PRELIMINARY ENGINEERING REPORT
SELDON ROAD EXTENSION – PHASE II

PROJECT NO. 35411
Wasilla, Alaska

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Table of Contents

ACRONYMS ..... **III**
1.0 INTRODUCTION **1**
2.0 HISTORY AND EXISTING CONDITIONS **1**
3.0 PURPOSE AND NEED **3**
4.0 COMMUNITY ACTIVITY AND TRANSPORTATION CONTEXT **3**
5.0 DESIGN DESIGNATIONS / DESIGN CRITERIA **4**
6.0 ALTERNATIVES **5**
6.1 ALTERNATIVE 1 – "NO ACTION" 8
6.2 ALTERNATIVE 2 – "ZEHNDER ROAD ALIGNMENT" 8
6.3 ALTERNATIVE 3 – "FISHBACK CIRCLE ALIGNMENT" 8
6.4 ALTERNATIVE 4 – "STARR ROAD ALIGNMENT" 9
6.5 ALTERNATIVE 5 – "NORM'S ROAD ALIGNMENT" 9
6.6 PREFERRED ALTERNATIVE 9
7.0 TYPICAL SECTIONS **10**
8.0 GENERAL ALIGNMENT **10**
9.0 TRAFFIC AND SAFETY ANALYSIS **10**
10.0 CORRIDOR ACCESS CONTROL **11**
10.1 ACCESS CONTROL BY ZONING 12
10.2 ACCESS CONTROL THROUGH DRIVEWAY REGULATIONS 12
11.0 PEDESTRIAN AND BICYCLE FACILITIES **12**
12.0 ILLUMINATION **12**
13.0 DRAINAGE **12**
14.0 SOIL CONDITIONS **13**
15.0 EMBANKMENT AND PAVEMENT DESIGN **14**
16.0 STRUCTURES **15**
17.0 RIGHT-OF-WAY **15**
18.0 UTILITY RELOCATION AND COORDINATION **15**
19.0 ENVIRONMENTAL CONSIDERATIONS **15**
20.0 MAINTENANCE CONSIDERATIONS **16**
21.0 COST ESTIMATE **16**

LIST OF TABLES

Table 1: Design Criteria 5

LIST OF FIGURES

Figure 1: Vicinity Map 2
Figure 2: Alignment Alternatives 6
Figure 3: Potential Future Links 7

Appendices

APPENDIX A – DRAWINGS A.1
APPENDIX B – ALTERNATIVE ALIGNMENT EVALUATION B.1
APPENDIX C – ALTERNATIVE ALIGNMENT WEIGHTED SCORES C.1
APPENDIX D – DRAFT MSB FIVE ARTERIALS (EXCERPT) D.2

Acronyms

AADT .....annual average daily traffic
AASHTO .....American Association of State Highway and Transportation Officials
ADEC .....Alaska Department of Environmental Conservation
ADT.....average daily traffic
Corridor .....Bogard-Seldon Corridor
DOT&PF.....State of Alaska Department of Transportation and Public Facilities
FHWA .....Federal Highway Administration
H .....horizontal
LOS .....level of service
LRTP .....Long Range Transportation Plan
MSB .....Matanuska-Susitna Borough
MUTCD.....Manual of Uniform Traffic Control Devices
PCM .....Alaska Highway Preconstruction Manual
PGDHS .....Policy on Geometric Design of Highways and Streets
ROW.....right-of-way
SHPO .....State Historic Preservation Office®
SSHC.....Standard Specifications for Highway Construction
TES .....threatened, endangered and sensitive (species)
V .....vertical
VPD .....vehicles per day

1.0 INTRODUCTION

Seldon Road is a two-lane, minor arterial roadway stretching for several miles in the Wasilla area. It currently terminates at Church Road. The Seldon Road Extension project will extend Seldon Road past Church Road to a proposed new intersection with Pittman Road. This 4-mile-long project will include two phases. Seldon Road Extension – Phase I is currently being constructed from Seldon Road to Beverly Lake Road, with a scheduled completion in summer 2015. Seldon Road Extension – Phase II will begin at Beverly Lake Road and end at Pittman Road providing access for Pittman Road area residents travelling to Wasilla, as well as providing alternative access from Pittman Road to Church Road.

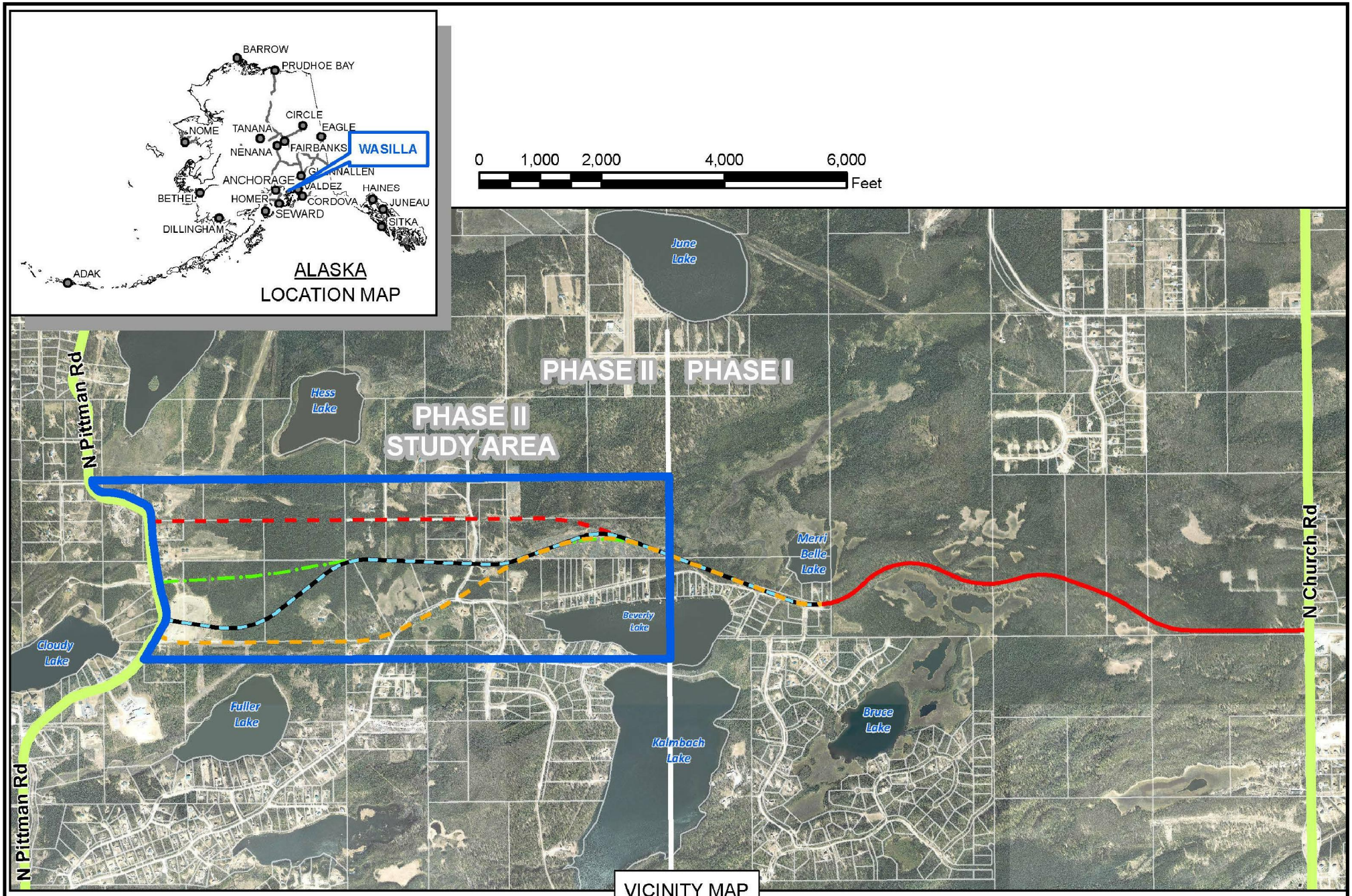
This Preliminary Engineering Report for the Seldon Road Extension – Phase II documents and summarizes the purpose and need, development of alternatives, engineering analysis performed, and recommendations for roadway improvements. The Seldon Road – Phase II study area is shown on Figure 1, Vicinity Map.

2.0 HISTORY AND EXISTING CONDITIONS

Seldon Road is located in the Matanuska-Susitna Borough (MSB), and runs parallel to the Parks Highway. The Parks Highway is the primary east-west corridor through MSB, and provides regional and statewide transportation. The Seldon Road Extension is a continuation of an east-west corridor; the Bogard-Seldon Corridor (Corridor) anticipated to connect Palmer and Houston.

The project was initially identified in the 1980s and was designed to the preliminary design stage by DeCamp-Brown & Associates and more recently evaluated in a planning study conducted by the State of Alaska Department of Transportation and Public Facilities (DOT&PF) in cooperation with the MSB and the Federal Highway Administration (FHWA). This planning study developed conceptual improvements for five roadway segments on four facilities, one of which is Seldon Road Extension. The facility concepts were developed to meet the intention of the Long Range Transportation Plan (LRTP) in addressing arterial grid system inadequacies.

For the Seldon Road Extension, DOT&PF evaluated 3 possible routes, including one that followed the existing Beverly Lake Rd. to its terminus at Pittman Rd. Due to the extensive ROW impacts and associated costs and safety concerns this option is not feasible. No further evaluation of this route was performed. Refer to *DOT&PF Five Arterials Planning Study* for further information. A Seldon Road graphic from the study is included in Appendix D.



VICINITY MAP

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SELDON ROAD EXTENSION - PHASE II
VICINITY MAP
FIGURE 1

MATANUSKA-SUSITNA BOROUGH
DEPT OF PUBLIC WORKS - PROJECT MANAGEMENT AND ENGINEERING

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3.0 PURPOSE AND NEED

This area of the MSB has experienced rapid growth in the past few years resulting in a boom in land development and a corresponding increase in roadway traffic. The MSB has identified a need to extend Seldon Road. The purpose of the project is to make improvements to enhance through-traffic mobility and improve local community traffic access and safety resulting from recent and projected growth within the Corridor.

Rapid growth and development in this area is causing congestion on surrounding corridors including the Parks Highway. Continued economic and population growth is projected. Conflict occurs between roadway through-traffic and local community traffic, which leads to crashes and slows mobility (travel speeds) for through-traffic.

Area plans including the MSB's LRTP and the local *Meadow Lakes Comprehensive Plan* demonstrate a need and desire to plan for and manage growth in the project area – the fastest growing region in the state. Expanding the roadway network to better distribute local traffic and reduce traffic congestion and accidents is a primary element of local planning. To that end, establishing a better road network plan for the project Corridor will accommodate development along the Corridor while reducing driveway access and the occurrence of associated accidents.

4.0 COMMUNITY ACTIVITY AND TRANSPORTATION CONTEXT

The Seldon Road Phase II Study Area is located in Meadow Lakes, a predominantly rural residential area, with homes on large lots ranging from around ≈1-acre to 40 acres. On Pittman Road along the western boundary of the study area, additional land uses include a gravel pit, an automotive service business, and two community facilities: the Meadow Lakes Elementary School, and a Borough Public Safety Facility (Station 71). There are also several small airstrips in the area. Overall traffic volumes are fairly low relative to other parts of the Mat-Su Valley, and the region's population is fairly dispersed (according to the 2010 census, 7,570 residents live in the 70 square mile Meadow Lakes area.)

In terms of study area traffic, residents at a project open house mentioned safety and congestion issues on Pittman Road near the Meadow Lakes Elementary School during peak traffic hours, largely due to its curves and winter driving conditions. The *Meadow Lakes Comprehensive Plan* also indicates that growing levels of through-traffic are negatively impacting residential roads. The plan identifies the desire for a "*hierarchy of roads with higher*

capacity collectors, buffered from residential development." Roads identified for collector status include Beverley Lake Road and Meadow Lakes Loop Road. Routes identified for future collector status include a new east-west route crossing through the center of the community (*Meadow Lakes Comprehensive Plan* Executive Summary, page ix), namely the Seldon Road Extension project.

As the Seldon Road Extension project continues from Church Road westward toward Houston, physical conditions in the region will make arterial connectivity more challenging and potentially costly. From Meadow Lakes west to Houston, the landscape is dotted with more than twenty lakes, several streams, wetland complexes, and pockets with poor soils and high water tables. As a result, prime development land is generally focused on narrow uplands between lakes and wetlands, making it harder for the road extension to avoid direct impacts to individual properties, including homes, and to control access by limiting driveways along the new facility. Historic homes also pose a unique challenge as many (including along Beverly Lake Road) are sometimes grandfathered by the State of Alaska because they violate setback and lot size requirements; acquiring even a small portion of these parcels for the arterial may make existing well and septic systems unusable for these dwellings.

Considering this overall context, and anticipating these physical and cost challenges in our study area, Phase II alignments were evaluated over a number of months using a range of suitability, cost, impact, and traffic evaluation criteria. Additionally, the project considered how Phase II connects with Pittman Road, and potential westward linkages toward Houston. Figure 3 highlights potential links that could complete the east-west Palmer to Houston arterial, and also lists the alignment's source.

5.0 DESIGN DESIGNATIONS / DESIGN CRITERIA

The documents listed below provide the design standards for this project:

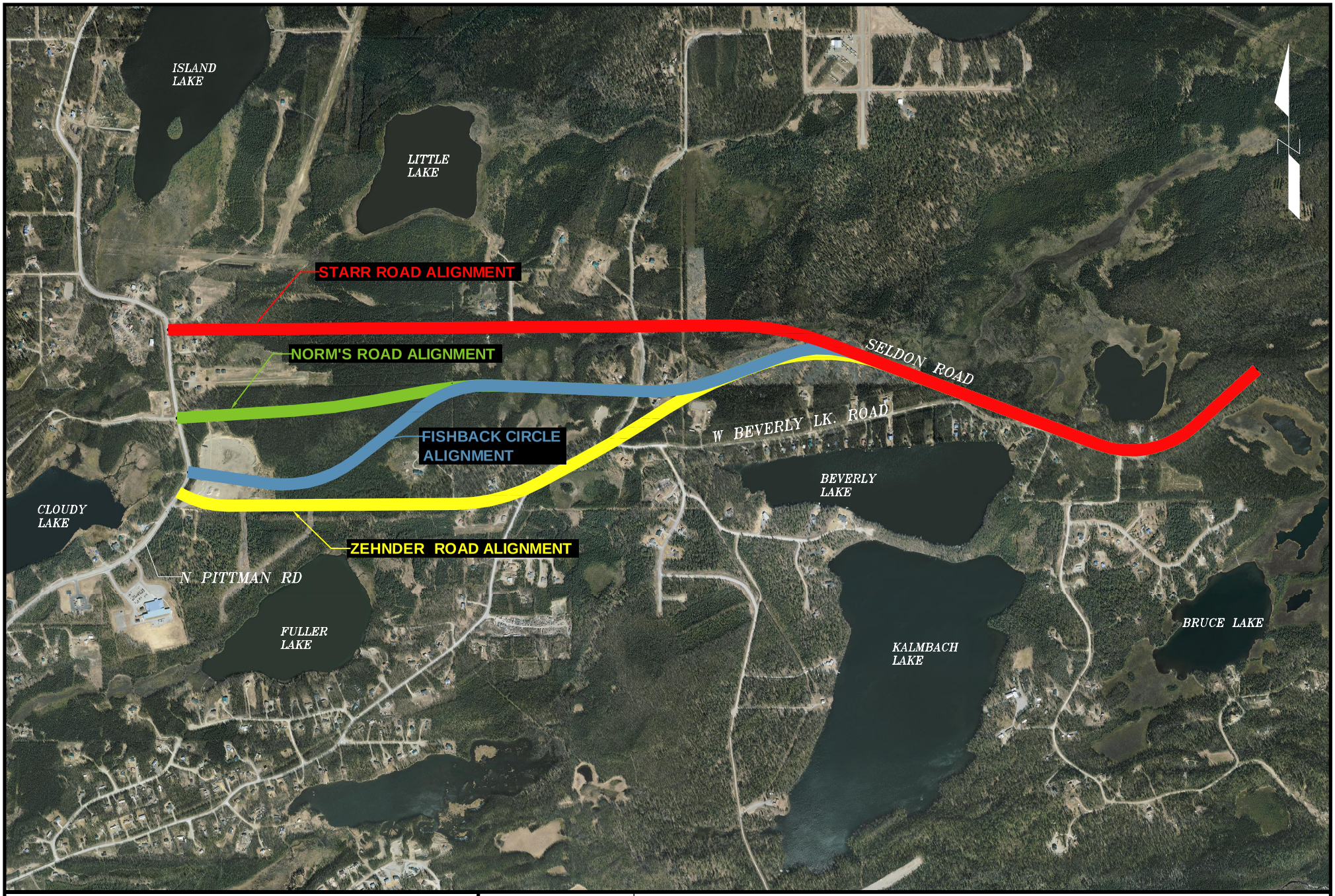
- *A Policy on Geometric Design of Highways and Streets* (PGDHS), 2001, American Association of State Highway and Transportation Officials (AASHTO).
- *Standard Specifications for Highway Construction* (SSHC), 2004, Department of Transportation and Public Facilities (DOT&PF).
- *Alaska Highway Preconstruction Manual* (PCM), January 2005, DOT&PF.
- *Manual of Uniform Traffic Control Devices* (MUTCD), 2003, as modified by the Alaska Supplement, December 22, 2005.

TABLE 1: DESIGN CRITERIA

Design Particular	Value	Source
Design Functional Classification	Arterial	MSB
Design Year ADT	9,125 (2138)	Traffic Analysis
Design Speed	55 mph	AASHTO GB page 474
Access	Partial Control	AASHTO GB page 486
Minimum LOS	C	MSB Goal
Acceptable LOS in Heavily Developed Area	D	AASHTO GB page 474
Typical Section		
Lane Width	12 feet	PCM, Table 1130-8
Shoulder Width	8 feet	PCM, Table 1130-8
Right-of-Way Width	160 feet	MSB
Side Slope Ratios		
Cut	2:1(H:V)	PCM
Fill	4:1 (H:V)	PCM
Roadway Cross Slope	2%	PCM, Figure 1130-1
Maximum Super-elevation Rate	6%	PCM
Horizontal Alignment		
Minimum Radius	1065 feet	PCM, Figure 1120-1
Minimum Length of Curve	825 feet	PCM, Figure 1120-1
Desirable Length of Curve	1650 feet	PCM, Figure 1120-1
Clear Zone Width	30 feet	PCM, Figure 1130-2
Minimum Stopping Sight Distance	495 feet	PCM, Figure 1120-1
Vertical Alignment		
Minimum Grade	0.5%	PCM, Figure 1120-1
Maximum Grade	7%	PCM, Figure 1120-1
Minimum K-value	114	AASHTO GB Exh 3-76

6.0 ALTERNATIVES

Five alternatives are being considered, with one being a "no action" alternative. The other four alternatives consist of different horizontal alignments and intersections with Pittman Road and are illustrated in Figure 2. A comprehensive comparison table of each alignment can be found in Appendix B.



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SELDON ROAD EXTENSION - PHASE II
ALIGNMENT ALTERNATIVES
FIGURE 2

MATANUSKA-SUSITNA BOROUGH
DEPT OF PUBLIC WORKS - PROJECT MANAGEMENT AND ENGINEERING

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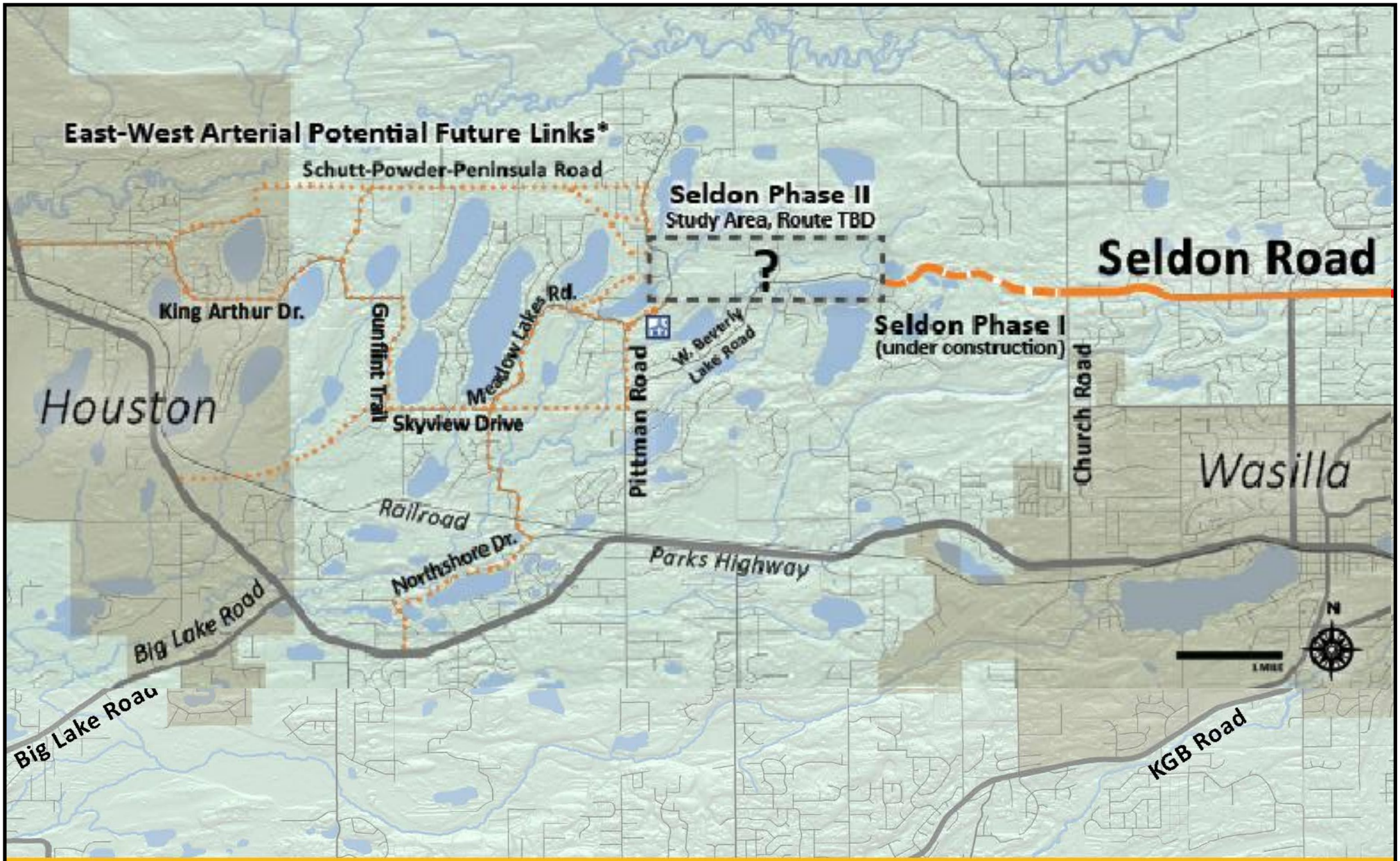

POTENTIAL FUTURE ALIGNMENTS ARE CONCEPTUAL AND DO NOT REPRESENT A SELECTED OR FINAL ROUTE. POTENTIAL ROUTES INCORPORATE UPGRADES TO EXISTING ROADS, NEW ROADS, AND USE OF SECTION LINES. ALIGNMENTS ARE GENERALLY BASED FROM ROUTES IN EXISTING PLANS: *2005 MEADOW LAKES COMPREHENSIVE PLAN; 2007 MATANUSKA-SUSITNA BOROUGH (MSB) OFFICIAL STREET & HIGHWAYS PLAN; 2007 MSB LONG RANGE TRANSPORTATION PLAN (LRTP).*

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SELDON ROAD EXTENSION - PHASE II
POTENTIAL FUTURE LINKS
FIGURE 3

MATANUSKA-SUSITNA BOROUGH
DEPT OF PUBLIC WORKS - PROJECT MANAGEMENT AND ENGINEERING

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6.1 ALTERNATIVE 1 – "NO ACTION"

Under the no-action alternative, there would be no connection made from Seldon Road to Pittman Road. Consequences of this action would allow congestion to increase along the Parks Highway corridor. Traffic operations would be negatively impacts with queues forming. Local traffic access and circulation in the Meadow Lakes area will become increasingly difficult. This alternative does not meet the purpose and need for the project.

