

Appendix A

Project Description

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Anchorage Port Modernization Program
Program Management Office

NES-Step 1 Project Description

Project Purpose and Need

The North Extension Stabilization (NES) Step 1 is part of the first phase of a suite of construction projects proposed as part of the Anchorage Port Modernization Program (APMP), which is intended to address the deteriorating conditions of the Port's marine facilities to enable safe, reliable, and cost-effective Port operations. The North Extension was created under the Port Intermodal Expansion Project (PIEP), the predecessor effort to the APMP (Department of the Army permit POA-2003-502-2). At this time, part of the North Extension area is unstable and presents safety hazards and logistical impediments to ongoing port operations.

The Port has identified NES as a priority for the APMP, due to the impact of the existing structure's geometry upon the USACE Anchorage Harbor project, mariners' concerns regarding impacts to safe ship-berthing operations, and engineering concerns regarding structural and geotechnical stability of the system. Accordingly, a significant portion of the NES work has been designated for inclusion in Phase 1 APMP efforts, specifically those portions of the existing works that are closest to Terminal 3. The purpose of NES-Step 1 is to improve the navigational conditions for Terminal 3 and to create a safe and stable area that will support Port operations while also maximizing the area available for future use on the North Extension.

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The NES will result in a reconfiguration and realignment of the shoreline within the North Extension (area north of the existing general cargo Terminal 3). The NES will be completed in two distinct steps, NES-Step 1 and NES-Step 2, separated by multiple years.

Construction of NES-Step 1 will include completion of the following tasks:

- Installation of a new cellular sheet pile bulkhead located inland of the existing unstable sheet pile wall and generally aligned parallel to its face;
- Removal of approximately 1.3 million cubic yards of material down to -39 feet mean lower low water;
- Offshore disposal of approximately 1.2 million cubic yards of removed material; and
- Work within Knik Arm to remove the existing unstable PIEP wall.

Due to the unique construction and design considerations presented by NES-Step 1, work on the project will be conducted through a progressive design-build process, wherein a single contractor will be responsible for the final design and construction, including means and methods of removal of the existing unstable sheet pile wall. This project description presents the tasks that will be accomplished through construction of NES-Step 1. Should the contractor decide to deviate from the construction elements presented here, they will be responsible for acquiring any necessary permit modifications, additional permits, and/or regulatory authorizations.

The location of the new bulkhead will align approximately with the shoreline that existed after the first stage of the PIEP. Alignment of the NES (NES-Step 1 and NES-Step 2) can be seen in Appendix B, which provides preliminary design drawings of NES-Step 1. In this project, the Port is attempting to maximize the retention of salvageable lands that were created under the PIEP while supporting the improvement of hydrodynamic conditions of the USACE Anchorage Harbor project. This alignment and beneficial result is being confirmed through hydrological and sedimentation modeling performed by USACE's Engineer Research and Development Center (ERDC). ERDC is scheduled to complete their modeling analysis and provide confirmation of the proposed design in mid-December 2016.

NES-Step 1 will remove approximately half of the PIEP structure extending approximately 900 feet north from the southernmost extent of the North Extension and stabilize this portion of the North Extension. The construction of NES-Step 1 is anticipated to be performed in two stages, as described below. It should be noted, however, that the design-build contractor will be responsible for determining the actual sequence as well as means and methods of the work.

- Stage 1 – The first stage of construction will include installation of the new cellular sheet pile bulkhead. It will likely be necessary to include the construction of temporary works required to protect the remaining elements of the North Extension and to tie the new bulkhead to the portions of the PIEP that remain in place pending removal of the unstable existing sheet pile wall. The structure will likely be constructed by driving cellular sheet piling "in the dry" through the North Extension. Pile installation will likely be accomplished through vibratory and/or impact driving.
- Stage 2 – The second stage of construction will involve the removal of the soils (PIEP fill material) impounded between the face of the new cellular sheet pile bulkhead and the PIEP sheet pile wall. Approximately 1,333,000 cubic yards are planned to be removed during NES Step 1.

Depending upon the tidal regime under which the work is performed, this material may be approximately 20 feet thick. The contractor may use portions of these excavated materials to support other infill/back stabilization efforts for additional APMP projects or other beneficial uses for those saline-laden materials deemed suitable for reuse outside of the Port property.

