

ADDENDUM No. 1 TO THE CONTRACT DOCUMENTS

Project: UMC Laydown Area

Addendum Issue Date: September 25, 2018

Issued for Bid Date: September 5, 2018

Bid Due Date: October 16, 2018, 2:00pm (AKST)

Previous Addenda Issued: None

Issued By: Seth Anderson
PND Engineers, Inc.
1506 West 36th Avenue
Anchorage, Alaska 99503

Notice to Bidders:

Bidders must acknowledge receipt of this addendum prior to the date set for bid opening by one of the following methods:

- (1) By acknowledging receipt of this addendum on the bid submitted.
- (2) By fax which includes a reference to the project and addendum number.

The bid documents require acknowledgment individually of all addenda to the drawings and/or specifications. This is a mandatory requirement and any bid received without acknowledgment of receipt of addenda may be classified as not being a responsive bid. If, by virtue of this addendum it is desired to modify a bid already submitted, such modification may be made by fax provided such a fax makes reference to this addendum and is received prior to the opening date specified above.

The contract Documents for the above project are amended as follows (all other terms and conditions remain unchanged):

ITEM 1

Contract: *UMC Laydown Area – DPW Project No. 19601*
Section: *Pre-Bid Meeting Minutes*

Meeting minutes from the pre-bid meeting held September 18, 2018 are included as an attachment to Addendum 01.

ITEM 2

Contract: *UMC Laydown Area – DPW Project No. 19601*
Section: *00030 – Invitation to Bid*

Replace the first sentence of the second paragraph with the following:

Sealed Bid Forms will be received until 2:00 p.m. (AKST) on October 16, 2018, and then will be publicly opened and read after all technical scoring is complete.

ITEM 3

Contract: *UMC Laydown Area – DPW Project No. 19601*
Section: *Part 5 - Drawings, Sheet 3 of 5*

Replace Sheet 3 of 5, previously issued in the IFB drawing set dated September 5, 2018, with the updated Sheet 3 of 5 (rev 1) included as an attachment to this addendum. Revisions made to Sheet 3 of 5 are denoted with a revision triangle and revision cloud. In addition, the existing ground contours have been updated to reflect the most recent survey conducted September 12 – 14, 2018.

ITEM 4

Contract: *UMC Laydown Area – DPW Project No. 19601*
Section: *Part 5 – Drawings, Sheet 4 of 5*

Replace Sheet 4 of 5, previously issued in the IFB drawing set dated September 5, 2018, with the updated Sheet 4 of 5 (rev 1) included as an attachment to this addendum. Revisions made to Sheet 4 of 5 are denoted with a revision triangle and revision cloud. In addition, the existing ground contours have been updated to reflect the most recent survey conducted September 12 – 14, 2018.

ITEM 5

Contract: *UMC Laydown Area – DPW Project No. 19601*
Section: *Part 7 – Project Permits*

The US Fish and Wildlife Service (USFWS) observer protocols for Northern Sea Otters, referenced in the Department of the Army Permit No. *POA-1989-324-M8, Dutch Harbor*, is included as an attachment to this addendum.

BIDDER QUESTIONS:

1. Question: Is there a DBE goal for this project and if so, what is the percentage? Is there a requirement for a “good faith effort” for DBE’s for this project and if so, please provide the criteria?

Response: *The UMC Laydown Area project for the City of Unalaska does not have a DBE goal and therefore has no good faith effort requirements.*

INFORMATION FOR BIDDERS:

Contract: *UMC Laydown Area – DPW Project No. 19601*
Type: Topographic Survey Information

A topographic and bathymetric survey of the project area was conducted September 12 – 14, 2018 and new CAD surfaces were created for the Bidder's use in generating quantity takeoffs for estimating purposes. The updated existing ground CAD surface and a CAD surface of the riprap stockpile has been exported to a Land XML file and is available for download at the link below.

Land XML File with Topographic Survey: <https://pndengineers.sharefile.com/d-s85a43a183f44a0e9>

This Land XML file is included for Bidder efficiency only and is an un-official document. It is the Bidder's responsibility to verify the accurateness of the electronic information using the Drawings and conditions observed in the field. Official topographic surface data for the UMC Laydown Area is provided in the Drawings on sheets 3 of 5 and 4 of 5. Additionally, the riprap stockpile located on the Spit at the end of Ballyhoo Road is depicted in the figure attached to this addendum.

END OF ADDENDUM



PRE-BID MEETING MINUTES

September 18, 2018, 2:00PM

Call in Number: 1-800-315-6338 Access Code: 1111351#

Location: COU Public Works Conference Room and PND Anchorage

Prepared by: PND Engineers, Inc.

1. Attendees:

Attendees at City of Unalaska Public Works Conference Room

| | | |
|------------------|-------------------------|------------------|
| Tom Cohenour | (Public Works Director) | City of Unalaska |
| Robert Lund | (City Engineer) | City of Unalaska |
| Peggy McLaughlin | (Ports Director) | City of Unalaska |

Attendees at PND Anchorage

| | | |
|---------------|---------------------------------|----------------------------------|
| Paul Kendall | (Principal, Engineer of Record) | PND Engineers, Inc. |
| Seth Anderson | (Senior Engineer) | PND Engineers, Inc. |
| Archie Stepp | | Northern Alaska Contractors, LLC |

Teleconference

| | |
|---------------|--------------------------------|
| Jim Graham | Brechan Construction, LLC |
| Mike Wheatley | Brice Civil Constructors, Inc. |

2. Review of Project (PND)

1) Summary of Work

- Construction of a 2-acre storage pad adjacent to the existing Unalaska Marine Center
- Construction Components
 - Salvaging existing armor rock
 - Placement of shot rock
 - Placement Class I and IV armor rock, including salvaged and owner provided material
 - Gravel Surfacing
 - Extension of existing storm drains
 - Construction of bollards for protection of existing utilities

2) Survey

- Updated topographic and bathymetric survey of the project site was completed in early September
- PND to provide updated surface information for contractor quantity takeoffs within one week
- Survey will be provided in both Land XML and pdf formats



3. Review of Contract Documents (PND)

1) Project Manual

a) Bidding Requirements

- Bidder's should carefully review bidding requirements for important dates, instructions, contractor qualifications, bid submittal procedures, and other pertinent information relating to bidding.

b) Contract Forms

- Bidder's should carefully review contract forms for pertinent information relating to the work, contract time requirements, price, payment procedures, and bonding forms.

c) General & Supplementary Conditions

- General Conditions and Supplemental Conditions
 - General and Supplemental Conditions for the project are City of Unalaska standard documents
- AKDOT&PF Standard Specifications for Highway Construction, 2015 Edition
 - Bidder's should review supplementary conditions that revise and supplement the 2015 AKDOT&PF Standard Specifications.
 - Contingent Sum Pay Items are included in the supplementary conditions and should be reviewed and accounted for by all Bidder's.
 - **301(6) Aggregate Base Course Price Adjustment**
 - Deducts or adds to price for aggregate base course according to degradation value of material
 - **611(5) Riprap Price Adjustment**
 - Deducts or adds to price for Contractor supplied riprap according to wear value of material
 - Price adjustment does not apply to salvaged or owner provided riprap
 - Salvaged rock, item 203(20), considered to meet Riprap, Class IV requirements
 - Owner stockpiles along Ballyhoo Rd considered to meet Riprap, Class IV requirements
 - **640(5) Early Completion Price Adjustment**
 - An incentive is provided for early completion before 7/14/2019. The incentive includes a maximum benefit of \$50,000 and is calculated on a daily basis.



