

**Kuskokwim River Middle Mile Fiber Technical Feasibility Study
RD-RU-COOP-25-09**

**Permitting and Administrative Approval Recommendations and
Guidelines**

Prepared for:
United States Department of Agriculture
Rural Utility Services

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Acronyms and Abbreviations

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ANILCA	Alaska National Interest Lands Conservation Act
APDES	Alaska Pollutant Discharge Elimination System
ARRC	Alaska Railroad Corporation
AWC	Anadromous Waters Catalog
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management

CatEx	Categorical Exclusion
CEQ	Council on Environmental Quality
CWA	Clean Water Act
DOT&PF	Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FMP	Fishery Management Plan
FOC	fiber optic cable
HDD	horizontal directional drilling
IHA	Incidental Harassment Authorizations
LOA	Letters of Authorization
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NWP	Nationwide Permit
RHA	Rivers and Harbors Act
ROW	right-of-way
SHPO	Alaska State Historic Preservation Office
SWPPP	Stormwater Pollution Prevention Plan
TWUA	Temporary Water Use Authorization
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction and Background

Any project proposing to place fiber optic cable (FOC) between communities across remote Alaska will need to address technical and regulatory challenges. Most remote communities

within the State of Alaska are separated by long, undeveloped distances that are not connected to the larger transportation network. These isolated, remote communities frequently lack developed rights-of-way (ROW) for transportation or utility construction. Placing FOCs in flowing waters has been used to bring broadband services to some of these communities due to the apparent engineering and environmental benefits. This report provides an overview on the permitting, authorizations, and regulatory approvals that projects placing FOCs in flowing waters will need to address prior to the commencement of construction activities.

Although this feasibility study is largely focused on the conditions and requirements related to working in the aquatic environment, FOC projects also typically require some level of terrestrial support infrastructure¹ that is constructed as part of the individual projects, and this document includes additional discussion on permitting and approvals required for ancillary activity associated with these projects. Common terrestrial-based components for FOC construction projects include terrestrial cable placement (buried or aerial), communications shelter construction, and last-mile installation (e.g., fiber to the home).

While not all project scenarios and permitting requirements can be efficiently captured in a single document, this report aims to describe those most likely to be encountered for long, linear, and remote FOC installations. This report describes federal and state permitting requirements, using State of Alaska guidelines and regulatory requirements to represent common state regulations and other U.S. states are likely to have similar agencies and regulatory requirements.

Note: This FOC permitting overview describes a wide range of permits, approvals, and authorizations that may be required for constructing in-river FOC placement across Alaska. Additionally, this report includes common terrestrial-based placement permitting requirements that are frequently required to complete FOC projects (e.g., community connections).

2.0 Applicable Permits, Authorizations, and Approvals

River run FOC projects will require some level of permits, authorizations, or other approvals from federal and state agencies, and likely local authorizations from local government or landowners. This section provides an overview of the most common permits and environmental reviews and process a river run fiber optic project is likely to encounter, though this list should not be deemed all encompassing, and it is recommended that project planners verify current permits and authorization statuses throughout the project planning process.

Many of the federal, state, and local permit applications for a river run FOC project will require a complete project description and information on the existing environmental baseline conditions. Project proponents are encouraged to use geographic information systems to provide accurate mapping and spatial analysis for anticipated environmental resource impacts, including determining likely impact quantities (e.g., acres of wetland impacts). Additional tools such as remote sensing and online environmental databases may help streamline and strengthen environmental impact assessment.

2.1 Federal

Federal permitting, authorizations, and approvals are described in this section. As of 2025, many federal environmental policies and regulations are being reevaluated by the Presidential

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administration and Congress, and the material presented here may be modified by through presidential, congressional, or judicial actions.

2.1.1 National Environmental Policy Act

- The National Environmental Policy Act (NEPA) is a federal law that requires federal agencies to consider impacts to the natural and human environment that may occur from implementing a proposed action. NEPA is intended to ensure the public and decisionmakers are informed of the potential environmental impacts of proposed project.
- NEPA reviews are conducted under one of three frameworks (from least intensity to highest intensity): categorical exclusion (CatEx), environmental assessment (EA), and environmental impact statement (EIS).

NEPA (42 USC 4321-4347) requires federal agencies to consider environmental values and integrate them into their decision-making processes by considering the environmental impacts of proposed actions and reasonable alternatives to those proposed actions. NEPA also established the Council on Environmental Quality (CEQ), which coordinates federal environmental efforts and is responsible for advising the president on environmental policy matters. CEQ coordinates with the Executive Office and issues non-binding guidance and agency-specific templates to assist federal agencies with environmental reviews and permitting.

NEPA is applicable to federal actions that may affect the quality of the human environment. These actions may include new and continuing activities; projects or programs entirely or partly funded, assisted, conducted, regulated, or approved by federal agencies; new or revised federal agency rules, regulations, plans, policies, or procedures; and legislative proposals. The construction of FOC networks placed in rivers qualify as such actions due to the requirement that such actions will need to obtain a permit or authorization under the Clean Water Act (CWA).

It is up to the federal agency that will lead the NEPA process (i.e., lead federal agency) to determine the level of NEPA analysis that is appropriate for the project (e.g., CatEx, EA, EIS); the applicant does not determine the level of environmental review a project requires.

A CatEx is the least intensive NEPA analysis a project may undergo, and federal agencies have a variety of CatEx templates for project types based on experience with similar actions. A CatEx may be considered for NEPA compliance for projects that individually or cumulatively have no significant effect on the environment. Development of a CatEx streamlines the NEPA process, reducing permitting times. CatExs are typically applied to minor projects that would not result in substantial new ground disturbances (e.g., waterline replacement, roadway repaving).

An EA requires more detailed analysis than a CatEx and they are prepared to determine if the proposed action has the potential to result in significant environmental effects. An EA typically includes a description of the proposed project and its purpose; a description of current environmental conditions (i.e., baseline conditions); a description of alternatives to the proposed action; and an analysis of the proposed action and project alternatives effects on the environment. There are two outcomes from the development of an EA: A Finding of No Significant Impact or the development of EIS if the EA identifies potential significant environmental impacts. Many medium-to-large utility transmission projects fall within the bounds of an EA.

An EIS is the most rigorous level of NEPA review, and it requires detailed analysis of the potential environmental impacts from a proposed project, including project alternatives, if the proposed project is anticipated to significantly affect the quality of the environment. EISs are typically completed for major federal actions (i.e., federal funding, federal permit decisions), including issuing permits for proposed private development projects. An EIS typically includes a description of the proposed project and its purpose; a description of current environmental conditions; a range of alternatives to the proposed action (including the No Action Alternative); an analysis of the proposed action and project alternatives effects on the environment; and a discussion of mitigation measures to help reduce the anticipated project impacts to the environment. EISs have a more prescribed process that includes publishing a Notice of Intent in the Federal Register to announce the start of the NEPA process; public and agency scoping where stakeholders can identify issues for consideration in the EIS; publication of a draft EIS for agency and public review and comment; publication of a final EIS that responds to agency and public comments; and the development of the agency's Record of Decision. EISs are frequently developed for large, proposed infrastructure projects, and while the placement of hundreds of miles of river run FOC is a substantial project, the anticipated effects are unlikely to result in this level of NEPA review for such a project.

NEPA documentation (e.g., CatEx, EA, EIS) and analyses have evolved since the act was first signed into law in 1970. Over the decades since the act was enacted, reporting requirements have grown and consequently document development timelines have extended. The federal government has worked to streamline the process, including imposing mandatory page limits and time frames, but NEPA processes and schedules continue to frustrate applicants and government officials alike. Project planners should be aware that NEPA processes, including documentation and analyses guidelines and timeframes, are subject to change. Project proponents are encouraged to initiate pre-application communications with the likely lead federal agencies early in the project development and planning process to help minimize environmental review delays.

Intersection with River Run Fiber Optic Projects

Any FOC project that requires a federal permit or authorization or is wholly or partially funded by federal dollars is subject to the NEPA review process. The extent of the NEPA review (i.e., develop a CatEx, EA, or EIS) is determined by the lead federal agency and is based on the size, scope, and extent of the proposed project and the anticipated level of environmental impacts.

It is reasonable to expect that river run FOC projects will not qualify for an existing CatEx, but the anticipated impacts from these projects are not likely to rise to the level of an EIS, barring any substantial project-specific issues (e.g., a project design that would cross a designated wilderness). Current CatExs for FOC projects are largely limited to placement in existing disturbed corridors (e.g., direct burial in uplands, aerial FOC installation on existing utility poles or towers); there are no known CatExs for river run FOC placement. River run fiber optic project planners should anticipate the project requiring development of an EA and consultation with federal agencies for protected resources (e.g., threatened and endangered species, cultural resources). EA development and completing consultation typically takes approximately 1 year, though more complicated projects may require additional time and simpler and shorter projects could complete the NEPA process in approximately 6 months.

Reference Resources

- CEQ NEPA guidance: <https://ceq.doe.gov/index.html>
- U.S. Environmental Protection Agency (EPA) NEPA guidance: <https://www.epa.gov/nepa>

2.1.2 Clean Water Act

- The CWA was established by the U.S. Congress to “restore and maintain the chemical, physical, and biological integrity of the Nation’s Waters.”
- CWA Sections 401 and 404 are frequent federal permitting and authorization drivers and river run FOC projects are required to receive these approvals prior to beginning construction.
- CWA Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE) and overseen by EPA; while CWA Section 401 certifications are overseen by most states, including Alaska.

The Federal Water Pollution Control Act, commonly referred to as the CWA (33 USC 1251 et seq.), establishes the basic structure for regulating pollutant discharges into the Waters of the U.S. and regulating quality standards for surface waters. The CWA defines Waters of the U.S. to include all interstate waters, lakes, rivers, streams, territorial seas, tributaries to navigable waters, interstate wetlands, wetlands that could affect interstate or foreign commerce, and wetlands adjacent to other Waters of the U.S.² The CWA made it unlawful to discharge any pollutant from a point source into navigable waters without a permit. A water pollution reduction plan, or total maximum daily load, may be required for waterbodies that are classified as lower quality. The total maximum daily load defines the upper threshold of a given pollutant that a waterbody can contain and still meet water quality standards.

Intersection with River Run Fiber Optic Projects

River run FOC projects will require permits and authorizations to support project construction under CWA Sections 401 and 404 (see below).

Reference Resources

- EPA overview of the CWA: <https://www.epa.gov/laws-regulations/summary-clean-water-act>
- Clean water laws, regulations, and Executive Orders (EO) related to CWA Section 404: <https://www.epa.gov/cwa-404/clean-water-laws-regulations-and-executive-orders-related-section-404>
- History of the CWA: <https://www.epa.gov/laws-regulations/history-clean-water-act>

CWA, Section 404

- CWA Section 404 permitting is administered by USACE and overseen by the EPA. The EPA develops environmental criteria and guidelines for permits, reviews and comments on applications, and shares enforcement authority with USACE. EPA also has authority to

² The wetlands and waters that are under the jurisdiction of the U.S. Army Corps of Engineers are known as Waters of the U.S. Which wetlands and waters qualify as jurisdictional has been subject to ongoing litigation for decades and the U.S. Army Corps of Engineers has revised of the definition of jurisdictional waters several times. This document does not discuss what makes a water or wetland subject to jurisdiction and regulation; project proponents are encouraged to determine the current regulations and to consult with the U.S. Army Corps of Engineers in their project’s planning stages to ensure the appropriate permitting course is followed.

prohibit, deny, or restrict the use of defined areas as disposal sites (i.e., the placement of fill into Waters of the U.S.).

- Section 404 permitting is for the discharge of fill material into Waters of the U.S. or the dredging of Waters of the U.S.
- Only jurisdictional wetlands and waters (i.e., Waters of the U.S.) are subject to permitting requirements. What qualifies as a jurisdictional wetland and water has been subject to many years of litigation and as of summer 2025, USACE and EPA are revising the definition of Waters of the U.S. based on recent court rulings (e.g., *Sackett v. U.S. Environmental Protection Agency*) and the change in the U.S. presidential administration.
- CWA Section 404 permitting includes Nationwide Permits (NWP) that are designed for common project types (and come with maximum disturbance limits) and individual permits.
- CWA Section 404 permitting with USACE typically requires the completion of a wetland delineation to identify the impacts to Waters of the U.S. and may require the use of compensatory mitigation to offset impacts to Waters of the U.S.

