary. Moving the material site out of the flood plain is not practicable due to cost because it would be too far from the Dalton Highway. Additionally it would not result in the least environmentally damaging practicable alternative because it would require the construction of an access road and therefore larger wetland impacts. The applicant would temporarily store gravel below ordinary high water but above the level of flowing water in the Sag River on an exposed gravel bar. Any material would be removed before freeze up and the area restored to its pre-disturbance topography. This would be made a condition of the permit, if issued. Impacts to floodplain functions or values would not be contrary to the public interest and with appropriate special conditions would be in compliance with 404(b)(1) guidelines.

5.1.7 Wetlands shielding other areas from wave action, erosion, or storm damage: Some The wetlands within the project area do not strongly perform the function of shielding other areas from wave action, erosion or storm damage. The impact to wetlands that may perform this function to a small degree is expected to be minimal.

5.1.8 Shore erosion and accretion: Changes in erosion and deposition patterns within the channel could occur due to the proposed project. The mining area is not directly adjacent to the shoreline, so
increased shore erosion or accretion is not anticipated. Additionally, the excavated area would be daylighted at the downstream end of the excavated area, which should reduce the concentration of flow and velocity of flow through the excavated area. Sediments from up river could fill the excavated area back in during break up.

5.1.9 Wetlands as ground water recharge areas: Since the entire area is underlain by continuous permafrost, the wetlands do not perform this function.

5.1.10 Wetlands as maintaining baseflows for aquatic resources: Impacts to baseflows are not anticipated due to the proposed project because the primary impact will be the transition of scrub shrub wetlands to open water and emergent wetlands. The potential short-term and long-term effects to wetlands as maintaining baseflows for aquatic resources would be negligible, and would not be contrary to the public interest.

5.1.11 Proposed disposal site determinations (Mixing zone, in light of the depth of water at the disposal site; current velocity, direction, and variability at the disposal site; degree of turbulence; water column stratification; discharge vessel speed and direction; rate of discharge; dredged material characteristics; number of discharges per unit of time; and any other relevant factors affecting rates and patterns of mixing): No material would be discharged into the Sag River. Impacts to the Sag River channel would be temporary. The applicant would temporarily store sediment below ordinary high water in the Sag River on an exposed gravel bar. This material would be removed before freeze up and the area restored to its pre-disturbance topography. This would be made a condition of the permit, if issued.

5.1.12 Special aquatic sites (Sanctuaries and refuges, Wetlands, Mudflats, Vegetated shallows, Coral reefs, Riffle and pool complexes), wetlands: The proposed project would result in the excavation and filling of 163.6 acres of emergent and scrub shrub wetlands, a special aquatic site, and will result in the transition of scrub shrub wetlands to open water and emergent wetlands. A total of nine wetland types and one wetland complex were classified and mapped along the road corridor. They include: Moist/wet sedge meadow/Low willow shrub complex which can be classified into a number of NWI types depending on the relative abundance of shrubs, mountain avens, and sedges. Other wetland types include fresh sedge marsh and moist sedge-shrub meadow. (From ABR, Inc. wetlands Delineation report dated May 2006). The applicant, as part of the project design, has committed to using BMPs such as silt fences to minimize sedimentation of waters outside of the permitted area, including wetlands, during construction. The applicant will also work to rehabilitate the material site by creating depressional areas filled with reserved organic material to see if wetland vegetation can be re-established. With appropriate rehabilitation once mining was complete, the material sites would eventually recover back to a more natural condition, however restoration of the original wetlands type would not be feasible since the wetlands are permafrost driven wetlands. Insulating the substrate may, over time, result in a decrease in depth to permafrost and an increase in permafrost thickness, however this process would take many decades.

The potential short-term and long-term effects to special aquatic sites would not be adverse, would comply with the 404(b)(1) Guidelines with the inclusion of appropriate and practicable conditions, including rehabilitation of the material sites, and would not be contrary to the public interest.

