

DREDGE LIMITS CURVE DATA (FT)					
CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	125.02	202.40	92°45'31"	N00°04'18"W	181.01
C2	75.00	123.38	94°15'21"	N00°40'26"E	109.93

ALIGNMENT DATA (FT)						
NUMBER	LENGTH	LINE/CHORD BEARING	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD LENGTH
L1	491.35	N40° 39' 57"E	-----	-----	-----	-----
C3	-----	N44° 15' 53.00"E	25.13	200.00	7°11'52"	25.11
C4	-----	N00° 42' 17.31"E	164.62	100.00	94°19'04"	146.65
L2	76.04	N47° 51' 49"E	-----	-----	-----	-----
L3	622.68	N46° 27' 15"W	-----	-----	-----	-----

OBSTRUCTION DATA				
ID	NORTHING	EASTING	DEPTH	
OBST-1	2,215,340.7	1,336,102.8	-5.0	
OBST-2	2,215,310.4	1,336,077.7	-4.0	
OBST-3	2,215,250.2	1,336,024.2	-4.5	
OBST-4	2,215,125.9	1,335,917.9	-3.4	



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), "DRIFTRIVERAK2006 CORS ARP" (AC17 - PID DM7481) AND "SEALROCKSAK2007 CORS ARP" (AC43 - PID DM7496).
- 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 07/14/2014. THIS TIDAL DATUM IS BASED ON THE 2007-2011 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "5653 F 2011" (PID BBCM32/VM20900) AS 29.50' AND NOAA/NOS TIDAL BENCH MARK "945 5653 E" (VM#14160) AS 30.62'.
- VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 (GEOID12A) ELEVATIONS HOLDING NOAA/NOS TIDAL BENCH MARK "5653 F 2011" (PID BBCM32/VM20900) AS 23.27'.
- SOUNDINGS ARE IN U.S. SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- BATHYMETRY WAS COLLECTED MAY 3, 2018. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBeam ECHOSOUNDER OPERATING AT 400 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X2 SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLAN POSMV WAVE MASTER SYSTEM. DATA WAS COLLECTED AND PROCESSED USING HYPPACK 2018 SOFTWARE. LOCAL HORIZONTAL AND VERTICAL CONTROL WERE VERIFIED DURING THE PRE DREDGE SURVEY.
- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
- MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE SHOAL-BASED ON CELL CENTER. CONTOURS AND COLOR RELIEF ARE BASED ON 3 FOOT BINNED SHOAL-BASED SOUNDINGS ON CELL CENTER. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS ON CELL CENTER.

SURVEY CONTROL DATA					
STATION	NORTHING	EASTING	MLLW	DESCRIPTION	
9455653 E	2,215,592.06	1,336,145.04	30.62	METAL ROD IN BW ROCK	
9455653 F	2,214,548.53	1,335,413.68	29.50	METAL ROD IN GROUND	
9455653 G	2,214,391.31	1,335,295.69	29.78	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	

