



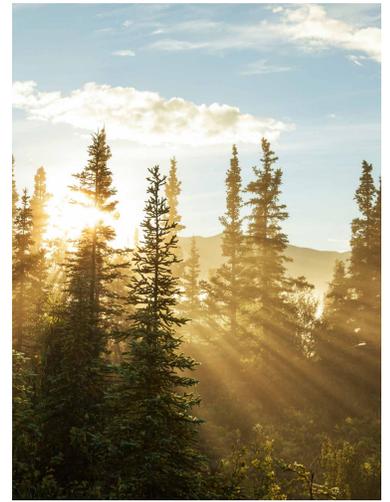
ASAP

Alaska's In-State Gas Pipeline

Plan of Development

Alaska Stand Alone Pipeline

June 2014



ALASKA
GASLINE
DEVELOPMENT CORP.
GAS FOR ALASKANS



ALASKA STAND ALONE PIPELINE/*ASAP* PROJECT

PLAN OF DEVELOPMENT REVISION 3

001-C-22-PRO-W-0001
June 20, 2014

NOTICE

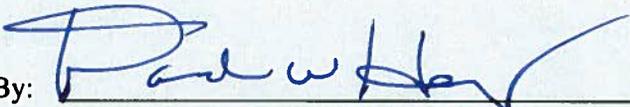
THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION AND SHALL NOT BE DUPLICATED, DISTRIBUTED, DISCLOSED, SHARED OR USED FOR ANY PURPOSE EXCEPT AS MAY BE AUTHORIZED BY AGDC IN WRITING.

©2014 Alaska Gasline Development Corporation. All rights reserved.

Alaska Gasline Development Corporation
3201 C Street, Suite 200
Anchorage, AK 99503
www.agdc.us
907-330-6300

REVISION HISTORY

Revision	Date	Comment	Approval	
			Company Preparing Report	AGDC
1	03/2011			
2	10/26/2012			
3	06/20/2014			

Approved By: 
 David Haugen, ASAP Director, Project Manager

Date: JUNE 20, 2014

ACRONYMS AND ABBREVIATIONS

-	Not Applicable
°F	degree Fahrenheit
AAAQS	Alaska Ambient Air Quality Standards
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation and Public Facilities
AES	ASRC Energy Services Alaska, Inc.
AGDC	Alaska Gasline Development Corporation
AHPA	Alaska Historic Preservation Act
AHRS	<i>Alaska Heritage Resource Survey</i>
AKEPIC	Alaska Exotic Plants Information Clearinghouse
AK LNG	Alaska Liquefied Natural Gas Project
Alyeska	Alyeska Pipeline Service Company
ANILCA	Alaska National Interest Lands Conservation Act
AO	Authorized Officer
API	American Petroleum Institute
APP	Alaska Pipeline Project
ARRC	Alaska Railroad Corporation
AS	Alaska Statute
ASAP	Alaska Stand Alone Pipeline
BACT	Best Available Control Technology
BLM	Bureau of Land Management
BMP	Best Management Practice
CFR	Code of Federal Regulations
CGF	Central Gas Facility
CHAP	Community Health Aid Program
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CWMP	Comprehensive Waste Management Plan
CY	cubic yard
DB	Denali Borough
DH	Dockhead
DMLW	Division of Mining, Land and Water
DNP&P	Denali National Park and Preserve

DR	Double Random
DR&R	Dismantle, Remove, and Restore
EIS	Environmental Impact Statement
EMS	Emergency Medical Service
ENSTAR	ENSTAR Natural Gas Company
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FBE	Fusion-bonded epoxy
FBX	Fairbanks
FEED	Front-end Engineering and Design
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
Fluor	Fluor Corporation
FNSB	Fairbanks North Star Borough
FTE	Full-time Equivalent
GBH	Galbraith Lake Airport
GCF	Gas Conditioning Facility
GIS	Geographic Information System
GHG	Greenhouse Gas
GPS	Global Positioning System
H ₂ S	Hydrogen Sulfide
HABS/HAER	Historic American Building/Historic American Engineering Record
HAP	Hazardous Air Pollutant
HDB	Horizontal Directional Boring
HDD	Horizontal Directional Drilling
HSSE	Health, Safety, Security, and Environment
ICAS	Iñupiat Community of the Arctic Slope
IRA	Indian Reorganization Act
MAOP	Maximum Allowable Operating Pressure
MBJ	Michael Baker Jr, Inc.
MCY	million cubic yards
medevac	Medical Evacuation
MLV	Mainline Valve
MMscfd	million standard cubic feet per day
MOA	Municipality of Anchorage
MOHSDP&CP	Regional Master Oil and Hazardous Substance Discharge Prevention and Contingency Plan
MP	Milepost
MRB	Maintenance and Response Base
MSB	Matanuska-Susitna Borough
MY	Marshalling Yard
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act

NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
No.	Number
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NSB	North Slope Borough
NWI	National Wetland Inventory
O&M	Operations and Maintenance
O ₃	Ozone
OHA	Office of History and Archaeology
OPS	Office of Pipeline Safety
PBU	Prudhoe Bay Unit
PD	Police Department
PHMSA	Pipeline and Hazardous Materials Safety Administration
PHN	Public Health Nurse
PI	Point of Intersection
PJD	Preliminary Jurisdictional Determination
PM ₁₀	particulate matter of 10 microns in diameter or smaller
PM _{2.5}	particulate matter of 2.5 microns in diameter or smaller
POD	Plan of Development
PPC	Prospect Creek Airport
PS	Pump Station
psig	pound per square inch gauge
PSY	Pipe Storage Yard
QA	Quality Assurance
QC	Quality Control
QR	Quadruple Random
RCA	Regulatory Commission of Alaska
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROW	Right-of-Way
RP	Recommended Practice
SA	Service Area
SCADA	Supervisory Control and Data Acquisition
SCC	Deadhorse Airport
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Officer
SO ₂	Sulfur Dioxide
SPC	State Pipeline Coordinator
SPCO	State Pipeline Coordinator's Office
SPMT	Self-propelled Module Transporter
SRK	SRK Consulting
SWPPP	Stormwater Pollution Prevention Plan

TAPS	Trans-Alaska Pipeline System
TBD	To Be Determined
TCE	Temporary Construction Easement
TCP	Traditional Cultural Property
TEWS	Temporary Extra Work Space
TransCanada	TransCanada Alaska Company, LLC
TSCA	Toxic Substances Control Act
TSCA Inventory	<i>TSCA Inventory of Chemical Substances</i>
U.S.	United States
U.S.C.	U.S. Code
ULSD	Ultra-low-sulfur Diesel
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compound
VRM	Visual Resource Management
VSM	Vertical Support Member
VPSO	Village Public Safety Officer
WOUS	Waters of the United States
WT	Wall Thickness

TABLE OF CONTENTS

NOTICE **iii**

REVISION HISTORY..... **iv**

ACRONYMS AND ABBREVIATIONS **v**

1. PURPOSE AND NEED **1**

 1.1 Purpose 1

 1.2 Need..... 2

 1.3 Background Information..... 3

 1.4 Expected Public Benefits 3

2. PROJECT DESCRIPTION **5**

 2.1 Summary of Project Components 5

 2.1.1 Mainline Pipeline 5

 2.1.2 Fairbanks Lateral Pipeline..... 8

 2.1.3 Gas Conditioning Facility 8

 2.1.4 Other Permanent Facilities 9

 2.1.5 Material and Water Sources 10

 2.1.6 Construction Support Facilities..... 10

 2.1.7 Pipe Storage and Pipe Storage Yards..... 11

 2.1.8 Staging Locations..... 12

 2.1.9 Worker Camps 12

 2.1.10 Support Sites 12

 2.2 Utility-grade Natural Gas..... 13

 2.3 Timeline of Project 13

 2.4 Duration and Timing of Construction..... 14

 2.4.1 Duration of Operations..... 14

 2.5 Gathering System, Trunk Line, or Distribution Line..... 15

 2.6 Surface and Subsurface Features 15

 2.7 Length and Width of the Right-of-Way, Area Needed for Related Activities 16

 2.8 Adjacent to an Existing Right-of-Way 17

 2.9 Alternative Routes and Locations..... 18

 2.10 Potential for Gas Offtake and Use 18

3. RIGHT-OF-WAY LOCATION **19**

 3.1 Legal Description..... 19

 3.2 Site-specific Engineering Surveys for Critical Areas 20

 3.3 Maps and Drawings Showing River Crossings 20

 3.4 Right-of-Way Acreage Calculation 20

4. FACILITY DESIGN FACTORS..... **21**

 4.1 Technical Summary 21

 4.2 Toxicity of Pipeline Product 21

4.3 Anticipated Operating Temperatures..... 22

4.4 Permanent Width or Size 23

4.5 Temporary Areas Needed 23

5. ADDITIONAL COMPONENTS OF THE RIGHT-OF-WAY..... 24

5.1 Connection to an Existing Right-Of-Way 24

5.1.1 Future Gas Inputs or Offtakes 24

6. GOVERNMENT AGENCY INVOLVEMENT 25

6.1 Entities that have Regulatory Authority or that will be Affected by the Project 25

6.2 Permitting Organization..... 26

6.2.1 Federal Agency Involvement 27

6.2.2 State and Local Agency Involvement 27

7. PROJECT CONSTRUCTION 28

7.1 Construction Planning Considerations..... 28

7.1.1 Construction Execution..... 28

7.1.2 Construction Seasons 33

7.1.3 Construction Labor Requirements 33

7.2 Construction Support Facilities 35

7.2.1 Project Offices..... 35

7.2.2 Support Sites 37

7.2.3 Port Facilities 39

7.2.4 Rail Facilities 43

7.2.5 Roads..... 44

7.2.6 Construction Workpads..... 45

7.2.7 Pipe Storage Yards and Storage Facilities 45

7.2.8 Airports and Airstrips..... 45

7.2.9 Fuel Storage Sites..... 46

7.3 Gas Conditioning Facility Construction 46

7.3.1 Fairbanks Lateral Terminus 48

7.4 Pre-construction Activities 48

7.4.1 Transportation of Equipment and Materials 48

7.4.2 Right-of-Way 49

7.4.3 Temporary Erosion Control 50

7.4.4 Material Sites 51

7.4.5 Land Temporarily Needed for Construction Activities..... 52

7.4.6 Water Source Development 53

7.5 Pipeline Preparation..... 53

7.5.1 Double-jointing 53

7.5.2 Stringing..... 55

7.5.3 Bending and Set Up 55

7.6 Pipe Installation 55

7.6.1 Signs and Markers..... 55

7.6.2 Ditch Excavation..... 55

7.6.3 Rock and Frozen Soils Blasting..... 56

7.6.4 Line-up and Welding 56

7.6.5 Lowering-in and Tie-Ins 57

7.6.6 As-built Survey 57

7.6.7 Buoyancy Control 57

7.6.8 Ditch Breakers, Padding, and Backfill..... 57

7.6.9	Tie-ins	58
7.7	Special Construction Areas.....	58
7.7.1	Road and Railroad Crossings	58
7.7.2	Foreign Pipeline and Utility Crossings	58
7.7.1	Unstable Soils	59
7.7.2	Avalanche Hazards	59
7.7.3	Pipe Installation Methods for Waterbodies.....	59
7.7.4	Wetland Crossings	61
7.7.5	Mainline Block Valves.....	62
7.7.6	Aboveground Pipeline Mode	62
7.8	Special Design Areas	63
7.8.1	Denali National Park and Preserve	63
7.8.2	Atigun Pass	63
7.9	Contingency Planning.....	64
7.10	Safety Requirements.....	64
7.11	Waste Management	64
7.11.1	Waste Handling and Disposal.....	64
7.11.2	Industrial Wastes and Hazardous Substances	66
8.	RESOURCE VALUES AND ENVIRONMENTAL CONCERNS.....	69
8.1	Location with respect to Existing Corridors	69
8.2	Anticipated Conflicts with Resources or Public Health and Safety.....	69
8.2.1	Air	69
8.2.2	Noise	72
8.2.3	Geologic Hazards.....	73
8.2.4	Mineral and Energy Resources	74
8.2.5	Paleontological Resources	74
8.2.6	Soils.....	75
8.2.7	Water Resources	77
8.2.8	Wetlands and Vegetation	79
8.2.9	Fisheries Resources.....	83
8.2.10	Wildlife Resources	84
8.2.11	Sensitive, Threatened, and Endangered Species	86
8.2.12	Cultural Resources	88
8.2.13	Visual Resources.....	91
8.2.14	Social and Economic.....	93
8.2.15	Subsistence.....	95
8.2.16	Bureau of Land Management Projects.....	97
8.2.17	Recreation Activities.....	97
8.2.18	Wilderness.....	98
9.	STABILIZATION AND REHABILITATION	100
9.1	Soil Replacement and Stabilization	100
9.1.1	Ditch Backfilling.....	100
9.1.2	Cleanup	101
9.1.3	Ditch Stabilization.....	101
9.1.4	Erosion Control.....	101
9.2	Seeding Specifications.....	102
9.3	Fertilizer.....	102
9.4	Control of Non-Native Invasive Plants.....	103

9.5 Limiting Access to the Right-of-Way..... 103

9.6 Potential Reclamation of Constructed Roads 103

10. OPERATIONS AND MAINTENANCE..... 104

10.1 Operations and Maintenance Plan 104

10.2 New or Expanded Access for Operations and Maintenance..... 105

10.3 Inspection and Testing of Pipeline..... 105

 10.3.1 Cleaning, Hydrostatic Testing, and Drying..... 105

 10.3.2 Corrosion Control 106

 10.3.3 Leak Detection and Emergency Response 106

10.4 Removal or Addition of Pipes and Pumps for Pipeline Maintenance..... 107

10.5 Right-of-Way Maintenance Schedules 107

10.6 Safety 107

 10.6.1 Damage Prevention 108

 10.6.2 Public Awareness 108

10.7 Inspection and Maintenance Schedule..... 108

 10.7.1 Aircraft..... 108

 10.7.2 Ground Inspection..... 108

10.8 Personnel and Work Schedules..... 109

10.9 Fire Control..... 109

10.10 Contingency Planning..... 109

11. TERMINATION AND RESTORATION..... 110

11.1 General Dismantle, Remove, and Restore Standards 110

11.2 Specific Facility Procedures 111

12. REFERENCES..... 113

ATTACHMENTS..... 116

LIST OF TABLES

Table 1.	Assumed Composition of Gas to be Transported	13
Table 2.	Depth of Cover Requirements for Class 1 to 4 Pipeline Locations	16
Table 3.	Construction and Operations Footprint Acreages	17
Table 4.	Land Ownership of Parcels Crossed by Mainline Centerline	19
Table 5.	Land Ownership of Parcels Crossed by Fairbanks Lateral Centerline	20
Table 6.	Pipeline Pressure Standards	21
Table 7.	Federal, State, and Local Agencies with Regulatory Authority for Alaska Stand Alone Pipeline	26
Table 8.	Currently Filed Regulatory Approvals.....	27
Table 9.	Alaska Stand Alone Pipeline Construction Spreads Overview.....	30
Table 10.	Temporary Land Use Overview.....	31
Table 11.	Health, Safety, and Emergency Response Facilities Near Right-of-Way.....	40
Table 12.	Proposed Rail Sidings.....	44
Table 13.	Project Airports and Airstrips	45
Table 14.	Approximate Locations of Cut-and-Fill Grading.....	50
Table 15.	Material Required for Alaska Stand Alone Pipeline Project Construction.....	51
Table 16.	Material Availability and Need by Pipeline Construction Spread.....	52
Table 17.	Alaska Stand Alone Pipeline Water Use Requirements by Construction Spread and Section	54
Table 18.	Alaska Stand Alone Pipeline Crossings of the Trans-Alaska Pipeline System	59
Table 19.	Estimated Solid Waste Generation for Alaska Stand Alone Pipeline Construction Camps by Season	65
Table 20.	Wetlands Impacts for the Alaska Stand Alone Pipeline Survey Corridor	80
Table 21.	Bureau of Land Management Sensitive and Watch List Animals and Plants.....	88
Table 22.	Subsistence or Personal-use Communities by Region.....	96

LIST OF FIGURES

Figure 1.	Alaska Stand Alone Pipeline Route.....	6
Figure 2.	Fairbanks Lateral Route.....	7
Figure 3.	Alaska Stand Alone Pipeline Timeline.....	14
Figure 4.	Ground and Surface Temperature Profiles over the Proposed Alaska Stand Alone Pipeline Route.....	22
Figure 5.	Construction Season Timeline.....	33
Figure 6.	Pipeline Construction Labor by Section.....	34
Figure 7.	Pipeline Craft Labor by Season.....	34
Figure 8.	Camps and Pipeline Storage Yards.....	36
Figure 9.	Gas Conditioning Facility Location.....	47
Figure 10.	Communities Along the Pipeline Route.....	94

LIST OF ATTACHMENTS

Attachment 1 Standard Details and Typical Drawings	A1-1
Attachment 2 Land Ownership.....	A2-1
Attachment 3 Maps	A3-1
Attachment 4 Mainline Stream Crossings.....	A4-1
Attachment 5 Ancillary Features.....	A5-1
Attachment 6 Sensitive Areas and Habitats	A6-1
Attachment 7 Federal, State and Local Permitting.....	A7-1

1. PURPOSE AND NEED

The Alaska Gasline Development Corporation (AGDC) has prepared this Plan of Development (POD) to describe the design, construction, and operational components of the Alaska Stand Alone Pipeline (ASAP) project. The POD also describes the environmental assessment and regulatory permit requirements that apply to ASAP. It includes information on the following:

- 1) Purpose and Need
- 2) Project Description
- 3) Right-of-Way (ROW) Locations
- 4) Facility Design Factors
- 5) Additional Components of the ROW
- 6) Government Agency Involvement
- 7) Project Construction
- 8) Resource Values and Environmental Concerns
- 9) Stabilization and Rehabilitation
- 10) Operations and Maintenance (O&M)
- 11) Termination and Restoration

Revision 1 of the ASAP POD was published in March 2011. Revision 2 was published in October 2012. This third revision, published June 20, 2014, provides further updates based on information AGDC developed after the U.S. Army Corps of Engineers (USACE) prepared a Final Environmental Impact Statement (FEIS) for the ASAP project in 2012. The POD, Revision 3, presents the ASAP project plan that will be evaluated by the USACE in a forthcoming Supplemental Environmental Impact Statement (SEIS). As components of the project develop further, the POD may be updated to incorporate new information.

1.1 PURPOSE

The Alaska Stand Alone Pipeline (ASAP) project will deliver North Slope natural gas to Fairbanks, Southcentral and as many other communities within Alaska as practical. The project will provide Alaskans with a stable, affordable, long-term supply of natural gas for heating and powering their homes and businesses. The purpose of the Alaska Gasline Development Corporation, the sponsor of the ASAP project, is established in Title 31, Chapter 25 of Alaska Statute.

AS 31.25.005 states that the Corporation shall, for the benefit of the state, to the fullest extent possible:

“develop and have primary responsibility for developing natural gas pipelines...and other transportation mechanisms to deliver natural gas in-state for the maximum benefit of the people of the state;

when developing natural gas pipelines...and other transportation mechanisms to deliver natural gas in-state, provide economic benefits in the state and revenue to the state;

assist the Department of Natural Resources and the Department of Revenue to maximize the value of the state’s royalty natural gas, natural gas delivered to the state as payment of tax, and other natural gas received by the state;

advance an in-state natural gas pipeline...in a safe, prudent, economical, and efficient manner, for the purpose of making natural gas...available to Fairbanks, the Southcentral region of the state, and other communities in the state at the lowest rates possible;

...endeavor to develop natural gas pipelines ...to deliver natural gas...to public utility and industrial customers in areas of the state to which the natural gas...may be delivered at commercially reasonable rates; and

endeavor to develop natural gas pipelines ...that offer commercially reasonable rates for shippers and access for shippers who produce natural gas...”

1.2 NEED

The ASAP is needed to meet statewide demands for access to cleaner and more affordable energy. These demands have intensified to such a level in the Interior that the Alaska State Legislature has enacted an interim plan to provide some Fairbanks North Star Borough (FNSB) communities with liquefied natural gas by truck until an in-state gasline can be developed. Furthermore, the ASAP project will supplement or replace natural gas provided by Cook Inlet gas fields, whose production has declined over the past decade, as reported in Alaska Department of Administration Alaska Oil and Gas Conservation Commission Monthly Production Reports (2014). Although recent drilling activity has occurred in Cook Inlet, new wells remain unproven and may not satisfy the long-term energy demands for residential and commercial use. Access to gas will also help to meet the need for improving air quality in the Fairbanks area, which is adversely affected by the combustion of wood and expensive heating fuels. Fairbanks is currently classified as an air quality non-attainment area by the Alaska Department of Environmental Conservation (ADEC) and the U.S. Environmental Protection Agency (USEPA).

The ASAP project will address these needs by providing up to 500 million standard cubic feet per day (MMscfd) of utility-grade natural gas from North Slope gas reserves to in-state markets by 2020; thereby, meeting current and projected future in-state energy demands, as well as helping to improve air quality in the Fairbanks area. Since the ASAP project will transport utility-grade natural gas at a commercially reasonable rate, the energy resource will be accessible to communities adjacent to the line that choose to tap into it and develop the required infrastructure for its use. The

project will make expansion of commercial and industrial enterprises statewide possible. It will also provide a substantial number of jobs to Alaskans and economic benefit to the State of Alaska through royalties.

A stable and reliable supply of utility-grade, lean natural gas is needed to meet the current and future demand of 500 MMscfd as follows:

- 200 MMscfd – Cook Inlet area current demand
- 50 MMscfd – Cook Inlet area future demand (2030)
- 60 MMscfd – Fairbanks area future demand (2030)
- 190 MMscfd – Future commercial and industrial use

1.3 BACKGROUND INFORMATION

Much of Alaska has no long-term source of fuel other than heating oil. For decades, various sponsors have studied projects to export natural gas from Alaska's North Slope to North America, Asia, or both. To date, none of these projects have advanced past the feasibility study stage. AGDC's Proposed Action will serve developed and developing markets within Alaska, including the South-central region, Fairbanks, and the Railbelt.

ASAP is an intrastate project independent of other proposed intrastate natural gas pipeline projects. The Alaska Liquefied Natural Gas Project (AK LNG) is studying the feasibility of exporting Alaska's North Slope natural gas via a large-diameter pipeline. As these export plans and studies continue, near-term and projected future needs remain for additional natural gas to supplement or replace current reserves and serve Alaskan markets.

Community, commercial, and industrial development in interior Alaska could be facilitated with a reliable supply of natural gas. ASAP will provide jobs, new business opportunities, and tax revenues for Alaska. New jobs will become available during both the construction and operational phases. Existing and new industrial activities will have access to more cost-effective energy.

The ASAP project design was developed to minimize and avoid environmental impacts where practicable. An FEIS was produced by the USACE for the project in October 2012 (USACE, 2012), and a public Notice of Intent to initiate an SEIS for the project is being issued. The SEIS will capture the extent of changes to environmental impacts associated with project improvements and revisions.

1.4 EXPECTED PUBLIC BENEFITS

The expected public benefit of the ASAP project is the potential for delivery of a long-term, reasonably priced supply of natural gas to the Southcentral region, Fairbanks, and other Alaskan communities. Specifically, this supply could be used for:

- Heating homes, public safety facilities, military bases, and businesses
- Generating electrical energy
- Continuing economic stability and growth by supporting industrial users
- Accommodating future population growth and increased commercial usage served by the existing ENSTAR Natural Gas Company (ENSTAR) Beluga local distribution system, and for the Fairbanks–North Pole area and other Railbelt communities.
- Improving air quality in the Fairbanks area, which is currently classified as an air quality non-attainment area by ADEC and USEPA
- Potentially promoting Compressed Natural Gas (CNG) as a substitute for gasoline and diesel fuel used by cars and trucks in Fairbanks; for use by communities along the Parks Highway, including tour buses in Denali National Park and Preserve (DNP&P); and for use by Anchorage and communities on the Kenai Peninsula
- Potentially providing CNG for distribution to rural Alaska communities via the Yukon and Tanana Rivers and marine barges from Cook Inlet
- Facilitating the development of infrastructure to allow more economic development of mining and oil and gas projects

2. PROJECT DESCRIPTION

The ASAP project comprises a natural Gas Conditioning Facility (GCF) capable of producing 500 MMscfd of utility-grade natural gas at peak capacity and a 1,480 pounds per square inch gauge (psig) natural gas pipeline. The pipeline is a 727-mile-long, 36-inch-diameter natural gas transmission mainline extending from the GCF near Prudhoe Bay south to a connection with the existing ENSTAR pipeline system in the Matanuska-Susitna Borough (MSB). A 29-mile-long, 12-inch-diameter lateral pipeline will connect the mainline to Fairbanks. The proposed pipeline will be buried except at possible fault crossings, elevated bridge stream crossings, pigging facilities, and mainline block valve locations. Because the pipeline system will be designed to transport utility-grade natural gas, access to smaller communities is possible.

The ASAP route will generally parallel the Trans-Alaska Pipeline System (TAPS) and Dalton Highway corridor to near Livengood, northwest of Fairbanks. At Livengood, the mainline route will continue south, to the west of Fairbanks and Nenana. The pipeline will bypass DNP&P to the east and will then generally parallel the Parks Highway corridor to Willow, continuing south to its connection into ENSTAR's distribution system at Milepost (MP) 39 of the Beluga Pipeline southwest of Big Lake (Figure 1). The Fairbanks Lateral tie-in will be located approximately 2 miles south of the Chatanika River crossing at MP 439 of the mainline. From the mainline tie-in point, the Fairbanks Lateral pipeline will traverse east over Murphy Dome, following the Murphy Dome and Old Murphy Dome Roads, and then extend southeast into Fairbanks (Figure 2).

A summary of project components is provided in the next section. More details are provided in Section 7, Project Construction.

2.1 SUMMARY OF PROJECT COMPONENTS

2.1.1 Mainline Pipeline

The initial project natural gas flow will be less than 250 MMscfd, with a peak capacity of 500 MMscfd to meet anticipated future demands. The Maximum Allowable Operating Pressure (MAOP) of the proposed project mainline pipeline will be 1,480 psig.

Figure 1. Alaska Stand Alone Pipeline Route

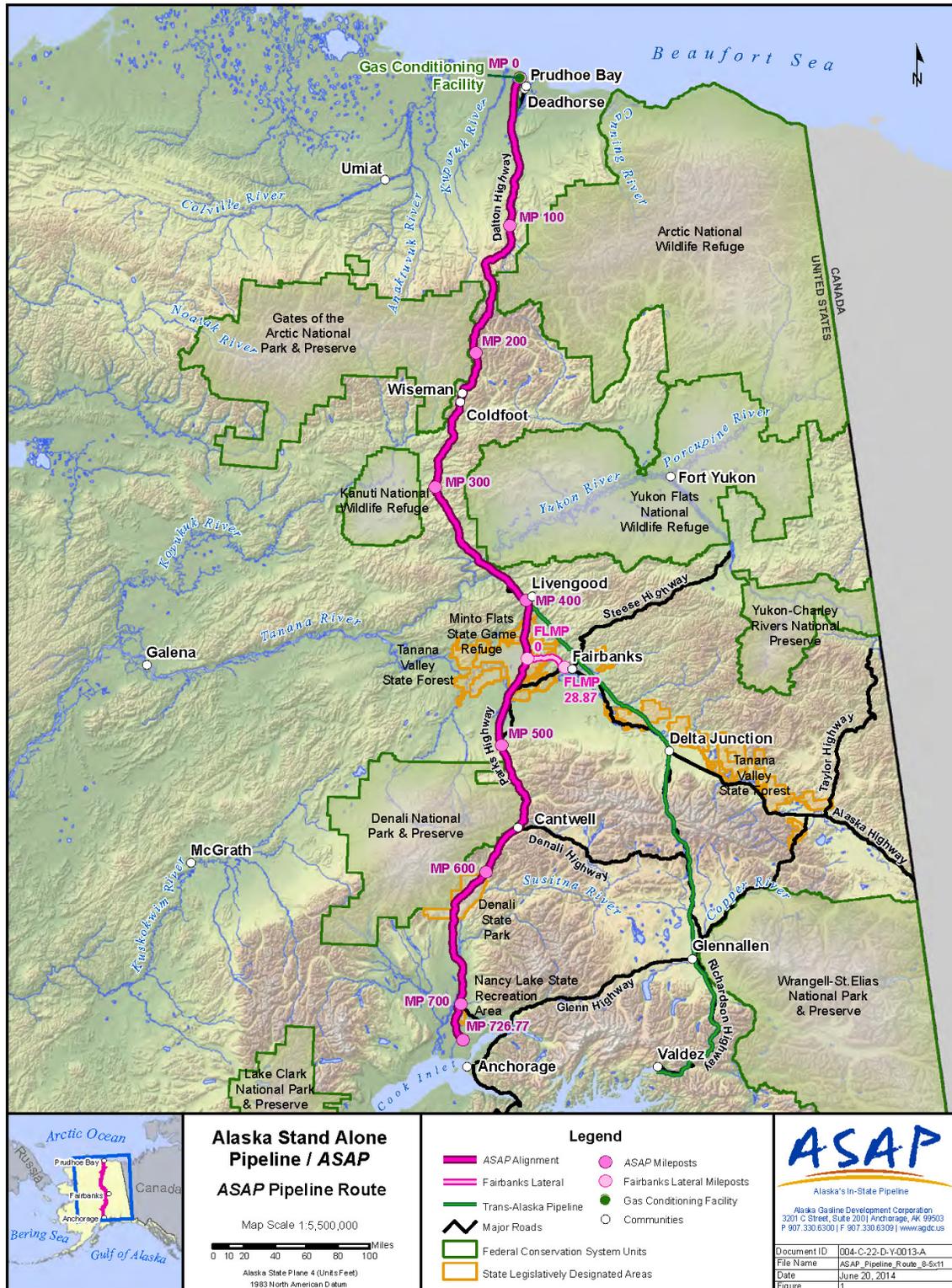
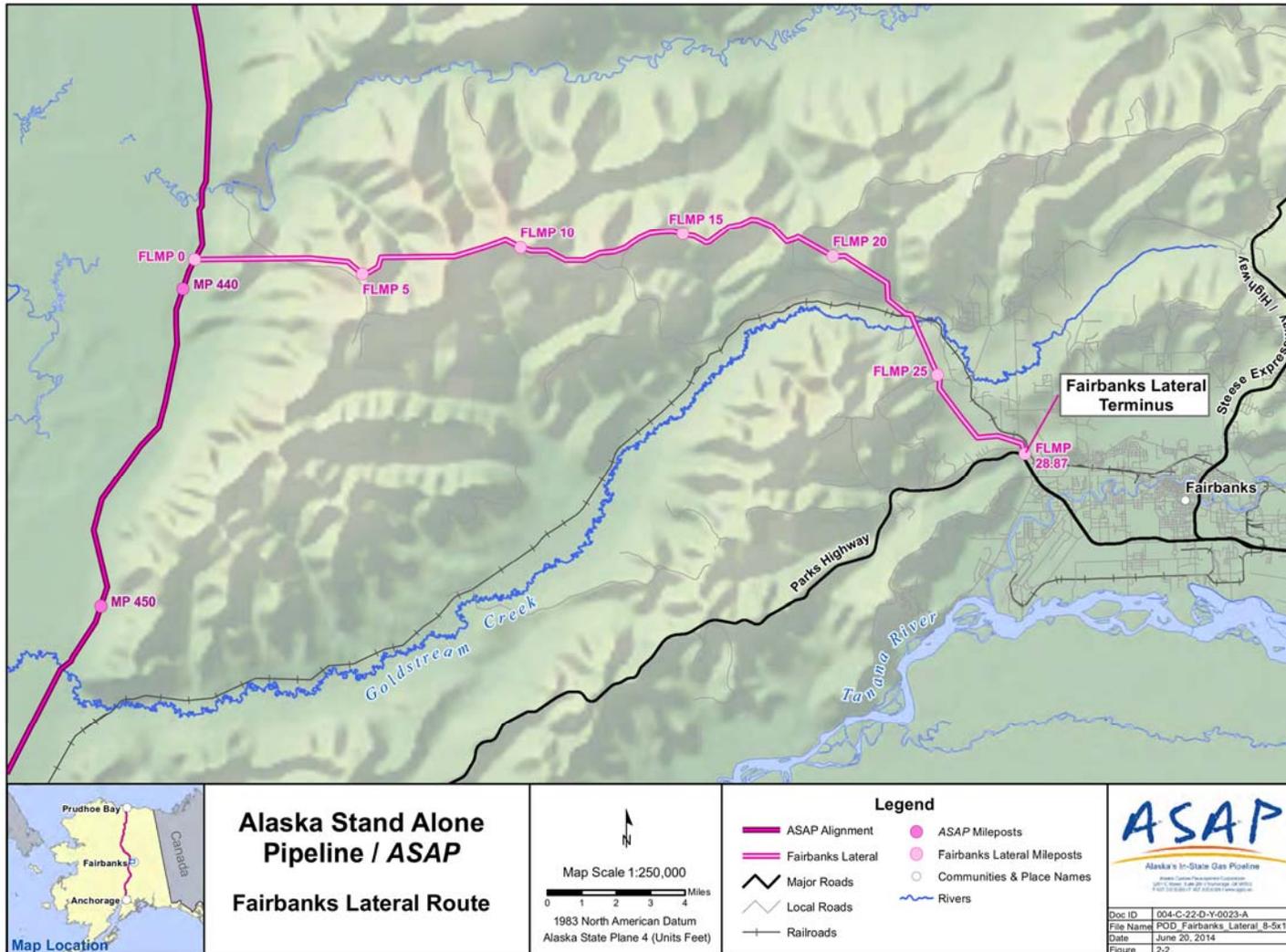


Figure 2. Fairbanks Lateral Route



The construction ROW width along underground and aboveground portions of the proposed pipeline will be 120 feet for the proposed mainline and Fairbanks Lateral. Open-cut trenching techniques will primarily be used to install the pipeline underground. This will result in dividing the ROW to allow 40 feet for the spoil side and 80 feet for the working side of the mainline ROW. In some areas, the proposed construction ROW widths will be expanded to account for site-specific construction requirements, such as providing safe working conditions in areas of rugged terrain or areas requiring rock ditching, gravel or ice workpads, or snow storage. Similarly, the construction ROW will be reduced, or 'necked down,' in some areas to minimize impacts to sensitive resources, such as residences or high-value wetlands and aquatic resources. These locations will be determined as permitting progresses and final engineering is completed.

Permanent land requirements include the pipeline operating ROW. Bureau of Land Management (BLM) requirements stipulate a ROW of 50 feet plus the width of the pipe on federal lands. Therefore, following construction, the AGDC will retain a 53-foot-wide permanent ROW along portions of the mainline that will cross federal lands. A 53-foot-wide permanent ROW will also be maintained for the mainline for all other non-federal lands. The permanent ROW will be within the construction ROW and centered on the pipeline for operation of the mainline pipeline.

The pipeline will be operated at below-freezing temperatures in predominantly permafrost terrains to protect the thermal stability of the surrounding ground. Similarly, the pipeline will be operated at above-freezing temperatures in predominantly thawed settings so as not to create frost bulbs around the pipe that could lead to frost-heave displacement of the pipeline or adverse hydraulic impacts on drainages crossed by the pipeline. Pipeline design will use engineering controls, such as insulation and strategic use of non-frost-susceptible fill, to control the thermal signature of the pipeline in discontinuous permafrost.

2.1.2 Fairbanks Lateral Pipeline

The Fairbanks Lateral will connect the mainline to the Fairbanks natural gas distribution system. The design capacity of the Fairbanks Lateral will be approximately 60 MMscfd. The MAOP will be 1,480 psig. Permanent and temporary ROW widths are as discussed earlier for the mainline. Thermal controls as discussed for the mainline will also be installed, as required, on the Fairbanks Lateral.

2.1.3 Gas Conditioning Facility

A GCF and associated structures will be located on a 72.7-acre gravel pad near Prudhoe Bay to provide conditioning necessary to remove Carbon Dioxide (CO₂) and Hydrogen Sulfide (H₂S), dehydrate the gas, compress the gas to pipeline operating pressure, and chill the gas to avoid impacting the permafrost around the pipeline. The GCF will include access roads and contain several modular buildings that will house equipment, utilities, workspaces, and personnel. Primary and backup power generation, natural gas compressors, and heating and refrigerant equipment, in addition to other ancillary facilities, will be located at this facility to drive the natural gas conditioning process.

Natural gas will be obtained from the existing Prudhoe Bay Central Gas Facility (CGF) located approximately 4,250 feet to the southeast of the planned GCF. An adjacently located Permanent Operations Camp and a temporary Construction Camp will be located approximately 3,000 feet to the northwest of the GCF on an area of approximately 20 acres. Warehousing, shops, maintenance facilities, administrative offices, and other storage to support GCF O&M will be to the west of the GCF on a gravel pad approximately 24 acres in area.

Gas Conditioning Facility Processes

The Fluor Corporation (Fluor) Solvent Process uses a physical solvent, propylene carbonate, for the removal of CO₂ and H₂S from natural gas (Fluor, 2003). Propylene carbonate is a polar solvent that has a high affinity for acid gases and a low solubility for hydrocarbons. The process is noncorrosive and typically uses all carbon steel construction. The Fluor Solvent Process also has a very low solvent freezing temperature of -57 degrees Fahrenheit (°F). The low solvent freezing temperature minimizes winterization requirements and should increase process reliability in an arctic environment.

The Fluor Solvent Process operates at low temperature; thus, requires refrigeration. As physical solvent loading is dependent on the partial pressure of the acid gas in the feed gas, the feed gas is compressed up to around 1,480 psig before treating. Treating at higher pressure reduces the required solvent circulation rate.

The solvent is regenerated through flash regeneration (pressure reduction). The selected configuration includes four flash stages: high pressure, medium pressure, low pressure, and vacuum. No thermal regeneration is required. Vapor from the high- and medium-pressure flash stages contain hydrocarbons that are recycled through compression to minimize hydrocarbon losses. The acid gas streams from the low pressure and vacuum flash drums are compressed to a delivery pressure of about 2,500 psig.

The solvent from the final vacuum flash drum is sufficiently lean to meet the treated gas CO₂ specification and is fed to an intermediate point in the absorber column. However, the solvent is not sufficiently lean to meet the treated gas H₂S specification. Therefore, a slip stream of the lean solvent is sent to a stripper column where additional acid gases are stripped to produce an ultra-lean solvent for use in the upper section of the absorber column. Fluor Solvent is non-aqueous, so it does not add any water to the treated gas or CO₂-rich acid gas streams. No dehydration is required based upon the 0°F at 1,400 psig treated gas water dewpoint specification (Fluor, 2003).

2.1.4 Other Permanent Facilities

Thirty-nine mainline block valves will be installed along the proposed mainline; one will be installed on the Fairbanks Lateral. Block valves will allow the AGDC to shut down or isolate portions of the pipeline, if necessary, and allow controlled venting during non-routine system blowdowns. The valves will be installed in areas accessible to operating personnel, at intervals of no greater than 20 miles, and consist of a belowground valve, with valve operators and bypasses extending aboveground. Line break detection systems capable of closing the valve upon sensing a significant

drop in pressure potentially indicative of a pipeline rupture will be installed at each site. Security fencing will surround the aboveground piping and valves at each site. Sites will typically be located on a 0.1-acre parcel largely within the limits of the construction or permanent pipeline ROW. Eleven pig facilities will be collocated within other aboveground facilities. A pig launcher will be located at the GCF. Pig launcher/receiver facilities will also be located at Coldfoot (MP 249) and at the Fairbanks Lateral (MP 439.1). A pig receiver will be located at the pipeline terminus. A pig launcher for the Fairbanks Lateral will be located at the mainline tie-in, and a receiver will reside at the terminus of the Fairbanks Lateral at MP 28.8.

The GCF and pipeline will be operated from a primary control room located at the GCF in Prudhoe Bay. Three pipeline O&M facilities will be established near industrial/urban centers of activity in support of long-term operations. Maintenance and Response Bases (MRBs) will be located at Prudhoe Bay (collocated with the GCF), Fairbanks, and Big Lake. Each facility will generally include offices, cold and warm storage buildings, and a Pipe Storage Yard (PSY).

The corporate headquarters will be located in offices in Anchorage (Anchorage Headquarters). Project offices will be located near a major airport in either Fairbanks or Anchorage, and will consist of a project headquarters, support sites, and construction support offices.

2.1.5 Material and Water Sources

Material sites (sand and gravel pits) located along the proposed project will be used to provide approximately 33.2 million cubic yards (MCY) of materials for workpads, access roads, pipeline bedding and padding, and construction of aboveground facilities and other project features. Material sites will generally be located approximately 6 to 7 miles along the route, depending on available sources and project requirements. The project is currently operating under the assumption that new sites will be required. Existing sites will be used if agreements can be obtained with the entities that hold existing material sales or material site agreements. See Attachment 5, Ancillary Features, for a table of material source areas that may be used for the project.

Water for construction needs for ice roads, dust control, and pressure testing the pipeline will be collected from surface water sources, such as lakes and streams. Fish habitat and water volume studies have begun in order to ascertain the amount of water available for permitted surface water collection.

2.1.6 Construction Support Facilities

The Port of Seward will be the primary port of entry for pipe and materials. Other Southcentral Alaska ports may require minimal use by the project. West Dock Dockhead (DH) 3 is proposed as the port for offloading the pre-fabricated modular components of the GCF. Fifty-three modules will be brought into West Dock using 23 barges during a single sealift. Barges will be towed into West Dock DH 3, offloaded, and transported to the GCF location. See Attachment 1, Figure A1-1 - West Dock Causeway Vicinity Map.

Use of West Dock DH 3 will require winter dredging of a navigation channel and an adjoining turn basin. The navigation channel was previously permitted by West Dock's Operator, BP Exploration (Alaska), Inc. Subsequent disposal of dredge material will occur by dispersal over bottomfast ice in a nearshore area perturbed by ice scouring and storms. Winter construction around DH 3 and widening of the West Dock causeway will be required for offloading activities. A temporary barge bridge will be required to bypass an existing breach in the West Dock causeway in order to transport the GCF modules to their designated assembly location. See Attachment 1, Figures A1-2 - West Dock Navigational Channel, A1-3 - West Dock Causeway Widening Layout, A1-4 - Aerial View of Barge Bridge, and A1-5 - West Dock Causeway South Typical Abutment Modifications Section.

The AGDC will use existing public roads and railroads to facilitate equipment and material distribution along the proposed project route. Several temporary and permanent access roads will be required to transport equipment, materials, and workers to the proposed project areas. Furthermore, access roads will be used to access water sources, material sites, and various aboveground facilities. See Attachment 1, Figure A1-6 - Gas Conditioning Facility Layout.

See Attachment 5, Ancillary Features, for a table of the project road attributes and locations.

New gravel access roads will typically be approximately 30 feet wide at the driving surface, and will be located within a 60-foot-wide ROW. Culverts, low water crossings, and bridges will be installed as necessary to facilitate surface water flow under the access roads. Road fill slopes surrounding culverts will be protected in accordance with the erosion and sediment control plan. See Attachment 1, Figure A1-8 - Access Road Typical Arch Section.

Construction and operation of the ASAP will involve temporary and permanent driving surfaces and laydown areas. Crossings of rivers and streams will likewise include both temporary and permanent structures. The precise locations that will be designated temporary versus permanent are currently under evaluation. Temporary methods of crossing rivers and streams may include ice bridges and snow-packed surfaces, low-water crossings, culverts, and bridges. Temporary crossings used for construction access that are negatively impacted by construction activities will be reclaimed and restored to pre-construction conditions. Permanent driving surfaces will use similar methods, with the exception of ice bridges and snow-packed surfaces. Selection of a crossing method will be a decision based on site-specific geometric and environmental conditions; the season selected for construction; construction and operational requirements, such as vehicular traffic loading requirements; and other considerations. Generally, the selected method will support both construction activities and, if necessary, post-construction operations for permanent access routes while minimizing initial and long-term environmental impacts, costs, and reclamation/restoration needs.

2.1.7 Pipe Storage and Pipe Storage Yards

AGDC proposes to establish 29 PSYs and 13 stationary camp locations. Ten of the stationary camp locations will be collocated with a PSY. The PSYs will primarily be located in previously disturbed areas that were used for construction of the TAPS, Alaska Railroad Corporation (ARRC) facilities,

or for public events. See Attachment 5, Ancillary Features, for a table of the PSY attributes and locations.

2.1.8 Staging Locations

Fifty-three pre-fabricated modules weighing up to 5,500 tons will be used to construct the GCF. The modules will be offloaded at West Dock and moved along the causeway from the dock to a staging area located at the end of the causeway. When modules are at the staging area, they will be removed from the Self-propelled Module Transporters (SPMTs) and lowered to the ground. Once all modules are in place, crews prepare the modules for transport to the GCF by removing temporary siding and pipe covers. The staging area covers 31.06 acres.

2.1.9 Worker Camps

Mobile construction camps (8.5 to 10 acres; short duration during the construction preparation phase) and stationary construction camps will be constructed in locations along the proposed main-line pipeline. Where possible, all mobile construction camps will be located within previously cleared and disturbed areas. The use of mobile camps will be primarily limited to the construction preparation phase prior to the establishment of stationary construction camps.

Stationary construction camps will house proposed project personnel, including construction workers, management, agency staff, and support service personnel. Further, stationary construction camps will be used for fuel and equipment storage yards. The AGDC has proposed the use of 13 stationary camps that will each house between approximately 400 and 1,300 workers. These camps will range in size from 24 to 32 acres. Further, approximately 800 workers will be housed in the GCF camp in Prudhoe Bay.

All of these facilities will be located in previously cleared and disturbed areas, and are accessible by the use of existing roads. The stationary construction camps will be located in previously disturbed areas that were used for construction of the TAPS, ARRC facilities, or for public events. See Attachment 5, Ancillary Features, for a table of the project camp attributes and locations.

2.1.10 Support Sites

The proposed project will require temporary support sites in Seward and Fairbanks. A Seward logistics support site will be located on or near the ARRC's Seward Track Yard. This site will oversee the reception and distribution of pipe, valves, and other materials. The Fairbanks support site is a Marshalling Yard (MY) located near the rail.

2.2 UTILITY-GRADE NATURAL GAS

The proposed pipeline will deliver utility-grade natural gas to Fairbanks and the Southcentral region (Table 1). The proposed pipeline project does not include producer facilities to transport, condition, compress, or cool the gas to pipeline gas specifications prior to delivery at the inlet to the GCF.

Table 1. Assumed Composition of Gas to be Transported

GAS COMPOSITION	CGF RESIDUE (MOLE PERCENT)	PIPELINE GAS AFTER CONDITIONING (MOLE PERCENT)
CO ₂	12.00	2.75
Nitrogen	0.60	0.67
Methane	80.13	88.78
Ethane	5.35	5.85
Propane	1.65	1.69
I-butane	0.08	0.08
N-butane	0.13	0.12
Pentanes	0.06	0.06
Total	100.00	100.00

The ASAP will have an MAOP of 1,480 psig for both the mainline and Fairbanks Lateral. The mainline is expected to operate near MAOP and will transport approximately 440 MMscfd; while the Fairbanks Lateral is expected to operate near 1,480 psig, and will transport a maximum of 60 MMscfd. Differing weather conditions, maintenance needs, and other factors could cause day-to-day fluctuations in the gas flowrate. The Fairbanks Lateral flowrate could fluctuate more than the mainline, as needs for Fairbanks may be more weather- or season-dependent.

2.3 TIMELINE OF PROJECT

The current project timeline is presented in Figure 3.

Figure 3. Alaska Stand Alone Pipeline Timeline

MAJOR TASKS AND MILESTONES	2013	2014	2015	2016	2017	2018	2019	2020	2021 AND BEYOND
Engineering/Environmental Permitting	█								
Project Sanction				█					
Pre-Construction/Module Fabrication				█					
Construction						█			
Startup								█	
Operation & Maintenance									█

2.4 DURATION AND TIMING OF CONSTRUCTION

GCF construction is planned over a 4-year period, commencing with site preparation activities in Year 1; dock improvements in Year 2; channel dredging activities, and receipt and installation of modules in Year 3; and then completion of the GCF and facilities, and commissioning in Year 4.

Pipeline construction is planned for a 3.5-year period. Construction will be completed in separate sections, referred to as “spreads.” The mainline pipeline is divided into four spreads, with each spread further divided into sections to accommodate varying terrain or seasonal challenges to support an orderly construction sequence. The Fairbanks Lateral is an additional construction spread, resulting in a total of five spreads for the entire project. Pre-construction activities, such as land clearing; ROW preparation; and construction of access roads, PSYs, and camps will begin in the summer of 2016 before the first season of pipeline construction. Infrastructure buildout is planned to begin in early 2017, with pipeline construction planned to begin in late 2018.

2.4.1 Duration of Operations

The ASAP is expected to be in operation for the productive life of the natural gas field(s) that supply it. The estimated useful life of the pipeline is the economic life (which is the controlling factor) and is estimated to extend past the maximum duration of the lease, which is 30 years. With appropriate maintenance, repair, and refurbishment, the physical life of the ASAP is indefinite. The design life is a technique used to rationalize the cost-benefit of the initial construction expense against future maintenance cost. The pipeline’s useful life is a combination of economic life, physical life, and design life.

The duration of operations is determined by financial and operational variables. The *financial term* will depend on the project ownership and payback period, which usually ranges between 15 and 25 years, depending on financial agreements. This timing must take into account debt-to-equity ratio, debt outstanding, approved equity or earnings allowed, inflation factors, and additional factors. The *operational term* is the life of the project. The applicant, the AGDC, will request the maximum term available because a modern pipeline is expected to be operational as long as gas is available from the source, and that period could exceed 50 years.

2.5 GATHERING SYSTEM, TRUNK LINE, OR DISTRIBUTION LINE

The proposed pipeline will connect to an upstream field-gathering system that feeds the Prudhoe Bay CGF. A custody transfer flange downstream from the CGF will supply gas through the GCF and pipeline to the Fairbanks distribution system, and to the ENSTAR distribution system at MP 39 of the Beluga Pipeline near Big Lake.

2.6 SURFACE AND SUBSURFACE FEATURES

The proposed pipeline will be buried, except at elevated bridge stream crossings, possible fault crossings, pigging facilities, and block valve locations. Burial will generally be in trenches or berms.

Pipelines are classified based on proximity to inhabited areas and existing infrastructure. Location class was assigned according to regulations (49 Code of Federal Regulations [CFR] 192.111) that are used in the design formula (49 CFR 192.105) to develop the design pressure allowed at any specific route location. Using the project Geographic Information System (GIS), buildings fit for human occupancy were identified within a buffer defined as 0.25 mile on either side of the proposed alignment and within a 1-mile segment longitudinally along the alignment.

Depth of cover requirements for Class 1 through 4 pipeline locations are provided in Table 2. This table also includes depth of cover for parallel encroachment of pipelines on roads, highways, or public streets with hard surfaces, and railroads. Additional project criteria are provided for uncased crossings of roads, highways, and railroads. Site-specific cover criteria may be required for pipeline uplift (frost-heave) resistance, or by local agencies or property owners. Typical drawings of proposed surface and subsurface features are included in Attachment 1.

In accordance with 49 CFR 192.325, the pipeline will be installed with at least 12 inches of clearance from any other underground structure not associated with the pipeline. If this clearance cannot be attained, the pipeline must be protected from damage that might result from the proximity of other infrastructure.

Table 2. Depth of Cover Requirements for Class 1 to 4 Pipeline Locations

LOCATION	MINIMUM NORMAL SOIL (INCHES)	DESIGN DEPTH NORMAL SOIL (INCHES)	CONSOLIDATED ROCK SPECIFICATIONS (INCHES)
Class 1 locations	30	36	18
Class 2, 3, and 4 locations	36	42	24
Parallel encroachment of pipelines on roads, highways, or public streets with hard surfaces, and railroads	48	52	36
Uncased crossings of roads, highways, and railroads	48	52	36
Strain-based Design Segments	36	36	36
Source: (MBJ, 2013) Class designation derived from 49 CFR 192			

2.7 LENGTH AND WIDTH OF THE RIGHT-OF-WAY, AREA NEEDED FOR RELATED ACTIVITIES

The Temporary Construction Easement (TCE) width will generally be 120 feet. A greater ROW width will be required for specific construction areas, such as Horizontal Directional Drilling (HDD) pads at river and stream crossings, areas of side-hill construction, road and foreign pipeline crossings, and temporary facilities, such as construction camps and temporary storage areas. Details will be provided when engineering and specific requirements are finalized.

Temporary Extra Work Spaces (TEWSs) are required during construction where construction space, in addition to the standard 120-foot construction easement, is needed. These areas include crossings (road, utility, railroad, stream, and river) and areas requiring side-hill construction, among others. Additional areas for HDD crossings are also needed for stringing and welding the pipe in order to pull it back through the bore. TEWSs were determined by applying the necessary size of each TEWS to each location where the space will typically be needed. Each area was analyzed to remove any areas overlapping the ROW and to remove a TEWS where the TCE provides sufficient space without a TEWS. The potential impacts to wetlands and other environmental features were then reviewed on a case-by-case basis. Based on engineering judgment, TEWSs were modified, reduced, or removed.

Permanent width for the ASAP ROW will be 53 feet on all federal, state, and other lands. The permanent ROW width may be greater at certain crossings or other sensitive locations.

Table 3 summarizes the current estimates of construction and operations land requirements for the ASAP mainline, Fairbanks Lateral, and associated facilities.

Table 3. Construction and Operations Footprint Acreages

PROJECT COMPONENT	CONSTRUCTION FOOTPRINT (ACRES) ^c	OPERATIONAL FOOTPRINT (ACRES) ^c
Mainline Pipeline Right-of-Way (ROW) ^{a, b}	6,144.2	5,207.9
Temporary Extra Work Spaces (TEWS)	117.1	0.0
HDD False ROW	389.3	0.0
Fairbanks Lateral (ROW) ^{a, b}	15.5	185.0
GCF Operations and Construction Camp Complex (Preliminary)	20.1	20.1
Gas Conditioning Facility, Warehousing, Maintenance Facilities, and Offices (Preliminary)	101.8	101.8
Access Roads to CGF and PBU	102.0	102.0
GCF and Support Facilities Preliminary Total	6,890	5,617
Mainline Valves	5.3	5.3
Fairbanks Lateral Valve	0.2	0.2
Pig Launcher/Receiver	1.7	1.7
Tie-In and Delivery	5.3	5.3
Pipe Storage, Rail, and Contractor Yards	218.4	218.4
Construction Camps	349.0	349.0
Access Roads ^d	4,193.2	4,193.2
Material Source	30,339.0	30,339.0
Mainline Total	35,112	35,112
Notes: ^a Acreage calculations for the mainline are based on an offset, 120-foot-wide ROW (40 feet on the western side and 80 feet on the eastern side of the centerline). Acreage calculations for the Fairbanks Lateral are based on an offset 120-foot-wide ROW. ^b Mainline pipeline operational footprint calculations are based on a 53-foot-wide ROW on all lands. Fairbanks Lateral pipeline operational footprint calculations are based on a 53-foot-wide ROW on all lands. ^c Area has been calculated with no overlap where facilities share footprint. ^d Road acreage includes both new and existing road (1,398 acres existing). PBU - Prudhoe Bay Unit		

2.8 ADJACENT TO AN EXISTING RIGHT-OF-WAY

The ASAP mainline route lies adjacent to existing transportation and utility corridors. The proposed pipeline route generally parallels much of the TAPS corridor, the Dalton Highway to Livengood, and the Parks Highway from just north of Nenana to approximately MP 697 near Willow. The pipeline is not ancillary to any other natural gas pipelines until the pipeline reaches MP 39 of the Beluga Pipeline, where natural gas will enter the existing ENSTAR system.

2.9 ALTERNATIVE ROUTES AND LOCATIONS

Alternative routes and locations for the pipeline route and North Slope port of entry for GCF modules are discussed extensively in the following documents:

- “Section 4.0, Alternatives,” *ASAP Final Environmental Impact Statement* (FEIS). (USACE, 2012)
- “Appendix H: A.1 – A.2, West Dock Dredge and Disposal Plan.” *Alaska Stand Alone Pipeline/ASAP Project. Joint Application for Permit*. (AGDC, 2014)

2.10 POTENTIAL FOR GAS OFFTAKE AND USE

The ASAP project will make utility-grade gas potentially accessible to communities, government entities, and natural-resource-based projects around the state. These communities, entities, and projects may decide to develop the transportation and infrastructure required to access ASAP gas and distribute it for residential, governmental, or commercial use. While it is not possible to predict with certainty how many or which communities or other entities along the ASAP route will want gas, several criteria can be used to determine the likelihood for each, including community population size, current access to and cost of energy, current or projected municipal revenues to fund offtake infrastructure, and demand for gas.

The initial infrastructure that a community, entity, or project will be required to install to access gas from the ASAP mainline will be a subterranean 4-inch sales tap, a service line, and an above-ground sales tap site facility. This facility will receive gas from the service line and direct it through strainers and a metering station. The gas will then be heated, depressurized, and odorized before leaving the facility into a community or project distribution system.

3. RIGHT-OF-WAY LOCATION

3.1 LEGAL DESCRIPTION

The proposed ROW for the ASAP project will cross federal, state, borough, private, and Alaska Native lands. The proposed ROW will also cross several large rivers.

The project design includes a 120-foot-wide ROW corridor for construction and a 53-foot-wide ROW for operations. Tables 4 and 5 summarize landownership along the centerlines of the mainline and Fairbanks lateral. Attachment 2 identifies the ownership of each parcel crossed by the centerlines of the mainline and the Fairbanks Lateral. Given that the construction corridor may vary in width, and the route may change slightly as it is refined, the actual number of parcels crossed may vary slightly. The number of parcels crossed will be determined by a land survey of the final pipeline alignment.

Table 4. Land Ownership of Parcels Crossed by Mainline Centerline

TYPE OF LAND	MILEAGE	NUMBER OF PARCELS
ARRC	4.9	12
Existing ROW, road crossings	11.2	64
Federal	223.4	339
Mental Health Trust Land Office	4.0	13
Municipal/Borough	45.1	93
Native Allotment	2.5	11
Native Corporation	35.6	67
Private	25.8	103
Rivers, Streams	0.4	3
State of Alaska	367.9	615
University of Alaska	5.9	72
ASAP Mainline Totals	726.8	1,392

Table 5. Land Ownership of Parcels Crossed by Fairbanks Lateral Centerline

TYPE OF LAND	MILEAGE	NUMBER OF PARCELS
ARRC	0.0	0
Existing ROW, road crossings	0.3	10
Federal	1.3	4
Mental Health Trust Land	0.3	1
Municipal/Borough	4.7	11
Native Allotment	0.0	0
Native Corporation	0.0	0
Private	4.0	42
Rivers, Streams	0.0	0
State of Alaska	17.7	47
University of Alaska	0.5	4
Fairbanks Lateral Totals	28.9	119

This land ownership information was obtained from publicly available sources and was partially title-verified. The number of parcels crossed will be determined by a land survey of the final pipeline alignment. Route maps are provided in Attachment 3.

3.2 SITE-SPECIFIC ENGINEERING SURVEYS FOR CRITICAL AREAS

Site-specific engineering surveys for critical areas will be completed during detailed engineering. Critical areas are defined as those areas requiring special design or mitigation, such as river crossings, fault crossings, and erosion-prone areas.

3.3 MAPS AND DRAWINGS SHOWING RIVER CROSSINGS

A list of potential stream crossings for the mainline and Fairbanks Lateral is provided in Attachment 4.

3.4 RIGHT-OF-WAY ACREAGE CALCULATION

The TCE area for the 727-mile-long mainline and the 29-mile-long Fairbanks Lateral construction ROWs is approximately 6,144 acres. The acreage was calculated by assuming a consistent 120-foot construction ROW. The estimated acreage does not include extra temporary workspaces. The operational ROW for the mainline and Fairbanks Lateral will cover approximately 5,208 acres. The permanent ROW width may be greater at certain crossings or other sensitive locations. Table 3 provides a summary of all project construction and operations acreage calculations.

4. FACILITY DESIGN FACTORS

4.1 TECHNICAL SUMMARY

Table 6 identifies the pipeline location classes, Wall Thickness (WT), and MAOP. The AGDC plans to use American Petroleum Institute (API) X70 for the mainline pipe and X52 for the Fairbanks Lateral. AGDC will meet applicable U.S. Department of Transportation (USDOT) integrity management (49 CFR 192, Subpart O) and corrosion control requirements (49 CFR 192, Subpart I).

Table 6. Pipeline Pressure Standards

LOCATION CLASS ^a	WT (INCHES)	MAXIMUM ALLOWABLE OPERATING PRESSURE (PSIG)
Location Class 1 (Division 2)	0.527	1,480
Location Class 2	0.632	1,480
Location Class 3	0.758	1,480
Location Class 4	0.957	1,480
Notes: Source: (MBJ, 2014b) ^a Location Class 1, Division 1 not used.		

4.2 TOXICITY OF PIPELINE PRODUCT

The product to be carried by the ASAP is utility-grade natural gas, which is composed of over 88 mole percent methane, with minor amounts of light hydrocarbons, such as ethane, propane, and butane. Natural gas is colorless and odorless.

Toxicity is the degree to which a substance is able to damage an organism exposed to it. Toxic and hazardous substances are regulated, generally based upon their use. The Toxic Substances Control Act (TSCA) established requirements and authorities for identifying and controlling toxic chemicals hazardous to human health and the environment. The USEPA maintains a list of chemicals that are in commercial use within the United States (U.S.) called the *TSCA Inventory of Chemical Substances* (commonly referred to as the TSCA Inventory).

Methane, the primary component of the ASAP natural gas product, is biologically inactive and not considered toxic. The remaining components, such as ethane and propane, are listed in the TSCA Inventory.

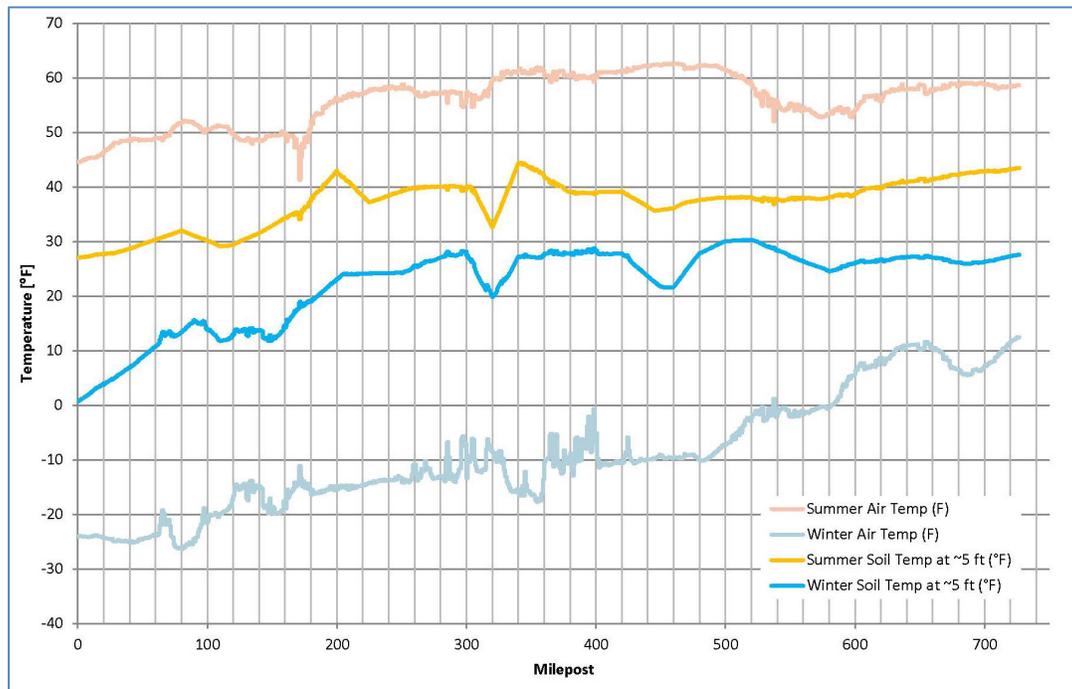
4.3 ANTICIPATED OPERATING TEMPERATURES

“Anticipated operating temperatures” refers to the pipeline operating temperature and changes along the route, seasonally and as a function of throughput. The operating temperature of the buried pipeline could affect the frozen/thawed nature of the surrounding subsurface, which, in turn, could affect the pipeline trench support conditions, as well as potentially cause subsurface expression, such as local subsidence or heave.

The proposed mainline and Fairbanks Lateral pipeline will operate at temperatures closely approaching the seasonal temperature of the surrounding ground. The pipeline ambient operating temperature will be governed by the combined influence of Joule-Thompson cooling associated with gas pressure drop, pipe-wall heat transfer between gas and surrounding soil, and heat input from gas compression.

Figure 4 shows preliminary ground and surface temperature profiles over the ASAP route.

Figure 4. Ground and Surface Temperature Profiles over the Proposed Alaska Stand Alone Pipeline Route



The temperature of the ASAP will follow seasonal ground temperature at low flow rates. At full capacity, it is anticipated that the cooling associated with gas pressure drop is unlikely to result in non-ambient pipeline operation.

As designed, the pipeline will be operated at below-freezing temperatures in predominantly permafrost terrains to protect the thermal stability of the surrounding ground. Similarly, the pipeline

will be operated at above-freezing temperatures in predominantly thawed settings so as not to create frost bulbs around the pipe that could lead to frost-heave displacement of the pipeline or adverse hydraulic impacts on drainages crossed by the pipeline. Pipeline design will mitigate potential freezing of thawed ground or thawing of frozen ground in areas of discontinuous permafrost.

As part of the treating process to make utility-grade natural gas, there will be three main processing steps: (1) compression, (2) propane refrigeration, and (3) treatment to remove CO₂ and H₂S. The gas exiting compression will be hot (approximately 200 to 250°F). This gas must be cooled to less than -12°F to facilitate proper treatment. Cooling will be accomplished by a combination of air cooling followed by propane refrigeration. As the gas goes through the treatment process, it will warm up to between 10 and 30°F. With this temperature range, the gas will be ready to enter the pipeline and be compatible with the ground temperatures expected in the northern sections of the route. After leaving the GCF, the gas will be cooled by propane refrigeration units to approximately 30°F at the mainline pipeline inlet.

4.4 PERMANENT WIDTH OR SIZE

The permanent width or size of the ASAP ROW will be 53 feet. At certain crossings or other sensitive locations, the permanent ROW widths may be greater.

4.5 TEMPORARY AREAS NEEDED

The typical construction easement width needed for construction activities will be 120 feet. Specific construction requirements, such as HDD pads at stream crossings, road and foreign pipeline crossings (Section 7.4.5), and temporary facilities, such as construction camps and temporary storage areas (Section 7.2), will require additional land for TEWSs during construction (Section 2.6). Attachment 1 provides typical standard drawings for stream crossings.

5. ADDITIONAL COMPONENTS OF THE RIGHT-OF-WAY

5.1 CONNECTION TO AN EXISTING RIGHT-OF-WAY

The selected route is, to a large extent, outside of existing or officially designated transportation/utility corridors to shorten the line and improve public safety. However, there are several places where the subsurface pipeline will cross into or through an existing ROW, such as a highway or railroad. The pipeline route is shown in detail in the maps in Attachment 3.

5.1.1 Future Gas Inputs or Offtakes

No additional facilities or components are planned to be added at this time. The addition of future gas input or offtakes to the pipeline are possible, but not a part of current plans. For instance, future gas sources are a possibility; however, there are no plans for inputs into the line other than from the North Slope CGF. It is also possible that some communities outside of the major Fairbanks and Anchorage area population centers may explore the possibilities of acquiring gas from the mainline by investigating the costs, benefits, and needed infrastructure to do so. However, predicting what potential tie-ins to the mainline might be proposed in the future is outside of the scope of this work.

6. GOVERNMENT AGENCY INVOLVEMENT

6.1 ENTITIES THAT HAVE REGULATORY AUTHORITY OR THAT WILL BE AFFECTED BY THE PROJECT

The federal, state, and local government agencies listed in Table 7 have regulatory authority over different aspects of the ASAP project. In addition, the following Federally-recognized Tribes are considered by the USACE to be potentially affected by the ASAP project by virtue of their location along the proposed route. Government-to-government consultation between the USACE and these tribes occurred during the National Environmental Policy Act (NEPA) process.

- Alatna Village
- Allakaket Village
- Village of Anaktuvuk Pass
- Arctic Village Council
- Iñupiat Community of the Arctic Slope (ICAS) (Indian Reorganization Act [IRA])
- Native Village of Barrow Iñupiat Traditional Government
- Beaver Village Council
- Birch Creek Tribal Council
- Native Village of Cantwell
- Circle Native Community (IRA)
- Cheesh'na Tribal Council
- Chickaloon Native Village
- Native Village of Eklutna
- Evansville Village
- Gwitchyaa Gwich'in Tribal Government Native Village of Fort Yukon (IRA)
- Kaktovik Village
- Kenaitze Indian Tribe (IRA)
- Knik Village
- Manley Hot Springs Village
- Native Village of Minto (IRA)
- Nenana Native Association
- Ninilchik Traditional Council
- Native Village of Nuiqsut
- Rampart Village
- Native Village of Stevens (IRA)
- Tanacross Village Council
- Native Village of Tanana (IRA)
- Native Village of Tyonek (IRA)

Entities that may be affected by the project are described in more detail in Section 8.2.14.

Table 7. Federal, State, and Local Agencies with Regulatory Authority for Alaska Stand Alone Pipeline

JURISDICTION	AGENCIES
Federal	<ul style="list-style-type: none"> • U.S. Department of the Interior, Bureau of Land Management (BLM) • U.S. Army Corps of Engineers (USACE) • U.S. Coast Guard (USCG) • U.S. Environmental Protection Agency (USEPA) • U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS) • U.S. Fish and Wildlife Service (USFWS) • National Marine Fisheries Service (NMFS) • National Parks Service (NPS) • Federal Aviation Administration (FAA)
State	<ul style="list-style-type: none"> • Alaska Department of Natural Resources (ADNR) <ul style="list-style-type: none"> – State Pipeline Coordinator’s Office (SPCO) – Office of History and Archaeology (OHA) – Division of Mining, Land and Water (DMLW) • Mental Health Trust Authority (landowner) • Alaska Department of Environmental Conservation (ADEC) • Alaska Department of Fish and Game (ADF&G) • Alaska Department of Transportation and Public Facilities (ADOT&PF) • Regulatory Commission of Alaska (RCA) • Alaska Railroad Corporation (ARRC) • University of Alaska (landowner)
Local	<ul style="list-style-type: none"> • North Slope Borough (NSB) • Fairbanks North Star Borough (FNSB) • Denali Borough (DB) • Matanuska-Susitna Borough (MSB) • Municipality of Anchorage (MOA) • Barrow • Nuiqsut • Nenana • Wasilla • Houston

6.2 PERMITTING ORGANIZATION

Permitting for the ASAP will focus on two major efforts. First, three major permit applications listed in Table 8 were filed in November 2009. These major permit applications will allow the USACE, as lead agency, to prepare an NEPA document and complete the NEPA process, proceed to a Record of Decision (ROD), and facilitate a grant of ROW from the U.S. Department of the Interior, BLM, as well as gain approvals to use federal and state lands for the project. A subsequent effort is required to obtain all necessary permits before construction begins.

Table 8. Currently Filed Regulatory Approvals

PERMIT TYPE	PERMITTING AGENCY	ACTIVITY
Federal Pipeline Grant of ROW	BLM	Installation of a new pipeline or to convert an existing lease-term pipeline into an ROW pipeline. ROWs for pipelines through federal lands.
State Pipeline ROW Lease	ADNR, SPCO	Lease approved in July 2011, Amendment #1 submitted to ADNR January 2014
Draft Section 404/401 Approval	USACE, ADEC	Placement of fill or dredged material into WOUS (wetlands)
Note: WOUS - Waters of the United States		

6.2.1 Federal Agency Involvement

No Federal Energy Regulatory Commission (FERC) Section 7(c) application is required because the proposed action is intrastate; therefore, outside of FERC's jurisdiction. Table 1 in Attachment 7 describes anticipated federal agency involvement.

6.2.2 State and Local Agency Involvement

Table 2 in Attachment 7 lists the State of Alaska's involvement in permitting the ASAP project, while Table 3 in Attachment 7 identifies local jurisdiction. List of Authorizations and Pending Applications for Similar Projects

Authorizations and permits for similar projects that may provide information to authorizing agencies relevant to ASAP include:

- AK LNG released an agreement in January 2014 that aligned the interests of the parties involved in principle and set the stage for the project to proceed toward engineering, design, and permitting (AK LNG, 2014). AK LNG is routed from the North Slope to Nikiski and was formed out of the now defunct Alaska Pipeline Project (APP), which was planned to be routed into Canada. The APP previously notified FERC of its intent to submit an application for a certificate of public convenience and necessity in October 2012. TransCanada Alaska Company, LLC (TransCanada) notified FERC in May 2012 that it was discontinuing work on a pipeline to serve North American markets and was examining an LNG export project in Alaska. FERC is keeping Docket No. PF09-11 open but will not move forward to the next step in its NEPA process until TransCanada decides on its project.
- ROW applications for a smaller-diameter gas pipeline to Donlin Creek were filed with the BLM and State of Alaska (Donlin Creek AA92403) (SRK, 2012).
- The Foothills West Transportation Access Project was proposed by the ADOT&PF. The purpose of the project is to construct a road from the Dalton Highway to Umiat to provide access to oil and gas resources and the National Petroleum Reserve-Alaska. The USACE is preparing an Environmental Impact Statement (EIS) for the project, with scoping completed in 2012 (AECOM, 2012).

7. PROJECT CONSTRUCTION

7.1 CONSTRUCTION PLANNING CONSIDERATIONS

In arctic and subarctic Alaska, construction planning must consider climatic, hydrologic, topographic, biologic, and geographic factors. Consideration of these environmental variables influences construction methods, schedule, safety, impacts, and cost. ASAP's construction planning incorporates options for addressing uncertainties around logistics, procurement, construction methods, and environmental conditions when operating in remote areas of Alaska.

7.1.1 Construction Execution

Gas Conditioning Facility Construction

The GCF will be composed of pre-fabricated modular units barged to Prudhoe Bay. In the winter preceding transport of the modules by barge, a channel from deep water to West Dock DH 3 will be dredged to a depth of 10 feet. Twenty-three tug-barge units will arrive at Prudhoe Bay shortly after sea ice has receded to allow passage past Point Barrow. Tug-barge units will standby off West Dock DH 3 until the modules are offloaded at one of three berths. Shallow-draft barges will be used to tow each barge into place at one of the three berths while it is ballasted. Barges will rest on the seafloor to maintain a stable surface during module offload. SPMTs will raise the modules from the barge deck, maneuver onto the dock, and begin the route to the module staging area.

The existing causeway bridge between West Dock DH 3 and West Dock DH 2 cannot accommodate the projected module weight and dimensions for the ASAP project. Therefore, suitable measures must be implemented in order to traverse the channel between West Dock DH 3 and West Dock DH 2. A ballasted barge bridge bypass will be constructed alongside the existing causeway breach bridge that will support the tonnage of the modules. Sheet pile and gravel abutments, and gravel ramps will be constructed to connect the barge bridge to the West Dock causeway on each side of the causeway breach to provide a mooring structure for access to the temporary bridge. Breasting dolphins will be inserted the winter before transport to help in stabilizing the barge bridge.

The SPMTs will be used to transport the modules from West Dock DH 3 to the GCF staging area over new and existing gravel roads. Road upgrades will facilitate access and egress to and from the GCF site during both construction and operations phases. Bridges and pipeline crossings may require upgrades to accommodate transport of the modules.

Site preparation is expected to be completed using gravel from existing gravel pit PUT-23 approximately 3 miles from the GCF. Each module will have a structural steel base and will be mounted

on piles over a gravel pad. Modules containing process and utility equipment will generally be enclosed and heated to facilitate equipment O&M. Plant modules will be connected by utilidor modules that provide an enclosed, heated walkway for personnel and small utility trailers, as well as freeze protection for interconnecting piping containing liquid water.

The GCF and camps (supporting facilities and Permanent Operations Camp) will be collocated with and constructed on gravel pads. It is assumed that the ASAP GCF will require a standalone camp, since lodging facilities in the area cannot accommodate the increased labor force expected for GCF construction. The temporary construction camp will be dismantled and removed following completion of GCF construction, commissioning, and startup. The GCF Permanent Operations Camp will house onsite workers for the operational life of the GCF.

ASAP Mainline and Fairbanks Lateral Construction

To address the technical aspects presented by varying terrain, seasonal extremes, and the overall magnitude of the project, ASAP was divided into four spreads along the mainline and one along the Fairbanks Lateral. Each of these spreads was segmented into smaller sections according to terrain, climate, or complexity of construction. The Fairbanks Lateral alignment passes from the mainline connection to the east over the Murphy Dome towards Fairbanks. The Fairbanks Lateral route is concise and will be contained in a single construction spread. Segmentation of the ASAP route was carefully planned with the explicit intent of being able to complete construction within a given section within a single construction season. The length, geographical limits, and planned seasons for construction for each spread and section are listed in Table 9, and an overview of acreages and capacities for PSYs and camps is provided in Table 10.

Construction will be assigned to execution contractors on a spread basis. Each execution contractor will have full control of their respective spread, and will be responsible for its progress, costs, construction methods, labor force, and construction equipment. The execution contractors must meet numerous contract performance standards and will be closely monitored throughout construction. These standards include the following:

- Progress milestones
- Compliance with design and specifications
- Quality inspection and documentation standards
- Environmental safeguards established by federal and state agencies and included in permit stipulations
- Health, Safety, Security, and Environmental (HSSE) requirements
- Applicable labor and employment standards

Table 9. Alaska Stand Alone Pipeline Construction Spreads Overview

SPREAD	SECTION	LOCATION	START (MP)	END (MP)	LENGTH (MILES)	ROW	ROW	PIPE LAYING
						CLEARING/ BRUSHING SEASON	PREPARATION CONSTRUCTION SEASON	CONSTRUCTION SEASON
1	A	GCF to PS-1	0	7	7	N/A	Winter 1	Winter 1
	B	PS-1 to Sag - Atigun Confluence	7	57	50	N/A	Winter 1	Winter 1
	C	Sag - Atigun Confluence to Slope Mountain	57	113	56	Summer 1.5	Summer 1.5	Summer 2.5
	D	Slope Mountain to Atigun	113	163	50	Summer 0.5	Summer 0.5	Summer 2.5
	E	Atigun River Valley to North Atigun Pass	163	173	10	Summer 0.5	Summer 0.5	Summer 1.5
	F	North Atigun Pass to Upper Dietrich	173	183	10	Summer 0.5	Summer 0.5	Summer 1.5
-	Spread 1 Total:				183			
2	A	Upper Dietrich to Coldfoot	183	243	60	Summer -0.5	Summer 0.5	Summer 1.5
	B	Coldfoot to Prospect Creek	243	286	43	Summer 0.5	Summer 0.5	Fall 0.5/Winter 1
	C	Prospect Creek to Ray River	286	336	50	Summer 1.5	Summer 1.5	Summer 2.5
	D	Ray River to Yukon River (PS 5)	336	360	24	Summer 0.5	Summer 1.5	Winter 2
-	Spread 2 Total:				177			
3	A	Yukon River (PS 5) to Livengood	360	406	45	Summer 1.5	Summer 1.5	Summer 2.5
	B	Livengood to Dunbar	406	453	43	Summer 0.5	Winter 1	Winter 1
	C	Dunbar to Rex	453	492	44	Summer 1.5	Winter 2	Winter 2
	D	Rex to Moody Bridge	492	528	36	Summer 0.5	Summer 0.5	Summer 1.5
	E	Glitter Gulch	528	533	5	N/A	Fall 1.5	Fall 1.5
	F	Lynx Creek to Nenana River north of Cantwell	533	539	6	Summer 0.5	Summer 0.5	Summer 1.5
-	Spread 3 Total:				179			
4	A	Nenana River North of Cantwell to Hurricane Gulch (Chulitna Butte)	539	601	62	Summer 0.5	Summer 0.5	Summer 1.5
	B	Hurricane Gulch (Chulitna Butte) to Trapper Creek	601	653	52	Summer 1.5	Summer 1.5	Summer 2.5
	C	Trapper Creek to Rustic Wilderness	653	690	37	Winter 1 or Summer 1.5	Winter 2	Winter 2
	D	Rustic Wilderness to Wasilla Terminus	690	727	37	Winter 0 or Summer 0.5	Winter 1	Winter 1
-	Spread 4 Total:				188			
-	Mainline Total:				727			
Fairbanks Lateral		Mainline (MP 439) to Fairbanks	0	29	29	Summer 1.5	Summer 2.5	Summer 2.5

Table 10. Temporary Land Use Overview

SPREAD	LOCATION	MP	LAYDOWN YARD (ACRES)	CAMP CAPACITY AND AREA	FUEL STORAGE FACILITIES	EQUIPMENT STORAGE	OTHER FACILITIES
1	Prudhoe Bay	4	8.0	-	Yes	Yes	West Dock; Airport (SCC)
	Franklin Bluffs	44	10.1	600 person (29 acres)	Yes	Yes	Airport (SCC)
	Happy Valley	86	13.1	1000 person (29 acres)	Yes	Yes	Airstrip (GBH)
	Slope Mountain	114	5.9	-	-	-	
	Galbraith Lake	145	10.1	1000 person (29 acres)	Yes	Yes	Airstrip (GBH)
	Atigun	168	4.1	-	Yes	Yes	Airstrip (GBH)
	Chandalar	177	4.6	-	-	-	Airstrip (GBH)
2	MS-106-1	197	8.3	-	-	-	
	Dietrich	207	-	1000 person (30 acres)	Yes	Yes	Airstrip (GBH)
	MS-102-1	224	7.5	-	-	-	
	Coldfoot	243	6.3	-	Yes	Yes	Airstrip (PPC)
	Prospect	279	8.0	600 person (29 acres)	Yes	Yes	Airstrip (PPC)
	Old Man	309	11.3	-	Yes	Yes	Airstrip (PPC)
	Seven Mile	352	6.2	-	-	-	
	Five Mile	353	-	1000 person (29 acres)	Yes	Yes	
3	MS-74-2HR	378	9.4	-	-	-	
	Livengood	401	5.7	1000 person (29 acres)	Yes	Yes	Fairbanks Intl/Bus
	Tolovana River	413	3.5	-	-	-	
	Tatalina River	429	5.3	-	-	-	
	Chatanika	439	4.6	-	-	-	
	Dunbar	453	3.9	600 person (29 acres)	Yes	Yes	
	Nenana	471	9.1	-	Yes	Yes	
	Rex	495	6.2	-	-	-	
	Healy	523	7.6	1000 person (29 acres)	Yes	Yes	

SPREAD	LOCATION	MP	LAYDOWN YARD (ACRES)	CAMP CAPACITY AND AREA	FUEL STORAGE FACILITIES	EQUIPMENT STORAGE	OTHER FACILITIES
4	Cantwell	562	10.8	600 person (29 acres)	Yes	Yes	
	Broad Pass	578	9.3	-	-	-	
	Chulitna Butte	601	6.8	-	Yes	Yes	
	Swan Lake	641	9.3	1000 person (29 acres)	Yes	Yes	
	Sunshine	671	10.8	-	Yes	Yes	
	Rustic Wilderness	708	7.5	1000 person (29 acres)	Yes	Yes	
	South Terminus	726	4.8	-	-	-	
<p>Notes: FAA codes for airports are provided in parentheses. GBH - Galbraith Lake Airport PPC - Prospect Creek Airport SCC - Deadhorse Airport</p>							

In order to verify compliance with standards, all contractors will be pre-qualified to confirm they have an Operations Integrity Management System (or equivalent) in place. In addition, a Quality Control Plan will be developed to identify construction-related issues and verify that all work is performed in a manner to maintain the quality of the pipeline and related facilities, and to make sure all work is performed in accordance with relevant permit stipulations.

