

MATANUSKA-SUSITNA BOROUGH
 350 E. DAHLIA AVE.
 PALMER, ALASKA 99645
 Port Director
 (907) 746-7414



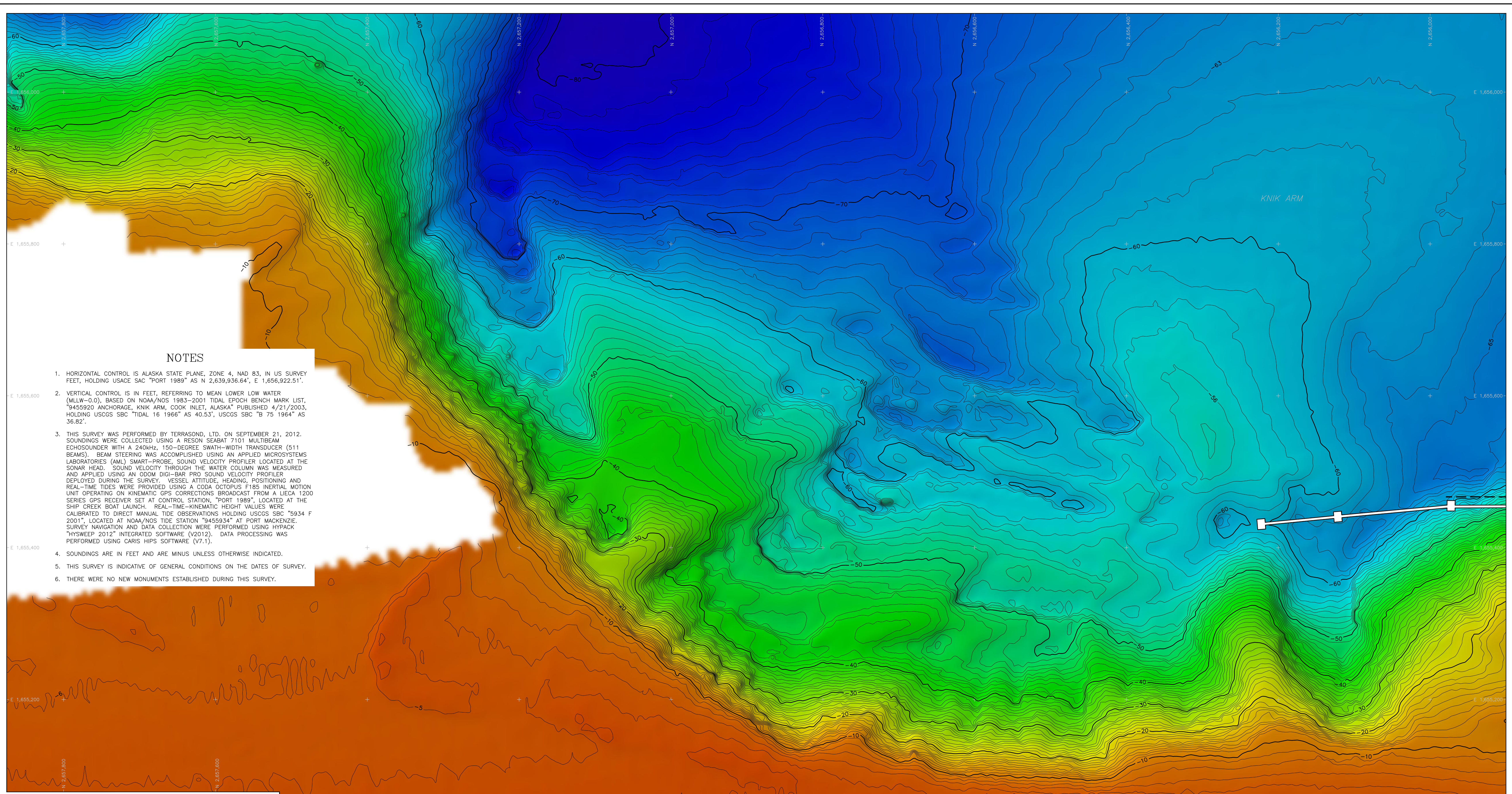
TERRASOND
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 www.terrasond.com email:terra@terrasond.com

