

CITY & BOROUGH OF WRANGELL, ALASKA
WRANGELL MARINE SERVICE CENTER
BOAT HAULOUT PIER STRUCTURAL UPGRADES

ADDENDUM TO THE CONTRACT

Addendum No:	2	Current Bid Opening Date: April 18, 2013 at 2:00 P.M.
Pages This Addendum:	Twenty five (25)	
Previous Addenda:	one	Previous Bid Opening Date: April 18, 2013 at 2:00 P.M.

To: All Planholders of Record April 11, 2013

The contract documents are modified as indicated herein. All other terms and conditions remain unchanged. Bidders are required to acknowledge this addendum on the Bid Proposal. Make the following changes to the contract documents:

PROJECT MANUAL

Item No. 1 Section 00852 – PERMITS

Replace the information in the original manual with the attached section

PLANS

Item No. 2 Sheet S2.01

Note the distance between the north edge of the existing structure, south of the Haul Out Pier, and the edge of the timber dock is approximately 5 feet.

OTHER INFORMATION

Item No 3 The attached pile driving records from the construction of the original Haul Out Pier construction are provided for the bidder's information.

END OF ADDENDUM NO.2



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
P.O. BOX 6898
JBER, ALASKA 99506-0898

APR 02 2013

Regulatory Division
POA-2005-1861-M1

City and Borough of Wrangell
Attention: Mr. Carl Johnson
Post Office Box 531
Wrangell, Alaska 99929

Dear Mr. Johnson:

Enclosed is the signed Department of the Army (DA) permit modification, file number POA-2005-1861-M1, Zimovia Strait. This is the first permit modification of the original permit. Also enclosed is a Notice of Authorization that should be posted in a prominent location near the authorized work.

If changes to the plans or location of the work are necessary for any reason, plans must be submitted to us immediately. Federal law requires approval of any changes before construction begins.

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

Also enclosed is a Notification of Administrative Appeals Options and Process and Request for Appeal form regarding this DA Permit Modification (see section labeled "Initial Proffered Permit").

Please contact me via email at roberta.k.budnik@usace.army.mil, by mail at the address above, by phone at (907) 753-2785, or toll free from within Alaska at (800) 478-2712, if you have questions.

Sincerely,

Roberta K. Budnik

Roberta K. Budnik
Regulatory Specialist

Enclosures



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
P.O. BOX 6898
JBER, ALASKA 99506-0898

APR 02 2013

Regulatory Division
POA-2005-1861-M1

DEPARTMENT OF THE ARMY
PERMIT MODIFICATION

Department of the Army permit number POA-2005-1861, Zimovia Strait, was issued to the City of Wrangell on February 17, 2006, for the following:

- "Remove approximately 10,000 square feet of existing dock, timber piles (147 total) and associated pile caps and timber stringers;
- Add approximately 6,350 square feet of boat haul out concrete deck panels, supported by 16 to 20-inch steel piles (58 total), within the footprint of the existing dock;
- Install a storm water outfall structure (5-foot by 20-foot) and associated piping below the high tide line (trench dimensions will be 110 feet long with a bottom width of 3 feet). Total trench back fill as well as removal and replacement of existing shoreline riprap for outfall stabilization will be 250 cubic yards;
- Remove and replace approximately 100 cubic yards of shot rock and riprap material below the high tide line, to stabilize the bank at the proposed abutment."

This is the first modification of the original permit. The permit is hereby modified as follows:

Install two new steel pipe batter piles at the existing Wrangell boat haul out pier.

The work will be performed in accordance with the enclosed plans, sheets 1-4, dated March 2013, which are incorporated in and made a part of this Permit Modification.

The project site is located within Section 25, T. 62 S., R. 83 E., Copper River Meridian; USGS Quad Map Petersburg B-2; Latitude 56.4681° N., Longitude 132.3842° W.; Wrangell Borough, in Wrangell, Alaska.

The time limit for completing the work authorized ends on March 30, 2018. If you find that you need more time to complete the authorized activity, please submit your request for a time extension to the Corps of Engineers for consideration at least one month before permit expiration.

The following conditions apply to this permit modification:

1. Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States.