5.1.13 Fish, crustaceans, mollusks, and other aquatic organisms in the food web and aquatic ecosystem and organism determinations: The proposed project would excavate and fill 163.6 acres of palustrine emergent and scrub shrub wetlands, and result in the creation of open water permanently flooded ponds, which do not support a high diversity of species. The project could result in direct impacts to individual animals that utilize wetlands and would result in a complete change in habitat type for local species. While the applicant would be required to rehabilitate portions of the disturbed areas, this is not sufficient to mitigation for the lost functions and values the palustrine emergent and scrub shrub wetlands provide. The proposed Sagavanirktok River excavation would result in the creation of deep water habitat for fish, at least temporarily. Impacts within the Sag River would be beneficial to fish species since the critical habitat for fish populations in the arctic environment is often the amount of overwintering habitat.

5.1.14 Essential fish habitat: Adverse impacts to Essential Fish Habitat would not result from the proposed project. The Sagavanirktok River has been specified as important for the spawning, rearing, or
migration of anadromous fishes. It provides rearing and migration habitat for Least cisco, Dolly Varden, broad whitefish, chum and pink salmon, as well as resident fish species such as round whitefish, Arctic grayling, and ninespine stickleback. The Fish Habitat Permit requires pre and post-excavation bathymetric surveys be provided to the Division of Habitat. It also requires that the area of excavation be daylighted to the Sag River on the downstream side at the end of each excavation season. This would be included as a condition of the permit, if issued, to prevent fish entrapment. The proposed Sagavanirktok River excavation would result in the creation of deep water habitat for fish, at least temporarily. A Fish Habitat permit would be required from the State of Alaska Department of Fish and Game before work in the Sagavanirktok River could occur.

5.1.15 Wildlife, fish and wildlife values: The proposed project would excavate and fill 163.6 acres of palustrine emergent and scrub shrub wetlands, and result in the creation of open water permanently flooded ponds, which do not support a high diversity of species, nor are they known preferred habitats for applicable threatened and endangered and candidate species. While the applicant would be required to rehabilitate portions of the disturbed areas, this is not sufficient to mitigate for the lost functions and values the palustrine emergent and scrub shrub wetlands provide. The project could result in direct impacts to individual animals that utilize wetlands and would result in a complete change in habitat type for local species. The propose Sagavanirktok River excavation would result in the creation of deep water habitat for fish, at least temporarily. Impacts within the Sag River would be beneficial to fish species since in the arctic environment the critical habitat for fish populations is often the amount of overwintering habitat.

5.1.16 Threatened and endangered species:

If there are T&E species, list the common and scientific name for each species and any designated critical habitat that occurs in or near the project.

<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
<th>Critical Habitat (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steller’s eider</td>
<td>Polysticta Stelleri</td>
<td>No</td>
</tr>
<tr>
<td>Polar Bear</td>
<td>Ursus maritimus</td>
<td>No</td>
</tr>
<tr>
<td>Spectacled eider</td>
<td>Somateria fischeri</td>
<td>No</td>
</tr>
</tbody>
</table>

5.1.16.1 Identify the ESA “action area”: See Section 2.3.3

5.1.16.2 Determination of effects: A Biological Opinion was completed by the USFWS on February 25, 2013. They concluded that the proposed project may affect, but is not likely to adversely affect Alaska-breeding Steller’s eiders and polar bears. Additionally, the Service has concluded the proposed action may adversely affect, but is not likely to jeopardize the continued existence of spectacled eiders.

The proposed project:

The Services provided a Biological Opinion(s). The FHWA consulted with the USFWS and the USFWS completed a Biological Opinion on February 25, 2013.

5.1.17 Contaminant determinations: The Alaska Department of Environmental Conservation on issued a Certification of Reasonable Assurance on July 27, 2015 for the proposed project which the Corps find conclusive with regards to water quality issues.

5.1.18 Water supply and conservation, Municipal and private water supplies: Not applicable.

5.1.19 Recreational and commercial fisheries: Fish and Game issued Fish Habitat permits for the six culverts on unnamed tributaries to the Sag River on July 13, 2015. Recreational fisheries would not be directly impacted by the proposed project.

5.1.20 Subsistence: The impacts would occur along the already disturbed corridor of the Dalton Highway. No comments regarding subsistence uses were received during the comment period. The Dalton Highway provides access to areas used for subsistence uses. No impacts to subsistence are anticipated due to the proposed project.
5.1.21 **Water-related recreation, recreation**: The proposed project is not anticipated to affect water-related recreation or other recreation as the impacts to water resources would be temporary.