6.2 ALTERNATIVE 2 – "ZEHNDER ROAD ALIGNMENT"

This alternative ties into Seldon Road Extension Phase I at the existing Beverly Lake Road alignment heading to the section line along the north edge of the subdivision and continues to the intersection of W Beverly Lake Road and Wyoming Drive. It then proceeds to Fishback Circle, and runs along the section line to Pittman Road. This route was identified, in part, as the Seldon Road Extension alignment by the MSB in the 1980's. The portion along Beverly Lake Road was shifted to the north behind the residential subdivision, per Assembly resolution 03-145, to minimize ROW impacts and costs.

Pros:

1. Utilizes an existing section line easement.
2. Minimizes wetland impacts.
3. Minimizes private property impacts.
4. Lower overall construction cost.

Cons:

1. Reduced access control with several direct residential access points.
2. Residential access points create turning conflict points.
3. Pittman Road intersection has limited sight distance.

6.3 ALTERNATIVE 3 – "FISHBACK CIRCLE ALIGNMENT"

This alternative ties into Seldon Road Extension Phase I at the existing Beverly Lake Road alignment heading to the section line along the north edge of the subdivision and continues along the section line to a point approximately 2,000 feet west of Wyoming Drive. It then turns southwest intersecting Pittman Road about 400 feet north of the section line easement.

Pros:

1. Minimizes Wetland Impact.

Cons:

1. Increased private property impacts.
2. Some direct residential access.
3. Higher overall construction cost.

6.4 ALTERNATIVE 4 – "STARR ROAD ALIGNMENT"

This alternative ties into Seldon Road Extension Phase I at the existing Beverly Lake Road alignment heading northwest where it follows the existing West Starr Road alignment west to the intersection with Pittman Road.

Pros:

1. Straight east-west alignment.
2. Reduced direct residential access.
3. Utilizes an existing roadway ROW.

Cons:

1. Highest overall construction cost.
2. Highest wetland impacts.
3. Limited sight distance at Pittman Road Intersection.

6.5 ALTERNATIVE 5 – "NORM'S ROAD ALIGNMENT"

This alternative ties into Seldon Road Extension Phase I at the existing Beverly Lake Road alignment heading to the section line along the north edge of the subdivision and continues along the section line to a point approximately 2,000 feet west of Wyoming Drive. It then proceeds west-southwest intersecting Pittman Road at Norm's Road.

Pros:

1. Intersection with Pittman Road provides good sight distance.
2. Low overall construction cost.
3.

Cons:

1. Several direct residential access points.
2. Private structure relocation.

6.6 PREFERRED ALTERNATIVE

The alternatives were evaluated using a range of suitability, cost, impact, and traffic evaluation criteria. Additionally, the project considered how Seldon Road Extension Phase II connects with Pittman Road, and potential westward linkages toward Houston. The alternatives were given weighted scores based on the evaluation criteria and Alternative 3 – "Fishback Circle Alignment" was determined to be the most reasonable and practicable. Norm's Road (Alt 5) had an equal weighted score, but requires the relocation of a structure. Zehnder Road (Alt 2) finished third in the comparative scoring. Preliminary plan and profile sheets for the alternatives have been included in Appendix A. The Starr Road alignment is not included in the drawings as

it is not considered practicable. A table comparing the weighted alignment scoring is shown in Appendix C.

7.0 TYPICAL SECTIONS

The two-lane rural section consists of one 12-foot lane in each direction, 8-foot shoulders on each side, and a detached 10-foot paved pathway. Side slopes along the highway will be 4:1, with 2:1 slopes outside the clear zone. The ROW width needed to accommodate the proposed improvements and slope limits is expected to be 160 feet.

The typical sections are found with the plans in Appendix A.

8.0 GENERAL ALIGNMENT

To minimize ROW and wetland impacts, the preferred alternative follows a curving horizontal alignment that seeks to avoid wetlands and ROW acquisition while balancing cut and fill.

The vertical alignment generally follows the surrounding terrain, which would be classified as hilly. All vertical curves exceed the minimum design standards for new construction. There are no grades that are considered steep. The steepest grade is 3.6 percent, which is well below the 7 percent allowable for new construction.

9.0 TRAFFIC AND SAFETY ANALYSIS

A traffic and safety analysis for the entire Seldon Road Corridor was completed during the Phase 1 design process using traffic models developed during transportation planning studies. The following discussion is a summary of the information relevant to Phase II.

The proposed extension of Seldon Road, between Church Road and Pittman Road, is part of a facility concept in the MSB LRTP that would extend Seldon Road and upgrade existing portions of the Corridor to form a minor arterial that would relieve traffic congestion on the George Parks Highway and provide faster travel times for local area residents. Extending Seldon Road provides the next link in an east-west corridor envisioned to reach from Palmer to Houston. This link will shorten the commuting time for Meadow Lakes area residents travelling to Wasilla and points east, improve emergency evacuation, and provide secondary access in case of road closures.

Traffic modeling for the MSB LRTP indicates that without major improvements, such as the Seldon Road Extension, many area roads will be at or over capacity by 2025.

Design criteria consistent with an arterial are necessary to safely accommodate the traffic anticipated for this corridor as the area population continues to increase.

Since the Seldon Road Extension represents a new link in the MSB's transportation network, projected traffic volumes must be developed using traffic planning methodologies. These take into account where people live, work, and shop to estimate where they are traveling, and what will be the most desirable route for those travels. A comprehensive traffic planning model was developed to support MSB's 2007 LRTP. This modeling projects that by 2025 there will be 7,515 vehicles per day on Seldon Road near the Church Road intersection. The design year for this project is 2038, which means that the traffic volume will need to be projected forward 13 more years. The LRTP projects 4.3 percent population growth throughout the MSB through 2025. Since the LRTP accounts for development in the vacant land around the Seldon Road Extension, growth in traffic along Seldon Road is not likely to continue at a 4.3 percent growth rate. As a result, we have assumed a growth rate of 2 percent for the period between 2025 and 2038. That results in an annual average daily traffic (AADT) of 9,125 vehicles per day in the design year.

AADT of 9,125 will result in a level of service (LOS) D when measured by average travel speed, and LOS D when measured by percent time spent following. Although LOS C is the MSB's target LOS for road projects, the peak hour traffic is only expected to be 26 percent of the capacity of the road. Given this low volume to capacity ratio, a two-lane road is appropriate for the volume of traffic expected.

Intersection improvements will be necessary at Pittman Road, and may be necessary at Wyoming Drive. At Pittman Road, Seldon Road should be stop controlled with right and left turn lanes. Pittman Road will remain uncontrolled and should be retrofitted with a northbound right turn lane. At Wyoming Drive, a westbound left turn lane will be warranted if Beverly Lake Road does not connect with Seldon Road. If Beverly Lake Road does connect to Seldon Road separately, a left turn lane will not be necessary at Wyoming Drive. All turn lanes should be 410 feet long to accommodate vehicle deceleration.

Intersections should be lit to enhance traffic safety and improve wayfinding for motorists. The Illuminating Engineering Society's RP-8, recommends that "*isolated traffic conflict points*" should be lit to 0.9 foot-candles with a uniformity of 4.0.

10.0 CORRIDOR ACCESS CONTROL

Arterial roads provide a high level of mobility and are intended to carry substantial volumes of traffic over relatively long distances and at relatively high speeds. Direct property access may be provided, but must be carefully managed to preserve arterial mobility and avoid creating unsafe and congested traffic operations. Effective access management will not only enhance

the original LOS of the facility, but may also preserve the original LOS as further development occurs. An access management plan will be developed for the roadway following alignment selection.

10.1 ACCESS CONTROL BY ZONING

Subdivision or zoning ordinances should require that the developer of a major traffic generator provide a suitable connection to the arterial road (or preferably to a cross street) comparable to that for a well-designed street intersection serving a similar volume of traffic.

10.2 ACCESS CONTROL THROUGH DRIVEWAY REGULATIONS

Driveway controls are desirable to ensure that future driveways are located so they result in minimum interference with the free movement of traffic.

11.0 PEDESTRIAN AND BICYCLE FACILITIES

The proposed 10-foot paved multi-use pathway will serve pedestrians and bicyclists. It runs along the south side of Seldon Road for the length of the project. The pathway will be located as necessary to fit the recommended improvements. This will be an extension of an existing pathway which currently begins at the Seldon Road-Lucille Street intersection.

12.0 ILLUMINATION

No illumination is proposed for the length of the Seldon Road Extension, except at intersections. Due to the rural nature of the project area, illumination is only recommended at intersections, which are expected to be at Wyoming Street and at Pittman Road.

13.0 DRAINAGE

It is anticipated that excavations for the project will generally be associated with road cuts in the hilly areas and will not likely penetrate into the groundwater table. However, groundwater may be present as localized pockets of perched groundwater on top of lenses of less permeable soil or if excavating in boggy areas. In general, excavation and backfill work should be closely coordinated such that seepage and surface runoff is not allowed to collect and stand in open excavations. Likewise, the ground surface around excavations should be contoured to drain away from the excavation, and the excavation bottoms should be graded to drain to a sump or topographic low. Drainage around the road should be provided to reduce the effects of

seasonal frost in the new road surface. Drainage structures should be designed so that positive drainage will be maintained and surface water is directed off the pavement surface and away from the structural section. Typical drainage improvements for the project will consist of drainage ditches and culverts that will ultimately convey water off the site. Localized drainage structures such as sub-drains, piped storm drains, and cross alignment drainage may also need to be considered in areas with special drainage needs.

14.0 SOIL CONDITIONS

The project corridor between Beverly Lake Road and Pittman Road is largely undeveloped with moderately sloped, hilly terrain, numerous wetland areas, and appears vegetated with moderately dense stands of spruce, birch, shrubs, and other ground cover.

The "Zehnder Road Alignment," will intersect 1,500 feet of the West Beverly Lake Road alignment, and 150 feet of the North Wyoming Drive alignment; these are partly developed with lots and dwellings. West Beverly Lake Road and North Wyoming Drive are paved surface rural roadways.

The "Fishback Circle Alignment" and "Norm's Road Alignment," will intersect 1,000 feet of the West Beverly Lake Road alignment, and 150 feet of the North Wyoming Drive alignment; these are partly developed with lots and dwellings. West Beverly Lake Road and North Wyoming Drive are paved surface rural roadways.

The "Starr Road Alignment," will intersect 1,000 feet of the West Beverly Lake Road alignment, and 2,000 feet of the West Starr Road alignment; these are partly developed with lots and dwellings. West Starr Road is a graveled surface rural roadway.

Development of the corridor will largely consist of constructing a stable subgrade to support the new road, which will require new embankments, road cuts, development of the pavement structural section, and drainage provisions. Alignments intersecting existing roadway corridors will benefit from the stability of the existing roadway subgrades.

A Natural Resources Conservation Service (NRCS) soils investigation was performed roughly within the boundaries of the project corridor.

According to the report, the soils in upland areas of the corridor consist of a relatively thin mantle of silty loess overlying sandy and gravelly outwash materials. The remaining deposits, occurring in depressions or along creek beds, consist of poorly drained silts or organic soils. The report indicates that groundwater depths are expected to be generally greater than about 6 to 8 feet in areas underlain by outwash and less than 1-foot in the topographically low areas.

15.0 EMBANKMENT AND PAVEMENT DESIGN

New embankments will be needed and should be constructed to provide a stable, supportive structure for the proposed new roadway. Elements that will contribute to this overall goal include proper site preparation, stable embankment slopes, and good construction practices and controls (compaction and gradation).

The native ground surface beneath the footprint of the embankment expansion areas will need some preparation to receive embankment fill prior to developing the new embankments. Preparation activities will likely consist of clearing and grubbing and/or removal of unsuitable soils (i.e.: organics, or soft, compressible soils).

New embankments should be constructed of Selected Material Type C (as defined in the 2004 DOT&PF *Standard Specifications for Highway Construction*) or better fill over existing mineral soils. Embankment fills should be placed with proper moisture density control. Given the likely gradation of the soils in this area, we anticipate that most of the soil excavated along the alignment (excluding topsoil) will meet the gradation requirements for Selected Material Type C or better fill and may therefore be reused in embankment construction. Explorations and laboratory testing will be needed to evaluate the suitability of onsite materials for use in the pavement structural section. Embankments constructed with compacted Selected Material Type C or better materials containing maximum fines content of about 20 percent can likely maintain embankment slopes of approximately 2 horizontal (H) to 1 vertical (V). If fill materials with greater than about 20 percent fines are used, then embankment slopes on the order of 3H or 4H to 1V will be required for stability. It should be noted that Selected Material Type C materials can be difficult to handle during construction due to sensitivity to moisture and disturbance.

Pavement design in Southcentral Alaska is typically based on estimated frost penetration and the frost classification of the subgrade materials rather than anticipated loading. This generally leads to a thicker structural section than strength calculations would require. Our recommended structural sections for preliminary design purposes and various subgrade conditions are provided below. These recommendations are intended for use in preliminary design and are subject to change based on actual subsurface conditions or refined traffic estimates. Final structural section design will be based on DOT&PFs design method. Based on 2038 traffic projections with anticipated truck and vehicle loading, the equivalent axle loading for this segment of Seldon Road is 1,154,986.

It is recommended to provide 24 inches of Selected Material Type A, 4 inches of D-1 Base Course, 2 inches of (ATB) Asphalt Treated Base, and 2 inches of asphalt cement (AC) Pavement.

16.0 STRUCTURES

At present, there are no structures planned for this project.

17.0 RIGHT-OF-WAY

Significant ROW acquisition will be required for construction of Seldon Road Extension – Phase II. The proposed ROW width for the corridor is 160 feet. Existing section line easements and MSB ROW should be utilized to the maximum extent possible considered in the evaluation of roadway alignment alternatives.

18.0 UTILITY RELOCATION AND COORDINATION

There are minor utility conflicts anticipated for the Seldon Road Extension from Beverly Lake Road to Pittman Road. The existing utilities in the area of the project generally consist of overhead electrical power lines operated by Matanuska Electric Association, buried fiber optic cable operated by Matanuska Telephone Association near the ROWs, and natural gas lines operated by Enstar Natural Gas Company. Both ends of the project may have utility impacts as well existing roadways; these will be examined during the design phase. It is assumed that the intersection with Pittman Road will remain un-signalized.

19.0 ENVIRONMENTAL CONSIDERATIONS

Environmental considerations include a threatened, endangered, and sensitive (TES) candidate species, the olive-sided flycatcher, which may utilize habitat within the project area.. There are many mapped wetlands present along the alignment corridor, including ponds.

Environmental commitments may include:

- If contaminated materials are discovered during construction, all work near the contaminated site will be stopped until Alaska Department of Environmental Conservation (ADEC) is contacted and an action plan is approved.
- The Contractor will stop work if archeological or cultural resources are encountered during exploration, excavation, or construction. Work at the specific site will not resume until the Project Engineer and State Historic Preservation Officer (SHPO) have been notified and SHPO has issued a clearance to the Project Engineer.

- Use guardrail and 1.5:1 slopes in areas of wetlands to reduce impact.
- Protect adjacent wetlands, streams, and lakes with Best Management Practices during construction.
- Wetland Mitigation

20.0 MAINTENANCE CONSIDERATIONS

Seldon Road will be maintained by MSB. The roadway extension's additional lanes, pathway, striping, landscaping, culverts, and lighting will increase maintenance costs. Maintenance costs for each of the alignment alternative are expected to be approximately the same. DOT&PF is expected to maintain the lighting at Pittman Road, while the MSB will be responsible for maintaining all other aspects of the roadway.

21.0 COST ESTIMATE

The preliminary construction cost estimates for the Seldon Road Extension Phase II project alternatives is shown below:

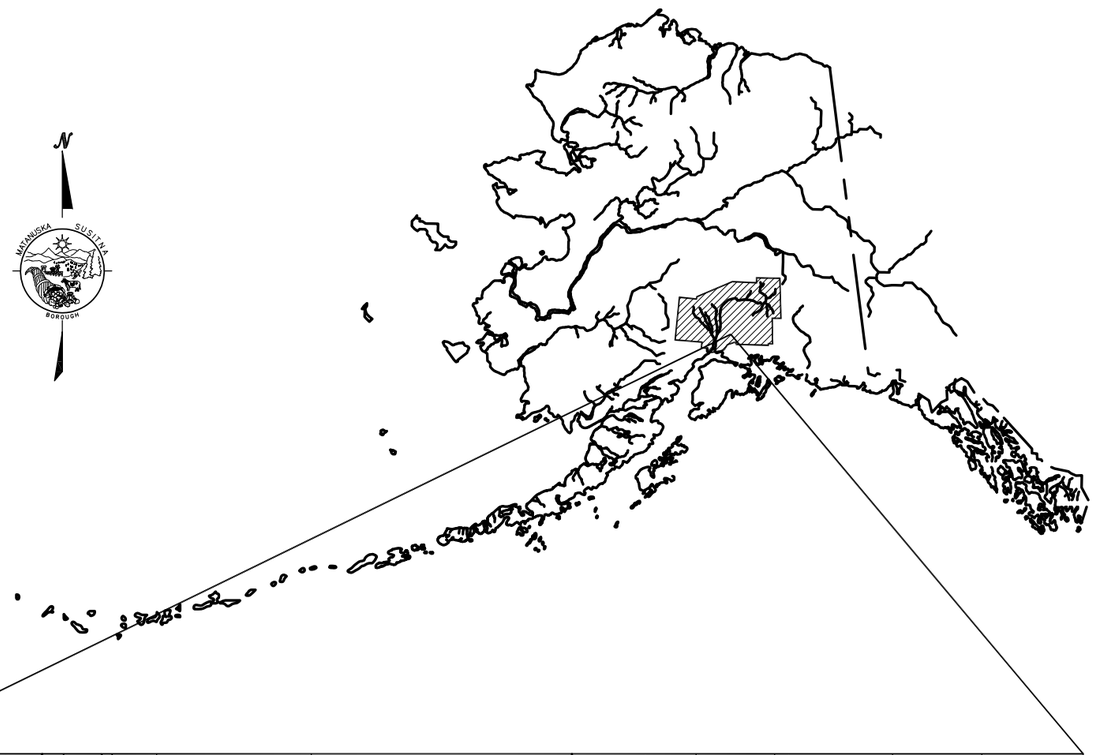
	Zehnder Road	Fishback Circle	Starr Road	Norm's Road
Right-of-Way (ROW)	$1,636,000	$2,230,000	$1,842,000	$1,838,000
Wetland Mitigation	$157,500	$162,500	$240,000	$152,500
Intersection Upgrades	$50,000	$50,000	$50,000	$50,000
Utilities	$300,000	$200,000	$500,000	$200,000
Construction Cost	$7,100,000	$7,100,000	$7,500,000	$6,750,000
Estimated Total	$9,243,500	$9,742,500	$10,132,000	$8,990,500

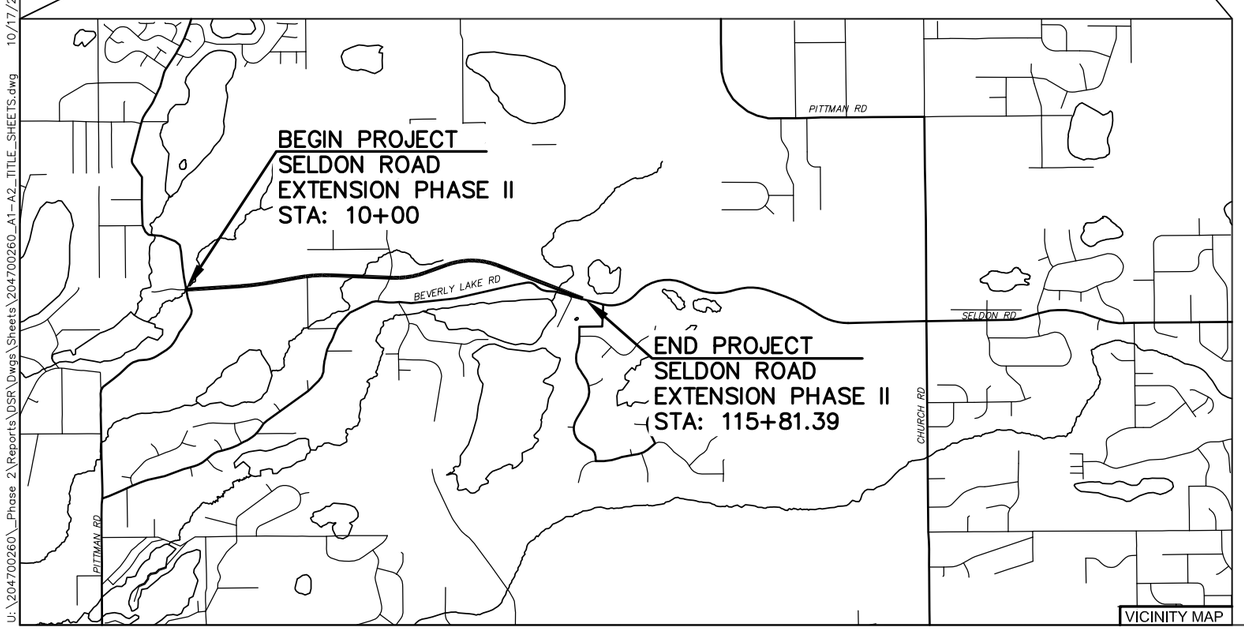
Three of the four alignment alternatives have construction cost estimates within 10% of each other and are virtually the same, except for the Starr Road alignment.

