FINAL - REVISION 4
DESIGN STUDY REPORT

SECOND AND THIRD STREET REHABILITATION PROJECT

Manokotak, Alaska

Bristol Project No. 32150007

August 2020

Prepared for:

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ACRONYMS AND ABBREVIATIONS

&	and
@	at
°	degrees
%	percent
AASHTO	American Association of State Highway and Transportation Officials
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation & Public Facilities
ADT	Average Daily Traffic
APDES	Alaska Pollution Discharge Elimination System
ASTM	American Society for Testing and Materials
BIA	Bureau of Indian Affairs
BMP	Best Management Practice
Bristol	Bristol Engineering Services Company, LLC
CFR	Code of Federal Regulations
Council	Manokotak Village Council
CSP	corrugated steel pipe
DCCED	Department of Commerce, Community, and Economic Development
ESCP	Erosion and Sediment Control Plan
FHWA	Federal Highway Administration
ft	feet
MLW	Mining, Land, and Water
mph	miles per hour
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
PIH	Plan-in-Hand
ROW	Right-of-Way
RUP	Revocable Use Permit
SWPPP	Storm Water Pollution Prevention Plan
TCE	Temporary Construction Easement
TTP	Tribal Transportation Program
UFC	Unified Facilities Criteria
USACE	US Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VLVLR	Guidelines for Geometric Design of Very Low-Volume Local Roads

1.0 INTRODUCTION

1.1 OBJECTIVES

This *Design Study Report* was prepared in support of the Second and Third Street Rehabilitation Project in Manokotak, Alaska (Figure 1). Bristol Engineering Services Company, LLC (Bristol) has contracted with the Manokotak Village Council (Council) to prepare design documents to upgrade approximately 0.9 miles of road in Manokotak (Figure 2). There are six roads included in the design:

- First Street
- Second Street
- Third Street
- Salmon Street
- Alder Street
- C Street

The newly designed roads will include a wider traveled surface and a gravel surface course with dust palliative to promote dust reduction. Drainage will be improved by the addition of road side ditching, providing new culverts at engineered locations, and installing new drainage channels interconnecting First, Second, and Third Street.

The primary objective of the *Design Study Report* is to document the design decisions made throughout the engineering phase of the project.

1.2 LOCATION AND CLIMATE

Manokotak is located 25 miles southwest of Dillingham on the Igushik River. It lies 347 miles southwest of Anchorage. Manokotak is 58 degrees (°) 59 minutes (′) and 23 seconds (″) north latitude and 159 degrees (°) 2 minutes (′) and 57 seconds west longitude, in Section 12, Township 14 South, Range 59 West, of the Seward Meridian. Manokotak is located in the Bristol Bay Recording District, and encompasses 36.4 square miles of land and 0.9 square miles of water.

Manokotak is located in a climatic transition zone. The primary influence is maritime, although the arctic climate affects the region. Average summer temperatures range from 40 to 70 °F; winter temperatures average from 4 to 30 °F. Annual precipitation averages 20 to 26 inches. Fog and high winds exist periodically through the year. The river is ice-free from June through mid-November (Alaska Department of Commerce, Community, and Economic Development [DCCED], 2014).

2.0 EXISTING CONDITIONS

2.1 ROADWAY FACILITIES

The existing roads included in this project are classified as a Rural Local Road System with average daily traffic (ADT) less than 400.

2.2 SITE VISIT

On October 2nd, 2014 Professional Engineer Isaac Pearson performed an initial site inspection of the existing road conditions. The weather was sunny during the investigation. The engineer photographed all routes and included their documentation in the Photograph Log (Appendix A). The Existing Road Conditions, Section 2.3, summarizes route observations and research.

2.3 EXISTING ROAD CONDITIONS

2.3.1 First Street

First Street improvements are bound by Salmon Street on the south and Alder Street on the north. The segment is currently gravel surfaced and has an average width of 18 feet.

2.3.2 Second Street

Second Street improvements are bound by Salmon Street on the south and C Street on the North. The segment is currently gravel surfaced and has an average width of 18 feet
Field Notes:

- Second Street & Salmon Street Intersection
    - Poor drainage on Lots 18 & 17.
    - No street signs or stop signs present.
- Second Street & Alder Street
    - Poor drainage.
    - No street signs or stop signs present.

- Second Street & C Street Intersection
    - No street signs or stop signs present.
    - Intersection in poor condition.
    - Failed Culvert at intersection.
    - No drainage down C Street.

2.3.3 Third Street

Third Street improvements are bound by Salmon Street on the south and C Street on the north. The segment is currently gravel surfaced and has an average width of 18 feet.

Field Notes:

- Third Street & Salmon Street Intersection
    - Intersection in good condition.
    - Intersection is currently not in ROW.
    - No street signs or stop signs present.
- Third Street & Alder Street Intersection
    - Intersection in good condition.
    - No street signs or stop signs present.
- Third Street & C Street Intersection
    - No street signs or stop signs present.
    - Intersection is currently not in ROW.
    - Four-wheeler ramp to Post Office.

2.3.4 Alder Street

Alder Street improvements are bound by Second Street on the west and Third Street on the east. The segment is currently gravel surfaced and has an average width of approximately 17 feet. The current roadway contains a thin roadbed that becomes soft in the spring and heavy rain events.

2.3.5 Salmon Street

Salmon Street improvements are bound by Second Street on the west and Third Street on the east. The segment is currently gravel surfaced and has an average width of approximately 28 feet.

2.3.6 C Street

C Street improvements are bound by Second Street on the west and Third Street on the east. The segment is currently gravel surfaced and has an average width of approximately 18 feet. The current roadway contains a thin roadbed that becomes soft in the spring and during heavy rain events.

2.4 TOPOGRAPHICAL SURVEY

In March 2013, SurvBase, LLC conducted a full aggregate LiDAR/field topographical survey and right-of-way base mapping. In 2016, orthorectified imagery of Manokotak was collected by Kodiak Mapping, Inc.

2.5 THROUGH LOT DRAINAGE

Currently there are three year-round drainage channels that flow from the no name mountain, located directly east of the mountain, down through the project area. Runoff from these channels presents a constant annoyance to surrounding residents. As a solution, new rock-filled drainage swales with perforated pipe (Figure 5) will be constructed to convey runoff to ditches and storm piping. The community requested that the swales convey water without allowing standing water to reduce safety risks for children. Locations of the new swales (Figure 2) will be placed at lot lines when possible, minimizing impacts to residential lots.

2.6 RIGHT OF WAY

All existing roads in this project, with the exception of Third Street, are located within the existing Right-of-Way (ROW). In general, the existing ROW for all routes is approximately

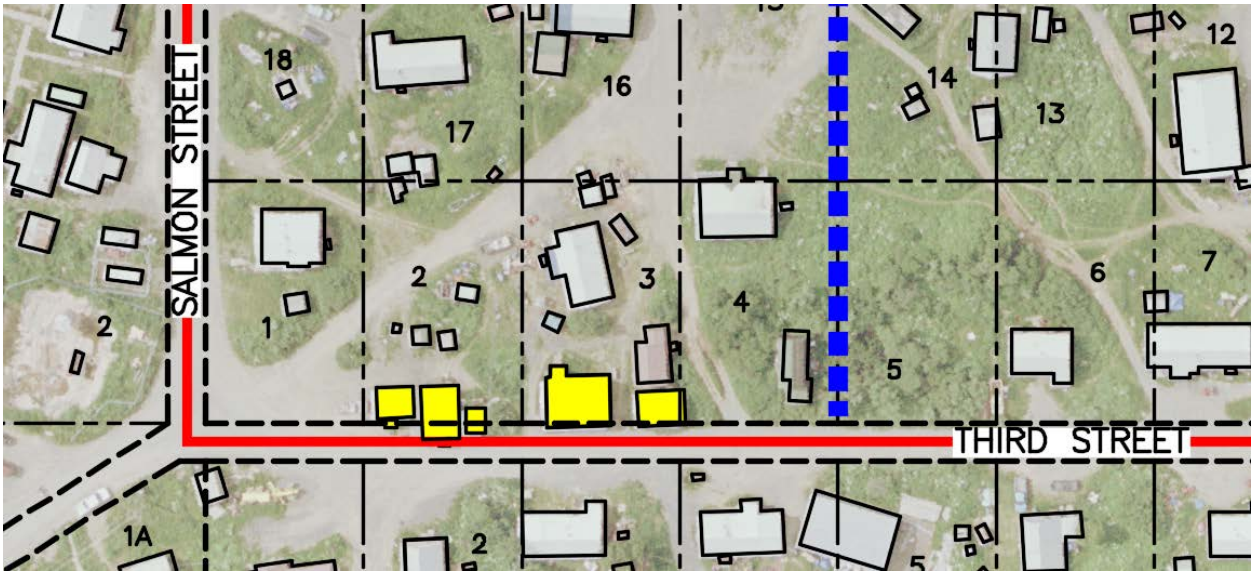
20-feet in width. Currently the ROW and topography constricts all routes in this project resulting in narrow roads. Topography constraints on Third Street require parking to take place on the side of the street, congesting the already narrow traveled way. As a solution, Bristol proposes to add dedicated on street parking lanes (Figure 4 and Figure 6) along Third Street. The addition of parking turnouts will require approximately 15 feet of ROW acquisition at parking locations.

Additionally, in order to widen the roads and drainage ditches and remain within ROW, new 5-foot wide right-of-way and/or easements on both sides of the existing ROW will be required throughout the project corridor(s). Temporary Construction Easements (TCEs), or Revocable Use Permits (RUPs) on Native Restricted Allotments, may be required for construction of driveway approaches beyond the ROW.

2.7 EXISTING STRUCTURES IN RIGHT OF WAY

Currently some existing structures are constructed within the existing ROW. Specifically, five houses and/or buildings are located up to 7 feet past the ROW along the west side of Third Street near the intersection with Salmon Street. The structures are anticipated to cause challenges due to the narrow right of way. Multiple solutions were discussed with the community at public meetings to determine the best course of action. Options considered include: moving the buildings, shifting the road to the east and acquiring ROW to accommodate this move, and the no build alternative. Below is a close-up view of Fig. 2, which shows the five buildings on Third Street highlighted in yellow:

Figure 2 Site Plan (Close-up)



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3.0 DESIGN STANDARDS

3.1 DESIGN CRITERIA

The functional classification of the current routes is Rural Local Roads according to American Association of State Highway and Transportation Officials' (AASHTO) *A Policy on Geometric Design of Highways and Streets* (2004), and Rural Major Access Roads according to AASHTO *Guidelines for Geometric Design of Very Low-Volume Local Roads* (VLVLR) (2001) for unpaved roads. Under Section 25 of the Code of Federal Regulations Part 170 (25 CFR Part 170), the existing roads are classified as either Class 3 or 6. Table 1 below lists the routes included in this project, along with the associated Bureau of Indian Affairs Tribal Transportation Program (TTP) route numbers, road class, ADT, and 20-year ADT.

Table 1 Manokotak Official TTP Inventory

Route No.	Road Name	Class	ADT	20-year ADT
1006-10	First Street	3	25[2]	37
1007-10	Second Street	6	50[1]	74
1008-10	Third Street	3	25[2]	37
1010-10	Alder Street	3	25[2]	37
1012-10	C Street	3	25[2]	37
1014-10	Salmon Street	3	25[2]	37

Notes: [1]Default ADT for Class 3 roads is 25.
[2]Default ADT for Class 6 roads is 50.

The default value for ADT under 25 CFR Part 170 is 50 trips per day for Class 6 roads and 25 trips per day for Class 3 roads. The design guidelines for the project were developed on the default value of 50 trips per day and a 20-year ADT of 74 with AASHTO's and VLVLR and *A Policy on Geometric Design of Highways and Streets* criteria. The horizontal and vertical characteristics of the existing roads receiving improvements will not be changed significantly because there is no history of accidents or safety concerns. Minor modifications to the vertical characteristics will improve drainage and correct profile irregularities.

The proposed typical road sections for the Second and Third Street Rehabilitation Project are shown on Figures 3, 4, and 5.

Table 2 outlines the proposed design criteria that will be used for the Second and Third Street Rehabilitation Project.

Table 2 Design Criteria for the Second and Third Street Rehabilitation Project

No.	Design Criterion	Value	Source
1	Design Speed	25 mph	AASHTO, Exhibit 5-1
2	Minimum Curve Radius	210 ft	VLVLR Exhibit 16, Page 51
3	Minimum Stopping Sight Distance	230 ft	VLVLR, Page 52 VLVLR Exhibit 8, Page 34
4	K Value for Crest Vertical Curves (Stopping Sight Distance)	12	VLVLR Page 52 AASHTO, Exhibit 5-2, Page 381
5	K Value for Sag Vertical Curves (Stopping Sight Distance)	26	VLVLR Page 52 AASHTO, Exhibit 5-2, Page 381
6	Maximum Allowable Grade	7% Level 11% Rolling 15% Mountainous	AASHTO, Exhibit 5-4, Page 382
7	Cross-slope	3%	AASHTO, Page 383;
8	Minimum Width of Single-lane Road	11.5 ft*	AASHTO, Exhibit 5-5, Page 384
9	Foreslope	2H:1V	AASHTO, Page 413
10	Clear Zone	7-10 ft	AASHTO, Page 387

Notes:

AASHTO = American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets (2004).

VLVLR = AASHTO Very Low-Volume Local Roads

*Third Street has a design width of 10 feet. Road can be widened to VLVR recommendations based on community input

% = percent K = rate of vertical curvature

ft = feet mph = miles per hour

4.0 DESIGN ALTERNATIVES

4.1 ALTERNATIVE 1 – NO ACTION

Alternative 1 is a no-action alternative that would consist of maintaining the existing roadways. No improvements or modifications would be made under this alternative. Roadway deterioration, ponding, potholing, and the creation of dust would continue at the existing levels or increase proportional to increased traffic volumes.

4.2 ALTERNATIVE 2 – PREFERRED

Alternative 2 is the preferred plan and follows the existing roadway corridors along First Street, Second Street, Third Street, Alder Street, C Street, and Salmon Street. Alternative 2 calls for the following improvements and modifications:

- Third Street from Salmon Street to C Street will have a 12-foot-wide traveled surface with a 3% cross-slope to the east. An 18" deep ditch will be constructed on the east side of the road for most of the road, but a 6" deep v-ditch will be used on the uphill portion of the road due to space limitations. Third Street will also include on street parking areas on the west side. The on-street parking areas will include ramps utilizing bin walls and retaining walls to access residential properties.
- Second Street from Salmon Street to C Street will have a 15-foot-wide traveled surface with a 3% cross-slope to the east. An 18" deep ditch will be constructed on the east side of the road.
- First Street from Salmon Street to Alder Street will have a 15-foot-wide traveled surface with a 3% cross-slope to the east. An 18" deep ditch will be constructed on the east side of the road.
- Alder Street from First Street to Third Street will have a 15-foot-wide traveled surface with a 3% cross-slope to the south. An 18" deep ditch will be constructed on the south side of the road.
- C Street from Second Street to Third Street will have a 15-foot-wide traveled surface with a 3% cross-slope to the south. An 18" deep ditch will be constructed on the south side of the road.
- Salmon Street from First Street to Third Street will have a 15-foot-wide traveled surface with a 3% cross-slope to the north. A 6" deep v-ditch will be constructed on the north side of the road.

- New drainage swales will be placed between lot lines running perpendicular to First, Second and Third Streets to convey storm water to culverts and ditching.
- New drainage facilities will be installed including road crossing culverts, driveway culverts, and field inlets.
- New signage will be installed throughout the project area as needed.
- The improvements will include utility modifications and/or relocations as needed.

5.0 TYPICAL SECTIONS

The preferred alternative would upgrade six roads in Manokotak, approximately 0.9-miles.

The roads included in the design are as follows, with typical sections shown on Figs. 3 and 4:

- Third Street
    - 12-foot-wide cross-section with combination of v-ditch and 1-foot-wide ditch, intermittent parking turnouts with retaining walls, and drainage structures.
- Second Street
    - 15-foot-wide cross-section with 1-foot-wide ditch and drainage structures.
- First Street
    - 15-foot-wide cross-section with 1-foot-wide ditch and drainage structures.
- Alder Street
    - 15-foot-wide cross-section with 1-foot-ditch.
- C Street
    - 15-foot-wide cross-section with 1-foot-ditch.
- Salmon Street
    - 15-foot-wide cross-section with v-ditch.

The design includes 15-foot lanes for all roadways, except Third Street, which will have 12-foot lanes and includes on-street parking areas. On-street parking areas will have an additional 8 feet of width, guardrails, and a ramp leading to adjacent properties utilizing bin walls and retaining walls, as shown on Figure 4.

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6.0 HORIZONTAL AND VERTICAL ALIGNMENT

The horizontal and vertical alignments for the preferred alternative were developed with specific objectives in mind:

- Adhere to design designations and criteria
- Minimize ROW impacts
- Provide positive drainage to new and existing drainage facilities
- Provide accessibility to residences and businesses along the roadways
- Minimize overall project cost

The horizontal geometry was also aligned to run along the centerline of the ROW where possible.

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7.0 MAJOR STRUCTURES

No major structures are included in this project. However, the project may require relocation of three existing structures, which were identified during the PIH review. There are two structures, a shed and a smokehouse, located along the alignment of the swale between Second and Third Street. There is also a shed located on Second Street in the proposed location of a roadside drainage ditch. Relocating this structure will improve drainage as well as line-of-sight along the road. All structure relocations shall be coordinated with and approved by the property owners.

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8.0 EROSION AND SEDIMENT CONTROL

An Erosion and Sediment Control Plan (ESCP) will not be developed as part of this report. Upon award, the selected Contractor will prepare a site-specific Storm Water Pollution Prevention Plan (SWPPP), based in part and in addition to, all information contained in the ESCP. The Contractor-prepared SWPPP must comply with the Alaska Pollution Discharge Elimination System (APDES) General Permit and the Alaska Department of Environmental Conservation (ADEC) Construction General Permit. The SWPPP should be retained onsite at all times during construction and is to be updated on a continued basis throughout construction, as different areas of the project are disturbed.

The contractor is responsible for all erosion and sediment control. This includes the installation, maintenance, and removal of all best management practices (BMPs), and modification of the SWPPP. BMPs are to be designed to a standard of a 2-year, 24-hour storm event.

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9.0 HYDROLOGY AND DRAINAGE

The drainage from the project generally traverses the project site northwest eventually into the Igushik River by surface flow or through ditching and culverts. As part of the design, Bristol has prepared a *Hydrology Report* that includes recommendations:

- Construct ditches with depths of 1-feet and 2-foot-wide bottoms along the hillside of all roads to collect and convey storm and melt water runoff.
- Route runoff from Third Street to Second and First Street with rock-filled conveyance channels and install new culverts at pre-determined locations. The swales will include 12-inch perforated metal pipe beneath the rock to reduce standing water at the surface.
- Replace failing culverts along the project corridors consisting of 18-inch corrugated steel pipe (CSP) to convey water into ditches and conveyance channels.
- Install Type "A" field inlets at each road-crossing culvert to transfer runoff from the drainage ditches to the culverts, while maintaining the required 12-inch minimum cover over the culvert.
- Install driveway culverts along roadside drainage ditches at each new approach.

The *Second and Third Street Rehabilitation Project Hydrology Report* (Bristol, 2020) provides more detail.

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10.0 SOIL CONDITIONS

A geotechnical investigation was performed by Bristol in October 2017. The *Second and Third Street Rehabilitation Project Geotechnical Report* (Bristol, 2017) provides more detail.

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11.0 PAVEMENT DESIGN

Road surfacing requires significant analysis in areas that experience freeze-thaw cycles, especially in areas underlain by permafrost. Consolidation of underlying soils as they thaw over time can be more evident on roads with hard surfacing due to the inability to simply re-grade and smooth localized depressions. It is important to prepare a free-draining base course below the surface course and to construct the surface course with a flexible material to minimize the impact of consolidation. For this project, the final surface type will be gravel with a dust palliative additive.

11.1 SURFACING COURSE

Surface course material should be fluvial, alluvial, or hard rock in origin. It should be free of organic and other deleterious matter and meet the requirements for E-1 material presented in Table 703-2 of the Alaska Department of Transportation and Public Facilities (ADOT&PF) *Standard Specifications for Highway Construction (2015)*. The surfacing course should be mixed with a dust palliative at the time of construction to provide a smooth driving surface and reduce dust.

11.2 AGGREGATE BASE COURSE

Base material can be sand or gravel mined from an approved source. It should be free of organic and other deleterious matter, contain no particles larger than 6 inches, and meet the requirements for Selected Material – Type B presented in the ADOT&PF *Standard Specifications for Highway Construction (2015)* (Section 703-2.07).

11.3 GEOTEXTILE MATERIAL

A woven geotextile fabric for stabilization shall be placed over all subgrades. The geotextile fabric shall have minimum trapezoidal tear strength of 120 lbs. per ASTM D 4533 and a minimum permittivity of 0.08 sec^{-1} per ASTM D 4491. The apparent opening size should be approximately the same as a #50 sieve per ASTM D 4751.

11.4 DUST PALLIATIVE

Calcium chloride will be applied to the finished surface of the roadway during construction which will act as a dust suppressant. Calcium chloride shall meet the requirements presented in ADOT&PF *Standard Specifications for Highway Construction (2015)* (Section 712-2.02).

11.5 STRUCTURAL SECTION

The proposed section design is based on findings from a 2017 Geotechnical Investigation and the Unified Facilities Criteria (UFC) System. The recommended reconstructed road cross-section consists of:

- Calcium Chloride, dust palliative, over
- 6 inches of Aggregate Surface Course, Grading E-1, over
- 12 inches of Selected Material Type B, over
- Geotextile, Separation, over
- Properly compacted subgrade.

All base material should be placed and compacted in loose layers not exceeding 8 inches in thickness. Placed material should be compacted to at least 95% of the max dry density as determined by ASTM D-1557.

See the *Second and Third Street Rehabilitation Project Geotechnical Report* (Bristol, 2017) for more detail.

12.0 PEDESTRIAN AND PUBLIC FACILITIES

12.1 PEDESTRIAN AND BICYCLE

There are no existing pedestrian or bicycle facilities associated with this project.

12.2 PUBLIC TRANSPORTATION

No public transportation facilities are associated with this project.

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13.0 UTILITIES

13.1 EXISTING UTILITIES

Existing utilities include telephone, power, water, and sewer. Nushagak Telephone Cooperative operates telephone within the project limits. The City of Manokotak operates the water system and sewer system in the area. Manokotak Power Company operates the power and electric in the area.

13.2 UTILITY CONFLICTS

Spot conflicts occur throughout the project with all utilities. The following is a brief description of the existing utilities, their locations, and whether adjustment or relocation is required. No major utility relocates are anticipated as part of this project.

13.2.1 First Street

- A buried gravity sewer line lies on the east edge of the road and crosses at one location – No adjustment required.
- Buried telephone lines run along the east side of the road – Adjustment may be required.
- Above ground power lines cross First Street at five locations – Adjustment may be required.
- An abandoned underground power line crosses First Street at one location – No adjustment required.

13.2.2 Second Street

- A buried gravity sewer line lies on the west edge of the road and on the east edge of the road – No adjustment required.
- A buried sewer force main crosses Second Street – Manhole adjustments may be required.
- A buried water line lies on the east edge of the road and has a crossing on Second Street – No adjustment required.
- Above ground power and below grade telephone lines run along the east side of the road. There are approximately 12 overhead crossings and 3 underground crossings – Adjustment may be required.

13.2.3 Third Street

- A buried gravity sewer line crosses Third Street – No adjustment required.
- A buried sewer force main crosses Third Street – Manhole adjustments may be required.
- A buried water line lies on the east edge of the road and crosses Third Street – No adjustment required.
- Above ground power and below grade telephone lines run along the east side of the road. There are approximately 15 overhead crossings and 2 underground crossings – Adjustment may be required.

13.2.4 Salmon Street

- Above ground power lines and below grade power and telephone lines run along the south side of the road – Adjustment may be required.

13.2.5 Alder Street

- Above ground power and below grade telephone lines run along Second and Third Street and cross Alder Street in 4 locations – Adjustment may be required.

13.2.6 C Street

- A buried gravity sewer line lies down the center of the road – Manhole adjustments may be required.
- Above ground power and below grade telephone lines run along Second Street and cross Alder Street in 2 locations – Adjustment may be required.

13.3 UTILITY COORDINATION

The primary impact of utility conflicts only necessitates structure adjustment. The utility adjustment is the responsibility of the contractor and utility owners. Adjustments have the potential to affect construction timing and traffic control. The utility conflicts have been identified based on the Community Profile Mapping of Manokotak (DCCED, 2003) and a Preliminary Planimetry Survey completed by SurvBase, LLC on January 11, 2017.

14.0 ACCESS MANAGEMENT

AASHTO states that "some degree of access control or access management should be included in the development of any street or highway, particularly on a new facility where the likelihood of commercial development exists." For local streets, an emphasis should be put on property access rather than traffic movement.

The ADOT&PF's *Highway Preconstruction Manual* sets standards and guidelines for turnouts; it governs taper length, turnout length minimums and maximums, sign specifications, and other such design parameters (Chapter 11, Section 1120). The *Highway Preconstruction Manual* also sets standards and guidelines for driveway access; it governs driveway return radii, minimum distance between driveways, required corner clearance, driveway sight distances, landing slopes, and other such design parameters (Chapter 11, Section 1190).

Currently there is no traffic signaling at any of the intersections within the project limits. Bristol recommends adding signing so that all roads are served by controlled intersections.

Some driveways will not meet landing slope standards by terminating at the ROW. To ensure safety of access throughout the project, Bristol recommends obtaining TCEs/RUPs to construct driveway approaches beyond the ROW as needed, to obtain a minimum 15% gradient.

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15.0 RIGHT-OF-WAY REQUIREMENTS

As a part of this project, Bristol has proposed to add four on-street parking locations along Third Street to alleviate congestion caused by narrow roads. On-street parking (Figures 4 and 6) will add an additional 8 feet to the roadway, which will require ROW acquisition. Proposed locations are approximate and may change, currently property owners have not committed to any action.

Due to the constrained ROW of this project, all roads will require ROW or easements of some type to build ditching and foreslopes.

Approximately 15 feet of ROW acquisition will be required at on-street parking locations along Third Street.

Additionally, in order to widen the roads and drainage ditches and remain within ROW, new 5-foot wide road easements on both sides of the existing ROW will be required throughout the project corridor(s). 10-foot-wide drainage easements will also be required along new drainage swales. Easements will be approved through the State of Alaska Recorder's Office, and easements on Native Restricted Allotments will go through an additional ROW application process through the Bristol Bay Native Association and Bureau of Indian Affairs.

TCEs/RUPs may be required for construction of driveway approaches beyond the ROW. TCEs/RUPs will be a form of written documentation allowing the contractor to access resident's property during construction. After construction, all property rights are returned to the owner.

The table in Appendix B shows a summary of anticipated ROW acquisition and easements for this project. Road and drainage maintenance easements, TCEs/RUPs and permanent ROW acquisition locations are shown on Figure 6. Land status mapping, developed by

SurvBase, LLC, has indicated the current configuration and ownership of lot layouts adjacent to all routes in the project (Appendix B).

Below is a summary of the proposed ROW acquisition/easements:

- 83 roadway maintenance easements (5-feet wide off existing ROW)
- 15 drainage maintenance easements (7.5-foot wide off centerline of swales)
- 64 TCEs/RUPs (for reconstruction of driveway approaches beyond the ROW)

In July 2016, Bristol prepared packets for landowners in the project area whose property will be affected by TCEs. The packets were sent to the Council to be distributed accordingly, for the purpose of obtaining signatures to approve access for land surveys as needed. The packets included an informational letter about the project and TCE needs, a figure highlighting the property in question, and a consent signature form. Bristol will continue to coordinate the ROW and easement process.

16.0 COST ESTIMATE, FUNDING, SCHEDULE

Below is an overall summary, by route, of the 100% Construction Cost Estimate. The full estimate is provided in Appendix C.

Table 4 Construction Cost Estimate - By Route

Description	Cost	Cost Summation
Base Cost Units	$2,268,000	$2,268,000
R1 - First Street	$278,478	$2,546,478
R2 - Second Street	$607,649	$3,154,127
R3 - Third Street	$2,289,911	$5,444,037
R4 - Salmon Street	$144,086	$5,588,123
R5 - Alder Street	$145,098	$5,733,221
R6 - C Street	$75,020	$5,808,240
Drainage Swales	$285,066	$6,093,306
	Total Estimate	**$6,093,306**

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17.0 ENVIRONMENTAL REQUIREMENTS AND CONSIDERATIONS

17.1 ENVIRONMENTAL DOCUMENTATION REQUIREMENTS

An important part of project development for transportation facilities is consideration of potential environmental impacts. The Manokotak Street Rehabilitation project will be federally funded through the Bureau of Indian Affairs (BIA) TTP. Below Bristol has outlined for the Manokotak Village Council, the necessary permitting for the rehabilitation of the community streets. Since the project is BIA funded, the following will be required: BIA formatted environmental assessment, and Phase I Environmental Site Assessment in accordance with the National Environmental Policy Act.

Environmental issues will be addressed in detail in the Environmental Assessment. Below is a brief outline addressing the potentially required permits:

- There is no National Wetlands Inventory data for the Manokotak area, therefore a wetlands delineation is required of the areas where the proposed project will extend beyond the existing road footprint and in areas of new construction. The results of this effort were compiled into a wetlands report and sent to the United States Army Corps of Engineers (USACE) for a jurisdictional determination. USACE found that no waters of the US exist within the project area, therefore a Section 404/401 permit will not be required.
- A Phase 1 Environmental Site Assessment will be required by the BIA to evaluate the potential presence of hazardous substances in or near the project corridor at levels likely to warrant mitigation under the current State of Alaska environmental laws and regulations.
- An Environmental Assessment will be required by BIA, as the proposed project will be constructing in areas that are currently undeveloped.

- The project will be receiving financial assistance from the BIA thereby creating a federal nexus. Therefore, compliance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations are required to be satisfied prior to development of a final design.
- The following environmental permits and approvals may be required for this project:
    - Alaska Department of Natural Resources (ADNR), State Historic Preservation Office – Compliance with Section 106 of the NHPA
    - Alaska Department of Fish and Game – Fish Habitat Permit for water withdrawal
    - ADNR, Mining, Land, and Water (MLW) – Temporary Water Use Permit

17.2 ENVIRONMENTAL PERMITTING/COORDINATION

Bristol will coordinate with the resource agencies, conduct necessary fieldwork and research, and prepare required permit applications (see Appendix D) identified during the environmental review process, including a water quality certification, a water withdrawal permit, a fish habitat permit, and USACE approved jurisdictional determination.

18.0 BORROW SOURCE

A borrow source investigation was not performed as a part of this project. We assume all material will come from an active commercial borrow source within the community.

(Intentionally blank)

19.0 MAINTENANCE CONSIDERATIONS

The lengths of the roadways will not be changing. The replacement of the existing gravel surface with Surface Course E-1 should decrease the maintenance effort along the roads included in the project. Improving the drainage facilities and having a more durable wearing course that provides a measure of dust control will also reduce maintenance.

Additional recommended maintenance activities listed in the project Hydrology Report are as follows:

- Inspect all drainage facilities at least once per year, typically at the end of spring breakup.
- Road-side ditches will require removal of sediment buildup and re-establishment of vegetation, as needed.
- Driveway culverts will require removal of debris buildup and may require de-icing.
- Type 'A' inlet sediment traps/sumps will require cleanout on a yearly basis.
- Swales should also be inspected during the regular ditch maintenance cycle, and may require removal of organic material buildup on the surface of drain rock as well as flushing/cleaning of below grade pipe.

(Intentionally blank)

20.0 PUBLIC INVOLVEMENT

To ensure transparency this project includes a public involvement process. These processes include public meetings, project flyers, project questionnaires, and access to the project engineer for questions or comments at any time during the design phase.

The first public meeting was held on February 17, 2015. Isaac Pearson traveled to Manokotak to give a presentation outlining the findings of the DRAFT 35% Design Study Report, Geotechnical Report, and Hydrology Report. Bristol developed handouts for the community and did a power point presentation about the project (Appendix E). Afterward Bristol fielded questions from the community.

The second public meeting was held on May 9, 2017. Isaac Pearson traveled to Manokotak to give a presentation outlining the DRAFT 50% design plans. Bristol developed handouts for the community (and did a power point presentation about the project (Appendix E). Afterward Bristol fielded questions from the community, which will be incorporated into the 75% design submittal.

An additional public meeting was held on January 29, 2018. The DRAFT 75% plans were presented to the public in Manokotak by Isaac Pearson. Handouts for the community and a power point presentation, located in Appendix E, were developed by Bristol.

Isaac Pearson and Jackie Wander traveled to Manokotak and conducted a plan in hand (PIH) meeting on May 21, 2018. A copy of the redline plans and a photolog developed by Bristol is located in Appendix E.

(Intentionally blank)

21.0 REFERENCES

Alaska Department of Commerce, Community, and Economic Development (DCCED). (2014). *Community: Manokotak*. Commerce.alaska.gov. Retrieved from http://commerce.alaska.gov/cra/DCRAExternal/community/Details/b45416b3-6619-4f0a-9a0b-7e236e56992a

Alaska DCCED. (2003) *Community Profile Map: Manokotak*.

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AASHTO. (2004). *A Policy on Geometric Design of Highways and Streets.* Washington, D.C.

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Bristol Engineering Services Company, LLC (Bristol). (2017). *Geotechnical Report – Second and Third Street Rehabilitation Project.*

Bristol. (2020). *Hydrology Report – Second and Third Street Rehabilitation Project.*

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FIGURES

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_1.DWG – Layout: FIG1
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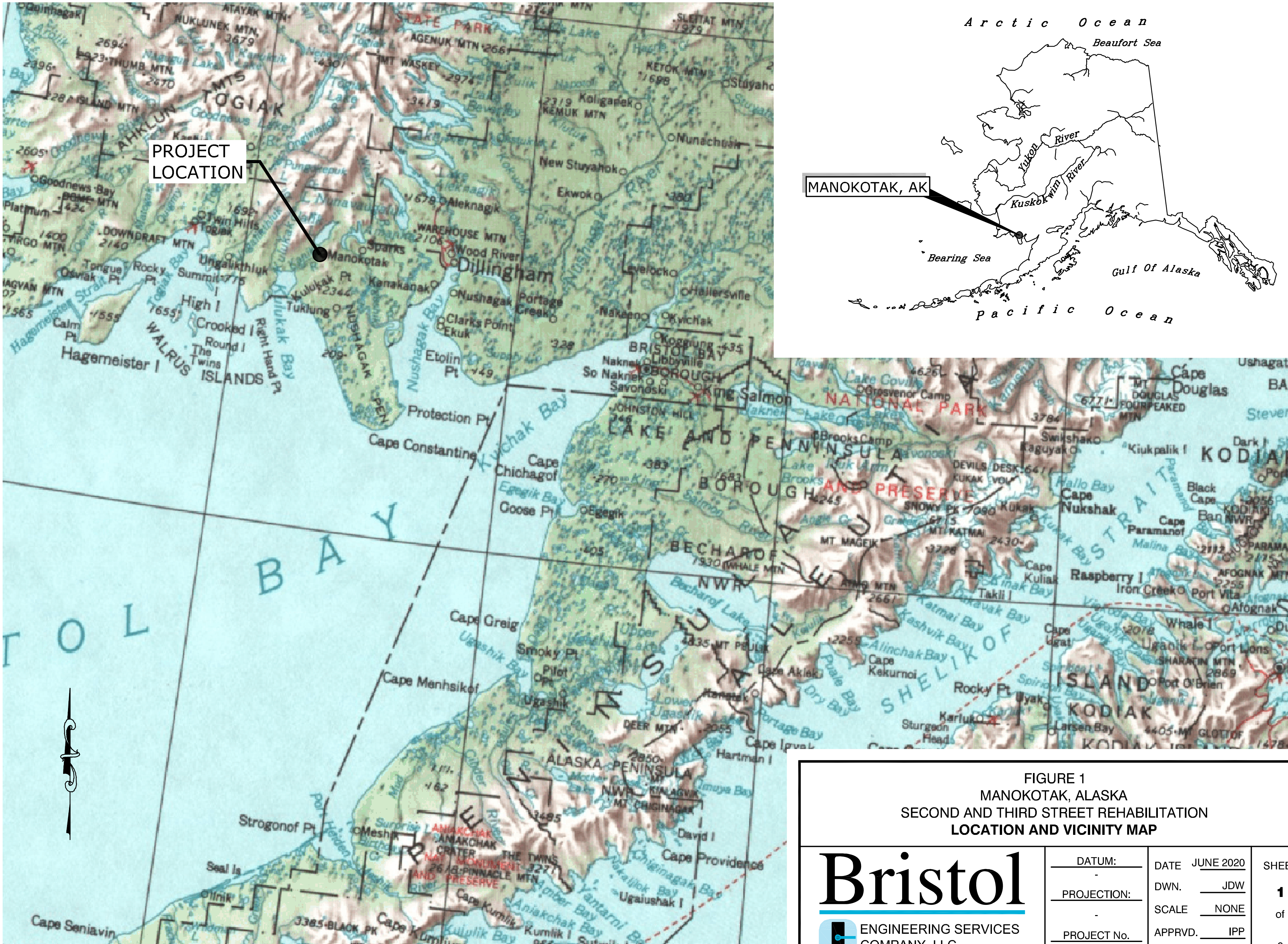

FIGURE 1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
LOCATION AND VICINITY MAP

Bristol
ENGINEERING SERVICES COMPANY, LLC

DATUM:	DATE	JUNE 2020	SHEET
-	DWN.	JDW	1
PROJECTION:	SCALE	NONE	of
-	APPRVD.	IPP	6
PROJECT No. 32150007			

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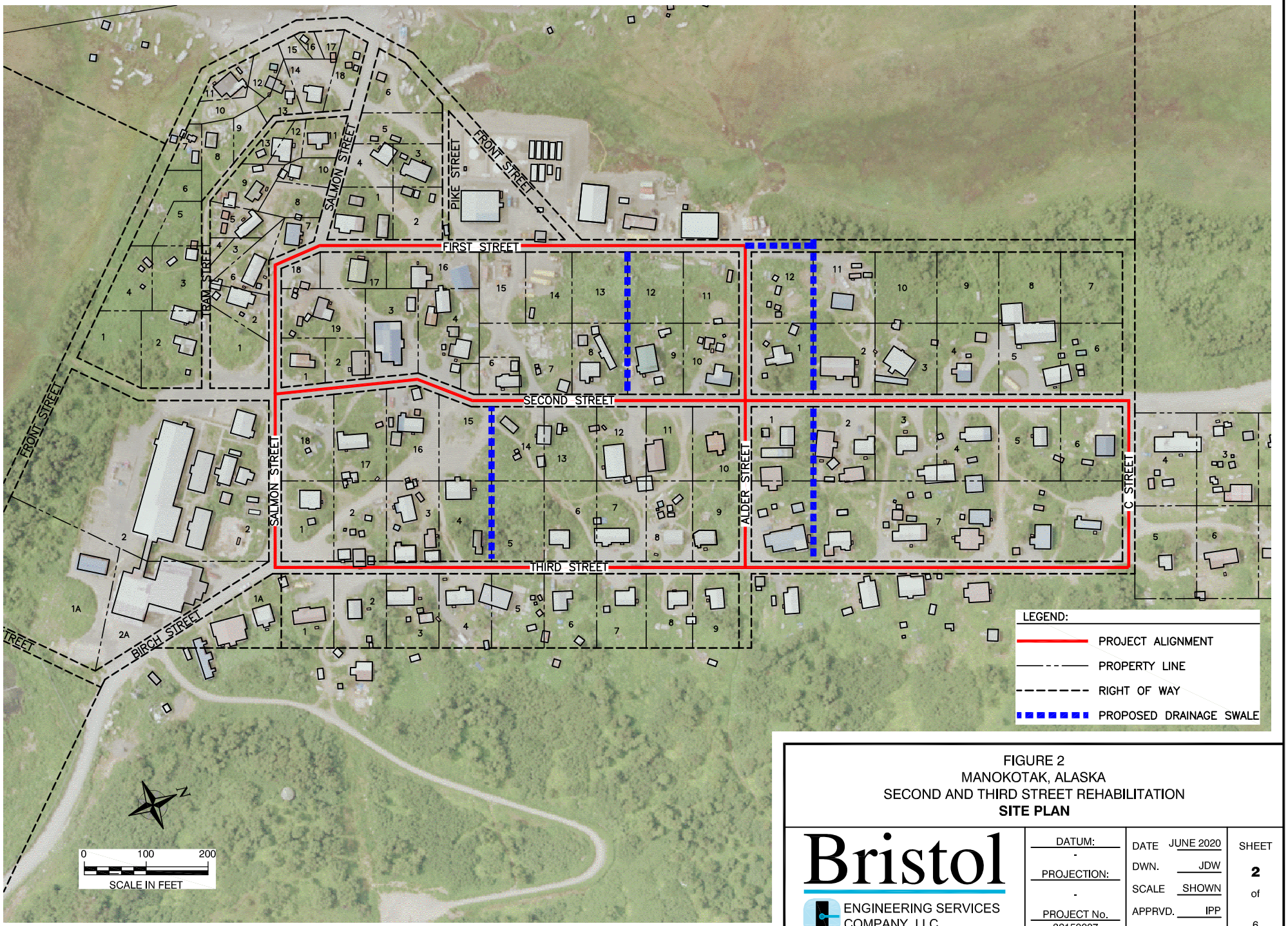
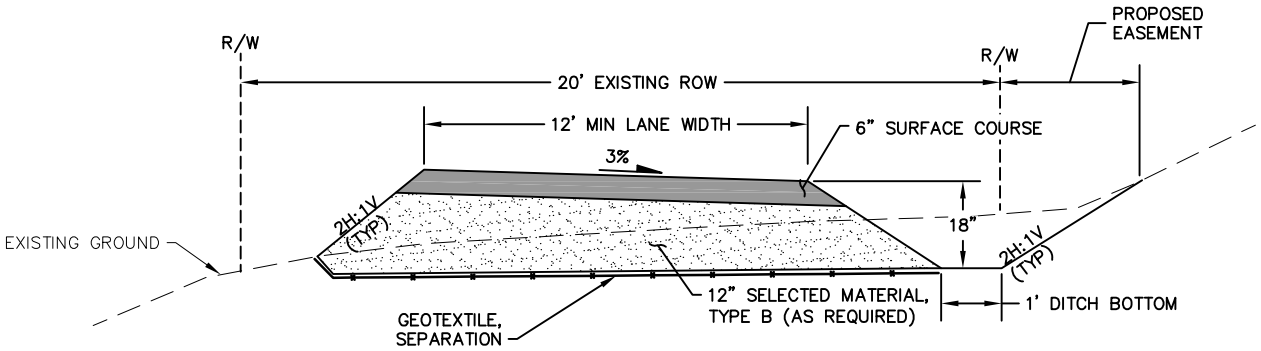


FIGURE 2
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
SITE PLAN

Bristol
ENGINEERING SERVICES COMPANY, LLC

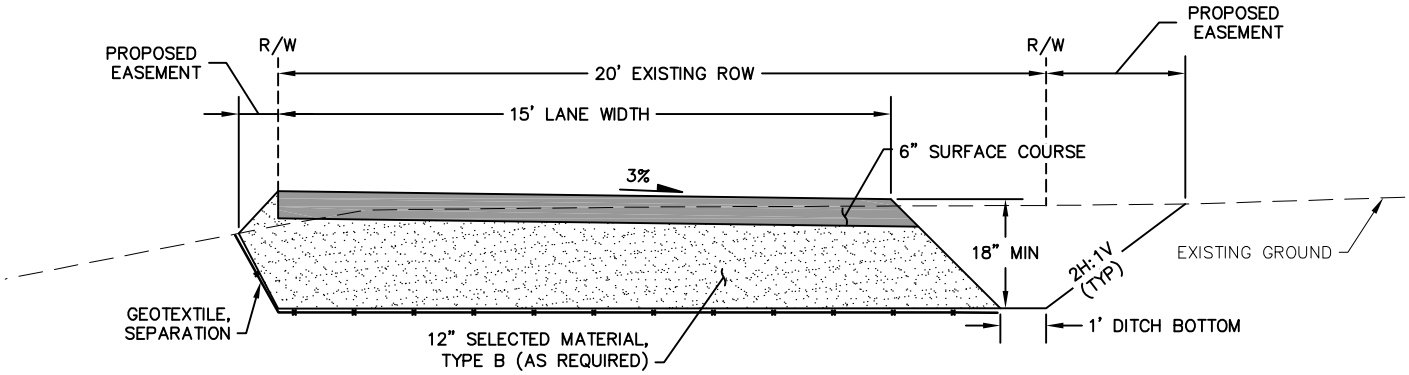
DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP

SHEET 2 of 6



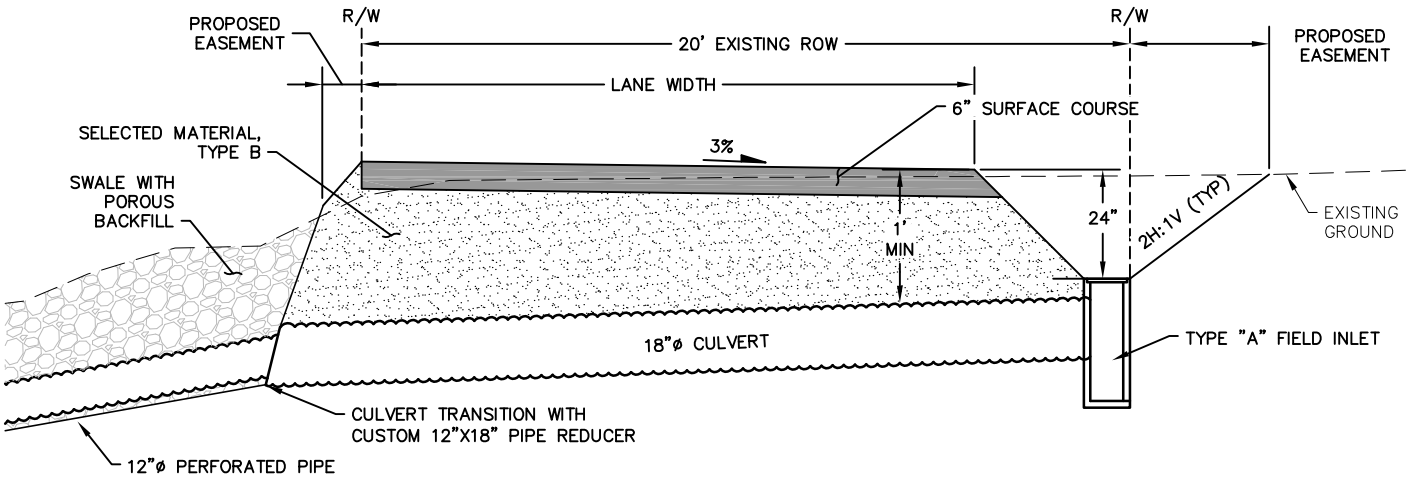
A — **TYPICAL ROAD SECTION - THIRD STREET**

SCALE: NTS



B — **TYPICAL ROAD SECTION - ALL OTHER ROADS**

SCALE: NTS



C — **TYPICAL CULVERT SECTION**

SCALE: NTS

FIGURE 3
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 3
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