CWA Section 404 established a program to regulate the discharge of dredged or fill material into Waters of the U.S. Under the CWA, if proposed projects intend to carry out ground disturbing activity in or adjacent to jurisdictional Waters of the U.S., then a permit from USACE may be required. Wetlands are a subset of Waters of the U.S.; generally, wetlands are biologically defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (e.g., swamps, marshes, bogs), though not all wetlands are under USACE jurisdiction (33 CFR 328.3).

On November 20, 2025, USACE and EPA published a revised proposed rule, Updated Definition of “Waters of the United States” in the Federal Register (90 FR 52498), a proposed rule that would clarify the definition of Waters of the U.S. in compliance with the *Sackett* ruling. This proposed rule (as of the time of report preparation in December 2025) is in the public comment period and is not yet statutory law. It is anticipated that the final rule will be published in the Federal Register with only minor revisions between the draft and final rule, as it provides clarity on federal agency interpretation of the *Sackett* ruling.

Under the proposed Waters of the U.S. rule, five categories of waters are identified as being jurisdictional (i.e., regulated): (1) traditional navigable waters and the territorial seas; (2) most impoundments of Waters of the U.S.; (3) relatively permanent tributaries of traditional navigable waters, the territorial seas, and impoundments; (4) wetlands adjacent (i.e., having a continuous surface connection) to traditional navigable waters, impoundments, and tributaries; and (5) lakes and ponds that are relatively permanent and have a continuous surface connection to a traditional navigable water, the territorial seas, or a tributary.

CWA Section 404 (33 USC 1344) permit options include using USACE NWP 57, Electric Utility Line and Telecommunications Activities, or applying for an individual permit if the anticipated permanent impacts are likely to exceed 0.5 acre, the maximum limit under NWP 57. In general, to obtain a CWA Section 404 permit, applicants must demonstrate that the discharge of dredged or fill material would not significantly degrade Waters of the U.S. and there are no practicable alternatives less damaging to the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

A wetland delineation is usually required to develop the CWA Section 404 permit application (NWP or individual permit), as this is necessary to identify the impacts to Waters of the U.S. (i.e., jurisdictional waters). Applicants should also describe in their permit application steps taken to minimize impacts to waterbodies and wetlands (e.g., project design), provide project construction mitigation plans (e.g., implementing stormwater pollution prevention plans to minimize sedimentation in Waters of the U.S.), and provide appropriate and practicable compensatory mitigation to offset impacts to Waters of the U.S. (e.g., restoring or creating wetlands) for any remaining, unavoidable impacts. USACE will issue a Public Notice for complete project applications and applicants should be prepared to respond to comments USACE receives on the proposed project. USACE aims to reach permitting determinations on all applications within 60 days of receipt of a complete application for general permits (e.g., NWPs) and 120 days for individual permits.

Intersection with River Run Fiber Optic Projects

Projects intending to place FOC within river channels are likely to include impacts to Waters of the U.S., including wetlands, though some projects may be able to avoid the placement of fill into or the dredging of material from Waters of the U.S. depending on project-specific circumstances. Pre-application consultation with USACE during the project's design and planning phase can help identify project-specific permitting needs and whether compensatory mitigation may be required.

Reference Resources

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory mapper displays the wetland type and extent using the biological definition of wetlands and does not provide any indication of jurisdiction (i.e., Waters of the U.S.): <https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper>.
- USACE Alaska District Regulatory information: <https://www.poa.usace.army.mil/Missions/Regulatory.aspx>

CWA, Section 401

- CWA Section 401 water quality certification is intended to ensure proposed projects do not adversely impact water quality from project discharges.
- The certification program is typically administered by state governments, unless a state does not have authority to issue certification, in which case it is administered by the EPA. In Alaska, CWA Section 401 certification is administered by the Alaska Department of Environmental Conservation (ADEC).
- CWA Section 401 water quality certification is required to receive an approved CWA Section 404 permit or a Rivers and Harbors Act Section 10 permit.

Under CWA Section 401, the discharge of pollutants, such as stormwater from point or nonpoint sources into Waters of the U.S. are authorized through the National Pollutant Discharge Elimination System (NPDES) permitting program. EPA and delegated states and territories administer the NPDES permitting program. As part of this program, general NPDES permits are required to regulate stormwater discharges associated with construction activities that disturb one or more acres of land.

CWA Section 401 (33 USC 1341) requires any applicant for a federal license or permit provide a certification that any discharges into a Water of the U.S. that result from the permitted activity

will comply with the CWA, including water quality standard requirements. Effluent limitations establish pollutant-specific discharge levels based on pollution control technologies or levels necessary to attain water quality standards for the receiving waterbody. Water quality standards are developed by states and must be approved by EPA; they contain three core components: (1) the designated use of the waterbody (e.g., recreation, public water supply), (2) criteria to protect those uses, and (3) antidegradation policy. The certifying authority may grant the certification, grant the certification with conditions, deny the certification, or waive the certification. CWA Section 401 certification is required to receive an authorized CWA Section 404 permit from USACE. Any conditions the certifying agency sets become conditions of the CWA Section 404 permit.

While the program is under the direction of the EPA, most states, including Alaska, administer the CWA Section 401 certification program. Certifying authorities must act on a CWA Section 401 certification request “within a reasonable period of time (which shall not exceed one year) after receipt” of such a request.

Intersection with River Run Fiber Optic Projects

Construction of river run FOC projects will require CWA Section 401 certification from the EPA or a state agency which has been approved to administer the program. CWA Section 401 certification will assess the project’s proposed plan, including construction activity and planned mitigation measures. The CWA Section 401 certification may include requirements or conditions for authorization, and these are then attached to a project’s CWA Section 404 permit.

Reference Resources

- EPA CWA Section 401 guidance: <https://www.epa.gov/cwa-401>
- ADEC CWA Section 401 certification guidance: <https://dec.alaska.gov/water/wastewater/stormwater/permits-approvals/wetlands/>
- USACE Alaska Special Public Notice on CWA Section 401 Certification Rule (September 28, 2020): <https://www.poa.usace.army.mil/Portals/34/docs/regulatory/specialpns/2020/SPN%20Clean%20Water%20Act%20Section%20401%20Certification%20Rule%20.pdf>

2.1.3 Rivers and Harbors Act, Section 10

- The Rivers and Harbors Act (RHA) Section 10 prohibits the construction or modification of any structures in navigable waters without a permit.
- The RHA applies to any structure large or small that is planned to be placed in a navigable waterway, including along riverbanks. The permit aims to protect these waters from obstructions to navigation, such as structures, excavation, or fill material that could impede the movement of vessels or alter the course, condition, or capacity of navigable waters.
- RHA permitting is administered by USACE.

RHA Section 10 (33 USC 403) regulates work and structures in, over, and under navigable waters³ of the U.S, including structures like piers, docks, and bridges, as well as activities like pile driving, dredging, filling, re-channelization, dewatering, or any other modification of a navigable U.S. water, and it applies to all structures. Utility crossings of CWA Section 10

³ Navigable waters are those waters that have been used in the past, are now used, or are susceptible to use for transportation of interstate or foreign commerce; subject to tidal action; cross state or international borders; or designated navigable by Congress.

waterways also require permitting to complete the activity. Any activity that may affect navigation on U.S. waterways must be evaluated to ensure navigational capacity is maintained.

USACE administers the permitting process and evaluates whether the proposed activity would result in adverse environmental impacts or be contrary to the public interest. The RHA Section 10 permitting process uses the same form and materials required for a CWA Section 404 individual permit application. USACE will issue a Public Notice for complete project applications and applicants should be prepared to respond to comments USACE receives on the proposed project. USACE typically aims to make an RHA Section 10 permit decision within 60 to 120 days of receiving a complete application, but complex projects may take longer.

Intersection with River Run Fiber Optic Projects

River run FOC projects will require an RHA Section 10 authorization from USACE for the placement of FOC in navigable waterways. Pre-application consultation with USACE is recommended to discuss project-specific plans, identify potential issues, and determine the required application materials. This consultation can help streamline the permit process and avoid project delays.

Reference Resources

- USACE Alaska RHA overview:
<https://www.spl.usace.army.mil/Missions/Regulatory/Jurisdictional-Determination/Section-10-of-the-Rivers-Harbors-Act/>
- USACE Alaska Non-Tidal Section 10 Navigable Waters List:
<https://www.poa.usace.army.mil/Missions/Regulatory/Navigable-Waters-of-Alaska/>

2.1.4 Endangered Species Act

- The Endangered Species Act (ESA) requires federal agencies to ensure that actions it carries out, funds, or authorizes (e.g., issuing a permit) are not likely to jeopardize the continued existence of any threatened or endangered species or results in the destruction or adverse modification of an endangered species' critical habitat.
- Project proponents are required to consult on the ESA (Section 7) if endangered species or their critical habitat are present in the proposed project's action area.
- ESA Section 7 is administered by the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) and USFWS. Each agency oversees specific plants and/or wildlife.

The ESA (16 USC 1531) was established to conserve and protect threatened and endangered species. Under most circumstances, the ESA prohibits take of protected species.⁴ ESA Section 2 sets forth the purposes and policy of the ESA, which include providing a means to conserve endangered and threatened species' ecosystems and providing programs for the conservation of such species. The ESA requires federal agencies to conserve threatened and endangered species and use their authorities to further the purposes of the ESA. Accordingly, ESA Section 7 requires each federal agency to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of critical habitat for such species. Federal agencies are further required to consult with the appropriate federal agency, either USFWS or NMFS, for federal actions that "may affect" an ESA-listed species or adversely modify critical habitat. Federal agencies must use the best available scientific and commercial data when making an effect determination relating to the impact of their actions.

Consultation under the ESA is required to determine whether there are any expected impacts to endangered and threatened species or their critical habitat. Project proponents typically develop a biological assessment and submit it to USFWS and/or NMFS that describes their project, the endangered species present in their project's action area, and the anticipated effects of the project on listed endangered species and their critical habitat. Consultation with the agencies may be formal or informal, largely depending on the proposed project's anticipated impacts. Following consultation, USFWS or NMFS may issue a letter of concurrence that the proposed project is not likely to adversely affect a listed species, or they may issue a biological opinion. If the biological opinion concludes the project is not likely to jeopardize a listed species or result in the destruction or adverse modification for a listed species, the agency may also provide an incidental take statement, including terms and conditions, which exempts the holder from the ESA's prohibition on incidental take. If the biological opinion concludes the proposed action is likely to jeopardize the continued existence of a listed species (or result in the destruction or adverse modification of designated critical habitat), the agency may develop alternatives that would avoid the jeopardy finding that are shared with the action agency (i.e., lead federal permitting agency requesting consultation) prior to completing the biological opinion.

Intersection with River Run Fiber Optic Projects

Proposed river run FOC installation projects that occur in an area where endangered species or their designated critical habitat occur, must consult with the federal agency (NMFS or USFWS) responsible for their protection. Projects with marine water components, including the shipping of project materials and equipment, may need to consult with NMFS, while species that occur in rivers or adjacent habitats would consult with USFWS. The extent of the likely impacts will determine whether informal or formal consultation is required. Formal consultation can take five months or longer and early engagement with the responsible agency can provide insight on the type of information the agency needs to complete the consultation, provide insights on how the project may reduce the potential impacts to protected species, and ultimately reduce consultation timelines.

⁴ Take is defined differently by various federal and state regulations, but the most commonly accepted definition is that the ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, trap, capture, collect or attempt to engage in any such conduct."

Reference Resources

- NMFS ESA Section 7 overview: <https://www.fisheries.noaa.gov/insight/endangered-species-act-section-7-alaska-region>
- NMFS ESA species and critical habitat mapper: <https://www.fisheries.noaa.gov/resource/data/alaska-endangered-species-and-critical-habitat-mapper-web-application>
- USFWS ESA species and critical habitat mapper: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>
- USFWS Information for Planning and Consultation allows users to identify USFWS-managed resources in their project area and provides suggested conservation measures for projects to mitigate potential impacts: <https://ipac.ecosphere.fws.gov/>

2.1.5 Marine Mammal Protection Act and Incidental Take Authorization

- The Marine Mammal Protection Act (MMPA) prohibits the “take” of marine mammals and permits are required if there is potential for the take of marine mammals.
- Permits may be issued for activity that is or is not likely to cause marine mammal mortality or serious injury.
- MMPA requirements are in addition to any ESA requirements and any MMPA-authorized activity may not result in the potential jeopardy of a listed threatened or endangered species.
- MMPA is administered by USFWS and NMFS, depending on the species.

