

NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, (2010/2010.00). IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATI GPS NETWORK HOLDING THE PUBLISHED NAD83 2010.00 EPOCH VALUES OF NGC CORS STATIONS: "KLAWOKAKARRA2008 CORS ARP" (PID DM7451); "ATLIN CORS ARP" (PID DP9991); "JUNEAU WAAS 1 CORS ARP" (PID QF4367).
2. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET HOLDING "945 0998 TIDAL 3" AS 1,581,007.620; E 2,737,111.435; "945 0987 BM 1" AS 1,575,471.975; E 2,727,634.500; AND "945 0997 LYN" AS 1,581,415.016; E 2,754,466.954.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0 FT), BASED ON THE NOAA/NADS TIDAL BENCH MARKS: "945 0987 TIDAL 3" (VMM20876) AND "945 0987 TIDAL 4" (VMM20877). CAPTAIN PASSAGE, ALASKA" PUBLISHED 07/14/2014, AND "945 0989 DRY PASS, EL CAPITAN PASSAGE, AK" PUBLISHED 07/14/2014. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED TO A TIDAL-PLANE MLLW DATUM HOLDING NOAA/NADS TIDAL BENCH MARKS: "945 0987 BM 1" (VMM20876) AS 14.43 FT; "945 0987 LYN" (VMM20876) AS 10.59 FT; AND "945 0988 TIDAL 3" (VMM20878) AS 13.56 FT.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 (GEOID 128) ELEVATIONS HOLDING NOAA/USACE TIDAL BENCHMARKS: "945 0987 BM 1" (VMM4026) AS 12.94 FT, "945 0997 LYN" (PID BCCV41/VMM20876) AS 9.43 FT, AND "945 0998 TIDAL 3" (PID BCCV62/VMM20878) AS 12.07 FT.
5. SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED MARCH 31 AND APRIL 1. SOUNDINGS WERE COLLECTED USING AN RSONIC 204 MULTIBEAM ECHOSOUNDER OPERATING AT 200KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X-SOUND VELOCITY PROFILE. POSITIONING AND ORIENTATION AT THE SURVEY STATIONS WERE DETERMINED USING A REAL TIME KINEMATIC (RTK) RECEIVING RTK CORRECTIONS FROM A TRIMBLE SP5855 GPS RECEIVER SET AT CONTROL STATION "TIDAL 3". SURVEY DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING STATIC GNSS EQUIPMENT AND DIFFERENTIAL LEVELING.
7. MOBILE TERRESTRIAL LASER SCANNING DATA WAS COLLECTED USING A REIGL VZ4000 LASER SCANNER. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLAN POSMV OCEANMASTER V55 RECEIVING RTK CORRECTIONS FROM A TRIMBLE SP5855 GPS RECEIVER SET AT CONTROL STATION "TIDAL 3". MOBILE SCANNING WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE.
8. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
9. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL BASED. CONTOURS ARE BASED ON 12 FEET BINNED SHOAL-BASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE.

SURVEY CONTROL DATA

| STATION | NORTHING | EASTING | MLLW | DESCRIPTION |
|------------|--------------|--------------|-------|---------------------|
| 0987 BM 1 | 1,575,471.98 | 2,727,634.50 | 14.43 | 3.5" USCS DOMED BC |
| BETSY 1996 | 1,580,869.08 | 2,732,943.94 | 14.72 | DOMED SBC |
| LYN | 1,581,415.92 | 2,754,466.05 | 10.59 | 3.5" USACE DOMED BC |
| PTC | 1,580,391.15 | 2,741,998.01 | 12.27 | 1" PIPE WITH TACK |
| RICK | 1,578,763.46 | 2,729,012.51 | 14.34 | 3" DOMED SBC |
| TIDAL 3 | 1,581,007.62 | 2,737,111.44 | 13.56 | 3.5" USCS DOMED BC |

PROJECT CENTERLINE

| CORNER# | NORTHING | EASTING |
|---------|--------------|--------------|
| 1 | 1,577,302.17 | 2,727,990.11 |
| 2 | 1,577,760.13 | 2,728,747.61 |
| 3 | 1,579,124.63 | 2,729,625.01 |
| 4 | 1,580,499.83 | 2,732,171.41 |
| 5 | 1,580,712.58 | 2,732,965.11 |
| 6 | 1,581,798.91 | 2,734,585.71 |