Excavated materials that are below the tide line are potentially in a quick state and will likely be removed by land- and sea-based excavation operations to form a maximum slope of 4:1 (horizontal:vertical), with the goal of minimizing spillage into Cook Inlet. Removal operations may include the use of a clam-shell excavator, dragline excavator, Sauerman excavator, and/or suction dredge, depending upon the contractor's work plan. There are three types of material estimated to be salvaged from NES-Step 1: 1,500 cubic yards of armor rock, 9,100 cubic yards of rip-rap, and 80,000 cubic yards of material meeting specifications for Type II Classified Fill. These materials will be stockpiled in two possible locations, shown on Figure 4 in Appendix B. The salvaged Type II Classified Fill will be used to bring the grade of the area landward of the new bulkhead to a final elevation of + 38 feet MLLW. It is assumed that the remaining soil will be disposed of at the Anchorage Harbor Open Water Disposal Site. This material will be tested, as necessary, to verify suitability for offshore disposal. It is anticipated that contractor-supplied work barges will be used to support the operation.

The existing PIEP sheet pile bulkhead will become unstable as impounded soil material is removed. Accordingly, it is anticipated that the contractor would work from the southernmost cell in a northward direction, using a combination of land- and sea-side mechanical excavation. Tail and face walls of the PIEP sheet pile bulkhead structure would be removed to the depth required by USACE to support

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dredging limits established for the Federal Dredging Project, estimated at - 41 feet MLLW. A work barge will likely be utilized to haul the removed sheet piles off site.

Effort will be made to remove as much material impounded by the PIEP sheet piles as practicable; however, some spill of materials into Cook Inlet is expected during removal of the PIEP sheet piles. The construction contract general conditions will specify that the contractor will minimize the release of materials into Cook Inlet and that the contractor will remove spilled materials through dredging in an expeditious manner to minimize impacts to the USACE Anchorage Harbor project.

A 10-foot-tall z-pile retaining wall approximately 450 feet long (shown in Figures 4 and 7, Appendix B) will parallel the existing edge of pavement behind Terminal 3 along the southern extent of the project to allow for the 4H:1V slope from the uplands to the dredge depth and connect the bank east of Terminal 3 to the start of the new bulkhead. A second z-pile retaining wall, approximately 150 feet long, will be required to connect the northern extent of the new bulkhead to the existing PIEP works that are to remain in place until NES-Step 2 is completed. (The second retaining wall will be removed as part of the NES-Step 2 work.)

The final NES construction project will create a new shoreline that is structurally/seismically stable and balances the preservation of uplands created in the PIEP while addressing the formation of unwanted sedimentation within the USACE Anchorage Harbor project. While it is possible that the type and design of the new cellular sheet pile bulkhead may change based on ERDC modeling results and further engineering, the alignment of the bulkhead and general project configuration is not anticipated to change.

Anticipated Construction Schedule

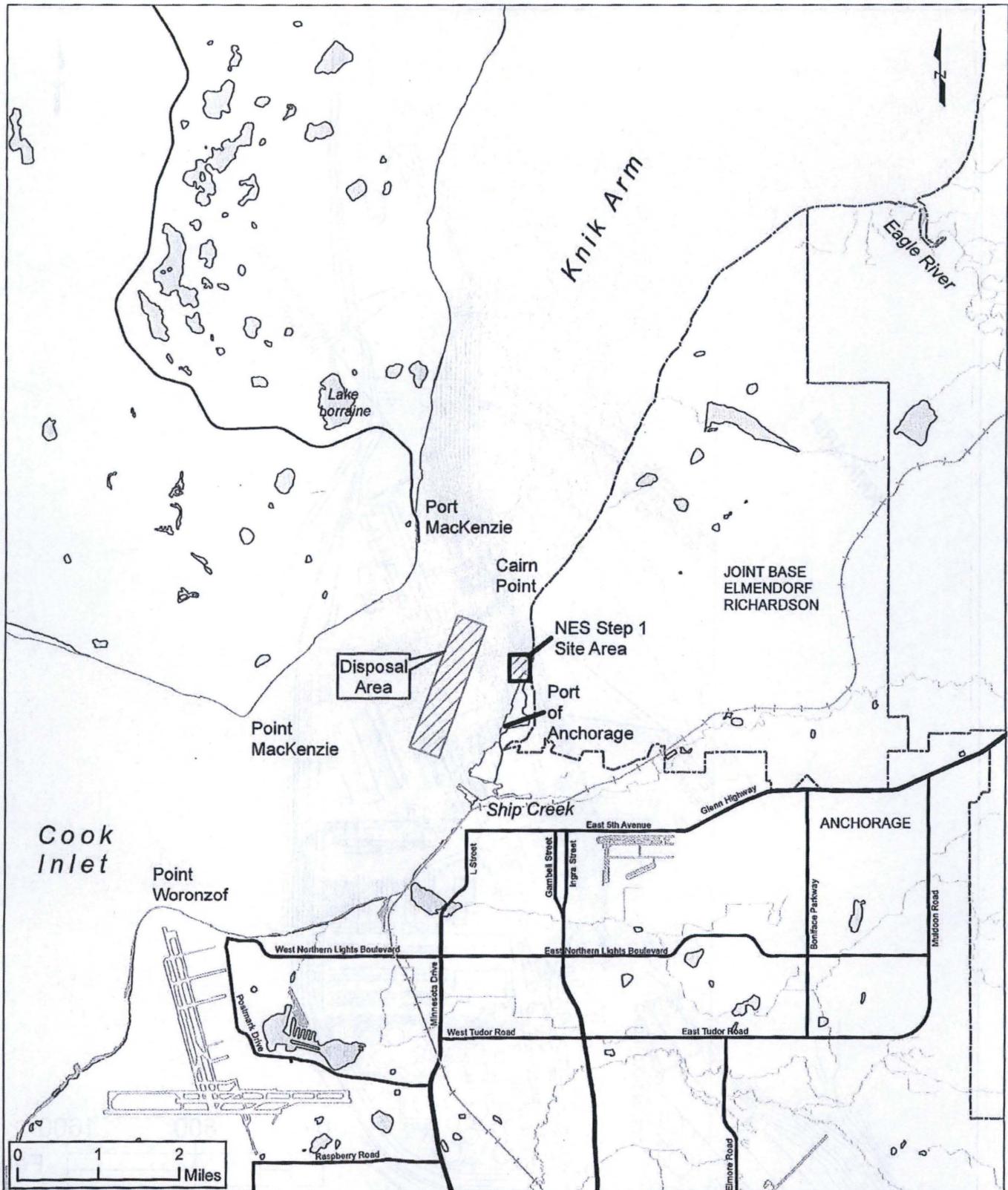
Construction is anticipated to take up to 2 years, with construction of the landside portion (Stage 1) of NES-Step 1 planned to begin in fall 2017 and marine construction (Stage 2) planned to begin in 2018. The marine construction includes removing and disposing of material between the existing wall and the new wall constructed in Stage 1 and the removal of the existing wall.

