

Owner: King County

Project: Lower Duwamish Waterway ENR/AC Pilot

Dates: January 9, 2017 to January 13, 2017

Weekly Progress Meeting Summary:

- Schedule:
 - No work performed Monday January 16, 2017. (MLK - Govt. Holiday)
 - Sub-tidal plot placement of Sand+AC started on January 9, 2017.
 - Placement of Sand+AC scheduled to be completed on Jan 18, 2017. Barge dewatering will then be completed and any remain material be removed.
 - The loading the Sand on the KP-3 was completed on Friday, Jan 13th.
 - The placement of the Sand in the subplot expected to start at the end of the week.
 - Subtidal plot is scheduled to be completed by Jan 25th.
- Issues:
 - No issues at this time; but when placing at Sub-tidal Plot which is within the Navigation channel be aware of the minimum depth requirements that must be maintained.
 - Vessel traffic has not been issue.

Construction Progress:

- Schedule (updated weekly by contractor – Attached)
- General progress with respect to schedule
 - Completed ~80% of the placement grid in the Sand+AC Sub-tidal subplot.
 - Loading of the Sand ENR was performed on Jan 13th.
 - Work scheduled for this week:
 - Complete Sand+AC placement in Subtidal plot.
 - Dewater the KP-2 (Sand+AC barge) and remove any remaining material in the barge.
 - Daily hydrographic surveys performed at the end of each shift.

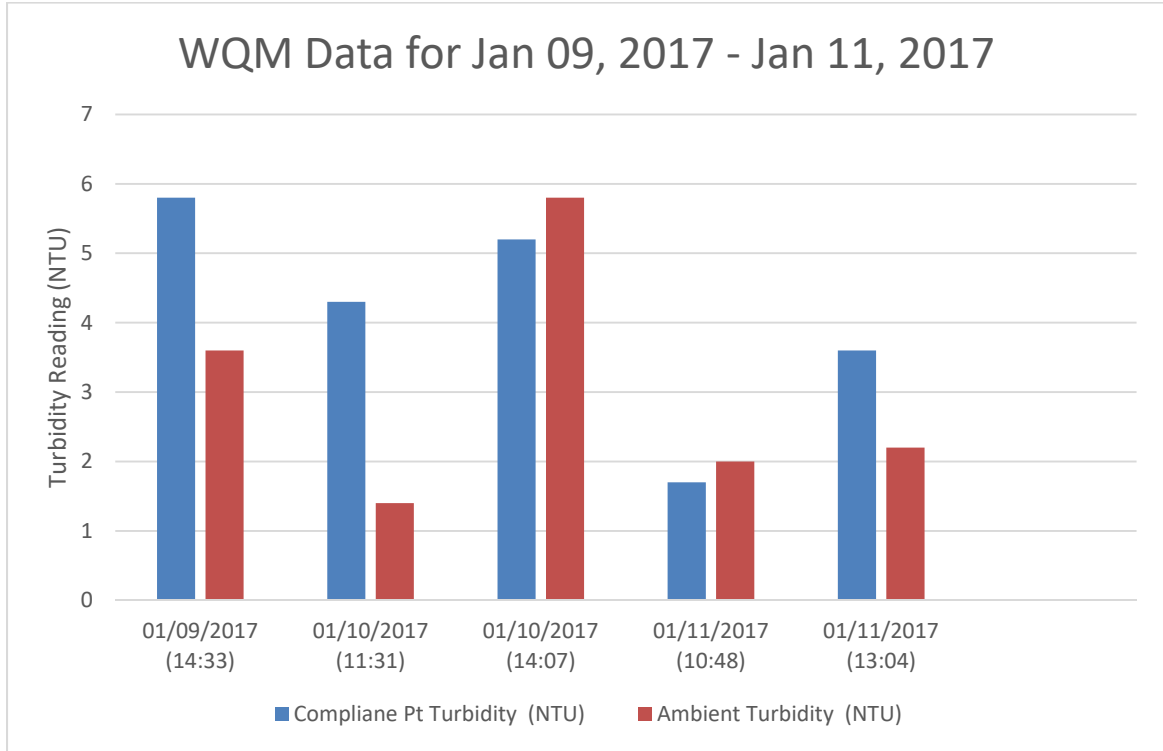
Problems Encountered (If Any) & Associated Action Items: None See Comments below:

Problems Encountered	Date	Required Action	Date Completed
Frozen blocks of sand at the Cal-Portland Dupont facility made loading of the KP-3 more difficult. The freezing conditions increased the loading time from approximate 1 hour to more than 3 hours.	01/13/2017	No action required. Freezing conditions only increased the time it took to load the barge. If sand was to be amended with AC it would be difficult to	

Water Quality Monitoring:

- Observed non-construction-related events that impacted water quality.
 - None
- Summary of water quality criteria violations and actions taken.

- No exceedances at the 150 or 300 foot compliance points to report during the 5 monitoring events that took place during the week. The table below summarizes the WQM data.



QA Inspections:

- Results:
 - QA Inspections:
 - DOF representative was at Cal-Portland’s Dupont facility to observe the loading of the Sand ENR. No samples were collected per the QAPP.
 - Surveying (Performed at the end of each shift. Attached is the Jan 13, 2017 survey)
 - Monitoring Activities:
 - Divers performed post placement measurements and dock inspection at Scour Plot on Jan 9th and 10th. Average thickness for the Gravelly Sand + AC and Gravelly Sand subplots were 9 inches and 10 inches respectively.
 - Year Zero monitoring occurred at the Intertidal Plot on Wed, Jan 11, 2017.
- Out of Spec Conditions (if encountered) & Corrective Actions: None See Comments below:

Out of Spec condition	Date	Corrective Action	Date Completed

Weekly Photo Log – LDW ENR/AC Pilot



Photo 1-A: RSS dive boat prepping to perform post placement stake measurements.



Photo 1-B: Terrasond representative establishing RTK GPS base station at Lafarge dock prior to placement activities at the Sub-tidal plot.

Weekly Photo Log – LDW ENR/AC Pilot



Photo 2-A: AMECFW performing WQM downstream of placement activities at the Sub-tidal plot.



