THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources

Division of Oil and Gas
State Pipeline Coordinator's Section
Department of Fish and Game Liaison

550 West 7th Avenue, Suite 1100
Anchorage, AK 99501
Main: 907-269-8800
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November 1, 2021

SPECIAL AREA PERMIT FH 21-SPO-043-SA

ISSUED: November 1, 2021
EXPIRES: Lifetime of Structure /Completion of Restoration

Enric Fernandez
Donlin Gold, LLC
2525 C Street
Anchorage, AK 99503

RE: Buried Natural Gas Pipeline and Fiber Optic Cable
Susitna Flats State Game Refuge
Pipeline Milepost 0.0-5.1
Sections 28, 29, 20, 17, 18, T 14 N, R 9 W, SM
Sections 12, T 14 N, R 10 W, SM
Point of Origin Location: 61.2694 N, -150.9017 W

Dear Mr. Fernandez:

Pursuant to AS 16.20.036, AS 16.20.050, AS 16 20.060, and 5 AAC 95.400-.440, 5 AAC 95.510-.515, and 5 AAC 95.700-.990, the Alaska Department of Fish and Game (ADF&G), Habitat Section has reviewed your proposal for a buried natural gas pipeline and fiber optic cable within the Susitna Flats State Game Refuge (SFSGR). This project may include activities associated with fish bearing water bodies that will require separate Fish Habitat Permits.

Background Information

Donlin Gold, LLC (Donlin Gold) has proposed the construction of 14-inch natural gas pipeline and fiber optic cable in conjunction with the Donlin Gold mine project in Southwest Alaska. The natural gas pipeline will connect to the existing ENSTAR 20-inch Beluga natural gas pipeline (BPL) within the SFSGR (point of origin) (Figure 1). From there it is routed west for approximately 315.9 miles to the proposed mine site. Donlin Gold has a separate natural gas pipeline right-of-way (ROW) lease (ADL 231908) and co-located fiber optic cable easement (ADL 232368) for the portion of the project covered under this permit.

The pipeline is designed to operate at a maximum allowable operating pressure (MAOP) of 1,480 pounds per square inch gauge (psig) with a maximum throughput of approximately 76 million standard cubic feet per day (MMscfd) of natural gas (2.2 million normal cubic meters per day [Nm3pd]).

The pipeline will be regulated, separate from the authority of this permit, by the Pipeline and Hazardous Materials Safety Administration (PHMSA) of the U.S. Department of Transportation (DOT) under Title 49 of the Code of Federal Regulations, Part 192 – Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards (49 CFR 192). The pipeline has been designed and will be constructed and operated in accordance with the applicable requirements of 49 CFR 192 and will incorporate launching and receiving facilities for in-line maintenance and inspection tools, main line valves, cathodic protection, leak detection, and a supervisory control and data acquisition (SCADA) system. A fiber optic cable will be installed along the pipeline route to the mine. The point of origin of the fiber optic cable and the requirement for, and location of a repeater station, will be determined during final engineering design and may require a separate Special Area Permit. The engineering design life of the proposed pipeline is 30 years.

Project Description

The proposed project includes the construction, operation, and maintenance (O&M), and termination and final reclamation, of a buried natural gas pipeline and fiber optic cable within the SFSGR.

- Approximately 5.1 miles of buried natural gas pipeline and fiber optic cable (Figures 1-Figure 9).
- ROW dimensions include a 150-foot (ft) wide construction corridor (Figure 10-Figure 12). After construction, the ROW will be reduced to a 50-ft wide permanent ROW.
- Above ground structures include required markers and cathodic protection test stations (Figure 13 - Figure 16) and two (2) block valves (MLV-01 and MLV-02) (Figure 1, Figure 2, Figure 18 & Figure 19).

Construction Activities

The buried natural gas pipeline alignment begins at the tie-in with the existing Beluga Pipeline. From there it traverses north through the SFSGR following the existing 100-foot wide Pretty Creek Road construction ROW that has been improved with an all-season gravel road as shown in Figure 2 - Figure 9.

Overall Project Construction Schedule

Major activities by project year as defined in the Pipeline Construction Execution Plan include:

- Year 1 – Project sanction by owners, detailed engineering, award construction contracts, and place procurement orders for line pipe and other long lead materials.

- Year 2 – Pipe and contractor logistics. Mobilize and stage pipe and equipment in Bethel and Anchorage.
- Year 3 – Mobilize civil contractors. Begin clearing and grading ROW and compressor station site.
- Year 4 – Mobilize pipeline contractors. Begin laying pipeline and complete installation of compressor station.
- Year 5 – Complete pipeline construction and compressor and metering stations and pipeline testing and commissioning.
- Year 6+ – Complete ROW stabilization for operation phase.

Pipeline Schedule

Construction activities in the SFSGR will start during the spring of Year 2 with ROW survey and staking followed by ground disturbing activities such as ROW clearing, ROW access grading for pipe transport, pipe transport and storage and site preparation for the compressor station, metering station, camps, and pipe storage yards. Ground disturbing activities will continue through the winter months. Pipe lay starts in the summer of Year 3 and continues through the winter with tie-ins completed by the end of April in Year 4. Pipeline pressure testing for the section from MP 0 to MP 50 (approximate) will be accomplished in the summer of Year 4, followed by ROW stabilization.

Access

In general, an access travel lane will be graded within the 150-ft wide construction ROW to facilitate the continuous movement of personnel, pipe, and equipment from one end of a construction section to the other. The existing Pretty Creek Road presents an advantage for pipeline construction within the SFSGR, by allowing ROW access, ROW clearing and grading, and pipe movement to begin in summer months. The ROW travel lane within the SFSGR will be graded in uplands or constructed of granular fill over wetlands. If granular fill is required, it will be sourced at material sites located along the ROW outside the SFSGR. The ROW travel lane will be temporary, used for several seasons, and then reclaimed (estimated 2 years post construction).

Civil & Pipeline Works

Civil construction activities generally include clearing the ROW and extra work area; organic layer stripping and/or winter frost packing; ROW travel lane and access road construction; and ROW grading and construction and temporary erosion control. Stormwater Pollution Prevention Plans (SWPPPs) and design drawings will be available prior to issuance of a Notice to Proceed (NTP) from the Department of Natural Resources (DNR). Preliminary assessment is that the Pretty Creek Road presents a barrier to future channel migration at mile 1.75. This area is about two-thirds uplands and one-third wetlands. Detailed design could narrow the ROW width across the wetlands and place temporary silt fence on each side of the ROW during construction. Additional options include digging the ditch closer to the road edge and laying pipe on the road before lowering into the ditch.

Pipeline construction activities generally include: ditching by backhoe or continuous trencher; stringing pipe; bending and pipe set up on skids for welding; line up and welding; non-destructive examination; field joint coating; bedding; lowering-in; cathodic protection; buoyancy control; ditch breakers; padding and backfill; tie-ins; waterbody crossings; wetland crossings; mainline valves and launcher/receivers; ROW cleanup, erosion control and restoration; and pipeline cleaning, pressure testing, and drying.

Donlin Gold has a lease from the State of Alaska for a 150-foot-wide construction ROW, encompassing the 50-foot permanent ROW. Shrubs and trees will be cleared within the staked boundaries before ROW grading and construction.

For construction, shrubs and trees would be cleared within the staked boundaries of the pipeline ROW before grading or placement of fill. Brush would generally be cut with hydro-axe or similar equipment. Trees and larger shrubs would be cut as close to the ground as possible. The limbs and brush would be shredded or chipped for use in reclamation activities or scattered within the ROW. Tree and shrub root mass would not be grubbed out, except over the trench line and graded traffic lane or as needed to grade a workable level surface. After construction, stockpiled brush (chipped or non-chipped) would be scattered along the ROW. Unused tree trunks greater than 12 inches in diameter would be provided to locals for domestic use such as firewood or dispersed perpendicular to the ROW to assist in reducing erosion, to manage access along the ROW, and to provide wildlife habitat. Although Donlin Gold anticipates use of the bulk of timber from clearing outside the SFSGR, it would coordinate with the ADF&G refuge management staff regarding disposition of any cut timber within the SFSGR.

As a rule, grading of wetlands will be minimized. Use of matting in wetlands during summer construction and ground freezing during winter construction are preferred where wetland terrain is flat.

The ROW will be graded to full width where necessary to provide a safe and level work area with a traffic lane that can be traversed by construction vehicles and transport equipment. Typically, 100-foot to 112-foot wide for an estimated 65-acre area in the SFSGR. This includes the approximately 50-foot corridor width occupied by the existing Pretty Creek Road (approx. 24 acres). For constructability, the pipeline alignment was selected to avoid wetlands where practicable. The prepared ROW will be a corridor for the pipe laying and trenching by excavator or trenching machine. Grading will be minimized where the ROW is level enough and firm enough for equipment to operate, or where it can be conducted from the existing Pretty Creek Road. If wetlands are not sufficiently frozen to support construction equipment, felled tree logs will not be used with the SFSGR. Instead, timber mats or amphibious excavators could be employed to support the weight of heavy equipment.

Preliminary construction mode types identified in the SFSGR include:

- ROW Mode 0 Light Grade Non-Permafrost ≤ 3% Side Slope Winter or Summer (Figure 10),

- ROW Mode 1 Graded Non-Permafrost 3% to 20% Side Slope Winter or Summer (Figure 11), and

- ROW Mode 5 Frost Pack Flat Wetlands ≤ 2% Ice Road Travel Lane (Figure 12).

For all construction modes, the spoil deposition area must be wide enough to accommodate the trench spoil materials and the spoils pile low and wide to prevent snow drifts from forming on the ROW or infilling the trench. During winter season construction, the trench will be immediately backfilled after pipe has been placed. The only sections of pipe not backfilled during typical installations are the areas required for excavation of a bell hole to successfully make a tie-in weld to the next section of pipe installed in the trench. Initial stabilization, rehabilitation and reclamation activities will be performed following pipeline backfill with final ROW restoration after successful pressure testing and functional checkout of the cathodic protection system and the fiber optic system. Additional details regarding stabilization, rehabilitation and reclamation plans are included in Section 10 of the Plan of Development (SRK Consulting (US), Inc. 2013).

Construction equipment includes typical wheeled and tracked earth moving equipment (i.e., dozers, excavators), Morookas, Nodwells, Challengers, and similar; low ground pressure (LGP) carriers for welding rigs, utility rigs, and personnel transport suitable for traversing snow, ice, and wetlands; articulated trucks for civil work and pipe hauling; chain or wheel trenchers; LGP sidebooms; and padding machines capable of handling frozen soils.

After construction, cleared debris (chipped or non-chipped) will be scattered along the ROW and unused tree trunks will be dispersed perpendicular to the ROW at intervals over the portion of the ROW from which they were removed, to assist in reducing erosion, managing access along the ROW, and providing wildlife habitat. Donlin Gold anticipates use of the bulk of timber from clearing but will coordinate with the Refuge manager regarding disposition of any timber not utilized in the project. In coordination with the Refuge manager Donlin Gold will create additional pullouts along the existing Pretty Creek Road, while blocking unwanted vehicle access to the pipeline ROW. The pullout sites would be created within the project disturbance footprint and be located on uplands.

Above Ground Components

The natural gas pipeline and fiber optic cable will be buried for their full lengths within the SFSGR except at launcher/receiver sites. Above ground components include required pipeline markers, cathodic protection test stations and rectifiers, pipeline launchers and receivers, and mainline block valve bypass piping and valve operators:

- Line and aerial marker signage will be placed in accordance with 49 CFR 192. Carsonite-style markers will be used for all line-marking purposes (Figure 13). The markers will state “Warning,” followed by “High-pressure Gas Pipeline.” A Donlin Gold telephone number (including area code) at which the company can always be reached will be visible on the markers. These markers will also include the “Call Before You Dig” 811 telephone number. Line markers will be placed on both sides of river crossings, line of sight spacing, and pipeline changes of direction. Aerial mile markers (Figure 14) will be placed every 1 mile and at each non-facility mainline block valve.

- Cathodic protection (Figure 15, Figure 16) test sites will be installed at accessible locations, at intervals of approximately one mile, to measure pipe-to-soil potential of the cathodic protection system. Accessibility will be based on the expected cathodic

protection survey season. Test stations will be installed where the pipeline parallels, crosses, or passes near other cathodically protected pipelines or structures. The pipeline will be electrically isolated from contact with the compressor station and at the BPL tie-in. The specific locations of test stations will be determined during final design.

- Two (2) mainline block valves are planned in the SFSGR located at the BPL tie-in (MLV-01) and the compressor station site (MLV-02) (Figure 1, Figure 17, Figure 18, Figure 19). The valves and operators will be fitted with locks and a signpost similar to the pipeline milepost markers, showing the MLV number. Reflective tape will be positioned on the signpost, and there may be other visual aids with reflective tape to alert travelers along the ROW of the presence of the valve stations. There are no structures planned for these MLV sites. The 25 by 25 foot MLV sites will be fenced and will have sliding gates with locks.

Operation and Maintenance Activities

O&M encompasses all activities after completion of construction including preventive and corrective measures. Prior to the start of operations, Donlin Gold is required to prepare an O&M Plan/Manual in accordance with 49 CFR 192.605 that documents written procedures for conducting operations and maintenance activities.