Preliminary Engineering Report
Seldon Road Extension – Phase II
Project No. 35411
Wasilla, Alaska
November 2014

Appendix A – DRAWINGS

MATANUSKA-SUSITNA BOROUGH
CAPITAL PROJECTS DEPARTMENT





SELDON ROAD EXTENSION
PHASE II

GRADING, PAVING, AND STRIPING

PROJECT NUMBER:
35411

DESIGN DESIGNATIONS			
ROADWAY SECTION	FUNCTIONAL CLASS	A.A.D.T. 2012	DESIGN SPEED
SELDON ROAD EXTENSION PHASE II	ARTERIAL	XXXX	55 MPH
SELDON ROAD (EXISTING)	MAJOR COLLECTOR	XXXX	45 MPH
CHURCH ROAD	MAJOR COLLECTOR	XXXX	50 MPH
BEVERLY LAKE ROAD	LOCAL ROAD	XXX	30 MPH

PROJECT SUMMARY		
ROADWAY SECTION	WIDTH	LENGTH
SELDON ROAD EXTENSION PHASE II	40'	X,XXX '

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REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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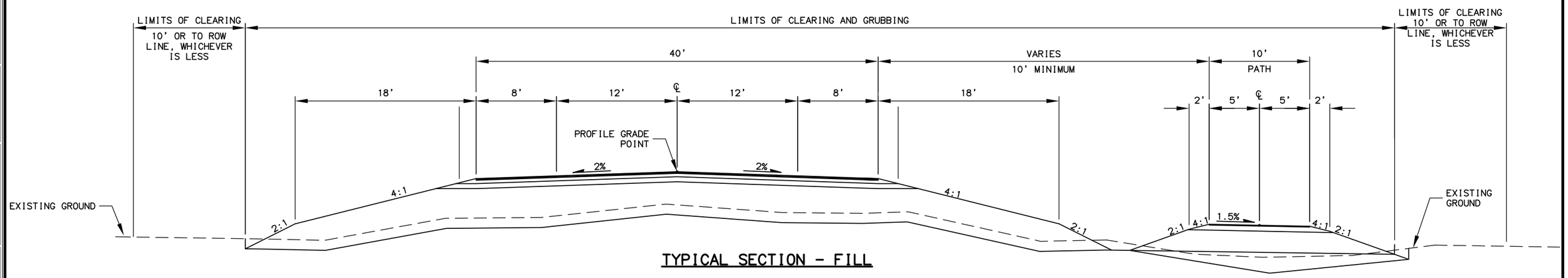
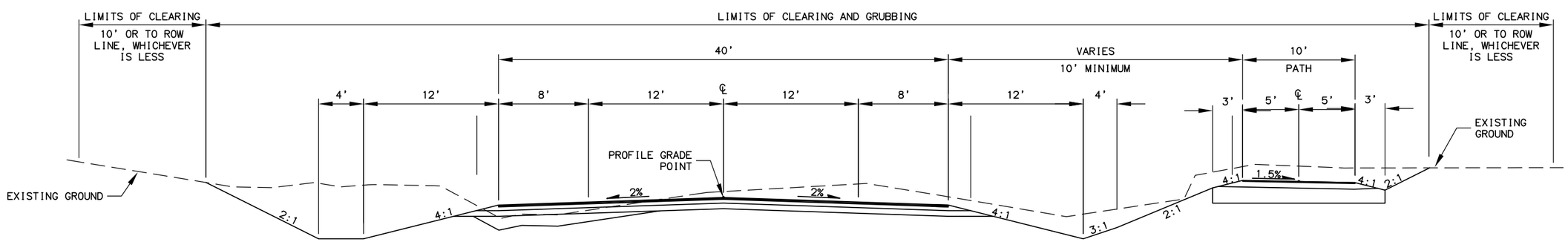


TYPICAL SECTION - FILL



TYPICAL SECTION - CUT

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

TYPICAL SECTIONS

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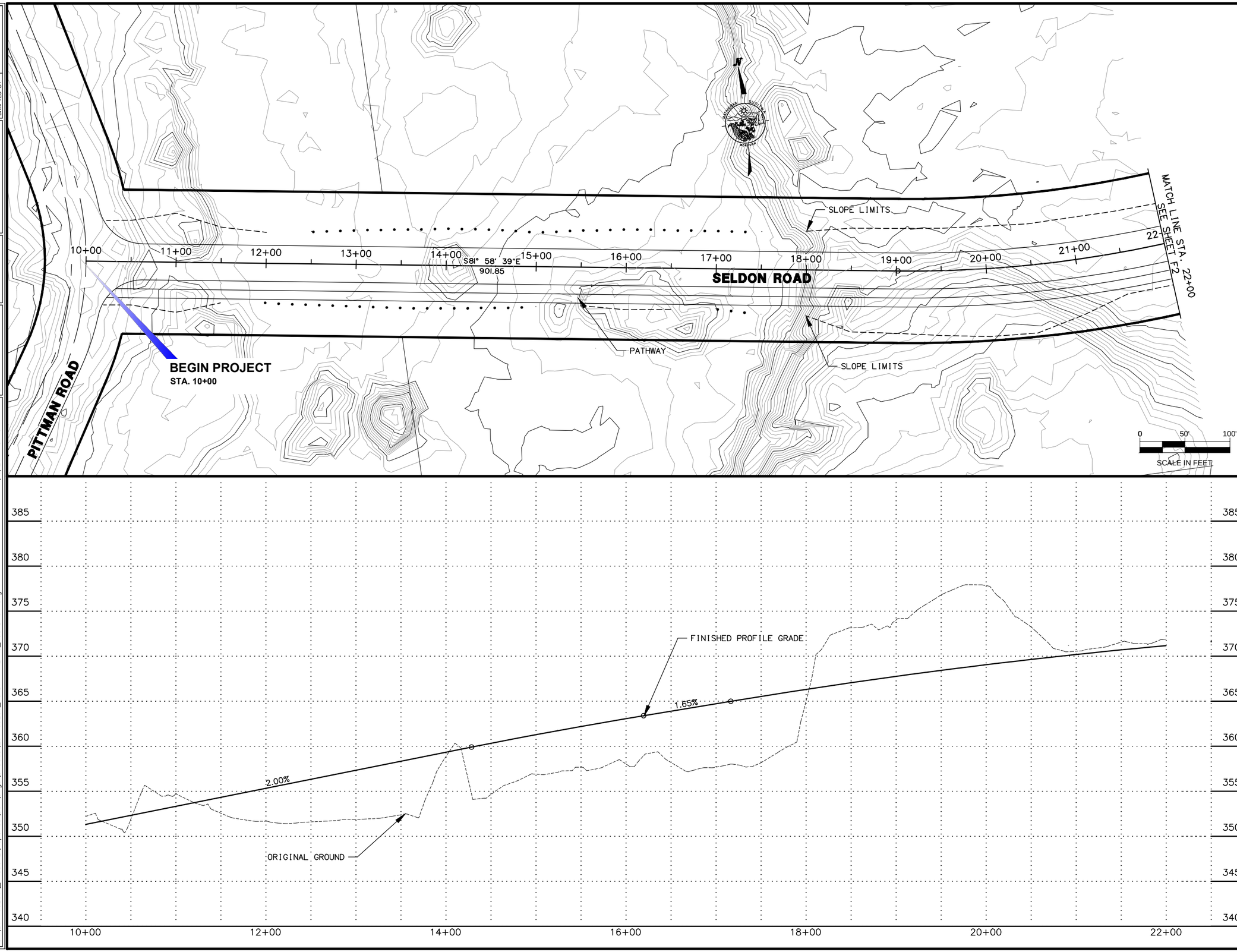

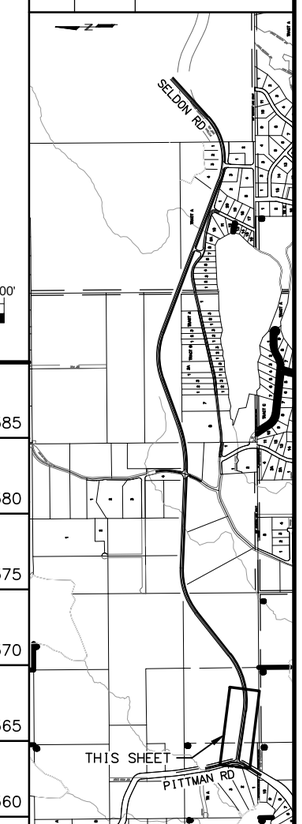

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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

DRAWING LOCATION
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SHEET NO.	TOTAL SHEETS
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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

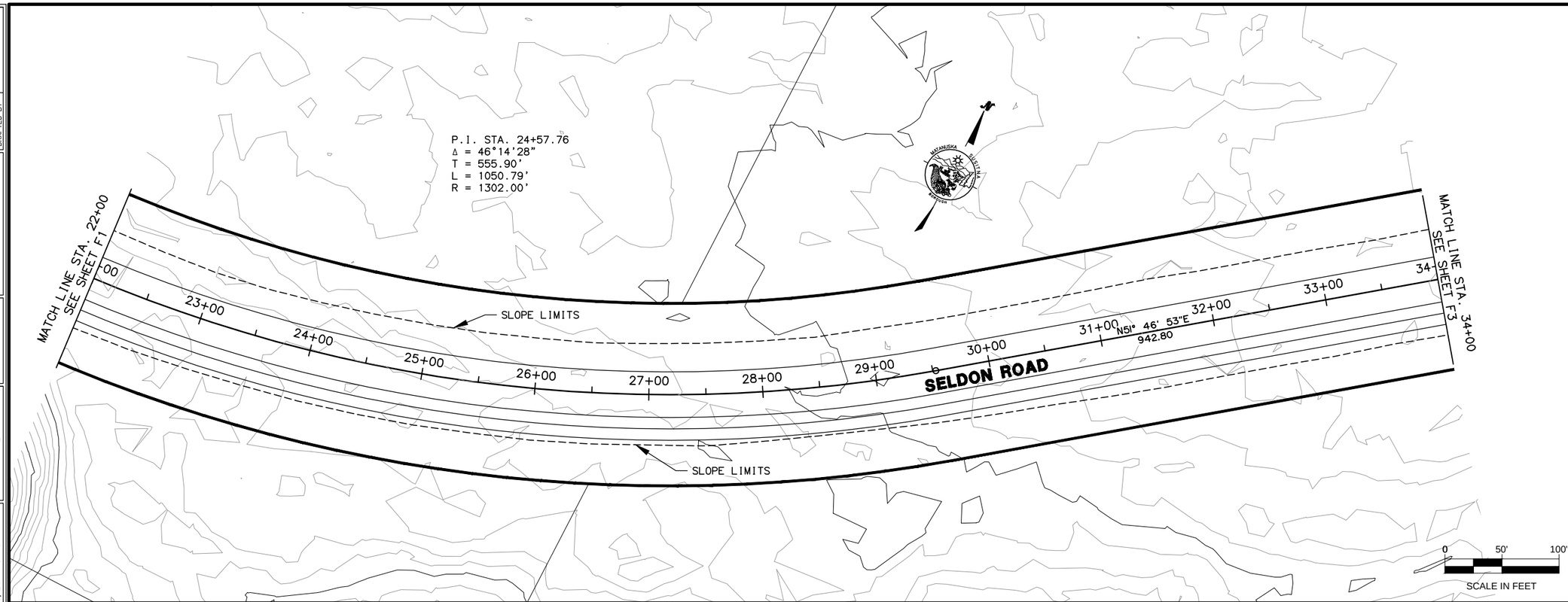
PROJECT NO. 35411

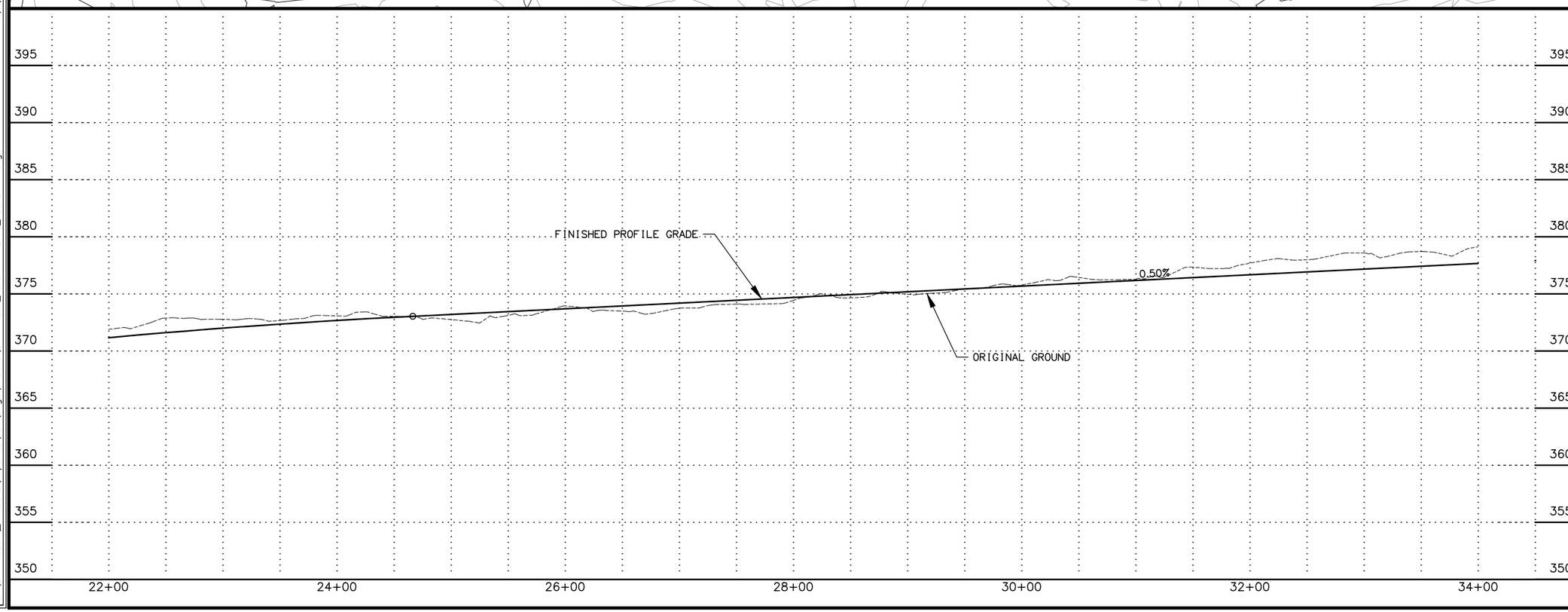
ADDENDUM NO.

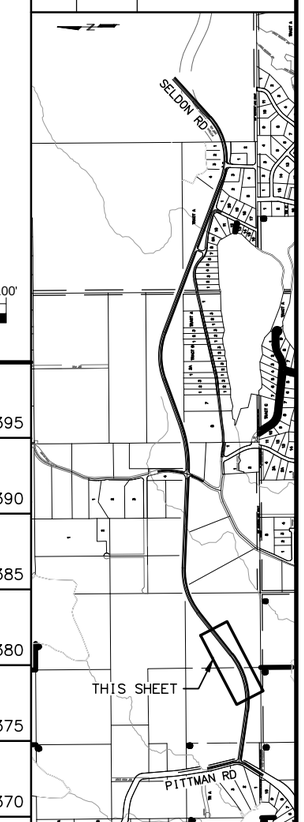
ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION







MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

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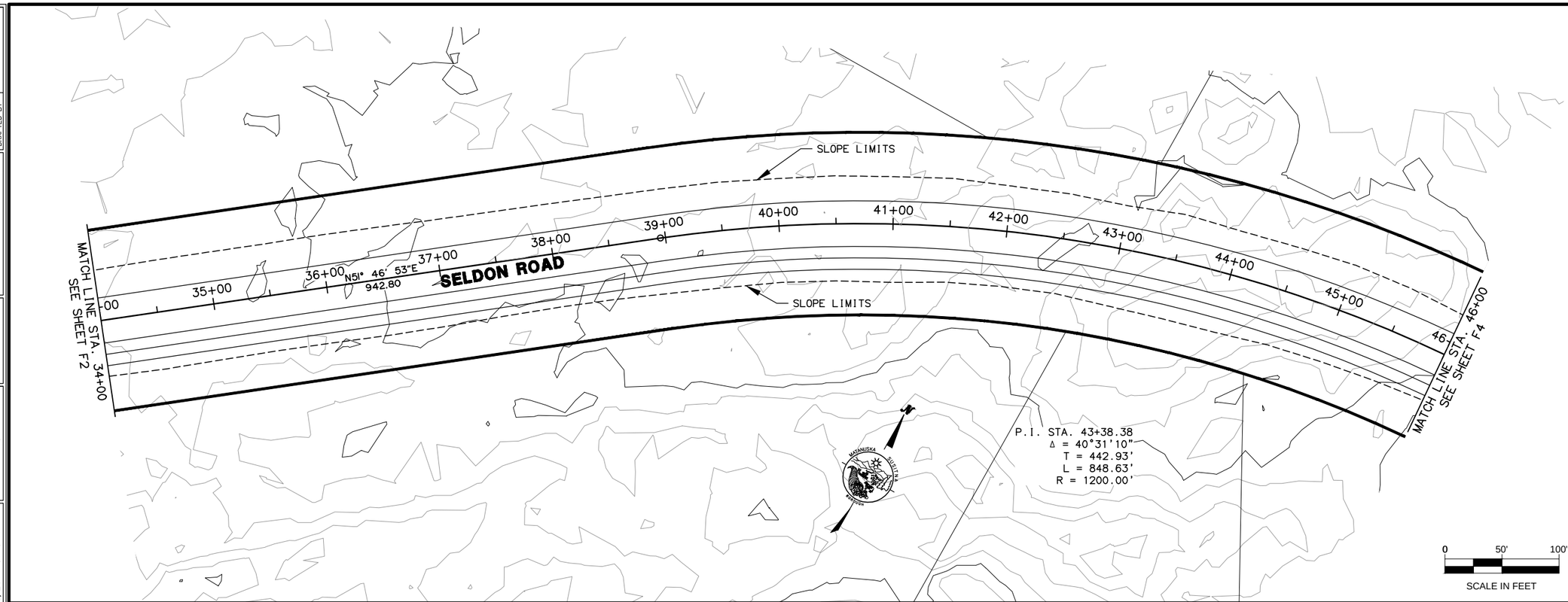