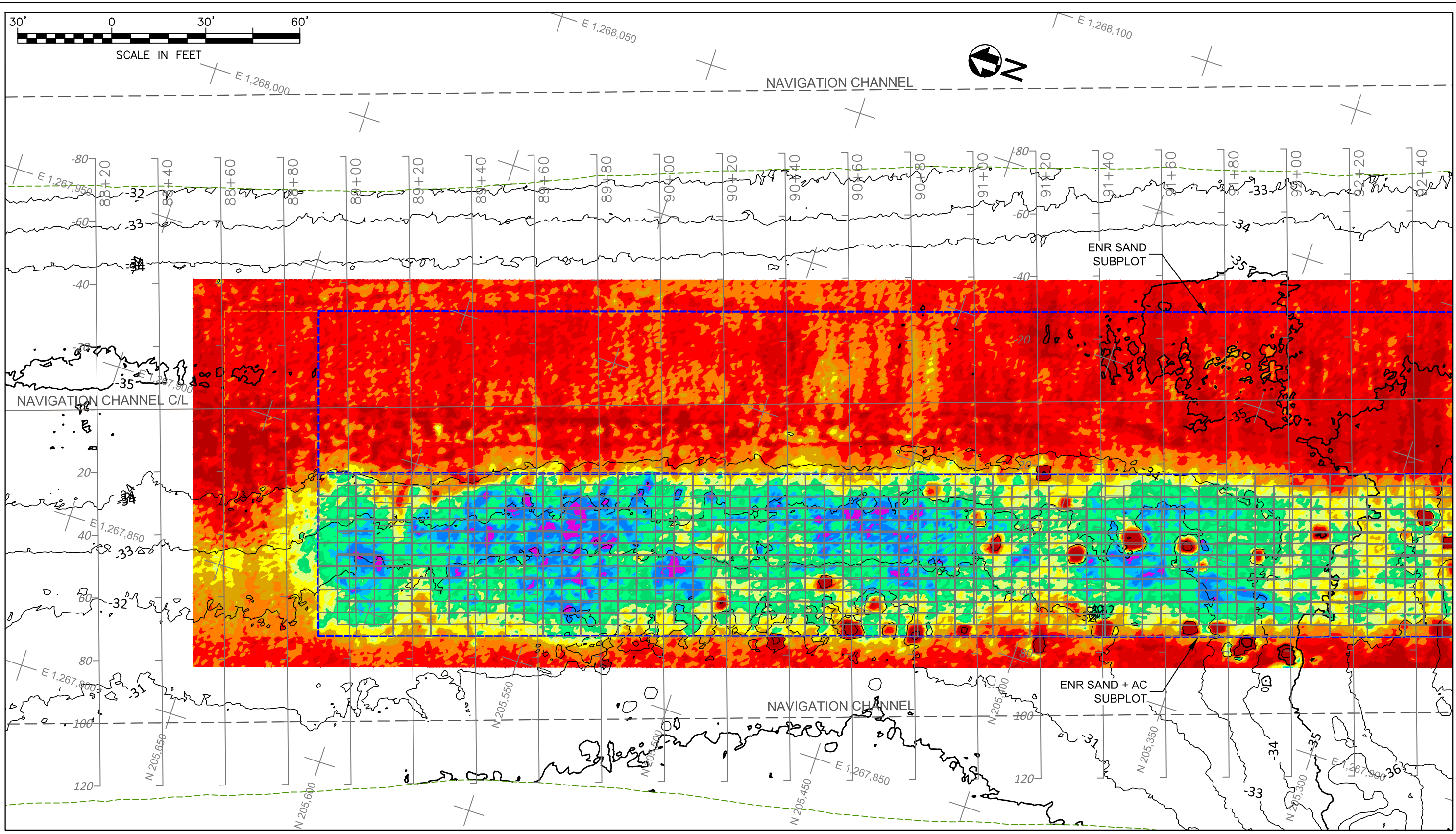
Photo 2-A: Sand ENR stockpile at the Cal-Portland's Dupont facility. Note the blocks of frozen sand. These blocks of frozen sand made loading difficult.

ID	Task Mode	Task Name	Duration	Start	Finish	Nov 20, '16			Dec 4, '16			Dec 18, '16			Jan 1, '17			Jan 15, '17			Jan 29, '17			Feb 12, '17					
						S	T	M	F	T	S	W	S	T	M	F	T	S	W	S	T	M	F	T	S	W	S		
1		General	180 days	Wed 6/1/16	Tue 2/14/17																								
2		Contract Award	0 days	Wed 6/1/16	Wed 6/1/16																								
3		Phase 1 Notice to Proceed	0 days	Wed 6/1/16	Wed 6/1/16																								
4		Start In-Water Work	0 days	Tue 11/29/16	Tue 11/29/16																								
5		Phase 2 Substantial Completion	0 days	Fri 1/27/17	Fri 1/27/17																								
6		Punchlist	2 days	Mon 1/30/17	Tue 1/31/17																								
7		Closeout	10 days	Wed 2/1/17	Tue 2/14/17																								
8		Complete In-Water Work	0 days	Tue 2/14/17	Tue 2/14/17																								
9		Final Acceptance	0 days	Tue 2/14/17	Tue 2/14/17																								
10		Materials Placement	41 days	Tue 11/29/16	Fri 1/27/17																								
11		Test Placement	2 days	Tue 11/29/16	Wed 11/30/16																								
12		Test Placement Area- Sand + AC	1 day	Tue 11/29/16	Tue 11/29/16																								
13		Test Placement Area- Gravelly Sand + AC	1 day	Wed 11/30/16	Wed 11/30/16																								
14		Intertidal Plot	14 days	Thu 12/1/16	Tue 12/20/16																								
15		Intertidal Plot- Gravelly Sand + AC	6 days	Thu 12/1/16	Thu 12/8/16																								
16		Intertidal Plot- Gravelly Sand	7 days	Fri 12/9/16	Mon 12/19/16																								
17		Hydrographic As-Built Survey	0 days	Tue 12/20/16	Tue 12/20/16																								
18		Scour Plot	12 days	Tue 12/20/16	Fri 1/6/17																								
19		Scour Plot- Gravelly Sand + AC	6 days	Tue 12/20/16	Wed 12/28/16																								
20		Scour Plot- Gravelly Sand	6 days	Thu 12/29/16	Fri 1/6/17																								
21		Hydrographic As-Built Survey	0 days	Fri 1/6/17	Fri 1/6/17																								
22		Subtidal Plot	14 days	Mon 1/9/17	Fri 1/27/17																								
23		Subtidal Plot- Sand + AC	8 days	Mon 1/9/17	Thu 1/19/17																								
24		Subtidal Plot- Sand	6 days	Fri 1/20/17	Fri 1/27/17																								
25		Hydrographic As-Built Survey	0 days	Fri 1/27/17	Fri 1/27/17																								