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Appendix B

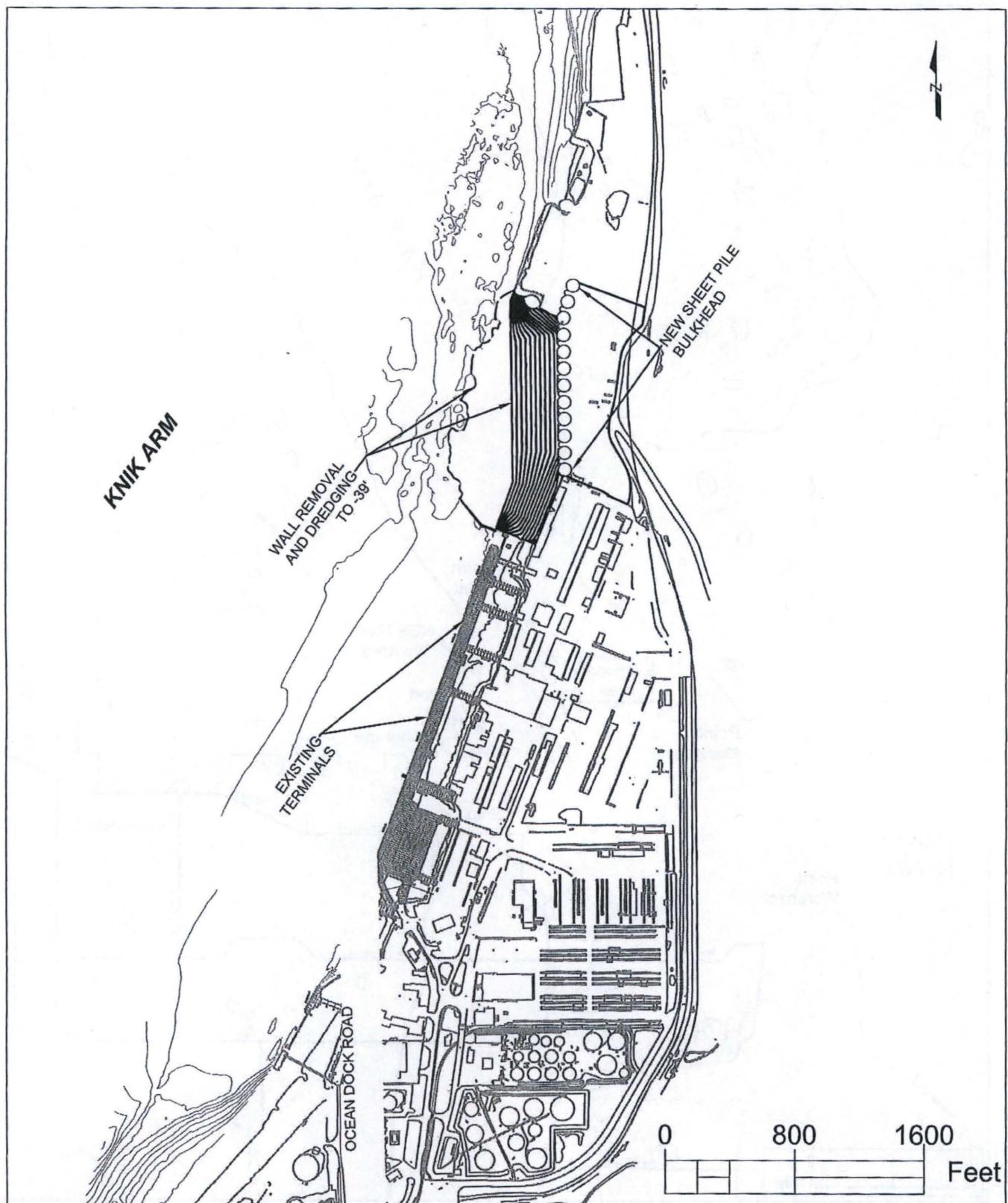
Preliminary Design Drawings

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