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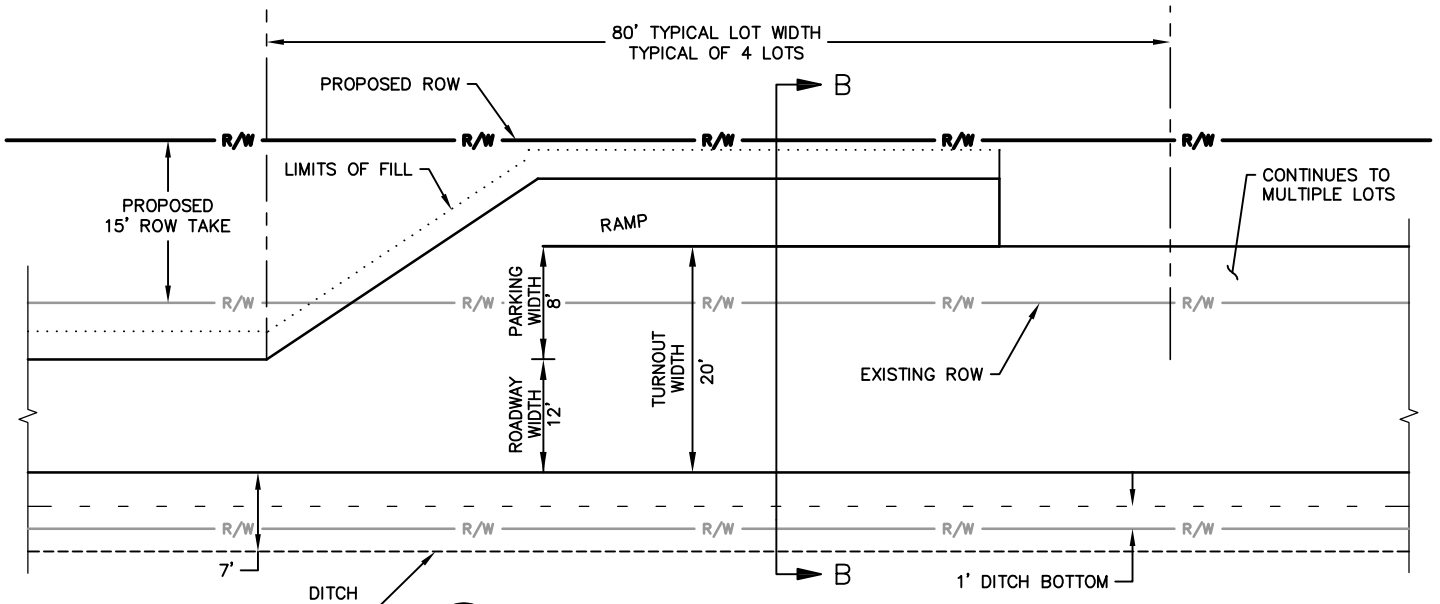
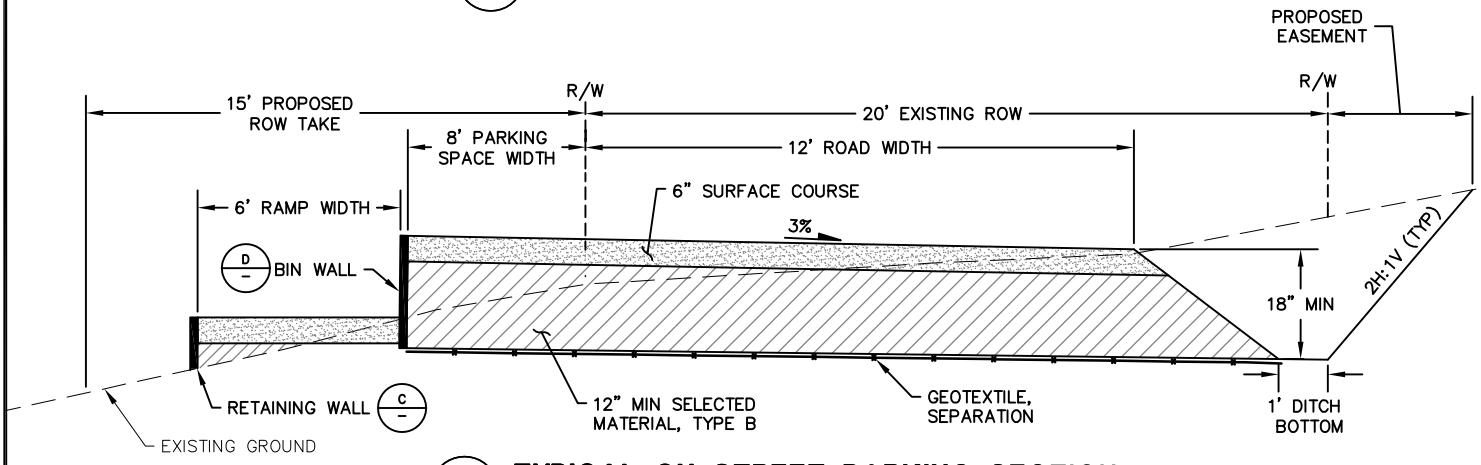


A — **TYPICAL ON STREET PARKING WITH RAMP**
SCALE: NTS



B — **TYPICAL ON STREET PARKING SECTION**
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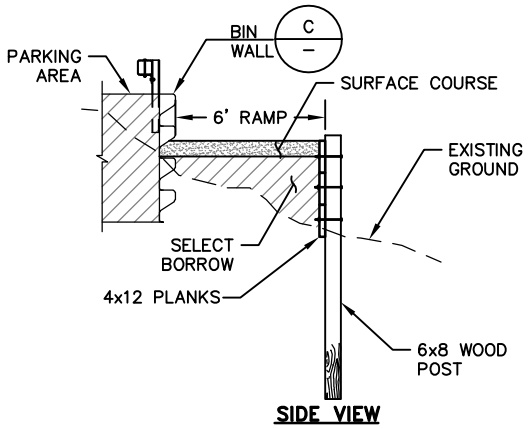
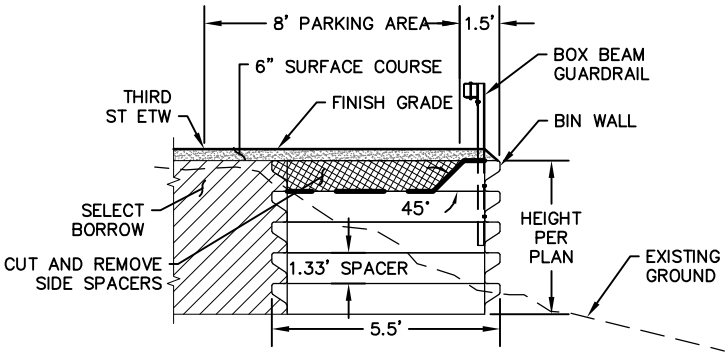


C — **TYPICAL RETAINING WALL SECTION**
SCALE: NTS



D — **TYPICAL BIN WALL SECTION**
SCALE: NTS

FIGURE 4
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
ON-STREET PARKING DETAILS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP
SHEET	4 of 6

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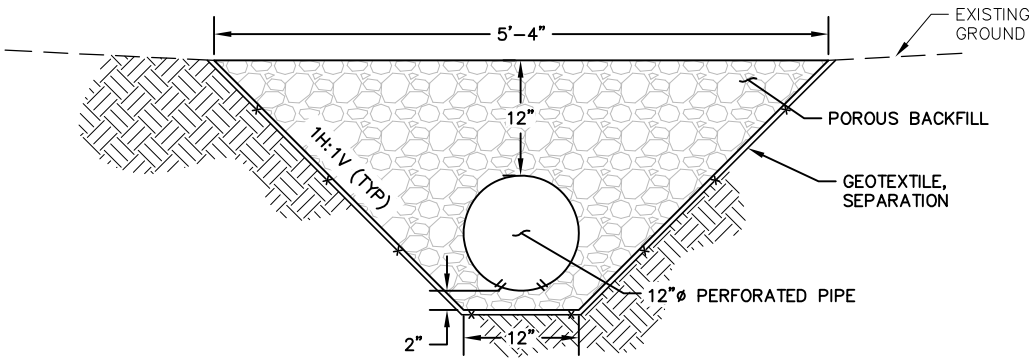
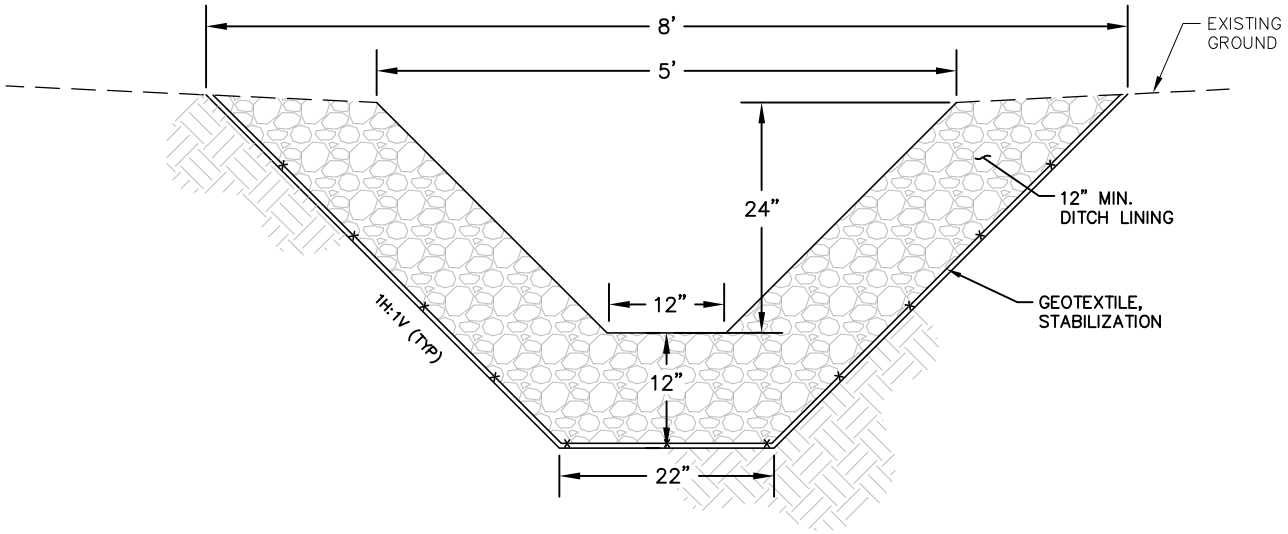


A — **TYPICAL SWALE TRENCH SECTION WITH PIPE**
SCALE: NTS



B — **TYPICAL OPEN CHANNEL SWALE SECTION**
SCALE: NTS

FIGURE 5
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SWALE SECTIONS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 5
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

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NOTES:

1. THE OWNERSHIP STATUS DEPICTED HERON IS BASED ON INFORMATION PROVIDED BY BRISTOL BAY NATIVE ASSOCIATION AND DATA OBTAINED FROM THE STATE OF ALASKA DNR RECORDS.
2. EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THIS MAP.
3. LOT CONFIGURATIONS BASED ON:
   a.) 2003 DCCED MAPPING
   b.) SURVBASE LANDSTATUS MAP

OWNERSHIP LEGEND:

- PUBLIC
- NATIVE VILLAGE
- PRIVATE UNRESTRICTED
- PRIVATE RESTRICTED
- PRIVATE RESTRICTED WITH FRACTIONAL OWNERSHIP

LEGEND:

- PROJECT ALIGNMENT
- EXISTING PROPERTY LINE
- NEW PROPERTY LINE
- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE DITCH
- TEMPORARY CONSTRUCTION EASEMENT OR REVOCABLE USE PERMIT
- ROAD OR DRAINAGE EASEMENT
- PERMANENT RIGHT-OF-WAY TAKE
- PROJECT FOOTPRINT
- 2 LOT NUMBER
- 3 BLOCK NUMBER
- PROPOSED ON-STREET PARKING

50 0 25 50
HORIZONTAL SCALE IN FEET

METES & BOUNDS LOT
POWER PLANT GROUND LEASE
FRONT STREET
SALMON STREET
PIKE STREET
ALDER STREET
C STREET
FIRST STREET
SECOND STREET
THIRD STREET
W PTN 4
E PTN 4

REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES COMPANY, LLC
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501
Phone (907) 563-0013 Fax (907) 563-6713
License Number: AECC697

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

TEMPORARY AND PERMANENT RIGHT-OF-WAY ACQUISITION

SHEET NO. FIG 6

SCALE: | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: JUNE 2020 | SHEET 6 OF 6

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APPENDIX A

Photographic Log

Manokotak Village Council
P.O. Box 169
Manokotak, Alaska 99628

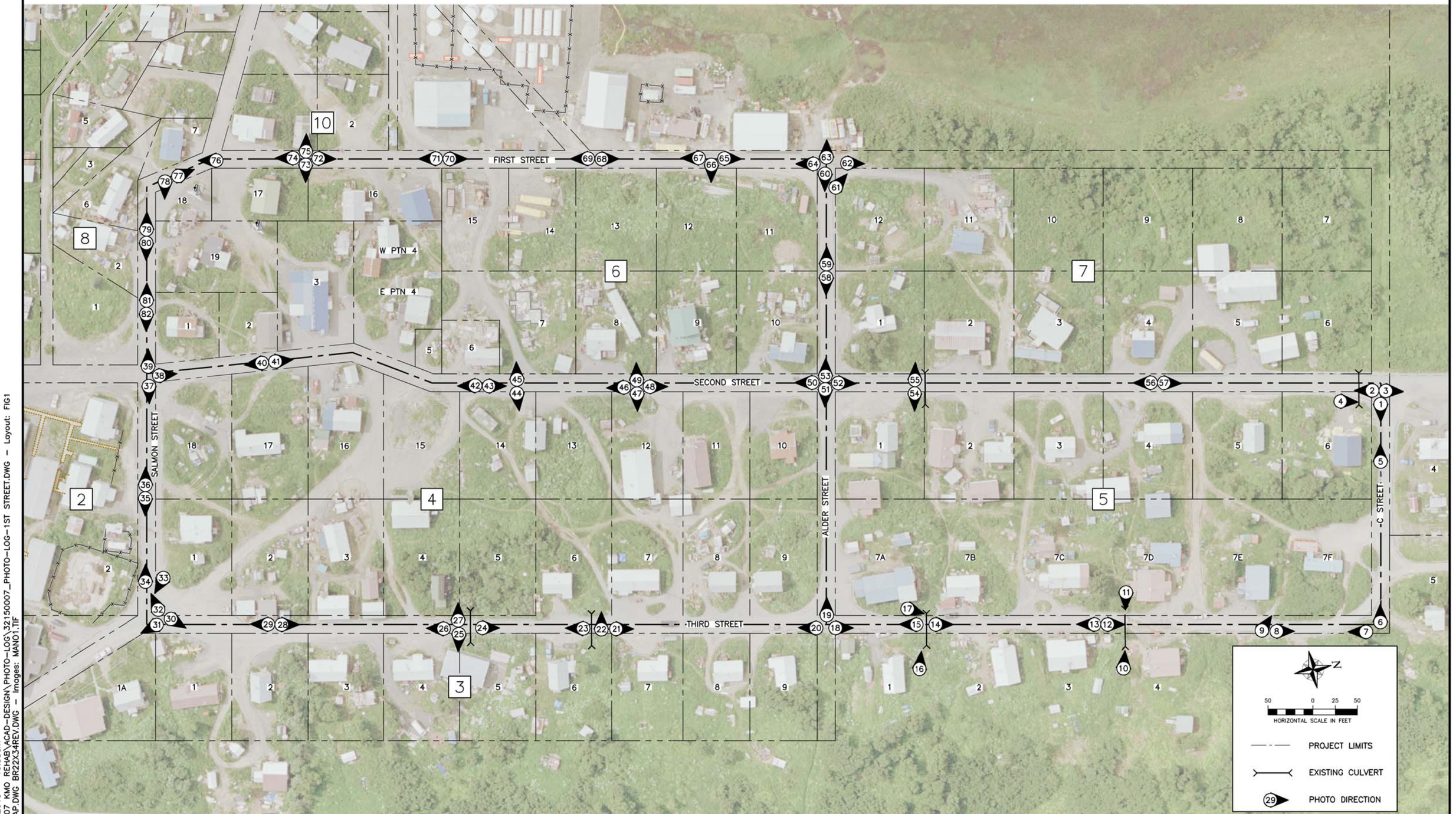
SECOND AND THIRD STREET REHABILITATION PROJECT MANOKOTAK, ALASKA

PHOTOGRAPHIC LOG

May, 2015

Bristol
ENGINEERING
SERVICES CORPORATION

Project No. 32150007



REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 220XX

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

MANOKOTAK VILLAGE COUNCIL
P.O. BOX 169
MANOKOTAK, ALASKA 99628
Phone (907) 289-2067
Fax (907) 289-1235

SECOND AND THIRD STREET REHABILITATION PROJECT
MANAKOTAK, ALASKA

PHOTOGRAPHIC LOG

SHEET NO.
FIG 1

SCALE:SHOWN	DESIGNED: RWB	CHECKED: IPP	DRAWN:RWB	DATE: MAY 2015	SHEET 1 OF 1

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Xrefs: 32150007_BASE_MAP.DWG BR22X34REV.DWG - Images: MAN01.TIF

PHOTOGRAPHIC SUMMARY

Photo 26 - - Third St. Between Alder and Salmon St. - Facing South

Photo 27 - - Third St. Between Alder and Salmon St. - Facing West

Photo 28 - - Third St. Between Alder and Salmon St. - Facing North

Photo 29 - - Third St. Between Alder and Salmon St. - Facing South

Photo 30 - - Salmon St. & Third St. Intersection - Facing North

Photo 31 - - Salmon St. & Third St. Intersection - Facing South

Photo 32 - - Salmon St. & Third St. Intersection - Facing West

Photo 33 - - Salmon St. & Third St. Intersection - Facing East

Photo 34 - - Salmon St. & Third St. Intersection - Facing West

Photo 35 - - Salmon St. Between Second & Third St. - Facing East

Photo 36 - - Salmon St. Between Second & Third St. - Facing West

Photo 37 - - Salmon St. & Second St. Intersection - Facing East

Photo 38 - - Salmon St. & Second St. Intersection - Facing North

Photo 39 - - Salmon St. & Second St. Intersection - Facing West

Photo 40 - - Second St. North of Salmon St. - Facing South

Photo 41 - - Second St. North of Salmon St. - Facing North

Photo 42 - - Second St. Between Salmon St. & Alder St. - Facing South

Photo 43 - - Second St. Between Salmon St. & Alder St. - Facing North

Photo 44 - - Second St. Between Salmon St. & Alder St. - Facing East

Photo 45 - - Second St. Between Salmon St. & Alder St. - Facing West

Photo 46 - - Second St. South of Alder St. - Facing South

Photo 47 - - Second St. South of Alder St. - Facing West

Photo 48 - - Second St. South of Alder St. - Facing North

Photo 49 - - Second St. South of Alder St. - Facing East

Photo 50 - - Second St. & Alder St. Intersection - Facing South

Photo 51 - - Second St. & Alder St. Intersection - Facing East

Photo 52 - - Second St. & Alder St. Intersection - Facing North

Photo 53 - - Second St. & Alder St. Intersection - Facing West

Photo 54 - - Second St. North of Alder St. - Facing East

Photo 55 - - Second St. North of Alder St. - Facing West

Photo 56 - - Second St. Between Alder St. & C St. - Facing North

Photo 57 - - Second St. Between Alder St. & C St. - Facing South

Photo 58 - - Alder St. Between Second St. and First St. Facing East

Photo 59 - - Alder St. Between Second St. and First St. Facing West

Photo 60 - - First St. & Salmon St. Intersection - Facing East

Photo 61 - - First St. & Salmon St. Intersection - Facing North

Photo 62 - - First St. & Salmon St. Intersection - Facing Northeast

Photo 63 - - First St. & Salmon St. Intersection - Facing West

Photo 64 - - First St. & Salmon St. Intersection - Facing South

Photo 65 - - First St. at City Storage Building - Facing North

Photo 66 - - First St. at City Storage Building - Facing East

Photo 67 - - First St. at City Storage Building - Facing South

Photo 68 - - First St. Between Fire Hall and City Storage Building - Facing South

Photo 69 - - First St. Between Fire Hall and City Storage Building - Facing North

Photo 70 - - First St. at City Fire Hall- Facing South

Photo 71 - - First St. at City Fire Hall- Facing South

Photo 72 - - First Street North of Intersection with Salmon Street - Facing North

Photo 73 - - First Street North of Intersection with Salmon Street - Facing East

Photo 74 - - First Street North of Intersection with Salmon Street - Facing South

Photo 75 - - First Street North of Intersection with Salmon Street - Facing West

Photo 76 - - First Street & Salmon Street Intersection - Facing West

Photo 77 - - First Street & Salmon Street Intersection - Facing North

Photo 78 - - First Street & Salmon Street Intersection - Facing East

Photo 79 - - Salmon St. Between First & Second St. - Facing West

Photo 80 - - Salmon St. Between First & Second St. - Facing East

Photo 81 - - Salmon St. Between First & Second St. - Facing West

Photo 82 - - Salmon St. Between First & Second St. - Facing East

Photo 1 - - C St. & Second St. Intersection - Facing East

Photo 2 - - C St. & Second St. Intersection - Facing South

Photo 3 - - C St. & Second St. Intersection - Facing North

Photo 4 - - Culvert at C St. & Second St. Intersection

Photo 5 - - C St. - Facing West

Photo 6 - - C St. & Third St. Intersection - Facing West

Photo 7 - - C St. & Third St. Intersection - Facing South

Photo 8 - - C St. & Existing Trail - Facing North

Photo 9 - - C St. & Existing Trail - Facing West

Photo 10 - - Third St. Between Alder St. & C St. Culvert - Facing West

Photo 11 - - Third St. Between Alder St. & C St. Culvert - Facing East

Photo 12 - - Third St. Between Alder St. & C St. - Facing North

Photo 13 - - Third St. Between Alder St. & C St. - Facing South

Photo 14 - - Third St. North of Alder - Facing North

Photo 15 - - Third St. North of Alder - Facing South

Photo 16 - - Third St. North of Alder - Culvert Facing West

Photo 17 - - Third St. North of Alder - Culvert Facing North

Photo 18 - - Alder St. & Third St. Intersection - Facing North

Photo 19 - - Alder St. & Third St. Intersection - Facing West

Photo 20 - - Alder St. & Third St. Intersection - Facing South

Photo 21 - - Third St. Between Alder and Salmon St. - Facing North

Photo 22 - - Third St. Between Alder and Salmon St. - Facing West

Photo 23 - - Third St. Between Alder and Salmon St. - Facing South

Photo 24 - - Third St. Between Alder and Salmon St. - Facing North

Photo 25 - - Third St. Between Alder and Salmon St. - Facing East

Photo 26 - - Third St. Between Alder and Salmon St. - Facing South

Photo 27 - - Third St. Between Alder and Salmon St. - Facing West

Photo 28 - - Third St. Between Alder and Salmon St. - Facing North

Photo 29 - - Third St. Between Alder and Salmon St. - Facing South

Photo 30 - - Salmon St. & Third St. Intersection - Facing North

Photo 31 - - Salmon St. & Third St. Intersection - Facing South

Photo 32 - - Salmon St. & Third St. Intersection - Facing West

Photo 33 - - Salmon St. & Third St. Intersection - Facing East

Photo 34 - - Salmon St. & Third St. Intersection - Facing West

Photo 35 - - Salmon St. Between Second & Third St. - Facing East

Photo 36 - - Salmon St. Between Second & Third St. - Facing West

Photo 37 - - Salmon St. & Second St. Intersection - Facing East

Photo 38 - - Salmon St. & Second St. Intersection - Facing North

Photo 39 - - Salmon St. & Second St. Intersection - Facing West

Photo 40 - - Second St. North of Salmon St. - Facing South

Photo 41 - - Second St. North of Salmon St. - Facing North

Photo 42 - - Second St. Between Salmon St. & Alder St. - Facing South

Photo 43 - - Second St. Between Salmon St. & Alder St. - Facing North

Photo 44 - - Second St. Between Salmon St. & Alder St. - Facing East

Photo 45 - - Second St. Between Salmon St. & Alder St. - Facing West

Photo 46 - - Second St. South of Alder St. - Facing South

Photo 47 - - Second St. South of Alder St. - Facing West

Photo 48 - - Second St. South of Alder St. - Facing North

Photo 49 - - Second St. South of Alder St. - Facing East

Photo 50 - - Second St. & Alder St. Intersection - Facing South

Photo 51 - - Second St. & Alder St. Intersection - Facing East

Photo 52 - - Second St. & Alder St. Intersection - Facing North

Photo 53 - - Second St. & Alder St. Intersection - Facing West

Photo 54 - - Second St. North of Alder St. - Facing East

Photo 55 - - Second St. North of Alder St. - Facing West

Photo 56 - - Second St. Between Alder St. & C St. - Facing North

Photo 57 - - Second St. Between Alder St. & C St. - Facing South

Photo 58 - - Alder St. Between Second St. and First St. Facing East

Photo 59 - - Alder St. Between Second St. and First St. Facing West

Photo 60 - - First St. & Salmon St. Intersection - Facing East

Photo 61 - - First St. & Salmon St. Intersection - Facing North

Photo 62 - - First St. & Salmon St. Intersection - Facing Northeast

Photo 63 - - First St. & Salmon St. Intersection - Facing West

Photo 64 - - First St. & Salmon St. Intersection - Facing South

Photo 65 - - First St. at City Storage Building - Facing North

Photo 66 - - First St. at City Storage Building - Facing East

Photo 67 - - First St. at City Storage Building - Facing South

Photo 68 - - First St. Between Fire Hall and City Storage Building - Facing South

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Photo 70 - - First St. at City Fire Hall- Facing South

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Photo 72 - - First Street North of Intersection with Salmon Street - Facing North

Photo 73 - - First Street North of Intersection with Salmon Street - Facing East

Photo 74 - - First Street North of Intersection with Salmon Street - Facing South

Photo 75 - - First Street North of Intersection with Salmon Street - Facing West

Photo 76 - - First Street & Salmon Street Intersection - Facing West

Photo 77 - - First Street & Salmon Street Intersection - Facing North

Photo 78 - - First Street & Salmon Street Intersection - Facing East

Photo 79 - - Salmon St. Between First & Second St. - Facing West

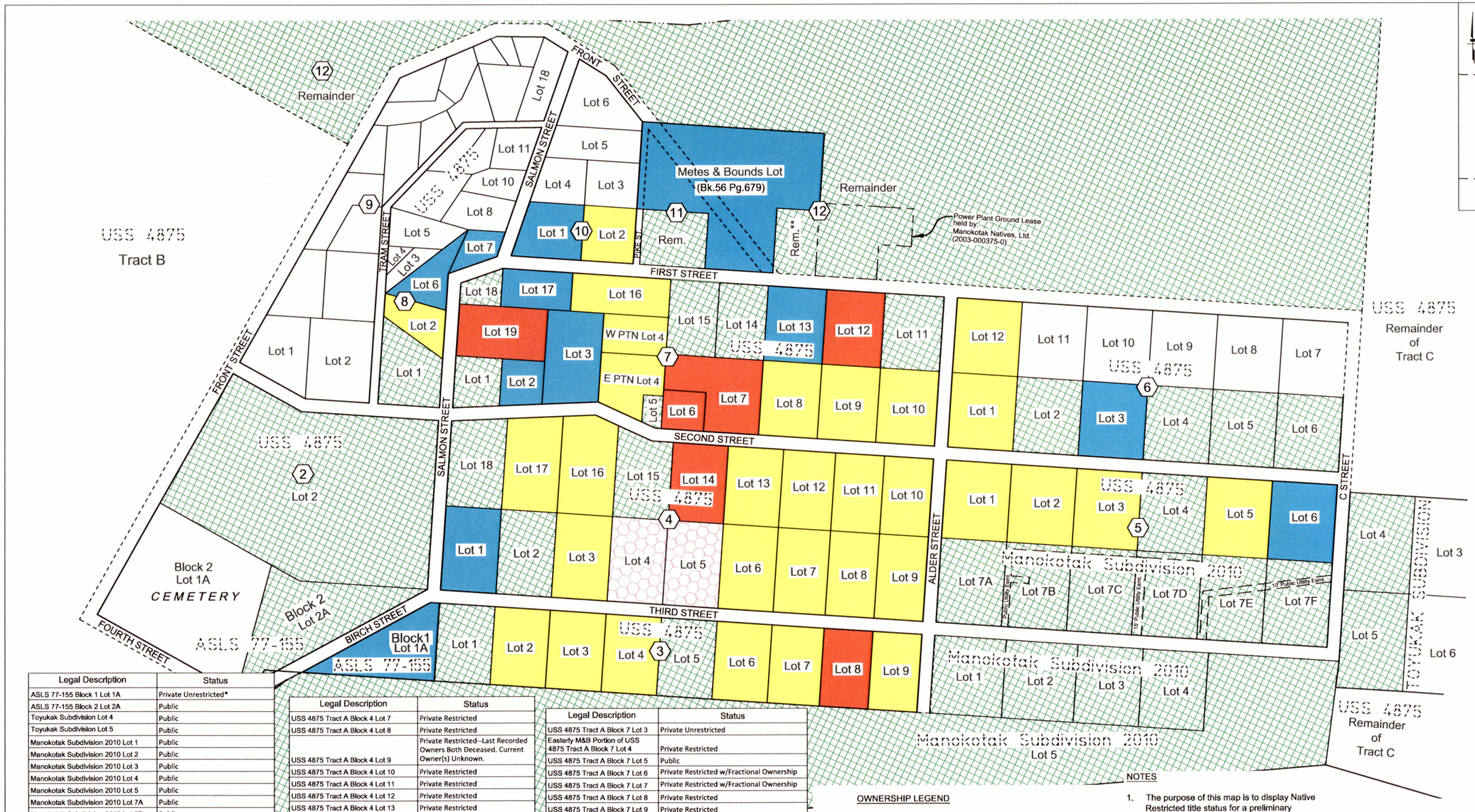
Photo 80 - - Salmon St. Between First & Second St. - Facing East

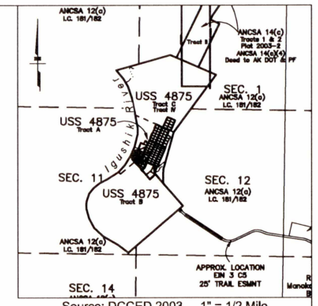
Photo 81 - - Salmon St. Between First & Second St. - Facing West

Photo 82 - - Salmon St. Between First & Second St. - Facing East

APPENDIX B

Manokotak Land Status Map and ROW Summary Table





Source: DCCED 2003 1" = 1/2 Mile

Vicinity Map

80 0 80 160

1" = 80 FEET

Legal Description	Status
ASLS 77-155 Block 1 Lot 1A	Private Unrestricted*
ASLS 77-155 Block 2 Lot 2A	Public
Toyukak Subdivision Lot 4	Public
Toyukak Subdivision Lot 5	Public
Manokotak Subdivision 2010 Lot 1	Public
Manokotak Subdivision 2010 Lot 2	Public
Manokotak Subdivision 2010 Lot 3	Public
Manokotak Subdivision 2010 Lot 4	Public
Manokotak Subdivision 2010 Lot 5	Public
Manokotak Subdivision 2010 Lot 7A	Public
Manokotak Subdivision 2010 Lot 7B	Public
Manokotak Subdivision 2010 Lot 7C	Public
Manokotak Subdivision 2010 Lot 7D	Public
Manokotak Subdivision 2010 Lot 7E	Public
Manokotak Subdivision 2010 Lot 7F	Public
USS 4875 Tract A Block 2 Lot 2	Public
USS 4875 Tract A Block 3 Lot 1	Public
USS 4875 Tract A Block 3 Lot 2	Private Restricted
USS 4875 Tract A Block 3 Lot 3	Private Restricted
USS 4875 Tract A Block 3 Lot 4	Private Restricted
USS 4875 Tract A Block 3 Lot 5	Public
USS 4875 Tract A Block 3 Lot 6	Private Restricted
USS 4875 Tract A Block 3 Lot 7	Private Restricted
USS 4875 Tract A Block 3 Lot 8	Restricted w/possible Fractional Ownership--Prior Owner Deceased & Probate Not Finished
USS 4875 Tract A Block 3 Lot 9	Private Restricted
USS 4875 Tract A Block 4 Lot 1	Private Unrestricted
USS 4875 Tract A Block 4 Lot 2	Public
USS 4875 Tract A Block 4 Lot 3	Private Restricted
USS 4875 Tract A Block 4 Lot 4	Native Village
USS 4875 Tract A Block 4 Lot 5	Native Village
USS 4875 Tract A Block 4 Lot 6	Private Restricted

Legal Description	Status
USS 4875 Tract A Block 4 Lot 7	Private Restricted
USS 4875 Tract A Block 4 Lot 8	Private Restricted
USS 4875 Tract A Block 4 Lot 9	Private Restricted--Last Recorded Owners Both Deceased. Current Owner(s) Unknown.
USS 4875 Tract A Block 4 Lot 10	Private Restricted
USS 4875 Tract A Block 4 Lot 11	Private Restricted
USS 4875 Tract A Block 4 Lot 12	Private Restricted
USS 4875 Tract A Block 4 Lot 13	Private Restricted
USS 4875 Tract A Block 4 Lot 14	Private Restricted w/Fractional Ownership
USS 4875 Tract A Block 4 Lot 15	Public
USS 4875 Tract A Block 4 Lot 16	Private Restricted
USS 4875 Tract A Block 4 Lot 17	Private Restricted
USS 4875 Tract A Block 4 Lot 18	Public
USS 4875 Tract A Block 5 Lot 1	Private Restricted
USS 4875 Tract A Block 5 Lot 2	Private Restricted
USS 4875 Tract A Block 5 Lot 3	Private Restricted
USS 4875 Tract A Block 5 Lot 4	Public
USS 4875 Tract A Block 5 Lot 5	Private Restricted
USS 4875 Tract A Block 5 Lot 6	Private Unrestricted
USS 4875 Tract A Block 6 Lot 1	Private Restricted
USS 4875 Tract A Block 6 Lot 2	Public
USS 4875 Tract A Block 6 Lot 3	Private Unrestricted (AHFC)
USS 4875 Tract A Block 6 Lot 4	Public
USS 4875 Tract A Block 6 Lot 5	Public
USS 4875 Tract A Block 6 Lot 6	Public
USS 4875 Tract A Block 6 Lot 12	Private Restricted
USS 4875 Tract A Block 7 Lot 1	Public
USS 4875 Tract A Block 7 Lot 2	Private Unrestricted

Legal Description	Status
USS 4875 Tract A Block 7 Lot 3	Private Unrestricted
Easterly M&B Portion of USS 4875 Tract A Block 7 Lot 4	Private Restricted
USS 4875 Tract A Block 7 Lot 5	Public
USS 4875 Tract A Block 7 Lot 6	Private Restricted w/Fractional Ownership
USS 4875 Tract A Block 7 Lot 7	Private Restricted w/Fractional Ownership
USS 4875 Tract A Block 7 Lot 8	Private Restricted
USS 4875 Tract A Block 7 Lot 9	Private Restricted
USS 4875 Tract A Block 7 Lot 10	Private Restricted
USS 4875 Tract A Block 7 Lot 11	Public
USS 4875 Tract A Block 7 Lot 12	Private Restricted w/Fractional Ownership
USS 4875 Tract A Block 7 Lot 13	Private Unrestricted
USS 4875 Tract A Block 7 Lot 14	Public
USS 4875 Tract A Block 7 Lot 15	Public
USS 4875 Tract A Block 7 Lot 16	Private Restricted
USS 4875 Tract A Block 7 Lot 17	Private Unrestricted
USS 4875 Tract A Block 7 Lot 18	Public
USS 4875 Tract A Block 7 Lot 19	Private Restricted w/Fractional Ownership
USS 4875 Tract A Block 8 Lot 1	Public
USS 4875 Tract A Block 8 Lot 2	Private Restricted
USS 4875 Tract A Block 8 Lot 6	Private Unrestricted (Moravian Church)
USS 4875 Tract A Block 8 Lot 7	Private Unrestricted (Moravian Church)
USS 4875 Tract A Block 10 Lot 1	Private Unrestricted
USS 4875 Tract A Block 10 Lot 2	Private Restricted
USS 4875 Tract A Block 11 & 12 M&B (Bk.56 Pg.679)	Private Unrestricted
USS 4875 Tract A Block 11 Remainder	Public
USS 4875 Tract A Block 12 Remainder	Public

OWNERSHIP LEGEND

- Public
- Native Village
- Private Unrestricted
- Private Restricted
- Private Restricted with Fractional Ownership
- Rem. Remainder
- (#) Block Number

*There is a deed that may or may not have conveyed this lot from the City of Manokotak to a private individual. It is unclear what the intended lot was due to ambiguity in the legal description. The City is encouraged to issue a corrected Quitclaim Deed for the intended parcel. Deed # 2012-000606-0, Bristol Bay Recording District.

**The 2003 DCCED Map shows a workshop owned by Manokotak Natives Ltd. on this portion of USS 4875 Tract A Block 12. No recorded deed, easement, ground lease, or other conveyance instrument was found with regards to the workshop on this portion of land.

NOTES

1. The purpose of this map is to display Native Restricted title status for a preliminary engineering report.
2. The ownership status depicted hereon is based on information provided by Bristol Bay Native Association (BBNA) and data obtained from the State of Alaska DNR Recorder's Office website.
3. No Title Reports were acquired or reviewed. A full title investigation may reveal data not shown hereon.
4. Easements may exist that are not shown on this map.
5. Lot configurations are based on:
   a. 2003 DCCED mapping;
   b. The Record Plat of Manokotak Subdivision 2010; and
   c. Metes & Bounds (M&B) Descriptions found in The BLM Manokotak Townsite Tract Book. (USS 4875 Tract A Block 7 Lot 4)
   d. Metes & Bounds (M&B) Description found in Bk.56 Pg.679 Bristol Bay Recording District.

STATE OF ALASKA
49TH
John B. Kerr
8201-S
2015-05-11
REGISTERED PROFESSIONAL LAND SURVEYOR

SurvBase

Land Status Map

Restricted Title Status
Manokotak, AK

Prepared For:
Bristol Engineering Services Corporation
Anchorage, AK

By:
SurvBase, LLC
907-338-7878 Anchorage, Alaska

Survey Date:	N/A	Scale:	See Scale Bar
Date Prepared:	5/12/2015	Drawn By:	KHK
Project No:	7016.01	Checked By:	JBK
Grid:	N/A	Sheet No:	1 of 1

22" x 34" Original

Parcel No.	Legal Description	Ownership Type	Road Easement (SF)	Drainage Easement (SF)
1	ASLS 77-155 Block 2 Lot 2A	Unrestricted	None	None
2	USS 4875 Tract A Block 2 Lot 2	Unrestricted	1,298	None
3	USS 4875 Tract A Block 8 Lot 1	Unrestricted	383	None
4	USS 4875 Tract A Block 8 Lot 2	Restricted	370	None
5	USS 4875 Tract A Block 8 Lot 6	Unrestricted	309	None
6	USS 4875 Tract A Block 8 Lot 7	Unrestricted	392	None
7	USS 4875 Tract A Block 7 Lot 19	Restricted	320	None
8	USS 4875 Tract A Block 10 Lot 1	Unrestricted	687	None
9	USS 4875 Tract A Block 10 Lot 2	Restricted	400	None
10	USS 4875 Tract A Block 11 Ptn of Remainder ("A")	Unrestricted	500	None
11	USS 4875 Tract A Block 11 & 12 M&B (Bk.56 Pg.679)	Unrestricted	421	None
12	USS 4875 Tract A Block 12 Ptn of Remainder ("B")	Unrestricted	325	None
13	USS 4875 Tract A Block 12 Remainder PP Lease	Unrestricted	475	None
14	USS 4875 Tract A Block 12 Ptn of Remainder ("C")	Unrestricted	520	None
15	USS 4875 Tract A Block 6 Lot 11	Unrestricted	None	858
16	USS 4875 Tract A Block 6 Lot 12	Restricted	571	857
17	USS 4875 Tract A Block 7 Lot 11	Unrestricted	1,189	None
18	USS 4875 Tract A Block 7 Lot 12	Restricted	TBD (see note 1)	TBD (see note 1)
19	USS 4875 Tract A Block 7 Lot 13	Unrestricted	450	823
20	USS 4875 Tract A Block 7 Lot 14	Unrestricted	375	None
21	USS 4875 Tract A Block 7 Lot 15	Unrestricted	375	None
22	USS 4875 Tract A Block 7 Lot 16	Restricted	TBD (see note 1)	None
23	USS 4875 Tract A Block 7 Lot 17	Unrestricted	535	None
24	USS 4875 Tract A Block 7 Lot 18	Unrestricted	481	None
25	USS 4875 Tract A Block 7 Lot 1	Unrestricted	792	None
26	USS 4875 Tract A Block 7 Lot 2	Unrestricted	327	None
27	USS 4875 Tract A Block 7 Lot 3	Unrestricted	429	None
28	Easterly M&B E Portion of USS 4875 Tract A Block 7 Lot 4	Restricted	TBD (see note 1)	None
29	USS 4875 Tract A Block 7 Lot 5	Unrestricted	158	None
30	USS 4875 Tract A Block 7 Lot 6	Restricted	TBD (see note 1)	None
31	USS 4875 Tract A Block 7 Lot 7	Restricted	TBD (see note 1)	None
32	USS 4875 Tract A Block 7 Lot 8	Restricted	TBD (see note 1)	TBD (see note 1)
33	USS 4875 Tract A Block 7 Lot 9	Restricted	TBD (see note 1)	TBD (see note 1)
34	USS 4875 Tract A Block 7 Lot 10	Restricted	TBD (see note 1)	None
35	USS 4875 Tract A Block 6 Lot 1	Restricted	1,092	819
36	USS 4875 Tract A Block 6 Lot 2	Unrestricted	498	823
37	USS 4875 Tract A Block 6 Lot 3	Unrestricted	500	None
38	USS 4875 Tract A Block 6 Lot 4	Unrestricted	500	None
39	USS 4875 Tract A Block 6 Lot 5	Unrestricted	500	None
40	USS 4875 Tract A Block 6 Lot 6	Unrestricted	500	None
41	USS 4875 Tract A Block 5 Lot 6	Unrestricted	1,124	None
42	USS 4875 Tract A Block 5 Lot 5	Restricted	500	None
43	USS 4875 Tract A Block 5 Lot 4	Unrestricted	500	None
44	USS 4875 Tract A Block 5 Lot 3	Restricted	500	None
45	USS 4875 Tract A Block 5 Lot 2	Restricted	498	585
46	USS 4875 Tract A Block 5 Lot 1	Restricted	1,122	858
47	USS 4875 Tract A Block 4 Lot 10	Restricted	998	None

Parcel No.	Legal Description	Ownership Type	Road Easement (SF)	Drainage Easement (SF)
48	USS 4875 Tract A Block 4 Lot 11	Restricted	374	None
49	USS 4875 Tract A Block 4 Lot 12	Restricted	399	None
50	USS 4875 Tract A Block 4 Lot 13	Restricted	424	None
51	USS 4875 Tract A Block 4 Lot 14	Restricted	424	866
52	USS 4875 Tract A Block 4 Lot 15	Unrestricted	445	866
53	USS 4875 Tract A Block 4 Lot 16	Restricted	437	None
54	USS 4875 Tract A Block 4 Lot 17	Restricted	429	None
55	USS 4875 Tract A Block 4 Lot 18	Unrestricted	1,094	None
56	USS 4875 Tract A Block 4 Lot 1	Unrestricted	651	None
57	USS 4875 Tract A Block 4 Lot 2	Unrestricted	None	None
58	USS 4875 Tract A Block 4 Lot 3	Unrestricted	None	None
59	USS 4875 Tract A Block 4 Lot 4	Unrestricted	426	933
60	USS 4875 Tract A Block 4 Lot 5	Unrestricted	425	933
61	USS 4875 Tract A Block 4 Lot 6	Restricted	425	None
62	USS 4875 Tract A Block 4 Lot 7	Restricted	400	None
63	USS 4875 Tract A Block 4 Lot 8	Restricted	374	None
64	USS 4875 Tract A Block 4 Lot 9	Restricted	1,048	None
65	Manokotak Subdivision 2010 Lot 7A	Unrestricted	1,171	935
66	Manokotak Subdivision 2010 Lot 7B	Unrestricted	1,598 (see note 2)	None (see note 3)
67	Manokotak Subdivision 2010 Lot 7C	Unrestricted	1,598 (see note 2)	None
68	Manokotak Subdivision 2010 Lot 7D	Unrestricted	1,600 (see note 2)	None
69	Manokotak Subdivision 2010 Lot 7E	Unrestricted	1,598 (see note 2)	None
70	Manokotak Subdivision 2010 Lot 7F	Unrestricted	1,173	None
71	Manokotak Subdivision 2010 Lot 5	Unrestricted	1,001	None
72	Manokotak Subdivision 2010 Lot 4	Unrestricted	499	None
73	Manokotak Subdivision 2010 Lot 3	Unrestricted	500	None
74	Manokotak Subdivision 2010 Lot 2	Unrestricted	550	None
75	Manokotak Subdivision 2010 Lot 1	Unrestricted	550	None
76	USS 4875 Tract A Block 3 Lot 9	Restricted	374	None
77	USS 4875 Tract A Block 3 Lot 8	Restricted	374	None
78	USS 4875 Tract A Block 3 Lot 7	Restricted	399	None
79	USS 4875 Tract A Block 3 Lot 6	Restricted	424	None
80	USS 4875 Tract A Block 3 Lot 5	Unrestricted	424	None
81	USS 4875 Tract A Block 3 Lot 4	Restricted	427	None
82	USS 4875 Tract A Block 3 Lot 3	Restricted	427	None
83	USS 4875 Tract A Block 3 Lot 2	Restricted	427	None
84	USS 4875 Tract A Block 3 Lot 1	Unrestricted	425	None
85	ASLS 77-155 Block 1 Lot 1A	Unrestricted	89	None
86	Toyukak Subdivision Lot 4	Unrestricted	752	None
87	Toyukak Subdivision Lot 5	Unrestricted	574	None
		Total (SF) =	45,643	10,156
		Total (EA) =	83	15

Notes:

1. To be determined. These lots require additional survey to finalize easement exhibits.
2. Permanent ROW acquisition for on-street parking spaces.
3. There's an existing utility easement along the drainage swale; no drainage easement required.

APPENDIX C

100% Engineers Estimate

SECOND AND THIRD STREET REHABILITATION PROJECT
100% ENGINEER'S ESTIMATE

Construction Cost Estimate - By Item No.