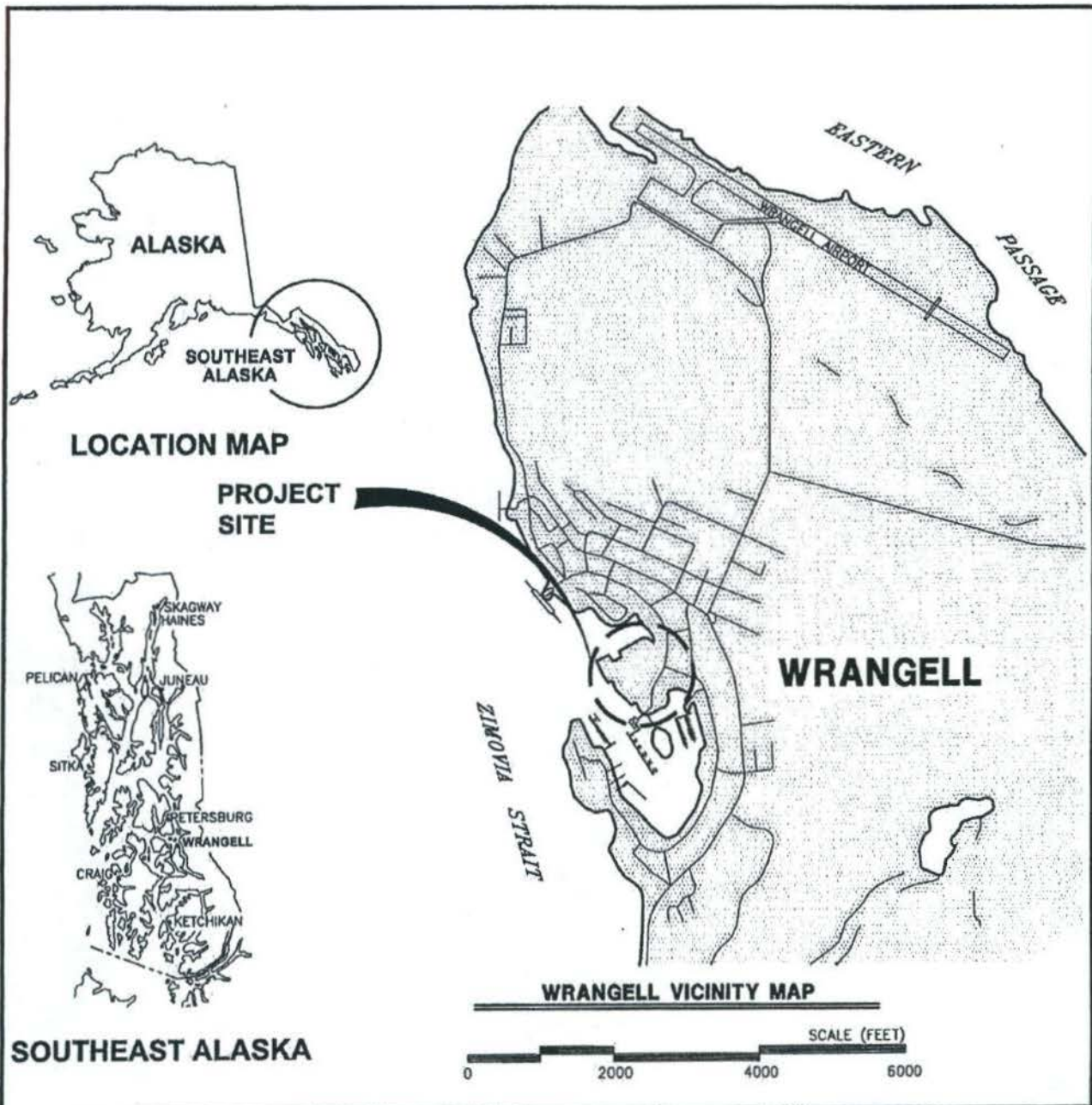
2. You must install and maintain, at your expense, any safety lights and signals prescribed by the United States Coast Guard (USCG), through regulations or otherwise, on your authorized facilities. The USCG may be reached at the following address and telephone number: Commander (dpw), 17th Coast Guard District, P.O. Box 25517, Juneau, Alaska 99802; or by telephone at (907) 463-2272.
3. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
4. Piles shall be driven during low tide stages in intertidal and shallow subtidal areas to prevent injuries to fish.
5. A vibratory hammer shall be used to drive piles to the maximum extent practicable. Under those conditions where an impact hammer is required, piles shall be driven as deep as possible with a vibratory hammer prior to the use of the impact hammer.
6. No in-water work shall be permitted from March 15 through June 15 of any year to protect out migrating salmon and spawning herring.
7. Before pile driving commences, the operator shall observe for any marine mammals within 200 meters of the activity. If any marine mammals are sighted within 200 meters or are observed to be disturbed by the activity at any distance, pile driving shall cease until the animal(s) leave the immediate area.