Once in operation, gas transmission pipeline operations are limited to routine maintenance of facilities and inline valves as well as periodic ROW brush clearing and remediation of erosion.

Maintenance Clearing of the ROW

After construction, the 50-foot wide permanent ROW will be cleared of brush and shrubs every 10 years or as required for monitoring, operations, maintenance, or safety. Minimal disturbance to the underlying ground and exposure of soil are expected during this activity. The project will schedule clearing activities to avoid sensitive periods in the life cycle of wildlife and moose hunting season to the extent practicable.

Termination and Final Reclamation

A detailed Pipeline Abandonment Plan will be developed prior to termination of pipeline operations. The Abandonment Plan will be based on applicable regulatory requirements at the time and will be designed to minimize impacts to public and private property in coordination with the appropriate agencies and landowners unless required otherwise. The following are termination and final reclamation measures applicable to the portions of the natural gas pipeline and fiber optic cable within the SFSGR:

- All above grade pipeline facilities will be removed (e.g., block valves and compressor station).
- All aerial markers will be removed; aerial marker foundation posts will be excavated to a minimum depth of 12 inches, cut off, and backfilled to grade.
- All carsonite-style pipeline markers will be removed.
- Any other signs or markers will be removed.

- All fencing around facilities will be removed and transported out of the refuge.
- All buried pipeline will be abandoned in place and ends capped with welded plate where valves are removed.
- Previously disturbed project areas will be reclaimed to the satisfaction of the Habitat Section.

A Special Area Permit for termination and final reclamation activities will be applied for under a separate Special Area Permit application.

Analysis

The Susitna Flats State Game Refuge was established pursuant to AS 16.20.036 to protect:

(1) fish and wildlife habitat and populations, particularly waterfowl nesting, feeding and migration areas; moose calving areas; spring and fall bear feeding areas; salmon spawning and rearing habitats; and
(2) public uses of fish and wildlife and their habitat, particularly waterfowl, moose and bear hunting; viewing; photography; and general public recreation in a high-quality environment.

AS 16.20.036, 5 AAC 95. 515, and the SFSGR Management Plan, adopted by reference in 5 AAC 95.510, allow for multiple land use activities within the refuge to be authorized by Special Area Permit if the activity provides for the proper protection of fish and wildlife resources.

5 AAC 95.430 provides that:

If the procedural requirements of 5 AAC 95.700 - 5 AAC 95.760 are met, the commissioner will permit a use or activity listed in 5 AAC 95.420 that meets or can be conditioned to meet the following standards:

(1) the use or activity is consistent with the protection of fish and wildlife and their use, protection of fish and wildlife habitat, and the purpose for which the special area was established; and
(2) the use or activity does not unduly restrict or interfere with the public use and enjoyment of the resource values for which the special area was established; and
(3) any adverse effect upon fish and wildlife, and their habitats, and any restriction or interference with public use, is mitigated in accordance with 5 AAC 95.900.

Similarly, with respect to new utilities, the SFSGR management plan states, “New utilities may be allowed to cross the refuge where there is no feasible off-refuge alternative, using existing corridors wherever possible, consistent with refuge goals and objectives.”

Thus, for the proposed buried pipeline and fiber optic cable to cross the SFSGR, the project must meet these three criteria:

1. There is no feasible (practical) off-refuge alternative.
2. Project should use existing corridors wherever possible.
3. Project needs to be consistent with the refuge goals and objectives as outlined above.

Based upon pre-application discussions, meetings, site visits, and the permit application materials, including the Biological Resource Evaluation for Pipeline Alternatives across the SFSGR, and Proposed Donlin Gold Natural Gas Pipeline Analysis of Route Alternatives Involving the Susitna Flats State Game Refuge, submitted to ADF&G, ADF&G determines that this project meets these three criteria.

There is no feasible (practical) off-refuge alternative

Three natural gas pipeline routes were identified and analyzed within or adjacent to the SFSGR, the in-refuge East Theodore River route, which was the shortest route but did not follow existing infrastructure, the in-refuge Pretty Creek Road route which maximized the use of existing infrastructure, and the Beluga alternative route which avoided the SFSGR. It was determined that Beluga off-refuge alternative route was not a practical alternative because:

- This off-refuge route was the longest route
- Higher level of environmental impact due to increased length, direct forest loss and additional stream crossings
- Require a challenging crossing of the large Beluga River
- Three times more expensive than the other alternative routes

Project should use existing corridors wherever possible.

The project meets this criterion since it largely follows an existing road unlike the other alternatives considered.

Project needs to be consistent with the refuge goals and objectives

ADF&G finds that the proposed project is consistent with the protection of fish and wildlife and their use, protection of fish and wildlife habitat, and is not expected to unduly restrict or interfere with the public use and enjoyment of the resource values for which the SFSGR was established. because impacts will largely be short term, contained within a narrow ROW, and largely using an existing established road corridor. Post construction, the pipeline will be underground, revegetation will occur naturally or be enhanced, monitoring will occur, and pipeline associated activities will be minimal. There are several other buried pipelines that are currently in the SFSGR where natural revegetation has occurred. The proposed project is not expected to adversely impact habitat values or fish and wildlife populations provided the project is built in accordance with submitted plans and specifications and the stipulations contained herein are strictly adhered to.

Pursuant to 5 AAC 95.710, your project is approved subject to the project description, the following stipulations, and the permit terms:

1. At this stage of pipeline system design, a pipeline ROW Lease has been issued by DNR; however, detailed engineered drawings have not been completed and construction plans have not been finalized, which is typical for large pipeline projects. Detailed engineered drawings must be developed, submitted and agreed upon with ADF&G in writing before any construction begins. We reserve the right to require additional mitigation depending on the specifics of the final scope. We encourage Donlin Gold to continue to involve ADF&G in the development process to ensure concurrence with the final scope and to continue to find ways to minimize the project footprint in SFSGR lands.
2. All construction activities within the SFSGR shall be confined to the natural gas pipeline right-of-way (ROW) lease (ADL 231908) and fiber optic cable easement (ADL 232368).
3. Secondary containment or a surface liner must be placed under all containers or vehicle fuel tank inlet and outlet points, hose connections, and hose ends during fuel or hazardous substance transfers. Appropriate spill response equipment must be on hand during any transfer or handling of fuel or hazardous substances. Containment (duck ponds) will be placed under any parked or idling equipment.
4. Except as needed during construction for safety of workers and the public, the authorized activity shall not unreasonably restrict or interfere with public access to or across state land, or to fish and wildlife resources.
5. Harassment of wildlife is prohibited.
6. Impacts to fish, wildlife, and their habitats shall be avoided and minimized to the maximum extent practicable.
7. Other than those specifically authorized, no material of any kind including fuel, waste products, debris, supplies, or equipment shall be stored or disposed of within the SFSGR.
8. No equipment leaking fuels, oils, hydraulic or cooling fluids shall be operated within the SFSGR.

Permit Terms

This letter constitutes a permit issued under the authority of AS 16.20.060 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Habitat Section; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Habitat Section and obtain written approval in the form of a permit amendment in accordance with 5 AAC 95.740 before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any provision contained in this permit will be deemed a significant deviation

from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Habitat Section. Therefore, we recommend you consult the Habitat Section immediately before considering any deviation from the approved plan.

You shall give an authorized representative of the state free and unobstructed access to the permit site, at safe and reasonable times, for the purpose of inspecting or monitoring compliance with any provision of this permit. You shall furnish whatever assistance and information the authorized representative reasonably requires for monitoring and inspection purposes.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. You shall mitigate any adverse effect upon fish or wildlife, their habitats, or any restriction or interference with public use that the commissioner determines was a direct result of your failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

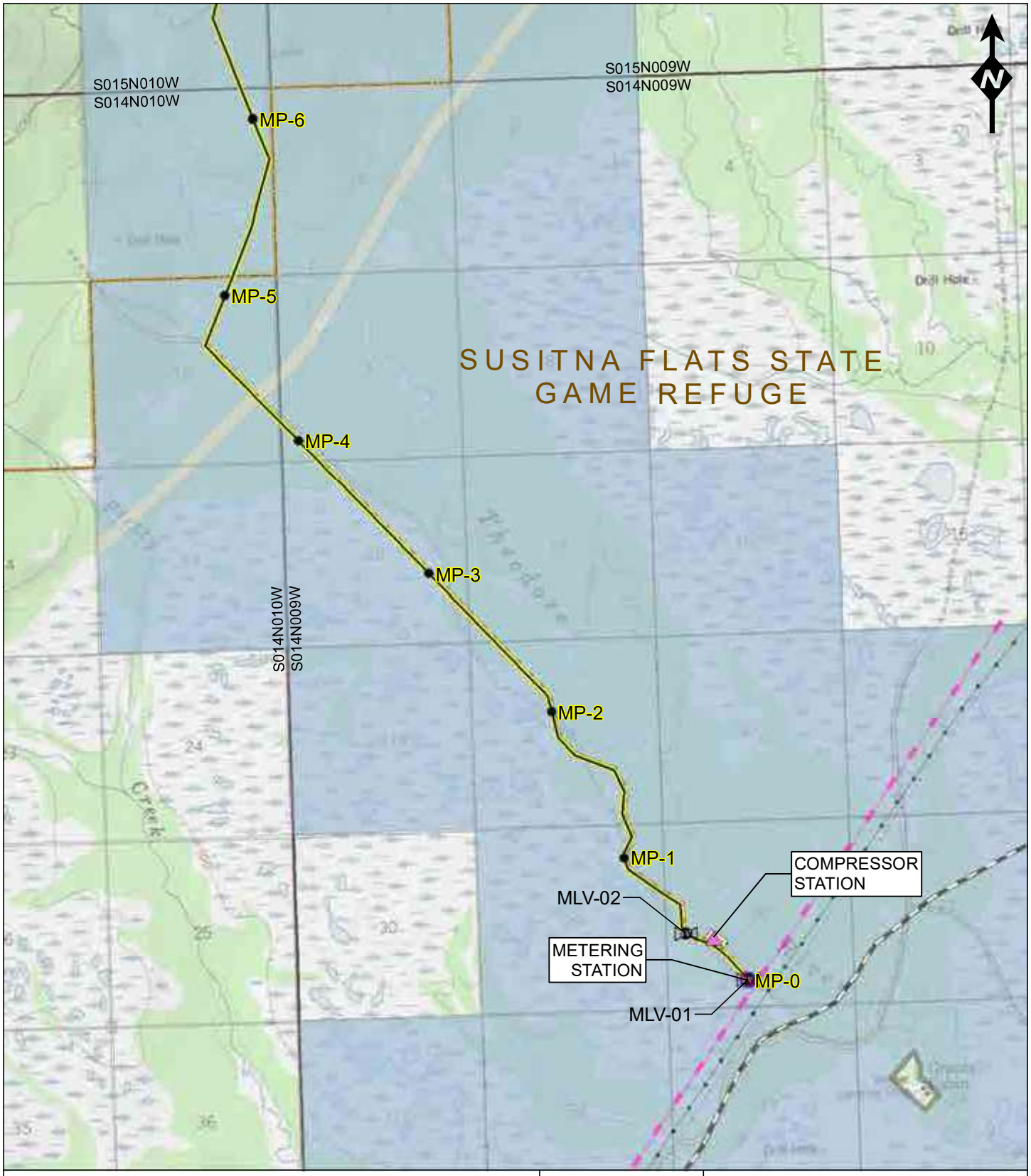
Sincerely,

Doug Vincent-Lang
Commissioner

By: Lee McKinley
Habitat Biologist
ADF&G, Habitat Section
(907) 269-6411

Enclosures (19)

ecc: A. Strupulis, SPCS/ADNR
H. Lescanec. SPCS/ADNR
T. Sparks, BLM
K. Farley, SPCS/ADNR
J. Murrell, SPCS/ADNR
C. Heroy, OPMP/ADNR
A. Ott, ADF&G/Habitat
S. Myers, ADF&G/Habitat
R. Benkert, ADF&G/Habitat
A. Brase, ADF&G/Habitat
M. Wessel, ADF&G/Habitat
J. Meehan, ADF&G/WC
D. Hill, ADF&G/WC
D. Dahl, AWT
R. Lysdahl, AWT
T. Peltier, ADF&G/WC
S. Ivey, ADF&G/SF
M. Carter, ADF&G/WC



Legend

- Block Valve
- Compressor Station
- Metering Station
- Proposed Milepost (MP-)
- Proposed Natural Gas Pipeline Alignment
- Work Pad
- Beluga Gas Line, Alaska Pipeline Company
- Chugach Electric Assn. Inc. (Two transmission lines)
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Access Easement (20' wide, Hilcorp Alaska, LLC.)
- State-Identified RS 2477 Public Right-of-Way (Non-section line)

