

MEMORANDUM

State of Alaska
Department of Transportation & Public Facilities
Northern Region Design & Engineering Services

TO: Sarah E. Schacher, P.E.
Preconstruction Engineer
Northern Region

DATE: May 20, 2021

FILE NO: H:\Projects\Communities\Nome\62123_Nome_Port_Rd_Recon\05_Design\
2_PS&E\2_DSR\2021_05_13_DSR_Revisions_Memo.docx

THRU: Albert M.L. Beck, P.E. ^{AB}
Project Delivery Lead
Northern Region

TELEPHONE NO: 907-451-2276

SUBJECT Port Road Reconstruction
Z621230000/0002278
: Design Study Report Revisions

FROM: Joseph P. Kemp, P.E. 
Engineering Manager
Northern Region

Submitted for your approval are the following revisions to the subject Design Study Report:

Add the attached Design Exception/Design Waiver Form for the Nome Port Road Reconstruction project to Appendix E.

Approved:  5/21/2021
Sarah E. Schacher, P.E. Date
Preconstruction Engineer

Attachments: as noted

cmd

Copy to: Preconstruction/Project File
Calvin Schaeffer, M&O District Superintendent

Original: Barbara L. Tanner, P.E., Chief of Contracts

cc: NR Design Directive 20-01 Distribution

**ALASKA DOT&PF PRECONSTRUCTION
DESIGN EXCEPTION/DESIGN WAIVER FORM**

Type of Request: (select one or both)

- Design Exception (FHWA controlling design criteria only)
 Design Waiver (all other design criteria)

PROJECT INFORMATION:

Project Name: Nome Port Road Reconstruction

Project Number: Z621230000 / 0002278

NHS Non NHS

Functional Classification:	Major Collector
Design Year:	2045
Present ADT:	1100
Design Year ADT:	1400
Mid Design Period ADT:	1280
DHV:	170
Directional Split:	40/60
Percent Trucks:	6.5%
Equivalent Axle Loading:	250,479
Pavement Design Year:	
Design Vehicle:	WB-67
Terrain:	Rolling
Number of Roadways:	2
*Design Speed:	35 mph
Posted Speed:	25 mph
Operational Speed:	25 mph

** If requesting a design exception for design speed, use the recommended not reduced design speed here. Further, any design which uses a design speed below the posted or regulatory speed limit should not be approved (Source: FHWA Supplement, Section 8.,b. Application of Design Standards, Uniform Federal Accessibility Standards, and Bridges located here: <http://www.fhwa.dot.gov/design/0625sup.cfm>). FHWA also recommends evaluating specific geometric element(s) and treating those as design exceptions instead of design speed.*

PROJECT INFORMATION:

It is required that a location map, as a minimum, be provided with your package. It is highly recommended that other exhibits be provided to support your request. Exhibits may include typical sections, geometric details, correspondence from other sections, agency correspondence, etc.

1. **Design Exception requested for the following design criteria. Mark the criteria to be discussed:**

- Design Speed
- Lane Width
- Shoulder Width
- Cross Slope
- Superelevation Rate
- Horizontal Alignment (minimum radius of curvature)
- Vertical Alignment (minimum sag and/or crest K values)
- Grade (minimum and/or maximum allowable grades)
- Stopping Sight Distance
- Lateral Offset to Obstruction
- Vertical Clearance
- Bridge Width
- Bridge Structural Capacity

These 13 design criteria are commonly referred to as the *FHWA 13 controlling criteria*. For NHS routes only, these criteria must meet the minimums established in the Green Book (*AASHTO A Policy on Geometric Design of Highways and Streets*). For all other routes, these criteria must meet the minimums established in the *Alaska Highway Preconstruction Manual*. Otherwise a Design Exception must be approved.

Design Waiver requested for the following design criteria.

- Other

Explain:

Design Waivers are required for any design criteria, other than the *FHWA 13 controlling criteria*, which do not meet the minimums established in the *Alaska Highway Preconstruction Manual*.

2. **Provide a synopsis of the project scope (including purpose and need), the situation you are encountering, and the problem you are attempting to mitigate.**

This project will rehabilitate Port Road, including reconfiguring the intersections with Jetty Road (south end), Jafet Road, and Submarine Beach Road (north end). Improvements will include repaving of Port Road, modifying the three intersections for better traffic movement and to reduce confusion between conflicting users.

The Port of Nome is an important component of the economy of Nome. The active port is a hub of activity receiving goods to be transported throughout Nome and the adjacent road system. The Port Road is the primary artery connecting this activity to the rest of Nome via the crossing of the Snake River at Jafet Road. The road itself is paved with two short gravel sections. The increased utilization of the port by cruise ships has brought attention to the need for pedestrian facilities along Port Road to allow crew and tourists disembarking from the ships better access to downtown Nome. The intersection with Jetty Road has raised concerns about improper yielding from large trucks and machinery as well as from people coming from West Beach.