This authorization and the enclosed modified plans should be attached to the original permit. Also enclosed is a Notice of Authorization that should be posted in a prominent location near the authorized work.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Roberta K Budnik

Roberta K. Budnik
Regulatory Specialist



PURPOSE: TO INCREASE CAPACITY TO ALLOW FOR INCREASED LIFT DEMANDS

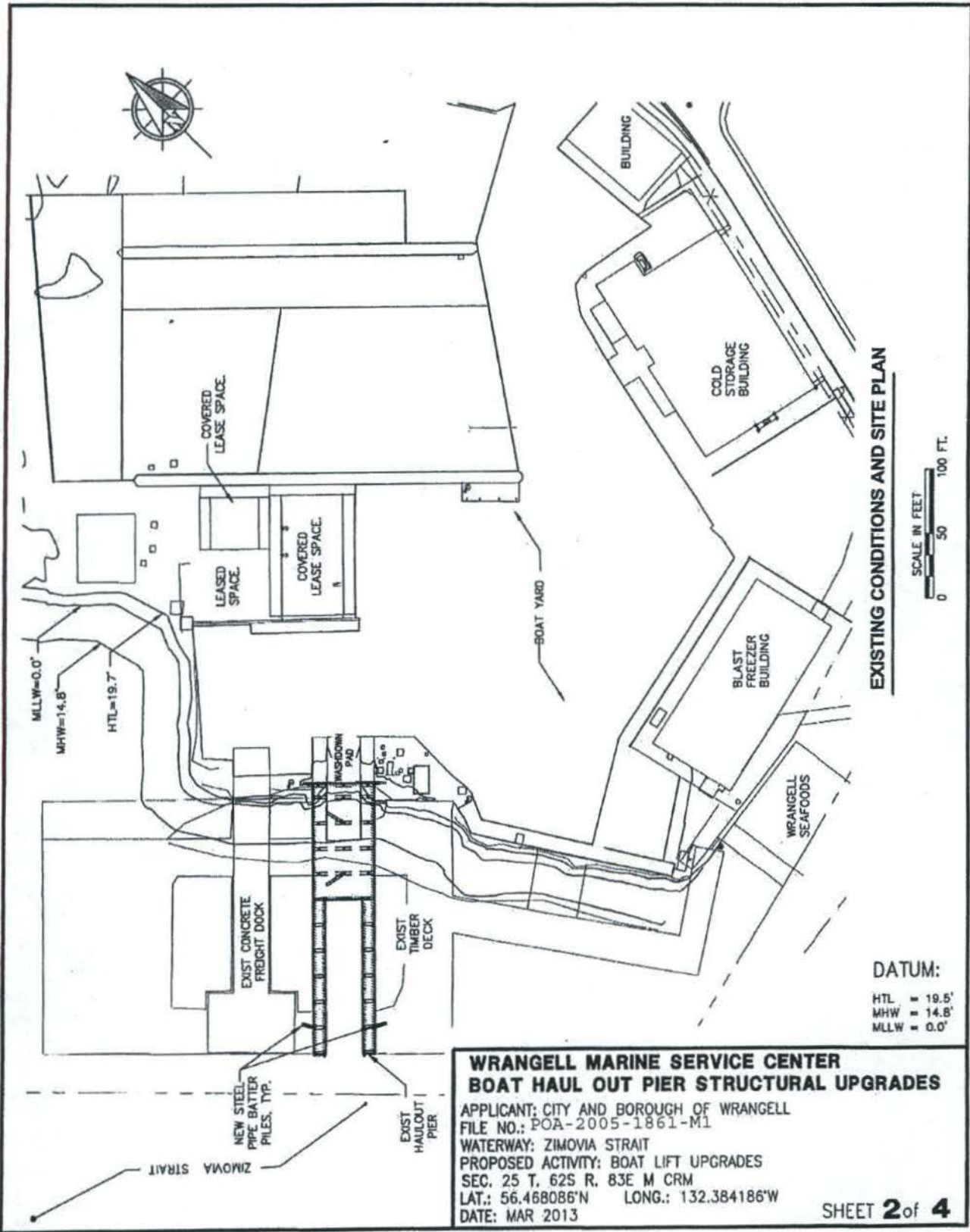
WRANGELL MARINE SERVICE CENTER

BOAT HAUL-OUT PIER
STRUCTURAL UPGRADES

APPLICANT: CITY AND BOROUGH OF WRANGELL
 FILE NO.: POA-2005-1861-M1
 WATERWAY: ZIMOVIA STRAIT
 PROPOSED ACTIVITY: BOAT LIFT UPGRADES
 SEC. 25 T. 62S R. 83E M CRM
 LAT.: 56.468086°N LONG.: 132.384186°W
 DATE: MAR 2013