Item No.	Description	Pay Unit	Unit Price	Unit Quantity	Total Bid Price
1	ROW ACQUISITION	EACH	$1,000	4	$4,000
2	ROADWAY MAINTENANCE EASEMENT	EACH	$500	83	$41,500
3	DRAINAGE MAINTENANCE EASEMENT	EACH	$500	15	$7,500
4	TEMPORARY CONSTRUCTION EASEMENT / REVOCABLE USE PERMIT (DRIVEWAY CONSTRUCTION)	EACH	$500	64	$32,000
5	STRUCTURE RELOCATION	EACH	$5,000	3	$15,000
202(4)	REMOVAL OF CULVERT PIPE	LF	$50	390	$19,500
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	4420	$66,300
203(6)-b	SELECTED MATERIAL, TYPE B	TON	$15	5560	$83,400
301(3)	AGGREGATE SURFACE COURSE, GRADING E-1	TON	$50	2530	$126,500
506(1)	TREATED TIMBER	LS	$10,000	1	$10,000
511(1)	BIN WALL	SF	$250	4050	$1,012,500
603(1)-12	12" CSP	LF	$130	675	$87,750
603(1)-18	18" CSP	LF	$170	145	$24,650
603(22)	12"X18" CSP REDUCER	EACH	$180	2	$360
604(4)	ADJUST EXISTING MANHOLE	EACH	$1,500	4	$6,000
604(5)	INLET, TYPE "A"	EACH	$4,000	7	$28,000
605(5)	POROUS BACKFILL	CY	$100	130	$13,000
605(5)-12	12" PERFORATED CORRUGATED POLYETHYLENE PIPE FOR UNDERDRAIN	LF	$150	930	$139,500
606(3)	BOX BEAM GUARDRAIL	LF	$250	410	$102,500
610(1)	DITCH LINING	CY	$100	50	$5,000
615(1)	STANDARD SIGN	SF	$200	66	$13,200
618(1)	SEEDING	AC	$5,000	1.4	$7,000
624(1)	CALCIUM CHLORIDE	TON	$10,000	3.8	$37,500
627(10)	ADJUSTMENT OF VALVE BOX	EACH	$1,000	1	$1,000
630(1)	GEOTEXTILE, SEPARATION	SY	$3	13900	$41,700
630(2)	GEOTEXTILE, STABILIZATION	SY	$3	900	$2,700
639(1)	DRIVEWAYS	EACH	$1,500	65	$97,500
639(5)	INTERSECTIONS	EACH	$6,000	8	$48,000
640(1)	MOBILIZATION AND DEMOBILIZATION	LS	$1,500,000	1	$1,500,000
641(1)	EROSION & POLLUTION CONTROL ADMIN.	LS	$10,000	1	$10,000
641(3)	TEMPORARY EROSION & POLLUTION CONTROL	LS	$25,000	1	$25,000
642(1)	CONSTRUCTION SURVEYING	LS	$65,000	1	$65,000
643(18)	WATERING	LS	$15,000	1	$15,000
643(25)	TRAFFIC CONTROL	LS	$60,000	1	$60,000
646(1)	CPM SCHEDULING	LS	$5,000	1	$5,000
662(1)	UTILITY RELOCATION, ELECTRIC	EACH	$20,000	38	$760,000
			BASIC BID SUBTOTAL		$4,513,560.00
			CONTINGENCY @ 20%		$902,712.00
			CONSTRUCTION ADMIN @ 15%		$677,034.00
			TOTAL ESTIMATE		**$6,093,306**

SECOND AND THIRD STREET REHABILITATION PROJECT
100% ENGINEER'S ESTIMATE

Construction Cost Estimate - By Route

Description	Cost	Cost Summation
BASE COST UNITS	$2,268,000	$2,268,000
R1 - FIRST STREET	$278,478	$2,546,478
R2 - SECOND STREET	$607,649	$3,154,127
R3 - THIRD STREET	$2,289,911	$5,444,037
R4 - SALMON STREET	$144,086	$5,588,123
R5 - ALDER STREET	$145,098	$5,733,221
R6 - C STREET	$75,020	$5,808,240
DRAINAGE SWALES	$285,066	$6,093,306
	TOTAL ESTIMATE	**$6,093,306**

SECOND AND THIRD STREET REHABILITATION PROJECT
100% ENGINEER'S ESTIMATE

Base Cost Units

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
640(1)	MOBILIZATION AND DEMOBILIZATION	LS	$1,500,000	1	$1,500,000.00
641(1)	EROSION & POLLUTION CONTROL ADMIN.	LS	$10,000	1	$10,000.00
641(3)	TEMPORARY EROSION & POLLUTION CONTROL	LS	$25,000	1	$25,000.00
642(1)	CONSTRUCTION SURVEYING	LS	$65,000	1	$65,000.00
643(18)	WATERING	LS	$15,000	1	$15,000.00
643(25)	TRAFFIC CONTROL	LS	$60,000	1	$60,000.00
646(1)	CPM SCHEDULING	LS	$5,000	1	$5,000.00
			BASIC BID SUBTOTAL		$1,680,000
			CONTINGENCY @ 20%		$336,000
			CONSTRUCTION ADMIN @ 15%		$252,000
			TOTAL ESTIMATE		**$2,268,000**

SECOND AND THIRD STREET REHABILITATION PROJECT
100% ENGINEER'S ESTIMATE

R1 - First Street

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
1	ROW ACQUISITION	EACH	$1,000	0	$0
2	ROADWAY MAINTENANCE EASEMENT	EACH	$500	15	$7,500
4	REVOCABLE USE PERMIT (DRIVEWAY CONSTRUCTION)	EACH	$500	12	$6,000
5	STRUCTURE RELOCATION	EACH	$5,000	0	$0
202(4)	REMOVAL OF CULVERT PIPE	LF	$50	90	$4,500
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	840	$12,600
203(6)-b	SELECTED MATERIAL, TYPE B	TON	$15	880	$13,200
301(3)	AGGREGATE SURFACE COURSE, GRADING E-1	TON	$50	430	$21,500
506(1)	TREATED TIMBER	LS	$10,000	0	$0
511(1)	BIN WALL	SF	$250	0	$0
603(1)-12	12" CSP	LF	$130	100	$13,000
603(1)-18	18" CSP	LF	$170	40	$6,800
604(4)	ADJUST EXISTING MANHOLE	EACH	$1,500	1	$1,500
606(3)	BOX BEAM GUARDRAIL	LF	$250	0	$0
615(1)	STANDARD SIGN	SF	$200	0	$0
618(1)	SEEDING	AC	$5,000	0.3	$1,500
624(1)	CALCIUM CHLORIDE	TON	$10,000	0.68	$6,800
627(10)	ADJUSTMENT OF VALVE BOX	EACH	$1,000	0	$0
630(1)	GEOTEXTILE, SEPARATION	SY	$3	2460	$7,380
639(1)	DRIVEWAYS	EACH	$1,500	8	$12,000
639(5)	INTERSECTIONS	EACH	$6,000	2	$12,000
662(1)	UTILITY RELOCATION, ELECTRIC	EACH	$20,000	4	$80,000

BASIC BID SUBTOTAL	$206,280.00
CONTINGENCY @ 20%	$41,256.00
CONSTRUCTION ADMIN @ 15%	$30,942.00
TOTAL ESTIMATE	**$278,478.00**

SECOND AND THIRD STREET REHABILITATION PROJECT
100% ENGINEER'S ESTIMATE

R2 - Second Street

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
1	ROW ACQUISITION	EACH	$1,000	0	$0
2	ROADWAY MAINTENANCE EASEMENT	EACH	$500	24	$12,000
4	TEMPORARY CONSTRUCTION EASEMENT / REVOCABLE USE PERMIT (DRIVEWAY CONSTRUCTION)	EACH	$500	21	$10,500
5	STRUCTURE RELOCATION	EACH	$5,000	1	$5,000
202(4)	REMOVAL OF CULVERT PIPE	LF	$50	140	$7,000
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	1290	$19,350
203(6)-b	SELECTED MATERIAL, TYPE B	TON	$15	1640	$24,600
301(3)	AGGREGATE SURFACE COURSE, GRADING E-1	TON	$50	740	$37,000
506(1)	TREATED TIMBER	LS	$10,000	0	$0
511(1)	BIN WALL	SF	$250	0	$0
603(1)-12	12" CSP	LF	$130	200	$26,000
603(1)-18	18" CSP	LF	$170	45	$7,650
604(4)	ADJUST EXISTING MANHOLE	EACH	$1,500	2	$3,000
606(3)	BOX BEAM GUARDRAIL	LF	$250	0	$0
615(1)	STANDARD SIGN	SF	$200	12	$2,400
618(1)	SEEDING	AC	$5,000	0.4	$2,000
624(1)	CALCIUM CHLORIDE	TON	$10,000	1.16	$11,600
627(10)	ADJUSTMENT OF VALVE BOX	EACH	$1,000	0	$0
630(1)	GEOTEXTILE, SEPARATION	SY	$3	4170	$12,510
639(1)	DRIVEWAYS	EACH	$1,500	21	$31,500
639(5)	INTERSECTIONS	EACH	$6,000	3	$18,000
662(1)	UTILITY RELOCATION, ELECTRIC	EACH	$20,000	11	$220,000

BASIC BID SUBTOTAL	$450,110.00
CONTINGENCY @ 20%	$90,022.00
CONSTRUCTION ADMIN @ 15%	$67,516.50
TOTAL ESTIMATE	**$607,648.50**

SECOND AND THIRD STREET REHABILITATION PROJECT
100% ENGINEER'S ESTIMATE

R3 - Third Street

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
1	ROW ACQUISITION	EACH	$1,000	4	$4,000
2	ROADWAY MAINTENANCE EASEMENT	EACH	$500	24	$12,000
4	TEMPORARY CONSTRUCTION EASEMENT / REVOCABLE USE PERMIT (DRIVEWAY CONSTRUCTION)	EACH	$500	15	$7,500
5	STRUCTURE RELOCATION	EACH	$5,000	0	$0
202(4)	REMOVAL OF CULVERT PIPE	LF	$50	135	$6,750
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	1020	$15,300
203(6)-b	SELECTED MATERIAL, TYPE B	TON	$15	1780	$26,700
301(3)	AGGREGATE SURFACE COURSE, GRADING E-1	TON	$50	760	$38,000
506(1)	TREATED TIMBER	LS	$10,000	1	$10,000
511(1)	BIN WALL	SF	$250	4050	$1,012,500
603(1)-12	12" CSP	LF	$130	150	$19,500
603(1)-18	18" CSP	LF	$170	60	$10,200
604(4)	ADJUST EXISTING MANHOLE	EACH	$1,500	1	$1,500
606(3)	BOX BEAM GUARDRAIL	LF	$250	410	$102,500
615(1)	STANDARD SIGN	SF	$200	8	$1,600
618(1)	SEEDING	AC	$5,000	0.3	$1,500
624(1)	CALCIUM CHLORIDE	TON	$10,000	0.94	$9,400
627(10)	ADJUSTMENT OF VALVE BOX	EACH	$1,000	1	$1,000
630(1)	GEOTEXTILE, SEPARATION	SY	$3	3760	$11,280
639(1)	DRIVEWAYS	EACH	$1,500	18	$27,000
639(5)	INTERSECTIONS	EACH	$6,000	3	$18,000
662(1)	UTILITY RELOCATION, ELECTRIC	EACH	$20,000	18	$360,000

BASIC BID SUBTOTAL	$1,696,230.00
CONTINGENCY @ 20%	$339,246.00
CONSTRUCTION ADMIN @ 15%	$254,434.50
TOTAL ESTIMATE	**$2,289,910.50**

SECOND AND THIRD STREET REHABILITATION PROJECT
100% ENGINEER'S ESTIMATE

R4 - Salmon Street

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
1	ROW ACQUISITION	EACH	$1,000	0	$0
2	ROADWAY MAINTENANCE EASEMENT	EACH	$500	8	$4,000
4	TEMPORARY CONSTRUCTION EASEMENT / REVOCABLE USE PERMIT (DRIVEWAY CONSTRUCTION)	EACH	$500	7	$3,500
5	STRUCTURE RELOCATION	EACH	$5,000	0	$0
202(4)	REMOVAL OF CULVERT PIPE	LF	$50	25	$1,250
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	260	$3,900
203(6)-b	SELECTED MATERIAL, TYPE B	TON	$15	530	$7,950
301(3)	AGGREGATE SURFACE COURSE, GRADING E-1	TON	$50	250	$12,500
506(1)	TREATED TIMBER	LS	$10,000	0	$0
511(1)	BIN WALL	SF	$250	0	$0
603(1)-12	12" CSP	LF	$130	100	$13,000
603(1)-18	18" CSP	LF	$170	0	$0
604(4)	ADJUST EXISTING MANHOLE	EACH	$1,500	0	$0
606(3)	BOX BEAM GUARDRAIL	LF	$250	0	$0
615(1)	STANDARD SIGN	SF	$200	0	$0
618(1)	SEEDING	AC	$5,000	0.1	$500
624(1)	CALCIUM CHLORIDE	TON	$10,000	0.39	$3,900
627(10)	ADJUSTMENT OF VALVE BOX	EACH	$1,000	0	$0
630(1)	GEOTEXTILE, SEPARATION	SY	$3	1410	$4,230
639(1)	DRIVEWAYS	EACH	$1,500	8	$12,000
639(5)	INTERSECTIONS	EACH	$6,000	0	$0
662(1)	UTILITY RELOCATION, ELECTRIC	EACH	$20,000	2	$40,000

BASIC BID SUBTOTAL	$106,730.00
CONTINGENCY @ 20%	$21,346.00
CONSTRUCTION ADMIN @ 15%	$16,009.50
TOTAL ESTIMATE	**$144,085.50**

R5 - Alder Street

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
1	ROW ACQUISITION	EACH	$1,000	0	$0
2	ROADWAY MAINTENANCE EASEMENT	EACH	$500	8	$4,000
4	TEMPORARY CONSTRUCTION EASEMENT / REVOCABLE USE PERMIT (DRIVEWAY CONSTRUCTION)	EACH	$500	6	$3,000
5	STRUCTURE RELOCATION	EACH	$5,000	0	$0
202(4)	REMOVAL OF CULVERT PIPE	LF	$50	0	$0
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	460	$6,900
203(6)-b	SELECTED MATERIAL, TYPE B	TON	$15	530	$7,950
301(3)	AGGREGATE SURFACE COURSE, GRADING E-1	TON	$50	250	$12,500
506(1)	TREATED TIMBER	LS	$10,000	0	$0
511(1)	BIN WALL	SF	$250	0	$0
603(1)-12	12" CSP	LF	$130	50	$6,500
603(1)-18	18" CSP	LF	$170	0	$0
604(4)	ADJUST EXISTING MANHOLE	EACH	$1,500	0	$0
606(3)	BOX BEAM GUARDRAIL	LF	$250	0	$0
615(1)	STANDARD SIGN	SF	$200	35	$7,000
618(1)	SEEDING	AC	$5,000	0.2	$1,000
624(1)	CALCIUM CHLORIDE	TON	$10,000	0.39	$3,900
627(10)	ADJUSTMENT OF VALVE BOX	EACH	$1,000	0	$0
630(1)	GEOTEXTILE, SEPARATION	SY	$3	1410	$4,230
639(1)	DRIVEWAYS	EACH	$1,500	7	$10,500
639(5)	INTERSECTIONS	EACH	$6,000	0	$0
662(1)	UTILITY RELOCATION, ELECTRIC	EACH	$20,000	2	$40,000

BASIC BID SUBTOTAL	$107,480.00
CONTINGENCY @ 20%	$21,496.00
CONSTRUCTION ADMIN @ 15%	$16,122.00
TOTAL ESTIMATE	**$145,098.00**

R6 - C Street

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
1	ROW ACQUISITION	EACH	$1,000	0	$0
2	ROADWAY MAINTENANCE EASEMENT	EACH	$500	4	$2,000
4	TEMPORARY CONSTRUCTION EASEMENT / REVOCABLE USE PERMIT (DRIVEWAY CONSTRUCTION)	EACH	$500	3	$1,500
5	STRUCTURE RELOCATION	EACH	$5,000	0	$0
202(4)	REMOVAL OF CULVERT PIPE	LF	$50	0	$0
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	210	$3,150
203(6)-b	SELECTED MATERIAL, TYPE B	TON	$15	200	$3,000
301(3)	AGGREGATE SURFACE COURSE, GRADING E-1	TON	$50	100	$5,000
506(1)	TREATED TIMBER	LS	$10,000	0	$0
511(1)	BIN WALL	SF	$250	0	$0
603(1)-12	12" CSP	LF	$130	75	$9,750
603(1)-18	18" CSP	LF	$170	0	$0
604(4)	ADJUST EXISTING MANHOLE	EACH	$1,500	0	$0
606(3)	BOX BEAM GUARDRAIL	LF	$250	0	$0
615(1)	STANDARD SIGN	SF	$200	11	$2,200
618(1)	SEEDING	AC	$5,000	0.1	$500
624(1)	CALCIUM CHLORIDE	TON	$10,000	0.19	$1,900
627(10)	ADJUSTMENT OF VALVE BOX	EACH	$1,000	0	$0
630(1)	GEOTEXTILE, SEPARATION	SY	$3	690	$2,070
639(1)	DRIVEWAYS	EACH	$1,500	3	$4,500
639(5)	INTERSECTIONS	EACH	$6,000	0	$0
662(1)	UTILITY RELOCATION, ELECTRIC	EACH	$20,000	1	$20,000

BASIC BID SUBTOTAL	$55,570.00
CONTINGENCY @ 20%	$11,114.00
CONSTRUCTION ADMIN @ 15%	$8,335.50
TOTAL ESTIMATE	**$75,019.50**

Drainage Swales

Item No.	Pay Item	Pay Unit	Unit Price	Quantity	Amount
3	DRAINAGE MAINTENANCE EASEMENT	EACH	500	15	$7,500
5	STRUCTURE RELOCATION	EACH	$5,000	2	$10,000
203(3)	UNCLASSIFIED EXCAVATION	CY	$15	340	$5,100
603(22)	12"X18" CSP REDUCER	EACH	$180	2	$360
604(5)	INLET, TYPE "A"	EACH	$4,000	7	$28,000
605(5)	POROUS BACKFILL	CY	$100	130	$13,000
605(5)-12	12" PERFORATED CORRUGATED POLYETHYLENE PIPE FOR UNDERDRAIN	LF	$150	930	$139,500
610(1)	DITCH LINING	CY	$100	50	$5,000
630(2)	GEOTEXTILE, STABILIZATION	SY	$3	900	$2,700
			BASIC BID SUBTOTAL		$211,160.00
			CONTINGENCY @ 20%		$42,232.00
			CONSTRUCTION ADMIN @ 15%		$31,674.00
			TOTAL ESTIMATE		**$285,066.00**

APPENDIX D

Permits or Permit Applications

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 6898
JBER, AK 99506-0898
SEPTEMBER 27, 2016

Regulatory Division
POA-2016-471

Lana Davis
111 West 16th Ave. Third Floor
Anchorage, AK 99501

Dear Ms. Lana Davis:

This letter responds to your September 9, 2016, request for a Department of the Army (DA) jurisdictional determination for your proposed road rehabilitation and drainage project. It has been assigned number POA-2016-471, Igushik River, which should be referred to in all correspondence with us. The project site is located within Native Village of Manakotak, Alaska, at approximately 58.9809º N., 159.05615º W.

Based on our review of the information you provided, we have determined the subject property does not contain waters of the United States (U.S.) under Corps jurisdiction. Please see the attached Approved Jurisdictional Determination Form or a copy of the Approved Jurisdictional Determination form is available at: www.poa.usace.army.mil/Missions/Regulatory/JurisdictionalDeterminations.aspx under the above file number. Please contact us if you decide to alter the method, scope, or location of your proposed activity.

This approved jurisdictional determination is valid for a period of five (5) years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date.

Enclosed is a Notification of Administrative Appeal Options and Process and Request for Appeal form regarding this approved jurisdictional determination (see section labeled “Approved Jurisdictional Determination”).

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Alaska District.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Please contact me via email at Jeremy.Grauf@usace.army.mil, by mail at the address above, by phone at (907) 753-2798, or toll free from within Alaska at (800) 478-2712, if you have questions. For more information about the Regulatory Program, please visit our website at http://www.poa.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

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Jeremy Grauf
Regulatory Specialist

Enclosures

CF/BCF:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): September 26, 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Alaska District, POA-2016-471

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Alaska Borough: Dillingham Census Area City: Manakotak
Center coordinates of site (lat/long in degree decimal format): Lat. 58.9809 ° N., Long. 159.05615 °W.
Universal Transverse Mercator: 4
Name of nearest waterbody: Igushik River
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Igushik River
Name of watershed or Hydrologic Unit Code (HUC): Nushagak Bay

☒Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒Office (Desk) Determination. Date: September 26, 2016
☒Field Determination. Date(s): July 23, 2016

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.
There are no *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. *[Required]*

- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: N/A

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.
There are not *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. *[Required]*

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):[1]

☐TNWs, including territorial seas
☐Wetlands adjacent to TNWs
☐Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
☐Non-RPWs that flow directly or indirectly into TNWs
☐Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐Impoundments of jurisdictional waters
☐Isolated (interstate or intrastate) waters, including isolated wetlands

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.

[2] For purposes of this form an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months.

b. Identify (estimate) size of waters of the U.S. in the review area:
Non-wetland waters: 0 linear feet.
Wetlands: 0 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known): N/A

2. Non-regulated waters/wetlands (check if applicable):[3]

☐Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: There are three drainage ditches throughout the study area. However, these drainage ditches do not drain wetlands, are not relatively permanent, and do not have a defined bed and bank.

SECTION III: CWA ANALYSIS

Note: Section III has been omitted due to inapplicability.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Bristol Engineering Services Corporation conducted a wetland delineation report, "Wetland Delineation Report Second and Third Street Rehabilitation Project Manokotak, Alaska", on August 30, 2016

☒Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒Office concurs with data sheets/delineation report.

☐Office does not concur with data sheets/delineation report.

☐Data sheets prepared by the Corps:

☐Corps navigable waters' study:

☒U.S. Geological Survey Hydrologic Atlas: Igushik River Watershed

☒USGS NHD data.

☒USGS 8 and 12 digit HUC maps.

☐Alaska District's Approved List of Navigable Waters

☒U.S. Geological Survey map(s). Cite scale & quad name: AK-NUSHAGAK BAY D-4

☒USDA Natural Resources Conservation Service Soil Survey. Citation: s9273 and s9429

☒National wetlands inventory map(s). Cite name:

☐State/Local wetland inventory map(s):

☐FEMA/FIRM maps:

☐100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒Photographs: ☒Aerial (Name & Date): (Manokotak Community map, 2003)
or ☒Other (Name & Date): Site photos from wetland delineation provided from the contractor

☒Previous determination(s). File no. and date of response letter: POA-2000-857, POA-2003-366

☐Applicable/supporting case law:

☐Applicable/supporting scientific literature:

☐Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD: All three parameters have not been met. The Native Village of Manokotak is located at the toe-of-slope of the Acorn Mountain, and exhibits sheet flow. Within the Village**,** drainage ditches have formed where heavy foot and vehicular traffic has occurred and/or where culverts have been installed. However, these drainage ditches don't have a discernable bed and bank (OHWM), are not relatively permanent, don't drain any wetlands, and do not contain the soil, vegetation, and hydrology characteristics to be considered wetlands. Therefore, these drainage ditches have been determined to be upland drainage features.

[3] Supporting documentation is presented in Section III F.

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Jeremy Grauf
Regulatory Specialist
NORTH Section

September 27, 2016
Date

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ms. Lana Davis	File Number: POA-2016-471	Date: 9-28-2016
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Jeremy Grauf, RS
Alaska District Corps of Engineers
CEPOA-RD-N
P.O. Box 6898
JBER, AK 99506-0898
(907) 753-2798

If you only have questions regarding the appeal process you may also contact:

Regulatory Program Manager
U.S. Army Corps of Engineers, Pacific Ocean Division
CEPOD-PDC, Bldg 525
Fort Shafter, HI 96858-5440

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.	Date:	Telephone number:

FH#_____
(Office Use Only)

ALASKA DEPARTMENT OF FISH AND GAME
FISH HABITAT PERMIT APPLICATION
SPECIFIC INSTRUCTIONS

NOTE: Provide as much information as possible. If you need assistance, please contact the nearest ADF&G Division of Habitat office. The ADF&G reserves the right to require additional information for the proper protection of fish and game.

Step A: Provide your name, address, and telephone number and the name, address, and telephone number of the contractor who will be doing the work, if known.

Step B: Describe the type of project (e.g., bridge, culvert, utility line placement, impoundment structure, bank stabilization, channelization, low water crossing, log removal, etc.) and the purpose of the project. A brief description of alternatives considered would be useful but is not required. Attach additional sheets as necessary. Back to Form

Step C: **1.** Name of the waterbody in or adjacent to which the project will occur.

2. For Anadromous Stream numbers, refer to the Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes.

3. a. Provide plans (or field sketch) showing the following as a minimum: access to the site, plan view showing all project features and dimensions, or crossing/fording sites; material removal plans should also include, at a minimum, the following: 50' contour lines; nearby watercourses and lakes; location of facilities (i.e., screening, washing, and crushing plants, and commercial and private buildings); aliquot parts identified in order they are to be mined; site where fuel will be stored; a cross section view of the material site showing current land and water elevations and bank slopes and final excavation grades and slopes; and project expansion sites (scale no greater than 1 in. = 400 ft.)

b. Provide specifications, if available; and

c. Provide a current aerial photograph, if available. Back to Form

Step D: Indicate the time of year when project construction will occur. Is the project temporary or permanent?

Step E: 1. Provide information if applicable on how you will divert the stream.

2. Indicate if channelization will occur.

3. Provide information, if applicable, on how you will alter or modify the banks of the stream.

4. List all vehicles or equipment by type and size that will be used in the stream.

5. Provide information, if applicable, on what type and amount of material will be removed from the floodplain, bed, stream, or lake.

6. Provide information, if applicable, on any material you will deposit in the floodplain, stream, or lake.

7. Provide information, if applicable, on any blasting you intend to do in the floodplain, stream, or lake.

8. Indicate if temporary fills will be required.

9. Indicate if ice bridges will be required.

Step F: What precautions will be taken to insure that fish and other aquatic organisms are protected from adverse impacts? Outline plan for restoring, rehabilitating, or re-vegetating the site if channel or bank alterations occur. What precautions will be taken to maintain State Water Quality Standards? Back to Form

Step G: Provide the waterbody characteristics at the site of the project.

Step H: Provide available hydraulic information for the types of projects indicated. For information on selecting a culvert size that will ensure fish passage, consult ADF&G permitters or references available at Division of Habitat offices.

FH# _____
(Office Use Only)

GENERAL WATERWAY/WATERBODY APPLICATION
ALASKA DEPARTMENT OF FISH AND GAME
Division of Habitat
Office Locations

A. APPLICANT

1. Name: Manokotak Village Council - Attn. Mr. Andrewski Toyukak

2. Address (Mailing): P.O. Box 169 Manokotak, AK 99628
   Email Address: kmo_trnsptsnplnr@hotmail.com
   Telephone: 907-289-1249 Fax: _____

3. Project Coordinator/Contractor:
   Name: Isaac Pearson - Bristol Engineering Services Company, LLC
   Address: 111 W. 16th Avenue, Third Floor Anchorage, AK 99501
   Email Address: ipearson@bristol-companies.com
   Telephone: 907-743-9313 Fax: 907-563-6713

B. TYPE AND PURPOSE OF PROJECT: Please see the attached Project Description for more detailed information regarding the proposed project.

C. LOCATION OF PROJECT SITE

1. Name of River, Stream, or Lake: Igushik River
   or Anadromous Stream No: 325-10-10010

2. Legal Description: Township 014S Range 059W
   Meridian S Section 12 USGS Quad Map Nushagak Bay D-4

3. Plans, Specifications, and Aerial Photograph. See specific instructions

D. **TIME FRAME FOR PROJECT**: May 2021 TO October 2026 (mm/dd/yy)

E. **CONSTRUCTION METHODS**:

1. Will the stream be diverted? ☐ Yes ☒ No

   How will the stream be diverted? N/A

   How long? N/A

2. Will stream channelization occur? ☐ Yes ☒ No

3. Will the banks of the stream be altered or modified? ☐ Yes ☒ No

   Describe: _____

4. List all tracked or wheeled equipment (type and size) that will be used in the stream (in the water, on ice, or in the floodplain): N/A

   How long will equipment be in the stream? N/A

5. a. Will material be removed from the floodplain, bed, stream, or lake? ☐ Yes ☒ No

      Type: N/A

      Amount: N/A

   b. Will material be removed from below the water table? ☐ Yes ☒ No

      If so, to what depth? N/A

      Is a pumping operation planned? ☒ Yes ☐ No

6. Will material (including spoils, debris, or overburden) be deposited in the floodplain, stream, or lake? ☐ Yes ☒ No

   If so, what type? N/A

   Amount: N/A

   Disposal site location(s): _____

7. Will blasting be performed? ☐ Yes ☒ No

   Weight of charges: N/A

   Type of substrate: N/A

8. Will temporary fills in the stream or lake be required during construction (e.g., for construction traffic around construction site)? ☐ Yes ☒ No

9. Will ice bridges be required? ☐ Yes ☒ No

F. **SITE REHABILITATION/RESTORATION PLAN**: On a separate sheet present a site rehabilitation/restoration plan. See specific instructions

G. **WATERBODY CHARACTERISTICS**:

Width of stream: ~225-ft. Depth of stream or lake: Variable

Type of stream or lake bottom (e.g., sand, gravel, mud): Mud

Stream gradient: ~1-2%

H. **HYDRAULIC EVALUATION**:

1. Will a structure (e.g., culvert, bridge support, dike) be placed below ordinary high water of the stream? ☐ Yes ☒ No

   If yes, attach engineering drawings or a field sketch, as described in Step B.

   For culverts, attach stream discharge data for a mean annual flood (Q=2.3), if available.

   If applicable, describe potential for channel changes and/or increased bank erosion:

   _____

2. Will more than 25,000 cubic yards of material be removed? ☐ Yes ☒ No

   If yes, attach a written hydraulic evaluation including, at a minimum, the following: potential for channel changes, assessment of increased aufeis (glaciering) potential, assessment of potential for increased bank erosion.

I HEREBY CERTIFY THAT ALL INFORMATION PROVIDED ON OR IN CONNECTION WITH THIS APPLICATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

_____ _____

Signature of Applicant Date

Alaska Department of Fish and Game
Fish Habitat Permit Application – General Waterway/Waterbody

Attachment A – Additional Information

Step B: Type and Purpose of Project

PROPOSED PROJECT

The Manokotak Road Rehabilitation Project will involve the rehabilitation of six (6) roads (0.9 total miles), the installation of new drainage features, and the construction of four on-street parking stalls and ramps along Third Street constructed with retaining walls and guardrails. Road improvements will include the placement of a woven geotextile material to stabilize all subgrades, placement of new fill material to establish proper road embankments, followed by the placement of a crushed aggregate surface course to widen and enhance the traveling surface.

The proposed drainage features include the placement of new appropriately sized culverts along existing roadways, replacement of existing failed culverts, the construction of roadside ditches along all streets, and the installation of rock-filled drainage channels with perforated pipe. The drainage channels will run between lots, perpendicular to First, Second, and Third Street. The new storm drainage features will improve drainage patterns and ensure water conveyance away from residential housing. Additionally, the proposed improvements will prevent ponding in existing roadways, which leads to erosion/rutting, washouts, and health concerns.

The roadway alignments, typical sections, and locations of drainage channels, culverts, and parking stalls are shown on the attached figures.

The proposed project will include the following route-specific improvements (See Figures):

- First Street (Route 1006-10) – First Street, from Salmon Street to Alder Street, will have a 15-foot wide traveling surface. An approximately 18-inch deep ditch will be constructed on the east side of the road.
    - Length – Approximately 820-ft.
- Second Street (Route 1007-10) – Second Street, from Salmon Street to C Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the east side of the road.
    - Length – Approximately 1,390-ft.
- Third Street (Route 1008-10) - Third Street, from Salmon Street to C Street, will have a 12-foot wide traveling surface. An 18-inch deep ditch will be constructed on the east side of the road, and four on-street parking areas will be constructed along the west side. The on-street parking areas will also include ramps to access residential properties (See Figure 5).
    - Length – Approximately 1,410-ft.

- Salmon Street (Route 1014-10) – Salmon Street, from First Street to Third Street, will have a 15-foot wide traveling surface. A 6-inch deep ditch will be constructed on the north side of the road.
    - Length – Approximately 470-ft.
- Alder Street (Route 1010-10) – Alder Street, from First Street to Third Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the south side of the road.
    - Length – Approximately 470-ft.
- C Street (Route 1012-10) – C Street, from Second Street to Third Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the south side of the road.
    - Length – Approximately 230-ft.

PURPOSE AND NEED

The existing Manokotak road infrastructure is deteriorating due to a lack of proper storm drainage and inferior roadside ditching unable to convey surface water to existing culverts. The proposed rehabilitation project will establish proper road embankments, create roadside ditching improve the storm drainage system, install new culverts at engineered locations, and install new drainage channels interconnecting First, Second, and Third Streets (See Figure 2). Additionally, the streets are very narrow, constricted by the existing 20-foot right-of-way, and parked cars along the shoulders create heavy congestion, especially along Third Street. The establishment of parking areas, proper road embankments, improved storm drainage systems, and appropriate street/stop signage will create safer traveling conditions for residents and enhance the overall road infrastructure in Manokotak.

Step F: Site Rehabilitation / Restoration Plan

The following precautions and construction activities will be taken to ensure that fish and other aquatic organisms are protected from adverse impacts:

- A Temporary Water Use Permit will be acquired from the Alaska Department of Natural Resources (ADNR)-Division of Mining, Land and Water (MLW) for fresh water withdrawal from the Igushik River for compaction and dust suppression.

- The pump hose used to withdraw water from the Igushik River will be fitted with an appropriately sized fish screen.

- The installation of culverts, road-side ditches, and drainage channels will help mitigate flooding, erosion, and other storm water issues along the project corridor.

- Best Management Practices (BMPs) from the yet-to-be-determined project contractor will be used to maintain State Water Quality Standards in the event of a spill or other incident.

The project will not disturb more than one acre of undisturbed land. No channel or bank alterations of the Igushik River will occur as part of this project. There is no wastewater discharge associated with the proposed project. The project does not contain any waters of the US and will therefore not impact any wetlands habitat. The proposed action will not result in excessive levels of organic materials, inorganic nutrients, or heat, and is not anticipated to cause an adverse impact on essential fish habitat.

Alaska Department of Fish and Game
Fish Habitat Permit Application – General Waterway/Waterbody

Attachment B – Figures

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_1.DWG – Layout: FIG1
User: JWANDER Jun 23, 2020 – 11:19am Xrefs: BR_85X11L.DWG – Images: ALASKA_MAP_E.TIF

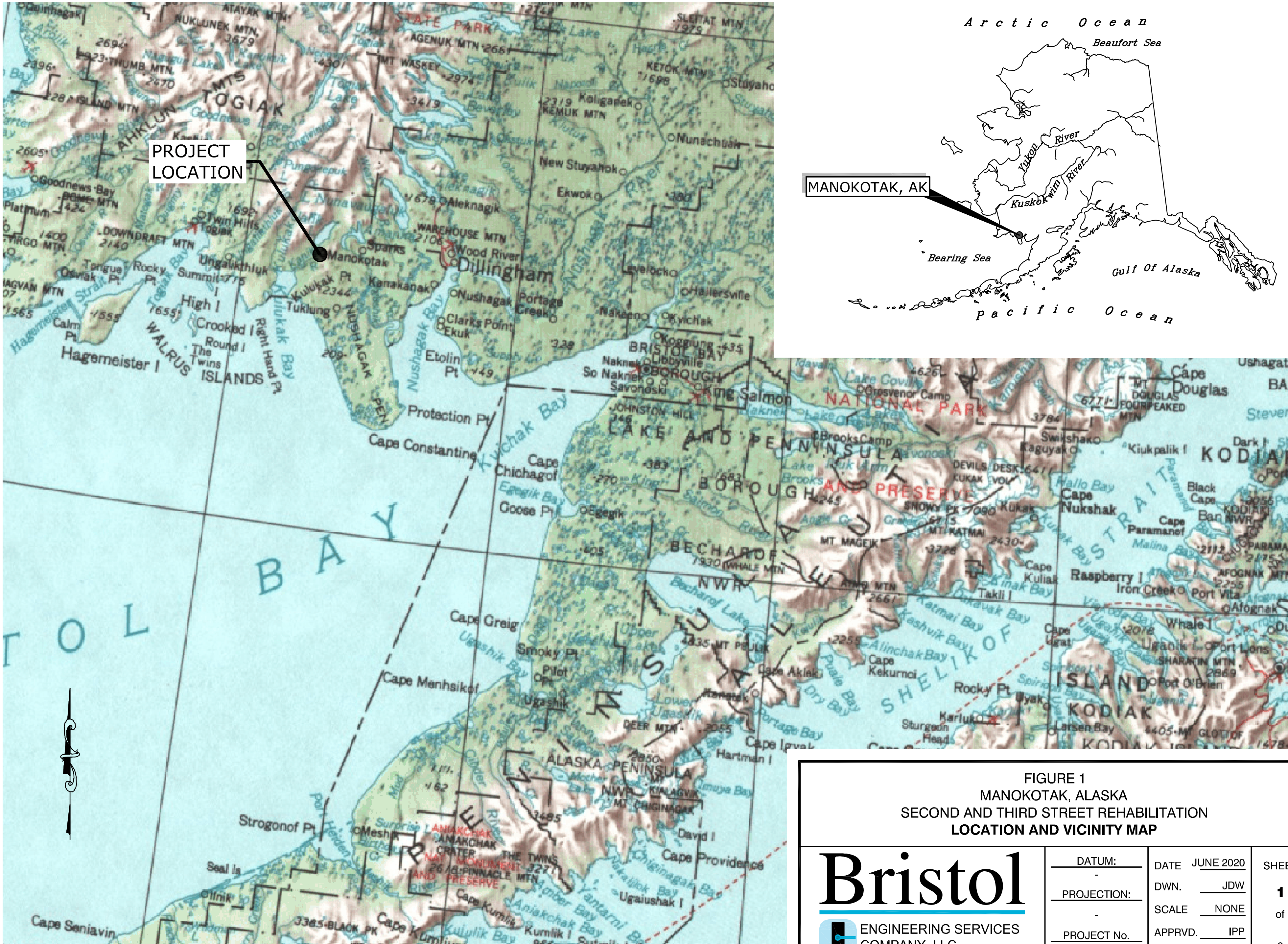

FIGURE 1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
LOCATION AND VICINITY MAP

Bristol
ENGINEERING SERVICES
COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET
PROJECTION: -	DWN. JDW	1
PROJECT No. 32150007	SCALE NONE	of
	APPRVD. IPP	6

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_2.DWG – Layout: FIG 2
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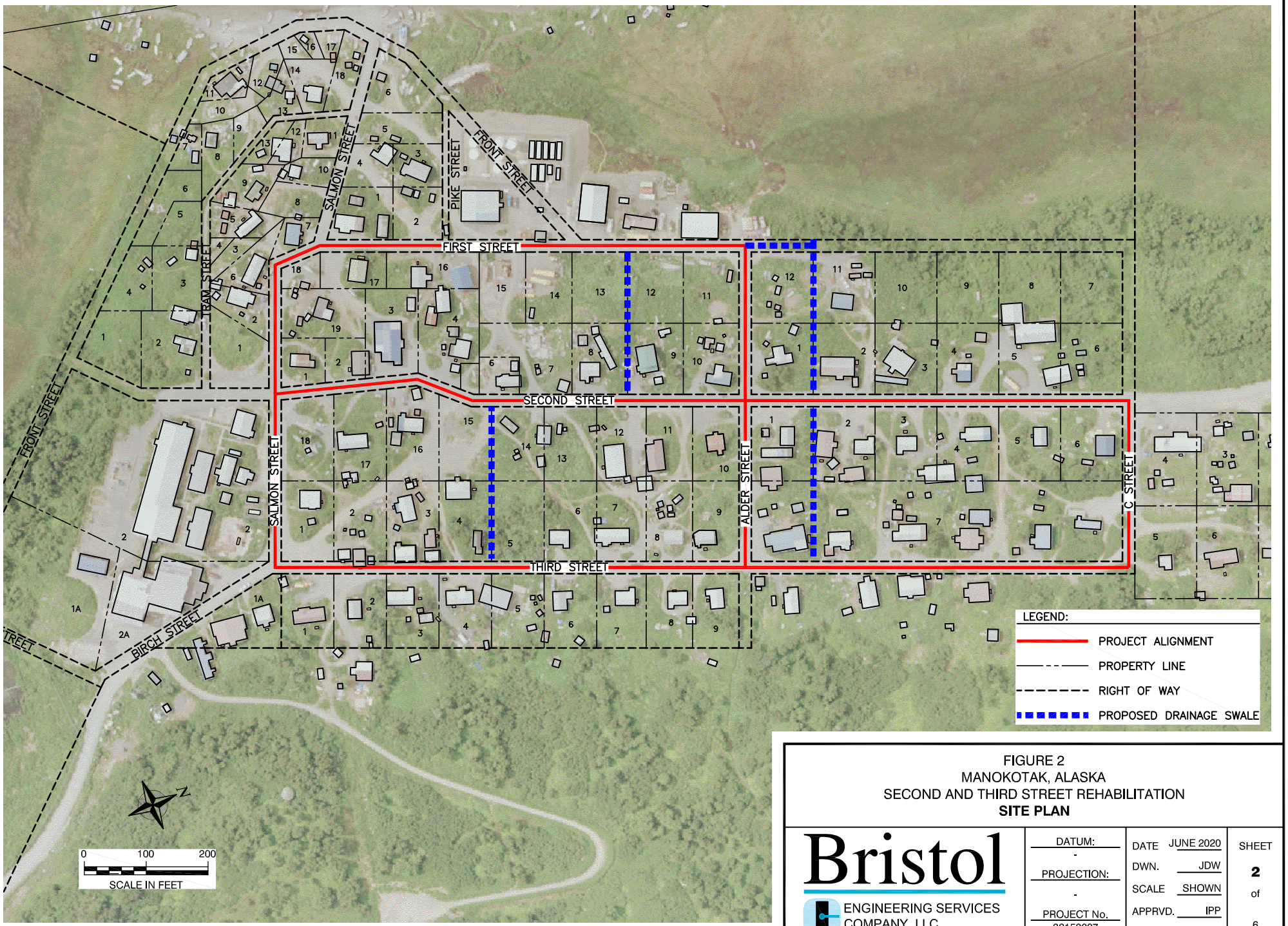
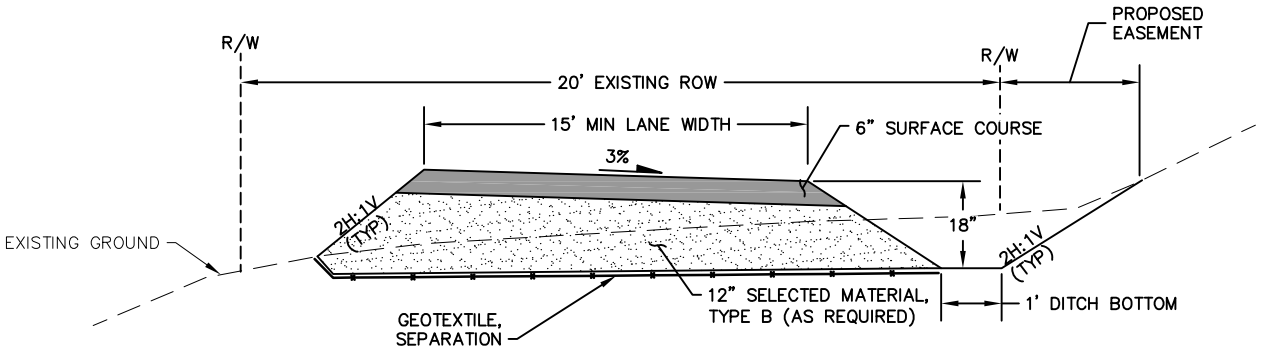


FIGURE 2
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
SITE PLAN

Bristol
ENGINEERING SERVICES COMPANY, LLC

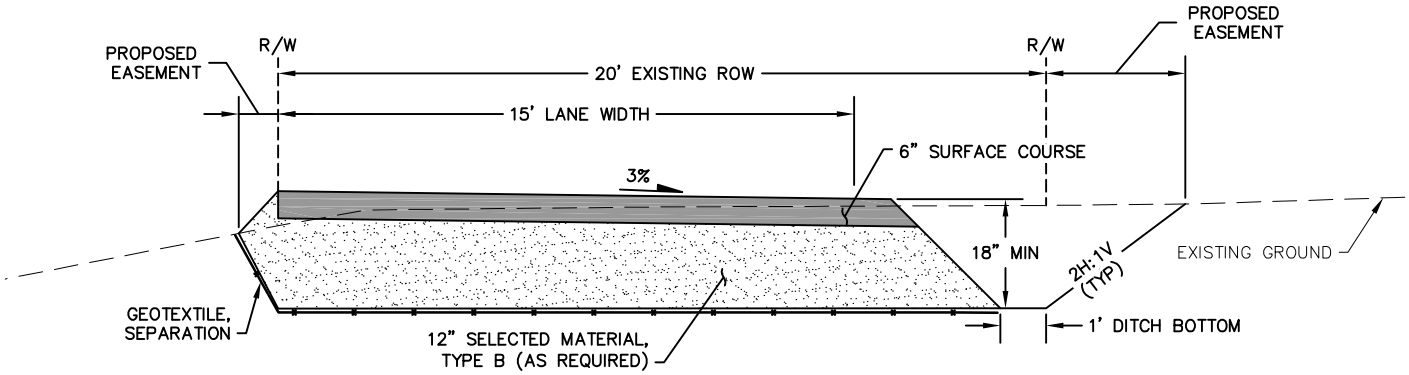
DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP

SHEET 2 of 6



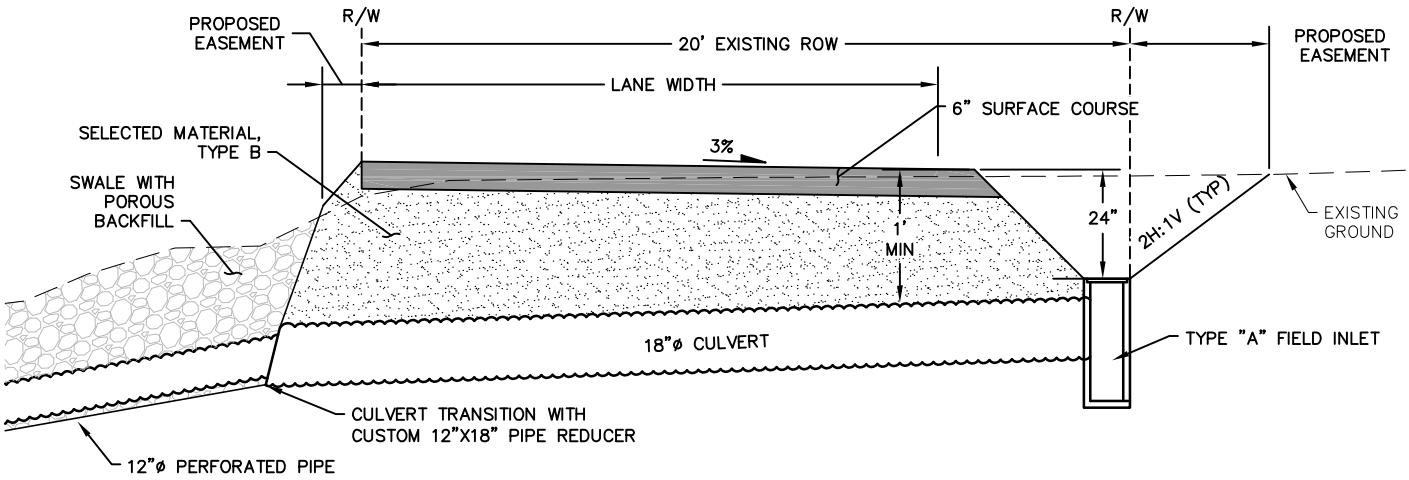
A — **TYPICAL ROAD SECTION - THIRD STREET**