Project: Baseline Schedule-Update Date: Wed 1/18/17	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			

ID	Task Mode	Task Name	Duration	Start	Finish	Jan 8, '17				Jan 15, '17			Jan 22, '17				Jan 29, '17		
						S	M	W	F	S	T	T	S	M	W	F	S		
1		ENR Placement Activities	14 days	Mon 1/9/17	Fri 1/27/17														
2		Subtidal	14 days	Mon 1/9/17	Fri 1/27/17														
3		Place Sand + AC	7 days	Mon 1/9/17	Wed 1/18/17														
4		Clean KP2 Barge, Place Any Remaining Sand + AC Material	1 day	Thu 1/19/17	Thu 1/19/17														
5		Place Sand	6 days	Fri 1/20/17	Fri 1/27/17														
6		Survey Activities	10 days	Mon 1/16/17	Fri 1/27/17														
7		Subtidal: Post-Placement Survey	0 days	Fri 1/27/17	Fri 1/27/17														
8		Remove Basestation Equipment	0 days	Fri 1/27/17	Fri 1/27/17														

Project: 3-Week Look Ahead (1-18) Date: Wed 1/18/17	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			



DATUM INFORMATION
 Horizontal: WASHINGTON STATE PLANE NORTH, NAD83, U.S. FEET
 Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

- NOTES**
1. SURVEY FOR THE SCOUR AREA WAS CONDUCTED BY TERRASOND LIMITED ON JAN 13, 2017
 2. HYDROGRAPHIC DATA WAS COLLECTED USING A RESON 7125 400kHz MULTIBEAM, APPLIANI WAVEMASTER INERTIAL NAVIGATION SYSTEM, AML CASE-SOUND VELOCITY PROFILE, AND HYPACK HYSWEEP 2016
 3. REAL-TIME KINEMATIC (RTK) POSITIONING WAS BASED ON RECORD COORDINATES FOR POINT "LAFARGE 1"
 4. BACKGROUND INFORMATION IS FOR VISUAL REFERENCE ONLY

MATERIAL THICKNESS (PRE VS CURRENT) TARGET ONE	LEGEND - - - - - SUBPLOT LIMIT - - - - - OPTIONAL EXCESS MATERIAL PLACEMENT - - - - - CURRENT SURVEY EXTENT - - - - - EXISTING STRUCTURES AND EACH - - - - - SURVEY CONTOURS 5' INDEX INTERVAL □ BUCKET PLACEMENT MARK	SURVEY CONTROL LAFARGE 1 N: 205,146.676 E: 1,267,790.900 19.327 LAFARGE 2 N: 205,410.665 E: 1,267,710.952 19.072
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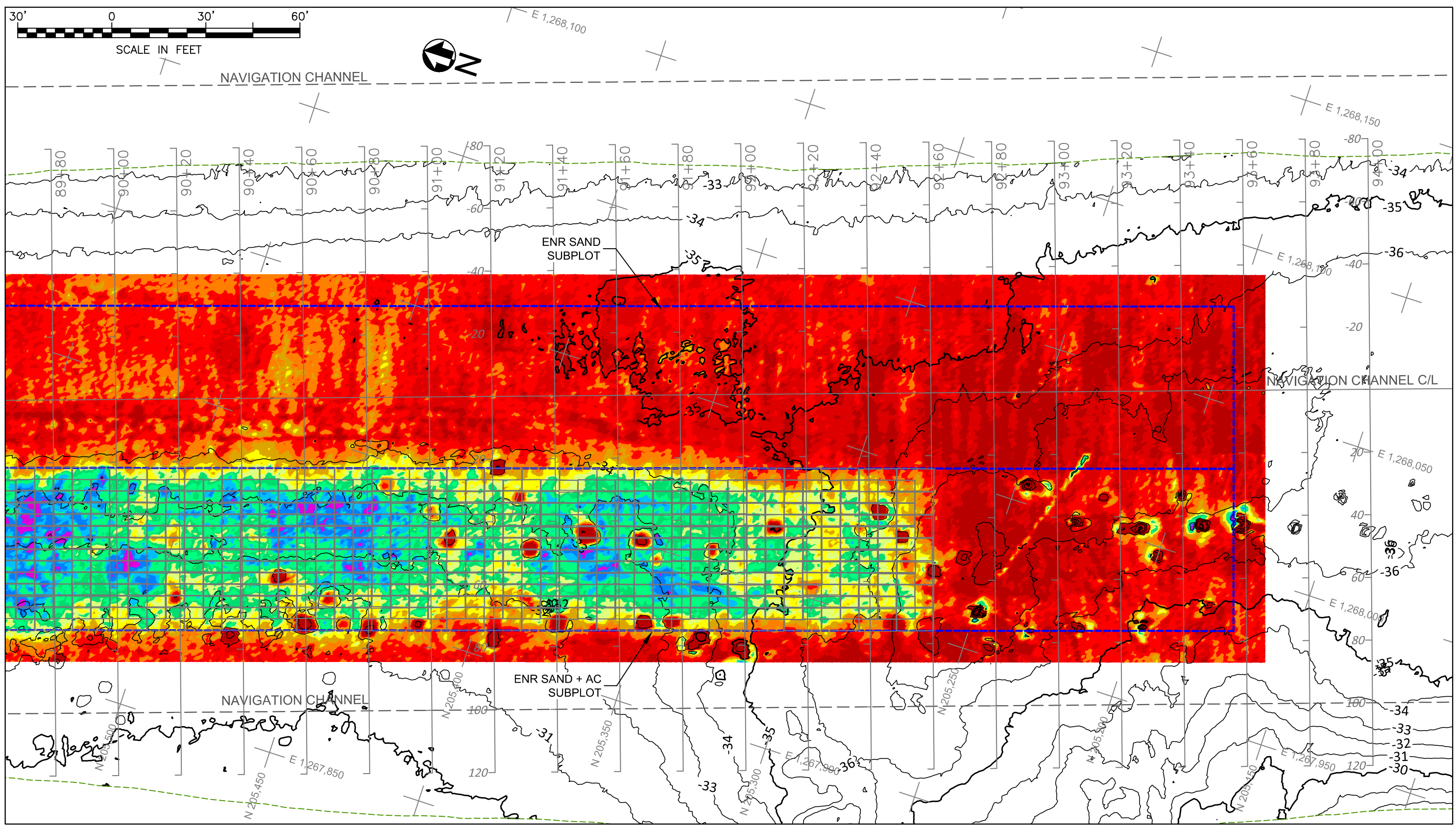
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 DUWAMISH WATERWAY
 CONTRACT # C00992C15

MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

SHEET 1 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 13, 2017
Printer Site: ANSI	Project No.: 2016-000	Draft Date: JAN 17, 2017



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MATERIAL THICKNESS (PRE VS CURRENT) 	LEGEND 	SURVEY CONTROL LAFARGE 1 N: 205,146.676 E: 1,267,791.900 19.327
		LAFARGE 2 N: 205,410.665 E: 1,267,710.952 19.072

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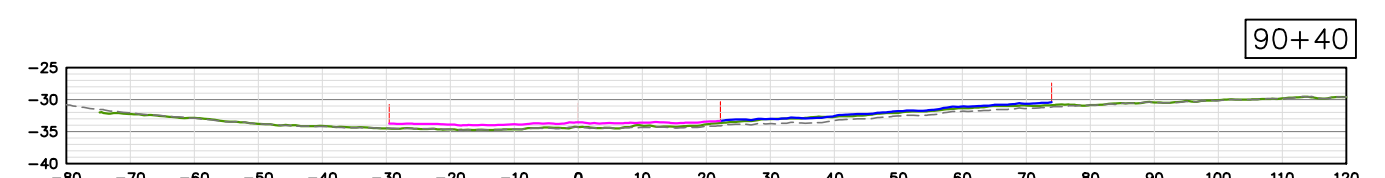
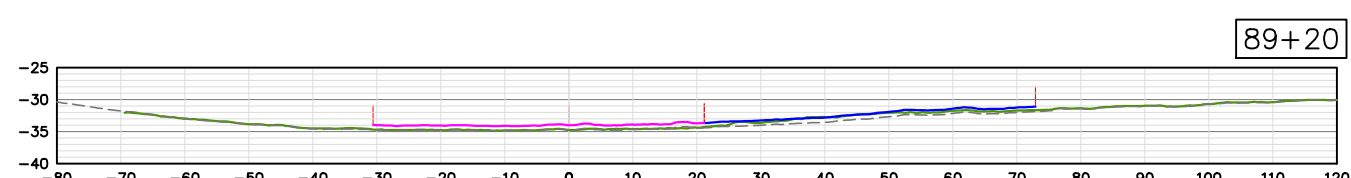
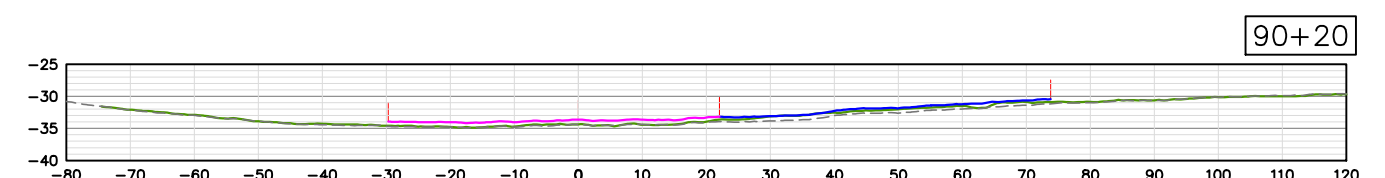
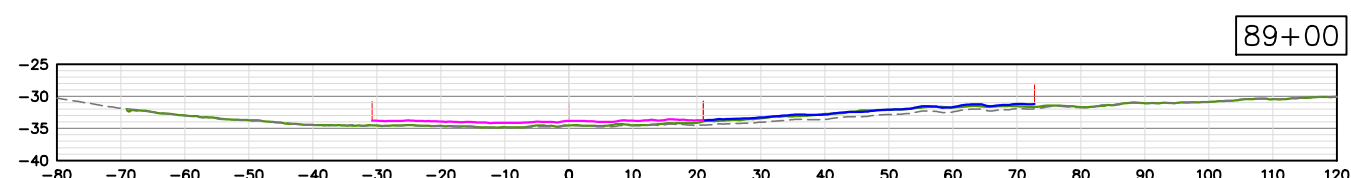
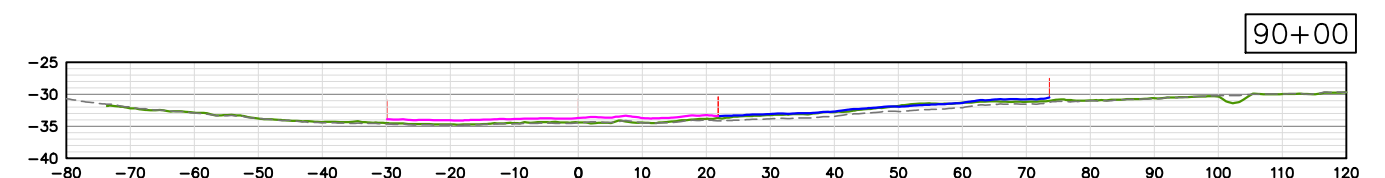
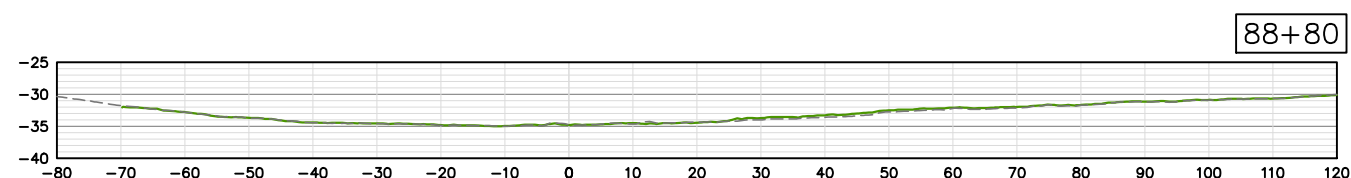
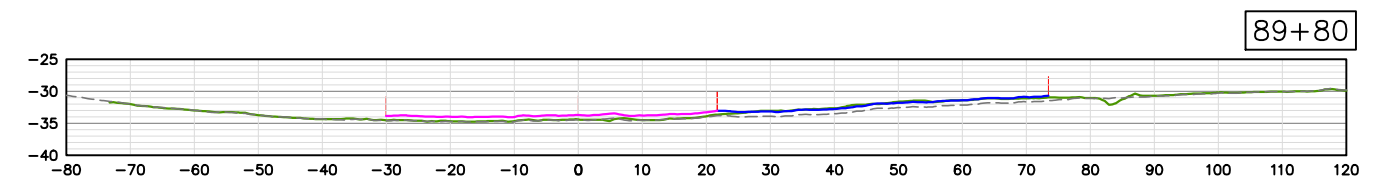