Administrative Boundaries

- Susitna Flats SGR
- State-Owned, Tentatively Approved (TA) or Patented Land

CS: UTM Zone 5 NAD83

DONLIN GOLD

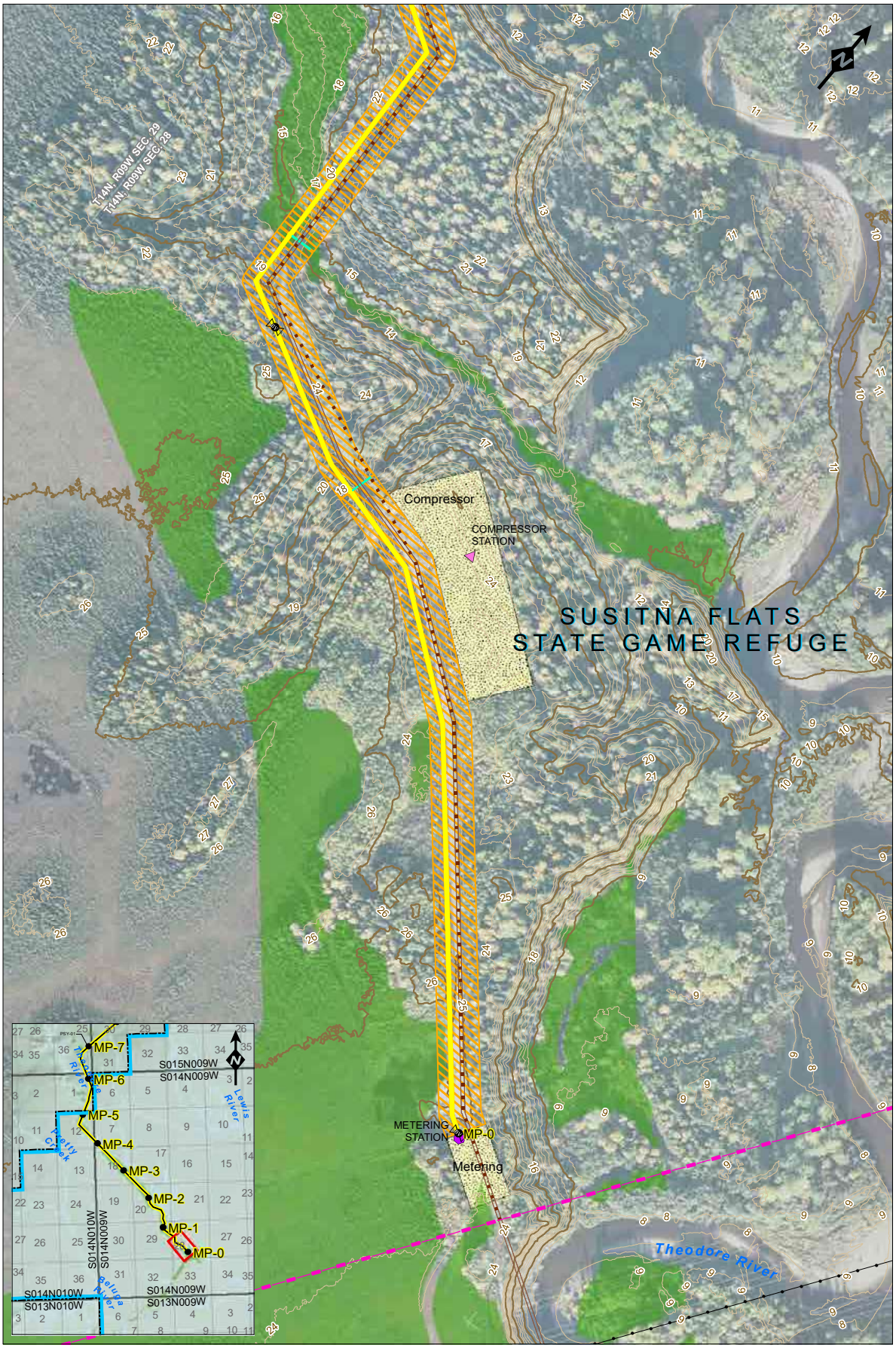
SUSITNA FLATS STATE GAME REFUGE PLANNED PIPELINE INFRASTRUCURE

DONLIN GOLD PROJECT

SCALE:
0 0.25 0.5 1 mi
0 0.375 0.75 1.5 km

FIGURE:
1

DG: PER0595, 10/19/2020 8:00:03 AM, R00



Project Infrastructure
- Block Valve
- Compressor Station
- Metering Station
- Milepost (MP-)
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment
- Work Pad

Preliminary Construction Mode
- ROW Mode 1 Graded Non-Permafrost 3% to 20% Side Slope Winter or Summer
- Open Cut Stream Crossing
- Pipeline and Fiber Optic Cable Trench

Rights-of-Way, Easements and Permits
- Beluga Gas Line, Alaska Pipeline Company (PBL)
- Chugach Electric Assn. Inc. (Two transmission lines)
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

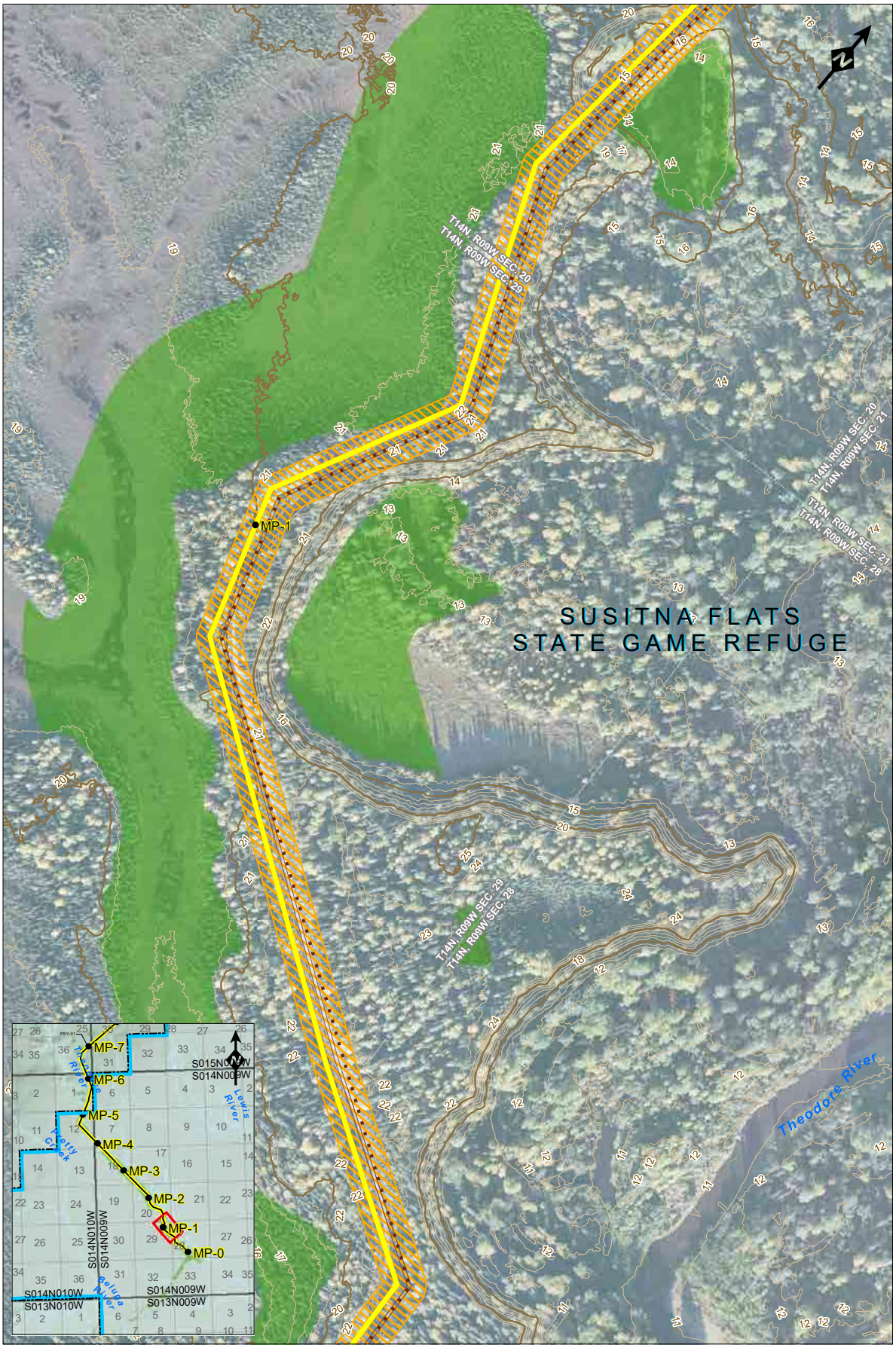
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (1 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 2

DG: PER0599, 6/17/2021 9:51:53 AM, R03



Project Infrastructure
- Milepost (MP-)
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment

Preliminary Construction Mode
- ROW Mode 1 Graded Non-Permafrost 3% to 20% Side Slope Winter or Summer
- Pipeline and Fiber Optic Cable Trench

Rights-of-Way, Easements and Permits
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

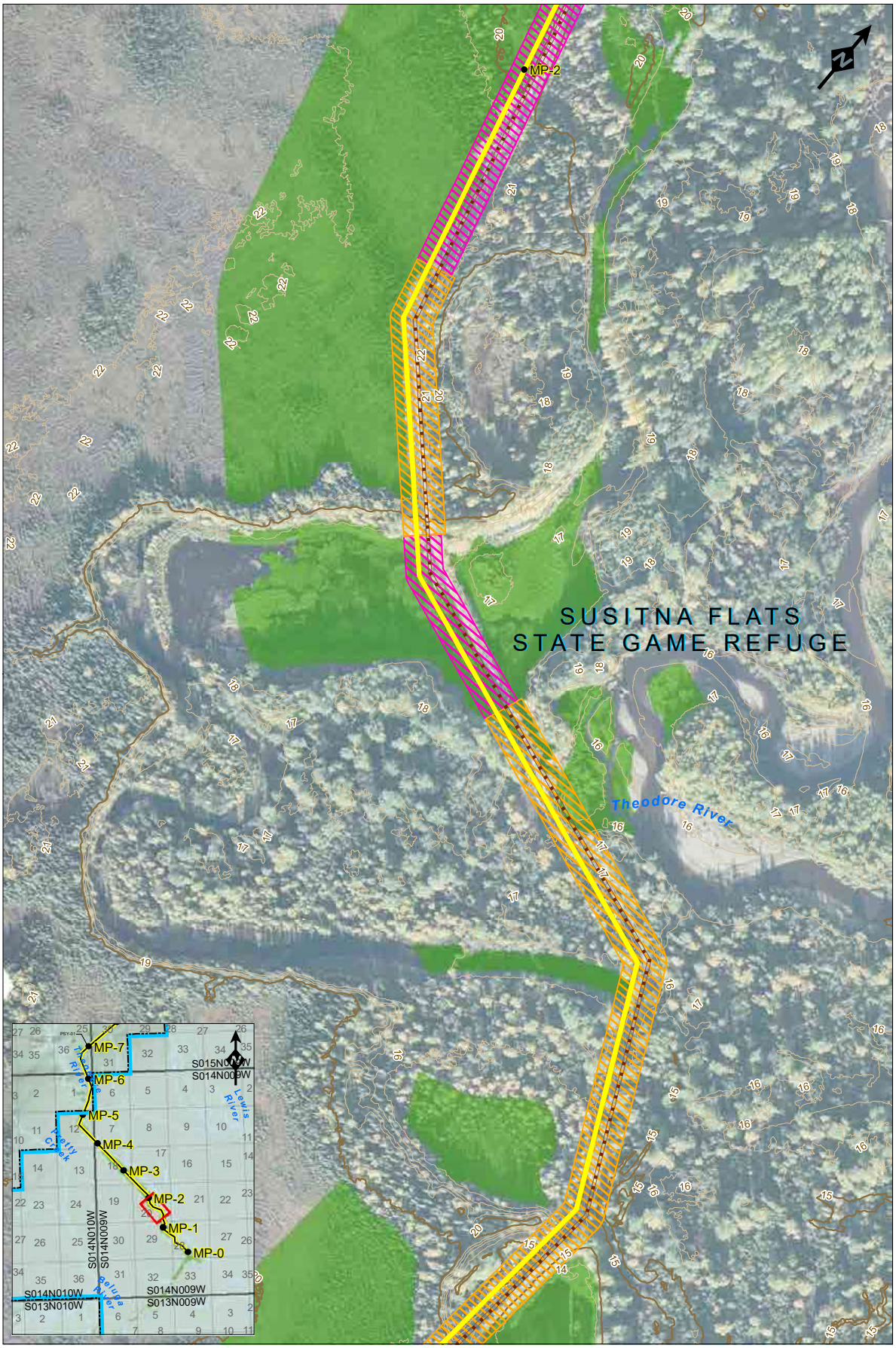
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (2 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 3

DG: PER0599, 6/17/2021 9:51:53 AM, R03



Project Infrastructure
- Milepost (MP-)
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment

Preliminary Construction Mode
- ROW Mode 1 Graded Non-Permafrost 3% to 20% Side Slope Winter or Summer
- Pipeline and Fiber Optic Cable Trench
- ROW Mode 5 Frost Pack Flat Wetlands ≤ 2% Ice Road Travel Lane

Rights-of-Way, Easements and Permits
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