SCALE: NTS



B — **TYPICAL ROAD SECTION - ALL OTHER ROADS**

SCALE: NTS



C — **TYPICAL CULVERT SECTION**

SCALE: NTS

FIGURE 3
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 3
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_3.DWG - Layout: FIG3
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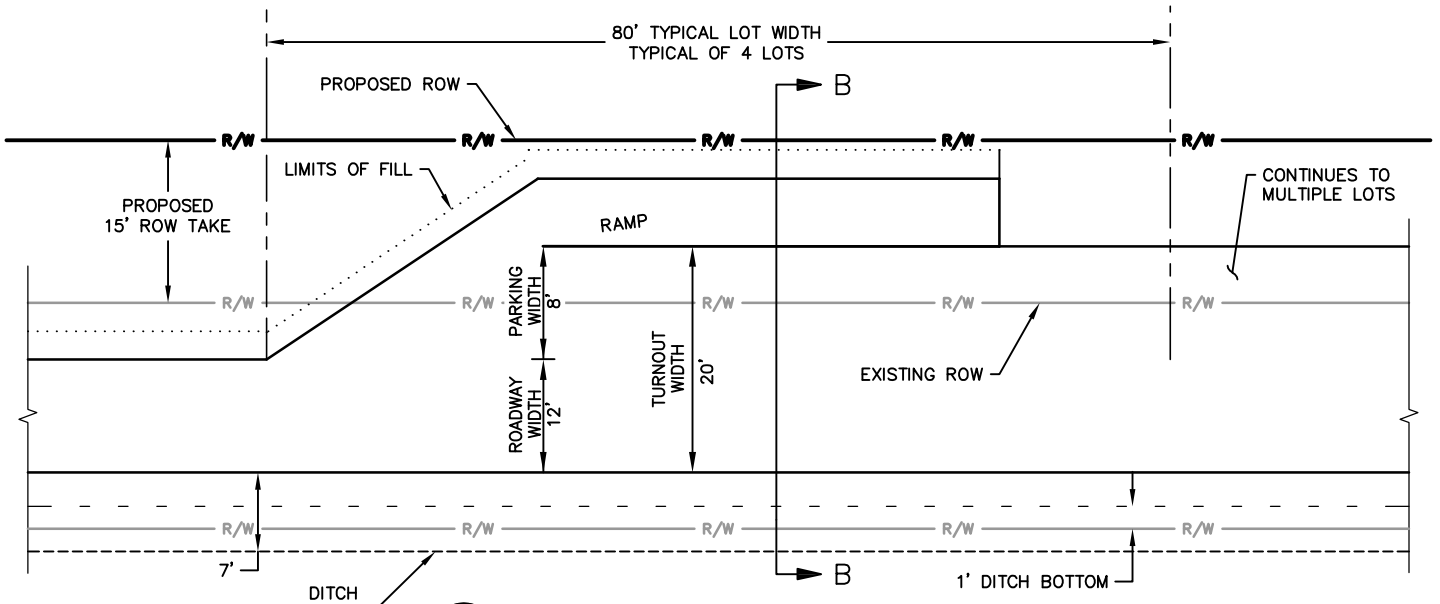
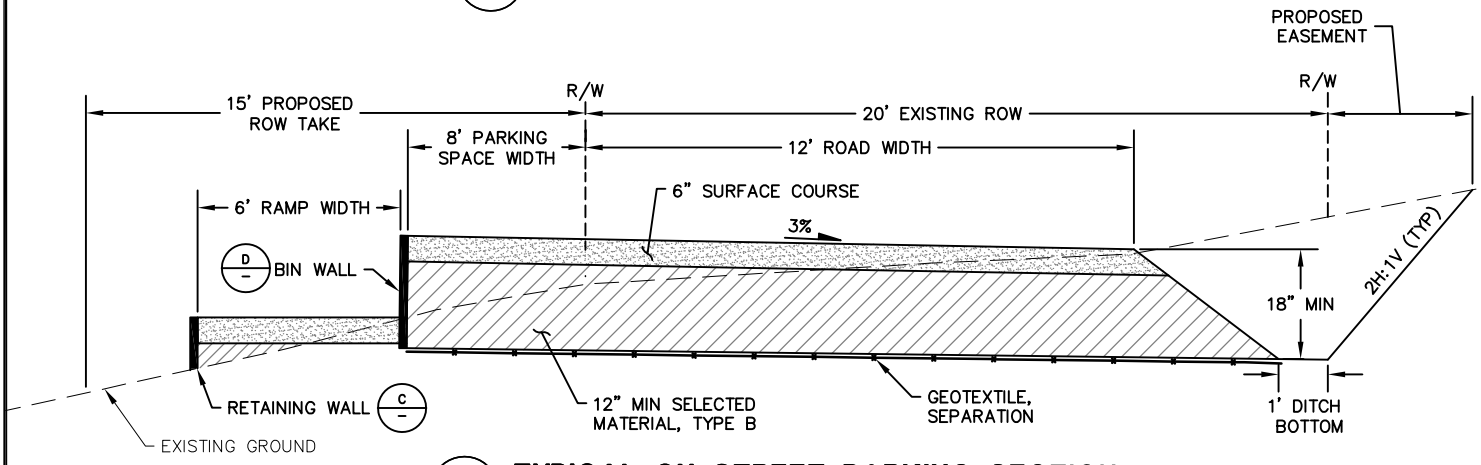
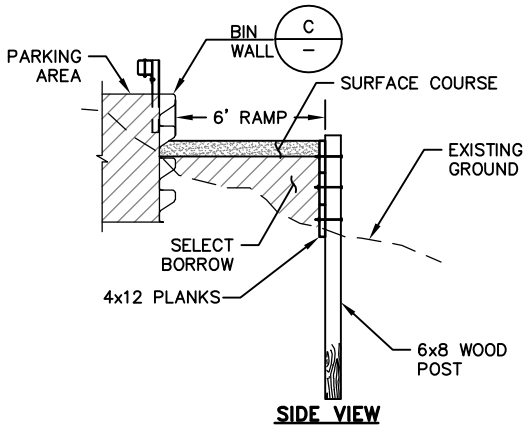


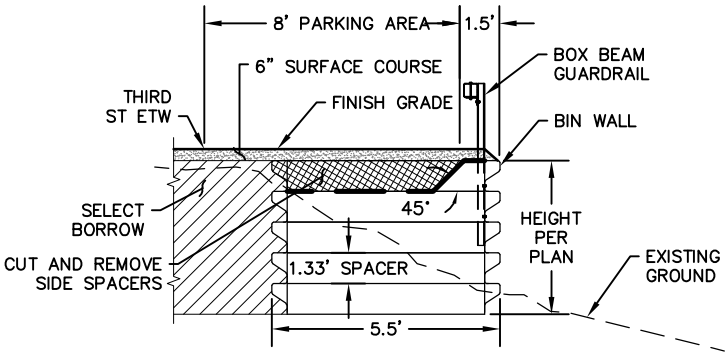
A — **TYPICAL ON STREET PARKING WITH RAMP**
SCALE: NTS



B — **TYPICAL ON STREET PARKING SECTION**
SCALE: NTS



C — **TYPICAL RETAINING WALL SECTION**
SCALE: NTS



D — **TYPICAL BIN WALL SECTION**
SCALE: NTS

FIGURE 4
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
ON-STREET PARKING DETAILS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP
SHEET	4 of 6

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_4.DWG - Layout: FIG4
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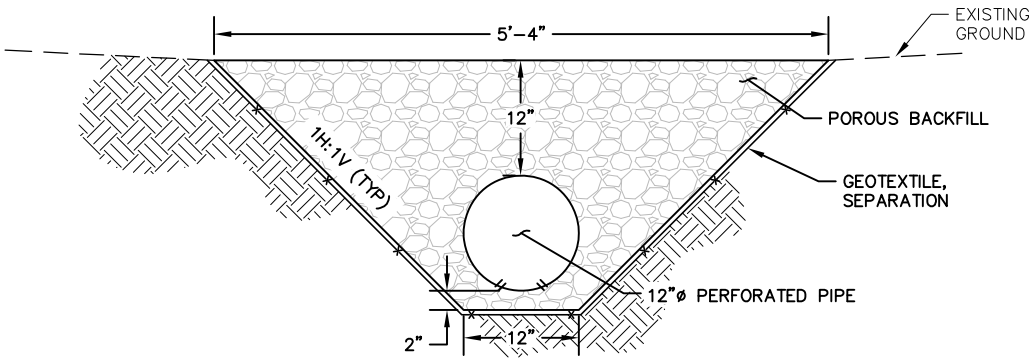
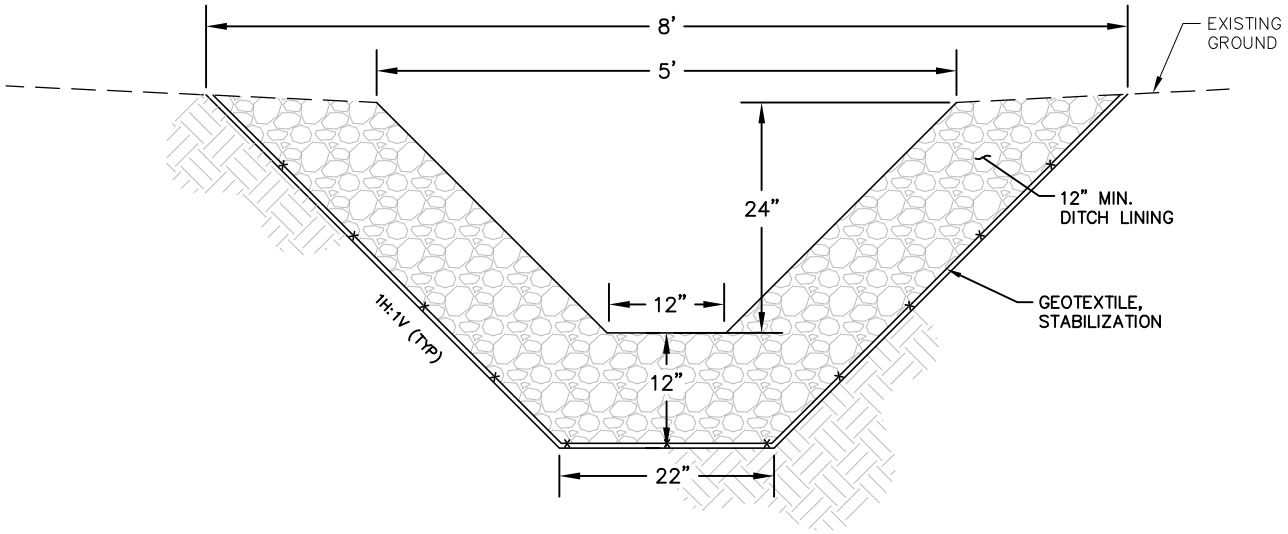


A — **TYPICAL SWALE TRENCH SECTION WITH PIPE**
SCALE: NTS



B — **TYPICAL OPEN CHANNEL SWALE SECTION**
SCALE: NTS

FIGURE 5
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SWALE SECTIONS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 5
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_5.DWG - Layout: FIG5
User: JWANDER Jun 23, 2020 - 11:23am Xrefs: BR_85X11P.DWG - Images: FINALIRALOGO.PNG

NOTES:

1. THE OWNERSHIP STATUS DEPICTED HERON IS BASED ON INFORMATION PROVIDED BY BRISTOL BAY NATIVE ASSOCIATION AND DATA OBTAINED FROM THE STATE OF ALASKA DNR RECORDS.
2. EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THIS MAP.
3. LOT CONFIGURATIONS BASED ON:
   a.) 2003 DCCED MAPPING
   b.) SURVBASE LANDSTATUS MAP

OWNERSHIP LEGEND:

- PUBLIC
- NATIVE VILLAGE
- PRIVATE UNRESTRICTED
- PRIVATE RESTRICTED
- PRIVATE RESTRICTED WITH FRACTIONAL OWNERSHIP

LEGEND:

- PROJECT ALIGNMENT
- EXISTING PROPERTY LINE
- NEW PROPERTY LINE
- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE DITCH
- TEMPORARY CONSTRUCTION EASEMENT OR REVOCABLE USE PERMIT
- ROAD OR DRAINAGE EASEMENT
- PERMANENT RIGHT-OF-WAY TAKE
- PROJECT FOOTPRINT
- 2 LOT NUMBER
- 3 BLOCK NUMBER
- PROPOSED ON-STREET PARKING

50 0 25 50
HORIZONTAL SCALE IN FEET

METES & BOUNDS LOT
POWER PLANT GROUND LEASE
FRONT STREET
SALMON STREET
PIKE STREET
ALDER STREET
C STREET
FIRST STREET
SECOND STREET
THIRD STREET
W PTN 4
E PTN 4

REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES COMPANY, LLC
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501
Phone (907) 563-0013 Fax (907) 563-6713
License Number: AECC697

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

TEMPORARY AND PERMANENT RIGHT-OF-WAY ACQUISITION

SHEET NO. FIG 6

SCALE: | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: JUNE 2020 | SHEET 6 OF 6

User: JWANDER Jun 23, 2020 - 11:25am
Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_6.DWG - Layout: FIG 6
Xrefs: 32150007_BASE_ROW-TCE FIGS.DWG BR22X34REV.DWG - Images: (DIESEL evaluation failed)

Fill in the form online by clicking in the appropriate field and typing. Print the completed application and mail in one signed copy of the form with fees and supporting documents.

You will not be able to save your data entry online, so print an extra copy for yourself.

Print

DIVISION OF MINING, LAND AND WATER
WATER RESOURCES SECTION
www.dnr.state.ak.us/mlw/water/index.htm

Alaska Department of NATURAL RESOURCES

Anchorage Office 550 West 7th Avenue, Suite 1020 Anchorage, AK 99501-3562 (907) 269-8600 Fax: (907) 269-8947	Juneau Office PO Box 111020 400 Willoughby Avenue Juneau, AK 99811-1020 (907) 465-3400 Fax: (907) 586-2954	Fairbanks Office 3700 Airport Way Fairbanks, AK 99709-4699 (907) 451-2790 Fax: (907) 451-2703	***For ADNR Use Only*** ***Date/Time Stamp***
For ADNR Use Only ***TWUP #***	***For ADNR Use Only*** ***CID #***	***For ADNR Use Only*** ***Receipt Type WR***	

APPLICATION FOR TEMPORARY USE OF WATER

INSTRUCTIONS

1. Complete one application for each project including up to five water sources (incomplete applications will not be accepted).
2. Attach legible map that includes meridian, township, range, and section lines such as a USGS topographical quadrangle or subdivision plat. Indicate water withdrawal point(s), location(s) of water use, and point(s) of return flow or discharge (if applicable).
3. Attach sketch, photos, plans of water system, or project description (if applicable).
4. Attach driller's well log for drilled wells (if available).
5. Attach copy of ADNR fish habitat permit (if applicable).
6. Attach completed Coastal Project Questionnaire (if applicable - see page 4).
7. Submit non-refundable fee (see page 4).

APPLICANT INFORMATION

Manokotak Second and Third Street Rehabilitation Project
Project Name

Manokotak Village Council
Organization Name (if applicable)

Isaac Pearson - Bristol Engineering Services Corp
Agent or Consultant Name (if applicable)

Mr. Andrewski Toyukak - Transportation Director
Individual Name (if applicable)

Individual Co-applicant Name (if applicable)

P.O. Box 169
Mailing Address

Manokotak
City

AK
State

99628
Zip Code

907-289-1249
Daytime Phone Number

Alternate Phone Number (optional)

Fax Number (if available)

kmo_trnsptsnplnr@hotmail.com
E-Mail Address (optional)

PROPERTY DESCRIPTIONS

Location of Water Use

Project Area (e.g. milepost range, place name, survey number)	Meridian	Township	Range	Section	Quarter Sections	
Manokotak 2nd & 3rd St Rehab Project Area	Seward	014S	059W	11&12	NW ¼	SW ¼
					¼	¼

Location of Water Source

Geographic Name of Water Body or Well Depth	Meridian	Township	Range	Section	Quarter Sections	
Igushik River	Seward	014S	059W	11	NE ¼	SE ¼
					¼	¼
					¼	¼
					¼	¼
					¼	¼

Location of Water Return Flow or Discharge (if applicable)

Geographic Name of Water Body or Well Depth	Meridian	Township	Range	Section	Quarter Sections	
Not Applicable					¼	¼
					¼	¼

METHOD OF TAKING WATER

Pump
Pump Intake 2-6" Inches
Pump Output 180-1700 GPM
Hours Working 2 Maximum Hours/Day
Length of Pipe Variable Feet (from pump to point of use)

Gravity
Pipe Diameter _____ Inches
Head _____ Feet
Length of Pipe _____ Feet (take point to point of use)

Ditch
L _____ H _____ W _____ Feet
Diversion Rate _____ ☐ GPM or ☐ CFS

Reservoir
L _____ H _____ W _____ Feet
Water Storage _____ Acre-feet

Dam
L _____ H _____ W _____ Feet
Water Storage _____ Acre-feet

AMOUNT OF WATER

Purpose of Water Use	Quantity of Water			Season of Use	
	Maximum Withdrawal Rate	Total Daily Amount	Total Seasonal Amount	Date Work Will Start	Date Work Will be Completed
Dust suppression and compaction	1700 GPM	5,000 gpd	0.5 MGal	May 2021	October 2026
	Project Totals	5,000 gpd	0.5 MGal	Total years needed:	5 years

PROJECT DESCRIPTION

What alternative water sources are available to your project should a portion of your requested diversion be excluded because of water shortage or public interest concerns?

There are no other practical water sources within reasonable distance to the project area.

Are there any surface water bodies or water wells at or near your site(s) that could be affected by the proposed activity? If yes, list any ground water monitoring programs going on at or near the sites, any water shortages or water quality problems in the area, and any information about the water table, if known.

No known affects.

Briefly describe the type and size of equipment used to withdraw and transport water, including the amount of water the equipment uses or holds.

Portable self-priming centrifugal pumps with appropriately sized fish screens.

Briefly describe what changes at the project site and surrounding area will occur or are likely to occur because of construction or operation of your project (e.g. public access, streambed alteration, trenching, grading, excavation).

The proposed project involves road construction/rehabilitation that will occur completely inland.

Briefly describe land use around the water take, use, and return flow points (e.g. national park, recreational site, residential).

The land use adjacent to the water take and use points consist primarily of developed roads and municipal/residential parcels within Manokotak, AK.

Will project be worked in phases? State reason for completion date.

No. The project will be completed in a single construction season, with the potential for some finishing work in a second season.

Briefly describe your entire project:

See attached project description.

(Attach extra page if needed.)

11 AAC 93.220 sets out the required information on the application and authorizes the department to consider any other information needed to process an application for a temporary use of water. This information is made a part of the state public water records and becomes public information under AS 40.25.110 and 40.25.120. Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.

SIGNATURE

The information presented in this application is true and correct to the best of my knowledge. I understand that no water right or priority is established per 11 AAC 93.210-220, that the water used remains subject to appropriation by others, and that a temporary water use authorization may be revoked if necessary to protect the water rights of other persons or the public interest.

Signature	Date
Isaac Pearson	Senior Civil Engineer
Name (please print)	Title (if applicable)

REFERENCES

Measurement Units

GPD = gallons per day
CFS = cubic feet per second
GPM = gallons per minute
AF = acre-feet
AFY = acre-feet per year (325,851 gallons/year)
AFD = acre-feet per day (325,851 gallons/day)
MGD = million gallons per day

Conversion Table

5,000 GPD=	30,000 GPD=	100,000 GPD=	500,000 GPD=	1,000,000 GPD=
0.01 CFS	0.05 CFS	0.2 CFS	0.8 CFS	1.5 CFS
3.47 GPM	20.83 GPM	69.4 GPM	347. 2 GPM	694.4 GPM
5.60 AFY	33.60 AFY	112.0 AFY	560.1 AFY	1120.1 AFY
0.2 AFD	0.09 AFD	0.3 AFD	1.5 AFD	3.1 AFD
0.01 MGD	0.03 MGD	0.1 MGD	0.5 MGD	1.0 MGD

Fee required by regulation 11 AAC 05.010(a)(8)

- **$350** for all uses of water from up to five water sources

Make checks payable to "Department of Natural Resources".

Coastal Zone

If this appropriation is within the Coastal Zone, and you are planning to use more than 1,000 GPD from a surface water source or 5,000 GPD from a subsurface water source, you need to submit a completed Coastal Project Questionnaire with this application. For more information on the Coastal Zone, contact the Office of Project Management and Permitting; Anchorage 269-7470, Juneau 465-3562, www.dnr.state.ak.us/acmp/.

Alaska Department of Natural Resources
Division of Mining, Land and Water – Water Resources Section

Attachment A – Project Description

PURPOSE AND NEED

The existing Manokotak road infrastructure is deteriorating due to a lack of proper storm drainage and inferior roadside ditching unable to convey surface water to existing culverts. The proposed rehabilitation project will establish proper road embankments, create roadside ditching improve the storm drainage system, install new culverts at engineered locations, and install new drainage channels interconnecting First, Second, and Third Streets (See Figure 2). Additionally, the streets are very narrow, constricted by the existing 20-foot right-of-way, and parked cars along the shoulders create heavy congestion, especially along Third Street. The establishment of parking areas, proper road embankments, improved storm drainage systems, and appropriate street/stop signage will create safer traveling conditions for residents and enhance the overall road infrastructure in Manokotak.

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The roadway alignments, typical sections, and locations of drainage channels, culverts, and parking stalls are shown on the attached figures.

The proposed project will include the following route-specific improvements (See Figures):

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    - Length – Approximately 820-ft.

- Second Street (Route 1007-10) – Second Street, from Salmon Street to C Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the east side of the road.
    - Length – Approximately 1,390-ft.
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    - Length – Approximately 1,410-ft.
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    - Length – Approximately 470-ft.
- Alder Street (Route 1010-10) – Alder Street, from First Street to Third Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the south side of the road.
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- C Street (Route 1012-10) – C Street, from Second Street to Third Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the south side of the road.
    - Length – Approximately 230-ft.

Alaska Department of Natural Resources
Division of Mining, Land and Water – Water Resources Section

Attachment B – Figures

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_1.DWG - Layout: FIG1
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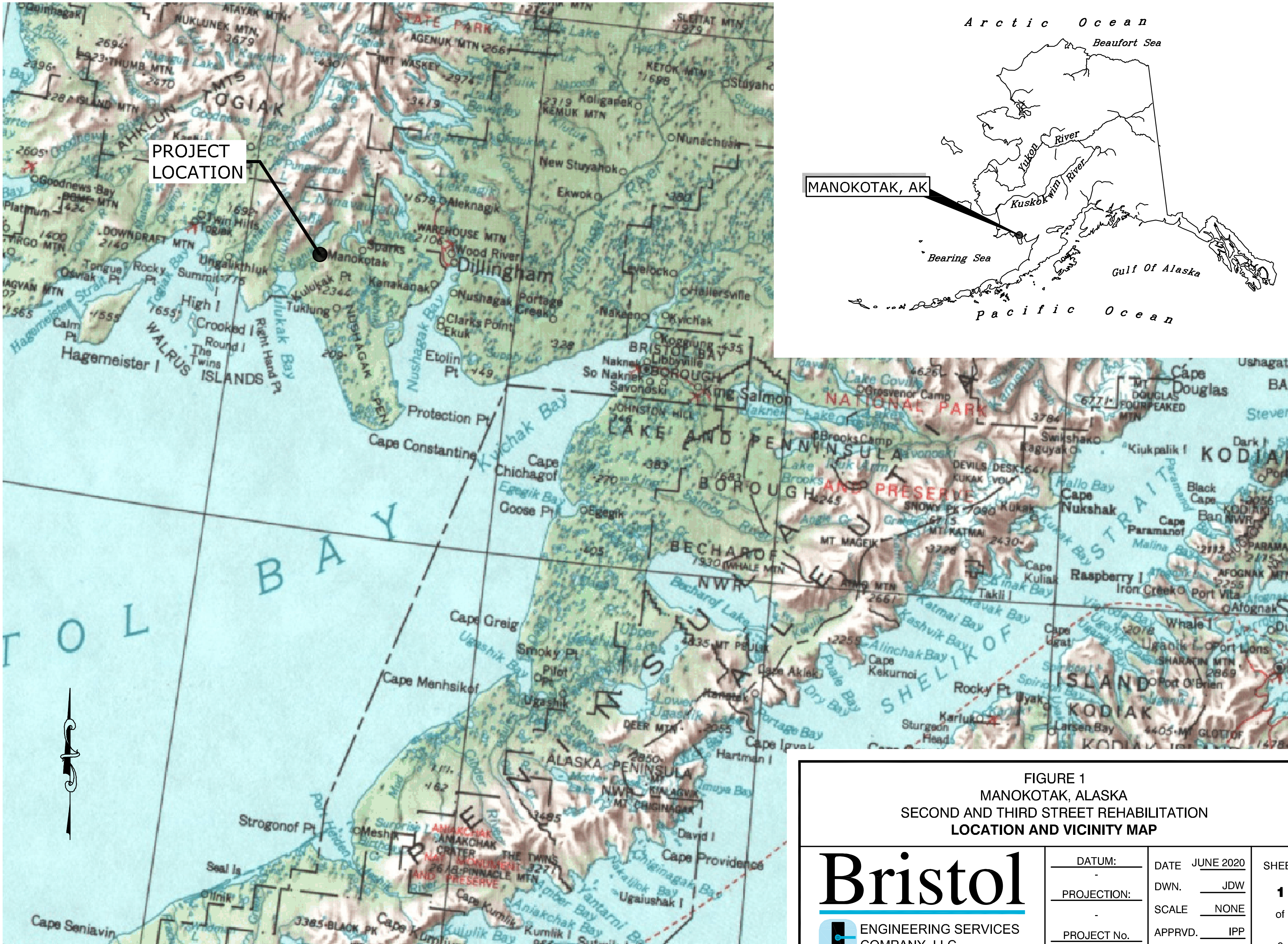


FIGURE 1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
LOCATION AND VICINITY MAP

Bristol
ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE	JUNE 2020	SHEET
PROJECTION: -	DWN.	JDW	1
	SCALE	NONE	of
PROJECT No. 32150007	APPRVD.	IPP	6

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_2.DWG – Layout: FIG 2
User: JWANDER Aug 04, 2020 – 2:32pm Xrefs: BR_85X11L.DWG – Images: MANO1.TIF

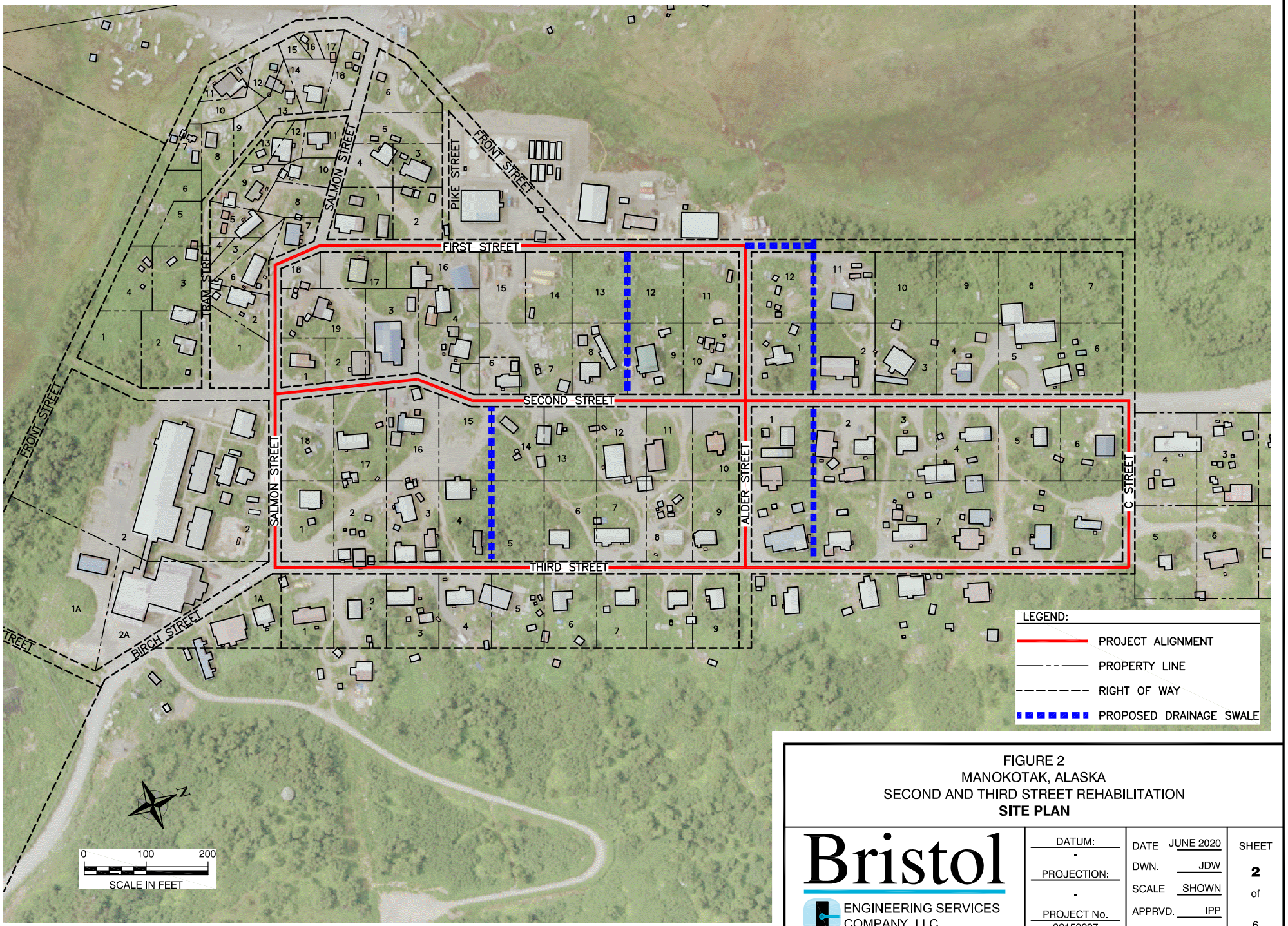
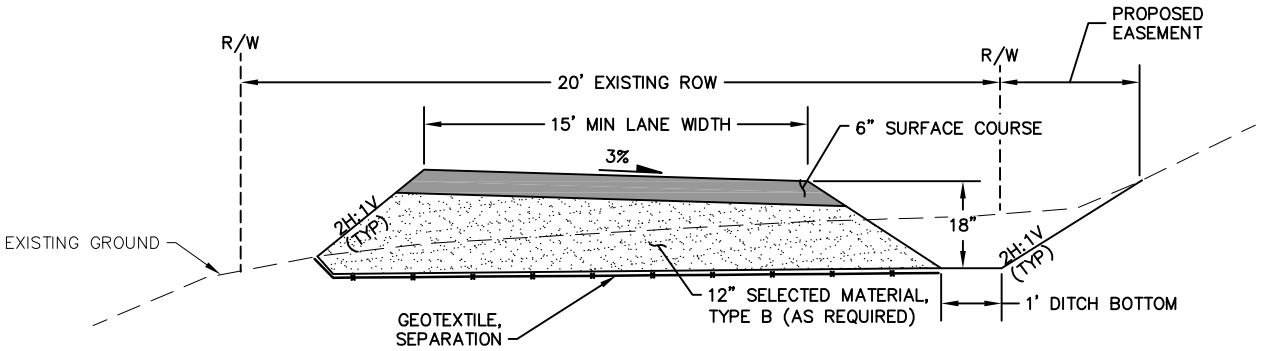


FIGURE 2
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
SITE PLAN

Bristol
ENGINEERING SERVICES COMPANY, LLC

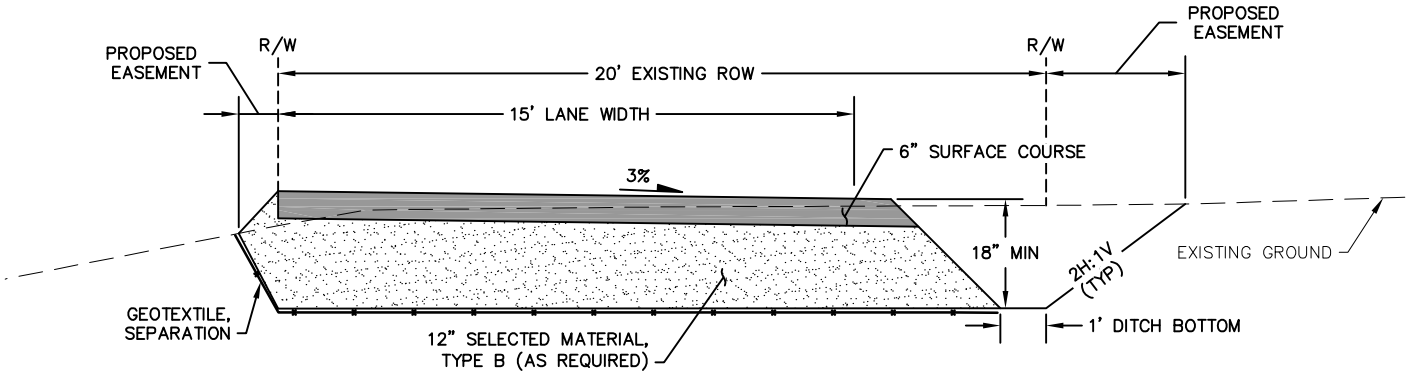
DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP

SHEET 2 of 6



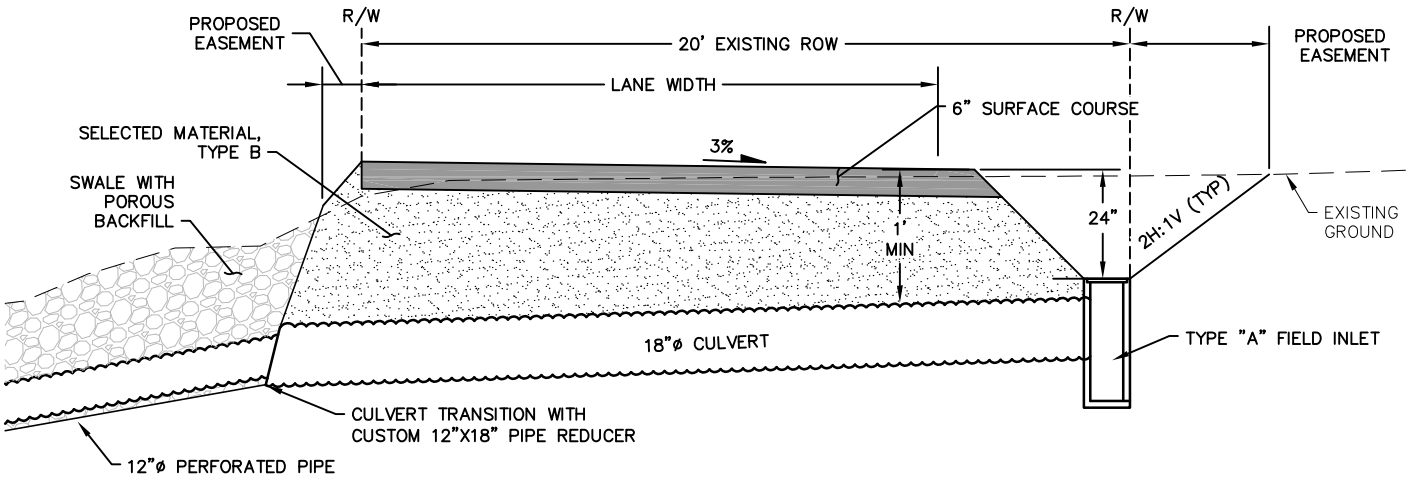
A — **TYPICAL ROAD SECTION - THIRD STREET**

SCALE: NTS



B — **TYPICAL ROAD SECTION - ALL OTHER ROADS**

SCALE: NTS



C — **TYPICAL CULVERT SECTION**

SCALE: NTS

FIGURE 3
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 3
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

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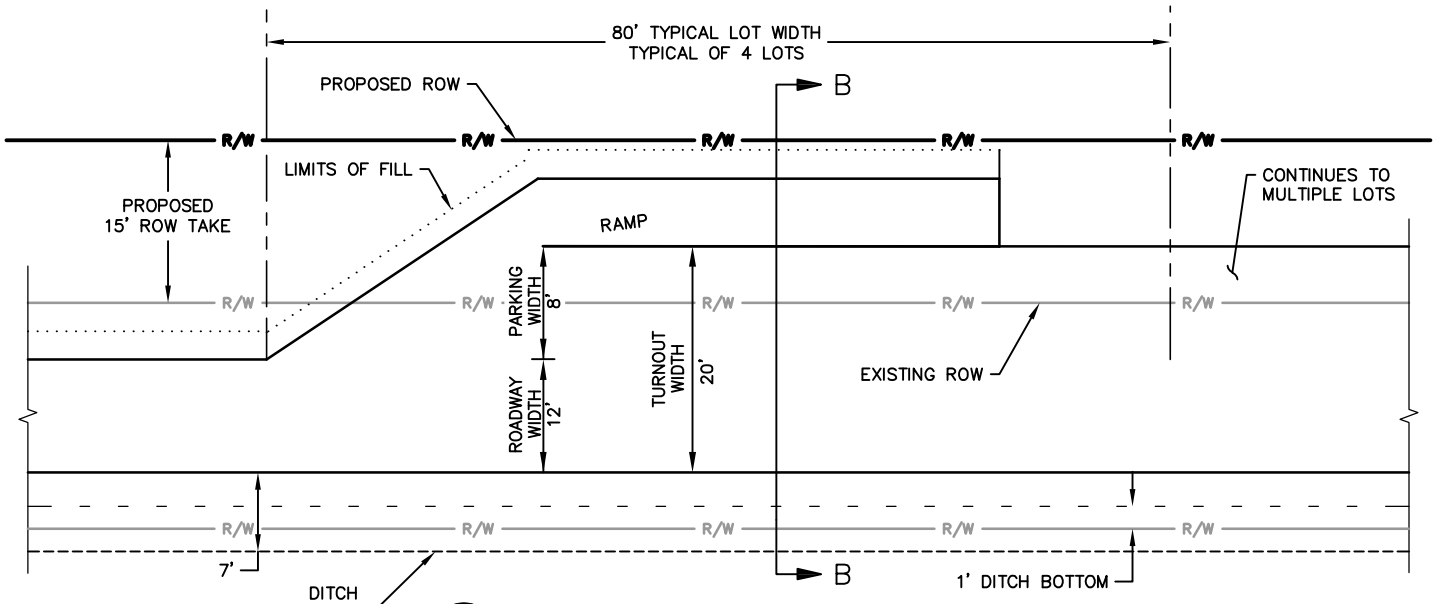
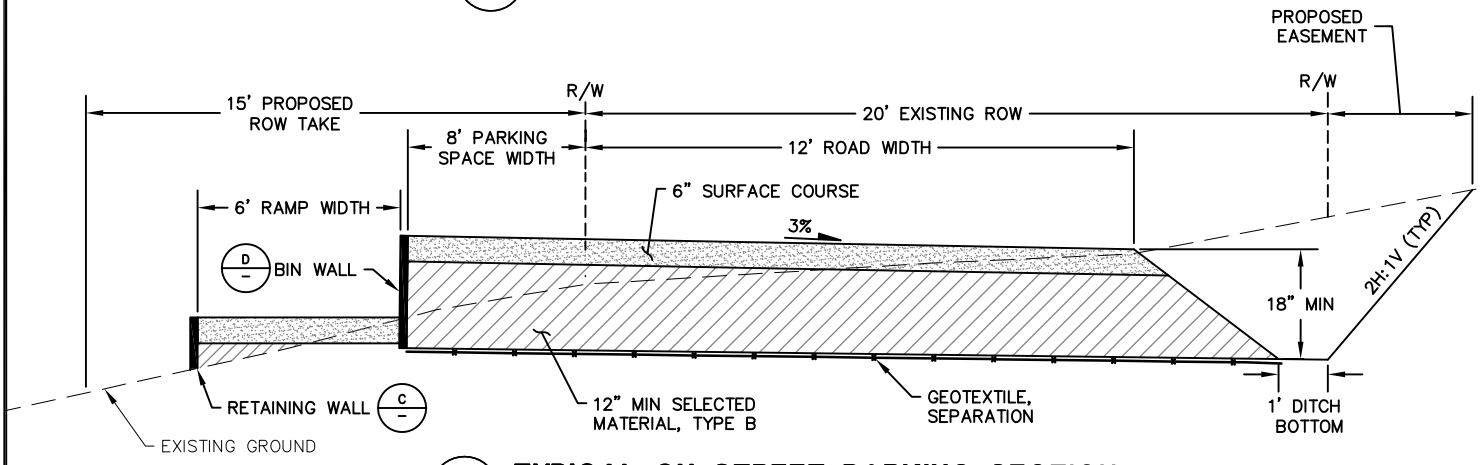
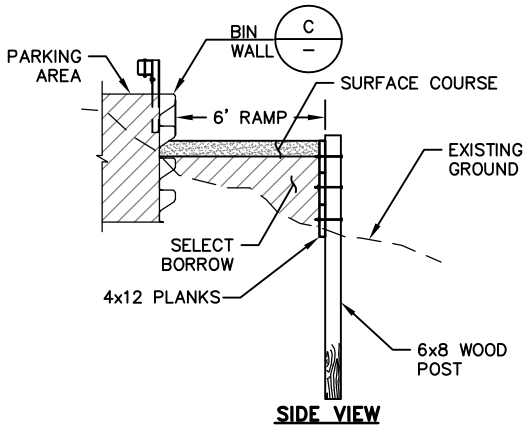


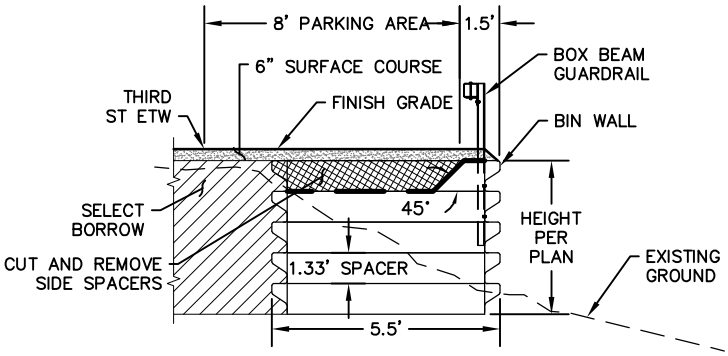
A — **TYPICAL ON STREET PARKING WITH RAMP**
SCALE: NTS



B — **TYPICAL ON STREET PARKING SECTION**
SCALE: NTS



C — **TYPICAL RETAINING WALL SECTION**
SCALE: NTS



D — **TYPICAL BIN WALL SECTION**
SCALE: NTS

FIGURE 4
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
ON-STREET PARKING DETAILS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP
SHEET	4 of 6

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_4.DWG - Layout: FIG4
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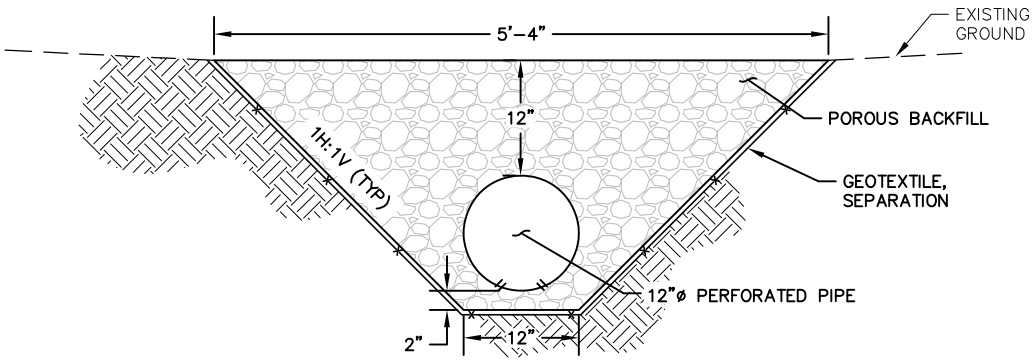
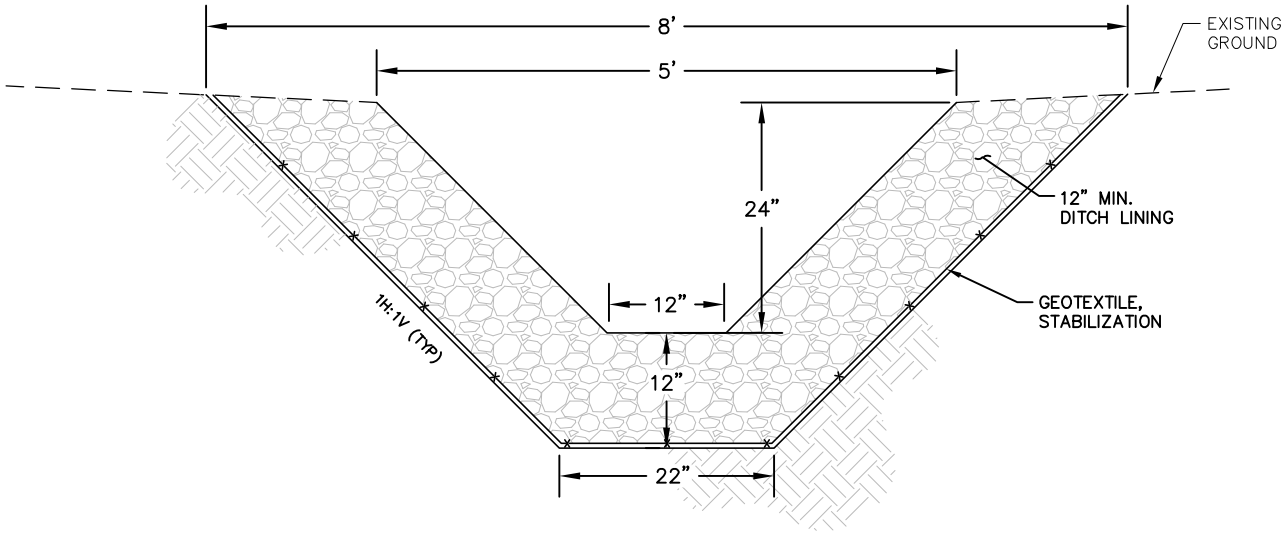


A — **TYPICAL SWALE TRENCH SECTION WITH PIPE**
SCALE: NTS



B — **TYPICAL OPEN CHANNEL SWALE SECTION**
SCALE: NTS

FIGURE 5
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SWALE SECTIONS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 5
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_5.DWG - Layout: FIG5
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NOTES:

1. THE OWNERSHIP STATUS DEPICTED HERON IS BASED ON INFORMATION PROVIDED BY BRISTOL BAY NATIVE ASSOCIATION AND DATA OBTAINED FROM THE STATE OF ALASKA DNR RECORDS.
2. EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THIS MAP.
3. LOT CONFIGURATIONS BASED ON:
   a.) 2003 DCCED MAPPING
   b.) SURVBASE LANDSTATUS MAP

OWNERSHIP LEGEND:

- PUBLIC
- NATIVE VILLAGE
- PRIVATE UNRESTRICTED
- PRIVATE RESTRICTED
- PRIVATE RESTRICTED WITH FRACTIONAL OWNERSHIP

LEGEND:

- PROJECT ALIGNMENT
- EXISTING PROPERTY LINE
- NEW PROPERTY LINE
- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE DITCH
- TEMPORARY CONSTRUCTION EASEMENT OR REVOCABLE USE PERMIT
- ROAD OR DRAINAGE EASEMENT
- PERMANENT RIGHT-OF-WAY TAKE
- PROJECT FOOTPRINT
- 2 LOT NUMBER
- 3 BLOCK NUMBER
- PROPOSED ON-STREET PARKING

50 0 25 50
HORIZONTAL SCALE IN FEET

METES & BOUNDS LOT
POWER PLANT GROUND LEASE
FRONT STREET
SALMON STREET
PIKE STREET
ALDER STREET
C STREET
FIRST STREET
SECOND STREET
THIRD STREET
W PTN 4
E PTN 4

REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES COMPANY, LLC
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501
Phone (907) 563-0013 Fax (907) 563-6713
License Number: AECC697

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

TEMPORARY AND PERMANENT RIGHT-OF-WAY ACQUISITION

SHEET NO. FIG 6

SCALE: | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: JUNE 2020 | SHEET 6 OF 6

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Xrefs: 32150007_BASE_ROW-TCE FIGS.DWG BR22X34REV.DWG - Images: (DIESEL evaluation failed)

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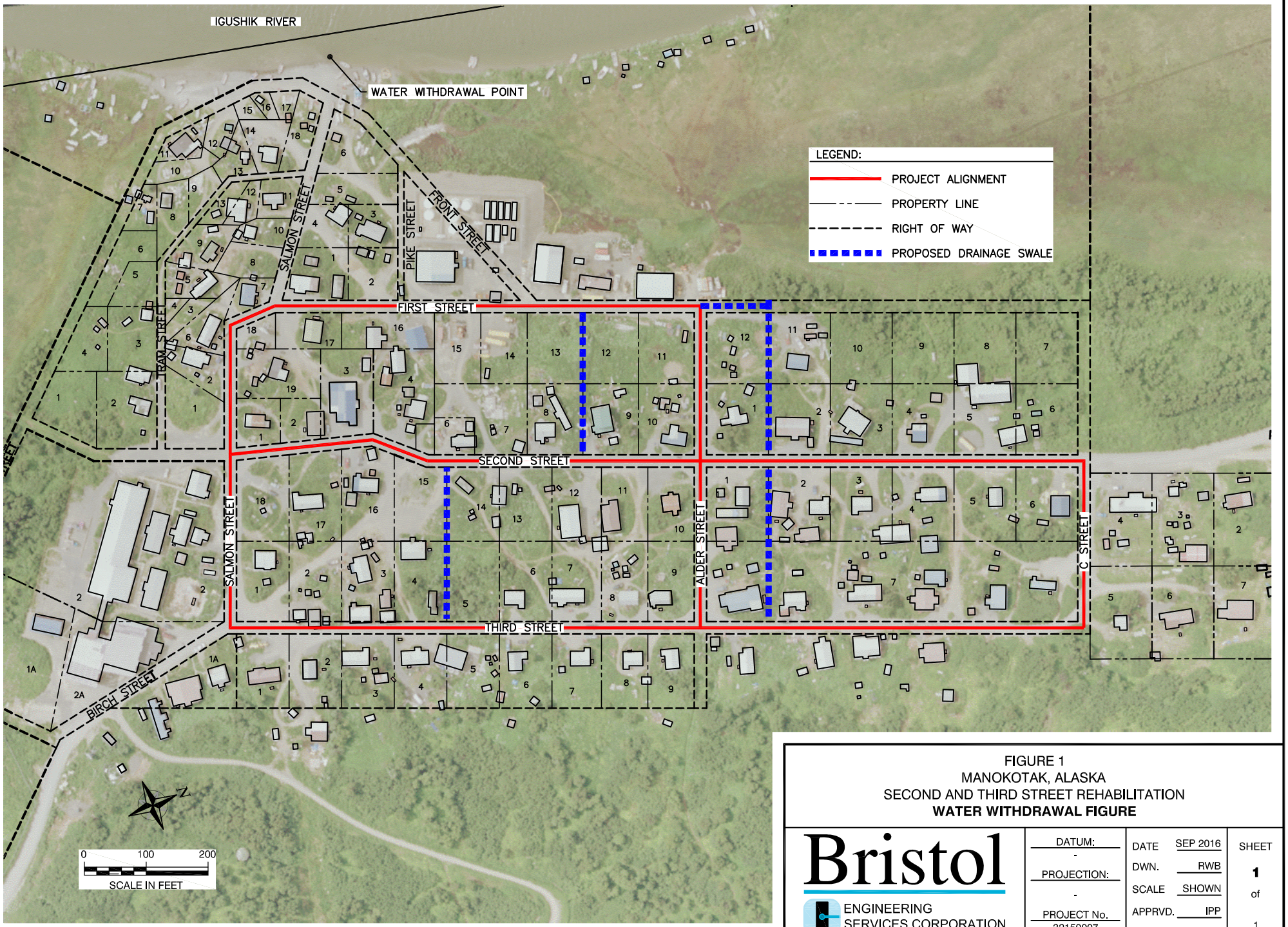

FIGURE 1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
WATER WITHDRAWAL FIGURE

Bristol
ENGINEERING SERVICES CORPORATION

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	SEP 2016
DWN.	RWB
SCALE	SHOWN
APPRVD.	IPP
SHEET	1 of 1

Alaska Department of Natural Resources
Division of Mining, Land and Water – Water Resources Section

Attachment C – Fish Habitat Permit

FH#_____
(Office Use Only)

ALASKA DEPARTMENT OF FISH AND GAME
FISH HABITAT PERMIT APPLICATION
SPECIFIC INSTRUCTIONS

NOTE: Provide as much information as possible. If you need assistance, please contact the nearest ADF&G Division of Habitat office. The ADF&G reserves the right to require additional information for the proper protection of fish and game.

