





## **NOTES**

PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83, IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (CORS) 2010.00 EPOCH VALUES OF NGS CORS STATIONS: "SOLDOTNA\_\_AK2007 CORS ARP" (AC23 - PID DM7487), "

LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83, IN US SURVEY FEET HOLDING BRASS CAP SET IN ARMOR STONE "NINIL-2" AS N 2,215,653.51', E 1,336,081.03'.

- VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0') U.S.SURVEY FEET, BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 5653 NINILCHIK, ALASKA" PUBLISHED 04/09/2018. THIS TIDAL DATUM IS BASED ON THE 2012-2016 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "5653 F 2011" (PID BBCM32/VM#20900) AS 29.49' AND NOAA/NOS TIDAL BENCH MARK "945 5653 E" (VM#14160) AS
- VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 (GEOID12A) ELEVATIONS HOLDING NOAA/USACE TIDAL BENCHMARK "5653 F 2011" (PID BBCM32/VM#20900)
- SOUNDINGS ARE IN U.S. SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- BATHYMETRY WAS COLLECTED APRIL 24 27 2019. SOUNDINGS WERE COLLECTED USING A CEESCOPE ECHO SOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X2 SOUND VELOCITY PROBE. POSITION AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATICS CORRECTIONS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET A CONTROL STATION, "NINIL-2". DATA WAS COLLECTED AND PROCESSED USING HYPACK 2019 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
- MAP SOUNDINGS, CONTOURS, COLOR RELIEF, AND VOLUME COMPUTATIONS ARE BASED ON A 10 FOOT

SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
9455653 E	2,215,592.06	1,336,145.04	30.61	METAL ROD IN BW ROCK
9455653 F	2,214,548.53	1,335,413.68	29.49	METAL ROD IN GROUND
9455653 G	2,214,391.31	1,335,295.69	29.77	METAL ROD IN GROUND
DL	2,215,518.12	1,336,349.90	25.38	ALUMINUM CAP
NINIL-2	2,215,653.51	1,336,081.03	29.53	USACE SBC

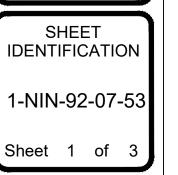
PROJECT LIMITS			PROJECT LIMITS		
RNER#	NORTHING	EASTING	CORNER#	NORTHING	EASTING
1	2,215,380.30	1,336,164.37	8	2,215,407.15	1,336,268.37
2	2,215,425.79	1,336,111.41	9	2,215,588.16	1,336,268.15
3	2,215,123.35	1,335,851.63	10	2,216,017.64	1,335,816.29
4	2,215,058.05	1,335,927.64	11	2,215,980.40	1,335,782.90
5	2,215,045.59	1,335,954.77	12	2,215,551.92	1,336,233.70
6	2,215,074.98	1,335,968.27	13	2,215,442.00	1,336,232.41
7	2,215,347.60	1,336,202.44			

NAVIGATION AIDS			
USCG NO.	NORTHING	EASTING	DESCRIPTION
26255	2,215,714	1,336,165	CHANNEL ENTRANCE LIGHT
26260	2,215,636	1,336,257	ROCK SILL NORTH DAYBEACON
26265	2,215,696	1,336,042	ROCK SILL SOUTH DAYBEACON

VOLUME COMPUTATIONS				
AREA A: BASIN	MLLW=0	CU. YD.		
AVAILABLE TO PROJECT DEPTH (PD)	+3.3	4,387		
AVAILABLE TO MAX PAY DEPTH (MP)	+2.3	6,162		
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	1,703		
AREA B: ENTRANCE CHANNEL				
AVAILABLE TO PROJECT DEPTH	+9.3	1,185		
AVAILABLE TO MAX PAY DEPTH (MP)	+8.3	2,502		
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VAIRES	3,311		
TOTAL MAXIMUM VOLUME AVAILABLE (MP)		13,678		



THIS HYDROGRAPHIC SURVEY WAS COMPLETED UNDER THE OVERSIGHT OF AN ACSM/THOSOA CERTIFIED HYDROGRAPHER CORY S. HUGHES C.H. (245)







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SHEET IDENTIFICATION 1-NIN-92-07-53