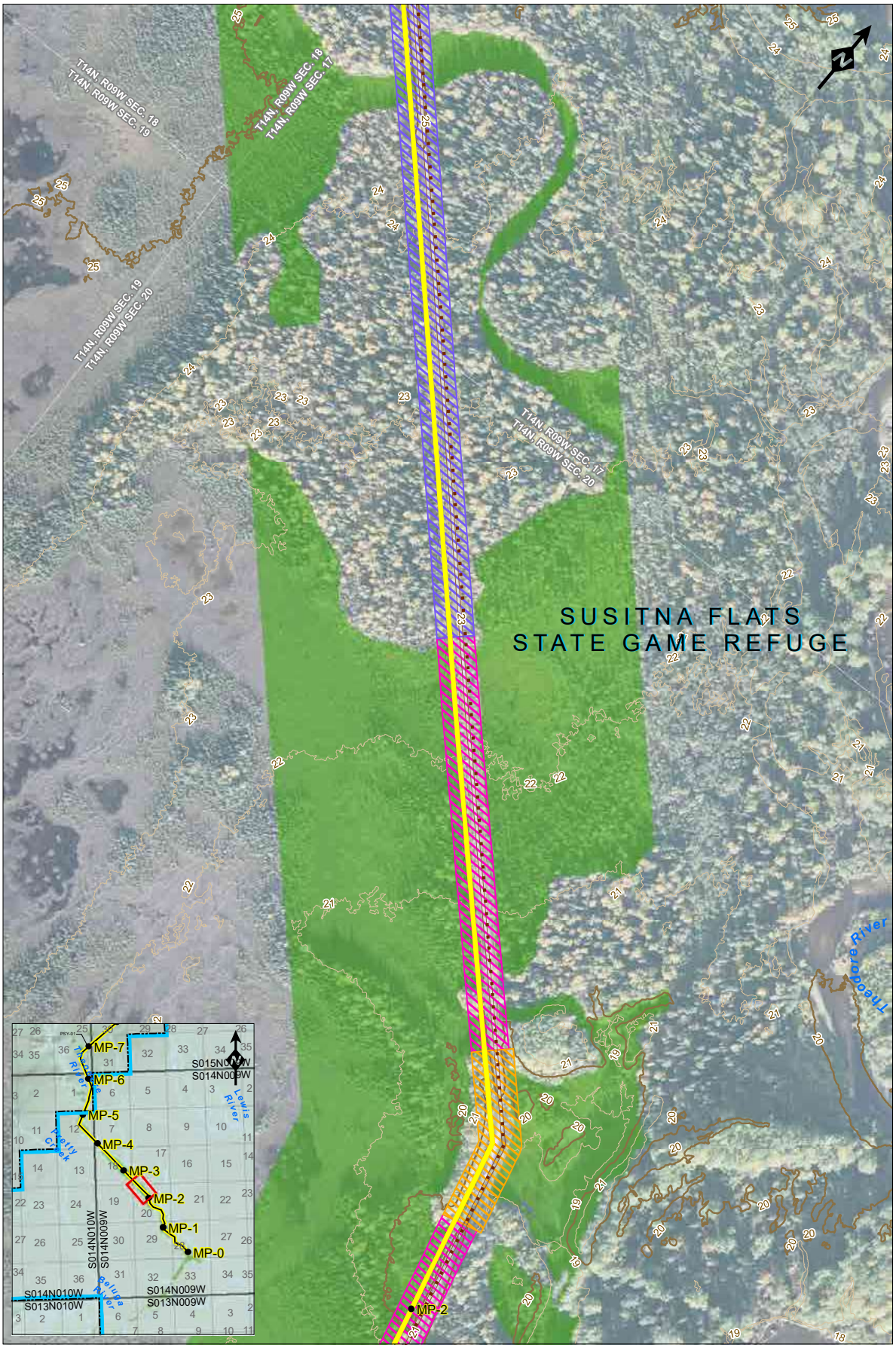
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (3 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 4

DG: PER0599, 6/17/2021 9:51:53 AM, R03



Project Infrastructure
- Milepost (MP-)
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment

Preliminary Construction Mode
- ROW Mode 0 Light Grade Non-Permafrost ≤ 3% Side Slope Winter or Summer
- ROW Mode 1 Graded Non-Permafrost 3% to 20% Side Slope Winter or Summer
- Pipeline and Fiber Optic Cable Trench
- ROW Mode 5 Frost Pack Flat Wetlands ≤ 2% Ice Road Travel Lane

Rights-of-Way, Easements and Permits
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

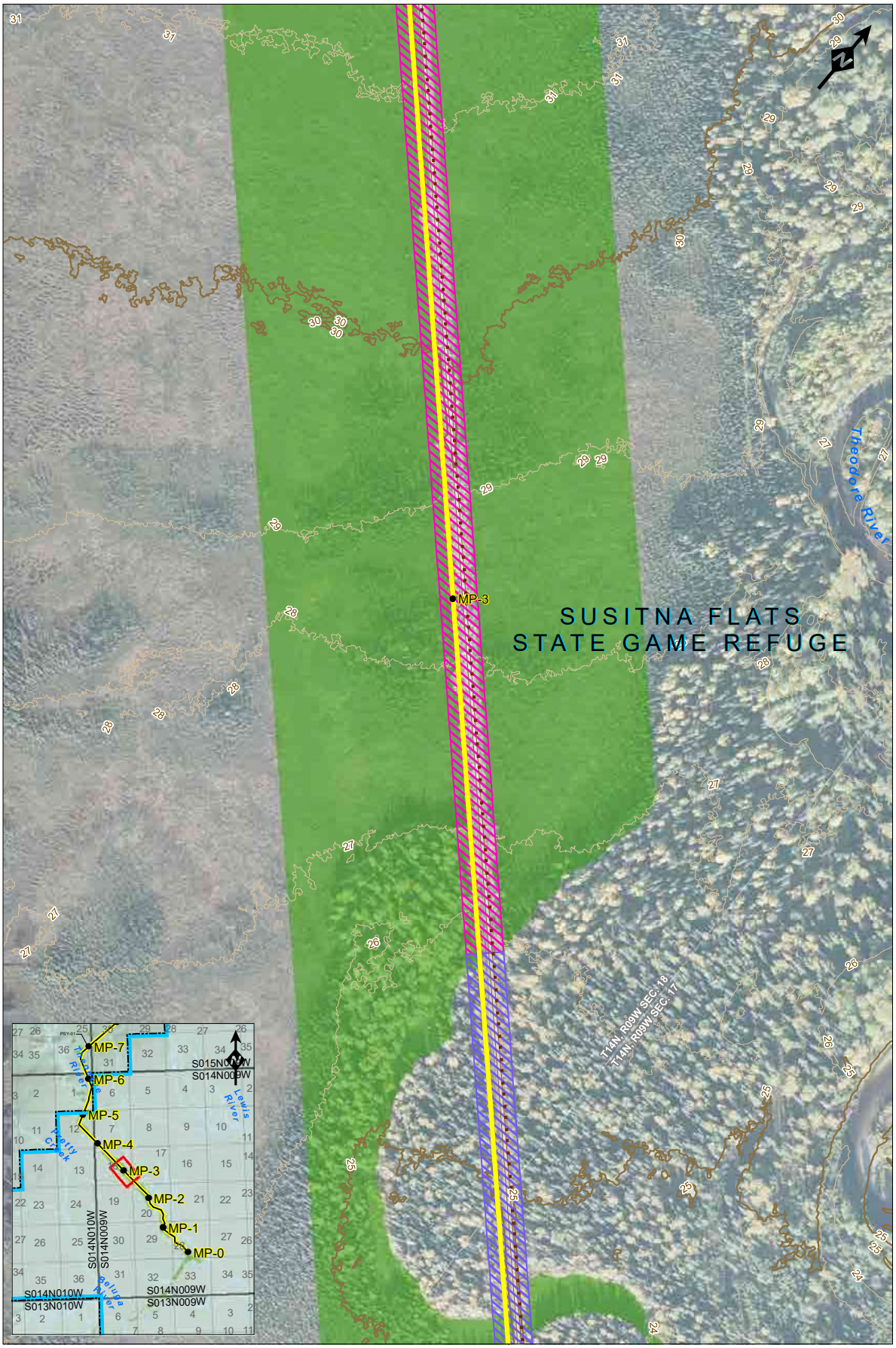
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (4 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 5

DG: PER0599, 6/17/2021 9:51:53 AM, R03



Project Infrastructure
- Milepost (MP-)
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment

Preliminary Construction Mode
- ROW Mode 0 Light Grade Non-Permafrost ≤ 3% Side Slope Winter or Summer
- Pipeline and Fiber Optic Cable Trench
- ROW Mode 5 Frost Pack Flat Wetlands ≤ 2% Ice Road Travel Lane

Rights-of-Way, Easements and Permits
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

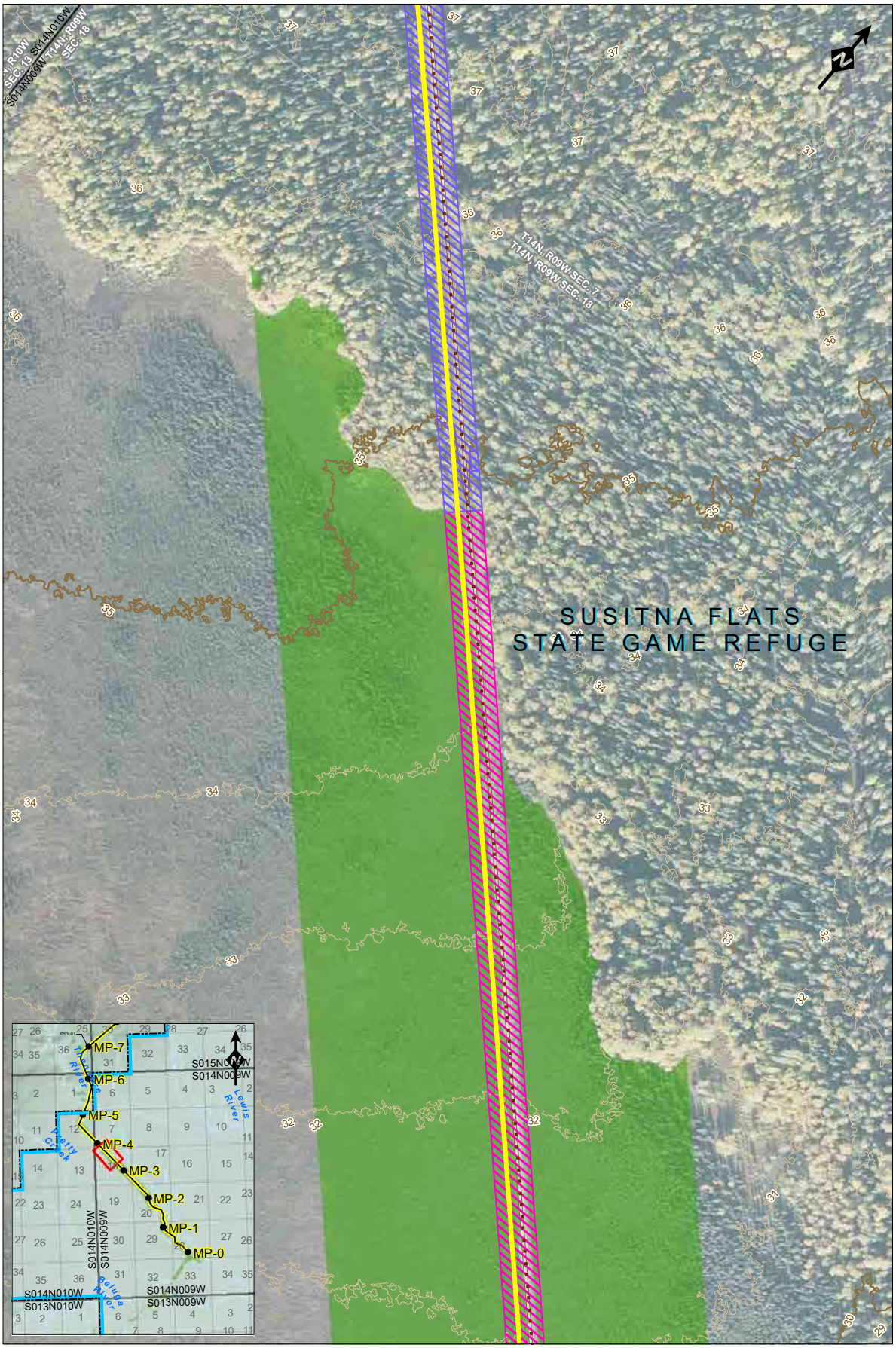
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (5 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 6

DG: PER0599, 6/17/2021 9:51:53 AM, R03



Project Infrastructure
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment

Preliminary Construction Mode
- ROW Mode 0 Light Grade Non-Permafrost ≤ 3% Side Slope Winter or Summer
- Pipeline and Fiber Optic Cable Trench
- ROW Mode 5 Frost Pack Flat Wetlands ≤ 2% Ice Road Travel Lane

Rights-of-Way, Easements and Permits
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