PROJECT CENTERLINE


| | CORNER# | NORTHING | EASTING |
|---|---------|--------------|--------------|
| 8 | 7 | 1,582,013.12 | 2,735,743.96 |
| 5 | 8 | 1,580,909.56 | 2,739,084.66 |
| 6 | 9 | 1,580,502.23 | 2,740,770.21 |
| 9 | 10 | 1,579,579.97 | 2,742,779.60 |
| 7 | 11 | 1,579,407.64 | 2,744,265.08 |

VOLUME COMPUTATIONS

| AREA A: CHANNEL | MLLW=0 | CU, YD. |
|--|-----------|---------|
| AVAILABLE TO PROJECT DEPTH (PD) | -12.0 | 2,371 |
| AVAILABLE TO MAX PAY DEPTH (MP) | -13.0 | 4,949 |
| AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE | VARIABLES | 10,592 |
| TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS) | | 15,541 |



THIS HYDROGRAPHIC SURVEY WAS COMPLETED
UNDER THE OVERSIGHT OF AN ACSM/THSOA
CERTIFIED HYDROGRAPHER



David R. Neff C.H. (275)



US Army Corps
of Engineers®
ALASKA DISTRICT

| | |
|----------------------------------|------------------|
| CONTRACT NO. W911RB-14-D-0013039 | |
| CONTRACTOR ETAC INC. | |
| CITY WASILLA | STATE ALASKA |
| Recommended: | Approved: |
| MICHAEL E. MUELLER | THOMAS A. SLOAN |
| | Date: 00/12/2017 |

| Case No. | Case Name | Case Type | Case Status | Case Date | Case Location | Case Description | Case Action | Case Result |
|----------|-----------|--------------|----------------|--------------|------------------|---------------------|----------------|----------------|
| 1 | Case 1 | Case 1 Type | Case 1 Status | Case 1 Date | Case 1 Location | Case 1 Description | Case 1 Action | Case 1 Result |
| 2 | Case 2 | Case 2 Type | Case 2 Status | Case 2 Date | Case 2 Location | Case 2 Description | Case 2 Action | Case 2 Result |
| 3 | Case 3 | Case 3 Type | Case 3 Status | Case 3 Date | Case 3 Location | Case 3 Description | Case 3 Action | Case 3 Result |
| 4 | Case 4 | Case 4 Type | Case 4 Status | Case 4 Date | Case 4 Location | Case 4 Description | Case 4 Action | Case 4 Result |
| 5 | Case 5 | Case 5 Type | Case 5 Status | Case 5 Date | Case 5 Location | Case 5 Description | Case 5 Action | Case 5 Result |
| 6 | Case 6 | Case 6 Type | Case 6 Status | Case 6 Date | Case 6 Location | Case 6 Description | Case 6 Action | Case 6 Result |
| 7 | Case 7 | Case 7 Type | Case 7 Status | Case 7 Date | Case 7 Location | Case 7 Description | Case 7 Action | Case 7 Result |
| 8 | Case 8 | Case 8 Type | Case 8 Status | Case 8 Date | Case 8 Location | Case 8 Description | Case 8 Action | Case 8 Result |
| 9 | Case 9 | Case 9 Type | Case 9 Status | Case 9 Date | Case 9 Location | Case 9 Description | Case 9 Action | Case 9 Result |
| 10 | Case 10 | Case 10 Type | Case 10 Status | Case 10 Date | Case 10 Location | Case 10 Description | Case 10 Action | Case 10 Result |