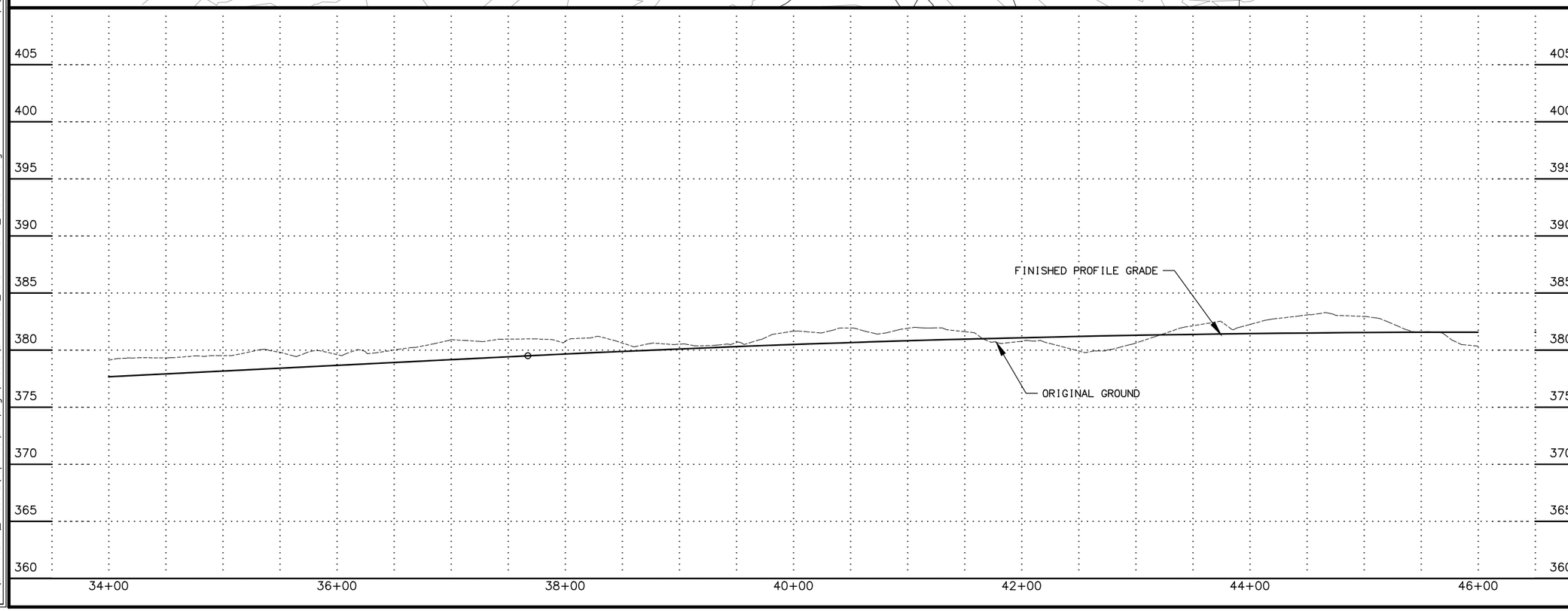

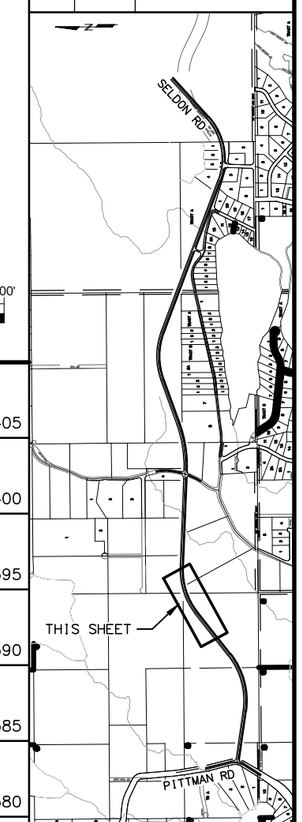

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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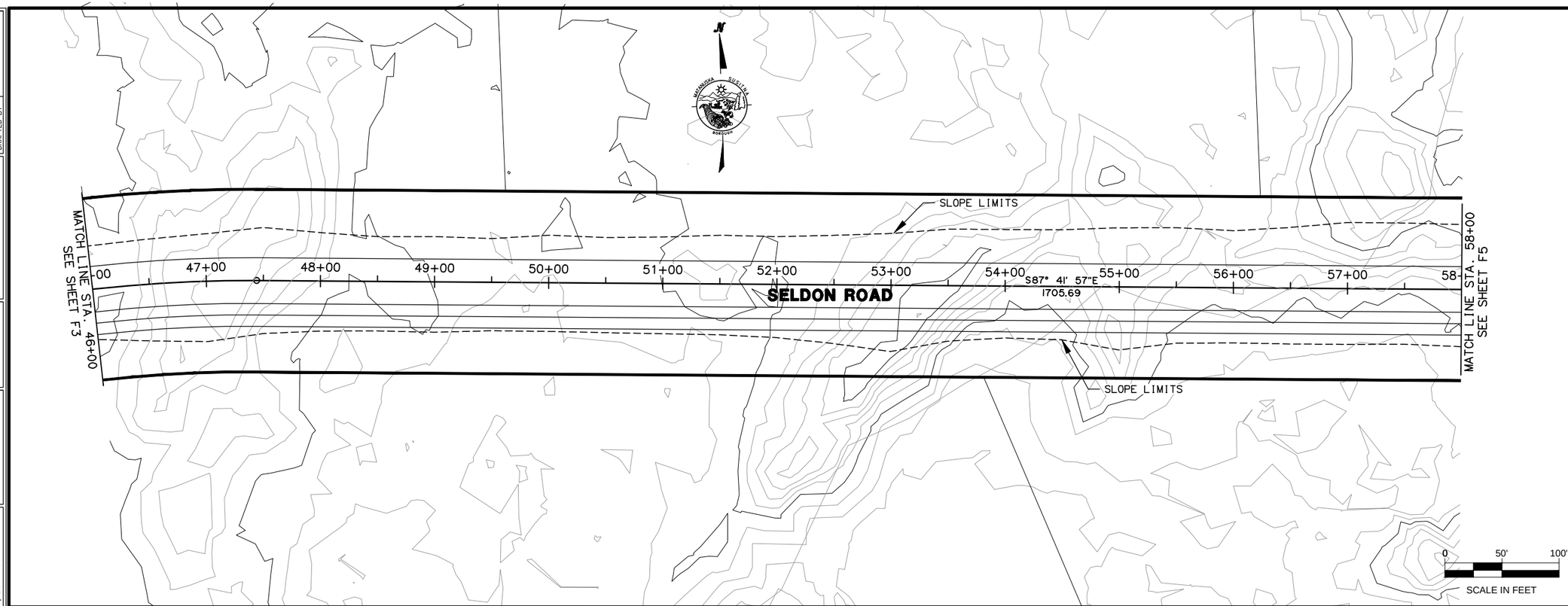

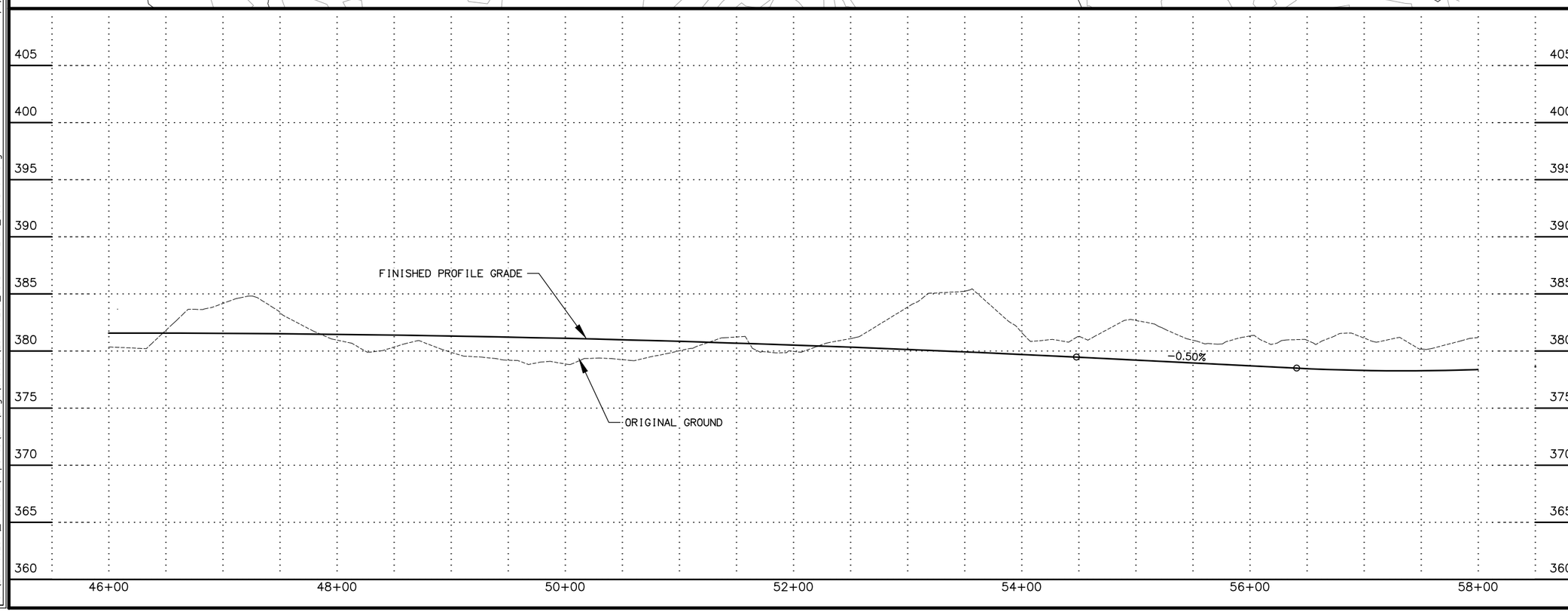

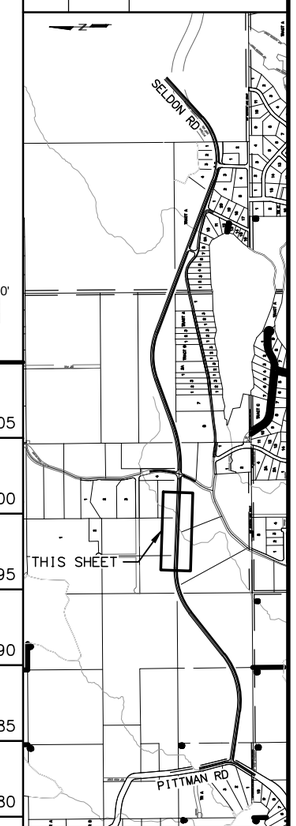

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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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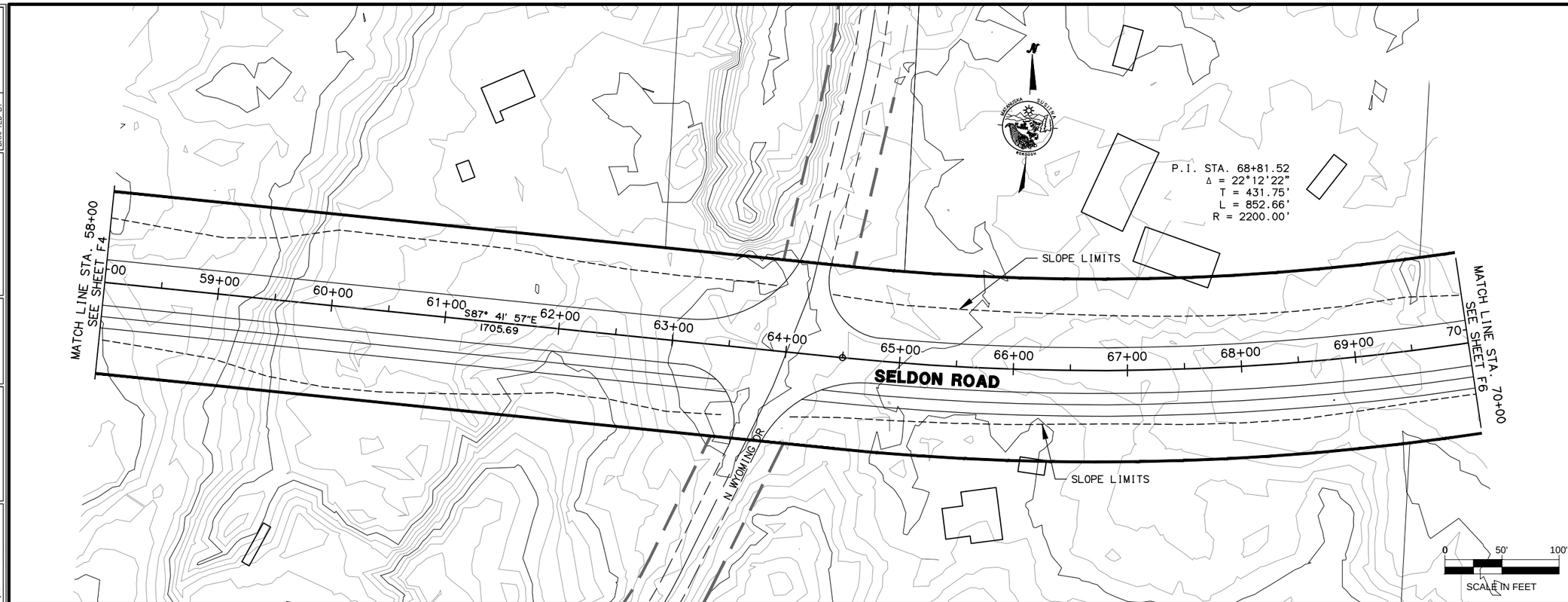

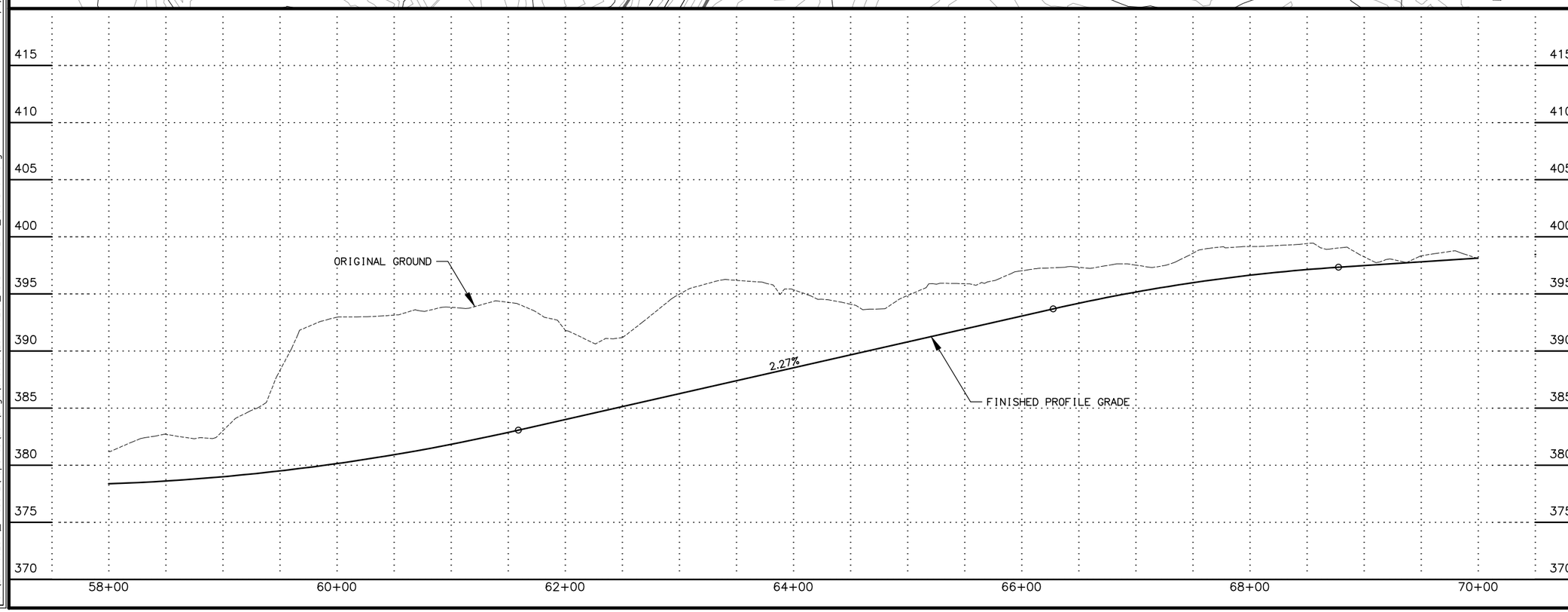

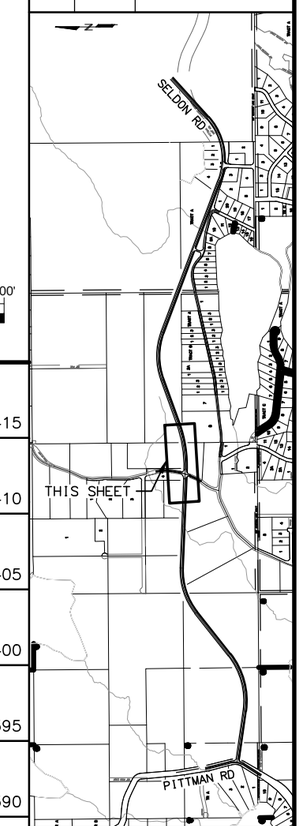

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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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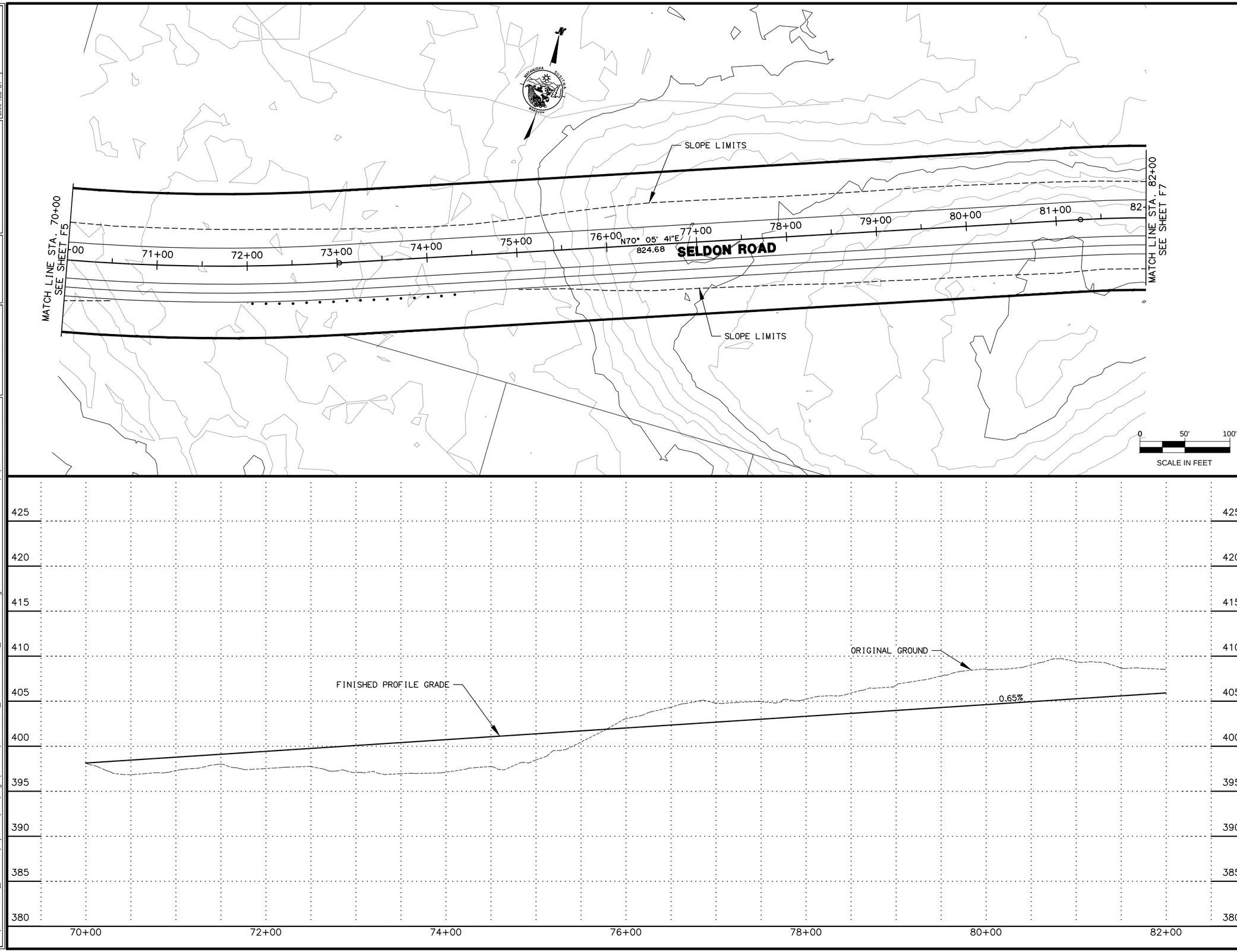

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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

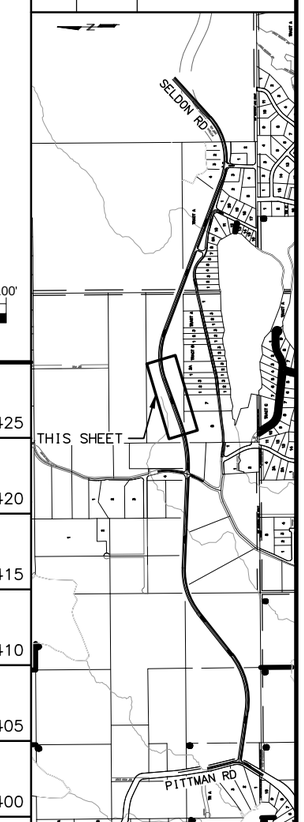
PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION



MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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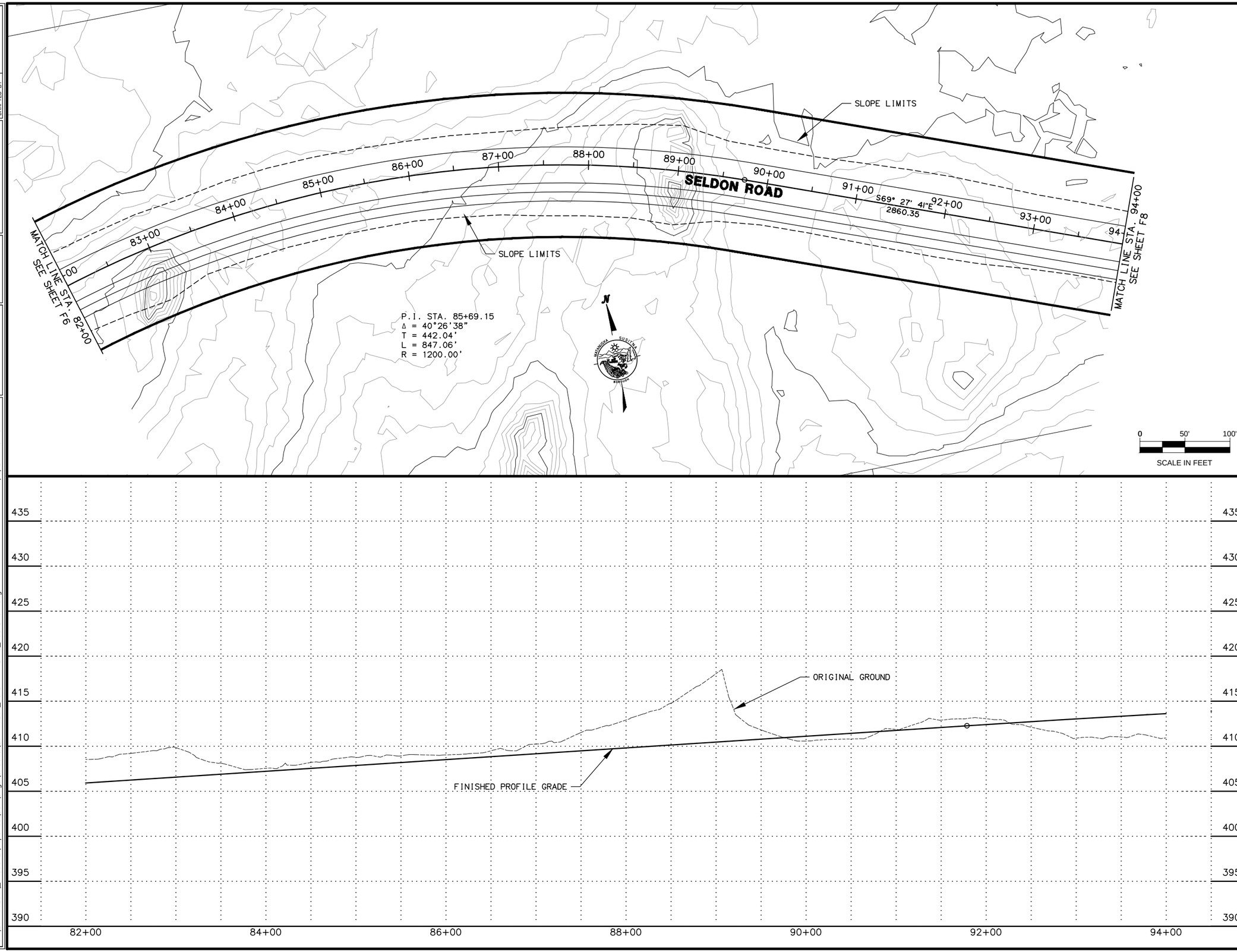

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F7	F9
STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

PROJECT NO. 35411

ADDENDUM NO.