- d) Minimum Rates of Pay
- Review Alaska Department of Labor Pamphlet No. 600 for current wage rates (updated 9/1/2018)
- e) Drawings
- Sheet 1 – Title Sheet
 - Sheet 2 – General Notes
 - Sheet 3 – Survey Control and Existing Conditions
 - Sheet 4 – Site Plan
 - A topographic and bathymetric survey was completed in early September and will be distributed to Bidders within one week in both LandXML and pdf formats
 - All in-water works requires deployment of a silt curtain for sediment control
 - See plan, sections, and notes for salvage riprap locations and backfill requirements
 - Two typical sections are shown for construction of the laydown area. Class IV Riprap placed to elev. 10 along entire pad sideslope. This results in riprap placed above the finished grade of the pad shoulder in some locations and below the finished grade of the pad in other locations.
 - Sheet 5 – Details
- f) Contractor Performance Assessment Report
- This document is used by the city to assess performance of its Contractors throughout construction
 - Bidder's should review the CPAR document and be aware of its scope, procedures, requirements, and Contractor responsibilities.
- g) Project Permits
- 404 Permit (USACE)
 - This permit has been obtained by the Owner for the project.
 - Construction General Permit (Alaska DEC)
 - This permit must be obtained by the successful Bidder
 - USFWS Observer Protocols
 - Northern Sea Otter observation protocols and requirements will be provided in addendum to the Bidders
- h) Photo Log
- Photos of Owner provided riprap stockpiles are included in the photo log



2) Traffic Control and Coordination with Ports

- All Bidders should be aware that the project site is located within an active port requiring coordination with Peggy McLaughlin (City of Unalaska Ports Director) regarding construction activities and traffic control.

3) Registration on Plan Holders List - lgregory@ci.unalaska.ak.us

- All Bidders should register as plan holders with Lori Gregory for important bidding notifications including addendums.

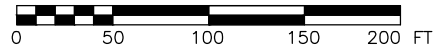
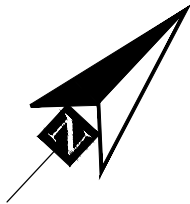
4. Important Project Dates (PND)

- a. Site Walk with Engineer/Owner: September 18, 2018 (following pre-bid meeting)
- b. Last Day for Questions: October 2, 2018
- c. Bid Due Date: October 9, 2018; 2:00pm
 - Bids will be accepted at the City of Unalaska and at the PND Anchorage office.
- d. Anticipated NOA from Council: October 23, 2018
- e. Anticipated Issuance of NTP: November 6, 2018
- f. Substantial Completion:
 - 60 calendar days after beginning construction activities
 - No later than June 30th, 2019
- g. Final Completion:
 - 14 days after substantial completion
 - No later than July 14, 2019

5. Questions from Bidders (All Attendees)

Q1: Will the city make an extension to the required completion date in the unlikely event that Unalaska experiences an extreme winter that prevents the Contractor from working and hinders their ability to finish on time?

A1: *It is in the city's interest to finish the project by the date specified in the project manual. Winter weather over the last 10 years has been very favorable towards construction and we feel it is possible to construct the laydown area by the time specified in the project manual. Please refer to the General Conditions of the contract for addressing unforeseeable circumstances that would prevent a Contractor from fulfilling contract requirements.*



SURVEY LEGEND

- ▲ SET MAG NAIL W/ PND FLASHER
- ▲ FOUND MAG NAIL/ PND FLASHER
- ⊙ ☒ STORM DRAIN CATCH BASIN
- △ ## PROJECT CONTROL POINT

△ SURVEY NOTES:

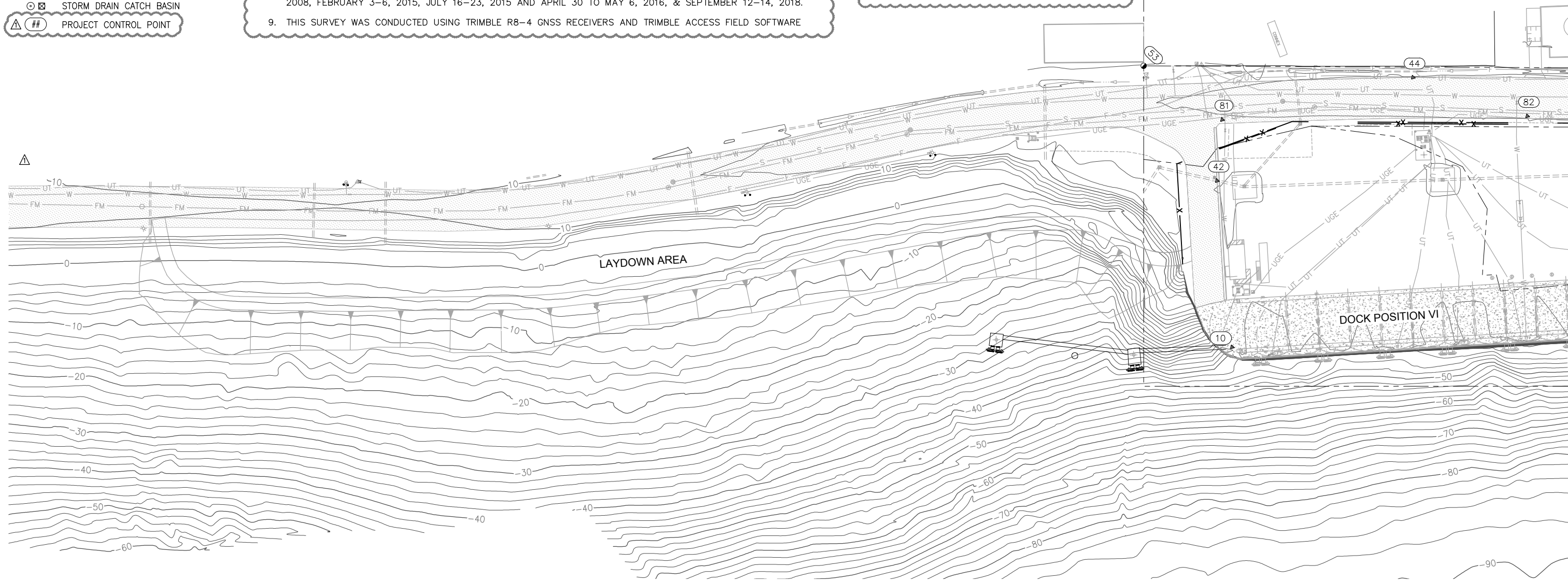
1. THE HORIZONTAL DATUM FOR THIS PROJECT IS AN ARBITRARY LOCAL PLANE COORDINATE SYSTEM
2. THE BASIS OF COORDINATES FOR THIS PROJECT IS A FOUND ALUMINUM MONUMENT BEING THE SOUTHWEST CORNER OF TRACT A, PLAT NO. 88-10, ALEUTIAN ISLANDS RECORDING DISTRICT; HAVING LOCAL COORDINATES OF N: 10000, E: 10000
3. VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW = 0.00')
4. BASIS OF VERTICAL DATUM FOR THIS SURVEY IS FROM THE N.O.A.A. BENCH MARK "No. 20 1974" ELEVATION 15.50' MLLW (SEE NOTE 1). THE BENCH MARK IS SET VERTICALLY IN THE EASTERN CORNER OF THE ALYESKA BUNK HOUSE. FOR ADDITIONAL INFORMATION REFER TO THE PUBLISHED BENCH MARK SHEET FOR 9462620 UNALASKA.
5. BASIS OF BEARING FOR THIS SURVEY IS N 47°00'00" E AND IS BASED ON THE FOUND PRIMARY MONUMENTS LOCATED ALONG THE WESTERN BOUNDARY OF TRACT A, BALLYHOO DOCK SUBDIVISION ADDITION No. 1, RECORDED IN THE ALEUTIAN ISLANDS RECORDING DISTRICT AS PLAT No. 88-10.
6. INFORMATION REGARDING THE LOCATION OF THE UNDERGROUND UTILITIES WAS PROVIDED BY ONSITE UTILITY COMPANY LOCATORS & INFORMATION SUPPLIED TO PND SURVEYORS BY THE CITY OF UNALASKA PUBLIC WORKS. REMAINING UTILITIES WERE LOCATED BASED ON VISIBLE ABOVE GROUND UTILITY STRUCTURES AND RECORD DRAWINGS.
7. CONTOURS ARE IN FEET, WITH TWO (2) FOOT INTERVALS.
8. THE INFORMATION SHOWN HEREON IS BASED ON FIELD SURVEYS CONDUCTED BY PND ENGINEERS AUGUST 18-23, 2008, FEBRUARY 3-6, 2015, JULY 16-23, 2015 AND APRIL 30 TO MAY 6, 2016, & SEPTEMBER 12-14, 2018.
9. THIS SURVEY WAS CONDUCTED USING TRIMBLE R8-4 GNSS RECEIVERS AND TRIMBLE ACCESS FIELD SOFTWARE

△ PROJECT CONTROL

| COORDINATE TABLE | | | | |
|------------------|------------|------------|-----------|---------------------------|
| POINT # | NORTHING | EASTING | ELEVATION | DESCRIPTION |
| 10 | 9650.7280 | 10447.5900 | 13.44 | FND PK [PND CP FLSHR] |
| 35 | 10000.0000 | 10000.0000 | — | FND ALMON [3.25 PROP COR] |
| 37 | 10971.7931 | 11042.1205 | — | FND ALMON [3.25 PROP COR] |
| 41 | 10099.4976 | 10673.3496 | 12.47 | SET PK [PND CP FLSHR] |
| 42 | 9762.6914 | 10322.3806 | 12.09 | SET PK [PND CP FLSHR] |
| 44 | 9972.9041 | 10395.6599 | 14.13 | SET PK [PND CP FLSHR] |
| 45 | 10256.4626 | 10706.3767 | 13.93 | SET PK [PND CP FLSHR] |
| 46 | 10699.9900 | 11202.5021 | 13.27 | SET PK [PND CP FLSHR] |
| 53 | 9796.7610 | 10189.6131 | — | FND ALCAP [2" PROP COR] |
| 71 | 10594.0370 | 11431.0250 | 13.38 | SET PK [PND CP FLSHR] |
| 72 | 10770.0340 | 11664.6430 | 13.48 | SET PK [PND CP FLSHR] |
| 73 | 10913.9660 | 11572.0720 | 11.23 | SET PK [PND CP FLSHR] |
| 77 | 10884.9630 | 11555.2750 | 13.98 | FND RBR [5/8-PC ROW] |
| 80 | 10508.9946 | 11044.0859 | 13.41 | SET PK [PND CP FLSHR] |
| 81 | 9811.1030 | 10284.3783 | 13.85 | SET PK [PND CP FLSHR] |
| 82 | 10022.9688 | 10506.1839 | 14.11 | SET PK [PND CP FLSHR] |

BASIS OF BEARING (N47°00'00"E 1424.92') 1424.81' meas.

BALLYHOO DOCK SUBDIVISION ADDITION No.1
TRACT A
PLAT No. 88-10



ADDENDUM 01
September 25, 2018

PND Engineers, Inc. is not responsible for safety programs, methods or procedures of operation, or the construction of the design shown on these drawings. Where specifications are general or not called out, the specifications shall conform to standards of industry. Drawings are for use on this project only and are not intended for reuse without written approval from PND. Drawings are also not to be used in any manner that would constitute a detriment directly or indirectly to PND.