The MMPA (16 USC 1361 et seq.) prohibits takes of all marine mammals in the U.S. (including territorial seas) with few exceptions. For threatened and endangered marine mammals, any activity that could affect ESA-listed species must be consistent with the ESA as well as the MMPA. Construction and operation of any FOC project that could include activities that occur in or adjacent to marine areas would be subject to the MMPA.

The MMPA is administered by USFWS (e.g., polar bears, northern sea otters, Pacific walruses) and NMFS (e.g., whales, dolphins, porpoises, seals, sea lions). Projects may seek authorization to incidentally take marine mammals when conducting otherwise lawful and permitted activities. Two types of incidental take permits may be issued: Incidental Harassment Authorizations (IHAs) and Letters of Authorization (LOAs). IHAs are issued for actions that do not have the potential to cause marine mammal mortality or serious injury. An LOA is required for actions that have the potential to cause mortality or serious injury.

Intersection with River Run Fiber Optic Projects

MMPA permits are required if a proposed project may result in the take of marine mammals and such projects must consult with either USFWS and/or NMFS, depending on the potentially affected species. MMPA-protected species can occur in marine, terrestrial, and riverine environments. MMPA requirements are in addition to ESA Section 7 consultations. Acquiring MMPA permits can take six months or longer and applicants are encouraged to arrange for pre-application meetings with the responsible agency to discuss agency information needs and concerns related to the proposed project.

Reference Resources

- MMPA full text: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act>

- MMPA incidental take authorization overview:
<https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>

2.1.6 Magnuson-Stevens Fishery Conservation and Management Act

- Requires consultation with NMFS for projects that may adversely affect Essential Fish Habitat (EFH).
- Applies to fish species that are covered under a Fishery Management Plan (FMP).
- NMFS maintains fish species occurrence in marine waters and the Alaska Department of Fish and Game (ADF&G) maintains anadromous fish species occurrence in Alaska's freshwaters.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 USC 1801 et seq.) is the primary law governing fisheries management in U.S. federal waters. Under the MSA, all federal agencies must consult on any action they authorize, fund, or undertake, or propose to authorize, fund, or undertake if they determine their actions may adversely affect EFH. Permits are not issued under this authority. NOAA provides non binding conservation recommendations to Federal action agencies to minimize a proposed project's potential adverse effect on EFH. The MSA is intended to foster long-term biological and economic sustainability of U.S. marine fisheries through the prevention of overfishing, the rebuilding of overfished stocks, and increasing long-term economic and social benefits to ensure a safe and sustainable supply of seafood. The MSA extends from the seaward boundary of Alaska's state waters (3 nautical miles out)⁵ to 200 nautical miles offshore. It established eight regional fisheries management councils to develop FMPs, which must comply with conservation and management standards to promote sustainable fisheries management. The FMPs also define EFH, which is the aquatic habitat where fish spawn, breed, feed, and grow through various life stages; this habitat includes marine waters, wetlands, coral reefs, seagrasses, lakes, and rivers. The FMPs further define habitat areas of particular concern, which are high-priority areas that are rare, particularly sensitive, or critical to overall ecosystem functions.

ADF&G is required by statute (AS 16.05.871) to specify the various rivers, lakes, and streams (or parts thereof) that are important for the spawning, rearing, or migration of anadromous fishes. The State of Alaska is divided into six regions (Arctic, Interior, Southcentral, Southeast, Western, and Southwestern). ADF&G annually publishes the *Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes* and the *Atlas to the Catalog of Waters Important for Spawning, Rearing, and Migration of Anadromous Fishes*, and maintains the Anadromous Waters Catalog (AWC) interactive mapper of known anadromous waters. The AWC identifies waters used by anadromous fish in Alaska.

NOAA maintains the data for EFH species in Alaska's marine waters and ADF&G maintains the data for EFH fish species in Alaska's freshwaters⁶. For the purposes of EFH consultation, both resources may need to be reviewed to determine the species that may be impacted.

⁵ The State of Alaska manages fisheries in State waters (from the mean higher tide line to 3 nautical miles offshore).

⁶ Note: Not all fish species documented in the Alaska Department of Fish and Game's Anadromous Waters Catalog are subject to Essential Fish Habitat analysis; only those species (e.g., five Pacific salmon species) with a federal Fisheries Management Plan are included in Essential Fish Habitat consultation.

Intersection with River Run Fiber Optic Projects

River run FOC construction projects in Alaska should review the ADF&G AWC online mapper to determine if any of the five species of Pacific salmon are present or otherwise use the waterway. Projects with a construction component occurring in marine waters should review the NOAA EFH mapper to determine if any species included in the regional FMP may be present in the project area. Should any FMP species be noted as being in the project area, EFH consultation with NMFS is required. NMFS consultation is likely to result in project mitigation measures designed to protect fish and their EFH.

Reference Resources

- NOAA EFH overview:
<https://www.fisheries.noaa.gov/national/habitat-conservation/essential-fish-habitat#more-information>
- NOAA EFH in Alaska overview:
<https://www.fisheries.noaa.gov/alaska/habitat-conservation/essential-fish-habitat-efh-alaska>
- NOAA EFH mapper: <https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper>
- The ADF&G AWC online mapper:
<https://experience.arcgis.com/experience/1a4eb07b42ff4ebb8c71ba45adaedf0c/>

2.1.7 Alaska National Interest Lands Conservation Act

- The Alaska National Interest Lands Conservation Act (ANILCA) designated over 100 million acres of Alaska lands for conservation.
- The act also established a rural priority for subsistence harvesting on federal lands.

ANILCA (PL 96-487; 16 USC 410hh-3233; 43 USC 1602-1784) provided for the designation and conservation of over 100 million acres of federal lands in Alaska. ANILCA established “conservation system units” within the National Park System, National Wildlife Refuge System, and other federal land management systems. The act also addresses other elements of Alaska’s environment and cultural heritage, including subsistence needs, wilderness designation, and archaeological and historic site protection.

ANILCA was developed under a series of compromises intended to ensure federal land managers to cooperate with other agencies to balance the national interest in Alaska’s natural resources with recognition of Alaska’s limited economy and infrastructure and its distinctive rural way of life. The act addressed subsistence rights for rural Alaskans, establishing a priority for them in accessing fish and wildlife on federal lands. ANILCA played a crucial role in protecting Alaska Native culture by allowing for the continuation of traditional subsistence practices.

ANILCA Section 810 is a provision that outlines requirements for federal agencies to consider the impacts of land use decisions on subsistence uses in Alaska. It ensures that federal agencies evaluate potential restrictions to subsistence (including lands used for subsistence and lands used by species targeted by subsistence users) and provide opportunities for public review and participation in the decision-making process. Section 810 analysis is administered by the lead federal agency during the development of an EIS in the NEPA process.

Intersection with River Run Fiber Optic Projects

If the project rises to the level of an EIS, ANILCA Section 810 analysis on the project’s potential impacts to subsistence use and needs is required. Additionally, projects crossing ANILCA

conservation system units (e.g., national parks, national wildlife refuges) will need to address more constrictive activity allowances on these lands.

Reference Resources

- Alaska Department of Natural Resources (ADNR) overview of ANILCA: <https://dnr.alaska.gov/commis/opmp/nilca/more.htm>

2.1.8 Bald and Golden Eagle Protection Act

- Introduced in response to the near extinction of the bald eagle throughout its American range.
- The act prohibits the take, possession, sale or transporting of bald or golden eagles, their parts, nests, or eggs without a permit.
- Projects should maintain a 660-foot separation between proposed project activity and eagle nests.
- USFWS offers eagle disturbance permits for the unintended take or disturbance of eagles.

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668) was developed in response to the bald eagle's danger of extinction throughout most of its range. Habitat destruction and degradation, illegal shooting, and food source contamination had decimated the eagle population. While bald eagles were removed from the endangered species list in 2007, they are still protected under BGEPA. The act prohibits the taking, possessing, selling, or transporting of bald and golden eagles, their parts (including feathers), nests, or eggs without a permit. "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb". "Disturb" is defined as causing injury, decreasing productivity, or nest abandonment.

The USFWS administers a permitting program for proposed activities that may take or disturb eagles, though permits may not be issued for the purposeful take of eagles. USFWS has also developed guidelines for conducting activity in the area of active eagle nests. Generally, USFWS recommends maintaining a buffer of 660 feet from the nests, ideally with a landscaped buffer between the nest and the activity. Specific permits for eagle nest disturbance can be issued for up to 5 years and general disturbance permits take permits are issued for a maximum of 1 year; general permits are typically applicable to linear infrastructure projects such as FOC placement.

Land disturbance and vegetation clearing should be avoided between 1 March and 31 August to the extent it is possible to avoid disturbing nesting eagles.

Intersection with River Run Fiber Optic Projects

If an eagle nest is identified along the proposed alignment, project activity should remain at least 660 feet from the nest when possible. If the proposed project intends to conduct particularly loud activity (e.g., blasting), the recommended separation distance from project activity increases to 0.5 mile. If a proposed project cannot avoid approaching an eagle nest, the project proponent should consider acquiring a USFWS eagle incidental disturbance permit for unintended take.

Reference Resources

- USFWS eagle management overview: <https://www.fws.gov/program/eagle-management>
- USFWS guidance on when an eagle take permit may be needed: <https://www.fws.gov/story/do-i-need-eagle-take-permit>

- USFWS eagle disturbance take permits:
<https://www.fws.gov/program/eagle-management/eagle-incidental-disturbance-and-nest-take-permits>

2.1.9 Migratory Bird Treaty Act

- The act prohibits the take, possession, sale or transporting of migratory birds, their parts, nests, or eggs without a permit.
- USFWS provides a timing window for when to avoid ground disturbing activity and vegetation clearing to minimize impacts to migratory birds.

The Migratory Bird Treaty Act (MBTA) (16 USC 703-712) was enacted to ensure protection of migratory bird resources that are shared among the U.S., Canada, Mexico, Japan, and Russia. The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, of any migratory bird, their eggs, parts, and nests, without a permit. “Take” means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect. The responsibilities of federal agencies to protect migratory birds are set forth in EO 13186 (see Section 2.1.16, *Executive Orders*). The MBTA protects more than 1,000 bird species and USFWS is the lead agency for migratory birds. The USFWS issues permits for the take of migratory birds for activities such as scientific research, education, and depredation control, but does not issue permits for the incidental take of migratory birds.

The destruction of active nests, eggs, or nestlings can result from spring and summer vegetation clearing, grubbing, burning, and other land disturbance and construction activities. An “active” nest is indicated by intact eggs, live chicks, or the presence of at least one adult on the nest. Human disturbance and repeated loud noises near nest sites can cause nest failure and is considered “take”. Avoiding nesting seasons during project implementation minimizes the risk to encountering an active nest or inadvertently causing a nest to fail. These are not regulated timing restrictions, but they are recommendations to help ensure compliance with the MBTA. USFWS makes the following recommendations:

- Conduct land disturbance and vegetation clearing activities as described above outside of the nesting season (see **Table 1**).
- If an active nest is encountered at any time, including outside the recommended avoidance periods, leave it undisturbed until the eggs hatch and the young depart the nest.

Intersection with River Run Fiber Optic Projects

Activities such as utility pole construction would have the potential to impact migratory bird species; therefore, proposed projects with these elements are obliged under the MBTA and EO 13186 to analyze the potential impacts of such actions. Violations of the MBTA can result in criminal enforcement, including potential fines and imprisonment.

Reference Resources

- USFWS overview of the MBTA: <https://www.fws.gov/law/migratory-bird-treaty-act-1918>
- National Audubon Society guide to the MBTA: <https://www.audubon.org/news/the-migratory-bird-treaty-act-explained>

Table 1. Recommended Times to Avoid Land Disturbing and Vegetation Clearing Activities by Habitat Type and Alaska Region

Alaska Region	Habitat Type
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	Forest or Woodland (i.e., trees present)	Shrub or Open (i.e., shrub cover or marsh, pond, tundra, gravel, or other treeless/shrublands ground habitat)	Seabird colonies (including cliff and burrow colonies)	Eagles ^e
Southeast	15 April – 15 July ^a	1 May – 15 July ^{a,b}	1 May – 15 September	1 March – 31 August
Kodiak Archipelago	15 April – 15 July ^a	1 May – 15 July ^{a,b}	15 April – 7 September	1 March – 31 August
Southcentral (Lake Iliamna to Copper River Delta; north to Talkeetna)	1 May – 15 July ^{a,b}	1 May – 15 July ^{a,b}	15 April – 7 September	1 March – 31 August
Bristol Bay/AK Peninsula (north to Lake Iliamna)	1 May – 15 July ^{a,b,c}	1 May – 15 July ^{a,b,c}	10 May – 15 September	1 March – 31 August
Interior (north of Talkeetna to south slope Brooks Range; west to treeline)	1 May – 15 July ^{a,b}	1 May – 15 July ^{a,b}	1 May – 20 July ^d	1 March – 31 August
Aleutian Islands	Not applicable	25 April – 15 July ^a	1 May – 15 September	1 March – 31 August
Yukon-Kuskokwim Delta	1 May – 15 July	5 May – 25 July ^{a,b,c}	20 May – 15 September	1 March – 31 August
Seward Peninsula	1 May – 15 July	10 May – 20 July ^{a,c}	20 May – 15 September	1 March – 31 August
Northern (includes northern Brooks Range foothills)	Not applicable	1 June – 31 July ^{a,c}	20 May – 15 September	1 March – 31 August
Pribilof and Bering Sea Islands	Not applicable	15 May – 15 July ^a	15 May – 15 September	1 March – 31 August

Source: USFWS 2017

^a Raptors may nest two or more months earlier than other birds.