Corporate Office
 1617 South Industrial Way, Suite 3
 Palmer, Alaska 99645 USA
 +1.907.745.7215

PORT MACKENZIE
 CONDITION SURVEY
 SEPTEMBER 21, 2012
 COLOR CONTOUR CHART

REV. NO.:	REVISION	SIGNED:	DATE:

DRAWN BY: KNB	CHECKED BY: JCM/KDW	SURVEY DATES: 09/21/12
SHEET: 1 OF 4	PROJECT NO.: 2012-060	DRAFT DATE: 10/15/12



NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD 83, IN US SURVEY FEET, HOLDING USACE SAC "PORT 1989" AS N 2,639,936.64', E 1,656,922.51'.
2. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW-0.0), BASED ON NOAA/NOS 1983-2001 TIDAL EPOCH BENCH MARK LIST, "9455920 ANCHORAGE, KNIK ARM, COOK INLET, ALASKA" PUBLISHED 4/21/2003, HOLDING USCGS SBC "TIDAL 16 1966" AS 40.53', USCGS SBC "B 75 1964" AS 36.92'.
3. THIS SURVEY WAS PERFORMED BY TERRASOND, LTD. ON SEPTEMBER 21, 2012. SOUNDINGS WERE COLLECTED USING A RESON SEABAT 7101 MULTIBEAM ECHOSOUNDER WITH A 240kHz, 150-DEGREE SWATH-WIDTH TRANSDUCER (511 BEAMS). BEAM STEERING WAS ACCOMPLISHED USING AN APPLIED MICROSYSTEMS LABORATORIES (AML) SMART-PROBE, SOUND VELOCITY PROFILER LOCATED AT THE SONAR HEAD. SOUND VELOCITY THROUGH THE WATER COLUMN WAS MEASURED AND APPLIED USING AN ODOM DIGI-BAR PRO SOUND VELOCITY PROFILER DEPLOYED DURING THE SURVEY. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A CODA OCTOPUS F185 INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A LIECA 1200 SERIES GPS RECEIVER SET AT CONTROL STATION, "PORT 1989", LOCATED AT THE SHIP CREEK BOAT LAUNCH. REAL-TIME KINEMATIC HEIGHT VALUES WERE CALIBRATED TO DIRECT MANUAL TIDE OBSERVATIONS HOLDING USCGS SBC "5934 F 2001", LOCATED AT NOAA/NOS TIDE STATION "9455934" AT PORT MACKENZIE. SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2012" INTEGRATED SOFTWARE (v2012). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (v7.1).
4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
5. THIS SURVEY IS INDICATIVE OF GENERAL CONDITIONS ON THE DATES OF SURVEY.
6. THERE WERE NO NEW MONUMENTS ESTABLISHED DURING THIS SURVEY.

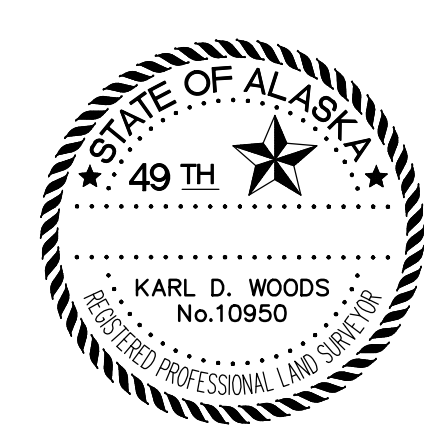
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PORT MACKENZIE
CONDITION SURVEY
SEPTEMBER 21, 2012
COLOR CONTOUR CHART

