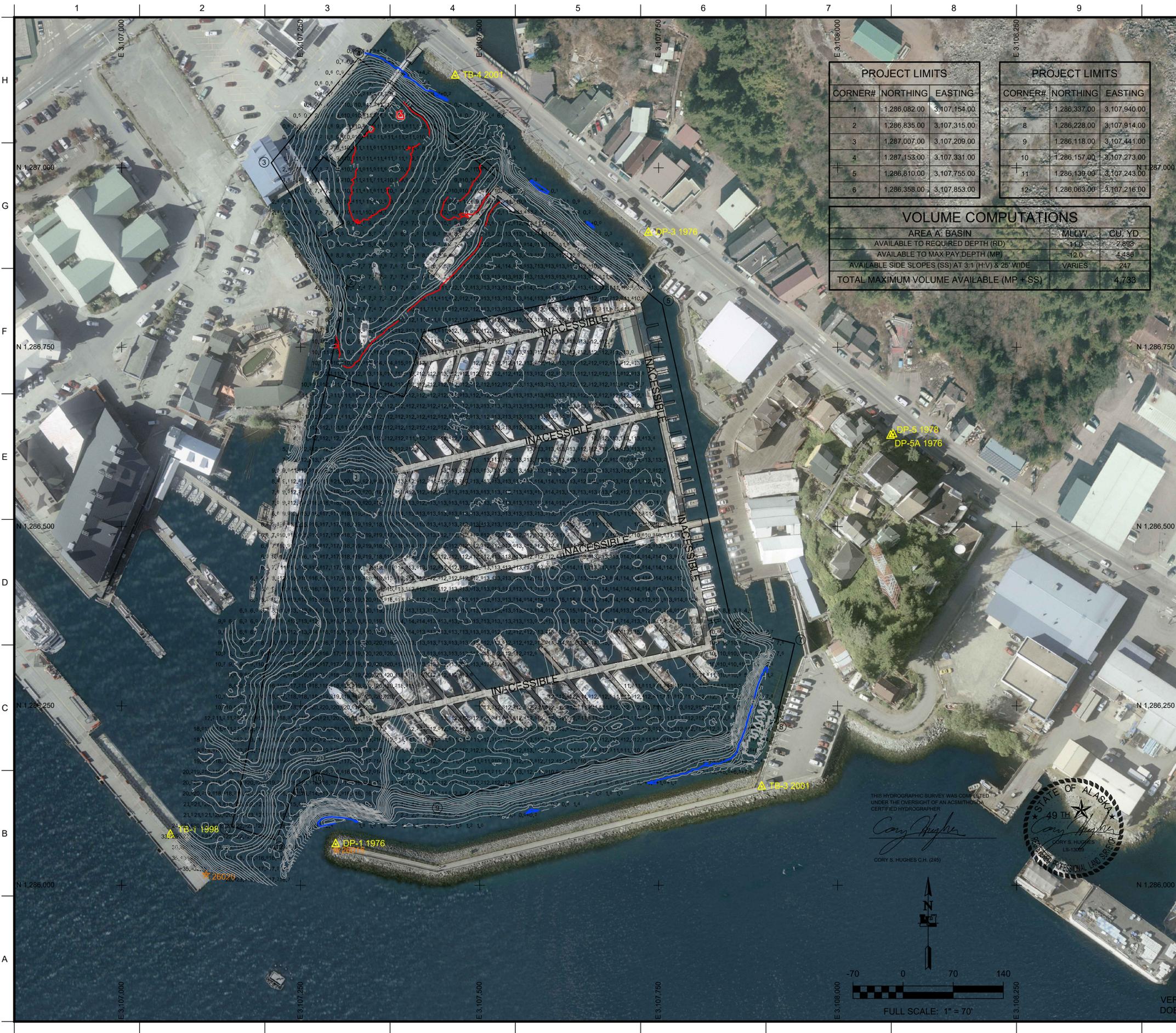


Drawing S:\2018\Ketchikan\510_CAD FILES\514_DWG\2018 Thomas Basin Maintenance Dredging Pre 20170123.dwg last saved on 2/15/2018 3:21 PM was plotted by CAD2 on 2/15/2018 3:25 PM