^b Canada geese and swans begin nesting 20 April.

^c Black scoter are known to nest through 10 August.

^d Seabird colonies in Interior refer to terns and gulls.

^e Eagles and their nests have additional protections under the Eagle Act and a permit may be required to conduct activities near an eagle nest.

2.1.10 Wild and Scenic Rivers Act

- There are 24 designated Wild and Scenic Rivers in Alaska.
- Development along or in Wild and Scenic River corridors requires additional coordination and analysis with the federal land-management agency that manage the river.

The National Wild and Scenic Rivers System was created by Congress (PL 90-542) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Wild and Scenic Rivers Act prohibits a federal agency from issuing a permit, license, loan, grant, or other assistance for an activity that would adversely affect the free flow, water quality, or outstandingly remarkable river values of a national wild and scenic river. Rivers may be designated by Congress or, if certain

requirements are met, the Secretary of Interior. Each designated river is administered by either a federal or state agency. (Alaska has no state administered scenic river program.) Federally, the Bureau of Land Management (BLM), USFWS, the U.S. Forest Service (USFS), and National Park Service (NPS) manage Wild and Scenic Rivers and make determinations about potential effects and coordinate with project proponents to develop compliant project designs and plans. An entire river or a portion or segment of a river may be designated and managed as a Wild and Scenic River.

Alaska has approximately 3,193 miles of designated Wild and Scenic Rivers, of approximately 365,000 total river miles in the state. The 24 Wild and Scenic Rivers in Alaska are: Alagnak, Alatna, Andreafsky, Aniakchak, Charley, Chilikadrotna, Delta, Fortymile, Gulkana, Ivishak, John, Kobuk, Mulchatna, Noatak, North Fork Koyukuk, Nowitna, Salmon, Selawik, Sheenjek, Tinayguk, Tlikaila, Unalakleet, and Wind rivers, and Beaver and Birch creeks.

Intersection with River Run Fiber Optic Projects

If a proposed project would have activity or place a FOC in or across a designated Wild and Scenic River, congressionally authorized study river, or upstream, downstream, or on a tributary of such rivers, additional analysis and coordination with the federal management agency is required.

Reference Resources

- Designated Wild and Scenic Rivers in Alaska: <https://rivers.gov/alaska>

2.1.11 National Historic Preservation Act

- Under the National Historic Preservation Act (NHPA), federal agencies are required to consider the potential effects of a proposed project on properties listed in or are eligible for listing on the National Register of Historic Places.
- NHPA Section 106 requires federal agencies to consider the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. Federal agencies must complete this process prior to moving forward with, or issuing a permit, license, or assistance for, an undertaking. While completion of the Section 106 process is not an “authorization” per se, a federal agency must be able to show evidence that it has properly concluded its review in accordance with the regulations.
- Alaska State Historic Preservation Office (SHPO) represents the State of Alaska's interest and consultations are completed with SHPO; the State agency also coordinates with Native and tribal entities.

The goal of the NHPA (16 USC 470 et seq) is to empower federal agencies to act as responsible stewards of cultural resources when agency actions affect historic properties. The NHPA authorizes the Secretary of the Interior to expand and maintain a National Register of Historic Places composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. NHPA Section 106 requires federal agencies to consider the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places. In carrying out their responsibilities under Section 106, the NHPA requires that federal agencies consult with federally recognized Indian tribes that attach traditional religious and cultural significance to eligible or listed historic properties that could potentially be affected

by the agency's actions. The intent of the consultation is to identify historic properties potentially affected by the undertaking and to seek ways to avoid, minimize, or mitigate any adverse effects on those properties. The NHPA details a 4-step process for Section 106 consultation that requires each federal agency to:

1. Initiate a review process to evaluate any proposed action
2. Identify historic properties that could be affected by the proposed federal, or federally licensed, permitted or funded, action
3. Assess whether the action has the potential to affect properties that are listed in or are eligible for listing in the National Register of Historic Places
4. Resolve the adverse effects.

Intersection with River Run Fiber Optic Projects

River run FOC installation projects have the potential to interact with and affect historic or culturally significant artifacts and places. As these projects will require permits from USACE, SHPO will also have the opportunity and obligation to review the proposed actions for potential impacts under the NHPA. River run FOC projects may encounter submerged historical features (e.g., shipwrecks) or they may be located in culturally sensitive and important waters. Identified historic or culturally important materials or locations in a project alignment should be addressed through rerouting when needed and where possible and projects are encouraged to work with tribal governments and organizations should culturally important areas be identified along the proposed alignment.

Reference Resources

- Advisory Council on Historic Preservation Section 106 guidance: <https://www.achp.gov/protecting-historic-properties> and <https://www.achp.gov/protecting-historic-properties/section-106-process/introduction-section-106>
- State of Alaska Historic Preservation Office: <https://dnr.alaska.gov/parks/oha/index.htm>

2.1.12 Coastal Zone Management Act

- The Coastal Zone Management Act was enacted by the U.S. Congress to protect coastal environments from growing and competing demands.
- Alaska withdrew from the Coastal Zone Management Program in July 2011.

Congress enacted the Coastal Zone Management Act (16 USC 1451 et seq.) to protect the coastal environment from growing demands associated with residential, recreational, commercial, and industrial uses (e.g., state and federal offshore oil and gas development). The Coastal Zone Management Act is administered by NOAA, and it provides for the management of the nation's coastal resources. The goal of the act is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." Coastal states with an approved Coastal Zone Management Plan, which defines permissible land and water use within the state's coastal zone, can review federal actions (e.g., construction of a proposed project), licenses, or permits for federal consistency. Federal consistency is the requirement that those federal permits and licenses likely to affect any land, water use, or natural resources of the coastal zone be consistent with the state program's enforceable policies.

Alaska does not have a federally approved Coastal Zone Management Program after withdrawing from the program in July 2011; consequently, Alaska is not subject to the Act's federal consistency provisions or eligible for federal Coastal Zone Management Act grants.

Intersection with River Run Fiber Optic Projects

In Alaska, the Coastal Zone Management Program was withdrawn in July 2011 and Alaska-based river run FOC projects have no obligation to coordinate with a State Coastal Zone Management Program.

Reference Resources

- NOAA Coastal Zone Management Act: <https://coast.noaa.gov/czm/act/>
- NOAA Coastal Management for Alaska: <https://coast.noaa.gov/states/alaska.html>
- Congressional Coastal Zone Management Act overview: <https://www.congress.gov/crs-product/R45460>

2.1.13 Service Line Agreement

- Service Line Agreements are legal documents reflecting the agreement between a utility operator (including telecommunications) and tribal organizations and Native landowners that allow for utilities to cross or connect to facilities on Native lands.
- Service Line Agreements are administered by the Bureau of Indian Affairs.

The Bureau of Indian Affairs requires documentation before connections between utility operators and Native tribal or Native landowners can be completed. A Service Line Agreement (25 CFR 169) is the legal document between a utility provider and landowner on tribal or individually owned Native lands that outlines the terms for connecting to a mainline utility (e.g., electricity, water, communications). Service Line Agreements do not require approval from the Bureau of Indian Affairs, but the agency does need to be provided an executed copy of the agreement for their records, including a plat or diagram with the boundary of ownership.

Intersection with River Run Fiber Projects

Service Line Agreements may be required to be submitted to the Bureau of Indian Affairs for FOC projects that will cross Native owned or tribally administered lands. Service Line Agreements do not need approval from the Bureau of Indian Affairs, but copies of the agreement between the utility and the tribe or Native landowner must be provided to the agency.

Reference Resources

- Bureau of Indian Affairs Alaska Service Line Agreement requirements and contact information: <https://www.bia.gov/regional-offices/alaska/real-estate-services/contracts-management/service-line-agreement>

2.1.14 Compatibility Determinations

- Compatibility determinations are formal reviews and analysis that determine whether a proposed project or activity aligns with a National Wildlife Refuge's goals.
- This regulatory tool is used to balance conservation mandates with public access.
- An application with USFWS is required to secure a ROW or easement across a National Wildlife Refuge, which USFWS will use to develop the compatibility determination.

A federal compatibility determination (50 CFR 25-26, 29) is a formal, written assessment by USFWS to decide if a proposed activity on National Wildlife Refuge land will not harm the

refuge's primary mission, which is to conserve wildlife and habitats while allowing compatible uses like hunting, fishing, or scientific research. It ensures that a proposed activity (or project) aligns with the goals of the National Wildlife Refuge system.

The compatibility determination includes a written analysis of the proposed use or activity and its anticipated environmental impacts. Each determination describes refuge laws, goals, and management plan. The compatibility determination document is made available to the public and public comment period is provided, before the Regional Chief issues a concurrence document identifying whether the proposed use or activity is compatible or not compatible with the National Wildlife Refuge. Compatibility determinations are reevaluated on either a 10- or 15-year cycle.

25 CFR 36 (Alaska National Wildlife Refuges) supplements the general National Wildlife Refuge system regulations (found in 50 CFR chapter I, subchapter C). These regulations consider issues and uses unique to Alaska's federal lands, including subsistence uses and activities, recreational activities (e.g., cabins, firearm use), and regulations for specific Alaska refuges.

Intersection with River Run Fiber Optic Projects

Proposed fiber optic projects that are planned to cross National Wildlife Refuges will need to procure a compatibility determination from USFWS before construction can proceed. Project proponents will need to submit an application form, Standard Form 299; proponents are encouraged to contact the refuge manager and hold a pre-application meeting prior to submitting a project application.

Reference Resources

- USFWS overview presentation on applying for a ROW in an Alaska National Wildlife Refuge: <https://dnr.alaska.gov/commis/opmp/resources/FWS.%20National%20Wildlife%20Refuges.pdf>
- USFWS manual (603 FW 2) on Compatibility: <https://www.fws.gov/guidance/sites/guidance/files/documents/603fw2.pdf>

2.1.15 Right-of-Way Authorizations

- Federal agencies such as BLM, USFWS, USFS, and NPS manage federally owned lands (e.g., wildlife refuges, national parks).
- The U.S. General Services Administration maintains an application form (SF299) that project proponents must submit to the appropriate federal agency.
- ROW requests for crossing federally managed lands will initiate the NEPA process.

A ROW must be secured to construct facilities on federally owned lands (43 USC chapter 34, subchapter V). For all utility projects crossing or constructing facilities on federal lands, the applicant must submit a completed application form (SF299). The SF299 submission includes requirements to include maps, a plan of development, project alternatives, and other project details. Each application is evaluated with the existing management plan for the federal land to ensure there are no conflicts with prior authorizations or existing rights. Application submission typically requires processing fees based on the estimated hours needed to review the application and are adjusted annually; applications are not processed until the fees have been submitted. In addition to the processing fee, a monitoring fee may be required for the life of the project (construction, operations, maintenance, and termination), which is based on the estimated federal employee work hours; the monitoring fee must be paid before a ROW grant

can be issued. Issued ROWs are also responsible for paying annual rent, which is annually adjusted for inflation; rent for the initial period must be paid before a ROW grant can be issued. Early consultation with the applicable federal agency is encouraged to help facilitate the application and review process.

Intersection with River Run Fiber Optic Projects

Approximately 60 percent of Alaska lands (approximately 220 million acres) are federally managed, including 16 National Wildlife Refuges (76 million acres), 8 national parks (approximately 50 million acres), and 2 national forests (21 million acres). Long, linear projects intended to expand the broadband network to reach Alaska's rural communities are likely to cross federal lands, which requires project proponents to obtain a ROW grant prior to commencing project construction.