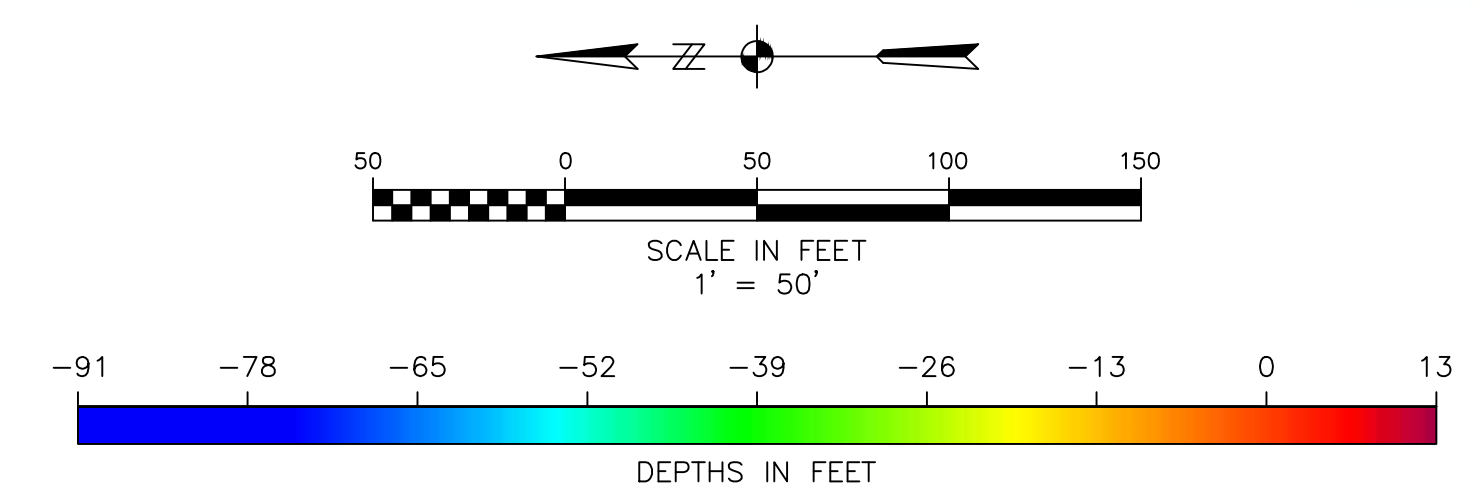
REV. NO.:	REVISION	SIGNED:	DATE:
DRAWN BY: KNB	CHECKED BY: JCM/KDW	SURVEY DATES: 09/21/12	
SHEET: 2 OF 4	PROJECT NO.: 2012-060	DRAFT DATE: 10/15/12	