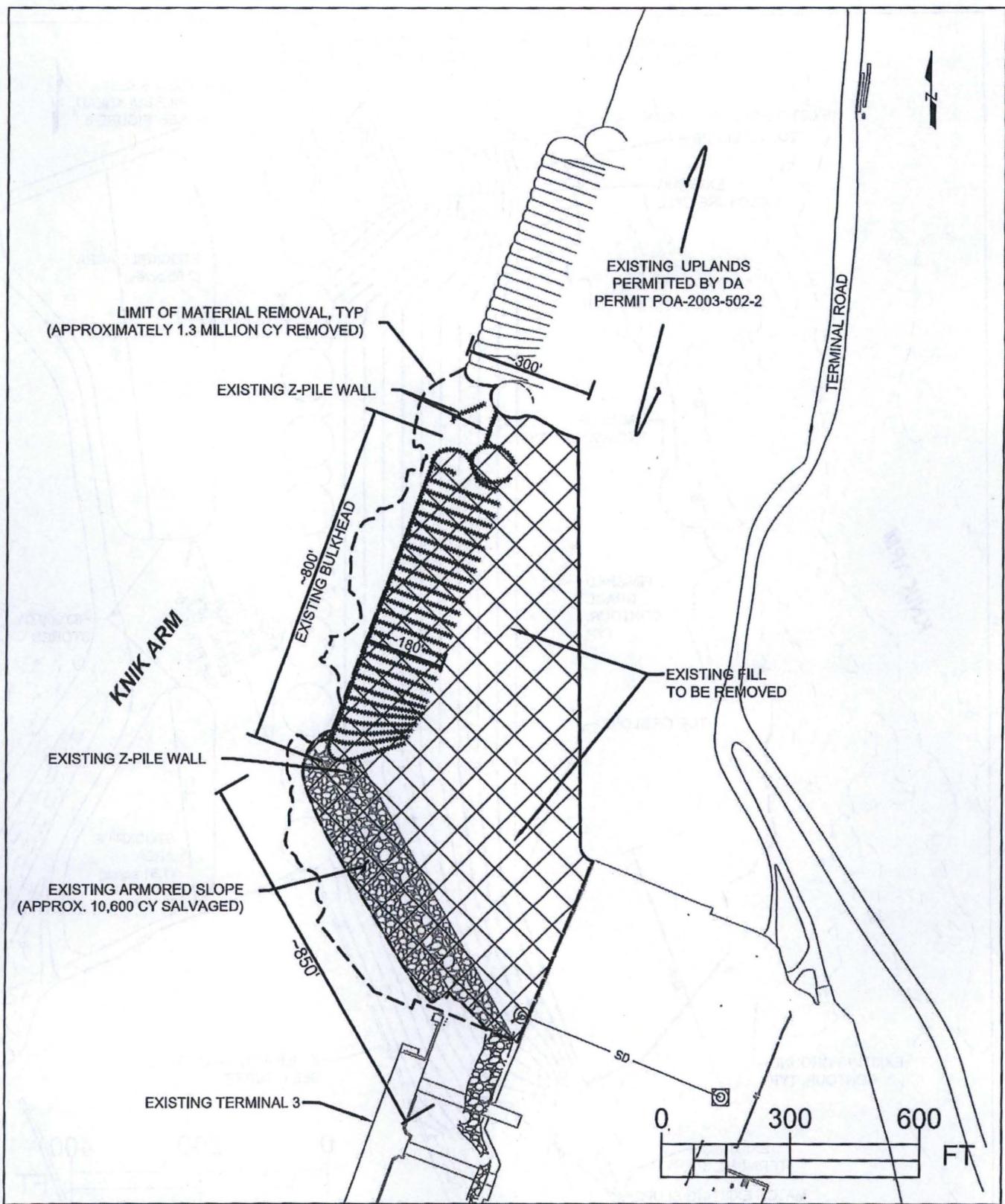
APPLICANT: Municipality of Anchorage,
Port of Anchorage
North Extension Stabilization - Step 1
FILE NO: POA-XXXX-XXX