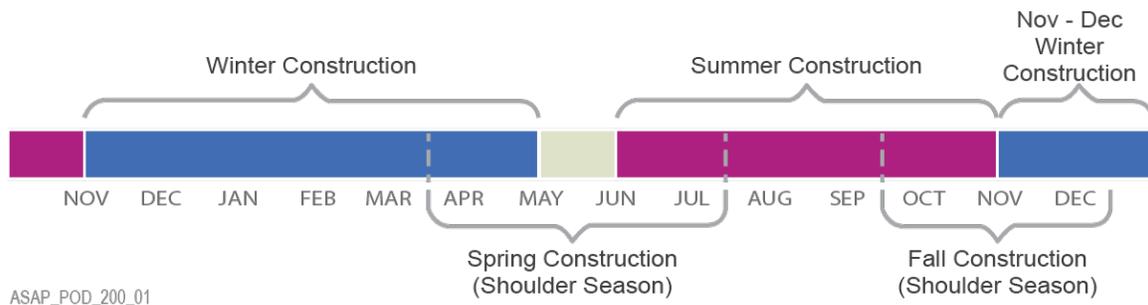
7.1.2 Construction Seasons

Several factors were considered when defining sections of the pipeline as winter or summer construction, including regulatory requirements, climate, geologic conditions along the route, and the local terrain’s ability to support construction equipment during summer. Winter construction offers the ability to reduce workpad thickness or eliminate gravel workpads altogether. Sections of the pipeline were planned for construction according to the season most conducive to construction of site-specific elements along the pipeline.

Major pipeline construction is planned to take place over a 2-year period. Approximately three-quarters of the pipeline will be constructed over two winter construction seasons. However, access road construction, construction camp site development, bulk materials logistics, and other pre-construction activities will begin up to a year in advance of pipeline construction and will continue through the shoulder seasons (spring and fall).

Figure 5 delineates approximate limits for summer and winter construction seasons. It should be noted that the specific start, finish, and duration of each season is subject to specific site conditions.

Figure 5. Construction Season Timeline



7.1.3 Construction Labor Requirements

The construction phase of the project will require contractors who are able to meet specific safety, quality, and technical standards, and schedule requirements. Construction labor during Summer 0.5 will be dedicated to the development of the ROW, opening of material sites, gravel processing, camp development, and access road construction (see Figures 6 and 7). The majority of pipeline construction and other infrastructure will occur during winter and summer.

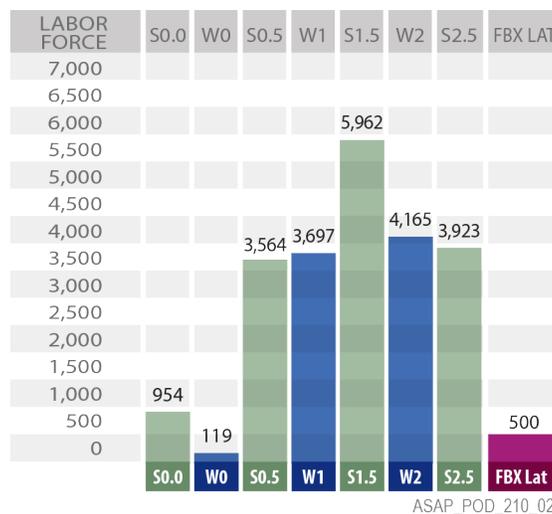
Personnel remaining active post-pipeline installation will be limited to those associated with site restoration, hydrotesting, demobilization of equipment and infrastructure, and pipeline startup activities.

Figures 6 and 7 represent preliminary estimates for the civil infrastructure and pipeline construction labor based on current pipeline construction spreads and construction seasons. Pipeline construction labor will peak during the Summer 1.5 construction season at nearly 6,000 workers.

Figure 6. Pipeline Construction Labor by Section



Figure 7. Pipeline Craft Labor by Season



The GCF expects to operate out of an 800-person camp. At peak, it is expected that approximately 500 direct labor personnel will be working onsite at one time. The remaining space is dedicated to

the forecasted numbers for project indirect staff (including supervision, management, administrative personnel, HSSE staff, and engineers), as well as vendor representatives, camp operations, camp maintenance, security, AGDC personnel, and project visitors. Estimates of pipeline requirements are preliminary in nature and are expected to change as engineering and planning efforts progress.

7.2 CONSTRUCTION SUPPORT FACILITIES

Significant support activities will be required to successfully construct the ASAP given its expansive geographic limits, remoteness, and the challenging terrain over which it will be constructed.

Construction and logistics planning activities resulted in a conceptual layout of support facilities required to construct the pipeline. Support facilities include:

- Project offices and support sites
- Transportation facilities and hubs, such as port facilities, rail facilities, and airports and airstrips
- Temporary land use areas, such as camp locations, PSYs and storage facilities, remote airports and airstrips, and fuel storage sites

Tables 9 and 10 and Figure 8 show construction support facilities, camps, and temporary land use areas.

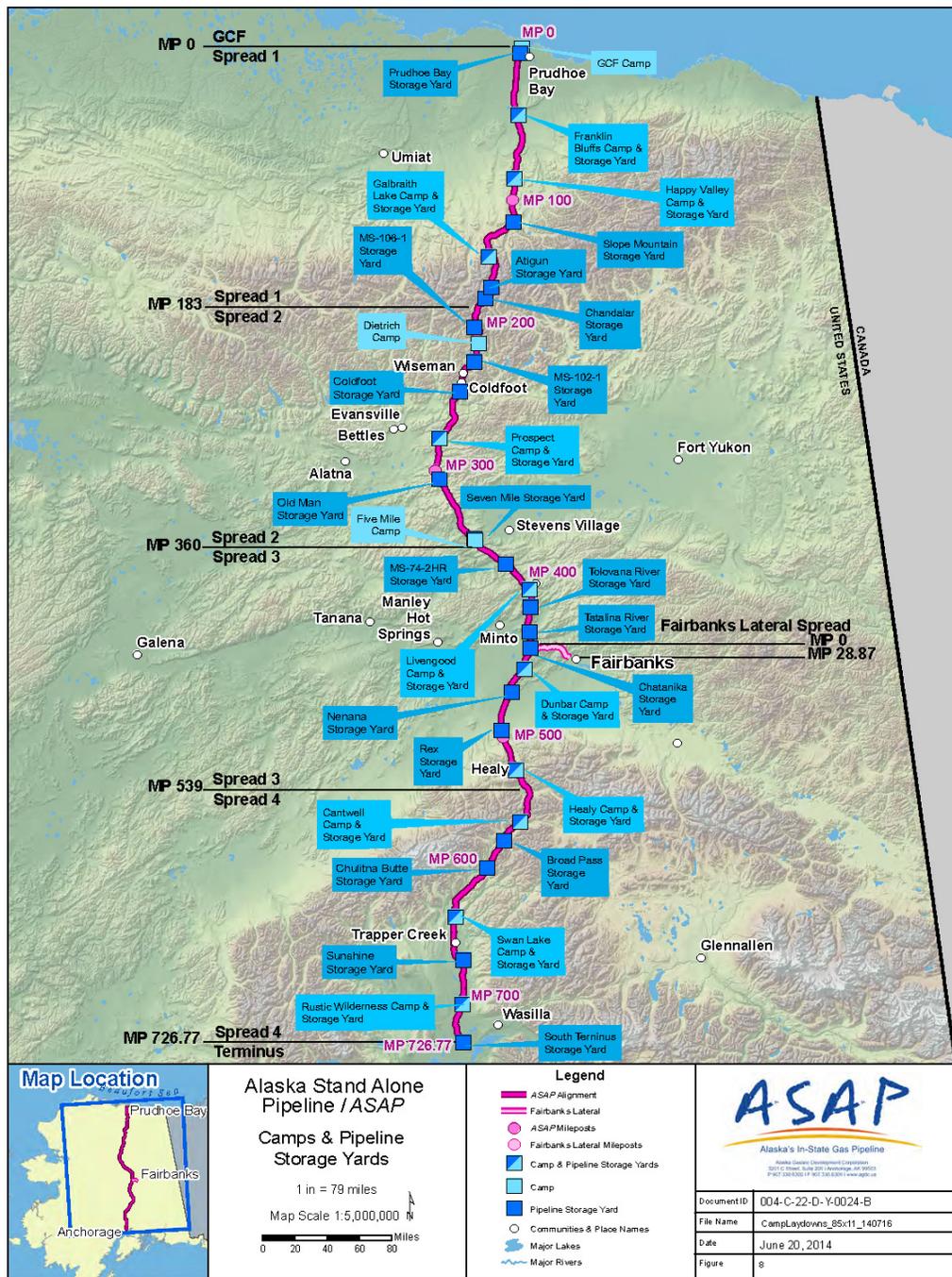
7.2.1 Project Offices

Project offices will support pre-construction, construction, ROW restoration, GCF pre-commissioning and startup, pipeline startup, and the initial operations phase of the GCF and pipeline. Project offices include a centralized construction headquarters, support sites, and construction support offices dedicated to individual construction spreads.

Pipeline Project Headquarters

The distance of the pipeline requires management to occur in a centralized, accessible area. The plan assumes a project headquarters office that will be located near a major airport (Anchorage or Fairbanks). This site will serve as the central control center during all phases of project execution. The facility will be used by the Owner, the project management teams, and other project-related personnel, such as government and agency personnel. This site will be operational well in advance of construction startup.

Figure 8. Camps and Pipeline Storage Yards



7.2.2 Support Sites

The pipeline project requires one primary support site. This temporary facility site will be located in Seward and serve to:

- Manage the logistics of incoming pipe equipment and other materials
- Oversee the coating and double-jointing process
- Oversee the distribution of pipe to respective PSYs

Seward Support Site

Seward is expected to be the port of entry for pipe and other pipeline materials, including the majority of large equipment. The Seward Logistics Support Site will be located on or near the ARRC Seward Track Yard. The primary role of this site is to oversee the reception of pipe, valves, and other materials transported by sea, as well as their subsequent distribution by rail to a pipe coating and double-jointing facility located in Fairbanks.

Personnel Housing and Support

GCF construction will use a temporary construction camp and a Permanent Operations Camp to support activities related to GCF construction, including infrastructure improvements, gravel operations, and construction of pads and facilities.

For pipeline construction, personnel housing and support services will be provided primarily by stationary construction camps. Some mobile construction camps will be used as pioneer or fly camps, but only for workforces of approximately 100 people before stationary camps are built.

Thirteen construction camps (12 along the mainline, and one at MP 0 adjacent to the GCF) are planned for pipeline construction on the project. Ten of the 12 camps along the mainline are planned for collocation with PSYs, and several on previously disturbed sites.

Mobile Construction Camps

GCF construction will require a mobile construction camp to construct a larger, temporary construction camp. After the temporary construction camp is ready for occupancy, the mobile construction camp will be removed.

Mobile camps typically accommodate small crews engaged in developing material sites and building camp pads over a short duration. These crews will primarily be involved in ROW preparation activities. Since these activities will occur prior to stationary camps becoming operational, mobile camps will be moved as ROW development progresses.

Mobile camps will be modular ‘fly camps’ with self-contained water, sewer, and other services, and will be hauled on flatbed trucks; recreational vehicles may also be used. Mobile camps will be located at existing material sites or other available cleared areas in order to support construction of new camp sites.

As pre-construction activities subside and stationary camps become operational, full mobile camps will no longer be required. In many situations, facilities will be absorbed into stationary camp complexes and remain until the construction camp is demobilized.

Stationary Construction Camps

The GCF will use an onsite camp (temporary construction camp and Permanent Operations Camp) to house project personnel and support staff for the duration of the project.

Stationary camps will be established to accommodate pipeline and facility construction crews along the ROW. Construction camps will house construction labor, management, agency, and support service personnel in numbers ranging from approximately 400 in the minor camps to 1,200 in the major camps. Camp site footprints will vary from 24 to 35 acres. Construction camp sites are subject to site-specific influences, such as terrain and environmental conditions, and subject to change. See Tables 9 and 10 and Figure 8 for construction camp locations.

Existing Available Lodging

For the GCF, existing lodging in Deadhorse will be used during early site trips and by local surveying contractors until the mobile construction camp is ready for occupancy.

Lodging needs for construction of the Fairbanks Lateral will be satisfied by local lodging, provided it meets HSSE requirements for personnel.

Health, Safety, and Emergency Response Facilities

Each camp will have a medical service professional on staff. Camp facilities will include a private examination room and a reception and service area. Equipment will include refrigeration facilities for storage of perishable medicines, sterilization equipment, and medical supplies.

Sleeping quarters will contain fire alarms connected to a central alarm panel in the security offices. Mechanical rooms, kitchens, and furnaces will have automatic fire extinguishing systems. Fire protection stations will be located in central areas of each dormitory and contain dry-powder fire extinguishers. All-purpose, dry-powder, and chemical extinguishers will be placed in central locations throughout each camp.

Pipeline camps will be fenced for security and animal control as needed. Security guard houses will be located at each camp's major entrance. Site security plans will be developed, as required, to address the safety of personnel and security of equipment and materials.

If there is an emergency requiring a response greater than that available at the camp, locally available emergency response will be used until regional emergency responders are onsite. Table 11 provides the health, safety, and emergency response facilities located in communities near the project corridor.

7.2.3 Port Facilities

Southcentral Alaska Port

Pipe, materials, and large construction equipment will be shipped to Alaska via marine transport. Alaska has five Southcentral ports that are suitable to receive materials and equipment: Anchorage, Seward, Valdez, Whittier, and Port MacKenzie. The Port of Seward was selected as the planned port of entry for pipe and pipeline equipment due to available storage and connection to the ARRC railroad. Pipe will be shipped using large conventional ships of up to Panamax class size. The shipments will be in full vessel lots of approximately 15,000 tons of pipe in either Double Random (DR) (40 foot) or Quadruple Random (QR) (75 foot) lengths. Approximately 28 shipments are expected to be required to complete pipe delivery. The term “Panamax” refers to ships that are capable of transiting the Panama Canal. Ships intended for use on the project will have deadweight capacity of up to 45,000 tons. The length of such vessels can be in the range of 650 to 750 feet. Loaded drafts of these large vessels with relatively light cargo due to the high volume to weight ratio of the pipe will be less than 30 feet.

Table 11. Health, Safety, and Emergency Response Facilities Near Right-of-Way

COMMUNITY	HEALTH CARE	POLICE/STATE TROOPERS	FIRE/RESCUE SERVICES
Prudhoe Bay	Oil company medical staff, Greater Prudhoe Bay Fire Department	NSB PD	Greater Prudhoe Bay Fire Department. EMS have limited highway, coastal, and airport access. EMS is provided by paid service.
Nuiqsut	Nuiqsut Clinic, CHAP	NSB PD	Nuiqsut Volunteer Fire Department.
Anaktuvuk Pass	Anaktuvuk Pass Clinic (CHAP)	NSB PD	Borough/Anaktuvuk Pass Volunteer Fire Department.
Alatna	Alatna Clinic (Primary Health Care facility) (CHAP)	State Troopers in Galena	No fire services. Use State VPSO in Allakaket.
Coldfoot	Fairbanks hospitals	State Troopers Post	No fire services. Volunteer EMS have highway and air access.
Wiseman	Wiseman Health Clinic (CHAP), Fairbanks hospitals	State Troopers in Fairbanks	No fire services. EMS have limited highway, river, and air access. Within 30 minutes of a higher-level satellite health care facility.
Evansville	Evansville/Bettles Clinic (CHAP)	State Troopers in Fairbanks	EMS have summer highway and helicopter access. EMS is provided by volunteers and a health aide.
Bettles	Frank Tobuk Senior Health Clinic in Evansville, health aide and volunteers	State Troopers in Fairbanks	City/Bettles Volunteer Fire Department. EMS include river and air access. EMS is provided by volunteers and a health aide.
Allakaket	Allakaket Health Clinic (Primary Health Care facility) (CHAP)	VPSO	VPSO. River and air access.
Livengood	No health care facility	State Troopers in Fairbanks	EMS have highway and air access.
Minto	Minto Clinic (CHAP)	VPSO/State Troopers in Fairbanks	EMS have highway and air access. EMS is provided by volunteers, health aide, volunteer fire department, and Search and Rescue truck.
Manley Hot Springs	Manley Hot Springs Clinic (CHAP), Manley Rescue Squad	State Troopers in Fairbanks	Volunteer fire department. EMS are provided by Manley Rescue Squad, volunteers, and a health aide. EMS have highway, river, and air access.
Fairbanks	Fairbanks Memorial Hospital, Interior Community Health Center, Fairbanks Regional PHN, Chief Andrew Isaac Health Center, and Bassett Army Community Hospital/Ft. Wainwright Hospitals are qualified acute care facilities and provide state-certified medevac services	Fairbanks PD, State Troopers	City of Fairbanks Fire Department; Borough Fire Department/EMS Fairbanks Airport Fire Department; Chena-Goldstream Fire and Rescue; Fort Wainwright Fire/EMS; Steese Area Volunteer Fire Department; Fort Wainwright Fire/EMS; BLM Alaska Fire Service Guardian Flight, Inc.; and Warbelow's Air Ventures, Inc.
Nenana	Nenana Clinic	State Troopers Post	Nenana Volunteer Fire/EMS Department. EMS include highway, river, and airport access. EMS is provided by 911 telephone service, volunteers, and a health aide.
Tanana	Tanana Health Center (CHAP), Tanana Emergency Medical Services The clinic is a qualified Emergency Care Center, and X-Ray and pharmacy are available	Tanana PD, VPSO, State Troopers in Fairbanks	Tanana Tribal EMS. EMS have limited highway, river, and airport access. EMS is provided by 911 response, volunteers, and a health aide.

COMMUNITY	HEALTH CARE	POLICE/STATE TROOPERS	FIRE/RESCUE SERVICES
Anderson	Anderson Health Clinic, EMS and Ambulance	State Troopers in Fairbanks	Anderson Volunteer Fire Department, EMS, ambulance, Clear Air Station Fire/Ambulance. Anderson is an isolated location and is part of the Interior EMS Region. EMS have highway and air access, and are within 30 minutes of a higher-level satellite health care facility. EMS is provided by 911 response and volunteers.
Healy	Tri-Valley Community Center (private owner) The clinic is a qualified Emergency Care Center	State Troopers Post	Tri-Valley Volunteer Fire Department/EMS. Healy is an isolated town/subregional center and part of the Interior EMS Region. EMS have highway and air access. EMS is provided by 911 response and volunteers.
Cantwell	Cantwell Clinic (Primary Health Care facility) (CHAP)	State Troopers Post	Borough/Cantwell Volunteer Fire Department. Cantwell has highway air and helicopter access. EMS is provided by 911 response, volunteers, and a health aide.
Talkeetna	Sunshine Community Health Center (private owner) The clinic is a qualified Emergency Care Center; Mat-Su Regional Hospital (Acute Care Facility) is between Palmer and Wasilla on the Parks Highway	State Troopers Post	Borough/Public Safety Station No. 111, Talkeetna Ambulance Service. EMS have highway, air, and helicopter access. EMS is provided by 911 response and volunteers.
Willow	Sunshine Community Health Center (private owner) in Talkeetna The clinic is a qualified Emergency Care Center; Mat-Su Regional Hospital is between Palmer and Wasilla on the Parks Highway Willow Ambulance Service	State Troopers in Talkeetna	Borough/Public Safety Station No. 121, Willow Fire Building, Willow Fire Substation, Willow Ambulance Service. EMS have highway and air access. EMS is provided by 911 response and volunteers.
Houston	Mat-Su Regional Medical Center in Palmer, Anchorage hospitals	State Troopers in Palmer, Houston PD	City/Houston Volunteer Fire Department. EMS have highway and helicopter access and are within 30 minutes of a higher-level satellite health care facility. EMS is provided by 911 response and volunteers.
Big Lake	Mat-Su Regional Medical Center in Palmer, Anchorage hospitals	State Troopers Post	Borough/Big Lake Volunteer Fire Department. EMS have highway and air access and are within 30 minutes of a higher-level satellite health care facility. EMS is provided by 911 response and volunteers.
Wasilla	Mat-Su Regional Medical Center in Palmer	Wasilla City PD	Borough/Central Mat-Su Fire Department, Wasilla Lake Fire/EMS.
Palmer	Mat-Su Regional Medical Center in Palmer	Palmer City PD	Palmer Ambulance Service, Victory Volunteer Fire Department, Wolverine Volunteer Fire Department, Borough Ambulance.
Anchorage	Alaska Regional Hospital, Providence Alaska Medical Center, Alaska Native Medical Center, Elmendorf Air Force Base 3rd Medical Group, U.S. Army Medical Clinic/Fort Richardson	Anchorage PD, State Troopers Post	Municipality/Anchorage Fire Department, Elmendorf Air Force Base Fire Department, Ted Stevens Anchorage International Airport Police and Fire, Fort Richardson Fire/EMS.
Notes:		medevac – Medical Evacuation	
Source: (State of Alaska, 2009)		PD - Police Department	
CHAP - Community Health Aid Program		PHN - Public Health Nurse	
EMS – Emergency Medical Service		VPSO - Village Public Safety Officer	

West Dock Port

Modules needed for construction of the GCF will be shipped via marine transport to West Dock DH 3 at Prudhoe Bay. The current goal is to deliver all sealift modules in a single sealift. Barge and module specifications are as follows:

- **Total Module Tonnage:** Approximately 91,000 short tons
- **Largest Module Weight:** Approximately 5,500 short tons
- **Total Number of Modules:** 53 modules
- **Forecasted Number of Barges:** 23 barges
- **Projected Barge Dimensions:**
 - 400 feet long by 105 feet wide by 25 feet high
 - 360 feet long by 120 feet wide by 20 feet high
 - 330 feet long by 105 feet wide by 20 feet high

The sealift generally arrives with all the barges and towing tugs (one towing tug per barge) at about the same time once there is an opening through the ice. Usually, Point Barrow is the choke point to await the ice breakup.

Prior to offloading, the following preparations will be completed to assure adequate water depth for arrival of barges at West Dock DH 3:

- Dredging of the area in front of the dock and on the channel is done during the winter using track backhoes located on top of the ice.
- Because this work is done under frozen conditions, the dredging does not disturb the adjacent seafloor and can achieve more accurate depths.
- Although the minimum required channel depth is 9 feet, the channel will be over-dredged to 10 feet to allow for sediment redistribution during the spring thaw and to avoid the need for summer maintenance dredging. The maximum weight of all modules and cargo on the barge will not exceed 5,500 short tons, which equates to a draft of 8.5 feet. Assuming up to 1 foot of sediment redistribution between ice thaw and module offloading, this allows a minimum of 6 inches of clearance from the bottom of the barge to the seabed.
- The area in front of the dock where the barges discharge is groomed to within 6 inches of the prescribed depth using a screed barge maneuvered with two shallow draft tugs. Once groomed, it is resurveyed to assure the depth is adequate.
- To accommodate barge heights of 25 feet, berths at West Dock DH 3 will require modification through the addition of gravel to raise the berth height.
- Awaiting arrival at West Dock DH 3, each tug and barge combination will anchor offshore using its tow wire. Anchoring will occur when it is safe to do so under good weather and a favorable forecast. If bad weather does not allow a safe anchorage, the towing tug will pick up the tow wire and steam a safe distance offshore, allowing sufficient running room from other vessels.

Because the draft of the towing tugs requires up to 20 feet of water depth, shallow draft assist-tugs will be used to transport barges from deep water to West Dock DH 3 using mooring lines. Up to

four shallow draft assist-tugs are required to maneuver each barge from offshore anchorage, along the shallow water channel, to West Dock DH 3. The channel will be dredged in the winter to a depth of 10 feet.

There are three berths at West Dock DH 3, and the assist-tugs will bring the barge to an empty berth alongside other barges and hold it in position while it is ballasted to the seafloor. No mooring dolphins are required to hold the barges in place during offloading. For barge docking, winds generally need to be less than 20 knots so that the shallow assist-tugs can handle the barge safely.

Once the barges are ballasted and verified for stability, offloading operations will begin. Typically, plywood is used at the DH to account for the slight elevation difference between the top of the barge and the top of the dock.

During ballast operations, SPMTs will be made ready for offload (that is, made longer/shorter and wider/narrower as necessary to fit modules). The SPMTs will be hydraulically lowered and positioned underneath the modules with approximately 3 inches of clearance. Once positioned appropriately, the SPMTs will raise the module from the barge deck before being maneuvered onto the dock. The SPMTs will then begin transporting modules to their offload location.

7.2.4 Rail Facilities

The ARRC railroad provides rail service between Seward, Whittier, Anchorage, and Fairbanks. It is the only rail service in Alaska and will provide the primary transport of pipeline materials between the Port of Seward and Fairbanks. Coated and double-jointed mainline pipe will arrive at Seward, where it will be offloaded and stored at larger marshalling yards or rail yards. Pipe will be distributed from these larger storage locations to the 29 different PSYs along the route.

New rail sidings are proposed for construction at the locations listed in Table 12. The rail sidings require expansion or new construction to provide access to pipe and equipment offloading and staging areas. The column labeled “Area (Acres)” refers to projected construction area disturbance.

The terminus location is listed as To Be Determined (TBD) because this is the new ARRC railroad spur that is currently under construction.

Table 12. Proposed Rail Sidings

NEAREST ASAP MP	PROPOSED ARRC SIDING	PROPOSED ASAP RAIL SPUR LENGTH (FEET)	AREA (ACRES)
453	Dunbar	1,794	40
469	Harding	1,971	40
495	Gravel	2,640	50
519	Usibelli	3,126	60
562	Cantwell	1,600	40
578	Broad Pass	2,824	60
601	Hurricane	2,755	60
671	Sunshine	3,055	60
700	Willow	2,614	50
727	Terminus	TBD	TBD
Notes: Source: (MBJ, 2014c)			

7.2.5 Roads

Public roads will be used to transport equipment, materials, and personnel to the greatest extent possible where marine and rail transport are not available. The Dalton Highway will be used north of Fairbanks, whereas the Parks Highway will be used between Fairbanks and the southern terminus of the pipeline. Other public access roads will be used to the greatest extent practicable to reduce the construction of temporary access roads.

Access Roads

The GCF module offload and construction will require road improvements between West Dock and the GCF Pad, as well as new road construction from K-Pad at Prudhoe Bay to the GCF. Access roads will also be constructed from the GCF Pad to material sites and from the GCF Pad to the CGF.

Roads are necessary for transporting equipment, materials, and personnel to access the pipeline ROW block valves, camps, storage yards, material sites, and water sources from existing roads. Access roads will consist of both newly constructed gravel roads, improved existing roads, ice roads, and snow roads. Where necessary, snow roads will be armored with ice to reduce the chances for damage to surface vegetation.

Vehicles using the access roads during construction include semi-trailer trucks with lowboy flatbed trailers hauling tracked equipment, pipe trucks, dump trucks, crew buses, and heavy-duty passenger vehicles, such as pickup trucks or sport-utility vehicles.

Typical standard drawings for gravel access roads and culverts can be found in Attachment 1, Figure A1-8.

7.2.6 Construction Workpads

Construction workpads refer to the zone along the alignment from which work is performed, as shown in the diagrams in Attachment 1, Figure A1-7. Workpads will be installed to support equipment required for pipeline construction. Three main types are required: ice/snow workpads, gravel workpads, and graded workpads. Culverts and temporary bridges will be installed, as required, to permit cross-drainage during summer. The ROW will be maintained during construction to allow safe passage of construction equipment and to prevent degradation of the ROW and adjacent areas. Additional culverts, riprap embankments, or drainage ditches will be installed during construction as required.

7.2.7 Pipe Storage Yards and Storage Facilities

GCF storage yards and storage facilities will be located adjacent to the GCF Pad, to the west. See Attachment 1, Figure A1-6 – Gas Conditioning Facility Layout.

The PSYs will store pipe and materials after delivery and before construction. Site dimensions depend on the location, and type and quantity of materials to be stored. Storage yards will be developed prior to pipeline construction. Storage yards will, at times, be collocated with construction camps, equipment storage, and fuel storage.

7.2.8 Airports and Airstrips

Major airport hubs to support construction of the GCF are Anchorage and Deadhorse.

Major airport hubs to support project construction include Anchorage and Fairbanks. Existing asphalt and gravel airstrips owned by the ADOT&PF along the pipeline route will provide support during mobilization and demobilization of personnel, emergency evacuations, and delivery of essential equipment to various job sites. Airports approved during the selection/planning process are of adequate size but may require upgrades to runways, runway lighting, communications, and navigational aids. Table 13 provides information on airports and airstrips located in project areas.

AGDC anticipates chartered aircraft used to support the project will have a carrying capacity ranging from 9 to 30 passengers.

Table 13. Project Airports and Airstrips

AIRPORT/ AIRSTRIP	FAA CODE	OWNER	RUNWAY NO.	LENGTH (FEET)	WIDTH (FEET)	SURFACE/ CONDITION	PROJECT USE
Anchorage	ANC	ADOT&PF	14/32	11,584	150	Asphalt/Good	Hub
Deadhorse	SCC	ADOT&PF	04/22	6,500	150	Asphalt/Good	Hub
Fairbanks	FAI	ADOT&PF	02L/20R	11,800	150	Asphalt/Good	Hub
Galbraith Lake	GBH	ADOT&PF	13/31	5,182	150	Gravel/Good	Primary
Healy River Strip	HRR	ADOT&PF	15/33	2,912	60	Asphalt/Good	Alternate

AIRPORT/ AIRSTRIP	FAA CODE	OWNER	RUNWAY NO.	LENGTH (FEET)	WIDTH (FEET)	SURFACE/ CONDITION	PROJECT USE
Prospect Creek	PPC	ADOT&PF	01/19	4,968	150	Gravel/Good	Primary
Talkeetna	TKA	ADOT&PF	18/36	3,500	75	Asphalt/Good	Alternate
Cantwell	TTW	Private	04/22	2,080	30	Gravel/Fair	Alternate
Clear	Z84	ADOT&PF	01/19	4,000	100	Asphalt/Good	Alternate
Chandalar Shelf	5CD	ADOT&PF	01/19	2,529	70	Gravel/Good	Alternate
Coldfoot	CXF	ADOT&PF	01/19	4,000	100	Gravel/Good	Alternate
Five Mile	FVM	BLM	11/29	2,700	75	Gravel/Good	Alternate
Livengood Camp	4AK	ADOT&PF	15/33	1,415	50	Gravel/Good	Alternate
Nenana Municipal	ENN	Nenana, AK	04L/22R	4,600	100	Asphalt/Good	Alternate

7.2.9 Fuel Storage Sites

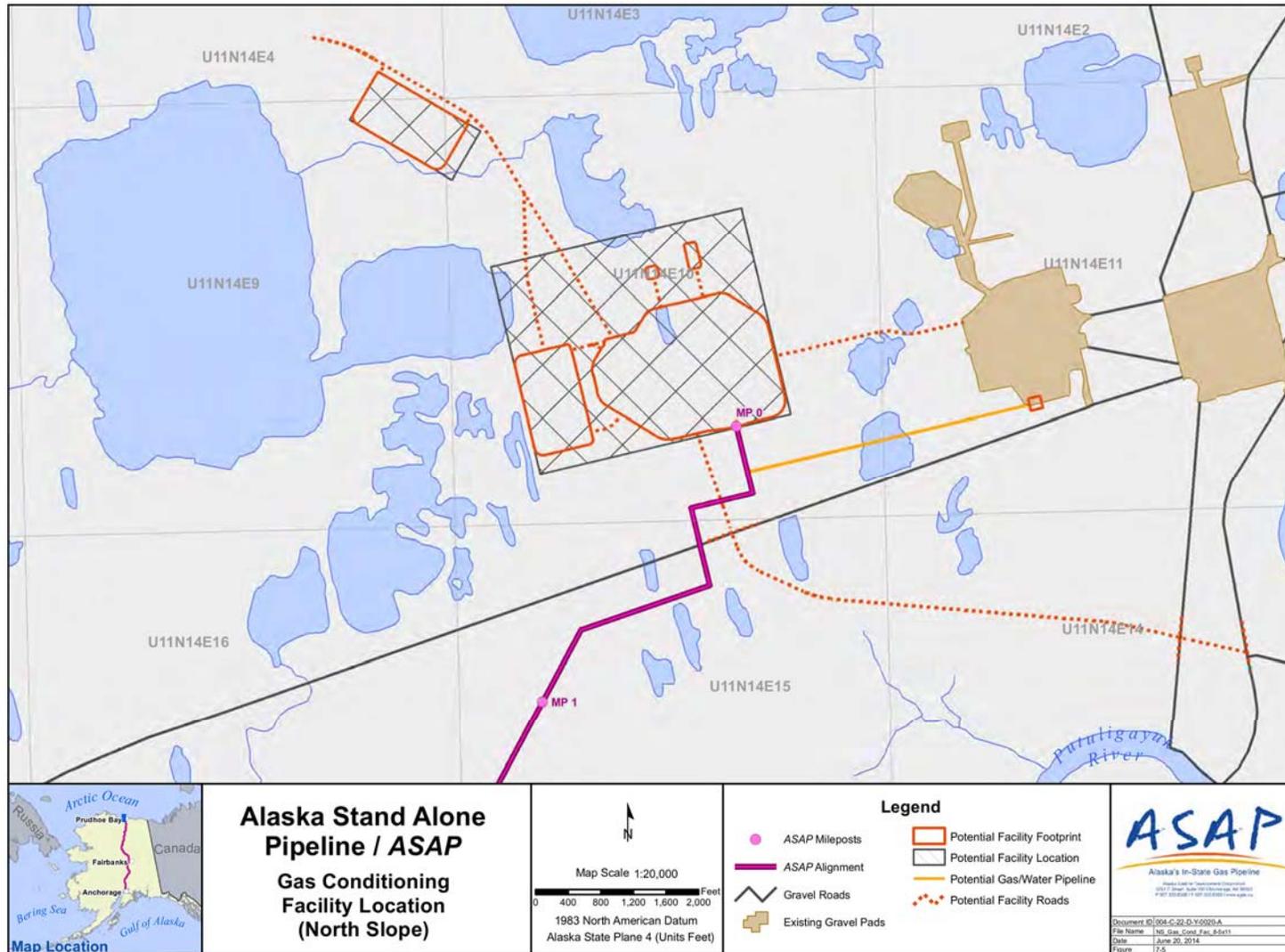
The GCF site will have fuel storage and dispensing facilities designed for purpose.

Each camp will have temporary storage facilities for oil, gasoline, diesel fuel, and lubricant to support camp and construction activities. Appropriate measures for handling, storage, and transportation protective of human health and the environment will be maintained at all times. Spill prevention and response are addressed in Section 7.11.

7.3 GAS CONDITIONING FACILITY CONSTRUCTION

The GCF will receive gas from the CGF, which receives gas from the Prudhoe Bay fields through gathering lines. Upon receipt of gas, the GCF will remove CO₂, H₂S, and other impurities. Three primary pipelines will connect the CGF to the GCF: a 36-inch feed gasline, an 8-inch CO₂ return line, and a 3-inch liquid return line. The lines will be installed on an estimated 171 Vertical Support Members (VSMs) placed 25 feet apart, spanning approximately 4,250 feet between the two facilities. The VSMs will be at a height of at least 7 feet to allow for wildlife passage. Using the most current information, the VSM installation will require 839 square feet of ground disturbance. The PBU will construct a skid-mounted module at the CGF to connect the piping from the GCF. The GCF will be located on the North Slope at Prudhoe Bay, northwest of the existing CGF (Figure 9) and at MP 0 of the ASAP. The GCF will be located in the Umiat Meridian, Township 11 N; Range 14 East; Sections 11 and 14 (U011N014E11 and U011N014E11).

Figure 9. Gas Conditioning Facility Location



Site support facilities include those necessary to house equipment, utilities, workspace, and personnel during work hours. A main diesel-powered electrical generation and backup system will be located at the GCF during construction. Construction workers will be housed in a fixed temporary GCF construction camp. Waste disposal will be conducted through the NSB Service Area (SA)-10.

7.3.1 Fairbanks Lateral Terminus

The Fairbanks Lateral spans 29 miles from its connection to the mainline at MP 439, approximately 2 miles south of the Chatanika River crossing. It traverses Murphy Dome and follows the Murphy Dome and Old Murphy Dome Roads. The alignment then moves southeast adjacent to Spinach Creek Road and terminates at MP 29, approximately 1 mile west of the University of Alaska Fairbanks campus.

7.4 PRE-CONSTRUCTION ACTIVITIES

GCF pre-construction activities include land surveying and sea bottom surveying (bathymetry) of the existing infrastructure from West Dock to the GCF Pad starting in summer 2014. This information will support Front-End Engineering and Design (FEED) to deliver greater detail of the roadway and pad construction.

Pipeline pre-construction activities will begin in Summer -0.5, the summer prior to the first season of pipeline construction (Winter 1). A pipeline construction camp will be established onsite during spring or summer to support these early pipeline construction activities. Pre-construction activities will include transportation of equipment and materials to storage yards, ROW survey and clearing, erosion control activities, material mine site development, gravel processing, and development of water sources.

7.4.1 Transportation of Equipment and Materials

Transportation, offloading, mobilization, and construction of GCF modules, as well as demobilization of SPMTs and barges, is described in Section 7.2.4 of this document, as well as in the 2014 Draft Joint Application for Permit (AGDC, 2014). Process module transportation is described in Section 7.1 of this document.

Transport and delivery of pipeline construction equipment and materials to support pipeline execution throughout the project corridor will be organized to coordinate with construction spread locations and seasonal construction activities. The main modes of transportation for equipment and materials include:

- Ship and barge transport
- Rail transport
- Truck transport
- Air transport to designated project airstrips

In general, materials and equipment will be transported via ship or barge to an Alaskan port, and then transferred to rail, as discussed in Sections 7.2.4 and 7.2.5. Public roads and access roads will be used where marine and rail services are not available.

7.4.2 Right-of-Way

Before pipeline construction starts (Winter 1), pre-construction efforts will be conducted to prepare for the buildup of equipment, material, and construction personnel, and to develop ROW infrastructure, such as material sites and access roads.

Survey and Staking

GCF surveying for the FEED phase will both start and complete in summer of 2014. After project Sanction, surveying will recommence and continue through the course of the project.

During the pre-construction period, pipeline surveys will be completed to locate the alignment, ROW, and TCE, and complete real estate acquisition. The ROW will be surveyed and staked. Clearing limits will be defined and temporary perimeter controls installed. Existing utility lines will be located and marked. Additional survey support for ROW development will include activities related to workpad, camp sites, storage yards, and access road construction. Any sensitive areas that should be avoided (for example, cultural sites) will be demarcated as part of surveying and staking.

Clearing

Clearing crews will remove all brush and timber from the construction ROW. Stumps will be ground to ground level, except over the ditch line where they will be removed. Machine clearing will be used in all areas except sensitive slopes. If it is determined that a substantial risk for spreading of spruce bark beetles exists in the area, timber may be either mulched or burned to prevent it from becoming habitat for beetle larvae.

To reduce the amount of waste for disposal generated from downed brush and timber (other than marketable timber), the following clearing alternatives and disposal methods may be used (the preferred disposal methods of brush, timber, and stumps are the first two identified):

- Hydro-axing, chipping, or mulching brush and leaving on the ROW
- Stockpiling brush in designated areas to provide firewood for local communities
- Stockpiling brush on the ROW and burning it
- Hauling brush to designated disposal site
- Grinding stumps to ground level and leaving the root mass in the ROW except over the ditch line

Grading

The GCF Pad will be constructed using gravel placed on the existing landscape and compacted. No grading is necessary.

Pipeline grading includes excavation of waste or embankment and may include the stripping of topsoil. In situations where topsoil is removed in agricultural lands, it will be segregated and saved when practicable to enhance surface rehabilitation and aid in future revegetation of the area. Table 14 lists the location and extent of areas where AGDC proposes to implement cut-and-fill grading techniques.

Table 14. Approximate Locations of Cut-and-Fill Grading

FROM MILEPOST	TO MILEPOST	LENGTH (MILES)	APPROXIMATE LOCATION
147.4	183	35.6	Atigun Pass Area
183	205	22	Dietrich River/Chandalar Shelf
216.2	220.5	4.3	Dietrich River
242.8	252.5	9.7	Cathedral Mountain
257.5	263.2	5.7	Coldfoot/Prospect Area
282.4	289.7	7.3	Prospect/Old Man Area
295.6	303.1	7.5	Prospect/Old Man Area
341.5	347.9	6.4	Old Man/Seven Mile Area
357.7	381.3	23.6	Five Mile/Livengood Area
385	400	15	Five Mile/Livengood Area
503.6	505.9	2.3	Minto Flat Area
526.1	542.1	16	Adjacent to Denali National Park and Preserve
544.2	548.6	4.4	Panorama Peak
551.1	559.8	8.7	Reindeer Hills–Cantwell Area
563.3	569.2	5.9	Cantwell Area
581.1	587.1	6	Broad Pass/Chulitna Butte Area
600	635.1	35.1	Chulitna Butte/Swan Lake Area
	Total	215.5	

Excavation

Excavation is classed as stripping, ditching, or trenching of rock or borrow. Stripping excavation consists of the excavation and removal of all surface organic material, silt, and unsuitable overburden necessary to expose suitable foundation conditions at the aboveground facilities and borrow areas. Stripping may occur for work pads and access roads at the southern end of the pipeline where there is no permafrost present.

7.4.3 Temporary Erosion Control

Prevention of erosion to the greatest extent possible is critical to maintain an on-schedule construction program and to reduce impacts to the environment. An Erosion Control Plan will be developed before the start of construction and will specifically define erosion control procedures for each area

along the ROW. Also, a Stormwater Pollution Prevention Plan (SWPPP) will be developed as required by a National Pollutant Discharge Elimination System (NPDES) permit. The SWPPP will address erosion control measures, Best Management Practices (BMPs), and mitigation measures to control erosion and stormwater runoff. Continued ground surveillance and corrective erosion control and vegetation maintenance will be employed throughout the Construction phase of the project. Normal drainage patterns will be maintained where practicable.

7.4.4 Material Sites

Sand and gravel are required to support construction activities. As with any large pipeline project, there will be a need for substantial amounts of sand and gravel for pipeline bedding and padding; workpad construction; GCF construction; new temporary and permanent gravel access road construction; and the expansion and new construction of camps, storage yards, and rail sidings. Material will also be needed for metering stations and MLVs, at fault crossings to provide pipeline stability, and other construction uses. Table 15 provides a preliminary estimate of the amount of material needed for construction.

Table 15. Material Required for Alaska Stand Alone Pipeline Project Construction

BEDDING AND PADDING (CY)	WORKPAD (CY)	ACCESS ROADS SUBBASE/SURFACE COURSE	PADS/SWPPP
2,321,000	19,524,300	5,562,300	5,671,700
Total:			33,079,300
Notes: Pads/SWPPP includes 2,300,000 for GCF pad construction			

Material sites located along the ASAP corridor will provide needed borrow material. These sites may be fluvial/glacial borrow sites or bedrock quarries. Currently, ASAP engineers are working under the assumption that the material sites will be new and will have to be developed. Material sites investigations were planned and will occur over a 3-year period.

Table 16 displays material availability along major sections of the mainline route and availability for the Fairbanks Lateral route.

A preliminary evaluation found that a total of 53.7 MCY are available at the 156 sites listed in Attachment 5, Ancillary Features. Haul distance was used as a criterion for identifying potential material site locations such that haul will be limited to a maximum of 5 miles from any point along the alignment for most locations.

Table 16. Material Availability and Need by Pipeline Construction Spread

SPREAD	LOCATION	MILES	ASAP MATERIAL NEEDS (YD ³)					MATERIAL SITES	
			BEDDING/PADDING	MOD C1 SURFACE	SELECTED A	SELECTED C	TOTAL	PLANNED	TOTAL
1	GCF to southern side of Atigun Pass	183	414,600	212,300	7,133,400	2,477,300	10,237,600	29	32
2	Southern side of Atigun Pass to south of Yukon River Crossing	177	439,300	203,700	5,734,600	2,000,700	8,378,300	29	44
3	South of Yukon River to Yanert River Crossing	179	437,600	519,600	5,332,300	1,259,200	7,548,700	25	39
4	Yanert River Crossing to Terminus	188	947,400	239,200	2,746,500	2,807,700	6,740,800	30	41
FL	Fairbanks Lateral	29	82,100	72,500	19,300	0	173,900	2	3
Pipeline Total:		756	2,321,000	1,247,300	20,966,100	8,544,900	33,079,300	115	159

Notes:

Spread 1 includes 2,300,000 cy of sand and gravel with general gradation requirements similar to Selected Material A for gravel pad construction.

Source: Michael Baker, Jr. (2014a) , Michael Baker, Jr. (2014b), and Michael Baker, Jr. (2014c)

CY - cubic yard

Prior to site development, during detailed construction and permitting efforts, Material Site Mining Plans and Reclamation Plans will be developed specific to each material site and submitted for agency approval. These plans will include information such as habitat types, access locations, temporary stockpile areas, excavation limits and depths, archaeological and environmental information, and site restoration planning. Reclamation Plans specific to each material site will be developed and submitted for agency approval. These plans will detail the actions necessary to return the site to a stable condition. At this time, material sites are not under consideration for waste disposal sites.

7.4.5 Land Temporarily Needed for Construction Activities

The construction ROW, or TCE, for the pipeline and facilities is 120 feet wide. However, lands in addition to construction of the TCEs may be required temporarily for a number of construction-related activities. The activities requiring additional temporary use of lands outside these TCEs include:

- Major road crossings
- Minor road, trail, and driveway crossings
- Railroad crossings
- Foreign pipeline crossings

- Stream crossings
- Wetland crossings
- Vehicle turnarounds
- Block valve installation sites
- Side hill cut areas
- Pig launcher and receiver sites (not located at major facilities)
- Access roads

7.4.6 Water Source Development

Water is required to support construction activities, hydrostatic testing prior to pipeline operations, and pipeline O&M. Winter construction will require water and ice chips for ice workpads located within the 120-foot TCE, ice access road construction, ice armoring of snow roads, cleanup of equipment at camps and material sites, and construction camp usage. Summer construction will require water for earthwork (for example, for dust control and compaction, and screening operations at material sites), and construction camp usage. Upon completion of construction activities, water will be needed for hydrostatic testing to confirm that the pipeline meets design criteria and is leak-free. Additional water will be required for O&M. Alternative construction techniques will be evaluated if sufficient water is not available for construction camps, ice roads, and snow pads.

The calculations in Table 17 are intended to provide a preliminary estimate of water needed during construction and hydrotesting phases of the project. This table does not include camp water use, which can be estimated at 75 gallons per person per day. Assuming an average workforce of 3,000 people per year for 3 years, an estimate of 246 million gallons for domestic use is appropriate.

Available water resources are being evaluated. Alternative construction techniques will be evaluated if sufficient water is not available. Lake studies were conducted during the summer of 2010 to identify water availability between Prudhoe Bay and Galbraith Lake. Additional field work will be conducted before project permitting.

7.5 PIPELINE PREPARATION

7.5.1 Double-jointing

The mainline pipe will arrive at the Port of Seward by marine vessel coated and jointed in lengths not exceeding 75 feet, with Fusion-bonded Epoxy (FBE) coating. The pipe will then be discharged to a MY to be developed at the port. Approximately 4 percent of the pipe will be delivered in DR lengths for installation in locations not accessible for the longer pipe lengths. Pipe will be loaded onto a dedicated fleet of rail cars and transported to a Fairbanks MY and rail offload areas. When unloaded from rail cars, the pipe will be transported by truck to the 29 PSYs located along the pipeline route. Once delivered to PSYs, pipe will remain stockpiled until stringing operations begin.

Table 17. Alaska Stand Alone Pipeline Water Use Requirements by Construction Spread and Section

SPREAD	SECTION	START MP	END MP	MILES	SEASON	WATER REQUIREMENTS (U.S. GALLONS)			
						HYDROTEST	WORKPADS	ACCESS ROADS	PROJECT TOTAL
1	1A	0	7	7	W1	1,841,574	14,350,000	1,622,770	17,814,344
1	1B	7	57	50	W1	13,943,346	102,295,000	5,609,776	121,848,122
1	1C	57	113	56	W2	14,206,428	10,250,000	-	24,456,428
1	1D	113	163	50	S1	12,891,018	-	-	12,891,018
1	1E	163	173	10	S2	2,630,820	-	-	2,630,820
1	1F	173	183	10	W1	2,630,820	-	-	2,630,820
2	2A	183	243	60	W2	15,784,920	-	-	15,784,920
2	2B	243	286	43	S1	11,312,526	-	-	11,312,526
2	2C	286	336	50	W2	13,154,100	-	-	13,154,100
2	2D	336	360	24	S1	9,102,637	-	-	9,102,637
3	3A	360	405	45	W1	9,050,021	100,000	-	9,150,021
3	3B	405	448	43	W2	11,312,526	39,100,000	-	50,412,526
3	3C	448	492	44	S1	16,205,851	43,000,000	-	59,205,851
3	3D	492	528	36	F1/W2	6,156,119	-	-	6,156,119
3	3E	528	533	5	S1	-	-	-	0
3	3F	533	539	6	W1	1,578,492	-	-	1,578,492
4	4A	539	601	62	W2	16,311,084	-	-	16,311,084
4	4B	601	653	52		13,864,421	-	-	13,864,421
4	4C	653	690	37		10,076,041	-	297,660	10,373,701
4	4D	690	727	37		9,128,945	-	4,442,359	13,571,304
Fairbanks Lateral	Fairbanks Lateral	0	28.9	28.9	S2	-	55,088,000	-	55,088,000
Totals:						191,181,689	264,183,000	11,972,565	467,337,254

7.5.2 Stringing

Double-jointed, pre-coated pipe will be hauled from PSYs by the pipeline contractor or subcontractor and distributed along the ROW. Ditching operations will be conducted behind pipe laying in winter construction sections and in some summer sections if trench stability in permafrost becomes an issue.

7.5.3 Bending and Set Up

In gently rolling terrain, the flexibility of the pipe will allow for free stress bending along gentle curves and contours without the need for specialized equipment or techniques. Most Points of Intersection (PIs), overbends, and sag bends will be accomplished using cold bending or induction bending.

Cold bending can be accomplished on the ROW with a bending machine, which is moved along the ROW by a tractor. Sideboom tractors are used for handling pipe in the bending operation.

Induction bends are custom-made for specific locations and will be designed and fabricated according to design requirements and in accordance with pipeline bending criteria.

7.6 PIPE INSTALLATION

7.6.1 Signs and Markers

Aerial MP markers and warning signs at roads, trails, streams, and rivers will be installed as soon as is practical, as required during the Construction phase. They will be constructed and installed to withstand vandalism to the extent feasible.

7.6.2 Ditch Excavation

Ditching crews are required to excavate a trench deep enough to provide the design soil cover depth over the top of the pipe or pipe insulation. The slope of the ditch walls will vary with soil characteristics, thermal conditions, and excavation methods.

A chain-type excavator excavates the ground by breaking up the frozen soil or rock with carbide-tipped teeth mounted in sockets welded to a continuous steel chain. A chain trencher cuts with a digging chain that is driven around a rounded metal frame, or boom. It resembles a giant chainsaw. This type of trencher can cut ground that is too hard to cut with a bucket-type excavator, and can also cut narrow and deep trenches. The angle of the boom can be adjusted to control the depth of the cut. To cut a trench, the boom is held at a fixed angle while the machine creeps slowly. This method of excavation minimizes the extent of surface disturbance and provides higher progress rates plus lower unit costs when compared to alternative ditching methods. Ditching machines are effective in soils without oversized material (significant cobbles or boulders) and without a high water table.

In areas not suited for ditching machines, ditch excavation will be done by track hoe. Blasting may be required in some areas with frozen soils or rock, as addressed in Section 7.6.3.

Construction scheduling is the most appropriate way of limiting thaw of open-ditch segments. To the extent possible, thaw-unstable soils will be excavated during winter seasons. In all cases, durations of open-ditch construction activities will be minimized.

Impacts to animal migration will be mitigated by using the measures described in Section 8.0, Resource Values and Environmental Concerns. Mitigation measures regarding wildlife movement through construction areas and ditch excavation sites are addressed in Section 8.2.10, Wildlife Resources. Additional information regarding fish and fish habitat mitigation measures resulting from construction activities is provided in Section 8.2.9, Fisheries Resources.

7.6.3 Rock and Frozen Soils Blasting

Blasting may be required to break up and fracture high-density frozen soils or rock during trench excavation. Safety-controlled blasting techniques will be used in all situations where blasting is required within proximity to inhabited areas or existing facilities. A Blasting Control Plan will be developed to mitigate HSSE impacts. The Blasting Control Plan will address the following issues:

- Blast hole loading and placing of explosives
- Timing delays, wiring, and use of detonation systems
- Training and licensing of personnel performing and supervising blasting activities
- Technical support, Quality Control (QC), and compliance supervision for blasting activities
- Blasting in environmentally sensitive areas, such as near fish habitat or in areas and during sensitive life stages of wildlife (for example, Dall sheep lambing, bear denning, and raptor nesting)
- Blasting near existing infrastructure

The Blasting Control Plan will be implemented and used in all locations. Standards identified in the Blasting Control Plan will become more stringent as the pipeline approaches foreign (other) pipelines, structures, and environmentally sensitive areas that may be impacted by blasting activities. The Blasting Control Plan will follow all applicable requirements for HSSE protection, including ADF&G blasting standards.

7.6.4 Line-up and Welding

Mainline welding (excluding tie-ins and other miscellaneous welds) will be performed by either manual or mechanized welding systems that permit consistent, high-quality welding and provide a desired production rate. Welding will be conducted according to project-specific procedures with qualified welders.

Field welding crews will bevel each joint of pipe to the profile required for automatic welding. Pipe ends will then be preheated prior to welding. Post-weld heat treatment for stress-relieving will not be required. Each step of the welding process will be visually inspected by qualified welding inspectors. A combination of nondestructive testing inspection methods will be used to determine weld quality.

7.6.5 Lowering-in and Tie-Ins

Sideboom tractors with slings will be used for lowering each welded pipe string into the ditch. Longer sections require proportionately additional equipment for handling.

A separate tie-in crew will manually weld the lowered-in pipe strings together to complete the pipeline section. Other locations requiring tie-in welds include valves, road crossings, river crossings, and other special crossing areas.

7.6.6 As-built Survey

Prior to backfill, an as-built survey will be completed to record the condition of the pipeline as lowered-in. These data are used as a baseline for future operational considerations and include recording the location-specific significant features, such as field joints and valve locations.

7.6.7 Buoyancy Control

For the proposed pipeline diameter and WTs, some portions of the pipeline may be buoyant in high-water-table areas, in wetlands, at water crossings, and at directionally drilled crossings.

Pipeline buoyancy control will be provided by saddle bags for ditching in high-water-table areas where the ROW soils are competent, dense, and non-organic. If pumping of the water-filled ditch is not possible, weights will be installed on the flooded pipe by equipment working on mats adjacent to the ditch line. If saddle bags are used, appropriate measures will be taken to confirm coating integrity.

Concrete coating, bolt-on river weights, or saddle bags will be applied for buoyancy control for pipeline sections that are in poor, sandy soils, and are across high-water-table, open-cut-ditch stream crossings.

Buoyancy control for HDD can be accomplished by installing a small pipe inside the main pipeline. The smaller pipe will be filled with water to provide needed buoyancy control of the pipeline while being pulled into place.

7.6.8 Ditch Breakers, Padding, and Backfill

Foam-in-place ditch plugs will be used wherever slope and soil conditions indicate the probability of excessive erosion along the ditch line.

Bedding and padding material is required around and under the pipe to protect the pipeline whenever the ditch passes through material that could damage the pipe coating, to mitigate buoyancy problems (outside of floodplain areas), and to protect against excessive loss of pipe cover due to erosion. In areas where these potential problems do not exist, ditch spoil will be placed into direct contact with the pipe.

After placement of weights or plugs (where required), backfill crews will fill the trench with either ditch spoil or imported backfill materials to approximately 1 foot over the top of the pipe. The remaining ditch spoil material will be used to complete ditch backfill, and will be crowned over the ditch and left in place. In sensitive stream areas, excess ditch backfill may be spread on the ROW or used to supplement the ditch spoil along the pipeline.

7.6.9 Tie-ins

Separate welded sections of the pipeline will be connected with tie-in welds. Tie-in welds will also be made to short sections of the pipeline or fittings at river crossings, MLVs, road crossings, pipeline crossings, and after long sections of the pipeline are hydrostatically tested. Pipe-end bevels will be inspected and repaired by end-prep milling machines, by grinding, or by filing.

The pipe ends will be preheated when necessary to maintain weld quality. The weld will be made with successive passes to build up the metal of the beveled ends. Radiographic inspection of the weld will be made, and the pipe coating in the tie-in zone will be applied.

7.7 SPECIAL CONSTRUCTION AREAS

7.7.1 Road and Railroad Crossings

Arterial roads and railroad crossings will be installed without casings, either by the 'slick-bore' or other trenchless method, such as HDD or Horizontal Directional Boring (HDB). Major road crossings will be accomplished by a boring method that creates no disruption to the road surface and allows traffic to flow unimpeded. In situations where the pipe cannot be installed by boring, a trench will be excavated. This open-cut method may involve building a temporary bypass or bridge to maintain traffic flow.

TAPS access road crossings will be bored. Because of corrosion control issues, no cased crossings are proposed for the project.

7.7.2 Foreign Pipeline and Utility Crossings

Existing foreign pipelines and utility lines will be crossed by going below the existing pipeline or utility. A minimum clear separation of 12 inches is required between the existing foreign pipeline/utility line and the proposed pipeline.

It is assumed TAPS has approximately 4 feet of cover. It is also assumed that Alyeska Pipeline Service Company (Alyeska) and TAPS owners will accept the 12-inch minimum clearance between pipelines at crossings; however, more may be required. Minimum pipeline cover depth when crossing a belowground section of TAPS will be approximately 9 feet.

The proposed pipeline route is expected to cross TAPS at 14 locations within the project area (Table 18).

Table 18. Alaska Stand Alone Pipeline Crossings of the Trans-Alaska Pipeline System

CROSSING	ASAP MILEPOST
1	114.4
2	130.4
3	146.5
4	164.4
5	170.3
6	170.7
7	183.9
8	253.5
9	259.0
10	313.1
11	343.4
12	352.5
13	358.5
14	370.8
Source: Michael Baker, Jr. (2014d)	

7.7.1 Unstable Soils

Detailed engineering efforts and geotechnical studies will identify where permafrost, frost heave, fault crossings, thaw settlement, frost bulbs, slope and soil instability, areas sensitive to erosion, and unique soil structures are likely to occur. These findings, as well as construction methods to appropriately mitigate these conditions, will be defined during detailed engineering.

7.7.2 Avalanche Hazards

Along sections of the ROW where avalanches are a concern, current planning limits construction to the summer months when slope instability is less prevalent. However, appropriate precautions will be taken and conditions monitored, since warming temperatures in avalanche areas present the potential for ‘slush bursts.’

7.7.3 Pipe Installation Methods for Waterbodies

The placement of the buried pipeline across specific fish-bearing streams has the greatest potential to impact the fishery resources of the project area. Proposed stream crossing methods were determined based upon the presence of fish resources and engineering needs, and are provided in Attachment 4. Each belowground stream crossing will be conducted in a manner and during a time

that avoids or minimizes potential fishery effects. Stream crossings will be accomplished using one of four crossing modes: open-cut, open-cut isolation, trenchless (HDD or HDB), or bridge crossing.

Open-cut Method

Open-cut is the most common crossing method used, and is accomplished by excavating a trench across a stream or river bed and pulling or carrying the pipe into position. Trench excavation is accomplished using conventional excavation equipment, such as mechanical ditchers, draglines, dredgers, clams, or backhoes operating within the stream bed or from a floating barge. Some river and stream beds may require drilling and blasting that will be controlled and monitored.

Open-cut Isolation Method

An isolated crossing technique will be used at locations where an open-cut is prevented by overwintering and spawning fish, or where stream flow conditions make open-cut impractical. This method is similar to an open-cut, but involves diverting or damming the watercourse to permit excavation while maintaining stream flow using pumps or dams and flumes. This method is limited to locations where stream flows do not exceed the capacity of the dam, flume, or pump equipment.

When a crossing is completed, the watercourse bed will be stabilized, and the downstream dam will be removed first, followed by the upstream dam. Flume equipment will be shut down, restoring the stream to natural flows conditions.

Horizontal Directional Drilling

An HDD process (one type of trenchless technology) may be used where disruption to the banks or bed of the stream is not permitted (Attachment 1, Figure A1-14). With this method, a drilling rig on an inclined plane is set up on one bank, and a pilot hole is drilled under the riverbed and to the surface on the other bank. The pipe is then pulled back as the pilot hole is enlarged by reaming.

Equipment typically found on an HDD site includes:

- Rig unit, power unit, and generators
- Drill pipe rack and drill pipe
- Water pump
- Drill mud supply, drill mud mixing tank, drill mud pump, and mud handling and cleaning system
- Cuttings settlement tanks and pits
- Rollers and pipeline handling equipment
- Sidebooms and other heavy equipment
- Pipeline, welding, coating, and testing equipment

The availability of a dependable supply of water for the HDD drilling site is required for the following:

- Initial drilling fluid make-up
- Additional drilling fluid as the drill progresses
- Replacement fluid for drilling fluid escaping due to seepage or hydraulic fracture
- Pre-testing, where warranted, of the pipe string

Water could potentially be pumped from a waterbody to the drill site or hauled to storage tanks onsite.

Trenchless methods, either HDD or HDB, require suitable soils or rock and can be hindered or made impossible by the presence of cobbles and boulders.

Ten streams (including the Yukon River crossing) will be crossed using HDD technology (Attachment 1, Figure A1-14).

Bridge Crossings

The current construction plan assumes the pipeline is attached to the following existing highway bridges:

- Moody Bridge over the Nenana River
- Susitna Bridge

Two new bridges will also be constructed for crossings along the mainline (see “Air Span” listings in Attachment 4).

The following items must be considered during construction planning efforts for each bridge location:

- Site accessibility for construction equipment
- Crane pads and pick points for heavy-component erection
- Weights and haul routes for pre-fabricated components and materials
- Environmental restrictions during construction
- Proximity to access roads
- Cold-weather limitations with regard to concrete work

Attachment 1 provides detailed typical design drawings for stream crossings.

7.7.4 Wetland Crossings

Wetlands in Alaska are usually defined as areas that are predominantly surface-saturated with water in the summer months. These areas are sometimes referred to as swamps, marshes, bogs, and muskegs. Construction methods used in wetlands will depend largely on the stability of the soils at the

time of construction. If wetland soils are not excessively saturated and can support mobile construction equipment, such as mats or timber riprap, construction will occur similarly to conventional cross-country construction techniques. Where wetland soils are saturated or inundated, the pipeline may be installed using the push-pull technique, described in the next subsection, or crossed during winter construction when the frozen ground can support construction equipment.

Push-pull Technique

This technique involves stringing and welding the pipeline outside of the wetland, and excavating and backfilling the trench using a backhoe supported by equipment mats; timber riprap; or specially designed, pontoon-mounted backhoes or draglines. Platforms for positioning all equipment are constructed on each side of the wetland crossing.

The pre-fabricated pipeline will be installed by equipping it with buoys and pushing or pulling it on rollers across the water-filled trench. Once the pipeline is floated into the trench, the buoys will be removed, allowing the pipeline to sink to the trench-bottom. Pipe installed in wetlands will typically be fitted with buoyancy control measures.

7.7.5 Mainline Block Valves

The primary function of mainline block valves is to provide a means of restricting or stopping the flow of gas through the pipeline as necessary for safety or O&M purposes. MLVs will be installed according to the operational needs of the ASAP system, and will meet the design and installation requirements defined in 49 CFR 192.179(a) – Transmission Line Valves, at intervals not to exceed 20 miles.

MLVs will be installed on reinforced-concrete pads placed over a compacted subgrade. In some areas, fill may have to be imported to meet the subgrade requirements. Prior to construction, the site will be cleared using the same techniques as for the construction ROW. Installation of MLVs will be accomplished by tie-in crews using a sideboom or crane for lifting and setting the valve assembly. Depending on their location, access to MLV sites will be provided by workpads or construction access roads.

7.7.6 Aboveground Pipeline Mode

The current construction plan assumes the pipelines between the CGF and GCF will be constructed aboveground on steel VSMs at a height of 7 feet to allow wildlife passage. These VSMs will be spaced at approximately 25-foot increments. VSMs and ground-based supports consisting of pipe saddles resting on grade beams may also be used at elevated bridge stream crossings, possible fault crossings, and pigging facilities.

Once the necessary ROW preparations are made, VSM locations will be surveyed and marked, and foundations drilled. Installation of VSMs will include standing and bracing the member, then backfilling around the VSM column with concrete slurry. Once VSMs are installed, welded sections of

pipe will be lifted and placed using sidebooms. Tie-ins will be accomplished in a manner similar to the remainder of the pipeline.

As shown in Attachment 1, Figure A1-10 - Aboveground Pipe on VSM, a single VSM will support the cross-beam at each VSM installation. The drawing does not indicate a VSM diameter, which depends on the final design, but it is reasonable to assume that the diameter of each VSM will be 24 inches, and the total area of ground disturbance for each VSM will be a circle 36 inches in diameter.

From the GCF to the CGF, 169 VSMs will be installed 25 feet apart.

7.8 SPECIAL DESIGN AREAS

7.8.1 Denali National Park and Preserve

The route segment that bypasses DNP&P begins at MP 528, at the Moody Bridge across the Nenana River, and runs to MP 539, east of McKinley Village. The bypass was assessed in the ASAP project EIS (USACE, 2012) and remains the preferred alternative put forth by AGDC in its 2014 draft Joint Application for Permit (AGDC, 2014). The route intentionally avoids disturbance of a national park and includes mitigation for minimizing visual and noise disturbances on adjacent lands that could potentially be noticed by park visitors.

Once across the bridge, the alignment parallels the Parks Highway. At MP 533, the pipeline will climb the ridge line above the highway heading southeast away from the highway to avoid constructing workpads and access roads within the viewshed of the DNP&P where possible. This route crosses Lynx Creek near MP 533.8, Montana Creek near MP 534.5 (not to be confused with the salmon stream Montana Creek further south near Willow), and the Yanert River near MP 538.7.

Alignment selection was based on available engineering and survey data, analysis of aerial imagery, visual survey conducted at the site, and efforts to identify potential risk associated with constructing the pipeline near a highly sensitive area such as DNP&P.

7.8.2 Atigun Pass

Atigun Pass is a 10-mile section of the ASAP alignment that traverses, and is surrounded by, dramatic terrain and rocky soils. This portion of the pipeline is located at a pinch point between TAPS and the Dalton Highway. As a result, construction in this area may require an additional 12-foot lane along the Dalton Highway.

Because of the potential for avalanches in the Atigun Pass area, current construction plans assume all construction in this area will take place during the summer months. As a result, extensive maintenance to workpads, access roads, and even the Dalton Highway may be required to mitigate saturated soil conditions resulting from spring breakup and thawing conditions. These conditions could also hinder the movement and maneuverability of heavy, non-tracked equipment used to import

construction materials. Specifics of soil conditions and behavior will be developed as detailed engineering progresses.

7.9 CONTINGENCY PLANNING

The construction contractor or developer will be required to prepare contingency plans for development, construction, and O&M. Each plan will address specific contingencies related to the particular aspect of the project. Plans will be developed in accordance with legal requirements and will follow BMPs.

7.10 SAFETY REQUIREMENTS

A Safety Plan will be developed to identify what procedures will be put into place to make sure all operations are performed in a safe manner and in compliance with applicable health and safety laws and regulations. The Safety Plan will address construction, pipeline startup, and O&M. O&M safety is also addressed in Section 10.5.

7.11 WASTE MANAGEMENT

7.11.1 Waste Handling and Disposal

Proper waste management is necessary to provide for human safety and environmental protection. A Comprehensive Waste Management Plan (CWMP) will be developed and implemented to manage reusable materials, recyclable materials, non-hazardous waste, and hazardous waste that is generated by ASAP construction activities. The CWMP will follow BMPs so that waste is minimized, identified, handled, stored, transported, and disposed of in a safe and environmentally responsible manner, and in full compliance with applicable state, federal, and local laws and regulations.

Each worker, contractor, and vendor working on ASAP is individually responsible for performing daily work tasks in a manner that conserves resources, limits impacts to the environment, and minimizes waste generation. Details of how wastes are to be handled will be provided in the CWMP, including the following:

- Waste accumulation areas, including satellite accumulation areas, central accumulation areas, recyclable accumulation areas, and universal waste accumulation areas
- Management of recyclable metals, burnable wastes, and oily wastes
- Waste transport and disposal, including sampling (as necessary), profiling, and manifesting
- Wastewater treatment, including disposal of domestic wastewater and hydrostatic testing water
- Municipal waste treatment
- Waste fluid handling, including fuels and lubricants for equipment

The majority of solid waste will come from construction camps, and a spreadsheet showing calculations of pipeline camp waste is provided in Table 19.

Table 19. Estimated Solid Waste Generation for Alaska Stand Alone Pipeline Construction Camps by Season

CAMP LOCATIONS	PRE-CONSTRUCTION (TONS)	WINTER 1 (TONS)	SUMMER 1 (TONS)	FALL 1 (TONS)	WINTER 2 (TONS)	SUMMER 2 (TONS)	POST-CONSTRUCTION (TONS)	PROJECT TOTALS (TONS)
Spread 1	0	0	912	217	875	680	526	3,210
Spread 2	0	0	1338	1316	933	76	697	4,359
Spread 3	672	165	806	325	1012	649	390	4,017
Spread 4	438	0	970	664	685	359	389	3,504
Totals (tons)	1,110	165	4,026	2,522	3,505	1,764	2,002	15,090

Notes:
 (CH2M HILL, 2014)
 A conservative rate of 10 pounds of solid waste per person per day was assumed. (The large volume of wholesale packaging can double the 2012 USEPA rate of 4.38 pounds/person/day.)
 Pre-construction fly camps include main camp construction, survey, grading, clearing, hauling, and borrow site operations.
 Post-construction fly camps include demobilization of camps and equipment, and first-year ROW maintenance.

Other solid waste expected to be generated includes:

- Packaging material removed from pipe after it arrives in Fairbanks (this material will remain in Fairbanks)
- Construction dunnage on the ROW: Chocks, blocking, and lashing for pipe and components will be recycled/reused
- Packaging and small containers for materials such as pipe weld coating

Volumes for these miscellaneous wastes are not available at this time, but they will be minimal in comparison to the camp-generated waste.

During operations, the quantity of waste generated is expected to be small, with an estimate of 100 pounds per day based on 2 pounds per day for 50 people (10 in Prudhoe, 10 in Fairbanks, and 30 in Wasilla).

It is anticipated that, where possible, materials will be reused or recycled to avoid generating waste. Burnable and non-hazardous oily wastes will be incinerated to reduce waste volume at most camp locations. Suitable disposal facilities will be used to dispose of waste, depending on location and source of generation. Non-hazardous waste disposal sites, including landfills or monofills, will be feasible for this project. Non-hazardous waste disposal site requirements and locations were identified at:

- NSB Service Area 10 (Oxbow) Landfill – Deadhorse
- FNSB Landfill – Fairbanks
- DB Landfill – Anderson
- MSB Central Landfill – Palmer
- Kenai Peninsula Borough Central Landfill, Seward Transfer Station – Seward

- Galbraith Lake Monofill – Pipeline MP 143
- Five Mile Monofill – Pipeline MP 353
- Cantwell Monofill – Pipeline MP 562

Domestic wastewater from camps and hydrostatic testing water will be treated and discharged or otherwise disposed of in accordance with applicable permit stipulations. Hazardous waste will be accumulated and transported offsite for appropriate disposal at a licensed Resource Conservation and Recovery Act (RCRA) disposal facility. Waste disposal sites, including landfills or monofills, may be permitted for this project; however, requirements and potential locations have not yet been specifically identified.

7.11.2 Industrial Wastes and Hazardous Substances

Industrial wastes and toxic substances generated during pipeline construction and operations will be managed as part of the CWMP developed for the project. Specifically, industrial wastes and toxic substances generated during construction and operations activities will be managed in accordance with applicable federal, state, and local regulations. The primary federal regulations are contained in the applicable sections of 40 CFR, Parts 260 through 299, Solid Wastes (including hazardous waste management); 40 CFR Part 112, Oil Pollution Prevention; and 40 CFR Part 300, National Oil and Hazardous Substances Pollution Contingency Act. The primary State of Alaska regulations governing the management of oil and hazardous wastes are contained in 18 Alaska Administrative Code (AAC) 75, Oil and Other Hazardous Substances Pollution Control.

Note that Subpart 210(b) Regional Contingency Plans, of 40 CFR Part 300 presents the guidelines for the establishment of regional contingency plans under the National Response System. This ties directly to 18 AAC 75.495 Regional Master Discharge Prevention and Contingency Plan Boundaries, which requires the preparation of a Regional Master Oil and Hazardous Substance Discharge Prevention and Contingency Plan (MOHSDP&CP). The preparation of an MOHSDP&CP, as detailed in the Alaska regulations, is based on 10 distinct Alaska response regions. The ASAP route traverses the following three regions: Region 3, Cook Inlet; Region 10, the Interior Alaska Region; and Region 9, the North Slope Region.

An MOHSDP&CP for the ASAP project will be prepared in accordance with 18 AAC 75.495, applicable to these three response regions. This plan will be included as an appendix to the CWMP. It will present the procedures for the reporting and management of any spills or releases of industrial waste and hazardous materials. Key items in the plan will include the appropriate response agency contacts/facilitators, company facilitators, and identified response action contractors for each of the three response regions.

The MOHSDP&CP will identify the procedures that will be implemented for the management, control, and remediation of any spills or releases of industrial wastes or hazardous materials. The spill and release procedures will be designed for immediate implementation, and will use appropriate BMPs and other approved emergency actions so that spills or releases are controlled in the safest, fastest, and most effective manner possible, which will minimize environmental impacts to

the extent possible. Examples of BMPs will include the use of absorbent materials to cover or soak up spilled material; installation of straw wattles or straw bales to control the flow of spilled liquid materials; and use of appropriate equipment to construct temporary soil berms/dikes to contain the flow or spilled liquid material.

The MOHSDP&CP will also meet the requirements of a Spill Prevention Control and Countermeasures Plan as required by 40 CFR 112, Oil Pollution Prevention.

General Industrial Waste and Hazardous Materials Management

Construction and operations activities will require the use of various hazardous materials and will also generate industrial waste that must be properly managed to minimize potential impacts to the environment to the extent possible. Hazardous materials required for construction activities will be transported along existing roads, including the Dalton Highway and Parks Highway, and temporary roads, by licensed vendors in approved vehicles. These materials will be stored at 13 stationary camps and available support centers.

All hazardous materials, including fuels, petroleum products, and liquid and solid materials used during construction, will be stored in temporary containment facilities located at the 13 stationary camps and the two support centers. Containment facilities will be designed to contain at least 110 percent of the volume of the largest storage vessel in the specific facility. Types of materials that will be stored and used during construction at each of the stationary camps and support centers include:

- Diesel Fuel – Used for equipment operations and stored in tanks in amounts of approximately 80,000 gallons. This substance is combustible and will be stored in a compacted, soil-lined, and soil-bermed containment area.
- Gasoline - Used for vehicle operations and stored in tanks in amounts of approximately 20,000 gallons. This substance is flammable and will be stored in a compacted, soil-lined, and soil-bermed containment area.
- Propane - Used for heating and stored in tanks in amounts of approximately 30,000 gallons. This substance is flammable and will be stored in a compacted, soil-lined, and soil-bermed containment area.
- Petroleum Oils - Used for equipment operations and stored in 55-gallon drums. This substance is combustible and will be stored in a compacted, soil-lined, and soil-bermed containment area.
- Antifreeze - Used for equipment and vehicle operations and stored in 55-gallon drums. This substance is toxic and will be stored in a compacted, soil-lined, and soil-bermed containment area.

Industrial waste generated during construction activities will be stored on a temporary basis at the stationary camps or the support centers until it is removed by a licensed vendor for disposal under appropriate federal and state regulations. This waste material will be stored in temporary containment facilities designed to contain 110 percent of the largest containment vessel. Industrial waste will be removed from the stationary camps on a regular schedule to maintain compliance with

appropriate federal and state regulations regarding the storage of waste materials, and to minimize potential leaks or spills and associated potential environmental impacts.

8. RESOURCE VALUES AND ENVIRONMENTAL CONCERNS

This section summarizes resource values and environmental concerns for the pipeline route. Impacts to resources are expected to be temporary and localized, and associated primarily with the Construction phase.

8.1 LOCATION WITH RESPECT TO EXISTING CORRIDORS

The ASAP mainline route uses existing transportation and utility corridors where possible to reduce new ground disturbance. The proposed pipeline route lies adjacent to and often parallels the TAPS corridor, the Dalton Highway to Livengood, and the Parks Highway from just north of Nenana to approximately ASAP MP 697 near Willow. Much of the pipeline route lies outside of these ROWs in order to minimize total ground disturbance, minimize risks, and meet the standards of 49 CFR 192, Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards. Construction outside of the highway ROW corridors accommodates a pipeline WT that is durable, safe, and economical and that meets USDOT and PHMSA regulations.

8.2 ANTICIPATED CONFLICTS WITH RESOURCES OR PUBLIC HEALTH AND SAFETY

8.2.1 Air

The construction and operation of the ASAP project is not expected to have significant effects on air quality within the project area. The proposed project's emission levels will trigger new-source construction permitting either as minor source or major source permitting.

The proposed project's emission inventory is under development, but the primary air contaminants will include NO_x, CO, small-diameter particulate (particulate matter of 10 microns in diameter or smaller [PM₁₀] and particulate matter of 2.5 microns in diameter or smaller [PM_{2.5}]), Sulfur Dioxide (SO₂), and Volatile Organic Compounds (VOCs). These contaminants are collectively known as "criteria pollutants." The level of expected emissions will dictate whether the proposed project is permitted as a minor source or as a major source. The major source regulations require Best Available Control Technology (BACT) to reduce emissions. The major source regulations also require the applicant to demonstrate that the proposed project will not significantly adversely affect existing air quality.

Construction Phase

The proposed project will have a localized effect on air quality during the project Construction phase, primarily due to diesel-powered mobile construction equipment and, perhaps, some wind-blown dust during the summer construction season. These potential particulate matter impacts in the Fairbanks non-attainment area for PM_{2.5} from construction of the Fairbanks Lateral will be mitigated by BMPs for fugitive dust control and the use of Ultra-low-sulfur Diesel (ULSD) fuel by construction equipment. Since much of the proposed pipeline will parallel or share existing transportation corridors, including the Parks Highway and railroads, fugitive dust emissions will be managed as a public safety factor for people traveling on the highway and railroad. Some open burning may be conducted during construction and will be subject to applicable ADEC air quality regulations.

Construction activities will use measures to minimize short-term effects to air quality, including:

- Developing and implementing a Quality Assurance (QA)/QC program that tracks and assures implementation of all permit conditions associated with eliminating or reducing effects to local air quality
- Scheduling construction activities at times when there will be the fewest number of tourists or local residents engaged in outdoor recreation
- Reducing fugitive dust from construction traffic on unpaved roads
- Minimizing the number and location of permanent access roads
- Maximizing the use of snow and ice roads during pipeline construction
- Burning of slash at times when effects to air quality are minimized
- Using construction camp incinerators to dispose of only those materials that the incinerator is designed and permitted to burn

Operations Phase

The stationary facilities associated with the project will be located outside of the Fairbanks non-attainment area for PM_{2.5} and will neither directly nor indirectly impact the National Ambient Air Quality Standards (NAAQS) or Alaska Ambient Air Quality Standards (AAAQS) for particulate matter. Effects from operation of the proposed project on air quality will be due to combustion products from natural-gas-fired equipment located at the GCF and from venting small quantities of hydrocarbon vapor at other select locations along the pipeline. Environmental effects of emissions from these facilities are likely to be minimal because hydrocarbon venting is expected to occur only during abnormal operations. Additionally, the GCF may require implementation of control technologies to reduce emissions and demonstrate compliance with NAAQS and AAAQS.

Smaller internal combustion equipment will be required for power generation and refrigerant compression. All gas-fired equipment will be fitted with BACT to reduce emissions as appropriate for the particular equipment and governing codes and standards.

The criteria pollutants emitted will result in an insignificant regionalized effect on air quality with respect to NAAQS and AAAQS. Hazardous Air Pollutants (HAPs) from the facilities should be

less than applicable USEPA/ADEC HAP regulatory thresholds. HAP applicability will be confirmed as part of the emissions inventory. The facilities will result in CO₂ emissions that will be quantified as part of the proposed project emission inventory.

The facility emissions, depending on their location and size, could possibly have an effect on visibility by producing a visible vapor cloud during cold weather. Location of permanent facilities will consider local air quality requirements. Special attention was given so that facilities do not cause significant long-term effects on the designated Class I airshed for DNP&P and Gates of the Arctic National Park and Preserve, and to local communities. This special attention was also given to public recreation areas, such as BLM recreation sites in the Transportation and Utility Corridor through the Brooks Range southward to the Yukon River, similar state and local facilities located along the Elliott and Parks Highways, and to the DNP&P.

Project maintenance-related activity, primarily from vehicle traffic, will result in a smaller, localized, insignificant effect on air quality.

Potential Effects

Potential effects from operation of the GCF include increases in ambient concentrations of Nitrogen Oxides (NO_x), Ozone (O₃), and Carbon Monoxide (CO) from the fuel combustion process. Increases in Greenhouse Gas (GHG) emissions (for example, CO₂) will also occur as a result of diesel-fuel combustion. Increases in particulate matter (PM₁₀ and PM_{2.5}) emissions will likely occur from construction activities and from operation of diesel-fueled combustion equipment at the camps. Minor increases in SO₂ and VOC emissions from construction equipment will also occur.

Mitigation

Mitigation measures that can be implemented to address effects on public health and safety include:

- Implementation of BMPs during construction activities to mitigate fugitive dust and reduce particulate matter emissions
- Use of BACT for combustion equipment to mitigate NO_x and CO emissions
- Use of ULSD fuel for construction equipment and non-natural-gas combustion equipment to mitigate emissions of SO₂, particulate matter, and VOCs
- Operation of all combustion equipment in accordance with manufacturer's specifications to mitigate NO_x, CO, VOC, and particulate emissions resulting from incomplete combustion
- Maintenance of emissions control equipment in accordance with manufacturer's specifications to mitigate emissions and maintain emission control efficiency

At present, there are no USEPA-approved control technologies available for GHG emissions mitigation on construction and combustion equipment. These technologies are currently in the research and development phase, can be used for mitigation once these technologies are available, and can be evaluated as part of BACT.

8.2.2 Noise

Noise sources within the boundaries of the ASAP are expected to be temporary and localized during construction. Noise sources during O&M will be limited to activities associated with O&M of the pipeline facilities. Measures to comply with requirements for noise abatement will be implemented.

Construction Phase

Increased noise levels during project construction activities will be localized and transitory as construction activity proceeds along the proposed 727-mile pipeline length. The primary sources of construction-related noise include diesel-powered mobile equipment, pipe installation, and construction worker verbal communication. Noise will be associated with winter construction activities at West Dock when marine mammals and fish are not present.

Operations Phase

The proposed project should have little to no effect on the surrounding areas. Much of the area adjacent to the route is undeveloped with low ambient noise levels. Noise generated at the GCF may include noise from compressors, boilers, generators, and heaters. In addition, there will be noise during O&M from vehicles on access roads and nearby highways, and equipment operating at material sites. There may be some additional, short-term noise increases resulting from vehicle traffic and small, fixed-wing aircraft and helicopters during maintenance and surveillance activities.

Potential Effects

The potential effects from noise could include:

- Short-term increases in ambient noise levels from construction activities – trucks bringing materials, heavy equipment trenching and moving pipe, human interactions (radios, conversations), and workers' private vehicles
- Minor and localized noise from project-maintenance-related activity, primarily from vehicle traffic
- Fixed-wing aircraft and helicopter traffic

Mitigation

Mitigation measures that can be implemented to address noise effects include:

- Development and implementation of a Noise Abatement Program
- Development and implementation of a Construction Communications Plan to inform adjacent residences of construction activities

8.2.3 Geologic Hazards

The benefit of undertaking a geologic hazard assessment of the route is so that effective design, construction, and operational mitigation measures are in place to reduce the potential for pipe integrity issues and the number of non-routine maintenance interventions. To the extent possible, known geologic hazards will be taken into account in the selection of final pipeline routing, and final pipeline and facility design. A geologic hazard is defined as a naturally occurring or project-induced geological, geotechnical, or hydrogeological phenomenon that could load the pipeline, causing a pipeline integrity concern, or that could impact the ROW, causing an environmental concern.