DATUM: HTL = 19.5'
 MHW = 14.8'
 MLLW = 0.0 FT

PND PROJECT NO. 122056.01



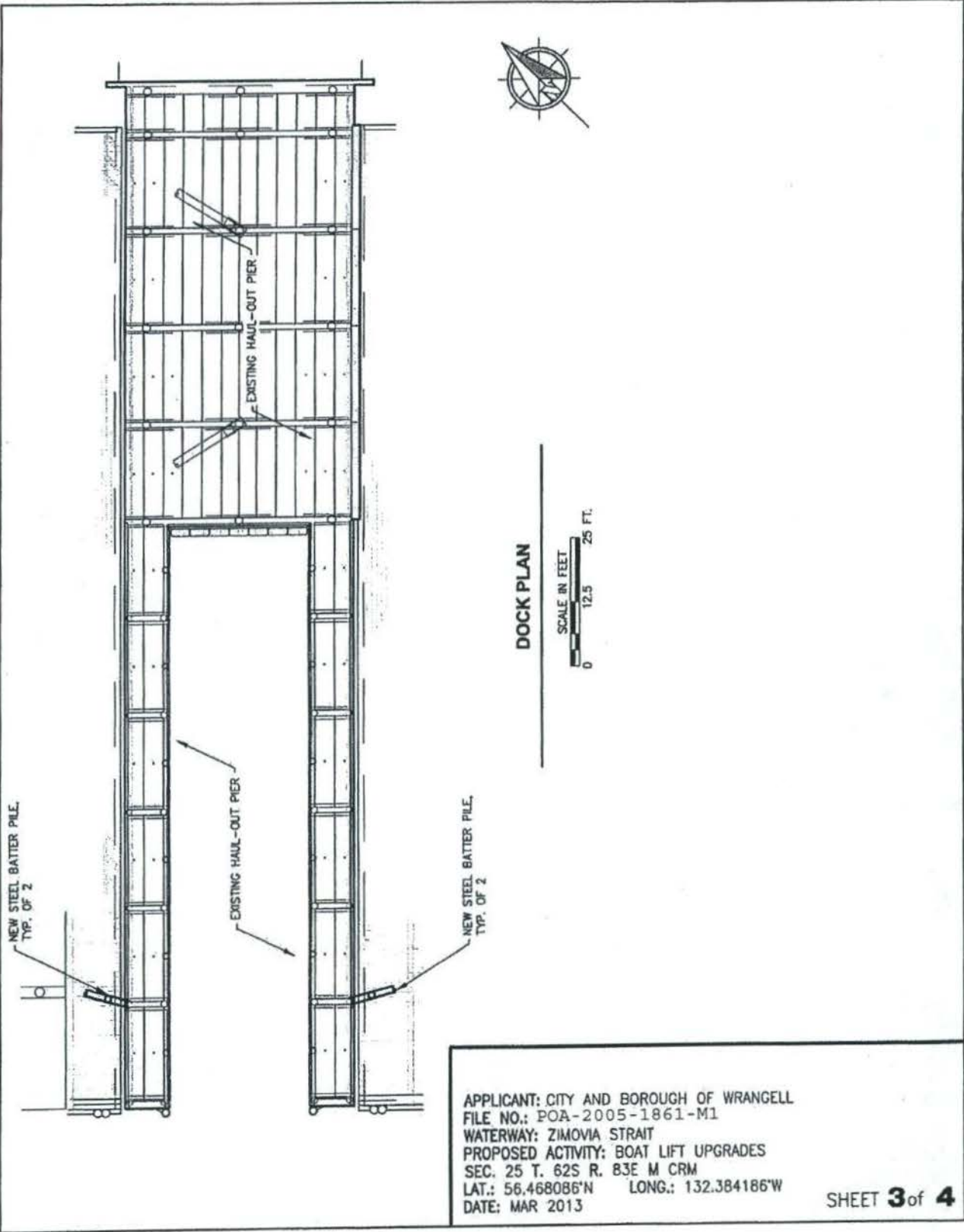