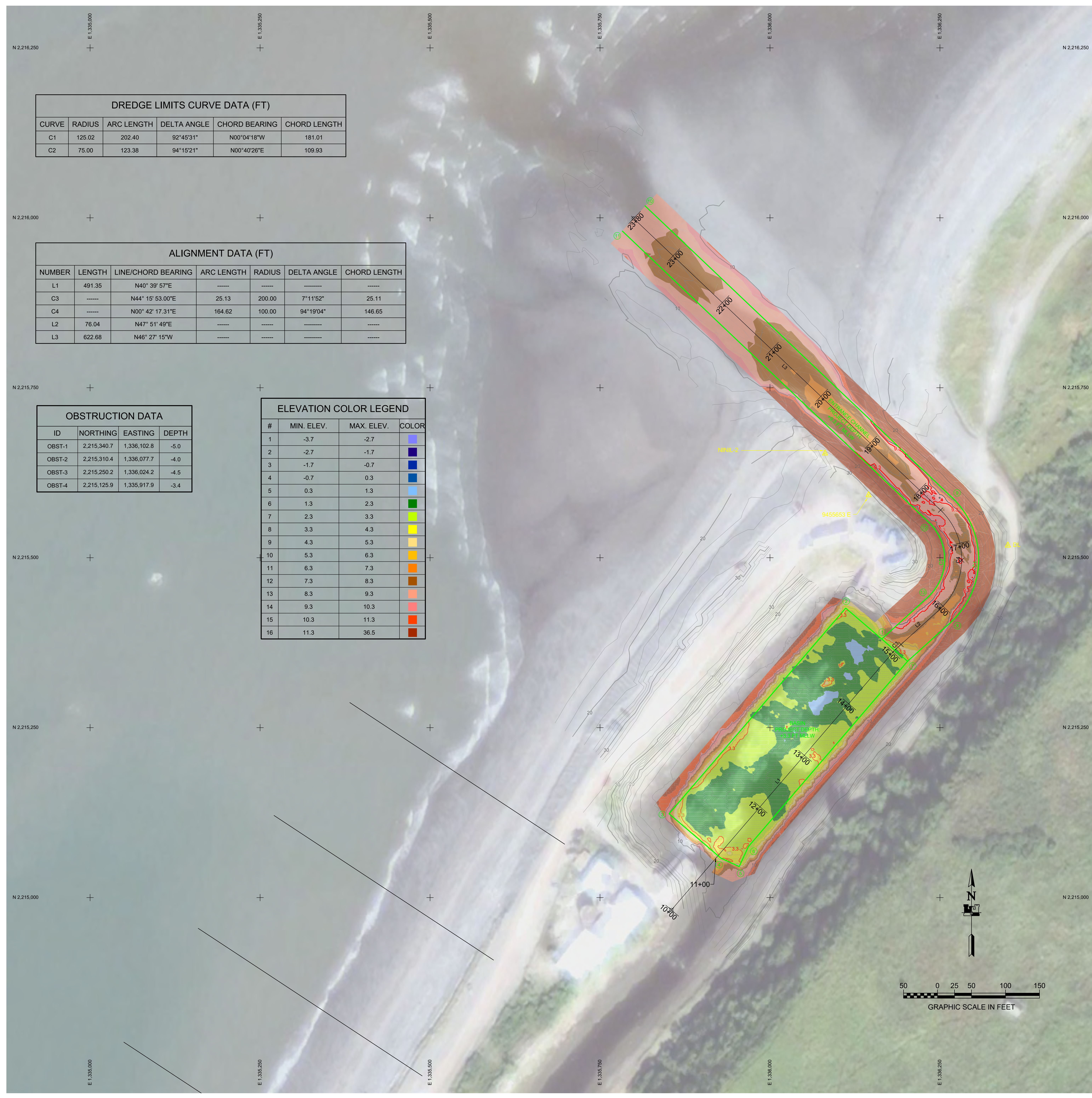
PROJECT LIMITS			PROJECT LIMITS		
CORNER#	NORTHING	EASTING	CORNER#	NORTHING	EASTING
1	2,215,380.30	1,336,164.37	8	2,215,407.15	1,336,268.37
2	2,215,425.79	1,336,111.41	9	2,215,588.16	1,336,268.15
3	2,215,123.35	1,335,851.63	10	2,216,017.64	1,335,816.29
4	2,215,058.05	1,335,927.64	11	2,215,980.40	1,335,782.90
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	REMOVED TO PROJECT DEPTH (PD)	MLLW=0	CU. YD.
AREA A: BASIN	REMOVED TO PROJECT DEPTH (PD)	+3.3	4,927
	REMOVED TO MAX PAY DEPTH (MP)	+2.3	6,383
	REMOVED SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	1,201
AREA B: ENTRANCE CHANNEL	REMOVED TO PROJECT DEPTH	+9.3	874
	REMOVED TO MAX PAY DEPTH (MP)	+8.3	1,693
	REMOVED SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	786
TOTAL MAXIMUM VOLUME REMOVED (MP)			10,063
DREDGE AREA OVERDREDGE		VARIES	891

THIS HYDROGRAPHIC SURVEY WAS COMPLETED UNDER THE OVERSIGHT OF AN ACMG/THOSSA CERTIFIED HYDROGRAPHER
 Cory S. Hughes
 CORY S. HUGHES, CH. (245)

US Army Corps of Engineers - ALASKA DISTRICT
 CONTRACT NO. W11L137-0007
 CONTRACTOR: ALASKA MARINE ELEVATION
 CITY: ANCHORAGE, STATE: ALASKA
 PROJECT: NINILCHIK SMALL BOAT HARBOR POST DREDGE SURVEY
 SHEET IDENTIFICATION: 2-NIN-92-07-52
 SHEET 1 of 2



DREDGE LIMITS CURVE DATA (FT)					
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ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-3.7	-2.7	Blue
2	-2.7	-1.7	Dark Blue
3	-1.7	-0.7	Light Blue
4	-0.7	0.3	Light Cyan
5	0.3	1.3	Light Green
6	1.3	2.3	Green
7	2.3	3.3	Yellow-Green
8	3.3	4.3	Yellow
9	4.3	5.3	Light Orange
10	5.3	6.3	Orange
11	6.3	7.3	Dark Orange
12	7.3	8.3	Red-Orange
13	8.3	9.3	Red
14	9.3	10.3	Dark Red
15	10.3	11.3	Brown
16	11.3	36.5	Dark Brown



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Cory S. Hughes

CORY S. HUGHES C.H. (245)

CONTRACT NO. W11L1517-0-0007
 CONTRACTOR ALASKA MARINE ELEVATION
 CITY ANCHORAGE STATE ALASKA
 Recommended Approved Date
 Title CONTRACTOR Chief Geomatics Section

NO.	DESCRIPTION	DATE	BY	APPROVED
1	VOLUME TABLE CORRECTED	07/27/2018		
2	NOTES AS CORRECTED	08/06/2018		

DATE: JAN 30, 2018
 DESIGNED BY: JCH
 CHECKED BY: JCH
 APPROVED BY: JCH
 SCALE: 1" = 50'
 FILE NAME: NINILCHIK POST DREDGE_20180503.DWG

U.S. ARMY CORPS OF ENGINEERS
 ALASKA DISTRICT
 P.O. BOX 6908
 JBER, ALASKA 99506-8908

HUGHES & ASSOCIATES
 2970 COTTLE LOOP
 WASILLA, ALASKA 99684

NINILCHIK, ALASKA
NINILCHIK SMALL BOAT HARBOR
POST DREDGE SURVEY
APRIL 26-27 & MAY 2-3, 2018

SHEET IDENTIFICATION
 2-NIN-92-07-52
 Sheet 2 of 2