WATERWAY: Cook Inlet, Knik Arm
LOCATION: Section 7, Township 13N,
Range 3W, Seward Meridian
DATE: Nov 2016
FIGURE 1, Vicinity Map



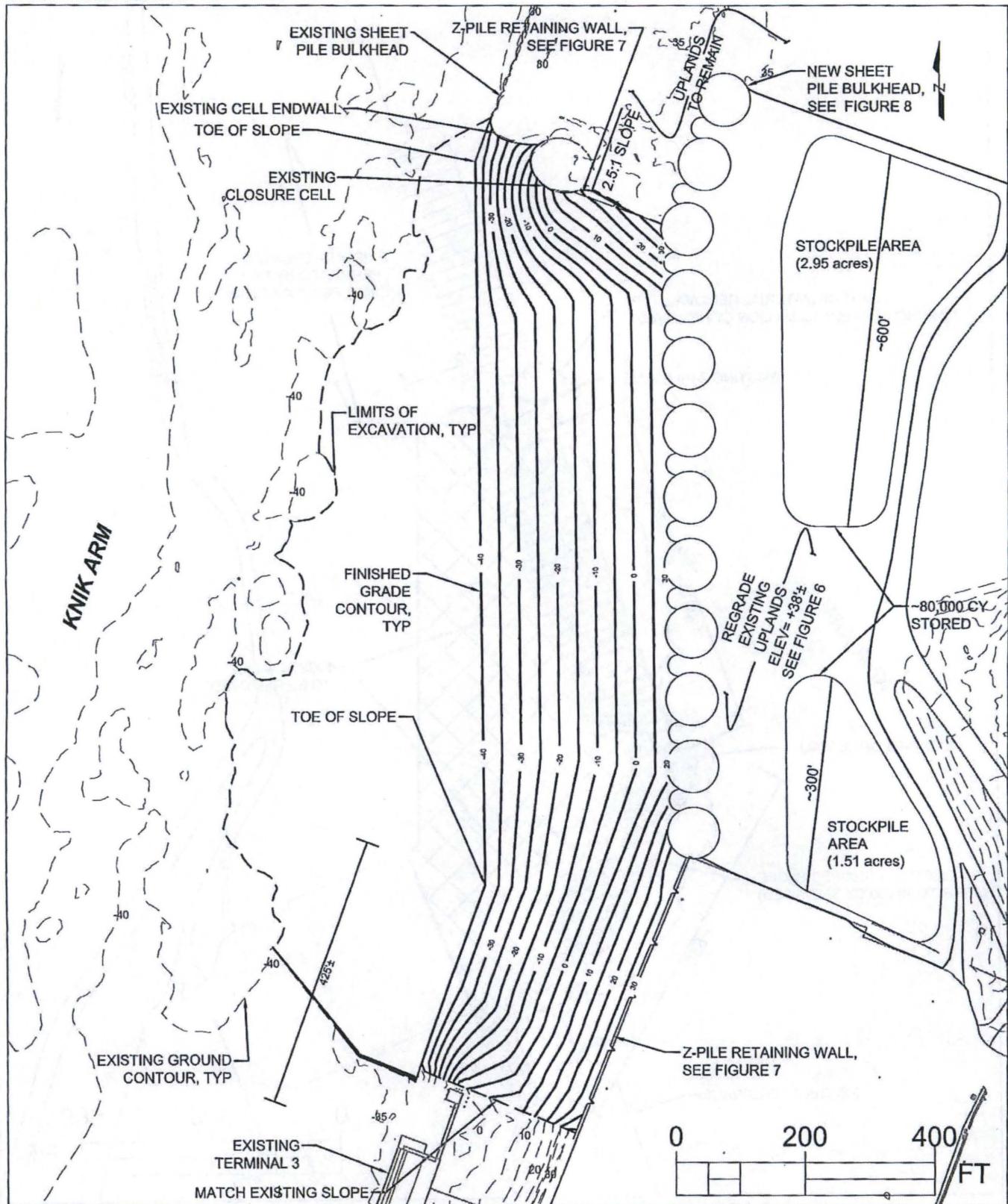
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WATERWAY: Cook Inlet, Knik Arm
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FIGURE 2, Overall Site Plan