PROJECT LIMITS		
CORNER#	NORTHING	EASTING
1	1,286,082.00	3,107,154.00
2	1,286,835.00	3,107,315.00
3	1,287,007.00	3,107,209.00
4	1,287,153.00	3,107,331.00
5	1,286,810.00	3,107,755.00
6	1,286,358.00	3,107,853.00

PROJECT LIMITS		
CORNER#	NORTHING	EASTING
7	1,286,337.00	3,107,940.00
8	1,286,228.00	3,107,914.00
9	1,286,118.00	3,107,441.00
10	1,286,157.00	3,107,273.00
11	1,286,139.00	3,107,243.00
12	1,286,063.00	3,107,216.00

VOLUME COMPUTATIONS		
AREA A' BASIN	MLLW	CU. YD.
AVAILABLE TO REQUIRED DEPTH (RD)	-11.0	2,898
AVAILABLE TO MAX PAY DEPTH (MP)	-12.0	4,486
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	247
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		4,733



SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
DP-1 1976	1,286,057.25	3,107,299.01	21.07	3.5 IN DOMED USACE BC
DP-3 1976	1,286,909.68	3,107,735.62	21.76	3.5 IN DOMED USACE BC
DP-5 1978	1,286,628.48	3,108,077.52	35.69	3.5 IN DOMED USACE BC
DP-5A 1976	1,286,626.52	3,108,073.89	35.77	3.5 IN DOMED USACE BC
TB-1 1998	1,286,070.56	3,107,068.03	21.92	3.25 IN DOMED SBC
TB-3 2001	1,286,137.51	3,107,894.00	22.62	3.25 IN DOMED SBC
TB-4 2001	1,287,128.46	3,107,465.89	21.77	3.25 IN DOMED SBC

NAVIGATION AIDS			
USCG NO.	NORTHING	EASTING	DESCRIPTION
26015	1,286,049	3,107,300	THOMAS BASIN ENTRANCE LIGHT 2
26020	1,286,015	3,107,118	KETCHIKAN BERTH

- ### NOTES
- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (CORS96), IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (CORS96) 2010.00 EPOCH VALUES OF NGS CORS STATIONS: "ANNETTE ISLAND 5 CORS ARP" (AIS5 - PID DK6482); "KLAWOCKAIRAK2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID DJ3035).
LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET HOLDING "TB-3 2001" (PID BBDX22) AS N 1,286,137.51', E 3,107,894.00'.
 - VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 0460 KETCHIKAN, TONGASS NARROWS, ALASKA" PUBLISHED 09/27/2011. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "NO 37 1956" (PID: AI4914 / VM# 1170) AS 35.09'.
LOCAL PROJECT VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0') IN, US SURVEY FEET HOLDING "TB-3 2001" (PID BBDX22) AS 22.62'.
 - VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING NOAA TIDAL BENCHMARK "BM NO 37 1956" (PID AI4914 / VM# 1170) AS 31.27'.
 - SOUNDINGS ARE IN US SURVEY FEET AND ARE NEGATIVE UNLESS OTHERWISE INDICATED.
 - BATHYMETRY WAS COLLECTED JANUARY 22 & 23, 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 APPLANIX POSMV SYSTEM. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION OCCUPYING "TB-3 2001". POST PROCESSING KINEMATICS CORRECTIONS USING POSPAC MMS8.1 SOFTWARE WERE APPLIED TO DATA FOLLOWING ACQUISITION. DATA WAS COLLECTED AND PROCESSED USING HYPACK 2017 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES. TIDE ELEVATIONS WERE MEASURED USING TRIMBLE RTK SYSTEM.
 - THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
 - MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE SHOAL BIASED. COLOR RELIEF AND CONTOURS ARE BINNED AT 3 FEET AND ARE SHOAL BIASED.
- VERIFY SCALES: IF THIS LINE 0' | 12" DOES NOT MEASURE 2", ADJUST SCALE ACCORDINGLY.