Step A: Provide your name, address, and telephone number and the name, address, and telephone number of the contractor who will be doing the work, if known.

Step B: Describe the type of project (e.g., bridge, culvert, utility line placement, impoundment structure, bank stabilization, channelization, low water crossing, log removal, etc.) and the purpose of the project. A brief description of alternatives considered would be useful but is not required. Attach additional sheets as necessary. Back to Form

Step C: **1.** Name of the waterbody in or adjacent to which the project will occur.

2. For Anadromous Stream numbers, refer to the Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes.

3. a. Provide plans (or field sketch) showing the following as a minimum: access to the site, plan view showing all project features and dimensions, or crossing/fording sites; material removal plans should also include, at a minimum, the following: 50' contour lines; nearby watercourses and lakes; location of facilities (i.e., screening, washing, and crushing plants, and commercial and private buildings); aliquot parts identified in order they are to be mined; site where fuel will be stored; a cross section view of the material site showing current land and water elevations and bank slopes and final excavation grades and slopes; and project expansion sites (scale no greater than 1 in. = 400 ft.)

b. Provide specifications, if available; and

c. Provide a current aerial photograph, if available. Back to Form

Step D: Indicate the time of year when project construction will occur. Is the project temporary or permanent?

Step E: 1. Provide information if applicable on how you will divert the stream.

2. Indicate if channelization will occur.

3. Provide information, if applicable, on how you will alter or modify the banks of the stream.

4. List all vehicles or equipment by type and size that will be used in the stream.

5. Provide information, if applicable, on what type and amount of material will be removed from the floodplain, bed, stream, or lake.

6. Provide information, if applicable, on any material you will deposit in the floodplain, stream, or lake.

7. Provide information, if applicable, on any blasting you intend to do in the floodplain, stream, or lake.

8. Indicate if temporary fills will be required.

9. Indicate if ice bridges will be required.

Step F: What precautions will be taken to insure that fish and other aquatic organisms are protected from adverse impacts? Outline plan for restoring, rehabilitating, or re-vegetating the site if channel or bank alterations occur. What precautions will be taken to maintain State Water Quality Standards? Back to Form

Step G: Provide the waterbody characteristics at the site of the project.

Step H: Provide available hydraulic information for the types of projects indicated. For information on selecting a culvert size that will ensure fish passage, consult ADF&G permitters or references available at Division of Habitat offices.

FH# _____
(Office Use Only)

GENERAL WATERWAY/WATERBODY APPLICATION
ALASKA DEPARTMENT OF FISH AND GAME
Division of Habitat
Office Locations

A. APPLICANT

1. Name: Manokotak Village Council - Attn. Mr. Andrewski Toyukak

2. Address (Mailing): P.O. Box 169 Manokotak, AK 99628
   Email Address: kmo_trnsptsnplnr@hotmail.com
   Telephone: 907-289-1249 Fax: _____

3. Project Coordinator/Contractor:
   Name: Isaac Pearson - Bristol Engineering Services Company, LLC
   Address: 111 W. 16th Avenue, Third Floor Anchorage, AK 99501
   Email Address: ipearson@bristol-companies.com
   Telephone: 907-743-9313 Fax: 907-563-6713

B. TYPE AND PURPOSE OF PROJECT: Please see the attached Project Description for more detailed information regarding the proposed project.

C. LOCATION OF PROJECT SITE

1. Name of River, Stream, or Lake: Igushik River
   or Anadromous Stream No: 325-10-10010

2. Legal Description: Township 014S Range 059W
   Meridian S Section 12 USGS Quad Map Nushagak Bay D-4

3. Plans, Specifications, and Aerial Photograph. See specific instructions

D. **TIME FRAME FOR PROJECT**: May 2021 TO October 2026 (mm/dd/yy)

E. **CONSTRUCTION METHODS**:

1. Will the stream be diverted? ☐ Yes ☒ No

   How will the stream be diverted? N/A

   How long? N/A

2. Will stream channelization occur? ☐ Yes ☒ No

3. Will the banks of the stream be altered or modified? ☐ Yes ☒ No

   Describe: _____

4. List all tracked or wheeled equipment (type and size) that will be used in the stream (in the water, on ice, or in the floodplain): N/A

   How long will equipment be in the stream? N/A

5. a. Will material be removed from the floodplain, bed, stream, or lake? ☐ Yes ☒ No

      Type: N/A

      Amount: N/A

   b. Will material be removed from below the water table? ☐ Yes ☒ No

      If so, to what depth? N/A

      Is a pumping operation planned? ☒ Yes ☐ No

6. Will material (including spoils, debris, or overburden) be deposited in the floodplain, stream, or lake? ☐ Yes ☒ No

   If so, what type? N/A

   Amount: N/A

   Disposal site location(s): _____

7. Will blasting be performed? ☐ Yes ☒ No

   Weight of charges: N/A

   Type of substrate: N/A

8. Will temporary fills in the stream or lake be required during construction (e.g., for construction traffic around construction site)? ☐ Yes ☒ No

9. Will ice bridges be required? ☐ Yes ☒ No

F. **SITE REHABILITATION/RESTORATION PLAN**: On a separate sheet present a site rehabilitation/restoration plan. See specific instructions

G. **WATERBODY CHARACTERISTICS**:

Width of stream: ~225-ft. Depth of stream or lake: Variable

Type of stream or lake bottom (e.g., sand, gravel, mud): Mud

Stream gradient: ~1-2%

H. **HYDRAULIC EVALUATION**:

1. Will a structure (e.g., culvert, bridge support, dike) be placed below ordinary high water of the stream? ☐ Yes ☒ No

   If yes, attach engineering drawings or a field sketch, as described in Step B.

   For culverts, attach stream discharge data for a mean annual flood (Q=2.3), if available.

   If applicable, describe potential for channel changes and/or increased bank erosion:

   _____

2. Will more than 25,000 cubic yards of material be removed? ☐ Yes ☒ No

   If yes, attach a written hydraulic evaluation including, at a minimum, the following: potential for channel changes, assessment of increased aufeis (glaciering) potential, assessment of potential for increased bank erosion.

I HEREBY CERTIFY THAT ALL INFORMATION PROVIDED ON OR IN CONNECTION WITH THIS APPLICATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

_____ _____

Signature of Applicant Date

Alaska Department of Fish and Game
Fish Habitat Permit Application – General Waterway/Waterbody

Attachment A – Additional Information

Step B: Type and Purpose of Project

PROPOSED PROJECT

The Manokotak Road Rehabilitation Project will involve the rehabilitation of six (6) roads (0.9 total miles), the installation of new drainage features, and the construction of four on-street parking stalls and ramps along Third Street constructed with retaining walls and guardrails. Road improvements will include the placement of a woven geotextile material to stabilize all subgrades, placement of new fill material to establish proper road embankments, followed by the placement of a crushed aggregate surface course to widen and enhance the traveling surface.

The proposed drainage features include the placement of new appropriately sized culverts along existing roadways, replacement of existing failed culverts, the construction of roadside ditches along all streets, and the installation of rock-filled drainage channels with perforated pipe. The drainage channels will run between lots, perpendicular to First, Second, and Third Street. The new storm drainage features will improve drainage patterns and ensure water conveyance away from residential housing. Additionally, the proposed improvements will prevent ponding in existing roadways, which leads to erosion/rutting, washouts, and health concerns.

The roadway alignments, typical sections, and locations of drainage channels, culverts, and parking stalls are shown on the attached figures.

The proposed project will include the following route-specific improvements (See Figures):

- First Street (Route 1006-10) – First Street, from Salmon Street to Alder Street, will have a 15-foot wide traveling surface. An approximately 18-inch deep ditch will be constructed on the east side of the road.
    - Length – Approximately 820-ft.
- Second Street (Route 1007-10) – Second Street, from Salmon Street to C Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the east side of the road.
    - Length – Approximately 1,390-ft.
- Third Street (Route 1008-10) - Third Street, from Salmon Street to C Street, will have a 12-foot wide traveling surface. An 18-inch deep ditch will be constructed on the east side of the road, and four on-street parking areas will be constructed along the west side. The on-street parking areas will also include ramps to access residential properties (See Figure 5).
    - Length – Approximately 1,410-ft.

- Salmon Street (Route 1014-10) – Salmon Street, from First Street to Third Street, will have a 15-foot wide traveling surface. A 6-inch deep ditch will be constructed on the north side of the road.
    - Length – Approximately 470-ft.
- Alder Street (Route 1010-10) – Alder Street, from First Street to Third Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the south side of the road.
    - Length – Approximately 470-ft.
- C Street (Route 1012-10) – C Street, from Second Street to Third Street, will have a 15-foot wide traveling surface. An 18-inch deep ditch will be constructed on the south side of the road.
    - Length – Approximately 230-ft.

PURPOSE AND NEED

The existing Manokotak road infrastructure is deteriorating due to a lack of proper storm drainage and inferior roadside ditching unable to convey surface water to existing culverts. The proposed rehabilitation project will establish proper road embankments, create roadside ditching improve the storm drainage system, install new culverts at engineered locations, and install new drainage channels interconnecting First, Second, and Third Streets (See Figure 2). Additionally, the streets are very narrow, constricted by the existing 20-foot right-of-way, and parked cars along the shoulders create heavy congestion, especially along Third Street. The establishment of parking areas, proper road embankments, improved storm drainage systems, and appropriate street/stop signage will create safer traveling conditions for residents and enhance the overall road infrastructure in Manokotak.

Step F: Site Rehabilitation / Restoration Plan

The following precautions and construction activities will be taken to ensure that fish and other aquatic organisms are protected from adverse impacts:

- A Temporary Water Use Permit will be acquired from the Alaska Department of Natural Resources (ADNR)-Division of Mining, Land and Water (MLW) for fresh water withdrawal from the Igushik River for compaction and dust suppression.

- The pump hose used to withdraw water from the Igushik River will be fitted with an appropriately sized fish screen.

- The installation of culverts, road-side ditches, and drainage channels will help mitigate flooding, erosion, and other storm water issues along the project corridor.

- Best Management Practices (BMPs) from the yet-to-be-determined project contractor will be used to maintain State Water Quality Standards in the event of a spill or other incident.

The project will not disturb more than one acre of undisturbed land. No channel or bank alterations of the Igushik River will occur as part of this project. There is no wastewater discharge associated with the proposed project. The project does not contain any waters of the US and will therefore not impact any wetlands habitat. The proposed action will not result in excessive levels of organic materials, inorganic nutrients, or heat, and is not anticipated to cause an adverse impact on essential fish habitat.

Alaska Department of Fish and Game
Fish Habitat Permit Application – General Waterway/Waterbody

Attachment B – Figures

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_1.DWG - Layout: FIG1
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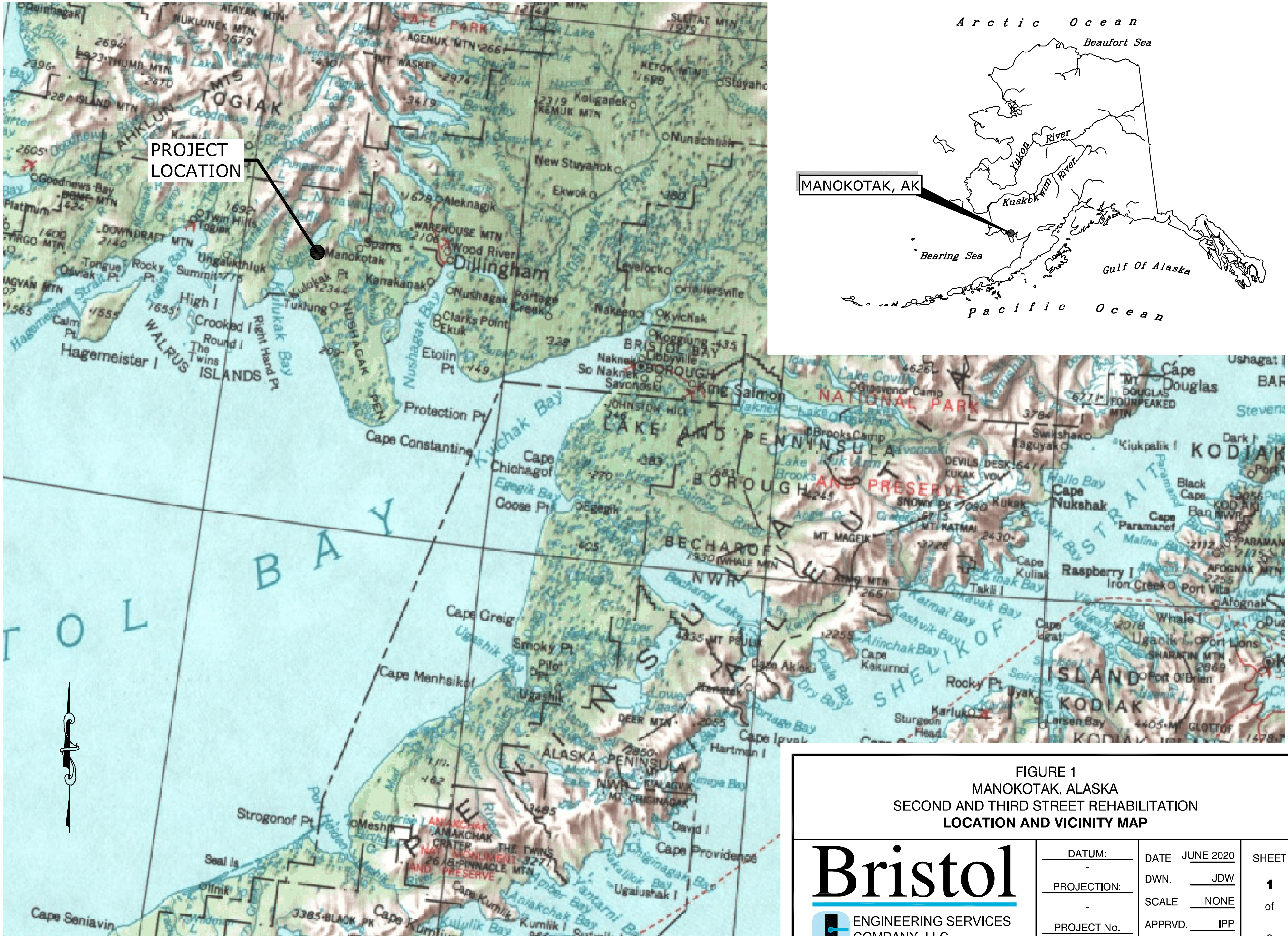

FIGURE 1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
LOCATION AND VICINITY MAP

Bristol
ENGINEERING SERVICES
COMPANY, LLC

DATUM: -	DATE	JUNE 2020	SHEET
PROJECTION: -	DWN.	JDW	1
PROJECT No. 32150007	SCALE	NONE	of
	APPRVD.	IPP	6

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_2.DWG - Layout: FIG 2
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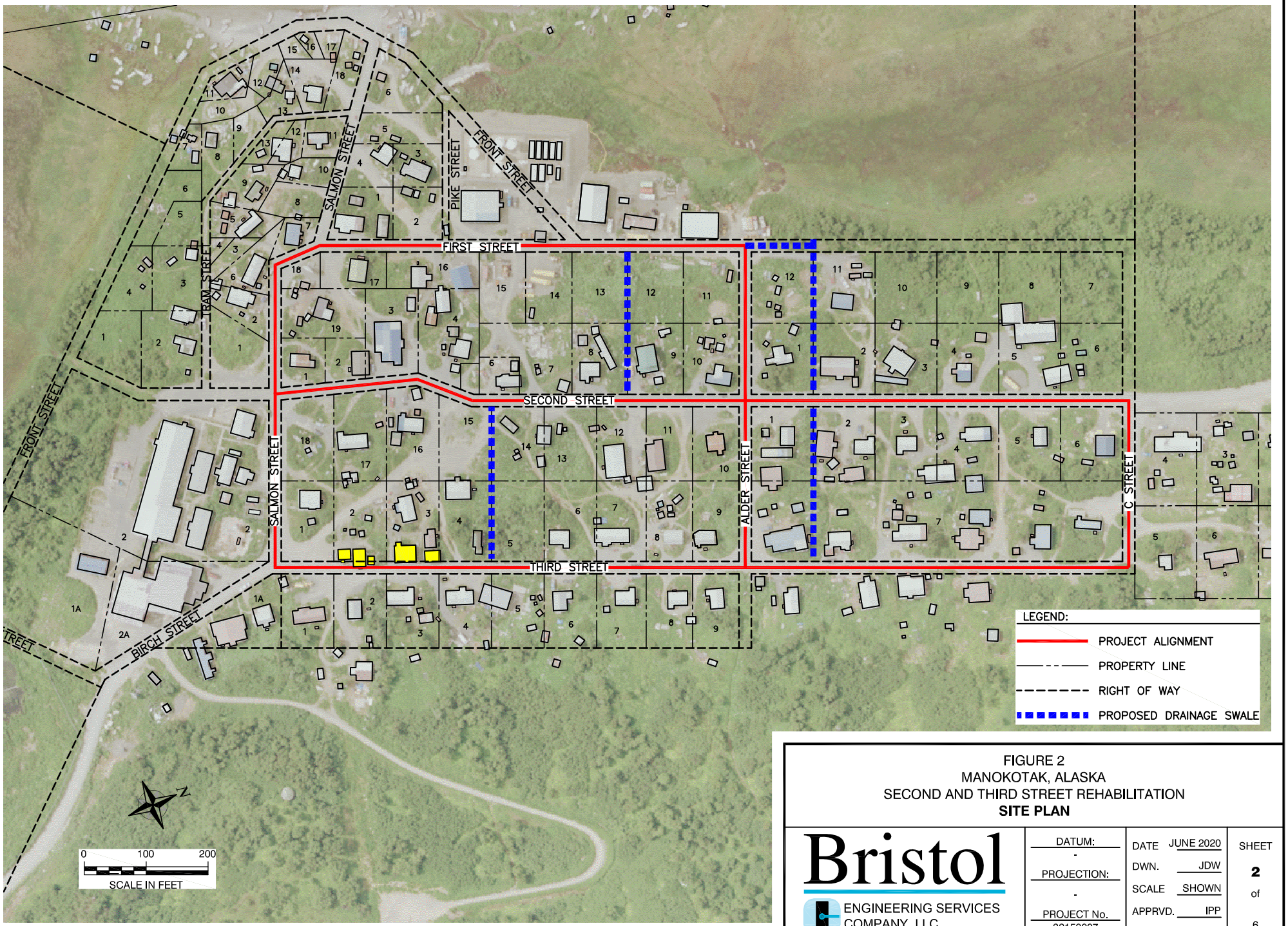
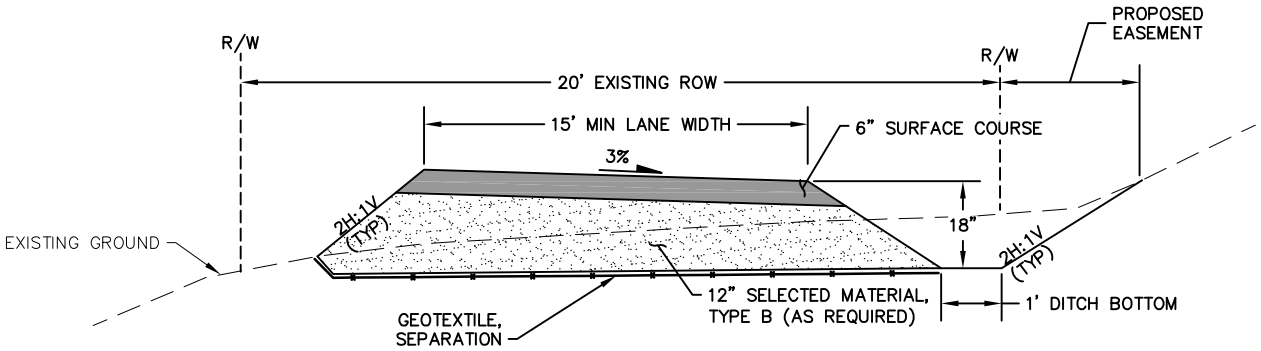


FIGURE 2
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
SITE PLAN

Bristol
ENGINEERING SERVICES COMPANY, LLC

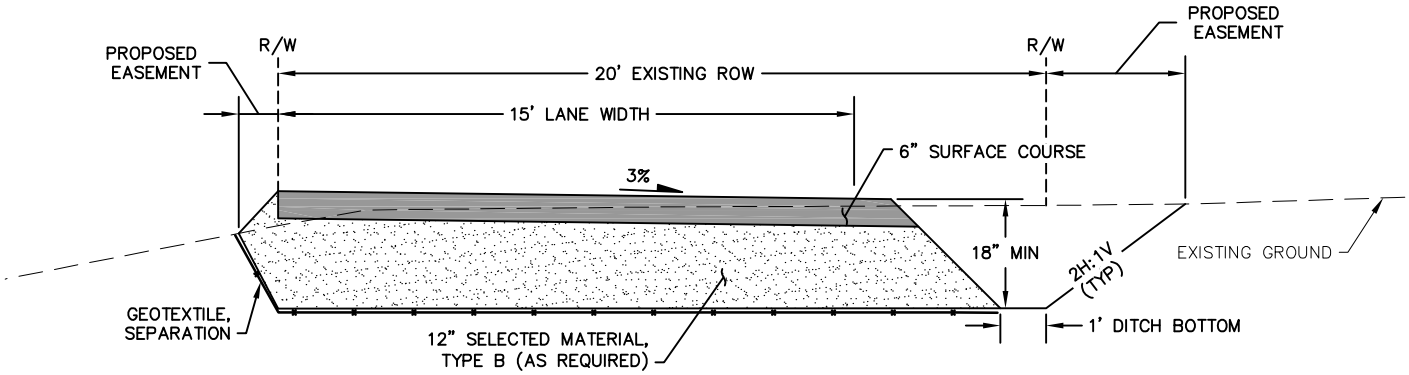
DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP

SHEET 2 of 6



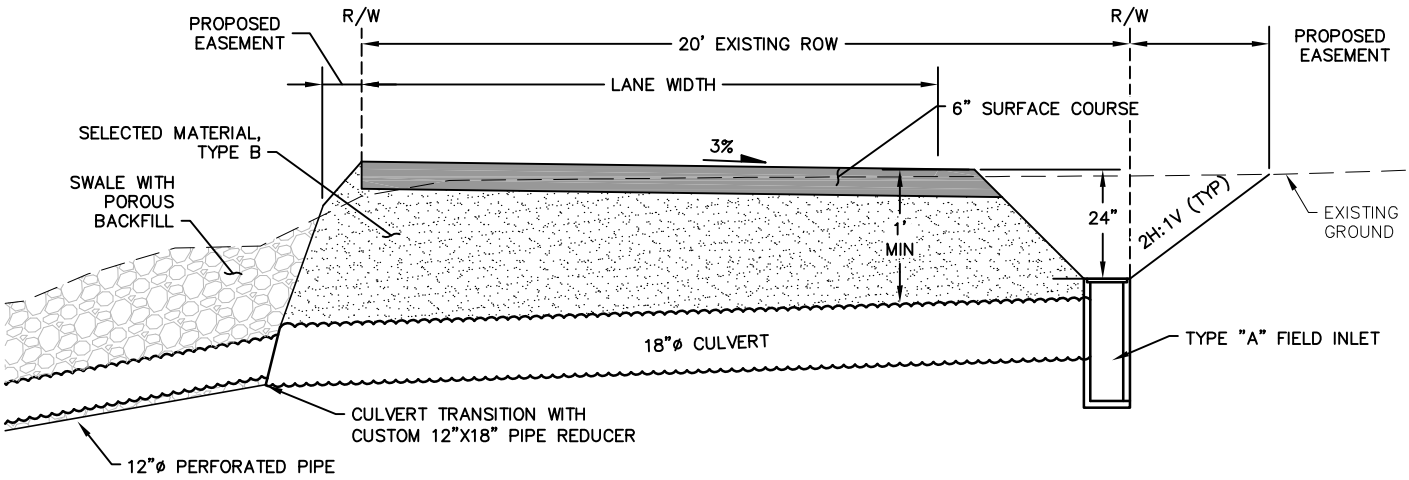
A — **TYPICAL ROAD SECTION - THIRD STREET**

SCALE: NTS



B — **TYPICAL ROAD SECTION - ALL OTHER ROADS**

SCALE: NTS



C — **TYPICAL CULVERT SECTION**

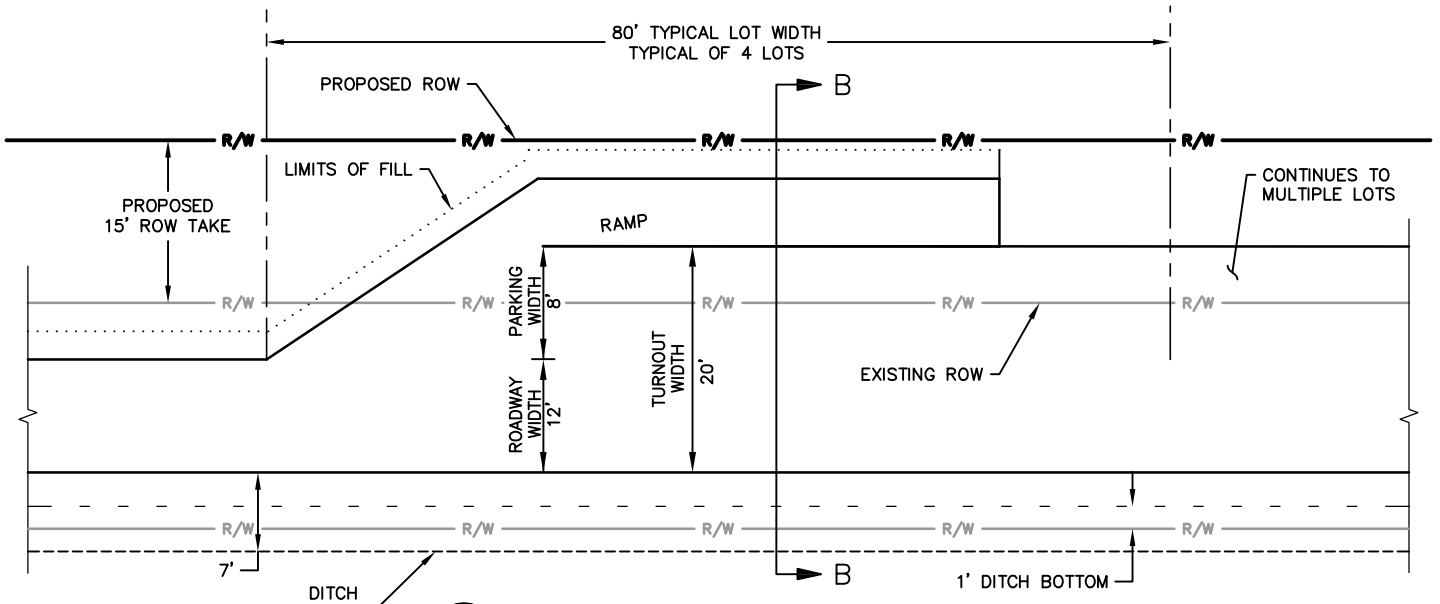
SCALE: NTS

FIGURE 3
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

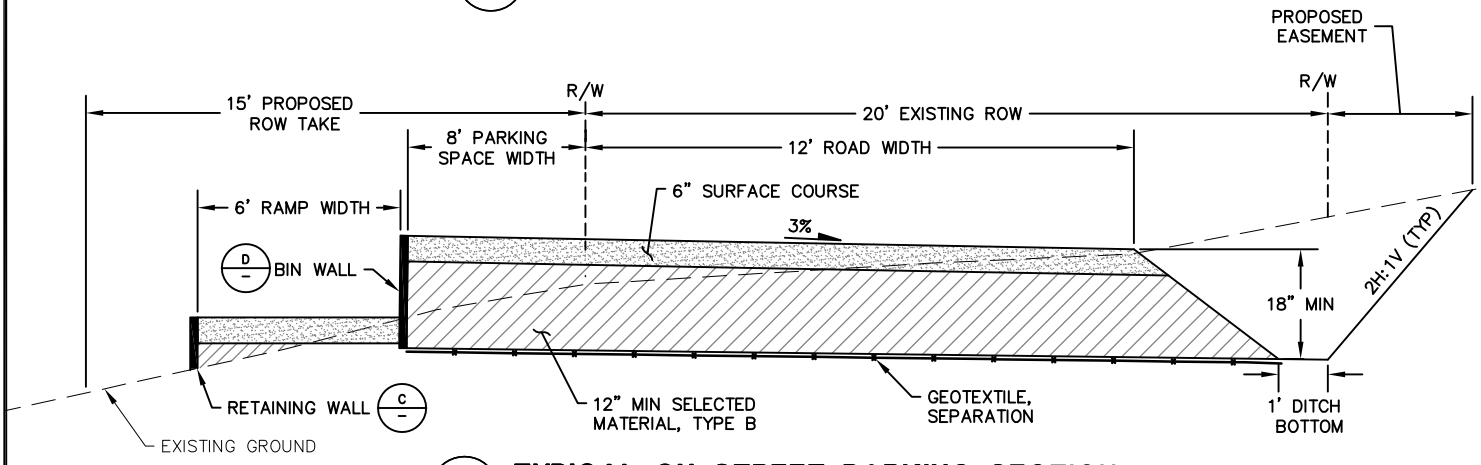
Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 3
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

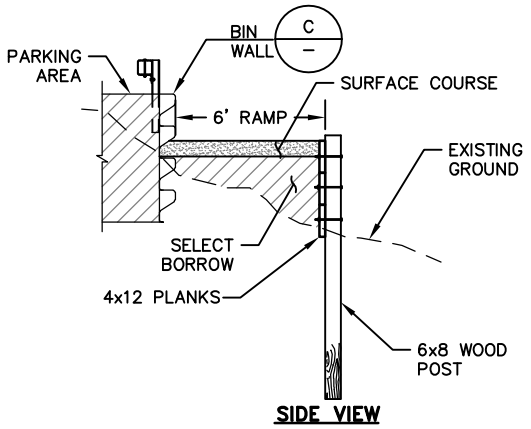
Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_3.DWG - Layout: FIG3
User: JWANDER Jun 23, 2020 - 11:20am Xrefs: BR_85X11P.DWG - Images: FINALIRALOGO.PNG



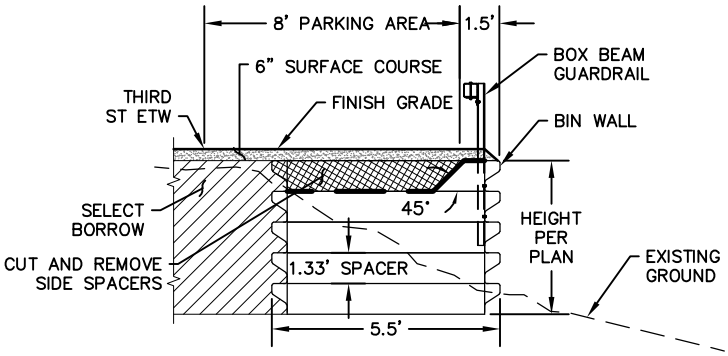
A — **TYPICAL ON STREET PARKING WITH RAMP**
SCALE: NTS



B — **TYPICAL ON STREET PARKING SECTION**
SCALE: NTS



C — **TYPICAL RETAINING WALL SECTION**
SCALE: NTS



D — **TYPICAL BIN WALL SECTION**
SCALE: NTS

FIGURE 4
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
ON-STREET PARKING DETAILS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	JUNE 2020
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP
SHEET	4 of 6

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_4.DWG - Layout: FIG4
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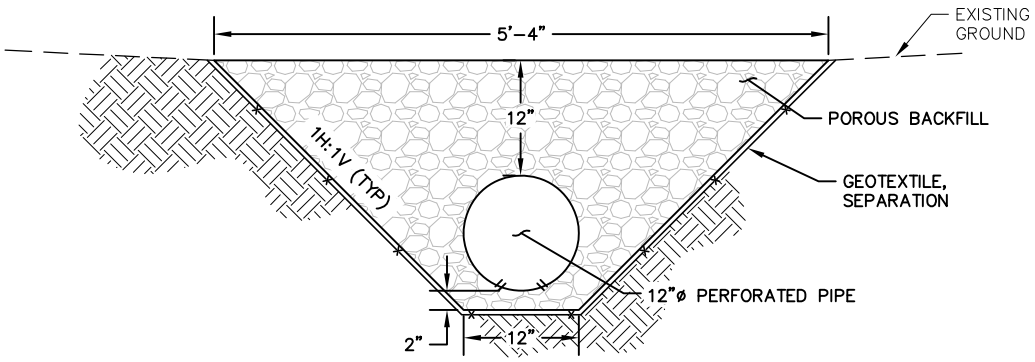
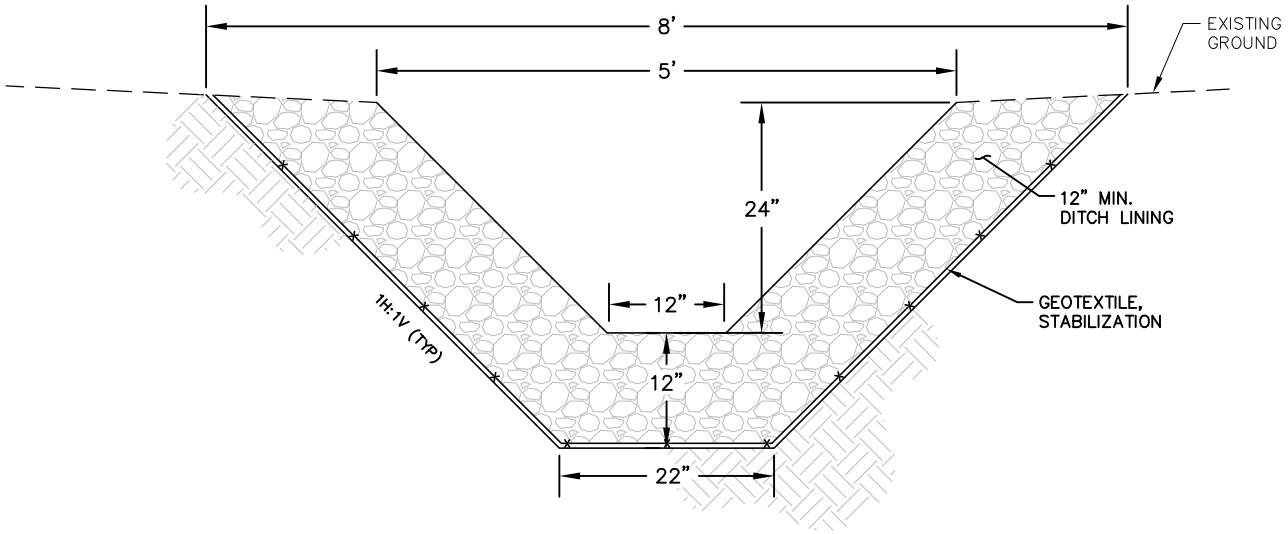


A — **TYPICAL SWALE TRENCH SECTION WITH PIPE**
SCALE: NTS



B — **TYPICAL OPEN CHANNEL SWALE SECTION**
SCALE: NTS

FIGURE 5
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SWALE SECTIONS

Bristol ENGINEERING SERVICES COMPANY, LLC

DATUM: -	DATE JUNE 2020	SHEET 5
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	6
	APPRVD. IPP	

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_5.DWG - Layout: FIG5
User: JWANDER Jun 23, 2020 - 11:23am Xrefs: BR_85X11P.DWG - Images: FINALIRALOGO.PNG

NOTES:

1. THE OWNERSHIP STATUS DEPICTED HERON IS BASED ON INFORMATION PROVIDED BY BRISTOL BAY NATIVE ASSOCIATION AND DATA OBTAINED FROM THE STATE OF ALASKA DNR RECORDS.
2. EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THIS MAP.
3. LOT CONFIGURATIONS BASED ON:
   a.) 2003 DCCED MAPPING
   b.) SURVBASE LANDSTATUS MAP

OWNERSHIP LEGEND:

- PUBLIC
- NATIVE VILLAGE
- PRIVATE UNRESTRICTED
- PRIVATE RESTRICTED
- PRIVATE RESTRICTED WITH FRACTIONAL OWNERSHIP

LEGEND:

- PROJECT ALIGNMENT
- EXISTING PROPERTY LINE
- NEW PROPERTY LINE
- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE DITCH
- TEMPORARY CONSTRUCTION EASEMENT OR REVOCABLE USE PERMIT
- ROAD OR DRAINAGE EASEMENT
- PERMANENT RIGHT-OF-WAY TAKE
- PROJECT FOOTPRINT
- 2 LOT NUMBER
- 3 BLOCK NUMBER
- PROPOSED ON-STREET PARKING

50 0 25 50
HORIZONTAL SCALE IN FEET

METES & BOUNDS LOT
POWER PLANT GROUND LEASE
FRONT STREET
SALMON STREET
PIKE STREET
ALDER STREET
C STREET
FIRST STREET
SECOND STREET
THIRD STREET
W PTN 4
E PTN 4

REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES COMPANY, LLC
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501
Phone (907) 563-0013 Fax (907) 563-6713
License Number: AECC697

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

TEMPORARY AND PERMANENT RIGHT-OF-WAY ACQUISITION

SHEET NO. FIG 6

SCALE: | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: JUNE 2020 | SHEET 6 OF 6

User: JWANDER Jun 23, 2020 - 11:25am
Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL\32150007_DSR_FIG_6.DWG - Layout: FIG 6
Xrefs: 32150007_BASE_ROW-TCE FIGS.DWG BR22X34REV.DWG - Images: (DIESEL evaluation failed)

APPENDIX E

Public Involvement

SECOND AND THIRD STREET REHABILITATION PROJECT

Thank you for attending this public meeting to discuss planning of the Second and Third Street Rehabilitation Project beginning in your community. My name is Isaac Pearson, PE. I will be the lead design engineer for the project. If you have any questions about the project you can ask during the presentation or contact me using the information provided below.

This project will encompass four roads within your community; Second Street, Third Street, C Street, Alder Street, and Salmon Street. The figures on the following pages show the project locations and the preliminary typical sections we envision for the project.

Bristol Engineering has performed a site investigation in the project areas and we found the following deficiencies with the road(s):

- Poor drainage through lots,
- Water ponding on roads / Potholes
- Narrow traveled surface,
- No parking on Third Street,
- Failing culverts,
- No signage,
- Muddy roads

Throughout the design process Bristol will address each of these concerns. With your help in this meeting today, we can begin to develop ideas and community awareness of the project, both of which are very important factors in the true success of a project.