5.1.22 **Aesthetics**: The proposed project is located along the already disturbed Dalton Highway Corridor and would not change the aesthetics of the area.

5.1.23 **Wild and Scenic Rivers, National Wilderness Areas, National Seashores, National Parks, estuarine and marine sanctuaries, Parks, national and historic monuments, wilderness areas, research sites, and similar preserves**: N/A

5.1.24 **Energy needs and energy conservation and development**: The proposed project would not have a direct effect on energy needs or energy conservation and development. The project would have an indirect effect on energy development by improving the road surface and making travel along the Dalton Highway easier in that section of the road.

5.1.25 **Noise**: No long term impacts from noise are anticipated due to the proposed project, as there are no permanent noise receptors in the area.

5.1.26 **Navigation**: N/A There are no navigable waters within the project area.

5.1.27 **Effects on limits of the territorial sea**: N/A. There are no territorial seas within the project area.


5.1.29 **Safety, also safety of impoundment structures**: There are no impoundments proposed as part of the project. The project should have minimal effects on safety assuming all applicable safety regulations would be followed during construction.

5.1.30 **Historic properties**: The proposed project will not have any effect on any sites listed, or eligible for listing, in the National Register of Historic Places, or otherwise of national, state, or local significance based on a letter to Federal Highway Administration (FHA) dated May 21, 2012 from SHPO. The FHA was the lead federal agency for Section 106 Coordination with SHPO. Only one site was identified within the Permit Area. The FHA sent a letter to SHPO date May 18, 2012 with a finding of No Adverse Effect. The ADOT and FHA actively consulted with SHPO, who concurred with the finding in a letter dated May 21, 2012. SHPO did not propose any mitigation measures in their concurrence. The Corps accepts the consultation process conducted by the FHA and finds it sufficient to meet our obligations for Historic Properties.

5.1.31 **Land use**: The proposed material sites would impact undeveloped land near the Dalton Highway, however these areas are not used for recreation or subsistence. The proposed project is not anticipated to affect land use, or be contrary to the public interest.

5.1.32 **Conservation**: No impacts to conservation are anticipated due to the proposed project.

5.1.33 **Economics (employment, tax revenues, community cohesion, community services, property values)**: The proposed project would have minimal effects on economics. It may increase employment opportunities in the short term, during project construction. It would not impact tax revenues, community cohesion, community services or property values.

5.1.34 **Prime and unique farmland**: This law requires that Federal agencies take into account the adverse effects of their programs on the preservation of farmland and to consider alternative actions, as appropriate, that could lessen such adverse effects. The Natural Resources Conservation Service advises that there is no Prime or Unique Farmland designated in the State of Alaska. [http://www.ak.nrcs.usda.gov/technical/soils/soilslocal.html](http://www.ak.nrcs.usda.gov/technical/soils/soilslocal.html)

5.1.35 **Food and fiber production**: Not applicable.
5.1.36 **Mineral needs:** The proposed material sites would be used for construction and maintenance projects on the Dalton Highway.

5.1.37 **Considerations of property ownership:** The material sites would be located on State Lands.

5.1.38 **General environmental concerns, also environmental benefits:** MS 65-9-099-2 at MP 390 would impact 116.1 acres of wetlands and MS 65-9-024-2 at MP 381 would impact 47.5 acres of wetlands and 26.5 acres of the Sag River below Ordinary High Water (OHW) (For a total of 163.6 acres of wetlands and 26.5 acres of the Sag River). The impacts to the Sag River would be temporary. Additionally, the applicant would be required to rehabilitate portions of the disturbed material site areas. The material would be used for road improvement projects and maintenance.

5.1.39 **Other federal, state, or local requirements:** ADF&G Fish Habitat Permit, ADEC 401 Certification of Reasonable Assurance, ADEC APDES, ADEC Non-domestic Wastewater Plan Approval, North Slope Borough Land Management Permit.