| REV | DATE | DESCRIPTION |
|-----|---------|-------------|
| △ | 9/25/18 | ADDENDUM 1 |

DATE: _____

1506 West 36th Avenue
Anchorage, Alaska 99503
Phone: 907.561.1011
www.pndengineers.com
AK. LIC# AECC250

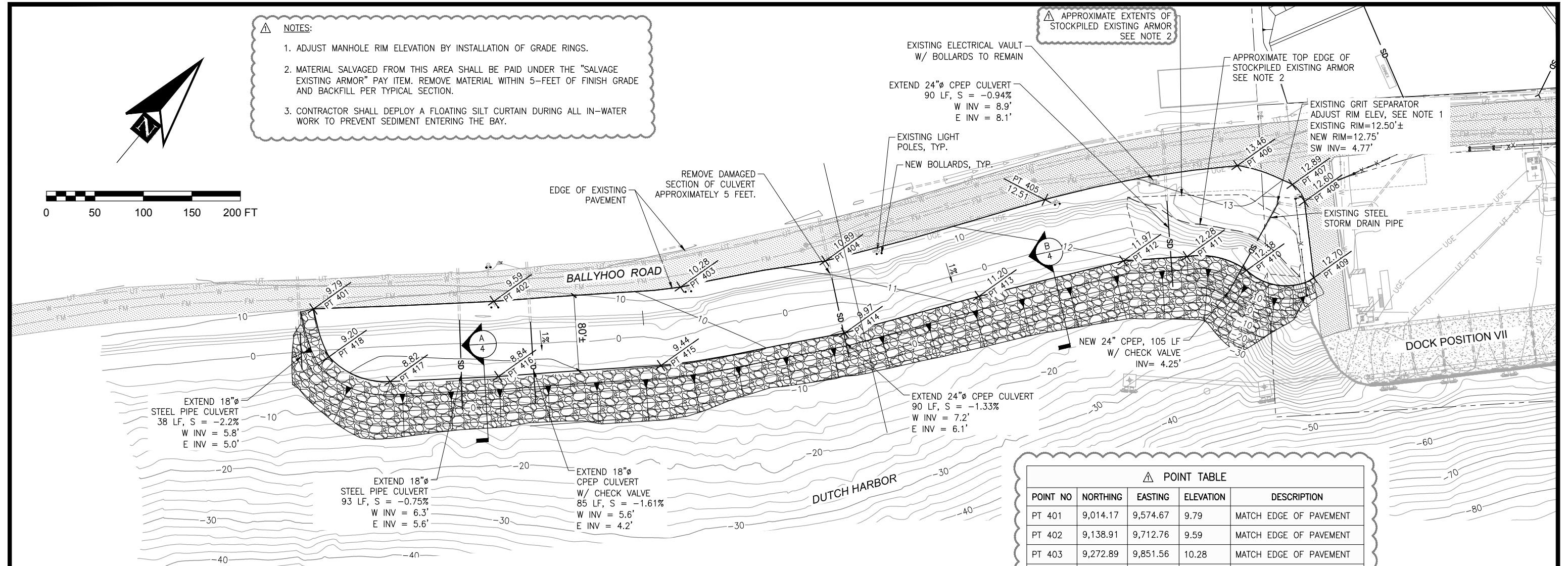
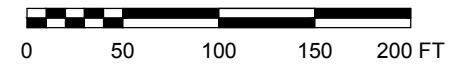


PROJECT: **CITY OF UNALASKA UMC LAYDOWN AREA**

TITLE: **EXISTING CONDITIONS AND SURVEY CONTROL**

| | | |
|-----------------|------------------------|--------------------------|
| DESIGNED BY: IB | DATE: 9/5/2018 | SHEET NO: 3 OF 05 |
| CHECKED BY: PK | PROJECT NO: 111135.F17 | |

- NOTES:**
1. ADJUST MANHOLE RIM ELEVATION BY INSTALLATION OF GRADE RINGS.
 2. MATERIAL SALVAGED FROM THIS AREA SHALL BE PAID UNDER THE "SALVAGE EXISTING ARMOR" PAY ITEM. REMOVE MATERIAL WITHIN 5- FEET OF FINISH GRADE AND BACKFILL PER TYPICAL SECTION.
 3. CONTRACTOR SHALL DEPLOY A FLOATING SILT CURTAIN DURING ALL IN-WATER WORK TO PREVENT SEDIMENT ENTERING THE BAY.



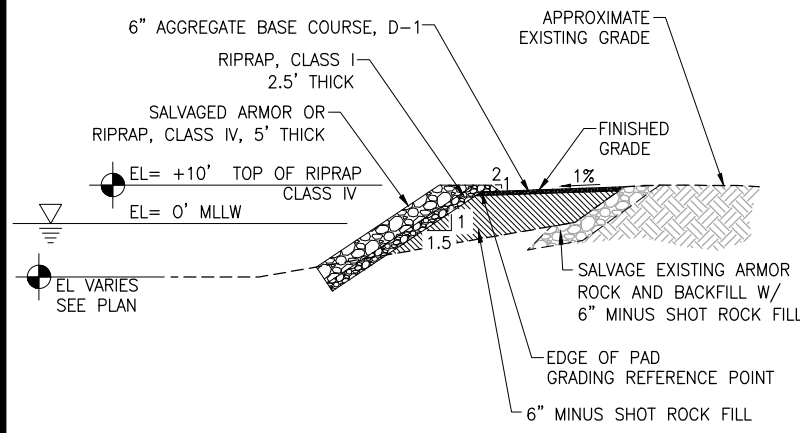
EXTEND 18"Ø
STEEL PIPE CULVERT
38 LF, S = -2.2%
W INV = 5.8'
E INV = 5.0'

EXTEND 18"Ø
STEEL PIPE CULVERT
93 LF, S = -0.75%
W INV = 6.3'
E INV = 5.6'

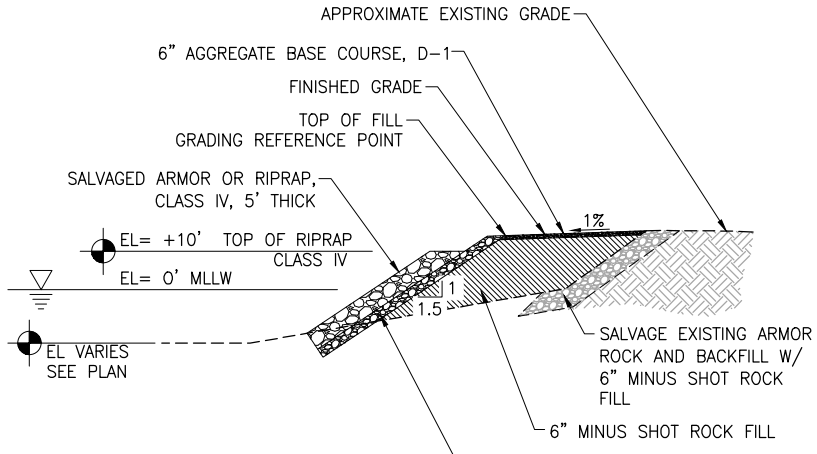
EXTEND 18"Ø
CPEP CULVERT
W/ CHECK VALVE
85 LF, S = -1.61%
W INV = 5.6'
E INV = 4.2'