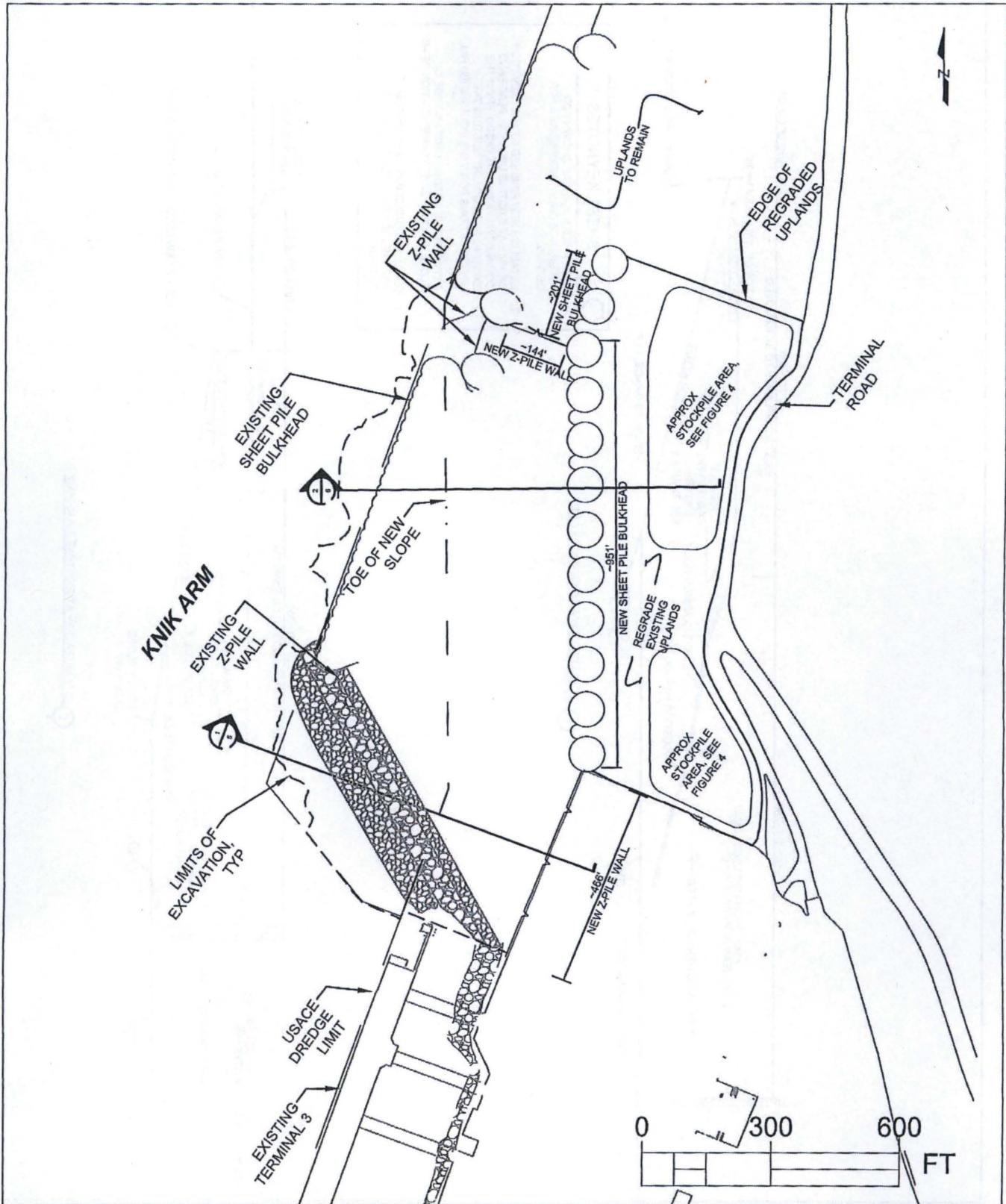
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FIGURE 3, Existing Conditions



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FIGURE 4, Grading and New
Bulkhead Plan



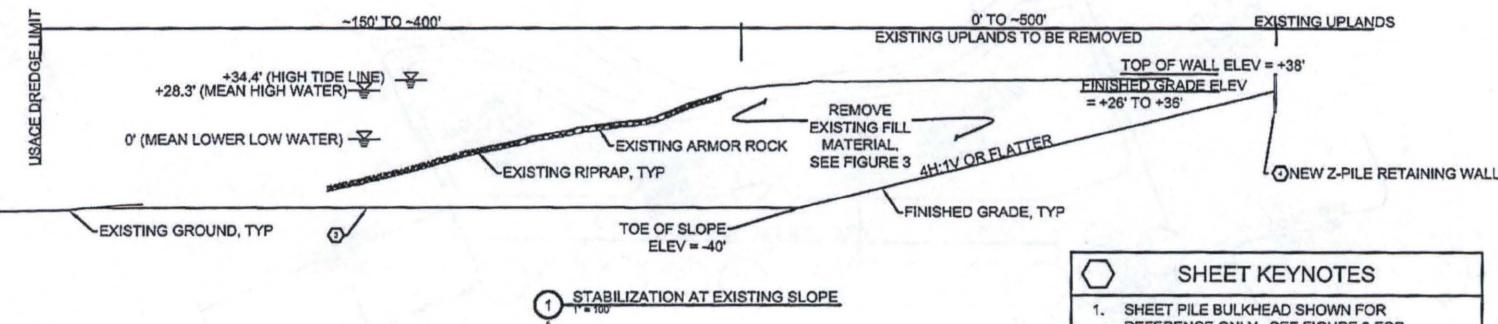
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FIGURE 5, General Site Layout