Reference Resources

- BLM ROW overview and application information: <https://www.blm.gov/programs/lands-and-realty/rights-way>
- SF299 application form from the U.S. General Services Administration: <https://www.gsa.gov/forms-library>
- USFS communications ROW information: <https://www.fs.usda.gov/managing-land/special-uses/communications-uses>
- NPS ROW overview: <https://www.nps.gov/aboutus/right-of-way-permit.htm>

2.1.16 Executive Orders

Presidential EOs have the force of law and take effect without congressional approval. These orders direct federal agencies on implementing laws, managing resources, and setting policy priorities. EOs are subject to judicial review and can be overturned by federal courts, new laws, or future orders.

This section provides a brief explanation of EOs that may be relevant to projects installing FOCs in rivers and other waterways. Given the expected nature and extent of long, linear fiber optic projects, it is likely that a wide range of diverse resources could be potentially impacted to varying degrees, including wetlands, coastal areas, wildlife, marine areas, migratory birds, and social or cultural resources, among others. This is not intended to be a comprehensive list of all EOs, instead it provides context about those EOs that are most likely to be triggered by proposed fiber optic construction projects.

The Federal Register maintains an index of all EOs that is available at:
<https://www.federalregister.gov/presidential-documents/executive-orders/>.

Executive Order 11988 (as Amended by EO 13690) – Floodplain Management

EO 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Furthermore, federal agencies must either avoid funding or permitting critical facilities in the 500-year floodplain or must provide protection to mitigate the flood risk to those facilities. Critical facilities are those facilities for which even a small risk of flooding is too great and include public safety infrastructure (FEMA 2016). In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods

on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities” for the following actions:

- Acquiring, managing, and disposing of federal lands and facilities
- Providing federally undertaken, financed, or assisted construction and improvements
- Conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

Aspects of EO 11988 were updated in EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*⁷. The purpose of EO 13690 is to implement the Federal Flood Risk Management Standard as part of a national policy on resilience and risk reduction. The EO emphasizes consideration by agencies of ecosystem-based alternatives and long-term resilience and risk reduction when managing flood risks. The order further establishes a process for further solicitation and consideration of public input and a climate science-based approach to defining floodplains and flood hazard areas. Guidelines for implementing EO 11988, published by the Federal Emergency Management Agency (FEMA), describe an 8-step process that agencies should carry out as part of their decision-making on projects that have potential impacts to or within the floodplain (FEMA 2015). This 8-step process can be addressed as part of the NEPA compliance process if an EA or EIS, is developed.

Projects that are constructed using federal funds, requiring a federal permit, or on federal land must comply with EO 11988. Compliance with the EO includes not altering the floodplain in such a way as to create future flooding risks, locating permanent, aboveground structures outside of the floodplain to the greatest extent possible, and elevating equipment from the base flood event if the facility cannot be located outside of the floodplain.

Reference Resources

- FEMA floodplain maps: <https://www.fema.gov/flood-maps>

Executive Order 11990 – Protection of Wetlands

The purpose of EO 11990 is to “minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.” To meet these objectives, federal agencies are required, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The EO applies to the following:

- Acquisition, management, and disposition of federal lands and facilities construction and improvement projects that are undertaken, financed, or assisted by federal agencies
- Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities

The procedures require the determination of whether a proposed project would be located in and impact wetlands. If so, a wetlands assessment must be prepared that describes the alternatives considered. The procedures include a requirement for public review of assessments. The evaluation process follows the same eight steps as for EO 11988, *Floodplain*

⁷ Note: EO 13690 was rescinded in 2017 by EO 13807 and reinstated in 2021 by EO 14030.

Management. As with EO 11988, this 8-step process can be addressed as part of the NEPA compliance process if an EA or EIS developed.

Note: USACE issues permits for regulated wetlands under USACE jurisdiction, but EO 11990 applies to all wetlands meeting the ecological definition of wetlands, not just those wetlands that are jurisdictional.

Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds
EO 13186 directs federal agencies to take certain actions to further implement the MBTA. Several international, bilateral conventions on migratory birds, of which the U.S. is a co-signatory, impose substantive obligations on the U.S. for the conservation of migratory birds and their habitats. Through the MBTA, the U.S. has implemented these migratory bird conventions with respect to this country. The EO directs each federal agency whose actions are likely to create a measurable, negative effect on migratory bird populations to enter into a Memorandum of Understanding with the USFWS to promote the conservation and mitigation of impacts to migratory birds. Furthermore, the EO established the interagency Council for the Conservation of Migratory Birds to enhance coordination and communication among federal agencies regarding their responsibilities under the four bilateral treaties on the conservation of migratory birds.

2.2 State

For the purposes of this feasibility study, the state permitting requirements described below are focused on State of Alaska approvals, though most states have similar requirements.

State permits may include application fees, which typically vary based on a project's anticipated size or impacts.

2.2.1 Fish Habitat Permit

- Required for projects that occur in fish-bearing waterways or would otherwise alter fish-bearing waterways (e.g., water withdrawals).
- Fish Habitat Permits are administered by ADF&G.

Alaska has adopted fish habitat protection statutes that reflect the Alaska's ideal that fishery resources and habitats are important to Alaskan's quality of life and merit protection from unnecessary disturbance. ADF&G has the statutory responsibility (AS 16.05.841-871) for protecting freshwater anadromous fish habitat and providing free passage for all fish in fresh waterbodies. Most activities in waterbodies (e.g., water withdrawals, vehicle or equipment stream crossing) that support anadromous fish require a Fish Habitat Permit from ADF&G. Construction of river installed FOC will require a Title 16 Fish Habitat Permit from ADF&G.

Intersection with River Run Fiber Optic Projects

River installed FOC in Alaska will likely impact fish-bearing waters and construction activity in these waters will require a Title 16 Fish Habitat Permit from ADF&G Habitat Section.

Reference Resources

- ADF&G habitat regulations: <https://www.adfg.alaska.gov/index.cfm?adfg=habitatregulations.main>
- ADF&G Fish Habitat Permit applications and instructions are available at: https://www.adfg.alaska.gov/index.cfm?adfg=uselicense.fish_habitat_permits_apply

- ADF&G Technical Report No. 97-8, Water Intake Structures – An Alternative to Traditional Screened-Box Enclosures for the Protection of Fish provides guidelines on developing appropriate fish screening pump intake enclosures. The report is available at: https://www.adfg.alaska.gov/static/license/uselicense/pdfs/97_08.pdf.

2.2.2 Miscellaneous Permits to Take Fish and Game

- An Aquatic Resources Permit from ADF&G is required for the collection and/or holding of fish.

ADF&G administers the Aquatic Resource Permit for the collection of fish, for activities not covered by other permits (e.g., personal use; 5 AAC 41). An Aquatic Resource Permit may be required for the collection of baseline data needed to conduct impact analyses for proposed projects and support other permitting or regulatory activities. The permits include details on the methods and gear used to capture, number of animals, locations, and seasonality when collection will occur. Permits also include guidelines on the final disposition of captured fish (e.g., released, killed). ADF&G aims to complete permit application reviews within 45 days from the time a complete application is received.

Intersection with River Run Fiber Optic Projects

Some projects may require the collection of baseline data for fish resources present in the project, which may require the capture of fish; and ADF&G Aquatic Resources Permit is required to capture and collect fish for study.

Reference Resources

- ADF&G Aquatic Resource Permit overview: https://www.adfg.alaska.gov/index.cfm?adfg=otherlicense.aquatic_resource
- ADF&G policy and requirements for fish resource permits: <https://www.adfg.alaska.gov/static/license/otherlicense/pdfs/frpolicy.pdf>

2.2.3 State Land Easements and Rights-of-Way, Terrestrial and Submerged Lands

- FOC projects crossing State lands or waters (e.g., river installed FOC) require an easement from DNR.

Easements grant the legal right to another person or entity's land for a specific and defined purpose (e.g., utilities) and ROWs are a specific type of easement, typically implying the right to travel across another person or entity's land (e.g., roadways). ROWs are generally considered a subset of easements, but they are sometimes used interchangeably, such as when a utility is granted authorization to construct within a highway ROW. In instances when an entity such as the Alaska Department of Transportation and Public Facilities (DOT&PF) already possesses a highway ROW, a utility project would require a permit from DOT&PF to construct within its ROW (see Section 2.2.8, *Major Utility Permit*).

For projects proposing to construct FOC projects on State of Alaska terrestrial or submerged lands, an easement is required from the State. DNR's Division of Mining, Land and Water issues easements to state, federal, municipal, and tribal governments, and public or private entities. Utility easements from DNR are considered public easements, which may be held by a specific entity, but they typically confer the right for more than one qualifying party to conduct some activity within it. Typical utility easements are 30 feet wide, though these may be adjusted to accommodate infrastructure and construction methods as needed.

Easement applications need to detail the planned infrastructure to be installed, construction methods, reason for requesting the easement, and project maps that show the easement and easement connection points. DNR maintains a fee schedule for easement applications with costs that vary based on the easement type, easement action, and requested easement size. Easements from DNR can take up to 8 months following DNR's receipt of a complete application. The general easement process is as follows:

- *Public and Agency Notice.* DNR will issue a public notice and open the easement request for public and agency comments, typically for a 30-day period.
- *Regional Manager's Decision.* This document describes why the request is or is not within the State's interest and will detail any changes that are necessary and why.
- *Appeal or Reconsideration Period.* There is an appeal period following publication of the Regional Manager's Decision; the decision does not become effective until after the appeal and reconsideration period has closed.
- *Insurance.* Applicants may be required to submit proof of insurance before an easement is issued.
- *Bonding.* Applicants may be required to submit a performance bond before an easement is issued.
- *Entry Authorization.* If required, entry authorization established a timeframe in which the easement will be constructed and surveyed, prior to final easement issuance.
- *As-built Survey.* Applicants may be required to submit a state-approved survey before the easement can be issued.
- *Fees.* The applicant must pay any required fees before an easement is issued.
- *Issuance.* DNR will issue the easement to the applicant once all of the requirements have been met.

Intersection with River Run Fiber Optic Projects

Long, linear FOC cable projects in Alaska are likely to cross State lands or waters, which requires an easement from the State. Any project proposing to place FOC on State lands or in State-managed waters (e.g., Kuskokwim River) should consult with DNR to determine the appropriate permitting needs for a given location(s).

Reference Resources

- DNR easements overview: <https://dnr.alaska.gov/mlw/lands/easements/>
- DNR easement fee schedule: <https://dnr.alaska.gov/mlw/pdf/DMLWFeeOrder3-v2.pdf>

2.2.4 State Special Management Areas

- State of Alaska permit requirement for crossing specially designated State lands.
- ADF&G Habitat Section Office administers and manages the program.

The Alaska Legislature has designated 32 special areas across the state encompassing more than 3.2 million acres. These special areas include 12 game refuges, 17 critical habitat areas, and 3 wildlife sanctuaries. These areas are comanaged by ADF&G and DNR according to specific statutory purposes generally related to the conservation of fish, wildlife, their habitats, and public uses of these resources. The enabling legislation recognizes other important uses of these lands and in some cases, specific allowable activities have been included, for which ADF&G has developed management plans to guide the approval of activities and development so that they are conducted in a manner that is compatible with the purpose of a given special

management area. As of 2025, 18 of the special management areas have management plans that guide area management and the permitting of proposed activities.

Intersection with River Run Fiber Optic Projects

FOC projects that will cross any of the 32 designated special area in Alaska will need to obtain a Special Area Permit from ADF&G prior to commencing construction in the special area.

Reference Resources

- State of Alaska refuges, sanctuaries, critical habitat area, and wildlife ranges are identified on an ADF&G mapper: <https://www.adfg.alaska.gov/index.cfm?adfg=conservationareas locator>.
- Special area permit applications are available from ADF&G at: https://www.adfg.alaska.gov/index.cfm?adfg=uselicense.areas_permit

2.2.5 Temporary Water Use Authorization

- Projects requiring water drawn from natural sources (e.g., lake, river) require authorization from DNR.
- Water withdrawals have limits based on the water source and intended use.

A Temporary Water Use Authorization (TWUA) is required for the temporary use of unappropriated water. Water use includes water withdrawals (including dewatering activities), diversions, impoundments, and in-source uses. Surface water withdrawals are frequently used to support HDD operations or to construct ice roads. Surface water sources may also be used to provide domestic (i.e., potable) water to support construction crews or camps. A single TWUA application can be used to request up to 5 separate water sources and a single TWUA can be issued for any length of time, up to 5 consecutive years. ADNR, Division of Mining, Land, and Water, administers the TWUA program (11 AAC 93.210-220).