5.1.40 **Needs and welfare of the people:** The project would result in improvements to the Dalton Highway, the only ground transportation route to Deadhorse, Alaska and a major transportation route for oil and gas resources.

5.1.41 **Other Factors Considered:** None.

5.2 **Secondary and Cumulative Impacts.**

The geographic area for this assessment is the Dalton Highway Corridor within the Sag River Watershed. The project would result in the development of MS 65-9-099-2 at MP 390 which would impact 116.1 acres of wetlands, and MS 65-9-024-2 at MP 381 which would impact 47.5 acres of wetlands and 26.5 acres of the Sag River below the Ordinary High Water (OHW).

5.2.1 **Secondary Impacts:**

See existing condition discussion at Section 2.5 above. Secondary impacts are discussed above in this document and include impacts to wildlife habitat and floodplain functions. The material sites are located near the Sagavanirktok River in an area of continuous, shallow permafrost. The excavation of the wetlands could result in degradation of permafrost and the slumping of the shore along the perimeter of the pond.

The excavation of the Sagavanirktok River could result in additional channel morphology and thalweg changes if aufeis and flooding occur. At this time it is unknown how the channel will respond to the excavation of material. The University of Alaska, Fairbanks, will be studying the changes in channel morphology after the mining. The information gained in this study can be used to plan future material sites.

5.2.2 **Cumulative Impacts:**

See also Existing Condition, Section 2.5 above. The area in which impacts resulting from the proposed project will occur is along the Dalton Highway Corridor in the Sag River. The proposed project would result in the discharge of fill material into 163.6 acres of waters of the U.S. to develop two material sites along the Dalton Highway corridor. Other actions past, proposed, and reasonably foreseeable that have had or are expected to have impacts in the same area are the Dalton Highway improvement project (past and future, MP 362 – 414), driveways and parking areas, material sites, and the oil pipeline corridor. The impacts or expected impacts from these other actions are the discharge of fill into wetlands within the floodplain of the Sag River, and other waters of the U.S. the fragmentation of wildlife habitat, impacts to water quality due to sediment from existing fill. However, the Dalton Highway, once paved, would reduce impacts from fugitive dust; and culverts would be replaced that would improve natural drainage patterns.

The material sites are located within the lower Sag River watershed which is 2,090 kilometers (km)². The total impacts from the two material sites would equal 163.6 acres of WOUS and 26.5 acres below the OHW of the Sag River. 163.6 acres is 0.66 km squared, and this would equal 0.03% of the lower Sag River watershed. On the Arctic Coastal Plain, in which this project is located, wetlands account for 82.9% of the surface area (Hall et al. 1994). 82.9% of 2,090 km² is 1,732.61 km². 0.66 km² is 0.038% of 1,732 km².
Therefore the impacts due to the development of material sites would result in impacts to an additional 0.038% of the wetlands within the lower Sag River watershed. In general, the majority of the impacts to the watershed are concentrated along the river corridor, and includes impacts from gravel pads, the Dalton Highway, the pipeline, access roads to pipeline, and material sites, as well as channel stabilization activities within the Sag River itself. A conservative rough estimate from GIS data resulted in an estimate of 1225 acres (5 km²) of area impacted from gravel pads, 21 miles of roads (at an estimated toe to toe width of 85' for an area of 203.6 acres or 0.82 km²), and 21 miles of Pipeline (and including the proposed work). Without calculating impacts from the Pipeline, 0.3% of the watershed is impacted, or less than 1%. Even if you doubled that estimate, to 0.6% of the watershed, it would be less than 1% of the watershed impacted.

Even considering the fact that impacts are grouped together in one area of the watershed, the cumulative effects of impacts to an additional 0.06% of the wetlands within the watershed would not result in adverse impacts to the Lower Sag River Watershed.

When considering the overall impacts that will result from this project, in context with the overall impacts from similar past, present, and reasonably foreseeable future projects, their cumulative impacts are not considered to be significantly adverse. It is likely we will receive similar projects in the future, which will go through a comparable review process.

5.3 Mitigation Discussion. [33 CFR 320.4(r), 33 CFR 332; 40 CFR 230 Subpart J, 40 CFR 230.70-77]
The proposed project would result in permanent impacts to 163.6 acres of waters of wetlands adjacent to the Sag River and between the river and the Dalton Highway, and to 26.5 acres of the Sagavanirktok River.