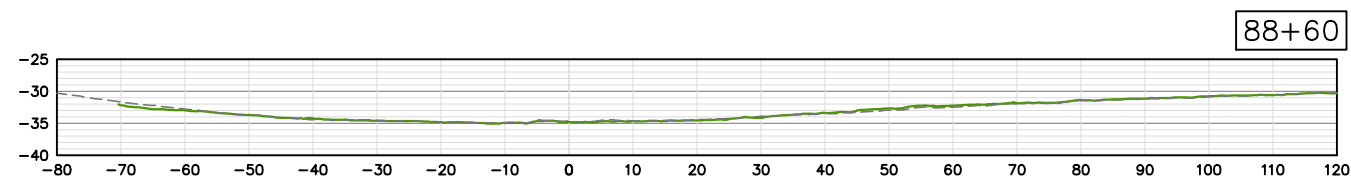
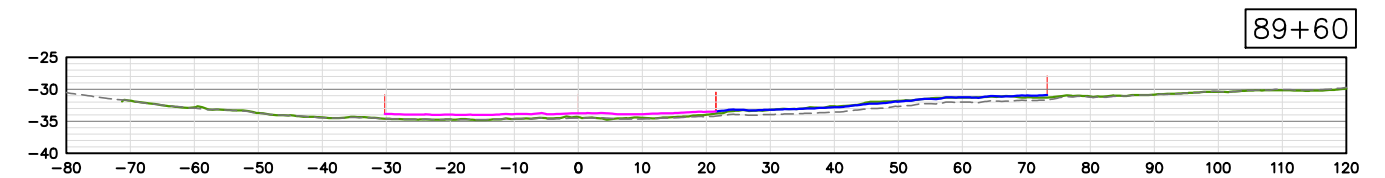
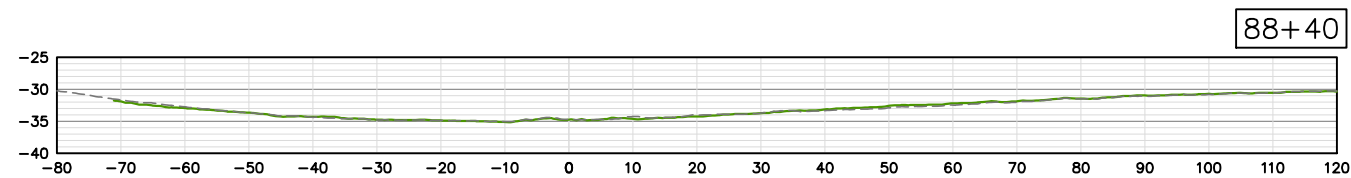
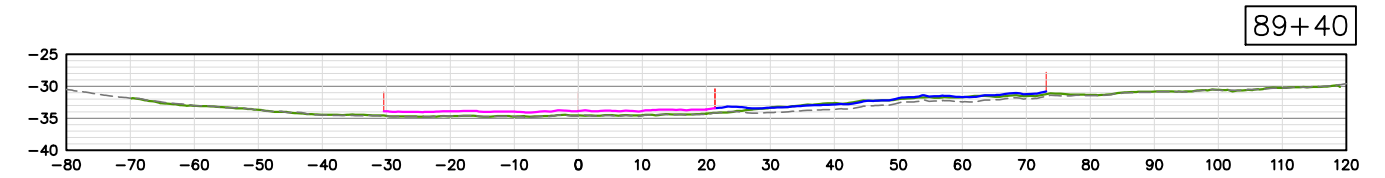
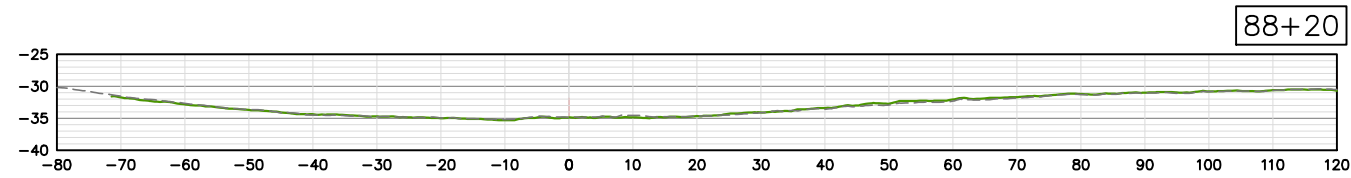
MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

SHEET 2 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 13, 2017
Printer Size: ANSI	Project No.: 2016-000	Draft Date: JAN 17, 2017

SAND | SAND+AC

SAND | SAND+AC



DATUM INFORMATION

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NOTES

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4. PROFILE VERTICAL MAGGGERATION IS 1.0

PROFILES LEGEND

- SAND+AC SURFACE PLOT
- SAND SURFACE PLOT
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
 N: 205,146.676
 E: 1,267,790.900
 UTM: 19.327