The intersection with Jafet road has raised concerns about improper yielding by large trucks. The current intersection is stop controlled on Jafet Road. This forces traffic coming from Nome to stop before continuing onto Port Road, slowing commercial hauling operations. Most large vehicles treat the intersection as a yield, posing safety concerns.

3. Provide a concise written description of the proposed Design Exception(s)/Design Waiver(s). It is required to be specific in stating which design standard(s) is being requested to be excepted or waived and the location (either the entire project length or a station range). State the standard and proposed values of the design criteria exception/waiver citing AASHTO, Department, or other standards. Include the date of the design standard references cited. Whenever possible, reference AASHTO guidelines to support your design decisions.

The project proposes to shift the stop control from the existing east leg (Jafet Road) to the north leg (now North Port) and construct a curve for the through movement occurring from Jafet Road to the south leg of Port Road. We adjusted the alignment of Jafet Road to the north to maximize the horizontal curve radius, but due to ROW constraints the maximum horizontal curve radius at the Port Rd/Jafet Rd intersection will only support a reduced speed of 20 miles per hour. The change would allow for slower unrestricted movement for traffic and freight and give priority movement to the heaviest traffic users.

Proposed Design Exceptions/Design Waivers Summary			
Criteria	Standard	Proposed	Location (entire project or station range)
Minimum Radius of Curvature (AK DOT Preconstruction Manual Figure 1120-1)	380 ft for 35 mph (design Speed) 185 for 25 mph (posted speed)	130 ft (Meets 20 mph curve) (115 ft is the minimum radius for 20 mph curve)	Station 31+47 to 33+06

4. Discuss the terrain in the area of the project and the proposed Design Exception(s)/Design Waiver(s).

The project is located on rolling terrain. The area of the design exception is flat with a profile grade of 0.6%

5. Discuss the traffic characteristics in the area of the project and the proposed Design Exception(s)/Design Waiver(s).

Port Road has a large proportion of freight and truck traffic. Heavy traffic includes trucks hauling gravel and rock to and from the scales located near the Jetty intersection. Freight is delivered to the barge mooring at the south end of Port Road.

Traffic data is only recorded at the Snake river bridge, but onsite observations and conversations with Port users confirm that higher traffic volumes occur on Jafet and the south section of Port Road.

6. Discuss the crash history of the project and the proposed Design Exception(s)/Design Waiver(s). State if any anomalies are present within the project limits.

There is no history of reported crashes at this intersection.

7. Discuss the degree to which a standard is being reduced, whether the exception/waiver will affect other standards, and are there any additional features being introduced, e.g., signing or delineation that would mitigate the deviation and the proposed Design Exception(s)/Design Waiver(s). Also, discuss if multiple Design Exceptions/Waivers are being requested in the same segment and if they will influence each other.

The proposed design exception would reduce the design from a 35-mph curve with a radius of 380 feet to a 20-mph curve with a radius of 130 feet. The road speed limit is signed at 25 mph, the design exception is 5 mph below the signed speed. The exception will not affect other standards. A curve warning sign will be placed at both ends of the curve to alert users of the reduced radius. Multiple design exceptions / waivers are not being requested for this segment.

8. Explain why the proposed Design Exception(s)/Design Waiver(s) is needed. (Provide supporting information as to why the minimum design criteria cannot be met. Substantiate reasons with facts, historical data, cost estimates, etc.)

While the proposed curve is below the design speed of the roadway it will improve the safety and functionality of the intersection by providing free flow of traffic from Jafet road onto Port Road and on to the causeway and barge landing. To build a curve that meets the design criteria at this location would require acquisition of ROW with known contaminated soil conditions. The road alignments was designed to maximize the curve radius while staying within the ROW that was acquired 5 years ago for the Snake River Bridge Project.

9. Discuss the cost of the project and the proposed Design Exception(s)/Design Waiver(s). Provide information that reflects the cost with and without the Design Exception(s)/Design Waiver(s). Attach detailed cost estimates.

The project cost will increase if this curve is constructed to meet design criteria of 380' radius. A curve meeting the design criteria would require the acquisition of 0.2 acres (see attached figure for 110' by 120' and 13' by 64 feet triangles) from a lot owned by the City of Nome that has been, and is currently, used as a storage yard for electrical transformers, poles and other components. The road embankment would bury two existing monitoring wells located on the site.