EXISTING CONDITIONS AND SITE PLAN

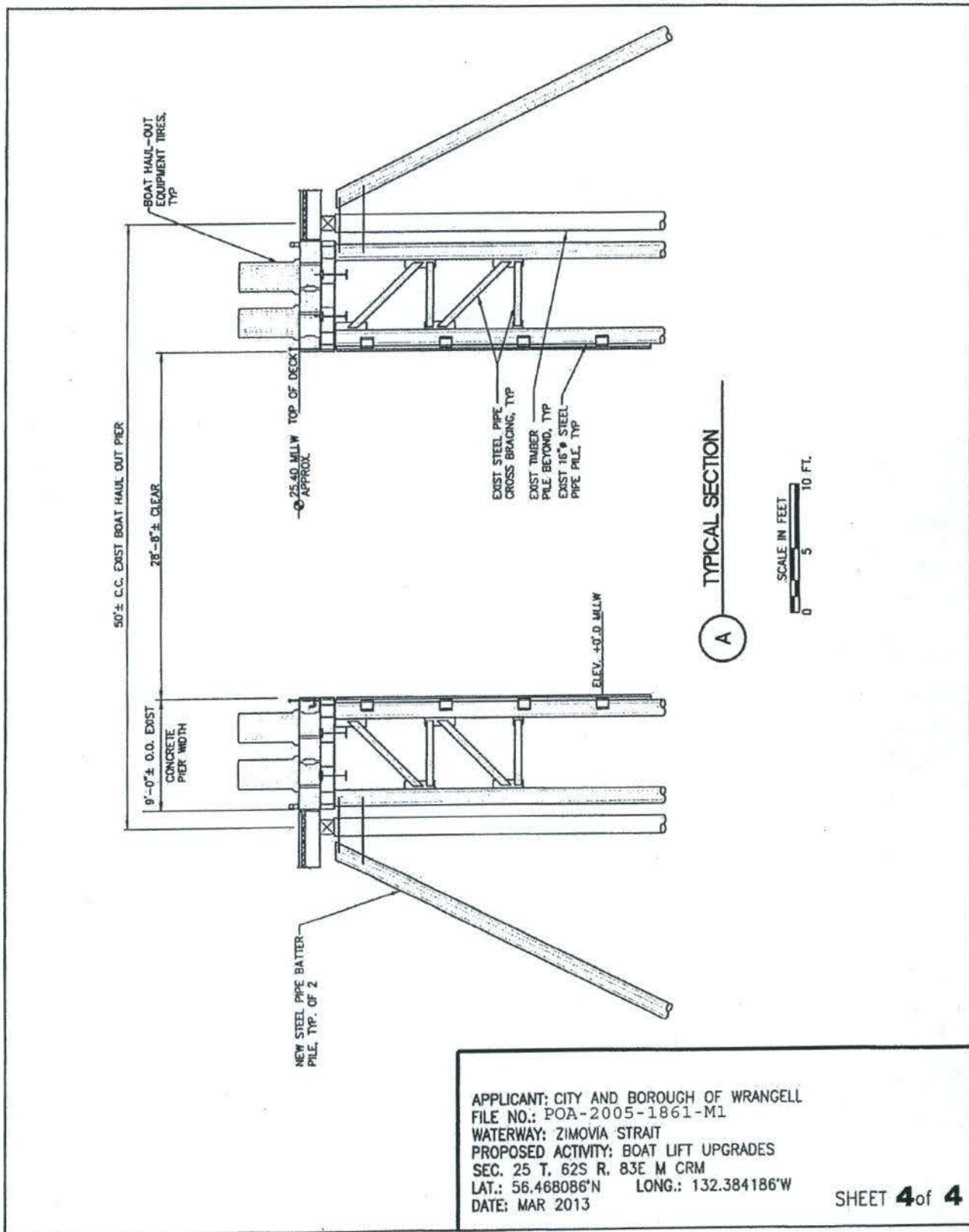


DATUM:
 HTL = 19.5'
 MHW = 14.8'
 MLLW = 0.0'