A TWUA is necessary if a project will:

- Consumptively use more than 5,000 gallons of water from a single source in a single day
- Have a regular daily or recurring consumptive use of more than 500 gallons per day from a single source for more than 10 days per calendar year
- Have nonconsumptive use⁸ of more than 30,000 gallons per day from a single source
- Use any water that may adversely affect the water rights of other appropriators or the public interest.

Intersection with River Run Fiber Optic Projects

FOC construction projects may require water withdrawals from area ponds, lakes, rivers, and streams to support or complete construction. Common needs for water withdrawals include supporting the construction of temporary ice roads or pads, supplying remote construction personnel with potable water, or supporting construction activity such as completing HDD, where water is used to create drilling muds. Early coordination with ADNR can help identify potential water sources within a project area and information needs required by ADNR (e.g., available water volume) before a water withdrawal authorization can be provided.

⁸ Per 11 AAC 93.970: “nonconsumptive water use” means the instream use of water or the diversion of water where the quantity of water diverted is not diminished except by evaporation or transpiration and the water is returned to its original source at the original point of diversion immediately after its use.

Reference Resources

- ADNR TWUA program: <https://dnr.alaska.gov/mlw/water/twua/>
- TWUA applications are available from ADNR:
<https://dnr.alaska.gov/mlw/cdn/pdf/forms/Application-for-Temporary-Use-of-Water-fillable.pdf>

2.2.6 Alaska Pollutant Discharge Elimination System

- FOC construction projects with more than one acre of surface disturbance are required to obtain Alaska Pollutant Discharge Elimination System (APDES) General Construction Permit coverage.
- A Stormwater Pollution Prevention Plan (SWPPP) is required to receive coverage under the General Construction Permit for projects disturbing one or more acres.
- The APDES program is intended to minimize impacts from unauthorized pollutant discharges to waterways.

ADEC maintains permitting authority (as transferred by the EPA) for implementing the National Pollutant Discharge Elimination System Program that originated under CWA Section 402 under the APDES program (AS 46.03; 18 AAC 83). Following the CWA, the APDES permit limits the types and amounts of substances that can be discharged to a Water of the U.S. and helps ensure that discharges do not harm water quality or human health. Construction activities that disturb more than one acre must be authorized under the Alaska Construction General Permit and must submit a Notice of Intent to obtain coverage under an APDES Construction General Permit. Project proponents are required to develop a SWPPP; if the project will disturb five or more acres, the SWPPP must be submitted with the Notice of Intent. Projects located within the Municipality of Anchorage or within the Fairbanks North Star Borough have additional submittal requirements.

All Construction General Permit submissions (e.g., Notice of Intent, Notice of Termination) are to be submitted electronically through ADEC's Environmental Data Management System (<https://dec.alaska.gov/Applications/Water/EDMS/>). ADEC requires a one-time fee for coverage under the Construction General Permit for stormwater runoff of \$580.

Intersection with River Run Fiber Optic Projects

FOC construction projects that will disturb one or more acre must file with ADEC to be covered under the APDES Construction General Permit, including developing a project-specific SWPPP demonstrating how erosion and stormwater runoff will be prevented.

Reference Resources

- ADEC APDES stormwater permit application overview and instructions:
<https://dec.alaska.gov/water/wastewater/stormwater/apdes-enoi/>
- ADEC Construction General Permit Notice of Intent instructions:
<https://dec.alaska.gov/water/wastewater/stormwater/permits-approvals/construction/edms-cgp-noi/>
- ADEC SWPPP template: https://dec.alaska.gov/media/yfipkmky/2021-cgp-swppp-template_24.docx
- ADEC New Permittee Checklist:
<https://dec.alaska.gov/water/wastewater/stormwater/permits-approvals/construction/new-permittees/>

2.2.7 Major Utility Permit

- A Major Utility Permit from DOT&PF is required for projects that will install FOC or associated facilities within a state highway ROW.
- A Minor Utility Permit from DOT&PF is limited to aerial and underground service lines less than 200 feet in linear length.

If a FOC construction project will include installation within state highway ROW, a DOT&PF Major Utility Permit is required (AS 42.30). Applications from a Major Utility Permit are submitted electronically and associated fees range from \$600 to \$10,000 (based on project footage).

DOT&PF also maintains a Minor Utility Permit that is applicable to projects with:

- Aerial service lines that do not require the installation of poles in the ROW are less than 200 feet in linear length
- Underground service lines that are located outside the roadway prism and do not require installation of a pedestal, manhole, or structure and are less than 200 feet in linear length.

Intersection with River Run Fiber Optic Projects

A DOT&PF Major Utility Permit or Minor Utility Permit is required for FOC construction projects that will occur within DOT&PF ROW.

Reference Resources

- DOT&PF Alaska Utilities Manual, Accommodation and Utility Permits:
<https://dot.alaska.gov/stwddes/dcsrow/assets/pdf/utility/22/ch3.pdf>
- Overview of Major Utility Permit process:
<https://dnr.alaska.gov/commis/opmp/resources/DOT&PF.pdf>
- DOT&PF electronic permits system (epermits): <https://dot.alaska.gov/row/Login.po>

2.2.8 Alaska Railroad Corporation

- The Alaska Railroad Corporation (ARRC) issues permits for construction with ARRC ROW and for utility crossings of ARRC railroad tracks.

For FOC projects that may encounter and need to cross ARRC railroad tracks or ROW, ARRC requires a permit to construct the utility crossing. Typical ARRC ROWs are 200 feet wide (100 feet on each side of the track centerline). ARRC requires that utility facilities be placed to the extent that is feasible and practical perpendicular to the ARRC track alignment. Where a perpendicular crossing is not feasible, the utility should cross the centerline of the ARRC track at an angle of not less than 25 degrees. Utilities are prohibited from being placed within culverts or under railroad bridges. ARRC also issues temporary construction permits for activity in an ARRC ROW if it will occur with 100 feet of an ARRC track.

ARRC permit application fees are \$1,250 for an 8-week processing time and \$10,000 for expedited review of 2 weeks or less.

Intersection with River Run Fiber Optic Projects

If a FOC project will need to cross an ARRC facility or be collocated within an ARRC ROW, an ARRC ROW or temporary construction permit is required.

Reference Resources

- ARRC permitting: <https://www.alaskarailroad.com/real-estate/permitting>

- ARRC technical standards for utility facilities in ARRC ROW:
https://www.alaskarailroad.com/sites/default/files/akrr_pdfs/Technical_Standards_for_Roadway_Trail_and_Utility_Facilities_in_the_ARRC_Right_of_Way.pdf

2.3 Local

Local authorizations in Alaska would be limited to terrestrial activities and driven by requirements of municipal and borough governments where the project would occur. The primary local authorizations a project is likely to encounter include:

- Building permits for the construction of new structures
- Local authorization for easements or ROW
- Land use permits (typically required for resource development, utilities, roads)
- ROW authorizations by Alaska Native Corporations

Local land ownership and management may result in additional project stipulations, for example:

- Trees felled to support construction activity may need to be disposed of in a manner agreeable to the landowner or manager, which may entail stacking felled trees in a specified location (e.g., edge of the ROW) and chipping and spreading slash.
- Using clearing and mulching waste to construct temporary surfaces for access trails and laydown areas to protect underlying soils.

Local permitting at the borough or municipal level often includes a public involvement component or a public hearing. Successful public engagement includes not only providing an understanding of the proposed project, but also collecting local knowledge that may better inform the project's engineering design or construction planning.

3.0 Mitigation Measures to Reduce Impacts to Fish and Aquatic Habitat

The mitigation measures below are recommendations intended to prevent or minimize adverse impacts fish and their habitats that may result from the installation of FOCs. These measures are included here as suggestions and are frequently applied to utility projects that include in-water construction. These mitigation measures should be considered by project planners and designers and incorporated into project engineering as applicable.

Agency consultations (e.g., NMFS, USFWS) may result in additional suggested or required mitigation measures specific to the resources that may be impacted by proposed activities. Similarly, ROW authorizations may also develop project-specific mitigation measures (e.g., timing windows, routing or alignment considerations) to authorize the proposed project.

3.1 Reducing Sediment Inflows and Turbidity

Excavation and other ground-disturbing construction activity can lead to sedimentary runoff reaching fish-bearing waters that leads to turbidity within the water column. Suspended sediments in fish-bearing waters can directly and indirectly impact fish and as sediments fall out of the water column, they can be deposited onto gravel substrates that are necessary to support spawning fish and impact fish reproduction. Streambank disturbance, ground disturbing activities, and in-water work can lead to increased erosion and sedimentation in waterways.

Mitigation strategies and best management practices (BMPs) to reduce sedimentation and turbidity in waterbodies include:

- Developing and adhering to a SWPPP to minimize the discharge of stormwater pollutants to waterways. Typical BMPs employed to reduce impacts from erosion include:
 - Clearly mark project clearing limits and clear the minimum amount of vegetation required to complete the task.
 - Preserve natural vegetation in riparian zones by minimizing clearing to provide buffer zones and stabilized areas to help control erosion, protect water quality, and enhance aesthetic benefits.
 - Provide a vegetation buffer of undisturbed vegetation no less than 25 feet wide from waterbody edges.
 - Use fiber rolls (straw, flax or similar materials bound into a tight tubular roll) to protect slopes, slow sheet flow, and as a perimeter control to prevent sediment from traveling offsite. Use certified weed-free products; if the product contains straw, use certified weed-free materials or Alaska-grown straw.
 - Use brush barriers as a perimeter sediment control structure made of natural materials such as small tree branches, root mats, stone, or other non-erodible debris left over from site clearing.
 - Initiate seeding or other stabilization methods of disturbed soils as soon as possible to minimize erosion and sedimentary runoff.
- Remove all temporary erosion and sediment control materials shall be removed once the work area has stabilized.
- Install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the authorized work area. The erosion control measures shall remain in place and be maintained until all authorized work is completed and the work areas are stabilized.
- To the maximum extent practicable, use plastic-free erosion and sediment control products such as netting manufactured from 100-percent biodegradable materials like jute, sisal, or coir fiber for erosion control.
- Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be stabilized using sod, degradable mats, barriers, or a combination of similar stabilizing materials to prevent erosion.
- Snow and ice clearing operations should not result in the discharge of vegetation, soil, or debris into waterbodies outside of authorized fill areas.

3.2 Water Withdrawal Best Practices

Water withdrawals are used to support HDD, dewatering activities, high-pressure jetting for FOC burial, supply for potable water, and more. Authorized water withdrawals may be permitted with withdrawal limits based on the available water volume of the source water, which is intended to ensure remaining water volumes do not negatively impact fish (e.g., reduce the available dissolved oxygen content to harmful levels). A primary concern for ADF&G is related to water withdrawals resulting in fish becoming entrained, impinged, or entrapped in the water pumping system. ADF&G requires water intakes to be properly screened to avoid impacts to fish, particularly juvenile fish and smaller resident fish. Construction best practices for water withdrawals include:

- Use the minimum amount of water required for the task.
- Water intakes must be screened to avoid injury to fish.
- Typically, screen openings may not exceed 0.25 inches (0.10 inches or less in areas with sensitive fish species or life stages), and water velocity at the screen or water interface may not exceed 0.5 feet per second when the pump is operating.
- Pump intake screens should be periodically checked during operations to ensure the screening has not collapsed, there are no breaks or gaps in the mesh, and the screen has not become blocked by

3.3 Fiber Optic Cable Alignments

FOC alignment planning should consider the potential environmental impacts over the entire route, including environmental impacts to the human environment, fish and aquatic habitat, vegetation and wetlands, terrestrial mammals and habitat, birds, and cultural resources. Remote FOC project in Alaska are likely to encounter multiple environments and habitat types and project planners should consider the types of impacts that may be expected in each environment. Generally, placing alignments within rivers to reach distant communities are expected to result in some of the least damaging environmental impacts. The following BMPs are intended to aid project planners and engineers in identifying preferred FOC routes in Alaska marine and fresh waters.

- Align crossings along the least damaging route. Avoid known fished and sensitive areas such as deep-sea corals, submerged aquatic vegetation, emergent marshes, and anadromous fish bearing streams. Consider using video and/or high-definition bottom profiling/ side scan sonar to assess the proposed cable route.
- Use existing ROWs whenever possible to lessen overall encroachment and disturbance of wetlands.
- New access roads, if needed, should be constructed to minimize adverse effects to habitat and migratory fish, such as Pacific salmon. The UFWS's Culvert Design Guidelines for Ecological Function was written specifically for Alaska salmonids. This resource provides useful information to minimize the effects of road crossings on aquatic resources.
- Suspend FOCs beneath existing bridges or conduct directional boring under streams to reduce the environmental impact. If FOCs span streams, site utility poles or towers at least 61 meters (200 feet) from streams.