Potential Effects

The potential effects from geologic hazards could include:

- Freezing of unfrozen ground
- Thawing of permafrost terrain
- Landslides
- Tectonic/seismicity
- Hydrotechnics/watercourse hydraulics
- Erosion
- Geochemical effects
- Unique soil structure

Mitigation

Mitigation measures that could be implemented during construction and O&M to address effects of geologic hazards on the integrity of the project include:

- Design Considerations:
 - Special installation techniques and foundations
 - Earthquake mitigation measures and special design considerations at fault crossings
 - Special design considerations at river crossings
 - Erosion control measures
- Operational Considerations:
 - Slope stability monitoring
 - Seismic/earthquake monitoring
 - River hydrology monitoring
 - O&M Manuals
 - QA Manual
 - Inspection Services Manual
 - Design Basis updates
 - Surveillance Manual
 - Other controls to be determined

8.2.4 Mineral and Energy Resources

There are areas along the proposed route that may be used for mining activities, both recreational and commercial. Recent exploration mining by International Tower Hill Mines Ltd. in Interior Alaska near Livengood has identified potential large-scale mineral resources. There are a significant number of mining claims in the vicinity of Wiseman, adjacent to Gates of the Arctic National Park and Preserve. Additional research will be required to identify mining claims along the proposed route and identify active claims. Further coordination with mining interests will occur once the specific route is identified and negotiations for access are filed.

Potential Effects

The potential effects from mineral and energy resource development could include:

- Potential gas source to provide energy in support of mining operations
- Potential increased access opportunities, which should be examined, and potential conflicts with mining

Mitigation

Mitigation measures that can be implemented to address effects on mineral and energy resource development activities include:

- Development and implementation of a Construction Access Plan and Traffic Control Plan, including coordination with mining operators and adjacent landowners

8.2.5 Paleontological Resources

Paleontological resources are fossilized remains, imprints, and trace fossils of plants and animals used to study past organisms and ecosystems. Effects on paleontological resources are permanent and irreversible. Ground-disturbing activities have the potential to adversely affect paleontological resources, particularly if those activities extend below alluvial deposits or deep soils and into sedimentary bedrock.

Fossils are protected by the Antiquities Act of 1906, as they are non-renewable resources. In addition, fossils on federal lands are protected by the Federal Land Policy and Management Act of 1976. The Paleontological Resources Preservation Act was passed into law on March 30, 2009, and requires the management and protection of paleontological resources on federal land by the Secretaries of the Interior and Agriculture (16 U.S. Code [U.S.C.] 470). Specific provisions for the various land-managing agencies reinforce policies regarding the collection and curation of paleontological resources and the confidentiality of location information. Fossils associated with archaeological sites and large caves are protected by the Archaeological Resources Protection Act of 1979 and the Federal Cave Resources Act of 1988. The Alaska Historic Preservation Act (AHPA) protects paleontological resources in Alaska.

Construction Phase

There are currently no known paleontological sites listed in the *Alaska Heritage Resource Survey* (AHRs) database (State of Alaska, 2014) within the ASAP route. However, for the segments of the project route south of Livengood, studies may be required prior to commencement of construction to determine the presence of bedrock units known to contain fossils within the ASAP route, as well as evaluations of shallow bedrock and near-surface alluvium for the potential to yield fossils.

Potential Effects

The potential effects on paleontological resources could include:

- Ground-disturbing construction activities, such as trenching, grading, and excavation
- Development of workpads, PSYs, camps, fuel storage sites, materials storage sites, and disposal sites, and the placement of fill materials over the resource

Mitigation

Avoidance is the preferred mitigation measure. If permanent effects are unavoidable, they should be mitigated in accordance with requirements of the appropriate agencies and applicable laws. If any known or previously undiscovered paleontological resources are encountered during construction activities, the owner/operator will be required to contact the State Historic Preservation Office (SHPO) (if on state lands) and the Authorized Officer (AO) responsible for paleontological and cultural resources if on federal land. A qualified Paleontological Monitor may be required to be onsite during construction near known paleontological resources, or areas where the likelihood of finding such resources is high.

While paleontological studies will be performed prior to beginning construction activities, there is always the possibility that cultural resources will be discovered during the project. An Unanticipated Cultural Discoveries Plan will be developed to outline the exact procedures that will be followed in the event of an unanticipated paleontological discovery.

8.2.6 Soils

Soil characteristics along the proposed pipeline generally consist primarily of weathered bedrock, glacial till and outwash, fluvial sand, silt and clay, lacustrine silt and clay, colluviums, and wind-blown silt and fine sand. Physiographic regions crossed by the route are discussed in this section.

Arctic Coastal Plain Region

The Arctic Coastal Plain soils are composed primarily of organic silt several feet thick over coarse sands and gravel, with massive ground ice present. The project lies adjacent to the Sagavanirktok River, but does not cross it. Its braided floodplain is principally unvegetated coarse-grained alluvium. Previously deposited sandy silt may line sand and gravel in the river channel remnant of former floodplains. Cold, continuous permafrost underlies the Arctic Coastal Plain, averaging temperatures less than 19°F with a thickness of 670 to 2,150 feet. At shallow depths, the soil is ice-rich

and primarily frozen, but still susceptible to seasonal thawing. Lakes and river channels with depths greater than 6 feet may insulate the underlying soil enough to develop thaw bulbs (BLM, 2002).

Arctic Foothills Region

The Arctic Foothills are composed of coarse-grained, glacial deposits of a mixture of clay, sand, gravel, and boulders. These moraines are often covered with windblown silt, while thaw ponds and basins are partially filled with colluvia, and rich peat and organic-rich slopewash deposits partially fill upland, flat-floored depressions. Cold, continuous permafrost also underlies the Arctic Foothills, again averaging temperatures less than 19°F. Till in the region may be compromised by massive ground ice locally totaling up to 50 percent of its volume. As on the Arctic Coastal Plain, the Sagavanirktok River insulates the surrounding ground, creating discontinuous permafrost adjacent to the active channel and thaw bulbs beneath the water. Permafrost becomes more continuous as distance from the Sagavanirktok River increases (BLM, 2002).

Brooks Range Region

The Brooks Range is underlain with coarse-grained sand and gravel in the Atigun and Dietrich River Valleys. Cold, continuous permafrost can be found throughout the Brooks Range, except in alluvium beneath major active river channels. The depth of permafrost is greater in the northern areas of the Brooks Range than in the southern area, and is also greater in soils with larger grain sizes. Ground ice is less than 15 percent of the total volume in fluvial silt and sand, while it may be up to 95 percent of the total volume in lacustrine silt and clay, especially near Galbraith Lake (BLM, 2002).

Chandalar Ridge and Lowland Region

Deposits of coarse-grained glacial till exist in the Chandalar Ridge and Lowland regions. Near the main channels of the Middle Fork Koyukuk and South Fork Koyukuk Rivers, coarse-grained and glacial fluvial sediment deposits are found, while fine-grained silt and clay of eolian and lacustrine origin are found over coarse-grained till away from the main channel. Discontinuous permafrost with temperatures between 26 and 30°F is found underlying this section. Permafrost is generally absent under unvegetated floodplains, but old floodplains may be underlain with permafrost 5 to 50 feet thick. The lowlands between the Koyukuk River forks realize well-developed thaw lakes in the silts present there (BLM, 2002).

Kokrine-Hodzana Highlands and Yukon-Tanana Uplands

Residual soils, a few feet thick, from weathering bedrock are dominant on hilltops away from the Tanana and Yukon Rivers. The soil at the bottom of valleys can be up to 40 feet thick and comprise a combination of colluviums, fluvial sands, gravel, and weathered bedrock. Windblown silt is common over coarse-grained subsoil in the uplands and deposited from floodplains. Discontinuous permafrost is found here with average temperatures between 26 and 30°F. Permafrost is absent near major streams. Old floodplains may be in the process of creating new permafrost because of the migration of the rivers. Thermokarst lakes are common in valley bottoms, where ice-rich soils freeze at depths of up to 50 feet (BLM, 2002).

Ray Mountains

The Ray Mountains are composed of an overlapping series of compact ranges that move in an east-west direction and are underlain by the Ruby terrain. Metamorphic bedrock in the area is generally covered in rubble, which results in shallow and rocky soils. Permafrost is primarily discontinuous and varies in thickness from thin to moderate (Ferrians, 1998).

Cook Inlet Basin

The Cook Inlet Basin is gradually sloping lowland and characterized by past glacial influence. Accordingly, the Cook Inlet Basin floor is composed of fine-textured lacustrine deposits surrounded by lesser amounts of coarse-textured glacial tills and outwash. The basin contains numerous lakes, ponds, wetlands, and several river systems. The area is generally free of permafrost and has a mix of maritime and continental climates, which means moderate fluctuations of seasonal temperature and abundant precipitation.

Potential Effects

The construction and operation of the ASAP is not expected to have significant effects on soils within the project area. Most of the potential effects are expected to be minimal and limited to a short period during construction. Effects on soils are likely to be limited to erosion and production of stormwater runoff.

Mitigation

Mitigation measures that can be implemented to address effects on soils include:

- Development and implementation of an Erosion Control Plan (Section 7.4.3)
- Development and implementation of an SWPPP (Section 7.4.3)

8.2.7 Water Resources

The construction and operation of the ASAP are not expected to have significant effects on surface waters or groundwater within the project area. Most of the potential effects on groundwater and surface waters are expected to be minimal and limited to a short period of time during construction. Disturbed areas will be returned to pre-project contours and revegetated with native vegetation to maintain surface drainage patterns. Groundwater drainage patterns should also re-establish immediately after construction activities and site restoration are completed. BMPs and mitigation measures will be used to minimize long-term effects on both groundwater and surface water within the project area. The ASAP is not crossing any waterways included in the list of Alaska Impaired Waters (ADEC, 2010).

Direct Effects

The ASAP mainline will cross an estimated 359 waterways and drainages, of which 27 are major streams, 61 are anadromous fish streams, and an additional 7 were nominated for inclusion in the ADF&G Anadromous Waters Catalogue.

Pipeline construction will not result in long-term alterations to stream flow, stream profile, or structural components of streams and other waterbodies crossed by the pipeline. For most stream crossings, short-term disturbances will be limited to the actual construction disturbances. Streambeds, streambanks, and riparian areas will be restored to pre-project contours and configurations to the maximum extent possible. Streambanks and riparian areas will be revegetated to prevent erosion and to maintain streambank stability. The pipeline will be buried to a depth that provides a minimum of 5 feet of cover at each stream crossing to minimize potential for streambed scour.

Potential Effects

Maintaining the existing thermal regime is an important factor in limiting impacts to water resources and water-dependent resources. As described earlier in Section 4.3, the temperature of the proposed mainline and Fairbanks Lateral pipelines will change seasonally, with temperatures closely approaching seasonal temperatures of the surrounding ground. Use of chilled pipelines or pipelines maintained at a higher temperature than surrounding soil temperature is not ideal. A chilled pipeline will create ice damming along streams and waterways or thick layers of ice formed by successive freezing of stream overflow (aufeis fields). This could result in a reduction of water flow downstream, diversion of water outside of existing stream channels, or storage of water in aufeis fields. A chilled pipeline may also reduce the water temperature at stream crossings, affecting fish behavior or causing direct effects on fish habitat (delaying hatching of fish eggs). A pipeline that is maintained at a higher temperature than the surrounding soils and waters it passes through can also result in negative impacts. The most obvious is melting permafrost soils.

The pipeline will be operated at below-freezing temperatures in predominantly permafrost terrains to protect the thermal stability of the surrounding ground. Similarly, the pipeline will be operated at above-freezing temperatures in predominantly thawed ground settings so as not to create frost bulbs around the pipe that could lead to frost-heave displacement of the pipeline or adverse hydraulic impacts on drainages crossed by the pipeline.

Mitigation

Mitigation measures that can be implemented to avoid or minimize adverse effects on surface water and groundwater include:

- Minimize the number of river and stream crossings, as follows:
 - Use existing bridges where feasible.
 - Use HDD where other crossing methods are not feasible.
- Maintain, to maximum extent practicable, the existing surface hydrology at all waterbody crossings, as follows:
 - Prevent discharges that have the potential to adversely affect waterbodies.
 - Stabilize cut slopes immediately when the designed grade is obtained.
 - Initiate reclamation of disturbed areas as soon as practicable.
 - Verify water withdrawals meet federal and state standards and guidelines.
- Keep construction activities within the footprint of the pipeline ROW and the disturbed area of the adjacent construction zone to the maximum extent practicable.

- Minimize the construction of new permanent access roads by emphasizing winter construction using snow-ice roads.
- Perform water crossings in a manner that minimizes effects on water quality, as follows:
 - Use materials for dam construction that do not introduce sediment or other harmful substances into waters when using the open-cut isolation method.
 - Use materials for the flume pipe system that do not introduce sediment or other harmful substances into waters when using the open-cut isolation method.
 - Position flume pipe system discharges to prevent erosion or scouring.
- Minimize the effect of the pipeline on the existing thermal regime as follows:
 - Use engineering controls, such as insulation and non-frost-susceptible fill, to control the thermal signature of the pipeline.
- Implement dewatering practices that avoid adverse effects to vegetation and to existing quality of surface waters, including erosion and scouring.
- Locate fuel storage, equipment refueling, and equipment maintenance operations at least 100 feet from surface waters.
- Avoid contaminated sites.
- Use temporary bridges for transportation of construction equipment and materials.

8.2.8 Wetlands and Vegetation

Wetlands

Wetlands evaluation for the ASAP began in 2008 with a reconnaissance survey of the pipeline alignment. Pre-mapping of the route and a limited fieldwork program were completed in 2009. The 2009 effort included field survey of the route in the Minto area. The results of the 2008 and 2009 fieldwork and pre-mapping were submitted in *Wetland Technical Report In-State Gas Pipeline Project Prudhoe Bay to Wasilla, Alaska, April 2010 (POA 2009-651)* submitted to the USACE in April 2010 (AES, 2010).

For purposes of evaluating wetlands along the ASAP in 2010, a fieldwork planning corridor spanning 2,000 feet (1,000 feet each side of the centerline) was established through aerial photo interpretation, wetlands pre-mapping, and desktop analysis, and through discussions and meetings with the USACE. Once pre-mapping of the corridor was completed, wetland determination points were identified: where the wetland classification through pre-mapping appeared inconclusive, where there were problematic wetland/upland boundaries, or for those wetlands that lacked National Wetland Inventory (NWI) coverage. These determination points were uploaded to a Global Positioning System (GPS) device for field data collection.

A total of 121 field observation data points were visited between 2008 and 2009 using data collection protocol evaluated and accepted by the USACE. A total of 399 data points were visited in 2010. All wetland areas were mapped to the Cowardin subclass level with added hydrologic modifiers (for example, PSS1B). Other site-specific data collection protocol followed the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region*. (USACE, 2007), and the Magee protocol for assessing wetland functional capacity (Magee, 1998). This wetland mapping approach allowed

incorporation of all wetland types within the entire 2,000-foot-wide corridor to be classified, while concentrating field efforts on verification of wetland types within the 300-foot-wide analysis corridor (150 feet each side of the centerline), which allows for adjustments to the pipeline alignment to avoid wetlands, if determined practical and feasible.

The *2010 Wetland Preliminary Jurisdictional Determination Report* includes results of field studies from 2010 and was submitted to USACE in March 2011 (AES, 2011a). Based upon this report and the *2009 Wetlands Technical Report* submitted in April 2010 (AES, 2010), the USACE provided a Preliminary Jurisdictional Determination (PJD) on June 10, 2011 (AES, 2011a).

Additional data were collected during a 2011 field investigation to fill data gaps resulting from minor alignment shifts and to provide additional data the USACE requested in their June 2011 PJD. A total of 118 additional data points were visited in 2011. The data were included in a March 2012 *Wetlands and Waters of the United States Delineation Report to Supplement the March 2011 Preliminary Jurisdictional Determination* (AES, 2012a).

The wetlands mapped along the route were divided into wetland type based on the NWI classification systems, as represented in Table 20. Acreage represents mapped wetlands in the 300-foot corridor. The total acreage affected by the project is expected to differ from the totals due to the project planning and mitigation efforts. Planning efforts to avoid wetlands by shifting the pipeline alignment or the use of HDD will reduce the affected acreage of wetlands.

Table 20. Wetlands Impacts for the Alaska Stand Alone Pipeline Survey Corridor

WETLAND TYPE	APPROXIMATE ACREAGE ^a	APPROXIMATE PERCENT
Freshwater Forested/Shrub Wetland	10,115.1	66.2
Freshwater Emergent Wetland	4,877.4	31.9
Riverine	206.7	1.4
Freshwater Pond/Lake	74.1	0.5
Total	15,273.4	100.0
a. Values are for a linear distance of mainline and Fairbanks Lateral times the 300-foot wetlands survey corridor		

A field season was conducted in 2012 to collect data along the proposed access road alignments located outside the 2,000-foot planning corridor, and to fill in large spatial gaps in existing data.

Potential Effects

The construction and clearing activities associated with the ASAP will have both direct and indirect effects on wetlands and vegetation. Effects related to pipeline and facilities construction will be categorized as either temporary or permanent. As the majority of the proposed pipeline will be buried, most permanent effects are expected to be limited. An example of direct and permanent impacts to a wetland area are draining and filling for construction activities, roadways, pipeline location placement, and construction of the GCF. Temporary effects on wetlands and vegetation

during construction include clearing, grubbing, and trenching activities associated with the laying of pipe.

Mitigation

The permitting process for placing fill in wetlands requires compliance with the mitigation steps outlined in the NEPA to maintain wetland functions. These steps include:

- **Avoid:** A wetland should not be affected if there is a less environmentally damaging practicable alternative.
- **Minimize:** Unavoidable effects should be minimized to the extent possible.
- **Compensate:** Any remaining effects should be offset, if practicable and appropriate, through restoration, enhancement, creation, preservation actions, or a combination.

Mitigation options will be developed collaboratively with the USACE. Site-specific BMPs will be defined and applied as means of mitigation. Overall, mitigation measures will likely be geographically dependent, as some procedures will have a greater efficacy toward the northern end of the proposed pipeline corridor, whereas others might be better suited to the southern portions. Traditional construction methods can help avoid significant effects on wetland habitats and will likewise avoid long-term effects on wetland functions and values if mitigation measures are implemented. Traditional wetland mitigation measures may include the following:

- Schedule pipeline construction across wetlands during the winter to the maximum extent practicable.
- Avoid and minimize ground-disturbing activity in wetland habitats, as follows:
 - Limit grading except for trenching, to the maximum extent practicable to preserve root systems.
 - Maintain slope stability.
 - Use mats or other types of mitigation during non-winter construction to prevent rutting.
 - When possible, locate permanent facilities, including access roads and workpads, outside of wetlands.
 - Reduce construction ROW width across wetlands as practical.
- Maintain existing hydrologic systems.
- Re-establish vegetation that is typical of the general area, where practicable, as follows:
 - Segregate topsoil and use as top trench fill to the greatest extent practicable.
 - Reseed and revegetate affected areas upon completion of construction activities.
- Minimize the number of stream crossings.
- Use existing bridges or HDD when crossing streams.
- Contain fuel and lubricant spills during construction.
- Remove the top vegetative layer of the wetland with a backhoe or similar equipment, and set aside separately from the subsoil spoils. The vegetative mat will be placed on top of the ditch as the last layer.
- Develop a Non-native Invasive Plant Prevention Plan, which will address procedures to reduce and eliminate the spread of non-native invasive plants.

Vegetation

The ASAP route traverses a variety of vegetation types, from arctic tussock tundra in the north to taiga in the interior and south. Arctic tundra and alpine tundra areas are distinguished by cold climates, short growing seasons, and low vegetation dominated by grasses, sedges, mosses, and lichens. Taiga, or boreal forest, stretches across much of Alaska and is distinguished by trees of moderate height, including conifer forests, marshes, and bogs. The southernmost area of the ASAP is typically covered by deciduous trees, such as aspen, cottonwood, and birch.

Potential Effects

Direct impacts to vegetation will be from brush clearing of the ROW and removal of the vegetative mat during grading. These effects are expected to be short-term and transitory, only occurring during construction activities. Upon completion of construction activities, remediation, rehabilitation, and restoration of all ground-disturbed areas associated with the pipeline construction will be implemented, as discussed in Section 9.

A potential effect of the project is the introduction of non-native invasive plants or non-native weeds. These are plant species that were introduced to an area where they did not naturally evolve. Some non-native invasive plants can produce significant changes to vegetation, composition, structure, or ecosystem function. A total of 332 non-native invasive plants are currently being tracked in Alaska (AKEPIC, 2014). It is typically more effective to prevent the introduction and spread of non-native invasive plants than to attempt to control infestations.

Mitigation

Mitigation measures that can be implemented to prevent the introduction and spread of non-native invasive plants include a Non-native Invasive Plant Prevention Plan, which will address procedures to reduce or eliminate the spread of non-native invasive plants at project locations, such as airports (particularly at gravel airstrips), material sites, and temporary use areas, such as PSYs and camps. Restoration of cleared areas will also be addressed in the Non-native Invasive Plant Prevention Plan. Leaving cleared areas unrestored may present an opportunity for non-native invasive plants to establish a foothold without competition from local species. More information about rehabilitation and restoration is provided in Section 9. The Non-native Invasive Plant Prevention Plan will provide details of the measures to be used to control invasive species through appropriate site preparation, monitoring, revegetation of disturbed areas with native species, and performance standards. Additional mitigation measures that can be implemented to minimize effects on terrestrial vegetation include:

- Develop and implement a stabilization, rehabilitation, and restoration plan following ADNR's *Plant Materials Center Revegetation Manual for Alaska* (Wright, 2009) in consultation with the BLM.
- Implement BMPs during construction to reduce fugitive dust, which will minimize dust deposition on vegetation adjacent to construction work areas.
- Develop and implement an SWPPP.

- Re-establish vegetation that is typical of the general area, where practicable, as follows:
 - Segregate topsoil and use as top trench fill to the greatest extent practicable.
 - Reseed and revegetate affected areas upon completion of construction activities.
- Contain fuel and lubricant spills during construction.

8.2.9 Fisheries Resources

The ASAP mainline will cross an estimated 359 waterways and drainages, of which 61 are confirmed anadromous fish streams or were nominated for inclusion in the ADF&G Anadromous Waters Catalogue. Along the ASAP route, fish are an important subsistence and recreational resource. Furthermore, the construction and use of West Dock during GCF module offload will take place in a migration path of anadromous fish. A listing of potentially sensitive areas and fish habitat along the proposed route is found in Attachment 6.

Potential Effects

There could be temporary and localized effects on fisheries resources from ASAP construction, depending on the construction methods used. However, a long-term effect on fish populations is not expected from pipeline operations or construction and module offload at West Dock. Probable short-term effects that may occur are alteration or loss of fish habitat and temporary obstructions to fish passage during construction. Temporary loss of habitat may result from diverting rivers or stream channels, removing riparian vegetation, excavating stream-bed materials, or altering the water quality.

So that habitat impacts do not cause direct mortality to fish, fish population size, and fish habitat, ADF&G permits are required under AS, Title 16, which protects freshwater habitat in streams and rivers that support anadromous fish. The ADF&G has developed effective standards and practices to protect fishery resources during sensitive periods. Each crossing will be evaluated for fishery resources, and the proposed crossing technique will be developed cooperatively with the ADF&G to avoid adverse effects to fish and fish habitat.

Mitigation

Mitigation measures that can be implemented to minimize effects on fish include:

- Follow mitigation measures for water quality identified in Section 8.2.7.
- Schedule the timing of construction and offloading activities from barges at West Dock to mitigate against impacting fish.
- Minimize the number of fish stream crossings where practicable.
- Use open-cut isolation methods for stream crossings at locations where an open-cut is prevented by overwintering and spawning fish, or where stream flow conditions make open-cut impractical.
- Follow the Blasting Control Plan as identified in Section 7.6.3 that will be developed in accordance with ADF&G blasting standards to protect adult fish, juvenile fish, and developing fish eggs when blasting activities occur in or near streams.

- Use existing bridges or HDD.
- Use pipeline designs and construction scheduling that minimize disruption of fish passage and spawning fish, and effects to fish habitat.
- Develop supplemental site-specific fishery data to fill data gaps for the design of fish stream crossings and for lakes where water will be withdrawn during the winter for snow/ice road construction and maintenance during pipeline construction.
- Maintain to the maximum extent practicable existing stream hydrologic regimes at fish stream crossings.
- Maintain to the maximum extent practicable existing temperature regimes along the corridor.
- Use construction methods and reclamation of disturbed areas that eliminate or reduce the potential for erosion and sedimentation reaching fish streams.
- Minimize cumulative effects to surface hydrology, stream bottom, and stream bank habitats when the pipeline crossing of a fish stream is downstream from an existing stream crossing by the highway, the TAPS, or other buried utility system.
- Use temporary bridges for transportation of construction equipment and materials.
- To the maximum extent practicable, locate material storage, refueling activities, fuel, and related liquid storage at least 100 feet from the bank of a fish stream.
- Implement hydrostatic testing in a manner that minimizes the potential that freeze depressants could be inadvertently discharged to fish-bearing waters.
- Assure water withdrawals use appropriately sized fish screens and other state and federal guidelines for fish protection.
- Complete instream pipeline construction in 1 to 3 days from start of construction.

8.2.10 Wildlife Resources

Wildlife resources are widely distributed along the proposed route. Construction and O&M activities will affect wildlife resources; however, the effects are likely to be short-term and localized. A listing of wildlife, habitat, and periods of sensitivity along the proposed route is found in Attachment 6.

Potential Effects

Potential effects on wildlife are likely to be associated with construction activities and will be temporary and localized. Individual animals are expected to be potentially affected and not the entire population. The potential short-term effects on wildlife during construction include:

- Temporary disturbance/displacement resulting in short-term changes in habitat use and short-term changes in behavior
- Temporary habitat loss or alteration
- Obstruction to movement
- Death/injury to animals due to collisions with vehicles

In general, long-term effects on wildlife from the ASAP are not expected. However, increased access to remote areas with the addition of access roads could lead to increased human use of the area for hunting.

Mitigation

Mitigation measures that could be implemented to address wildlife resources include:

- Avoid locating pipeline facilities in sensitive wildlife habitats to the maximum extent practicable.
- Schedule construction activities to avoid effects during sensitive periods in the life cycle of wildlife to the extent practicable, including scheduling excavation activities during times of the year when major movements (that is, migrations) across the ROW occur.
- Minimize the duration of open-ditch construction activities to mitigate the risk of animal entrapment in an open ditch.
- Develop systems or mechanisms to facilitate escape of wildlife from the pipeline trench in the event wildlife becomes trapped (for example, escape ramps).
- Develop a Blasting Control Plan as identified in Section 7.6.3 in accordance with ADF&G blasting standards to protect wildlife. A Blasting Control Plan is particularly necessary if blasting is required in sensitive areas or during sensitive life stages for wildlife.
- Use methods to avoid attracting wildlife during construction camp operations and pipeline facility construction activities.
- Adopt motor vehicle and aircraft procedures that minimize disturbances to wildlife.
- Identify and then avoid or minimize situations where wildlife may be killed in defense of life or property.
- Avoid or minimize construction and operational activities during sensitive periods in life cycles, such as moose and caribou calving, bear denning, raptor nesting, and migratory bird nesting.
- Limit public access to ROW for recreation or hunting by blocking entry areas with large boulders, berms, or fencing.
- Rehabilitate pipeline construction access roads in a manner that allows public access and consistent safe operation of the pipeline system, and that is in accordance with the plans of the landowner/land manager.
- The following plans will be developed prior to construction activities, and followed during construction and operations to minimize human interactions with wildlife:
 - Wildlife Interaction and Habitat Protection Plan
 - Blasting Control Plan identified in Section 7.6.3 that follows ADF&G standards protective of wildlife in sensitive areas or during sensitive life stages
 - Bear Avoidance and Human Encounter/Interaction Plan
 - CWMP, to assure the appropriate handling and disposal of wastes, minimize human/carnivore interaction, and discourage wildlife presence and feeding opportunities
- Where VSMs will be used to elevate the pipe, a minimum of 7 feet of clearance from ground surface to the bottom of the pipe will be maintained for wildlife movement.

8.2.11 Sensitive, Threatened, and Endangered Species

A variety of federal regulations provide protection for designated species in Alaska. Regulations relevant to the proposed pipeline include the Endangered Species Act (ESA) of 1973, the Marine Mammal Protection Act, the Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act. In addition to these federal regulations, the State of Alaska has lists of endangered species (5 AAC 93.020) and species of special concern.

Species included in this discussion are either listed under the ESA, have previously been listed, or are considered a species of special concern by the State of Alaska or BLM.

Threatened and Endangered Species

The pipeline route is located within an area that provides habitat for some species that were federally listed as threatened. There are no endangered species that occur near the route.

Polar bears (*Ursus maritimus*) and beluga whales (*Delphinapterus leucas*) are found near the planned project area. Polar bears were listed as threatened under the ESA on May 15, 2008 (Federal Register 73: 202 [76249]) and may occur in the vicinity of the proposed pipeline alignment. Currently, there is no critical habitat designated for the polar bear. Cook Inlet beluga whales were listed by the NMFS as endangered under the ESA on October 22, 2008 (Federal Register 73:205 [62919]). A final rule for designation of critical habitat was published in the Federal Register on April 11, 2011 (Federal Register 76:69 [20180]).

This project is not expected to affect polar bears and beluga whales, nor the subsistence harvests of these animals. Polar bears may be temporarily displaced by the operation of heavy equipment during winter dredging, dock construction, and pipeline construction activities at the northern portion of the pipeline route near Prudhoe Bay. Polar bears den nearshore or onshore during winter, and appropriate mitigation measures will be in place to limit any disturbance or encounters with denning bears. The temporary displacement of polar bears is expected to have no effect on the present subsistence harvest of polar bear by Alaska Natives. Construction and operations activities are not planned to occur in Cook Inlet. This project is not expected to affect Cook Inlet beluga whales, which are not harvested for subsistence.

Bowhead whales (*Balaena mysticetus*), which were listed as endangered under the ESA in 1970 (Federal Register 35: 233 [18319]), migrate past Prudhoe Bay and West Dock in the spring and fall. Construction and dredging at West Dock will occur in winter when the bowhead whales are not present in the area; thus, the ASAP will not impact the whales or subsistence activities. Module offload during summer is planned to occur between the spring and fall migrations; therefore, are not expected to affect migrating bowhead whales or subsistence activities.

Fin whales (*Balaenoptera physalus*) and humpback whales (*Megaptera novaeangliae*) are listed as endangered under the ESA (Federal Register 35: 233 [18319]), but are not expected to occur in the

project areas in Cook Inlet or Prudhoe Bay. They may occur near the port in Seward and be temporarily displaced by vessel traffic. Their temporary displacement is expected to have no effect on these species, which are not harvested for subsistence.

Ice seals make dens on sea ice, which may occur in areas of winter activity during construction and dredging near West Dock. Ringed seals (*Phoca hispida*) and bearded seals (*Erignathus barbatus*) were recently listed as threatened under the ESA on December 28, 2012 (Federal Register 77:249 [ringed: 76706; bearded: 76740]). No critical habitat has been designated for either seal species.

Pacific walrus (*Odobenus rosmarus divergens*), an ESA candidate species, may occur in the Beaufort Sea, but are not as common as other marine mammal species near Prudhoe Bay. Walrus migrate south to the Bering Sea during winter; therefore, construction and dredging will not affect them. If present in the area, walrus may be temporarily displaced by vessel activity; however, this is expected to have no effect on the present subsistence harvest of walrus by Alaska Natives.

Northern sea otter (*Enhydra lutris kenyoni*), listed as threatened under the ESA in 2005 (Federal Register 70: 152 [46387]), may occur near Seward during port activities. Temporary displacement of otters could occur during shipping, but are not expected to have a substantial effect.

Steller's eiders (*Polysticta stelleri*) and spectacled eiders (*Somateria fischeri*) are threatened species that may occur in the vicinity of the proposed pipeline alignment. Migratory birds are federally protected by the USFWS. Eagles are protected under the Bald Eagle Protection Act and the Migratory Bird Treaty Act.

Arctic and American peregrine falcons (*Falco peregrinus*) were listed as threatened and endangered, but were delisted in 1994 and 1999, respectively. They are, however, still considered species of special concern for the State of Alaska. Peregrine falcons are uncommon migrant breeders in the Prudhoe Bay area. The Sagavanirktok and Colville Rivers serve as the main breeding areas for Arctic peregrine falcons. Nesting concentrations are greatest at Franklin Bluffs and Sagwon Bluffs.

Bureau of Land Management Sensitive Species

The BLM within Alaska must designate and manage sensitive species, in part, to reduce the likelihood and need for new listings under the ESA, in accordance with BLM 6840 Manual direction (BLM, 2008). The BLM must include as sensitive species those designated as candidate and proposed under the ESA, as well as species that were delisted from the ESA within the past 5 years. At-risk species with no current ESA status are based upon the following eligibility criteria:

- 1) Species must be native species that occur on BLM lands or land for which the BLM has a significant management capability to affect the conservation status of, and
- 2) One of the two following conditions applies:
 - a. The species is known or predicted to be undergoing a downward population trend that could affect the viability of the species, or a distinct population of the species is at risk across a significant portion of its range; or

- b. The species depends upon specialized or unique habitats, and there is evidence that such areas are being threatened with alteration such that the continued viability of the species is at risk.

Species that do not meet the criteria to be placed on the BLM Sensitive Animals and Plants Lists but whose status will be re-evaluated in the future are placed on the BLM Watch List. Watch species are not sensitive species and are not subject to sensitive species policy. However, additional research will be conducted and information gathered prior to re-evaluation during subsequent sensitive species list revisions. Table 21 provides numbers of species on the BLM Sensitive Species and Watch Lists.

Table 21. Bureau of Land Management Sensitive and Watch List Animals and Plants

CATEGORY	BLM SENSITIVE SPECIES LIST	BLM WATCH LIST
Birds	15	6
Mammals	4	0
Fish	2	2
Insects	3	1
Plants	50	49

Potential Effects

The effects of the ASAP project are expected to be temporary and localized. For ESA species, the effects will be limited to marine vessel transit to a Southcentral Alaska port and to West Dock, and construction and dredging at West Dock. For other species, effects will be due to construction activities along the alignment.

Mitigation

Mitigation measures that can be implemented to address sensitive, threatened, and endangered species are those identified in Sections 8.2.8, Wetlands and Vegetation; 8.2.9, Fisheries Resources; and 8.2.10, Wildlife Resources. In addition, mitigation measures identified in the Section 7 consultation as part of the NEPA process and included in permits as stipulations will be followed. It is expected that NMFS will direct mitigation procedures for ice seals (for example, den surveys) or other marine mammals with similar requirements prior to these proposed activities.

8.2.12 Cultural Resources

Cultural resources include archaeological and historic sites, and structures and features that are protected under the Antiquities Act of 1906, the National Historic Preservation Act of 1966 (NHPA) as amended, and the Archaeological Resources Act of 1979. The existing level of knowledge about cultural resources along the ASAP route varies, primarily because much of the route has not been surveyed extensively.

The existing knowledge is based on previous cultural resource studies that were designed for different projects and whose degree of applicability to ASAP varies. The most extensive and exhaustive of these surveys were undertaken prior to construction of TAPS and the Dalton Highway. The surveys conducted in advance of these projects provided substantial information about cultural resources within and near ASAP from the North Slope to Livengood. The existence of cultural resources is not as well-understood between Livengood through the Minto Flats to the Parks Highway, and for parts of the alignment where it departs from the immediate vicinity of the ROW occupied by the Parks Highway, Alaska railroad, and the Anchorage-Fairbanks Intertie.

Several other issues arise with the cultural resource studies completed for TAPS. The TAPS surveys were completed in the 1970s and 1980s, and the primary focus at that time was on prehistoric sites. Of the historic sites or structures that were documented along the route, many were not considered eligible for inclusion in the National Register of Historic Places (National Register) because they were not “historic” at the time (generally defined as 50 years or older). However, many of these places may now meet the criteria for inclusion in the National Register. In addition, survey methods, field documentation, and mapping methods used during TAPS have changed dramatically in the past 30 to 40 years. Archaeologists now use more advanced GPS mapping that results in more accurate field locations. Many sites documented during TAPS may need to be site-checked for accuracy, and to see if the sites are still intact or if they were destroyed.

There is also potential for the project to impact Traditional Cultural Properties (TCP). A TCP is a place (often an ethnographic landscape) that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that are rooted in that community’s history, or its importance in maintaining the continuing cultural identity of the community (Parker and King, 1998). Similarities exist between TCPs and historic and archaeological sites. In fact, historic and archaeological sites can be all or part of a TCP. The key difference is TCPs exhibit a continuing role and importance to people today.

Identification of potential cultural resources (sites, structures, TCPs) prior to ground disturbance is key to avoiding and adverse impacts and mitigating them. The project developer will be required to implement the following measures during the planning and construction of the pipeline:

- Identify cultural resources, in accordance with Section 106 of the NHPA (36 CFR 800.4) and the AHPA (AS 41.35).
- Determine whether or not the properties that may be affected by the undertaking are included in or determined to be eligible for inclusion in the National Register.
- Participate in consultation in accordance with Section 106 of the NHPA to determine what constitutes adverse effects to identified cultural resources.
- Assist the federal agency in the resolution of adverse effects.

Inventory, documentation, and preservation of cultural resources and mitigation of adverse effects to cultural resources will be based on a programmatic agreement between the concerned federal permitting entities, SHPO, and the Advisory Council on Historic Preservation. The agreement will

clarify the procedures for considering cultural resources and will formalize the relationships between the various agencies. The affected Federally-recognized Tribes, Alaska Native corporations, and the public will participate in implementation of the agreement, as required by Section 106.

Cultural Resources Work Completed to Date

In 2008, cultural resources baseline characteristics were examined in An AGDC desktop study, and in 2009, known cultural resources within a 5-mile corridor centered on the proposed pipeline were inventoried with an overflight from Anchorage to Deadhorse and a vehicular survey on the return trip between Deadhorse and Anchorage. The purpose of these reconnaissance efforts was to acquire a preliminary assessment of the project area to facilitate future fieldwork planning. In 2010, approximately 10 percent (75 miles) of cultural resources fieldwork was completed. Areas surveyed in 2010 included segments between Happy Valley (on the North Slope) and Trapper Creek in Southcentral Alaska. In 2011, additional fieldwork occurred along the ASAP mainline between Fairbanks and Big Lake, and along the Fairbanks Lateral.

Potential Effects

An adverse effect to a cultural resource, as defined by 36 CFR 800.5(a)(1), is found when:

“an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that will diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.”

The potential causes of effects on cultural resources could include:

- Ground-disturbing construction activities, such as trenching, grading, and excavation
- Development of workpads, PSYs, camps, fuel storage sites, materials storage sites, and disposal sites

Archaeological investigation, excavation(s), and documentation will have to be complete prior to pipeline construction and support activities in order to identify and evaluate potential effects on historic properties. Adverse effects must be resolved prior to construction. Adverse effects are resolved through mitigation agreed upon during consultation under Section 106 of the National Historic Preservation Act.

Mitigation

Avoidance is generally the preferred mitigation measure for cultural resources eligible for the National Register. If negative effects are unavoidable, they should be mitigated in accordance with Section 106 and in coordination with the appropriate agencies, entities, and individuals. Mitigation measures can be specific to each cultural resource and will be determined and conducted in accordance with AS 41.35 and Section 106. More than one field season of archaeological survey may be required for determining the necessary level of mitigation.

Some areas within the pipeline ROW may be determined high-priority areas for containing cultural resources. High-priority areas are those areas that are known to contain high densities of cultural resources. These areas are defined through analysis of previous cultural resource studies, existing data on file at the Alaska Office of History and Archaeology's AHRS database, consultation with SHPO and other interested parties, and through current archaeological fieldwork completed for ASAP. In high-priority areas, an Archaeological Monitor may be required during construction.

Alternatively, after the archaeological surveys are conducted, AGDC may wish to avoid certain areas containing cultural resource sites rather than pay for lengthy and expensive excavations. Measures mitigating adverse effects may vary by specific cultural resource, but may include one or a combination of the following:

- Perform archaeological excavation, analysis, and documentation of all or part of the cultural resource site.
- Perform Historic American Building Survey/Historic American Engineering Record (HABS/HAER)-level documentation for historic buildings and structures.
- Perform archaeological monitoring of construction activities.
- Provide interpretation for and involvement of the public. Some examples include brochures, signage, or partnering with local schools, museums, and heritage preservation groups, among others.
- Consult with state and federal agency historic preservation officers.
- Consult with Alaska Native Tribes.

The HABS/HAER documentation will be completed for historic structures prior to pipeline construction and support activities. Archaeological monitoring, as implied, may be conducted during construction activities. Interpretation for the public can be initiated as soon as appropriate information is gathered. Interpretive material does not generally have to be completed prior to the activity that causes adverse effects. Public interpretive signage, for example, is most often installed after an activity is complete or near its completion.

While cultural studies will be performed prior to beginning construction activities, there is always the possibility that cultural resources will be discovered during the project. An Unanticipated Cultural Discoveries Plan will be developed to outline the exact procedures that will be followed in the event of an unanticipated cultural discovery.

8.2.13 Visual Resources

Visual resources are defined as those land, water, vegetation, animals, and structures that are visible on the land. The ASAP route passes through the vast, treeless tundra of the Arctic Coastal Plain, the mountains of the Brooks and Alaska Ranges, Tanana Flats, the Nenana River Valley, DNP&P, and the Susitna River Valley. With the exception of a short segment in Prudhoe Bay, and several potential short, aboveground sections near water crossings or pigging facilities, the pipeline will largely be buried and not visible.

Potential Effects

Once constructed, most of the pipeline aboveground facilities, including valve pigging facilities and other related structures, may be visible from adjacent public roads. The proposed pipeline ROW will be cleared within sight of some BLM and state recreation sites, and may be visible from ridgelines along the eastern boundary of the Wilderness Area within the Gates of the Arctic National Park and Preserve, DNP&P, and Denali State Park.

In some areas, the ASAP route will parallel or lie adjacent to existing corridors, helping to minimize disturbance to visual resources. In areas where the pipeline will be near major roadways used by tourists and other visitors, portions of the newly cleared ROW soil disturbance, construction activities, as well as some permanent facilities, may be seen. Many of these activities and much of the disturbed ROW will be transitory in nature. The entire project in any given area usually takes several months to complete prior to restoration.

In addition, the project developer will be required to work with the BLM and state agencies in an effort to minimize or mitigate effects on areas of high scenic and visual values, and expects to create only intermittent and localized effects on visual resources. All portions of the pipeline corridor that pass through BLM-administered land are managed in accordance with BLM Class IV Visual Resource Management (VRM) objectives, which provide for management activities that require major modification of the existing character of the landscape by allowing a high level of change. Consequently, major modifications to the existing landscape are allowed for activities related to energy transportation. The pipeline corridor will be managed according to the Class IV VRM objectives. Every effort will be made to minimize visual effects, particularly in areas of high scenic and visual value.

Mitigation

Mitigation measures that can be implemented to address effects on visual resources could include:

- Review the practicality of avoiding or minimizing significant adverse effects on visual resources created by the construction and operation of the ASAP, and incorporate proven mitigation measures into the design and location of the project where appropriate.
- Shift the pipeline away from existing ROWs frequented by the public during transit or other activities to help mitigate against disturbance to visual resources in several areas.
- Minimize the construction of new permanent access roads by using snow/ice roads during construction.
- Restore the construction zone in a manner that facilitates re-establishment of the adjacent natural vegetation.
- Use root balls, salvaged native plant materials, and topsoil removed from the construction footprint for redistribution on disturbed areas where feasible.
- Maintain a screening of existing natural vegetation when the pipeline is offset from a highway.

- Use existing disturbed areas to the maximum extent practicable for temporary construction activities, such as construction camps, material stockpiling, pipe jointing, and pipe bending.
- Minimize locating pipeline facilities, new material sites, and construction material stockpiling in places with special visual resource values that will be visible to the general public.
- Blend the pipeline system into the natural setting to the extent practicable when crossing places with high visual resource values.
- Use revegetation species that are appropriate for the general area.
- Regrade construction disturbances to a condition that blends with the surrounding terrain and surface drainage patterns.
- Monitor reclaimed, disturbed construction areas, and take remedial action where expected revegetation success is not achieved.

8.2.14 Social and Economic

Larger Alaska communities along the route will be better-prepared to absorb temporary construction impacts than smaller communities. However, all communities are likely to experience some positive long-term socioeconomic effects from the construction and operational phases of the project. The smaller communities north of Fairbanks may experience some temporary effects on rural lifestyle during construction, yet these could potentially benefit in the long-term from lower energy costs. In addition, there are a number of the communities with for-profit village corporations that could benefit from the influx of construction opportunities in the region. The project may also result in improved opportunities to distribute natural gas to rural Alaskan communities. The project could provide employment opportunities for isolated communities that currently have high unemployment rates. In addition, first-class cities and first-class boroughs with taxing authority may have the opportunity to generate tax revenue.

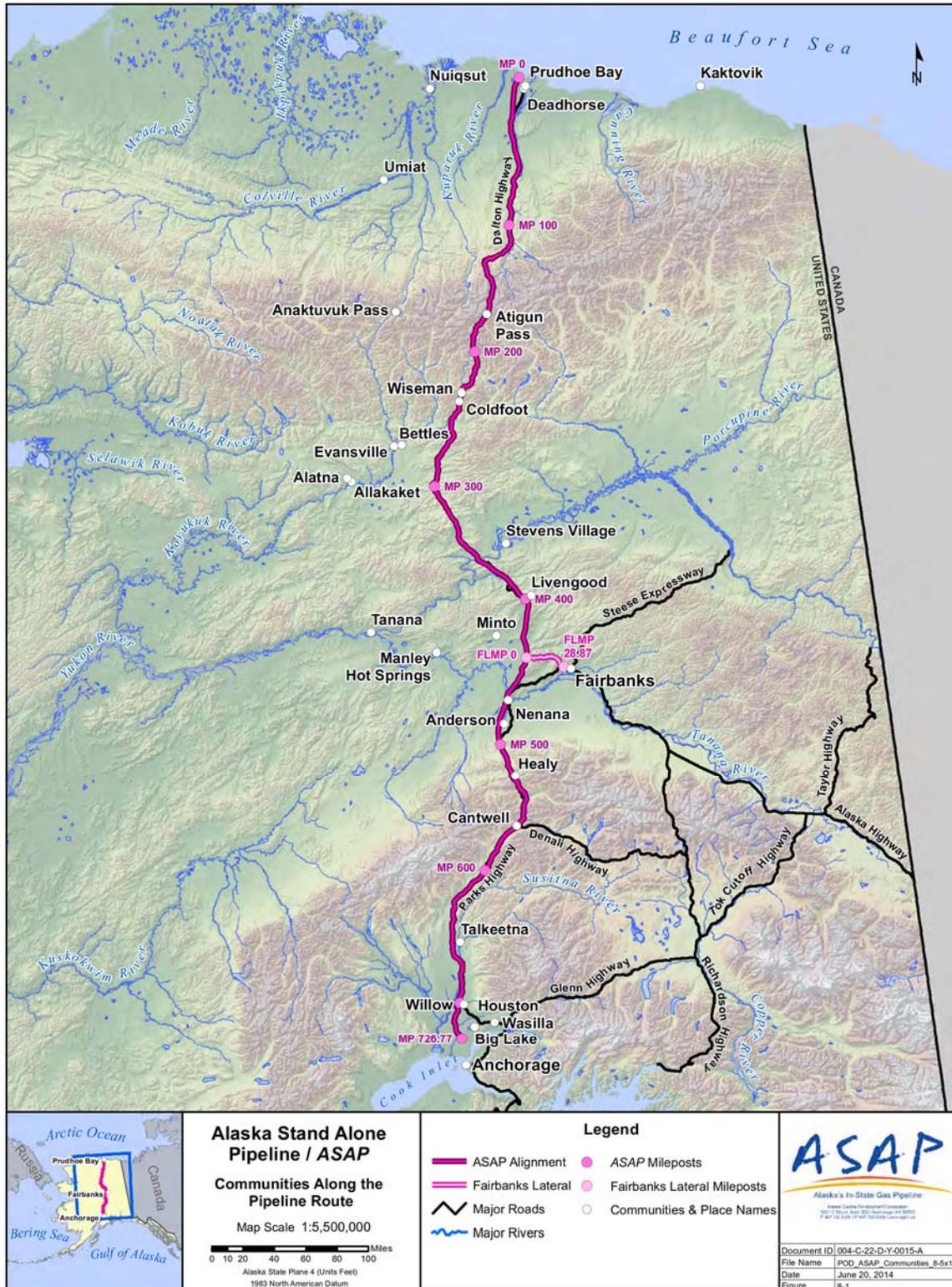
Figure 10 shows those communities that could potentially be affected by ASAP construction and O&M because of their location near the project ROW or because the community uses the region near the project ROW.

Potential Effects

The potential social and economic effects include:

- Increased employment opportunities and workforce development
- Changes in community demographics, including:
 - Increase in local population numbers
 - Change in population characteristics (for example, more children or seniors results in an increased need for schools and health care)
- Increased demand for retail/service and housing
- Increase in seasonal residents
- Changes in employment and income levels, including:
 - Former non-cash economy communities experience influx of cash
 - Unemployed now have opportunities previously out-of-town or non-existent

Figure 10. Communities Along the Pipeline Route



- Changes in the aesthetic quality of the community, including:
 - Temporary structures, PSYs, and construction yards
- Increased opportunities for local and regional business development to support construction
- Increase in opportunities to develop housing
- Pressure on regional public safety and emergency services
- Health care systems may not have capacity to handle influx of workers and families

Mitigation

Mitigation measures that can be implemented to address effects on socioeconomics include:

- Time construction activities to avoid subsistence activities where possible.
- Time construction activities to avoid high-use tourist and local recreation seasons (for example, wildlife viewing, hunting, snowmachining, fishing, and dog sledding).
- Time construction activities to prevent impacts to local business (that is, avoid summer and fall construction for recreational and tourist areas).
- Develop and implement traffic control plans to prevent negative impacts to local businesses by blocking access during construction.
- Identify and promote work opportunities for local residents, including:
 - Prepare an Economic Opportunity Plan to describe how the project will operate to enhance locally based economic and employment opportunities for Alaska residents and businesses.
 - Coordinate with the local village corporation, tribal government, city government, and other groups to identify qualified individuals who are interested in working on the project.
 - Promote use of local businesses to support the project (for example, lodging, food, services, and sundries).
- Develop training programs for local residents so that they can be employed during construction and O&M, including:
 - Coordinate with Alaska training centers and universities on workforce development and training opportunities, which may include future job fairs in the region.

8.2.15 Subsistence

Subsistence activities in Alaska are governed federally by the Alaska National Interest Lands Conservation Act (ANILCA) and by the state subsistence law. Federal and state law define subsistence as the “customary and traditional uses” of wild resources for food, clothing, fuel, transportation, construction, art, crafts, sharing, and customary trade. Since 1997, the State of Alaska has taken over a dual subsistence management role and coordinates with the Federal Subsistence Management program in order to effectively manage federal and state laws. Under ANILCA, only rural residents qualify for subsistence, but under the State of Alaska subsistence law, all state residents qualify for subsistence.

Projects that require federal permits and are determined to potentially have an effect on the human environment are required to evaluate the effects of those projects on subsistence uses and needs

under Section 810 of ANILCA. ANILCA requires the preparation of an evaluation of effects of a project on subsistence use and needs, a finding of whether subsistence uses will be significantly affected, convening of a public hearing with prior notification in the area, and a Section 810 determination. An evaluation of subsistence uses will be completed in accordance with Section 810(a) of ANILCA (16 U.S.C. Section 3120) as part of the EIS to be prepared by the USACE, as the lead federal agency.

Many communities, while not located adjacent to the ROW, use the nearby region for subsistence activities. For example, residents of communities not actually adjacent to the pipeline ROW, such as Anaktuvuk Pass, Nuiqsut, Alatna, Allakaket, Stevens Village, and Tanana, obtain furbearing animals, caribou, fish, and moose from the region near the ROW. Summer construction activities are more likely to affect these activities.

Table 22 lists communities (by region) that are found along the proposed ROW route(s) in which subsistence or personal-use harvesting activities are most likely to occur. Subsistence resources of concern for all three regions include waterfowl, anadromous and freshwater fish, furbearers, large mammals, and vegetation.

Table 22. Subsistence or Personal-use Communities by Region

NORTH SLOPE	INTERIOR	SOUTHCENTRAL
Barrow	Alatna	Talkeetna
Prudhoe Bay ^a	Allakaket	Trapper Creek
Nuiqsut	Wiseman	Willow
Anaktuvuk Pass	Coldfoot	Houston ^a
	Evansville	Big Lake ^a
	Bettles	Wasilla ^a
	Steven's Village	Palmer ^a
	Livengood	Skwentna
	Minto	Susitna
	Manley Hot Springs	Knik
	FNSB ^{a, b}	MOA ^{a, c}
	Nenana	
	Tanana	
	Anderson	
	Healy Lake	
	Healy	
	McKinley Park	
	Cantwell	
<p>Notes:</p> <p>a. Communities determined to be non-rural; therefore, do not fall under ANILCA (Subsistence Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska, Effective July 1, 2010-June 30, 2012).</p> <p>b. FNSB includes Ester, Fox, North Pole, Eielson Air Force Base, College, Harding Lake, Moose Creek, Pleasant Valley, Salcha, and Two Rivers.</p> <p>c. MOA includes Eklutna.</p>		

Potential Effects

Effects of the ASAP on subsistence are expected to be limited to construction. Construction activities may cause short-term, localized effects on subsistence wildlife species and subsistence activities. It is possible that unauthorized use of the project ROW may also occur for hunting activities. No effects to subsistence are expected at West Dock because construction, transportation, and off-loading are expected to occur outside of times for spring whaling and generally outside of areas where subsistence fishing occurs.

Mitigation

Mitigation measures that can be implemented to address effects on subsistence activities include:

- Identifying locations and times when subsistence activities occur, and avoiding work during these times and in these areas to the maximum extent practicable
- Scheduling work (for example, blasting) to avoid conflict with subsistence activities when possible
- Notifying workers that subsistence activities are ongoing in the area, and directing them to avoid activities that may affect the subsistence activities (for example, not removing trap line markers)
- Using boulders, barriers, and signs to deter unauthorized use of ROWs
- Developing and implementing a Wildlife Avoidance and Human Encounter/Interaction Plan for the construction and operation of the ASAP to avoid impacts to subsistence species

8.2.16 Bureau of Land Management Projects

There are no known BLM projects in or near the proposed pipeline ROW.

8.2.17 Recreation Activities

The ASAP alignment will avoid, to the greatest extent practicable, recreation areas. It will avoid all national parks and federal refuge areas, including the Arctic National Wildlife Refuge, Gates of the Arctic National Park and Preserve, Yukon Flats National Wildlife Refuge, and DNP&P. The alignment will pass through Minto Flats State Game Refuge, Denali State Park, and the Willow Creek State Recreation Area.

In addition to these parks and designated recreation areas, areas along the entire route, both public and private, are used for recreation. As a general rule, tourism-related travel and destinations include DNP&P, with Anchorage and Fairbanks often being trip anchor locations.

Potential Effects

Pre-construction and construction activities can cause short-term adverse effects on tourism and recreation (for example noise, traffic congestion/delays, and competition for campgrounds). Some combination of barge traffic delivering pipe and other heavy construction materials to the South-central Alaska ports will temporarily increase traffic congestion in these communities. Distribution

of construction supplies by the existing highway and railroad transportation systems may result in temporarily increased use of these systems. Construction activities adjacent to tourist and recreation facilities and areas near the Dalton and Parks Highways, as well as local road networks in the Fairbanks, Palmer, Wasilla, and Anchorage areas, will involve temporary delays of traffic.

Tourism peaks during the summer. The major seasons for recreation tend to focus on salmon fishing in the spring and early summer, with big game and waterfowl hunting in the fall. Adverse effects can be minimized by conducting pre-construction and construction activities during winter to the extent feasible. Scheduling summer pre-construction and construction activities to avoid the peak tourist and recreation seasons will greatly reduce any adverse effects.

No long-term effect on tourism or recreation is expected once construction is complete. No new public vehicular access is expected. Existing public access will be retained.

Mitigation

Mitigation measures that can be implemented to address effects on tourism and recreation use areas include:

- Retain existing public access routes and uses.
- Avoid areas with tourist-related facilities.
- Avoid areas with public recreation facilities.
- Avoid creating new public vehicular access to remote areas.
- Minimize impacts to the existing natural landscape to the extent practicable.
- Schedule pre-construction work to avoid peak periods of tourism and recreation.
- Conduct early and continuing consultation with the public, tourism, and recreation businesses.
- Provide new recreation-related opportunities when compatible with pipeline operation.
- Collocate with existing and planned transportation and utility systems where practicable.

8.2.18 Wilderness

The proposed pipeline route does not cross federally designated wilderness areas.

Potential Effects

The proposed pipeline route does not cross any designated wilderness areas, but it parallels the eastern boundary of the Gates of the Arctic National Park and Preserve along the existing Dalton Highway route. While wilderness users may have an expectation for a quiet and remote, undisturbed experience, there will be overflights from helicopters and fixed-wing aircraft associated with environmental and engineering fieldwork, pipeline construction, and O&M activities. These pipeline activities will require close coordination with the applicable local, state, and federal agencies to minimize unnecessary noise that could affect the wilderness experience.

Mitigation

Mitigation measures that can be implemented to address potential effects on wilderness include:

- Development and implementation of a communications plan for fieldwork, construction, and O&M activities.
- Coordination of the location of communication towers used to support overflights with federal wilderness area land managers.

9. STABILIZATION AND REHABILITATION

A Stabilization, Rehabilitation, and Restoration Plan will be developed to address rehabilitation and restoration of ground-disturbed areas associated with the pipeline construction, including the construction ROW, material sites, camp sites, temporary access roads, ice roads and pads, TCEs, and TEWSs.

The plan will include specific requirements for restoration activities for each section of the pipeline prior to construction, including site preparation, monitoring, and performance standards. It will address the following topics:

- Soil replacement and stabilization
- Seeding
- Fertilizing
- Control of non-native invasive plants
- Removal of culverts to limit access to the ROW

The plan identifies sensitive areas along the ROW or in temporary-use areas that may require special attention, such as erosion-prone areas. A range of engineering controls or maintenance measures will be identified to address potential issues.

9.1 SOIL REPLACEMENT AND STABILIZATION

9.1.1 Ditch Backfilling

Once a large section of pipeline is ready for placement in the ditch, the soil or bedding material will be placed on the bottom of the ditch, and the ditch will be prepared for the pipeline to be placed. The pipeline will be placed within the ditch, and the remaining portion of the ditch will be filled, as described in Section 7.6.8.

During construction, soil will be replaced as soon as practicable after the pipeline section is laid down. This is particularly important during winter construction to reduce the introduction of snow or other precipitation into the ditch. In areas of concern (such as wetlands where the native vegetated mat was side-cast during ditch excavation), it will be placed as the top portion of trench backfill in the ditch, providing the vegetative mat can be salvaged during removal. However, excavation in frozen ground will not permit salvaging of the vegetative mat. The backfilled ditch vegetation will be monitored after construction to confirm that the reseeded ditch line supports continued long-term plant populations and fill above the pipe does not erode.

9.1.2 Cleanup

Following pipe installation, ditch backfilling, and hydrotesting (discussed in Section 10.2.1), crews will perform cleanup, including leveling of the pipeline ROW and shaping of a crown over the pipeline ditch, as required. Crews will dispose of any remaining scrap materials, timber, or other debris. Wood debris will be disposed of as identified in Section 7.4.2, and scrap materials and rubbish will be hauled to designated waste accumulation locations, incinerated, hauled to a permitted landfill for disposal, or some combination. Crews will be equipped with dozers, front-end loaders, and dump trucks to facilitate clearing and construction ROW cleanup.

In addition, material sites, camp sites, ice roads and pads, temporary-use areas, and temporary access roads will be recontoured and restored to an acceptable condition as required by applicable permits. Generally, revegetation of disturbed areas is planned for long-term stabilization.

Snow pad areas will require a summer cleanup check to verify that all construction materials were removed from the construction ROW. Remaining debris will be removed using low-ground-pressure vehicles to minimize disturbance to surface vegetation.

9.1.3 Ditch Stabilization

Stabilization of the backfilled ditch may be a multi-year process in some areas, particularly areas with fine-grained, ice-rich soils. The pipeline ditch may intercept overland flow that may erode backfill material from the pipeline ditch and could potentially serve as a channel for water into nearby waterways and wetlands. The interception of stream flow and wetland cross-drainage could pose significant problems, particularly in areas of continuous and discontinuous permafrost in rolling or mountainous terrain. Rehabilitation, especially in ice-rich soils, may require extensive, repeated ditch maintenance and long-term thermal stabilization activities before the habitat achieves stability.

The Stabilization, Rehabilitation, and Restoration Plan will include techniques developed to address rehabilitation and restoration of all ground-disturbed areas associated with the pipeline construction, including the construction ROW, material sites, camp sites, temporary access roads, ice roads and pads, and temporary-use areas.

9.1.4 Erosion Control

The Stabilization, Rehabilitation, and Restoration Plan; the Erosion Control Plan; and final design plans will include BMPs and storm drainage design to control surface flow along the crowned ditch and the project. Along the construction ROW in areas where ice roads and construction pads are not used, the construction pad will be left in place, and erosion control BMPs will take into account the wider construction width, not just the crowned ditch.

These plans will also address the fact that the crown will likely not remain 1 or 2 years after the annual freeze-thaw cycle results in some settlement. Temporary and permanent erosion and sediment control BMPs and drainage controls will be designed to work in concert to provide acceptable erosion and sediment control for the project.

Erosion control measures for ditch excavations performed through stream beds and banks as identified in the Erosion Control Plan will be applied as soon as the backfill is placed into the ditch to complete pipe coverage. Specific materials to use for erosion control of the bed and banks will be determined on a case-by-case basis and identified in the construction plans for each crossing.

The project designers will develop appropriate methods to respond to local conditions based on existing terrain, geology, hydrology, slope, disturbed area, thermal regime, climate, and other factors in the final design and relevant plans. Options available to direct flow from the crowned ditch line include:

- Installation of wattles at an angle and at predetermined spacing along the crowned ditch line based on slope angle to direct flow away from the ditch line
- Installation of temporary flexible piping to carry offsite and upgradient water across the ditch line to vegetated downslope areas
- Periodic installation of flow breaks in the crowned section to transfer water from one side of the ditch line to the other for storm drainage
- Use of native fill berms to direct flow away from the crowned ditch at specified intervals based on slope
- Construction of drainage channels to direct flow from the construction area
- Installation of permanent culverts in some areas
- Development of earthen ditch blocks used to retain or direct water

9.2 SEEDING SPECIFICATIONS

Seeding of the disturbed corridor will be conducted in consultation with the BLM and State of Alaska, and will adhere to the ADNR *Plant Materials Center Revegetation Manual for Alaska* (Wright, 2009). The methods and procedures outlined in the manual provide specific regional information for revegetation of disturbed areas with native plants to limit the potential for colonization by invasive species. The Non-native Invasive Plant Prevention Plan will also be consulted to limit the potential for colonization by invasive species.

Seed mixes will be developed for different geographic areas and fertilizers applied at an optimum rate per acre. Hand methods, hydroseeding, and aerial seeding will be employed to rehabilitate surfaces as required and will be identified in the Stabilization, Rehabilitation, and Restoration Plan.

9.3 FERTILIZER

Application of fertilizer will be conducted in consultation with the BLM and State of Alaska. Standard practices and planning will be followed so that adequate volume, type, and quality of fertilizer

are used where needed. Ground-disturbed areas will be fertilized as construction progresses. Erosion control measures will be applied on top of the seed and fertilizer application. As project development proceeds, specific uses will be determined.

9.4 CONTROL OF NON-NATIVE INVASIVE PLANTS

Procedures will be developed to control the introduction and spread of non-native invasive plants as part of pre-construction, construction, and rehabilitation and restoration activities. Non-native invasive plants can be introduced and spread into an area from the use of airports (particularly at gravel airstrips), material sites, and temporary-use areas, such as PSYs and camps.

Control of non-native invasive plants will also be addressed as part of restoration of cleared areas. Leaving cleared areas unrestored may present an opportunity for non-native invasive plants to establish a foothold without competition from local species.

9.5 LIMITING ACCESS TO THE RIGHT-OF-WAY

Large boulders, berms, or fencing will be used to limit access to the project ROW and project facilities with the intent of maintaining both project security and public safety.

9.6 POTENTIAL RECLAMATION OF CONSTRUCTED ROADS

The need for reclamation activities of constructed roads will be mitigated largely by clearing the ROW and constructing the pipeline in winter when soils are frozen. However, a large number of temporary gravel access roads will be constructed for ASAP (see Attachment 5). Land owners will be consulted about the reclamation of constructed roads during the planning phase.

10. OPERATIONS AND MAINTENANCE

O&M of the ASAP encompasses all activities after completion of construction activities, including startup; day-to-day activities necessary for the pipeline to function; and maintenance of equipment, systems, facilities, and pipe. Maintenance includes both preventative maintenance to make sure equipment and systems continue working efficiently, and corrective maintenance to fix or replace equipment and systems that are not working.

10.1 OPERATIONS AND MAINTENANCE PLAN

The pipeline operator will prepare an O&M Plan in accordance with 49 CFR 192.605. The O&M Plan will provide written procedures for conducting O&M activities. Because ASAP is a transmission line, the O&M Plan will also include procedures for handling abnormal operations. The O&M Plan will be prepared before pipeline operations commence and will be updated at least once every calendar year.

The O&M Plan must include procedures to provide safety during O&M, including procedures for the following situations:

- Operating, maintaining, and repairing the pipeline in accordance with applicable requirements
- Controlling corrosion
- Maintaining construction records, maps, and operating history, and making these documents available to the appropriate Operations personnel
- Gathering data needed for reporting incidents in a timely and effective manner
- Starting up and shutting down any part of the pipeline in a manner designed to assure operation within the pipeline's MAOP limits, plus the build-up allowed for operation of pressure-limiting and control devices
- Periodically reviewing the work done by Operations personnel to determine the effectiveness and adequacy of the procedures used in normal O&M, and modifying the procedures when deficiencies are found
- Taking adequate precautions in excavated trenches to protect personnel from the hazards of unsafe accumulations of vapor or gas, and making emergency rescue equipment available when needed, including a breathing apparatus and a rescue harness and line
- Responding promptly to a report of a gas odor inside or near a building
- Implementing the applicable control room management procedures

In addition, the O&M Plan must include safety procedures for exceedances of operating design limits (that is, during abnormal operations), including procedures for the following situations:

- Responding to, investigating, and correcting the cause of the following:
 - Unintended closure of valves or shutdowns
 - Increase or decrease in pressure or flow rate outside normal operating limits
 - Loss of communications
 - Operation of any safety device
 - Any other foreseeable malfunction of a component, deviation from normal operation, or personnel error that may result in a hazard to persons or property
- Checking variations from normal operation after abnormal operation has ended to determine continued integrity and safe operation of the pipeline
- Notifying responsible Operations personnel when notice of an abnormal operation is received
- Periodically reviewing the response of Operations personnel to determine the effectiveness of the procedures controlling abnormal operation, and taking corrective action where deficiencies are found

Operations and Maintenance Facilities

Three MRBs are planned for ASAP, one at the GCF at Prudhoe Bay, one in Fairbanks, and one near Big Lake. Each location will include office facilities, a maintenance garage, and both warm and cold warehouse space. The Fairbanks O&M facility will also house the backup pipeline control room. Each pipeline O&M facility will be accessible via road and will have sufficient parking for staff, visitors, and maintenance vehicles and equipment.

10.2 NEW OR EXPANDED ACCESS FOR OPERATIONS AND MAINTENANCE

Major facilities will be accessible via the road. In addition, a number of roads will provide access to the ASAP operational ROW. Attachment 5 includes a list of existing and new permanent roads that will be used to access facilities or the ROW.

10.3 INSPECTION AND TESTING OF PIPELINE

10.3.1 Cleaning, Hydrostatic Testing, and Drying

After completion of the pipeline, it will be hydrostatically tested to verify the pipeline has the strength necessary to meet design conditions and that the pipeline is leak-free. Water for hydrostatic testing will be withdrawn only from designated, permitted, surface water sources with the capacity to supply the desired volumes without adverse effects on aquatic habitat and associated biota (particularly overwintering fish).

Hydrostatic testing will most likely be done using untreated, heated water approximately 36 to 38°F under most conditions. In winter, water will be freeze-protected as necessary. Test water releases will be confined to designated, permitted upland locations and will be diverted to settling basins as necessary to comply with discharge permit limitations.

Plans for hydrostatic testing will be developed in accordance with applicable legal requirements and will follow BMPs. Specific information regarding hydrostatic testing will be developed by the construction contractor and operator of the pipeline. Analysis of each spread must be conducted to determine test sections. Once test sections are determined, a test manual will be prepared for use by the testing contractor; final tests will be in compliance with the federal safety regulations.

10.3.2 Corrosion Control

In general, the entire pipeline will be externally coated with FBE and internally coated with a two-part epoxy coating. The pipeline will be coated with an additional abrasion-resistant coating for HDD crossings and where the pipeline will be placed in rocky ground or stream crossings where concrete coating is not used due to buoyancy concerns.

A cathodic protection system was preliminarily designed to protect the pipeline from corrosion. The cathodic protection is a partially redundant system, where both sacrificial anodes and impressed current will be used. Between Prudhoe Bay and Healy, both systems will be used due to permafrost soils. Based upon the boundary of permafrost soils, beginning near Healy and continuing south, only the impressed current system will be employed. The power supply for the impressed-current cathodic protection system will come from existing electrical grids where available. Where grid power is not available, power will come from natural gas-fired power generators or batteries.

The GCF will have a separate cathodic protection system.

The cathodic protection test stations will be within the footprint of the pipeline trench excavation. Land impacts associated with the test stations were accounted for in the TCE, permanent ROW, and permanent workspace requirements for the other proposed project facilities.

10.3.3 Leak Detection and Emergency Response

A Supervisory Control and Data Acquisition (SCADA) system will be implemented to collect measurements and data along the pipeline, including flow rate through the pipeline, operational status, pressure, and temperature readings. This information may all be used to assess the status of the pipeline. The SCADA system will provide pipeline personnel with real-time information about equipment malfunctions, leaks, or any other unusual activity along the pipeline.

There will be fire alarm detection or suppression systems at facilities in accordance with all applicable codes and regulations.

The pipeline operator will develop and implement an Emergency Response Plan in accordance with 49 CFR 192.615 to minimize the hazards resulting from a pipeline emergency, including a leak. The Emergency Response Plan will, at a minimum, include:

- Procedures for receiving, identifying, and classifying notices of events that require immediate response by the operator
- Procedures for notifying fire, police, and other public officials as necessary; establishing and maintaining adequate means of communication with appropriate officials; and coordinating responses in the event of an emergency
- Procedures for the prompt and effective response to a notice of emergency events, including gas detection inside or near a building, fire near or involving the pipeline or related facilities, explosions near or involving the pipeline or related facilities, or a natural disaster
- Availability of personnel, equipment, tools, and materials needed at the scene of an emergency
- Procedures for emergency shutdown and pressure reduction in any section of the pipeline system as necessary to minimize hazards to life or property
- Procedures for protecting life and property in the event of an emergency

10.4 REMOVAL OR ADDITION OF PIPES AND PUMPS FOR PIPELINE MAINTENANCE

In general, removal or addition of equipment or pipe for maintenance is expected to occur at major facilities where the pipeline is aboveground. It is possible that removal or addition of equipment or pipe may take place at other locations (for example, MLVs). All procedures for these activities will be detailed in the O&M Plan. Procedures will be developed and carried out in accordance with applicable regulations and will follow BMPs.

10.5 RIGHT-OF-WAY MAINTENANCE SCHEDULES

In general, it is expected that limited maintenance will be required on the ROW. A schedule for maintenance will be developed in accordance with legal requirements and will follow BMPs.

10.6 SAFETY

The ASAP will be designed, constructed, operated, and maintained in accordance the requirements of the PHMSA within the USDOT. These requirements are included in 49 CFR Subtitle B and are intended to provide adequate protection for the public from natural gas pipeline failures. The ASAP will meet or exceed these requirements. These requirements address:

- Pipeline safety programs and rulemaking procedures (49 CFR Part 190)
- Annual reports, incident reports, and safety-related condition reports for natural gas pipelines (49 CFR Part 191)
- Minimum federal safety standards for transportation of natural gas by pipeline (49 CFR Part 192)

An O&M Plan will be developed as discussed in Section 10.1, and a Safety Plan will be developed as discussed in Section 7.10. O&M will be performed in a manner that is protective of personal health and safety and the environment.

10.6.1 Damage Prevention

A Damage Prevention Program, as identified in 49 CFR 192.614, will be implemented to prevent damage from excavation activities, including excavation, blasting, boring, tunneling, backfilling, the removal of aboveground structures by either explosive or mechanical means, and other earth-moving operations. As part of the Damage Prevention Program, the pipeline operator will participate in the state one-call system for excavators to call for utility locates before excavation activities begin, as required by 49 CFR 192.614.

Participation in the one-call system may not be necessary if access to the pipeline is physically controlled by the operator.

10.6.2 Public Awareness

The operator of the ASAP will develop a public education program that follows the API's Recommended Practice (RP) 1162 (API, 2010). The education program will include provisions on the one-call notification system (utility locate), hazards associated with an unintended release and indications that a release has occurred, and reporting procedures and steps to be taken if a release occurs.

10.7 INSPECTION AND MAINTENANCE SCHEDULE

A Continuing Pipeline Surveillance Plan for ASAP will be developed in accordance with 49 CFR 192.613. This plan will detail procedures for continuing surveillance of the pipeline and associated facilities so that appropriate action may be taken in the event of equipment failures, leakages, corrosion, substantial changes in cathodic protection, or other unusual O&M conditions. The plan will adhere to all pertinent regulations and will follow BMPs.

10.7.1 Aircraft

Aerial patrols may be used to identify any areas of concern regarding the ASAP. In particular, aerial patrols can identify threats to pipeline integrity from erosion or water undermining the pipeline (for example after storm events or ice damming), after seismic events, and during construction activities or unauthorized digging in the vicinity of the pipeline. Procedures for aerial patrols will be described in the Continuing Pipeline Surveillance Plan.

10.7.2 Ground Inspection

Ground inspection will be performed when aerial patrols identify any areas of concern, in the event of excavation near the pipeline (during or immediately after the activity) and on a periodic basis. Procedures and frequency of ground patrols will be described in the Continuing Pipeline Surveillance Plan.

10.8 PERSONNEL AND WORK SCHEDULES

Information about O&M staffing requirements and work schedules are based upon early planning and estimates of Full-time Equivalents (FTEs). Additional information regarding the number of personnel required for long-term O&M will be developed as the project progresses.

Preliminary projections for O&M staffing are 138 FTE positions working a 2 weeks on and 2 weeks off rotation at the GCF, Prudhoe Bay MRB, and the GCF operations camp; 22 FTEs working a standard work week schedule in Fairbanks at the MRB; and 14 FTEs working a standard work week schedule in Big Lake for the MRB. The Anchorage Headquarters will include a corporate staffing of approximately 66 FTEs working a standard work week schedule. Housing for GCF workers will be provided at the onsite GCF operations camp. Personnel located in Fairbanks, Big Lake, and Anchorage will be responsible for providing their own housing within local communities.

10.9 FIRE CONTROL

Fire control systems will be in place at all major facilities. More detailed information will be developed as the ASAP design progresses. Fire control systems will be developed in accordance with all pertinent regulations and will follow BMPs. In the event of a fire, the Emergency Response Plan will be followed, as described in Section 10.2.3.

10.10 CONTINGENCY PLANNING

Contingency planning will be performed on an ongoing basis to identify specific HSSE scenarios and develop procedures to address these scenarios. Contingency planning will focus on the most likely events, but will also consider events that have a low likelihood of occurring but would have major impacts (for example, a terrorist attack). The objective of contingency planning is to develop mechanisms and procedures so that ASAP personnel can respond in a timely manner to an unexpected event.

11. TERMINATION AND RESTORATION

The ASAP project is designed to provide a stable source of in-state natural gas energy supply for the productive life of the natural gas field(s) that supply it. The estimated useful life of the pipeline is the economic life (which is the controlling factor) and is estimated to extend past the maximum duration of the lease, which is 30 years. With appropriate maintenance, repair, and refurbishment, the physical life of the ASAP is indefinite. Upon completion of operations, the ASAP system will require restoration to the satisfaction of landowners and resource agencies. The State of Alaska ROW Lease ADL 418997 includes a Completion of Use Stipulation (1.11) that addresses Dismantle, Remove, and Restore (DR&R) requirements for the ASAP project on state lands. The federal grant of ROW will also likely contain an aligned stipulation for completion of use on federal lands. Completion of Use stipulations generally rely on the operative term “satisfaction of the State Pipeline Coordinator (SPC) or Authorized Officer” (AO).

Specific requirements and standards for DR&R have not been clearly established for other pipelines in Alaska, including the TAPS; therefore, specific requirements and standards are not explicitly documented for the ASAP. However, there are informal understandings and some precedents established for TAPS that may be used to develop a reasonable estimate for this future ASAP cost upon completion of use of the GCF, the pipeline, and associated facilities.

Exactly what constitutes the “satisfaction of the SPC or AO” for both removal and restoration has not been established. However, conversations and informal understandings between the TAPS permittees, the Federal AO, and the SPC have resulted in the development of general guidelines that appear to be acceptable and applicable to ASAP facilities and the pipeline. These guidelines are further bolstered by the acceptance of the interim status of several TAPS pipeline sections and facilities that are no longer in service. These include nearly 10 miles of TAPS mainline pipe in the Dietrich River and Atigun River floodplains, facilities at several rampdown pump stations, and nearly all of the original TAPS construction camps.

11.1 GENERAL DISMANTLE, REMOVE, AND RESTORE STANDARDS

The following general approach to DR&R of the ASAP are supported by generally available information and BMPs:

- Decommissioned aboveground structures and equipment should be removed (for example, modules, structures, and fencing).
- Dismantling and removal should employ reuse and recycling options where possible.
- Aboveground structures and equipment that will continue to be used should be left in place (for example, fiber-optic lines, communication stations, and bridges).

- Land identified for reuse by the landowner should retain improvements desirable by the landowner (for example, selected gravel pads, airstrips, and material sites).
- Land identified for restoration should employ DR&R methods that result in the least possible impact to the environment (for example, non-disturbance of buried mainline pipe and previously restored ROW or workpad).
- Restoration should maintain natural drainage, stream flow, and fish passage.

11.2 SPECIFIC FACILITY PROCEDURES

This section describes the initial planned DR&R requirements for the GCF, the pipeline, and associated facilities based on the general assumptions for TAPS.

Gas Conditioning Facility

DR&R requirements include:

- Purge and remove hazardous substances, and clean process vessels and lines.
- Remove facility modules and ancillary structures.
- Cut off VSMs 1 foot below grade, and cap.
- Remove aboveground pipe, and cut off and cap 1 foot below grade.
- Remove other remaining structures on State ROW lease land.
- Remove gravel pad and access road culverts, and convert to low water crossings.
- Contour gravel pads and access roads, and hydroseed/fertilize to prevent erosion.

Pipeline

DR&R requirements include:

- Purge and remove hazardous substances, and clean process vessels and lines.
- Remove aboveground pipe.
- Excavate and remove mainline block valves, aboveground power and control modules, and fencing.
- Remove aboveground cathodic protection equipment, structures, and devices.
- Cut off VSM 1 foot below grade, and cap.
- For transition sections, remove aboveground pipe to 1 foot below grade, and cap.
- Fill belowground mainline under river crossings with inert slurry, and cap.
- Remove other remaining structures on federal grant of ROW or State ROW lease land.
- Remove workpad culverts and bridges, and convert culvert locations to low water crossings.
- Remove aboveground river crossing structures.
- Contour gravel pads and access roads, and hydroseed/fertilize to prevent erosion.

Facilities on fee-simple land may remain in place and be sold if desired (possibly the Fairbanks and Wasilla bases), including the following:

- Pipeline gravel workpads and access roads
- Belowground mainline piping
- Belowground mainline river crossings after being filled with inert slurry
- River training structures, except where breached to remove pipe or structures

12. REFERENCES

AECOM. 2012. *Final Scoping Report. Foothills West Transportation Access Environmental Impact Statement*. Prepared for U.S. Army Corps of Engineers. CEPOA-RD-NF. February. http://www.foothillswesteis.com/system/assets/5/original/foothills_final_scoping_report_02032012_.pdf?1328304983. Accessed July 18, 2014.

Alaska Liquefied Natural Gas Project (AK LNG). 2014. *Heads of Agreement by and among the Administration of the State of Alaska, Alaska Gasline Development Corporation, TransCanada Alaska Development Inc., ExxonMobil Alaska Production Inc., ConocoPhillips Alaska, Inc., BP Exploration (Alaska) Inc. for the Alaska LNG Project*. January 14. <http://www.arc-ticgas.gov/sites/default/files/documents/dnr-producers-hoa-2014.pdf>. Accessed July 12, 2014.

Alaska Department of Administration, Alaska Oil and Gas Conservation Commission. 2014. "Monthly Production Reports." *Production Data Index*. February. <http://doa.alaska.gov/ogc/production/pindex.html>. Accessed June 13, 2014.

Alaska Department of Environmental Conservation (ADEC). 2010. *Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report*. July 15.

Alaska Exotic Plants Information Clearinghouse (AKEPIC). 2014. *Non-Native Plant Species List*. <http://aknhp.uaa.alaska.edu/botany/akepic/non-native-plant-species-list/#content>. Accessed June 19, 2014.

Alaska Gasline Development Corporation (AGDC). 2014. *Alaska Stand Alone Pipeline/ASAP Project*. Draft Joint Application for Permit. Submitted to U.S. Army Corps of Engineers. June 6.

American Petroleum Institute (API). 2010. *RP 1162, Public Awareness Programs for Pipeline Operators*. 2nd ed. December.

ASRC Energy Services Alaska, Inc. (AES). 2010. *Wetland Technical Report In-State Gas Pipeline Project Prudhoe Bay to Wasilla, Alaska. April 2010*. POA 2009-651. State of Alaska In-State Gas Pipeline Project, Anchorage, AK.

ASRC Energy Services Alaska, Inc. (AES). 2011a. *Preliminary Jurisdictional Determination: Prudhoe Bay to Milepost 39 of the Beluga Natural Gas Pipeline near Point MacKenzie, Alaska March 2011*. Prepared for Alaska Gasline Development Corporation, Anchorage, AK.

ASRC Energy Services Alaska, Inc. (AES). 2011b. *2010 Lake Studies Completion Report- Prudhoe Bay to Galbraith Lake*. 003-C-22-R-D-008. Prepared for Alaska Gasline Development Corporation. March.

ASRC Energy Services Alaska, Inc. (AES). 2012a. *Alaska Stand Alone Gas Pipeline/ASAP, Wetlands and Waters of the United States Delineation Report to Supplement the March 2011 Preliminary Jurisdictional Determination*. Final. Prepared for Alaska Gasline Development Corporation. March 30.

ASRC Energy Services Alaska, Inc. (AES). 2012b. *Alaska Stand Alone Gas Pipeline Project/ASAP Cultural Resource Report for the 2010 and 2011 Field Seasons*. Prepared for Alaska Gasline Development Corporation.

Bureau of Land Management (BLM). 2002. *Renewal of the Federal Grant for the Trans-Alaska Pipeline System Right-of-Way. Environmental Impact Statement*. BLM/AK/PT-02/026+2880+990.

Bureau of Land Management (BLM). 2008. *6840 - Special Status Species Management*. Manual Transmittal Sheet. Release 6-125, 12/12/2008.

CH2M HILL. 2014. *Personal Communication*. May.

Ferrians, O. 1998. *Permafrost Map of Alaska, USA*. Boulder, Colorado: National Snow and Ice Data Center.

Fluor Corporation (Fluor). 2003. *The Fluor Solvent Process*. AV\20030733001.

Magee, D.W. 1998. *A Rapid Procedure for Assessing Wetland Functional Capacity*. Bedford, New Hampshire: Normandeau Associates.