LAFARGE 2
 N: 205,410.065
 E: 1,267,710.952
 UTM: 19.072

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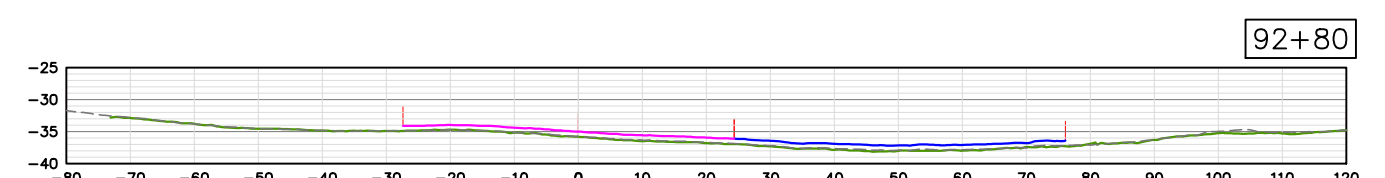
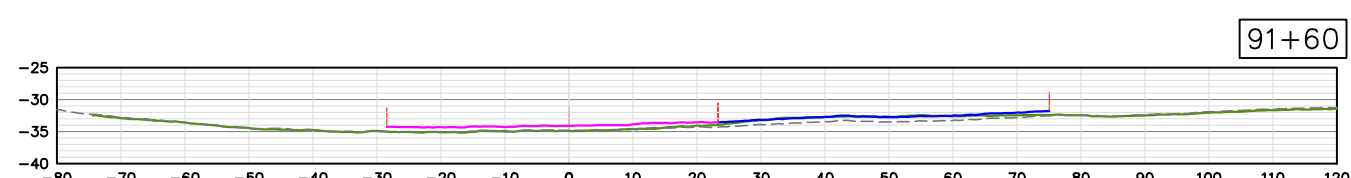
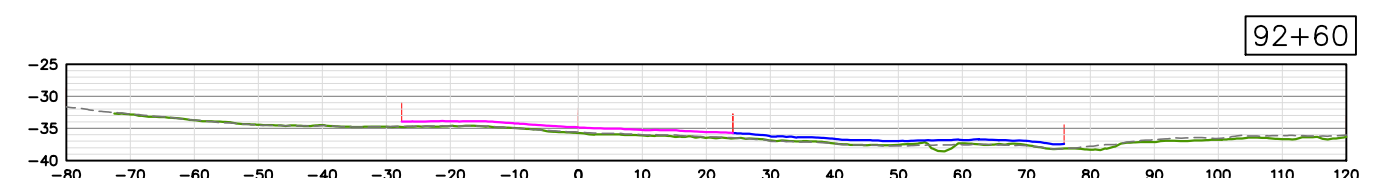
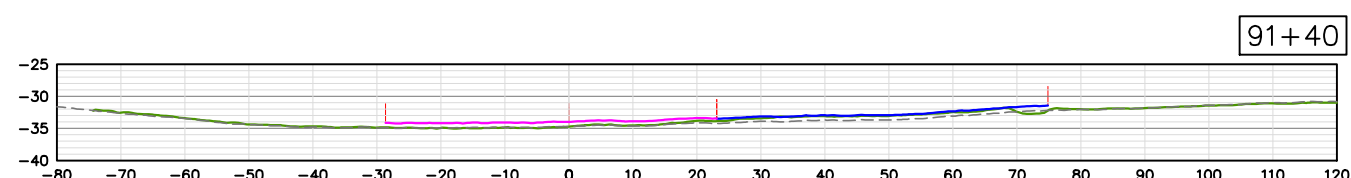
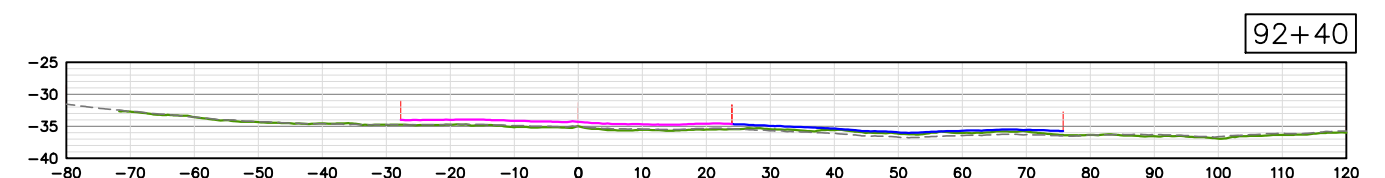
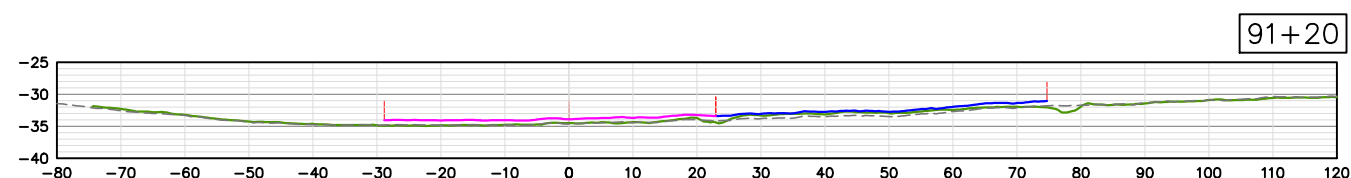
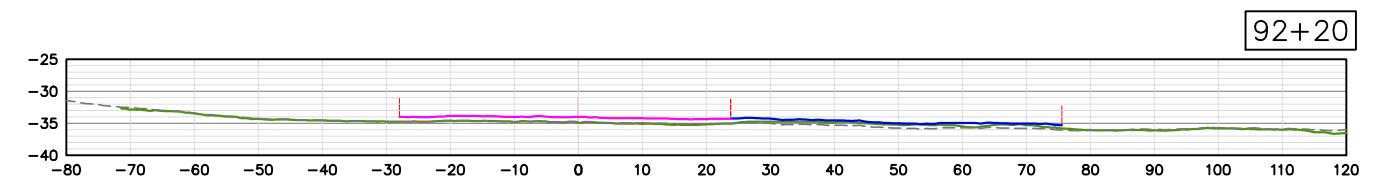
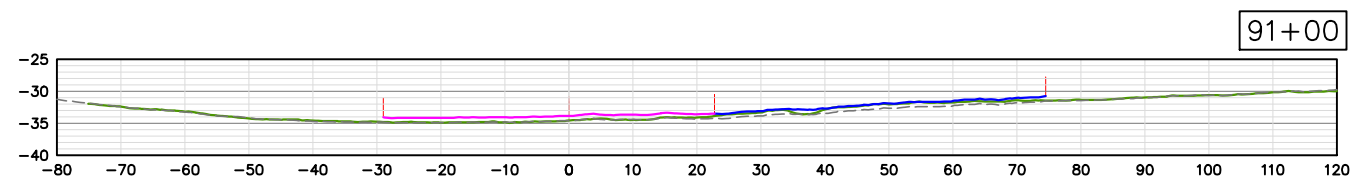
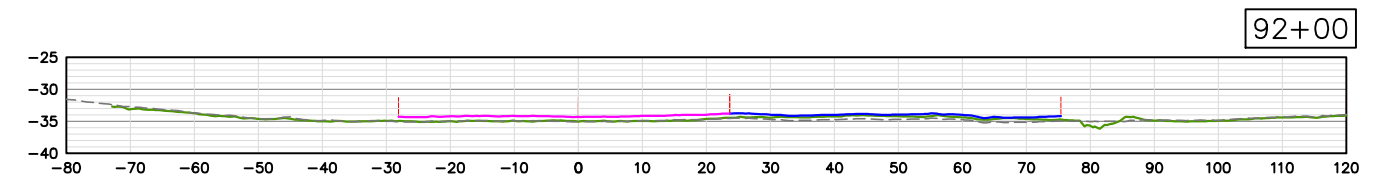
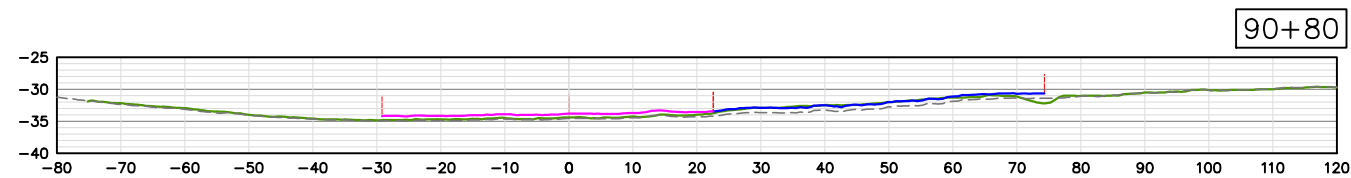
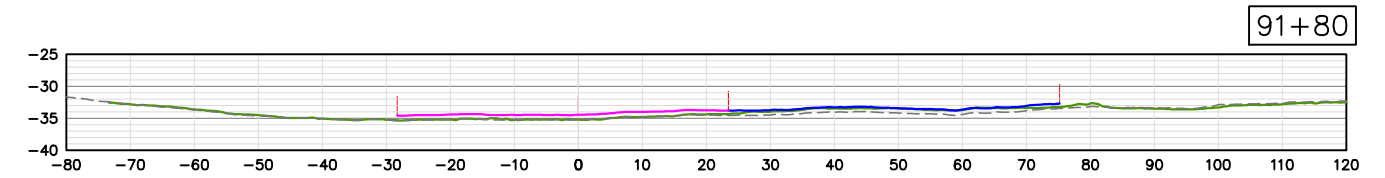
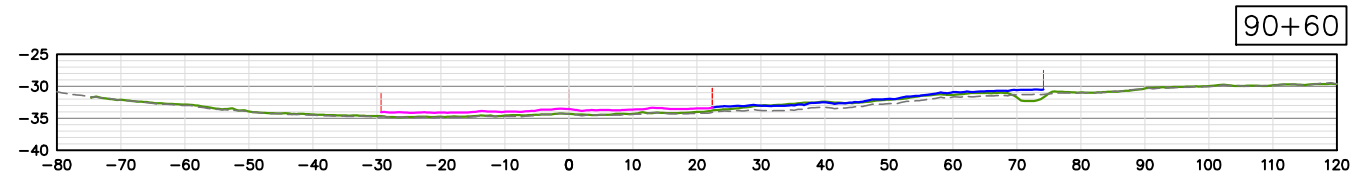
MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