5.3.1 Avoidance: The applicant located proposed material sites near already disturbed areas to avoid additional impacts to wetlands from the construction of new access roads. The applicant will avoid impacts to 24 acres of wetlands (although not to waters of the U.S.) by mining 26.5 acres in the Sagavanirktok River below ordinary high water and creating deep water, over wintering habitat for fish, at least temporarily.

5.3.2 Minimization: The applicant will minimize as described in Section 2.1.2b above. Additionally the applicant will rehabilitate the mining sites as outlined in their Applicant Proposed Compensatory Mitigation statement (see 2.1.3 above). Minimization, in the form of rehabilitation will help restore at least some of the wildlife habitat and floodplain functions impacted due to the development of material sites. Additionally, the technique proposed and the monitoring of the site, once the work is completed will help determine if the technique is beneficial for the rehabilitation of material sites in the Arctic. Additionally, the monitoring of the gravel extraction site within the Sag River and the quantification of potential impacts due to in-river mining will provide additional guidelines on in-river mining of the Sag River channel.

5.3.3 Compensatory Mitigation Determination:
The proposed project is not located within the service area of an approved Mitigation Bank or an approved In Lieu Fee program.

The ecological functions provided at the impact site include fish and wildlife habitat, groundwater recharge/discharge (within the Sag Channels) and floodwater storage. The excavation of the material sites and the creation of open water pits would not adversely impact the groundwater recharge/discharge function. This function is not performed within permafrost driven wetlands, as the permafrost restricts the hydrologic connection between surface water and groundwater. If permafrost under the pond and between the pond and the Sag River degrades, groundwater discharge/recharge could increase. Excavation within the Sag River would not impact groundwater recharge/discharge. The formation of the pond would also not adversely affect floodwater storage. As floods occur, the pond itself may be able to store more floodwaters than the wetlands can currently, depending on the water level in the pond. However, there would be no vegetation available to slow floodwater movement. The pond itself may be susceptible to erosion depending on the size of the flood. The largest impact would be to wildlife habitat. The development of the material site would result in the conversion of palustrine emergent/scrub shrub wetlands to an open water pond. However, the rehabilitation of the pond would have the objective of re-establishing areas of wetlands distributed throughout the disturbed area, but not necessarily within the pond itself. With regards to wildlife habitat, the rehabilitation of the pond would include the establishment
of shallow littoral areas where waterfowl and their chicks could enter and exit, and would provide vegetated areas near the open water pond for foraging and refuge. While this rehabilitation would not restore the permafrost driven wetlands, it may result in the restoration of some of the functions lost due to the development of the site.

Restoration of permafrost driven wetlands within an appropriate timeframe is not practicable, because once the permafrost is degraded, it can take decades or longer to redevelop, and only under the appropriate conditions.

Additionally, when using a watershed approach, overall disturbance to the Lower Sagavanirktok River watershed, including the proposed project, is less than 1% of the land area. The proposed project would result in impacts to 0.038% of the wetlands within the lower Sag River watershed, and would not be considered significantly adverse within a watershed approach.

The applicant has avoided and minimized to the maximum extent practicable with the requirement of rehabilitation and monitoring of the material sites, which would be added as special conditions to the permit, if issued.

5.3.3.1 Is compensatory mitigation required?  □ yes  ☑ no [If “no,” state why, and do not complete the rest of this section]  The impacted wetland types are not rare or unique to the lower Sagavanirktok Watershed, and the wetland functions lost due to the proposed project would be partially restored by the rehabilitation of the material sites. The applicant has taken all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the United States, the proposed project is in compliance with the 404(b)(1) guideline, is not contrary to the public interest and would not result in significant adverse impacts to waters of the U.S., including wetlands, with the appropriate special conditions. The Applicant’s Proposed Compensatory Mitigation Plan as outlined in Section 2.1.3 above would not be required as compensatory mitigation but would be added as a special condition of the permit as practicable and necessary mitigation (minimization measures).