**WRANGELL MARINE SERVICE CENTER
 BOAT HAUL OUT PIER STRUCTURAL UPGRADES**

APPLICANT: CITY AND BOROUGH OF WRANGELL
 FILE NO.: POA-2005-1861-M1
 WATERWAY: ZIMOVIA STRAIT
 PROPOSED ACTIVITY: BOAT LIFT UPGRADES
 SEC. 25 T. 62S R. 83E M CRM
 LAT.: 56.468086°N LONG.: 132.384186°W
 DATE: MAR 2013





APPLICANT: CITY AND BOROUGH OF WRANGELL
 FILE NO.: POA-2005-1861-M1
 WATERWAY: ZIMOVIA STRAIT
 PROPOSED ACTIVITY: BOAT LIFT UPGRADES
 SEC. 25 T. 62S R. 83E M CRM
 LAT.: 56.468086°N LONG.: 132.384186°W
 DATE: MAR 2013

SHEET 4 of 4



**This notice of authorization must be
conspicuously displayed at the site of work.**

**United States Army Corps of Engineers
ZIMOVIA STRAIT**

**A permit to: INSTALL 2 NEW STEEL PIPE BATTER PILES AT THE
EXISTING WRANGELL BOAT HAUL OUT PIER.**

**at: SEC. 25, T. 62 S., R. 83 E., CRM; USGS QUAD MAP
PETERSBURG B-2; LAT. 56.4681° N., LONG. 132.3842°
W.; WRANGELL BOROUGH, IN WRANGELL, AK**

has been issued to: CITY AND BOROUGH OF WRANGELL

on: APR 02 2013 and expires on: MARCH 30, 2018

Address of Permittee: PO BOX 531, WRANGELL, AK 99929

Permit Number:

POA-2005-1861-M1

Roberta K. Budnik
**FOR: District Commander
Roberta K. Budnik
Regulatory Specialist
REGULATORY DIVISION**

**ENG FORM 4336, Jul 81 (33 CFR 320-330) EDITION OF JUL 70 MAY BE
USED (Proponent: CECW-O)**


PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 22, 2006
Pile Designation: 9A	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 90'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -18.38' MLLW	Full Stroke: 10'-7"
Tip Elevation: -45.21' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 67.52'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
18	↓		Vibratory hammer used for first 18-feet
19	2		
20	5		
21	7	10 blows / 15 sec	
22	12		
23	14		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
24	13		
25	13	10 blows / 15 sec	
26	14		
27	REFUSAL	+ 10-foot stroke	Refusal was determined when the pile no longer advanced
28			

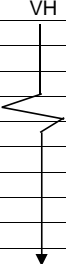
PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 22, 2006
Pile Designation: 9C	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 90'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -16.53' MLLW	Full Stroke: 10'-7"
Tip Elevation: -45.53' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 67.84'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
20			
21	▼		Vibratory hammer used for first 21-feet
22	5		
23	5		
24	9	11 blows / 15 sec	
25	11		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
26	9		
27	12		
28	22	11 blows / 15 sec	
29	REFUSAL	~ 10-foot stroke	Refusal was determined when the pile no longer advanced
30			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 22, 2006
Pile Designation: 9E	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500't open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 90'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -19.12' MLLW	Full Stroke: 10'-7"
Tip Elevation: -51.95' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 74.26'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
21			
22	↓		Vibratory hammer used for first 22-feet
23	14		
24	14	11 blows / 15 sec	
25	12		
26	13	10 blows / 15 sec	
27	13		
28	11		
29	11	11 blows / 15 sec	Pile to be advanced with impact hammer until refusal under direction of the engineer of record
30	12		
31	13	11 blows / 15 sec	
32	13		
33	REFUSAL	+ 10-foot stroke	Refusal was determined when the pile no longer advanced
34			