Michael Baker Jr, Inc. (MBJ). 2013. *Personal Communication*. November 8, 2013.

Michael Baker Jr, Inc. (MBJ). 2014a. *Personal Communication*. January.

Michael Baker Jr, Inc. (MBJ). 2014b. *Personal Communication*. April.

Michael Baker Jr, Inc. (MBJ). 2014c. *Personal Communication*. June.

Michael Baker Jr., Inc. (MBJ). 2014d. *Bedding and Padding Quantity and Quality Revisions Project Note*. Document Number 002-C-27-YPW-C-0013, Deliverable Number 002-14-918-001.

Michael Baker Jr., Inc. (MBJ). 2014e. *Basis of Design for the Construction Cost Estimate*. Document Number 002-C-24-B-Y-0032, Deliverable Number 002-14-912-001

Michael Baker Jr., Inc. (MBJ). 2014f. *Basis of Design for the Construction Cost Estimate – Material Sites*. Document Number 002-C-27-RTA-C-0009, Deliverable Number 002-14-918-001.

Parker, P.L., and T. F. King. 1998. *Guidelines for Evaluating and Documenting Traditional Cultural Properties*. National Register Bulletin 38. Washington, D.C.: U.S. Department of the Interior, National Park Service.

SRK Consulting (SRK). 2012. *Natural Gas Pipeline Plan of Development*. Prepared for Donlin Gold. July.

State of Alaska. 2009. *Community Database Online*. Department of Commerce, Community, and Economic Development. <http://commerce.alaska.gov/cra/DCRAExternal>. Accessed November 23, 2010 (verified June 16, 2014).

State of Alaska. 2011. *ADL 418997 Right-of-Way Lease for the Alaska Standalone Gas Pipeline/ASAP*. Alaska Stand Alone Pipeline. <http://asapgas.agdc.us/>. Accessed June 26, 2014.

State of Alaska. 2014. *Alaska Heritage Resource Survey*. Database. Office of History & Archaeology. <http://dnr.alaska.gov/parks/oha/ahrs/ahrs.htm>. Accessed June 16, 2014.

U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetlands Delineation Manual*. Wetlands Research Program Technical Report Y-87-1. Environmental Laboratory. January.

U.S. Army Corps of Engineers (USACE). 2007. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region*. ERDC/EL TR-07-24. S Environmental Laboratory. September.

U.S. Army Corps of Engineers (USACE). 2012. *Final Environmental Impact Statement*. Alaska Stand Alone Pipeline. Released October.

U.S. Environmental Protection Agency (USEPA). 2012. *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2012*. EPA-530-F-14-001.

U.S. Environmental Protection Agency (USEPA). 2014. *TSCA Inventory of Chemical Substances*. <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>. Accessed June 19, 2014.

Wright, S. 2009. *A Revegetation Manual for Alaska*. Alaska Department of Natural Resources.

ATTACHMENTS

- Attachment 1 Standard Details and Typical Drawings
- Attachment 2 Land Ownership
- Attachment 3 Maps
- Attachment 4 Mainline Stream Crossings
- Attachment 5 Ancillary Features
- Attachment 6 Sensitive Areas and Habitats
- Attachment 7 Federal, State and Local Permitting

Attachment 1
Standard Details and Typical Drawings



-  North Slope Facility
-  Gas Conditioning Facility
-  North Slope Road
-  Village



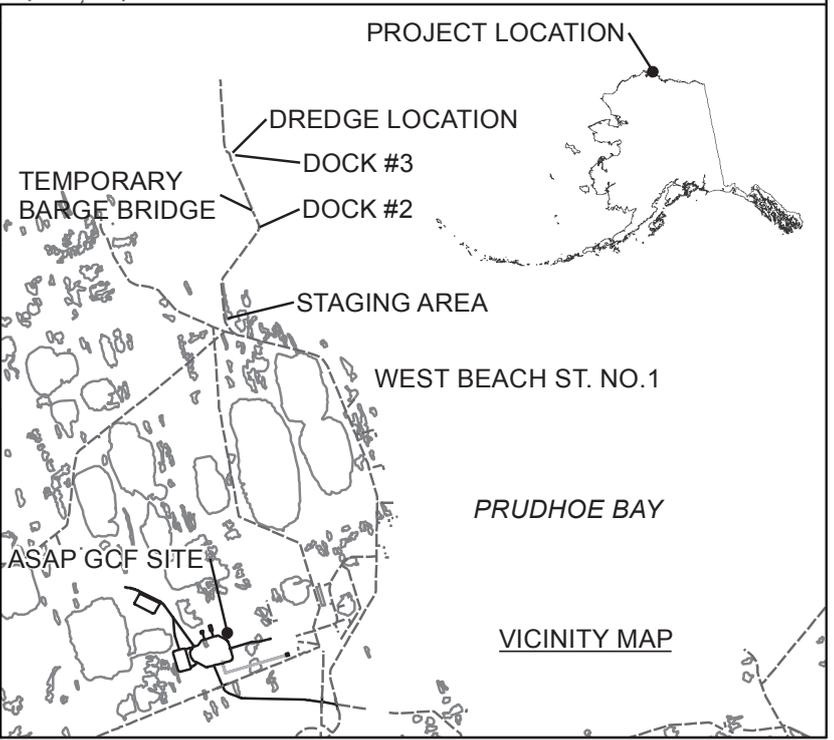
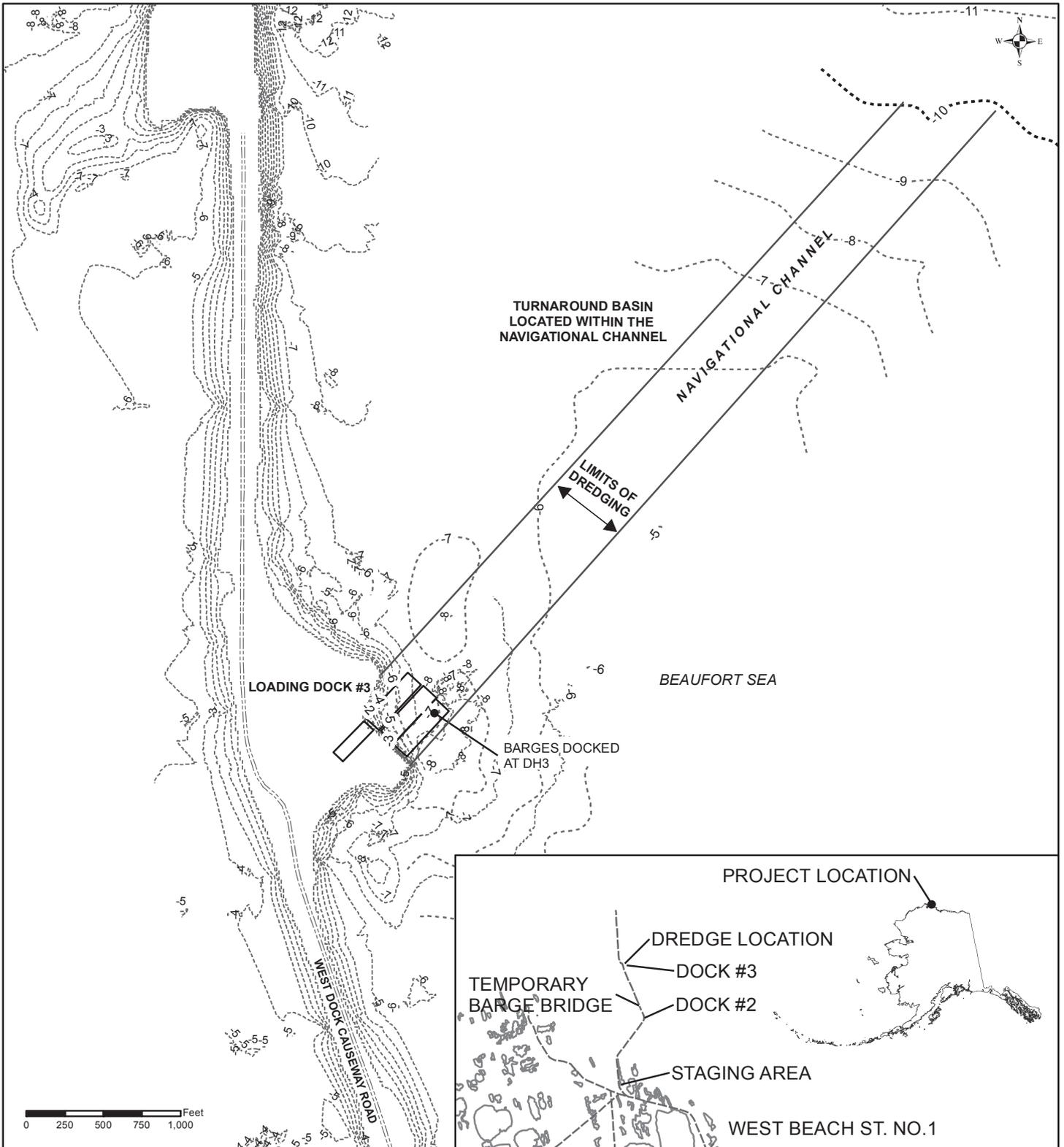
WEST DOCK CAUSEWAY VICINITY MAP
Alaska Stand Alone Gas Pipeline/ASAP



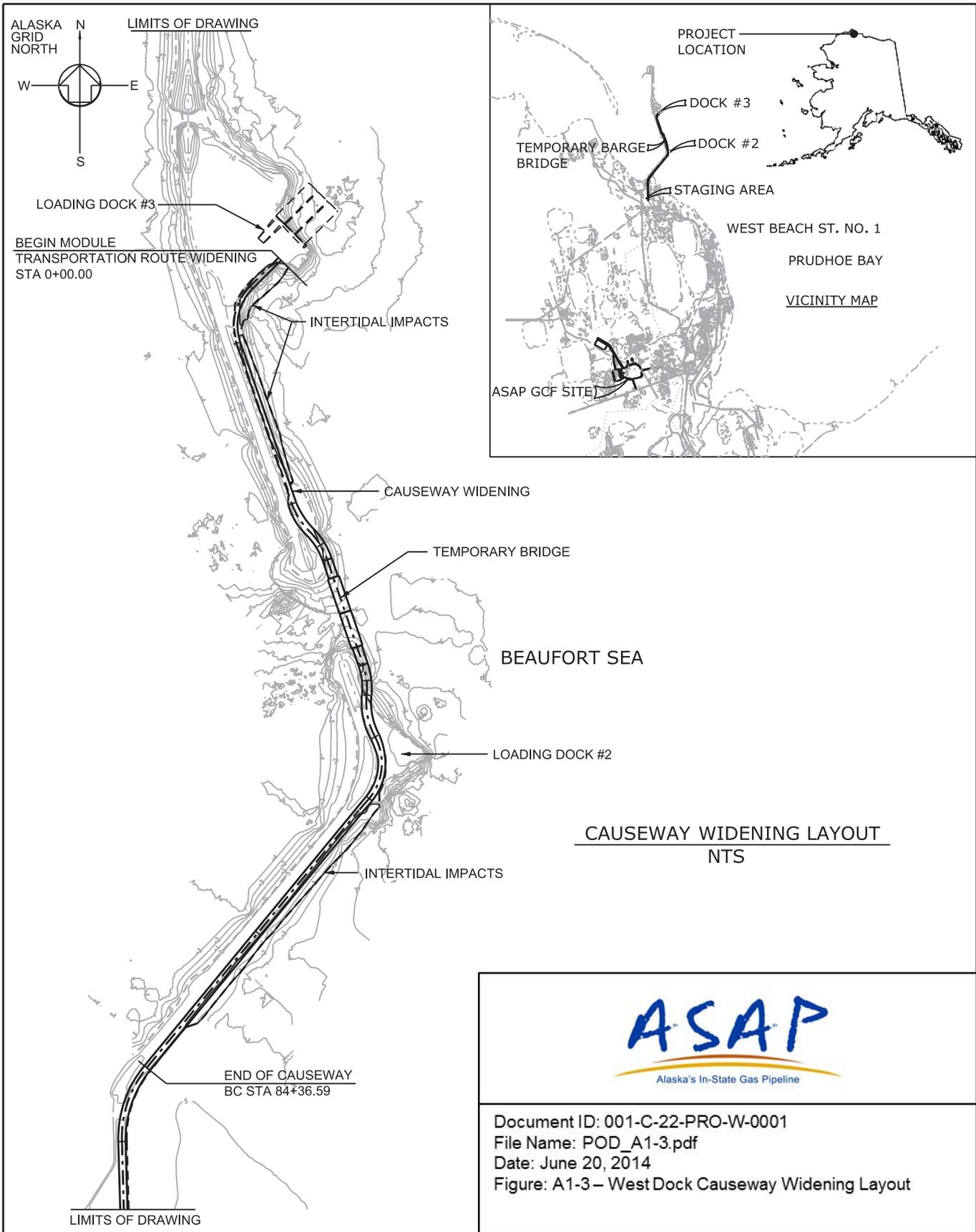
FIGURE:
A1-1

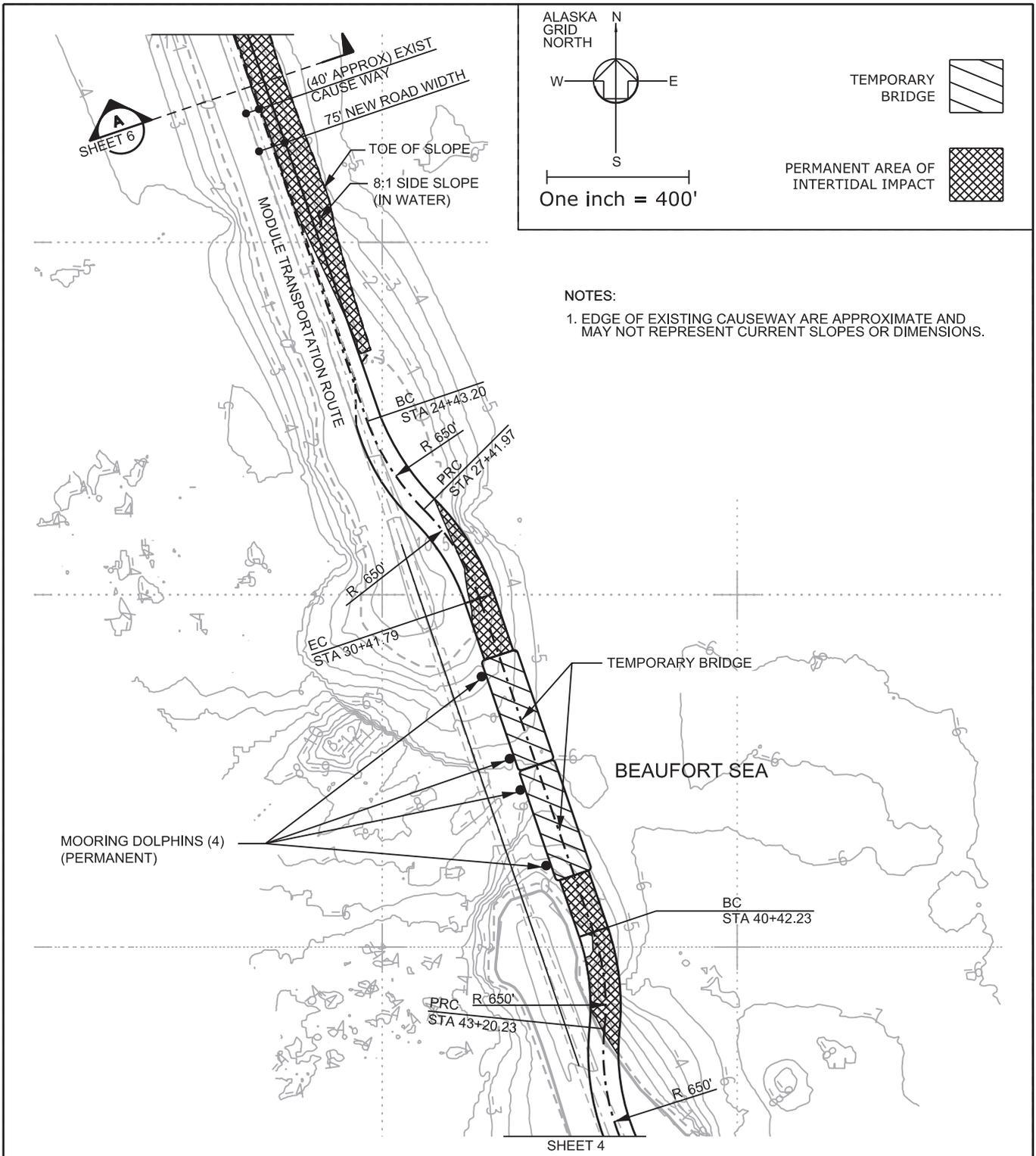
NAD83 Alaska Albers



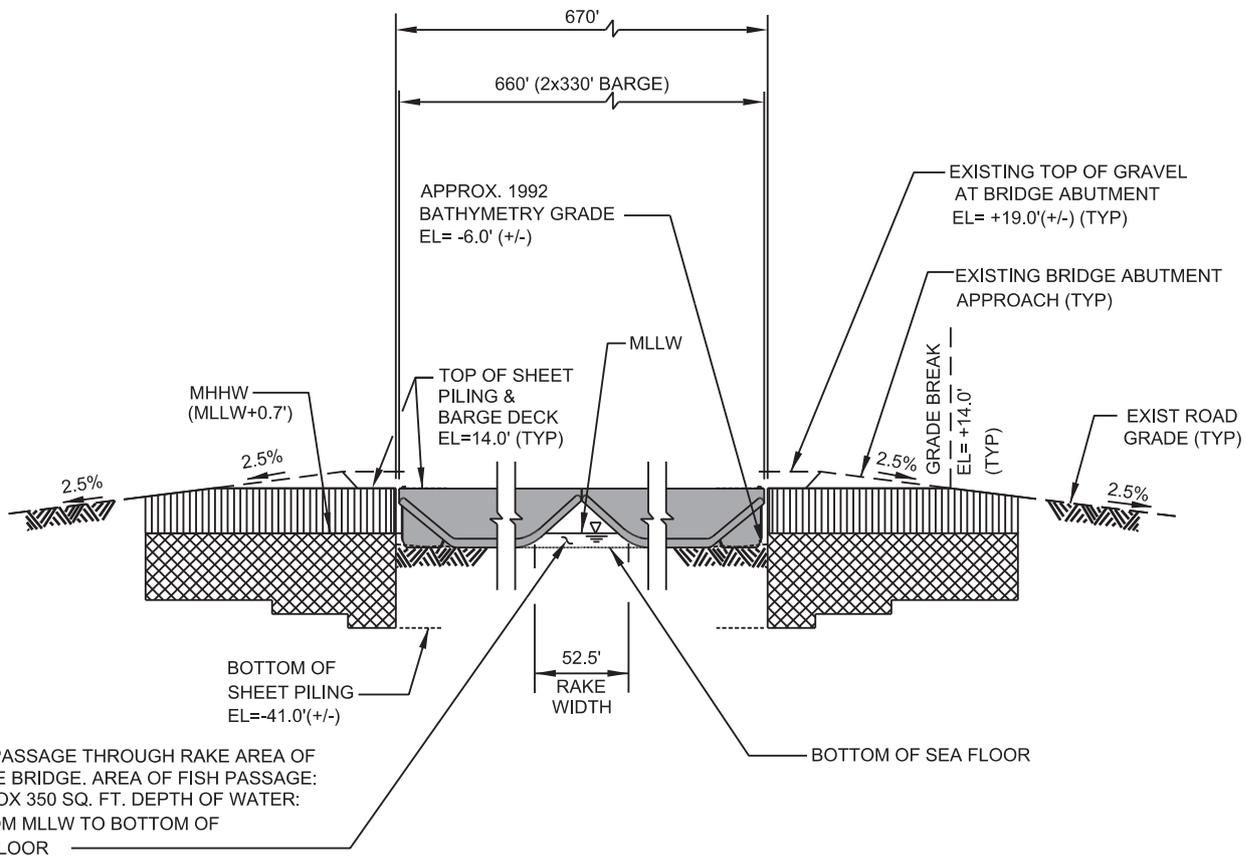


Document ID: 001-C-22-PRO-W-0001
 File Name: POD_A1-2.pdf
 Date: June 20, 2014
 Figure: A1-2 - West Dock Navigational Channel





Document ID: 001-C-22-PRO-W-0001
 File Name: POD_A1-4.pdf
 Date: June 20, 2014
 Figure: A1-4 – Aerial View of Barge Bridge



**WEST DOCK CAUSEWAY SOUTH
TYPICAL ABUTMENT MODIFICATIONS SECTION**

TIDE ELEVATIONS:	
HTL	= 0.80 FT
MHHW	= 0.70 FT
MLLW	= 0.00 FT

LEGEND:

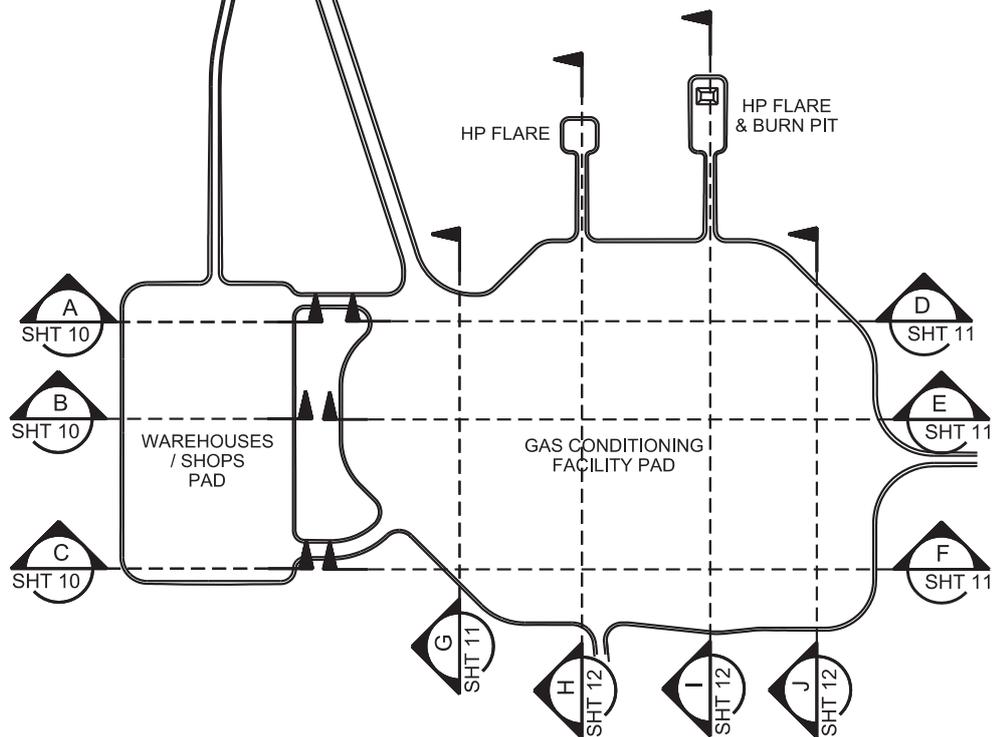
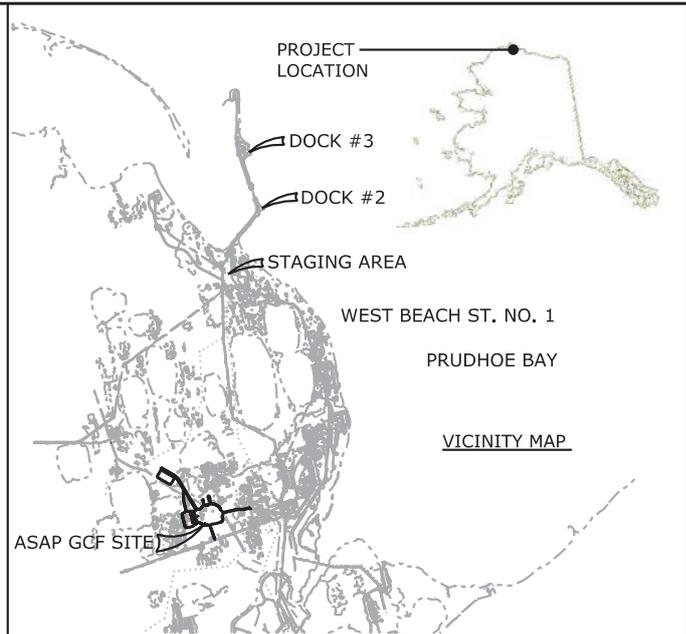
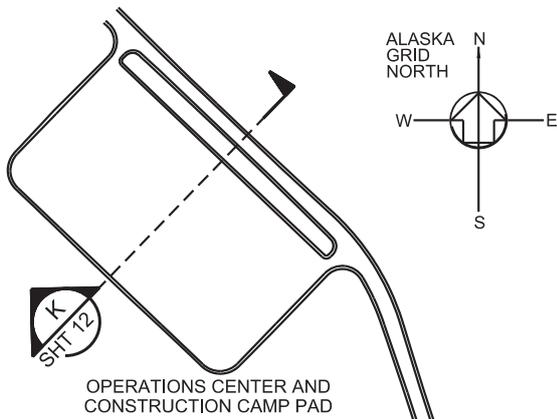
-  SHEET PILE ABOVE MHHW
-  PERMANENT AREA OF IMPACT FROM SHEET PILING BELOW MHHW
-  BARGE

NOTES:

1. Survey data for depths acquired from 1992 bathymetry.
2. Recommended dock modifications for barge bridge apply north and south side of barge bridge.
3. Causeway data from 1992 plan.
4. State WSF Datum.
5. All Elevations Referenced from MLLW.



Document ID: 001-C-22-PRO-W-0001
 File name: POD_A1-5.pdf
 Date: June 20, 2014
 Figure: A1-5 - West Dock Causeway South Typical Abutment Modifications Section



Document ID: 001-C-22-PRO-W-0001
 File name: POD_A1-6.pdf
 Date: June 20, 2014
 Figure: A1-6 - Gas Conditioning Facility Layout

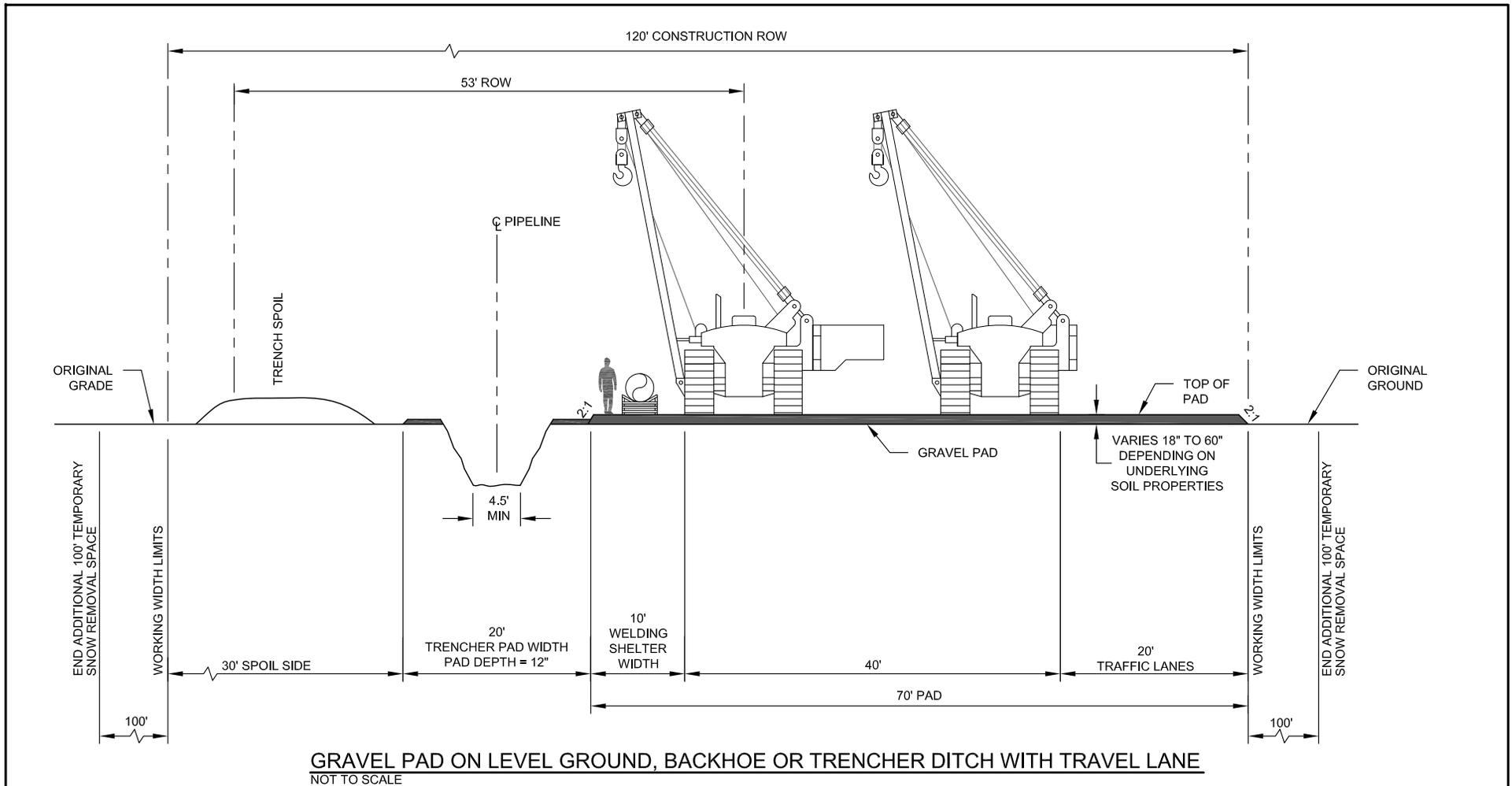


Figure A1-7. (Rev 1)
Gravel Pad on Level Ground, Backhoe, or
Trencher Ditch with Travel Lane



Document ID: 001-C-22-PRO-W-0001
File name: POD Figure A1-7
Date: June 20, 2014
Figure: A1-7 (Rev 1)

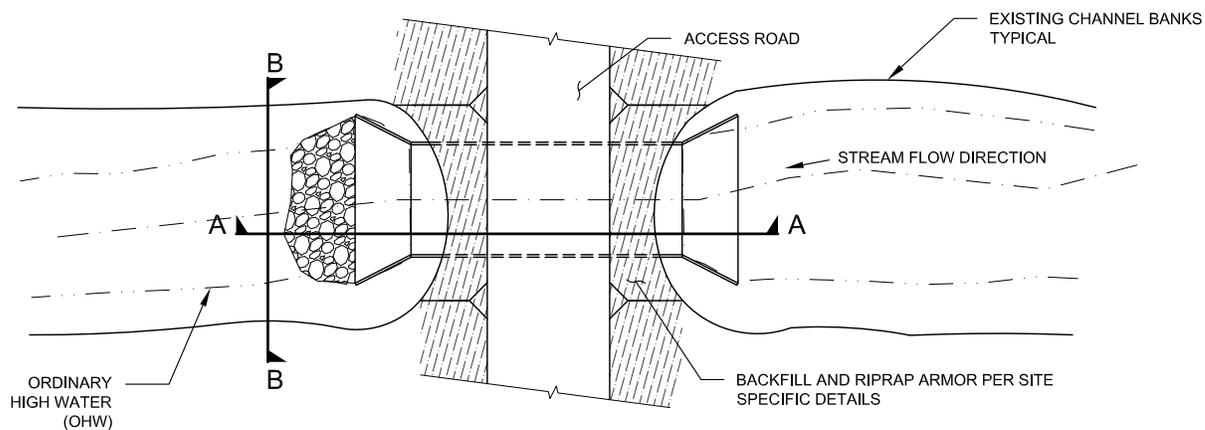
NOTES:

1. WIDTH OF TOP OF DITCH WILL VARY DEPENDING UPON DITCH DEPTH, WIDTH NEEDED IF FOR TIE-INS, WHETHER SUBSURFACE SOILS ARE THAWED OR FROZEN AND CHARACTERISTICS OF FROZEN SOILS RELATIVE TO BLASTING.
2. NO STRIPPING REQUIRED.
3. ADDITIONAL 100' TEMPORARY SNOW REMOVAL SPACE ON EACH SIDE IN ARCTIC AND/OR ALPINE (TREELESS) AREAS IS NEEDED TO FEATHER OUT SNOW TO PREVENT DEEP DRIFTING.
4. THIN SNOW LAYER FOR SEPARATION OF EXISTING GROUND VEGETATION FROM SPOIL IF CONSTRUCTED IN WINTER. NO SEPARATION IF CONSTRUCTED IN SUMMER. SPOIL NOT USED TO BACKFILL TRENCH TO BE SEEDED AND BMPS EMPLOYED TO PREVENT EROSION.
5. TRAVEL LANE IS REQUIRED FOR CONSTRUCTION WHERE ACCESS ROADS DISTANCE EXCEEDS 5 MILES.
6. TRENCH SPOIL PILES MUST BE KEPT LOW TO PREVENT DEEP DRIFTING.

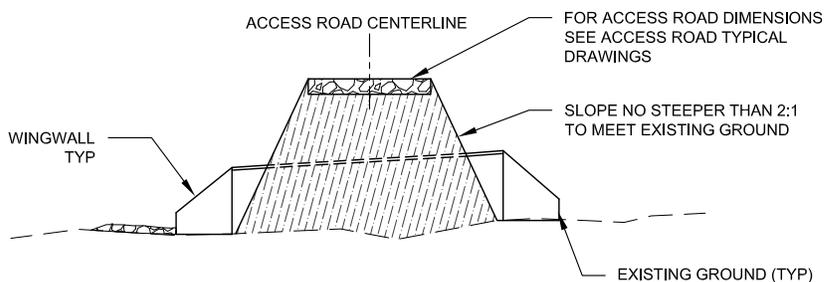


Michael Baker Jr., Inc.

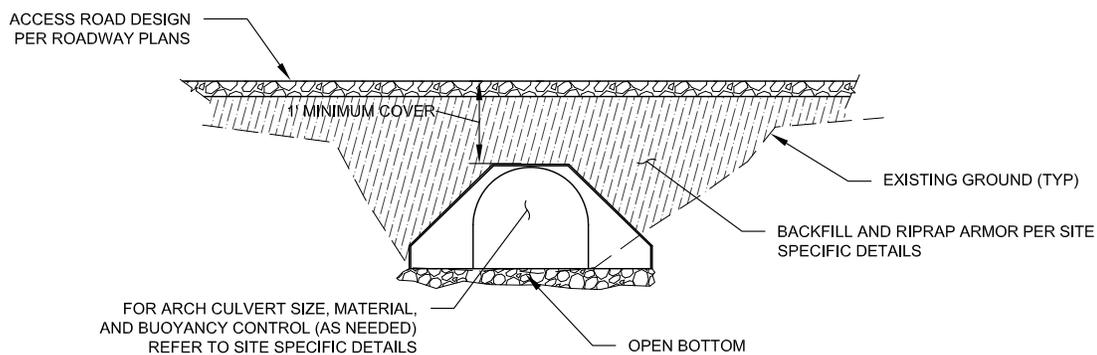
ACCESS ROAD TYPICAL ARCH SECTION



PLAN VIEW
NOT TO SCALE



CROSS SECTION A-A
NOT TO SCALE



CROSS SECTION B-B
NOT TO SCALE

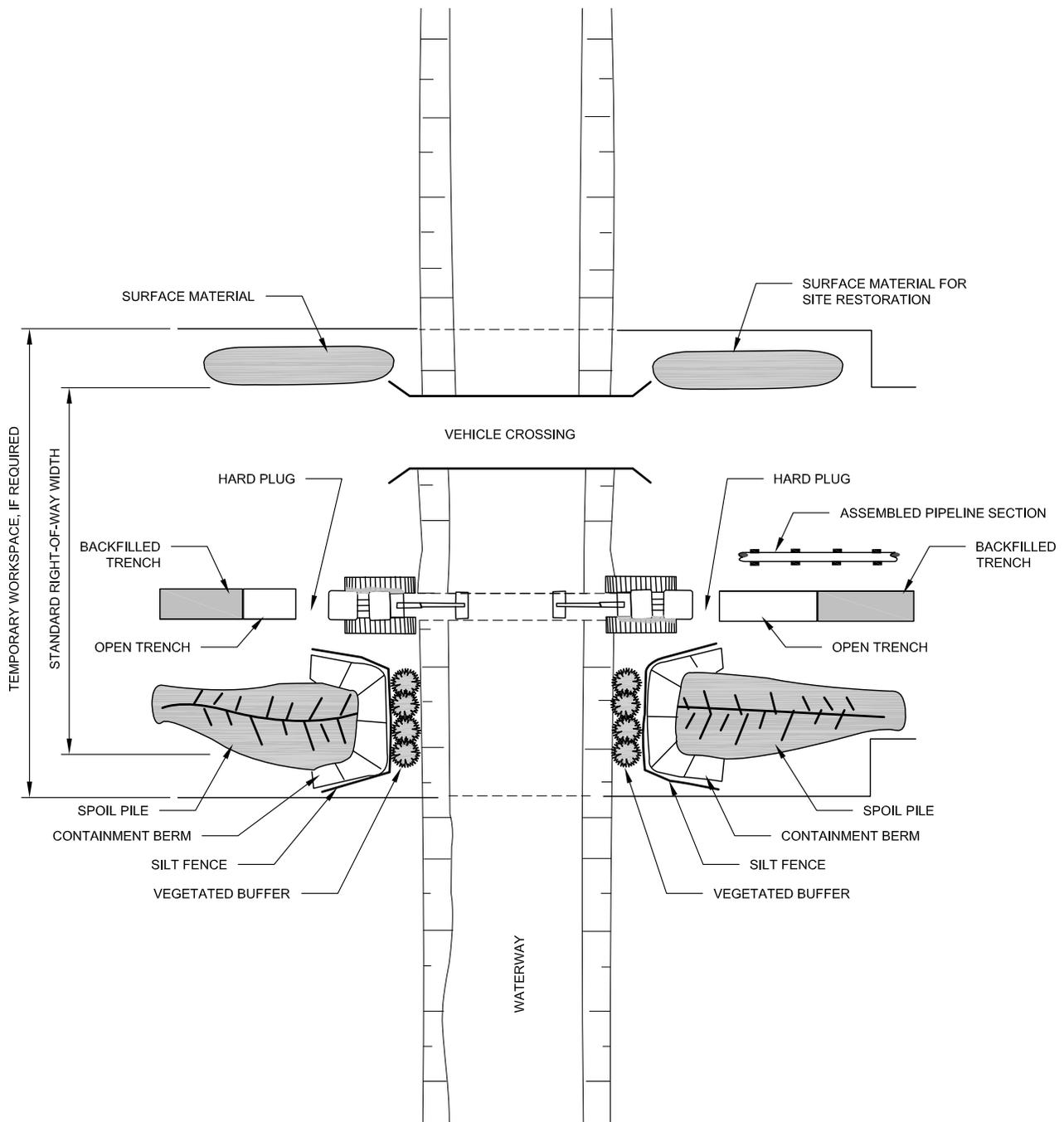
Figure A1-8.
Access Road Typical Arch Section



Document ID: 001-C-22-PRO-W-0001
File name: POD Figure A1-8
Date: June 20, 2014
Figure: A1-8



Michael Baker Jr., Inc.



OPEN CUT TRENCHING MODE AT SMALL CROSSINGS - TYPICAL
 NOT TO SCALE

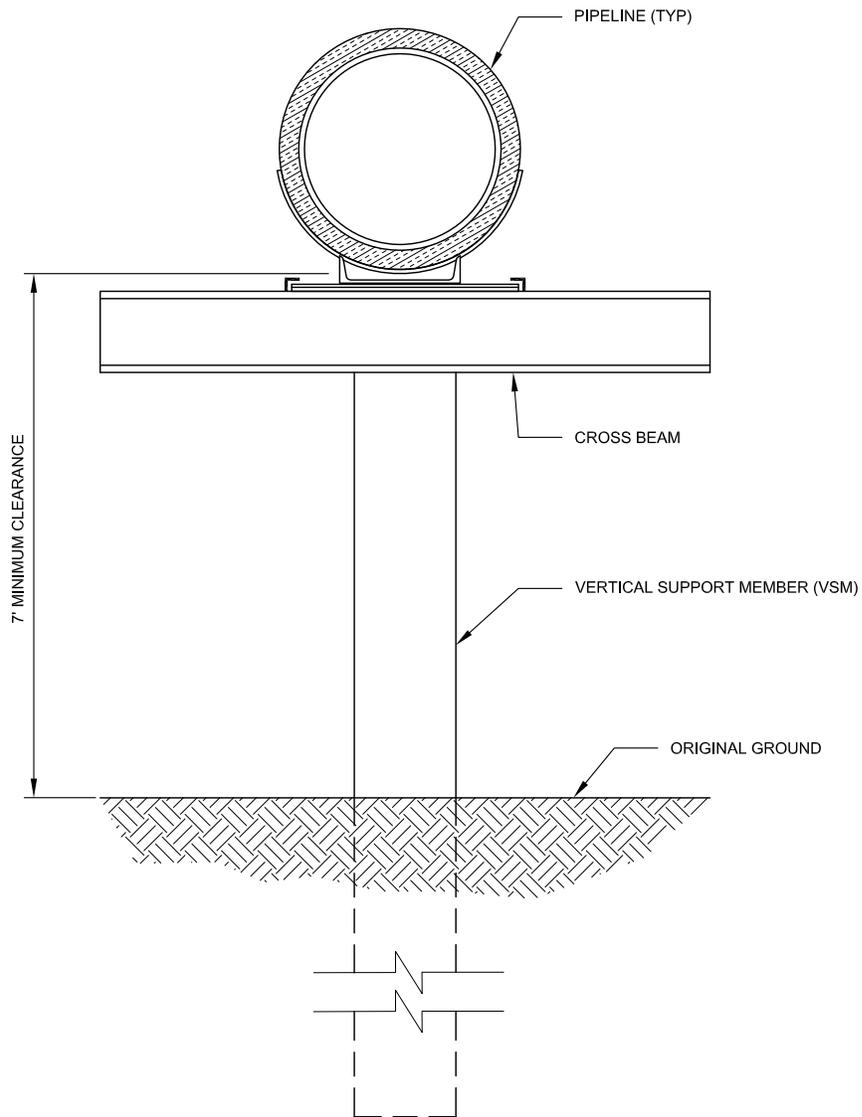
Figure A1-9.
 Open Cut Trenching Mode at Small Crossing



Document ID: 001-C-22-PRO-W-0001
 File name: POD Figure A1-9
 Date: June 20, 2014
 Figure: A1-9



Michael Baker Jr., Inc.



ABOVE GROUND PIPE ON VSM
 NOT TO SCALE

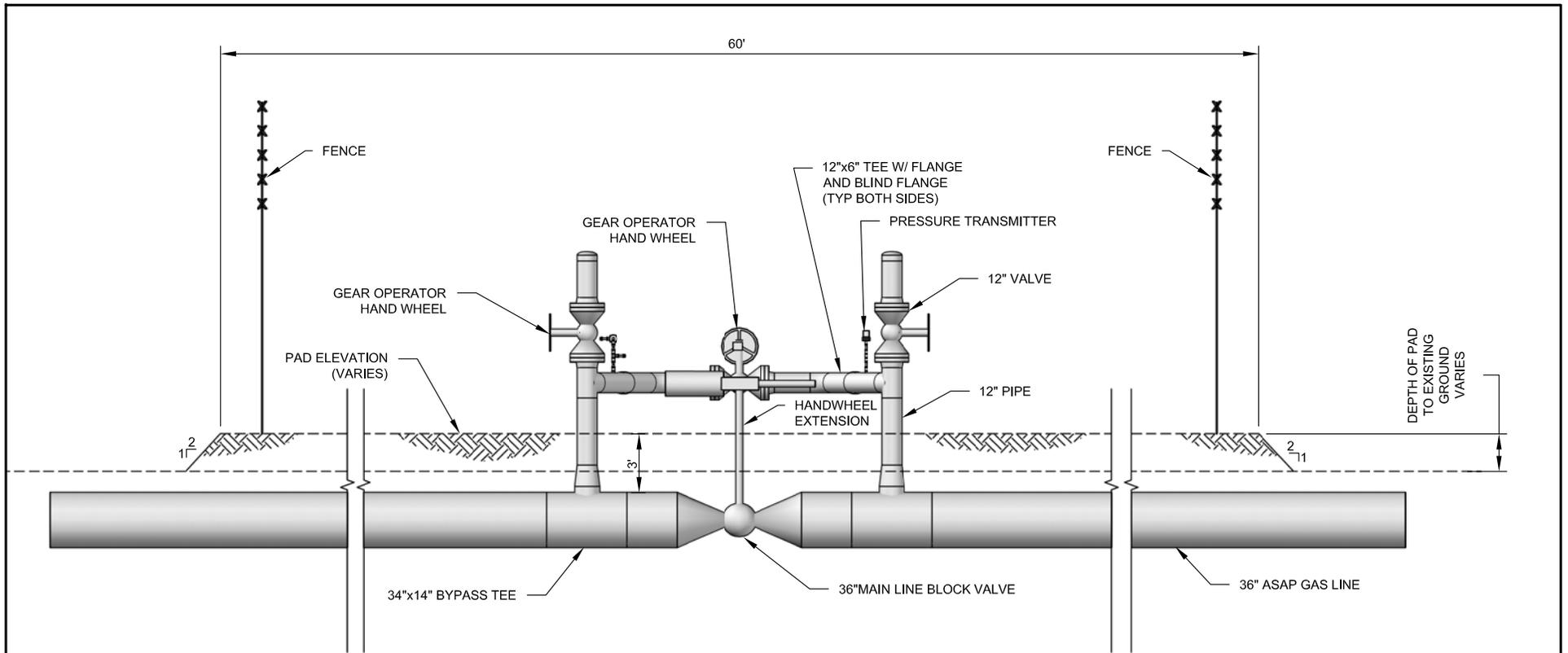
Figure A1-10.
 Above Ground Pipe on VSM



Document ID: 001-C-22-PRO-W-0001
 File name: POD Figure A1-10
 Date: June 20, 2014
 Figure: A1-10



Michael Baker Jr., Inc.



36" IN-LINE BLOCK VALVE - TYPICAL
NOT TO SCALE

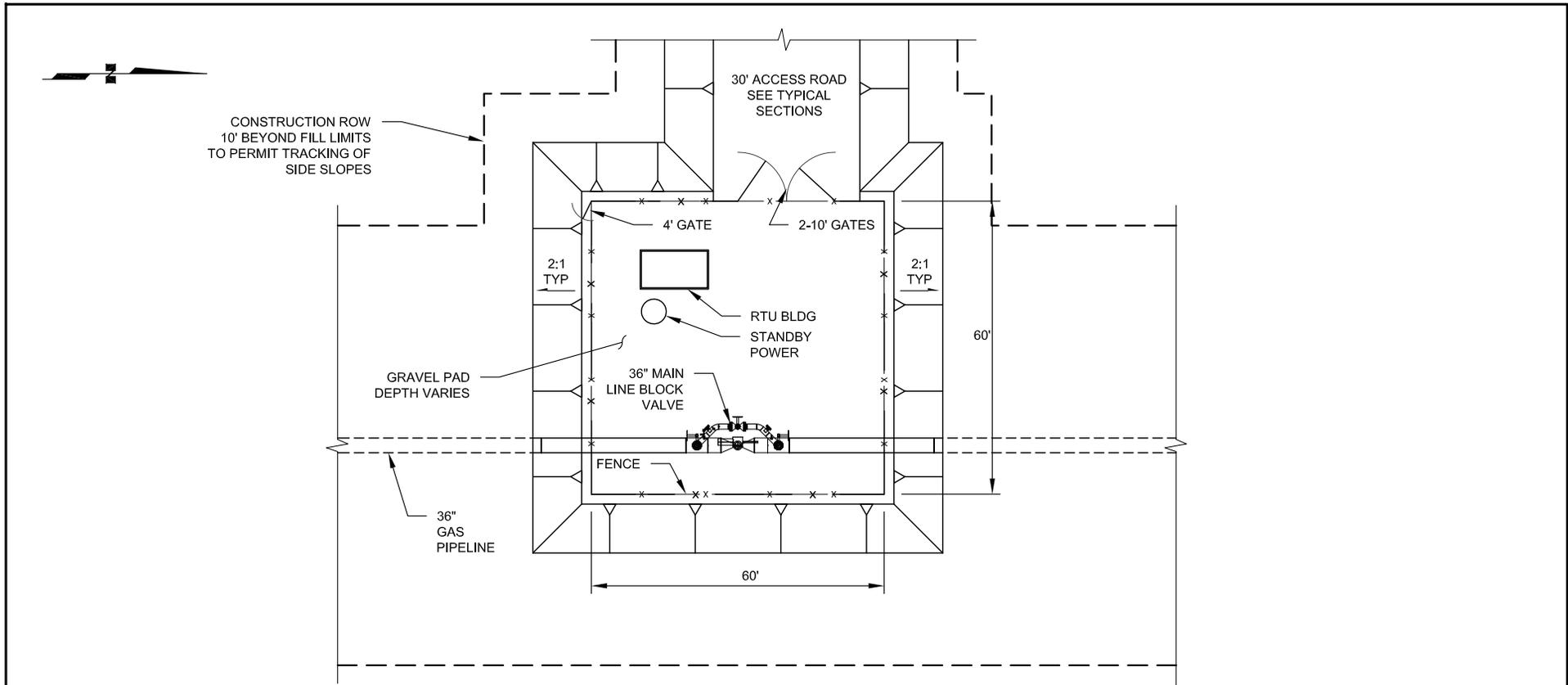
Figure A1-11.
36" In-line Block Valve



Document ID: 001-C-22-PRO-W-0001
File name: POD Figure A1-11
Date: June 20, 2014
Figure: A1-11



Michael Baker Jr., Inc.



36" MAIN LINE BLOCK VALVE TYPICAL SITE LAYOUT
 NOT TO SCALE

NOTES:

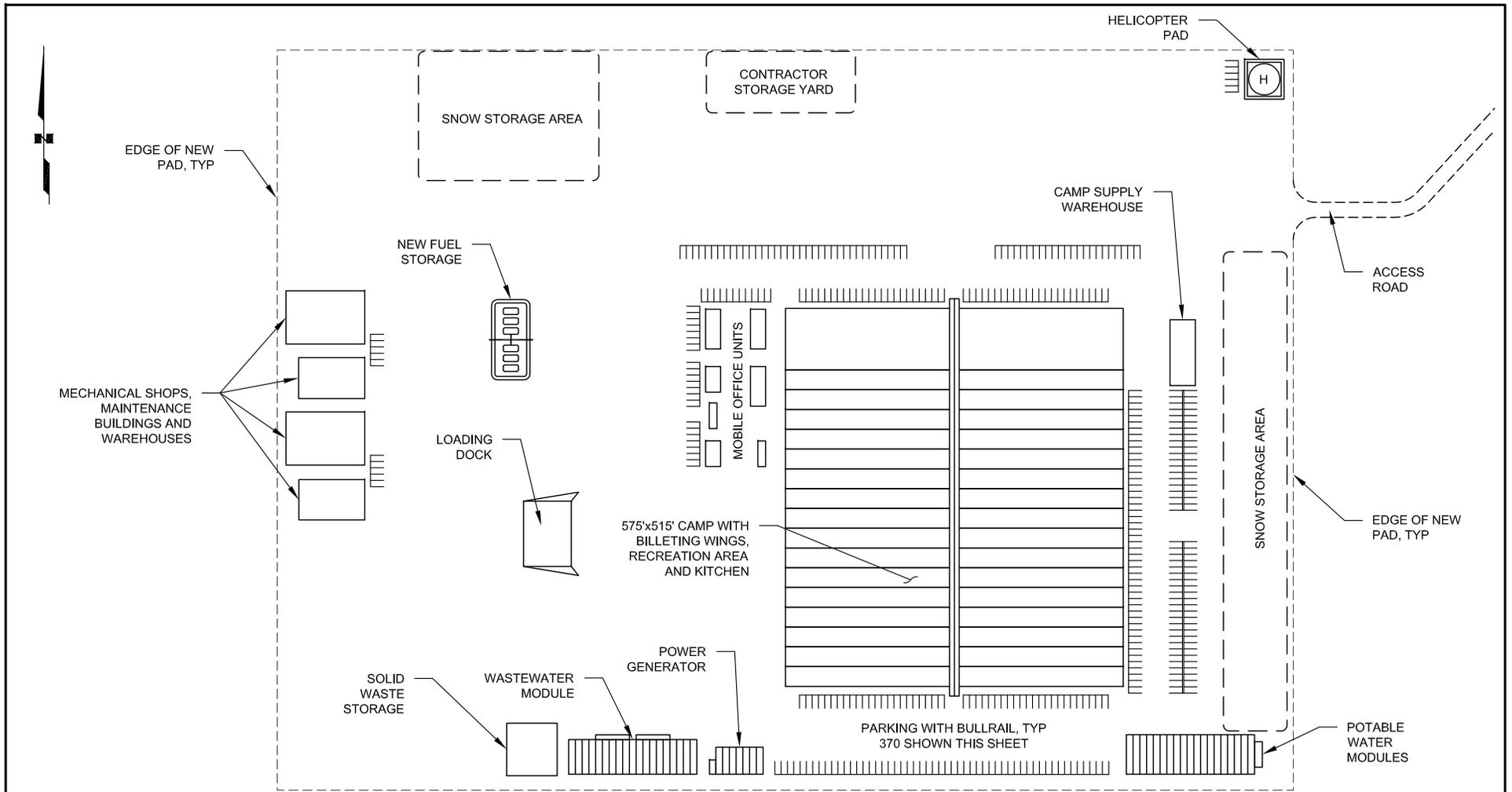
1. MAINLINE BLOCK VALVES WILL HAVE REINFORCED CONCRETE PAD FOUNDATION. VALVE FOUNDATION.
2. ALL ABOVE GROUND EQUIPMENT AND PIPING WILL BE SUPPORTED BY VSM'S.
3. DESIGN TO BE FINALIZED WHEN GEOTECH DATA IS AVAILABLE.

Figure A1-12.
 36" Main Line Block Valve
 Typical Site Layout



Document ID: 001-C-22-PRO-W-0001
 File name: POD Figure A1-12
 Date: June 20, 2014
 Figure: A1-12





800 PERSON CAMP SITE
NOT TO SCALE

Figure A1-13.
800 Person Camp Site

NOTES:

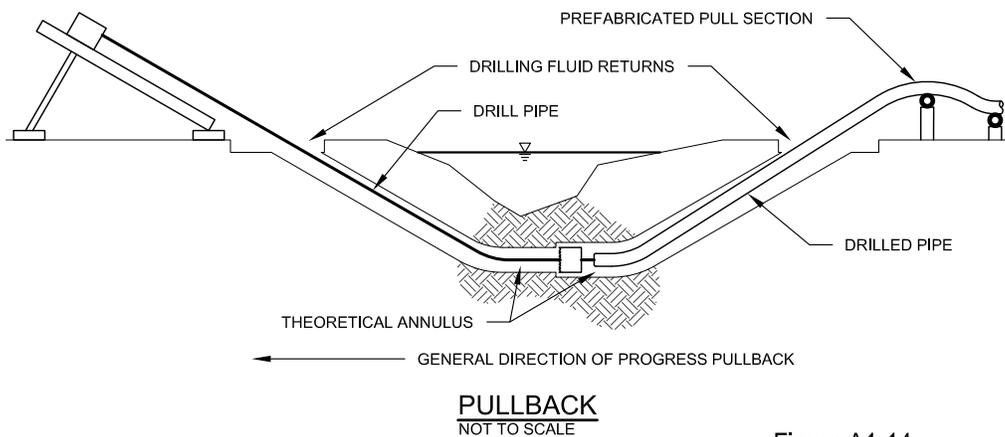
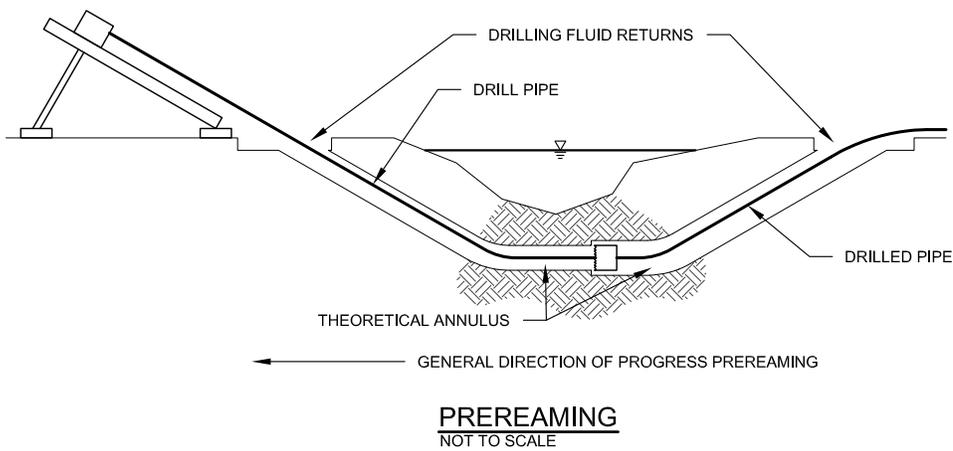
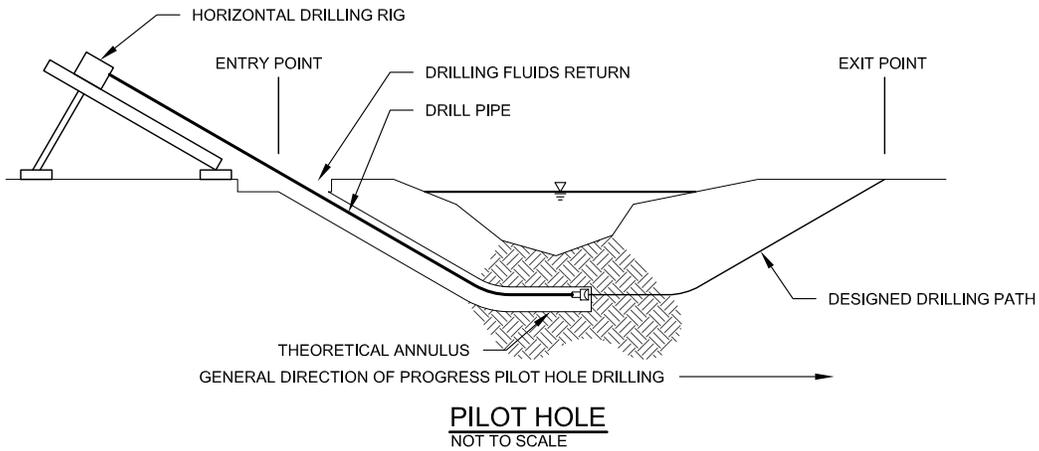
1. CAMP SIZE AREA 35 ACRES.



Document ID: 001-C-22-PRO-W-0001
File name: POD Figure A1-13
Date: June 20, 2014
Figure: A1-13



Michael Baker Jr., Inc.



**TYPICAL HORIZONTAL DIRECTIONAL
DRILL OPERATION**
NOT TO SCALE

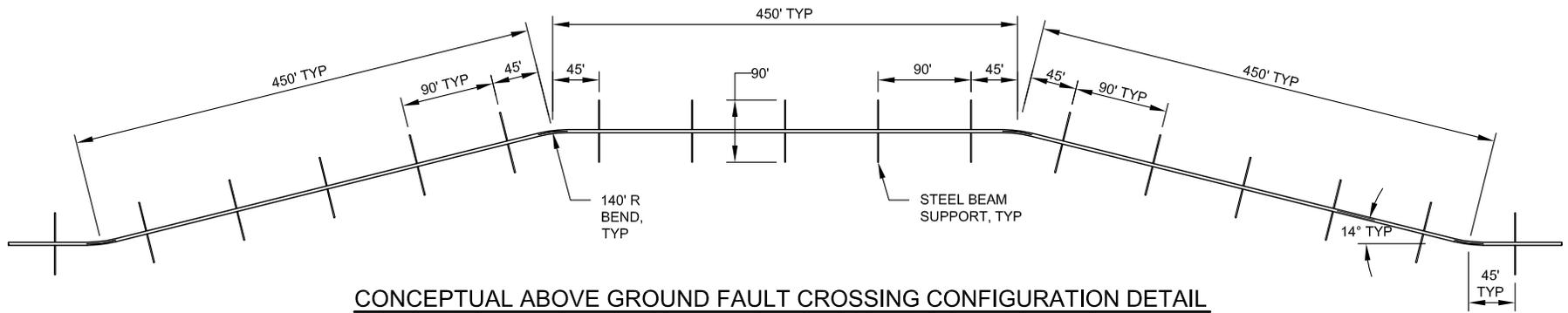
Figure A1-14.
Typical Horizontal Directional Drill Operation



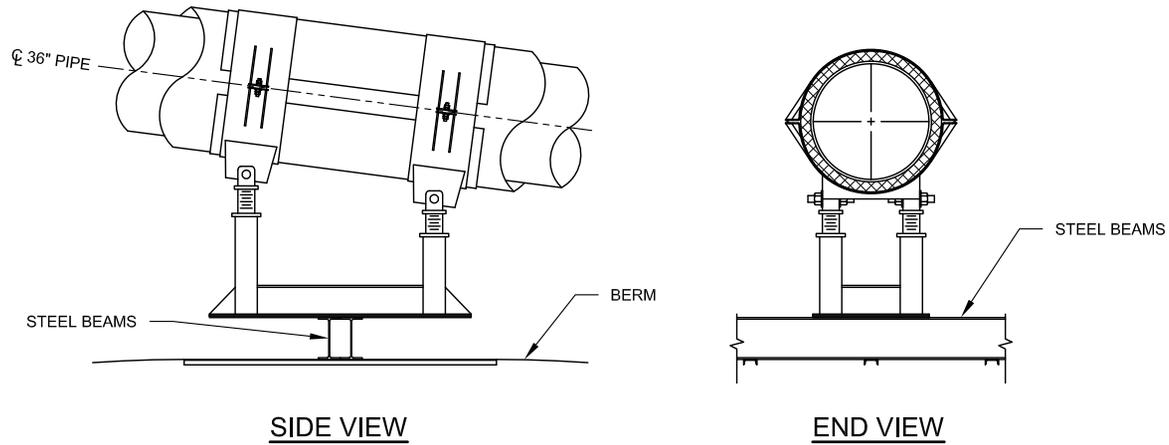
Document ID: 001-C-22-PRO-W-0001
File name: POD Figure A1-14
Date: June 20, 2014
Figure: A1-14



Michael Baker Jr., Inc.



CONCEPTUAL ABOVE GROUND FAULT CROSSING CONFIGURATION DETAIL
NOT TO SCALE



SIDE VIEW

END VIEW

CONCEPTUAL FAULT STEEL BEAM SUPPORT DETAIL
NOT TO SCALE

Figure A1-15.
Conceptual Fault Steel Beam Support Detail



Document ID: 001-C-22-PRO-W-0001
File name: POD Figure A1-15
Date: June 20, 2014
Figure: A1-15



Michael Baker Jr., Inc.

Attachment 2
Land Ownership

ATTACHMENT 2 LAND OWNERSHIP

Attachment 2.1 – Mainline (page A2-2)

Attachment 2.2 – Fairbanks Lateral (page A2-43)

ATTACHMENT 2.1 LAND OWNERSHIP – MAINLINE

This land ownership information has been obtained from publicly available sources and has been partially title-verified. The number of parcels crossed will be determined by a land survey of the final pipeline alignment. The final alignment and construction right-of-way have not been determined. Land ownership data is not included from the alignment located in the Alaska Department of Transportation Right-of-Way.

LANDOWNERS/MANAGERS		
Alaska Railroad	Municipal/Borough	Rivers, Streams
Existing ROW, road crossings, driveways, material sites	Native Allotment	State of Alaska
Federal	Native Corporation	University of Alaska
Mental Health Trust Land Office	Private	

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	U	11	N	14	E	10
State of Alaska	U	11	N	14	E	15
State of Alaska	U	11	N	14	E	16
State of Alaska	U	11	N	14	E	21
State of Alaska	U	11	N	14	E	28
Rivers, Streams	U	11	N	14	E	28
State of Alaska	U	11	N	14	E	28
State of Alaska	U	11	N	14	E	33
State of Alaska	U	11	N	14	E	32
State of Alaska	U	11	N	14	E	33
Private	U	11	N	14	E	32
State of Alaska	U	11	N	14	E	33
Private	U	10	N	14	E	5
State of Alaska	U	10	N	14	E	5
State of Alaska	U	10	N	14	E	8
State of Alaska	U	10	N	14	E	7
State of Alaska	U	10	N	14	E	18
State of Alaska	U	10	N	14	E	19
State of Alaska	U	10	N	14	E	30

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	U	10	N	14	E	31
State of Alaska	U	9	N	14	E	6
State of Alaska	U	9	N	14	E	7
State of Alaska	U	9	N	14	E	18
State of Alaska	U	9	N	13	E	13
State of Alaska	U	9	N	13	E	24
State of Alaska	U	9	N	13	E	25
State of Alaska	U	9	N	13	E	36
State of Alaska	U	8	N	14	E	6
State of Alaska	U	8	N	14	E	7
State of Alaska	U	8	N	14	E	18
State of Alaska	U	8	N	14	E	19
State of Alaska	U	8	N	14	E	30
State of Alaska	U	8	N	14	E	31
State of Alaska	U	7	N	14	E	6
State of Alaska	U	7	N	14	E	7
State of Alaska	U	7	N	14	E	18
State of Alaska	U	7	N	13	E	13
State of Alaska	U	7	N	14	E	18
State of Alaska	U	7	N	14	E	19
State of Alaska	U	7	N	13	E	24
State of Alaska	U	7	N	13	E	25
State of Alaska	U	7	N	13	E	36
State of Alaska	U	6	N	13	E	1
State of Alaska	U	6	N	13	E	2
State of Alaska	U	6	N	13	E	11
State of Alaska	U	6	N	13	E	14
State of Alaska	U	6	N	13	E	23
State of Alaska	U	6	N	13	E	24
State of Alaska	U	6	N	13	E	25
State of Alaska	U	6	N	13	E	36
State of Alaska	U	5	N	13	E	1
State of Alaska	U	5	N	13	E	12
State of Alaska	U	5	N	13	E	13
State of Alaska	U	5	N	13	E	24
State of Alaska	U	5	N	13	E	25
State of Alaska	U	5	N	14	E	30
State of Alaska	U	5	N	14	E	31

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	U	4	N	14	E	5
State of Alaska	U	4	N	14	E	4
State of Alaska	U	4	N	14	E	9
State of Alaska	U	4	N	14	E	16
State of Alaska	U	4	N	14	E	21
State of Alaska	U	4	N	14	E	28
State of Alaska	U	4	N	14	E	33
State of Alaska	U	3	N	14	E	4
State of Alaska	U	3	N	14	E	9
State of Alaska	U	3	N	14	E	10
State of Alaska	U	3	N	14	E	15
State of Alaska	U	3	N	14	E	22
State of Alaska	U	3	N	14	E	27
State of Alaska	U	3	N	14	E	26
State of Alaska	U	3	N	14	E	27
State of Alaska	U	3	N	14	E	34
State of Alaska	U	3	N	14	E	35
State of Alaska	U	2	N	14	E	2
State of Alaska	U	2	N	14	E	11
State of Alaska	U	2	N	14	E	14
State of Alaska	U	2	N	14	E	13
State of Alaska	U	2	N	14	E	24
State of Alaska	U	2	N	14	E	25
State of Alaska	U	2	N	14	E	36
State of Alaska	U	2	N	14	E	35
State of Alaska	U	1	N	14	E	2
State of Alaska	U	1	N	14	E	11
State of Alaska	U	1	N	14	E	14
State of Alaska	U	1	N	14	E	14
State of Alaska	U	1	N	14	E	14
State of Alaska	U	1	N	14	E	23
State of Alaska	U	1	N	14	E	22
State of Alaska	U	1	N	14	E	27
State of Alaska	U	1	N	14	E	28
State of Alaska	U	1	N	14	E	33
State of Alaska	U	1	S	14	E	3
State of Alaska	U	1	S	14	E	4
State of Alaska	U	1	S	14	E	4

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	U	1	S	14	E	4
State of Alaska	U	1	S	14	E	9
State of Alaska	U	1	S	14	E	16
State of Alaska	U	1	S	14	E	21
State of Alaska	U	1	S	14	E	22
State of Alaska	U	1	S	14	E	27
State of Alaska	U	1	S	14	E	34
State of Alaska	U	2	S	14	E	3
State of Alaska	U	2	S	14	E	4
State of Alaska	U	2	S	14	E	9
State of Alaska	U	2	S	14	E	16
State of Alaska	U	2	S	14	E	21
State of Alaska	U	2	S	14	E	28
State of Alaska	U	2	S	14	E	29
State of Alaska	U	2	S	14	E	32
State of Alaska	U	3	S	14	E	5
State of Alaska	U	3	S	14	E	6
State of Alaska	U	3	S	14	E	7
State of Alaska	U	3	S	14	E	18
State of Alaska	U	3	S	14	E	19
State of Alaska	U	3	S	14	E	30
State of Alaska	U	3	S	13	E	25
State of Alaska	U	3	S	13	E	36
State of Alaska	U	4	S	13	E	1
State of Alaska	U	4	S	14	E	6
State of Alaska	U	4	S	14	E	7
State of Alaska	U	4	S	14	E	18
State of Alaska	U	4	S	14	E	19
State of Alaska	U	4	S	14	E	30
State of Alaska	U	4	S	14	E	29
State of Alaska	U	4	S	14	E	30
State of Alaska	U	4	S	14	E	31
State of Alaska	U	5	S	14	E	4
State of Alaska	U	5	S	14	E	5
State of Alaska	U	5	S	14	E	8
State of Alaska	U	5	S	14	E	17
State of Alaska	U	5	S	14	E	20
State of Alaska	U	5	S	14	E	19

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	U	5	S	14	E	30
State of Alaska	U	5	S	14	E	31
State of Alaska	U	6	S	14	E	6
State of Alaska	U	6	S	14	E	7
State of Alaska	U	6	S	14	E	18
State of Alaska	U	6	S	14	E	19
State of Alaska	U	6	S	14	E	30
State of Alaska	U	6	S	14	E	31
State of Alaska	U	7	S	14	E	6
State of Alaska	U	7	S	14	E	5
State of Alaska	U	7	S	14	E	8
State of Alaska	U	7	S	14	E	17
State of Alaska	U	7	S	14	E	20
State of Alaska	U	7	S	14	E	29
State of Alaska	U	7	S	14	E	32
State of Alaska	U	8	S	14	E	5
State of Alaska	U	8	S	14	E	6
State of Alaska	U	8	S	14	E	7
State of Alaska	U	8	S	14	E	18
State of Alaska	U	8	S	13	E	13
State of Alaska	U	8	S	13	E	24
State of Alaska	U	8	S	13	E	23
State of Alaska	U	8	S	13	E	26
State of Alaska	U	8	S	13	E	27
State of Alaska	U	8	S	13	E	28
State of Alaska	U	8	S	13	E	33
Federal	U	9	S	13	E	3
Federal	U	9	S	13	E	4
State of Alaska	U	9	S	13	E	4
State of Alaska	U	9	S	13	E	5
Federal	U	9	S	13	E	5
Federal	U	9	S	13	E	8
Federal	U	9	S	13	E	7
Federal	U	9	S	12	E	12
Federal	U	9	S	12	E	13
Federal	U	9	S	12	E	14
Federal	U	9	S	12	E	15
Federal	U	9	S	12	E	22

OWNER/MANAGER	MERIDIAN	TOWNSHIP	RANGE	SECTION		
Federal	U	9	S	12	E	21
Federal	U	9	S	12	E	20
Federal	U	9	S	12	E	19
Federal	U	9	S	11	E	24
Federal	U	9	S	11	E	25
Federal	U	9	S	11	E	26
Federal	U	9	S	11	E	35
Federal	U	9	S	11	E	34
Federal	U	10	S	11	E	3
State of Alaska	U	10	S	11	E	3
Federal	U	10	S	11	E	3
Federal	U	10	S	11	E	10
Federal	U	10	S	11	E	15
Federal	U	10	S	11	E	14
Federal	U	10	S	11	E	23
Federal	U	10	S	11	E	26
Federal	U	10	S	11	E	35
Federal	U	11	S	11	E	2
Existing ROW, road crossings, driveways, material sites	U	11	S	11	E	2
Federal	U	11	S	11	E	2
Federal	U	11	S	11	E	11
Federal	U	11	S	11	E	12
Federal	U	11	S	11	E	13
Federal	U	11	S	11	E	24
Federal	U	11	S	12	E	19
Federal	U	11	S	12	E	30
Federal	U	11	S	12	E	29
State of Alaska	U	11	S	12	E	29
Federal	U	11	S	12	E	29
Federal	U	11	S	12	E	32
Federal	U	12	S	12	E	5
Federal	U	12	S	12	E	4
Federal	U	12	S	12	E	9
State of Alaska	U	12	S	12	E	9
Federal	U	12	S	12	E	9
Federal	U	12	S	12	E	16
Federal	U	12	S	12	E	21
Existing ROW, road crossings, driveways, material sites	U	12	S	12	E	21

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	U	12	S	12	E	21
Federal	U	12	S	12	E	28
State of Alaska	U	12	S	12	E	28
Federal	U	12	S	12	E	28
Federal	U	12	S	12	E	33
Federal	U	13	S	12	E	3
Federal	U	13	S	12	E	10
Federal	U	13	S	12	E	9
Federal	U	13	S	12	E	10
Federal	U	13	S	12	E	15
Federal	U	13	S	12	E	16
Federal	U	13	S	12	E	21
Federal	U	13	S	12	E	28
Federal	U	13	S	12	E	33
Federal	U	13	S	12	E	32
Federal	U	14	S	12	E	5
Federal	U	14	S	12	E	8
Federal	U	14	S	12	E	17
State of Alaska	U	14	S	12	E	17
Federal	U	14	S	12	E	17
Federal	U	14	S	12	E	20
Federal	U	14	S	12	E	29
Federal	U	14	S	12	E	32
Federal	U	14	S	12	E	31
Federal	U	15	S	12	E	6
Federal	U	15	S	12	E	7
Existing ROW, road crossings, driveways, material sites	U	15	S	12	E	7
Existing ROW, road crossings, driveways, material sites	U	15	S	12	E	18
Federal	U	15	S	12	E	18
Existing ROW, road crossings, driveways, material sites	U	15	S	12	E	18
Federal	U	15	S	12	E	18
Federal	U	15	S	12	E	19
State of Alaska	U	15	S	12	E	19
Federal	U	15	S	12	E	19
Federal	U	15	S	11	E	24
Existing ROW, road crossings, driveways, material sites	U	15	S	11	E	24

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Existing ROW, road crossings, driveways, material sites	U	15	S	11	E	23
Existing ROW, road crossings, driveways, material sites	U	15	S	11	E	26
Federal	U	15	S	11	E	26
Existing ROW, road crossings, driveways, material sites	U	15	S	11	E	26
Federal	U	15	S	11	E	26
Federal	U	15	S	11	E	35
Federal	U	15	S	11	E	34
Federal	U	16	S	11	E	3
Existing ROW, road crossings, driveways, material sites	U	16	S	11	E	3
Federal	U	16	S	11	E	3
Federal	U	16	S	11	E	4
Federal	U	16	S	11	E	9
Federal	U	16	S	11	E	16
Federal	U	16	S	11	E	17
Federal	U	16	S	11	E	20
Existing ROW, road crossings, driveways, material sites	U	16	S	11	E	20
Federal	U	16	S	11	E	20
Federal	U	16	S	11	E	19
Existing ROW, road crossings, driveways, material sites	U	16	S	11	E	19
Federal	U	16	S	11	E	19
Federal	U	16	S	11	E	30
Existing ROW, road crossings, driveways, material sites	U	16	S	11	E	30
Federal	U	16	S	11	E	30
Federal	U	16	S	10	E	25
Federal	U	16	S	10	E	36
Federal	U	16	S	10	E	35
Federal	U	17	S	10	E	2
Federal	F	37	N	10	W	25
Federal	F	37	N	10	W	26
Federal	F	37	N	10	W	35
Existing ROW, road crossings, driveways, material sites	F	37	N	10	W	35
Federal	F	37	N	10	W	35
Existing ROW, road crossings, driveways, material sites	F	37	N	10	W	35
Federal	F	37	N	10	W	35

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	F	36	N	10	W	2
Existing ROW, road crossings, driveways, material sites	F	36	N	10	W	2
Federal	F	36	N	10	W	2
Federal	F	36	N	10	W	3
Federal	F	36	N	10	W	10
Federal	F	36	N	10	W	15
Federal	F	36	N	10	W	16
Federal	F	36	N	10	W	21
Existing ROW, road crossings, driveways, material sites	F	36	N	10	W	21
Federal	F	36	N	10	W	21
Federal	F	36	N	10	W	28
Federal	F	36	N	10	W	33
Federal	F	35	N	10	W	4
Federal	F	35	N	10	W	9
Federal	F	35	N	10	W	16
Existing ROW, road crossings, driveways, material sites	F	35	N	10	W	16
Federal	F	35	N	10	W	16
Existing ROW, road crossings, driveways, material sites	F	35	N	10	W	16
Federal	F	35	N	10	W	16
Federal	F	35	N	10	W	21
Federal	F	35	N	10	W	28
Federal	F	35	N	10	W	33
Existing ROW, road crossings, driveways, material sites	F	35	N	10	W	33
Federal	F	35	N	10	W	33
Federal	F	34	N	10	W	4
Federal	F	34	N	10	W	9
Federal	F	34	N	10	W	10
Federal	F	34	N	10	W	15
Federal	F	34	N	10	W	22
Federal	F	34	N	10	W	23
Federal	F	34	N	10	W	26
Federal	F	34	N	10	W	35
Federal	F	33	N	10	W	2
Federal	F	33	N	10	W	11
Federal	F	33	N	10	W	12
Federal	F	33	N	10	W	13

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	F	33	N	10	W	24
Existing ROW, road crossings, driveways, material sites	F	33	N	10	W	24
Federal	F	33	N	10	W	24
Federal	F	33	N	10	W	25
Federal	F	33	N	10	W	26
Federal	F	33	N	10	W	35
Federal	F	33	N	10	W	34
Federal	F	32	N	10	W	3
Federal	F	32	N	10	W	4
Existing ROW, road crossings, driveways, material sites	F	32	N	10	W	4
Federal	F	32	N	10	W	4
Federal	F	32	N	10	W	9
Federal	F	32	N	10	W	16
Federal	F	32	N	10	W	21
Federal	F	32	N	10	W	28
Federal	F	32	N	10	W	29
Federal	F	32	N	10	W	32
Federal	F	31	N	10	W	5
Federal	F	31	N	10	W	6
Federal	F	31	N	10	W	7
Federal	F	31	N	10	W	8
Federal	F	31	N	10	W	17
Federal	F	31	N	10	W	18
Federal	F	31	N	10	W	19
Native Allotment	F	31	N	10	W	30
Federal	F	31	N	10	W	30
Federal	F	31	N	11	W	25
Federal	F	31	N	11	W	36
Federal	F	31	N	11	W	35
Federal	F	31	N	11	W	34
Federal	F	31	N	11	W	33
Existing ROW, road crossings, driveways, material sites	F	31	N	11	W	33
Existing ROW, road crossings, driveways, material sites	F	30	N	11	W	4
State of Alaska	F	30	N	11	W	5
Federal	F	30	N	11	W	5
State of Alaska	F	30	N	11	W	5
Federal	F	30	N	11	W	5

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	F	30	N	11	W	8
Federal	F	30	N	11	W	7
Federal	F	30	N	11	W	18
Federal	F	30	N	11	W	19
Existing ROW, road crossings, driveways, material sites	F	30	N	11	W	19
Existing ROW, road crossings, driveways, material sites	F	30	N	11	W	30
Federal	F	30	N	11	W	30
Existing ROW, road crossings, driveways, material sites	F	30	N	11	W	30
Federal	F	30	N	11	W	30
Federal	F	30	N	11	W	31
Federal	F	30	N	12	W	36
Federal	F	29	N	12	W	1
Federal	F	29	N	12	W	12
Federal	F	29	N	12	W	13
Federal	F	29	N	12	W	14
State of Alaska	F	29	N	12	W	23
Private	F	29	N	12	W	26
State of Alaska	F	29	N	12	W	26
State of Alaska	F	29	N	12	W	35
State of Alaska	F	28	N	12	W	3
State of Alaska	F	28	N	12	W	10
State of Alaska	F	28	N	12	W	15
State of Alaska	F	28	N	12	W	22
State of Alaska	F	28	N	12	W	21
Federal	F	28	N	12	W	28
Federal	F	28	N	12	W	29
Federal	F	28	N	12	W	32
Federal	F	28	N	12	W	31
Federal	F	27	N	12	W	6
Federal	F	27	N	12	W	7
Federal	F	27	N	13	W	12
Federal	F	27	N	13	W	11
Federal	F	27	N	13	W	14
Existing ROW, road crossings, driveways, material sites	F	27	N	13	W	14
Federal	F	27	N	13	W	14
Federal	F	27	N	13	W	23
Federal	F	27	N	13	W	26

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	F	27	N	13	W	35
Existing ROW, road crossings, driveways, material sites	F	27	N	13	W	35
Federal	F	27	N	13	W	35
Federal	F	26	N	13	W	2
Federal	F	26	N	13	W	11
Federal	F	26	N	13	W	14
Federal	F	26	N	13	W	23
State of Alaska	F	26	N	13	W	23
Federal	F	26	N	13	W	23
Federal	F	26	N	13	W	26
Federal	F	26	N	13	W	25
Federal	F	26	N	13	W	36
Existing ROW, road crossings, driveways, material sites	F	26	N	13	W	36
Federal	F	26	N	13	W	36
Federal	F	25	N	13	W	1
Federal	F	25	N	12	W	6
Existing ROW, road crossings, driveways, material sites	F	25	N	12	W	6
Federal	F	25	N	12	W	6
Federal	F	25	N	12	W	7
Existing ROW, road crossings, driveways, material sites	F	25	N	12	W	7
Federal	F	25	N	12	W	7
Federal	F	25	N	13	W	12
Federal	F	25	N	13	W	13
Federal	F	25	N	13	W	24
Federal	F	25	N	13	W	23
Federal	F	25	N	13	W	26
Federal	F	25	N	13	W	27
Federal	F	25	N	13	W	34
Federal	F	25	N	13	W	33
Federal	F	24	N	13	W	5
Federal	F	24	N	13	W	8
Federal	F	24	N	13	W	7
Federal	F	24	N	13	W	18
Federal	F	24	N	14	W	13
Federal	F	24	N	14	W	24
Existing ROW, road crossings, driveways, material sites	F	24	N	14	W	24

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	F	24	N	14	W	24
Federal	F	24	N	14	W	23
Federal	F	24	N	14	W	26
Federal	F	24	N	14	W	35
Federal	F	24	N	14	W	34
Federal	F	23	N	14	W	3
Federal	F	23	N	14	W	10
Federal	F	23	N	14	W	9
Federal	F	23	N	14	W	16
Federal	F	23	N	14	W	17
Federal	F	23	N	14	W	20
Federal	F	23	N	14	W	29
Federal	F	23	N	14	W	30
Federal	F	23	N	14	W	31
Federal	F	22	N	14	W	6
Federal	F	22	N	14	W	7
Federal	F	22	N	14	W	18
Federal	F	22	N	14	W	19
Federal	F	22	N	14	W	20
Federal	F	22	N	14	W	29
Federal	F	22	N	14	W	32
Federal	F	21	N	14	W	5
Federal	F	21	N	14	W	6
Federal	F	21	N	14	W	7
Federal	F	21	N	14	W	18
Federal	F	21	N	14	W	19
Federal	F	21	N	14	W	30
Federal	F	21	N	14	W	31
Federal	F	20	N	15	W	2
Federal	F	20	N	15	W	11
Federal	F	20	N	15	W	10
Federal	F	20	N	15	W	15
Federal	F	20	N	15	W	14
Federal	F	20	N	15	W	23
Federal	F	20	N	15	W	22
Federal	F	20	N	15	W	27
Federal	F	20	N	15	W	26
Federal	F	20	N	15	W	35