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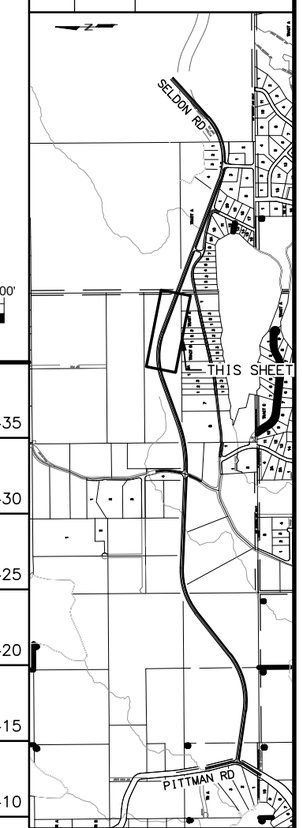

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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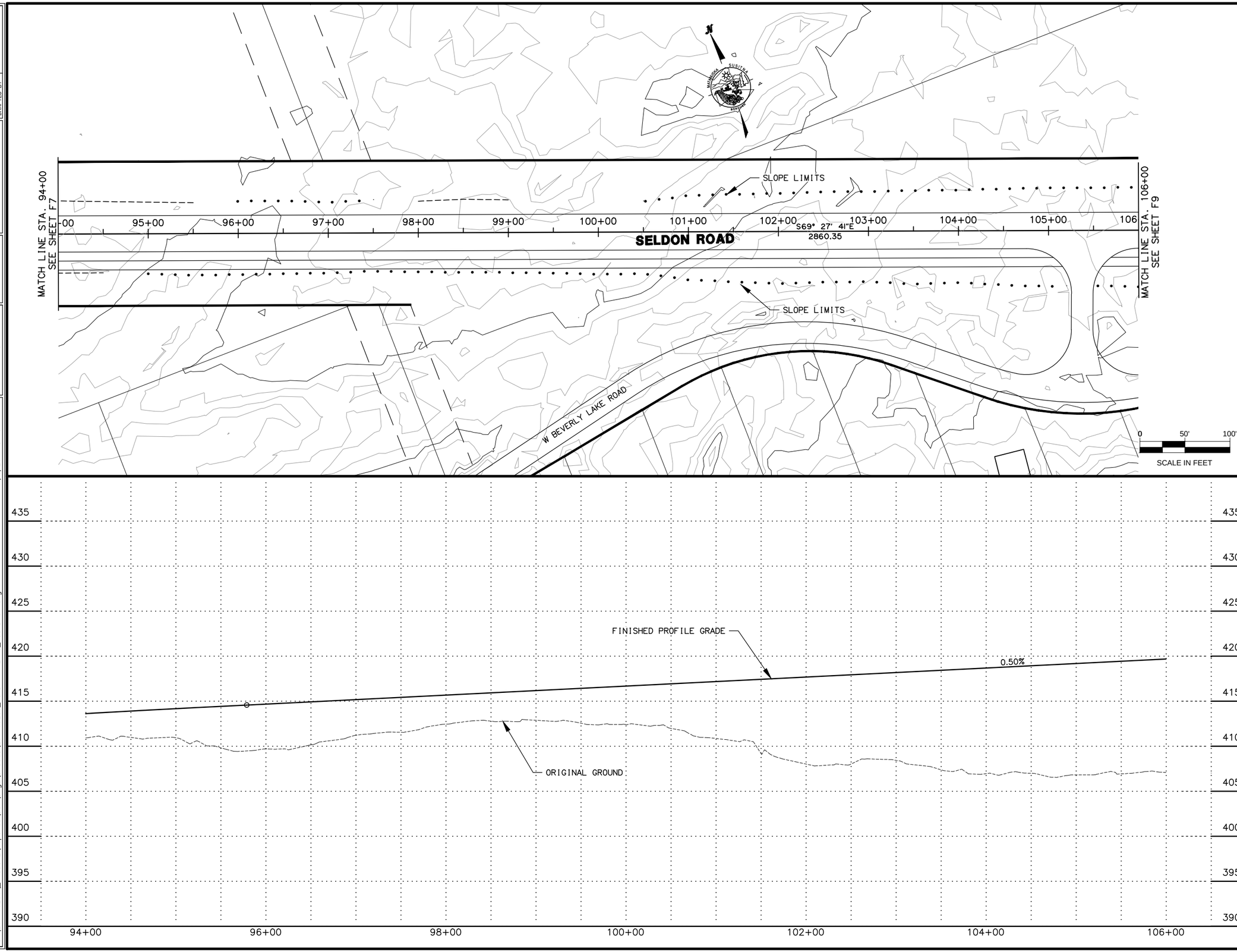

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STATE	YEAR
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PROJECT DESIGNATION

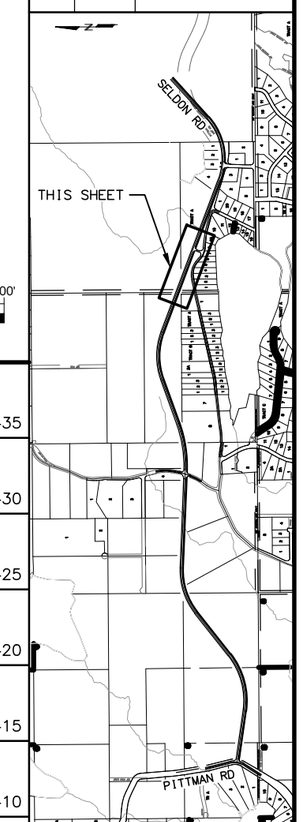
PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION



MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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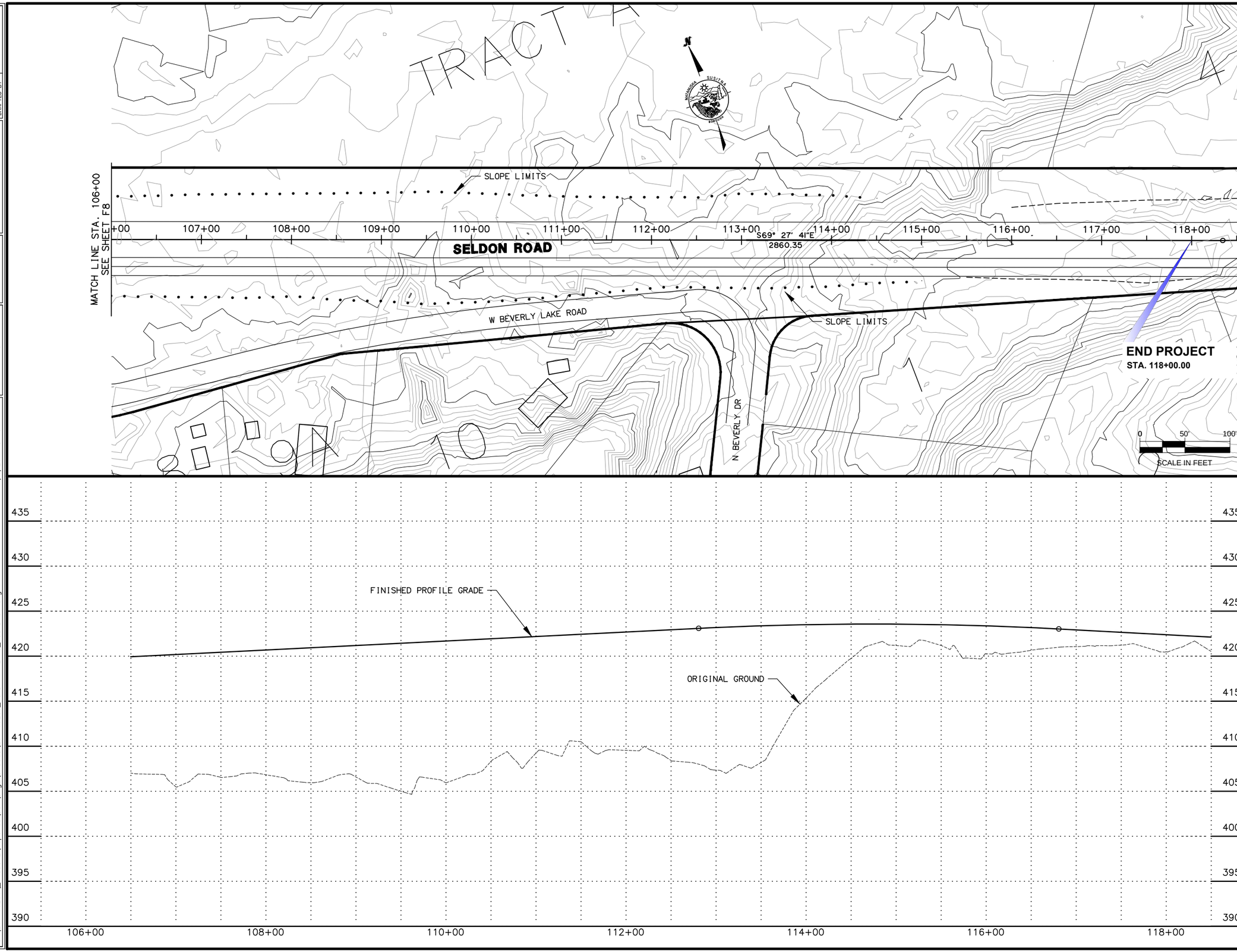

SHEET NO.	TOTAL SHEETS
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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
PREFERRED ALTERNATE
(FISHBACK CIR)

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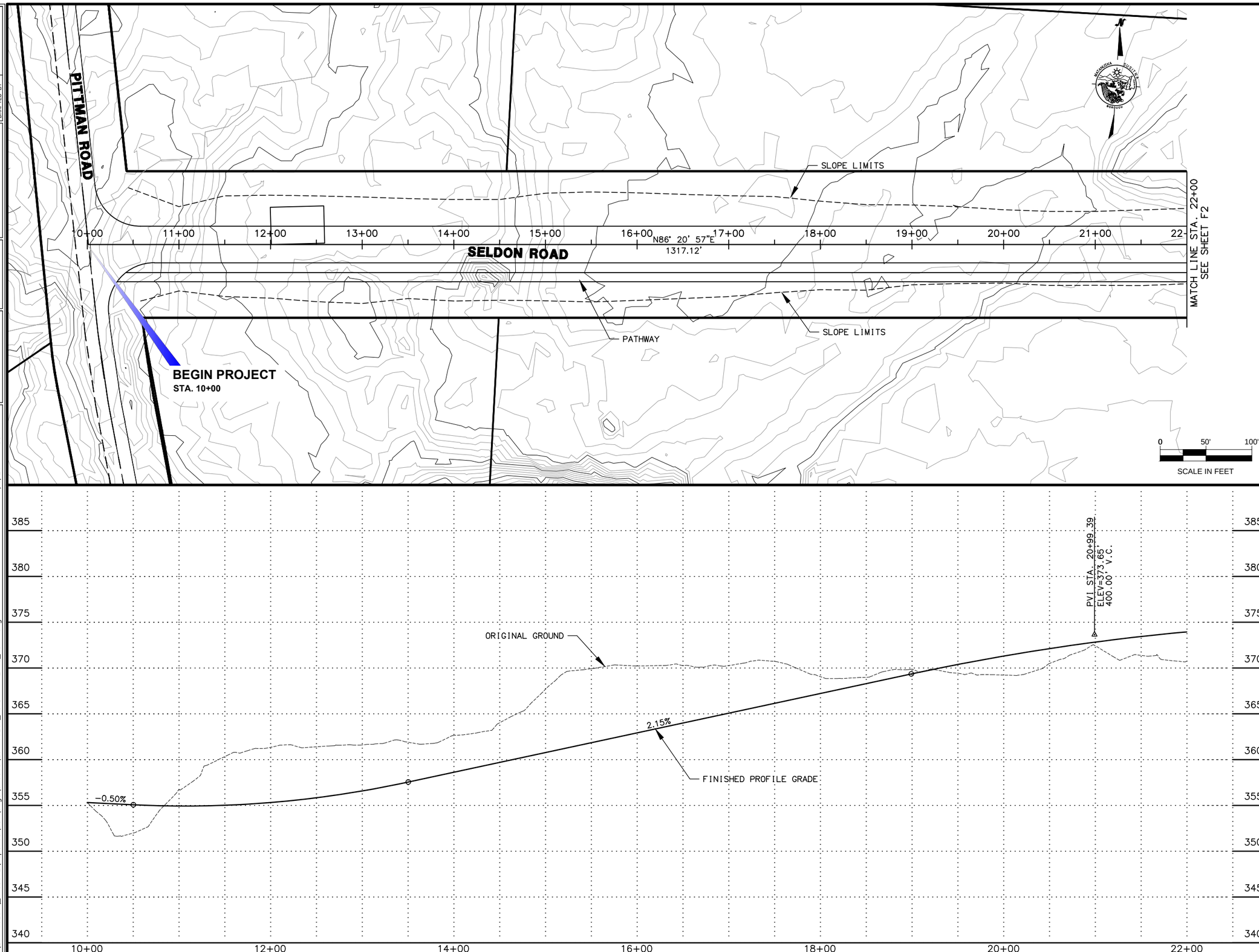

SHEET NO.	TOTAL SHEETS
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STATE	YEAR
ALASKA	2014

PROJECT DESIGNATION

PROJECT NO. 35411

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEERING

SELDON ROAD EXTENSION
PHASE II

ROADWAY PLAN & PROFILE
(NORMS RD)

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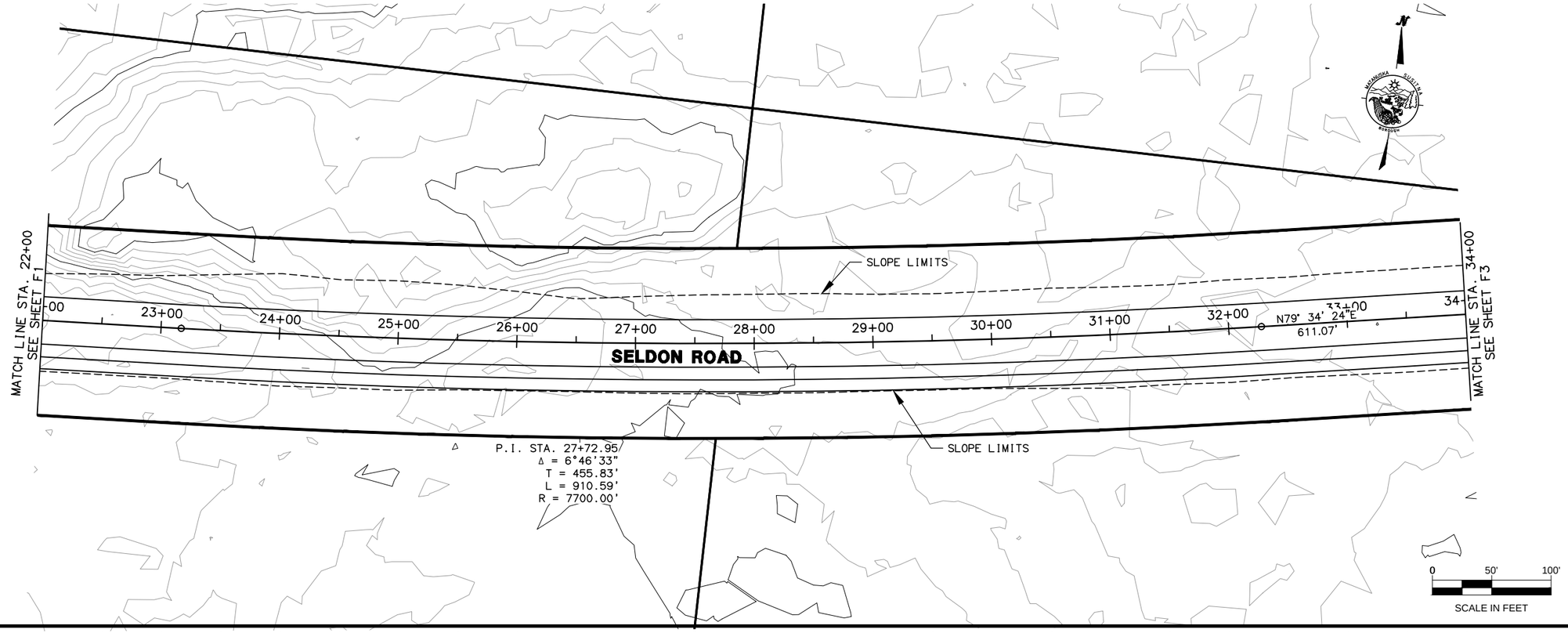

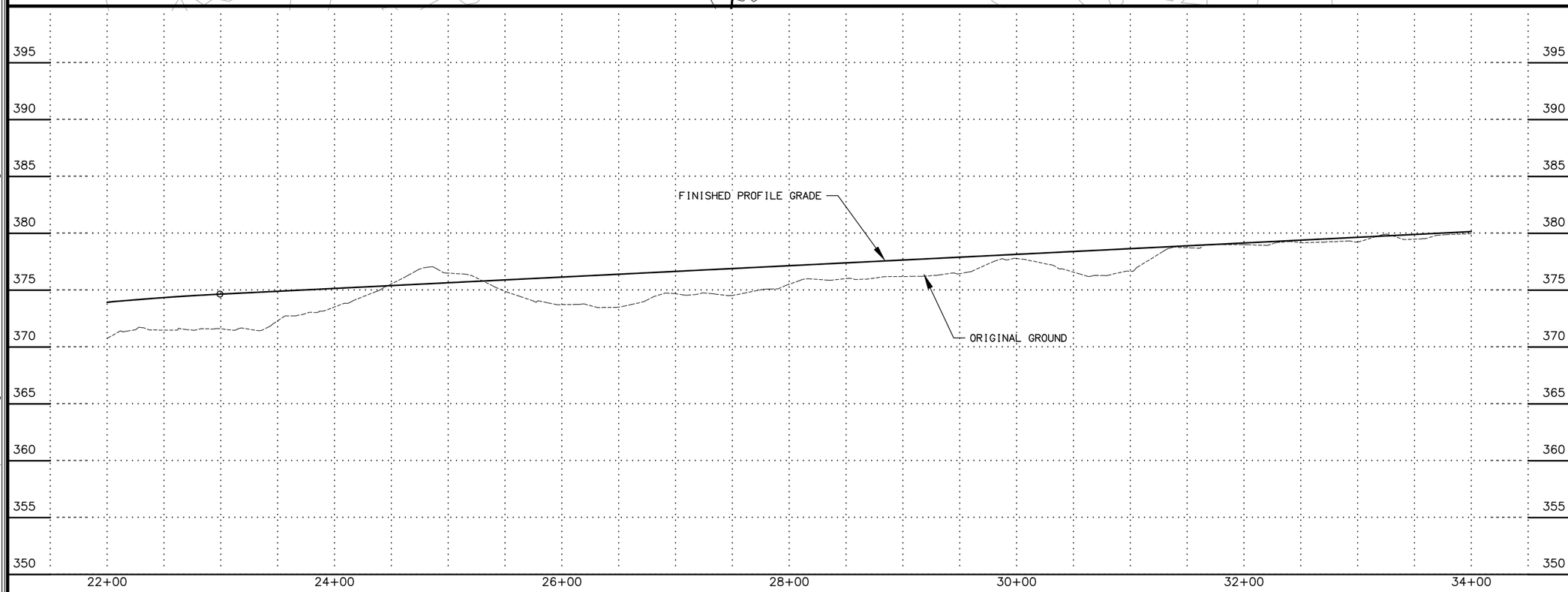

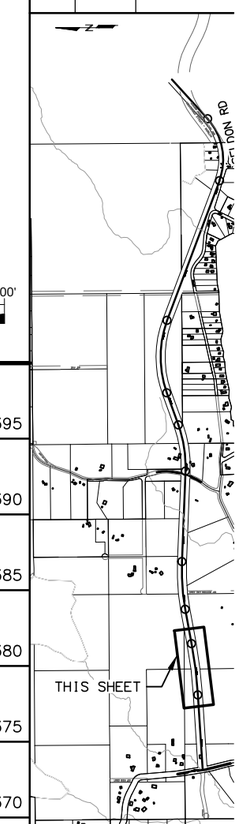

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F2	F9
STATE	YEA
ALASKA	20

PROJECT DESIGNATION

PROJECT NO. 3

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPT

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEE

SELDON ROAD EXTENS
PHASE II

ROADWAY PLAN & PR
(NORMS RD)