EXTEND 24"Ø CPEP CULVERT
90 LF, S = -1.33%
W INV = 7.2'
E INV = 6.1'

| POINT TABLE | | | | |
|-------------|----------|-----------|-----------|------------------------|
| POINT NO | NORTHING | EASTING | ELEVATION | DESCRIPTION |
| PT 401 | 9,014.17 | 9,574.67 | 9.79 | MATCH EDGE OF PAVEMENT |
| PT 402 | 9,138.91 | 9,712.76 | 9.59 | MATCH EDGE OF PAVEMENT |
| PT 403 | 9,272.89 | 9,851.56 | 10.28 | MATCH EDGE OF PAVEMENT |
| PT 404 | 9,388.90 | 9,949.31 | 10.89 | MATCH EDGE OF PAVEMENT |
| PT 405 | 9,581.98 | 10,083.30 | 12.51 | MATCH EDGE OF PAVEMENT |
| PT 406 | 9,735.46 | 10,213.63 | 13.46 | MATCH EDGE OF PAVEMENT |
| PT 407 | 9,756.62 | 10,269.83 | 12.89 | MATCH EDGE OF PAVEMENT |
| PT 408 | 9,751.31 | 10,290.57 | 12.60 | MATCH EDGE OF PAVEMENT |
| PT 409 | 9,696.85 | 10,348.09 | 12.70 | MATCH EDGE OF PAVEMENT |
| PT 410 | 9,658.56 | 10,289.72 | 12.38 | TOP OF FILL |
| PT 411 | 9,630.18 | 10,233.41 | 12.28 | TOP OF FILL |
| PT 412 | 9,585.04 | 10,185.80 | 11.97 | TOP OF FILL |
| PT 413 | 9,461.76 | 10,094.44 | 11.20 | TOP OF FILL |
| PT 414 | 9,344.71 | 10,012.20 | 9.97 | EDGE OF PAD |
| PT 415 | 9,197.99 | 9,887.64 | 9.44 | EDGE OF PAD |
| PT 416 | 9,082.22 | 9,765.88 | 8.84 | EDGE OF PAD |
| PT 417 | 9,007.06 | 9,683.21 | 8.82 | EDGE OF PAD |
| PT 418 | 8,986.45 | 9,618.44 | 9.20 | EDGE OF PAD |



SECTION A



SECTION B



ADDENDUM 01
September 25, 2018

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| REV | DATE | DESCRIPTION |
|-----|---------|-------------|
| 1 | 9/25/18 | ADDENDUM 1 |

DATE: _____

1506 West 36th Avenue
Anchorage, Alaska 99503
Phone: 907.561.1011
www.pndengineers.com
AK. LIC# AECC250



CITY OF UNALASKA
UMC LAYDOWN AREA

TITLE: **SITE PLAN**

DESIGNED BY: BA DATE: 9/5/2018
CHECKED BY: PK PROJECT NO: 111135.F17

SHEET NO: **4** OF 05



**Anchorage Fish and Wildlife Field Office
Observer Protocols for
Pile Driving, Dredging and Placement of Fill
Draft August 7, 2012**

Contact: Kimberly Klein
907-271-2066, Kimberly_Klein@fws.gov



Northern sea otters (*Enhydra lutris kenyoni*) may be harmed by noise from pile driving and other activities. Steller's eiders (*Polysticta stelleri*) are unlikely to be in the project area between April 16 and November 14; work should be scheduled to occur during this time to avoid impacts. However, if present, Steller's eiders may also be harmed by noise. Impacts from noise are likely to be avoided if it is confirmed that otters and eiders are not present within a "hazard area" near the source of the noise. The "hazard area" is defined here as the area in which noise levels from construction activities are expected to exceed threshold noise levels that cause harm. Table 1 specifies the size of the hazard area for dredge and fill activities and pile driving. The use of one or more observers to "clear" the hazard area is an effective means to assure that no Steller's eiders or sea otters will be harmed. The observer is responsible for communicating the presence of one or more Steller's eider or sea otters in the hazard area to the construction operators, and halting work until the animal voluntarily leaves the area. To "clear" the area means to verify no listed species are present; no action may be taken to disturb otters or eiders, move them away, or discourage their use of an area.

Because there has been no research conducted to establish noise thresholds for sea otters or Steller's eiders, we used noise thresholds established by the National Marine Fisheries Service National Marine Fisheries Service [NMFS] for pinnipeds to guide development of hazard areas. NMFS determined that thresholds for Level A Harassment (injury) and Level B Harassment (disturbance) would be reached for pinnipeds under the following scenarios (NOAA 2005; NOAA 2006; NOAA 2008; NMFS 2009, Southall et al. 2007; full citations are available upon request):

- Level B Harassment due to airborne noise: 100 dB re: 20 μ Pa;
- Level B Harassment due to underwater noise: 120 dB re: 1 μ Pa for vibratory pile driving;
- Level B Harassment due to underwater noise: 160 dB re: 1 for impact pile driving;
- Level A Harassment due to underwater noise: 190 dB re: 1.

The U.S. Fish and Wildlife Service (Service) recommends the size of the hazard area be established according to Table 1. The hazard area includes all marine areas below mean high tide (MHT) within a specified radius around the source of the noise. Areas blocked by points of land or shoreline contours are not included in the hazard area, but a 10° buffer outside of these areas should be included (see Figure 1).

The distances identified in Table 1 represent the minimum hazard area radii needed to ensure that the typical maximal sound production levels reached during specified activities attenuate to levels below those expected to cause injury. The Service estimates these thresholds to be **110 dB re: 20 μ Pa for airborne noise, and 183 dB re 1 μ Pa²-sec cumulative SEL for underwater noise**. These distances include a buffer for protection against injury due to cumulative sound exposure.

Table 1. Hazard area radii for specified activities, based on typical maximal sound levels generated during pile driving, dredging and fill placement activities¹.

| Activity | Details (pile size, etc.) | Sound Production Level | | | Radius of Hazard Area centered on noise source |
|---|--|------------------------|---------|---|--|
| | | Peak** | RMS** | SEL** | |
| In-water Impact Pile Driving* | Round or H pile >36" | >215 | >200 | >190 | Contact the Service |
| | Round or H >36" with sound attenuation devices | 200-215 | 185-200 | 175-190 | 2000 meters |
| | Round or H >24" up to 36" | 200-215 | 185-195 | 175-185 | 2000 meters |
| | Round or H >24-36" with sound attenuation devices | 190-205 | 175-185 | 165-175 | 500 meters |
| | Round or H ≤24" | 185-210 | 170-185 | 160-175 | 500 meters |
| | Round or H ≤24" with sound attenuation devices | <200 | <185 | <175 | 300 meters |
| | Sheet Pile-any size | 190 | 170 | 160 | 500 meters |
| | Sheet Pile-any size, with sound attenuation devices | 180 | 160 | 150 | 300 meters |
| In-water Vibratory Pile Driving* | Round or H >36" | 185-200 | 170-190 | 160-180 | 1000 meters |
| | Round or H >36" with sound attenuation devices | 175-190 | 160-180 | 150-170 | 500 meters |
| | Round or H >24" up to 36" | 175-195 | 165-185 | 155-175 | 500 meters |
| | Round or H >24" up to 36" with sound attenuation devices | 165-185 | 155-175 | 145-165 | 300 meters |
| | Round or H ≤24" | <190 | <180 | <170 | 300 meters |
| | Round or H ≤24" with sound attenuation devices | <180 | <170 | <160 | 100 meters |
| | Sheet Pile-any size | 182 | 165 | 165 | 300 meters |
| | Sheet Pile-any size, with sound attenuation devices | 172 | 155 | 155 | 100 meters |
| Land-based Pile Driving | Based on in-situ recordings and sound propagation modeling, the distances needed to provide protection from airborne noise impacts would be adequately covered by monitoring the hazard area established for underwater sound propagation. | | | Same as each category above. Hazard area is limited to areas below MHT. | |
| In-water Fill Placement and Dredging | All in-water use of heavy equipment for manipulating the substrate; including use of hydraulic rock breakers, drills, etc. | 140-200 | 125-185 | 115-175 | 300 meters |

* In-water <20 m ** Underwater sound pressure levels are measured in dB re: 1 µPa.