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	F	19	N	15	W	2
Federal	F	19	N	15	W	11
Federal	F	19	N	15	W	12
Federal	F	19	N	15	W	13
Federal	F	19	N	14	W	18
Federal	F	19	N	14	W	19
Federal	F	19	N	14	W	30
Federal	F	19	N	14	W	31
Federal	F	19	N	14	W	32
Federal	F	18	N	14	W	5
Federal	F	18	N	14	W	4
Federal	F	18	N	14	W	9
Native Allotment	F	18	N	14	W	9
Federal	F	18	N	14	W	9
Federal	F	18	N	14	W	10
Federal	F	18	N	14	W	15
Existing ROW, road crossings, driveways, material sites	F	18	N	14	W	15
Federal	F	18	N	14	W	15
Federal	F	18	N	14	W	14
Federal	F	18	N	14	W	23
Federal	F	18	N	14	W	26
Federal	F	18	N	14	W	25
Federal	F	18	N	14	W	36
Federal	F	17	N	14	W	1
Federal	F	17	N	13	W	6
Federal	F	17	N	13	W	7
Federal	F	17	N	13	W	18
Federal	F	17	N	13	W	17
Federal	F	17	N	13	W	20
Federal	F	17	N	13	W	21
Federal	F	17	N	13	W	28
Federal	F	17	N	13	W	33
Federal	F	17	N	13	W	34
Federal	F	16	N	13	W	4
Federal	F	16	N	13	W	9
Federal	F	16	N	13	W	10
Federal	F	16	N	13	W	15
Federal	F	16	N	13	W	14

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Federal	F	16	N	13	W	23
Federal	F	16	N	13	W	24
Federal	F	16	N	13	W	25
Federal	F	16	N	13	W	36
Federal	F	15	N	13	W	1
Federal	F	15	N	12	W	6
Federal	F	15	N	12	W	7
Federal	F	15	N	12	W	18
Federal	F	15	N	12	W	19
Federal	F	15	N	12	W	30
Federal	F	15	N	12	W	29
Federal	F	15	N	12	W	30
Federal	F	15	N	12	W	31
Federal	F	14	N	12	W	6
Federal	F	14	N	12	W	7
Federal	F	14	N	12	W	18
Federal	F	14	N	12	W	17
Federal	F	14	N	12	W	20
Federal	F	14	N	12	W	21
Existing ROW, road crossings, driveways, material sites	F	14	N	12	W	21
Federal	F	14	N	12	W	21
Federal	F	14	N	12	W	28
Federal	F	14	N	12	W	27
Federal	F	14	N	12	W	34
Federal	F	14	N	12	W	35
Federal	F	13	N	12	W	2
Federal	F	13	N	12	W	1
Federal	F	13	N	12	W	12
Federal	F	13	N	11	W	7
Existing ROW, road crossings, driveways, material sites	F	13	N	11	W	7
Federal	F	13	N	11	W	7
Federal	F	13	N	11	W	18
Federal	F	13	N	11	W	17
Federal	F	13	N	11	W	20
Federal	F	13	N	11	W	21
Federal	F	13	N	11	W	22
Federal	F	13	N	11	W	27
Federal	F	13	N	11	W	26

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Native Allotment	F	13	N	11	W	26
Federal	F	13	N	11	W	26
Federal	F	13	N	11	W	35
Federal	F	13	N	11	W	36
Federal	F	12	N	11	W	2
Federal	F	12	N	11	W	1
Federal	F	12	N	11	W	12
Rivers, Streams	F	12	N	11	W	12
State of Alaska	F	12	N	11	W	12
State of Alaska	F	12	N	11	W	13
State of Alaska	F	12	N	11	W	24
State of Alaska	F	12	N	10	W	19
State of Alaska	F	12	N	10	W	20
State of Alaska	F	12	N	10	W	29
State of Alaska	F	12	N	10	W	28
State of Alaska	F	12	N	10	W	27
State of Alaska	F	12	N	10	W	34
State of Alaska	F	12	N	10	W	35
State of Alaska	F	12	N	10	W	36
State of Alaska	F	11	N	10	W	1
State of Alaska	F	11	N	9	W	6
State of Alaska	F	11	N	9	W	7
State of Alaska	F	11	N	9	W	8
State of Alaska	F	11	N	9	W	9
State of Alaska	F	11	N	9	W	16
State of Alaska	F	11	N	9	W	15
State of Alaska	F	11	N	9	W	22
Existing ROW, road crossings, driveways, material sites	F	11	N	9	W	22
State of Alaska	F	11	N	9	W	22
State of Alaska	F	11	N	9	W	23
State of Alaska	F	11	N	9	W	26
State of Alaska	F	11	N	9	W	25
State of Alaska	F	11	N	8	W	30
State of Alaska	F	11	N	8	W	31
State of Alaska	F	11	N	8	W	32
State of Alaska	F	10	N	8	W	5
State of Alaska	F	10	N	8	W	4
State of Alaska	F	10	N	8	W	3

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	F	10	N	8	W	10
State of Alaska	F	10	N	8	W	11
State of Alaska	F	10	N	8	W	14
State of Alaska	F	10	N	8	W	13
State of Alaska	F	10	N	7	W	18
State of Alaska	F	10	N	7	W	19
State of Alaska	F	10	N	7	W	20
State of Alaska	F	10	N	7	W	29
State of Alaska	F	10	N	7	W	32
State of Alaska	F	10	N	7	W	33
State of Alaska	F	9	N	7	W	4
State of Alaska	F	9	N	7	W	3
State of Alaska	F	9	N	7	W	10
State of Alaska	F	9	N	7	W	11
State of Alaska	F	9	N	7	W	14
State of Alaska	F	9	N	7	W	13
State of Alaska	F	9	N	7	W	24
State of Alaska	F	9	N	6	W	19
State of Alaska	F	9	N	6	W	30
State of Alaska	F	9	N	6	W	31
State of Alaska	F	9	N	6	W	32
State of Alaska	F	8	N	6	W	5
State of Alaska	F	8	N	6	W	8
State of Alaska	F	8	N	6	W	9
State of Alaska	F	8	N	6	W	16
State of Alaska	F	8	N	6	W	15
State of Alaska	F	8	N	6	W	22
State of Alaska	F	8	N	6	W	23
Existing ROW, road crossings, driveways, material sites	F	8	N	6	W	23
State of Alaska	F	8	N	6	W	23
State of Alaska	F	8	N	6	W	26
State of Alaska	F	8	N	6	W	25
State of Alaska	F	8	N	5	W	30
State of Alaska	F	8	N	5	W	31
State of Alaska	F	8	N	5	W	31
State of Alaska	F	8	N	5	W	31
State of Alaska	F	7	N	5	W	6
State of Alaska	F	7	N	5	W	5

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	F	7	N	5	W	8
State of Alaska	F	7	N	5	W	17
State of Alaska	F	7	N	5	W	20
State of Alaska	F	7	N	5	W	29
State of Alaska	F	7	N	5	W	32
State of Alaska	F	6	N	5	W	5
State of Alaska	F	6	N	5	W	6
State of Alaska	F	6	N	5	W	7
State of Alaska	F	6	N	5	W	18
State of Alaska	F	6	N	5	W	19
State of Alaska	F	6	N	5	W	30
State of Alaska	F	6	N	5	W	31
State of Alaska	F	5	N	5	W	6
State of Alaska	F	5	N	5	W	7
State of Alaska	F	5	N	6	W	12
State of Alaska	F	5	N	6	W	13
State of Alaska	F	5	N	6	W	24
State of Alaska	F	5	N	6	W	25
State of Alaska	F	5	N	6	W	36
State of Alaska	F	4	N	6	W	1
State of Alaska	F	4	N	6	W	2
State of Alaska	F	4	N	6	W	11
State of Alaska	F	4	N	6	W	14
State of Alaska	F	4	N	6	W	23
State of Alaska	F	4	N	6	W	22
State of Alaska	F	4	N	6	W	27
State of Alaska	F	4	N	6	W	34
State of Alaska	F	3	N	6	W	3
State of Alaska	F	3	N	6	W	2
State of Alaska	F	3	N	6	W	11
State of Alaska	F	3	N	6	W	11
State of Alaska	F	3	N	6	W	11
State of Alaska	F	3	N	6	W	14
State of Alaska	F	3	N	6	W	23
State of Alaska	F	3	N	6	W	26
State of Alaska	F	3	N	6	W	25
State of Alaska	F	3	N	6	W	36
State of Alaska	F	2	N	6	W	1

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	F	2	N	6	W	12
State of Alaska	F	2	N	6	W	13
State of Alaska	F	2	N	6	W	24
State of Alaska	F	2	N	6	W	24
State of Alaska	F	2	N	6	W	24
State of Alaska	F	2	N	6	W	25
State of Alaska	F	2	N	6	W	25
State of Alaska	F	2	N	6	W	36
State of Alaska	F	1	N	6	W	1
State of Alaska	F	1	N	6	W	2
State of Alaska	F	1	N	6	W	11
State of Alaska	F	1	N	6	W	14
State of Alaska	F	1	N	6	W	23
Native Allotment	F	1	N	6	W	23
State of Alaska	F	1	N	6	W	23
State of Alaska	F	1	N	6	W	26
State of Alaska	F	1	N	6	W	27
State of Alaska	F	1	N	6	W	34
State of Alaska	F	1	S	6	W	4
State of Alaska	F	1	S	6	W	5
State of Alaska	F	1	S	6	W	8
State of Alaska	F	1	S	6	W	17
State of Alaska	F	1	S	6	W	20
State of Alaska	F	1	S	6	W	21
State of Alaska	F	1	S	6	W	20
State of Alaska	F	1	S	6	W	29
State of Alaska	F	1	S	6	W	32
State of Alaska	F	1	S	6	W	31
State of Alaska	F	2	S	6	W	6
State of Alaska	F	2	S	7	W	1
State of Alaska	F	2	S	7	W	12
State of Alaska	F	2	S	7	W	13
State of Alaska	F	2	S	7	W	14
State of Alaska	F	2	S	7	W	23
State of Alaska	F	2	S	7	W	26
State of Alaska	F	2	S	7	W	27
State of Alaska	F	2	S	7	W	34
State of Alaska	F	2	S	7	W	33

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Private	F	3	S	7	W	4
Private	F	3	S	7	W	5
State of Alaska	F	3	S	7	W	8
Private	F	3	S	7	W	8
State of Alaska	F	3	S	7	W	7
State of Alaska	F	3	S	7	W	18
State of Alaska	F	3	S	8	W	13
State of Alaska	F	3	S	8	W	24
Private	F	3	S	8	W	24
State of Alaska	F	3	S	8	W	24
State of Alaska	F	3	S	8	W	25
Native Corporation	F	3	S	8	W	26
State of Alaska	F	3	S	8	W	26
Private	F	3	S	8	W	26
Native Corporation	F	3	S	8	W	35
Private	F	4	S	8	W	2
State of Alaska	F	4	S	8	W	2
Existing ROW, road crossings, driveways, material sites	F	4	S	8	W	2
Private	F	4	S	8	W	2
Native Corporation	F	4	S	8	W	2
Private	F	4	S	8	W	2
Existing ROW, road crossings, driveways, material sites	F	4	S	8	W	2
Private	F	4	S	8	W	2
Existing ROW, road crossings, driveways, material sites	F	4	S	8	W	2
Existing ROW, road crossings, driveways, material sites	F	4	S	8	W	3
Native Allotment	F	4	S	8	W	3
Native Corporation	F	4	S	8	W	10
Native Corporation	F	4	S	8	W	10
Native Allotment	F	4	S	8	W	10
Native Allotment	F	4	S	8	W	10
Native Corporation	F	4	S	8	W	10
Native Corporation	F	4	S	8	W	10
State of Alaska	F	4	S	8	W	15
State of Alaska	F	4	S	8	W	15
Municipal/Borough	F	4	S	8	W	15
Private	F	4	S	8	W	22
Private	F	4	S	8	W	22

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Municipal/Borough	F	4	S	8	W	22
Private	F	4	S	8	W	22
Mental Health Trust Land Office	F	4	S	8	W	22
Mental Health Trust Land Office	F	4	S	8	W	27
Mental Health Trust Land Office	F	4	S	8	W	34
Private	F	4	S	8	W	33
University of Alaska	F	4	S	8	W	33
State of Alaska	F	4	S	8	W	33
Private	F	4	S	8	W	33
Private	F	4	S	8	W	33
State of Alaska	F	5	S	8	W	4
State of Alaska	F	5	S	8	W	5
State of Alaska	F	5	S	8	W	8
State of Alaska	F	5	S	8	W	17
State of Alaska	F	5	S	8	W	20
State of Alaska	F	5	S	8	W	19
State of Alaska	F	5	S	8	W	30
State of Alaska	F	5	S	8	W	31
State of Alaska	F	5	S	9	W	36
State of Alaska	F	6	S	9	W	1
State of Alaska	F	6	S	9	W	12
State of Alaska	F	6	S	9	W	11
State of Alaska	F	6	S	9	W	14
State of Alaska	F	6	S	9	W	23
State of Alaska	F	6	S	9	W	26
State of Alaska	F	6	S	9	W	35
State of Alaska	F	6	S	9	W	34
State of Alaska	F	6	S	9	W	34
State of Alaska	F	6	S	9	W	34
State of Alaska	F	7	S	9	W	3
University of Alaska	F	7	S	9	W	10
University of Alaska	F	7	S	9	W	10
University of Alaska	F	7	S	9	W	10
University of Alaska	F	7	S	9	W	10
University of Alaska	F	7	S	9	W	10
University of Alaska	F	7	S	9	W	10
University of Alaska	F	7	S	9	W	10
State of Alaska	F	7	S	9	W	16

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
University of Alaska	F	7	S	9	W	27
University of Alaska	F	7	S	9	W	27
University of Alaska	F	7	S	9	W	27
State of Alaska	F	7	S	9	W	16
University of Alaska	F	7	S	9	W	27
State of Alaska	F	7	S	9	W	27
State of Alaska	F	7	S	9	W	27
State of Alaska	F	7	S	9	W	34
State of Alaska	F	8	S	9	W	3
University of Alaska	F	8	S	9	W	3
University of Alaska	F	8	S	9	W	3
University of Alaska	F	8	S	9	W	3
University of Alaska	F	8	S	9	W	3
State of Alaska	F	8	S	9	W	3
University of Alaska	F	8	S	9	W	3
University of Alaska	F	8	S	9	W	3
State of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
State of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
State of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
University of Alaska	F	8	S	9	W	10
State of Alaska	F	8	S	9	W	10
State of Alaska	F	8	S	9	W	15
University of Alaska	F	8	S	9	W	15

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
University of Alaska	F	8	S	9	W	15
State of Alaska	F	8	S	9	W	15
University of Alaska	F	8	S	9	W	15
State of Alaska	F	8	S	9	W	15
Private	F	8	S	9	W	15
University of Alaska	F	8	S	9	W	15
State of Alaska	F	8	S	9	W	15
University of Alaska	F	8	S	9	W	15
State of Alaska	F	8	S	9	W	15
University of Alaska	F	8	S	9	W	15
University of Alaska	F	8	S	9	W	15
State of Alaska	F	8	S	9	W	15
Municipal/Borough	F	8	S	9	W	15
Municipal/Borough	F	8	S	9	W	15
Municipal/Borough	F	8	S	9	W	22
State of Alaska	F	8	S	9	W	22
Municipal/Borough	F	8	S	9	W	22
State of Alaska	F	8	S	9	W	22
State of Alaska	F	8	S	9	W	22
State of Alaska	F	8	S	9	W	23
Municipal/Borough	F	8	S	9	W	26
Municipal/Borough	F	8	S	9	W	35
State of Alaska	F	9	S	9	W	3
State of Alaska	F	9	S	9	W	2
State of Alaska	F	9	S	9	W	2
Private	F	9	S	9	W	3
State of Alaska	F	9	S	9	W	2
State of Alaska	F	9	S	9	W	11
State of Alaska	F	9	S	9	W	14
State of Alaska	F	9	S	9	W	14
State of Alaska	F	9	S	9	W	14
State of Alaska	F	9	S	9	W	13
State of Alaska	F	9	S	9	W	24
Private	F	9	S	9	W	24
Private	F	9	S	9	W	25
State of Alaska	F	9	S	9	W	25
State of Alaska	F	9	S	9	W	25
State of Alaska	F	9	S	9	W	25

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	F	9	S	9	W	36
Private	F	9	S	9	W	36
Private	F	9	S	9	W	36
State of Alaska	F	9	S	9	W	36
Private	F	9	S	9	W	36
State of Alaska	F	9	S	9	W	36
Private	F	9	S	9	W	36
State of Alaska	F	9	S	9	W	36
State of Alaska	F	9	S	8	W	31
State of Alaska	F	10	S	8	W	6
State of Alaska	F	10	S	8	W	7
State of Alaska	F	10	S	8	W	8
State of Alaska	F	10	S	8	W	17
State of Alaska	F	10	S	8	W	20
State of Alaska	F	10	S	8	W	21
State of Alaska	F	10	S	8	W	28
University of Alaska	F	10	S	8	W	33
State of Alaska	F	11	S	8	W	4
State of Alaska	F	11	S	8	W	9
State of Alaska	F	11	S	8	W	16
State of Alaska	F	11	S	8	W	21
State of Alaska	F	11	S	8	W	22
Municipal/Borough	F	11	S	8	W	27
State of Alaska	F	11	S	8	W	34
State of Alaska	F	11	S	8	W	35
Municipal/Borough	F	12	S	8	W	2
State of Alaska	F	12	S	8	W	2
Municipal/Borough	F	12	S	8	W	1
Municipal/Borough	F	12	S	8	W	12
State of Alaska	F	12	S	8	W	12
Municipal/Borough	F	12	S	8	W	12
Municipal/Borough	F	12	S	8	W	11
Municipal/Borough	F	12	S	8	W	12
Mental Health Trust Land Office	F	12	S	8	W	13
Private	F	12	S	8	W	13
Mental Health Trust Land Office	F	12	S	8	W	13
Private	F	12	S	8	W	24
Private	F	12	S	8	W	24

OWNER/MANAGER	MERIDIAN	TOWNSHIP	RANGE	SECTION		
Mental Health Trust Land Office	F	12	S	8	W	24
Private	F	12	S	8	W	24
Private	F	12	S	8	W	24
Mental Health Trust Land Office	F	12	S	8	W	24
Private	F	12	S	8	W	24
Mental Health Trust Land Office	F	12	S	8	W	24
Private	F	12	S	8	W	24
Private	F	12	S	8	W	24
Private	F	12	S	8	W	24
Mental Health Trust Land Office	F	12	S	8	W	24
Alaska Railroad	F	12	S	8	W	25
Alaska Railroad	F	12	S	7	W	30
Alaska Railroad	F	12	S	7	W	31
Municipal/Borough	F	13	S	7	W	6
State of Alaska	F	13	S	7	W	6
Municipal/Borough	F	13	S	7	W	6
Municipal/Borough	F	13	S	7	W	5
State of Alaska	F	13	S	7	W	8
Existing ROW, road crossings, driveways, material sites	F	13	S	7	W	8
Existing ROW, road crossings, driveways, material sites	F	13	S	7	W	9
Existing ROW, road crossings, driveways, material sites	F	13	S	7	W	16
Existing ROW, road crossings, driveways, material sites	F	13	S	7	W	21
Existing ROW, road crossings, driveways, material sites	F	13	S	7	W	28
Existing ROW, road crossings, driveways, material sites	F	13	S	7	W	27
State of Alaska	F	13	S	7	W	34
Private	F	13	S	7	W	34
State of Alaska	F	13	S	7	W	34
State of Alaska	F	14	S	7	W	3
State of Alaska	F	14	S	7	W	2
State of Alaska	F	14	S	7	W	11
State of Alaska	F	14	S	7	W	12
State of Alaska	F	14	S	7	W	13
State of Alaska	F	14	S	6	W	18
State of Alaska	F	14	S	6	W	19
State of Alaska	F	14	S	6	W	20
Rivers, Streams	F	14	S	6	W	20

OWNER/MANAGER	MERIDIAN	TOWNSHIP	RANGE	SECTION		
State of Alaska	F	14	S	6	W	20
State of Alaska	F	14	S	6	W	29
State of Alaska	F	14	S	6	W	32
Native Corporation	F	15	S	6	W	5
Native Corporation	F	15	S	6	W	4
Native Corporation	F	15	S	6	W	9
Native Corporation	F	15	S	6	W	8
Native Corporation	F	15	S	6	W	17
State of Alaska	F	15	S	6	W	20
Native Corporation	F	15	S	6	W	19
Native Corporation	F	15	S	6	W	30
Native Corporation	F	15	S	6	W	31
Native Corporation	F	16	S	6	W	6
Native Corporation	F	16	S	7	W	1
Existing ROW, road crossings, driveways, material sites	F	16	S	7	W	1
Existing ROW, road crossings, driveways, material sites	F	16	S	7	W	12
Native Corporation	F	16	S	7	W	12
Native Corporation	F	16	S	6	W	7
Native Corporation	F	16	S	6	W	18
Native Corporation	F	16	S	7	W	13
Native Corporation	F	16	S	7	W	13
Native Corporation	F	16	S	7	W	13
Native Corporation	F	16	S	6	W	18
Native Corporation	F	16	S	6	W	19
Native Corporation	F	16	S	7	W	24
Native Corporation	F	16	S	7	W	25
Native Corporation	F	16	S	7	W	36
Native Corporation	F	17	S	7	W	1
Native Corporation	F	17	S	7	W	12
State of Alaska	F	17	S	7	W	12
Native Corporation	F	17	S	7	W	13
Native Corporation	F	17	S	7	W	12
Native Corporation	F	17	S	7	W	11
Native Corporation	F	17	S	7	W	14
Existing ROW, road crossings, driveways, material sites	F	17	S	7	W	14
State of Alaska	F	17	S	7	W	15
Native Corporation	F	17	S	7	W	15

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Native Corporation	F	17	S	7	W	22
State of Alaska	F	17	S	7	W	22
Native Corporation	F	17	S	7	W	22
Native Corporation	F	17	S	7	W	27
Native Allotment	F	17	S	7	W	27
State of Alaska	F	17	S	7	W	27
Native Corporation	F	17	S	7	W	27
Native Corporation	F	17	S	7	W	28
Native Corporation	F	17	S	7	W	33
Native Allotment	F	17	S	7	W	33
Private	F	17	S	7	W	33
Private	F	17	S	7	W	33
Native Allotment	F	17	S	7	W	33
Native Corporation	F	18	S	7	W	4
Native Corporation	F	18	S	7	W	4
Native Corporation	F	18	S	7	W	4
State of Alaska	F	18	S	7	W	4
State of Alaska	F	18	S	7	W	5
Native Corporation	F	18	S	7	W	5
Native Corporation	F	18	S	7	W	8
Native Corporation	F	18	S	7	W	7
Native Corporation	F	18	S	8	W	12
Native Corporation	F	18	S	8	W	11
Native Corporation	F	18	S	8	W	14
Native Corporation	F	18	S	8	W	15
Native Corporation	F	18	S	8	W	22
Native Corporation	F	18	S	8	W	21
Alaska Railroad	F	18	S	8	W	21
Native Corporation	F	18	S	8	W	21
State of Alaska	F	18	S	8	W	21
Native Corporation	F	18	S	8	W	21
State of Alaska	F	18	S	8	W	21
Native Corporation	F	18	S	8	W	21
State of Alaska	F	18	S	8	W	20
Federal	F	18	S	8	W	29
State of Alaska	F	18	S	8	W	30
Native Corporation	F	18	S	8	W	31
State of Alaska	F	18	S	9	W	36

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
University of Alaska	F	19	S	9	W	1
Native Corporation	F	19	S	9	W	2
Native Corporation	F	19	S	9	W	11
Native Corporation	F	19	S	9	W	10
Native Corporation	F	19	S	9	W	15
State of Alaska	F	19	S	9	W	16
Native Corporation	F	19	S	9	W	21
Native Allotment	F	19	S	9	W	28
Native Corporation	F	19	S	9	W	29
Native Corporation	F	19	S	9	W	32
State of Alaska	F	19	S	9	W	31
Alaska Railroad	F	20	S	9	W	5
Alaska Railroad	F	20	S	9	W	6
Alaska Railroad	F	20	S	9	W	7
Alaska Railroad	F	20	S	9	W	7
State of Alaska	F	20	S	9	W	7
State of Alaska	F	20	S	9	W	7
State of Alaska	F	20	S	9	W	7
State of Alaska	F	20	S	9	W	18
State of Alaska	F	20	S	9	W	19
State of Alaska	F	20	S	10	W	24
State of Alaska	F	20	S	10	W	25
State of Alaska	F	20	S	10	W	26
State of Alaska	F	20	S	10	W	35
State of Alaska	F	20	S	10	W	34
State of Alaska	F	20	S	10	W	34
State of Alaska	F	21	S	10	W	3
Mental Health Trust Land Office	F	21	S	10	W	3
State of Alaska	F	21	S	10	W	3
Federal	F	21	S	10	W	4
State of Alaska	F	21	S	10	W	9
State of Alaska	F	21	S	10	W	16
State of Alaska	F	21	S	10	W	21
Federal	F	21	S	10	W	20
State of Alaska	F	21	S	10	W	29
State of Alaska	F	21	S	10	W	32
State of Alaska	F	21	S	10	W	31
State of Alaska	F	22	S	10	W	6

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	F	22	S	10	W	7
State of Alaska	F	22	S	10	W	18
State of Alaska	F	22	S	10	W	19
State of Alaska	F	22	S	11	W	24
State of Alaska	F	22	S	11	W	23
State of Alaska	F	22	S	11	W	26
Alaska Railroad	F	22	S	11	W	27
State of Alaska	F	22	S	11	W	34
Existing ROW, road crossings, driveways, material sites	F	22	S	11	W	34
State of Alaska	F	22	S	11	W	34
State of Alaska	S	33	N	2	W	15
State of Alaska	S	33	N	2	W	16
State of Alaska	S	33	N	2	W	16
Existing ROW, road crossings, driveways, material sites	S	33	N	2	W	16
State of Alaska	S	33	N	2	W	16
Existing ROW, road crossings, driveways, material sites	S	33	N	2	W	16
State of Alaska	S	33	N	2	W	16
Alaska Railroad	S	33	N	2	W	16
State of Alaska	S	33	N	2	W	16
State of Alaska	S	33	N	2	W	16
State of Alaska	S	33	N	2	W	16
State of Alaska	S	33	N	2	W	21
State of Alaska	S	33	N	2	W	21
State of Alaska	S	33	N	2	W	21
State of Alaska	S	33	N	2	W	21
State of Alaska	S	33	N	2	W	20
State of Alaska	S	33	N	2	W	30
State of Alaska	S	33	N	2	W	29
Federal	S	33	N	2	W	30
Federal	S	33	N	2	W	31
State of Alaska	S	33	N	2	W	31
Federal	S	33	N	2	W	31
State of Alaska	S	33	N	2	W	31
State of Alaska	S	33	N	2	W	31
State of Alaska	S	33	N	2	W	31
Federal	S	33	N	2	W	31
State of Alaska	S	33	N	2	W	31
State of Alaska	S	33	N	2	W	31

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	S	33	N	3	W	36
State of Alaska	S	32	N	3	W	1
State of Alaska	S	32	N	3	W	2
State of Alaska	S	32	N	3	W	11
State of Alaska	S	32	N	3	W	10
Existing ROW, road crossings, driveways, material sites	S	32	N	3	W	16
State of Alaska	S	32	N	3	W	10
Existing ROW, road crossings, driveways, material sites	S	32	N	3	W	16
State of Alaska	S	32	N	3	W	10
State of Alaska	S	32	N	3	W	9
State of Alaska	S	32	N	3	W	8
State of Alaska	S	32	N	3	W	17
State of Alaska	S	32	N	3	W	20
State of Alaska	S	32	N	3	W	19
State of Alaska	S	32	N	3	W	30
State of Alaska	S	32	N	3	W	31
State of Alaska	S	32	N	4	W	36
State of Alaska	S	32	N	4	W	35
State of Alaska	S	31	N	4	W	2
State of Alaska	S	31	N	4	W	3
State of Alaska	S	31	N	4	W	10
State of Alaska	S	31	N	4	W	10
State of Alaska	S	31	N	4	W	10
State of Alaska	S	31	N	4	W	9
State of Alaska	S	31	N	4	W	16
State of Alaska	S	31	N	4	W	17
State of Alaska	S	31	N	4	W	20
State of Alaska	S	31	N	4	W	19
State of Alaska	S	31	N	4	W	30
State of Alaska	S	31	N	5	W	25
State of Alaska	S	31	N	5	W	25
State of Alaska	S	31	N	5	W	25
Federal	S	31	N	5	W	26
State of Alaska	S	31	N	5	W	35
State of Alaska	S	31	N	5	W	35
State of Alaska	S	31	N	5	W	35
State of Alaska	S	31	N	5	W	35
Federal	S	31	N	5	W	34

OWNER/MANAGER	MERIDIAN	TOWNSHIP	RANGE	SECTION
State of Alaska	S	30	N 5	W 3
State of Alaska	S	30	N 5	W 3
State of Alaska	S	30	N 5	W 10
State of Alaska	S	30	N 5	W 10
State of Alaska	S	30	N 5	W 9
State of Alaska	S	30	N 5	W 16
State of Alaska	S	30	N 5	W 17
State of Alaska	S	30	N 5	W 20
Existing ROW, road crossings, driveways, material sites	S	30	N 5	W 20
State of Alaska	S	30	N 5	W 20
State of Alaska	S	30	N 5	W 21
State of Alaska	S	30	N 5	W 28
State of Alaska	S	30	N 5	W 33
State of Alaska	S	29	N 5	W 4
State of Alaska	S	29	N 5	W 4
State of Alaska	S	29	N 5	W 4
State of Alaska	S	29	N 5	W 9
State of Alaska	S	29	N 5	W 8
State of Alaska	S	29	N 5	W 8
State of Alaska	S	29	N 5	W 8
State of Alaska	S	29	N 5	W 17
State of Alaska	S	29	N 5	W 18
State of Alaska	S	29	N 5	W 17
State of Alaska	S	29	N 5	W 20
State of Alaska	S	29	N 5	W 29
State of Alaska	S	29	N 5	W 32
Municipal/Borough	S	28	N 5	W 5
Municipal/Borough	S	28	N 5	W 5
State of Alaska	S	28	N 5	W 8
State of Alaska	S	28	N 5	W 8
State of Alaska	S	28	N 5	W 8
State of Alaska	S	28	N 5	W 8
State of Alaska	S	28	N 5	W 8
State of Alaska	S	28	N 5	W 8
Municipal/Borough	S	28	N 5	W 17
Existing ROW, road crossings, driveways, material sites	S	28	N 5	W 17
Municipal/Borough	S	28	N 5	W 17
State of Alaska	S	26	N 5	W 17

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Existing ROW, road crossings, driveways, material sites	S	28	N	5	W	18
State of Alaska	S	26	N	5	W	17
Municipal/Borough	S	28	N	5	W	19
State of Alaska	S	26	N	5	W	17
Municipal/Borough	S	28	N	5	W	19
Municipal/Borough	S	28	N	5	W	19
Municipal/Borough	S	28	N	5	W	30
Municipal/Borough	S	28	N	5	W	31
Municipal/Borough	S	28	N	5	W	31
Municipal/Borough	S	28	N	5	W	31
State of Alaska	S	27	N	5	W	6
Municipal/Borough	S	27	N	5	W	6
Municipal/Borough	S	27	N	5	W	7
Municipal/Borough	S	27	N	5	W	18
Municipal/Borough	S	27	N	5	W	18
Municipal/Borough	S	27	N	5	W	19
Municipal/Borough	S	27	N	5	W	19
State of Alaska	S	27	N	5	W	30
State of Alaska	S	27	N	5	W	30
Municipal/Borough	S	27	N	5	W	31
Municipal/Borough	S	26	N	5	W	6
Municipal/Borough	S	26	N	5	W	7
Municipal/Borough	S	26	N	5	W	18
Municipal/Borough	S	26	N	5	W	18
Private	S	26	N	5	W	18
Municipal/Borough	S	26	N	5	W	18
Municipal/Borough	S	26	N	5	W	18
Private	S	26	N	5	W	18
Municipal/Borough	S	26	N	5	W	19
Municipal/Borough	S	26	N	5	W	19
Municipal/Borough	S	26	N	5	W	30
Municipal/Borough	S	26	N	5	W	30
State of Alaska	S	26	N	5	W	30
Private	S	26	N	5	W	30
Private	S	26	N	5	W	30
Private	S	26	N	5	W	31
Municipal/Borough	S	26	N	5	W	31
Municipal/Borough	S	26	N	5	W	31

OWNER/MANAGER	MERIDIAN	TOWNSHIP	RANGE	SECTION
Municipal/Borough	S	25	N 5	W 6
Municipal/Borough	S	25	N 5	W 5
Municipal/Borough	S	25	N 5	W 6
Municipal/Borough	S	25	N 5	W 7
Municipal/Borough	S	25	N 5	W 18
Municipal/Borough	S	25	N 5	W 19
Municipal/Borough	S	25	N 5	W 20
Municipal/Borough	S	25	N 5	W 29
Municipal/Borough	S	25	N 5	W 32
State of Alaska	S	24	N 5	W 5
State of Alaska	S	24	N 5	W 8
Municipal/Borough	S	24	N 5	W 9
State of Alaska	S	24	N 5	W 9
State of Alaska	S	24	N 5	W 9
State of Alaska	S	24	N 5	W 10
State of Alaska	S	24	N 5	W 15
State of Alaska	S	24	N 5	W 15
State of Alaska	S	24	N 5	W 15
Municipal/Borough	S	24	N 5	W 15
Private	S	24	N 5	W 14
Municipal/Borough	S	24	N 5	W 23
Private	S	24	N 5	W 24
Private	S	24	N 5	W 24
Federal	S	24	N 5	W 24
State of Alaska	S	24	N 5	W 25
Municipal/Borough	S	24	N 5	W 25
Alaska Railroad	S	24	N 4	W 30
Private	S	24	N 4	W 30
Private	S	24	N 4	W 31
Private	S	24	N 4	W 31
Private	S	24	N 4	W 31
Private	S	24	N 4	W 31
Federal	S	23	N 4	W 6
Private	S	23	N 4	W 6
Private	S	23	N 4	W 6
Native Allotment	S	23	N 4	W 6
State of Alaska	S	23	N 4	W 7
Municipal/Borough	S	23	N 4	W 7

OWNER/MANAGER	MERIDIAN	TOWNSHIP	RANGE	SECTION
Private	S	23	N 4	W 7
Private	S	23	N 4	W 7
Private	S	23	N 4	W 18
Private	S	23	N 4	W 18
Native Allotment	S	23	N 4	W 19
Private	S	23	N 4	W 19
Private	S	23	N 4	W 19
Private	S	23	N 4	W 19
Municipal/Borough	S	23	N 4	W 19
Private	S	23	N 4	W 30
Private	S	23	N 4	W 30
Municipal/Borough	S	23	N 4	W 30
Alaska Railroad	S	23	N 4	W 30
Municipal/Borough	S	23	N 4	W 30
Municipal/Borough	S	23	N 4	W 30
Municipal/Borough	S	23	N 4	W 30
Municipal/Borough	S	23	N 4	W 31
State of Alaska	S	23	N 4	W 31
State of Alaska	S	23	N 5	W 36
State of Alaska	S	22	N 5	W 1
State of Alaska	S	22	N 5	W 12
State of Alaska	S	22	N 5	W 13
State of Alaska	S	22	N 4	W 18
State of Alaska	S	22	N 4	W 19
State of Alaska	S	22	N 4	W 19
State of Alaska	S	22	N 4	W 30
Native Corporation	S	22	N 4	W 30
Private	S	22	N 4	W 30
Existing ROW, road crossings, driveways, material sites	S	22	N 4	W 30
Private	S	22	N 4	W 30
Private	S	22	N 4	W 30
Private	S	22	N 4	W 31
Municipal/Borough	S	22	N 4	W 31
Private	S	21	N 4	W 6
Mental Health Trust Land Office	S	21	N 4	W 6
Private	S	21	N 4	W 6
State of Alaska	S	21	N 4	W 6
Private	S	21	N 4	W 6

OWNER/MANAGER	MERIDIAN	TOWNSHIP	RANGE	SECTION
Private	S	21	N 4 W	6
Existing ROW, road crossings, driveways, material sites	S	21	N 4 W	7
Private	S	21	N 4 W	7
Private	S	21	N 4 W	7
Existing ROW, road crossings, driveways, material sites	S	21	N 4 W	7
Private	S	21	N 4 W	7
Existing ROW, road crossings, driveways, material sites	S	21	N 4 W	7
Private	S	21	N 4 W	7
Private	S	21	N 4 W	7
Private	S	21	N 4 W	7
Mental Health Trust Land Office	S	21	N 4 W	7
State of Alaska	S	21	N 4 W	7
Mental Health Trust Land Office	S	21	N 4 W	7
Private	S	21	N 4 W	18
Private	S	21	N 4 W	18
Municipal/Borough	S	21	N 4 W	19
State of Alaska	S	21	N 4 W	19
Private	S	21	N 4 W	19
State of Alaska	S	21	N 4 W	19
Private	S	21	N 4 W	30
Private	S	21	N 4 W	30
Municipal/Borough	S	21	N 4 W	30
Municipal/Borough	S	21	N 4 W	31
Municipal/Borough	S	21	N 4 W	31
Private	S	21	N 4 W	31
Private	S	20	N 4 W	6
State of Alaska	S	20	N 4 W	6
State of Alaska	S	20	N 4 W	6
Private	S	20	N 4 W	6
State of Alaska	S	20	N 4 W	7
Private	S	20	N 5 W	12
Mental Health Trust Land Office	S	20	N 5 W	12
Mental Health Trust Land Office	S	20	N 5 W	12
Private	S	20	N 5 W	13
Private	S	20	N 5 W	13
Private	S	20	N 5 W	13
Private	S	20	N 5 W	13

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Private	S	20	N	5	W	13
State of Alaska	S	20	N	5	W	24
Municipal/Borough	S	20	N	5	W	23
Private	S	20	N	5	W	23
Private	S	20	N	5	W	23
Private	S	20	N	5	W	26
State of Alaska	S	20	N	5	W	35
State of Alaska	S	20	N	5	W	36
State of Alaska	S	20	N	5	W	36
State of Alaska	S	19	N	5	W	1
State of Alaska	S	19	N	5	W	2
Municipal/Borough	S	19	N	5	W	11
State of Alaska	S	19	N	5	W	10
State of Alaska	S	19	N	5	W	15
State of Alaska	S	19	N	5	W	22
Existing ROW, road crossings, driveways, material sites	S	19	N	5	W	22
State of Alaska	S	19	N	5	W	22
Private	S	19	N	5	W	22
State of Alaska	S	19	N	5	W	27
State of Alaska	S	19	N	5	W	34
State of Alaska	S	19	N	5	W	34
State of Alaska	S	18	N	5	W	3
State of Alaska	S	18	N	5	W	10
State of Alaska	S	18	N	5	W	9
State of Alaska	S	18	N	5	W	16
State of Alaska	S	18	N	5	W	17
State of Alaska	S	18	N	5	W	20
State of Alaska	S	18	N	5	W	29
State of Alaska	S	18	N	5	W	32
Municipal/Borough	S	17	N	5	W	5
Private	S	17	N	5	W	5
Private	S	17	N	5	W	5
Private	S	17	N	5	W	5
Municipal/Borough	S	17	N	5	W	5
Municipal/Borough	S	17	N	5	W	8
State of Alaska	S	17	N	5	W	17
Municipal/Borough	S	17	N	5	W	16
Municipal/Borough	S	17	N	5	W	21

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Municipal/Borough	S	17	N	5	W	28
Municipal/Borough	S	17	N	5	W	33
Municipal/Borough	S	16	N	5	W	4
Municipal/Borough	S	16	N	5	W	9
Municipal/Borough	S	16	N	5	W	10
Municipal/Borough	S	16	N	5	W	15
State of Alaska	S	16	N	5	W	15
State of Alaska	S	16	N	5	W	15
State of Alaska	S	16	N	5	W	15
State of Alaska	S	16	N	5	W	15
State of Alaska	S	16	N	5	W	15
State of Alaska	S	16	N	5	W	14
Municipal/Borough	S	16	N	5	W	23
Municipal/Borough	S	16	N	5	W	23
Municipal/Borough	S	16	N	5	W	26
Municipal/Borough	S	16	N	5	W	26
Municipal/Borough	S	16	N	5	W	26
Private	S	16	N	5	W	35
Private	S	16	N	5	W	36
Municipal/Borough	S	16	N	5	W	36
Private	S	16	N	5	W	36

ATTACHMENT 2.2 LAND OWNERSHIP – FAIRBANKS LATERAL

This land ownership information has been obtained from publicly available sources and has been partially title-verified. The number of parcels crossed will be determined by a land survey of the final pipeline alignment. The final alignment and construction right-of-way have not been determined. Land ownership data is not included from the alignment located in the Alaska Department of Transportation Right-of-Way.

LANDOWNERS/MANAGERS		
Alaska Railroad	Municipal/Borough	Rivers, Streams
Existing ROW, road crossings, driveways, material sites	Native Allotment	State of Alaska
Federal	Native Corporation	University of Alaska
Mental Health Trust Land Office	Private	

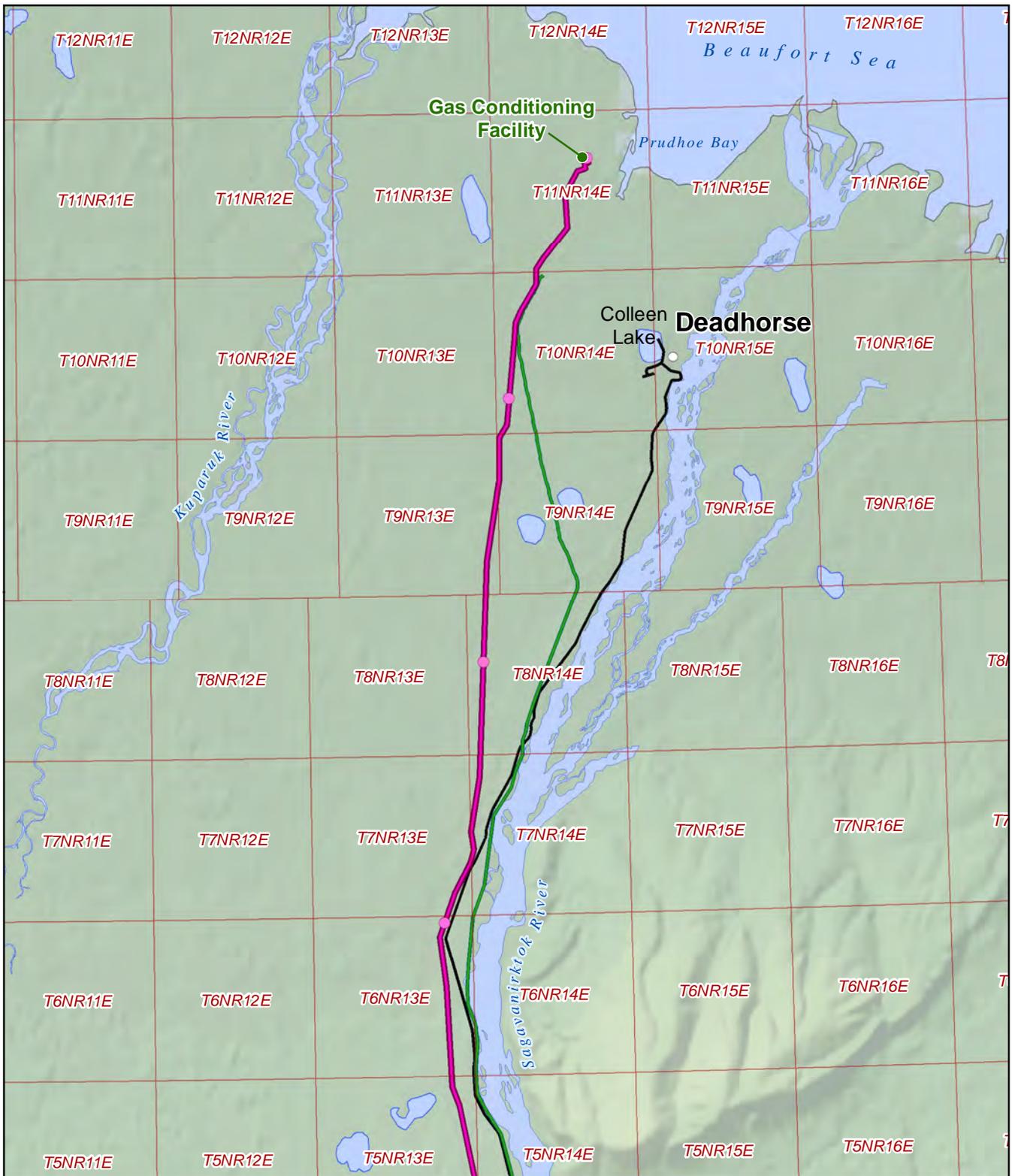
OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	F	2	N	6	W	36
State of Alaska	F	2	N	5	W	31
State of Alaska	F	2	N	5	W	32
State of Alaska	F	1	N	5	W	5
State of Alaska	F	1	N	5	W	4
Existing ROW, road crossings, driveways, material sites	F	1	N	5	W	3
State of Alaska	F	1	N	5	W	4
State of Alaska	F	1	N	5	W	3
Existing ROW, road crossings, driveways, material sites	F	1	N	5	W	3
State of Alaska	F	1	N	5	W	3
State of Alaska	F	1	N	5	W	2
Existing ROW, road crossings, driveways, material sites	F	1	N	5	W	3
State of Alaska	F	1	N	5	W	2
State of Alaska	F	1	N	5	W	1
State of Alaska	F	1	N	4	W	6
Existing ROW, road crossings, driveways, material sites	F	1	N	5	W	3
State of Alaska	F	1	N	4	W	6

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
State of Alaska	F	2	N	4	W	31
State of Alaska	F	2	N	4	W	32
Existing ROW, road crossings, driveways, material sites	F	1	N	5	W	3
State of Alaska	F	2	N	4	W	32
State of Alaska	F	2	N	4	W	33
Federal	F	2	N	4	W	33
Federal	F	2	N	4	W	34
Federal	F	1	N	4	W	3
State of Alaska	F	1	N	4	W	3
Existing ROW, road crossings, driveways, material sites	F	1	N	4	W	3
State of Alaska	F	1	N	4	W	3
Municipal/Borough	F	1	N	4	W	2
Municipal/Borough	F	1	N	4	W	1
State of Alaska	F	2	N	4	W	36
State of Alaska	F	2	N	3	W	31
State of Alaska	F	2	N	3	W	31
State of Alaska	F	2	N	3	W	32
Existing ROW, road crossings, driveways, material sites	F	2	N	3	W	32
State of Alaska	F	2	N	3	W	32
Existing ROW, road crossings, driveways, material sites	F	2	N	3	W	32
State of Alaska	F	2	N	3	W	32
State of Alaska	F	2	N	3	W	33
State of Alaska	F	2	N	3	W	34
State of Alaska	F	2	N	3	W	35
Municipal/Borough	F	2	N	3	W	35
Municipal/Borough	F	2	N	3	W	36
Municipal/Borough	F	1	N	3	W	1
Municipal/Borough	F	1	N	2	W	6
Municipal/Borough	F	1	N	2	W	5
Municipal/Borough	F	1	N	2	W	8
Existing ROW, road crossings, driveways, material sites	F	1	N	2	W	7
Private	F	1	N	2	W	8
Private	F	1	N	2	W	8
Existing ROW, road crossings, driveways, material sites	F	1	N	2	W	8
Private	F	1	N	2	W	8

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Private	F	1	N	2	W	8
Private	F	1	N	2	W	8
Private	F	1	N	2	W	8
Private	F	1	N	2	W	8
Private	F	1	N	2	W	8
Existing ROW, road crossings, driveways, material sites	F	1	N	3	W	1
Municipal/Borough	F	1	N	2	W	8
Existing ROW, road crossings, driveways, material sites	F	1	N	2	W	8
Municipal/Borough	F	1	N	2	W	8
University of Alaska	F	1	N	2	W	8
Municipal/Borough	F	1	N	2	W	8
State of Alaska	F	1	N	2	W	17
State of Alaska	F	1	N	2	W	17
Private	F	1	N	2	W	17
Existing ROW, road crossings, driveways, material sites	F	1	N	2	W	17
Private	F	1	N	2	W	16
Private	F	1	N	2	W	16
Private	F	1	N	2	W	16
Private	F	1	N	2	W	16
Private	F	1	N	2	W	16
Private	F	1	N	2	W	16
Private	F	1	N	2	W	16
Existing ROW, road crossings, driveways, material sites	F	1	N	2	W	16
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Federal	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Private	F	1	N	2	W	21
Existing ROW, road crossings, driveways, material sites	F	1	N	2	W	28
Private	F	1	N	2	W	28
Private	F	1	N	2	W	28

OWNER/MANAGER	MERIDIAN	TOWNSHIP		RANGE		SECTION
Private	F	1	N	2	W	28
Private	F	1	N	2	W	28
Private	F	1	N	2	W	28
State of Alaska	F	1	N	2	W	28
Private	F	1	N	2	W	28
State of Alaska	F	1	N	2	W	28
State of Alaska	F	1	N	2	W	28
Private	F	1	N	2	W	27
State of Alaska	F	1	N	2	W	27
Mental Health Trust Land Office	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	34
Private	F	1	N	2	W	35
Private	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
State of Alaska	F	1	N	2	W	35
University of Alaska	F	1	N	2	W	36
University of Alaska	F	1	S	2	W	1
Existing ROW, road crossings, driveways, material sites	F	1	S	2	W	1
University of Alaska	F	1	S	2	W	1

Attachment 3
Maps



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

Legend

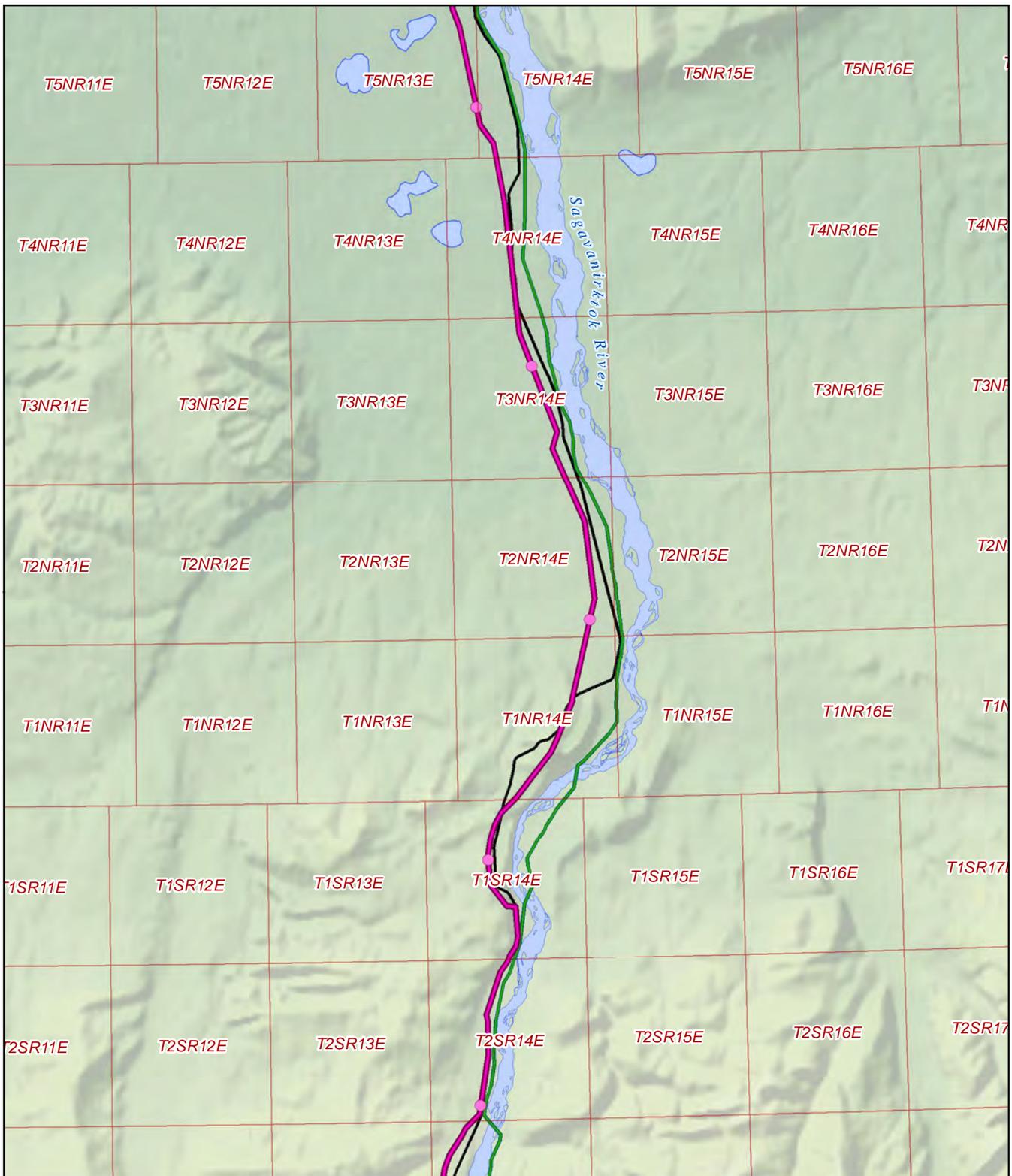
- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies



Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 1



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

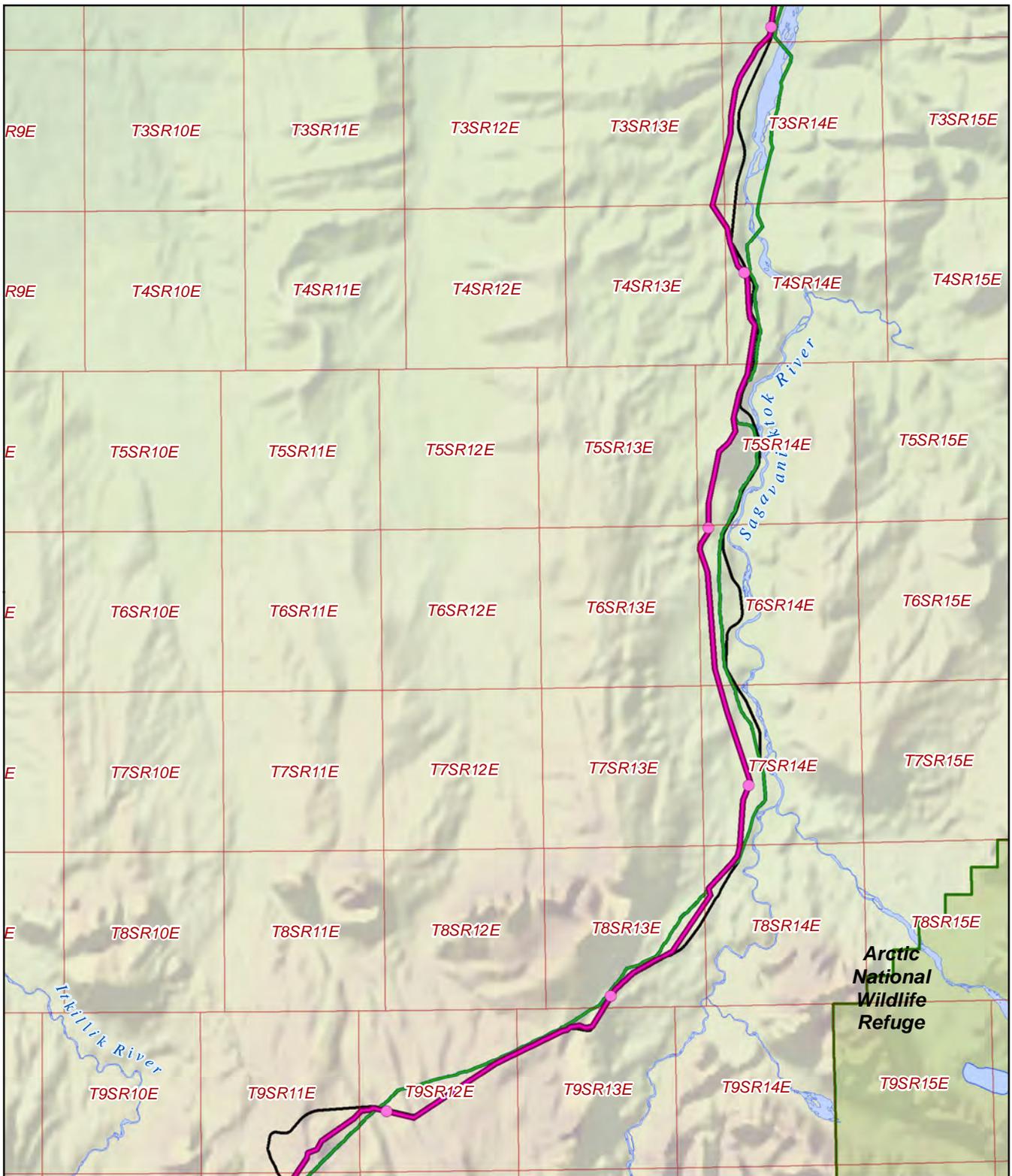
Alaska State Plane 4 (Units Feet)
1983 North American Datum

- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies

Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 2



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

Legend

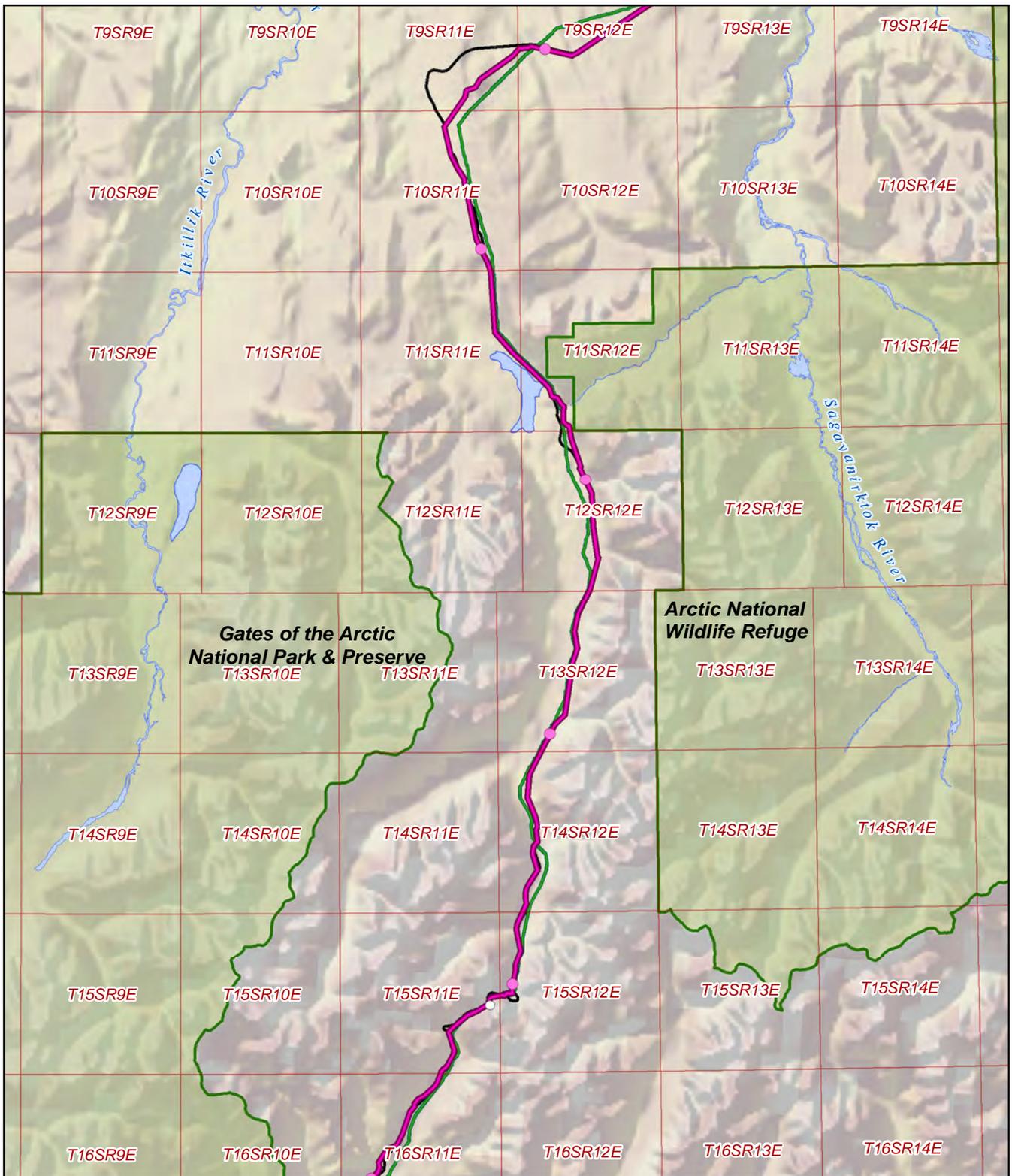
- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies

ASAP

Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID 004-C-22-D-Y-0029-A
File Name ASAP_Route_Overview_8-5x11
Date June 20, 2014
Attachment A3 - 3



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

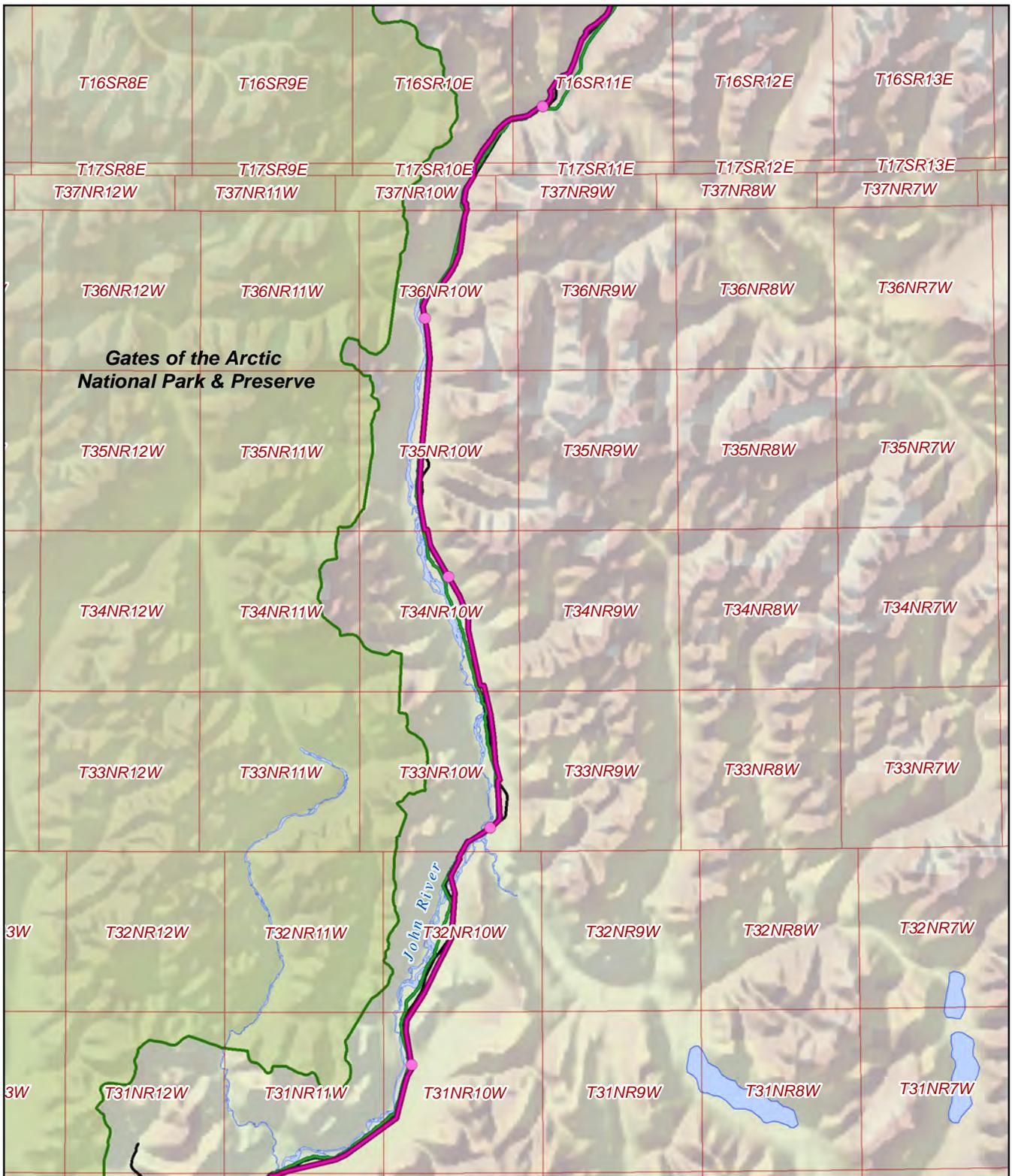
- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies



Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 4



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

Legend

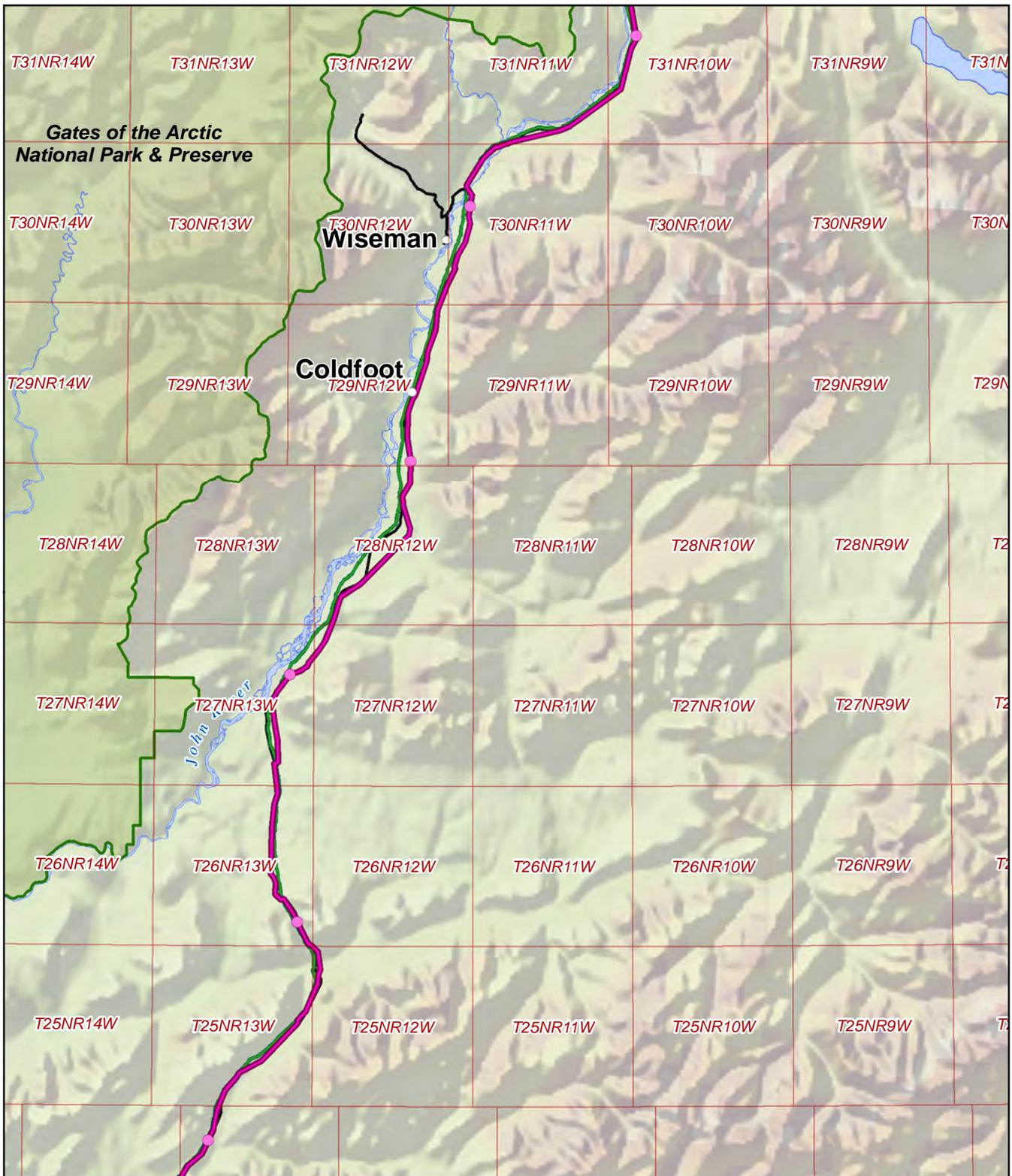
- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies



Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 5



Alaska Stand Alone Pipeline / ASAP

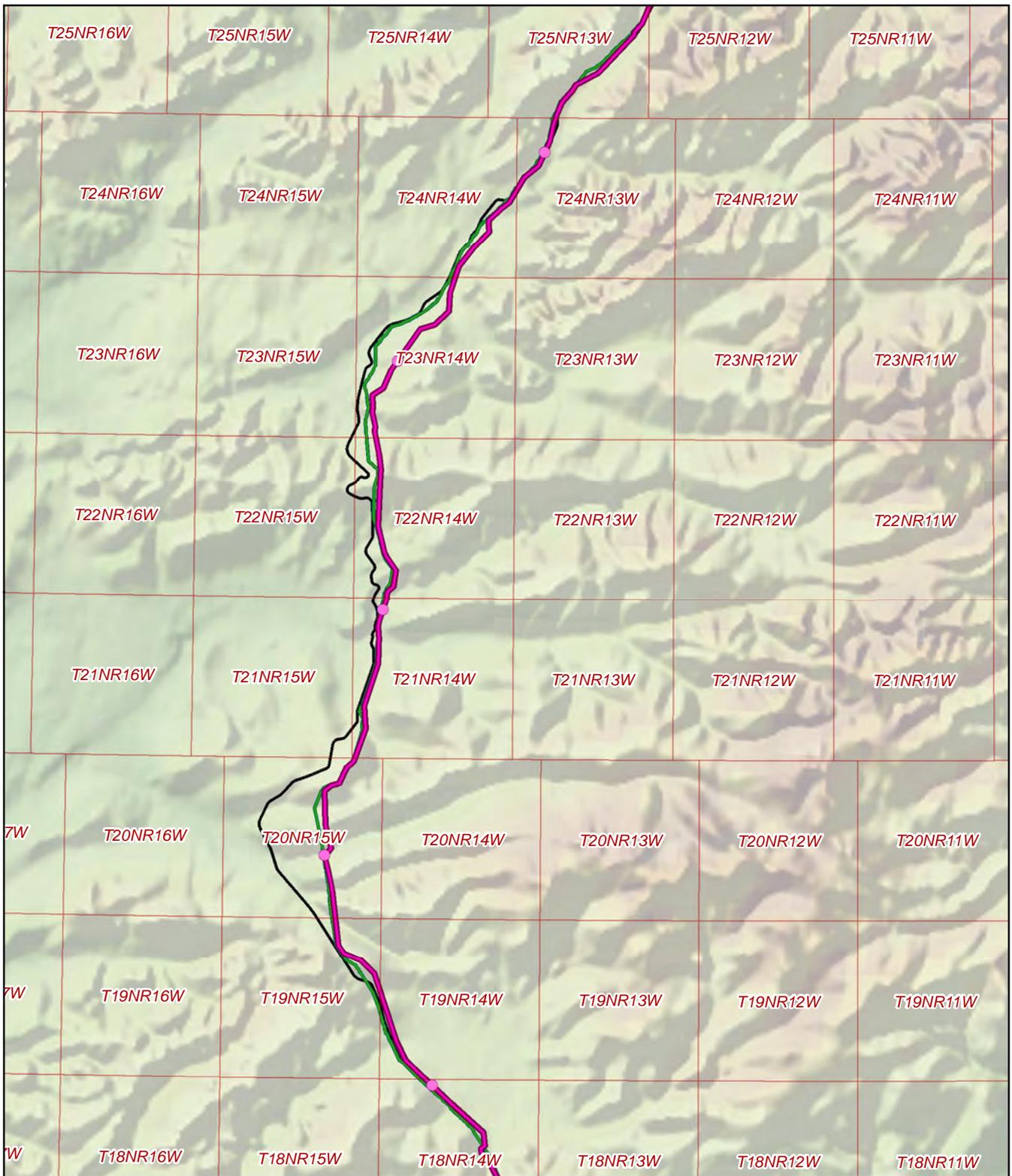
Route Overview

Map Scale 1:340,000
 0 1 2 3 4 Miles
 Alaska State Plane 4 (Units Feet)
 1983 North American Datum

- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies

Alaska Gasline Development Corporation
 3201 C Street, Suite 200 | Anchorage, AK 99503
 P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 6



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

Legend

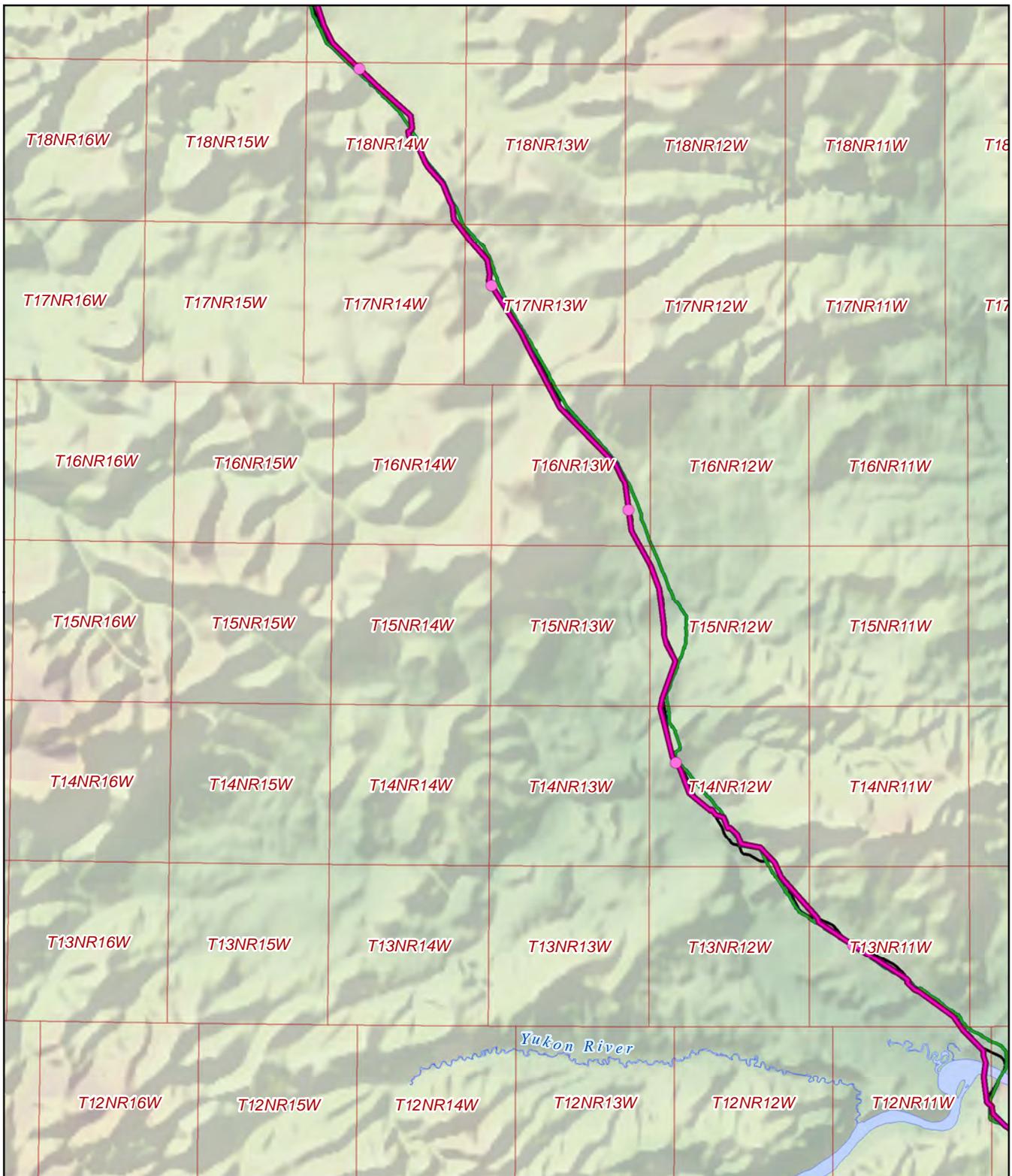
- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies



Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 7



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

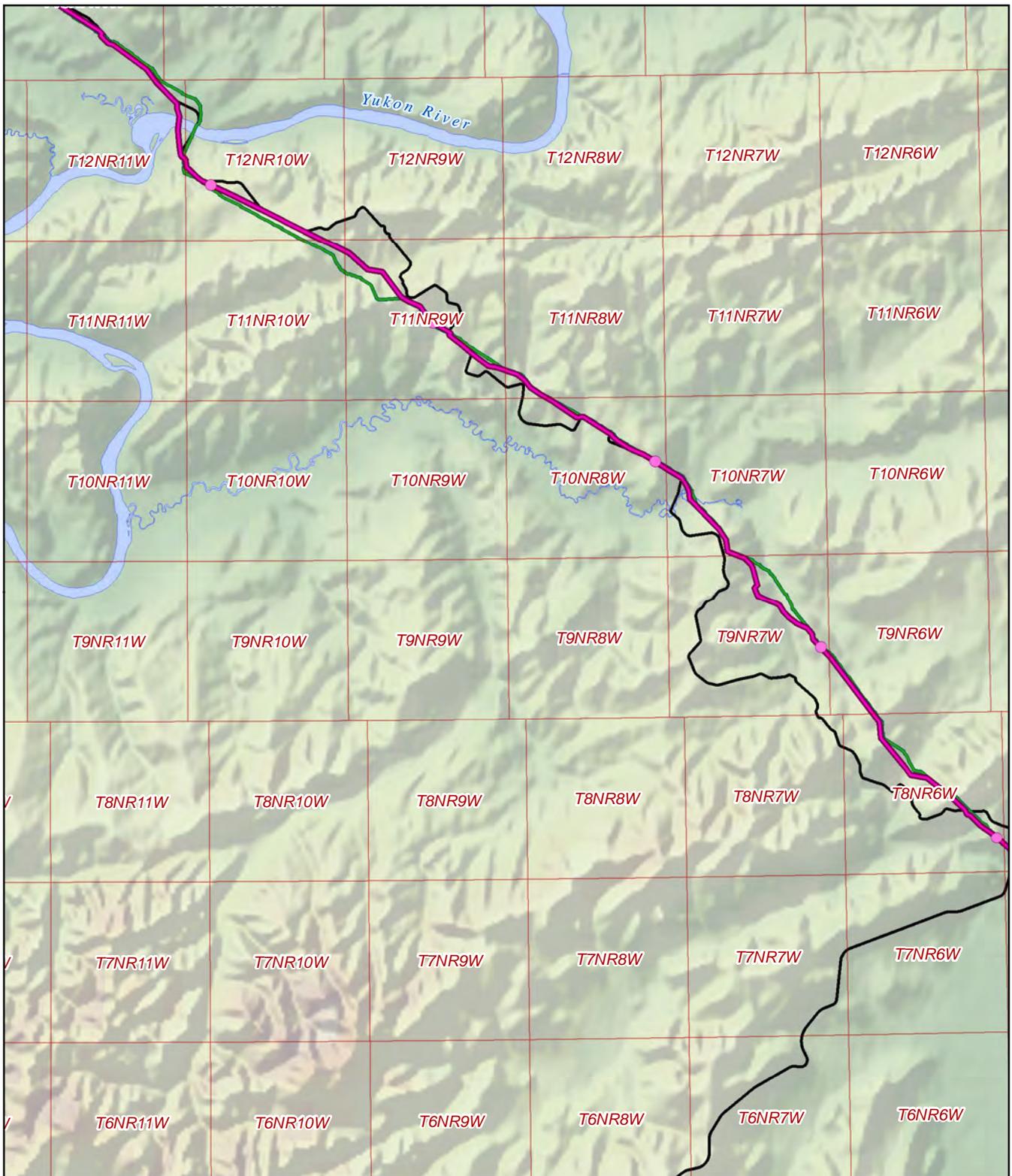
- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies



Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 8



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

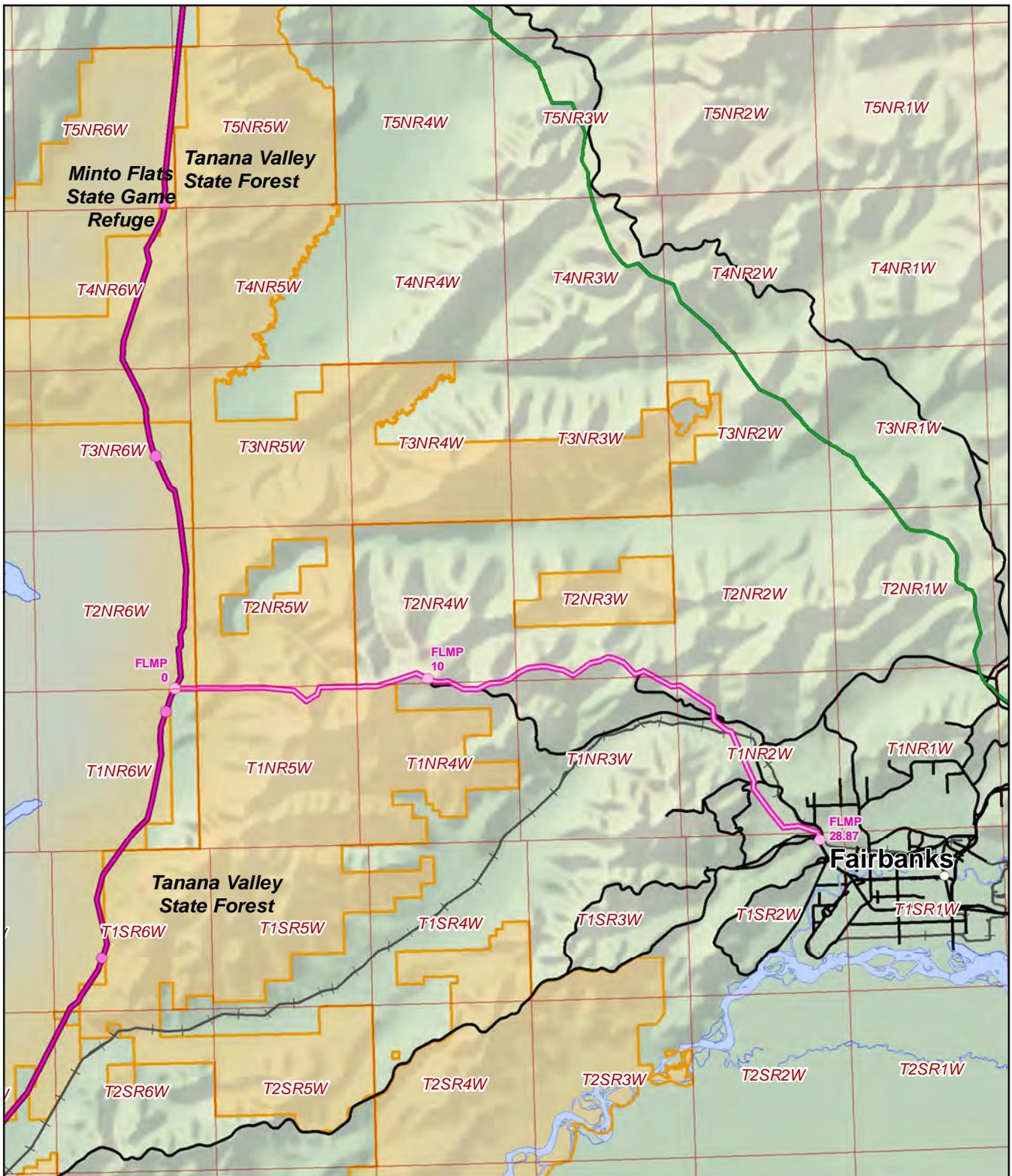
Alaska State Plane 4 (Units Feet)
1983 North American Datum

- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies

Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 9



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

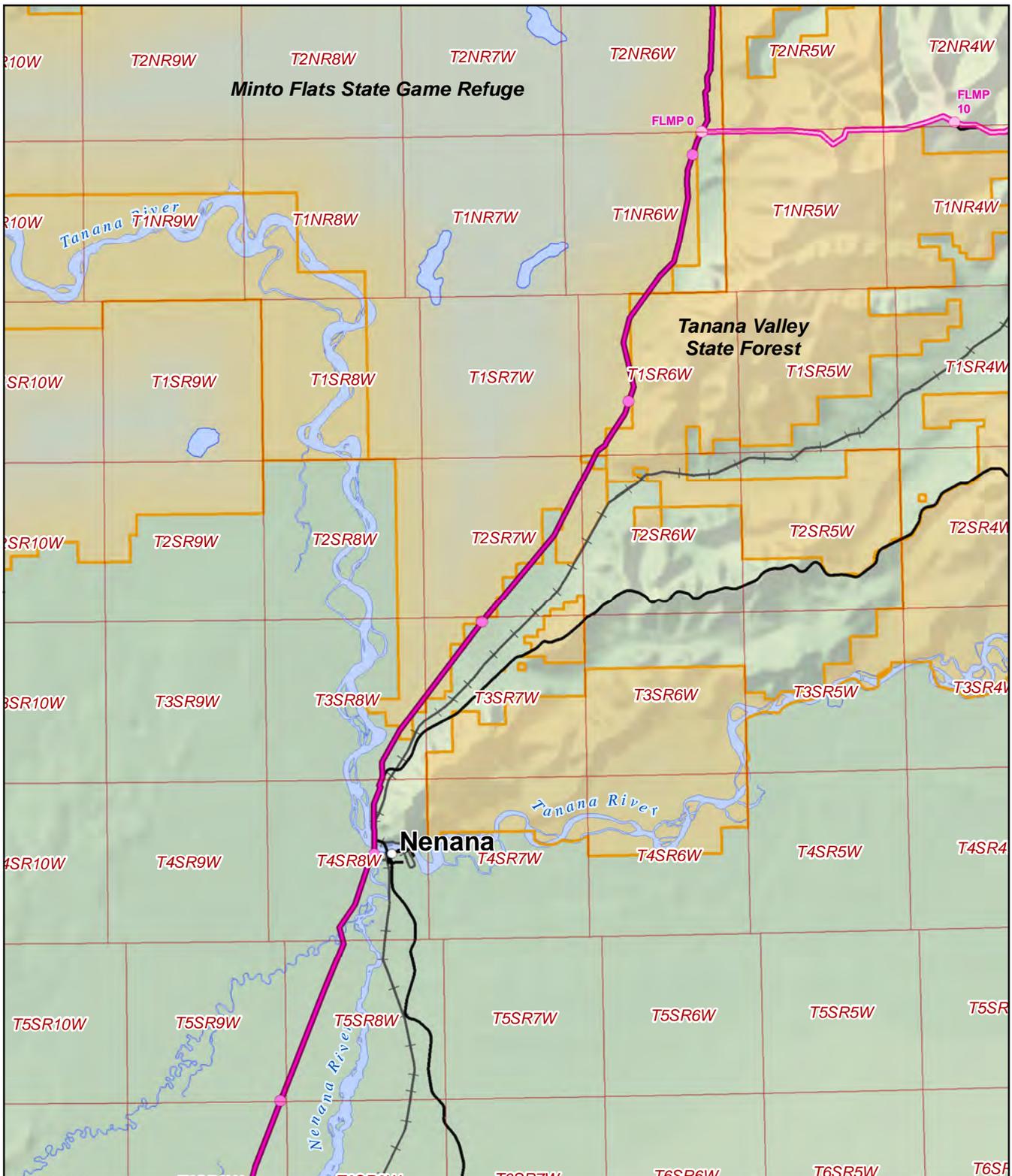
Legend

- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies

ASAP
Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID 004-C-22-D-Y-0029-A
File Name ASAP_Route_Overview_8-5x11
Date June 20, 2014
Attachment A3 - 10



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

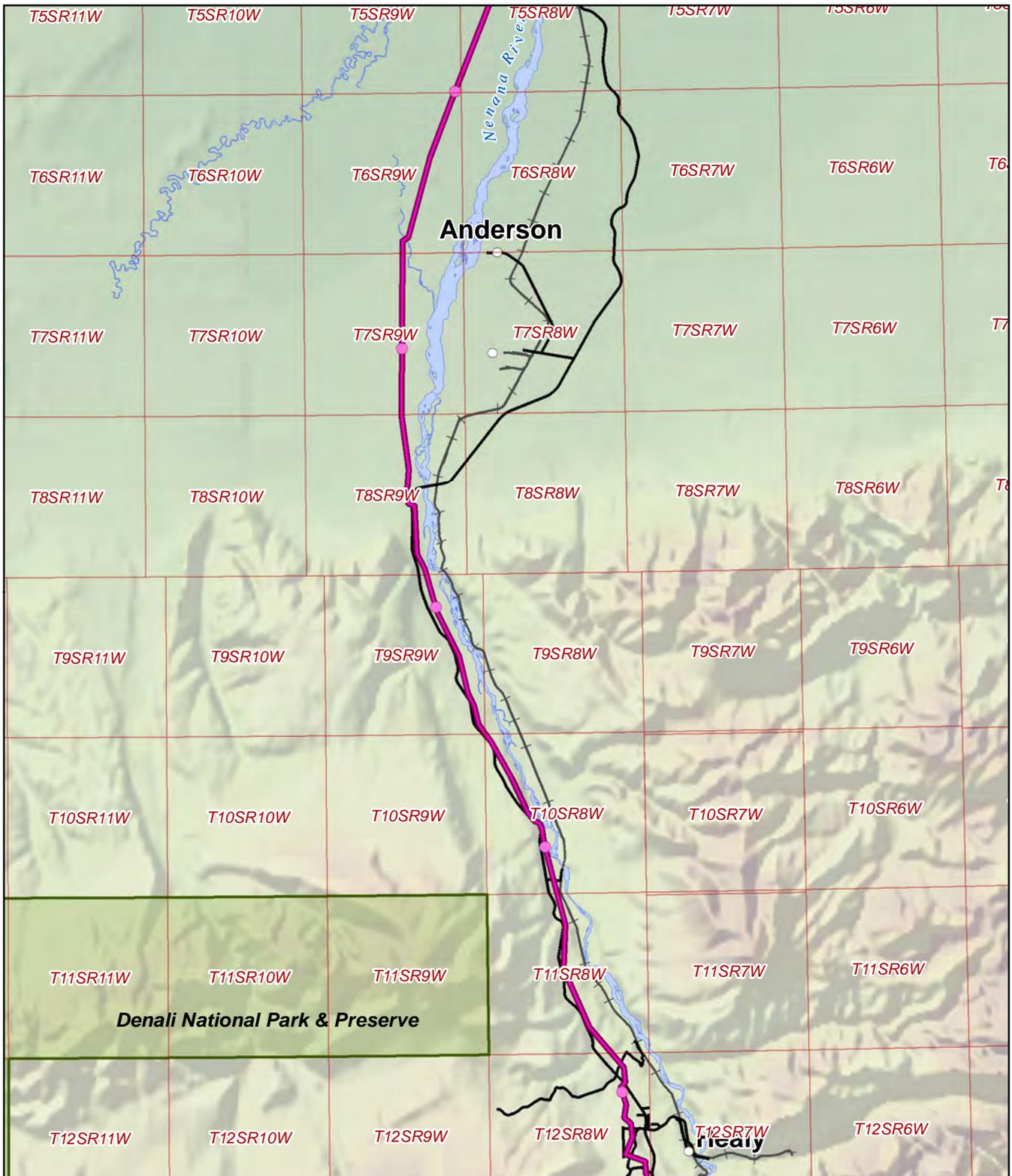
0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 11



Alaska Stand Alone Pipeline / ASAP

Route Overview

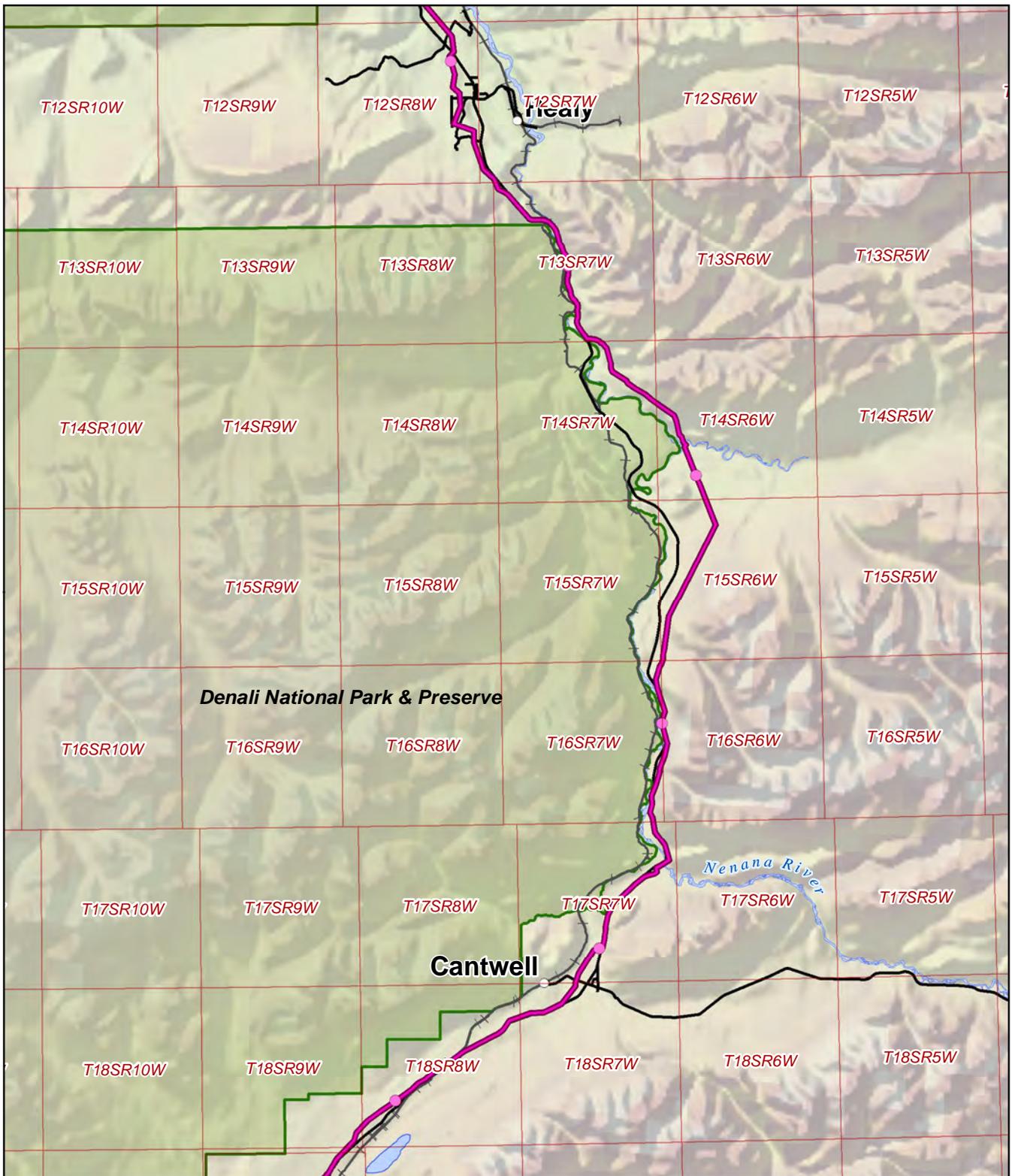
Map Scale 1:340,000
 0 1 2 3 4 Miles
 Alaska State Plane 4 (Units Feet)
 1983 North American Datum

- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies

Alaska's In-State Pipeline

Alaska Gasline Development Corporation
 3201 C Street, Suite 200 | Anchorage, AK 99503
 P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 12



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

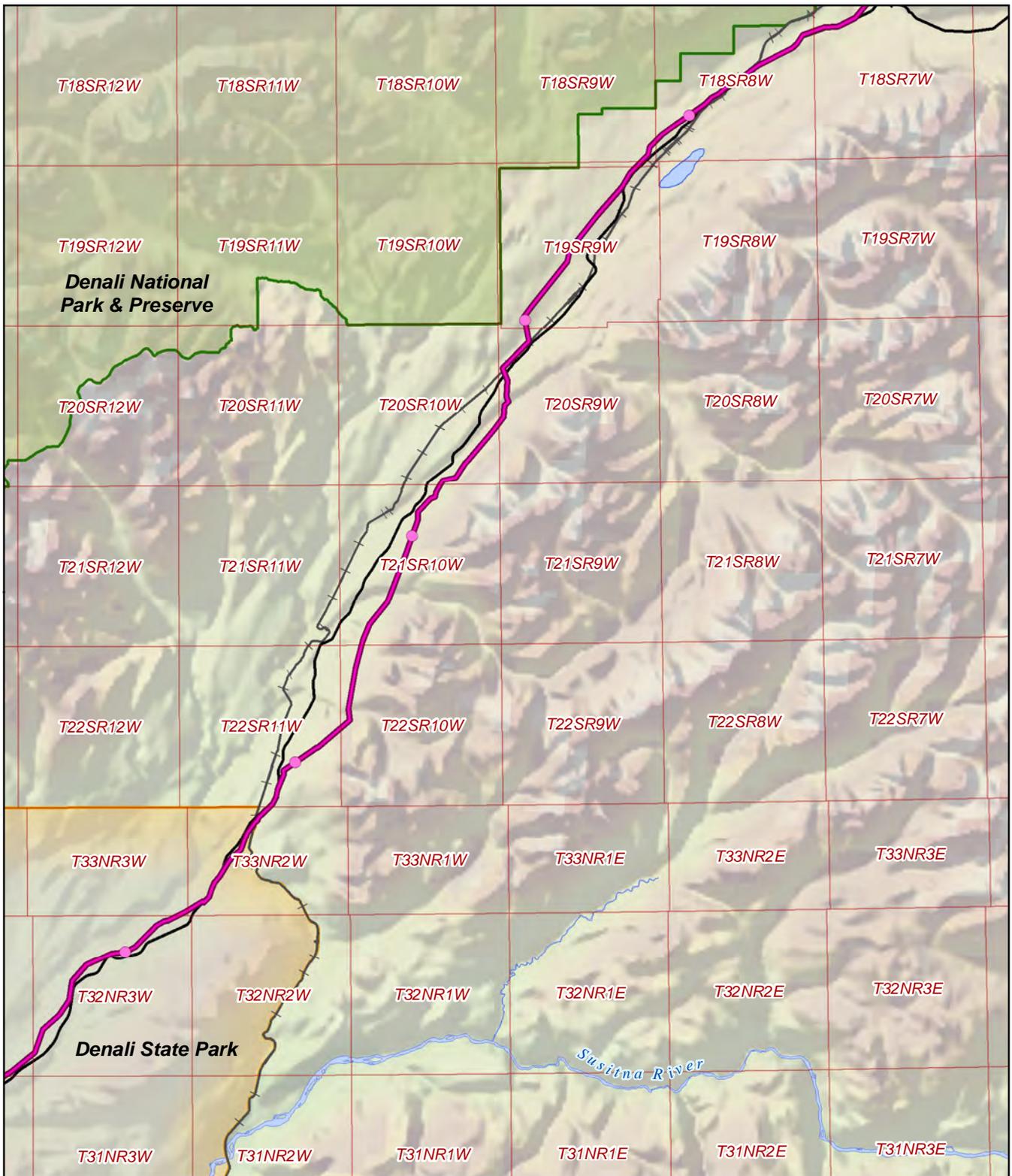
Legend

- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies

ASAP
Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3 - 13



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

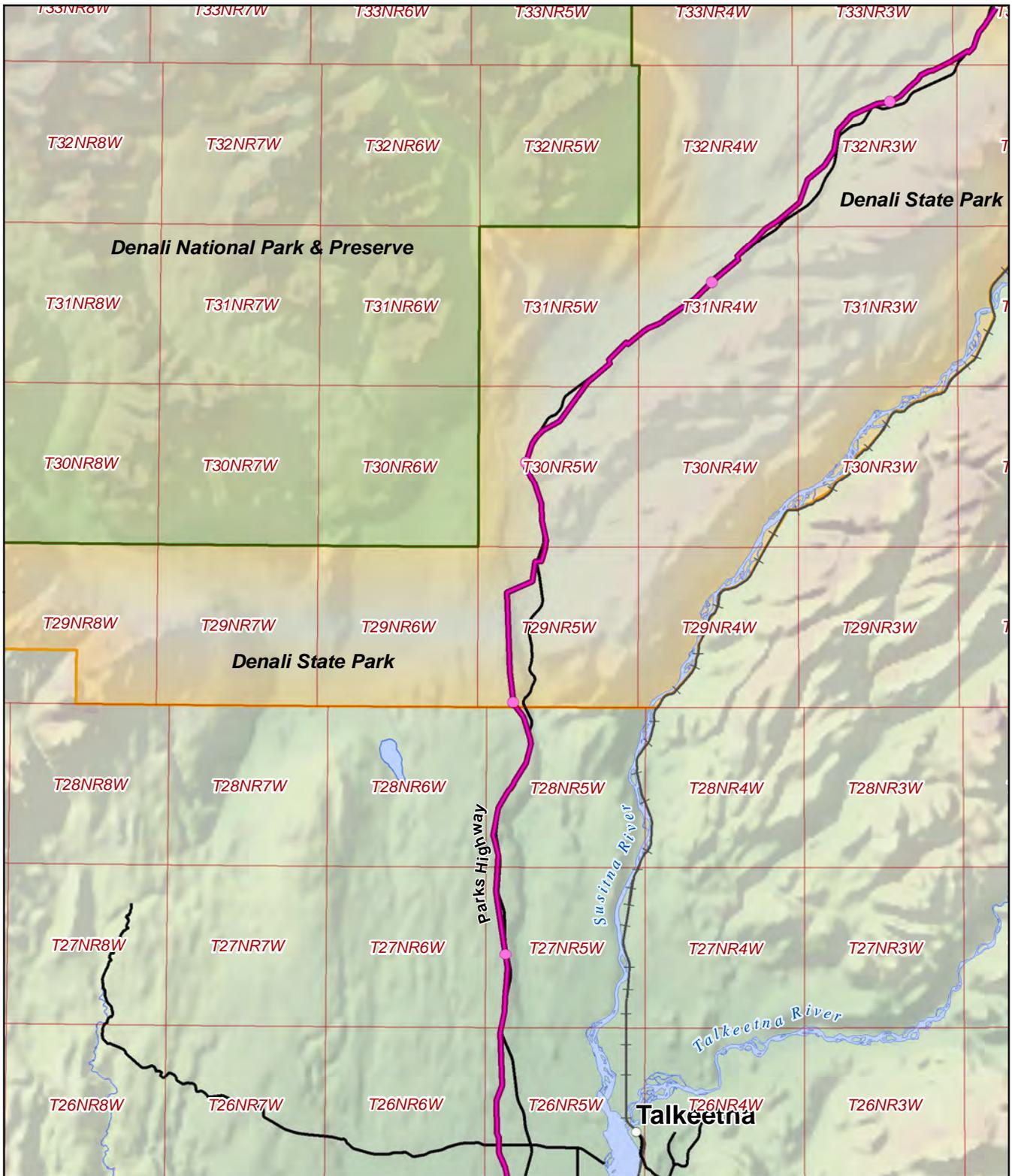
- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies

ASAP

Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3-14



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

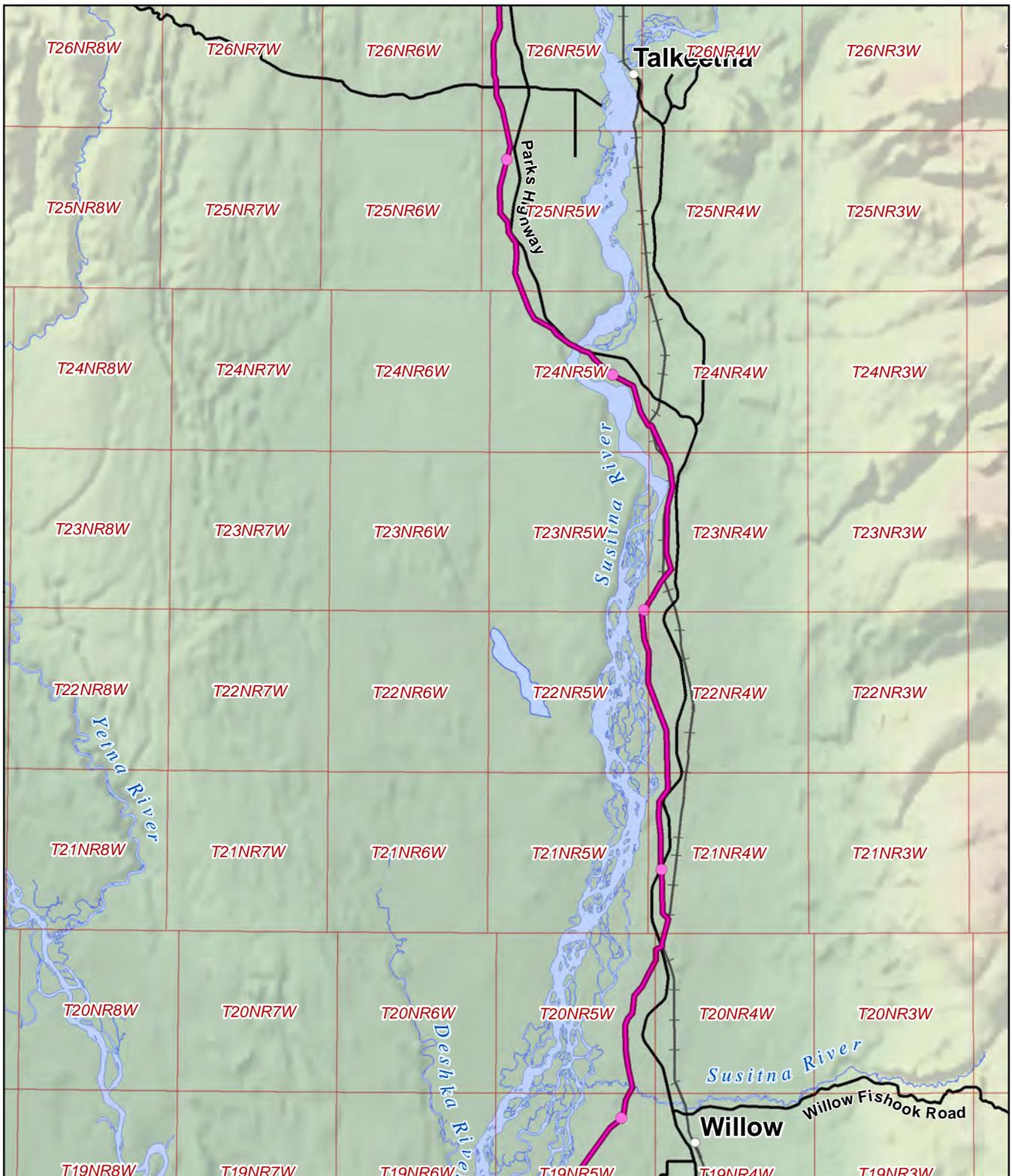
Legend

- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies

ASAP
Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID 004-C-22-D-Y-0029-A
File Name ASAP_Route_Overview_8-5x11
Date June 20, 2014
Attachment A3 - 15



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

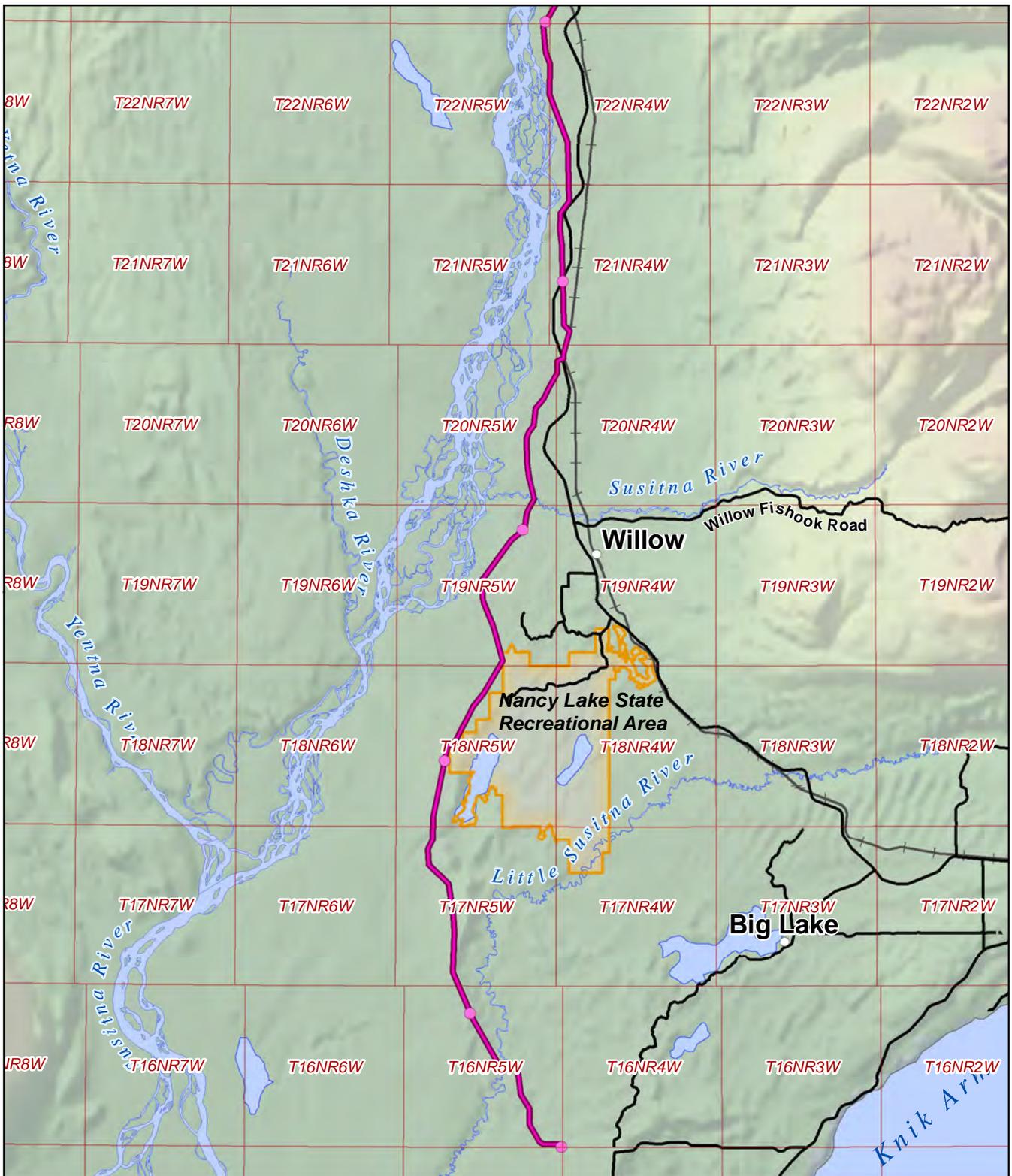
0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

- Legend**
- ASAP Alignment
 - Fairbanks Lateral
 - ASAP Mileposts
 - Fairbanks Lateral Mileposts
 - Gas Conditioning Facility
 - Trans-Alaska Pipeline
 - Major Roads
 - Federal Conservation System Units
 - State Legislatively Designated Areas
 - Township and Range
 - Communities & Place Names
 - Waterbodies

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID 004-C-22-D-Y-0029-A
File Name ASAP_Route_Overview_8-5x11
Date June 20, 2014
Attachment A3 - 16



Alaska Stand Alone Pipeline / ASAP

Route Overview

Map Scale 1:340,000

0 1 2 3 4 Miles

Alaska State Plane 4 (Units Feet)
1983 North American Datum

Legend

- ASAP Alignment
- Fairbanks Lateral
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Gas Conditioning Facility
- Trans-Alaska Pipeline
- Major Roads
- Federal Conservation System Units
- State Legislatively Designated Areas
- Township and Range
- Communities & Place Names
- Waterbodies



Alaska's In-State Pipeline

Alaska Gasline Development Corporation
3201 C Street, Suite 200 | Anchorage, AK 99503
P 907.330.6300 | F 907.330.6309 | www.agdc.us

Document ID	004-C-22-D-Y-0029-A
File Name	ASAP_Route_Overview_8-5x11
Date	June 20, 2014
Attachment	A3-17

Attachment 4
Mainline and Fairbanks Lateral Stream Crossings

ATTACHMENT A4 STREAM CROSSING FOR ASAP MAINLINE

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_3.1	Putuligayuk River	Artificial Path	Y	Air Span	205	205	-148.5872747	70.2795101
ST_21	Name Unknown	Perennial Stream/River	N	Open Cut	13	13	-148.7350038	70.03228908
ST_26.9	Name Unknown	Perennial Stream/River	N	Open Cut	24	24	-148.7548732	69.9480235
ST_41.2	Name Unknown	Perennial Stream/River	N	Open Cut	66	66	-148.7431778	69.74920353
ST_67.1	Name Unknown	Perennial Stream/River	N	Open Cut	100	100	-148.7170063	69.39429963
ST_71.8	Name Unknown	Intermittent Stream/River	N	Open Cut	48	48	-148.7427575	69.3356056
ST_74.4	Name Unknown	Intermittent Stream/River	N	Open Cut	15	15	-148.7388641	69.3042463
ST_76.5	Name Unknown	Perennial Stream/River	N	Open Cut	26	26	-148.7725383	69.27614097
ST_76.8	Name Unknown	Perennial Stream/River	N	Open Cut	29	29	-148.7720675	69.27241384
ST_83.2	Name Unknown	Perennial Stream/River	N	Open Cut	12	12	-148.8449134	69.18589772
ST_85.2	Name Unknown	Perennial Stream/River	N	Open Cut	17	17	-148.8586893	69.15765105
ST_87.8	Name Unknown	Perennial Stream/River	N	Open Cut	29	29	-148.8648572	69.12332865
ST_89.8	Name Unknown	Perennial Stream/River	Y	Open Cut	47	47	-148.8368436	69.09598217
ST_91.8	Name Unknown	Perennial Stream/River	N	Open Cut	57	57	-148.8227449	69.06841647
ST_98.6	Name Unknown	Perennial Stream/River	N	Open Cut	39	39	-148.8889469	68.97643148
ST_99.9	Name Unknown	Intermittent Stream/River	N	Open Cut	38	38	-148.8933506	68.95816495
ST_101.2	Name Unknown	Perennial Stream/River	N	Open Cut	52	52	-148.9037181	68.94154729
ST_103.3	Name Unknown	Perennial Stream/River	N	Open Cut	67	67	-148.8926348	68.9112398
ST_104.1	Name Unknown	Perennial Stream/River	N	Open Cut	15	15	-148.8907844	68.8996375
ST_104.5	Name Unknown	Perennial Stream/River	N	Open Cut	38	38	-148.8898245	68.89361757
ST_105.2	Name Unknown	Perennial Stream/River	N	Open Cut	34	34	-148.8883843	68.88457247
ST_106.3	Oksrukuyik Creek Tributary	Perennial Stream/River	N	Open Cut	27	27	-148.8791887	68.86921827

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_108	Oksrukuyik Creek	Perennial Stream/River	N	Open Cut	37	37	-148.8596105	68.84473252
ST_121.7	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	58	58	-149.0946598	68.6891562
ST_128.2	Toolik River	Perennial Stream/River	N	Isolated Open Cut	25	25	-149.3198876	68.64699091
ST_128.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	35	35	-149.3424055	68.64180383
ST_130.6	Kuparuk River	Perennial Stream/River	N	Open Cut	50	50	-149.4086158	68.64591324
ST_135.8	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	30	30	-149.5293112	68.59416867
ST_136.9	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	20	20	-149.5128799	68.57948588
ST_137.9	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	20	20	-149.5019865	68.56676926
ST_138	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	5	5	-149.5007686	68.56475533
ST_139.5	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	28	28	-149.4898975	68.54438704
ST_144.3	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	0	0	-149.4343283	68.48049554
ST_144.7	Name Unknown	Intermittent Stream/River	N	Open Cut	20	20	-149.4233785	68.47652875
ST_144.9	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	35	35	-149.417268	68.47431409
ST_147.1	Atigun River	Artificial Path	N	Isolated Open Cut	400	400	-149.3627778	68.45138863
ST_148.5	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	20	20	-149.3500863	68.43210499
ST_148.6	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	10	10	-149.3491849	68.43112127
ST_150.5	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	70	70	-149.3250785	68.40616455

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_151.7	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	40	40	-149.3219382	68.38804749
ST_151.9	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	35	35	-149.3211516	68.3852473
ST_152.8	Roche Mountonee Creek	Perennial Stream/River	N	Open Cut	120	120	-149.3166983	68.37314479
ST_157	Name Unknown	Intermittent Stream/River	N	Open Cut	40	40	-149.3522325	68.31558377
ST_159.2	Name Unknown	Perennial Stream/River	N	Open Cut	25	25	-149.3687784	68.2846566
ST_159.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	47	47	-149.3718598	68.28351635
ST_160.2	Name Unknown	Intermittent Stream/River	N	Open Cut	77	77	-149.3921025	68.27229141
ST_162.4	Name Unknown	Intermittent Stream/River	N	Open Cut	80	80	-149.4212125	68.24338703
ST_163.9	Name Unknown	Perennial Stream/River	N	Open Cut	220	220	-149.4090968	68.22304254
ST_164.5	Atigun River	Artificial Path	N	Isolated Open Cut	550	550	-149.4127347	68.21496437
ST_164.9	Name Unknown	Perennial Stream/River	N	Open Cut	260	260	-149.4138935	68.20949414
ST_165.4	Name Unknown	Perennial Stream/River	N	Open Cut	75	75	-149.4082825	68.20243949
ST_165.6	Name Unknown	Intermittent Stream/River	N	Open Cut	30	30	-149.4116522	68.19977524
ST_166.9	Name Unknown	Intermittent Stream/River	N	Open Cut	35	35	-149.4249743	68.18329217
ST_167	Name Unknown	Intermittent Stream/River	N	Open Cut	55	55	-149.4268752	68.1818541
ST_167.2	Name Unknown	Intermittent Stream/River	N	Open Cut	20	20	-149.4300259	68.17947001
ST_167.9	Spike Camp Creek	Artificial Path	N	Isolated Open Cut	89	89	-149.4387738	68.16947566
ST_168.4	Name Unknown	Intermittent Stream/River	N	Open Cut	60	60	-149.4352541	68.16233077

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_169.4	Name Unknown	Intermittent Stream/River	N	Open Cut	25	25	-149.4412831	68.14857118
ST_169.9	Name Unknown	Intermittent Stream/River	N	Open Cut	20	20	-149.4446088	68.14162299
ST_170	Name Unknown	Intermittent Stream/River	N	Open Cut	25	25	-149.4456818	68.13966155
ST_173.4	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	126	126	-149.5378174	68.11340194
ST_175	Name Unknown	Perennial Stream/River	N	Open Cut	55	55	-149.5503641	68.09347503
ST_175.4	Name Unknown	Perennial Stream/River	N	Open Cut	135	135	-149.5549174	68.08868917
ST_176.8	Name Unknown	Intermittent Stream/River	N	Open Cut	230	230	-149.5904127	68.07435412
ST_180.1	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	146	146	-149.6563226	68.03632991
ST_180.2	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	90	90	-149.6582205	68.03584016
ST_180.3	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	115	115	-149.66156	68.03497903
ST_180.5	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	130	130	-149.6674599	68.03340971
ST_180.8a	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	60	60	-149.6764355	68.03154108
ST_180.8b	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	100	100	-149.6781269	68.03137804
ST_180.8c	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	140	140	-149.6789215	68.03130143
ST_180.9	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	180	180	-149.6825901	68.03104213
ST_181	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	90	90	-149.6873924	68.03071326
ST_181.1	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	120	120	-149.6884749	68.03063911

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_181.2	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	60	60	-149.6937219	68.03027957
ST_182.2	Name Unknown	Perennial Stream/River	N	Open Cut	215	215	-149.7227031	68.02093098
ST_183.7	Dietrich River	Perennial Stream/River	N	Isolated Open Cut	400	400	-149.7516386	68.00244681
ST_185.3	Name Unknown	Perennial Stream/River	N	Open Cut	14	14	-149.7624424	67.98258632
ST_186.1	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	55	55	-149.7675463	67.97048338
ST_186.7	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	21	21	-149.7703811	67.96282364
ST_187	Name Unknown	Intermittent Stream/River	N	Open Cut	25	25	-149.7724264	67.95758439
ST_189.1	Nutirwik Creek	Artificial Path	N	Open Cut	100	100	-149.8179154	67.93478652
ST_190.7	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	45	45	-149.8183705	67.91251827
ST_191.2	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	30	30	-149.8167412	67.90525031
ST_191.5	Name Unknown	Intermittent Stream/River	N	Open Cut	15	15	-149.8158615	67.9013243
ST_192.2	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	130	130	-149.8182977	67.89050834
ST_195.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	300	300	-149.8281005	67.84867217
ST_196.6	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	250	250	-149.8307954	67.82783268
ST_197.8	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-149.8248564	67.81080441
ST_199.2	Name Unknown	Intermittent Stream/River	N	Open Cut	85	85	-149.804397	67.79261503
ST_199.6	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	15	15	-149.7968206	67.78765352
ST_200.6	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	155	155	-149.778657	67.77575242

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_201.4	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	55	55	-149.7672343	67.76493116
ST_202.1	Name Unknown	Perennial Stream/River	N	Open Cut	20	20	-149.7621	67.75532894
ST_202.5	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	45	45	-149.7596771	67.74993127
ST_203.3	Snowden Creek	Perennial Stream/River	N	Isolated Open Cut	115	115	-149.7528835	67.7375898
ST_205	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	30	30	-149.735051	67.71623045
ST_205.3	Name Unknown	Intermittent Stream/River	N	Open Cut	20	20	-149.7321111	67.71126104
ST_206.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	85	85	-149.7275502	67.6982842
ST_209	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	240	240	-149.7194184	67.65991518
ST_210.3	Dietrich River	Artificial Path	N	Isolated Open Cut	215	215	-149.740767	67.64541973
ST_210.7	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	30	30	-149.7534205	67.64230277
ST_212.2	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	60	60	-149.7838271	67.62477813
ST_212.6	Middle Fork Koyukuk River 3	Artificial Path	Y	Isolated Open Cut	1800	1800	-149.7871986	67.61915766
ST_214.7	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	60	60	-149.7869776	67.58912381
ST_216.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	28	28	-149.8088103	67.57150751
ST_220	Linda Creek	Perennial Stream/River	N	Isolated Open Cut	50	50	-149.8439212	67.51967957
ST_220.6	Gold Creek	Perennial Stream/River	N	Isolated Open Cut	40	40	-149.8511441	67.51226587
ST_221.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	40	40	-149.8561972	67.50524897

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_221.3	Sheep Creek	Perennial Stream/River	N	Isolated Open Cut	70	70	-149.8587577	67.50141495
ST_222.4	Nugget Creek	Perennial Stream/River	N	Isolated Open Cut	20	20	-149.873525	67.48873813
ST_226.4	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	15	15	-150.0092842	67.46353545
ST_226.8	Middle Fork Koyukuk River 2	Artificial Path	Y	Isolated Open Cut	400	400	-150.0243858	67.46194958
ST_227.1	Hammond River	Artificial Path	Y	Isolated Open Cut	250	250	-150.0344944	67.46046716
ST_229.2	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	13	13	-150.0823582	67.43887107
ST_229.3	Middle Fork Koyukuk River 1	Perennial Stream/River	Y	Isolated Open Cut	460	460	-150.0802928	67.4370023
ST_230.6	Minnie Creek	Perennial Stream/River	Y	Open Cut	70	70	-150.0783516	67.42018029
ST_232	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	20	20	-150.0946831	67.40118089
ST_233.9	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	15	15	-150.1186908	67.37599172
ST_234	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	20	20	-150.1211642	67.37345103
ST_234.5	Name Unknown	Intermittent Stream/River	N	Open Cut	20	20	-150.1241949	67.36695328
ST_235.3	Name Unknown	Intermittent Stream/River	N	Open Cut	15	15	-150.130574	67.3561025
ST_235.6	Name Unknown	Intermittent Stream/River	N	Open Cut	20	20	-150.1349474	67.35134529
ST_235.7b	Name Unknown	Intermittent Stream/River	N	Open Cut	30	30	-150.1364605	67.34969894
ST_235.7a	Name Unknown	Intermittent Stream/River	N	Open Cut	30	30	-150.1359193	67.3502879
ST_237.4	Name Unknown	Intermittent Stream/River	N	Open Cut	45	45	-150.1527931	67.32712808

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_237.8	Name Unknown	Intermittent Stream/River	N	Open Cut	15	15	-150.1592039	67.32193276
ST_237.9	Marion Creek	Perennial Stream/River	Y	Isolated Open Cut	65	65	-150.1610513	67.31977366
ST_239	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	60	60	-150.1645645	67.30455644
ST_241.4	Clara Creek	Perennial Stream/River	N	Isolated Open Cut	15	15	-150.170791	67.27173654
ST_242.5	Slate Creek	Perennial Stream/River	Y	Isolated Open Cut	135	135	-150.162546	67.25623258
ST_244.1	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	22	22	-150.1947831	67.23766978
ST_245.7	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	20	20	-150.2362075	67.2223827
ST_247.9	Rosie Creek	Perennial Stream/River	N	Open Cut	400	400	-150.2759241	67.1951638
ST_249.2	Name Unknown	Perennial Stream/River	N	Open Cut	25	25	-150.3026243	67.17961891
ST_249.5	Name Unknown	Perennial Stream/River	N	Open Cut	30	30	-150.308957	67.1777703
ST_250.8	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	40	40	-150.3444048	67.16554596
ST_251.8	Name Unknown	Intermittent Stream/River	N	Open Cut	10	10	-150.3488572	67.15140727
ST_253.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-150.3431117	67.13017262
ST_255.7	Chapman Creek	Perennial Stream/River	N	Isolated Open Cut	40	40	-150.349475	67.09678924
ST_256.4	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	30	30	-150.3507232	67.08791017
ST_257	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	12	12	-150.3511341	67.07885754
ST_259.8	Name Unknown	Intermittent Stream/River	N	Open Cut	17	17	-150.317802	67.04356849
ST_261.9	South Fork Koyukuk River	Artificial Path	Y	Isolated Open Cut	725	725	-150.2839776	67.0182966

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_262.2	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	10	10	-150.2840296	67.0143269
ST_263.1	Name Unknown	Intermittent Stream/River	N	Open Cut	15	15	-150.2939027	67.00099483
ST_263.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	16	16	-150.3077262	66.99066605
ST_264.2	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-150.3136194	66.98730319
ST_264.6	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-150.3222211	66.98308367
ST_267.8	Name Unknown	Intermittent Stream/River	N	Open Cut	15	15	-150.4085049	66.95226796
ST_269.7	Name Unknown	Intermittent Stream/River	N	Open Cut	10	10	-150.4311509	66.92721411
ST_273.6	Jim River	Artificial Path	Y	Open Cut	485	485	-150.5120934	66.88252131
ST_275.9	Douglas Creek	Perennial Stream/River	Y	Open Cut	60	60	-150.5565728	66.85598613
ST_276.9	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	12	12	-150.5650517	66.84163458
ST_281.9	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	20	20	-150.6687816	66.7879028
ST_282.5	Prospect Creek	Perennial Stream/River	Y	Isolated Open Cut	75	75	-150.6668547	66.77861008
ST_286.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	195	195	-150.6569277	66.71640398
ST_287.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	80	80	-150.6543255	66.71259292
ST_289.5	North Fork Bonanza Creek	Perennial Stream/River	N	Isolated Open Cut	50	50	-150.646925	66.68243734
ST_291.1	Bonanza Creek	Perennial Stream/River	N	Isolated Open Cut	65	65	-150.6564901	66.66031297
ST_294.6	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-150.6748179	66.60983994

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_299.6	Fish Creek	Perennial Stream/River	N	Isolated Open Cut	60	60	-150.7193352	66.54776259
ST_301.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-150.717047	66.52497149
ST_302.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	17	17	-150.7120483	66.50995042
ST_305.7	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	55	55	-150.6528997	66.47235673
ST_306.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	40	40	-150.6478987	66.46643037
ST_307.9	Kanuti River	Artificial Path	N	Isolated Open Cut	75	75	-150.6261411	66.44132185
ST_311	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	10	10	-150.5528099	66.40919271
ST_313.5	Name Unknown	Intermittent Stream/River	N	Open Cut	125	125	-150.510167	66.38238281
ST_313.8	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	65	65	-150.5020324	66.37806595
ST_316.8	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	0	0	-150.4513029	66.34105081
ST_317.3	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	0	0	-150.4445997	66.33541458
ST_318.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	28	28	-150.4257307	66.32578125
ST_319.6	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	72	72	-150.4024238	66.30714508
ST_320	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	0	0	-150.4001605	66.3030031
ST_320.5	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-150.3906311	66.29703136
ST_322.8	Dall Creek	Perennial Stream/River	N	Isolated Open Cut	45	45	-150.3478945	66.26798363
ST_326.5	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	45	45	-150.2746485	66.22403082

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_330.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-150.2139927	66.18034052
ST_334.8	No Name Creek	Perennial Stream/River	N	Isolated Open Cut	60	60	-150.1668379	66.11618921
ST_338.3	Name Unknown	Perennial Stream/River	N	Open Cut	60	60	-150.1680369	66.06920424
ST_341.3	Fort Hamlin Hills Creek	Perennial Stream/River	N	Isolated Open Cut	40	40	-150.1303797	66.02837136
ST_342.5	Name Unknown	Intermittent Stream/River	N	Open Cut	30	30	-150.0991507	66.01844173
ST_344.1	Name Unknown	Perennial Stream/River	N	Open Cut	80	80	-150.0641557	66.00206793
ST_345.5	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-150.0231993	65.99312964
ST_346.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	25	25	-149.9955097	65.97659508
ST_348.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-149.9635255	65.9619087
ST_349.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-149.9200388	65.94829021
ST_350.3	Name Unknown	Perennial Stream/River	N	Open Cut	15	15	-149.9054411	65.94444727
ST_351	Name Unknown	Intermittent Stream/River	N	Open Cut	35	35	-149.8861171	65.93935711
ST_352	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	32	32	-149.8563869	65.93151634
ST_355.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	25	25	-149.7702791	65.90070703
ST_357.1	Yukon River	Artificial Path	Y	HDD	2200	2200	-149.7425527	65.87963958
ST_365.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	10	10	-149.5342593	65.81189461
ST_366.5	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-149.4990919	65.80134963
ST_367.4	Isom Creek	Perennial Stream/River	N	Isolated Open Cut	15	15	-149.4731975	65.79698774

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_370.2	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	10	10	-149.404787	65.76951337
ST_371.8	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-149.3618793	65.75502783
ST_372.6	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	25	25	-149.3398308	65.74792279
ST_374.2	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-149.2901985	65.73909886
ST_375.3	Name Unknown	Perennial Stream/River	N	Open Cut	15	15	-149.2596686	65.72924333
ST_375.9	Name Unknown	Perennial Stream/River	N	Open Cut	20	20	-149.2421125	65.7245122
ST_377	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	35	35	-149.2096002	65.71802813
ST_378	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	50	50	-149.1798602	65.71029202
ST_382.2	Hess Creek	Artificial Path	N	Isolated Open Cut	150	150	-149.0738248	65.6727669
ST_386	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	10	10	-148.9926524	65.63212872
ST_388.3	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	25	25	-148.9484383	65.60877143
ST_391.6	Erickson Creek	Perennial Stream/River	N	Isolated Open Cut	25	25	-148.87272	65.5740508
ST_396	Lost Creek	Perennial Stream/River	N	Isolated Open Cut	30	30	-148.7922514	65.52284376
ST_399.2	Name Unknown	Perennial Stream/River	N	Open Cut	10	10	-148.7059582	65.49563384
ST_402.4	East Fork Tolovana River	Perennial Stream/River	N	Isolated Open Cut	70	70	-148.6321465	65.46174785
ST_402.9	Name Unknown	Perennial Stream/River	N	Open Cut	40	40	-148.6235764	65.45455868
ST_403.7	Name Unknown	Perennial Stream/River	N	Open Cut	25	25	-148.6163072	65.44476453
ST_405.4	Name Unknown	Perennial Stream/River	N	Open Cut	15	15	-148.6131931	65.4193389
ST_407.6	Name Unknown	Perennial Stream/River	N	Open Cut	18	18	-148.6286468	65.38917538
ST_408.6	Name Unknown	Perennial Stream/River	N	Open Cut	16	16	-148.6384618	65.37464395

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_417.1	Name Unknown	Intermittent Stream/River	N	Open Cut	20	20	-148.6798039	65.25304887
ST_417.8	Name Unknown	Perennial Stream/River	N	Open Cut	15	15	-148.6827874	65.24310424
ST_421.1	Name Unknown	Perennial Stream/River	N	Open Cut	14	14	-148.7008723	65.19785173
ST_422	Name Unknown	Perennial Stream/River	N	Open Cut	45	45	-148.7129262	65.18637003
ST_428.5	Tatalina River	Perennial Stream/River	N	Isolated Open Cut	145	145	-148.7179945	65.09719956
ST_428.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	68	68	-148.7166235	65.09157079
ST_430.8	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	38	38	-148.6969118	65.06635681
ST_431	Washington Creek	Perennial Stream/River	N	Open Cut	50	50	-148.6933211	65.06275836
ST_431.4	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	55	55	-148.6871131	65.05831273
ST_437	Chatanika River	Artificial Path	Y	Isolated Open Cut	115	115	-148.680049	64.97915412
ST_441.7	Name Unknown	Intermittent Stream/River	N	Open Cut	2	2	-148.7080025	64.91395821
ST_442.4	Name Unknown	Perennial Stream/River	N	Open Cut	27	27	-148.7134397	64.90380054
ST_444.7	Name Unknown	Perennial Stream/River	N	Open Cut	70	70	-148.7423293	64.87415809
ST_446.5	Name Unknown	Perennial Stream/River	N	Open Cut	99	99	-148.7790871	64.85366777
ST_447.4	Name Unknown	Perennial Stream/River	N	Open Cut	40	40	-148.7907894	64.84161782
ST_452.2	Goldstream Creek	Perennial Stream/River	N	Isolated Open Cut	75	75	-148.8268306	64.7799025
ST_462.6	Little Goldstream Creek	Perennial Stream/River	N	Isolated Open Cut	45	45	-149.0330048	64.6578455
ST_469.5	Tanana River	Artificial Path	Y	HDD	1830	1830	-149.1178004	64.57000785
ST_473.3	Nenana River	Artificial Path	Y	HDD	240	240	-149.1611219	64.52114283
ST_482.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	50	50	-149.2654283	64.40244605
ST_482.5	Name Unknown	Perennial Stream/River	N	Open Cut	30	30	-149.2702273	64.3972083

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_485.8	Nenana River	Artificial Path	Y	Isolated Open Cut	130	130	-149.3021645	64.3523649
ST_490.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	40	40	-149.3095047	64.27999775
ST_498.2	Birch Creek	Perennial Stream/River	N	Isolated Open Cut	35	35	-149.2874874	64.17686731
ST_501.3	Bear Creek	Perennial Stream/River	Y	Open Cut	59	59	-149.2521525	64.1350334
ST_501.6	June Creek	Perennial Stream/River	Y	Open Cut	23	23	-149.2485931	64.1318741
ST_504.4	Name Unknown	Perennial Stream/River	N	Open Cut	40	40	-149.2212188	64.0925893
ST_509.3	Rock Creek	Perennial Stream/River	N	Open Cut	90	90	-149.142898	64.0319098
ST_512.3	Slate Creek	Perennial Stream/River	N	Isolated Open Cut	25	25	-149.1212042	63.98960635
ST_515.8	Name Unknown	Intermittent Stream/River	N	Open Cut	35	35	-149.1045056	63.94132422
ST_516.1	Little Panguingue Creek	Perennial Stream/River	N	Open Cut	35	35	-149.0998985	63.93665592
ST_517.5	Panguingue Creek	Perennial Stream/River	Y	Open Cut	32	32	-149.0781672	63.91959814
ST_521.2	Dry Creek	Artificial Path	N	Isolated Open Cut	280	280	-149.0428573	63.87416718
ST_526.3	Antler Creek	Perennial Stream/River	N	Isolated Open Cut	60	60	-148.9776822	63.8154975
ST_527.4	Bison Gulch	Perennial Stream/River	N	Open Cut	45	45	-148.9544118	63.80421182
ST_528.1	Nenana River	Artificial Path	N	Air Span	150	150	-148.9331991	63.80278074
ST_528.3	Coyote Creek	Perennial Stream/River	N	Open Cut	5	5	-148.9272363	63.80042468
ST_528.7	Dragonfly Creek	Perennial Stream/River	N	Open Cut	10	10	-148.9224536	63.79594681
ST_529.1	Eagle Creek	Perennial Stream/River	N	Open Cut	10	10	-148.9193311	63.79047079
ST_529.9	Fox Creek	Perennial Stream/River	N	Open Cut	35	35	-148.9093272	63.78031804
ST_530.2	Grizzly Creek	Perennial Stream/River	N	Open Cut	12	12	-148.9097156	63.77538781
ST_530.8	Hornet Creek	Perennial Stream/River	N	Open Cut	55	55	-148.9087656	63.76647251
ST_531	Name Unknown	Perennial Stream/River	N	Open Cut	35	35	-148.9070639	63.76388386

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_532.1	Junco Creek	Perennial Stream/River	N	Open Cut	6	6	-148.8993888	63.7502726
ST_532.8	Kingfisher Creek	Perennial Stream/River	N	Open Cut	30	30	-148.8902465	63.74046287
ST_533.8	Name Unknown	Perennial Stream/River	N	Air Span	10	10	-148.8643373	63.7333227
ST_534.5	Montana Creek	Perennial Stream/River	N	Isolated Open Cut	130	130	-148.8599532	63.72386511
ST_535.4	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	20	20	-148.8403256	63.7151982
ST_536.8	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	10	10	-148.8039668	63.70335758
ST_537.4	Name Unknown	Perennial Stream/River	N	Open Cut	20	20	-148.7877113	63.69809186
ST_537.9	Name Unknown	Perennial Stream/River	N	Open Cut	15	15	-148.7802086	63.6913707
ST_538.2	Name Unknown	Perennial Stream/River	N	Open Cut	14	14	-148.7785418	63.68746702
ST_538.7	Yanert Fork	Artificial Path	N	Isolated Open Cut	245	245	-148.7722746	63.68196912
ST_539.5	Name Unknown	Intermittent Stream/River	N	Open Cut	63	63	-148.7648111	63.67134913
ST_543.4	Name Unknown	Intermittent Stream/River	N	Open Cut	60	60	-148.7574436	63.61929653
ST_547.1	Carlo Creek	Perennial Stream/River	N	Open Cut	60	60	-148.8012563	63.570158
ST_547.7	Name Unknown	Intermittent Stream/River	N	Open Cut	6	6	-148.8061223	63.56187925
ST_550	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	12	12	-148.8057045	63.5304475
ST_550.1	Name Unknown	Perennial Stream/River	N	Open Cut	65	65	-148.8047348	63.5286434
ST_551.7	Slime Creek	Perennial Stream/River	N	Isolated Open Cut	25	25	-148.808804	63.50690581
ST_554.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-148.8042242	63.46323806
ST_555.6	Nenana River	Artificial Path	N	HDD	315	315	-148.8048405	63.45530117
ST_556.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	40	40	-148.8152128	63.45097833

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_559.5	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	8	8	-148.8792765	63.41601754
ST_561.9	Jack River	Perennial Stream/River	N	Isolated Open Cut	1500	1500	-148.9190367	63.38732506
ST_563.2	Pass Creek	Perennial Stream/River	N	Isolated Open Cut	35	35	-148.9505175	63.37630862
ST_577.1	Squaw Creek	Perennial Stream/River	N	Isolated Open Cut	82	82	-149.281089	63.25302065
ST_578.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-149.2992267	63.24127027
ST_579.2	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	12	12	-149.3222443	63.22851323
ST_580.6	Middle Fork Chulitna River	Perennial Stream/River	Y	Isolated Open Cut	275	275	-149.3303459	63.21163597
ST_581	Fourth of July Creek	Perennial Stream/River	N	Isolated Open Cut	15	15	-149.3340606	63.2060303
ST_583.8	East Fork Chulitna River	Perennial Stream/River	Y	Isolated Open Cut	139	139	-149.3592213	63.17234172
ST_584.6	Name Unknown	Intermittent Stream/River	N	Isolated Open Cut	15	15	-149.3696652	63.16196685
ST_587.7	Hardage Creek	Perennial Stream/River	N	Isolated Open Cut	32	32	-149.4363717	63.13108774
ST_588.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	30	30	-149.4422334	63.1257503
ST_589.1	Name Unknown	Perennial Stream/River	N	Open Cut	5	5	-149.4638106	63.11546879
ST_590.5	Antimony Creek	Perennial Stream/River	N	Isolated Open Cut	5	5	-149.4760421	63.09646591
ST_592.4	Honolulu Creek	Perennial Stream/River	Y	HDD	135	135	-149.4977777	63.07121439
ST_592.8	Name Unknown	Perennial Stream/River	N	Open Cut	10	10	-149.5044793	63.06566445
ST_593.3	Name Unknown	Perennial Stream/River	N	Open Cut	118	118	-149.5144556	63.06027012
ST_594.2	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	30	30	-149.5280975	63.04965283

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_595.2	Little Honolulu Creek	Perennial Stream/River	N	Isolated Open Cut	16	16	-149.5375077	63.03510431
ST_597.2	Hurricane Gultch	Perennial Stream/River	N	Isolated Open Cut	43	43	-149.5471905	63.00757721
ST_600.6	Granite Creek	Perennial Stream/River	N	Isolated Open Cut	15	15	-149.6253922	62.97647959
ST_603.3	Division Creek	Perennial Stream/River	N	Open Cut	35	35	-149.6695209	62.94341562
ST_603.9	Name Unknown	Perennial Stream/River	N	Open Cut	11	11	-149.6752802	62.93616387
ST_606.1	Pass Creek	Perennial Stream/River	N	Isolated Open Cut	40	40	-149.7135145	62.910577
ST_608.3	Little Coal Creek	Perennial Stream/River	Y	Isolated Open Cut	80	80	-149.7714164	62.89531109
ST_608.6	Name Unknown	Perennial Stream/River	N	Open Cut	10	10	-149.78004	62.89226275
ST_610.1	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	10	10	-149.8183899	62.87944875
ST_611.7	Horseshoe Creek	Perennial Stream/River	Y	Isolated Open Cut	45	45	-149.8629989	62.87069161
ST_627.7	Byers Creek	Perennial Stream/River	Y	Isolated Open Cut	65	65	-150.1990171	62.70994136
ST_631.5	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	35	35	-150.2256869	62.66491081
ST_634.4	Troublesome Creek	Perennial Stream/River	Y	HDD	190	190	-150.2326518	62.62647135
ST_635.4	Chulitna River	Artificial Path	Y	HDD	2240	2240	-150.2502982	62.61773031
ST_635.9	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	15	15	-150.2642594	62.61488459
ST_643.6	Name Unknown	Perennial Stream/River	Y	Open Cut	55	55	-150.2587533	62.5090114
ST_644.1	Name Unknown	Perennial Stream/River	N	Open Cut	5	5	-150.2689061	62.50213006
ST_644.5	Name Unknown	Perennial Stream/River	N	Open Cut	35	35	-150.2737933	62.49799612
ST_646.2	Name Unknown	Perennial Stream/River	Y	Open Cut	30	30	-150.273524	62.47387473
ST_647.6	Name Unknown	Perennial Stream/River	Y	Open Cut	15	15	-150.275436	62.4540472
ST_651	Name Unknown	Perennial Stream/River	Y	Open Cut	13	13	-150.2630304	62.40452278

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_651.8	Name Unknown	Perennial Stream/River	Y	Open Cut	5	5	-150.2645919	62.39277366
ST_652.8	Name Unknown	Perennial Stream/River	Y	Open Cut	5	5	-150.2687263	62.37953553
ST_654	Name Unknown	Perennial Stream/River	N	Open Cut	10	10	-150.2685209	62.36215492
ST_656.2	Trapper Creek	Perennial Stream/River	Y	Open Cut	43	43	-150.2738196	62.33086513
ST_658.2	Name Unknown	Perennial Stream/River	Y	Open Cut	6	6	-150.2627346	62.30205306
ST_658.9	Name Unknown	Perennial Stream/River	Y	Open Cut	15	15	-150.2580519	62.29238522
ST_660.5	Name Unknown	Intermittent Stream/River	N	Open Cut	52	52	-150.2619611	62.27016101
ST_661.1	Sawmill Creek	Perennial Stream/River	Y	Open Cut	14	14	-150.2661829	62.26167388
ST_662.3	Name Unknown	Intermittent Stream/River	Y	Open Cut	10	10	-150.2593043	62.24495551
ST_662.6	Sawmill Creek Tributary	Perennial Stream/River	Y	Open Cut	10	10	-150.256741	62.24205772
ST_664	Name Unknown	Perennial Stream/River	N	Open Cut	9	9	-150.2467064	62.22305018
ST_665	Name Unknown	Perennial Stream/River	N	Open Cut	10	10	-150.2422837	62.20871042
ST_665.8	Queer Creek	Perennial Stream/River	Y	Open Cut	20	20	-150.2330625	62.19776139
ST_666.9	Rabideux Creek	Perennial Stream/River	Y	Open Cut	75	75	-150.2106623	62.18756888
ST_668.3	Susitna River	Artificial Path	Y	Air Span	936	936	-150.1743983	62.17543866
ST_672.2	Name Unknown	Perennial Stream/River	Y	Open Cut	171	171	-150.0975349	62.13696418
ST_674.8	Montana Creek	Perennial Stream/River	Y	HDD	145	145	-150.0669143	62.10426254
ST_675	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	85	85	-150.0660625	62.10133606
ST_677.8	Goose Creek	Perennial Stream/River	Y	Isolated Open Cut	41	41	-150.0706672	62.06105834
ST_679.4	Name Unknown	Perennial Stream/River	Y	Open Cut	177	177	-150.0886783	62.04186427
ST_681.3	Name Unknown	Perennial Stream/River	Y	Open Cut	140	140	-150.0972201	62.01627508
ST_684.2	Sheep Creek Slough	Perennial Stream/River	Y	Isolated Open Cut	175	175	-150.0778073	61.97533302
ST_686.2	Caswell Creek	Perennial Stream/River	Y	Isolated Open Cut	95	95	-150.0715352	61.94683431

ASAP STREAM IDENTIFIER (REV6)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_688.2	Kashwitna River	Artificial Path	Y	HDD	216	216	-150.0809394	61.92006541
ST_689.8	197 1/2 Mile Creek	Perennial Stream/River	Y	Isolated Open Cut	30	30	-150.079022	61.89728412
ST_695.9	Name Unknown	Perennial Stream/River	Y	Open Cut	16	16	-150.1123249	61.81563892
ST_696.1	Little Willow Creek	Perennial Stream/River	Y	Isolated Open Cut	104	104	-150.115151	61.81393861
ST_698.8	Willow Creek	Artificial Path	Y	HDD	451	451	-150.111823	61.7754971
ST_699.2	Name Unknown	Perennial Stream/River	Y	Open Cut	15	15	-150.117842	61.77012849
ST_701.8	Name Unknown	Perennial Stream/River	Y	Open Cut	378	378	-150.1591567	61.73975406
ST_706.4	Name Unknown	Perennial Stream/River	N	Isolated Open Cut	80	80	-150.1590266	61.67861225
ST_708.5	Name Unknown	Perennial Stream/River	N	Open Cut	5	5	-150.1924663	61.65225325
ST_713	Fish Creek	Perennial Stream/River	Y	Isolated Open Cut	160	160	-150.2254156	61.59175164
ST_722.4	Little Susitna River	Artificial Path	Y	Isolated Open Cut	100	100	-150.1411089	61.47082156
ST_724.6	Name Unknown	Perennial Stream/River	Y	Open Cut	43	43	-150.114823	61.44551563

ATTACHMENT A4 STREAM CROSSINGS FOR ASAP FAIRBANKS LATERAL

FAIRBANKS LATERAL STREAM IDENTIFIER (V4)	STREAM NAME	STREAM TYPE	ANADROMOUS	PROPOSED CROSSING METHOD	STREAM WIDTH (FEET)	BANK FULL WIDTH (FEET)	LONGITUDE (DD 83)	LATITUDE (DD 83)
ST_6.5	Hard Luck Creek	Perennial Stream/River	N	Isolated Open Cut	25	25	-148.48122	64.94942
ST_19.9	West Fork Moose Creek	Perennial Stream/River	N	Isolated Open Cut	20	20	-148.062	64.94595
ST_23.4	Goldstream Creek	Perennial Stream/River	N	Isolated Open Cut	20	20	-147.97924	64.91576
ST_23.9	Happy Creek	Perennial Stream/River	N	Isolated Open Cut	20	20	-147.92338	64.86812
ST_27.1	Sheep Creek	Perennial Stream/River	N	Open Cut	30	30	-147.97325	64.90918
ST_28.8	Ace Creek	Perennial Stream/River	N	Open Cut	20	20	-147.92337	64.86812

Attachment 5
Ancillary Features

ATTACHMENT 5 ANCILLARY FEATURES

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-E-0.08	Existing, Permanent, Gravel	1.88	22.78	ASAP	0.1	U11N14E 1-2,11
Access Road	AR-N-0.08	New, Permanent, Gravel	0.72	9.63	ASAP	0.1	U11N14E 10-11
Access Road	AR-E-0.49	Existing, Permanent, Gravel	3.12	37.78	ASAP	0.5	U10N14E 4; U11N14E 22,27,33-34
Access Road	AR-N-0.49	New, Temporary, Ice	1.49	14.45	ASAP	0.5	U11N14E 15,22
Access Road	MS-N-109.12	New, Permanent, Gravel	1.10	16.03	ASAP	109.1	U07S14E 8,17
Access Road	AR-N-109.12	New, Temporary, Gravel	0.64	8.95	ASAP	109.1	U07S14E 16-17
Access Road	MS-E-11.00	Existing, Permanent, Gravel	0.03	0.32	ASAP	11.0	U10N14E 36
Access Road	AR/MS-N-112.00	New, Permanent, Gravel	0.37	4.87	ASAP	112.0	U07S14E 32
Access Road	AR-E-114.00	Existing, Permanent, Gravel	0.36	4.32	ASAP	114.0	U08S14E 7
Access Road	AR-N-114.00	New, Permanent, Gravel	0.16	1.67	ASAP	114.0	U08S14E 7
Access Road	CMP/MS-E-114.16	Existing, Permanent, Gravel	1.03	12.15	ASAP	114.2	U08S14E 7-8
Access Road	AR-N-114.41	New, Temporary, Gravel	0.24	3.24	ASAP	114.4	U08S14E 7
Access Road	AR-E-118.69	Existing, Permanent, Gravel	0.07	0.81	ASAP	118.7	U08S13E 27
Access Road	AR-N-121.46	New, Temporary, Gravel	0.12	1.80	ASAP	121.5	U09S13E 4
Access Road	AR-N-122.19	New, Temporary, Gravel	0.08	1.15	ASAP	122.2	U09S13E 4
Access Road	AR/MS-N-122.67	New, Permanent, Gravel	1.16	18.27	ASAP	122.7	U09S13E 8,16-17
Access Road	AR/MS-E-122.67	Existing, Permanent, Gravel	0.80	9.72	ASAP	122.7	U09S13E 5,8
Access Road	AR-N-127.10	New, Temporary, Gravel	0.02	0.32	ASAP	127.1	U09S12E 15
Access Road	AR/MS-E-129.18	Existing, Permanent, Gravel	1.88	22.78	ASAP	129.2	U09S12E 20,28-29,33

¹The number and type of features described in the Plan of Development do not necessarily correspond with those features required for Clean Water Act individual permit authorizations (e.g., ice roads, existing access roads, etc.)

² Acreages shown were calculated for each individual feature regardless of overlap. The sum of acreages for this table is not representative of the actual ASAP project footprint because some features are overlapping.

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-N-130.51	New, Permanent, Gravel	0.07	0.90	ASAP	130.5	U09S12E 19
Access Road	AR-E-130.75	Existing, Permanent, Gravel	0.11	1.34	ASAP	130.8	U09S12E 19
Access Road	AR-N-135.05	New, Temporary, Gravel	0.06	0.78	ASAP	135.1	U10S11E 3
Access Road	AR-N-135.19	New, Temporary, Gravel	0.03	0.43	ASAP	135.2	U10S11E 3
Access Road	AR-N-138.09	New, Temporary, Gravel	0.04	0.54	ASAP	138.1	U10S11E 23
Access Road	CMP/YD-E-142.93	Existing, Permanent, Gravel	1.93	23.40	ASAP	142.9	U11S11E 23,26,35
Access Road	AR/MS-E-142.93	Existing, Permanent, Gravel	3.16	38.36	ASAP	142.9	U11S11E 13-15,22-23
Access Road	MS-N-142.93	New, Permanent, Gravel	0.05	0.76	ASAP	142.9	U11S11E 26
Access Road	AR-N-146.36	New, Temporary, Gravel	0.02	0.29	ASAP	146.4	U11S12E 29
Access Road	AR-N-146.50	New, Temporary, Gravel	0.04	0.58	ASAP	146.5	U11S12E 29
Access Road	AR-N-147.22	New, Temporary, Gravel	0.32	4.95	ASAP	147.2	U11S12E 29,32
Access Road	AR-N-149.33	New, Temporary, Gravel	0.04	0.58	ASAP	149.3	U12S12E 9
Access Road	AR-N-150.00	New, Permanent, Gravel	0.03	0.46	ASAP	150.0	U12S12E 9
Access Road	AR/MS-E-150.44	Existing, Permanent, Gravel	0.07	0.87	ASAP	150.4	U12S12E 16
Access Road	AR/MS-N-150.44	New, Permanent, Gravel	0.15	2.44	ASAP	150.4	U12S12E 16
Access Road	AR-E-152.65	Existing, Permanent, Gravel	0.03	0.30	ASAP	152.7	U12S12E 28
Access Road	AR-N-152.82	New, Temporary, Gravel	0.03	0.32	ASAP	152.8	U12S12E 28
Access Road	AR-N-153.11	New, Temporary, Gravel	0.03	0.34	ASAP	153.1	U12S12E 28
Access Road	AR/MS-E-154.61	Existing, Permanent, Gravel	0.08	0.95	ASAP	154.6	U13S12E 3
Access Road	AR/MS-N-155.57	New, Permanent, Gravel	0.27	4.29	ASAP	155.6	U13S12E 10
Access Road	AR-E-157.81	Existing, Permanent, Gravel	0.04	0.46	ASAP	157.8	U13S12E 21
Access Road	AR/MS-N-161.94	New, Permanent, Gravel	0.08	1.15	ASAP	161.9	U14S12E 8
Access Road	AR-N-163.67	New, Temporary, Gravel	0.04	0.51	ASAP	163.7	U14S12E 17
Access Road	AR-N-163.88	New, Temporary, Gravel	0.03	0.46	ASAP	163.9	U14S12E 17
Access Road	MS-E-164.32	Existing, Permanent, Gravel	0.36	4.31	ASAP	164.3	U14S12E 20
Access Road	AR-E-164.54	Existing, Permanent, Gravel	0.12	1.46	ASAP	164.5	U14S12E 20
Access Road	AR-N-164.54	New, Temporary, Gravel	0.06	0.79	ASAP	164.5	U14S12E 20
Access Road	AR-N-165.12	New, Temporary, Gravel	0.11	1.60	ASAP	165.1	U14S12E 29
Access Road	AR-N-167.46	New, Temporary, Gravel	0.05	0.72	ASAP	167.5	U15S12E 6
Access Road	CMP/YD-E-167.62	Existing, Permanent, Gravel	0.06	0.78	ASAP	167.6	U15S12E 6

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR/MS-N-167.89	New, Permanent, Gravel	0.16	2.28	ASAP	167.9	U15S12E 6
Access Road	AR-N-168.40	New, Temporary, Gravel	0.03	0.45	ASAP	168.4	U15S12E 7
Access Road	AR-N-17.59	New, Temporary, Ice	3.51	34.02	ASAP	17.6	U08N14E 2-6; U09N14E 33
Access Road	AR-E-17.59	Existing, Permanent, Gravel	0.91	11.07	ASAP	17.6	U08N14E 1-2; U09N14E 33-34
Access Road	AR-N-170.00	New, Permanent, Gravel	0.03	0.45	ASAP	170.0	U15S12E 18
Access Road	AR-N-170.30	New, Temporary, Gravel	0.06	0.86	ASAP	170.3	U15S12E 18-19
Access Road	AR-E-170.71	Existing, Permanent, Gravel	0.11	1.30	ASAP	170.7	U15S12E 19
Access Road	AR-E-170.97	Existing, Permanent, Gravel	0.07	0.80	ASAP	171.0	U15S11E 24
Access Road	AR-E-173.26	Existing, Permanent, Gravel	0.07	0.83	ASAP	173.3	U15S11E 26
Access Road	AR-N-173.26	New, Temporary, Gravel	0.14	1.95	ASAP	173.3	U15S11E 26
Access Road	AR-N-173.50	New, Temporary, Gravel	0.01	0.18	ASAP	173.5	U15S11E 26
Access Road	AR-N-174.62	New, Temporary, Gravel	0.04	0.56	ASAP	174.6	U15S11E 35
Access Road	AR/MS-E-175.43	Existing, Permanent, Gravel	0.18	2.19	ASAP	175.4	U16S11E 3
Access Road	AR-N-176.14	New, Temporary, Gravel	0.08	0.91	ASAP	176.1	U16S11E 3
Access Road	CMP/YD-E-176.61	Existing, Permanent, Gravel	0.12	1.50	ASAP	176.6	U16S11E 9
Access Road	AR-E-176.73	Existing, Permanent, Gravel	0.04	0.47	ASAP	176.7	U16S11E 9
Access Road	MS-N-176.95	New, Permanent, Gravel	0.19	3.04	ASAP	177.0	U16S11E 9
Access Road	AR-N-177.71	New, Temporary, Gravel	0.03	0.49	ASAP	177.7	U16S11E 16
Access Road	AR-N-180.06	New, Temporary, Gravel	0.02	0.28	ASAP	180.1	U16S11E 20
Access Road	AR-N-180.25	New, Temporary, Gravel	0.02	0.23	ASAP	180.3	U16S11E 19
Access Road	AR-N-180.75	New, Temporary, Gravel	0.03	0.50	ASAP	180.8	U16S11E 30
Access Road	AR-N-181.88	New, Temporary, Gravel	0.17	2.15	ASAP	181.9	U16S10E 25
Access Road	AR-N-183.20	New, Temporary, Gravel	0.23	3.44	ASAP	183.2	U16S10E 35
Access Road	AR-N-183.92	New, Temporary, Gravel	0.70	9.49	ASAP	183.9	U16S10E 35; U17S10E 2
Access Road	AR-N-183.99	New, Temporary, Gravel	0.03	0.44	ASAP	184.0	F37N10W 25
Access Road	AR-N-184.21	New, Temporary, Gravel	0.03	0.47	ASAP	184.2	F37N10W 25
Access Road	AR-N-184.93	New, Temporary, Gravel	0.05	0.69	ASAP	184.9	F37N10W 35
Access Road	AR-N-185.16	New, Temporary, Gravel	0.02	0.33	ASAP	185.2	F37N10W 35
Access Road	MS-N-185.52	New, Permanent, Gravel	0.08	1.12	ASAP	185.5	F36N10W 2-3

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-N-185.70	New, Temporary, Gravel	0.02	0.27	ASAP	185.7	F36N10W 2-3
Access Road	AR-N-186.08	New, Temporary, Gravel	0.04	0.47	ASAP	186.1	F36N10W 3
Access Road	AR-N-186.16	New, Temporary, Gravel	0.04	0.50	ASAP	186.2	F36N10W 3
Access Road	AR-N-186.76	New, Temporary, Gravel	0.02	0.30	ASAP	186.8	F36N10W 10
Access Road	AR-N-187.71	New, Temporary, Gravel	0.02	0.33	ASAP	187.7	F36N10W 15
Access Road	AR-N-188.09	New, Temporary, Gravel	0.03	0.37	ASAP	188.1	F36N10W 15
Access Road	AR-N-189.05	New, Temporary, Gravel	0.03	0.31	ASAP	189.1	F36N10W 21
Access Road	AR-N-189.12	New, Temporary, Gravel	0.02	0.26	ASAP	189.1	F36N10W 21
Access Road	AR-N-190.00	New, Permanent, Gravel	0.02	0.34	ASAP	190.0	F36N10W 28
Access Road	AR-N-191.07	New, Temporary, Gravel	0.03	0.39	ASAP	191.1	F36N10W 33
Access Road	MS-E-194.87	Existing, Permanent, Gravel	0.06	0.62	ASAP	194.9	F35N10W 16
Access Road	AR-N-194.97	New, Temporary, Gravel	0.04	0.48	ASAP	195.0	F35N10W 16
Access Road	AR/MS-N-195.20	New, Permanent, Gravel	0.41	5.00	ASAP	195.2	F35N10W 21
Access Road	AR-N-196.44	New, Temporary, Gravel	0.12	1.66	ASAP	196.4	F35N10W 28
Access Road	AR/YD-E-196.74	Existing, Permanent, Gravel	0.19	2.25	ASAP	196.7	F35N10W 28
Access Road	AR-N-197.86	New, Temporary, Gravel	0.06	0.70	ASAP	197.9	F35N10W 33
Access Road	AR-N-198.14	New, Temporary, Gravel	0.03	0.40	ASAP	198.1	F34N10W 4
Access Road	AR-N-199.23	New, Temporary, Gravel	0.07	0.84	ASAP	199.2	F34N10W 9
Access Road	AR-E-20.00	Existing, Permanent, Gravel	0.13	1.59	ASAP	20.0	U08N14E 21
Access Road	AR-N-20.00	New, Permanent, Gravel	2.27	27.52	ASAP	20.0	U08N14E 17-18,20-21
Access Road	AR-N-201.27	New, Temporary, Gravel	0.04	0.54	ASAP	201.3	F34N10W 15
Access Road	AR-N-203.23	New, Temporary, Gravel	0.05	0.54	ASAP	203.2	F34N10W 26
Access Road	AR-N-203.40	New, Temporary, Gravel	0.05	0.64	ASAP	203.4	F34N10W 26
Access Road	AR-N-206.18	New, Temporary, Gravel	0.15	1.92	ASAP	206.2	F33N10W 11
Access Road	AR-N-206.30	New, Temporary, Gravel	0.16	1.97	ASAP	206.3	F33N10W 11
Access Road	AR-N-207.91	New, Temporary, Gravel	0.03	0.31	ASAP	207.9	F33N10W 24
Access Road	CMP-N-208.14	New, Permanent, Gravel	0.84	12.23	ASAP	208.1	F33N10W 14,23-24
Access Road	AR-N-208.14	New, Temporary, Gravel	0.17	2.20	ASAP	208.1	F33N10W 24
Access Road	AR/MS-N-209.19	New, Permanent, Gravel	0.28	3.23	ASAP	209.2	F33N10W 25
Access Road	AR-N-209.50	New, Permanent, Gravel	0.07	0.82	ASAP	209.5	F33N10W 25

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-E-210.10	Existing, Permanent, Gravel	0.02	0.25	ASAP	210.1	F33N10W 35
Access Road	AR-N-210.21	New, Temporary, Gravel	0.02	0.25	ASAP	210.2	F33N10W 35
Access Road	AR-N-210.32	New, Temporary, Gravel	0.02	0.22	ASAP	210.3	F33N10W 35
Access Road	AR-N-211.58	New, Temporary, Gravel	0.02	0.26	ASAP	211.6	F32N10W 4
Access Road	AR-N-211.85	New, Temporary, Gravel	0.02	0.30	ASAP	211.9	F32N10W 4
Access Road	AR-N-212.46	New, Temporary, Gravel	0.02	0.28	ASAP	212.5	F32N10W 4
Access Road	AR-N-212.76	New, Temporary, Gravel	0.28	3.42	ASAP	212.8	F32N10W 9
Access Road	AR-N-212.95	New, Temporary, Gravel	0.27	6.45	ASAP	213.0	F32N10W 9
Access Road	AR-N-213.80	New, Temporary, Gravel	0.03	0.40	ASAP	213.8	F32N10W 16
Access Road	AR-N-218.07	New, Temporary, Gravel	0.13	1.61	ASAP	218.1	F31N10W 5-6
Access Road	AR-N-219.93	New, Temporary, Gravel	0.12	1.55	ASAP	219.9	F31N10W 8
Access Road	AR/YD/MS-E-220.28	Existing, Permanent, Gravel	0.19	2.12	ASAP	220.3	F31N10W 17-18
Access Road	AR-N-220.53	New, Temporary, Gravel	0.02	0.26	ASAP	220.5	F31N10W 18
Access Road	AR-N-220.68	New, Temporary, Gravel	0.02	0.27	ASAP	220.7	F31N10W 18
Access Road	AR-N-221.31	New, Temporary, Gravel	0.05	0.56	ASAP	221.3	F31N10W 19
Access Road	AR-N-221.36	New, Temporary, Gravel	0.05	0.59	ASAP	221.4	F31N10W 19
Access Road	AR/MS-N-222.56	New, Permanent, Gravel	0.07	0.94	ASAP	222.6	F31N10W 30
Access Road	AR-N-224.19	New, Temporary, Gravel	0.02	0.20	ASAP	224.2	F31N11W 35
Access Road	AR-N-226.57	New, Temporary, Gravel	0.01	0.17	ASAP	226.6	F31N11W 33
Access Road	AR-N-226.79	New, Temporary, Gravel	0.02	0.23	ASAP	226.8	F31N11W 33
Access Road	AR-N-226.95	New, Temporary, Gravel	0.02	0.28	ASAP	227.0	F31N11W 33
Access Road	AR-N-227.19	New, Temporary, Gravel	0.03	0.32	ASAP	227.2	F30N11W 5
Access Road	AR-N-227.27	New, Temporary, Gravel	0.04	0.55	ASAP	227.3	F30N11W 5
Access Road	AR-E-227.33	Existing, Permanent, Gravel	0.04	0.51	ASAP	227.3	F30N11W 5
Access Road	AR-N-227.33	New, Temporary, Gravel	0.01	0.13	ASAP	227.3	F30N11W 5
Access Road	AR-N-228.19	New, Temporary, Gravel	0.03	0.38	ASAP	228.2	F30N11W 5
Access Road	AR-N-229.21	New, Temporary, Gravel	0.07	0.95	ASAP	229.2	F30N11W 7
Access Road	AR-N-229.29	New, Temporary, Gravel	0.05	0.63	ASAP	229.3	F30N11W 7
Access Road	AR-N-229.50	New, Permanent, Gravel	0.11	1.14	ASAP	229.5	F30N11W 7