5.4 Public Interest Review General Criteria.

5.4.1 The relative extent of the public and private need for the proposed structure or work:  The proposed projects would result the establishment of two new material sites that would provide gravel used for road maintenance and upgrades.

5.4.2 The practicability of using reasonable alternative locations and/or methods to accomplish the objective of the proposed structure or work:  ☑ There are no unresolved conflicts as to resource use.  The Corps has determined that the applicant has clearly demonstrated that due to the prevalence of wetlands on the north slope of Alaska, no practicable alternatives exist, including alternative sites or construction methods that would not result in impacts to special aquatic sites. See Section 3.0, Alternatives, for additional discussion.

5.4.3 The extent and permanence of the beneficial and/or detrimental effects that the proposed structures or work may have on the public and private uses to which the area is suited:  The proposed project would result in permanent impacts to 163.6 acres of primarily emergent/scrub shrub wetlands, and 26.5 acres of the Sagavanirktok River. The proposed project would provide material needed to upgrade the Dalton Highway which would result in improved driving conditions on the northern most part of the Dalton Highway and would reduce long term maintenance costs.

5.5 Special Conditions and Rationale for Inclusion.

5.5.1 The following conditions were included in the ADEC Certificate of Reasonable Assurance:  

1. Reasonable precautions and controls must be used to prevent incidental and accidental discharge of petroleum products or other hazardous substances. Fuel storage and handling activities for equipment must be sited and conducted so there is no petroleum contamination of the ground, surface runoff or water bodies.
2. During construction, spill response equipment and supplies such as sorbent pads shall be available and used immediately to contain and cleanup oil, fuel, hydraulic fluid, antifreeze, or other pollutant spills. Any spill amount must be reported in accordance with Discharge Notification and Reporting Requirements (AS 46.03.755 and 18 AAC 75 Article 3). The applicant must contact by telephone the DEC Area Response Team for Northern Alaska at (907) 451-2121 during work hours or 1-800-478-9300 after hours. Also, the applicant must contact by telephone the National Response Center at 1-800-424-8802.

3. Runoff discharged to surface water (including wetlands) from a construction site disturbing one or more acres must be covered under Alaska’s General Permit for Storm Water Discharges from Large and Small Construction Activities in Alaska (AKR100000). This permit requires a Storm Water Pollution Prevention Plan (SWPPP). For projects that disturb more than five acres, this SWPPP must also be submitted to DEC (William Ashton, 907-269-6283) prior to construction.

4. During the work on the culverts, construction equipment shall not be operated below the ordinary high water mark if equipment is leaking fuel, oil, hydraulic fluid, or any other hazardous material. Equipment shall be inspected on a daily basis for leaks. If leaks are found the equipment shall not be used and pulled from service until the leak is repaired.

5. All work areas, material access routes, and surrounding wetlands involved in the construction project shall be clearly delineated and marked in such a way that equipment operators do not operate outside of the marked areas.

6. Natural drainage patterns shall be maintained, to the extent practicable, without introducing ponding or drying.

7. Excavated or fill material, including overburden, shall be placed so that it is stable, meaning after placement the material does not show signs of excessive erosion. Indicators of excess erosion include: gullying, head cutting, caving, block slippage, material sloughing, etc.

8. Include the following BMPs to handle stormwater and total stormwater volume discharges as they apply to the site:
   a. Divert stormwater from off-site around the site so that it does not flow onto the project site and cause erosion of exposed soils;
   b. Slow down or contain stormwater that may collect and concentrate within a site and cause erosion of exposed soils;
   c. Place velocity dissipation devices (e.g., check dams, sediment traps, or riprap) along the conveyance channel to provide a non-erosive flow velocity. Also place velocity dissipation devices where discharges from the conveyance channel or structure join a water course to prevent erosion and to protect the channel embankment, outlet, adjacent stream bank slopes, and downstream waters.

9. Fill placed during winter construction within wetlands that during the summer contain surface water that is connected to natural bodies of water, must be stabilized or contained in the spring prior to breakup. This action is to ensure that silts are not carried from the fill to the natural bodies of water in the spring and summer.