¹ Typical maximal sound levels from Illinworth Rodkin (2007); Blackwell et al. (2004, cited in Navy 2011); Hastings and Popper (2005); Jasco Research Ltd (2005, as cited in Navy 2011); Laughlin (2005, 2010a,b); Reyff (2005); Onuu and Tawo (2006); URS (2007); Parvin et al. (2008); Jones and Stokes (2009); NOAA (2009); Navy (2009); Scientific Fishery Systems, Inc. (2009); Thomsen et al. (2009); Mumford (2011); Navy (2011); Robinson et al. (2011); WSDOT (2011); Cardno ENTRIX (2012). Full citations are available upon request.

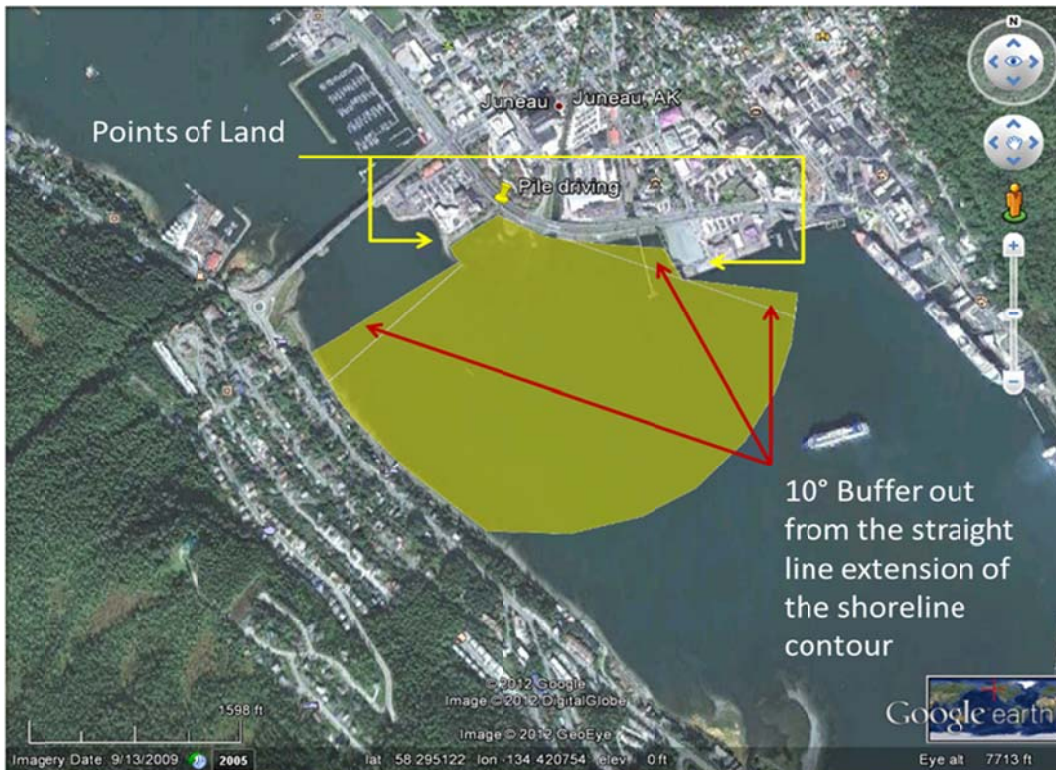


Figure 1. Depiction of a hazard area modified by the contours of the shoreline and points of land.

Ramp-up procedures

1. For impact pile driving, contractors will be required to provide an initial set of three strikes from the hammer at 40% energy, followed by a 30-second waiting period, then two subsequent three-strike sets. For vibratory pile driving, sound should be initiated for fifteen seconds at reduced energy followed by a 1-minute waiting period. This procedure would be repeated two additional times.
2. Ramp up procedures will be designed by the Applicant for in-water fill placement and in-water dredging activities specified in Table 1 to allow noise production to increase gradually from a low level, and to begin at locations farthest from marine areas. For example, a 5-minute period following startup of a single generator located well above high tide could be followed by 5 minutes of operating an excavator near the shoreline, etc. Equipment should be operated at low power, and then gradually increased to noisier, high-power levels. In-water noise production such as placement of fill should occur only after other all other noise-generating activities have ramped up and otters and eiders have had the opportunity to leave the area of their own accord.

Monitoring the “hazard area”

A. Pile driving: 100 to 2000-m “hazard area”

1. Observers will watch for Steller’s eiders and sea otters within the appropriate hazard area as specified in Table 1 for 30 minutes prior to start of work. Observations will continue for the full duration of these activities.
2. If one or more Steller’s eider or sea otter occurs within the hazard area before or at any time during pile driving, the observer will report the presence of the animal and work will immediately cease or be postponed until the animal leaves the hazard area on its own.

B. Fill Placement and Dredging: 300-m “hazard area”

3. Prior to commencing in-water fill placement, in-water dredging, and any other in-water use of heavy equipment for manipulating the substrate (including use of hydraulic rock breakers,

drills, etc.) observers will clear a 300-m hazard area. Additionally, observers will clear the hazard area before recommencing work after any break greater than 30 minutes.

4. If an otter or eider is seen within the hazard area during the 30-minute observation period prior to start-up, the observation period need not start over once the animal moves out of the hazard area, but work may not commence until the observation period is complete.
5. If a sea otter or eider enters the 300-m hazard area during fill placement or dredging, after the observation period has ended, work may continue.
6. If an otter or eider is seen in the 300-m buffer during the observation period prior to start of work and does not leave the area prior to the completion of the 30-minute observation period, ramp up procedures will be applied.