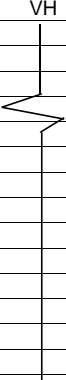
PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 22, 2006
Pile Designation: 9G	Contractor: Kadin/Dawson
Pile Type: 16" ϕ x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 90'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -19.03' MLLW	Full Stroke: 10'-7"
Tip Elevation: -52.03' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 74.34'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
22			
23			Vibratory hammer used for first 23-feet
24	9		
25	11	10 blows / 15 sec	
26	10		
27	10		
28	9		
29	10	10 blows / 15 sec	Pile to be advanced with impact hammer until refusal under direction of the engineer of record
30	11		
31	11		
32	10		
33	REFUSAL	+ 10-foot stroke	Refusal was determined when the pile no longer advanced
34			


PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 25, 2006
Pile Designation: 10A	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 100'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -19.12' MLLW	Full Stroke: 10'-7"
Tip Elevation: -52.69' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 75.00'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
27			
28	↓		Vibratory hammer used for first 28-feet
29	18	11 blows / 15 sec	
30	29	12 blows / 15 sec	Pile to be advanced with impact hammer until refusal under direction of the engineer of record
31	12	12 blows / 15 sec	
32	13		
33	13		
34	REFUSAL	9.5-foot stroke	Refusal was determined when the pile no longer advanced
35			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 25, 2006
Pile Designation: 10C	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 100'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -22.36' MLLW	Full Stroke: 10'-7"
Tip Elevation: -56.02' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 78.33'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
22			
23	↓		Vibratory hammer used for first 23-feet
24	10	12 blows / 15 sec	
25	11	12 blows / 15 sec	
26	11		
27	9		
28	10		
29	9	12 blows / 15 sec	
30	8		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
31	9		
32	13	12 blows / 15 sec	
33	27		
34	REFUSAL	10.0-foot stroke	Refusal was determined when the pile no longer advanced
35			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 26, 2006
Pile Designation: 10E	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500't open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 100'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -20.86' MLLW	Full Stroke: 10'-7"
Tip Elevation: -59.11' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 81.42'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
23			
24	▼		Vibratory hammer used for first 24-feet
25	1		
26	2		
27	2		
28	2		
29	6		
30	5		
31	7		
32	6		
33	5	12 blows / 15 sec	
34	5		
35	6		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
36	7		
37	4		
38	6	10 blows / 15 sec	
39	REFUSAL	+10-foot stroke	Refusal was determined when the pile no longer advanced
40			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 26, 2006
Pile Designation: 10G	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 100'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -22.36' MLLW	Full Stroke: 10'-7"
Tip Elevation: -59.94' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 82.25'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
23			
24			Vibratory hammer used for first 24-feet
25	9		
26	6		
27	5	12 blows / 15 sec	
28	7		
29	7		
30	6		
31	6		
32	6		
33	4		
34	5		
35	6	12 blows / 15 sec	Pile to be advanced with impact hammer until refusal under direction of the engineer of record
36	6		
37	11	11 blows / 15 sec	
38	REFUSAL	9.5-foot stroke	Refusal was determined when the pile no longer advanced
39			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 19, 2006
Pile Designation: 11A	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 110'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -22.33' MLLW	Full Stroke: 10'-7"
Tip Elevation: -65.08' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 87.48'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
29	▼		Vibratory hammer used for first 29-feet
30	7		
31	7		
32	7	10 blows / 15 sec	
33	6		
34	6		
35	6		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
36	5		
37	5	11 blows / 15 sec	
38	5		
39	6		
40	9		
41	16		
42	55	11 blows / 15 sec	
43	REFUSAL		Refusal was determined when the pile no longer advanced
44			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 19, 2006
Pile Designation: 11C	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500't open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 110'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -22.30' MLLW	Full Stroke: 10'-7"
Tip Elevation: -66.30' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 88.70'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
27	↓		Vibratory hammer used for first 27-feet
28	4		
29	7	11 blows / 15 sec	
30	10		
31	8		
32	8		
33	7		
34	7	11 blows / 15 sec	
35	7		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
36	6		
37	6	11 blows / 15 sec	
38	6		
39	5		
40	9		
41	14		
42	22	10 blows / 15 sec	
43	40		
44	REFUSAL	11 blows / 15 sec	Refusal was determined when the pile no longer advanced
45			


PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 19, 2006
Pile Designation: 11E	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500't open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 110'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -24.16' MLLW	Full Stroke: 10'-7"
Tip Elevation: -68.83' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 91.23'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
28			
29	3		Vibratory hammer used for first 28-feet
30	5		
31	6		
32	6		
33	6		
34	5		
35	6		
36	5		
37	5		
38	6	10 blows / 15 sec	
39	5		
40	4		
41	4		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
42	5		
43	9		
44	14		
45	REFUSAL	11 blows / 15 sec	Refusal was determined when the pile no longer advanced
46			

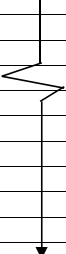
PILE DRIVING RECORD

Project: Wrangell Marine Service Center		Prepared by: Matt Graham	
PND Project Number: 052023.02		Date: September 19, 2006	
Pile Designation: 11G		Contractor: Kadin/Dawson	
Pile Type: 16" \varnothing x 0.500't open cutting shoe		Foreman: Gary Allen	
Batter: Vertical		Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)	
Initial Length: 110'		Rated Energy: 69,990 ft-lbs (max.)	
Ground Elevation: -22.96' MLLW		Full Stroke: 10'-7"	
Tip Elevation: -68.54' MLLW			
Cutoff Elevation: 22.31' MLLW			
Final Length: 90.94'			

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
32		↓	
33	5		
34	5		
35	5		
36	5		
37	5		
38	4		
39	4		
40	5	10 blows / 15 sec	
41	5		
42	4		Pile to be advanced with impact hammer until refusal under direction of the engineer of record
43	3		
44	6		
45	11	11 blows / 15 sec	
46	REFUSAL		Refusal was determined when the pile no longer advanced
47			

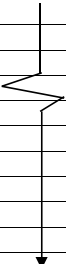
PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 19, 2006
Pile Designation: 12A	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 120'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -27.24' MLLW	Full Stroke: 10'-7"
Tip Elevation: -68.32' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 90.72'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			Pile to be advanced with impact hammer until refusal under direction of the engineer of record
2			
3			
38	↓		Vibratory hammer used for first 38-feet
39	14		
40	28		
41	53	11 blows / 15 sec	
42	REFUSAL		Refusal was determined when the pile no longer advanced
43			


PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 19, 2006
Pile Designation: 12C	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 120'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -26.58' MLLW	Full Stroke: 10'-7"
Tip Elevation: -71.62' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 94.02'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			Pile to be advanced with impact hammer until refusal under direction of the engineer of record
3			
42	↓		Vibratory hammer used for first 42-feet
43	36	11 blows / 15 sec	
44	57	11 blows / 15 sec	
45	62	10 blows / 15 sec	
46	REFUSAL	11 blows / 15 sec	Refusal was determined when the pile no longer advanced
47			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 19, 2006
Pile Designation: 12E	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 120'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -27.55' MLLW	Full Stroke: 10'-7"
Tip Elevation: -73.72' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 96.12'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			Pile to be advanced with impact hammer until refusal under direction of the engineer of record
3			
45		↓	11 blows / 15 sec
46	REFUSAL		Refusal was determined when the pile no longer advanced
47			

PILE DRIVING RECORD

Project: Wrangell Marine Service Center	Prepared by: Matt Graham
PND Project Number: 052023.02	Date: September 19, 2006
Pile Designation: 12G	Contractor: Kadin/Dawson
Pile Type: 16" \varnothing x 0.500"t open cutting shoe	Foreman: Gary Allen
Batter: Vertical	Hammer Type: Delmag 30-32 (impact) / ICE 22 (vibro)
Initial Length: 120'	Rated Energy: 69,990 ft-lbs (max.)
Ground Elevation: -28.20' MLLW	Full Stroke: 10'-7"
Tip Elevation: -73.78' MLLW	
Cutoff Elevation: 22.31' MLLW	
Final Length: 96.18'	

PENETRATION	BLOW COUNT	ESTIMATED ENERGY	NOTES
0	VH		
1			
2			
3			
40	▼		Vibratory hammer used for first 40-feet
41	3		
42	3		
43	3		
44	9	11 blows / 15 sec	
45	14		
46	REFUSAL		Refusal was determined when the pile no longer advanced
47			