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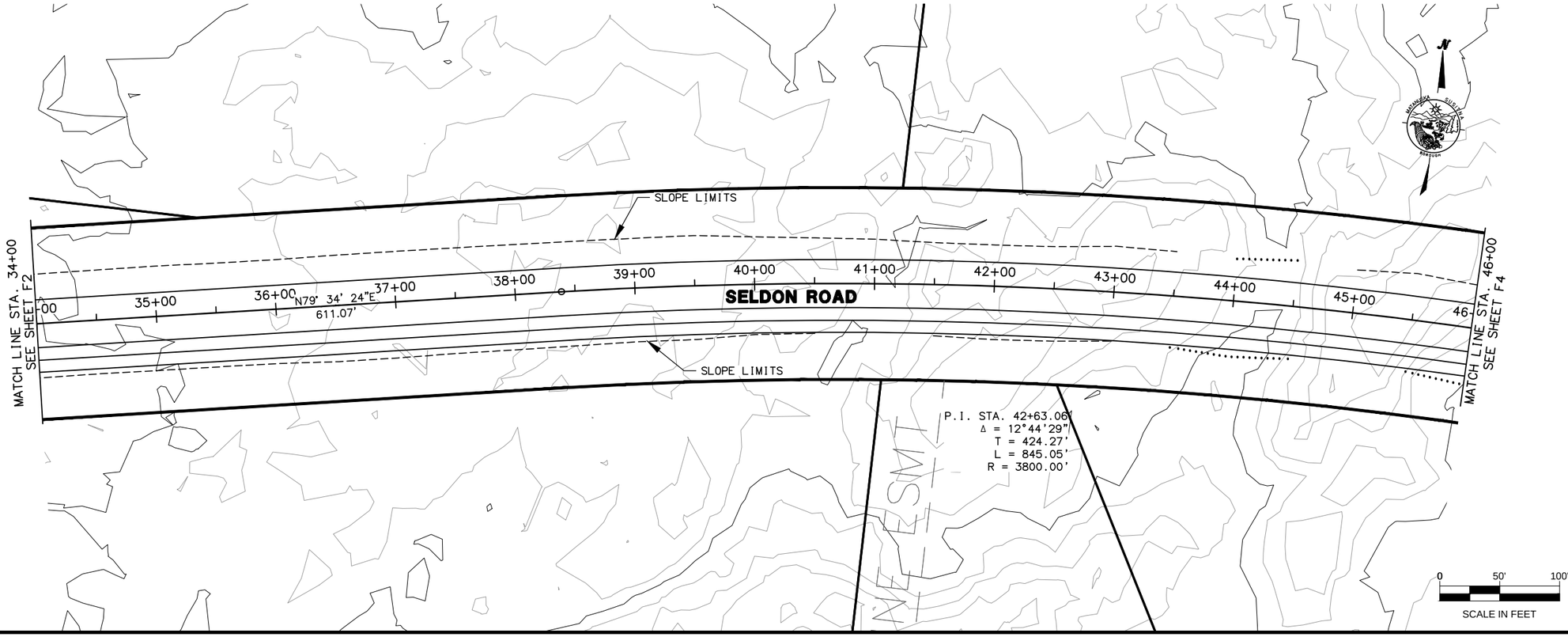

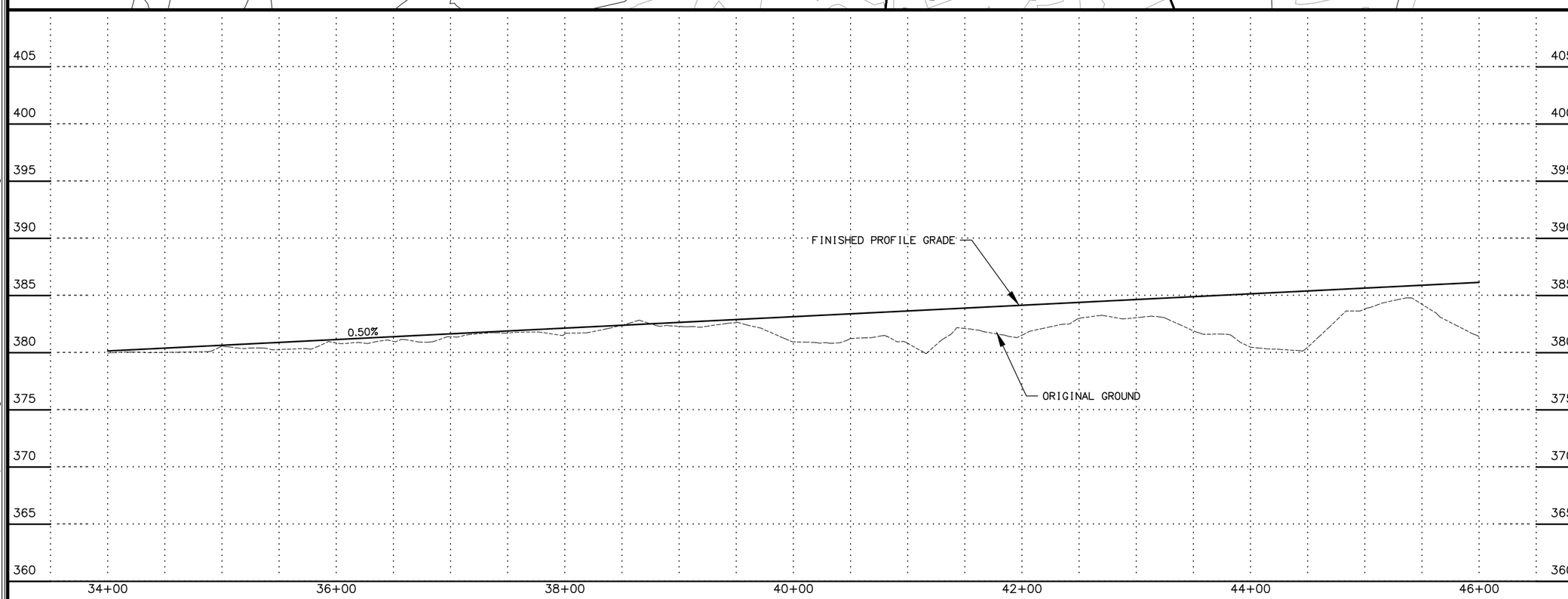

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ALASKA	20

PROJECT DESIGNATION

PROJECT NO. 3

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

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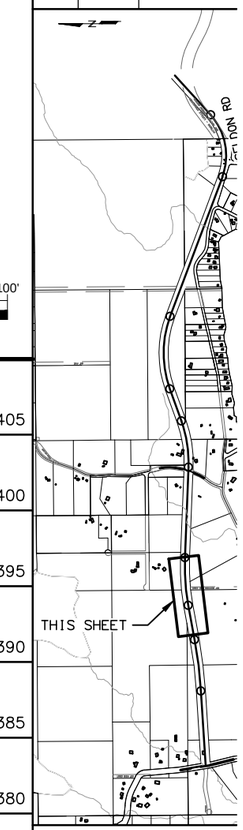

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEE

SELDON ROAD EXTENS
PHASE II

ROADWAY PLAN & PR
(NORMS RD)

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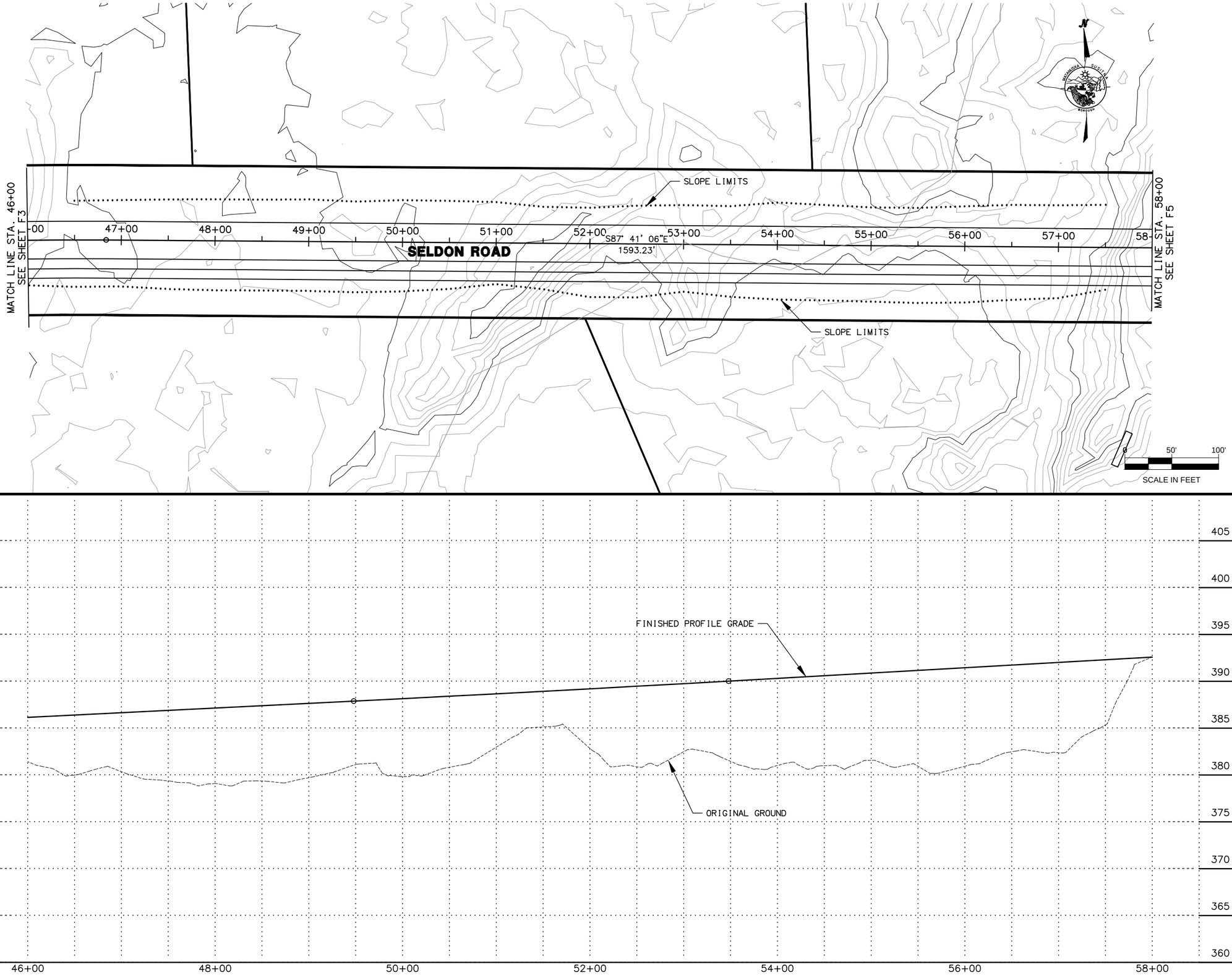

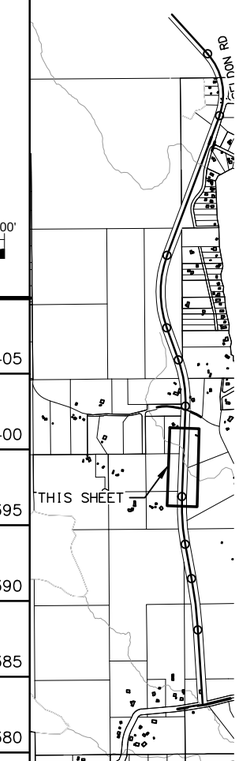

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ALASKA	20

PROJECT DESIGNATION

PROJECT NO. 3

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPT

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEE

SELDON ROAD EXTENS
PHASE II

ROADWAY PLAN & PR
(NORMS RD)

DRAWING LOCATION
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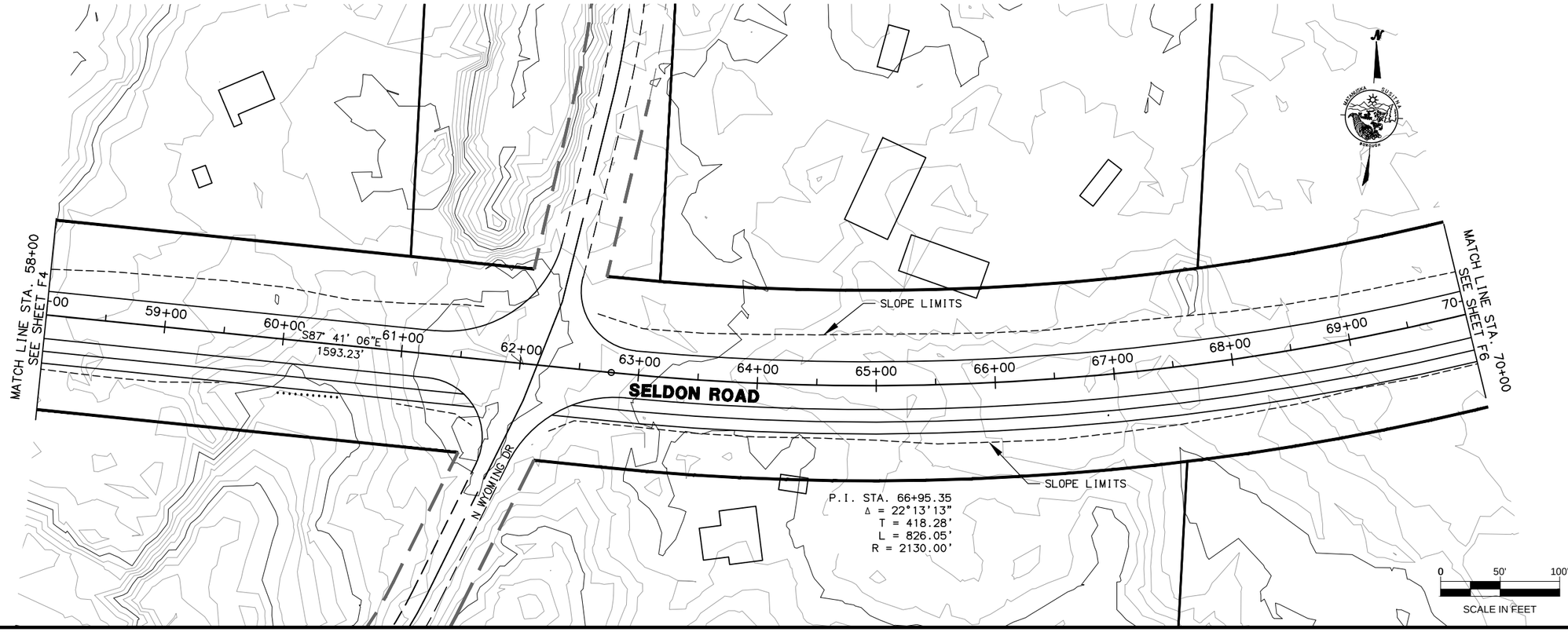
DATE TIME 11/5/2014 1:58 PM

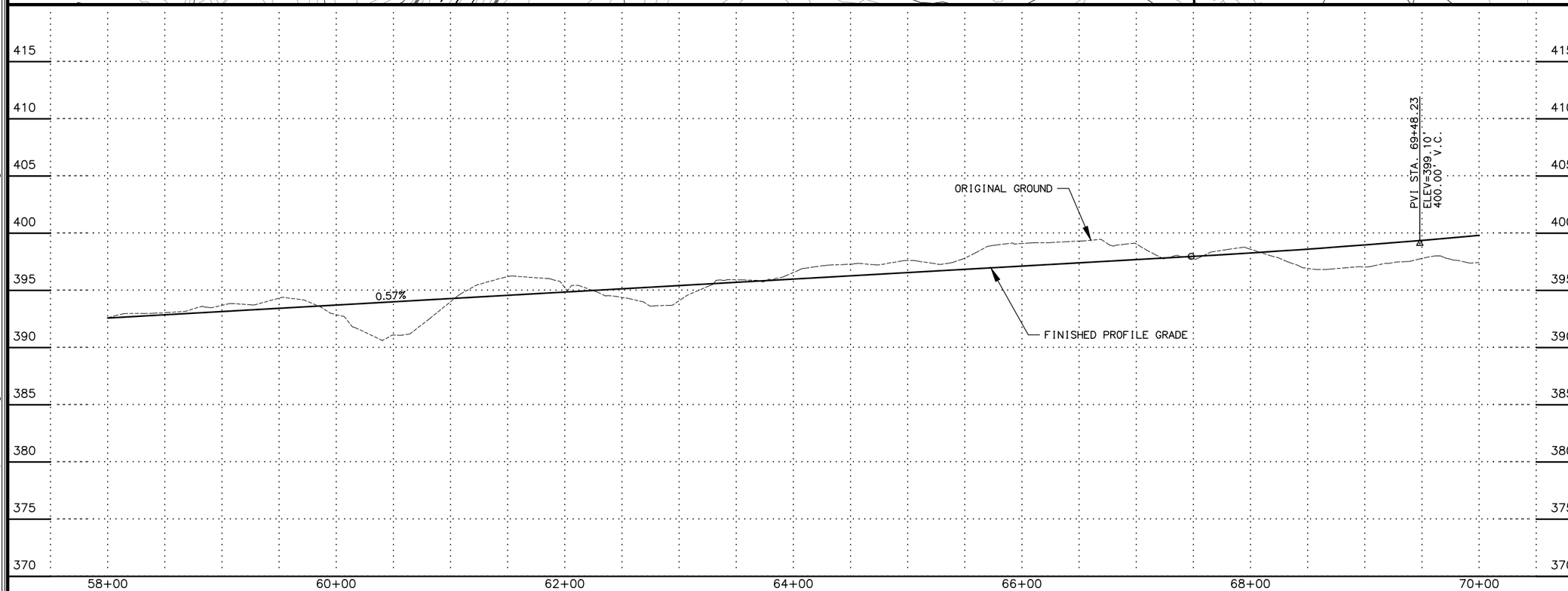
LAYOUT F4

SCALE

XREFS

DESIGNED BY
CHECKED BY
DRAFTED BY





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F5	F9
STATE	YEA
ALASKA	20

PROJECT DESIGNATION

PROJECT NO. 3

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPT

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORK
PROJECT MANAGEMENT AND ENGINE

SELDON ROAD EXTENS
PHASE II

ROADWAY PLAN & PR
(NORMS RD)

DESIGNED BY
CHECKED BY
DRAFTED BY

XREFS

SCALE

LAYOUT
F5

DATE TIME
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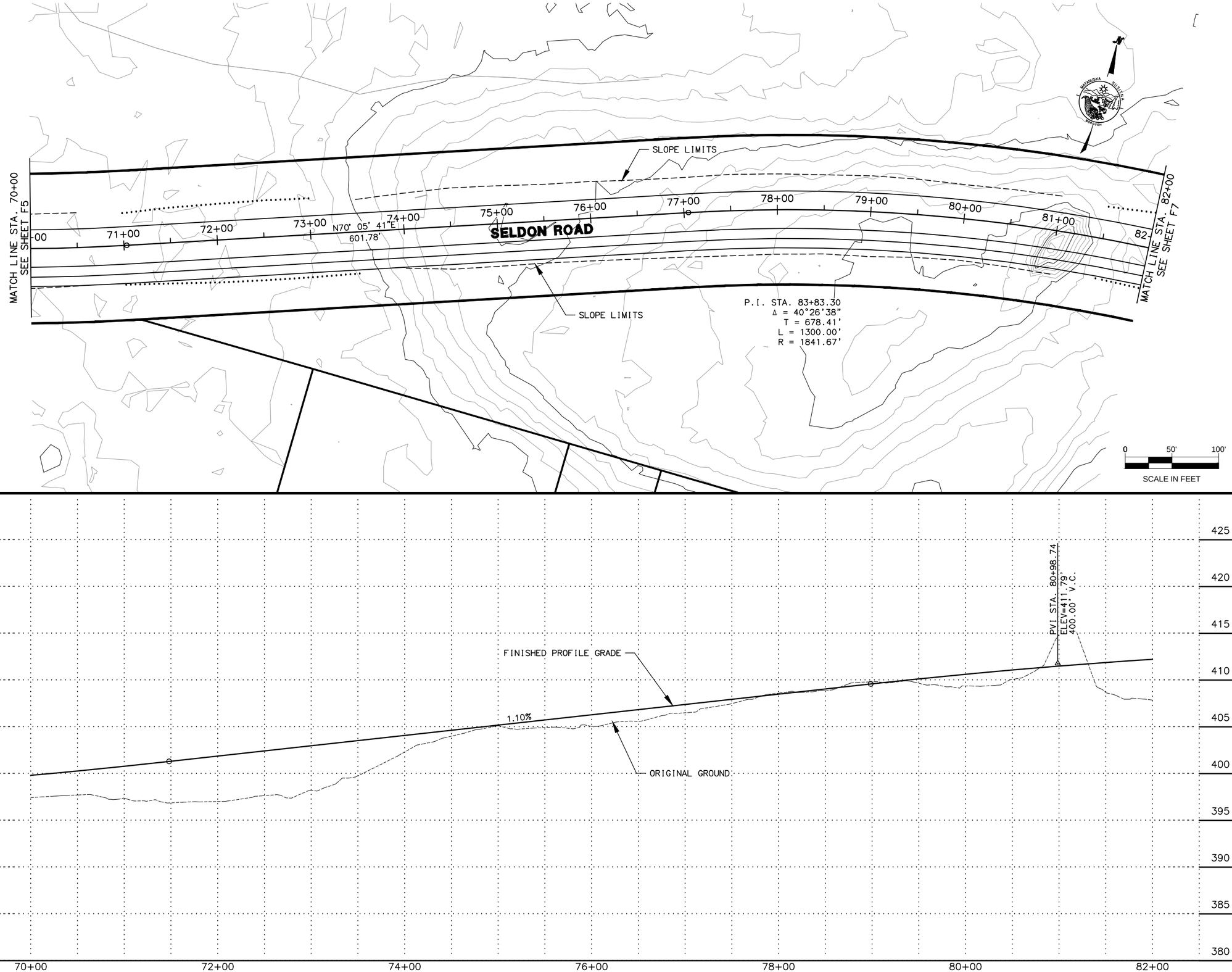