C. ALL noise-generating activities specified in Table 1 (applies to both A and B)

7. All observers must be capable of spotting and identifying sea otters and Steller's eiders and recording applicable data during all types of weather in which pile driving, in-water fill placement, or in-water dredging will be conducted.
8. All observer protocols will be applied to any unidentified duck whenever the observer cannot identify whether a duck is a male or a female Steller's eiders in breeding or nonbreeding plumage.
9. Observers will be given the authority to halt project activities if a sea otter or Steller's eider is present and to provide clearance for work to resume after the animal leaves on its own.
10. Observers will have no other duties during the observation period in order to ensure that watching for protected species remains the observer's main focus.
11. A lead observer will be responsible for implementing the protocols. The lead observer may select and train additional observers, but should remain accountable for their performance throughout the work season.
12. All observers must be trained in the monitoring methods to include the following topics:
 - Types of construction activities that require monitoring
 - Observation methods and equipment
 - Observation locations
 - Distance estimation
 - Data to record (parameters) and field forms
 - Species identification
 - Procedures to Stop Work
13. Tools, such as a laser range finder or buoys placed at 300 m intervals away from the shoreline should be used to aid the observer in estimating distances out to 1,000 m.
14. The following are examples of standard equipment recommended for use by observers:
 - High power, reticle binoculars 10 x 50 Bushnell
 - Range finder equivalent to Leica LRF 1200
 - GPS and compass
 - High power spotting scope
15. Observation stations will be established to maximize visibility of the hazard areas. Elevated observation stations will provide better visibility than those at sea level.
16. Observation stations may be established aboard moored vessels and stationary skiffs.
17. Use of a particular station may depend upon weather conditions. If the observable range from any one vantage point is limited due to weather or construction activity, the observer should use an established station that has a better vantage point for monitoring.
18. If visibility is poor due to weather or low light, pile driving will not commence until viewing conditions make it possible to clear the entire hazard area. In-water fill placement and in-water dredging may commence after ramp up procedures are conducted.
19. During periods of low visibility, pile driving may commence if additional observers can be added in multiple stations to provide complete visual coverage of the "hazard area".

20. Observers will record basic metrics such as start and end times, date, GPS location of the observation station, name of observers, type of work occurring, numbers and locations of observed sea otters or eiders, environmental conditions (air temperature, wind speed and direction, sea state, swell height, tide stage, visibility, percent cloud cover, and precipitation), documentation of work shut downs or postponements due to presence of otters or eiders, and length of time work was shut down or postponed.
21. Other data that may be useful include: records of sea otter and Steller's eider movements (direction and distance of travel), the times during which the movements occur, and a categorical assessment of behaviors during the observation period. For example, indicate whether sea otters or eiders are resting, feeding, grooming, engaging in social interactions, or travelling from one place to another. Record behavioral changes during the observation period, and comment on whether these behaviors appear to be associated with the work being conducted, and if so, what indications lead to that conclusion.
22. All observation records will be made available to the Service at the end of each calendar month.
23. A summary report will be provided to the Service by December 1 each year.

Optional Considerations:

Monitoring: Whenever possible, sound level testing should be conducted to determine the size of the "hazard area". A more accurate size of the "hazard area" for pile driving and for fill placement/dredging can then be used for these two categories of work instead of the buffers in Table 1. A smaller impact area can be monitored more easily and more accurately by fewer observers. To accomplish this, we recommend the following procedures:

1. Prior to sound monitoring, observers should clear a hazard area according to Table 1.
2. In-air and in-water sound pressures should be measured with portable instrumentation placed in intervals in multiple directions from the noise source as shown in Figure 2.
3. For best results, in-water measurements should be taken at multiple water depths.
4. Sound pressure should be monitored in marine waters out to the appropriate distance specified in Table 1 for the type of pile driving being conducted. For fill placement and dredging, a 300-m radius should be monitored.
5. Monitoring should be timed to record peak sound pressures. Sound pressure should be monitored during two categories of work (when both types of work will occur):
 - a. Pile driving
 - b. Dredging and fill placement
6. If possible, sound measurements should be taken at various locations simultaneously.
7. If actual noise levels are greater than **110 dB re: 20 μ Pa; for airborne noise or 183 dB re 1 μ Pa²-sec cumulative SEL for underwater noise** at either the 500-m or 300-m radius from the source (as applicable for the type of activity), testing should be conducted at additional points at 300-m intervals further from the source site to determine the full extent of the area in which threshold levels are reached. If the hazard area is larger than 500 m, the Service should immediately be notified, and a 50% larger hazard area should be cleared by the observers prior to continuing work. All observer protocols will be applied to the expanded hazard area.
8. Sound level monitoring results should be reported to the Service. All estimates of sound pressure levels should be reported in dB re: 1 μ p for in-water and dB re: 20 μ p in air.

Modeling: Acoustic modeling may be conducted by a qualified engineer or hydrologist as an alternative to acoustic monitoring. The models selected should be capable of predicting underwater noise production and attenuation at various distances from the proposed noise-generating activities. Models should be customized to incorporate the specific techniques to be used, and the local bathymetry and substrate information. Modeling methods, assumptions, outputs, and uncertainties should be reported to the Service. The hazard area should be defined as wherever pressure levels are

predicted to exceed **110 dB re: 20 μ Pa; for airborne noise or 183 dB re 1 μ Pa²-sec cumulative SEL for underwater noise**. All observer protocols should be applied to those areas. When possible, noise levels should be tested upon startup of work for comparison with model outcomes. If actual noise levels exceed predicted values, work should follow protocols outlined here, or should stop until sound level testing can be completed.

Videography: The use of video documentation of sea otter or Steller's eiders observations in or near the hazard area during pile driving, dredging or placement of fill is recommended to assist observers in recording and characterizing responses to noise. We are interested in developing a systematic videographic study. Please notify the Service if you intend to record wildlife near the hazard area as part of your project.

If warranted by new information, observer protocols may be revised by the USFWS.

Contact the Anchorage Fish and Wildlife Field Office with any additional questions or concerns.