Bristol
ENGINEERING
SERVICES CORPORATION

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT\32150007_DSR_FIG_2.DWG - Layout: FIG 2
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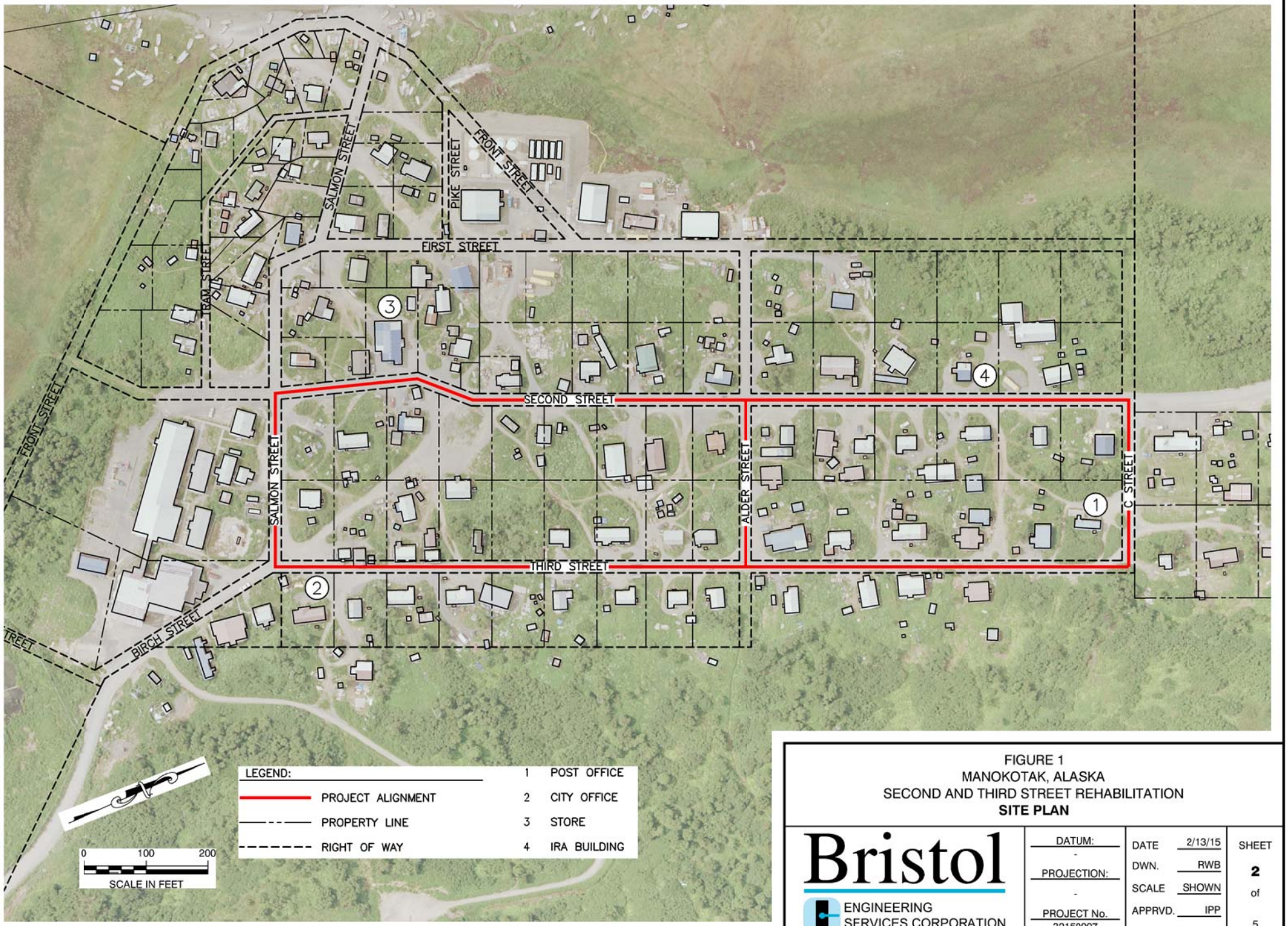
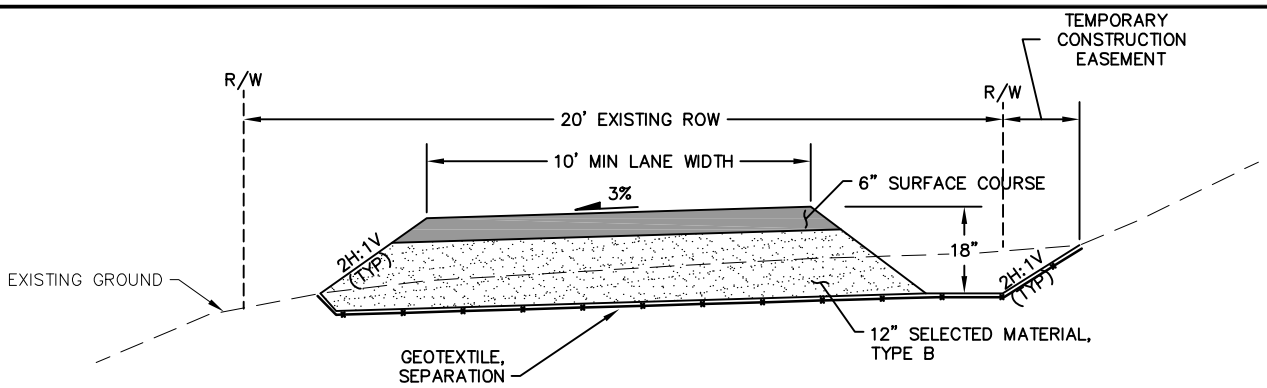


FIGURE 1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION
SITE PLAN

Bristol
ENGINEERING SERVICES CORPORATION

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	2/13/15
DWN.	RWB
SCALE	SHOWN
APPRVD.	IPP

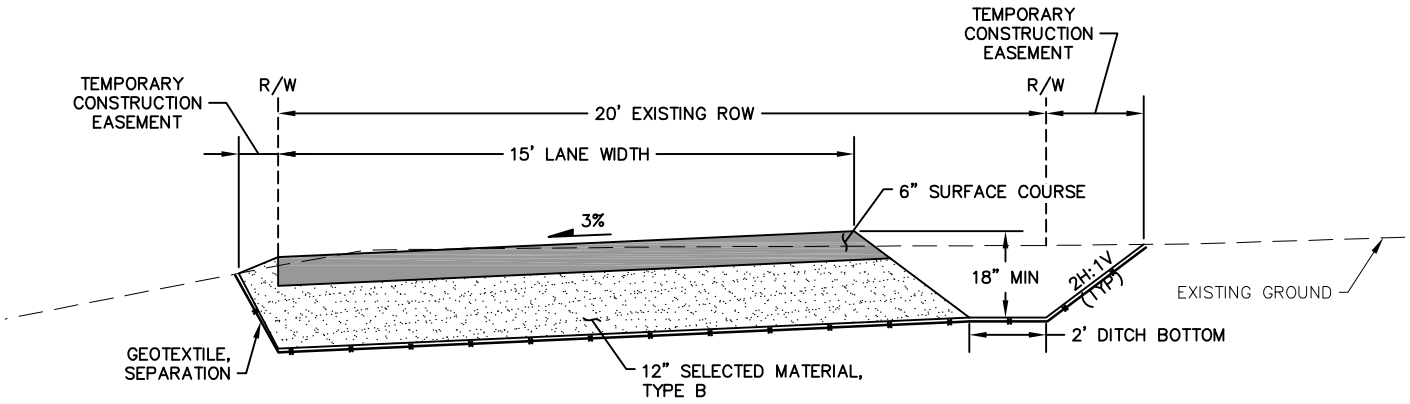
SHEET 2 of 5



A
–

TYPICAL ROAD SECTION - THIRD STREET

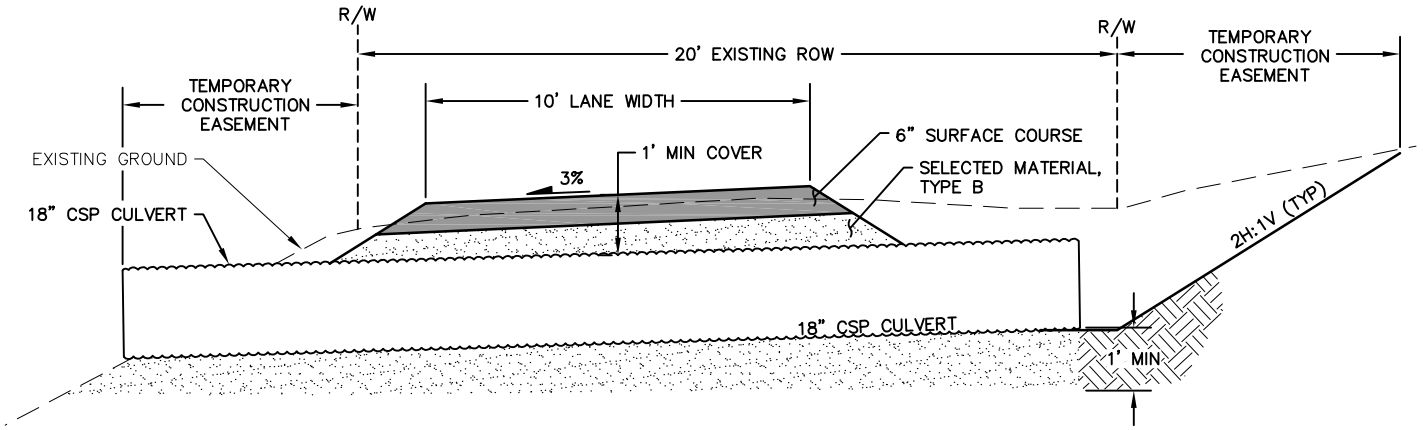
SCALE: NTS



B
–

TYPICAL ROAD SECTION - ALL OTHER ROADS

SCALE: NTS



C
–

TYPICAL CULVERT SECTION

SCALE: NTS

FIGURE 2
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

Bristol
ENGINEERING
SERVICES CORPORATION

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	1/28/15
DWN.	RWB
SCALE	SHOWN
APPRVD.	IPP

SHEET 3 of 5

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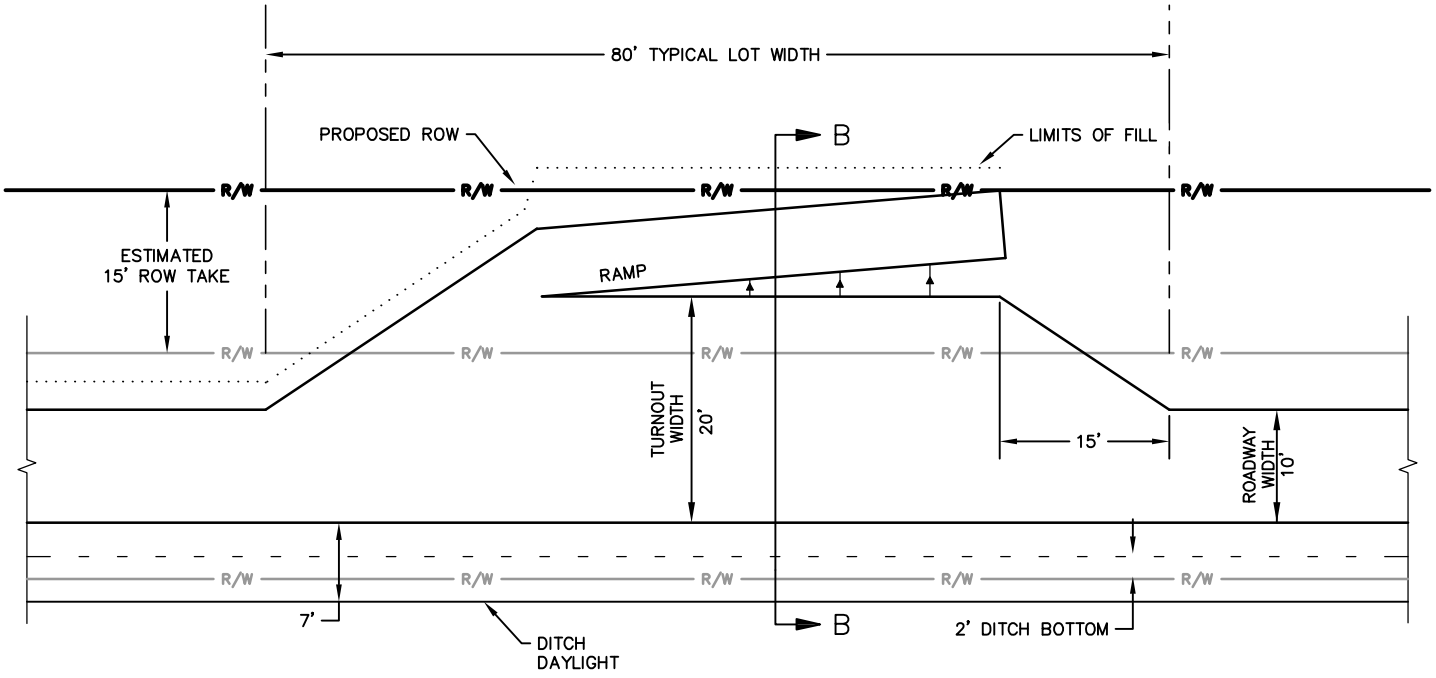
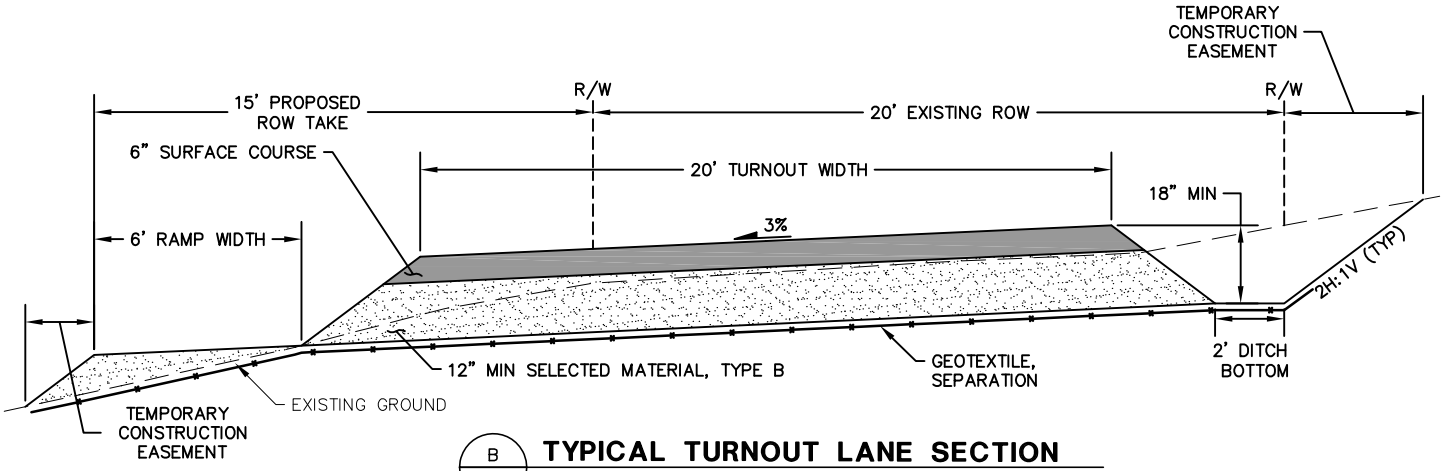


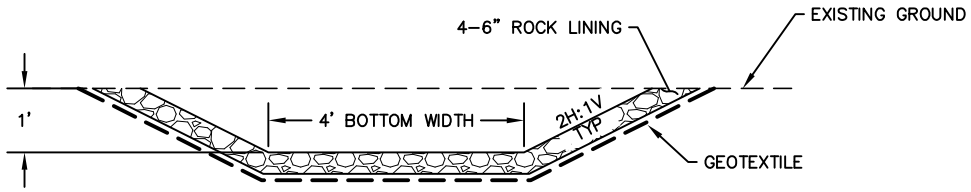
A — **TYPICAL TURNOUT LANE WITH RAMP**

SCALE: NTS



B — **TYPICAL TURNOUT LANE SECTION**

SCALE: NTS



C — **TYPICAL DRAINAGE SWALE**

SCALE: NTS

FIGURE 3
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

Bristol ENGINEERING SERVICES CORPORATION

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	1/28/15
DWN.	RWB
SCALE	SHOWN
APPRVD.	IPP

SHEET 4 of 5

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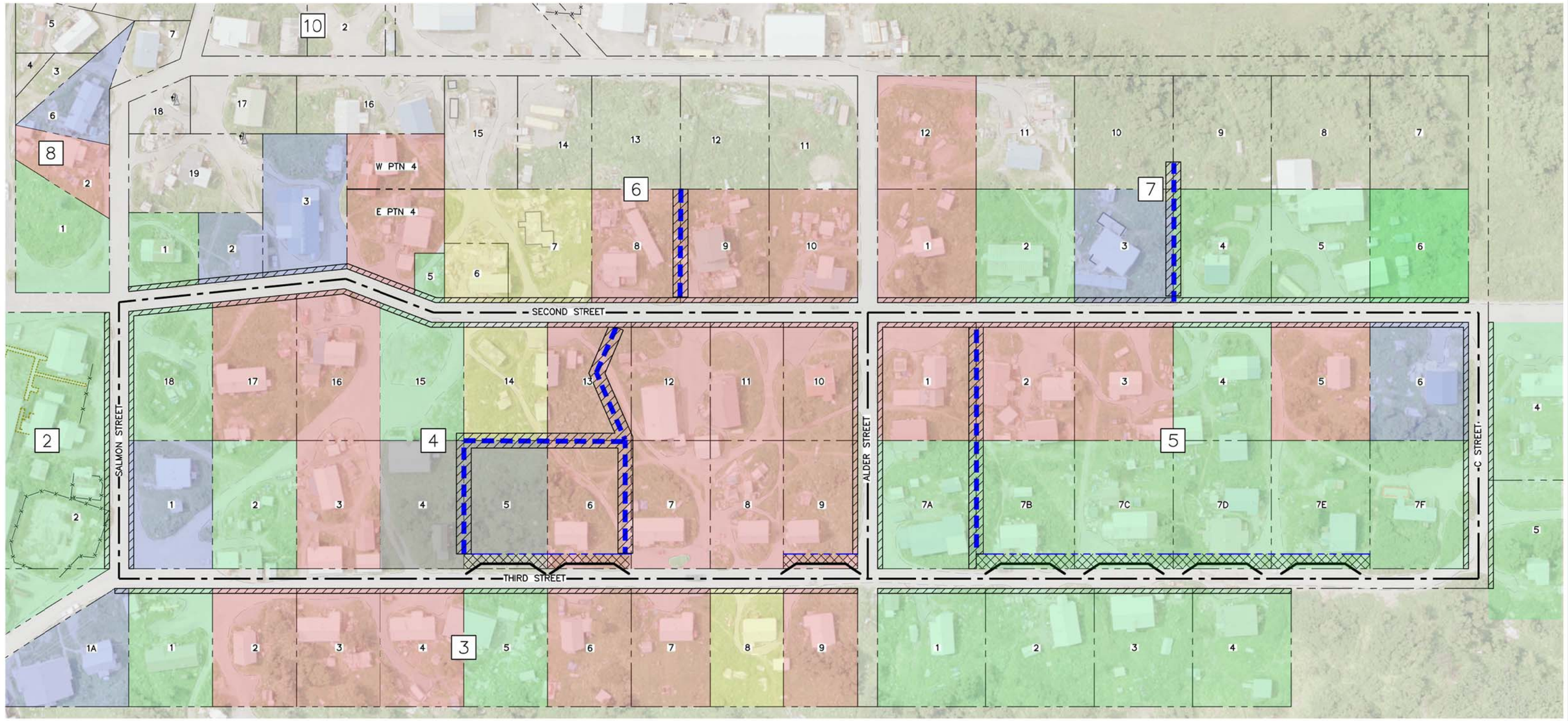


LEGEND:

- PROJECT ALIGNMENT
- EXISTING PROPERTY LINE
- NEW PROPERTY LINE
- PROPOSED DRAINAGE SWALE
- TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT RIGHT OF WAY TAKE
- 2 LOT NUMBER
- [3] BLOCK NUMBER
- TURNOUT

50 0 25 50
HORIZONTAL SCALE IN FEET

OWNERSHIP LEGEND:

- PUBLIC
- NATIVE VILLAGE
- PRIVATE UNRESTRICTED
- PRIVATE RESTRICTED
- PRIVATE RESTRICTED WITH FRACTIONAL OWNERSHIP

NOTES:

1. THE OWNERSHIP STATUS DEPICTED HERON IS BASED ON INFORMATION PROVIDED BY BRISTOL BAY NATIVE ASSOCIATION AND DATA OBTAINED FROM THE STATE OF ALASKA DNR RECORDS
2. EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THIS MAP
3. LOT CONFIGURATIONS BASED ON
   a.) 2003 DCCED MAPPING
   b.) Survbase Landstatus Map

DRAFT

REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32140044

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

TEMPORARY AND PERMANENT RIGHT OF WAY ACQUISITION

SHEET NO.
FIG 4

SCALE: SHOWN	DESIGNED: RWB	CHECKED: IPP	DRAWN: RWB	DATE: NOV 2014	SHEET 5 OF 5

User: RBURDICK Feb 13, 2015 - 9:51am
Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT\32150007_DSR_FIG_5.DWG - Layout: FIG5
Xrefs: BR22X34REV.DWG 32150007_BASE_MAP.DWG - Images: MANO1.TIF

SECOND AND THIRD STREET
REHABILITATION PROJECT

2/17/2015

SIGN IN SHEET

Name	Phone Number (optional)	Email (optional)
ISAAC PEARSON	563-0013	IPEARSON @ BRISTOL-COMPANIES.COM
JoAnne Knight	289-6520	jknight@swrsd.org
Moses Toyukak Sr	289-6256	toyukakmoses@yahoo.com
Teresa Ayojiak	289-6050	tayojiak@NSAHC.org
MARVIN NICKETA	289-6036	
Carla [illegible]	289-1290	
Bert Mauld		
Tom [illegible]		
Kimberly Gloko		
Shayna Eluckmeiya		
Mariam Nanalook		mariam.nanalook@yahoo.com
Kyla Gloko	289-1290	
Arline Franklin	289-1249	arline.franklin@yahoo.com
Rehanna	289-6[illegible]	

Bristol
ENGINEERING SERVICES CORPORATION

SECOND AND THIRD STREET

REHABILITATION PROJECT

2/17/2015

SIGN IN SHEET

Name	Phone Number (optional)	Email (optional)
Jonathan Pat		
Justin Pat		
Joseph Nanouk		
Evon W. Moore	(907) 289-6175	
Gloria Tom		
Albert Kittumbree		
Amelia Lomick	(907) 289-2019	
Chris Gloko	289-1014	
James Ayojiak		
Violet Apalayak + Alyssa		vapalayak@gmail.com
McKenna G.		
Kaden Byayuk	289-6528	
Grace Alakaya	289-6337	
Nellie Gamechuk	289-2037	

Bristol
ENGINEERING SERVICES CORPORATION

SECOND AND THIRD STREET REHABILITATION PROJECT

SIGN IN SHEET

2/17/2015

Name	Phone Number (optional)	Email (optional)
[illegible]	289-1072	
Carl K. [illegible]	289-1243	
Judy [illegible]	289-1243	
[illegible] VPSB	289-6194	
BOP - PGP		
Tessa Nickerson		
Joshua Nickerson		
Mike Minister		
Bibiana Gloko	289-1290	

Bristol
ENGINEERING SERVICES CORPORATION

Community Meeting

Hello!

We are:

Bristol Engineering Services Corporation

Isaac Pearson, P.E.

We are here to discuss:

The Second and Third Street Rehabilitation Project

Bristol

Bristol Engineering Services Corporation

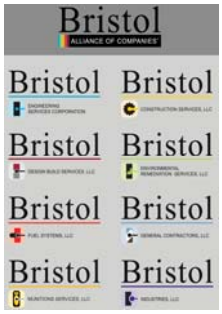
Established in 1994.

(**Bristol**) is a wholly owned subsidiary of Bristol Bay Native Corporation (BBNC), an Alaska Native Regional Corporation.

Bristol staff includes:

- Engineers
  - Civil
  - Structural
  - Mechanical
- Environmental Permitting and NEPA
- Surveyors
- Environmental Scientists
- Construction Project Managers
- Support Staff

Bristol's Engineers are all Alaska residents and based 100% in Alaska.



Bristol

LEGEND:

PROJECT ALIGNMENT

PROPERTY LINE

RIGHT OF WAY

1 POST OFFICE
2 CITY OFFICE
3 STORE
4 IRA BUILDING

Route 1007-10: Second Street, 1,390 Feet
Route 1008-10: Third Street, 1,380 Feet
Route 1010-10: Alder Street, 270 Feet
Route 1012-10: C Street, 270 Feet
Route 1014-10: Salmon Street, 280 Feet

Bristol

Current Deficiencies:

- Poor drainage through lots
- Water ponding on roads
- Failing culverts
- Narrow Roads
- Lack of Parking on 3rd Street

Other Improvements:

- Safety improvements
- Residential/Business improvements

Bristol

Second and Third Street Rehabilitation Project

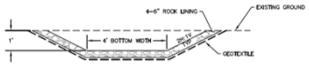
- Roadway Deficiencies
  - ➢Poor Drainage Through Lots

Bristol

5

Second and Third Street Rehabilitation Project

- Bristol Solution
  - ➢Install rock lined drainage swales



Bristol

6

Second and Third Street Rehabilitation Project

- Roadway Deficiencies
  - ➢Failed/Collapsed Culverts

Bristol

7

Second and Third Street Rehabilitation Project

- Bristol Solution
  - ➢Install New Culverts at Engineered Locations

Bristol

8

Second and Third Street Rehabilitation Project

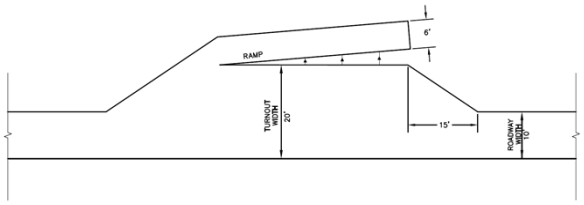
- Roadway Deficiencies
  - ➢Narrow Roads
  - ➢Lack of Parking on Third Street

Bristol

9

Second and Third Street Rehabilitation Project

- Bristol Solution
  - ➢Provide Parking Turnouts along Third Street

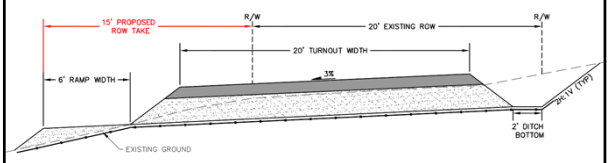


Bristol

10

Second and Third Street Rehabilitation Project

- Right of Way constraints
  - ➢ All roads currently have 20 feet of existing Right of Way
  - ➢Parking Turnouts on Third Street will Require and additional 15 feet of Right of Way



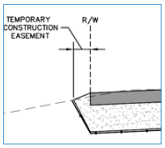
Bristol

11

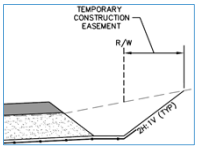
Second and Third Street Rehabilitation Project

- Right of Way constraints
  - ➢All roads will require temporary construction easements
    - o Permits access to property owner's land during construction
    - o After project ends, property will go back to owner

Fill Condition



Ditch Condition



Bristol

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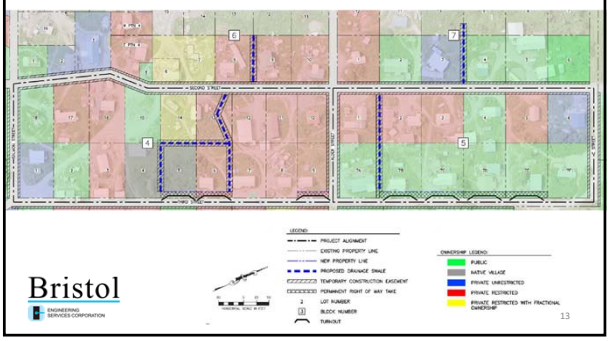
Second and Third Street Rehabilitation Project

- Right of Way acquisition locations

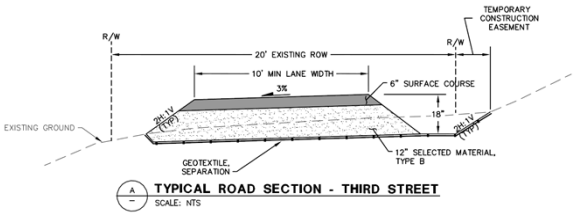


Bristol

13

Second and Third Street Rehabilitation Project

- Typical Sections

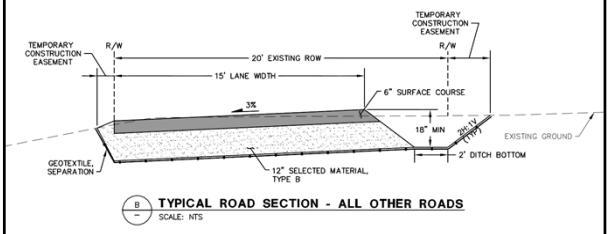


Bristol

14

Second and Third Street Rehabilitation Project

- Typical Sections



Bristol

15

Second and Third Street Rehabilitation Project

What is the Design Schedule?

- Preliminary Engineering (35% Design)
  - Site Investigations [October 2014]
    - Geotechnical Investigation
    - Hydrological Investigation
  - Report Development [October 2014 – March 2015]
    - Design Study Report
    - Hydrology Report
    - Public Meeting and Comment (1 of 4)

Bristol

16

Second and Third Street Rehabilitation Project

- Design, Specification, and Estimate (PS&E) Development
  - Survey and Right of Way [June 2015 – October 2016]
  - 50% Design Submittal [October 2015]
    - Public Meeting (2 of 4)
  - 75%Design Submittal [June 2016]
    - Public Meeting (3 of 4)
  - 95% Design Submittal [August 2016]
    - Plan in Hand Review Conference, Public Meeting (4 of 4)
  - 100% Design Submittal [October 2016]

Bristol ENGINEERING SERVICES CORPORATION

17

Second and Third Street Rehabilitation Project

Cost Estimate	
Planning	$72,000
Survey & Design*	$200,000
Construction	$3,000,000
Total	$3,272,000

*Estimate only

Bristol ENGINEERING SERVICES CORPORATION

18

Second and Third Street Rehabilitation Project

QUESTIONS ???

Bristol ENGINEERING SERVICES CORPORATION

19

Bristol
ENGINEERING
SERVICES CORPORATION

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
fax (907) 563-6713
www.bristol-companies.com

MEETING MINUTES

Project: **Second and Third Street Rehabilitation Project**

Bristol Project No: 32150007

Reference: 50% Public Meeting

Date of Meeting: May 9, 2017, 1900-2000 hours

Location of Meeting: Manokotak School, Manokotak, AK

Participants:

Isaac Pearson, PE, Bristol
(See Attached Sign-in sheet)

1. Summary

Isaac Pearson traveled to KMO to give a presentation outlining the DRAFT 50% Design for the Second and Third Street Rehabilitation Project. Bristol distributed a flyer to the KMO Transportation group on April 21, 2017 (see attached). Bristol developed handouts for the community (see attached), and did a power point presentation about the project (see attached). Afterward Bristol received questions from the community.

2. Discussion Items:

2.1. Road widths.

2.1.1. The existing roads are to narrow. Community would like them as wide as possible.

2.1.2. Community believes that the pull outs are good on 3rd Street.

2.2. Drainage.

2.2.1. Community has concerns about the dedicated drainage ditches and how this may be a hazard for young children playing in them, especially during breakup when there could be significant flows.

2.2.1.1. Bristol will evaluate the ditches and will either make them larger or fill them in with more washed rock so the flow is below the rock surface.

2.3. Permanent Signage.

2.3.1. The community likes the idea of having new street signage to help make the roads safer to pedestrians and motorists.

3. Action Items:

3.1. Bristol to evaluate the drainage ditches.

3. **Distribution of Meeting Notes:**

   a) Manokotak Village Council

   b) BIA

4. **Attachments:**

   a) Flyer and Email
   b) Sign-in Sheet
   c) Power Point Presentation
   d) Handout

[End Meeting Minutes]

SECOND & THIRD STREET REHABILITATION PROJECT

COMMUNITY MEETING

Come learn about the Second and Third Street Rehabilitation project at the 50% design phase. The project involves improving nearly every street in downtown Manokotak and includes wider roads, new parking spaces on Third Street, and improved drainage features.

The engineer will be available to answer questions and receive feedback from the public.

Refreshments and door prizes will be provided for those that attend. Invite your friends and family so more of the community is involved.

Tuesday,
May 9, 2017
7 pm

School Commons

Refreshments Provided

Door Prizes

For more information:

Isaac Pearson
(907) 743-9313
ipearson@bristol-companies.com

Bristol
ENGINEERING SERVICES CORPORATION

Pearson, Isaac

From: Pearson, Isaac
Sent: Wednesday, May 3, 2017 7:23 AM
To: Wander, Jackie; Edward Nick
Cc: Manokotak Village Council
Subject: RE: KMO Rehab -- 50% Design Public Meeting
Attachments: Community flyer.pdf

Hi Edward,

I just wanted to confirm that we are still on for a public meeting next week?

Regards,

Isaac Pearson, P.E.
Senior Civil Engineer
Bristol Engineering Services Corporation
Phone : (907) 743-9313
Mobile : (907) 351-1545

From: Wander, Jackie
Sent: Friday, April 21, 2017 1:46 PM
To: Edward Nick <kmo_trnsptsnplnr@hotmail.com>
Cc: Pearson, Isaac <ipearson@bristol-companies.com>
Subject: RE: KMO Rehab -- 50% Design Public Meeting

Hi Edward,

I scheduled the 50% Design Public Meeting for Tuesday, May 9 at 7 pm in the School Commons. Flyers are attached – please print and post them in the Tribal Office, Post Office, City Office, and School at a minimum.

Thank you,

Jackie Wander
Civil Engineer I
Bristol Engineering Services Corporation
Phone : (907) 743-9314
Direct : (907) 743-9314

From: Edward Nick [mailto:kmo_trnsptsnplnr@hotmail.com]
Sent: Thursday, April 20, 2017 4:18 PM
To: Pearson, Isaac <ipearson@bristol-companies.com>
Subject: Re: KMO Rehab -- 50% Design Public Meeting

Yes, that will be fine Isaac.

Edward Nick
Transportation Director
Manokotak Village Council

P.O. Box 169
Manokotak, Alaska 99628
Phone (907) 289-1249
Fax (907) 289-1331
kmo_trnsptsnplnr@Hotmail.com

From: Pearson, Isaac
Sent: Thursday, April 20, 2017 11:12 AM
To: live:kmo_trnsptsnplnr, Arline Franklin
Cc: Thomas Llanos, Wander, Jackie

Hi Edward,

What are your thoughts on holding a public meeting for the road project sometime in early May before herring fishing kicks off? We need to provide 15-days public notice prior to having the meeting. Please let me know what date would work best for the community. The earliest we could do it is the week of May 8th, if we post the flier this week or on Monday next week.

Regards,

Isaac Pearson, P.E.
Senior Civil Engineer
Bristol Engineering Services Corporation
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5109
Phone : (907) 743-9313
Mobile : (907) 351-1545
FAX : (907) 563-6713
ipearson@bristol-companies.com
http://www.bristol-companies.com/

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Second and Third Street Rehabilitation Project
KMO Public Meeting #2 - May 9, 2017

Sign In Sheet

	Name	Email (OPTIONAL)
1	Deb Forkner	
2	Greg Forkner	
3	Mike Minesta	
4	Dana Bartman	
5	Vincent Nicketa	
6	Buany Paul	
7	Troy A Evon	
8	Karisha Bartman	
9	Carlton Paul	
10	Sarah Gearhart	
11	Jaelyn Nicketa	
12	Marcia Nicketa	
13	[illegible]	
14	[illegible]	
15	Gerald Nanakon	
16	[illegible]	
17	Taylor Nick	
18	Trent Nick	
19	Roger Evon	
20	Jana Evon	
21	Andrea Mochin	
22		
23		
24		
25		

Bristol
ENGINEERING
SERVICES CORPORATION

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
fax (907) 563-6713
www.bristol-companies.com

Public Meeting #2 – Informational Packet (50% Design Stage)

May 9, 2017

Dear Participant;

Thank you for attending the public meeting for the Second and Third Street Rehabilitation Project. This Project is currently at the 50% Design Stage. Your participation is valuable to the project, and we appreciate any feedback you may have on this meeting or the project in general.

This project aims to mitigate issues experienced along the existing transportation corridors. Through various site investigations, the following deficiencies have been identified:

- Poor drainage through lots
- Water ponding on roads, muddy roads
- Potholes
- Narrow traveled surface
- No parking on 3rd Street
- Failing culverts
- No street signs

This project will rehabilitation six roads within your community: First Street, Second Street, Third Street, Salmon Street, Alder Street, and C Street. The following improvements are included in the design:

- Wider roads, new aggregate surface course
- New drainage ditches on one side of every street
- New rock-lined drainage swales between lots to direct drainage away from homes
- Replacement of existing failing culverts
- New parking stalls along 3rd Street to improve traffic congestion issues
- Permanent and temporary right-of-way adjustments

These proposed features are shown in the attached figure.

Public comment is key to a successful project. If you have suggestions or concerns about the proposed project, please bring them up at the meeting or feel free to contact me directly. My email is ipearson@bristol-companies.com.

Sincerely,

Isaac Pearson, P.E.
Senior Civil Engineer

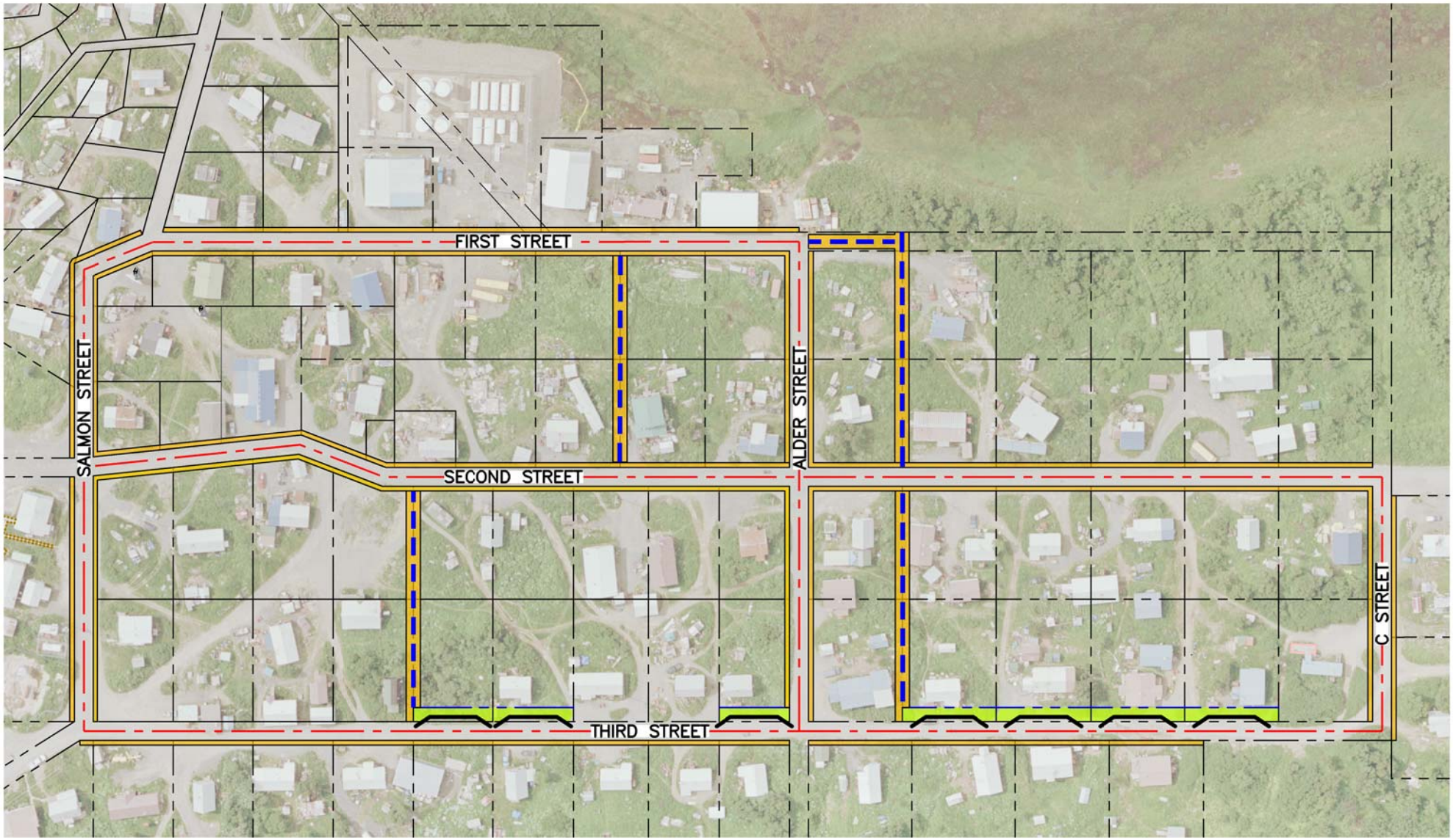
Bristol ALLIANCE OF COMPANIES™

Isaac Pearson, PE
Senior Civil Engineer

Bristol Engineering Services Corporation

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
direct (907) 743-9313
fax (907) 563-6713
mobile (907) 351-1545
ipearson@bristol-companies.com

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\PUBLIC MEETINGS\32150007_50%PUBLICMTG.DWG - Layout: FIG6
User: JWANDER May 08, 2017 - 8:59am Xrefs: XXX32150007_BASE_MAP.DWG BR_85X11L.DWG - Images: MANO1.TIF



LEGEND:

- PROJECT ALIGNMENT
- EXISTING PROPERTY LINE
- NEW PROPERTY LINE
- PROPOSED DRAINAGE SWALE
- TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT RIGHT OF WAY TAKE
- PROPOSED ON STREET PARKING

0 75 150
SCALE IN FEET

FIGURE 1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
SITE PLAN

Bristol
ENGINEERING SERVICES CORPORATION

DATUM:	-
PROJECTION:	-
PROJECT No.	32150007
DATE	MAY 2017
DWN.	JDW
SCALE	SHOWN
APPRVD.	IPP
SHEET	1 of 1

Bristol

50% Design Review Meeting
May 2017

Hello!

We are here to discuss:

Second & Third Street Rehabilitation Project

We are:

Bristol Engineering Services Corporation

Isaac Pearson, P.E.

2

Bristol

50% Design Review Meeting
May 2017

- **Presentation Overview**
  - Project Background
  - Project Overview
  - Typical Sections
  - Drainage Improvements
  - On-Street Parking
  - Right-of-Way Status
  - Environmental Status
  - Cost Estimates
  - Project Schedule
  - Questions

3

Bristol

50% Design Review Meeting
May 2017

- **Project Background**
  - Poor drainage
  - Water ponding on roads
  - Failing culverts
  - Narrow roads
  - Lack of parking on 3rd Street

4

Bristol

50% Design Review Meeting
May 2017

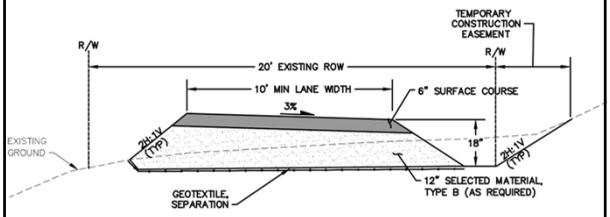
- **Project Overview**
  - Widen and resurface roads
  - Construct drainage ditches on one side of all roads
  - Install new culverts
  - Install rock-lined drainage swales between lots
  - Construct parking stalls along 3rd Street

5

Bristol

50% Design Review Meeting
May 2017

- **Typical Sections**
  - 3rd Street

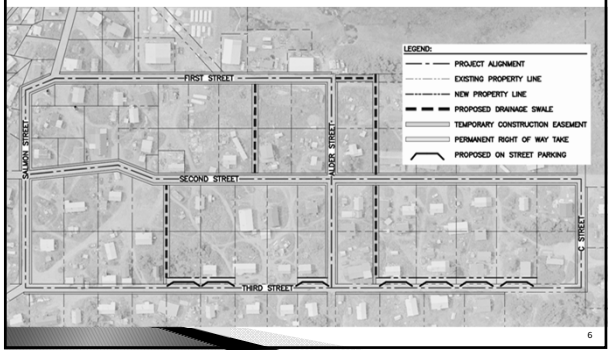


7

Bristol

50% Design Review Meeting
May 2017

- **Project Overview**

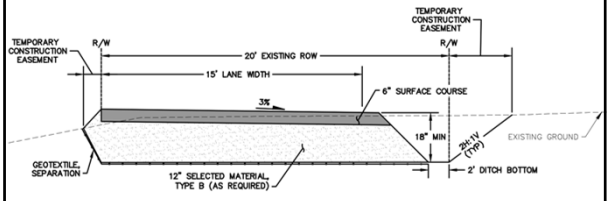


6

Bristol

50% Design Review Meeting
May 2017

- **Typical Sections**
  - All other roads

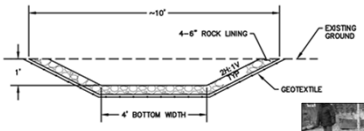


8

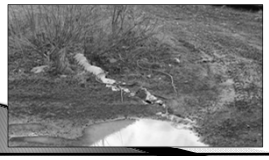
Bristol

50% Design Review Meeting
May 2017

- **Drainage Improvements**
  - Rock-lined drainage swales



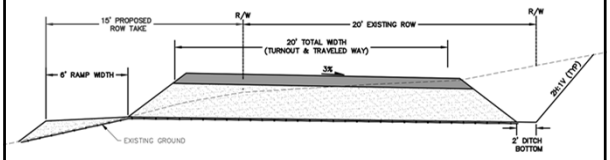
  - Replace failing culverts



Bristol

50% Design Review Meeting
May 2017

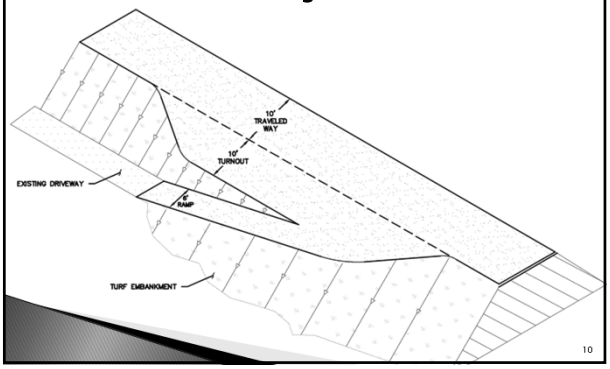
- **Right-of-Way Status**
  - 15 feet of permanent right-of-way take for 7 parking stalls on 3rd Street



Bristol

50% Design Review Meeting
May 2017

- **New On-Street Parking**

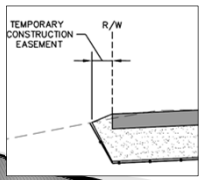


Bristol

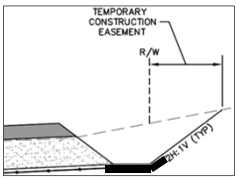
50% Design Review Meeting
May 2017

- **Temporary Construction Easements**
  - Permits access to property owner's land during construction
  - After project ends, property will go back to owner

Fill Condition



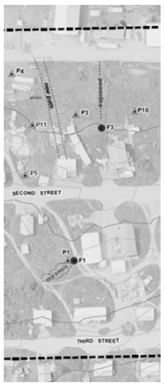
Ditch Condition



Bristol

50% Design Review Meeting
May 2017

- Environmental Status
  - Scoping Documents – Complete
  - Wetland Delineation – Complete
  - Permit Applications – In Progress
    - Fish Habitat Permit
    - Temporary Water Use Permit
  - Environmental Reports – In Progress
    - Environmental Assessment
    - Phase I Environmental Site Assessment



13

Bristol

50% Design Review Meeting
May 2017

- **Project Schedule**
  - Survey **[Complete]**
  - 75% Design Submittal **[September 2017]**
    - Plan in Hand Review, Public Meeting (3 of 4)
  - 95% Design Submittal **[November 2017]**
    - Public Meeting (4 of 4)
  - 100% Design Submittal **[December 2017]**

15

Bristol

50% Design Review Meeting
May 2017

- **Cost Estimates (50% Design)**

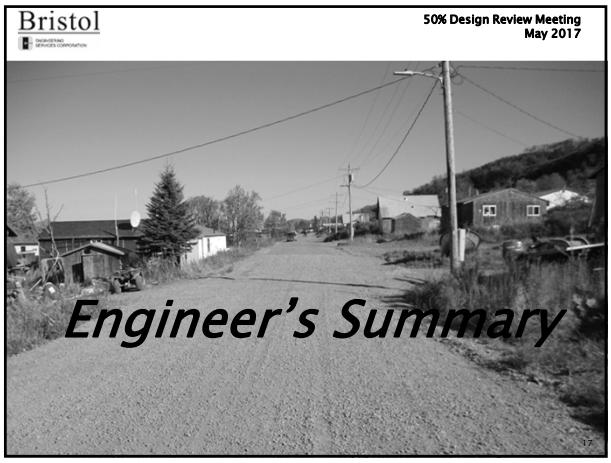
Description	Cost	Cost Summation
BASE COST UNITS	$2,220,750	$2,220,750
R1 - FIRST STREET	$213,138	$2,433,888
R2 - SECOND STREET	$368,226	$2,802,114
R3 - THIRD STREET	$458,514	$3,260,628
R4 - SALMON STREET	$104,099	$3,364,727
R5 - ALDER STREET	$115,466	$3,480,192
R6 - C STREET	$74,426	$3,554,618
	TOTAL ESTIMATE	$ 3,554,618

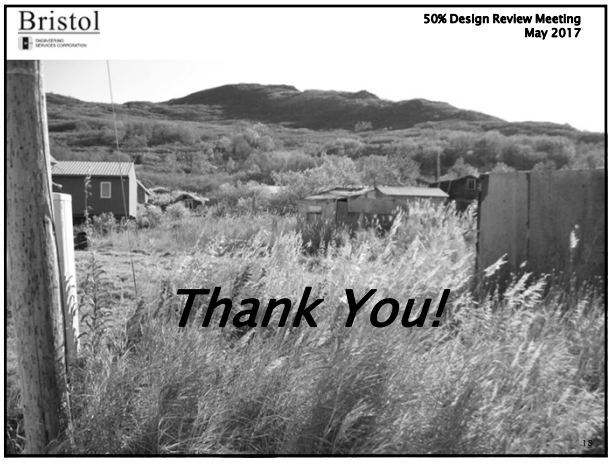
14

Bristol

50% Design Review Meeting
May 2017

16


Bristol
50% Design Review Meeting
May 2017
Engineer's Summary
17


Bristol
50% Design Review Meeting
May 2017
Thank You!
18

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ENGINEERING
SERVICES CORPORATION

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
fax (907) 563-6713
www.bristol-companies.com

MEETING MINUTES

Project: **Second and Third Street Rehabilitation Project**

Bristol Project No: 32150007

Reference: 75% Public Meeting

Date of Meeting: January 29, 2018, 1800-1900 hours

Location of Meeting: Manokotak School, Manokotak, AK

Participants:

Isaac Pearson, PE, Bristol
(See Attached Sign-in sheet)

1. Summary

Isaac Pearson traveled to KMO to give a presentation outlining the DRAFT 75% Design for the Second and Third Street Rehabilitation Project. Bristol distributed a flyer to the KMO Transportation group on January 9, 2018 (see attached). The flyer was posted in the tribal office, post office, and school. Bristol developed handouts for the community (see attached), and did a power point presentation about the project (see attached). The presentation was augmented with a translator provided by the Manokotak Village Council. Afterward Bristol received questions from the community. Photos of the flyer, presentation materials, translator, and meeting attendants are included in a photographic log (see attached).

2. Discussion Items:

2.1. What happens to sheds and structures that are very close to the road?

2.1.1. Bristol Response: We will be in Manokotak for the plan in hand (PIH) review this spring and will meet with all lot owners individually to discuss the actions on their property.