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ALASKA	20

PROJECT DESIGNATION

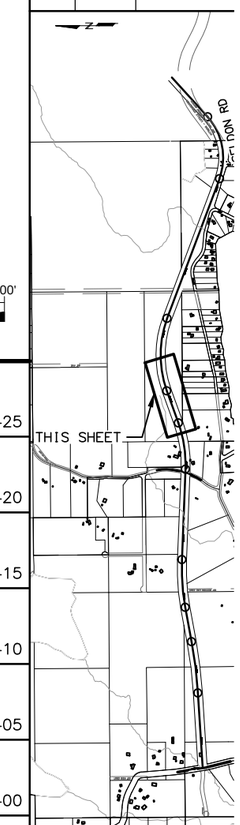
PROJECT NO. 3

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPT



MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEE

SELDON ROAD EXTENS
PHASE II

ROADWAY PLAN & PR
(NORMS RD)

DRAWING LOCATION
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SCALE

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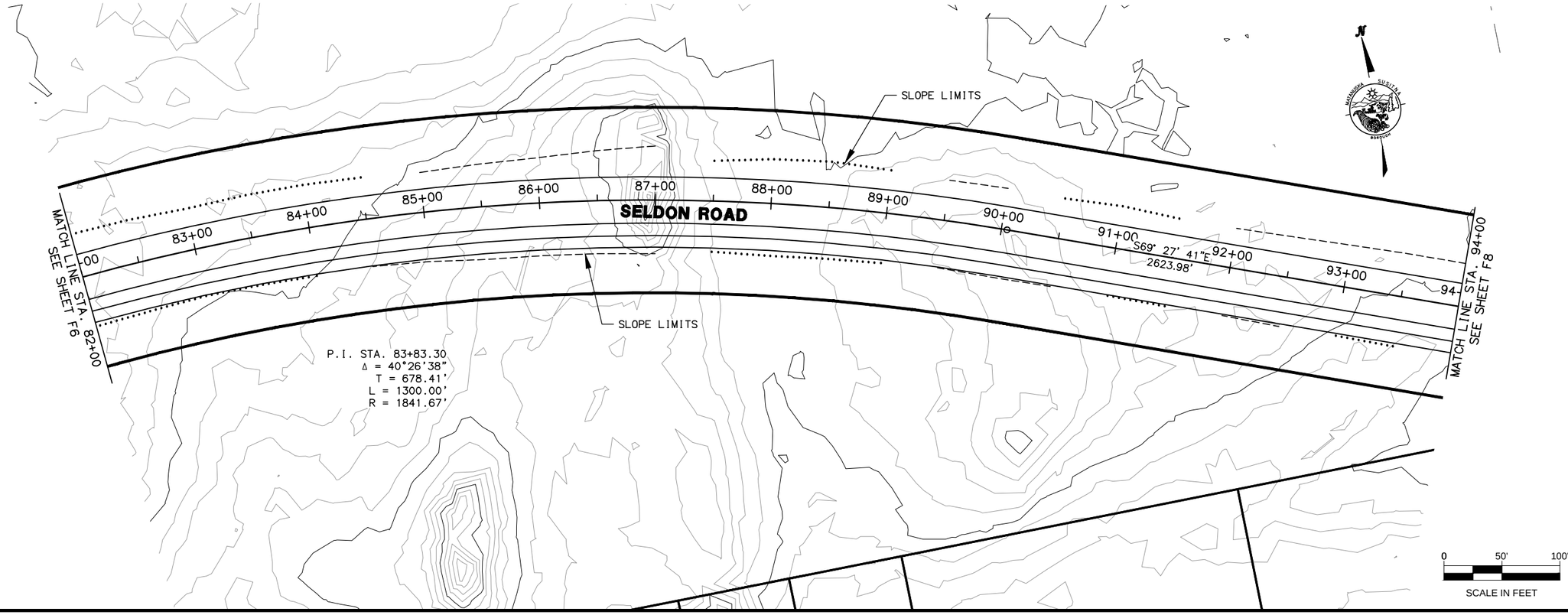

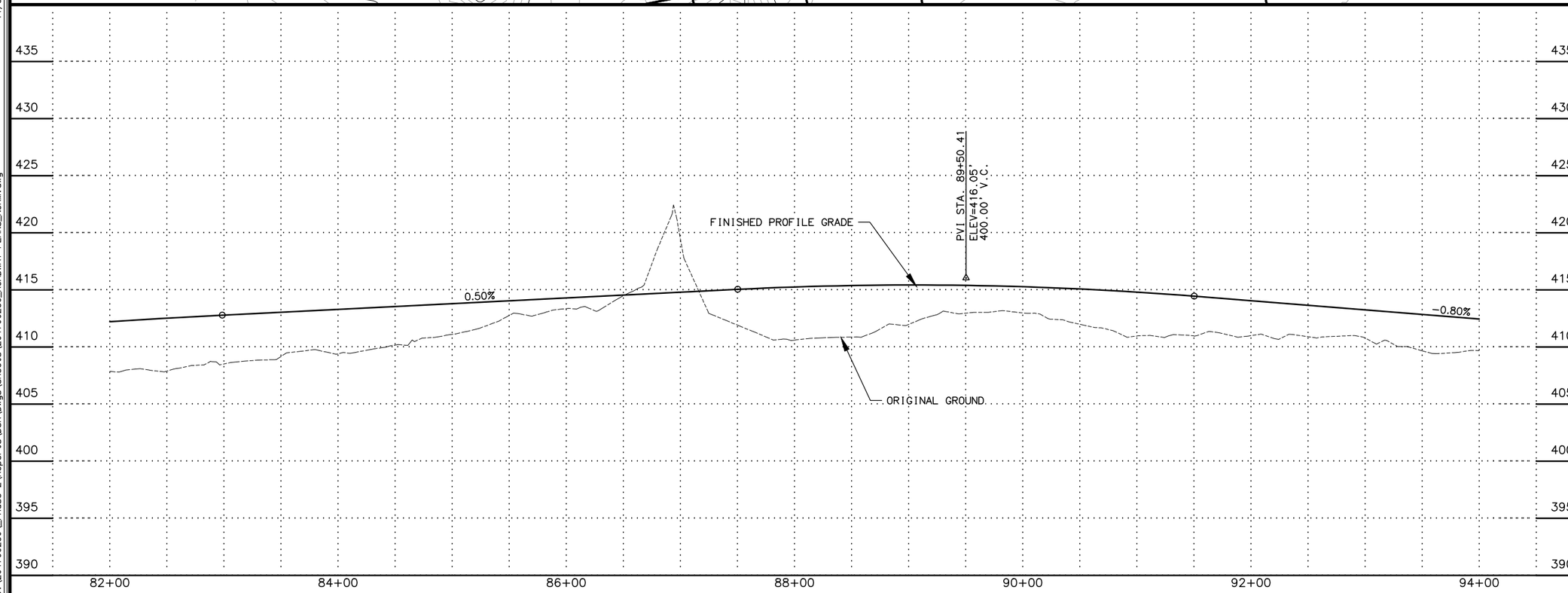

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STATE	YEA
ALASKA	20

PROJECT DESIGNATION

PROJECT NO. 3

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPT

MATANUSKA-SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGEMENT AND ENGINEE

SELDON ROAD EXTENS
PHASE II

ROADWAY PLAN & PR
(NORMS RD)

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CHECKED BY
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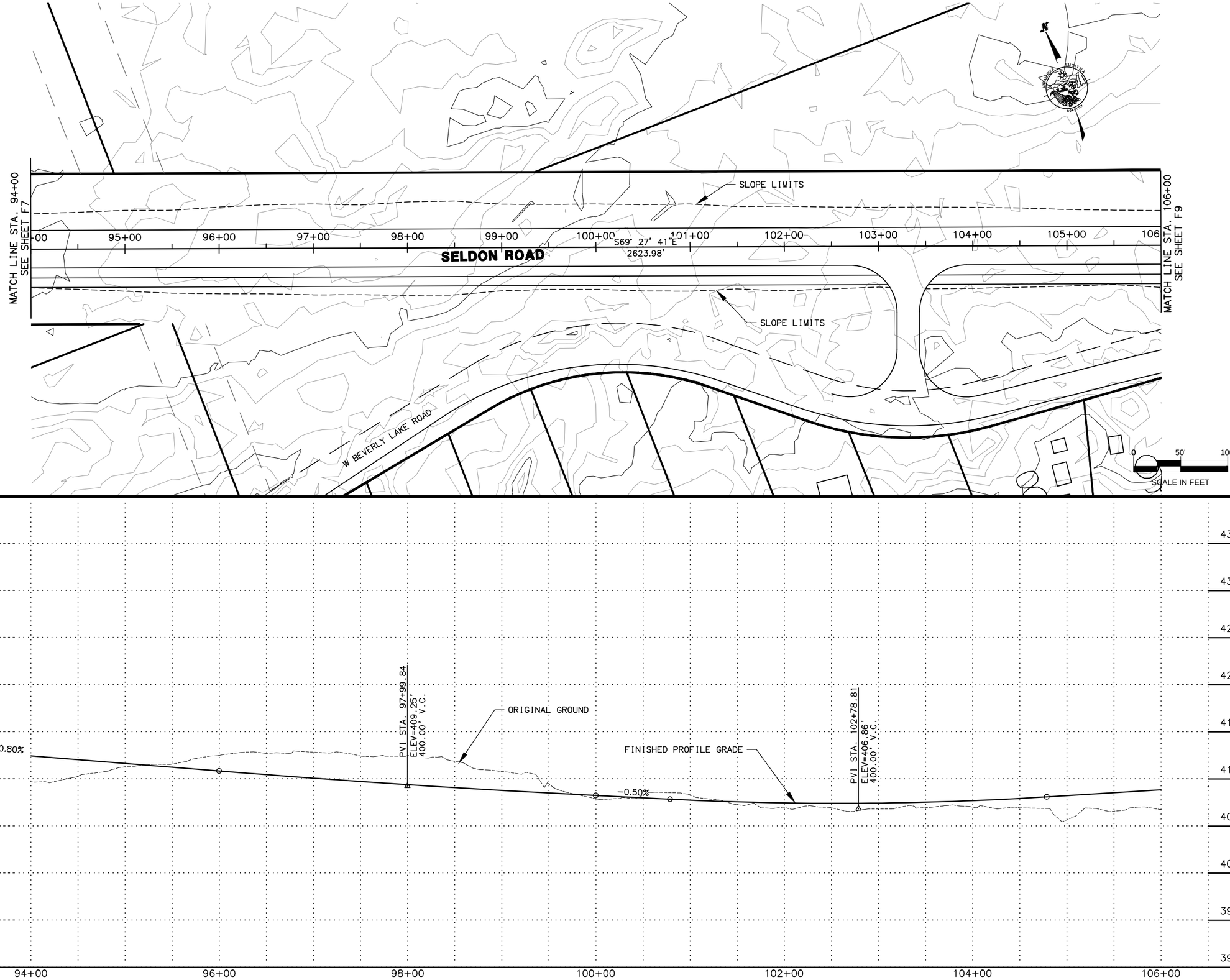

SHEET NO.	TOTAL S
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STATE	YEA
ALASKA	20

PROJECT DESIGNATION

PROJECT NO. 3

ADDENDUM NO.

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REVISIONS

NO.	DATE	DESCRIPT

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(NORMS RD)

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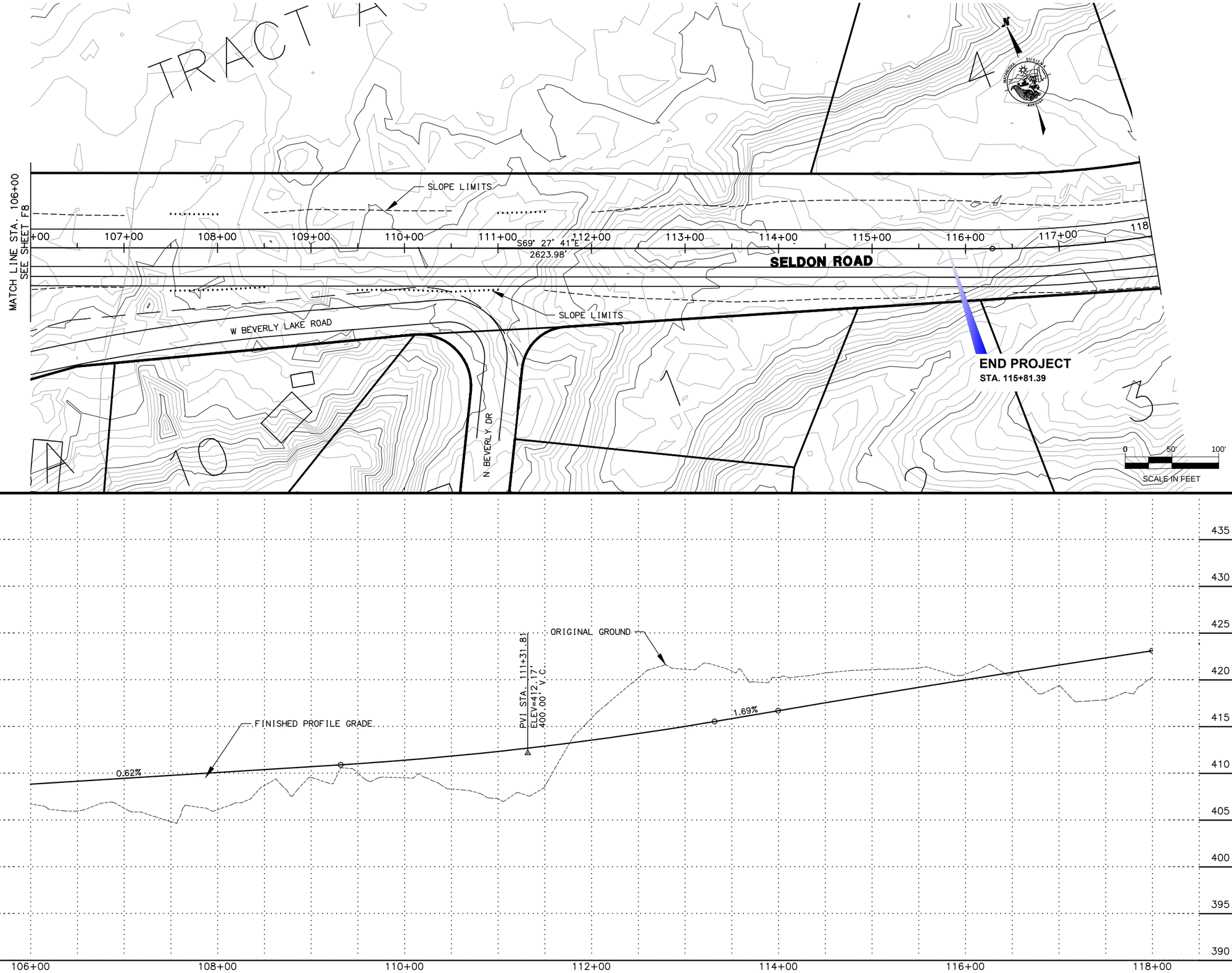

SHEET NO.	TOTAL S
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STATE	YEA
ALASKA	20

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DATE TIME
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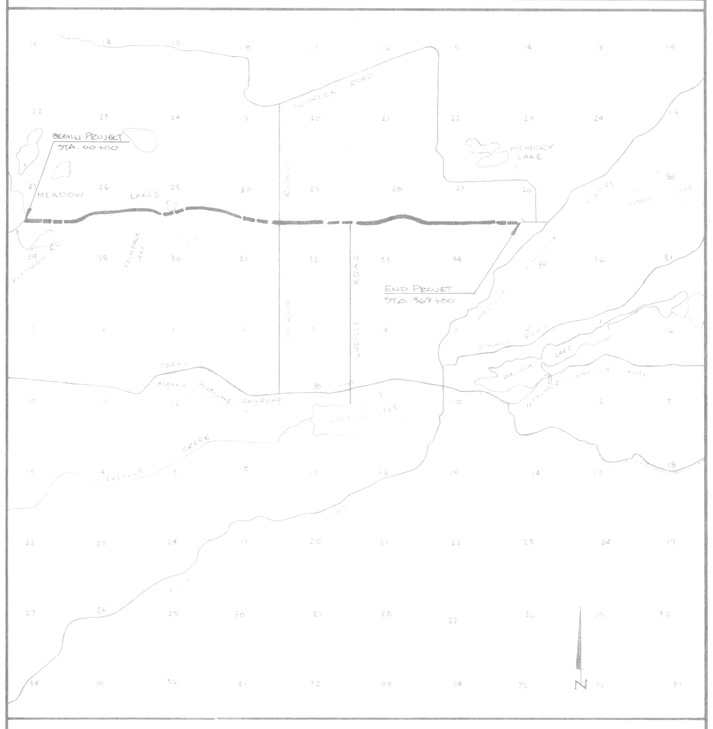
KEY MAP



VICINITY MAP ANCHORAGE (C-7), ALASKA SCALE: 1" = 1 MI.
1950 MINOR REVISIONS 1962

MATANUSKA - SUSITNA BOROUGH
DEPARTMENT OF PUBLIC WORKS

PLAN & PROFILE
PROPOSED HIGHWAY PROJECT

PITTMAN - WASILLA FISHHOOK CONNECTOR ROAD

GRADING & DRAINAGE

De Camp - Brown & Associates

Engineer 7 Fisher

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS
3	ESTIMATE OF QUANTITIES
4	SUMMARY SHEET
5-16	PLAN AND PROFILE SHEETS

PROJECT SUMMARY

- WIDTH OF SURFACE 29'
- ADDED WIDTH WHEN EMBANKMENT EXCEEDS 10' IN DEPTH (FUTURE CHANNELIZING) 2-5'
- LENGTH OF PROJECT 36,900.00 FEET

LEGEND

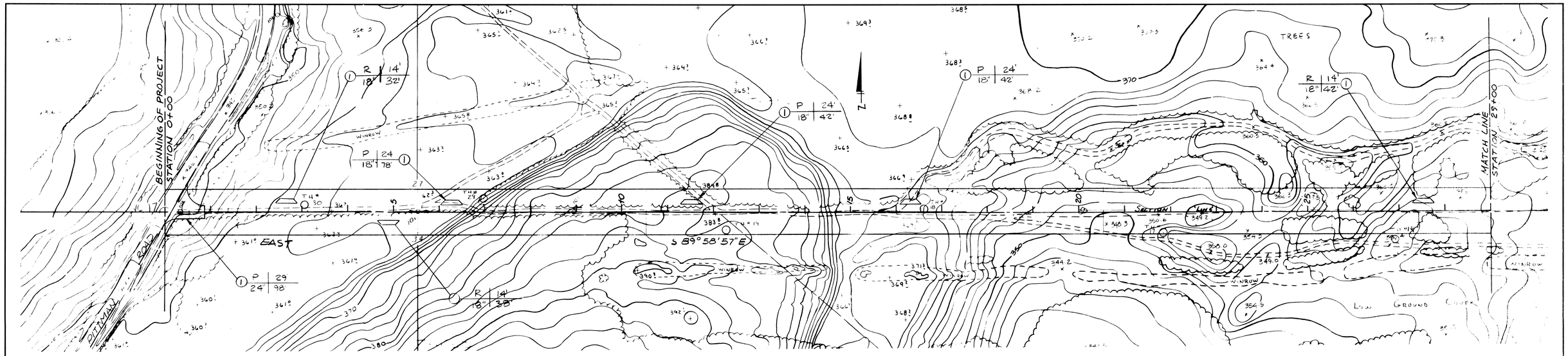
(1) TYPE PIPE | WIDTH PIPE / SIZE | LENGTH = APPROACH CULVERT (R=RESIDENT P=PUBLIC)

(2) SIZE | LENGTH = PIPE CONDUIT (CORRUGATED METAL PIPE)

(3) SIZE | LENGTH = CULVERT EXTENSION

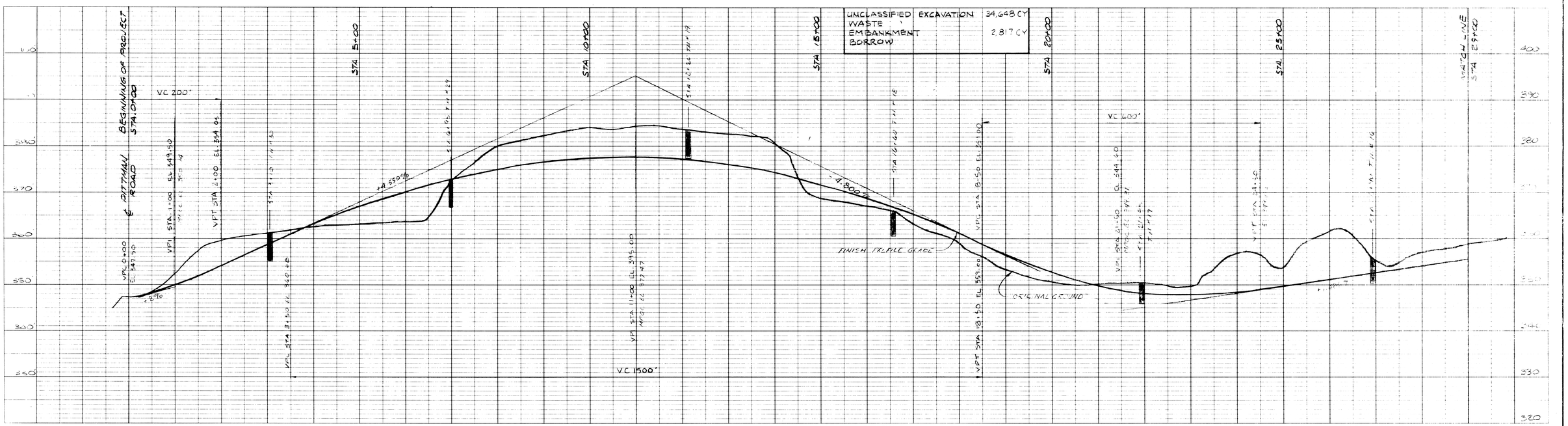
○ TH #25 = SOILS TEST HOLE

PRJ-22-03-01067
Pittman-Wasilla Fishhook Connector Road Grading & Drainage, Plan & Profile (R035) 11/16/82
Cabinet #1
16



GENERAL NOTES

1. SLOPE EASMENT LIMITS FOR PURPOSES OF CLEARING AND GRUBBING WILL BE STAKED IN THE FIELD BY THE ENGINEER.
2. ALL CLEARING AND GRUBBING WASTE (TOP SOIL AND ORGANIC MATERIAL) SHALL BE WASTED IN AREAS TO BE DESIGNATED BY THE ENGINEER. WASTE SITES SHALL BE LOCATED WITHIN 1500 FEET APART.
3. ALL CULVERTS SHALL BE FIELD LOCATED BY THE ENGINEER. (HORIZONTALLY AND VERTICALLY.)
4. CULVERT AND APPROACH QUANTITIES SHALL BE SUBJECT TO CHANGE AND SHALL NOT AFFECT UNIT BID PRICE FOR SUCH.
5.