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-N-23.43	New, Permanent, Gravel	1.37	16.57	ASAP	23.4	U07N14E 5; U08N14E 31-32
Access Road	MS-N-23.43	New, Permanent, Gravel	0.12	1.63	ASAP	23.4	U08N14E 32
Access Road	AR-E-230.28	Existing, Permanent, Gravel	0.02	0.26	ASAP	230.3	F30N11W 18
Access Road	MS-N-230.36	New, Permanent, Gravel	0.11	1.63	ASAP	230.4	F30N12W 13
Access Road	MS-E-230.83	Existing, Permanent, Gravel	0.32	3.78	ASAP	230.8	F30N11W 19-20
Access Road	AR-E-230.91	Existing, Permanent, Gravel	0.02	0.29	ASAP	230.9	F30N11W 19
Access Road	MS-E-232.00	Existing, Permanent, Gravel	0.34	3.95	ASAP	232.0	F30N11W 30
Access Road	AR-N-232.33	New, Temporary, Gravel	0.03	0.37	ASAP	232.3	F30N11W 30
Access Road	AR-N-232.56	New, Temporary, Gravel	0.03	0.33	ASAP	232.6	F30N11W 30
Access Road	AR-N-234.76	New, Temporary, Gravel	0.03	0.39	ASAP	234.8	F29N12W 1
Access Road	AR/MS-N-237.51	New, Permanent, Gravel	0.75	10.88	ASAP	237.5	F29N12W 23-24
Access Road	AR-N-237.92	New, Temporary, Gravel	0.03	0.36	ASAP	237.9	F29N12W 23
Access Road	AR-E-238.11	Existing, Permanent, Gravel	0.02	0.29	ASAP	238.1	F29N12W 23
Access Road	AR-N-239.80	New, Temporary, Gravel	0.02	0.26	ASAP	239.8	F29N12W 35
Access Road	MS-E-239.80	Existing, Permanent, Gravel	0.53	6.19	ASAP	239.8	F29N12W 35
Access Road	AR-N-241.72	New, Temporary, Gravel	0.03	0.33	ASAP	241.7	F28N12W 10
Access Road	AR/MS-N-242.62	New, Permanent, Gravel	1.09	13.20	ASAP	242.6	F28N12W 15
Access Road	CMP/YD/MS-E-242.62	Existing, Permanent, Gravel	0.21	2.40	ASAP	242.6	F28N12W 15
Access Road	AR/MS-E-245.27	Existing, Permanent, Gravel	0.52	6.00	ASAP	245.3	F28N12W 28-29
Access Road	AR-N-249.05	New, Permanent, Gravel	0.00	0.14	ASAP	249.1	F27N13W 12
Access Road	AR-N-249.43	New, Temporary, Gravel	0.03	0.34	ASAP	249.4	F27N13W 12
Access Road	AR-N-250.51	New, Temporary, Gravel	0.04	0.58	ASAP	250.5	F27N13W 14
Access Road	AR/MS-E-252.57	Existing, Permanent, Gravel	0.61	7.09	ASAP	252.6	F27N13W 26
Access Road	AR/MS-N-252.57	New, Permanent, Gravel	1.36	23.01	ASAP	252.6	F27N13W 24-26
Access Road	AR-N-253.57	New, Temporary, Gravel	0.10	1.21	ASAP	253.6	F27N13W 35
Access Road	AR-N-253.72	New, Temporary, Gravel	0.02	0.21	ASAP	253.7	F27N13W 35
Access Road	AR/MS-E-256.75	Existing, Permanent, Gravel	0.36	4.20	ASAP	256.8	F26N13W 14
Access Road	AR/MS-N-256.75	New, Permanent, Gravel	1.67	23.54	ASAP	256.8	F26N13W 14-16,22

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-E-258.95	Existing, Permanent, Gravel	0.11	1.27	ASAP	259.0	F26N13W 26
Access Road	AR-N-259.36	New, Temporary, Gravel	0.08	1.06	ASAP	259.4	F26N13W 25
Access Road	AR-N-260.19	New, Temporary, Gravel	0.10	1.25	ASAP	260.2	F26N13W 36
Access Road	MS-E-260.26	Existing, Permanent, Gravel	0.14	1.59	ASAP	260.3	F26N13W 36
Access Road	MS-AR-N-261.12	New, Temporary, Gravel	0.75	9.04	ASAP	261.1	F25N12W 6; F25N13W 1; F26N12W 31
Access Road	AR-N-262.17	New, Temporary, Gravel	0.07	0.88	ASAP	262.2	F25N12W 6-7
Access Road	AR-N-262.37	New, Temporary, Gravel	0.06	0.70	ASAP	262.4	F25N12W 7
Access Road	AR-E-263.75	Existing, Permanent, Gravel	0.04	0.41	ASAP	263.8	F25N13W 13
Access Road	MS-E-263.75	Existing, Permanent, Gravel	0.32	3.72	ASAP	263.8	F25N12W 18; F25N13W 13
Access Road	AR-E-266.04	Existing, Permanent, Gravel	0.04	0.52	ASAP	266.0	F25N13W 26
Access Road	AR-E-268.71	Existing, Permanent, Gravel	0.10	1.22	ASAP	268.7	F24N13W 5
Access Road	AR-N-27.39	New, Temporary, Ice	0.16	1.57	ASAP	27.4	U07N14E 19
Access Road	AR-E-270.04	Existing, Permanent, Gravel	0.06	0.75	ASAP	270.0	F24N13W 8
Access Road	AR-N-272.02	New, Temporary, Gravel	0.05	0.58	ASAP	272.0	F24N14W 13
Access Road	AR-N-272.37	New, Temporary, Gravel	0.10	1.36	ASAP	272.4	F24N14W 24
Access Road	MS-E-272.73	Existing, Permanent, Gravel	0.55	6.37	ASAP	272.7	F24N14W 23-24
Access Road	AR-N-273.38	New, Temporary, Gravel	0.35	4.19	ASAP	273.4	F24N14W 23
Access Road	AR-N-273.73	New, Temporary, Gravel	0.42	5.13	ASAP	273.7	F24N14W 26
Access Road	AR-E-273.73	Existing, Permanent, Gravel	0.05	0.53	ASAP	273.7	F24N14W 26
Access Road	AR/MS-N-277.47	New, Permanent, Gravel	1.32	16.04	ASAP	277.5	F23N14W 9-10
Access Road	AR/YD-E-279.20	Existing, Permanent, Gravel	0.87	10.15	ASAP	279.2	F23N14W 17,19-20
Access Road	AR/YD-N-279.20	New, Permanent, Gravel	1.14	13.69	ASAP	279.2	F23N14W 16-17
Access Road	AR/YD-N-279.20	New, Permanent, Gravel	0.51	6.58	ASAP	279.2	F23N14W 8,17
Access Road	AR/YD-E-279.20	Existing, Permanent, Gravel	0.08	0.87	ASAP	279.2	F23N14W 8
Access Road	AR/MS-N-281.13	New, Permanent, Gravel	1.03	14.52	ASAP	281.1	F23N14W 20,29-30
Access Road	AR/MS-E-281.13	Existing, Permanent, Gravel	0.10	1.19	ASAP	281.1	F23N14W 19,30
Access Road	AR-N-283.61	New, Temporary, Gravel	1.12	15.59	ASAP	283.6	F22N14W 6; F22N15W 1
Access Road	AR/MS-E-284.80	Existing, Permanent, Gravel	1.12	13.04	ASAP	284.8	F22N14W 7
Access Road	AR-N-286.67	New, Temporary, Gravel	0.26	3.45	ASAP	286.7	F22N14W 19

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	MS-E-286.67	Existing, Permanent, Gravel	0.19	2.21	ASAP	286.7	F22N14W 19
Access Road	AR/MS-N-288.31	New, Temporary, Gravel	0.08	1.13	ASAP	288.3	F22N14W 29
Access Road	AR/MS-E-288.31	Existing, Permanent, Gravel	0.91	10.53	ASAP	288.3	F22N14W 29,31-32
Access Road	AR-E-289.35	Existing, Permanent, Gravel	0.26	3.03	ASAP	289.4	F22N14W 31-32
Access Road	AR-N-289.35	New, Temporary, Gravel	0.11	1.32	ASAP	289.4	F22N14W 32
Access Road	AR/MS-E-291.11	Existing, Permanent, Gravel	0.25	2.93	ASAP	291.1	F21N14W 7
Access Road	AR/MS-N-291.11	New, Temporary, Gravel	0.07	0.88	ASAP	291.1	F21N14W 7
Access Road	AR/MS-E-293.27	Existing, Permanent, Gravel	0.09	1.00	ASAP	293.3	F21N14W 19
Access Road	AR/MS-N-293.27	New, Permanent, Gravel	1.04	12.59	ASAP	293.3	F21N14W 19,29-30
Access Road	AR/MS-E-297.46	Existing, Permanent, Gravel	1.10	12.77	ASAP	297.5	F20N15W 3-4,10
Access Road	AR/MS-N-297.46	New, Temporary, Gravel	0.12	1.64	ASAP	297.5	F20N15W 10
Access Road	AR-N-298.72	New, Temporary, Gravel	0.30	3.64	ASAP	298.7	F20N15W 15
Access Road	AR-E-298.72	Existing, Permanent, Gravel	2.24	26.05	ASAP	298.7	F20N15W 15-17
Access Road	AR-E-3.40	Existing, Permanent, Gravel	0.21	2.60	ASAP	3.4	U11N14E 27
Access Road	AR-N-3.40	New, Permanent, Gravel	0.64	8.57	ASAP	3.4	U11N14E 27-28
Access Road	CMP/YD-N-3.89	New, Permanent, Gravel	0.47	5.73	ASAP	3.9	U11N14E 28,33
Access Road	AR/MS-E-300.60	Existing, Permanent, Gravel	1.83	21.34	ASAP	300.6	F20N15W 27-28
Access Road	AR/MS-N-300.60	New, Permanent, Gravel	0.40	9.79	ASAP	300.6	F20N15W 26-27
Access Road	AR-N-301.76	New, Temporary, Gravel	0.14	2.23	ASAP	301.8	F20N15W 35
Access Road	AR-E-301.76	Existing, Permanent, Gravel	1.20	13.98	ASAP	301.8	F20N15W 34-35
Access Road	AR-N-303.73	New, Temporary, Gravel	0.13	1.74	ASAP	303.7	F19N15W 11
Access Road	AR-E-306.41	Existing, Permanent, Gravel	0.22	2.50	ASAP	306.4	F19N14W 19; F19N15W 24
Access Road	MS-E-306.57	Existing, Permanent, Gravel	0.16	1.88	ASAP	306.6	F19N14W 19; F19N15W 24
Access Road	AR-E-307.67	Existing, Permanent, Gravel	0.14	1.68	ASAP	307.7	F19N14W 30
Access Road	CMP/YD-E-308.62	Existing, Permanent, Gravel	0.18	2.10	ASAP	308.6	F19N14W 31
Access Road	AR-N-309.08	New, Temporary, Gravel	0.07	0.79	ASAP	309.1	F19N14W 32
Access Road	MS-E-31.34	Existing, Permanent, Gravel	0.41	4.92	ASAP	31.3	U06N13E 12
Access Road	AR-N-31.34	New, Temporary, Ice	0.31	2.99	ASAP	31.3	U06N13E 11-12
Access Road	AR-N-313.02	New, Temporary, Gravel	0.08	0.96	ASAP	313.0	F18N14W 15
Access Road	AR-N-313.16	New, Temporary, Gravel	0.06	0.73	ASAP	313.2	F18N14W 15

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR/MS-N-313.33	New, Permanent, Gravel	0.27	3.54	ASAP	313.3	F18N14W 15
Access Road	AR/MS-N-317.18	New, Permanent, Gravel	0.45	9.31	ASAP	317.2	F18N14W 36
Access Road	AR-N-317.64	New, Temporary, Gravel	0.04	0.50	ASAP	317.6	F17N14W 1
Access Road	AR-E-319.77	Existing, Permanent, Gravel	0.08	0.96	ASAP	319.8	F17N13W 18
Access Road	AR-N-320.60	New, Permanent, Gravel	0.52	6.92	ASAP	320.6	F17N13W 17,20
Access Road	AR-N-323.43	New, Temporary, Gravel	0.15	2.00	ASAP	323.4	F17N13W 33
Access Road	MS-E-325.35	Existing, Permanent, Gravel	0.58	6.70	ASAP	325.4	F16N13W 3-4
Access Road	AR/MS-E-327.34	Existing, Permanent, Gravel	0.98	11.43	ASAP	327.3	F16N13W 14-15
Access Road	AR-N-331.66	New, Temporary, Gravel	0.03	0.43	ASAP	331.7	F15N13W 1
Access Road	AR/MS-N-333.30	New, Permanent, Gravel	0.53	6.42	ASAP	333.3	F15N12W 7; F15N13W 12
Access Road	AR-N-336.26	New, Permanent, Gravel	0.06	0.68	ASAP	336.3	F15N12W 30
Access Road	MS-E-337.46	Existing, Permanent, Gravel	0.51	5.93	ASAP	337.5	F15N12W 31
Access Road	AR-N-338.54	New, Permanent, Gravel	0.10	1.36	ASAP	338.5	F14N12W 6
Access Road	AR-N-340.30	New, Permanent, Gravel	0.05	0.53	ASAP	340.3	F14N12W 17
Access Road	AR-N-340.97	New, Temporary, Gravel	0.13	1.54	ASAP	341.0	F14N12W 17
Access Road	MS-E-341.56	Existing, Permanent, Gravel	0.14	1.61	ASAP	341.6	F14N12W 20
Access Road	AR-N-341.56	New, Temporary, Gravel	0.04	0.54	ASAP	341.6	F14N12W 20
Access Road	AR-N-342.16	New, Temporary, Gravel	0.04	0.50	ASAP	342.2	F14N12W 21
Access Road	AR-N-342.42	New, Temporary, Gravel	0.02	0.29	ASAP	342.4	F14N12W 21
Access Road	AR-N-343.31	New, Temporary, Gravel	0.12	1.60	ASAP	343.3	F14N12W 28
Access Road	AR-E-343.66	Existing, Permanent, Gravel	0.43	4.96	ASAP	343.7	F14N12W 27-28
Access Road	AR-N-343.66	New, Temporary, Gravel	0.06	0.82	ASAP	343.7	F14N12W 27
Access Road	AR-N-344.11	New, Temporary, Gravel	0.06	0.87	ASAP	344.1	F14N12W 34
Access Road	AR-E-344.11	Existing, Permanent, Gravel	0.10	1.21	ASAP	344.1	F14N12W 34
Access Road	AR-N-344.67	New, Temporary, Gravel	0.73	15.09	ASAP	344.7	F14N12W 34-35
Access Road	AR/MS-N-344.90	New, Temporary, Gravel	2.07	31.59	ASAP	344.9	F13N12W 2; F14N12W 35-36
Access Road	AR-N-348.22	New, Temporary, Gravel	0.07	0.83	ASAP	348.2	F13N11W 7
Access Road	AR-N-348.45	New, Temporary, Gravel	0.09	1.08	ASAP	348.5	F13N11W 7,18
Access Road	MS-E-349.12	Existing, Permanent, Gravel	0.85	9.93	ASAP	349.1	F13N11W 8,17

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-E-349.12	Existing, Permanent, Gravel	0.15	1.74	ASAP	349.1	F13N11W 17-18
Access Road	CMP/YD-E-351.52	Existing, Permanent, Gravel	0.34	3.91	ASAP	351.5	F13N11W 22
Access Road	AR-E-351.70	Existing, Permanent, Gravel	0.19	2.24	ASAP	351.7	F13N11W 22
Access Road	CMP/YD-E-351.70	Existing, Permanent, Gravel	0.19	2.23	ASAP	351.7	F13N11W 22
Access Road	AR-N-352.36	New, Temporary, Gravel	0.05	0.58	ASAP	352.4	F13N11W 27
Access Road	AR/CMP-E-353.32	Existing, Permanent, Gravel	0.18	2.06	ASAP	353.3	F13N11W 26
Access Road	MS-E-354.20	Existing, Permanent, Gravel	1.12	12.98	ASAP	354.2	F13N11W 25,36
Access Road	AR-N-356.01	New, Temporary, Gravel	0.04	0.51	ASAP	356.0	F12N11W 1
Access Road	AR-E-358.08	Existing, Permanent, Gravel	0.08	0.94	ASAP	358.1	F12N11W 13
Access Road	AR-E-358.85	Existing, Permanent, Gravel	0.03	0.36	ASAP	358.9	F12N10W 19
Access Road	AR-E-359.90	New, Permanent, Gravel	0.08	1.07	ASAP	359.5	F12N10W 19
Access Road	AR-N-36.94	New, Temporary, Ice	0.70	6.77	ASAP	36.9	U05N13E 1,12
Access Road	AR-E-364.05	Existing, Permanent, Gravel	0.12	1.41	ASAP	364.1	F12N10W 35
Access Road	AR/MS-E-365.70	Existing, Permanent, Gravel	0.71	8.22	ASAP	365.7	F12N09W 31
Access Road	AR-N-365.70	New, Temporary, Gravel	1.10	15.86	ASAP	365.7	F11N09W 6; F12N09W 31
Access Road	AR-N-367.20	New, Temporary, Gravel	1.12	13.59	ASAP	367.2	F11N09W 4-5,8
Access Road	AR-E-368.73	Existing, Permanent, Gravel	0.14	1.61	ASAP	368.7	F11N09W 16
Access Road	AR-N-370.56	New, Temporary, Gravel	0.12	1.36	ASAP	370.6	F11N09W 22
Access Road	MS-E-370.61	Existing, Permanent, Gravel	0.15	1.72	ASAP	370.6	F11N09W 14,23
Access Road	AR-E-370.78	Existing, Permanent, Gravel	0.10	1.13	ASAP	370.8	F11N09W 22
Access Road	AR/MS-E-372.30	Existing, Permanent, Gravel	0.73	8.50	ASAP	372.3	F11N09W 25-26
Access Road	AR-E-374.13	Existing, Permanent, Gravel	0.19	2.18	ASAP	374.1	F11N08W 31
Access Road	AR-E-376.84	Existing, Permanent, Gravel	0.02	0.22	ASAP	376.8	F10N08W 4
Access Road	YD-N-378.19	New, Permanent, Gravel	0.09	1.15	ASAP	378.2	F10N08W 10
Access Road	AR-E-378.19	Existing, Permanent, Gravel	0.20	2.34	ASAP	378.2	F10N08W 10-11
Access Road	MS-E-378.19	Existing, Permanent, Gravel	0.78	9.11	ASAP	378.2	F10N08W 10,15
Access Road	MS-E-379.90	Existing, Permanent, Gravel	0.74	8.63	ASAP	379.9	F10N08W 13,24
Access Road	AR-E-379.90	Existing, Permanent, Gravel	0.02	0.20	ASAP	379.9	F10N08W 13
Access Road	AR-E-380.88	Existing, Permanent, Gravel	0.04	0.44	ASAP	380.9	F10N07W 18
Access Road	MS-N-382.10	New, Permanent, Gravel	0.19	2.96	ASAP	382.1	F10N07W 19,30

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-E-382.66	Existing, Permanent, Gravel	0.96	11.19	ASAP	382.7	F10N07W 29-30
Access Road	AR/MS-N-384.53	New, Permanent, Gravel	0.26	3.48	ASAP	384.5	F09N07W 4; F10N07W 33
Access Road	AR-N-390.77	New, Temporary, Gravel	1.80	27.47	ASAP	390.8	F09N06W 30; F09N07W 25,36
Access Road	AR/MS-E-394.28	Existing, Permanent, Gravel	2.06	23.97	ASAP	394.3	F08N06W 7-8
Access Road	AR-E-395.63	Existing, Permanent, Gravel	0.63	7.29	ASAP	395.6	F08N06W 16
Access Road	MS-N-397.87	New, Permanent, Gravel	0.47	7.14	ASAP	397.9	F08N06W 22-23
Access Road	AR-N-398.33	New, Temporary, Gravel	0.07	1.01	ASAP	398.3	F08N06W 23
Access Road	AR-N-398.52	New, Temporary, Gravel	0.05	0.68	ASAP	398.5	F08N06W 23
Access Road	AR-E-399.75	Existing, Permanent, Gravel	0.41	4.80	ASAP	399.8	F08N06W 25
Access Road	AR-N-399.75	New, Temporary, Gravel	0.03	0.44	ASAP	399.8	F08N06W 25
Access Road	AR-E-4.37	Existing, Permanent, Gravel	24.32	294.69	ASAP	4.4	U10N15E 5-6,8,17-18; U11N13E 13,24; U11N14E 1,4-7,11-12,14,18-19,23-25,29-30,32,36; U11N15E 31; U12N14E 25-28,33,36
Access Road	AR-E-4.45	Existing, Permanent, Gravel	5.91	71.73	ASAP	4.5	U10N14E 3-4,10-11,13-14; U10N15E 18; U11N14E 32-33
Access Road	AR-N-4.56	New, Temporary, Ice	0.03	0.28	ASAP	4.6	U11N14E 32
Access Road	AR-N-4.68	New, Temporary, Ice	0.02	0.18	ASAP	4.7	U11N14E 32
Access Road	AR/MS-N-40.00	New, Permanent, Gravel	1.32	16.04	ASAP	40.0	U05N13E 25; U05N14E 19-20,30
Access Road	AR/CMP/YD-E-400.92	Existing, Permanent, Asphalt	1.25	14.58	ASAP	400.9	F08N05W 30-31
Access Road	MS-N-400.92	New, Permanent, Gravel	0.15	2.34	ASAP	400.9	F07N05W 6
Access Road	MS-E-400.92B	Existing, Permanent, Gravel	0.31	3.67	ASAP	400.9	F07N05W 6; F08N05W 31
Access Road	MS-E-400.92	Existing, Permanent, Gravel	0.07	0.78	ASAP	400.9	F08N05W 30
Access Road	AR/MS-N-406.83	New, Permanent, Gravel	7.15	95.31	ASAP	406.8	F06N05W 4-5,9,16-17,20-21,28; F07N05W 20,29,32
Access Road	AR-N-412.76	New, Temporary, Gravel	3.57	60.55	ASAP	412.8	F06N05W 21,28-32

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR/MS-N-419.60	New, Permanent, Gravel	25.40	338.55	ASAP	419.6	F05N05W 4,7-9,18-19; F05N06W 24-25,36; F06N05W 2-3,9- 10,16,21,28,33; F07N03W 7; F07N04W 11-12,14- 15,21-22,28-31; F07N05W 35-36
Access Road	AR-N-428.73	New, Temporary, Gravel	20.17	342.30	ASAP	428.7	F03N04W 5-6; F03N05W 1- 2,8-11,17-18; F03N06W 13- 14; F04N03W 4-7; F04N04W 12-14,22-23,27- 28,32-33; F05N03W 33-34
Access Road	CMP/YD-E-43.51	Existing, Permanent, Gravel	0.07	0.83	ASAP	43.5	U04N14E 9
Access Road	AR-N-43.51	New, Temporary, Ice	0.21	2.05	ASAP	43.5	U04N14E 9
Access Road	AR/YD/MS-N-439.07	New, Permanent, Gravel	22.83	389.65	ASAP	439.1	F01N03W 7,16-18; F01N04W 1-7,12; F01N05W 3-7,10-12,14-15; F01N06W 1,12; F02N04W 32-33; F02N05W 32-33
Access Road	AR-N-449.42	New, Temporary, Gravel	25.47	432.00	ASAP	449.4	F01S03W 19-20; F01S04W 19,22-24,27-30; F01S05W 20-25,27-29,31-32; F01S06W 21-22,25,27,34- 36
Access Road	AR/YD/RS/MS-N- 452.83	New, Permanent, Gravel	6.53	87.11	ASAP	452.8	F02S06W 5-6,8-9,16- 17,20,28-29,33
Access Road	AR-N-459.10	New, Permanent, Gravel	2.02	18.19	ASAP	459.1	F02S07W 33; F03S07W 4- 5,9
Access Road	AR-E-459.10	Existing, Permanent, Gravel	1.79	19.95	ASAP	459.1	F03S07W 9,16
Access Road	AR-N-46.49	New, Temporary, Ice	0.07	0.65	ASAP	46.5	U04N14E 28
Access Road	RS-E-464.57	Existing, Permanent, Gravel	1.10	12.24	ASAP	464.6	F03S07W 19,30; F03S08W 24
Access Road	AR/MS-N-467.18	New, Permanent, Gravel	0.21	2.47	ASAP	467.2	F04S08W 2
Access Road	AR-N-467.45	New, Temporary, Gravel	0.02	0.27	ASAP	467.5	F04S08W 2
Access Road	AR-E-468.33	Existing, Permanent, Gravel	0.03	0.30	ASAP	468.3	F04S08W 10
Access Road	AR/RS-N-468.94	New, Temporary, Gravel	0.13	1.83	ASAP	468.9	F04S08W 10-11
Access Road	AR-E-469.26	Existing, Permanent, Gravel	0.02	0.21	ASAP	469.3	F04S08W 15

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	CMP/YD-E-470.00	Existing, Permanent, Gravel	0.04	0.42	ASAP	470.0	F04S08W 14
Access Road	RS-E-470.00	Existing, Permanent, Gravel	0.12	1.29	ASAP	470.0	F04S08W 13
Access Road	AR/MS-E-470.39	Existing, Permanent, Gravel	0.63	7.00	ASAP	470.4	F04S08W 23
Access Road	AR/MS-N-470.39	New, Permanent, Gravel	0.34	4.29	ASAP	470.4	F04S08W 22-23
Access Road	MS-N-473.66	New, Permanent, Gravel	0.29	4.20	ASAP	473.7	F05S08W 4
Access Road	AR-N-475.73	New, Temporary, Ice	3.22	35.94	ASAP	475.7	F05S08W 10-11,15-17
Access Road	MS-N-479.00	New, Permanent, Gravel	0.76	11.04	ASAP	479.0	F05S08W 31
Access Road	AR-N-479.82	New, Temporary, Ice	7.03	78.37	ASAP	479.8	F05S09W 36; F06S08W 31; F06S09W 1,12-13,24-25,36; F07S08W 6
Access Road	AR-N-485.95	New, Permanent, Gravel	12.58	170.80	ASAP	486.0	F06S09W 34; F07S09W 3-4,8-9,17,20,28-29,33; F08S09W 3-4,10,15,22
Access Road	AR/MS-N-490.36	New, Permanent, Gravel	1.30	22.14	ASAP	490.4	F07S09W 22,27-28
Access Road	RS-N-490.50	New, Temporary, Gravel	0.43	6.24	ASAP	490.5	F07S08W 21,28
Access Road	YD-N-493.23	New, Permanent, Gravel	1.11	16.08	ASAP	493.2	F08S08W 6
Access Road	MS-N-495.25	New, Permanent, Gravel	0.10	1.29	ASAP	495.3	F08S09W 14
Access Road	AR-N-496.36	New, Temporary, Gravel	0.08	1.04	ASAP	496.4	F08S09W 22-23
Access Road	AR-N-497.23	New, Temporary, Gravel	0.18	2.22	ASAP	497.2	F08S09W 26-27
Access Road	MS-N-500.00	New, Permanent, Gravel	0.08	1.16	ASAP	500.0	F09S09W 10
Access Road	AR-N-501.17	New, Temporary, Gravel	0.13	1.45	ASAP	501.2	F09S09W 14
Access Road	AR-N-504.80	New, Temporary, Gravel	0.12	1.42	ASAP	504.8	F09S09W 36
Access Road	MS-N-505.25	New, Permanent, Gravel	0.13	1.90	ASAP	505.3	F10S08W 6; F10S09W 1
Access Road	AR-N-507.79	New, Temporary, Gravel	0.22	2.63	ASAP	507.8	F10S08W 17
Access Road	AR-E-509.60	Existing, Permanent, Gravel	0.13	1.43	ASAP	509.6	F10S08W 21
Access Road	AR-N-51.56	New, Temporary, Ice	0.41	4.01	ASAP	51.6	U03N14E 22-23
Access Road	MS-N-510.52	New, Permanent, Gravel	0.07	0.77	ASAP	510.5	F10S08W 28
Access Road	MS-N-511.00	New, Permanent, Gravel	0.09	1.30	ASAP	511.0	F10S08W 33
Access Road	AR/RS-E-511.27	Existing, Permanent, Gravel	1.55	17.32	ASAP	511.3	F10S08W 28,33
Access Road	AR-N-514.13	New, Temporary, Gravel	0.21	2.57	ASAP	514.1	F11S08W 16
Access Road	AR-N-516.32	New, Permanent, Gravel	0.09	1.10	ASAP	516.3	F11S08W 27

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR/MS-N-519.20	New, Permanent, Gravel	0.51	5.92	ASAP	519.2	F12S08W 1-2
Access Road	AR-N-519.69	New, Temporary, Gravel	0.17	2.22	ASAP	519.7	F12S08W 11-12
Access Road	AR/MS-N-520.52	New, Permanent, Gravel	0.45	6.09	ASAP	520.5	F12S08W 12
Access Road	AR-E-521.51	Existing, Permanent, Asphalt	0.52	5.81	ASAP	521.5	F12S08W 13
Access Road	AR-N-522.62	New, Temporary, Gravel	0.10	1.24	ASAP	522.6	F12S08W 24
Access Road	AR-N-522.75	New, Temporary, Gravel	0.07	1.05	ASAP	522.8	F12S08W 24
Access Road	CMP/YD-E-523.57	Existing, Permanent, Gravel	0.29	3.27	ASAP	523.6	F12S07W 30
Access Road	AR-E-523.60	Existing, Permanent, Asphalt	0.28	3.07	ASAP	523.6	F12S07W 30; F12S08W 25
Access Road	MS-E-524.45	Existing, Permanent, Gravel	0.08	0.90	ASAP	524.5	F12S07W 31
Access Road	MS-E-524.73	Existing, Permanent, Gravel	0.50	5.61	ASAP	524.7	F12S07W 31
Access Road	RS-E-525.00	Existing, Permanent, Gravel	1.20	13.30	ASAP	525.0	F12S07W 31-32
Access Road	AR-E-525.56	Existing, Permanent, Gravel	0.18	1.97	ASAP	525.6	F13S07W 6
Access Road	AR-N-526.88	New, Temporary, Gravel	0.03	0.40	ASAP	526.9	F13S07W 5,8
Access Road	AR-N-527.90	New, Permanent, Gravel	0.27	3.09	ASAP	527.9	F13S07W 8
Access Road	AR-E-533.00	Existing, Permanent, Gravel	0.05	0.58	ASAP	533.0	F13S07W 34
Access Road	RS-E-533.82	Existing, Permanent, Gravel	0.05	0.59	ASAP	533.8	F14S07W 4
Access Road	AR/MS-N-534.00	New, Permanent, Gravel	9.67	221.11	ASAP	534.0	F14S06W 17-20,29-31; F14S07W 2,11-13,36
Access Road	AR/MS-E-534.00	Existing, Permanent, Gravel	0.62	6.88	ASAP	534.0	F14S07W 36; F15S06W 6; F15S07W 1
Access Road	AR/MS-N-546.49	New, Permanent, Gravel	0.31	3.43	ASAP	546.5	F15S06W 30; F15S07W 25
Access Road	AR-N-547.67	New, Temporary, Gravel	0.44	6.09	ASAP	547.7	F16S07W 1
Access Road	AR-E-548.68	Existing, Permanent, Gravel	0.01	0.13	ASAP	548.7	F16S07W 12
Access Road	AR-N-551.22	New, Permanent, Gravel	0.18	1.95	ASAP	551.2	F16S06W 19; F16S07W 24
Access Road	MS-N-551.55	New, Permanent, Gravel	0.12	1.28	ASAP	551.6	F16S07W 24
Access Road	AR/MS-N-554.38	New, Permanent, Gravel	0.05	0.65	ASAP	554.4	F17S07W 1
Access Road	AR-E-554.68	Existing, Permanent, Gravel	0.04	0.37	ASAP	554.7	F17S07W 1
Access Road	AR-E-555.03	Existing, Permanent, Gravel	0.08	0.76	ASAP	555.0	F17S07W 12
Access Road	AR-N-555.31	New, Temporary, Gravel	0.07	0.89	ASAP	555.3	F17S07W 12
Access Road	AR-N-555.63	New, Temporary, Gravel	0.04	0.50	ASAP	555.6	F17S07W 12

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-N-555.98	New, Temporary, Gravel	0.06	0.67	ASAP	556.0	F17S07W 12
Access Road	AR-N-559.80	New, Temporary, Gravel	0.03	0.27	ASAP	559.8	F17S07W 27
Access Road	MS-E-56.25	Existing, Permanent, Gravel	0.24	2.90	ASAP	56.3	U02N14E 12
Access Road	AR-N-56.25	New, Temporary, Ice	0.20	1.95	ASAP	56.3	U02N14E 11-12
Access Road	AR-N-560.00	New, Permanent, Gravel	0.11	1.16	ASAP	560.0	F17S07W 27
Access Road	AR-E-561.54	Existing, Permanent, Asphalt	0.47	4.60	ASAP	561.5	F17S07W 33; F18S07W 4
Access Road	AR/MS-N-561.54	New, Permanent, Gravel	0.27	2.99	ASAP	561.5	F17S07W 33
Access Road	AR-N-562.42	New, Temporary, Gravel	0.11	1.10	ASAP	562.4	F18S07W 5
Access Road	CMP/YD/RS-E-563.00	Existing, Permanent, Gravel	0.18	1.82	ASAP	563.0	F17S07W 31-32; F18S07W 6
Access Road	AR-N-567.86	New, Temporary, Gravel	0.03	0.37	ASAP	567.9	F18S08W 21-22
Access Road	AR/MS-N-568.43	New, Permanent, Gravel	0.72	8.04	ASAP	568.4	F18S08W 16,21
Access Road	RS-N-569.71	New, Temporary, Gravel	0.25	2.77	ASAP	569.7	F18S08W 29
Access Road	AR-E-570.03	Existing, Permanent, Gravel	0.20	2.04	ASAP	570.0	F18S08W 29
Access Road	AR-N-571.74	New, Temporary, Gravel	0.32	3.59	ASAP	571.7	F18S08W 31; F18S09W 36
Access Road	AR-N-573.43	New, Temporary, Gravel	0.06	0.72	ASAP	573.4	F19S09W 2
Access Road	AR-N-577.00	New, Permanent, Gravel	0.80	8.95	ASAP	577.0	F19S09W 21-22
Access Road	MS-N-577.19	New, Permanent, Gravel	0.19	2.16	ASAP	577.2	F19S09W 22
Access Road	RS-N-578.16	New, Temporary, Gravel	0.17	1.70	ASAP	578.2	F19S09W 33
Access Road	AR/YD-N-581.05	New, Permanent, Gravel	0.48	5.85	ASAP	581.1	F20S09W 5-6
Access Road	AR-N-582.34	New, Temporary, Gravel	0.13	1.65	ASAP	582.3	F20S09W 7
Access Road	AR-N-582.62	New, Temporary, Gravel	0.11	1.07	ASAP	582.6	F20S09W 18
Access Road	AR-E-582.62	Existing, Permanent, Gravel	0.10	1.04	ASAP	582.6	F20S09W 18
Access Road	AR/MS-N-583.29	New, Permanent, Gravel	0.55	5.65	ASAP	583.3	F20S09W 18; F20S10W 13
Access Road	AR/MS-N-587.50	New, Permanent, Gravel	0.34	5.25	ASAP	587.5	F20S10W 34
Access Road	AR/MS-E-588.54	Existing, Permanent, Gravel	0.14	1.40	ASAP	588.5	F21S10W 3
Access Road	AR/MS-N-588.54	New, Temporary, Gravel	0.11	1.19	ASAP	588.5	F21S10W 3
Access Road	MS-N-590.75	New, Permanent, Gravel	0.27	3.01	ASAP	590.8	F21S10W 17
Access Road	AR-N-591.78	New, Temporary, Gravel	0.99	12.61	ASAP	591.8	F21S10W 20-21
Access Road	AR-N-595.36	New, Permanent, Gravel	1.56	20.49	ASAP	595.4	F22S10W 6; F22S11W 1

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR/MS-N-596.97	New, Permanent, Gravel	1.53	23.34	ASAP	597.0	F22S10W 18; F22S11W 11-13
Access Road	AR-N-597.86	New, Temporary, Gravel	1.42	18.19	ASAP	597.9	F22S11W 13-14,24
Access Road	AR/MS-N-598.87	New, Permanent, Gravel	1.11	12.34	ASAP	598.9	F22S11W 13,24
Access Road	AR-N-6.38	New, Temporary, Ice	0.05	0.51	ASAP	6.4	U10N14E 8
Access Road	AR-E-6.38	Existing, Permanent, Gravel	1.96	23.75	ASAP	6.4	U10N14E 5,8; U11N14E 32
Access Road	AR-N-60.00	New, Permanent, Gravel	0.96	11.64	ASAP	60.0	U02N14E 36; U02N15E 31
Access Road	CMP/YD/RS-E-600.52	Existing, Permanent, Gravel	0.64	6.55	ASAP	600.5	F22S11W 27
Access Road	AR-N-602.42	New, Temporary, Gravel	0.06	0.69	ASAP	602.4	S33N02W 16
Access Road	AR-N-602.85	New, Temporary, Gravel	0.45	4.75	ASAP	602.9	S33N02W 16
Access Road	MS-N-605.29	New, Permanent, Gravel	0.11	1.23	ASAP	605.3	S33N02W 30
Access Road	AR-N-606.10	New, Temporary, Gravel	0.03	0.34	ASAP	606.1	S33N02W 31
Access Road	AR-N-606.57	New, Temporary, Gravel	0.05	0.62	ASAP	606.6	S33N02W 31
Access Road	AR-N-607.84	New, Temporary, Gravel	0.44	4.95	ASAP	607.8	S32N03W 1
Access Road	AR-N-608.75	New, Temporary, Gravel	0.33	3.80	ASAP	608.8	S32N03W 2
Access Road	AR-MS-N-611.16	New, Permanent, Gravel	0.30	3.30	ASAP	611.2	S32N03W 9
Access Road	AR-N-613.03	New, Temporary, Gravel	0.09	0.89	ASAP	613.0	S32N03W 20
Access Road	AR-N-615.00	New, Permanent, Gravel	0.51	5.75	ASAP	615.0	S32N03W 30-31
Access Road	MS-N-618.50	New, Permanent, Gravel	0.96	10.25	ASAP	618.5	S31N04W 10-11
Access Road	AR-N-618.50	New, Temporary, Gravel	0.06	0.76	ASAP	618.5	S31N04W 10
Access Road	AR-N-618.72	New, Temporary, Gravel	0.07	0.73	ASAP	618.7	S31N04W 10
Access Road	AR-N-62.98	New, Temporary, Gravel	0.03	0.47	ASAP	63.0	U01N14E 14
Access Road	AR/MS-N-623.81	New, Permanent, Gravel	0.19	2.00	ASAP	623.8	S31N05W 25
Access Road	AR-N-624.39	New, Temporary, Gravel	0.03	0.29	ASAP	624.4	S31N05W 25
Access Road	AR-N-625.49	New, Permanent, Gravel	0.05	0.51	ASAP	625.5	S31N05W 35
Access Road	AR-N-627.20	New, Temporary, Gravel	0.57	6.90	ASAP	627.2	S30N05W 3
Access Road	MS-N-628.43	New, Permanent, Gravel	0.24	2.94	ASAP	628.4	S30N05W 9
Access Road	AR-N-628.65	New, Temporary, Gravel	0.13	1.67	ASAP	628.7	S30N05W 9
Access Road	AR-N-63.16	New, Temporary, Gravel	0.04	0.61	ASAP	63.2	U01N14E 14

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-N-630.07	New, Temporary, Gravel	0.04	0.44	ASAP	630.1	S30N05W 17
Access Road	AR/MS-N-633.88	New, Permanent, Gravel	0.08	0.80	ASAP	633.9	S29N05W 4
Access Road	AR/MS-E-633.88	Existing, Permanent, Gravel	0.19	1.92	ASAP	633.9	S29N05W 4
Access Road	YD/MS-E-634.10	Existing, Permanent, Gravel	0.10	1.03	ASAP	634.1	S28N05W 5
Access Road	AR-N-634.35	New, Temporary, Gravel	0.13	1.76	ASAP	634.4	S29N05W 4
Access Road	AR-E-634.52	Existing, Permanent, Gravel	0.03	0.26	ASAP	634.6	S29N05W 4
Access Road	AR-N-634.58	New, Permanent, Gravel	0.18	1.91	ASAP	634.6	S29N05W 4,9
Access Road	AR-N-639.54	New, Temporary, Gravel	0.80	11.12	ASAP	639.5	S29N05W 32
Access Road	AR-E-643.47	Existing, Permanent, Gravel	0.01	0.14	ASAP	643.5	S28N05W 17
Access Road	AR-N-644.47	New, Temporary, Gravel	0.05	0.58	ASAP	644.5	S28N05W 19
Access Road	MS-N-648.85	New, Permanent, Gravel	0.19	2.07	ASAP	648.9	S27N05W 18
Access Road	AR-N-649.47	New, Temporary, Gravel	0.06	0.64	ASAP	649.5	S27N05W 18
Access Road	MS-E-65.18	Existing, Permanent, Gravel	0.46	5.63	ASAP	65.2	U01N14E 21-22
Access Road	AR-N-651.64	New, Temporary, Gravel	0.05	0.55	ASAP	651.6	S27N05W 30
Access Road	AR-N-653.72	New, Permanent, Gravel	0.35	3.81	ASAP	653.7	S26N05W 6
Access Road	AR/MS-E-657.20	Existing, Permanent, Asphalt	1.19	12.16	ASAP	657.2	S26N05W 29-30
Access Road	AR-N-662.59	New, Temporary, Ice	0.12	1.15	ASAP	662.6	S25N05W 19-20
Access Road	AR/MS-N-666.28	New, Permanent, Gravel	0.51	6.55	ASAP	666.3	S24N05W 4-5,8
Access Road	AR-N-667.98	New, Temporary, Ice	0.03	0.31	ASAP	668.0	S24N05W 10
Access Road	AR-N-67.96	New, Temporary, Gravel	0.06	1.02	ASAP	68.0	U01S14E 3-4
Access Road	AR-N-670.64	New, Temporary, Ice	0.57	5.50	ASAP	670.6	S24N05W 24
Access Road	CMP/YD/RS-E-670.70	Existing, Permanent, Gravel	0.82	8.27	ASAP	670.7	S24N04W 18-19; S24N05W 13,24
Access Road	AR-N-672.55	New, Permanent, Gravel	1.01	11.30	ASAP	672.6	S24N04W 30
Access Road	AR-N-674.55	New, Temporary, Ice	0.35	3.37	ASAP	674.6	S23N04W 5-6
Access Road	AR-N-674.90	New, Temporary, Ice	0.08	0.82	ASAP	674.9	S23N04W 7-8
Access Road	AR-E-674.90	Existing, Permanent, Gravel	0.12	1.23	ASAP	674.9	S23N04W 8
Access Road	AR-N-675.24	New, Temporary, Ice	0.20	1.92	ASAP	675.2	S23N04W 7-8
Access Road	AR/RS-E-675.76	Existing, Permanent, Gravel	1.25	12.70	ASAP	675.8	S23N04W 7-8,17-18
Access Road	AR-E-676.09	Existing, Permanent, Gravel	0.32	3.29	ASAP	676.1	S23N04W 17-18

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-N-676.09	New, Temporary, Ice	0.05	0.47	ASAP	676.1	S23N04W 18
Access Road	MS-N-677.49	New, Permanent, Gravel	0.12	1.30	ASAP	677.5	S23N04W 20
Access Road	AR-N-678.16	New, Temporary, Ice	0.24	2.29	ASAP	678.2	S23N04W 30
Access Road	AR-E-678.16	Existing, Permanent, Gravel	0.58	5.87	ASAP	678.2	S23N04W 30-32
Access Road	AR-E-679.22	Existing, Permanent, Gravel	0.85	8.64	ASAP	679.2	S22N04W 6; S23N04W 31
Access Road	AR-N-679.22	New, Temporary, Ice	0.24	2.29	ASAP	679.2	S23N04W 31
Access Road	AR-N-68.17	New, Temporary, Gravel	0.04	0.55	ASAP	68.2	U01S14E 4
Access Road	RS/MS-E-683.24	Existing, Permanent, Asphalt	0.21	2.15	ASAP	683.2	S22N04W 20
Access Road	RS-N-683.24	New, Temporary, Ice	0.77	7.50	ASAP	683.2	S22N04W 20
Access Road	AR-E-685.28	Existing, Permanent, Gravel	0.37	3.75	ASAP	685.3	S22N04W 31-32
Access Road	AR-E-686.98	Existing, Permanent, Gravel	0.09	0.95	ASAP	687.0	S21N04W 6
Access Road	AR-E-687.43	Existing, Permanent, Gravel	0.19	1.98	ASAP	687.4	S21N04W 7
Access Road	AR-E-688.64	Existing, Permanent, Gravel	0.34	3.48	ASAP	688.6	S21N04W 18
Access Road	AR-E-689.88	Existing, Permanent, Gravel	0.02	0.25	ASAP	689.9	S21N04W 19
Access Road	AR-E-690.40	Existing, Permanent, Gravel	0.24	2.42	ASAP	690.4	S21N04W 30
Access Road	AR/RS-E-692.00	Existing, Permanent, Gravel	0.23	2.33	ASAP	692.0	S20N04W 6
Access Road	AR/RS-N-692.00	New, Permanent, Gravel	0.61	6.65	ASAP	692.0	S20N04W 6; S21N04W 31
Access Road	MS-N-692.27	New, Permanent, Gravel	0.16	1.83	ASAP	692.3	S21N04W 31
Access Road	AR-E-693.66	Existing, Permanent, Gravel	0.31	3.20	ASAP	693.7	S20N04W 7
Access Road	AR-N-696.96	New, Temporary, Ice	0.13	1.24	ASAP	697.0	S20N05W 23-24
Access Road	AR-E-696.96	Existing, Permanent, Gravel	0.65	6.62	ASAP	697.0	S20N05W 24-25
Access Road	MS-N-697.83	New, Permanent, Gravel	0.34	3.75	ASAP	697.8	S20N05W 25
Access Road	MS-E-697.83	Existing, Permanent, Gravel	1.13	11.51	ASAP	697.8	S20N04W 30-31; S20N05W 25
Access Road	AR-E-699.92	Existing, Permanent, Asphalt	2.01	20.45	ASAP	699.9	S19N04W 7; S19N05W 1-2,12
Access Road	AR-N-70.62	New, Temporary, Gravel	0.24	3.25	ASAP	70.6	U01S14E 16
Access Road	MS-N-700.28	New, Permanent, Gravel	0.07	0.74	ASAP	700.3	S19N05W 11
Access Road	MS-E-700.28	Existing, Permanent, Gravel	0.43	4.32	ASAP	700.3	S19N05W 2,11
Access Road	YD/RS-E-701.00	Existing, Permanent, Asphalt	0.46	4.71	ASAP	701.0	S19N04W 8,17

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Access Road	AR-E-703.10	Existing, Permanent, Asphalt	2.65	26.99	ASAP	703.1	S19N05W 22-23,26
Access Road	AR/MS-N-707.09	New, Permanent, Gravel	2.15	26.06	ASAP	707.1	S18N05W 9-11
Access Road	AR-N-712.00	New, Permanent, Gravel	2.67	29.79	ASAP	712.0	S17N05W 5,8-9; S18N05W 32
Access Road	AR-E-715.00	Existing, Permanent, Gravel	5.57	56.66	ASAP	715.0	S17N03W 16-18; S17N04W 13-14
Access Road	AR/MS-N-715.00	New, Permanent, Gravel	9.28	98.94	ASAP	715.0	S17N04W 14-15,17-18,20-22; S17N05W 9-11,13-14,16-17
Access Road	AR-N-72.61	New, Temporary, Gravel	0.04	0.47	ASAP	72.6	U01S14E 27
Access Road	AR-N-720.94	New, Temporary, Ice	1.75	17.00	ASAP	720.9	S16N05W 9-10,14-15
Access Road	AR-E-722.91	Existing, Permanent, Gravel	5.98	60.89	ASAP	722.9	S16N04W 1-6; S16N05W 1
Access Road	AR-N-722.91	New, Temporary, Ice	2.53	24.52	ASAP	722.9	S16N05W 1,11-12,14,23
Access Road	AR-E-726.77	Existing, Permanent, Asphalt	1.96	20.00	ASAP	726.8	S15N04W 5-6; S16N04W 31-32; S16N05W 36
Access Road	AR-N-75.77	New, Temporary, Gravel	0.04	0.50	ASAP	75.8	U02S14E 9
Access Road	MS-E-75.77	Existing, Permanent, Gravel	0.51	6.18	ASAP	75.8	U02S14E 9
Access Road	AR-N-77.75	New, Temporary, Gravel	0.06	0.82	ASAP	77.8	U02S14E 21
Access Road	AR-N-80.00	New, Permanent, Gravel	0.04	0.58	ASAP	80.0	U02S14E 32
Access Road	MS-E-80.31	Existing, Permanent, Gravel	0.24	2.94	ASAP	80.3	U02S14E 32-33
Access Road	AR-N-84.67	New, Temporary, Gravel	0.49	7.15	ASAP	84.7	U03S14E 19
Access Road	CMP/YD-85.61	Existing, Permanent, Gravel	0.16	1.96	ASAP	85.6	U03S14E 30
Access Road	MS-N-89.87	New, Permanent, Gravel	1.73	27.18	ASAP	89.9	U04S14E 17,20-21
Access Road	AR-N-89.87	New, Temporary, Gravel	0.15	2.18	ASAP	89.9	U04S14E 18
Access Road	MS-E-89.87	Existing, Permanent, Gravel	0.29	3.46	ASAP	89.9	U04S14E 17-18
Access Road	AR-N-94.00	New, Permanent, Gravel	0.09	1.33	ASAP	94.0	U05S14E 4
Airport / Airstrip	Galbraith Lake	Project Primary, Runway '13/31, Gravel/Good, 150 ft by 5182 ft	0.98	17.84	ASAP	143.4	U11S11E 23
Airport / Airstrip	Chandalar Shelf	Project Alternate, Runway '01/19, Gravel/Good, 70 ft by 2529 ft	0.48	4.06	ASAP	177.3	U16S11E 9

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Airport / Airstrip	Coldfoot	Project Alternate, Runway '01/19, Gravel/Good, 100 ft by 4000 ft	0.76	9.18	ASAP	243.6	F28N12W 16
Airport / Airstrip	Prospect Creek	Project Primary, Runway '01/19, Gravel/Good, 150 ft by 4968 ft	0.94	17.11	ASAP	279.9	F23N14W 17
Airport / Airstrip	Fairbanks	Project Hub, Runway '02L/20R, Asphalt/Good, 150 ft by 11800 ft	2.23	40.63	FBX	28.9	F1S2W 24
Airport / Airstrip	Five Mile	Project Alternate, Runway '11/29, Gravel/Good, 75 ft by 2700 ft	0.51	4.65	ASAP	352.5	F13N11W 27
Airport / Airstrip	Livengood	Project Alternate, Runway '15/33, Gravel/Good, 50 ft by 1415 ft	0.27	1.62	ASAP	401.2	F8N5W 31
Airport / Airstrip	Nenana Municipal	Project Alternate, Runway '04L/22R, Asphalt/Good, 100 ft by 4600 ft	0.87	10.56	ASAP	470.6	F4S8W 24
Airport / Airstrip	Clear	Project Alternate, Runway '01/19, Asphalt/Good, 100 ft by 3997 ft	0.76	9.18	ASAP	489.3	F7S8W 22
Airport / Airstrip	Healy River Strip	Project Alternate, Runway '15/33, Asphalt/Poor, 60 ft by 2912 ft	0.55	4.01	ASAP	523.3	F12S7W 17
Airport / Airstrip	Cantwell	Project Alternate, Runway '04/22, Turf/Dirt/Poor, 30 ft by 2080 ft	0.39	1.43	ASAP	562.9	F17S7W 31
Airport / Airstrip	Talkeetna	Project Alternate, Runway '18/36, Asphalt/Good, 75 ft by 3500 ft	0.66	6.03	ASAP	658.2	S26N4W 30
Airport / Airstrip	Anchorage	Project Hub, Runway '14/32, Asphalt/Good, 150 ft by 11584 ft	2.19	39.89	ASAP	726.8	S13N4W 33
Airport / Airstrip	Deadhorse	Project Hub, Runway '05/23, Asphalt/Good, 150 ft by 6500 ft	1.23	22.38	ASAP	9.1	U10N14E 25

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Alaska Railroad	Mainline	Main, - Seward to Fairbanks	468.35	0.00	Varies	0.0	F01N02W 7-8,15-17,22,26-27,35-36; F01N03W 10-12,15-16,20-21,29-31; F01N04W 36; F01S01W 3-6,10; F01S02W 1; F01S04W 1-2,10-11,15-17,19-20,30; F01S05W 25,33-36; F02S05W 4-6; F02S06W 1-4,7-9,18-19; F02S07W 24-25,35-36; F03S07W 2-3,9-10,16-17,19-20; F03S08***
Alaska Railroad	Dunbar	Siding, - ASAP MP 453	0.34	0.00	Varies	453.0	F02S06W 8
Alaska Railroad	Harding	Siding, - ASAP MP 469	0.37	0.00	Varies	469.0	F04S08W 11,14
Alaska Railroad	Gravel	Siding, - ASAP MP 495	0.50	0.00	Varies	495.0	F08S09W 15,22
Alaska Railroad	Usibelli	Siding, - ASAP MP 519	0.59	0.00	Varies	519.0	F11S08W 36; F12S07W 6-7; F12S08W 1
Alaska Railroad	Cantwell	Siding, - ASAP MP 562	0.30	0.00	Varies	562.0	F17S07W 31-32; F18S07W 6
Alaska Railroad	Broad Pass	Siding, - ASAP MP 578	0.53	0.00	Varies	578.0	F19S09W 27-28,33
Alaska Railroad	Hurricane	Siding, - ASAP MP 601	0.52	0.00	Varies	601.0	F22S11W 22,27
Alaska Railroad	Sunshine	Siding, - ASAP MP 671	0.58	0.00	Varies	671.0	S24N04W 18-19
Alaska Railroad	Willow	Siding, - ASAP MP 700	0.50	0.00	Varies	700.0	S19N04W 8,17
Alaska Railroad	Terminus	Siding, - ASAP MP 727	0.00	0.00	Varies	727.0	S15N04W 6; S15N05W 1
Block Valve	BV6	Block Valve Pad	0.00	0.18	ASAP	114.0	U08S14E 7
Block Valve	BV7	Block Valve Pad	0.00	0.18	ASAP	130.5	U09S12E 19
Block Valve	BV8	Block Valve Pad	0.00	0.18	ASAP	150.0	U12S12E 9
Block Valve	BV9	Block Valve Pad	0.00	0.18	ASAP	170.0	U15S12E 18
Block Valve	BV1	Block Valve Pad	0.00	0.18	FBX	18.8	F02N03W 35
Block Valve	BV10	Block Valve Pad	0.00	0.18	ASAP	190.0	F36N10W 28
Block Valve	BV1	Block Valve Pad	0.00	0.18	ASAP	20.0	U08N14E 18
Block Valve	BV11	Block Valve Pad	0.00	0.18	ASAP	209.5	F33N10W 25
Block Valve	BV12	Block Valve Pad	0.00	0.23	ASAP	229.5	F30N11W 7; S32N03W 20
Block Valve	BV13	Block Valve Pad	0.00	0.18	ASAP	249.1	F27N13W 12
Block Valve	BV14	Block Valve Pad	0.00	0.18	ASAP	268.7	F24N13W 5

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Block Valve	BV15	Block Valve Pad	0.00	0.18	ASAP	288.3	F22N14W 29
Block Valve	BV16	Block Valve Pad	0.00	0.18	ASAP	306.4	F19N14W 19
Block Valve	BV17	Block Valve Pad	0.00	0.18	ASAP	320.6	F17N13W 17
Block Valve	BV18	Block Valve Pad	0.00	0.18	ASAP	340.3	F14N12W 17
Block Valve	BV19	Block Valve Pad	0.00	0.18	ASAP	359.9	F12N10W 19
Block Valve	BV20	Block Valve Pad	0.00	0.18	ASAP	379.9	F10N08W 13
Block Valve	BV21	Block Valve Pad	0.00	0.18	ASAP	399.8	F08N06W 25
Block Valve	BV2	Block Valve Pad	0.00	0.18	ASAP	40.0	U05N13E 25
Block Valve	BV22	Block Valve Pad	0.00	0.18	ASAP	419.6	F05N06W 36
Block Valve	BV23	Block Valve Pad	0.00	0.18	ASAP	439.1	F01N06W 1; F02N06W 36
Block Valve	BV24	Block Valve Pad	0.00	0.18	ASAP	459.1	F02S07W 33
Block Valve	BV25	Block Valve Pad	0.00	0.18	ASAP	470.4	F04S08W 22
Block Valve	BV26	Block Valve Pad	0.00	0.18	ASAP	490.4	F07S09W 22
Block Valve	BV27	Block Valve Pad	0.00	0.18	ASAP	509.6	F10S08W 21
Block Valve	BV28	Block Valve Pad	0.00	0.18	ASAP	527.9	F13S07W 8
Block Valve	BV29	Block Valve Pad	0.00	0.18	ASAP	534.0	F14S07W 2
Block Valve	BV30	Block Valve Pad	0.00	0.18	ASAP	551.2	F16S06W 19
Block Valve	BV31	Block Valve Pad	0.00	0.18	ASAP	560.0	F17S07W 27
Block Valve	BV32	Block Valve Pad	0.00	0.18	ASAP	577.0	F19S09W 21
Block Valve	BV33	Block Valve Pad	0.00	0.18	ASAP	595.4	F22S10W 6
Block Valve	BV3	Block Valve Pad	0.00	0.18	ASAP	60.0	U02N14E 36
Block Valve	BV34	Block Valve Pad	0.00	0.18	ASAP	615.0	S32N03W 30
Block Valve	BV35	Block Valve Pad	0.00	0.18	ASAP	634.6	S29N05W 9
Block Valve	BV36	Block Valve Pad	0.00	0.18	ASAP	653.7	S26N05W 6
Block Valve	BV37	Block Valve Pad	0.00	0.18	ASAP	672.6	S24N04W 30
Block Valve	BV38	Block Valve Pad	0.00	0.18	ASAP	692.0	S21N04W 31
Block Valve	BV39	Block Valve Pad	0.00	0.18	ASAP	712.0	S18N05W 32
Block Valve	BV4	Block Valve Pad	0.00	0.18	ASAP	80.0	U02S14E 32
Block Valve	BV5	Block Valve Pad	0.00	0.18	ASAP	94.0	U05S14E 4-5

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Camp/Pipe Storage Yard	Slope Mountain	Pipe Storage Yard	N/A	5.9	ASAP	113.9	U08S14E 7
Camp/Pipe Storage Yard	Galbraith Lake	Pipe Storage Yard	N/A	10.08	ASAP	144.4	U11S11E 26
Camp/Pipe Storage Yard	Galbraith Lake	Camp	N/A	29.26	ASAP	144.6	U11S11E 26,35
Camp/Pipe Storage Yard	Atigun	Pipe Storage Yard	N/A	4.10	ASAP	167.5	U15S12E 6
Camp/Pipe Storage Yard	Chandalar	Pipe Storage Yard	N/A	4.62	ASAP	176.3	U16S11E 3-4,10
Camp/Pipe Storage Yard	MS-106-1	Pipe Storage Yard	N/A	8.29	ASAP	196.8	F35N10W 28
Camp/Pipe Storage Yard	Dietrich	Camp	N/A	29.69	ASAP	207.3	F33N10W 14
Camp/Pipe Storage Yard	MS-102-1	Pipe Storage Yard	N/A	7.53	ASAP	220.2	F31N10W 17
Camp/Pipe Storage Yard	Coldfoot	Pipe Storage Yard	N/A	6.34	ASAP	243.3	F28N12W 15-16
Camp/Pipe Storage Yard	Prospect	Pipe Storage Yard	N/A	8.03	ASAP	279.1	F23N14W 8,17
Camp/Pipe Storage Yard	Prospect	Camp	N/A	28.61	ASAP	279.2	F23N14W 8,17
Camp/Pipe Storage Yard	Old Man	Pipe Storage Yard	N/A	11.25	ASAP	306.5	F19N14W 19
Camp/Pipe Storage Yard	Seven Mile	Pipe Storage Yard	N/A	6.25	ASAP	351.9	F13N11W 22
Camp/Pipe Storage Yard	Five Mile	Camp	N/A	29.26	ASAP	353.2	F13N11W 26-27
Camp/Pipe Storage Yard	MS-74-2HR	Pipe Storage Yard	N/A	9.44	ASAP	378.3	F10N08W 10-11
Camp/Pipe Storage Yard	Livengood	Camp	N/A	29.26	ASAP	401.0	F08N05W 31
Camp/Pipe Storage Yard	Livengood	Pipe Storage Yard	N/A	5.73	ASAP	401.1	F08N05W 31
Camp/Pipe Storage Yard	Tolovana River	Pipe Storage Yard	N/A	3.50	ASAP	412.7	F06N05W 30

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Camp/Pipe Storage Yard	Tatalina River	Pipe Storage Yard	N/A	5.31	ASAP	429.0	F03N06W 13-14
Camp/Pipe Storage Yard	Franklin Bluffs	Camp	N/A	29.26	ASAP	43.6	U04N14E 9
Camp/Pipe Storage Yard	Franklin Bluffs	Pipe Storage Yard	N/A	10.08	ASAP	43.7	U04N14E 9
Camp/Pipe Storage Yard	Chatanika	Pipe Storage Yard	N/A	4.67	ASAP	439.3	F01N06W 1
Camp/Pipe Storage Yard	Dunbar	Pipe Storage Yard	N/A	3.90	ASAP	453.3	F02S06W 8
Camp/Pipe Storage Yard	Dunbar	Camp	N/A	29.15	ASAP	453.4	F02S06W 8
Camp/Pipe Storage Yard	Nenana	Pipe Storage Yard	N/A	9.06	ASAP	470.6	F04S08W 23
Camp/Pipe Storage Yard	Rex	Pipe Storage Yard	N/A	6.20	ASAP	495.4	F08S09W 15,22
Camp/Pipe Storage Yard	Healy	Pipe Storage Yard	N/A	7.56	ASAP	523.3	F12S08W 24
Camp/Pipe Storage Yard	Healy	Camp	N/A	28.78	ASAP	523.3	F12S08W 24-25
Camp/Pipe Storage Yard	Cantwell	Camp	N/A	28.83	ASAP	563.0	F18S07W 5-6
Camp/Pipe Storage Yard	Cantwell	Pipe Storage Yard	N/A	10.82	ASAP	563.6	F18S07W 6
Camp/Pipe Storage Yard	Broad Pass	Pipe Storage Yard	N/A	9.31	ASAP	578.3	F19S09W 33
Camp/Pipe Storage Yard	Chulitna Butte	Pipe Storage Yard	N/A	6.80	ASAP	600.4	F22S11W 27
Camp/Pipe Storage Yard	Swan Lake	Camp	N/A	28.83	ASAP	640.9	S28N05W 5
Camp/Pipe Storage Yard	Swan Lake	Pipe Storage Yard	N/A	9.31	ASAP	640.9	S28N05W 5
Camp/Pipe Storage Yard	Sunshine	Pipe Storage Yard	N/A	10.82	ASAP	670.9	S24N04W 19
Camp/Pipe Storage Yard	Rustic Wilderness	Pipe Storage Yard	N/A	7.56	ASAP	699.8	S19N05W 1

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Camp/Pipe Storage Yard	Rustic Wilderness	Camp	N/A	28.83	ASAP	699.8	S19N05W 1
Camp/Pipe Storage Yard	South Terminus	Pipe Storage Yard	N/A	4.80	ASAP	726.8	S15N05W 1
Camp/Pipe Storage Yard	Happy Valley	Camp	N/A	29.26	ASAP	85.7	U03S14E 30-31
Camp/Pipe Laydown	Prudhoe Bay	Pipe Laydown Yard	N/A	8.01	ASAP	3.8	U11N14E 28,33
Camp/Pipe Storage Yard	Happy Valley	Pipe Storage Yard	N/A	13.12	ASAP	85.7	U03S14E 30
DOT Road	Long Lake Road	Parks Highway to Crystal Lake Road	5.11	0.00	Varies	0.0	S19N04W 17-19,29-30
DOT Road	Wiseman Road	Dalton Highway to Wiseman/Hammond River Road and Access Road AR-N-229.29	1.50	0.00	Varies	0.0	F30N11W 7,18; F30N12W 13
DOT Road	Sheep Creek Road	Parks Highway to Murphy Dome Road	5.26	0.00	Varies	0.0	F01N02W 15-16,21-22,26-27,35-36; F01S02W 1-2
DOT Road	Seward Highway	Seward to Anchorage	125.14	0.00	Varies	0.0	S01N01W 1,12-14,22-23,26-27,34; S01S01W 3,10; S02N01E 6-7,18-19; S02N01W 24-25,36; S03N01E 6-7,18-19,30-31; S03N01W 25,36; S04N01E 31; S04N01W 1,12-13,24-25,36; S05N01W 7,17-18,20-22,24-27,36; S05N02W 2,11-12; S06N01W 5-7,18; S06N02W 13,24-26,35; S07N***
DOT Road	Parks Highway	Wasilla to Fairbanks	317.51	0.00	Varies	0.0	F01S02W 2-3,8-10,17-19; F01S03W 23-24,26-29,31-32; F01S04W 36; F02S04W 1-3,8-11,17-19; F02S05W 24-30; F02S06W 25,31-36; F03S06W 6; F03S07W 1-2,9-11,16-17,19-20,30; F03S08W 25,35-36; F04S08W 2-3,10,14-15,23,25-26,36; F05S08W 2,11,14,23-25,36; F06S07W 6***

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
DOT Road	Old Nenana Highway	Parks Highway to Access Road AR-N-449.42	9.48	0.00	Varies	0.0	F01S02W 7-8; F01S03W 9-12,14-17,20,29,32
DOT Road	Nenana Street	Parks Highway to Access Road CMP/YD-E-470.00	0.07	0.00	Varies	0.0	F04S08W 14
DOT Road	Wiseman-Hammond River Rd	Wiseman Road to Access Road MS-N-230.36	0.24	0.00	Varies	0.0	F30N12W 13
DOT Road	Murphy Dome Road	Sheep Creek Road to Access Road AR/YD/MS-N-439.07	6.86	0.00	Varies	0.0	F01N02W 7-9,15-16; F01N03W 10-12,15-16
DOT Road	Big Lake Road	Parks Highway to Beaver Lake Road and Access Road AR-E-722.91	9.05	0.00	Varies	0.0	S16N04W 1; S17N03W 12-15,21-22,28-32; S17N04W 36
DOT Road	Beaver Lake Road	Big Lake Road to Access Road AR-E-715.00	0.94	0.00	Varies	0.0	S17N03W 16,21
DOT Road	Lake Colleen Drive East	Dalton Highway to Access Road AR-E-4.45, AR-E-4.37	0.93	0.00	Varies	0.0	U10N15E 18-19
DOT Road	Hilltop Road	Access Road AR-E-521.51 to Access Road AR-N-522.75, AR-N-522.62	1.12	0.00	Varies	0.0	F12S08W 13,24
DOT Road	Nancy Lake Parkway	Parks Highway to Access Road AR/MS-N-707.09	6.47	0.00	Varies	0.0	S18N04W 5-6; S18N05W 1-2,11; S19N04W 28-29,32
DOT Road	Front Street	Parks Highway to Access Road RS-E-470.00	0.59	0.00	Varies	0.0	F04S08W 13-14
DOT Road	Cantwell Road	Access Road AR-E-561.54 to Access Road CMP/YD/RS-E-563.00	1.43	0.00	Varies	0.0	F17S07W 32-33; F18S07W 5
DOT Road	Crystal Lake Road	Long Lake Road to Access Road AR-E-703.10	2.74	0.00	Varies	0.0	S19N04W 30; S19N05W 25-26,36
DOT Road	Dalton Highway	Livengood to Prudhoe Bay	414.47	0.00	Varies	0.0	F08N05W 30; F08N06W 7,16-18,21-25; F08N07W 1,12; F09N07W 4,8-9,17,19-20,25-30,36; F10N07W 18-19,30-33; F10N08W 3-6,8-11,13-14; F11N08W 31; F11N09W 4-5,9-10,14-16,22-23,25-26,35-36; F12N09W 30-32; F12N10W 6-7,18-21,27-28,34-36; F12N11W 1-2,13; F13N11W ***

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
DOT Road	Elliott Highway	Fox to Livengood	68.11	0.00	Varies	0.0	F02N01E 7, 18-19,30-31; F02N01W 1, 12; F03N01W 4-5,9-10,14-15,23-25,36; F04N01W 31-32; F04N02W 7-9,16-18,21-25,36; F04N03W 1-2,11-13; F05N03W 3-4,10-11,14- 15,22,27,34-35; F06N03W 6-7,30-33; F06N04W 12- 14,23,25-26; F07N03W 6- 7,18-19,29-31; F07N04W 1- 3; F***
DOT Road	Clear Road	Parks Highway to Access Road RS-N-490.50 and An- derson Road	1.93	0.00	Varies	0.0	F07S08W 21-23
DOT Road	Anderson Road	Clear Road to Access Road AR-N-479.82	5.11	0.00	Varies	0.0	F07S08W 4-6,9,15-16,21-22
DOT Road	Glenn Highway	Anchorage to Eklutna	34.41	0.00	Varies	0.0	S13N02W 5-7; S13N03W 10-12,15-16; S14N02W 2, 11, 14,22-23,27-28,32-33; S15N01W 3,9-10,16-19,30; S15N02W 25,35-36; S16N01E 3,10,15-16,19-21; S16N01W 24-26,34-35; S17N01E 22-23,27,34
DOT Road	Burma Road	Big Lake Road to Access Road AR-E-726.77	8.51	0.00	Varies	0.0	S16N04W 1-3,10,15- 16,21,28,32-33
Facility - Beluga Tie- In	Beluga Tie-In	Beluga Tie-In Pad	0.00	1.69	ASAP	726.8	S16N05W 36
Facility - Coldfoot Launcher/Receiver	Coldfoot Launch- er/Receiver	Coldfoot Launcher/Receiver Pad	0.00	1.71	ASAP	249.1	F27N13W 12
Facility - Fairbanks Delivery	Fairbanks Delivery	Fairbanks Delivery Pad	0.00	1.28	FBX	28.9	F01S02W 1
Facility - Fairbanks Tie-In	Fairbanks Tie-In	Fairbanks Tie-In Pad	0.00	2.37	ASAP	439.1	F01N06W 1; F02N06W 36
GCF Pad	CGF PAD Main	CGF Facility. Flares, Ware- housing, Maintenance	0.00	101.84	ASAP	0.0	U11N14E 4,9,10
GCF Pad	CGF PAD Operations	CGF Operations and Con- struction Camp	0.00	20.10	ASAP	0.0	U11N14E 4,9,10

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
GCF Roads/Causeway	AS - Access Road	New, GCF to Spine Road AR-E-4.37	1.51	12.02	ASAP	0.0	U11N14E 10,14-15
GCF Roads/Causeway	AS - Access Road	New, GCF to Existing AR-E-0.08	0.45	3.39	ASAP	0.0	U11N14E 10-11
GCF Roads/Causeway	AS - Access Road	Expanded West Dock Causeway	0.60	7.02	ASAP	0.0	U12N14E 14
GCF Roads/Causeway	AS - Access Road	CGF to West Dock, New and Expanded Road, West Dock	7.18	57.63	ASAP	0.0	U11N14E 3-5,9-10; U12N14E 14,22-23,26-28,32-33
HDD False ROW	Yukon River	Horizontal Directional Drilling, False Right-of-Way	0.00	39.37	ASAP	357.6	F12N11W 12-13
HDD False ROW	Tanana River	Horizontal Directional Drilling, False Right-of-Way	0.00	36.96	ASAP	469.0	F04S08W 10-11,14-15
HDD False ROW	Nenana River Tributary	Horizontal Directional Drilling, False Right-of-Way	0.00	25.25	ASAP	473.6	F04S08W 33; F05S08W 4
HDD False ROW	Nenana Near Windy	Horizontal Directional Drilling, False Right-of-Way	0.00	2.28	ASAP	555.9	F17S07W 11-12
HDD False ROW	Honolulu Creek	Horizontal Directional Drilling, False Right-of-Way	0.00	36.43	ASAP	591.7	F21S10W 20-21
HDD False ROW	Troublesome Creek	Horizontal Directional Drilling, False Right-of-Way	0.00	25.61	ASAP	634.1	S29N05W 4
HDD False ROW	Chulitna River	Horizontal Directional Drilling, False Right-of-Way	0.00	41.61	ASAP	635.8	S29N05W 7-8
HDD False ROW	Montana Creek	Horizontal Directional Drilling, False Right-of-Way	0.00	28.91	ASAP	674.3	S23N04W 6
HDD False ROW	Kashwitna River	Horizontal Directional Drilling, False Right-of-Way	0.00	33.94	ASAP	687.9	S21N04W 7
HDD False ROW	Willow Creek	Horizontal Directional Drilling, False Right-of-Way	0.00	34.12	ASAP	698.7	S20N05W 36
Material Source	MS 1B-A	Potential Material Source Site ACTIVE-DOT&PF	0.00	160.15	FBX		U09N14E 1,12
Material Source	MS 1B-F	Potential Material Source Site ACTIVE-DOT&PF	0.00	178.85	FBX		U08N14E 10-11,14-15
Material Source	MS 3B-I	Potential Material Source Site INACTIVE APSC	0.00	296.24	FBX		F07N04W 30-31

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 3B-J	Potential Material Source Site NEW	0.00	463.94	FBX		F04N03W 4-5; F05N03W 32-34
Material Source	MS 3B-K	Potential Material Source Site NEW	0.00	383.30	FBX		F04N04W 27-28,33-34
Material Source	MS 3C-K	Potential Material Source Site NEW	0.00	97.77	FBX		F01S04W 19
Material Source	MS 4D-H	Potential Material Source Site ACTIVE-MSB	0.00	369.47	FBX		S15N04W 8-9,16-17
Material Source	MS 3C-J	Potential Material Source Site NEW	0.00	68.05	FBX		F01S04W 29-30
Material Source	MS 1A-B	Potential Material Source Site ACTIVE	0.00	443.56	ASAP	0.5	U11N14E 14,22-23
Material Source	MS 3B-H	Potential Material Source Site NEW	0.00	238.28	FBX	1.4	F02N05W 31
Material Source	MS 1C-E	Potential Material Source Site NEW	0.00	383.29	ASAP	109.3	U07S14E 16-17,20-21
Material Source	MS 1C-F	Potential Material Source Site NEW	0.00	444.56	ASAP	112.7	U07S14E 32; U08S14E 5-7
Material Source	MS 1D-A	Potential Material Source Site ACTIVE-DOT&PF	0.00	121.01	ASAP	113.5	U08S14E 5,7-8
Material Source	MS 1D-B	Potential Material Source Site NEW	0.00	160.08	ASAP	121.6	U09S13E 15-16
Material Source	MS 1D-C	Potential Material Source Site ACTIVE-DOT&PF	0.00	160.02	ASAP	128.6	U09S12E 34
Material Source	MS 1D-D	Potential Material Source Site ACTIVE-DOT&PF	0.00	314.32	ASAP	143.2	U11S11E 14-16,22
Material Source	MS 1D-E	Potential Material Source Site POTENTIAL DOT&PF	0.00	319.98	ASAP	145.2	U11S11E 25-26,35-36; U11S12E 30
Material Source	MS FL-B	Potential Material Source Site NEW	0.00	279.38	FBX	15.7	F01N03W 4-5; F02N03W 32-33
Material Source	MS 1D-F	Potential Material Source Site ACTIVE-DOT&PF	0.00	250.11	ASAP	150.3	U12S12E 9-10,15-16
Material Source	MS 1D-K	Potential Material Source Site	0.00	209.25	ASAP	152.7	U12S12E 28
Material Source	MS 1D-G	Potential Material Source Site NEW	0.00	148.34	ASAP	154.6	U13S12E 3

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 1D-H	Potential Material Source Site NEW	0.00	232.27	ASAP	155.5	U13S12E 3,9-10
Material Source	MS 1D-I	Potential Material Source Site INACTIVE ALYESKA	0.00	185.58	ASAP	161.6	U14S12E 5,8
Material Source	MS 1D-I	Potential Material Source Site INACTIVE ALYESKA	0.00	185.58	ASAP	162.1	U14S12E 5,8
Material Source	MS 1D-J	Potential Material Source Site ACTIVE-DOT&PF	0.00	195.92	ASAP	163.7	U14S12E 17,20
Material Source	MS 1E-A	Potential Material Source Site POTENTIAL GOLDER	0.00	186.34	ASAP	167.9	U15S11E 1; U15S12E 6
Material Source	MS 1F-A	Potential Material Source Site ACTIVE-DOT&PF & GOLDER	0.00	73.23	ASAP	175.9	U16S11E 3
Material Source	MS 1F-B	Potential Material Source Site POTENTIAL GOLDER	0.00	109.49	ASAP	177.1	U16S11E 9
Material Source	MS 1F-C	Potential Material Source Site POTENTIAL GOLDER	0.00	383.68	ASAP	181.9	U16S10E 25,35-36; U16S11E 30
Material Source	MS 1F-D-E	Potential Material Source Site NEW	0.00	365.46	ASAP	183.4	F37N10W 25-26,35; U16S10E 35-36; U17S10E 2-3
Material Source	MS 2A-A	Potential Material Source Site NEW	0.00	130.52	ASAP	185.0	F36N10W 3; F37N10W 35
Material Source	MS 2A-K	Potential Material Source Site ACTIVE DOT&PF/POTENT. GOLDER	0.00	236.96	ASAP	192.1	F35N10W 4,9; F36N10W 33
Material Source	MS 2A-K	Potential Material Source Site ACTIVE DOT&PF/POTENT. GOLDER	0.00	236.96	ASAP	192.9	F35N10W 4,9; F36N10W 33
Material Source	MS 2A-B	Potential Material Source Site POTENTIAL GOLDER	0.00	380.41	ASAP	195.8	F35N10W 21,28-29
Material Source	MS 2A-L	Potential Material Source Site NEW	0.00	316.66	ASAP	203.8	F34N10W 26-27,34-35
Material Source	MS 2A-C	Potential Material Source Site NEW	0.00	277.80	ASAP	209.1	F33N10W 24-25
Material Source	MS FL-C	Potential Material Source Site NEW	0.00	133.15	FBX	21.0	F01N02W 5-6
Material Source	MS 2A-D	Potential Material Source Site ACTIVE-DOT&PF	0.00	227.87	ASAP	220.9	F31N10W 17-19

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 2A-E	Potential Material Source Site ACTIVE-DOT&PF	0.00	100.23	ASAP	223.0	F31N11W 25
Material Source	MS 1B-B	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	289.66	ASAP	23.2	U07N14E 5; U08N14E 32
Material Source	MS 2A-F	Potential Material Source Site ACTIVE-DOT&PF	0.00	166.22	ASAP	230.3	F30N11W 18-19; F30N12W 13,24
Material Source	MS 2A-G	Potential Material Source Site ACTIVE-DOT&PF	0.00	156.57	ASAP	231.0	F30N11W 18-19
Material Source	MS 2A-H	Potential Material Source Site ACTIVE-DOT&PF	0.00	200.19	ASAP	232.1	F30N11W 19,29-32
Material Source	MS 2A-I	Potential Material Source Site ACTIVE DOT&PF	0.00	298.97	ASAP	238.3	F29N12W 23,26-27
Material Source	MS 2A-J	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	110.71	ASAP	240.6	F28N12W 3-4; F29N12W 34-35
Material Source	MS 2B-A	Potential Material Source Site NEW	0.00	275.92	ASAP	242.9	F28N12W 14-15,22-23
Material Source	MS 2B-B	Potential Material Source Site ACTIVE-DOT&PF	0.00	160.20	ASAP	245.9	F28N12W 29,32
Material Source	MS 2B-C	Potential Material Source Site NEW	0.00	194.73	ASAP	252.5	F27N13W 24-26
Material Source	MS 2B-D	Potential Material Source Site NEW	0.00	156.92	ASAP	257.3	F26N13W 15-16,21-22
Material Source	MS 2B-E	Potential Material Source Site ACTIVE-DOT&PF	0.00	159.84	ASAP	261.1	F25N12W 6; F26N12W 31
Material Source	MS 2B-F	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	97.22	ASAP	261.6	F25N12W 6
Material Source	MS 2B-G	Potential Material Source Site ACTIVE-DOT&PF	0.00	188.53	ASAP	262.8	F25N12W 7,18
Material Source	MS 2B-H	Potential Material Source Site ACTIVE-DOT&PF	0.00	186.78	ASAP	273.1	F24N13W 19; F24N14W 24-25
Material Source	MS 2B-I	Potential Material Source Site NEW	0.00	154.06	ASAP	277.8	F23N14W 9-10,15
Material Source	MS 2B-J	Potential Material Source Site NEW	0.00	320.32	ASAP	280.5	F23N14W 20-21,28-29

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 2B-K	Potential Material Source Site ACTIVE-DOT&PF	0.00	151.07	ASAP	285.0	F22N14W 7,18
Material Source	MS 2C-M	Potential Material Source Site ACTIVE-DOT&PF	0.00	153.35	ASAP	286.4	F22N14W 17-20
Material Source	MS 2C-A	Potential Material Source Site ACTIVE-DOT&PF	0.00	156.94	ASAP	288.7	F22N14W 29,32
Material Source	MS 2C-B	Potential Material Source Site POTENTIAL GOLDER	0.00	0.00	ASAP	291.0	F21N14W 7
Material Source	MS 2C-B	Potential Material Source Site POTENTIAL GOLDER	0.00	266.70	ASAP	291.2	F21N14W 7
Material Source	MS 2C-C	Potential Material Source Site INACTIVE ALYESKA	0.00	156.48	ASAP	294.0	F21N14W 19-20,29-30
Material Source	MS 2C-D	Potential Material Source Site ACTIVE-DOT&PF	0.00	158.85	ASAP	297.1	F20N15W 2,10-11
Material Source	MS 1B-C	Potential Material Source Site ACTIVE-DOT&PF	0.00	262.50	ASAP	30.3	U06N13E 1-2
Material Source	MS 2C-E	Potential Material Source Site NEW	0.00	149.79	ASAP	300.9	F20N15W 26-27
Material Source	MS 2C-F	Potential Material Source Site ACTIVE-DOT&PF	0.00	159.99	ASAP	306.8	F19N14W 19; F19N15W 24-25
Material Source	MS 2C-G	Potential Material Source Site GOLDER/INACTIVE ALYESKA	0.00	193.40	ASAP	313.4	F18N14W 14-15,22-23
Material Source	MS 2C-H	Potential Material Source Site NEW	0.00	155.42	ASAP	316.9	F18N14W 35-36
Material Source	MS 2C-I	Potential Material Source Site NEW	0.00	156.73	ASAP	320.8	F17N13W 17,19-20
Material Source	MS 2C-J	Potential Material Source Site ACTIVE-DOT&PF	0.00	120.73	ASAP	323.4	F17N13W 28,33-34
Material Source	MS 2C-K	Potential Material Source Site ACTIVE-DOT&PF	0.00	159.98	ASAP	327.1	F16N13W 15-16,22
Material Source	MS 2C-L	Potential Material Source Site NEW	0.00	158.39	ASAP	333.5	F15N12W 7; F15N13W 12-13
Material Source	MS 3A-A	Potential Material Source Site ACTIVE-DOT&PF	0.00	148.95	ASAP	337.8	F14N12W 6; F15N12W 31

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 3A-B	Potential Material Source Site NEW	0.00	134.05	ASAP	338.6	F14N12W 6-7
Material Source	MS 3A-C	Potential Material Source Site ACTIVE-DOT&PF	0.00	180.60	ASAP	341.6	F14N12W 20-21
Material Source	MS 3A-C	Potential Material Source Site ACTIVE-DOT&PF	0.00	180.60	ASAP	342.0	F14N12W 20-21
Material Source	MS 3A-D	Potential Material Source Site NEW	0.00	271.35	ASAP	345.1	F14N12W 26,35
Material Source	MS 3A-E	Potential Material Source Site ACTIVE-DOT&PF	0.00	160.19	ASAP	349.2	F13N11W 5,8
Material Source	MS 3A-F	Potential Material Source Site ACTIVE-DOT&PF	0.00	239.97	ASAP	353.7	F13N11W 24-26
Material Source	MS 3A-G	Potential Material Source Site ACTIVE-DOT&PF	0.00	405.22	ASAP	365.3	F11N09W 6; F11N10W 1; F12N09W 31; F12N10W 36
Material Source	MS 3A-H	Potential Material Source Site ACTIVE-DOT&PF	0.00	80.03	ASAP	370.2	F11N09W 14-15,22-23
Material Source	MS 3A-I	Potential Material Source Site ACTIVE-DOT&PF	0.00	273.56	ASAP	372.5	F11N08W 30; F11N09W 25-26
Material Source	MS 3A-J	Potential Material Source Site ACTIVE-DOT&PF	0.00	435.00	ASAP	375.0	F10N08W 4-6; F11N08W 31-33
Material Source	MS 3A-J	Potential Material Source Site ACTIVE-DOT&PF	0.00	435.00	ASAP	375.6	F10N08W 4-6; F11N08W 31-33
Material Source	MS 3A-K	Potential Material Source Site ACTIVE-DOT&PF	0.00	315.58	ASAP	380.7	F10N08W 13,24
Material Source	MS 3A-L	Potential Material Source Site ACTIVE-DOT&PF/POTENTIAL GOLDER	0.00	356.87	ASAP	382.0	F10N07W 19,30; F10N08W 24-25
Material Source	MS 3A-M	Potential Material Source Site ACTIVE-ALYESKA(ADJACENT)	0.00	154.38	ASAP	384.6	F09N07W 4-5; F10N07W 32-33
Material Source	MS 3A-N	Potential Material Source Site NEW	0.00	160.02	ASAP	388.9	F09N07W 12-14
Material Source	MS 3A-O	Potential Material Source Site ACTIVE-DOT&PF and APSC	0.00	211.80	ASAP	394.6	F08N06W 5,8
Material Source	MS 3A-P	Potential Material Source Site NEW	0.00	311.70	ASAP	397.8	F08N06W 14-15,22-23