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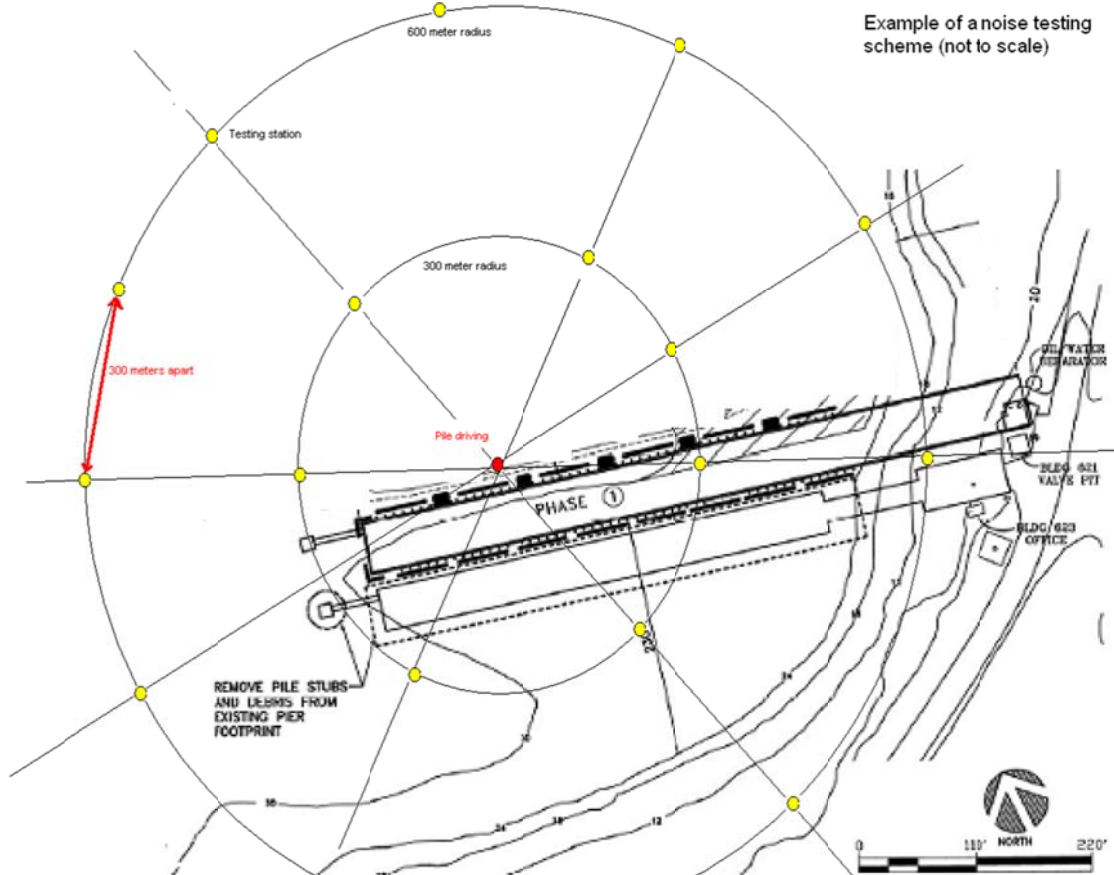
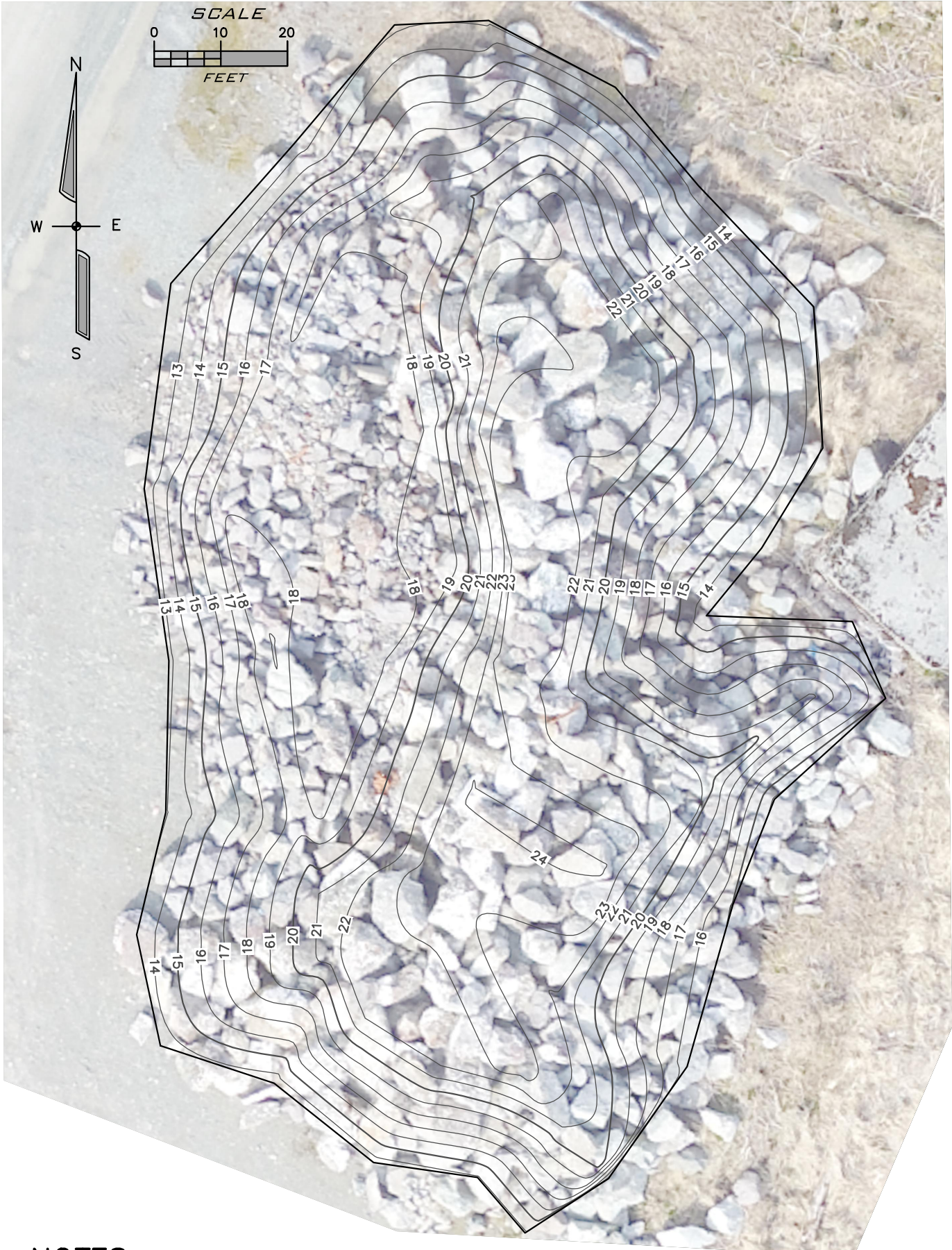


Figure 2. An example plan for noise testing. Test points are placed in intervals around the work site and each other (it is not to scale) to provide complete coverage of all areas of in-water work.



NOTES

1. THE HORIZONTAL DATUM FOR THIS PROJECT IS AN ARBITRARY LOCAL PLANE COORDINATE SYSTEM
2. THE BASIS OF COORDINATES FOR THIS PROJECT IS A FOUND ALUMINUM MONUMENT BEING THE SOUTHWEST CORNER OF TRACT A, PLAT NO. 88-10, ALEUTIAN ISLANDS RECORDING DISTRICT; HAVING LOCAL COORDINATES OF N: 10000, E: 10000
3. VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW = 0.00')
4. CONTOURS ARE IN FEET, WITH ONE (1) FOOT INTERVALS.
5. THE INFORMATION SHOWN HEREON IS BASED ON FIELD SURVEYS CONDUCTED BY PND ENGINEERS SEPTEMBER 13, 2018
6. THIS SURVEY WAS CONDUCTED USING TRIMBLE R8-4 GNSS RECEIVERS AND TRIMBLE ACCESS FIELD SOFTWARE

RIPRAP STOCKPILE SURVEY
 UMC BALLYHOO EXTENSION
 SPIT STOCKPILE SURVEY

Date: 9/18/18
 Job No: 111135 Field Book No. 2018-2



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