3.4 Terrestrial Excavation

River installed FOC projects are likely to require some terrestrial FOC cable placement, which may involve excavation. The following BMPs are intended to aid in minimizing impacts related to surface water runoff and limit the amount of sedimentation that may reach adjacent waterbodies:

- Store and contain excavated material on uplands. If storage in wetlands or waters cannot be avoided, use alternate stockpiles to allow continuation of sheet flow. Store stockpiled materials on construction cloth rather than bare marsh surfaces, seagrasses, or reefs.
- Backfill excavated wetlands with either the same or comparable material capable of supporting similar wetland vegetation. Restore original marsh elevations. Stockpile topsoil and organic surface material, such as root mats, separately and return it to the surface of the restored site. Use adequate material so that the proper pre-project elevation is attained

following the settling and compaction of the material. After backfilling, implement erosion protection measures where needed.

- Where able, stockpile and reuse native vegetation and topsoil removed for project construction for site rehabilitation. Seeding and planting will follow this order of preference:
 - Species native to the site
 - Species native to the area
 - Species native to the state
- Trenches must be constructed or backfilled in such a manner to ensure wetland or other Waters of the U.S. are not drained (intentionally or inadvertently).
- Excess material shall be removed to an upland (i.e., non-wetland) location.

3.5 Horizontal Directional Drilling

HDD is frequently used to support utility installations around sensitive environmental features or human-made infrastructure, and it is frequently employed in FOC construction. HDD activity reduces but does not eliminate ground disturbing activity and results in the need for a temporary water source to produce drilling muds. Mitigation strategies and BMPs to reduce impacts from HDD include:

- Use HDD where cables or pipelines would cross anadromous fish streams, salt marshes, vegetated intertidal zones, or steep erodible bluff areas adjacent to the intertidal zone.
- At locations where HDD will be used to cross under an anadromous stream, complete a geotechnical survey to ensure the drilling is complete at an appropriate depth to prevent an inadvertent release of drilling muds into surface waters.
- Alternatively, install the cable a minimum of 5 to 10 feet below the streambed and use inert drilling muds (e.g., bentonite). Downstream visual monitoring should be employed to monitor for the loss of drilling muds.
- Maintain equipment required to clean up an inadvertent release of drilling fluids.
- Maintain a riparian buffer between the drill entry and exit pits and minimize disturbances to existing vegetation.
- At HDD sites, a vegetated riparian buffer should be maintained between the drill entry and exit sites and disturbance to existing vegetation should be minimized.
- During HDD operations under anadromous streams, equipment required to clean up an inadvertent release should be available and ready to deploy at the site, and the area downstream of the drilling profile should be continuously monitored during drilling for signs of inadvertent release.

3.6 Timing Restrictions and Windows

Fish are more sensitive to construction-related impacts (e.g., noise, turbidity) at specific life stages (e.g., spawning) and instituting project-specific timing restrictions or windows to complete construction activity that may impact fish, or their habitat can mitigate many construction-related impacts.

Timing restriction and timing window BMPs include:

- Timing windows for construction to minimize disturbance during sensitive fish spawning times.
- Timing restrictions for terrestrial work (e.g., winter construction using low-ground-pressure vehicles) to protect vegetation and wetlands.

- In-river installations should be completed outside of the local fish spawning timelines to avoid disturbing eggs in gravel substrates or disturbing returning adult salmon.
- Conduct construction during the time of year when it will have the least impact on sensitive habitats and species. Specific dates will depend on the location. Consultation with NMFS and ADF&G can provide specific work windows.

3.7 Construction in Freshwater and the Marine Environment

Construction in freshwater or marine aquatic environments, including wetlands, includes specific considerations to minimize impacts to the environment. The following BMPs are recommended for in-water work:

- The use of conduits through wetlands needs to be evaluated and designed to ensure the conduits do not become pathways to alter wetlands hydrology.
- Open cut trenches through wetlands should consider the use trench plugs (e.g., bentonite clay) to prevent hydrological alterations from natural ground flows being redirected down the length of the utility trench.
- Remove inactive submerged cables unless they are located in sensitive areas (e.g., marsh, reefs, seagrass). If cables are allowed to remain in place, ensure that they are properly secured to avoid release into the environment and result in unintended impacts.
- Use silt curtains or other barriers to reduce turbidity and sedimentation near the project site whenever possible. .

3.8 General Construction Mitigation Measures

The following BMPs are applicable to many construction activities and may be applicable to some FOC construction activities:

- Limit access for equipment to the immediate project area. Tracked vehicles are preferred over wheeled vehicles. Consider using mats and boards to avoid sensitive areas. Caution equipment operators to avoid sensitive areas, and clearly mark sensitive areas to ensure that equipment operators do not traverse them.
- 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 and recorded in a log daily for leaks. If leaks are found, the equipment shall not be used and pulled from service until the leak is repaired.
- Limit construction equipment to the minimum size necessary to complete the work. Use shallow-draft equipment to minimize effects and to eliminate the necessity for temporary access channels. Use the push-ditch method in which the trench is immediately backfilled to minimize the impact duration when possible.
- Fuel storage and handling activities for equipment must be sited and conducted so there is no petroleum contamination of the ground, subsurface, or surface waterbodies.
- Handle and store all fuels and hazardous substances used in the project area in accordance with applicable state and federal regulations. Include both primary and secondary containment areas for all fuel and chemicals.
- 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.
- Use only licensed, commercial transporters, following U.S. Department of Transportation regulations, for the safe transport of fuels and other products to/from the project area.

- Invasive species: Vehicles brought into the permitted project area from areas should be washed and checked for the absence of plant and animal invasive species, prior to entering the project area. This includes vehicle and equipment bodies, undercarriages, and tires or tracks, as well as equipment trailers and skid-based modules.
- Fill material (including dredge material) must be clean soil, sand, gravel or rock, free from petroleum products and toxic contaminants in toxic amounts.
- All solid waste and foreign debris must be eliminated by removal to an off-site, permitted facility or by burning (if a paper product). Waste, in this paragraph means all discarded matter, including, but not limited to human waste, trash, garbage, litter, oil drums, petroleum, ashes and discarded equipment. Hazardous waste must not be disposed of on-site but instead must be hauled out for disposal to a permitted disposal site.
- Any disturbed ground and exposed soil not covered with fill should 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.

3.9 Temporary Remote Camps

FOC construction projects to connect remote Alaska communities frequently require temporary mobile camps to support construction crews. These mobile camps are used to provide sleeping and shelter facilities, hygiene facilities, food preparation, and domestic and solid waste disposal. For camps accommodating an average of 24 or fewer people in a single location over a 14-day period do not require permits from ADEC; for stationary camps or camps with more than 24 people, ADEC maintains a variety of permits that are required (e.g., domestic wastewater disposal, potable water). While a permit may not be required to operate a small, temporary camp, there are still operational requirements (e.g., separation distances from waterways for the discharge of gray water) for these facilities.

ADEC provides a variety of resources including general requirements, methods, and BMPs at:

- <https://dec.alaska.gov/eh/fss/food/establishments/camps/small/>
- <https://www.commerce.alaska.gov/web/Portals/5/pub/CampApplicationWorksheet.pdf>

4.0 Application Processes

Federal, state, and local agency lead times vary widely depending on the permit, authorization, or approval being considered, and the overall size and scope of proposed project. Early project planning and pre-application consultation meetings can help define information that will be needed to complete a project review (e.g., submitting a complete application) and how long the agency has to review the project and make a determination. Typically, the longest review periods are related to federal authorizations and approvals, some of which may be contingent upon completing others (e.g., USACE Section 404 permits must have consultation completed with NMFS, USFWS, and SHPO, as applicable, prior to authorizing permitted activity).

Developing a thorough project description that includes maps, schematics, and information on what is proposed to be constructed, how it would be constructed, the construction timeline, and the likely environmental impacts will reduce the overall time needed to develop applications and for agency's to review the application and make a permitting decision.

5.0 Permitting Authorities

Long, linear construction projects in Alaska may require a variety of permits, approvals, authorizations, and reviews and consultations before initiating construction activity. **Table 2** provides a list of potential federal and State permits, approvals, and consultations, as well as a list of applicable federal laws and EOs, though it is not all inclusive and individual projects may require additional approvals or authorizations. **Table 2** state permitting authorities are representative of Alaska agencies and regulations, though most other U.S. states will have similar programs and authorities. The table does not include local permits or approvals (e.g., city, county, borough), though most require authorizations to undertake linear projects within their boundaries.

Table 2. Federal and State Laws, Executive Orders, Permits, Approvals, and Consultations Long, Linear Broadband Projects may Require

Applicability or Entity	Legal Authority	Agency Responsibility	Requirement
<i>Federal</i>			
Federal laws and EOs common to multiple federal agencies	National Environmental Policy Act (NEPA)	NEPA requires all federal agencies prepare a detailed statement of the environmental effects of proposed major federal actions with potential to significantly affect the quality of the human environment.	Complete a NEPA review of the proposal in the form of a Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement
Federal laws and EOs common to multiple federal agencies	National Historic Preservation Act (NHPA)	Before issuing a federal authorization, federal agencies must consider the effect of the undertaking on historic properties (resources listed in or determined to be eligible for the National Register of Historic Places) and must consult with the State Historic Preservation Office (SHPO), Indian tribes ^a , and other parties.	NHPA Section 106 consultation
Federal laws and EOs common to multiple federal agencies	Alaska Native Claims Settlement Act (ANCSA)	ANCSA required the conveyance of lands to Alaska Native regional and village corporations.	Coordination with ANCSA landowners
Federal laws and EOs common to multiple federal agencies	American Indian Religious Freedom Act	Federal agencies must consider Native American religious concerns when a federal management decision has the potential to restrict access or ceremonial use of, or affect the physical integrity of, sacred sites (on both federal and nonfederal lands affected by the federal action).	Consideration of impacts to activities protected under this act
Federal laws and EOs common to multiple federal agencies	Native American Graves Protection and Repatriation Act (NAGPRA)	NAGPRA establishes procedures for the inadvertent discovery or planned excavation of Native American cultural items on federal or tribal lands and establishes ownership of cultural items excavated or discovered.	Evaluation of potential impacts to resources protected under NAGPRA.
Federal laws and EOs common to multiple federal agencies	Freedom of Information Act (FOIA)	FOIA allows for the full or partial disclosure of previously unreleased documents and information controlled by the U.S. government.	Public disclosure of project records
Federal laws and EOs common to multiple federal agencies	Bald and Golden Eagle Protection Act (BGEPA)	BGEPA prohibits the “taking” of bald or golden eagles (including their parts, nests, or eggs) without a permit issued by the Secretary of the Interior.	Eagle take permit if eagles would be “disturbed,” as defined by the act

Applicability or Entity	Legal Authority	Agency Responsibility	Requirement
Federal laws and EOs common to multiple federal agencies	EO 11514 – Protection and Enhancement of Environmental Quality	Directs the U.S. government to provide leadership in protecting and enhancing the quality of the environment. Federal agencies are to initiate measures to direct their policies, plans, and programs to meet national environmental goals.	Review and evaluation of Draft and Final Environmental Impact Statements by the U.S. Environmental Protection Agency (EPA) for compliance with Council on Environmental Quality guidelines
Federal laws and EOs common to multiple federal agencies	EO 11988 – Floodplain Management	Requires federal agencies to reduce the risk of flood loss; to minimize the impact of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains in carrying out agency responsibilities.	Establishment of procedures ensuring the potential effects of flood hazards and floodplain management are considered for actions proposed in a floodplain
Federal laws and EOs common to multiple federal agencies	EO 11990 – Protection of Wetlands	Requires federal agencies to take action to minimize the destruction, loss, or degradation of wetlands and to take action to preserve and enhance wetlands in carrying out their responsibilities.	Avoidance of short- and long-term adverse impacts to wetlands whenever a practicable alternative exists
Federal laws and EOs common to multiple federal agencies	EO 13112 – Invasive Species	Aims to prevent the introduction of invasive species; to control invasive species already introduced; and to minimize the economic, ecological, and human health impacts of invasive species.	Prevention of the introduction of invasive species, control of introduced invasive species, and restoration of native species.
Federal laws and EOs common to multiple federal agencies	EO 13175 – Consultation and Coordination with Indian Tribal Government ^b	Requires federal department and agencies to consult with Indian tribal governments when considering policies that could substantially impact tribal communities.	Consultation and coordination with Indian tribal governments
Federal laws and EOs common to multiple federal agencies	EO 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds	Aids federal agencies in complying with the Migratory Bird Treaty Act (MBTA) and to reduce their liability for the unintentional take of migratory birds.	Avoidance or minimization of impacts to migratory birds and protection of birds and their habitat
Federal laws and EOs common to multiple federal agencies	Executive Memorandum – Government-to-Government Relationship with Native American Tribal Governments	Federal agencies must consult with tribal governments before taking actions that would affect federally recognized tribal governments or tribal trust resources. Federal agencies must act in a knowledgeable and sensitive manner respectful of tribal sovereignty.	Government-to-government relations with Native American tribal governments
Federal laws and EOs common to multiple federal agencies	Executive Memorandum – Recreational Fisheries	Requires federal agencies improve the quantity, function, sustainable productivity, and distribution of aquatic resources for increased recreational fishing opportunities.	Evaluation of potential effects to aquatic systems and recreational fisheries