US ARMY CORPS OF ENGINEERS ALASKA DISTRICT

CONTRACT NO. W911KB17C0023
 CONTRACTOR: WESTERN MARINE CONSTRUCTION INC.
 CITY: SEATTLE STATE: WA DATE: _____
 RECOMMENDED: _____ APPROVED: _____
 PRIME CONTRACTOR: _____ RESIDENT ENGINEER: _____

NO.	REVISION	DATE	BY	DESCRIPTION

DESIGNED: _____ DATE: 22 JANUARY 2018
 DRAWN: BTH / DCA DWG SCALE: AS NOTED
 REVIEWED: CSH PLOT SCALE: 1:1
 SUBMITTED: D. BLISS FILE: 20170123 Thomas Basin Maintenance Dredging
 CHECKED: C. HUGHES DRAWING NO: 1-KET-92-07-26

U.S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 ANCHORAGE, ALASKA

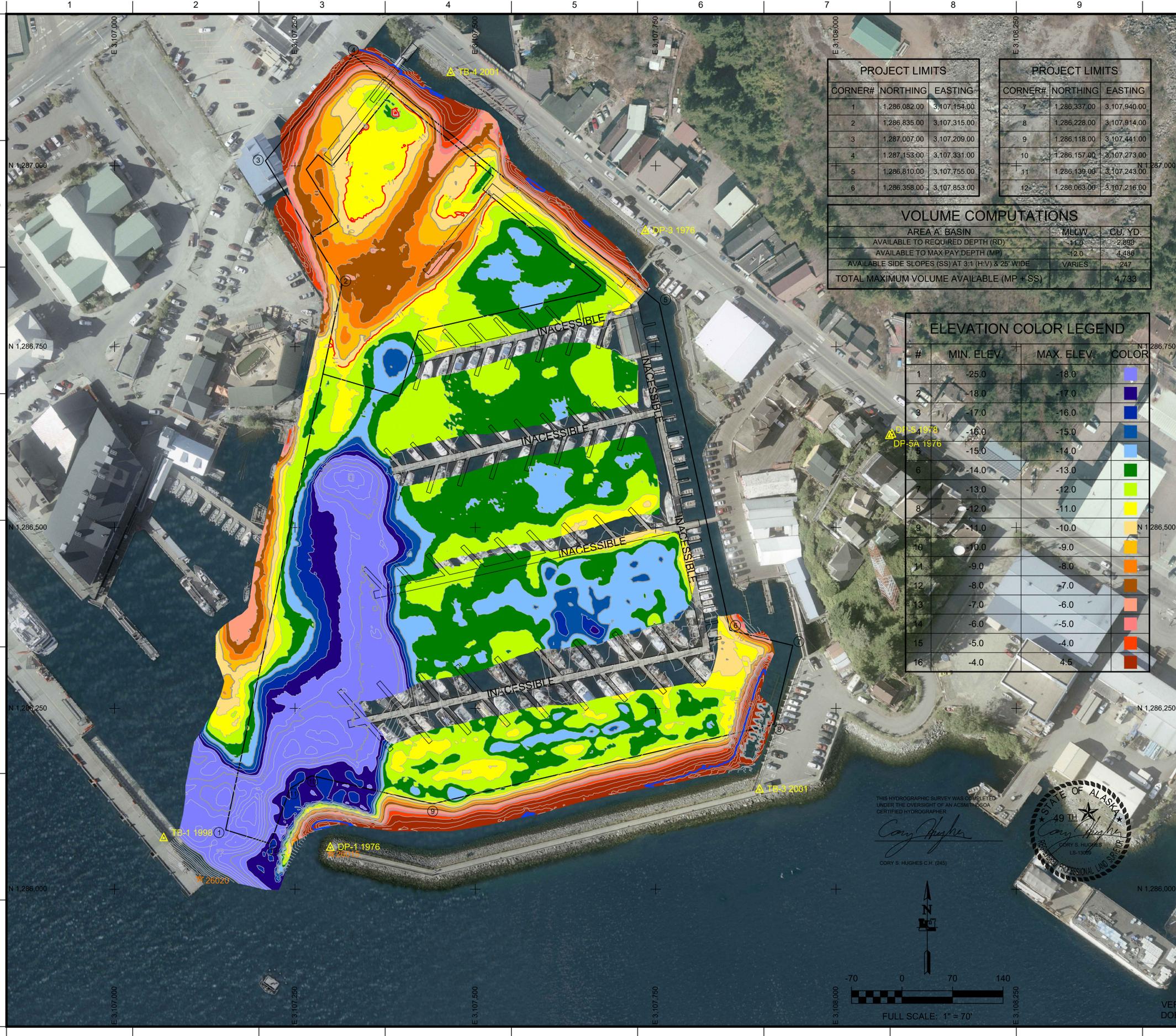
W911KB17C0023
P2 No. 403447
KET004

HUGHES & ASSOCIATES
 2970 COTTLE LOOP
 WASILLA, ALASKA 99654

KETCHIKAN, ALASKA
THOMAS BASIN MAINTENANCE DREDGING
SURVEY AND MAPPING
PRE DREDGE SURVEY
JANUARY 22 & 23, 2018

REFERENCE NUMBER:
V-101
 SHEET 1 OF 2

Drawing S:\2018\Ketchikan\510_CAD FILES\514_DWG\2018 Thomas Basin Maintenance Dredging Pre 20170123.dwg last saved on 2/15/2018 3:21 PM was plotted by CAD2 on 2/15/2018 3:25 PM



PROJECT LIMITS			PROJECT LIMITS		
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VOLUME COMPUTATIONS			
AREA A' BASIN	MLLW	CU. YD.	
AVAILABLE TO REQUIRED DEPTH (RD)	-11.0	2,898	