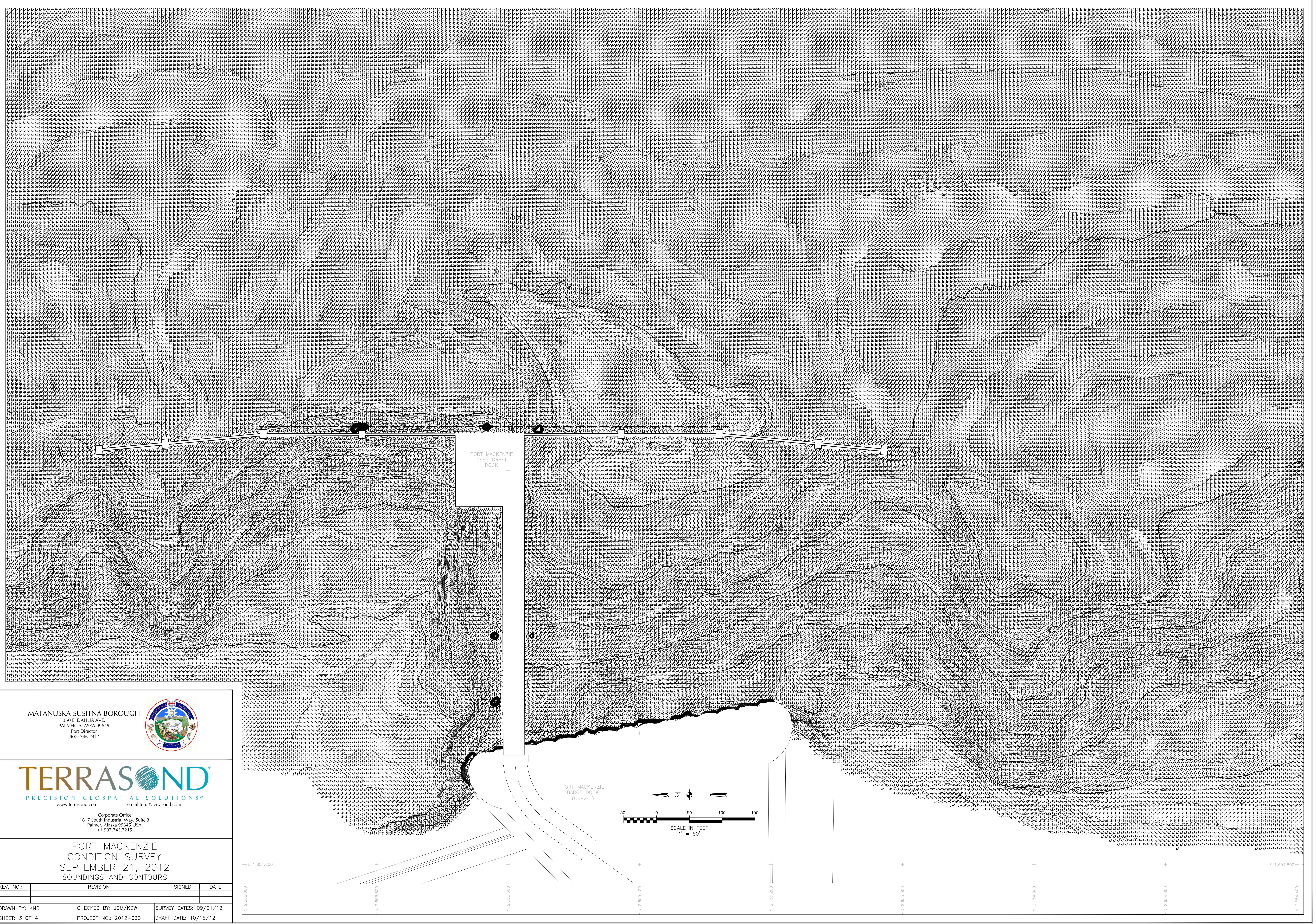


SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA AND THAT THIS PLAT REPRESENTS A HYDROGRAPHIC SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION. THE ELEVATIONS SHOWN HEREON DEPICT THE DEPTHS AS SURVEYED SEPTEMBER 21, 2012, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