Applicability or Entity	Legal Authority	Agency Responsibility	Requirement
Department of Interior (DOI)	Federal Land Policy and Management Act (FLPMA)	FLPMA was enacted to establish public land policy; to establish guidelines for its administration; to provide for the management, protection, development and enhancement of public lands; and other purposes.	Under FLPMA, the Secretary of the Interior has broad authority to regulate use, occupancy, and development of public lands and to take whatever action is necessary or required to prevent unnecessary or undue degradation of public lands
U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA)	The CWA regulates the discharge of dredged or fill material into Waters of the U.S., including wetlands.	Department of the Army (DA)/CWA Section 404 permit
USACE	Rivers and Harbors Act (RHA)	The RHA regulates work and structures in, over, or under navigable Waters of the U.S., as well as work and structures that affect the course, location, condition, or capacity of Waters of the U.S.	DA/RHA Section 10 permit
EPA	CWA	EPA has the following authority under the CWA: • Section 402: EPA oversees the Alaska Pollutant Discharge Elimination System (APDES) permits and can object to proposed permit decisions. • Section 404: EPA reviews and comments on permit applications for compliance with Section 404(b)(1) guidelines and other statutes and authorities within their jurisdiction.	Review of APDES permits and DA (Section 404) permits
EPA	Resource Conservation and Recovery Act (RCRA)	RCRA establishes criteria governing the management of hazardous waste. Any hazardous waste generated at a facility is subject to the hazardous waste regulations administered by EPA.	Permits for the storage and transportation of hazardous waste
EPA	Toxic Substances Control Act (TSCA)	Under TSCA, EPA is authorized to require reporting, recordkeeping, testing requirements, and restrictions related to chemical substances and mixtures.	Reporting requirements
EPA	Noise Control Act	The act requires federal agencies to comply with all federal, state, and local noise control laws and regulations. In 1991, the federal government transferred primary responsibility for noise issues to state and local governments.	Investigate and study noise and its effects; and disseminate information to the public regarding noise pollution and its adverse health effects
U.S. Fish and Wildlife Service (USFWS)	Bald and Golden Eagle Protection Act	USFWS issues permits for the relocation of bald and golden eagle nests.	Permits to take, haze, relocate, or destroy birds or their nests for public safety purposes

Applicability or Entity	Legal Authority	Agency Responsibility	Requirement
USFWS	Migratory Bird Treaty Act (MBTA)	The MBTA prohibits the pursuit, hunt, take, capture, kill, or sale of migratory birds. USFWS is authorized to implement provisions of the MBTA and may issue waivers or permits.	USFWS consultation
USFWS	Fish and Wildlife Coordination Act (FWCA)	The FWCA authorizes USFWS to assess the potential impacts of water resource development project on fish and wildlife resources.	Consultation and development of mitigation to offset impacts
USFWS and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS)	Marine Mammal Protection Act (MMPA)	The MMPA prohibits the harassment, hunting, capture, or killing of marine mammals, or the attempt to harass, hunt, capture, or kill marine mammals, and requires Incidental Take Authorizations (ITAs) for any exemption. USFWS and NMFS have joint regulatory authority to implement the MMPA.	ITAs (as necessary): Letters of authorization or incidental harassment authorizations
USFWS and NMFS	Endangered Species Act (ESA)	USFWS and NMFS have joint regulatory authority to manage species protected under the ESA. USFWS and NMFS consult on the effects to threatened or endangered species and their designated critical habitat, as well as issue ITAs. Protected species include terrestrial and marine mammals, plants, and birds.	ESA consultation; USFWS/NMFS issuance of concurrence or Biological Opinion
NMFS	Magnuson-Stevens Fishery Conservation and Management Act (MSA)	NMFS provides consultation on the effects to Essential Fish Habitat (EFH), as authorized by the MSA. EFH includes habitats necessary to a species for spawning, breeding, feeding, or growth to maturity.	EFH consultation
Department of Interior (e.g., Bureau of Land Management, USFWS)	Wild and Scenic Rivers Act	Provides protections for certain rivers with outstanding natural, cultural, and recreational values for a free-flowing condition for the enjoyment of present and future generations.	Consultation to develop compliant project designs
Department of Interior (e.g., National Park Service, USFWS)	Wilderness Act	Provides for the preservation of wilderness character and protects and manages the natural conditions of wilderness areas to negate human impacts.	Prohibits roads, motors, and structures
<i>State of Alaska</i>			

Applicability or Entity	Legal Authority	Agency Responsibility	Requirement
Alaska Department of Environmental Conservation (ADEC)	CWA	USACE Section 404 permits require ADEC certify discharges under Section 401 of the CWA into Waters of the U.S. will comply with the CWA, the Alaska Water Quality Standards, and other applicable State laws.	CWA Section 401 Water Quality certification
ADEC	CWA; Wastewater Disposal; APDES; Water Quality Standards; Drinking Water Standards	ADEC has the following authorities under the CWA: • Provide approval for domestic wastewater collection, treatment, and disposal plans for domestic wastewater. • Requires a permit for the disposal of domestic and non-domestic wastewater. • Administers EPA's national Pollutant Discharge Elimination System program through APDES. • Establishes and enforces water quality standards and limits for surface waterbodies.	APDES permits, review of stormwater pollution prevention plans, reviews treatment systems for drinking water and wastewater, domestic wastewater disposal permit, and non-domestic wastewater disposal permit
Alaska Department of Fish and Game (ADF&G)	FWCA	ADF&G provides comments and recommendations to federal agencies, pursuant to the FWCA. ADF&G also consults with USFWS to conserve and improve wildlife resources.	Wildlife consultation and fish habitat permits
ADF&G	Anadromous Fish Act	ADF&G provides authorization for activities that could use, divert, obstruct, pollute, or change the natural flow or bed of rivers, lakes, and streams used by anadromous fish.	Fish habitat permits
ADF&G	Fishway Act	ADF&G provides authorization for activities within or across a stream used by fish, if such activities have been determined to be possible impediments to the efficient passage of resident anadromous fish.	Determination of sufficient fish passage
ADF&G	Miscellaneous Permits to Take Fish and Game	ADF&G may issue a permit to collect fish and game, subject to limitations and provisions as appropriate, for a scientific, propagative, or educational purpose.	Permit to collect fish and game
ADF&G	Permit for Scientific, Educational, Propagative, or Public Safety Purposes	ADF&G may issue a permit for the taking, possessing, importing, or exporting of game for scientific, propagative, or public safety purposes.	Fish collection permits
Alaska Department of Natural Resources (ADNR)	Alaska Historic Preservation Act; NHPA; Archaeological Resources Protection act	NHPA Section 106 requires consultation with the Alaska SHPO, and when there are adverse effects to cultural resource listed in or eligible for the National Register of Historic Places, and with Advisory Council on Historic Preservation.	Section 106 Memorandum of Agreement or Programmatic Agreement, archaeology collection permit, and field archaeology permit

Applicability or Entity	Legal Authority	Agency Responsibility	Requirement
ADNR	Use of Rights-of-Way for Utilities	ADNR issues permits for rights-of-way leases for new utility construction and operation across State lands.	Issuance of utility rights-of-way
ADNR	Water Use Act	ADNR issues Temporary Water Use Authorizations for water use during construction.	Issuance of Temporary Water Use Authorization
ADNR	Uses Requiring a Permit	Permits are required for temporary use of state lands for temporary winter off-road travel and temporary summer off-road travel.	Temporary land use permits

Notes: ADEC (Alaska Department of Environmental Conservation); ADF&G (Alaska Department of Fish and Game); ADNR (Alaska Department of Natural Resources); ANCSA (Alaska Native Claims Settlement Act); APDES (Alaska Pollutant Discharge Elimination System); BGEPA (Bald and Golden Eagle Protection Act); CAA (Clean Air Act); CWA (Clean Water Act); DA (Department of the Army); DOI (Department of Interior); EFH (Essential Fish Habitat); EO (Executive Order); EPA (U.S. Environmental Protection Agency); ESA (Endangered Species Act); FLPMA (Federal Land Policy and Management Act); FOIA (Freedom of Information Act); FWCA (Fish and Wildlife Coordination Act); ITA (Incidental Take Authorization); MBTA (Migratory Bird Treaty Act); MMPA (Marine Mammal Protection Act); MSA (Magnuson-Stevens Fishery Conservation and Management Act); NAGPRA (Native American Graves Protection and Repatriation Act); NEPA (National Environmental Policy Act); NHPA (National Historic Preservation Act); NMFS (National Marine Fisheries Service); RCRA (Resource Conservation and Recovery Act); RHA (Rivers and Harbors Act); SHPO (State Historic Preservation Office); TSCA (Toxic Substances Control Act); USACE (U.S. Army Corps of Engineers); USFWS (U.S. Fish and Wildlife Service).

^a Indian tribes, as defined by the NHPA and EO 13175, are “an Indian tribe, band, nation, or other organized group or community, including a Native village, regional corporation or village corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 USC 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians” (16 USC 470w).

^b The relationship between federally recognized tribal entities and the U.S. government. This relationship is similar to those employed with other sovereign nations and mandates that consultations with tribes be conducted at an executive or agency-executive level (in accordance with EO 13175).

6.0 Permitting Cost Estimate

Budgets to support permitting effort can widely vary depending on project location and design, as well as what environmental resources may be impacted by the proposed activity. The cost estimate included in this section is based on a hypothetical project to deploy river-laid fiber optic cable between Aniak and McGrath; however, permitting costs for a more limited project (e.g., Aniak to Stony River) would be similar in magnitude. Depending on project design specifics and management, some permitting activities can be addressed concurrently and/or use previously produced project information which may reduce overall project costs.

The cost estimate includes charges for attending internal and agency meetings, overall permitting project management, GIS data analysis and figure production, and supporting administrative services. The estimate does not include costs associated with collecting or acquiring baseline data or environmental field studies (e.g., wetland delineation, cultural resource surveys).

Table 3 summarizes the costs for permits, authorizations, and consultations that would be anticipated for the proposed project. Costs are based on 2026 rates for resource specialists, project managers, GIS specialist, and administrative support.

Table 3. Summary of Estimated Costs to Acquire or Conduct Required Permits, Authorizations, and Consultations for the in-River Fiber Optic Cable Deployment between Aniak and McGrath, Alaska

Lead Agency	Permit, Authorization, or Consultation	Estimated Hours	Anticipated Costs (2026 dollars)
U.S. Army Corps of Engineers	Clean Water Act Section 404/Rivers and Harbors Act Section 10 Individual Permit	172	\$27,200
U.S. Army Corps of Engineers (assumed) ¹	National Environmental Policy Act review (assumed to be an Environmental Assessment)	520	\$87,600
National Marine Fisheries Service	Essential Fish Habitat Assessment and Consultation	156	\$26,200
U.S. Fish and Wildlife Service	Endangered Species Act Section 7 Informal Consultation	138	\$23,300
Alaska Department of Fish and Game	Title 16 Fish Habitat Permit	90	\$15,100
Alaska Department of Natural Resources	Temporary Water Use Authorization	44	\$7,300
Alaska State Historic Preservation Office	National Historic Preservation Act Consultation	108	\$18,800
Total		1,228	\$205,500

¹ The U.S. Army Corps of Engineers would be the likely lead federal agency based on the anticipated project permits; however, should the project be funded by a federal grant (e.g., National Telecommunications and Information Agency), the funding agency may be the lead federal agency for satisfying requirements under the National Environmental Policy Act.

7.0 References

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