2.2. There is a sink hole by 1st and Pike Street.

2.2.1. Bristol Response: We will evaluate during the PIH review this spring.

2.3. Why were there no discussion in the presentation about cultural resources?

2.3.1. Bristol Response: We apologize that should have been on the NEPA slide. An archeologist has reviewed the site and developed a report indicating that cultural resources were not impacted. This was concurred by the BIA archeologist and SHPO. The Section 106 work for this project is complete.

3. Action Items:

3.1. Bristol to return for the PIH review and talk with individual lot owners.

3. **Distribution of Meeting Notes:**

   a) Manokotak Village Council

   b) BIA

4. **Attachments:**

   a) Sign-in sheet
   b) Flyer and Email
   c) Power Point Presentation
   d) Handout
   e) Photo Log

[End Meeting Minutes]

Second and Third Street Rehabilitation Project
KMO Public Meeting #3 - January 29, 2018

Sign In Sheet

	Name	Email (optional)
1	Carl K. Ikummaria	
2	Judy Ikummaria	
3	Anne Ikummaria	
4	Ferdinaud Sharp	ferdinaudsc@hotmail.com
5	Mollie Ann Mochin	
6	Edward George Jr	
7	Laura John	arra_john@hotmail.com
8	Nancy Sharp	same as F Sharp
9	Nellie Hameebuk	
10	Jennie Atakitliq-John	atakitliq-john@yahoo.com
11	Mike Ministra	
12	Steven Whitley	
13	Fredella Sharp	ferdellasharp@hotmail.com
14	Wassillie Tungatuk Jr	
15	Carol W. Brown	
16	Anuska Kuzeja	
17	Stella Paul	
18	Ariana Jekin	
19	Nellie Paul	Nellie Paul
20	Vicki Paul	
21	Julia Fleckenstein	
22	Olga Dick	
23	Mel Andrew	
24	Homer Bartman	
25	Ernest Paul	

Second and Third Street Rehabilitation Project
KMO Public Meeting #3 - January 29, 2018

Sign In Sheet

	Name	Email (optional)
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Signature

email optional

51. [illegible signature]
52. Anna Etuckmelra
53. Moses [illegible signature]
54. [illegible signature]
55. [illegible signature]
56. Ernest [illegible]
57. [illegible signature]
58. [illegible signature]
59. Kenneth [illegible]
60. [illegible signature]
61. [illegible signature]
62. Tessa Nickerson
63. Ariel Gloko
64. Deanna Etuckmelra
65. [illegible signature]
66. Bruce [illegible]
67. Matthew Andrews
68. Bernetta Moch
69. [illegible signature]
70. Sharon White
71. [illegible signature]
72. Louie Andrew AJr
73. Audrey [illegible]-Nanalook
74. Linda Jordan
75. Michael Jordan
76. [illegible signature]
77. James Tikiun
78. Gerald Nanalook
79. [illegible signature]

3/4

Sign-in

Email optional

80. Alex Tikhonov
81. Darren Paul
82. Quentin Kusegta
83. Lola Slim
84. Martha Anaver
85.
86.
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88.
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SECOND & THIRD STREET REHABILITATION PROJECT

COMMUNITY MEETING

Come learn about the Second and Third Street Rehabilitation project at the 75% design phase. The project involves improving nearly every street in downtown Manokotak and includes wider roads, new parking spaces on Third Street, and improved drainage features.

The engineer will be available to answer questions and receive feedback from the public.

Refreshments and door prizes will be provided for those that attend. Invite your friends and family so more of the community is involved.

Monday,
January 29,
2018
6 pm

High School Commons

Refreshments Provided

Door Prizes

For more information:

Isaac Pearson
(907) 743-9313
ipearson@bristol-companies.com

Bristol
ENGINEERING SERVICES CORPORATION

Pearson, Isaac

From: Pearson, Isaac
Sent: Tuesday, January 9, 2018 5:53 PM
To: Manokotak Transportation
Cc: 'Village Council'; Manokotak Village Council
Subject: KMO Rehab -- 75% Public Meeting
Attachments: Community flyer.pdf

Hi Edward,

Attached is a flyer for the 75% public meeting to be held on KMO on January 29th at 6pm in the school gym. Please post in the council building, post office, school, and any other place you can think of.

Thanks.

Isaac Pearson, P.E.
Senior Civil Engineer
Bristol Engineering Services Corporation
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5109
Phone : (907) 743-9313
Mobile : (907) 351-1545
FAX : (907) 563-6713
ipearson@bristol-companies.com
http://www.bristol-companies.com/

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www.bristol-companies.com

Public Meeting #3 – Informational Packet (75% Design Stage)

January 29, 2018

Dear Participant;

Thank you for attending the public meeting for the Second and Third Street Rehabilitation Project. This Project is currently at the 75% Design Stage. Your participation is valuable to the project, and we appreciate any feedback you may have on this meeting or the project in general.

This project aims to mitigate issues experienced along the existing transportation corridors. Through various site investigations, the following deficiencies have been identified:

- Poor drainage through lots
- Water ponding on roads, muddy roads
- Potholes
- Narrow traveled surface
- No parking on 3rd Street
- Failing culverts
- No street signs

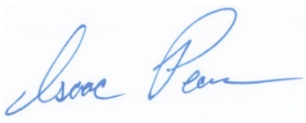
This project will rehabilitation six roads within your community: First Street, Second Street, Third Street, Salmon Street, Alder Street, and C Street. The following improvements are included in the design:

- Wider roads, new aggregate surface course
- New drainage ditches on one side of every street
- New rock-lined drainage swales between lots to direct drainage away from homes
- Replacement of existing failing culverts
- New parking stalls along 3rd Street to improve traffic congestion issues
- Permanent and temporary right-of-way adjustments

These proposed features are shown in the attached figures.

Public comment is key to a successful project. If you have suggestions or concerns about the proposed project, please bring them up at the meeting or feel free to contact me directly. My email is ipearson@bristol-companies.com.

Sincerely,



Isaac Pearson, P.E.
Senior Civil Engineer

Bristol ALLIANCE OF COMPANIES™
Isaac Pearson, PE
Senior Civil Engineer
Bristol Engineering Services Corporation
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
direct (907) 743-9313
fax (907) 563-6713
mobile (907) 351-1545
ipearson@bristol-companies.com

NOTES:

1. THE OWNERSHIP STATUS DEPICTED HERON IS BASED ON INFORMATION PROVIDED BY BRISTOL BAY NATIVE ASSOCIATION AND DATA OBTAINED FROM THE STATE OF ALASKA DNR RECORDS
2. EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THIS MAP
3. LOT CONFIGURATIONS BASED ON
   a.) 2003 DCCED MAPPING
   b.) Survbase Landstatus Map

LEGEND:

- PROJECT ALIGNMENT
- EXISTING PROPERTY LINE
- NEW PROPERTY LINE
- PROPOSED DRAINAGE SWALE
- TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT RIGHT OF WAY TAKE
- 2 LOT NUMBER
- [3] BLOCK NUMBER
- PROPOSED ON STREET PARKING

OWNERSHIP LEGEND

- PUBLIC
- NATIVE VILLAGE
- PRIVATE UNRESTRICTED
- PRIVATE RESTRICTED
- PRIVATE RESTRICTED WITH FRACTIONAL OWNERSHIP

METES & BOUNDS LOT

FRONT STREET

SALMON STREET

PIKE STREET

POWER PLANT GROUND LEASE

FIRST STREET

SECOND STREET

THIRD STREET

ALDER STREET

C STREET

W PTN 4

E PTN 4

50 0 25 50
HORIZONTAL SCALE IN FEET

FINAL DRAFT

REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32140044

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

MANOKOTAK VILLAGE COUNCIL
P.O. BOX 169
MANOKOTAK, ALASKA 99628
Phone (907) 289-2067
Fax (907) 289-1235

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

TEMPORARY AND PERMANENT RIGHT OF WAY ACQUISITION

SHEET NO.
FIG 3

SCALE: SHOWN	DESIGNED: RWB	CHECKED: IPP	DRAWN: RWB	DATE: JULY 2015	SHEET 3 OF 3

User: RBURDICK Jul 20, 2015 - 10:51am
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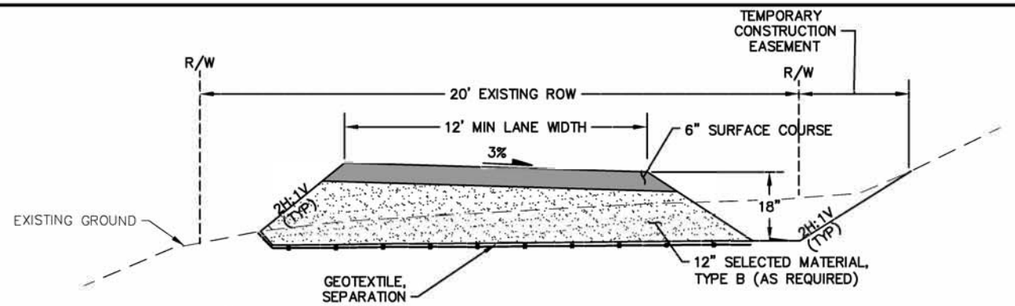
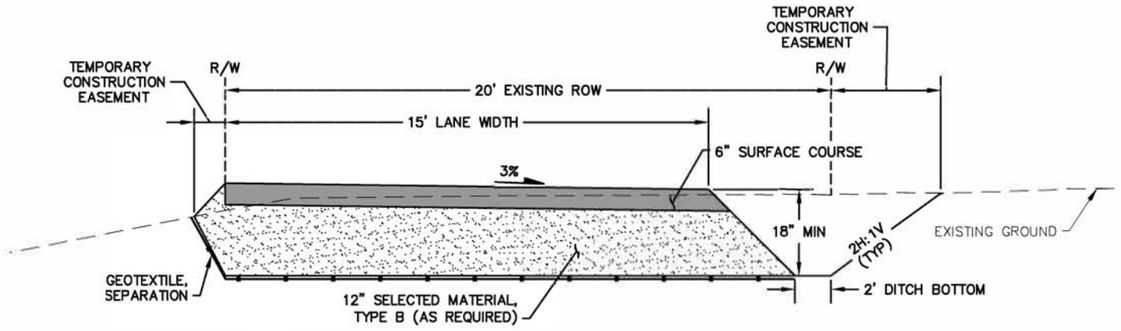
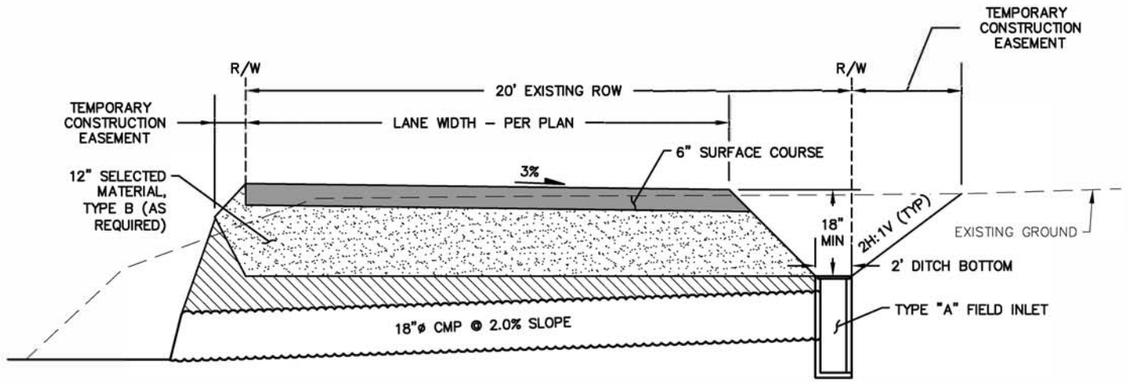


A — **TYPICAL ROAD SECTION - THIRD STREET**
SCALE: NTS



B — **TYPICAL ROAD SECTION - ALL OTHER ROADS**
SCALE: NTS



C — **TYPICAL CULVERT SECTION**
SCALE: NTS

FIGURE1
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

Bristol ENGINEERING SERVICES CORPORATION

DATUM: -	DATE DEC 2017	SHEET 1
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	3
	APPRVD. IPP	

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL-DRAFT\32150007_DSR_FIG_3.DWG - Layout: FIG3
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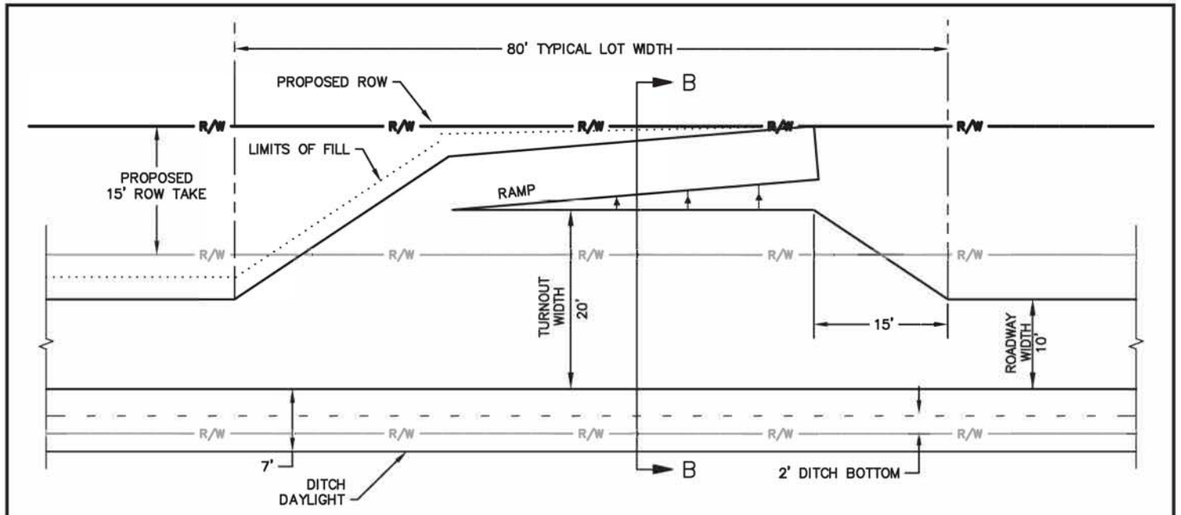
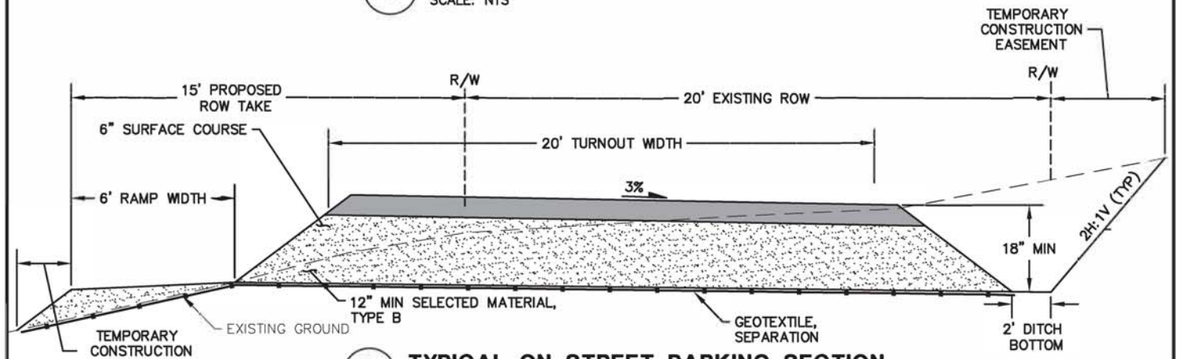
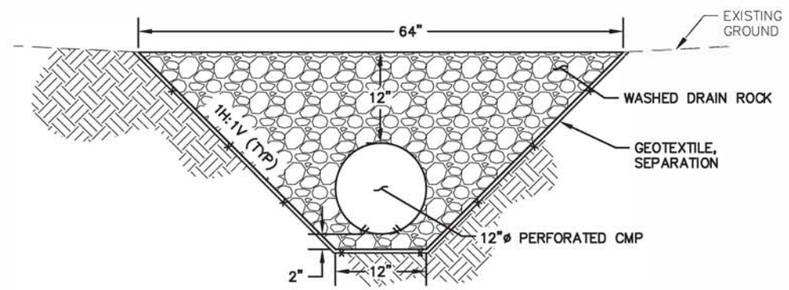


A — **TYPICAL ON STREET PARKING WITH RAMP**
SCALE: NTS



B — **TYPICAL ON STREET PARKING SECTION**
SCALE: NTS



C — **TYPICAL SWALE TRENCH SECTION**
SCALE: NTS

FIGURE 2
MANOKOTAK, ALASKA
SECOND AND THIRD STREET REHABILITATION PROJECT
TYPICAL SECTIONS

Bristol ENGINEERING SERVICES CORPORATION

DATUM: -	DATE DEC 2017	SHEET 2
PROJECTION: -	DWN. JDW	of
PROJECT No. 32150007	SCALE SHOWN	3
	APPRVD. IPP	

Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN\DESIGN STUDY REPORT_FINAL-DRAFT\32150007_DSR_FIG_4.DWG - Layout: FIG4
User: JWANDER Dec 20, 2017 - 9:20am Xrefs: BR_85X11P.DWG - Images: FINALIRALOGO.PNG

Bristol
ENGINEERING SERVICES CORPORATION

75% Design Review Meeting
January 2018

Hello!

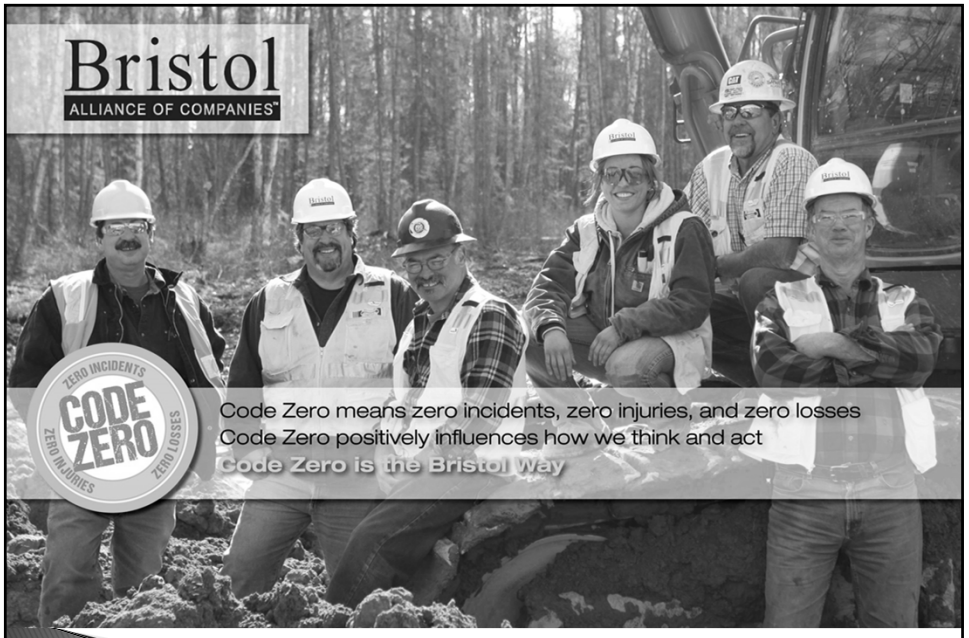
We are here to discuss:

Second & Third Street Rehabilitation Project

We are:

Bristol Engineering Services Corporation

Isaac Pearson, P.E.



2

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January 2018

- **Presentation Overview**
  - Project Background
  - Project Overview
  - Typical Sections
  - Drainage Improvements
  - On-Street Parking
  - Right-of-Way Status
  - Environmental Status
  - Cost Estimates
  - Project Schedule
  - Questions

3

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ENGINEERING SERVICES CORPORATION

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- **Project Background**
  - Poor drainage
  - Water ponding on roads
  - Failing culverts
  - Narrow roads
  - Lack of parking on 3rd Street

4

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Project Overview

- Widen and resurface roads
- Construct drainage ditches on one side of all roads
- Install new culverts
- Install rock-filled drainage swales between lots with buried perforated pipe
- Install catch basins in ditches
- Construct parking stalls along 3rd Street

5

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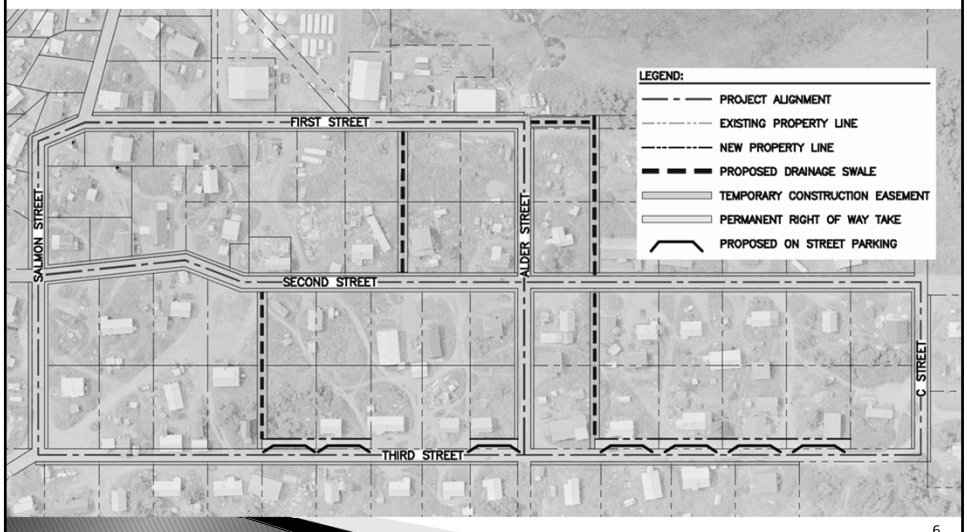
Project Overview



6

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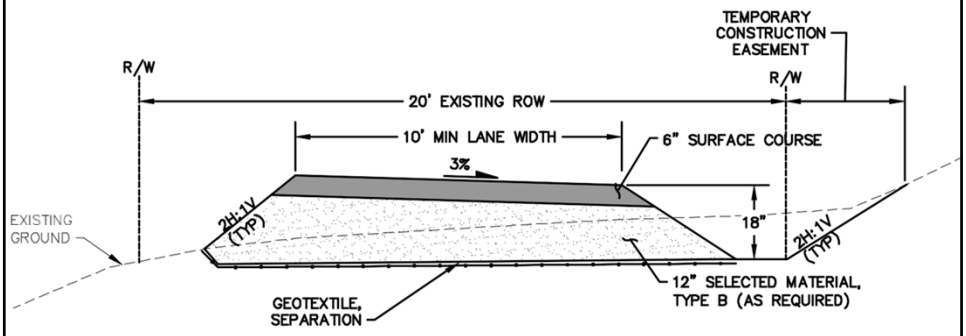
- Typical Sections
  - 3rd Street



7

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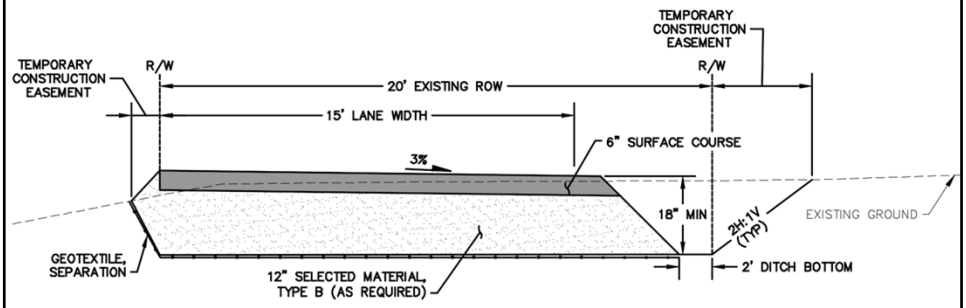
January 2018

- Typical Sections
  - All other roads



8

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- Drainage Improvements
  - Replacing failing culverts

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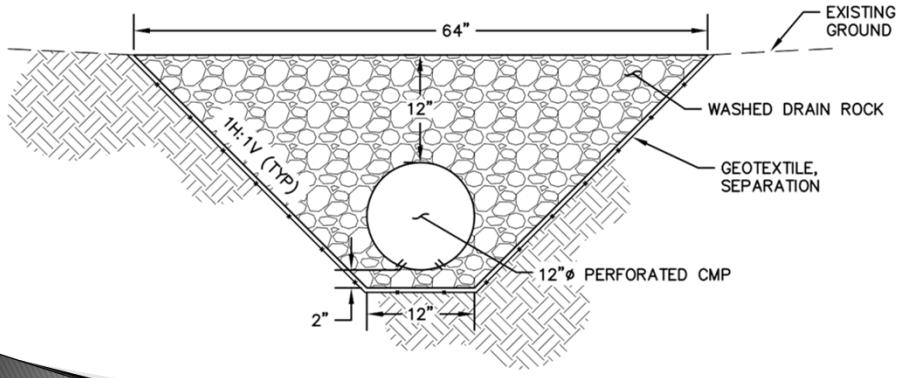
75% Design Review Meeting
January 2018

- Drainage Improvements
  - Rock-filled swales with buried perforated pipe
  - *Reduce standing water for child safety*



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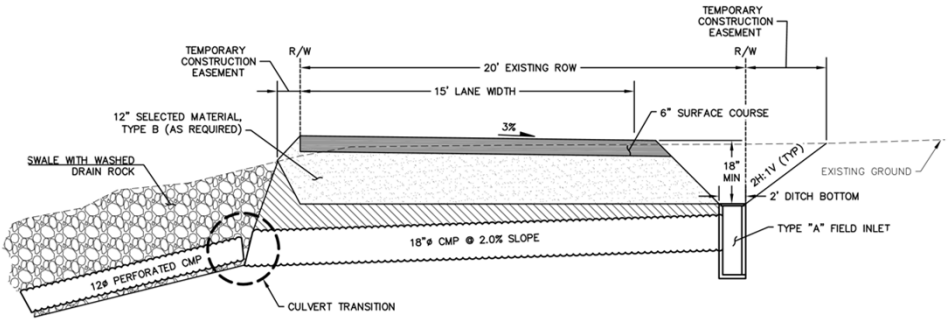
January 2018

- Drainage Improvements
  - Install catch basins in ditches



11

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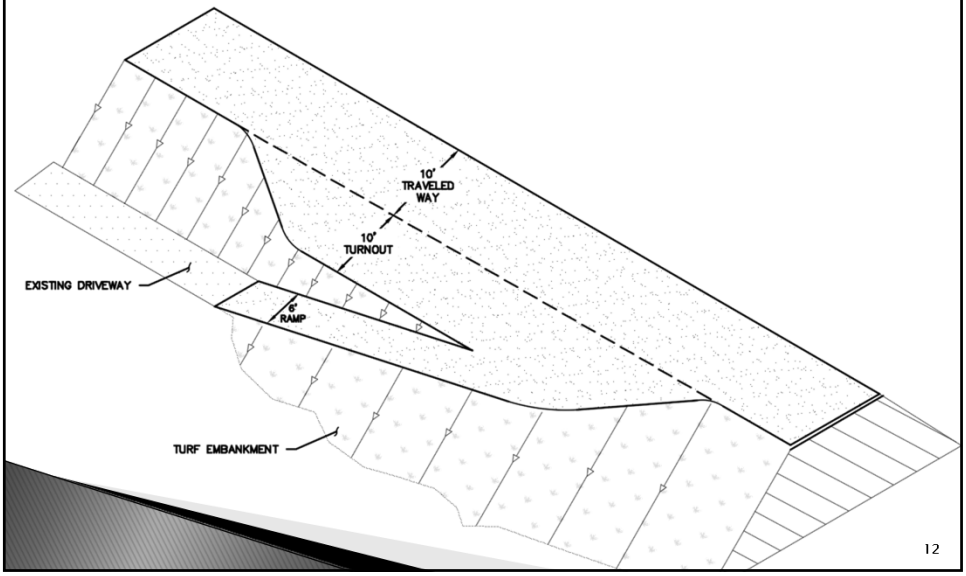
January 2018

- New On-Street Parking



12

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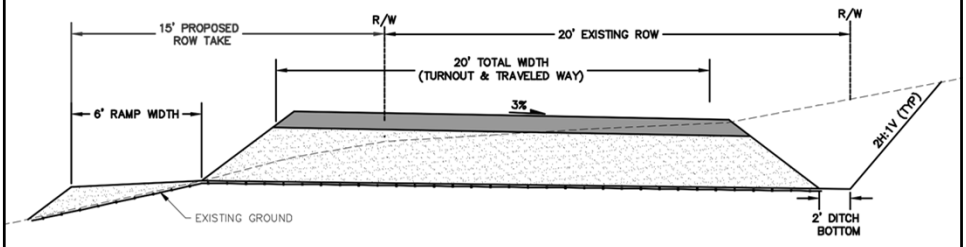
January 2018

- Right-of-Way Status
  - 15 feet of permanent right-of-way take for 7 parking stalls on 3rd Street



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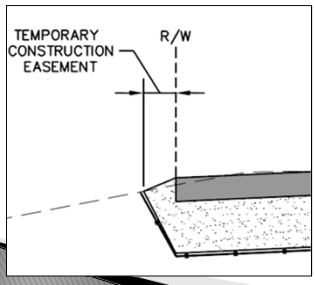
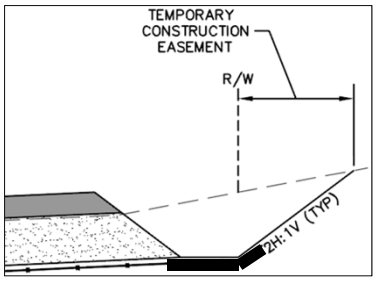
- Temporary Construction Easements
  - Permits access to property owner's land during construction
  - After project ends, property will go back to owner

Fill Condition



Ditch Condition



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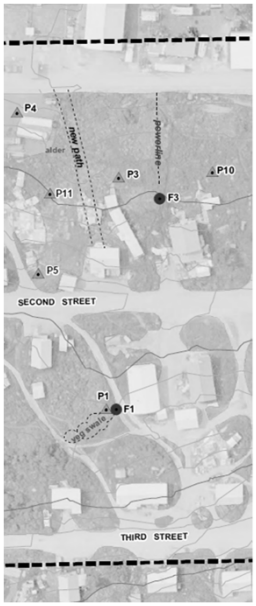
- Environmental Status
  - Scoping Documents – Complete
  - Wetland Delineation – Complete
  - Permit Applications – In Progress
    - Fish Habitat Permit
    - Temporary Water Use Permit
  - Environmental Reports – In Progress
    - Environmental Assessment
    - Phase I Environmental Site Assessment



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January 2018

- Cost Estimates (75% Design)

Description	Cost	Cost Summation
BASE COST UNITS	$2,268,000	$2,268,000
R1 - FIRST STREET	$217,269	$2,485,269
R2 - SECOND STREET	$383,508	$2,868,777
R3 - THIRD STREET	$640,197	$3,508,974
R4 - SALMON STREET	$85,833	$3,594,807
R5 - ALDER STREET	$96,498	$3,691,305
R6 - C STREET	$63,612	$3,754,917
	TOTAL ESTIMATE	$ 3,754,917

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- **Project Schedule**
  - 95% Design Submittal **[March / April 2018]**
    - Plan in Hand Review
  - 100% Design Submittal **[April / May 2018]**
  - **Right of Way Paperwork [in progress TBD]**

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January 2018

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75% Design Review Meeting
January 2018

Engineer's Summary

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75% Design Review Meeting
January 2018

Thank You!

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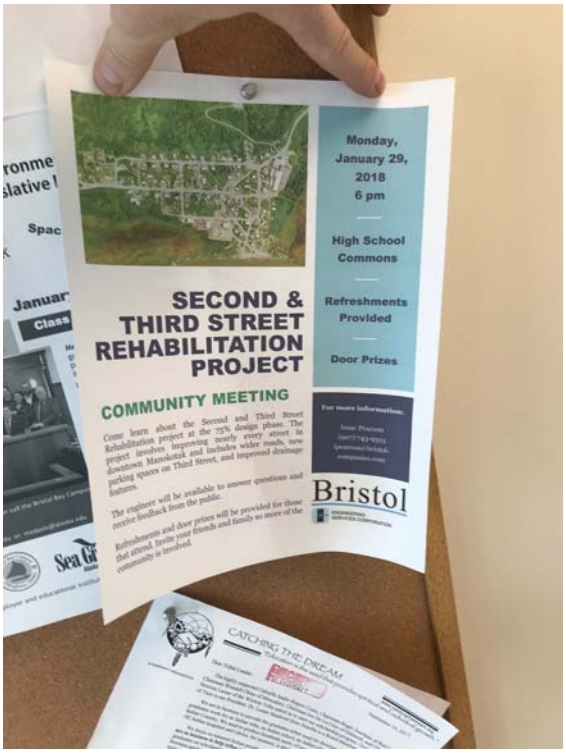
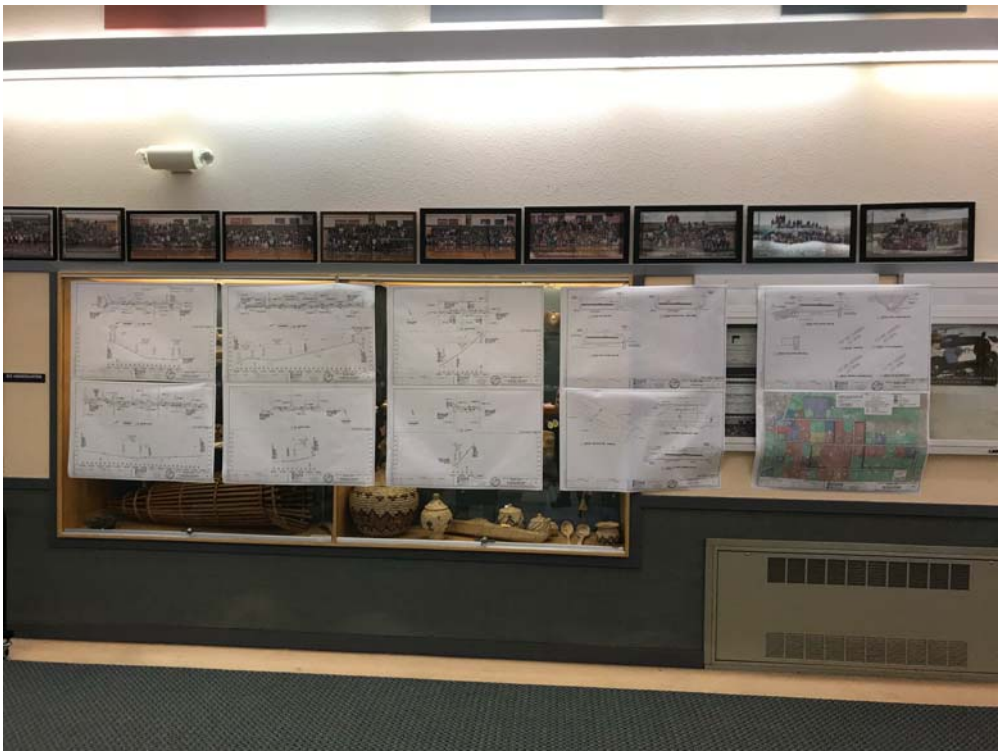
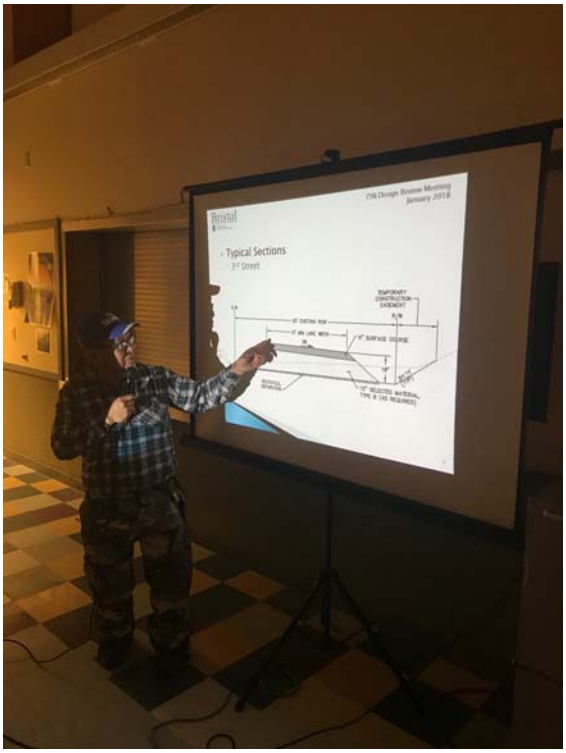
Manokotak Public Meeting
January 2018

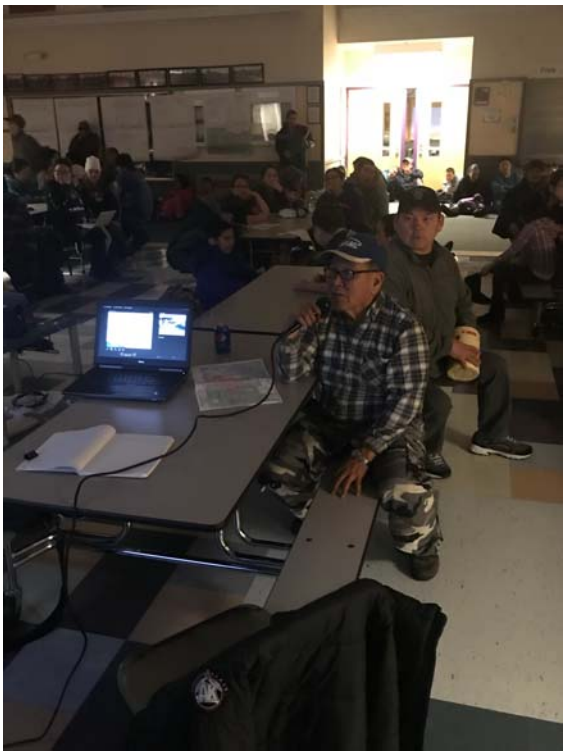




Manokotak Public Meeting
January 2018

Manokotak Public Meeting
January 2018





Bristol
ENGINEERING
SERVICES COMPANY, LLC

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Anchorage, AK 99501-5169
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fax (907) 563-6713
www.bristol-companies.com

M E M O R A N D U M

DATE: May 30, 2018

TO: Andrewski Toyukak, Transportation Coordinator
Manokotak Village Council
P.O. Box 100
Manokotak, AK 99771

FROM: Isaac Pearson, P.E.
Jackie Wander, EIT

RE: Draft Plan in Hand Review – Second and Third Street Rehabilitation Project

---

The purpose of this memorandum is to provide a synopsis of the Plan in Hand (PIH) review conducted by Bristol Engineering Services Company, LLC (Bristol) for the Second and Third Street Rehabilitation Project in Manokotak, Alaska.

Isaac Pearson, PE and Jackie Wander arrived in Manokotak in the morning of Monday, May 21, 2018. Throughout the day, Isaac and Jackie, along with Thomas Llanos and John Peterson with the Bureau of Indian Affairs (BIA), walked the project corridor, taking pictures and notes throughout. Structures, utilities, and other features observed within the project footprint were noted and cross-referenced with the 95% Design Plans. Additionally, approach locations were identified, as needed.

The following notes are organized by route or swale number. The note numbers can be referenced to the attached redline plans. Stations noted are approximate. A photographic log is also attached to the end of this memo.

S1 – Swale 1 (Sheet J3)

1. Realign swale to center over property line, if possible.
2. Add a note on plans to coordinate relocation of existing shed and smoke house with the owners, Kenneth and Sally Nukwak (907-289-1077).

3. Existing utilities behind Clinic may conflict with proposed drainage swale. Coordinate locations with the City, and relocate as necessary.

R1 – First Street (Sheet M1)

1. Existing shed located on corner, not visible on plans, no issues
2. Add approach and driveway culvert
3. Add approach and driveway culvert
4. Existing power pole (E1-1) has too many connections to move, it seems to be located on the back slope of the ditch, so should not be an issue, no adjustment required
5. Remove approach and driveway culvert, this is a shortcut
6. Remove approach and driveway culvert (relocated)
7. Existing sewer manhole at grade, callout on plans
8. Add approach
9. Remove approach and driveway culvert, this is a shortcut
10. Add commercial approach, approximately 40-ft wide, for access to the public safety building
11. Raise road slightly or adjust ditch to avoid cutting into the sewer lift station, add a callout to plans
12. Construct a continuous commercial approach to provide access to City maintenance buildings, including access for truck and bus parking. Add a note to construct around existing power poles.
13. Existing power pole not visible on plans, add callout
14. Remove approach and driveway culvert, this is a shortcut
15. Existing power pole (E1-2) right on edge of traveled way, no adjustment required
16. Add approach.
17. Lengthen driveway to swale and increase area of temporary construction easement.

R2 – Second Street (Sheet M2)

1. This is a low spot in the topography where heavy flooding occurs.
2. Remove approach.

3. This is an existing major drainage channel. If new road ditch cannot be constructed in this location, replace this culvert. If ditch can be constructed, remove culvert.
4. Add approach and driveway culvert (dependent on ditch).
5. Add commercial approach to the store, approximately 40 feet wide.
6. Add a note to the plans to coordinate demolition and replacement of this shed with the property owner (Bonnie Ayojiak). This will allow a roadside ditch to be constructed from the beginning of the alignment, as well as improve line-of-sight issues along the road. Bonnie requested a connex to replace the shed. This will be coordinated with the Council.
7. Add a commercial approach to the clinic. Extend driveway culvert (D2-1) from approximately Station 202+35 to 203+30 (after clinic stairs) to remove ditch in this location and facilitate safe access to and from the clinic.
8. Callout existing fenced-in fuel tank. The fence is approximately 4 feet off from the tank.
9. Add approach.
10. Remove approach (relocated).
11. Existing sewer manhole (S2-1) is warped. Add a note to plans to reset.
12. Existing telephone pedestal not visible on plans.
13. Relocated the proposed catch basin approximately 5 feet up from the power pole and angle culvert towards drainage swale.
14. Add approach.
15. Add narrow approach (12 feet wide) and driveway culvert.
16. Existing telephone pedestal is located close to the proposed swale and may require adjustment. Add a callout to the plans. Underground lines may be abandoned.
17. This building has been demolished. Change hatch style.
18. Remove approach and driveway culvert (D2-6).
19. Sewer manhole (S2-2) shown on plans was not visible in the field. Coordinate sewer locates with the City.
20. Existing telephone pedestal not visible on plans.
21. Add approach and driveway culvert.
22. Add approach.

R3 – Third Street (Sheet M3)

1. Consider adding "Speed Limit 15" sign at beginning of project.
2. Widen approach for City office access.
3. Existing sewer manhole, callout on plans.
4. Add approach.
5. Existing water valve. Add notes to plans to cut and build valve box.
6. Existing culvert not shown on plans, remove and replace, 18-inch min. diameter.
7. Add approach.
8. Add approach.
9. Remove approach.
10. Widen approach to provide access to shed.
11. Remove parking stall and ROW take, not needed.
12. Add approach.
13. Remove parking stall and ROW take, not needed.
14. Add approach.
15. Add approach and driveway culvert.
16. Add approach.
17. Add approach.
18. Remove parking stall and ROW take, not needed.
19. Widen approach to provide access to shed. Extend driveway culvert length.
20. Existing house and shed not shown on plans. They are very close to road and the satellite is attached to the roof of the house.
21. Widen approach and extend driveway culvert. A new house is being built on this lot. The shed has been demolished.
22. Mirror ramp and relocate parking stall to far right (northeast) corner of property directly adjacent to the existing telephone pedestal.
23. Mirror ramp so that it terminates at the entrance of the house. Fuel tank will need to be relocated. Note on plans.

24. Add approach.
25. This house experiences flooding in the basement.
26. Coordinate with the property owner (Wassillie) to relocate two existing sheds, if needed.
27. Widen approach and extend driveway culvert.
28. This power pole is located on the back slope of the ditch and should not need to be relocated.
29. Mirror ramp and relocate parking stall to far right (northeast) corner of property directly adjacent to the existing telephone pedestal.
30. Remove approach. This is a shortcut.
31. This power pole will be located in the road cut limits, but does not need to be relocated.
32. Consider V-style ditch, rock-filled swale, or other alternatives to reduce fill and remove power pole conflict (E3-6). Redesign this area.

R4 – Salmon Street (Sheet M4)

1. Remove culvert (D4-1), no ditching on this street.
2. Remove culvert (D4-2), no ditching on this street.
3. This is an old cemetery site, note on plans.
4. Leave existing power pole (E4-1) in place and located approach after posts and guy wire.
5. Add approach.
6. Remove culvert (D4-3), no ditching on this street.
7. Remove culvert (D4-4), no ditching on this street.
8. This is not a fence, just fence posts. Add a note on plans to remove and dispose of fence posts located in project limits.
9. Add approach.
10. Existing telephone pedestal not visible on plans.

R5 – Alder Street (Sheet M5)

1. Extend approach to front of building over manhole.
2. Existing sewer manhole, callout on plans.
3. Add approach.
4. Remove approach (relocated to other lot).

R6 – C Street (Sheet M6)

1. Remove approach.
2. Remove approach and driveway culvert (D6-1).
3. Widen approach for access to Post Office and extend driveway culvert (D6-2).
4. Remove approach and driveway culvert (D6-3).