AVAILABLE TO MAX PAY DEPTH (MP)	-12.0	4,488	
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIABLES	247	
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		4,733	

ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-25.0	-18.0	Light Blue
2	-18.0	-17.0	Blue
3	-17.0	-16.0	Light Blue
4	-16.0	-15.0	Light Blue
5	-15.0	-14.0	Light Blue
6	-14.0	-13.0	Light Green
7	-13.0	-12.0	Light Green
8	-12.0	-11.0	Light Green
9	-11.0	-10.0	Light Green
10	-10.0	-9.0	Light Green
11	-9.0	-8.0	Light Green
12	-8.0	-7.0	Light Green
13	-7.0	-6.0	Light Green
14	-6.0	-5.0	Light Green
15	-5.0	-4.0	Light Green
16	-4.0	4.5	Light Green



SURVEY CONTROL DATA				
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CONTRACT NO. W911KB17C0023
 CONTRACTOR WESTERN MARINE CONSTRUCTION INC.
 CITY SEATTLE STATE WA DATE
 RECOMMENDED APPROVED
 PRIME CONTRACTOR RESIDENT ENGINEER

DATE: 22 JANUARY 2018
 DRAWING: BTH/DCA
 DRAWING SCALE: AS NOTED
 PLOT SCALE: 1:1
 REVIEWED: CSH
 CHECKED: JEL
 SUBMITTED: D BLISS
 FILE: Z:\Thomas Basin\Thomas Basin\2018\1-KET-02-07-26
 DRAWING # 1-KET-02-07-26

W911KB17C0023
P2 No. 403447
KET004

KETCHIKAN, ALASKA
 THOMAS BASIN MAINTENANCE DREDGING SURVEY AND MAPPING
 PRE DREDGE SURVEY
 JANUARY 22 & 23, 2018

REFERENCE NUMBER:
V-102
 SHEET 2 OF 2