SHEET 3 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 13, 2017
Printer Size: ANSI	Project No.: 2016-000	Draw Date: JAN 17, 2017

SAND | SAND+AC

SAND | SAND+AC



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4. PROFILE VERTICAL MAGNIFICATION IS 1.0

PROFILES LEGEND

- SAND+AC SURFACE PLOT
- ECHOTENT (0.9 INCHES)
- SAND SURFACE PLOT
- ECHOTENT (0.9 INCHES)
- CURRENT SURVEY
- PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
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LAFARGE 2
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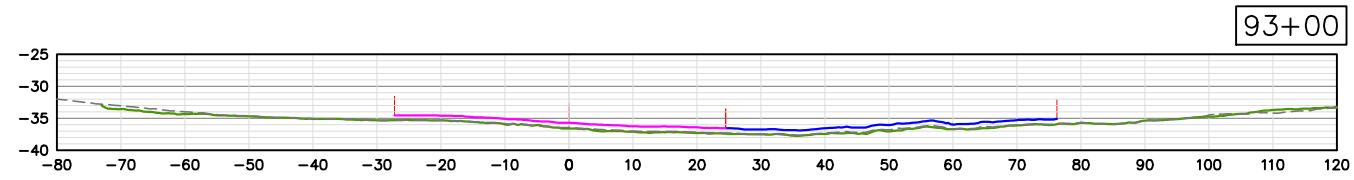
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MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

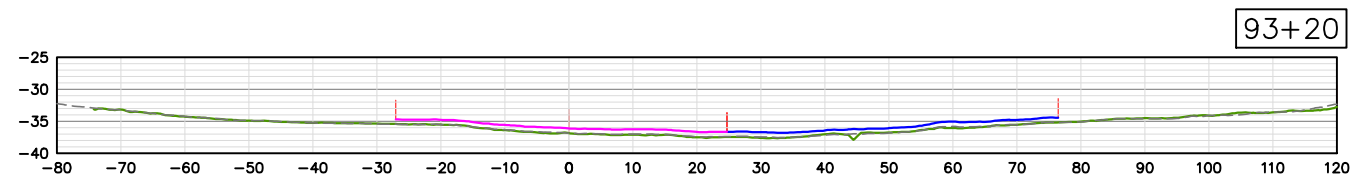
SHEET 4 OF 5

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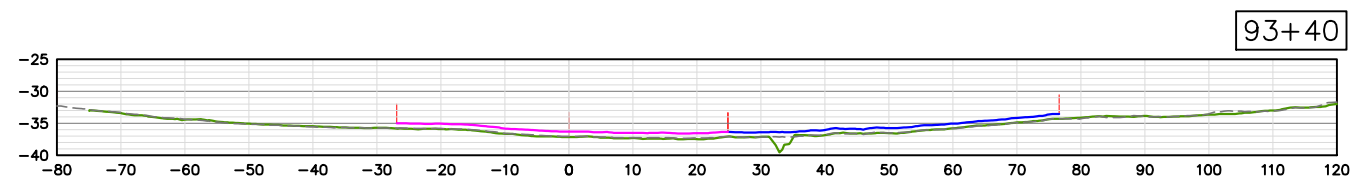
SAND | SAND+AC