[*End of memorandum*]

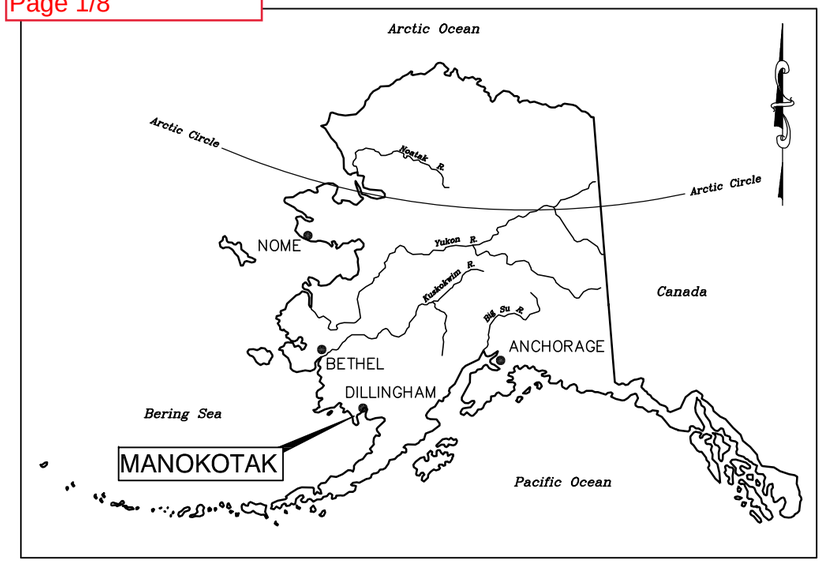
Attachments

Attachment A	Redline Plans (8 pages)
Attachment B	Photographic Log (15 pages)

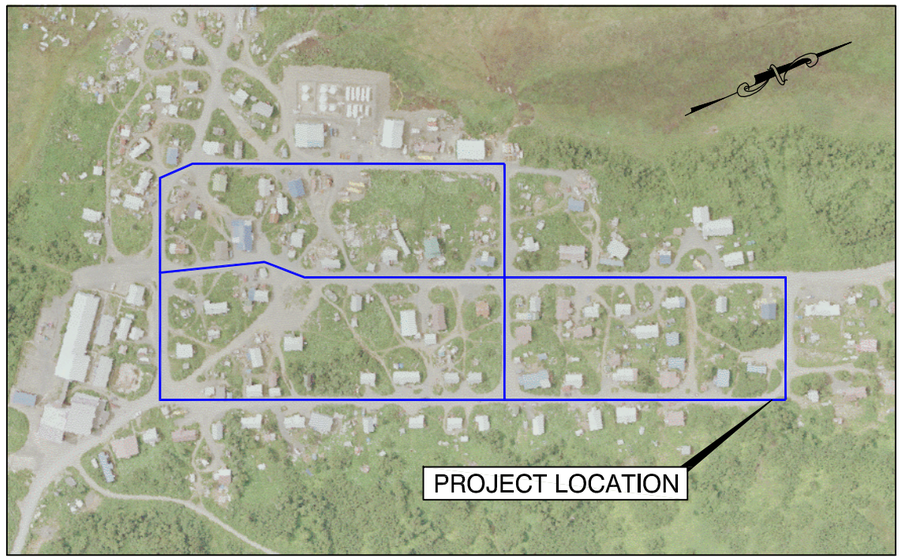
ATTACHMENT A

REDLINE PLANS

95% PIH Review
J. Wander, I. Pearson
Page 1/8



LOCATION MAP
NTS



VICINITY MAP
NTS

IMAGE SOURCE:
ALASKA DEPARTMENT OF COMMERCE, COMMUNITY, AND ECONOMIC DEVELOPMENT (2003)

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALASKA REGION

SECOND & THIRD STREET REHABILITATION PROJECT

PROJECT NO. 32150007

ROADWAY AND DRAINAGE IMPROVEMENTS
TOTAL LENGTH = 0.91 MILES

CONTRACT NUMBER: A11AV000059
PCAS NUMBER: E01295A3

LEGEND	EXISTING	PROPOSED
LIMIT OF FILL		
LIMIT OF CUT		
RIGHT-OF-WAY		
GRAVEL ROAD/DRIVEWAY		
BOTTOM OF DITCH		
SWALE FLOW LINE		SWALE
OVERHEAD ELECTRIC & TELECOM	OH/E/T	
OVERHEAD ELECTRIC	OH/E	
OVERHEAD TELEPHONE	OH/T	
UNDERGROUND TELEPHONE	UG/T	
UNDERGROUND ELECTRIC	UG/E	
FENCE LINE		
CULVERT		
ROAD CULVERT CALL OUT		PX-X
DRIVEWAY CULVERT CALL OUT		DX-X
SWALE PIPE CALL OUT		JX-X
STRUCTURE CALL OUT		AX-X
ELEC. UTIL. ADJUSTMENT CALL OUT		EX-X
SS MH ADJUSTMENT CALL OUT		SX-X
SIGN CALL OUT		X
SIGN		
FIRE HYDRANT	FH	
WATER VALVE		
SANITARY SEWER MANHOLE	SS	
BOLLARD		
UTILITY POLE		
UTILITY POLE WITH LUMINAIRE		
GUY WIRE		
ELECT/TELEPHONE JUNCTION BOX		
FUEL OIL TANK		
EDGE OF BRUSH		
TREE		

INDEX OF SHEETS	
SHEET NO.	TITLE
A1	TITLE SHEET, LOCATION & VICINITY MAPS, LEGEND, INDEX OF SHEETS, & DESIGN DATA
B1–BX	SURVEY CONTROL SHEET(S)
C1	SUMMARY OF QUANTITIES
C2	DRIVEWAY CULVERT PIPE SUMMARY
C3	ROADWAY CULVERT & STRUCTURE SUMMARY
C4	SIGN SUMMARY AND DETAILS
C5	FENCE DETAILS
E1	ROADWAY TYPICAL SECTIONS
F1	ROADWAY DETAILS
F2	APPROACH DETAILS AND SUMMARY
F3–F4	INTERSECTION DETAILS
J1–J2	DRAINAGE DETAILS
J3–J4	SWALE PLAN AND PROFILE
L1	KEY MAP
M1–M6	ROADWAY PLAN AND PROFILE
P1–P8	ROADWAY CROSS SECTIONS
U1	UTILITY ADJUSTMENT SUMMARY
U2–U3	UTILITY ADJUSTMENT DETAILS
–	ADOT STANDARD DRAWINGS

DESIGN DATA – LOCAL RURAL ROADS	
DESIGN CRITERIA	VALUE
DESIGN SPEED – LOCAL RURAL ROAD	25 MPH
MINIMUM CURVE RADIUS	210 FT
MAXIMUM GRADIENT	
LEVEL	7%
ROLLING	11%
MOUNTAINOUS	15%
MINIMUM STOPPING SIGHT DISTANCE (k)	
CREST VERTICAL CURVES	12 (FT/%)
SAG VERTICAL CURVES	26 (FT/%)
CURRENT ADT	50 (DEFAULT)
20-YEAR ADT	< 400

DESIGN DESIGNATION					
LINE	ROADWAY	FUNCTIONAL CLASSIFICATION	WIDTH OF SURFACE (FT)	LENGTH OF CONSTRUCTION (FT)	AREA DISTURBED (AC)
R1	FIRST STREET	RURAL LOCAL	15	820	0.48
R2	SECOND STREET	RURAL LOCAL	15	1,390	0.89
R3	THIRD STREET	RURAL LOCAL	12	1,410	0.80
R4	SALMON STREET	RURAL LOCAL	15	470	0.23
R5	ALDER STREET	RURAL LOCAL	15	470	0.22
R6	C STREET	RURAL LOCAL	15	230	0.11

NOTES

1. UNITS ARE MEASURED IN U.S. FEET.

STANDARD ALASKA DOT DRAWINGS
THAT APPLY TO THIS PROJECT ARE:
(AS ATTACHED)

D-01.02 S-00.11
D-04.21 S-01.01
D-20.04 S-05.01
D-22.01 S-20.10
D-26.03 S-30.04

95% DESIGN SUBMITTAL

REVISIONS				REVISIONS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES CORPORATION
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501
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License Number: AECC697

MANOKOTAK VILLAGE COUNCIL
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MANOKOTAK, ALASKA 99628
Phone (907) 289-2067
Fax (907) 289-1235

STATE OF ALASKA 49TH NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

TITLE SHEET, LOCATION & VICINITY MAPS, LEGEND, INDEX OF SHEETS, & DESIGN DATA

SHEET NO.
A1

SCALE: NTS | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018 | SHEET 1 OF

User: JWANDER May 18, 2018 - 10:27am
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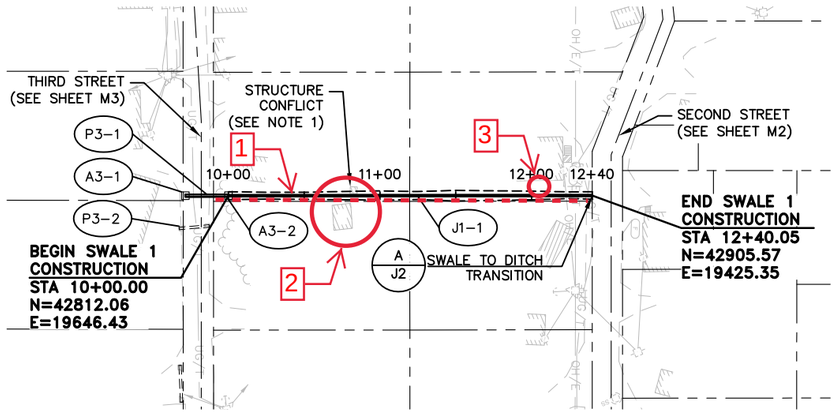
Xrefs: BR22X34REV.DWG - Images: MANO1.TIF

NOTES:

1. PROPOSED SWALE TRAVERSES BETWEEN TWO EXISTING UNKNOWN STRUCTURES IN THIS LOCATION. FIELD FIT SWALE BETWEEN EXISTING STRUCTURES, AS APPROPRIATE.

95% PIH Review
J. Wander, I. Pearson
Page 2/8



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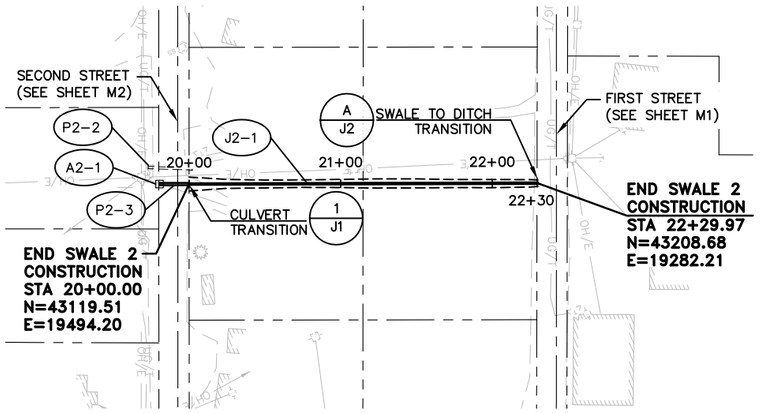
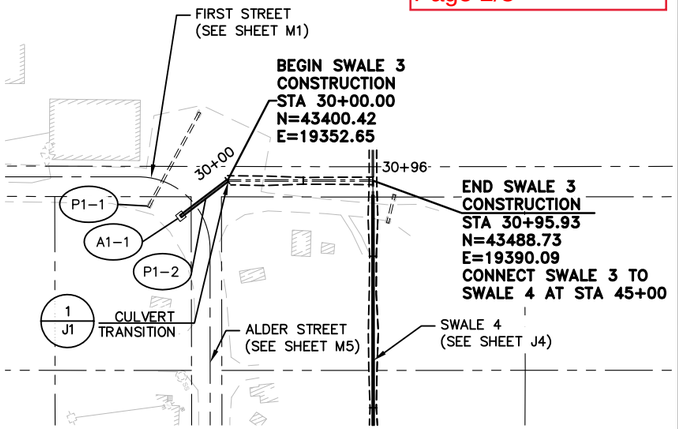
SCALE: SHOWN



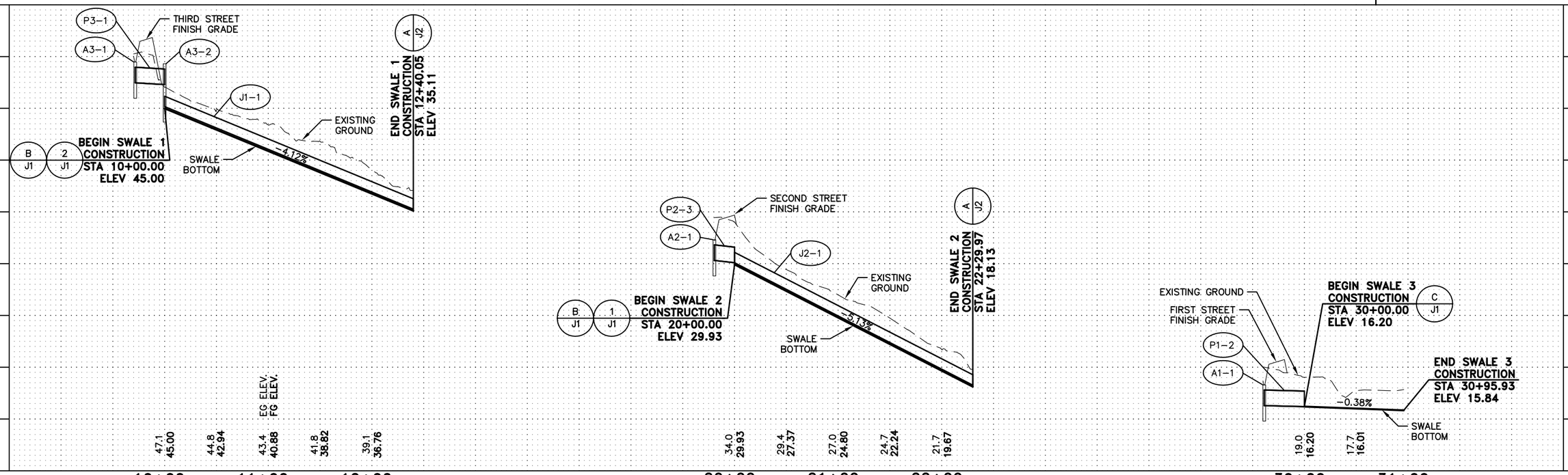
2 — SWALE 2
SCALE: SHOWN



3 — SWALE 3
SCALE: SHOWN

HORIZONTAL SCALE IN FEET
50 0 25 50
VERTICAL SCALE IN FEET
5 0 2.5 5

95% DESIGN SUBMITTAL



REVISIONS

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

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STATE OF ALASKA 49TH — NOT FOR CONSTRUCTION — REGISTERED PROFESSIONAL ENGINEER

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

SWALE - PLAN & PROFILES
SWALES 1, 2, & 3

SHEET NO.
J3

SCALE: SHOWN | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018 | SHEET — OF

User: JWANDER May 17, 2018 - 12:17pm
Drawing: K:\JOBS\32150007 KMO REHAB\ACAD-DESIGN_CIVIL_DESIGN\32150007_J1-J4.DWG - Layout: J3
Xrefs: (DIESEL evaluation failed) - Images: None

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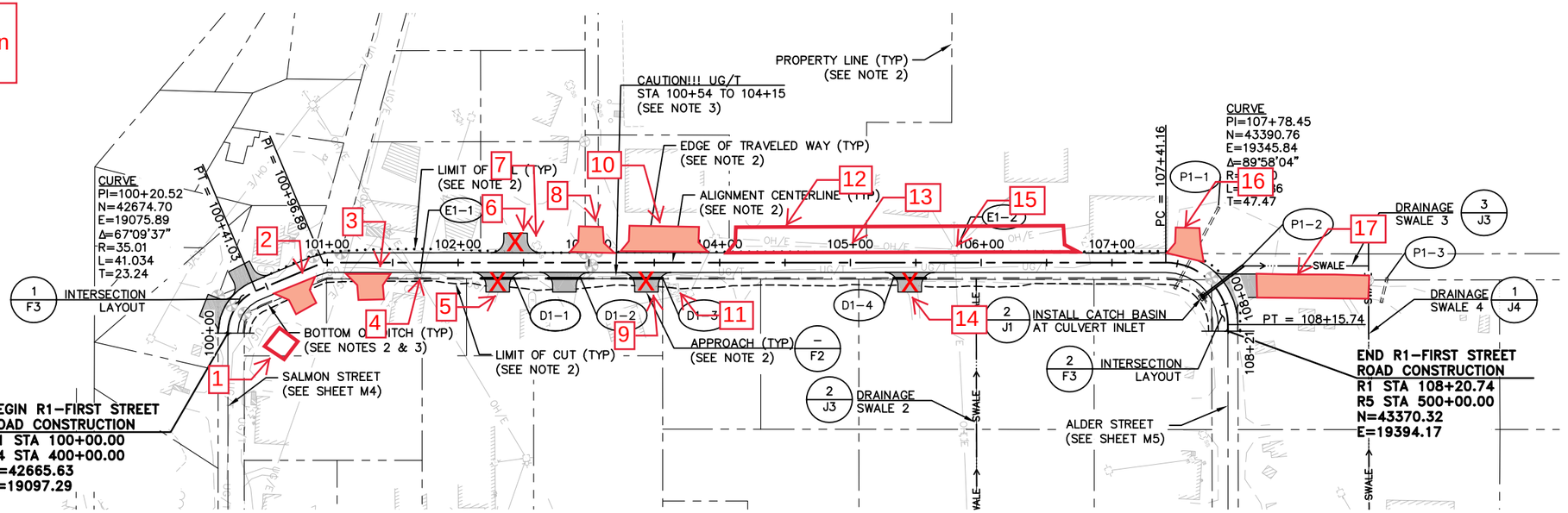
J. Wander, I. Pearson
Page 3/8



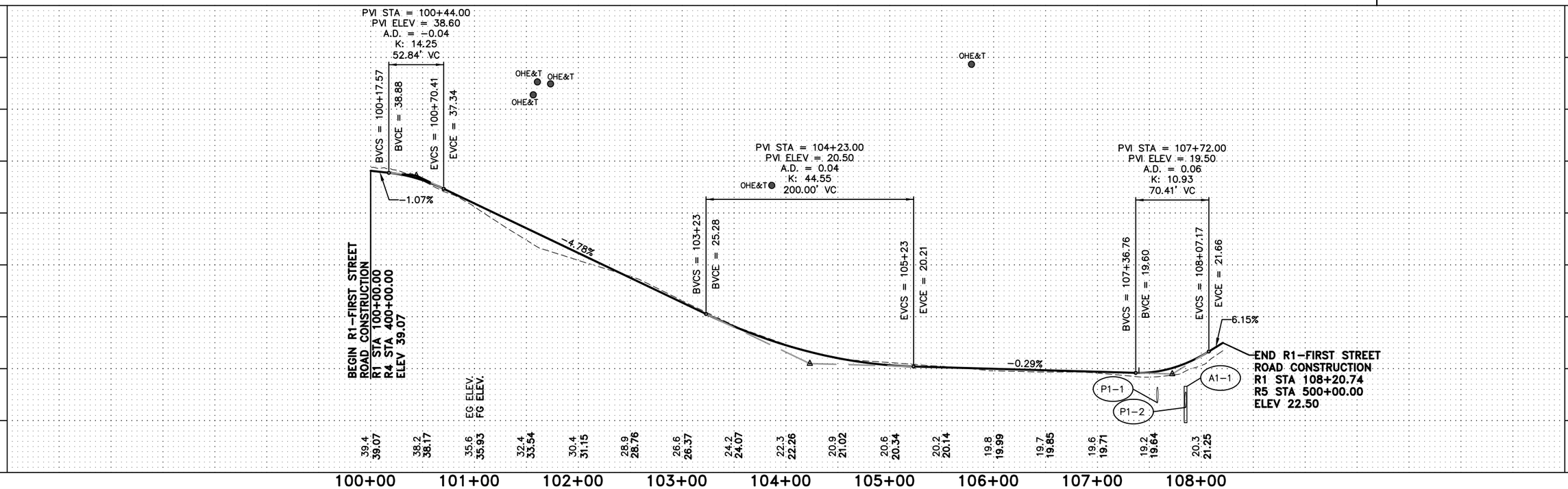
HORIZONTAL SCALE IN FEET
50 0 25 50
5 0 2.5 5
VERTICAL SCALE IN FEET

1 / – R1 - FIRST STREET
SCALE: SHOWN

NOTES

1. THE CONTRACTOR SHALL COORDINATE UTILITY RELOCATION ACTIVITIES AS INDICATED IN THE CONTRACT DOCUMENTS.
2. TYPICAL ROAD CALLOUTS ARE ONLY SHOWN ON THIS SHEET UNLESS OTHERWISE NOTED.
3. UNDERGROUND TELEPHONE LINES ARE LOCATED BENEATH PROPOSED DITCH AT APPROXIMATE STATIONS SHOWN. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION. CARE MUST BE TAKEN DURING EXCAVATION TO AVOID UNDERGROUND UTILITIES. IF UTILITIES ARE ENCOUNTERED, CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY TO RELOCATE APPROPRIATELY.

95% DESIGN SUBMITTAL



REVISIONS

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

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STATE OF ALASKA 49TH NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

R1 - FIRST STREET - PLAN & PROFILE
STA 100+00.00 TO 108+20.74

SCALE: SHOWN | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018

SHEET NO.
M1
SHEET – OF

User: JWANDER May 17, 2018 – 12:18pm
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Xrefs: (DIESEL evaluation failed) – Images: None

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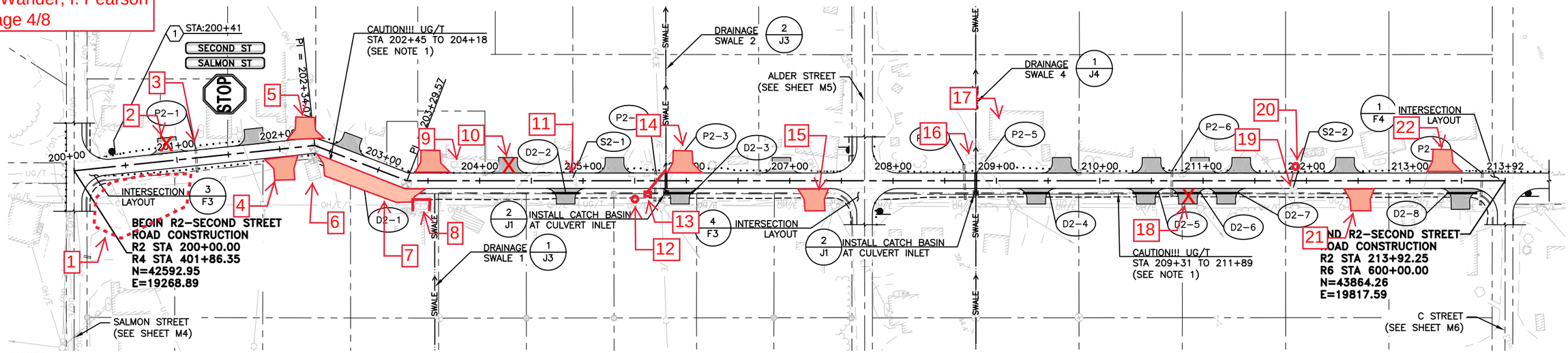
J. Wander, I. Pearson
Page 4/8



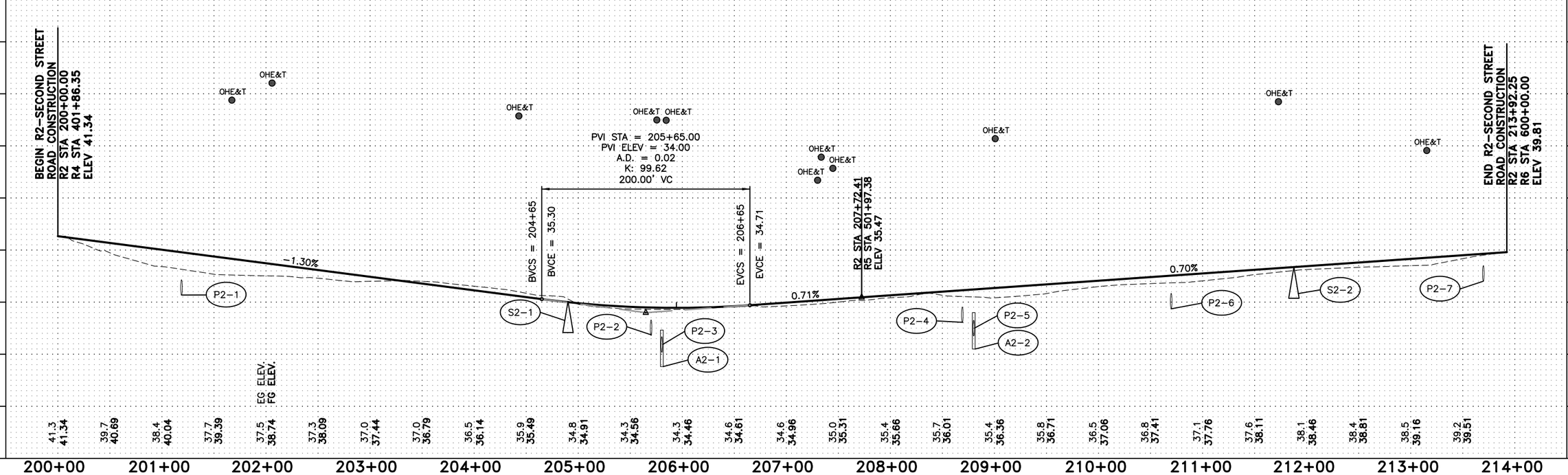
NOTES:

1. UNDERGROUND TELEPHONE LINES ARE LOCATED BENEATH PROPOSED DITCH AT APPROXIMATE STATIONS SHOWN. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION. CARE MUST BE TAKEN DURING EXCAVATION TO AVOID UNDERGROUND UTILITIES. IF UTILITIES ARE ENCOUNTERED, CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY TO RELOCATE APPROPRIATELY.

HORIZONTAL SCALE IN FEET
50 0 25 50
5 0 2.5 5
VERTICAL SCALE IN FEET

1/– **R2 - SECOND STREET**
SCALE: SHOWN

95% DESIGN SUBMITTAL



REVISIONS							
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

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STATE OF ALASKA 49TH NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

R2 - SECOND STREET - PLAN & PROFILE
STA 200+00.00 TO 213+92.25

SHEET NO.
M2

SCALE: SHOWN | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018 | SHEET – OF

User: JWANDER May 17, 2018 – 12:19pm
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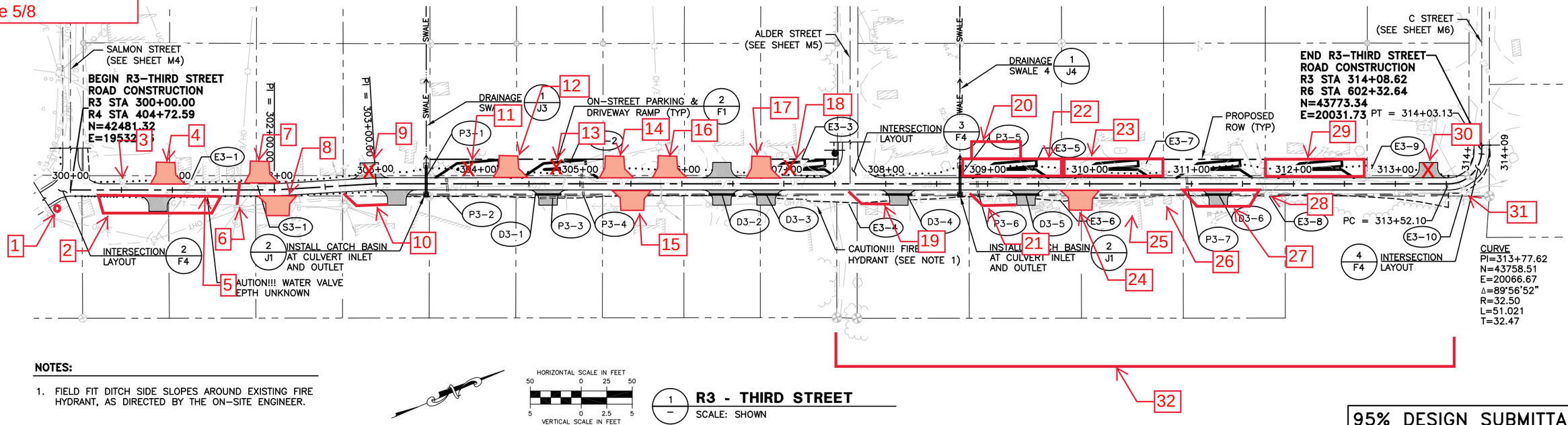
Xrefs: (DIESEL evaluation failed) – Images: None

95% PIH Review
J. Wander, I. Pearson
Page 5/8



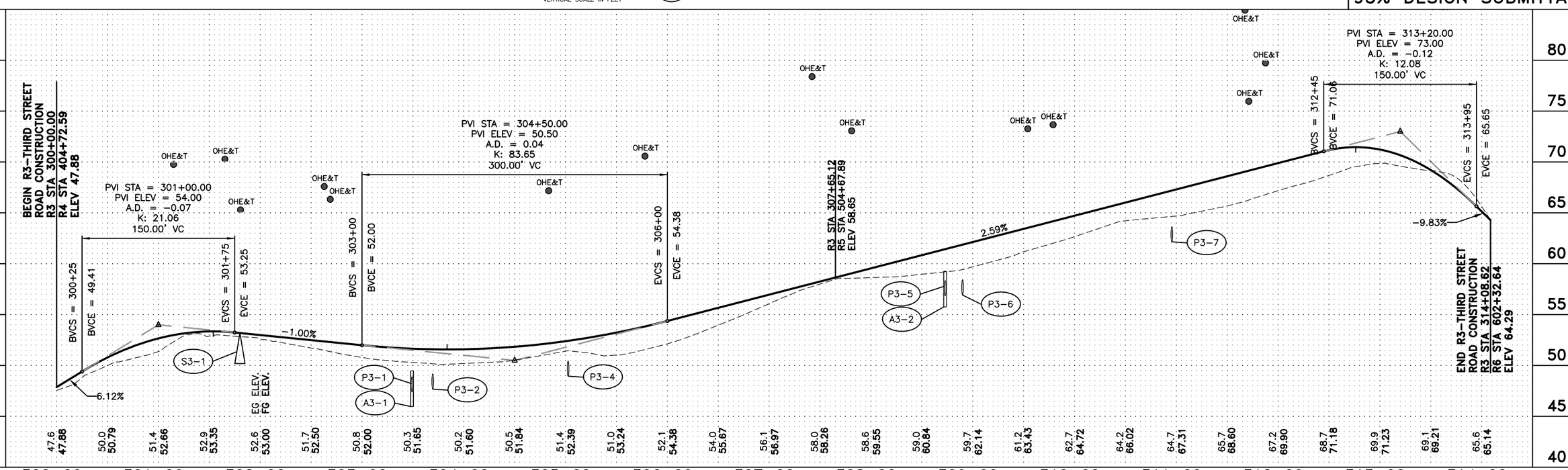
NOTES:

1. FIELD FIT DITCH SIDE SLOPES AROUND EXISTING FIRE HYDRANT, AS DIRECTED BY THE ON–SITE ENGINEER.

HORIZONTAL SCALE IN FEET
50 0 25 50
5 0 2.5 5
VERTICAL SCALE IN FEET

R3 - THIRD STREET
SCALE: SHOWN

95% DESIGN SUBMITTAL



REVISIONS							
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES CORPORATION
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STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER NOT FOR CONSTRUCTION

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

R3 - THIRD STREET - PLAN & PROFILE
STA 300+00.00 TO 314+08.62

SHEET NO.
M3

SCALE: SHOWN | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018 | SHEET – OF

User: JWANDER May 17, 2018 – 2:26pm
Drawing: K:\JOBS\32150007 KMO REHAB\ACAD–DESIGN_CIVIL_DESIGN\32150007_M3.DWG – Layout: M3
Xrefs: (DIESEL evaluation failed) – Images: None

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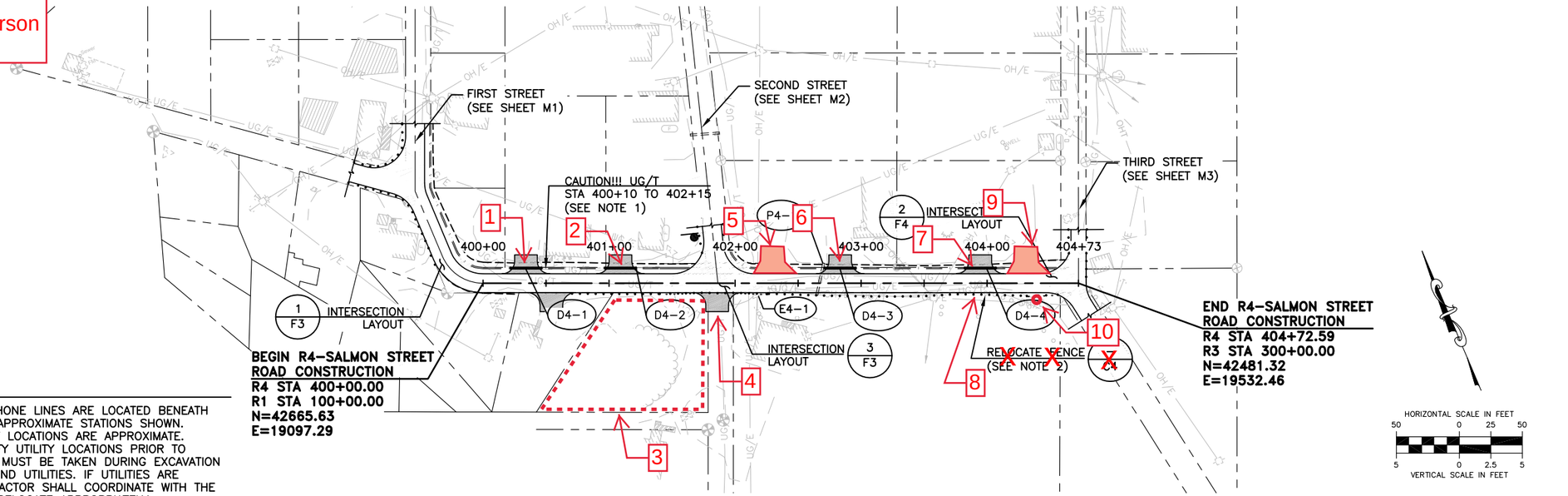
J. Wander, I. Pearson
Page 6/8

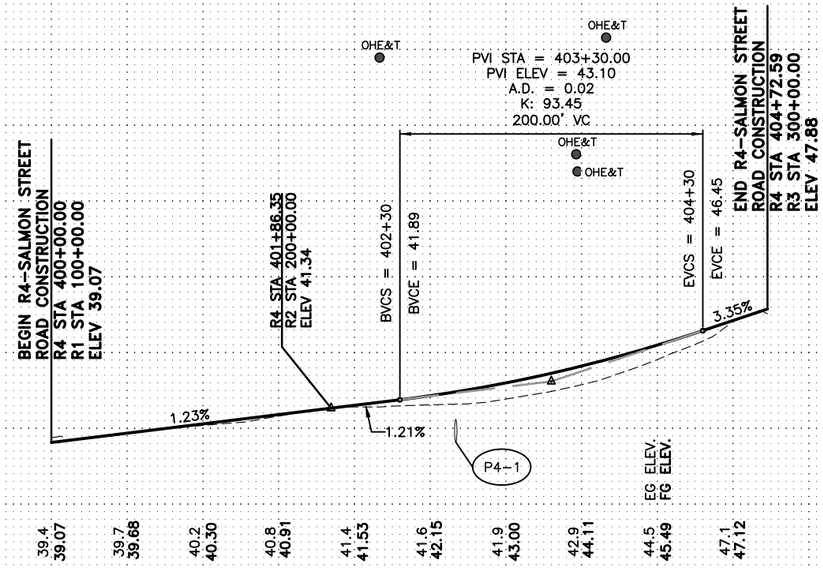


NOTES:

1. UNDERGROUND TELEPHONE LINES ARE LOCATED BENEATH PROPOSED DITCH AT APPROXIMATE STATIONS SHOWN. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION. CARE MUST BE TAKEN DURING EXCAVATION TO AVOID UNDERGROUND UTILITIES. IF UTILITIES ARE ENCOUNTERED, CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY TO RELOCATE APPROPRIATELY.
2. COORDINATE WITH PROPERTY OWNER TO RELOCATE FENCE OUT OF ROAD FILL LIMITS. FIELD FIT FENCE LOCATION.

1/– **R4 - SALMON STREET**
SCALE: SHOWN

95% DESIGN SUBMITTAL



REVISIONS							
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES CORPORATION
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License Number: AECC697

MANOKOTAK VILLAGE COUNCIL
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STATE OF ALASKA 49TH NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

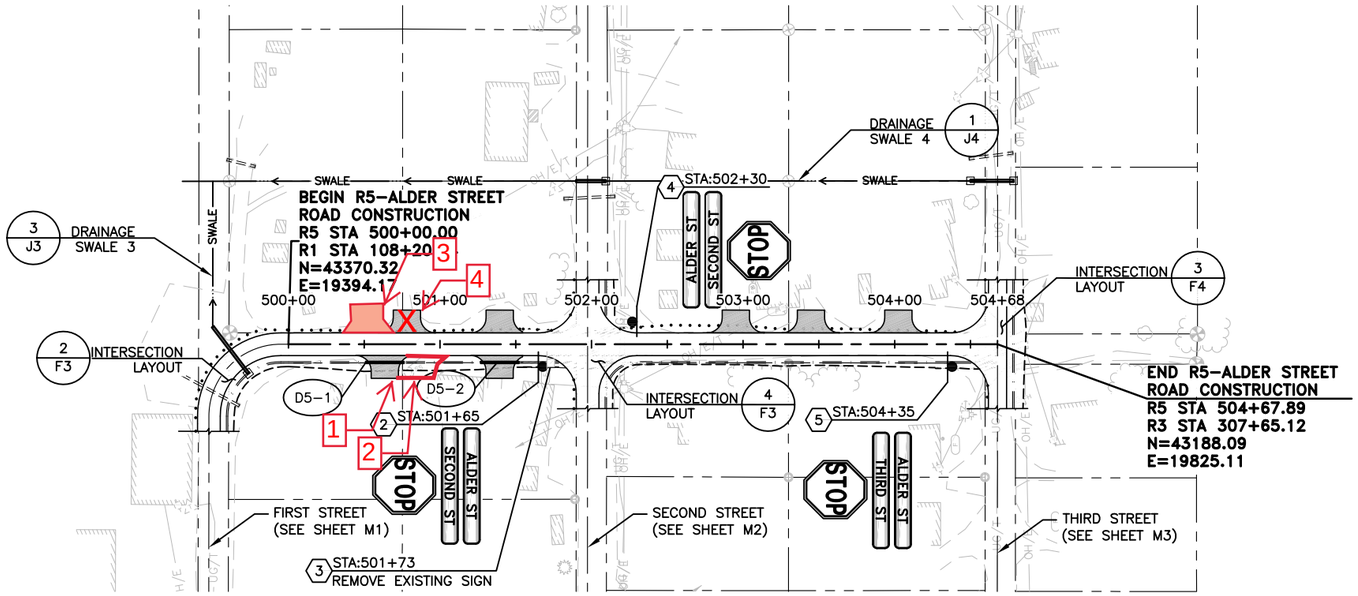
R4 - SALMON STREET - PLAN & PROFILE
STA 400+00.00 TO 404+72.59

SHEET NO.
M4

SCALE: SHOWN | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018 | SHEET – OF

User: JWANDER May 17, 2018 – 12:21pm
Drawing: K:\JOBS\32150007 KMO REHAB\ACAD–DESIGN_CIVIL_DESIGN\32150007_M4.DWG – Layout: M4
Xrefs: (DIESEL evaluation failed) – Images: None

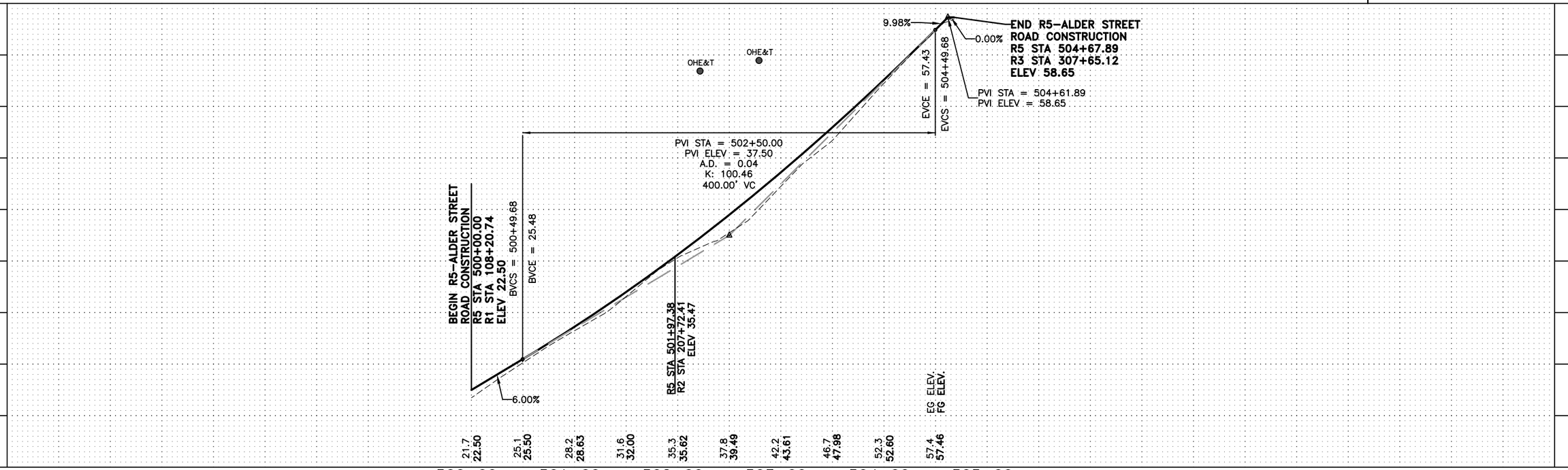
95% PIH Review
J. Wander, I. Pearson
Page 7/8



HORIZONTAL SCALE IN FEET
50 0 25 50
5 0 2.5 5
VERTICAL SCALE IN FEET

1 — **R5 - ALDER STREET**
SCALE: SHOWN

95% DESIGN SUBMITTAL



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Xrefs: (DIESEL evaluation failed) - Images: None

REVISIONS

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

Bristol
ENGINEERING SERVICES CORPORATION
111 W. 16th Avenue, Third Floor
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STATE OF ALASKA 49TH NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER

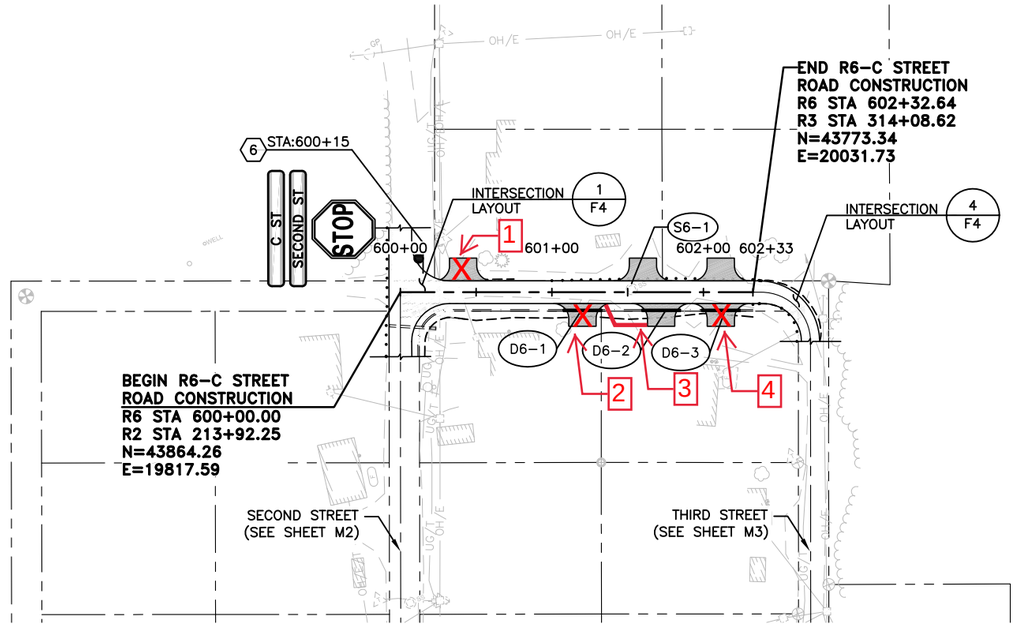
SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

R5 - ALDER STREET - PLAN & PROFILE
STA 500+00.00 TO 504+67.89

SHEET NO.
M5

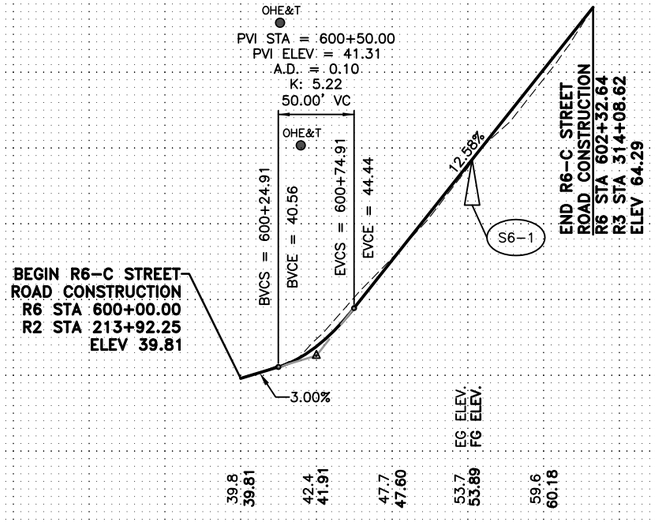
SCALE: SHOWN | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018 | SHEET — OF

95% PIH Review
J. Wander, I. Pearson
Page 8/8



HORIZONTAL SCALE IN FEET
50 0 25 50
5 0 2.5 5
VERTICAL SCALE IN FEET

1 / – R6 - C STREET
SCALE: SHOWN



95% DESIGN SUBMITTAL

User: JWANDER May 17, 2018 – 12:23pm
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Xrefs: (DIESEL evaluation failed) – Images: None

REVISIONS

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION

Project No. 32150007

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STATE OF ALASKA 49TH NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER

SECOND AND THIRD STREET REHABILITATION PROJECT
MANOKOTAK, ALASKA

R6 - C STREET - PLAN & PROFILE
STA 600+00.00 TO 602+32.64

SHEET NO.
M6

SCALE: SHOWN | DESIGNED: JDW | CHECKED: IPP | DRAWN: JDW | DATE: MAY 2018 | SHEET – OF

ATTACHMENT B

PHOTOGRAPHIC LOG

Manokotak Village Council
P.O. Box 169
Manokotak, Alaska 99628

MANOKOTAK ROADS REHABILITATION PROJECT
Manokotak, Alaska

95% PLAN-IN-HAND REVIEW
PHOTOGRAPHIC LOG

May 2018

Bristol
ENGINEERING
SERVICES COMPANY, LLC

Project No. 32150007

PHOTOGRAPHIC SUMMARY

Photo 01 - R1_Commercial approach area

Photo 02 - R1_Power pole E1-2 to remain

Photo 03 - R1_Power pole E1-2 to remain

Photo 04 - R1_STA 105+50 Shortcut, no approach

Photo 05 - R1_Commercial approach for VPSO building

Photo 06 - R1_Sewer manhole shed to remain

Photo 07 - R1_STA 103+50 Shortcut, no approach

Photo 08 - R1_STA 102+50 Sewer manhole

Photo 09 - R1_STA 102+25 Shortcut, no approach

Photo 10 - R1_STA 103+00 Add approach

Photo 11 - R1_Power pole E1-1 on ditch back slope, to remain

Photo 12 - R2_STA 201+00 Natural drainage channel by homes

Photo 13 - R2_Culvert P2-1, remove if new ditch is constructed

Photo 14 - R2_Clinic fuel tank and fence

Photo 15 - S1_Relocate two sheds for drainage swale

Photo 16 - R2_Utilities behind clinic

Photo 17 - S1_Proposed Swale 1 alignment

Photo 18 - R2_Reset sewer manhole S2-1

Photo 19 - R2_STA 205+50 Telephone pedestal, right side

Photo 20 - R3_Water valve, cut and build valve box

Photo 21 - R3_STA 309+00 Shed and house not shown on plans

Photo 22 - R3_Third Street and culvert P3-6

Photo 23 - R3_STA 310+50 Parking stall lot with tel. ped.

Photo 24 - R3_STA 312+50 Parking stall lot with tel. ped.

Photo 25 - R4_Remove fence posts

Photo 26 - R4_Power pole, guy wire, and posts to remain

Photo 01 - R1_Commercial approach area

Photo 02 - R1_Power pole E1-2 to remain

Photo 03 - R1_Power pole E1-2 to remain

Photo 04 - R1_STA 105+50 Shortcut, no approach

Photo 05 - R1_Commercial approach for VPSO building

Photo 06 - R1_Sewer manhole shed to remain

Photo 07 - R1_STA 103+50 Shortcut, no approach

Photo 08 - R1_STA 102+50 Sewer manhole

Photo 09 - R1_STA 102+25 Shortcut, no approach

Photo 10 - R1_STA 103+00 Add approach

Photo 11 - R1_Power pole E1-1 on ditch back slope, to remain

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Photo 13 - R2_Culvert P2-1, remove if new ditch is constructed

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Photo 23 - R3_STA 310+50 Parking stall lot with tel. ped.

Photo 24 - R3_STA 312+50 Parking stall lot with tel. ped.

Photo 25 - R4_Remove fence posts

Photo 26 - R4_Power pole, guy wire, and posts to remain