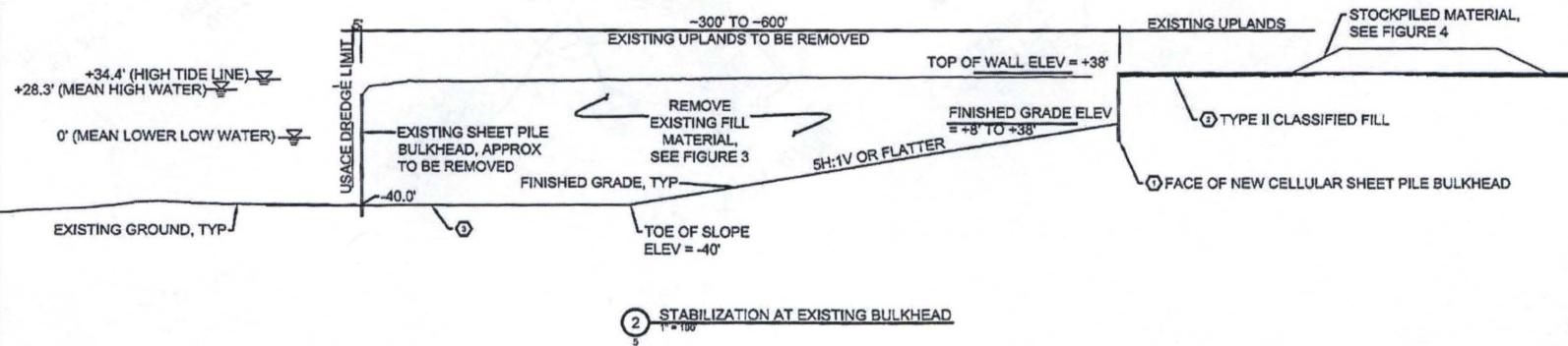


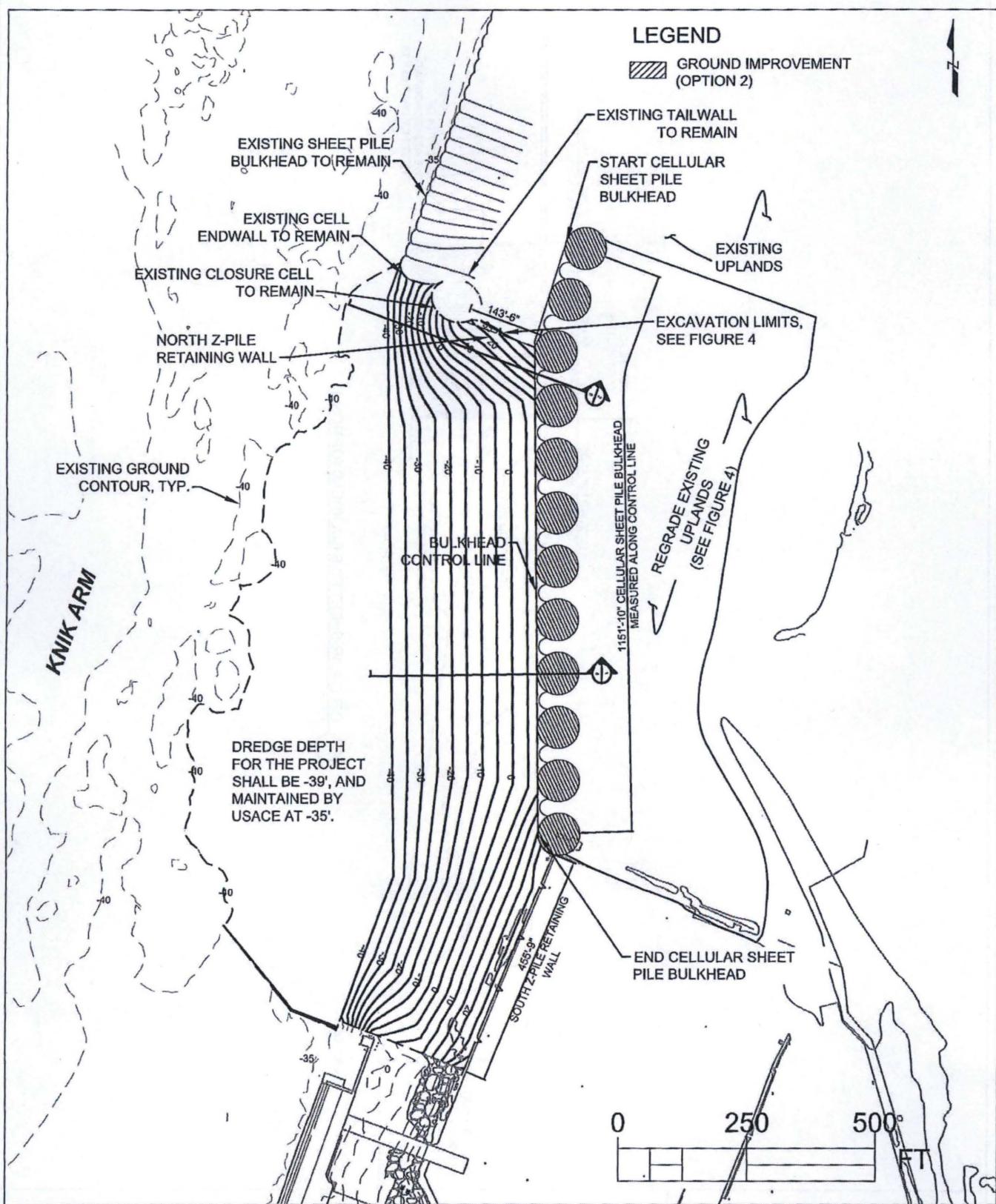
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FIGURE 6, Typical Sections