KARL D. WOODS, P.L.S.
REGISTRATION NO. LS 10950

OCTOBER 15, 2012
DATE





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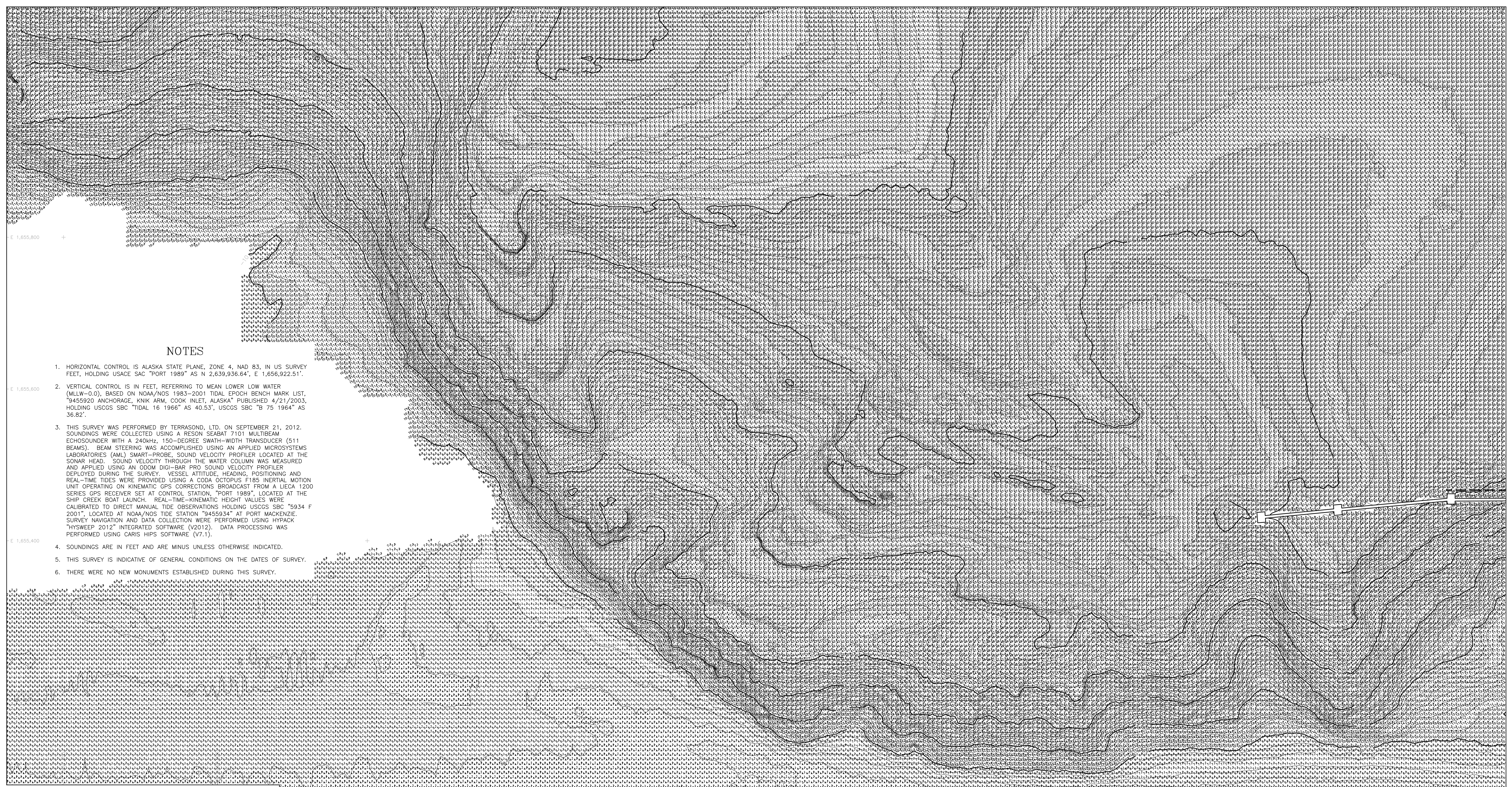
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PORT MACKENZIE
 CONDITION SURVEY
 SEPTEMBER 21, 2012
 SOUNDINGS AND CONTOURS

REV. NO.	REVISION	SIGNED:	DATE:

DRAWN BY: KNB	CHECKED BY: JCM/KDW	SURVEY DATES: 09/21/12
SHEET: 3 OF 4	PROJECT NO.: 2012-060	DRAFT DATE: 10/15/12



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CONDITION SURVEY
SEPTEMBER 21, 2012
SOUNDINGS AND CONTOURS**

REV. NO.:	REVISION	SIGNED:	DATE:

DRAWN BY: KNB	CHECKED BY: JCM/KDW	SURVEY DATES: 09/21/12
SHEET: 4 OF 4	PROJECT NO.: 2012-060	DRAFT DATE: 10/15/12