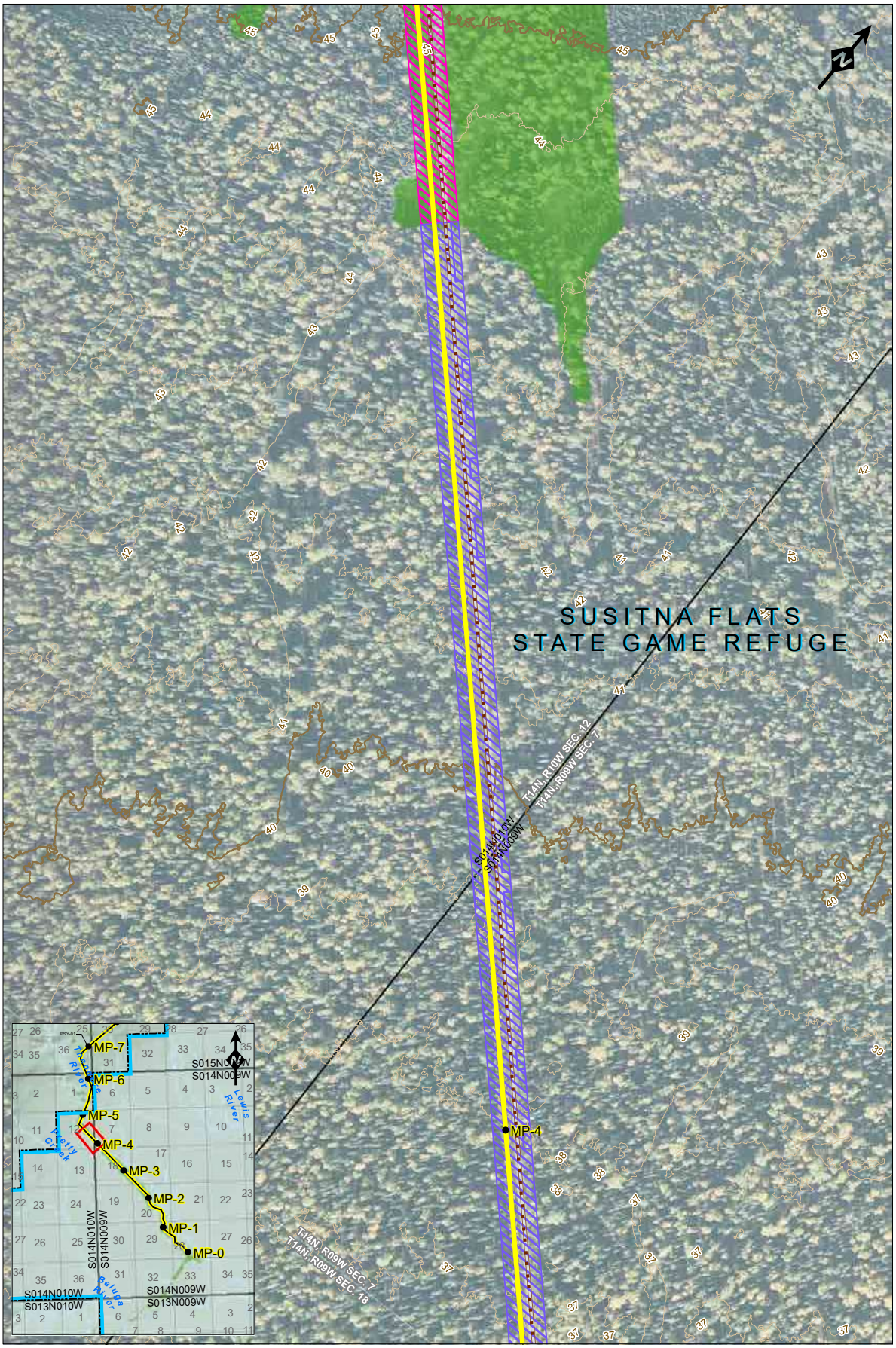
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (6 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 7

DG: PER0599, 6/17/2021 9:51:53 AM, R03



Project Infrastructure
- Milepost (MP-)
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment

Preliminary Construction Mode
- ROW Mode 0 Light Grade Non-Permafrost ≤ 3% Side Slope Winter or Summer
- Pipeline and Fiber Optic Cable Trench
- ROW Mode 5 Frost Pack Flat Wetlands ≤ 2% Ice Road Travel Lane

Rights-of-Way, Easements and Permits
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

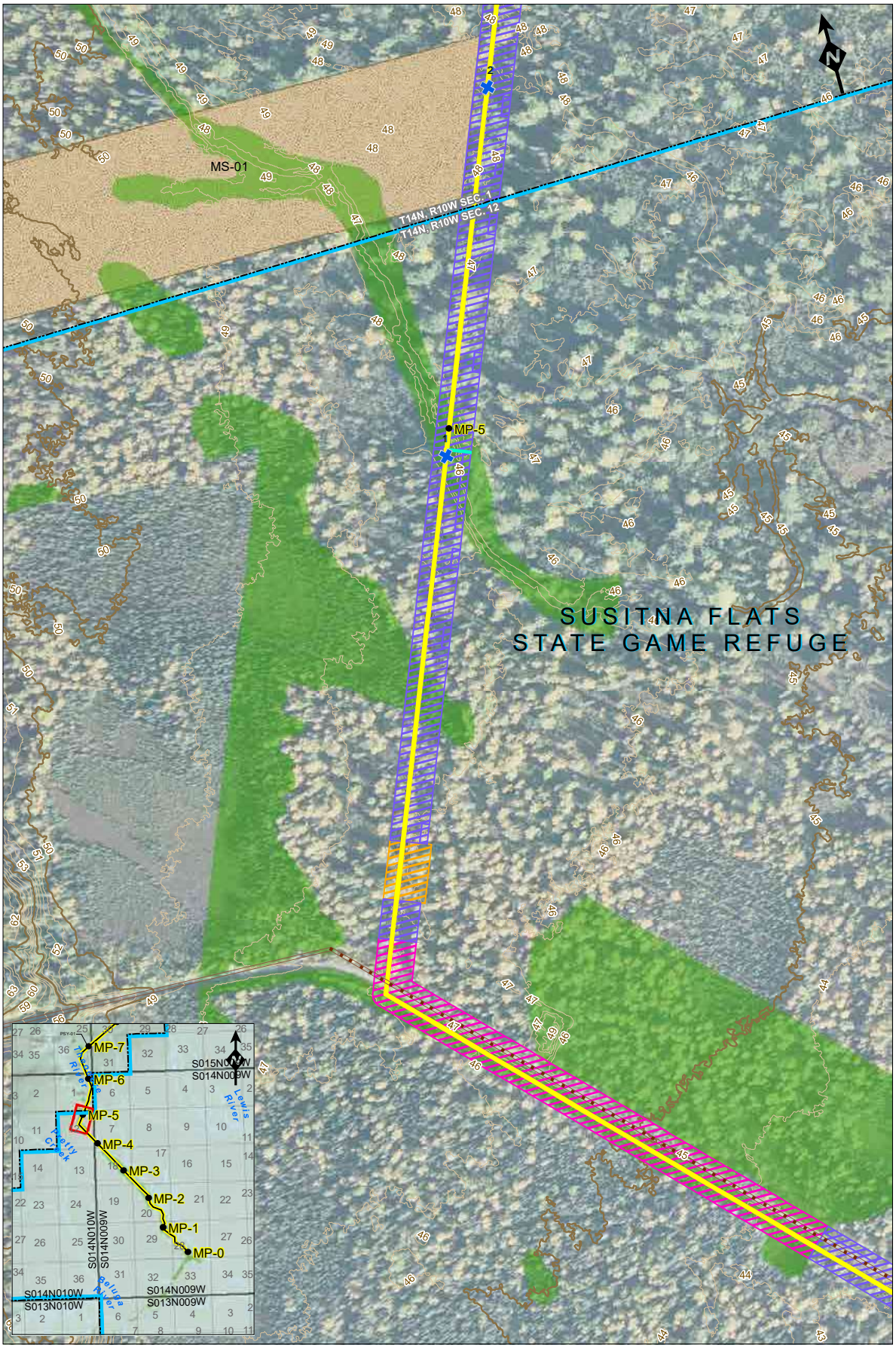
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (7 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 8

DG: PER0599, 6/17/2021 9:51:53 AM, R03



Project Infrastructure
- Stream Crossing
- Milepost (MP-)
- Proposed Natural Gas Pipeline & Fiber Optic Cable Alignment
- Material Site

Preliminary Construction Mode
- ROW Mode 0 Light Grade Non-Permafrost ≤ 3% Side Slope Winter or Summer
- ROW Mode 1 Graded Non-Permafrost 3% to 20% Side Slope Winter or Summer
- Open Cut Stream Crossing
- Pipeline and Fiber Optic Cable Trench
- ROW Mode 5 Frost Pack Flat Wetlands ≤ 2% Ice Road Travel Lane

Rights-of-Way, Easements and Permits
- Private Easement Application (20' wide, Cook Inlet Energy, LLC)
- Private Easement (20' wide, Hilcorp Alaska, LLC.)

Contours (1 meter interval)
- Index Contour
- Intermediate Contour

Wetland Status
- Wetland

Administrative Boundary
- Susitna Flats SGR

UTM Zone 5, NAD83

DONLIN GOLD

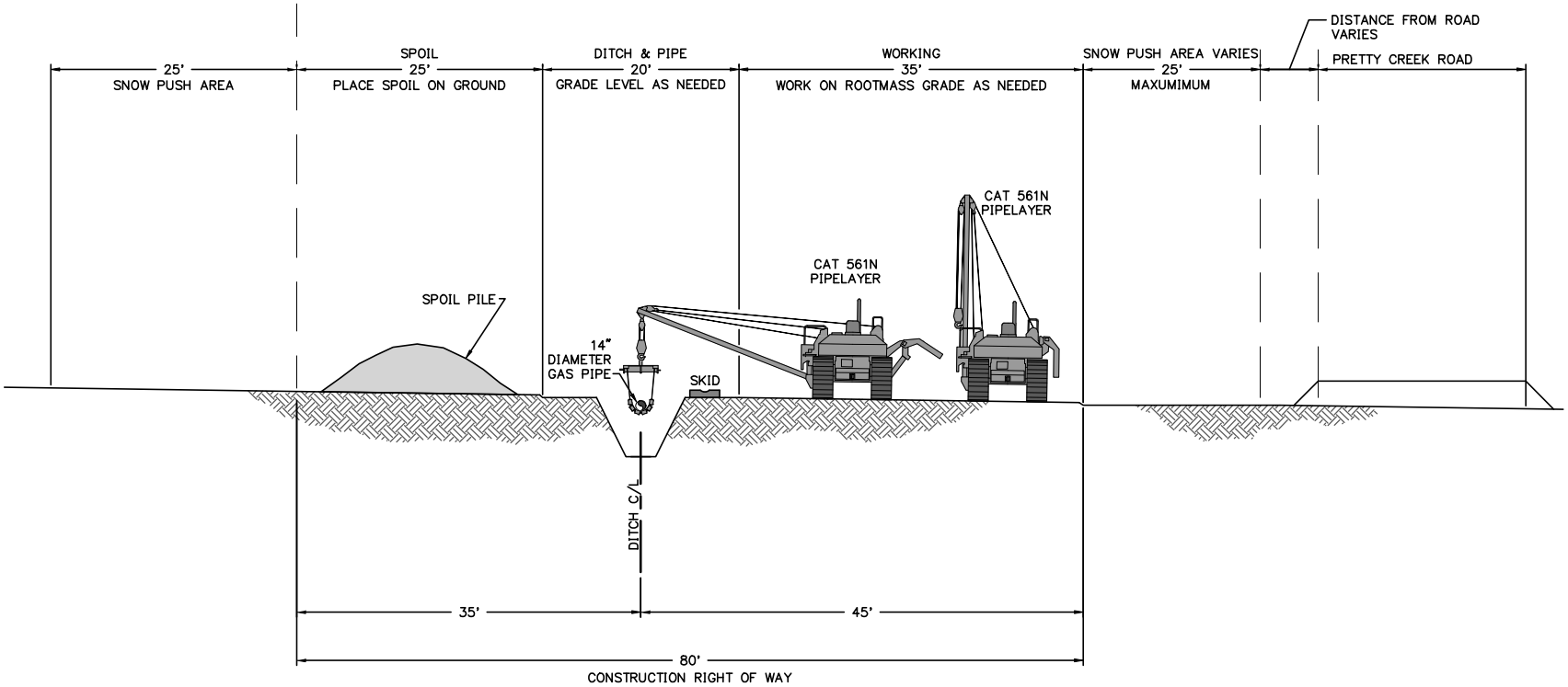
NATURAL GAS PIPELINE AND FIBER OPTIC CABLE ALIGNMENT SHEET (8 OF 8)

DONLIN GOLD PROJECT

SCALE:
0 87.5 175 350 Feet
0 25 50 100 Meters

FIGURE: 9

DG: PER0599, 6/17/2021 9:51:53 AM, R03



PRELIMINARY
NOT FOR CONSTRUCTION!

DONLIN GOLD PROJECT

CONSTRUCTION EXECUTION PLAN

APPLICANT: Donlin Gold, LLC.