10. Prior to fill placement in the spring or summer, a silt fence or similar structure shall be installed on a line parallel to and within five feet of the proposed fill toe of slope within all wetland areas that contain standing water that is connected to any natural body of water or where the fill toe is within 25 feet of such a water body. This structure shall remain in place until the fill has been stabilized or contained in another manner.

11. The permittee must stabilize any dredged material (temporarily or permanently) stored on upland property to prevent erosion and subsequent sedimentation into jurisdictional waters of the United States. The material must be contained with siltation control measures to preclude reentry into any waters of the U.S., including wetlands.

12. Fill material must be clean sand, gravel or rock, free from petroleum products and toxic contaminants in toxic amounts.
13. Any disturbed ground and exposed soil not covered with fill must be stabilized and re-vegetated with endemic species, grasses, or other suitable vegetation in an appropriate manner to minimize erosion and sedimentation, so that a durable vegetative cover is established in a timely manner.

In accordance with 33 U.S.C. 1341(d), all conditions of ADEC’s Certification are incorporated as part of the DA permit. Therefore, they are not listed as special conditions.

5.5.2 The following special conditions will be included in the DA permit, if issued, to ensure the project is not contrary to the public interest [33 CFR 320.4(r)], and to ensure the project complies with the 404 (b)(1) Guidelines [40 CFR 230.10(d)], or at the permittee’s request.

1. 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.

2. For avoidance and minimization to Waters of the United States, and as part of the proposed project, the applicant shall implement the measures described in document entitled: “Dalton Highway MP379-401 Reconstruction Section 404 Permit Application, the Application Block 23: Mitigation, POA-2015-310-Modification 1”, dated September 9, 2015. The rehabilitation and monitoring plan described under 23.3 and 23.3.1 of the same plan, including proposed monitoring shall be implemented as minimization measures to meet mitigation requirements. No compensatory mitigation is required.

Rationale: Minimizes impacts to wetlands [33 CFR 320.4(a)(1), and 320.4(b)(1) and (2) and 332.1(c)]. Prevents degradation of waters of the U.S., and fish and wildlife habitat; maintain function and integrity of wetlands adjacent to the permitted area; [40 CFR Part 230.74, 33 CFR 320.4(c)].

3. Material Site 024 terrestrial pits shall not be day lighted to the Sagavanirktok River, unless a request to do so is submitted to the Corps and approved by the Corps.

Rationale: Minimizes impacts to wetlands [33 CFR 320.4(a)(1), and 320.4(b)(1) and (2) and 332.1(c)]. Prevents degradation of waters of the U.S., and fish and wildlife habitat; maintain function and integrity of wetlands adjacent to the permitted area; [40 CFR Part 230.74, 33 CFR 320.4(c)].

6.0 Compliance with Other Federal, State, or Local Laws and Presidential Executive Orders.

6.1 State 401 Water Quality Certification.

Certification was issued on July 27, 2015.

Pursuant to 33 CFR 320.4(d), the certification of compliance with applicable effluent limitations and water quality standards required under the provisions of Section 401 of the Clean Water Act are considered conclusive with respect to water quality considerations unless the Regional Administrator, U.S. Environmental Protection Agency, advises of other water quality aspects to be taken into consideration.

6.2 Other state and/or local authorizations (if issued): Alaska Department of Fish and Game Fish Habitat Permit, forthcoming. Alaska Division of Mining Land and Water.

6.3 EO 12898, Environmental justice issues. In accordance with Title III of the Civil Right Act of 1964 and Executive Order 12898, it has been determined that the project would not directly or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin nor would it have a disproportionate effect on minority or low-income communities.

6.4 EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians. This action will have no known substantial direct effect on one or more Indian tribes.
6.5 EO 11988, Floodplain Management.
In a floodplain, discussion can be found at 5.1.5 and 5.1.6 above.

6.6 EO 13112, Invasive Species.
☒ There were no invasive species issues involved.

6.7 EO 13212 and 13302, Energy Supply and Availability.
☒ The project was not one that will increase the production, transmission, or conservation of energy, or strengthen pipeline safety.

6.8 Corps Wetland Policy. [General policies for evaluating permit applications (§ 320.4.b Effects on Wetlands)]. Based on the public interest review herein, the beneficial effects of the project outweigh the damages to the wetland resource.