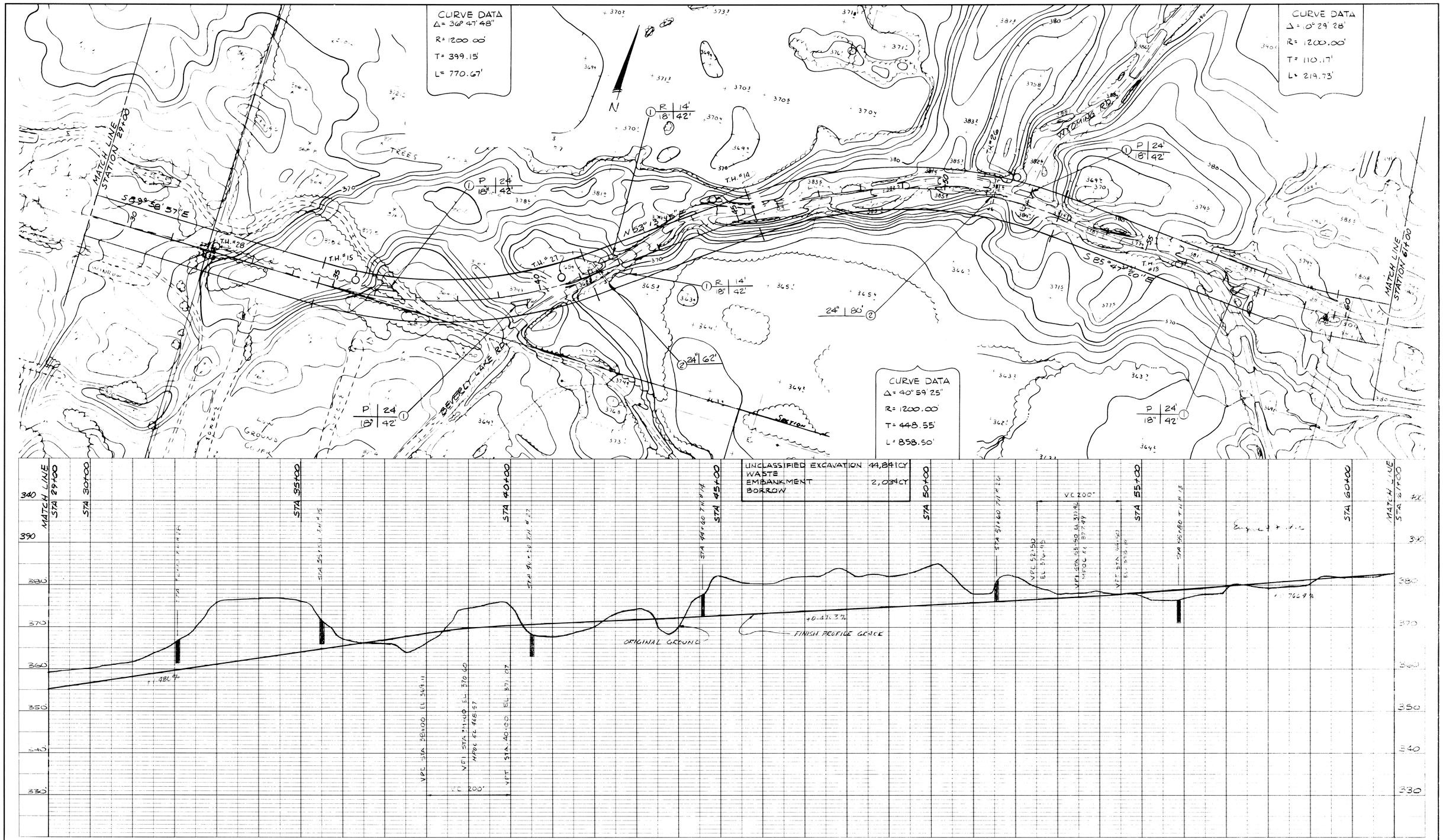
DATE	REVISION	BY

PITTMAN-WASILLA FISH HOOK CONNECTOR ROAD

DECAMP-BROWN & ASSOC.
SURVEYING CONSULTANTS
P.O. BOX 1120, Wasilla, Alaska 99687 ph: 376-3206

DRAWN BY GMC	DATE 11-16-82	MATANUSKA - SUSITNA BOROUGH	W.O.
CHECKED BY EFF	SCALE HORIZ: 1" = 100' VERT: 1" = 10'	PROJECT NO.	F.B.

SHEET 5 OF 16

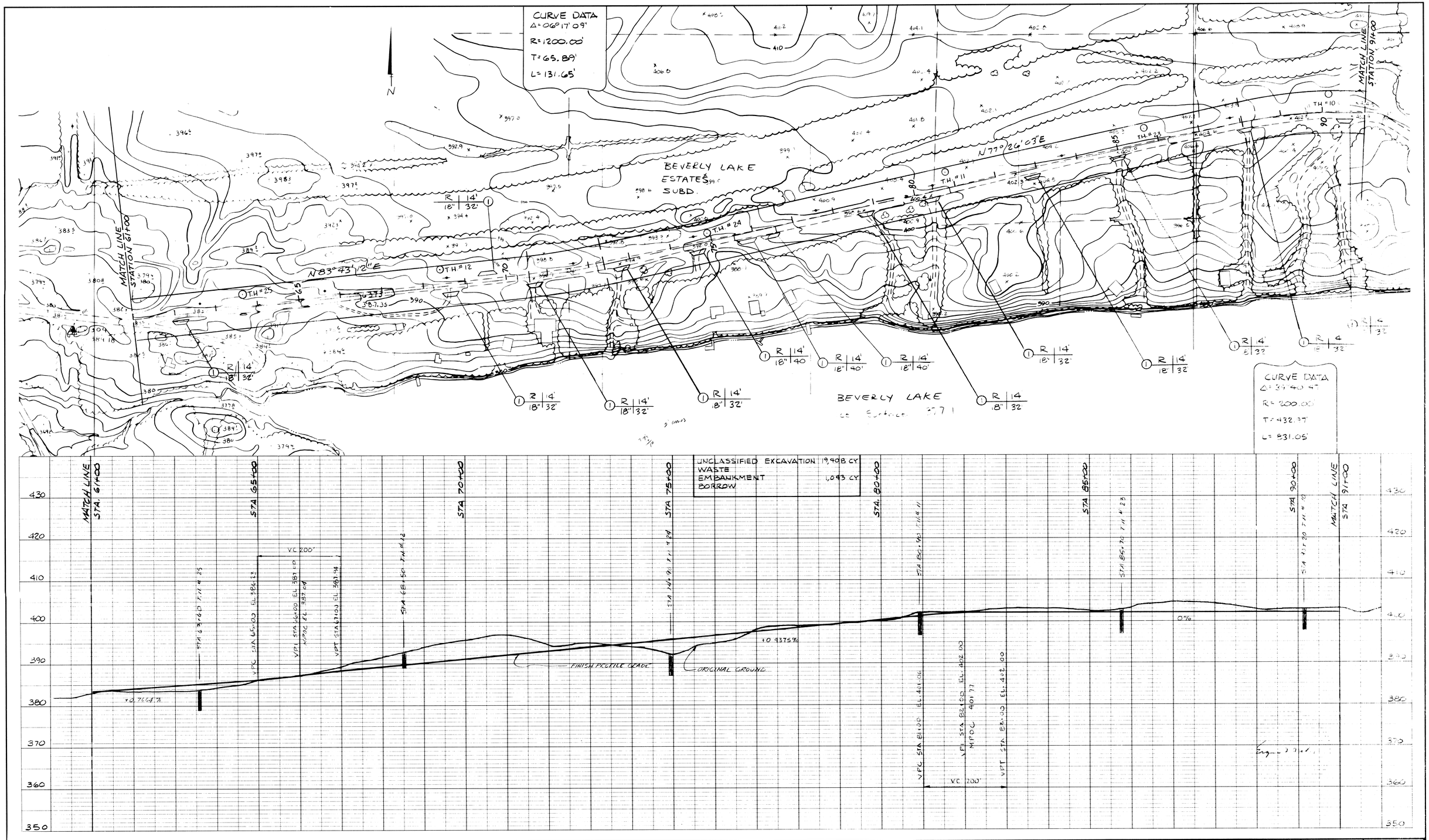


DATE	REVISION	BY

PITTMAN - WASILLA FISHHOOK CONNECTOR ROAD

DECAMP-BROWN & ASSOC.
SURVEYING CONSULTANTS
P.O. BOX 1120, Wasilla, Alaska 99687 ph: 376-3206

DRAWN BY GMC	DATE 11-16-82	MATANUSKA - SUSITNA BOROUGH	W.O. 82-094	SHEET 6 OF 16
CHECKED BY EFF	SCALE HORIZ: 1"=100' VERT: 1"=10'	PROJECT NO. R035	F.B.	



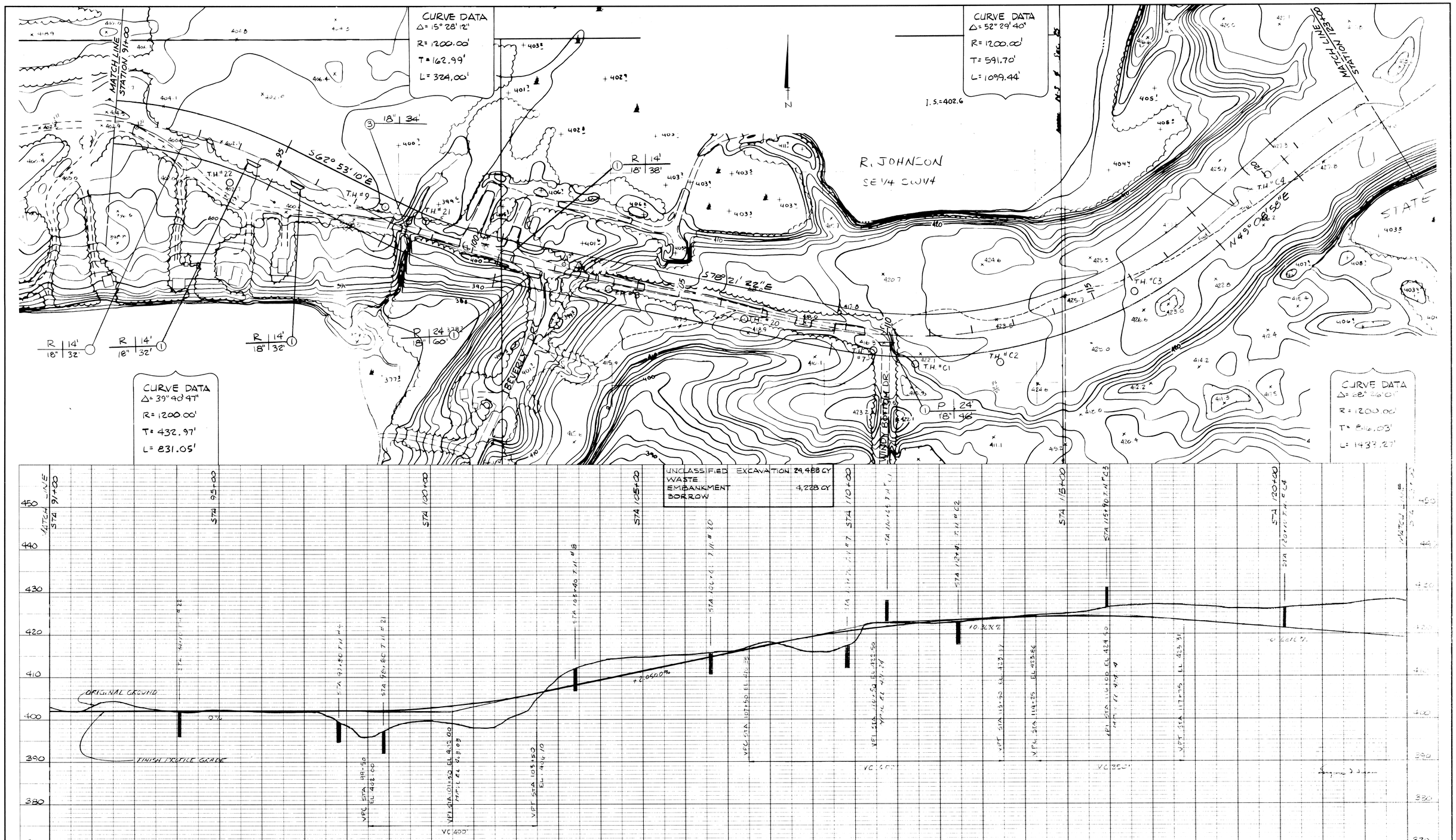
DATE	REVISION	BY

PITTMAN-WASILLA FISHHOOK CONNECTOR ROAD

DECAMP-BROWN & ASSOC.
SURVEYING CONSULTANTS
P.O. BOX 1120, Wasilla, Alaska 99687 ph: 376-3206

DRAWN BY GMC	DATE 11-16-82	MATANUSKA - SUSITNA BOROUGH	W.O. 82-034
CHECKED BY EFF	SCALE HORIZ: 1"=50' VERT: 1"=10'	PROJECT NO.	F.B.

SHEET 7 OF 16



DATE	REVISION	BY

PITTMAN-WASILLA FISHHOOK CONNECTOR ROAD

DECAMP-BROWN & ASSOC.
SURVEYING CONSULTANTS
P.O. BOX 1120, Wasilla, Alaska 99687 ph: 376-3206

DRAWN BY GMC	DATE 11-16-82	MATANUSKA - SUSITNA BOROUGH	W.O. 82-094	SHEET 8 OF 16
CHECKED BY EFF	SCALE HORIZ: 1"=100' VERT: 1"=10'	PROJECT NO.	F.B.	

Preliminary Engineering Report
Seldon Road Extension – Phase II
Project No. 35411
Wasilla, Alaska
November 2014

Appendix B– ALTERNATIVE ALIGNMENT EVALUATION

Stantec

Seldon Road Extension: Phase II
Alternative Alignment Comparison

Alignment Evalaution Criteria	"Zehnder Road Alignment"	"Fishback Circle Alignment"	"Starr Road Alignment"	"Norm's Road Alignment"
Construction Cost				
Right-of-Way	$ 1,636,000	$ 2,230,000	$ 1,842,000	$ 1,838,000
Wetland Mitigation	$ 157,500	$ 162,500	$ 240,000	$ 152,500
Intersection Upgrades	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Utilities	$ 300,000	$ 200,000	$ 500,000	$ 200,000
Construction Cost	$ 7,100,000	$ 7,100,000	$ 7,500,000	$ 6,750,000
Estimated Total	**$ 9,243,500**	**$ 9,742,500**	**$ 10,132,000**	**$ 8,990,500**
Transportation Outcomes				
Linear feet of new roadway	2.0 miles	2.0 miles	2.0 miles	2.0 miles
Straightness for speed, efficiency, and safety	3 curves	4 curves	1 curve	3 curves
Number of driveways directly off the roadway	8 driveways	4 driveways	1 driveways	5 driveways
Pittmans Intersection safety: distance from school	893 feet	1,133 feet	2,755 feet	1,767 feet
Pittman intersection safety: sight distance	200 feet from curve	On curve	125 feet from curve	553 feet from curve
Community Impacts	14 - Parcels	13 - Parcels	14 - Parcels	13 - Parcels **
Private property impacted	13.7 acres	18.6 acres	15.4 acres	15.3 acres
Existing dwellings closer than 100' to right-of-way	5 properties	4 properties	2 properties	5 properties
Wetland acres impacted	6.3 acres	6.5 acres	9.6 acres	6.1 acres
Stream crossings	2 streams	2 streams	3 streams	2 streams

** Structure relocation required

Preliminary Engineering Report
Seldon Road Extension – Phase II
Project No. 35411
Wasilla, Alaska
November 2014

Appendix C – ALTERNATIVE ALIGNMENT WEIGHTED SCORES

Seldon Road Extension: Phase II
Alternative Alignment Weighted Scores

Alignment Evaluation Criteria	Weighted Percentage	Raw Score Alignment Ranking (See scoring legend below)				Weighted Score Alignment Ranking (Low score favorable)			
		Zehnder Road	Fishback Circle	Starr Road	Norm's Road	Zehnder Road	Fishback Circle	Starr Road	Norm's Road
Construction Cost - Overall	25%	2	2	4	1	0.50	0.50	1.00	0.25
Private Property Impacts	20%	1	2	2	3	0.20	0.40	0.40	0.60
Wetland Impacts	10%	1	2	4	3	0.10	0.20	0.40	0.30
Roadway Geometry	15%	3	3	1	2	0.45	0.45	0.15	0.30
Direct Residential Driveways	15%	4	2	1	2	0.60	0.30	0.15	0.30
Existing Dwelling (100' buffer)	10%	3	2	1	3	0.30	0.20	0.10	0.30
Pittman Intersection: Sight Distance	5%	3	1	4	1	0.15	0.05	0.20	0.05
		17	***14***	***17***	***15***	***2.30***	***2.10***	***2.40***	***2.10***
		Raw Score Totals				***Weighted Score Totals***			

Alignment Scoring Legend
1- Strongest Compliance with Criteria
2- Moderate Compliance with Criteria
3 -Low Compliance with Criteria
4 -Minimum Compliance/No Compliance with Criteria

Preliminary Engineering Report
Seldon Road Extension – Phase II
Project No. 35411
Wasilla, Alaska
November 2014

Appendix D– DRAFT MSB FIVE ARTERIALS (EXCERPT)

Stantec

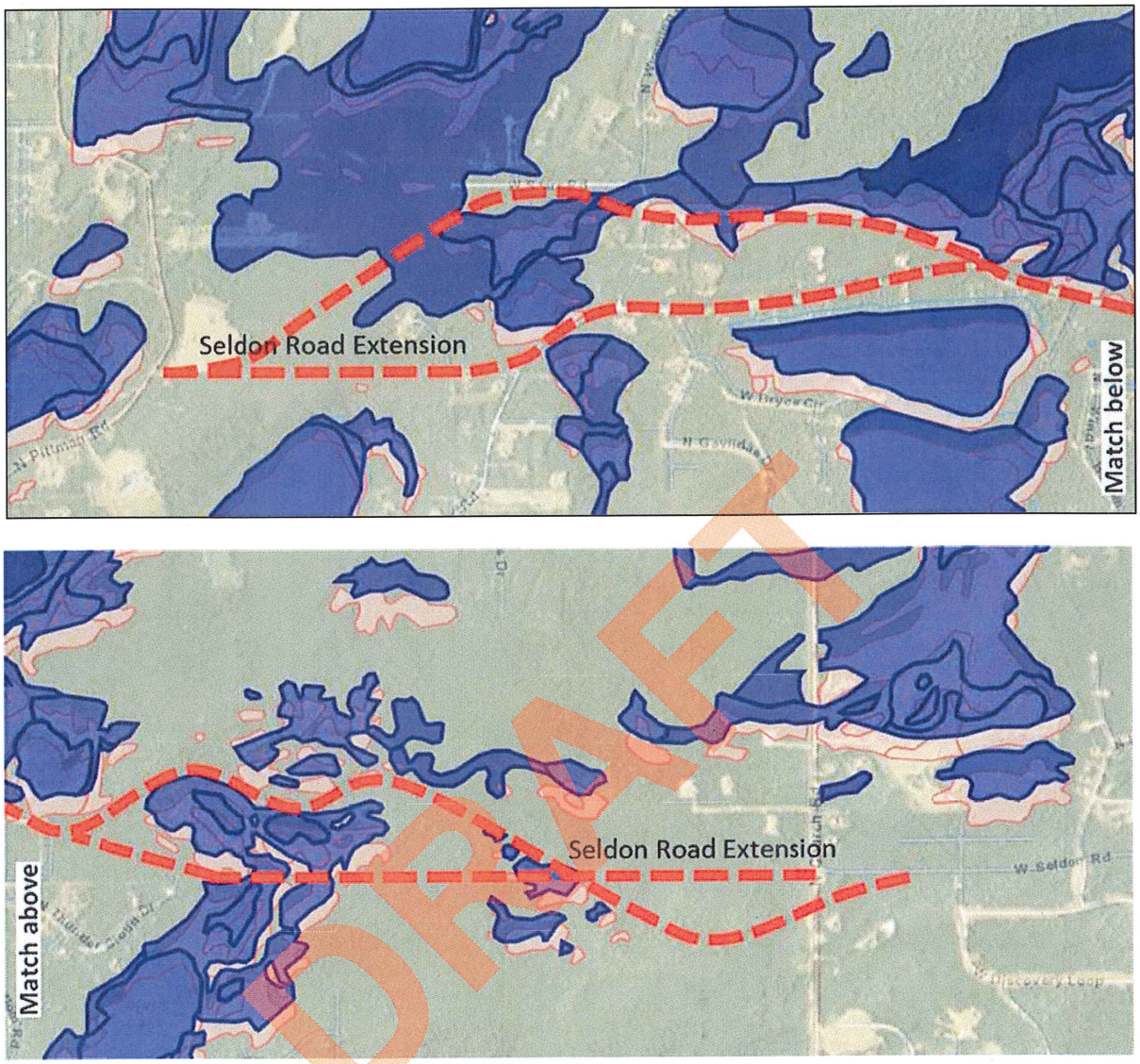


Figure 3–11. MSB Wetlands Mapping, Seldon Road Extension

DRAFT