The lot is also an active contaminated site tracked by DEC. The property has been identified as having soil and groundwater contamination from an unknown petroleum source. The parcel on the west side of Port Road has DRO, TAqH 1, 12-trichloroethane, benzene, naphthalene and vinyl chloride contamination identified in exceedance of DEC cleanup levels. Since the lot is on the east side and nearer to the port,

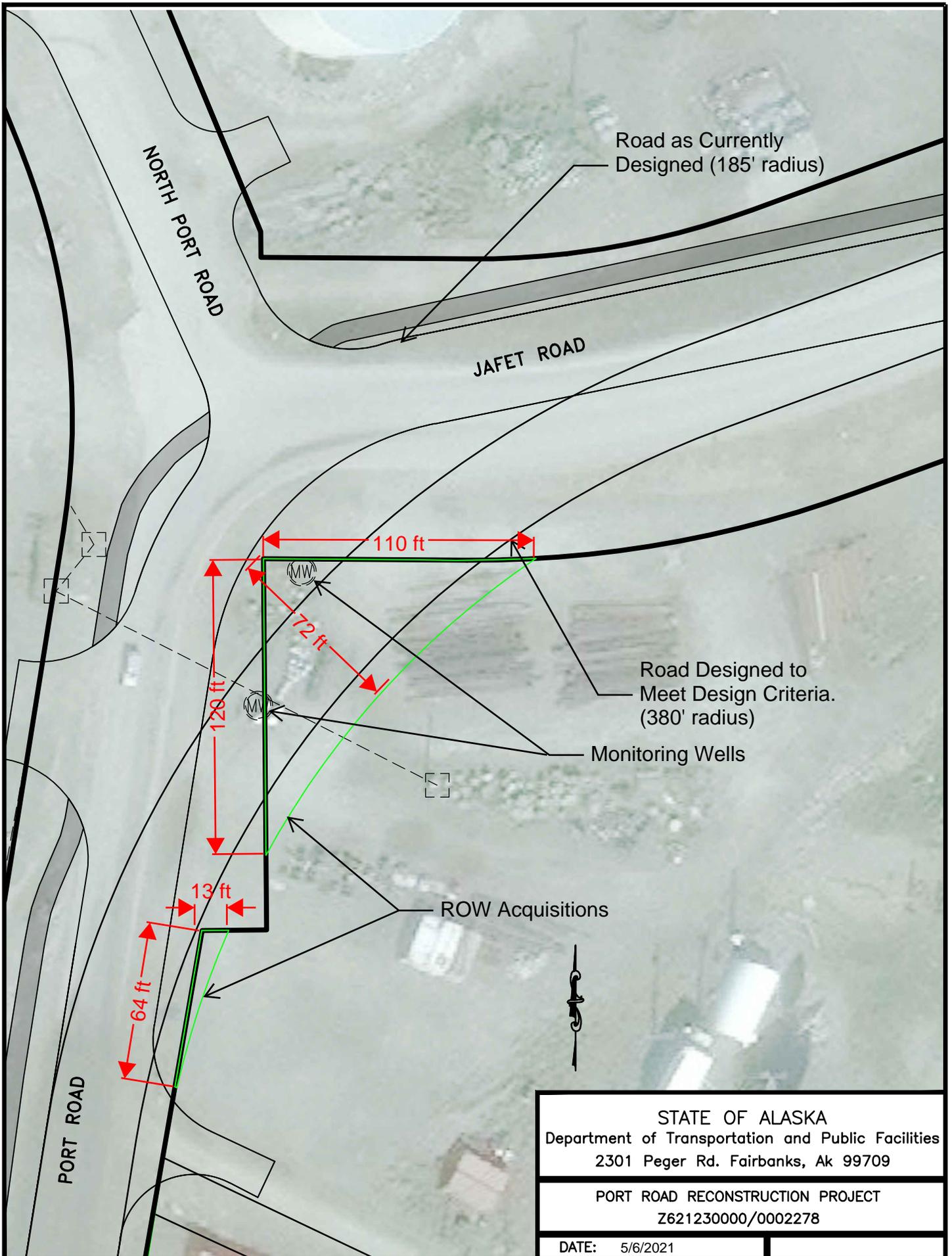
and thus likely downgradient, the contamination from the western lot is likely contributing to the contamination under the potential ROW acquisition.

The Department would become a Responsible Party for the contaminated site and would also pay the cost of installation, monitoring and maintenance of two new monitoring wells to get them out of the roadway/fore slope and assume the risk if additional contaminants are identified on the parcel.

Proposed Designer/Consultant: AM Date: 5-7-2021
Endorsed Engineering Manager: [Signature] Date: 5/13/2021
Approved Preconstruction Engineer: [Signature] Date: 5/11/2021

Concur – FHWA: _____ Date: _____

FHWA concurrence required for high profile projects only.



STATE OF ALASKA
 Department of Transportation and Public Facilities
 2301 Peger Rd. Fairbanks, Ak 99709

PORT ROAD RECONSTRUCTION PROJECT
 Z621230000/0002278

DATE: 5/6/2021