6.9 Other authorizations. None

6.10 Significant Issues of Overriding National Importance. 33 CFR 320.4(j)(2)
☒ NA

7.0 Statement of Findings.

7.1 Public Interest Review.

7.1.1 Public Interest Factors Summary: All public interest factors have been reviewed as summarized here. Both cumulative and secondary impacts on the public interest were considered. Information relevant to the decision is found at the reference location for each factor below.

<table>
<thead>
<tr>
<th>+ Beneficial effect</th>
<th>0 Negligible effect</th>
<th>- Adverse effect</th>
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<td>☑ Shore erosion and accretion (Part 5.1.8).</td>
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<td>☑ Recreation (Part 5.1.21).</td>
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<td>☑ Water supply and conservation (Part 5.1.18).</td>
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<td>☑ Water quality (Part 5.1.4).</td>
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<td>☑ Energy needs (Part 5.1.24).</td>
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<td>☑ Safety (Part 5.1.29).</td>
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<td>☑ Food and fiber production (Part 5.1.35).</td>
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<td>☑ Mineral needs (Part 5.1.36).</td>
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<td>☑ Considerations of property ownership (Part 5.1.37).</td>
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<td>☑ Needs and welfare of the people (Part 5.1.40).</td>
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7.1.2 Public Interest Determination: I find that issuance of a Department of the Army permit, as prescribed by regulations published in 33 CFR 320 to 330:

☒ Is not contrary to the public interest. ☐ Is contrary to the public interest.

7.2 Evaluation of Compliance with 404(b)(1) Guidelines.
7.2.1 Alternatives Test (40 CFR 230.10(a)):

7.2.1.1 Based on the discussion in 3.0 are there available, practicable alternatives having less adverse impact on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into “waters of the U.S.” or at other locations within these waters? NO

7.2.1.2 Based on 3.0 if the project is in a special aquatic site and is not water dependent, has the applicant clearly demonstrated that there are no practicable alternative sites available? YES

7.2.2 Special Restrictions (40 CFR 230.10(b)). Will the discharge:

7.2.2.1 Violate state water quality standards?: NO

7.2.2.2 Violate toxic effluent standards [under Section 307] of the Clean Water Act?: NO

7.2.2.3 Jeopardize endangered or threatened species or their critical habitat?: NO

7.2.2.4 Violate standards set by the Department of Commerce to protect marine sanctuaries?: NO

7.2.3 Other restrictions (40 CFR 230.10(c)): Will the discharge contribute to significant degradation of “waters of the U.S.” through adverse impacts to:

7.2.3.1 Human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife and/or special aquatic sites?: NO

7.2.3.2 Life stages of aquatic life and/or wildlife?: NO

7.2.3.3 Diversity, productivity, and stability of the aquatic life and other wildlife? Or wildlife habitat or loss of the capacity of wetlands to assimilate nutrients, purify water or reduce wave energy?: NO

7.2.3.4 Recreational, aesthetic, and/or economic values?: NO

7.2.4 Actions to minimize potential adverse impacts [mitigation](40 CFR 230.10(d)). Will all appropriate and practicable steps [40 CFR 230.70-77] be taken to minimize adverse impacts of the discharge on the aquatic ecosystem?: YES

7.3 Findings of Compliance or Non-compliance with the 404(b)(1) Guidelines. (40 CFR 230.12)

The discharge complies with the guidelines, with the inclusion of the appropriate and practicable conditions listed above to minimize pollution or adverse effects to the affected ecosystem.

7.4 Request for Public Hearing. No requests for a public hearing were received.

7.5 Section 176(c) of the Clean Air Act General Conformity Rule Review. The proposed project has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined the activities proposed under this permit will not exceed de minimis levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this individual permit.

7.6 Finding of No Significant Impact (FONSI). (40 CFR 1508.13) Having reviewed the information provided by the applicant, all interested parties and the assessment of environmental impacts contained in Section 6.0 of this document, I find that this permit action will not have a significant impact on the quality of the human environment. Therefore, an Environmental Impact Statement will not be required.