4720 Business Park Blvd., Suite G-25
Anchorage, Alaska 99503

ROW MODE 0
LIGHT GRADE
NON PERMAFROST
≤ 3% SIDE SLOPE
WINTER OR SUMMER

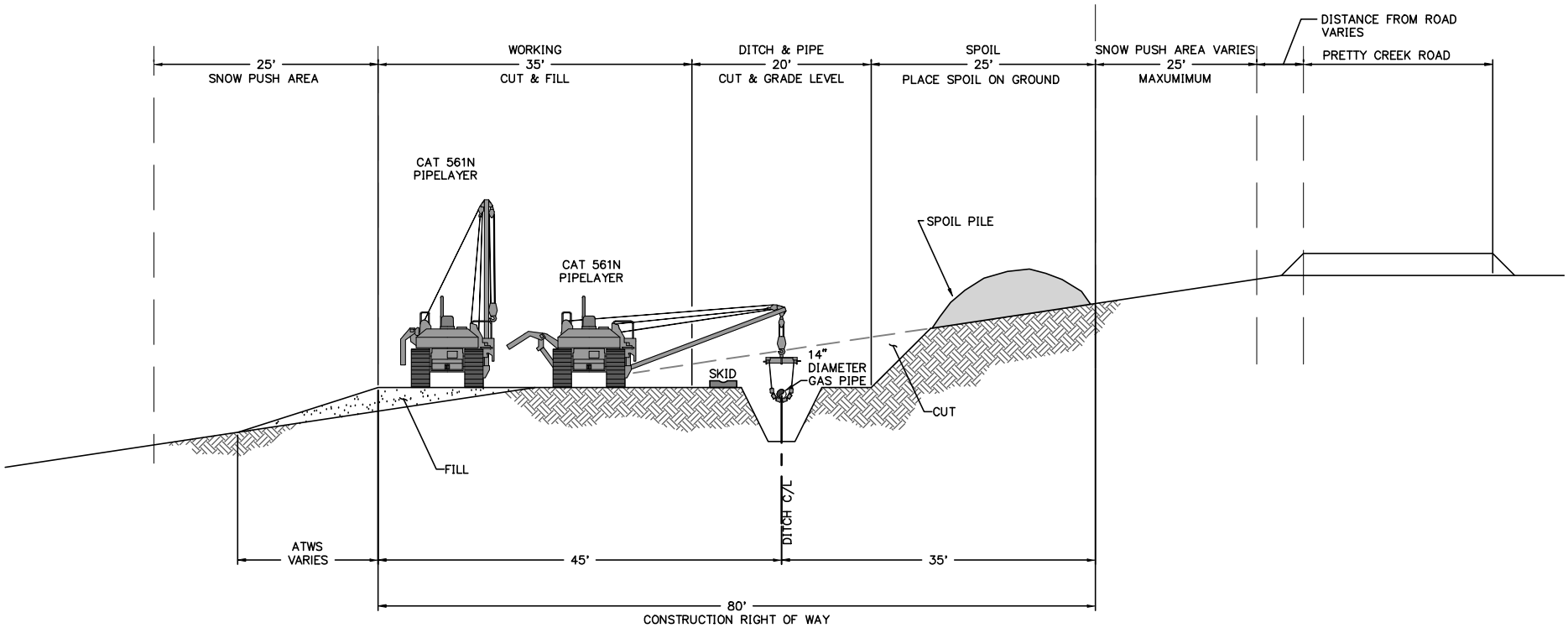
Figure 10

DATE: MARCH 2021	MODE 0-SSGR	REV A

10 0 10 20

SCALE IN FEET

MBaker MODE 0-SSGR Thu, 04/Mar/21



PRELIMINARY
NOT FOR CONSTRUCTION!

DONLIN GOLD PROJECT
CONSTRUCTION EXECUTION PLAN

APPLICANT: Donlin Gold, LLC.

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Anchorage, Alaska 99503

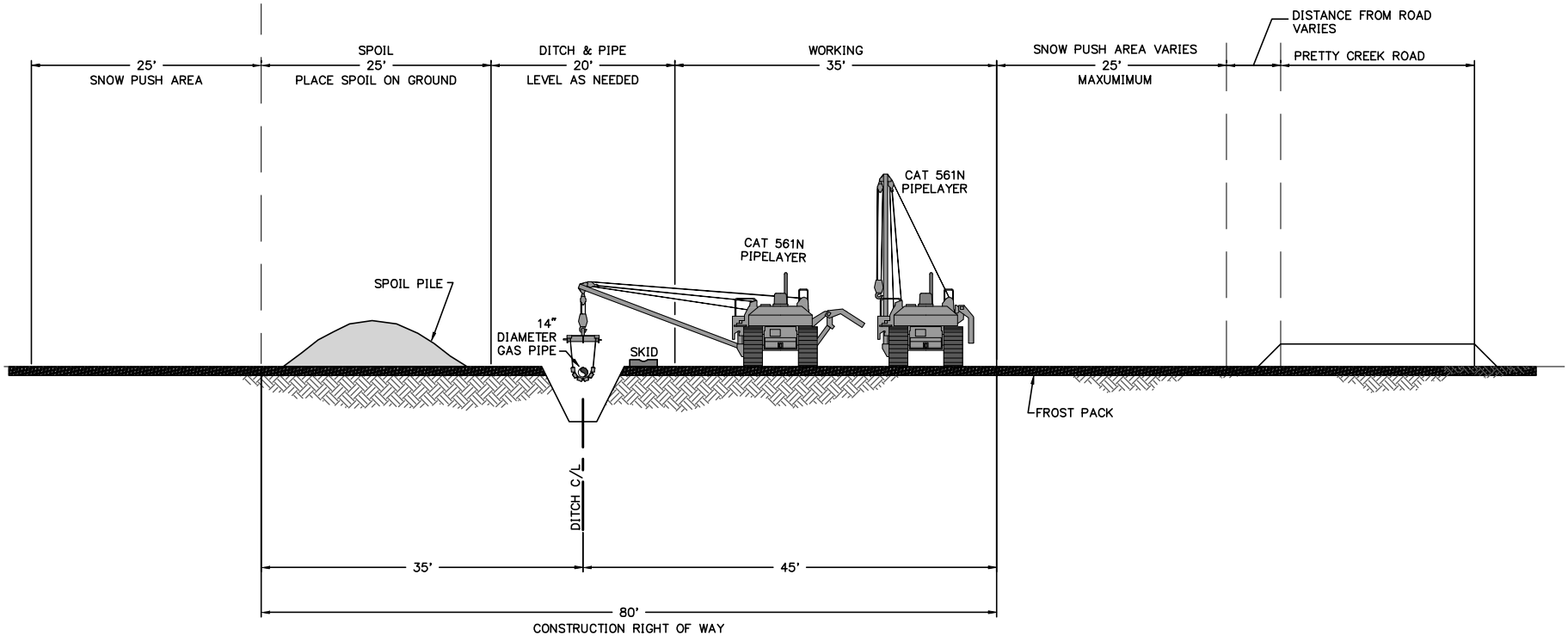
ROW MODE 1
GRADED
NON-PERMAFROST
3% TO 20% SIDE SLOPE
WINTER OR SUMMER

Figure 11

DATE: MARCH 2021	MODE 1-SSGR	REV A

10 0 10 20
SCALE IN FEET

MBaker MODE 1-SSGR Thu, 04/Mar/21



PRELIMINARY
NOT FOR CONSTRUCTION!

DONLIN GOLD PROJECT
CONSTRUCTION EXECUTION PLAN

APPLICANT: Donlin Gold, LLC.

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Anchorage, Alaska 99503

ROW MODE 5
FROST PACK
FLAT WETLANDS
SLOPE ≤ 2%
ICE ROAD TRAVEL LANE

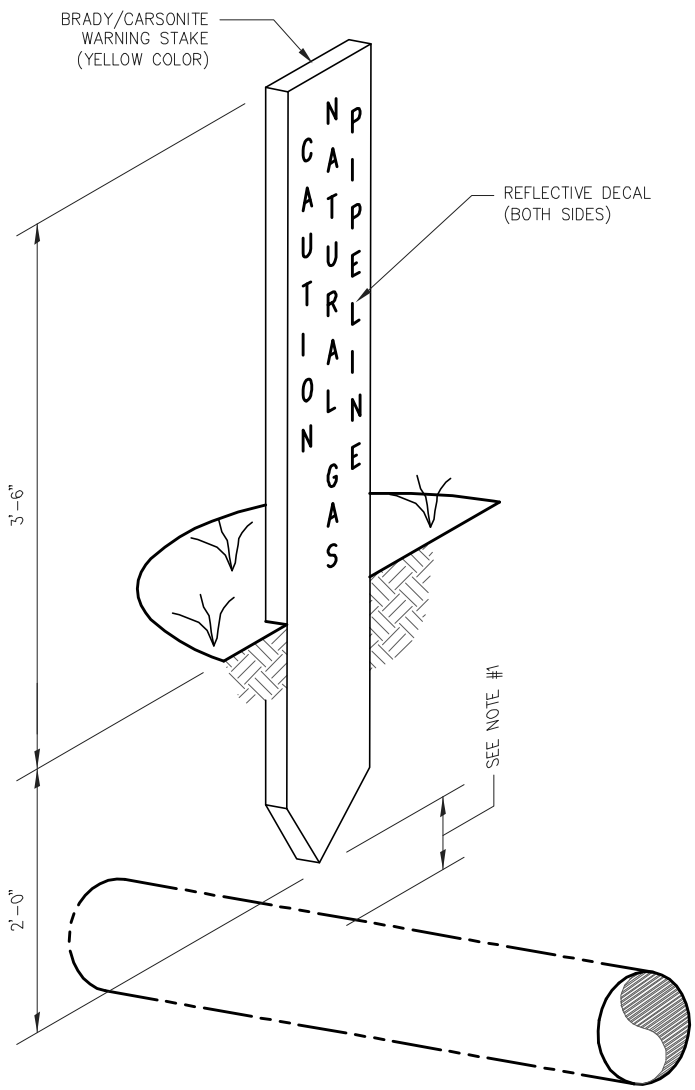
Figure 12

DATE: MARCH 2021	MODE 5-SSGR	REV A

10 0 10 20

SCALE IN FEET

MBaker MODE 5-SSGR Thu, 04/Mar/21



NOTES:

1. MARKERS SHALL BE PLACED DIRECTLY OVER THE PIPELINE WHEN THERE IS AT LEAST 1'-0" OF CLEARANCE BETWEEN THE TOP OF THE PIPE.
2. PIPE AND THE BOTTOM OF THE MARKER. MARKERS SHALL BE SLIGHTLY OFFSET IF THE CLEARANCE IS LESS THAN 1'-0". MARKERS WILL BE OFFSET IF THE PIPELINE IS IN A ROADWAY.

DONLIN GOLD PROJECT

APPLICANT: Donlin Gold, LLC.
4720 Business Park Blvd., Suite G-25
Anchorage, Alaska 99503

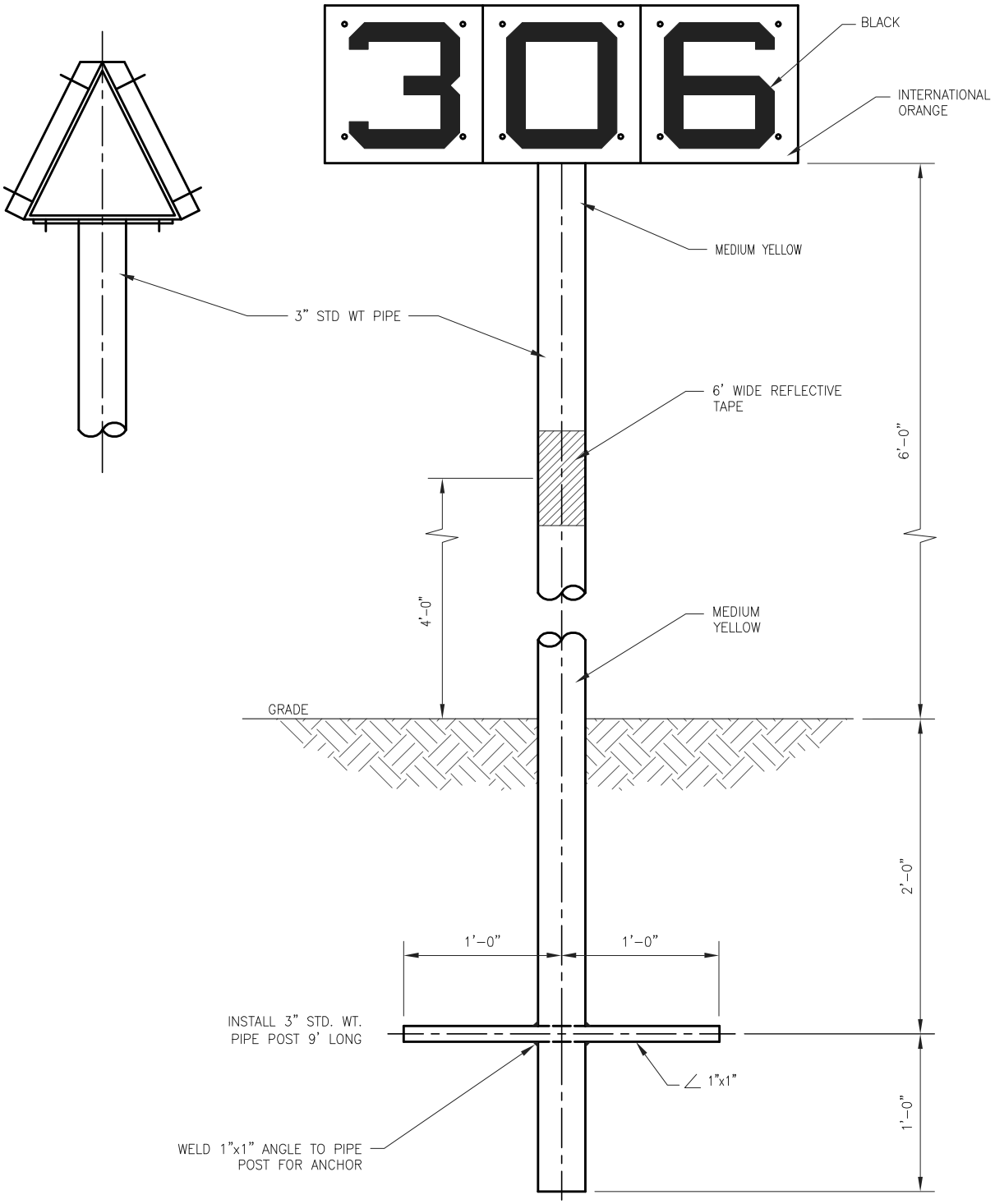
Figure 13

TYPICAL PIPELINE WARNING MARKER

OWNER:

DATE: OCTOBER 2013	P01C-TYMK-02	REV 1

MBaker P01C-TYMK-02 Wed, 16/Oct/13



NOTES:

1. CONTRACTOR TO ASSEMBLE SIGN AND MOUNT ON POST.
2. REFLECTIVE STRIPING SHOULD BE ADDED ON ALL SIDES OF POST.

DONLIN GOLD PROJECT

APPLICANT: Donlin Gold, LLC.
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Anchorage, Alaska 99503

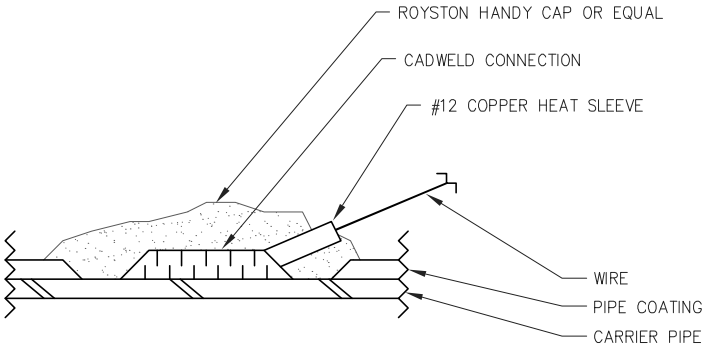
TYPICAL PIPELINE AERIAL MARKER

Figure 14

OWNER:

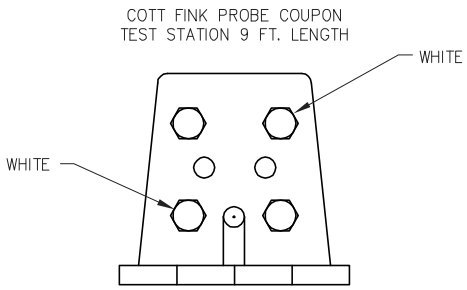
DATE: OCTOBER 2013	P01C-TYMK-03	REV 1

MBaker P01C-TYMK-03 Wed, 16/Oct/13



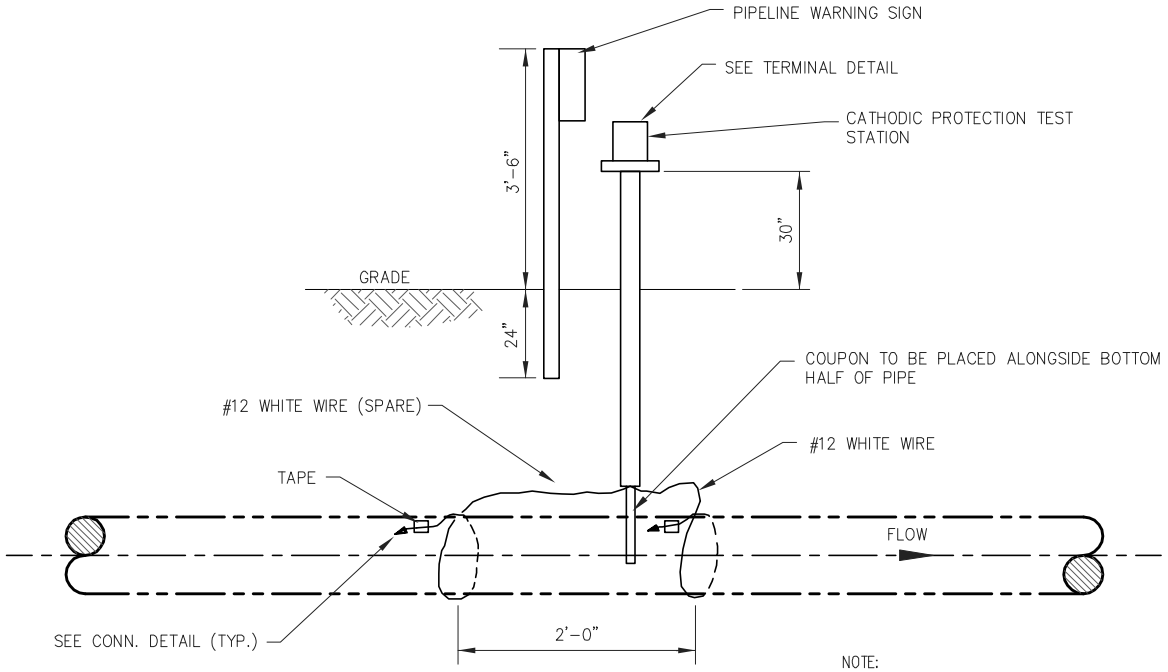
PIPE CONNECTION DETAIL

(SEE NOTES 3,4 & 5)



TERMINAL DETAIL

NOTE:
WIRES TO BE TERMINATED WITH RING TERMINALS.



NOTE:
ALL WIRES TO MAKE A COMPLETE LOOP AROUND PIPE.

NOTES:

1. ALL WIRE SHALL BE INSULATED STRANDED COPPER #12 THHN AS SHOWN ABOVE.
2. TERMINAL BLOCK SHALL BE WIRED BY CONTRACTOR AS SHOWN IN TERMINAL DETAIL ABOVE.
3. ALL WIRE CONNECTIONS TO CARRIER PIPE SHALL BE MADE AS SHOWN IN DETAIL ABOVE. WIRE SHALL BE CONNECTED TO PIPE BY CADWELD PROCESS WITH COPPER HEAT SLEEVE.
4. CADWELD WIRE CONNECTIONS SHALL BE PRIMED WITH ROYSTON SPRAY PRIMER OR EQUAL AND ALLOWED TO DRY 3 TO 4 MINUTES OR UNTIL TACKY, AND COVERED WITH ROYSTON HANDY CAP OR EQUAL.
5. WIRE INSULATION SHALL BE PROTECTED FROM DAMAGE.
6. LAY WIRES ALONGSIDE PIPE. NOT OVER OR UNDER PIPE.
7. CATHODIC PROTECTION TEST STATION AND ALL OTHER MATERIALS SHALL BE FURNISHED BY CONTRACTOR.
8. INSTALL AT ALL LOCATIONS INDICATED ON ALIGNMENT SHEETS.

DONLIN GOLD PROJECT

APPLICANT: Donlin Gold, LLC.
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Anchorage, Alaska 99503

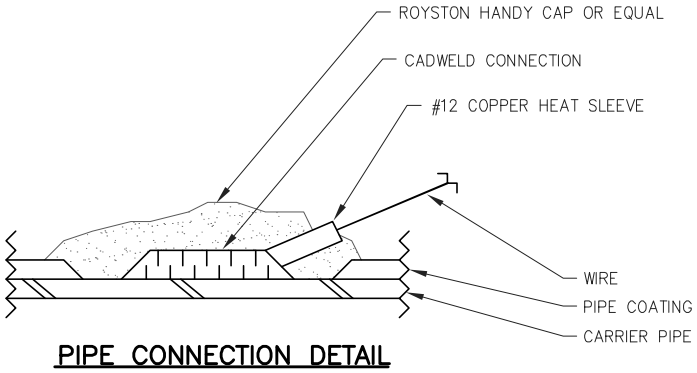
TYPICAL
CATHODIC PROTECTION COUPON TEST STATION

Figure 15

OWNER:

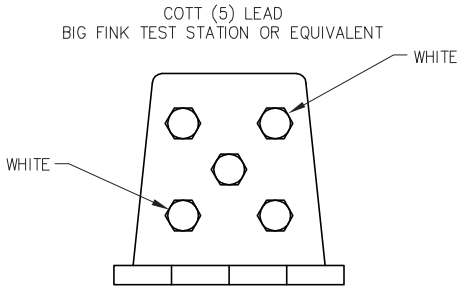
DATE: OCTOBER 2013	P01C-TYTS-01	REV 1

MBaker P01C-TYTS-01 Wed, 16/Oct/13



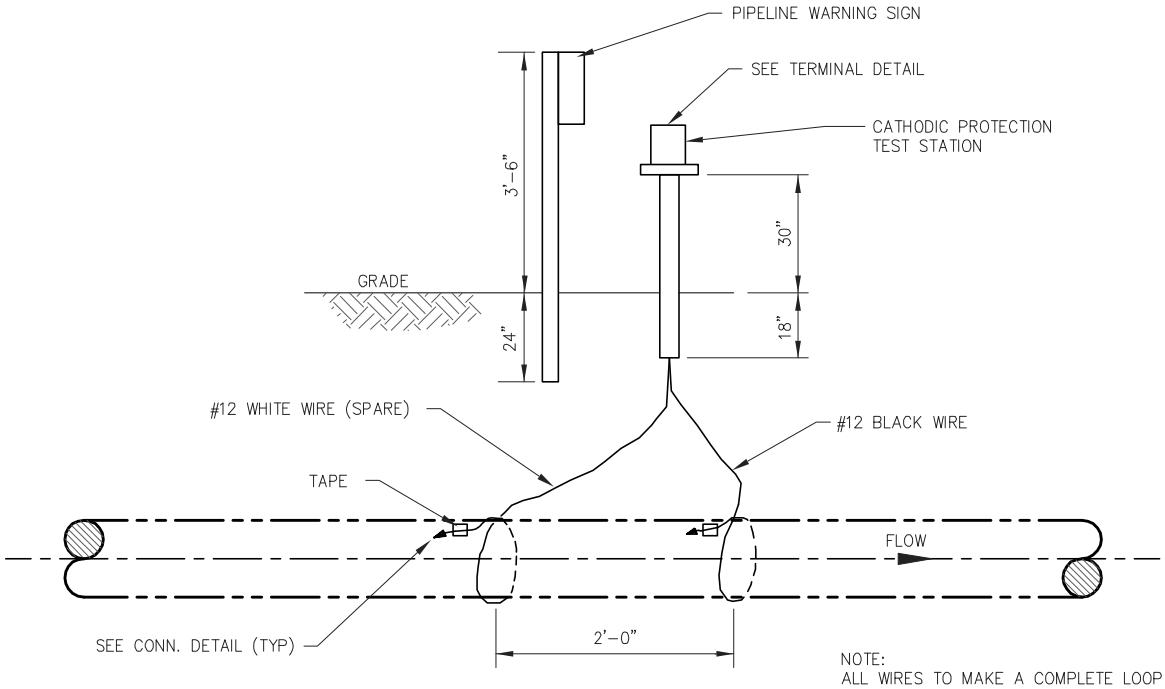
PIPE CONNECTION DETAIL

(SEE NOTES 3,4 & 5)



TERMINAL DETAIL

NOTE:
WIRES TO BE TERMINATED WITH RING TERMINALS.



NOTE:
ALL WIRES TO MAKE A COMPLETE LOOP AROUND PIPE.

NOTES:

1. ALL WIRE SHALL BE INSULATED STRANDED COPPER #12 THHN AS SHOWN ABOVE.
2. TERMINAL BLOCK SHALL BE WIRED BY CONTRACTOR AS SHOWN IN TERMINAL DETAIL ABOVE.
3. ALL WIRE CONNECTIONS TO CARRIER PIPE SHALL BE MADE AS SHOWN IN DETAIL ABOVE. WIRE SHALL BE CONNECTED TO PIPE BY CADWELD PROCESS WITH COPPER HEAT SLEEVE.
4. CADWELD WIRE CONNECTIONS SHALL BE PRIMED WITH ROYSTON SPRAY PRIMER OR EQUAL AND ALLOWED TO DRY 3 TO 4 MINUTES OR UNTIL TACKY, AND COVERED WITH ROYSTON HANDY CAP OR EQUAL.
5. WIRE INSULATION SHALL BE PROTECTED FROM DAMAGE.
6. LAY WIRES ALONGSIDE PIPE. NOT OVER OR UNDER PIPE.
7. CATHODIC PROTECTION TEST STATION AND ALL OTHER MATERIALS SHALL BE FURNISHED BY CONTRACTOR.
8. INSTALL AT ALL LOCATIONS INDICATED ON ALIGNMENT SHEETS.