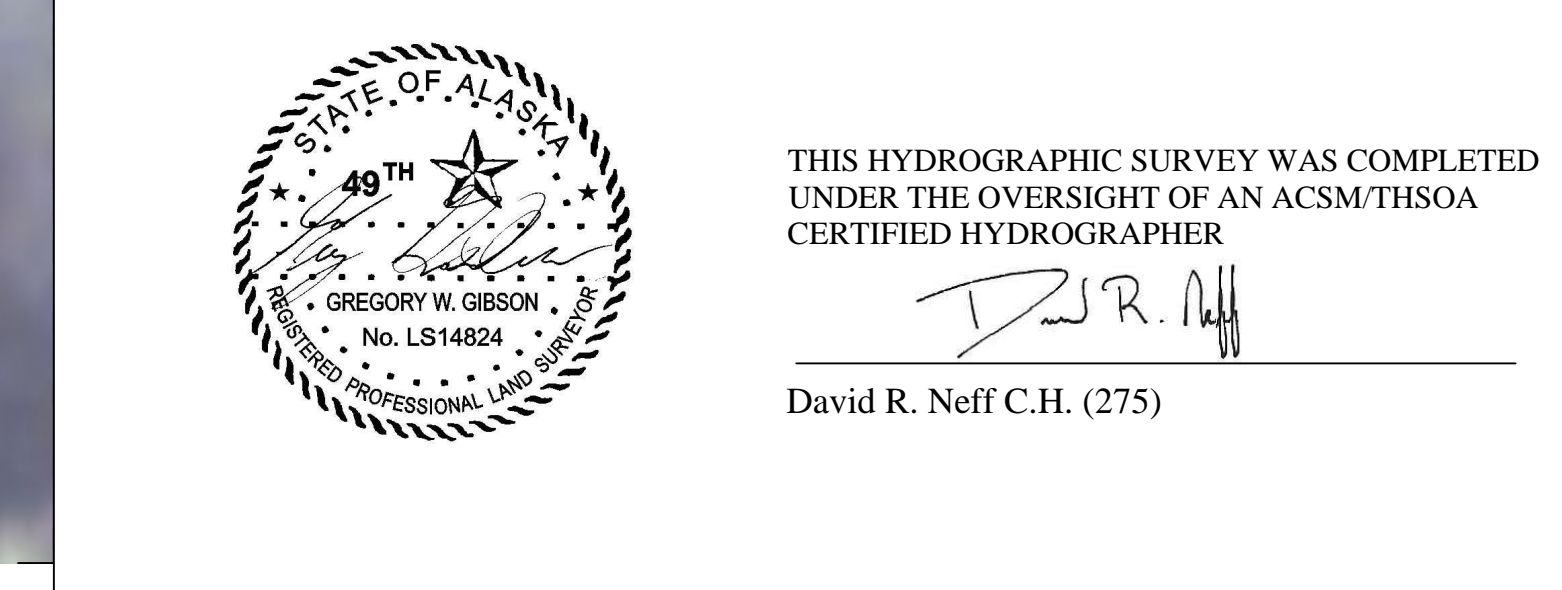
| | | | | |
|---|--|----------------------------|--|------------------------------|
|  U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT P.O. BOX 6868 JBER, Alaska 99506-0868 | SURVEYED BY: Joseph H. Gibson | | DATE: 12 June 2017 | |
| | APPROVED BY: JBER, Alaska 99506-0868 | | CONTRACT NO.: 67 S. Knik Goose Bay Rd, Saulte C Wasilla AK, 99694 | |
| RECEIVED BY: TASENUN/EGWG 072791 | | DATE: 06/12/2017 | | FILE NAME: as.docx |
| APPROVAL BY: Chief Geomatics Section Alaskan National Guard | | DATE: 06/12/2017 | | FILE NAME: as.docx |
| SIZE: 1" = 5' | | DATE: 06/12/2017 | | FILE NAME: as.docx |

















DRY PASS, ALASKA
DRY PASS CHANNEL
PROJECT CONDITION SURVEY
MARCH 29 - APRIL 01, 2017

SHEET
IDENTIFICATION

1-DRP-92-07-02

Sheet 19 of 24



| # | MIN. ELEV. | MAX. ELEV. | COLOR |
|----|------------|------------|---|
| 1 | -65.0 | -30.0 |  |
| 2 | -30.0 | -25.0 |  |
| 3 | -25.0 | -20.0 |  |
| 4 | -20.0 | -15.0 |  |
| 5 | -15.0 | -14.0 |  |
| 6 | -14.0 | -13.0 |  |
| 7 | -13.0 | -12.0 |  |
| 8 | -12.0 | -11.0 |  |
| 9 | -11.0 | -10.0 |  |
| 10 | -10.0 | -8.0 |  |
| 11 | -8.0 | -6.0 |  |
| 12 | -6.0 | -4.0 |  |
| 13 | -4.0 | -2.0 |  |
| 14 | -2.0 | 0.0 |  |
| 15 | 0.0 | 2.0 |  |
| 16 | 2.0 | 5.0 |  |

| VOLUME COMPUTATIONS | | |
|--|--------|---------|
| AREA A: CHANNEL | MLLW=0 | CU. YD. |
| AVAILABLE TO PROJECT DEPTH (PD) | -12.0 | 2,371 |
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