TAPS, Cathodic Protection Field at PL Milepost 18.5
Flood Repairs adjacent to Sagavanirktok River
Permit Narrative (August, 2014)

Purpose
The purpose of this project is to protect a cathodic protection (CP) system from bank erosion at a side channel of the Sagavanirktok (Sag) river.

Site Description
The project site is located 18 miles south of Pump Station 1 and 38.7 miles north of Pump Station 2 on the Trans-Alaska Pipeline System (TAPS).

At MP 18 the Sag River crosses the Arctic Coastal Plain, which primarily supports lowland tundra vegetation types. Wetland plant communities are the predominant vegetation type in the lowland tundra zone which includes mosses, lichens, herbs and low shrubs. The soils in this area consist of organic silt with some sand, gravel mixed with sand, numerous cobbles and scattered boulders.

The Sag River and its side channels are classified as anadromous fish streams. Arctic char, cisco and whitefish inhabit the Sag River. Between MP 16 and 36 is the Franklin Bluff's Peregrine Falcon ZRA. There is also a known caribou winter concentration area and a polar bear denning habitat between MP 13 – 26.

Problem Description
An early and severe spring breakup in May, 2014 resulted in overflows from the Sag river into a side channel on the western floodplain next to the pipeline. Local ice jams constricted flows on the main Sag River channels causing melt waters to spill over onto side channels and the TAPS Right of Way.

The increased flows on the westernmost side channel resulted in considerable bank erosion compromising the integrity of the existing CP system installed in 1999, which had been set back approximately sixty feet from the bank. If the bank is not reestablished and stabilized this year from further erosion it is likely that the entire CP system will be submerged under water by next spring breakup season.

Project Description
This project will re-establish approximately the original bank by installing a series of low profile rock sills extending into the channel from the existing bank line along the CP field. Some toe rock protection may be added to the bank for additional protection in areas of aggressive erosion. The original bank areas between the sills will be reclaimed with clean, pitrun, imported gravels. The rock sills will be no higher than the surrounding tundra and the voids will be filled with gravel to promote natural re-vegetation.

Work in and Around Water
Equipment used on the project will be rock trucks, backhoes, loaders and compactors. Some in-stream work may be necessary to construct the rock sills and reclaim the original bank. However work will be performed during low flow periods to minimize impacts to aquatic habitat.
Environmental Considerations and Mitigation

disturbances to the natural tundra will be minimized by use of tundra mats. No net loss of habitat is anticipated because the original bank is being restored to its original location and the reclaimed area will be left to naturally revegetate with native flora. Buried sills is the preferred alternative to a conventional spur dike or a revetment. This method has the least impact on aquatic resources by keeping away from the riverbank and actively flowing water. The construction equipment movements will be confined to the existing TAPS workpad, the project footprint and tundra mats. No additional mitigation is planned.

Schedule
The project will be implemented between late August and early October of 2014 and will take approximately 14 days to complete.

Approximate Construction Scope of Work
1. Mobilize personnel and equipment
2. Haul rock and gravel
3. Install rock sills and fill voids with gravel
4. Reclaim original bank and reinforce toe if needed
5. Stabilize and inspect CP system and appurtenances
6. Dispose of excess material, cleanup work site and demobilize
### ESTIMATED MATERIAL QUANTITIES

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### TYPICAL SECTION

Scale: 1" = 10'

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**ADJACENT PROPERTY OWNER:** STATE OF ALASKA

**ALYESKA PIPELINE SERVICE CO.**

**X314-10X TAPS MP 18.5 SAGAVANIRKTOK RIVER CATHODIC PROTECTION FIELD - FLOOD REPAIRS SECTIONS**

**DATE:** 07/24/14

**PLATE 4**

**SCALE:** AS NOTED

**SHEET 4 OF 4**