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 1B-D	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	314.79	ASAP	40.9	U05N14E 19,30-31
Material Source	MS 3A-Q	Potential Material Source Site ACTIVE-DOT&PF	0.00	251.90	ASAP	400.0	F08N05W 30; F08N06W 25,36
Material Source	MS 3A-T	Potential Material Source Site	0.00	160.00	ASAP	400.7	F07N06W 1; F08N05W 31; F08N06W 36
Material Source	MS 3A-R	Potential Material Source Site NEW	0.00	363.98	ASAP	402.6	F07N05W 6-8; F07N06W 1
Material Source	MS 3B-L	Potential Material Source Site	0.00	316.29	ASAP	402.6	F07N05W 4-9
Material Source	MS 3B-A	Potential Material Source Site NEW	0.00	237.09	ASAP	405.9	F07N05W 20,29
Material Source	MS 3B-B	Potential Material Source Site NEW	0.00	305.17	ASAP	412.3	F06N05W 21,28,33
Material Source	MS 3B-C	Potential Material Source Site NEW	0.00	239.89	ASAP	415.9	F05N05W 9-10,16
Material Source	MS 3B-D	Potential Material Source Site NEW	0.00	320.00	ASAP	422.3	F04N06W 12-14
Material Source	MS 3B-E	Potential Material Source Site NEW	0.00	239.83	ASAP	426.3	F03N06W 4-5
Material Source	MS 3B-F	Potential Material Source Site NEW	0.00	239.45	ASAP	436.2	F02N05W 19
Material Source	MS 3B-G	Potential Material Source Site NEW	0.00	182.38	ASAP	436.6	F02N06W 24
Material Source	MS 3B-G	Potential Material Source Site NEW	0.00	61.02	ASAP	437.3	F02N06W 24-25
Material Source	MS 3B-G	Potential Material Source Site NEW	0.00	119.97	ASAP	437.5	F02N06W 23,26
Material Source	MS 3C-A	Potential Material Source Site NEW	0.00	310.29	ASAP	450.2	F01S06W 26-28
Material Source	MS 3C-B	Potential Material Source Site NEW	0.00	348.72	ASAP	454.9	F02S06W 17,20
Material Source	MS 3C-C	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	240.05	ASAP	466.8	F03S08W 34-35

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 3C-D	Potential Material Source Site NEW	0.00	214.46	ASAP	470.4	F04S08W 15,22
Material Source	MS 3C-E	Potential Material Source Site NEW	0.00	239.13	ASAP	473.7	F04S08W 34; F05S08W 3-4
Material Source	MS 3C-F	Potential Material Source Site NEW	0.00	319.90	ASAP	479.0	F05S08W 31-32; F06S08W 5
Material Source	MS 3C-G	Potential Material Source Site NEW	0.00	473.09	ASAP	484.8	F06S09W 25-26,35
Material Source	MS 3C-I	Potential Material Source Site NEW	0.00	236.64	ASAP	487.2	F07S09W 4-5,8
Material Source	MS 3C-H	Potential Material Source Site NEW	0.00	470.76	ASAP	490.0	F07S09W 14,22-23,27
Material Source	MS 3D-A	Potential Material Source Site ACTIVE-DOT&PF	0.00	114.36	ASAP	494.8	F08S09W 10-11,14-15
Material Source	MS 3D-B	Potential Material Source Site ACTIVE-DOT&PF	0.00	165.95	ASAP	500.2	F09S09W 10-11
Material Source	MS 3D-J	Potential Material Source Site	0.00	139.79	ASAP	501.1	F09S09W 14
Material Source	MS 3D-C	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	200.42	ASAP	505.3	F10S08W 6; F10S09W 1
Material Source	MS 3D-D	Potential Material Source Site NEW	0.00	153.60	ASAP	511.0	F10S08W 28,33
Material Source	MS 3D-I	Potential Material Source Site	0.00	97.04	ASAP	518.1	F11S08W 35; F12S08W 2
Material Source	MS 3D-E	Potential Material Source Site NEW	0.00	110.52	ASAP	519.5	F12S08W 11-12
Material Source	MS 1B-G	Potential Material Source Site ACTIVE-DOT&PF	0.00	124.49	ASAP	52.8	U03N14E 26
Material Source	MS 3D-F	Potential Material Source Site NEW	0.00	295.66	ASAP	521.0	F12S08W 14-15,23
Material Source	MS 3D-G	Potential Material Source Site ACTIVE-DOT&PF	0.00	155.99	ASAP	525.1	F12S07W 30-31
Material Source	MS 3D-H	Potential Material Source Site ACTIVE-DOT&PF	0.00	112.27	ASAP	526.3	F12S07W 32; F13S07W 6
Material Source	MS 3F-A	Potential Material Source Site NEW	0.00	266.42	ASAP	535.4	F14S07W 11-12,14

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 3F-B	Potential Material Source Site NEW	0.00	211.96	ASAP	538.6	F14S06W 19-21
Material Source	MS 4A-A	Potential Material Source Site NEW	0.00	236.61	ASAP	540.7	F14S06W 32; F15S06W 5
Material Source	MS 4A-B	Potential Material Source Site INACTIVE-DOT&PF	0.00	235.48	ASAP	543.6	F15S06W 8,17-18,20
Material Source	MS 4A-B	Potential Material Source Site INACTIVE-DOT&PF	0.00	235.48	ASAP	544.1	F15S06W 8,17-18,20
Material Source	MS 4A-C	Potential Material Source Site NEW	0.00	232.73	ASAP	546.4	F15S06W 30-31; F15S07W 25,36
Material Source	MS 4A-D	Potential Material Source Site INACTIVE-DOT&PF	0.00	100.35	ASAP	551.7	F16S06W 19,30; F16S07W 24-25
Material Source	MS 4A-E	Potential Material Source Site ACTIVE-DOT&PF	0.00	129.19	ASAP	554.1	F16S07W 36; F17S07W 1-2
Material Source	MS 4A-F	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	105.67	ASAP	556.1	F17S07W 11-12
Material Source	MS 4A-G	Potential Material Source Site NEW	0.00	149.85	ASAP	560.8	F17S07W 33
Material Source	MS 4A-H	Potential Material Source Site NEW	0.00	116.27	ASAP	568.0	F18S08W 15-16
Material Source	MS 1B-E	Potential Material Source Site ACTIVE-DOT&PF	0.00	124.22	ASAP	57.4	U02N14E 13,24
Material Source	MS 4A-I	Potential Material Source Site ACTIVE-DOT&PF	0.00	140.45	ASAP	577.2	F19S09W 22,27
Material Source	MS 4A-J	Potential Material Source Site NEW	0.00	49.93	ASAP	580.4	F20S09W 5-6
Material Source	MS 4A-K	Potential Material Source Site NEW	0.00	62.13	ASAP	583.5	F20S09W 18-19
Material Source	MS 4A-L	Potential Material Source Site ACTIVE-DOT&PF	0.00	117.38	ASAP	587.6	F20S10W 34; F21S10W 3
Material Source	MS 4A-M	Potential Material Source Site ACTIVE-DOT&PF(ADJACENT)	0.00	184.29	ASAP	590.5	F21S10W 8,17
Material Source	MS 4A-P	Potential Material Source Site ACTIVE-DOT&PF	0.00	68.83	ASAP	594.5	F21S11W 36

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 4A-N	Potential Material Source Site ACTIVE-DOT&PF	0.00	222.46	ASAP	596.6	F22S11W 12-13
Material Source	MS 4A-O	Potential Material Source Site NEW	0.00	244.34	ASAP	598.9	F22S11W 23-26
Material Source	MS 1A-A	Potential Material Source Site NEW	0.00	210.84	ASAP	6.6	U10N13E 1
Material Source	MS 4B-A	Potential Material Source Site ACTIVE-DOT&PF	0.00	162.23	ASAP	605.9	S33N02W 30-31
Material Source	MS 4B-B	Potential Material Source Site ACTIVE-DOT&PF	0.00	171.33	ASAP	611.2	S32N03W 9,16
Material Source	MS 4B-C	Potential Material Source Site ACTIVE-DOT&PF	0.00	67.19	ASAP	619.0	S31N04W 10-11,14-15
Material Source	MS 4B-D	Potential Material Source Site ACTIVE-DOT&PF	0.00	44.06	ASAP	623.6	S31N04W 30; S31N05W 25
Material Source	MS 4B-E	Potential Material Source Site NEW	0.00	47.43	ASAP	628.1	S30N05W 9
Material Source	MS 4B-F	Potential Material Source Site ACTIVE-DOT&PF	0.00	130.88	ASAP	633.8	S29N05W 4
Material Source	MS 4B-G	Potential Material Source Site INACTIVE-DOT&PF	0.00	166.15	ASAP	641.1	S28N05W 5,8
Material Source	MS 4B-H	Potential Material Source Site ACTIVE-DOT&PF	0.00	82.38	ASAP	648.9	S27N05W 7-8,17-18
Material Source	MS 1C-A	Potential Material Source Site ACTIVE-DOT&PF	0.00	352.21	ASAP	65.7	U01N14E 27,33-34
Material Source	MS 4C-A	Potential Material Source Site INACTIVE-DOT&PF	0.00	380.30	ASAP	657.6	S26N05W 29-30
Material Source	MS 4C-B	Potential Material Source Site NEW	0.00	61.43	ASAP	666.2	S24N05W 4-5
Material Source	MS 4C-C	Potential Material Source Site ACTIVE-DOT&PF	0.00	112.15	ASAP	671.6	S24N05W 25
Material Source	MS 4C-D	Potential Material Source Site INACTIVE-DOT&PF	0.00	78.18	ASAP	677.6	S23N04W 19-20
Material Source	MS 4C-E	Potential Material Source Site NEW	0.00	154.93	ASAP	679.8	S23N04W 31; S23N05W 36
Material Source	MS 4C-F	Potential Material Source Site ACTIVE-DOT&PF	0.00	94.03	ASAP	683.7	S22N04W 17,20

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Material Source	MS 4C-G	Potential Material Source Site NEW	0.00	128.25	ASAP	684.7	S22N04W 30
Material Source	MS 4D-A	Potential Material Source Site POTENTIAL ARRC	0.00	94.31	ASAP	692.1	S21N04W 31-32
Material Source	MS 4D-B	Potential Material Source Site NEW	0.00	85.75	ASAP	695.6	S20N05W 13-14
Material Source	MS 4D-C	Potential Material Source Site NEW	0.00	61.87	ASAP	697.8	S20N05W 25-26
Material Source	MS 4D-D	Potential Material Source Site NEW	0.00	134.29	ASAP	700.1	S19N05W 11-12
Material Source	MS 4D-E	Potential Material Source Site NEW	0.00	198.58	ASAP	707.9	S18N05W 9,16
Material Source	MS 4D-F	Potential Material Source Site NEW	0.00	764.81	ASAP	715.4	S17N05W 8-9,16-17,21
Material Source	MS 4D-G	Potential Material Source Site NEW	0.00	191.49	ASAP	719.3	S16N05W 4; S17N05W 33
Material Source	MS 1C-B	Potential Material Source Site ACTIVE-DOT&PF & GOLDER DHMP 344.1	0.00	159.87	ASAP	75.0	U02S14E 3
Material Source	MS 1C-H	Potential Material Source Site ACTIVE-DOT&PF	0.00	320.00	ASAP	77.5	U02S14E 17,20
Material Source	MS 1C-C	Potential Material Source Site ACTIVE-DOT&PF	0.00	310.96	ASAP	80.1	U02S14E 29,32-33; U03S14E 5
Material Source	MS 1C-G	Potential Material Source Site ACTIVE-DOT&PF	0.00	263.73	ASAP	86.2	U03S14E 29,32
Material Source	MS FL-A	Potential Material Source Site NEW	0.00	427.72	FBX	9.1	F01N04W 4-5; F02N04W 32-33
Material Source	MS 1C-D	Potential Material Source Site POTENTIAL GOLDER(ADJACENT)	0.00	435.99	ASAP	91.0	U04S14E 20-22,28
Port	West Dock	West Dock, Prudhoe Bay	0.00	0.00		0.0	U12N14E 14
Port	Seward	Seward Harbor	0.00	0.00		0.0	S1S1W 10
Material Source	MS 1C-I	Potential Material Source Site NEW	0.00	196.99	ASAP	96.9	U05S14E 17-20

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.01	542.95	ASAP	0.0	F01N06W 1-2,11,14,23,26-27,34; F01S06W 4-5,8,17,20-21,29,31-32; F02N06W 1,12-13,24-25,36; F02S06W 6; F02S07W 1,12-14,23,26-27,33-34; F03N06W 2-3,11,14,23,25-26,36; F03S07W 4-5,7-8,18; F03S08W 13,24-26,35; F04N06W 1-2,11,14,22-23,27,34; F04S08W 2; F05N***
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	7.91	84.86	ASAP	118.3	U08S13E 13,23-24,26-28,33; U08S14E 7,18; U09S13E 3-5
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	8.08	85.16	ASAP	126.4	U09S12E 12-15,19-22,28; U09S13E 4-5,7-8
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	4.71	51.83	ASAP	132.8	U09S11E 24-26,34-35; U09S12E 19; U10S11E 3
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	11.29	131.36	ASAP	140.8	U10S11E 3,10,14-15,23,26,35; U11S11E 2,11-13,24; U11S12E 19,29-30
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.09	0.69	ASAP	146.5	U11S12E 29
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	2.90	33.36	ASAP	148.0	U11S12E 29,32; U12S12E 4-5,9
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	3.49	30.54	ASAP	151.2	U12S12E 9,16,21,28
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	10.80	103.12	ASAP	158.4	U12S12E 28,33; U13S12E 3,9-10,15-16,21,28,32-33; U14S12E 5,8,17
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.58	4.53	ASAP	164.1	U14S12E 20
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	5.91	76.14	ASAP	167.4	U14S12E 20,29,31-32; U15S12E 6-7,18-19
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.27	2.99	ASAP	170.5	U15S12E 19
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.12	1.61	ASAP	170.7	U15S12E 19

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	2.59	39.37	ASAP	172.0	U15S11E 23-24,26; U15S12E 19
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	10.58	98.83	ASAP	178.6	U15S11E 26,34-35; U16S10E 25,35-36; U16S11E 3-4,9,16-17,19- 20,30; U17S10E 2
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	1.16	8.16	ASAP	184.5	F37N10W 25-26,35; U17S10E 2
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	9.76	122.53	ASAP	190.0	F35N10W 4,9,16; F36N10W 2-3,10,15-16,21,28,33; F37N10W 35
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	3.12	19.01	ASAP	196.4	F35N10W 16,21,28,33
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	10.01	110.16	ASAP	203.0	F33N10W 2,11-13,24; F34N10W 4,9-10,15,22- 23,26,35; F35N10W 33
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	3.66	30.41	ASAP	209.9	F32N10W 3-4; F33N10W 24-26,34-35
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	15.57	162.73	ASAP	219.5	F30N11W 4-5; F31N10W 5- 8,17-19,30; F31N11W 25- 26,33-36; F32N10W 4,9,16,21,28-29,32
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	5.12	42.23	ASAP	229.9	F30N11W 5,7-8,18-19,30
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	21.08	219.33	ASAP	243.0	F27N12W 6-7; F27N13W 11-14,23,26,35; F28N12W 3,10,15,21-22,28-29,31-32; F29N12W 1,12-14,23,26,35; F30N11W 30-31; F30N12W 36
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.05	0.40	ASAP	253.6	F27N13W 35
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	5.33	49.79	ASAP	256.3	F26N13W 2,11,14,23,26; F27N13W 35
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	2.02	25.57	ASAP	260.0	F26N13W 25-26,36
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	1.27	13.91	ASAP	261.6	F25N12W 6-7; F25N13W 1; F26N13W 36

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	9.97	108.69	ASAP	267.3	F24N13W 5,7-8,18; F24N14W 13,24; F25N12W 7; F25N13W 12-13,23-24,26-27,33-34
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	40.86	420.64	ASAP	292.7	F18N14W 4-5,9-10,14-15; F19N14W 18-19,30-32; F19N15W 2,11-13; F20N15W 2,10,14-15,22-23,26-27,35; F21N14W 5-8,18-19,30-31; F22N14W 6-8,18-20,29,32; F23N14W 3,9-10,16-17,20,29-31; F24N14W 23-24,26,34-35
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.07	0.12	ASAP	313.2	F18N14W 15
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	29.06	289.11	ASAP	327.8	F14N12W 6-7,17-18,20-21; F15N12W 6-7,18-19,29-31; F15N13W 1; F16N13W 4,9-10,14-15,23-25,36; F17N13W 6-7,17-18,20-21,28,33-34; F17N14W 1; F18N14W 14-15,23,25-26,36
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	1.05	12.44	ASAP	342.8	F14N12W 21,28
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	4.95	54.64	ASAP	345.8	F13N11W 7; F13N12W 1-2,12; F14N12W 27-28,34-35
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	4.17	44.14	ASAP	350.4	F13N11W 7,17-18,20-22,27
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	4.40	47.63	ASAP	354.7	F12N11W 1-2,12; F13N11W 26-27,35-36
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	13.34	146.80	ASAP	364.0	F11N09W 6-9,15-17,22; F11N10W 1; F12N10W 18-20,27-29,34-36; F12N11W 12-13,24
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.13	1.21	ASAP	370.7	F11N09W 22

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	27.64	288.63	ASAP	384.6	F08N06W 5,8-9,15-16,22-23; F09N06W 19,30-32; F09N07W 3-4,10-11,13-14,24; F10N07W 18-20,29,32-33; F10N08W 3-5,10-11,13-14; F11N08W 30-32; F11N09W 22-23,25-26
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	2.48	18.23	ASAP	399.7	F08N05W 30-31; F08N06W 23,25-26
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	66.44	542.95	ASAP	434.2	F01N06W 1-2,11,14,23,26-27,34; F01S06W 4-5,8,17,20-21,29,31-32; F02N06W 1,12-13,24-25,36; F02S06W 6; F02S07W 1,12-14,23,26-27,33-34; F03N06W 2-3,11,14,23,25-26,36; F03S07W 4-5,7-8,18; F03S08W 13,24-26,35; F04N06W 1-2,11,14,22-23,27,34; F04S08W 2; F05N***
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	1.92	9.67	ASAP	468.4	F04S08W 2-3,10-11,14-15
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	3.43	21.16	ASAP	471.5	F04S08W 15,22,27-28,33-34
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	22.68	167.12	ASAP	484.6	F04S08W 33; F05S08W 4-5,8,17,19-20,30-31; F05S09W 36; F06S09W 1,11-12,14,23,26,34-35; F07S09W 3,10,15,22,27,34; F08S09W 3,10,15,22
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	23.64	243.83	ASAP	507.8	F08S09W 22-23,26,35; F09S08W 31; F09S09W 2-3,11,13-14,24-25,36; F10S08W 6-8,17,20-21,28,33; F11S08W 4,9,16,21-22,27,34-35; F12S08W 1-2,12
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	8.37	84.57	ASAP	523.8	F12S07W 31; F12S08W 11-13,24-25,36; F13S07W 5-6,8-9

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	22.55	249.51	ASAP	544.3	F13S07W 34; F14S06W 18-20,29,32; F14S07W 2-3,11-13; F15S06W 4-5,8-9,17,19-20,30-31; F16S06W 6-7,18-19; F16S07W 1,12-13,25,36; F17S07W 1,12
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	4.28	59.63	ASAP	557.8	F17S07W 11-15,22,27
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	8.08	84.86	ASAP	563.9	F17S07W 27-28,33; F18S07W 4-5,7-8; F18S08W 11-12,14-15,21-22
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	14.27	120.27	ASAP	575.1	F18S08W 20-21,29-31; F18S09W 36; F19S09W 1-2,10-11,15-16,21,28-29,31-32; F20S09W 5-7
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.15	1.33	ASAP	582.4	F20S09W 7
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	9.93	106.59	ASAP	587.4	F20S09W 7,18-19; F20S10W 24-26,34-35; F21S10W 3-4,9,16,20-21,29
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	10.34	102.94	ASAP	597.6	F21S10W 29,31-32; F22S10W 6-7,18-19; F22S11W 23-24,26-27,34; S33N02W 15-16
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	6.05	63.73	ASAP	60.0	U01N14E 2,11,14; U02N14E 13,24-25,35-36
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	3.71	32.60	ASAP	604.6	S33N02W 16,20-21,29-31
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	12.13	121.46	ASAP	612.5	S31N04W 2-3,10; S32N03W 1-2,8-11,17,19-20,30-31; S32N04W 35-36; S33N02W 31; S33N03W 36
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	5.31	50.77	ASAP	621.3	S31N04W 9-10,16-17,19-20,30; S31N05W 25
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	1.00	8.80	ASAP	624.4	S31N05W 25-26,35

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	9.06	93.61	ASAP	629.5	S29N05W 4; S30N05W 3,9-10,16-17,20-21,28,33; S31N05W 34-35
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.41	2.25	ASAP	634.3	S29N05W 4
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	0.71	6.42	ASAP	634.8	S29N05W 4,8-9
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	17.44	161.18	ASAP	644.3	S26N05W 6; S27N05W 6-7,18-19,30-31; S28N05W 5,8,17-19,30-31; S29N05W 8,17,20,29,32
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	5.00	50.40	ASAP	65.6	U01N14E 14,22-23,27-28,33; U01S14E 3-4
ROW - ASAP Construction	ASAP Construction Right-of-Way	120 ft Construction Right-of-Way	46.28	445.90	ASAP	91.2	U01S14E 4,9,16,21-22,27,34; U02S14E 3-4,9,16,21,28-29,32; U03S13E 25,36; U03S14E 5-7,18-19,30; U04S13E 1; U04S14E 6-7,18-19,29-31; U05S14E 4-5,8,17,19,30-31; U06S14E 6-7,18-19,30-31; U07S14E 5-8,17,20,29,32; U08S14E 7
ROW - ASAP Operational	ASAP Permanent Right-of-Way	53 ft Operational Right-of-Way	726.77	4663.81	ASAP	0.0	F01N06W 1-2,11,14,23,26-27,34; F01S06W 4-5,8,17,20-21,29,31-32; F02N06W 1,12-13,24-25,36; F02S06W 6; F02S07W 1,12-14,23,26-27,33-34; F03N06W 2-3,11,14,23,25-26,36; F03S07W 4-5,7-8,18; F03S08W 13,24-26,35; F04N06W 1-2,11,14,22-23,27,34; F04S08W 2-3,10-***

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
ROW - FBX Construction	Fairbanks Lateral Construction Right-of-Way	120 ft Construction Right-of-Way	28.87	200.5	FBX	0.0	F01N02W 5-6,8,16-17,21,27-28,34-36; F01N03W 1; F01N04W 1-3,5-6; F01N05W 1-6; F01S02W 1; F02N03W 31-36; F02N04W 31-34,36; F02N05W 31-33; F02N06W 36
ROW - FBX Operational	Fairbanks Lateral Permanent Right-of-Way	53 ft Operational Right-of-Way	28.87	185.0	FBX	0.0	F01N02W 5-6,8,16-17,21,27-28,34-36; F01N03W 1; F01N04W 1-3,5-6; F01N05W 1-6; F01S02W 1; F02N03W 31-36; F02N04W 31-34,36; F02N05W 31-32; F02N06W 36
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.18	ASAP	114.3	U08S14E 7
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.06	ASAP	114.4	U08S14E 7
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.09	ASAP	122.3	U09S13E 4-5
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.15	ASAP	122.4	U09S13E 5
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.60	ASAP	122.4	U09S13E 5
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.16	ASAP	130.3	U09S12E 19
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.14	ASAP	130.4	U09S12E 19
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.74	ASAP	135.1	U10S11E 3
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.12	ASAP	135.2	U10S11E 3
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.22	ASAP	146.4	U11S12E 29
Temporary Workspace	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.34	ASAP	146.5	U11S12E 29

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.16	ASAP	146.6	U11S12E 29
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.61	ASAP	146.6	U11S12E 29
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.61	ASAP	149.4	U12S12E 9
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.11	ASAP	149.4	U12S12E 9
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.18	ASAP	149.5	U12S12E 9
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.01	ASAP	152.9	U12S12E 28
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.03	ASAP	153.0	U12S12E 28
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.82	ASAP	153.0	U12S12E 28
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.03	ASAP	164.3	U14S12E 20
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.67	ASAP	164.5	U14S12E 20
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.83	ASAP	170.3	U15S12E 18
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.17	ASAP	170.4	U15S12E 19
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.31	ASAP	170.5	U15S12E 18-19
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.18	ASAP	170.6	U15S12E 19
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.73	ASAP	170.7	U15S12E 19
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.12	ASAP	170.7	U15S12E 19
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.60	ASAP	170.8	U15S12E 19
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.02	ASAP	170.8	U15S12E 19

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.73	ASAP	173.3	U15S11E 26
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.02	ASAP	173.4	U15S11E 26
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.24	ASAP	173.4	U15S11E 26
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.07	ASAP	183.9	F37N10W 25; U17S10E 2
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.16	ASAP	184.0	F37N10W 25; U17S10E 2
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.50	ASAP	184.0	F37N10W 25
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.04	ASAP	185.1	F37N10W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.74	ASAP	185.2	F37N10W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.78	ASAP	194.8	F35N10W 16
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.07	ASAP	194.9	F35N10W 16
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.13	ASAP	198.0	F35N10W 33
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.03	ASAP	198.0	F35N10W 33
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.66	ASAP	198.1	F35N10W 33
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.76	ASAP	208.0	F33N10W 24
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.12	ASAP	208.0	F33N10W 24
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.55	ASAP	208.1	F33N10W 24
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.27	ASAP	211.7	F32N10W 4
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.02	ASAP	211.7	F32N10W 4

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.20	ASAP	211.7	F32N10W 4
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.68	ASAP	227.2	F30N11W 5
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.05	ASAP	227.3	F30N11W 5
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.78	ASAP	227.3	F30N11W 5
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.18	ASAP	232.4	F30N11W 30
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.05	ASAP	232.5	F30N11W 30
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.64	ASAP	232.5	F30N11W 30
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.46	ASAP	253.5	F27N13W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.35	ASAP	253.5	F27N13W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.42	ASAP	253.6	F27N13W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.17	ASAP	253.6	F27N13W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.12	ASAP	258.9	F26N13W 26
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.27	ASAP	259.0	F26N13W 26
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.37	ASAP	259.0	F26N13W 26
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.13	ASAP	261.0	F26N13W 36
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.07	ASAP	261.0	F25N13W 1; F26N13W 36
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.11	ASAP	261.1	F25N12W 6; F25N13W 1; F26N13W 36
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.80	ASAP	262.2	F25N12W 6-7

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.24	ASAP	262.3	F25N12W 7
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.17	ASAP	272.2	F24N14W 13,24
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.23	ASAP	272.3	F24N14W 24
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.11	ASAP	313.1	F18N14W 14-15
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.00	ASAP	313.2	F18N14W 15
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.53	ASAP	342.2	F14N12W 21
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.33	ASAP	342.3	F14N12W 21
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.17	ASAP	342.3	F14N12W 21
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.52	ASAP	343.3	F14N12W 28
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.09	ASAP	343.3	F14N12W 28
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.08	ASAP	343.4	F14N12W 27-28
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.20	ASAP	348.3	F13N11W 7
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.80	ASAP	348.4	F13N11W 7,18
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.97	ASAP	352.5	F13N11W 27
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.28	ASAP	352.5	F13N11W 27
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.40	ASAP	352.6	F13N11W 27
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.18	ASAP	356.9	F12N11W 12
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.03	ASAP	357.3	F12N11W 12

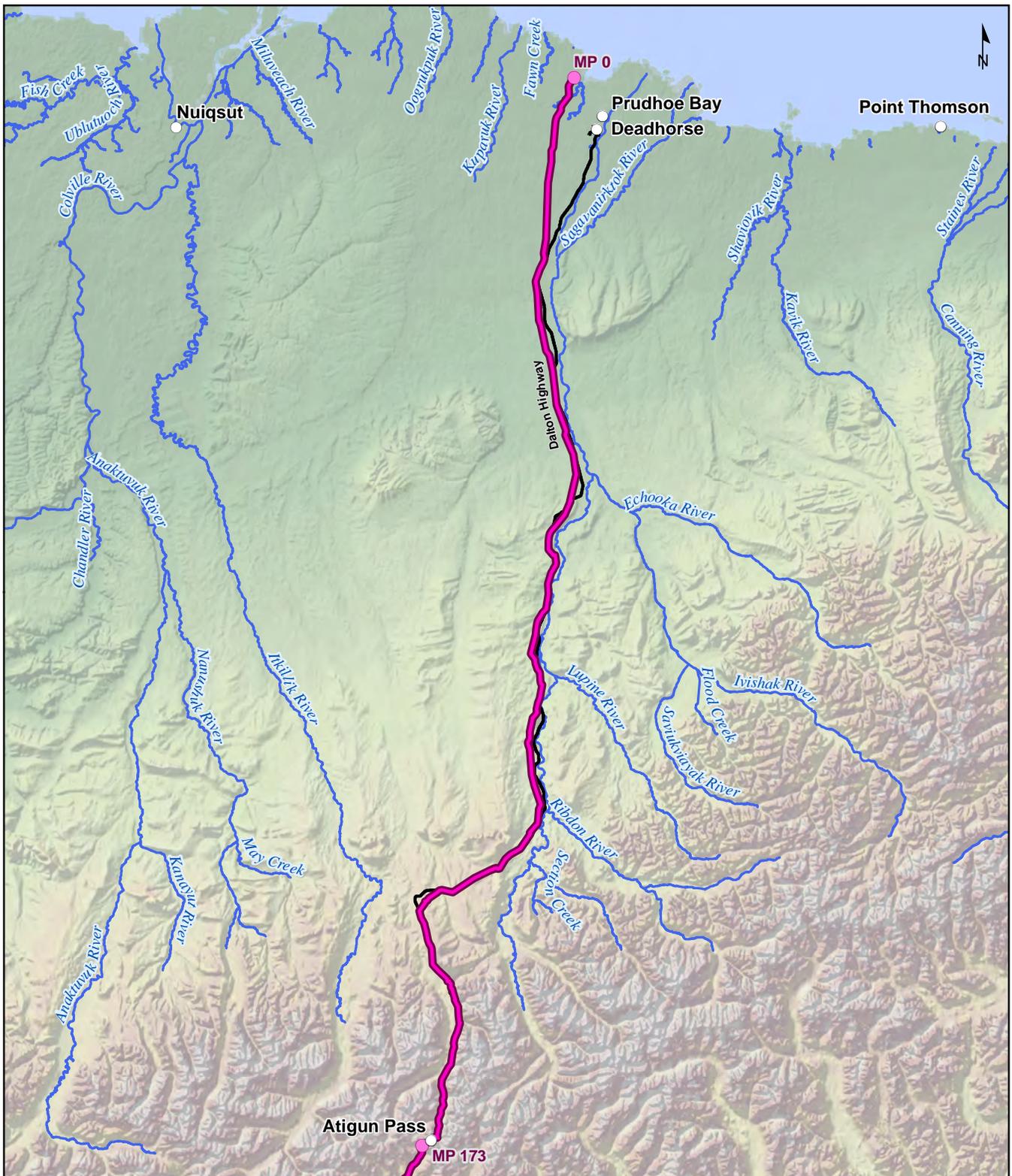
FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.79	ASAP	358.5	F12N11W 13
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.34	ASAP	358.6	F12N11W 13,24
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.05	ASAP	358.6	F12N10W 19
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.82	ASAP	370.6	F11N09W 22
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.08	ASAP	370.7	F11N09W 22
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.18	ASAP	370.7	F11N09W 22-23
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.63	ASAP	370.8	F11N09W 22
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.14	ASAP	370.9	F11N09W 22
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.23	ASAP	398.4	F08N06W 23
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.92	ASAP	398.5	F08N06W 23
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.19	ASAP	400.9	F08N05W 31
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.10	ASAP	401.0	F08N05W 31
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.24	ASAP	467.3	F04S08W 2
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.13	ASAP	467.4	F04S08W 2
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.77	ASAP	467.5	F04S08W 2
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.20	ASAP	469.9	F04S08W 15
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.19	ASAP	473.2	F04S08W 33
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.20	ASAP	473.3	F04S08W 33

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.20	ASAP	495.9	F08S09W 22
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.55	ASAP	496.0	F08S09W 22-23
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.08	ASAP	496.1	F08S09W 23
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.08	ASAP	519.6	F12S08W 12
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.80	ASAP	519.7	F12S08W 11-12
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.87	ASAP	555.5	F17S07W 12
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.74	ASAP	555.6	F17S07W 12
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.71	ASAP	559.8	F17S07W 27
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.10	ASAP	559.9	F17S07W 27
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.18	ASAP	559.9	F17S07W 27
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.59	ASAP	567.9	F18S08W 21
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.20	ASAP	568.0	F18S08W 21
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.20	ASAP	582.2	F20S09W 7
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.00	ASAP	582.3	F20S09W 7
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.62	ASAP	582.4	F20S09W 7
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.00	ASAP	582.5	F20S09W 7,18
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.78	ASAP	602.7	S33N02W 16
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.06	ASAP	602.7	S33N02W 16

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.18	ASAP	602.8	S33N02W 16
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.79	ASAP	606.4	S33N02W 31
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.02	ASAP	606.4	S33N02W 31
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.13	ASAP	606.5	S33N02W 31
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.17	ASAP	618.6	S31N04W 10
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.68	ASAP	618.7	S31N04W 10
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.20	ASAP	618.7	S31N04W 10
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.59	ASAP	623.9	S31N05W 25
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.32	ASAP	623.9	S31N05W 25
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.22	ASAP	624.0	S31N05W 25
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.26	ASAP	624.9	S31N05W 26,35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.70	ASAP	625.0	S31N05W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.11	ASAP	625.1	S31N05W 35
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.17	ASAP	63.0	U01N14E 14
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.08	ASAP	63.1	U01N14E 14
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.72	ASAP	63.1	U01N14E 14
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.45	ASAP	634.0	S29N05W 4
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.14	ASAP	634.1	S29N05W 4

FEATURES ¹	NAME	DESCRIPTION	LENGTH (MI)	ACREAGE ²	ROUTE	MILEPOST	MTRS
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.19	ASAP	635.1	S29N05W 8
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.15	ASAP	635.6	S29N05W 8
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.67	ASAP	68.0	U01S14E 3-4
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	0.08	ASAP	68.0	U01S14E 4
Temporary Work-space	na	ASAP Temporary Workspace adjacent to the ASAP Route	0.00	1.19	ASAP	68.1	U01S14E 4
VSM	GCF 25ft VSM	169 VSM on 25 ft centers, From the GCF to the CGF	0.00	0.02	ASAP	0.0	U11N14E 10-11

Attachment 6
Sensitive Areas and Habitats



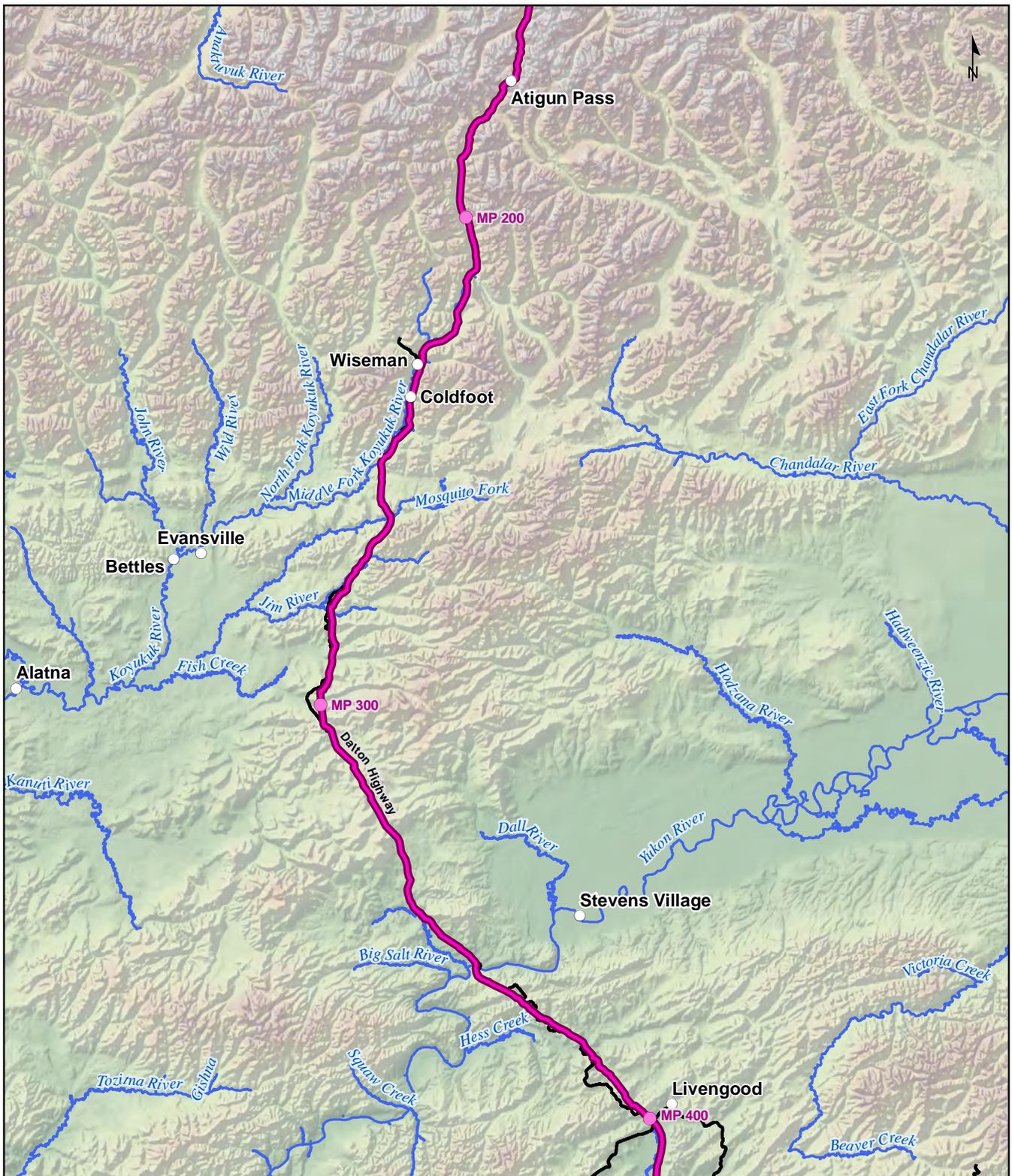
Alaska Stand Alone Pipeline / ASAP
Anadromous and Residential Fish Streams Prudhoe Bay to Northern Atigun Pass
 Map Scale 1:1,300,000
 0 5 10 15 20 Miles
 Alaska State Plane 4 (Units Feet)
 1983 North American Datum

Legend

- Anadromous Streams
- ASAP Alignment
- Fairbanks Lateral
- Major Roads
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Communities & Place Names

Note: Tributaries and waterbodies associated with anadromous waterbodies are not listed.

Document ID	004-C-22-D-Y-0028-A
File Name	POD_AnadStreams_PrudAtigun_8-5x11
Date	June 20, 2014
Attachment	A6-2A



Alaska Stand Alone Pipeline / ASAP
Anadromous and Residential Fish Streams Northern Atigun Pass to Livengood

Map Scale 1:1,600,000

0 5 10 15 20 Miles

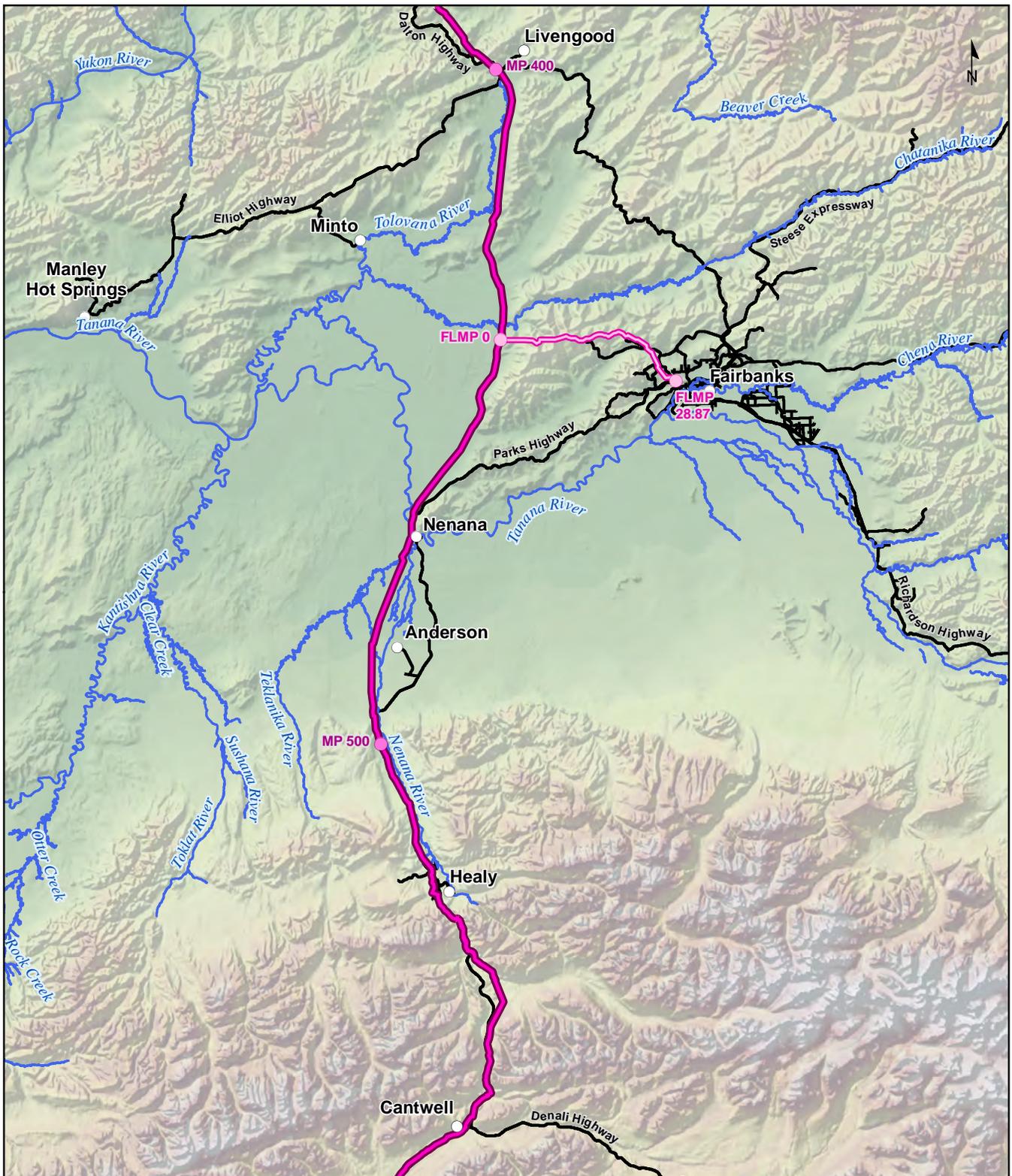
Alaska State Plane 4 (Units Feet)
 1983 North American Datum

Legend

- Anadromous Streams
- ASAP Alignment
- Fairbanks Lateral
- Major Roads
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Communities & Place Names

Note: Tributaries and waterbodies associated with anadromous waterbodies are not listed.

Document ID	004-C-22-D-Y-0028-A
File Name	POD_AnadStreams_Atigun Livengood_8-5x11
Date	June 20, 2014
Attachment	A6-2B



Alaska Stand Alone Pipeline / ASAP

Anadromous and Residential Fish Streams Livengood to Cantwell

Map Scale 1:1,250,000
 0 5 10 15 20 Miles
 Alaska State Plane 4 (Units Feet)
 1983 North American Datum

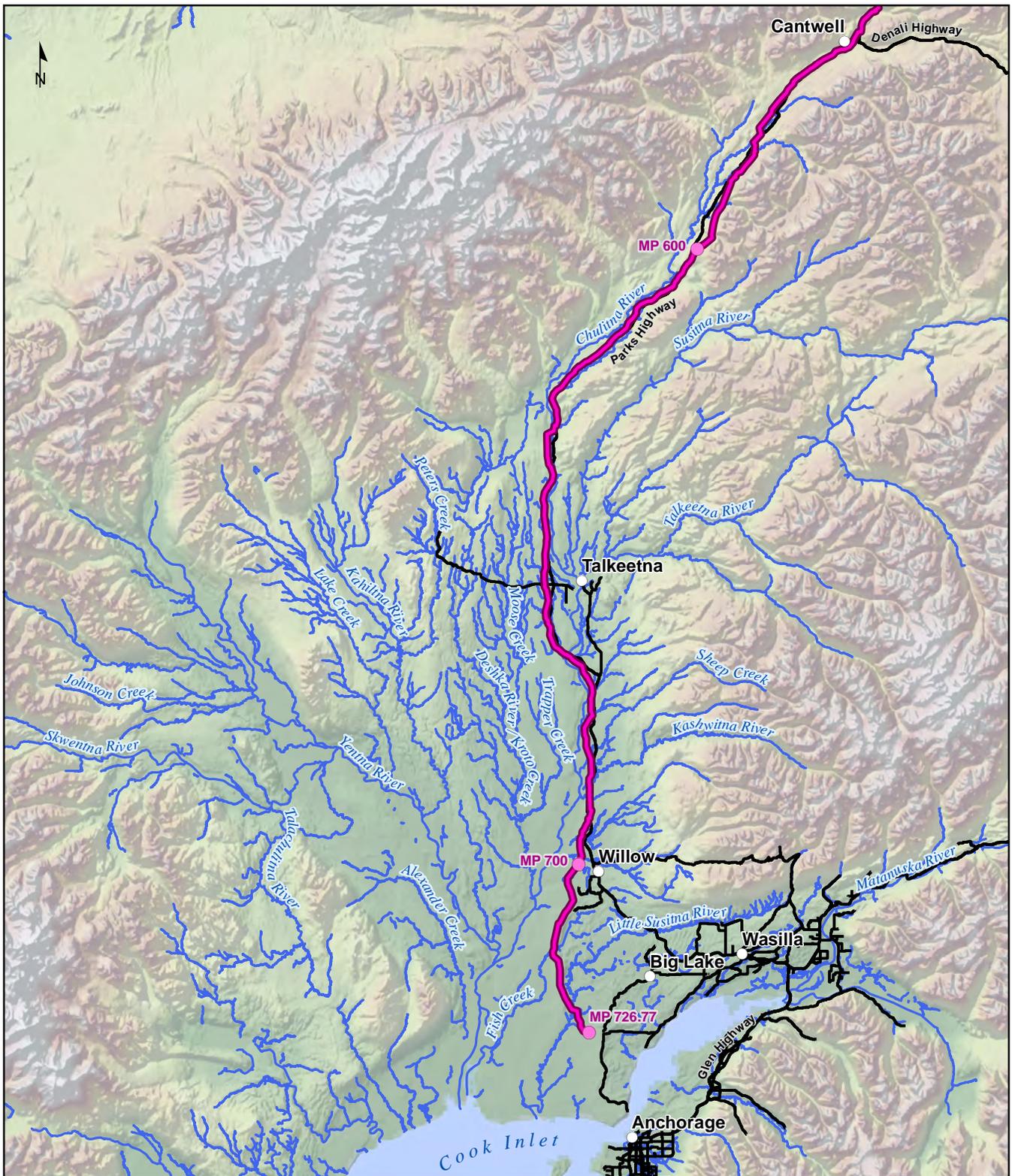
Legend

- Anadromous Streams
- ASAP Alignment
- Fairbanks Lateral
- Major Roads
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Communities & Place Names

Note: Tributaries and waterbodies associated with anadromous waterbodies are not listed.

Alaska's In-State Gas Pipeline
 Alaska Gasline Development Corporation
 1000 W. Commercial Street, Ste. 200, Anchorage, AK 99501
 P: 907.586.8000 F: 907.586.8000 www.asap.ak.us

Document ID	004-C-22-D-Y-0028-A
File Name	POD_AnadStreams_Atgun Livengood_8-6x11
Date	June 20, 2014
Attachment	A6-2C



Alaska Stand Alone Pipeline / ASAP
Anadromous and Residential Fish Streams
Cantwell to Beluga

Map Scale 1:1,250,000

0 5 10 15 20 Miles

Alaska State Plane 4 (Units Feet)
 1983 North American Datum

Legend

- Anadromous Streams
- ASAP Alignment
- Fairbanks Lateral
- Major Roads
- ASAP Mileposts
- Fairbanks Lateral Mileposts
- Communities & Place Names

Note: Tributaries and waterbodies associated with anadromous waterbodies are not listed.

Document ID	004-C-22-D-Y-0028
File Name	POD_AnadStreams_Cantwell Beluga_8-5x11
Date	June 20, 2014
Attachment	A6-2D

Attachment 7
Federal, State and Local Permitting

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Clean Water Act Section 404 and Rivers and Harbors Act Section 10 Permit	Section 404 of the Clean Water Act allows materials to be placed in wetlands and rivers. Section 10 of the Rivers and Harbors Act ensures that discharges in rivers or offshore areas do not harm navigability of those waters.	USACE	<ul style="list-style-type: none"> • <u>Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act</u>: Section 404 of the Clean Water Act requires authorization for placement or discharge of dredged and/or fill material into WOUS, including wetlands (33 U.S.C. 1344). Section 10 of the Rivers and Harbors Act of 1899 requires approval prior to the accomplishment of any work in, over, or under navigable WOUS, or which affects the course, location, condition, or capacity of such waters (33 U.S.C. 403). • Other Applicable Laws: <ul style="list-style-type: none"> ○ Clean Air Act ○ Clean Water Act ○ Coastal Zone Management Act ○ ESA ○ Executive Order 11988 (Floodplain Management) ○ Executive Order 11990 (Protection of Wetlands) ○ Executive Order 12898 (Environmental Justice) ○ Executive Order 13175 (Government-to-Government Consultation) ○ Executive Order 13186 (Migratory Birds) ○ Fish and Wildlife Coordination Act ○ Magnuson-Stevens Fishery Conservation and Management Act ○ MMPA ○ Migratory Bird Treaty Act ○ NEPA ○ NHPA ○ Native American Grave Protection and Repatriation Act ○ Wild and Scenic Rivers Act • Applicable Regulations: <ul style="list-style-type: none"> ○ 33 CFR Parts 320–332 ○ 40 CFR Part 230 [contains 404(b)(1) guidelines]

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Marine Protection, Research, and Sanctuaries Act – Ocean Disposal Site Designation	Designates a site for use as an ocean dumping site for disposal of dredged material.	USACE and USEPA	<ul style="list-style-type: none"> • Titles I and II of the MPRSA, also referred to as the Ocean Dumping Act, generally prohibits (1) transportation of material from the U.S. for the purpose of ocean dumping; (2) transportation of material from anywhere for the purpose of ocean dumping by U.S. agencies or U.S.-flagged vessels; (3) dumping of material transported from outside the U.S. into the U.S. territorial sea. A permit is required to deviate from these prohibitions. Under MPRSA, the standard for permit issuance is whether the dumping will "unreasonably degrade or endanger" human health, welfare, or the marine environment. USEPA is charged with developing ocean dumping criteria to be used in evaluating permit applications. (33 U.S.C. 1401-1445). Ocean dumping cannot occur unless a permit is issued under the MPRSA. In the case of dredged material, the decision to issue a permit is made by the USACE, using USEPA's environmental criteria and subject to USEPA's concurrence. • Other Applicable Laws: <ul style="list-style-type: none"> ○ Clean Water Act ○ Coastal Zone Management Act ○ ESA ○ Executive Order 11990 (Protection of Wetlands) ○ Executive Order 12898 (Environmental Justice) ○ Executive Order 13175 (Government-to-Government Consultation) ○ Executive Order 13186 (Migratory Birds) ○ Fish and Wildlife Coordination Act ○ Magnuson-Stevens Fishery Conservation and Management Act ○ MMPA ○ Migratory Bird Treaty Act ○ NEPA ○ NHPA • Applicable Regulations <ul style="list-style-type: none"> ○ 40 CFR Parts 220 - 229

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Federal Right-of-Way Grant	Allows long-term use of federal lands for project activities associated with the pipeline.	BLM	<ul style="list-style-type: none"> • <u>Mineral Leasing Act</u>: Allows that ROWs through any federal lands may be granted by the Secretary of Interior or appropriate agency head for pipeline purposes for the transportation of oil, natural gas, synthetic liquid, or gaseous fuels (30 U.S.C. 185). • Other Applicable Laws: <ul style="list-style-type: none"> ○ ANILCA ○ Archaeological Resource Protection Act ○ Bald and Golden Eagle Protection Act ○ CERCLA ○ ESA ○ Executive Order 11988 (Floodplain Management) ○ Executive Order 11990 (Protection of Wetlands) ○ Executive Order 12898 (Environmental Justice) ○ Executive Order 13175 (Government-to-Government Consultation) ○ Executive Order 13186 (Migratory Birds) ○ Federal Land Policy and Management Act ○ Magnuson-Stevens Fishery Conservation and Management Act ○ MMPA ○ Materials Act ○ Migratory Bird Treaty Act ○ NEPA ○ NHPA ○ PRPA ○ Safe Drinking Water Act ○ Wild and Scenic Rivers Act ○ Wilderness Act • Applicable Regulations: <ul style="list-style-type: none"> ○ 43 CFR Parts 2880–2888
Letter of Authorization – USFWS	Preserves integrity of marine mammal populations while allowing isolated incidents of harassment, injuries, or deaths as a result of activity.	USFWS	<ul style="list-style-type: none"> • <u>Section 101(a)(5) of the Marine Mammal Protection Act</u>: Restricts the taking, possession, transportation, selling, offering for sale, and importing of marine mammals (16 U.S.C. 1361–1362, 1371–1389, 1401–1407, 1421, 1423). • Other Applicable Laws: <ul style="list-style-type: none"> ○ ESA ○ NEPA • Applicable Regulations: <ul style="list-style-type: none"> ○ 50 CFR Part 18

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Temporary Use Permits	Allow temporary use of federal land for project activities.	BLM	<ul style="list-style-type: none"> • <u>Mineral Leasing Act</u>: Allows that ROWs through any federal lands may be granted by the Secretary of Interior or appropriate agency head for pipeline purposes for the transportation of oil, natural gas, synthetic liquid, or gaseous fuels (30 U.S.C. 185). • Other Applicable Laws: <ul style="list-style-type: none"> ○ ANILCA ○ Archaeological Resource Protection Act ○ Bald and Golden Eagle Protection Act ○ CERCLA ○ ESA ○ Executive Order 11988 (Floodplain Management) ○ Executive Order 11990 (Protection of Wetlands) ○ Executive Order 12898 (Environmental Justice) ○ Executive Order 13175 (Government-to-Government Consultation) ○ Executive Order 13186 (Migratory Birds) ○ Federal Land Policy and Management Act ○ Magnuson-Stevens Fishery Conservation and Management Act ○ MMPA ○ Materials Act ○ Migratory Bird Treaty Act ○ NEPA ○ NHPA ○ PRPA ○ Safe Drinking Water Act ○ Wild and Scenic Rivers Act ○ Wilderness Act • Applicable Regulations: <ul style="list-style-type: none"> ○ 43 CFR Parts 2880–2888

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Mineral Material Sales Contracts	Allow the purchase and extraction of gravel from federal land.	BLM	<ul style="list-style-type: none"> • <u>Materials Act</u>: Allows for the exploration, development, and disposal of mineral material resources on public lands, and for the protection of the resources and the environment (30 U.S.C. 601). • Other Applicable Laws: <ul style="list-style-type: none"> ○ ANILCA ○ Clean Air Act ○ Clean Water Act ○ CERCLA ○ ESA ○ Executive Order 11988 (Floodplain Management) ○ Executive Order 11990 (Protection of Wetlands) ○ Executive Order 12898 (Environmental Justice) ○ Executive Order 13175 (Government-to-Government Consultation) ○ Executive Order 13186 (Migratory Birds) ○ Federal Land Policy and Management Act ○ Magnuson-Stevens Fishery Conservation and Management Act ○ Migratory Bird Treaty Act ○ NEPA ○ NHPA ○ Wild and Scenic Rivers Act ○ Wilderness Act • Applicable Regulations: <ul style="list-style-type: none"> ○ 43 CFR Part 3600

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Bridge Permit	Allows bridging of rivers without harming their navigability. Consultation with USCG will be necessary for installation of the temporary barge bridge.	USCG	<ul style="list-style-type: none"> • <u>General Bridge Act, and Rivers and Harbors Appropriations Act</u>: Prohibits construction of bridges or causeways over or in any navigable river or other navigable WOUS without approval (33 U.S.C. 401, 491, 525). • Other Applicable Laws: <ul style="list-style-type: none"> ○ Clean Air Act ○ Clean Water Act ○ Coastal Zone Management Act ○ ESA ○ Executive Order 11988 (Floodplain Management) ○ Executive Order 11990 (Protection of Wetlands) ○ Executive Order 12898 (Environmental Justice) ○ Farmlands Protection Policy Act ○ Fish and Wildlife Coordination Act ○ Magnuson-Stevens Fishery Conservation and Management Act ○ MMPA ○ Migratory Bird Treaty Act ○ NEPA ○ NHPA ○ Native American Grave Protection and Repatriation Act ○ Noise Control Act ○ Uniform Relocation Assistance and Real Property Acquisitions Act ○ Wild and Scenic Rivers Act • Applicable Regulations: <ul style="list-style-type: none"> ○ 33 CFR Parts 114 and 115
Letter of Authorization- USFWS	Preserves integrity of marine mammal populations while allowing isolated incidents of harassment as a result of activity. Applicable to polar bear and walrus.	USFWS	<ul style="list-style-type: none"> • <u>Section 101(a)(5) of the Marine Mammal Protection Act</u>: Restricts the taking, possession, transportation, selling, offering for sale, and importing of marine mammals (16 U.S.C. 1361–1362, 1371–1389, 1401–1407, 1421, 1423). • Other Applicable Laws: <ul style="list-style-type: none"> ○ ESA ○ Magnuson-Stevens Fishery Conservation and Management Act ○ NEPA • Applicable Regulations: <ul style="list-style-type: none"> • 50 CFR Part 216

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Letter of Authorization- NMFS	Preserves integrity of marine mammal populations while allowing isolated incidents of harassment, serious injury, deaths, or a combination thereof as a result of activity. Applicable to whales and seals.	NMFS	<ul style="list-style-type: none"> • <u>Section 101(a)(5) of the Marine Mammal Protection Act</u>: Restricts the taking, possession, transportation, selling, offering for sale, and importing of marine mammals (16 U.S.C. 1361–1362, 1371–1389, 1401–1407, 1421, 1423). • Other Applicable Laws: <ul style="list-style-type: none"> ○ ESA ○ Magnuson-Stevens Fishery Conservation and Management Act ○ NEPA • Applicable Regulations: <ul style="list-style-type: none"> ○ 50 CFR Part 216
Incidental Harassment Authorization	Preserves integrity of marine mammal populations while allowing isolated incidents of harassment as a result of activity. Applicable to whales and seals.	NMFS	<ul style="list-style-type: none"> • <u>Section 101(a)(5) of the Marine Mammal Protection Act</u>: Restricts the taking, possession, transportation, selling, offering for sales and importing of marine mammals (16 U.S.C. 1361–1362, 1371–1389, 1401–1407, 1421, 1423). • Other Applicable Laws: <ul style="list-style-type: none"> ○ ESA ○ Magnuson-Stevens Fishery Conservation and Management Act ○ NEPA • Applicable Regulations: <ul style="list-style-type: none"> ○ 50 CFR Part 216
Pipeline Special Permits	Ensure that the pipeline is built and operated to meet the objectives of federal standards even though the applicant proposes to use different methods or material to achieve pipeline integrity and safety. This could include pipe coating, steel pipe properties, or the spacing of special sleeves designed to stop pipeline cracks from spreading. Applicant must obtain a permit for each departure from standards.	USDOT, PHMSA	<ul style="list-style-type: none"> • <u>Pipeline Safety Law</u>: Federal pipeline safety laws authorize waivers of compliance with one or more of the federal pipeline safety regulations, if necessary [49 U.S.C. 60118(c)]. • Other Applicable Laws: <ul style="list-style-type: none"> ○ Executive Order 12898 (Environmental Justice) ○ Executive Order 13175 (Government-to-Government Consultation) ○ NEPA • Applicable Regulations: <ul style="list-style-type: none"> ○ 49 CFR Parts 190–192, 199
Bald and Golden Eagle Protection Act Permit	Preserves integrity of eagle populations while allowing isolated incidents of disturbance, injury, or death as a result of activities.	USFWS	<ul style="list-style-type: none"> • <u>Bald and Golden Eagle Protection Act</u>: Prohibits anyone, without a permit issued by the Secretary of Interior, from “taking” bald and golden eagles, including their parts, nests, or eggs. The act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” (16 U.S.C. 668). • Other Applicable Laws: <ul style="list-style-type: none"> ○ NEPA • Applicable Regulations: <ul style="list-style-type: none"> ○ 50 CFR Parts 13 and 22

Table 1. Federal Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement – USFWS	Ensures that species listed as endangered or threatened, or their habitat, are not adversely affected by activities.	USFWS	<ul style="list-style-type: none"> • <u>Endangered Species Act</u>: Requires that each federal agency ensures that any action authorized by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of habitat of such species which is determined to be critical (16 U.S.C. 1531–1544). • Other Applicable Laws: <ul style="list-style-type: none"> ○ MMPA • Applicable Regulations: <ul style="list-style-type: none"> ○ 50 CFR Parts 17 and 402
Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement – NMFS	Ensures that species listed as endangered or threatened, or their habitat, are not adversely affected by activities.	NMFS	<ul style="list-style-type: none"> • <u>Endangered Species Act</u>: Requires that each federal agency ensures that any action authorized by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of habitat of such species which is determined to be critical (16 U.S.C. 1531–1544). • Other Applicable Laws: <ul style="list-style-type: none"> ○ MMPA • Applicable Regulations: <ul style="list-style-type: none"> ○ 50 CFR Parts 17 and 402
<p>Notes:</p> <p>ANILCA – Alaska National Interest Lands Conservation Act CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act ESA - Endangered Species Act MMPA - Marine Mammal Protection Act MPRSA - Marine Protection, Research, and Sanctuaries Act NHPA - National Historic Preservation Act U.S.C. – U.S. Code</p>			

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Fish Habitat Permit (Title 16)	Required for any work conducted below the ordinary high water mark of an anadromous stream. Required before any action taken to: <ul style="list-style-type: none"> • Construct a hydraulic project • Use, divert, obstruct, pollute, or change the natural flow or bed of a specified river, lake, or stream • Use wheeled, tracked, or excavating equipment or log-dragging equipment in the bed of a specified river, lake, or stream 	ADF&G, Division of Habitat	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 16.05.841. Fishway required. ○ AS 16.05.871. Protection of fish and game. States that the commissioner can require: <ol style="list-style-type: none"> (1) full plans and specifications of the proposed construction or work; (2) complete plans and specifications for the proper protection of fish and game in connection with the construction or work, or in connection with the use; and (3) the approximate date the construction, work, or use will begin. • Applicable Regulations: <ul style="list-style-type: none"> ○ 5 AAC 95.700(b). Application procedures (Details information required in application.) ○ 5 AAC 95.720(a). Permit conditions and assignment (Identifies permit conditions that may be applied)
Collection/Public Safety Permit	Required when interactions with animals and defense of life or property are expected or possible.	ADF&G, Division of Wildlife Conservation	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 16.05.050(a)(5). Powers and duties of commissioner. "The commissioner has, but not by way of limitation, the following powers and duties: ... (5) to take, capture, propagate, transport, buy, sell, or exchange fish or game or eggs for propagating, scientific, public safety, or stocking purposes."
Special Area Permit	Required for activities, except for lawful hunting, trapping, fishing, viewing, and photography, occurring in a special area, such as a state game refuge, state game sanctuary, or critical habitat area.	ADF&G, Division of Habitat	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 16.20. Conservation and Protection of Alaska Fish and Game. ○ AS 16.20.060. Submission of plans and specifications. • Applicable Regulations <ul style="list-style-type: none"> ○ 5 AAC 95.420. Activities requiring a special areas permit. ○ 5 AAC 95.700. Application procedures.
Certificate of Public Convenience and Necessity	CPCN is a certificate that all public utilities and pipeline carriers are required to obtain from the RCA before operating and receiving compensation for providing a commodity or service.	RCA	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 42.06.140. General powers and duties: (a)(8) "The commissioner... shall require permits for the construction, enlargement in size or operating capacity, extension, connection and interconnection, operation or abandonment of any oil or gas pipeline facility or facilities, subject to necessary and reasonable terms, conditions and limitations..." ○ 42.05.221. Certificates required. • Applicable Regulations: <ul style="list-style-type: none"> ○ 3 AAC 48.625. Pipeline carrier application. (Lists information required in application)

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Utility Permit	The ADOT&PF will authorize the activities reasonably required for the construction, maintenance, or operation of the utility facility in an ADOT&PF ROW.	ADOT&PF, Design and Construction Standards, Right-of-Way	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 19.25.010. Use of rights-of-way for utilities. ○ AS 19.25.200. Encroachment permits; liability. • Applicable Regulations: <ul style="list-style-type: none"> ○ 17 AAC 15.011. Utility permits. ○ 17 AAC 15.021. Application for utility permit.
Encroachment Permit	Necessary before placing anything in, on, under, or over a state ROW.	ADOT&PF, Design and Construction Standards, Right-of-Way	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 17 AAC 10.010. Encroachments. ○ 17 AAC 10.011. Types of encroachments authorized.
Driveway/Approach Road Permit	Required before a driveway/access road can be built that connects with a state roadway.	ADOT&PF, Design and Construction Standards, Right-of-Way	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 17 AAC 10.030. Driveway and road approach permits and utilities. ○ 17 AAC 10.040. Technical requirements.
Lane Closure Permit	Required for temporary closure of a traffic lane or an entire roadway.	ADOT&PF, Design and Construction Standards, Right-of-Way	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 17 AAC 20.017. Lane closure permits.
Oversize/Overweight Permit	Required when oversize or overweight vehicles will be used on a state roadway.	ADOT&PF, Measurement Standards and Commercial Vehicle Enforcement, Commercial Vehicle Customer Service Center	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 17 AAC 25.320(b). Permits for oversize or overweight vehicles: "...the department will, as conditions for a permit...establish time limitations for movement, designate routes, limit the number of trips, or otherwise restrict the movement of oversize or overweight vehicles and loads. The movement of permitted oversize or overweight vehicles or loads must comply with...the department's <i>Administrative Permit Manual: Oversize and Overweight Permits</i>, revised as of December 2009, and adopted by reference." ○ 17 AAC 25.330(a). Applications for permits.
Industrial Use Highway Permit	Required to operate vehicles on an industrial-use highway if the length and weight meet certain limits.	ADOT&PF	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 17 AAC 35.020. Industrial use highway permits.
Application for Fire and Life, Safety Plan Review	Required prior to the start of construction of any structure regulated by the State Fire Marshal.	State Fire Marshal's Office, Division of Fire and Life Safety	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 13 AAC 50.027. Non-structural plan review and approval; stop-work orders.
Permit to Drill (Injection Well)	Required for the development of a Class I (municipal and industrial waste) disposal well.	Department of Administration, Alaska Oil and Gas Conservation Commission	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 20 AAC 25.005 Permit to drill. (Ensures appropriate equipment is used and appropriate practices are followed to maintain well control, protect groundwater, avoid waste of oil or gas, and promote efficient reservoir development)

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Solid Waste Disposal Permit	Required for the operation of a solid waste disposal facility.	ADEC, Division of Environmental Health	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 60.210. Permit application. ○ 18 AAC 60.245. Prompt closure. ○ 18 AAC 60.265. Proof of financial responsibility. ○ 18 AAC 60.800 – 18 AAC 60.860. Monitoring and Corrective Action Requirements.
Forest Clearing Approval	Required when state-owned/managed forest land will be cleared for project construction and operation.	ADNR, Division of Forestry	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 41.17. Forest Resources and Practices. • Applicable Regulations: <ul style="list-style-type: none"> ○ 11 AAC 95.010 – 11 AAC 95.900. Forest resources and practices. ○ 11 AAC 95.190. Applicability. ○ 11 AAC 95.220. Detailed plan of operation.
Land Use Permit	Required for any use of state lands not identified as a “generally allowed use.”	ADNR, Division of Mining, Land & Water	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 38.05.035(a) authorizes the director to decide what information is needed to process an application for the sale or use of state land and resources. • Applicable Regulations: <ul style="list-style-type: none"> ○ 11 AAC 96.010. Uses requiring a permit. (Lists activities for which MLUP is required) ○ 11 AAC 96.020. Generally allowed uses
Material Sales Permit	Required for the extraction and sale of materials (gravel, rock, timber) from state lands.	ADNR, Division of Mining, Land & Water	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 38.05.115(a). “The commissioner shall determine the timber and other materials to be sold, and the limitations, conditions, and terms of sale. The limitations, conditions, and terms shall include the utilization, development, and maintenance of the sustained yield principle, subject to preference among other beneficial uses...”

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
<p>Temporary Water Use Permit – filed for each water source to be used</p>	<p>May be needed if the amount of water to be used is a significant amount, the use continues for less than 5 consecutive years, and the water to be used is not appropriated. This authorization does not establish a water right but will avoid conflicts with fisheries and existing water right holders.</p> <p>A significant amount of water is defined by 11 AAC 93.035(a) and (b) as:</p> <ul style="list-style-type: none"> • The consumptive use of more than 5,000 gallons of water from a single source in a single day • The regular daily or recurring consumptive use of more than 500 gpd from a single source for more than 10 days per calendar year • The non-consumptive use of more than 30,000 gpd (0.05 cubic feet per second) from a single source or • Any water use that may adversely affect the water rights of other appropriators or the public interest. 	<p>ADNR, Division of Mining, Land & Water</p>	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 11 AAC 93.220. Procedure for temporary water use. <ul style="list-style-type: none"> ▪ (b) Details information required in an application. ▪ (f) “The department may issue an authorization for temporary use of water subject to conditions including suspension or termination, considered necessary to protect the water rights of other persons or the public interest.”
<p>Water Rights Permit</p>	<p>Required for a water appropriation of longer than 5 years for water that is not otherwise appropriated. A water right allows a specific amount of water from a specific water source to be diverted, impounded, or withdrawn for a specific use. When a water right is granted, it becomes appurtenant to the land where the water is being used for as long as the water is used.</p>	<p>ADNR, Division of Mining, Land & Water</p>	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 11 AAC 93.040. Application for a water right. (Details information to be included in application)
<p>Right-of-Way Lease</p>	<p>Required for the construction of a common carrier pipeline across state lands.</p>	<p>ADNR, State Pipeline Coordinator's Office</p>	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 38.35.050. Applications for right-of-way leases. • Applicable Regulations: <ul style="list-style-type: none"> ○ 11 AAC 80.005. Applications for right-of-way leases.

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Archaeological Resources Protection Act Permit	Required to protect from loss or damage archaeological resources that will be excavated/removed.	ADNR, Office of History and Archaeology	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ Section 106 review requirements contained in 36 CFR 800.
Cultural Resource Permit	Required for the investigation, excavation, gathering, or removal from the natural state, of any historic, prehistoric, or archaeological resources of the state.	ADNR, Office of History and Archaeology	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 41.35.080. Permits: "The commissioner may issue a permit for the investigation, excavation, gathering, or removal from the natural state, of any historic, prehistoric, or archeological resources of the state..." • Applicable Regulations: <ul style="list-style-type: none"> ○ 11 AAC 16.030. Investigation and collection permits: (b) "After consultation with the state archaeologist the director may issue a permit to a qualified person for investigation, excavation, gathering and removal from the natural state of historic, prehistoric or archaeological resources of the state."
Minor General Permit 9 for Rock Crushers	Required for owner/operator before construction, operation, or relocation of a stationary source containing a rock crusher that has a rated capacity >5 tons per hour and emits <100 tons of a regulated pollutant.	ADEC, Division of Air Quality	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 50.345. Construction, minor, and operating permits: standard permit conditions. ○ 18 AAC 50.045. Prohibitions: (d) "A person who causes or permits bulk materials to be handled, transported, or stored, or who engages in an industrial activity or construction project shall take reasonable precautions to prevent particulate matter from being emitted into the ambient air." ○ 18 AAC 50.502(b). Minor permits for air quality protection. ○ 18 AAC 50.560. General minor permits.
Open-Burning Approval Application	Required for open/prescribed burning of ≥40 acres/year.	ADEC, Division of Air Quality	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 50.065. Open burning.

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Construction Permit	<p>Used for following permitting activities:</p> <ol style="list-style-type: none"> 1. PSD permit (18 AAC 50.306) 2. Nonattainment area major stationary source permit (18 AAC 50.311) 3. Construction permit for a major source of hazardous air pollutants (18 AAC 50.316) <p>Required to authorize construction of a new or modification to a major stationary source of air pollution. The major source is capable of emitting more than 250 tons per year of a criteria pollutant, defined as the following: NO_x, CO, PM₁₀, SO₂, and ozone.</p>	ADEC, Division of Air Quality	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 46.14.130. Stationary sources requiring permits. (Major stationary source permits) • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 50.300 – 18 AAC 50.390. Article 3, Major Stationary Source Permits. ○ 18 AAC 50.302. Construction permits. ○ 18 AAC 50.345. Construction, minor, and operating permits: standard permit conditions. ○ 18 AAC 50.346. Construction and operating permits: other permit conditions. ○ 18 AAC 50.306. PSD permits: (d) "In each PSD permit issued under this section, the department will include terms and conditions <ul style="list-style-type: none"> "(1) as necessary to ensure that the permittee will construct and operate the proposed stationary source or modification in accordance with this section, including terms and conditions consistent with AS 46.14.180 that require the permittee to <ul style="list-style-type: none"> "(A) install, use, and maintain monitoring equipment; "(B) sample emissions according to the methods prescribed by the department, at locations and, intervals specified by the department, and by procedures specified by the department; "(C) provide source test reports, monitoring data, emissions data, and information from analysis of any test samples; "(D) keep records; and "(E) make periodic reports on process operations and emissions, and reports consistent with 18 AAC 50.235 - 18 AAC 50.240."
Title I Minor Stationary Source Air Permit	<p>Required before beginning construction of a new stationary source with a potential to emit</p> <ul style="list-style-type: none"> • 15 TPY of PM₁₀, • 40 TPY of nitrogen oxides, • 40 TPY of sulfur dioxide, • 0.6 TPY of lead, or • 100 TPY of CO within 10 kilometers of a CO nonattainment area. <p>Required for an air pollutant that is not significant under 40 CFR 52.21(b)(23), adopted by reference in 18 AAC 50.040, and if a permit is not required under 18 AAC 50.311.</p>	ADEC, Division of Air Quality	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 50.502 – 18 AAC 50.560. Article 5. Minor Permits. ○ 18 AAC 50.544. Minor permits: content. (Contains standard conditions that will be included in each permit)

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Title V Air Permit	Required for operation of facilities with PTE regulated air pollutant >100 TPY. Permit not issued until 1 year after construction.	ADEC, Division of Air Quality	<ul style="list-style-type: none"> • Applicable Regulations: • 18 AAC 50.345. Construction, minor, and operating permits: standard permit conditions. • 18 AAC 50.346. Construction and operating permits: other permit conditions.
401 Certification for 404 Permit	Any applicant for a federal license or permit to conduct an activity that may result in discharge into WOUS is required to certify that the discharge will comply with Clean Water Act, Alaska Water Quality Standards (18 AAC 70), and other applicable state laws.	ADEC, Division of Water	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 60.200. Permit requirement. (b) "If the department certifies an activity under 33 U.S.C. 1344 (Clean Water Act, section 404) and attaches conditions to that certification, and if the department decides that certification may be substituted for a permit required under this chapter, the department will enforce the terms and conditions of the certification in the same way it will require compliance with a permit issued under this chapter for the same activity." ○ 18 AAC 70.005 – 18 AAC 70.990. Water Quality Standards.
Multi-Sector General Permit (Stormwater discharges associated with industrial activity)	Required for any facility discharging stormwater. Discharge must comply with applicable requirements set forth by 40 CFR 122.26, and adopted by reference in 18 AAC 83.010.	ADEC, Division of Water	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 83.010. Requirements, guidelines, and policy documents adopted by reference. ○ 18 AAC 83.615. Stormwater discharges. ○ 18 AAC 72.040. Discharge to sewers.
Alaska Pollutant Discharge Elimination System, General Permit, Contained Water	Required for any point source wastewater discharge into WOUS. Discharge must meet the purposes of AS 46.03 and be in accordance with 33 U.S.C. 1342 (Clean Water Act, Section 402) and the requirements adopted by reference at 18 AAC 83.010.	ADEC, Division of Water	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 83.005 – 18 AAC 83.990. Alaska Pollutant Discharge Elimination System Program. ○ 18 AAC 83.010. Requirements, guidelines, and policy documents adopted by reference. ○ 18 AAC 70.005 – 18 AAC 70.990. Water Quality Standards. ○ Note: No regulations specific to contained waters identified. ○ Discharge monitoring shall conform to methods described in 18 AAC 70.020(c).
General Permit for Discharges from Large and Small Construction Activities (Permit No.: AKR100000)	Required for any discharge of pollutants in stormwater associated with construction activities into WOUS.	ADEC, Division of Water	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 83.305. Permit application forms and general information requirements. ○ 18 AAC 83.315. Permit application requirements for manufacturing, commercial, mining, and silvicultural facilities that discharge only non-process wastewater. ○ 18 AAC 83.360. Permit application requirements for new sources and new discharges. ○ 18 AAC 83.405 – 18 AAC 83.560. Article 5, Permit Conditions – General. ○ 18 AAC 83.615. Stormwater discharges. ○ Operator may be required to submit information to the Department and/or an operator of a municipal separate storm sewer system for review prior to filing the notice of intent and commencement of construction activities.

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
Alaska Pollutant Discharge Elimination System, Discharge of Non-process Wastewater	Required for a new or existing industrial facility that discharges only non-process wastewater into WOUS. (Process wastewater is water that comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, waste product, or wastewater.)	ADEC, Division of Water	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 83.115. Draft permit, fact sheet, and applicant review. ○ 18 AAC 83.120. Public notice and comment; hearing on permit; issuance of final permit. ○ 18 AAC 83.125. Permit preparation by third-party contractors or an applicant. ○ 18 AAC 83.160. Permit variance. ○ 18 AAC 83.205. General permits. ○ 18 AAC 83.210. Administration of general permits. ○ 18 AAC 83.215. Exceptions to general permit requirement; individual permits. ○ 18 AAC 83.305. Permit application forms and general information requirements. ○ 18 AAC 83.315. Permit application requirements for manufacturing, commercial, mining, and silvicultural facilities that discharge only non-process wastewater. ○ 18 AAC 83.410. Special reporting obligations: (d) Monitoring report.
Water System Permit and Plan Review	Required for construction, installation, alteration, renovation, operation, or improvement of a community water system, non-transient non-community water system, or transient non-community water system, or any part of one. Also, must have prior written approval of engineering plans that comply with 18 AAC 80.205.	ADEC, Division of Water	<ul style="list-style-type: none"> • Applicable Regulations: <ul style="list-style-type: none"> ○ 18 AAC 80.005 – 18 AAC 80.1990. Drinking Water.
Wastewater System Permit and Plan Review	<p>Required for construction, alteration, installation, modification, or operation of any part of a nondomestic wastewater treatment works or disposal system.</p> <p>Permit required for disposal of nondomestic wastewater into or onto land, surface water, or groundwater nondomestic (18 AAC 72.500 and 18 AAC 83).</p> <p>An engineered plan must be submitted to the Department and be approved in writing before constructing, modifying, or installing any part of a domestic wastewater collection, treatment, or disposal system. Prior approval is not required for conventional systems constructed under the Certified Installer Program (18 AAC 72.010).</p>	ADEC, Division of Water	<ul style="list-style-type: none"> • <u>Applicable Regulations</u> (Nondomestic Wastewater): <ul style="list-style-type: none"> ○ 18 AAC 72.005 – 18 AAC 72.990. Wastewater Treatment and Disposal. ○ 18 AAC 72.010. Permit and plan approval requirements. ○ 18 AAC 72.500. Permit required. ○ 18 AAC 72.600. Application for department approval. ○ 18 AAC 72.900. General permit. ○ 18 AAC 72.910. Procedures for general permit. ○ 18 AAC 72.920. Professional submittals. ○ 18 AAC 72.930. Reports. ○ 18 AAC 83.005 – 18 AAC 72.990. Alaska Pollutant Discharge Elimination System Program.

Table 2. State Permitting Matrix

TITLE	PURPOSE/CRITERIA	AGENCY	APPLICABLE LAWS AND REGULATIONS
<p>Class I Injection Well Wastewater Disposal General Permit (Permit No. 2010DB0001)</p>	<p>Required for any non-hazardous sanitary wastewater discharge injected into a well for disposal below lowermost underground drinking water source supply. Class I injection wells are used for deep injection of non-hazardous sanitary, domestic, or industrial fluids beneath the lowermost underground source of drinking water.</p>	<p>ADEC, Division of Water</p>	<ul style="list-style-type: none"> • Applicable Laws: <ul style="list-style-type: none"> ○ AS 46.03.120. Termination or modification of waste management and disposal. • <u>Applicable Regulations</u> (Domestic Wastewater): <ul style="list-style-type: none"> ○ 18 AAC 72.010. Permit and plan approval requirements ○ 18 AAC 72.215. Permit required. • <u>Applicable Regulations</u> (Nondomestic Wastewater): <ul style="list-style-type: none"> ○ 18 AAC 72.500. Permit required: (a) "In addition to the plan approval required by 18 AAC 72.600 a person who disposes of nondomestic wastewater into or onto land, surface water, or groundwater in this state must have a permit issued by the department under this chapter or under 18 AAC 83 for that disposal." ○ 18 AAC 72.600. Application for department approval. ○ 18 AAC 72.510. Sludge disposal.
<p>Notes: AAC - Alaska Administrative Code CO - carbon monoxide CPCN - Certificate of Public Convenience and Necessity gpd - gallons per day</p>	<p>MLUP - miscellaneous land use permit NOx - nitrogen oxides PM₁₀ - particulate matter less than 10 micron in size PRPA - Paleontological Resources Preservation Act</p>	<p>PSD - Prevention of Significant Deterioration PTE - potential to emit SO₂ - sulfur dioxide TPY - ton per year</p>	

Table 3. Local Permitting Matrix

Title	Purpose/Criteria	Agency	Applicable Laws and Regulations
Construction in Right-of-Way Permit	Required prior to any work taking place, including driveway installations, within the ROW of a public road.	FNSB, Rural Services Division	<ul style="list-style-type: none"> FNSB Code of Ordinance 14.03. Excavation and Construction on Public Roads Within Road Service Areas.
Floodplain Permit Application	For any new or substantially improved structure, alteration of a watercourse, or other development within the flood hazard area (Flood Zone A).	FNSB, Department of Community Planning	<ul style="list-style-type: none"> Ordinance 15.04.040, Floodplain Permits Required. Required data and information contained in 15.04.050 B. through F.
Land Management Regulations Permit Application (Development Permit)	Compliance with land management requirements.	NSB	<ul style="list-style-type: none"> NSB Ordinances Chapters 19.30, 19.40, 19.50, 19.60, and 19.70.
Land Use and/or Zoning Permits	Compliance with land use and/or zoning plans.	FNSB DB MSB	<ul style="list-style-type: none"> Land Use and/or Zoning Plans.
Approval from local landfill operators to deposit non-hazardous solid waste	Disposal of non-hazardous solid waste.	NSB FNSB DB MSB	<ul style="list-style-type: none"> Local Ordinances.