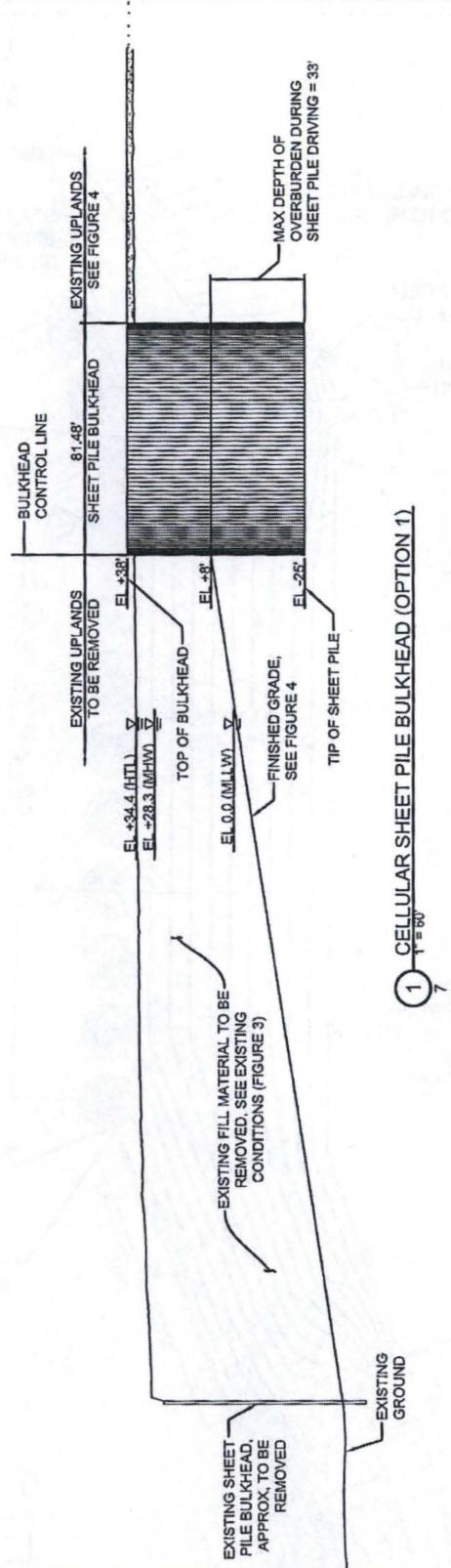
- SHEET KEYNOTES**
1. SHEET PILE BULKHEAD SHOWN FOR REFERENCE ONLY. SEE FIGURE 8 FOR DETAILS.
 2. ESTABLISH NEW FINISHED GRADE ELEVATION OF +38' AT EXISTING UPLANDS. PLACE AND COMPACT MATERIAL SALVAGED FROM THE EXISTING EMBANKMENT MEETING THE SPECIFICATIONS FOR TYPE II CLASSIFIED FILL.
 3. BETWEEN THE DREDGE LIMIT AND TOE OF SLOPE, REMOVE SOIL TO AN ELEVATION OF -40'.
 4. Z-PILE RETAINING WALL SHOWN FOR REFERENCE ONLY. SEE FIGURE 8 FOR DETAILS.





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FIGURE 7, General Structural Layout



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WATERWAY: Cook Inlet, Knik Arm
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FIGURE 8, Cellular Sheet Pile Bulkhead