DONLIN GOLD PROJECT

APPLICANT: Donlin Gold, LLC.
4720 Business Park Blvd., Suite G-25
Anchorage, Alaska 99503

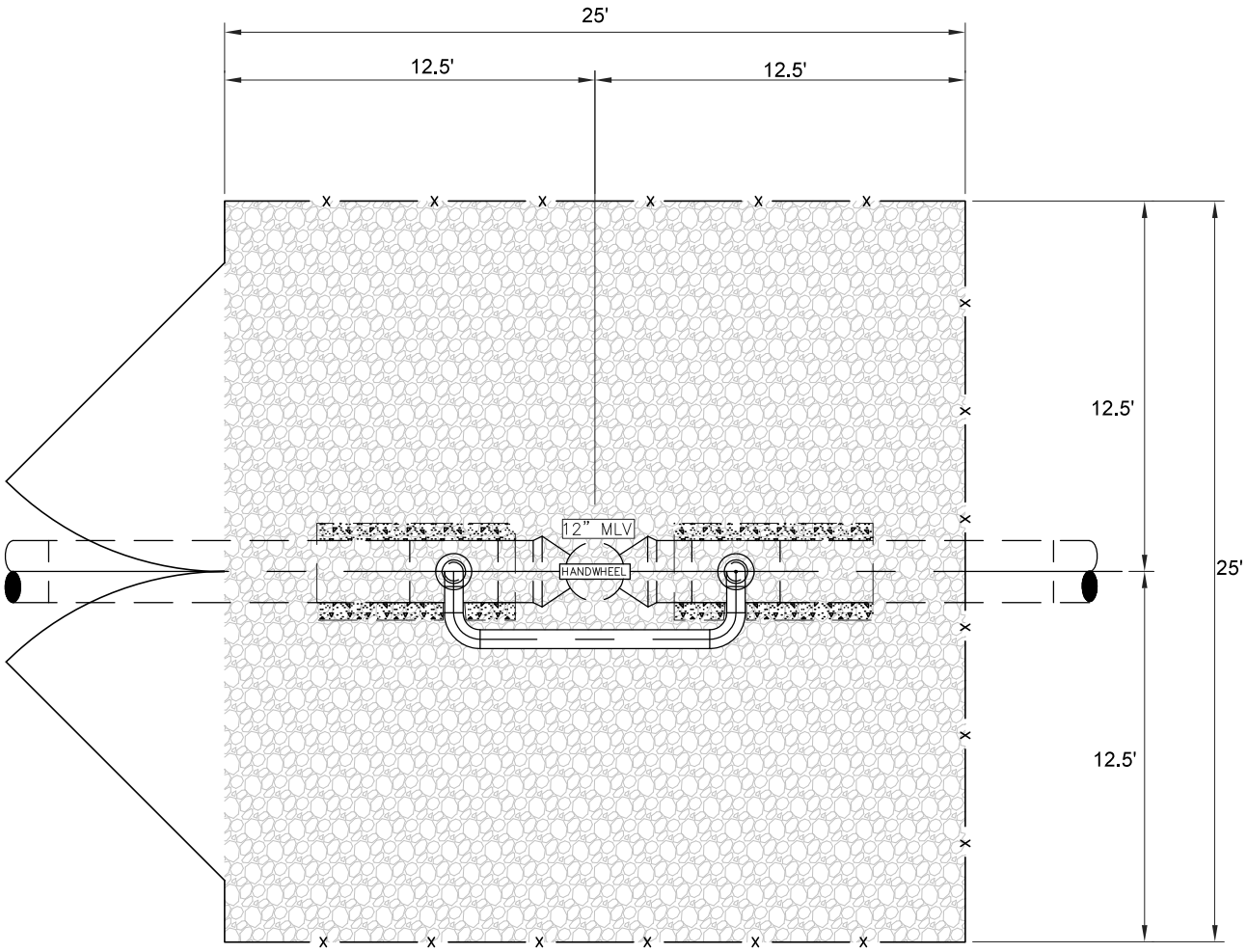
Figure 16

TYPICAL
CATHODIC PROTECTION TEST STATION

OWNER:

DATE: OCTOBER 2013	P01C-TYTS-02	REV 1

MBaker P01C-TYTS-02 Wed, 16/Oct/13



NOTES:

1. REFERENCE DRAWING (DONLIN PIPELINE MLV DWG) AND CONSTRUCTION SPECIFICATIONS FOR DETAILED CONSTRUCTION GUIDELINES.
2. LOCATION OF GATE TO BE FIELD DETERMINED.

DONLIN GOLD PROJECT

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Anchorage, Alaska 99503

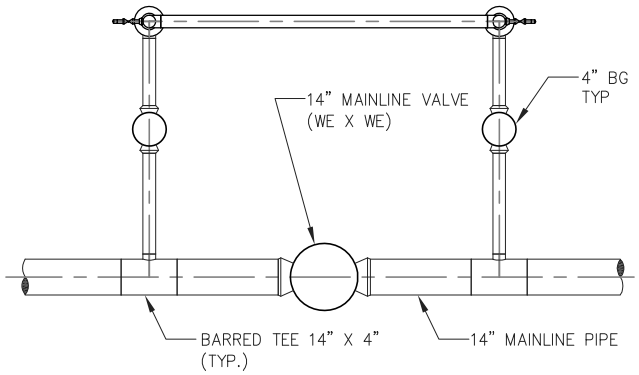
TYPICAL MLV FENCING

Figure 17

OWNER:

DATE: OCTOBER 2013 | P01M-DTVA-01 | REV 1

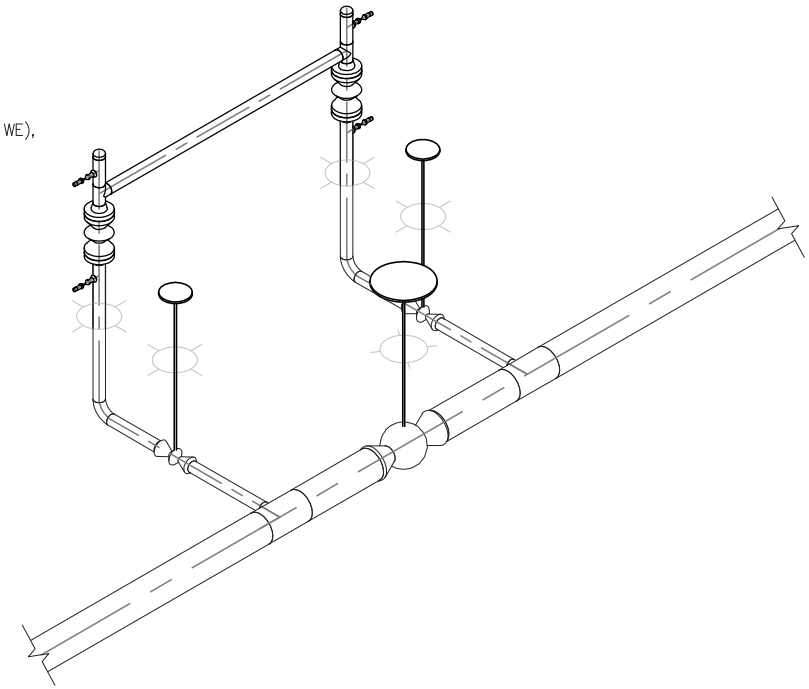
MBaker P01M-DTVA-01 Wed, 16/Oct/13

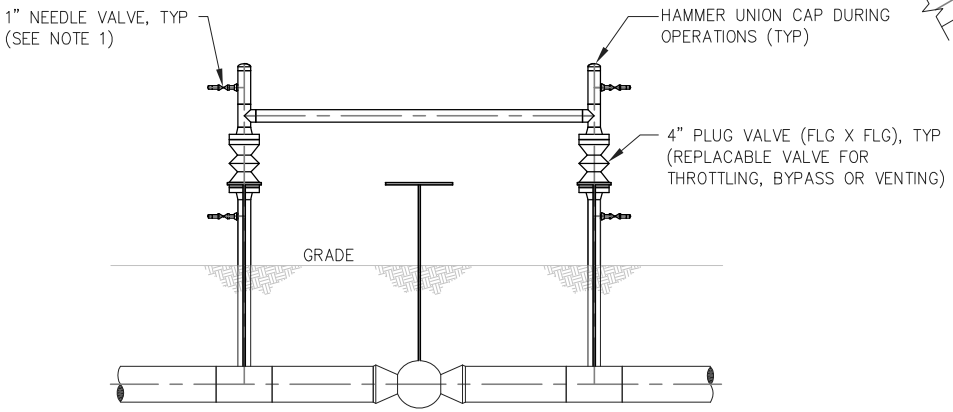


(HANDWHEELS NOT SHOWN FOR CLARITY)

PLAN

SCALE: 1/2"=1'-0"





ELEVATION

SCALE: 1/2"=1'-0"

DONLIN GOLD PROJECT

APPLICANT: Donlin Gold, LLC.
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Anchorage, Alaska 99503

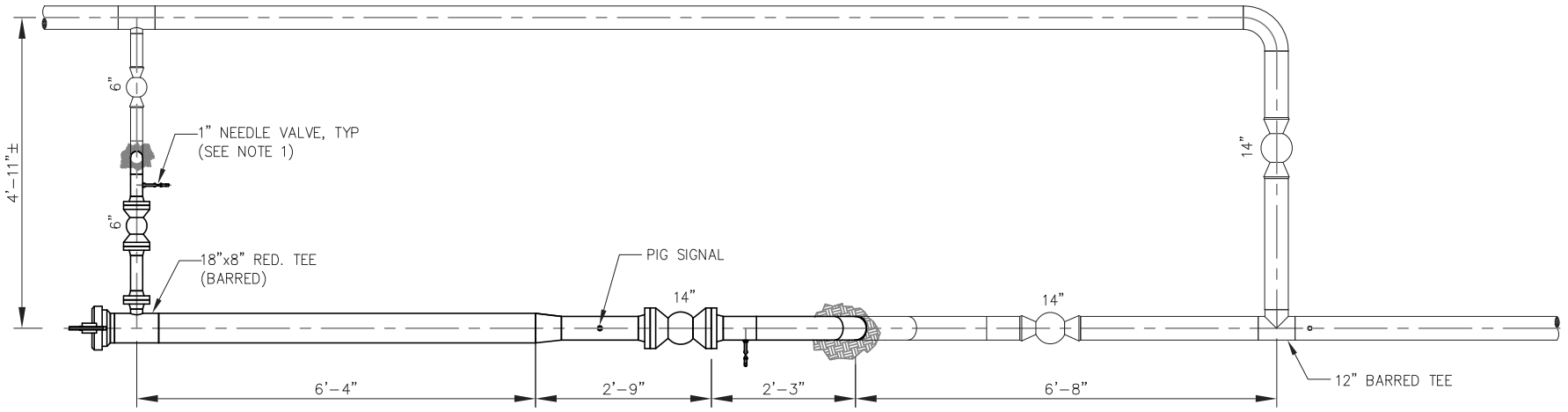
MAINLINE BLOCK VALVE ASSEMBLY

Figure 18

OWNER:

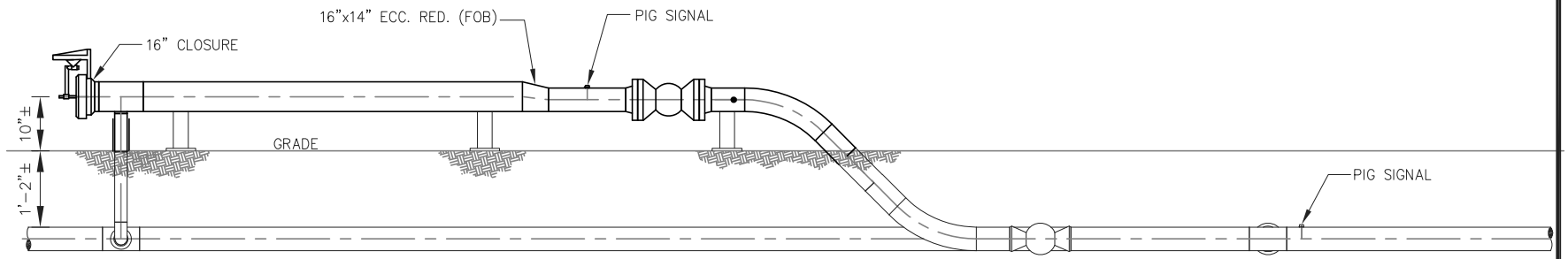
DATE: OCTOBER 2013	P01M-DTVA-02	REV 1

MBaker P01M-DTVA-02 Wed, 23/Oct/13



PLAN

SCALE: 3/8"=1'-0"



ELEVATION

SCALE: 3/8"=1'-0"

DONLIN GOLD PROJECT

APPLICANT: Donlin Gold, LLC.
4720 Business Park Blvd., Suite G-25
Anchorage, Alaska 99503

Figure 19

TYPICAL
16" x 14" PIG LAUNCHER

OWNER:

DATE: OCTOBER 2013	P01M-TYPL-01	REV 1

MBaker P01M-TYPL-01 Wed, 16/Oct/13