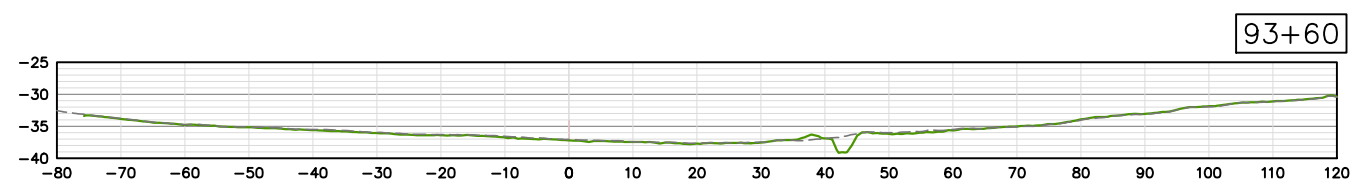
93+00



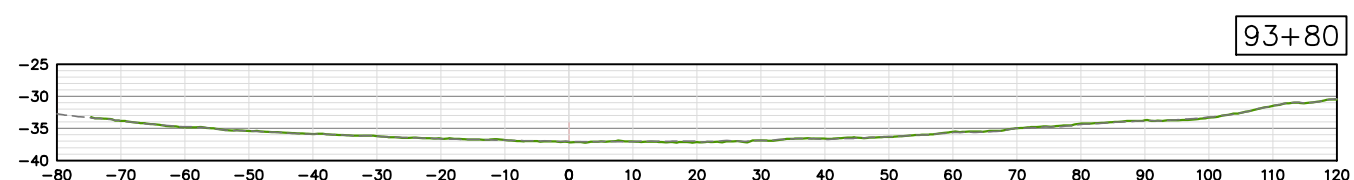
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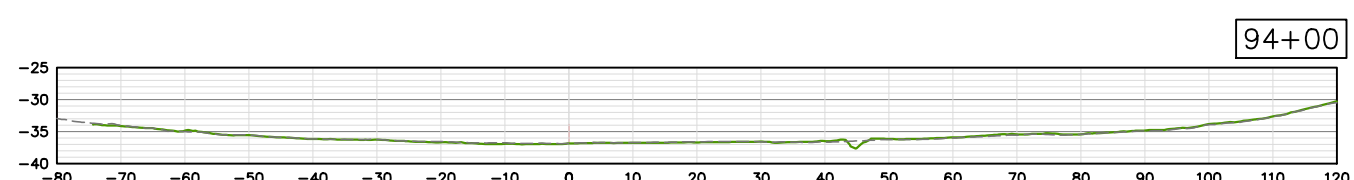
93+40



93+60



93+80



94+00

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4. PROFILE VERTICAL MAGNIFICATION IS 1.0

PROFILES LEGEND

- SAND+AC SUBPLOT ECHENT (09 INCHES)
- SAND SUBPLOT ECHENT (09 INCHES)
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

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SHEET 5 OF 5

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Owner: King County

Project: Lower Duwamish Waterway ENR/AC Pilot

Dates: January 16, 2017 to January 20, 2017

Weekly Progress Meeting Summary:

- Schedule:
 - Placement of the Sand ENR material in Sub-tidal plot to be complete by Friday, Jan 27th.
 - No work was performed on Monday, 01/16/2017, for government holiday.
- Issues & Challenges:
 - No issues encountered.
 - Traffic on the waterway has not significantly impacted operations. Over the last week all vessel and barge traffic has been able to pass on the east side of the waterway without PPM having to clear out of the nav-channel.
 - Higher than predicted tides slowed the placement process in the Sub-tidal plot. See Problems Encountered below.

Construction Progress:

- Schedule (updated weekly by contractor – Attached)
 - Attached is the schedule dated 01/18/2017. The schedule has not changed since this schedule was submitted by PPM.
- General progress with respect to schedule
 - Completed placement of the Sand+AC in the Subtidal plot on 01/19/2017.
 - Dewatered and demobilized the KP-2 material barge.
 - Water was pumped into the KP-3 material barge to saturate the Sand ENR Material.
 - Started placement of Sand ENR Material in the Subtidal Plot.
 - Work scheduled for this week:
 - Complete Sand ENR Material placement in Subtidal plot.
 - Dewater the KP-3 (Sand barge) and remove any remaining Sand ENR material in the barge.
 - Daily hydrographic surveys performed at the end of each shift.
 - Demobilize

Problems Encountered (If Any) & Associated Action Items: None See Comments below:

Problems Encountered	Date	Required Action	Date Completed
Higher than predicted tides throughout the week made it difficult to get the bucket down to the required 2 feet above mudline opening elevation (excavator reach too short at highest water levels).		Additional movements and spudding down required in order to position barge and excavator for placement. Operations were stopped when tide level prevented bucket from reaching required elevation above mudline.	

Water Quality Monitoring:

- Observed non-construction-related events that impacted water quality.
 - None
- Summary of water quality criteria violations and actions taken.
 - No WQM activities to report. (No monitoring required or performed based on previous monitoring results).

QA Inspections:

- Results:
 - QA Inspections:
 - None.
 - Surveying (Performed at the end of each shift. Attached is the Jan 20, 2017 survey)
 - Monitoring Activities:
 - None.
- Out of Spec Conditions (if encountered) & Corrective Actions: None See
Comments below:

Out of Spec condition	Date	Corrective Action	Date Completed

Weekly Photo Log – LDW ENR/AC Pilot



Photo 1-A: Vessel traffic on the waterway.



Photo 1-B: Barge traffic on the waterway passing on the east side of the material barge. Note the tow bridle hanging down into the water from the bow (circle in red).

Weekly Photo Log – LDW ENR/AC Pilot



Photo 2-A: Cleanup of the KP-2 (Sand+AC ENR Material barge).



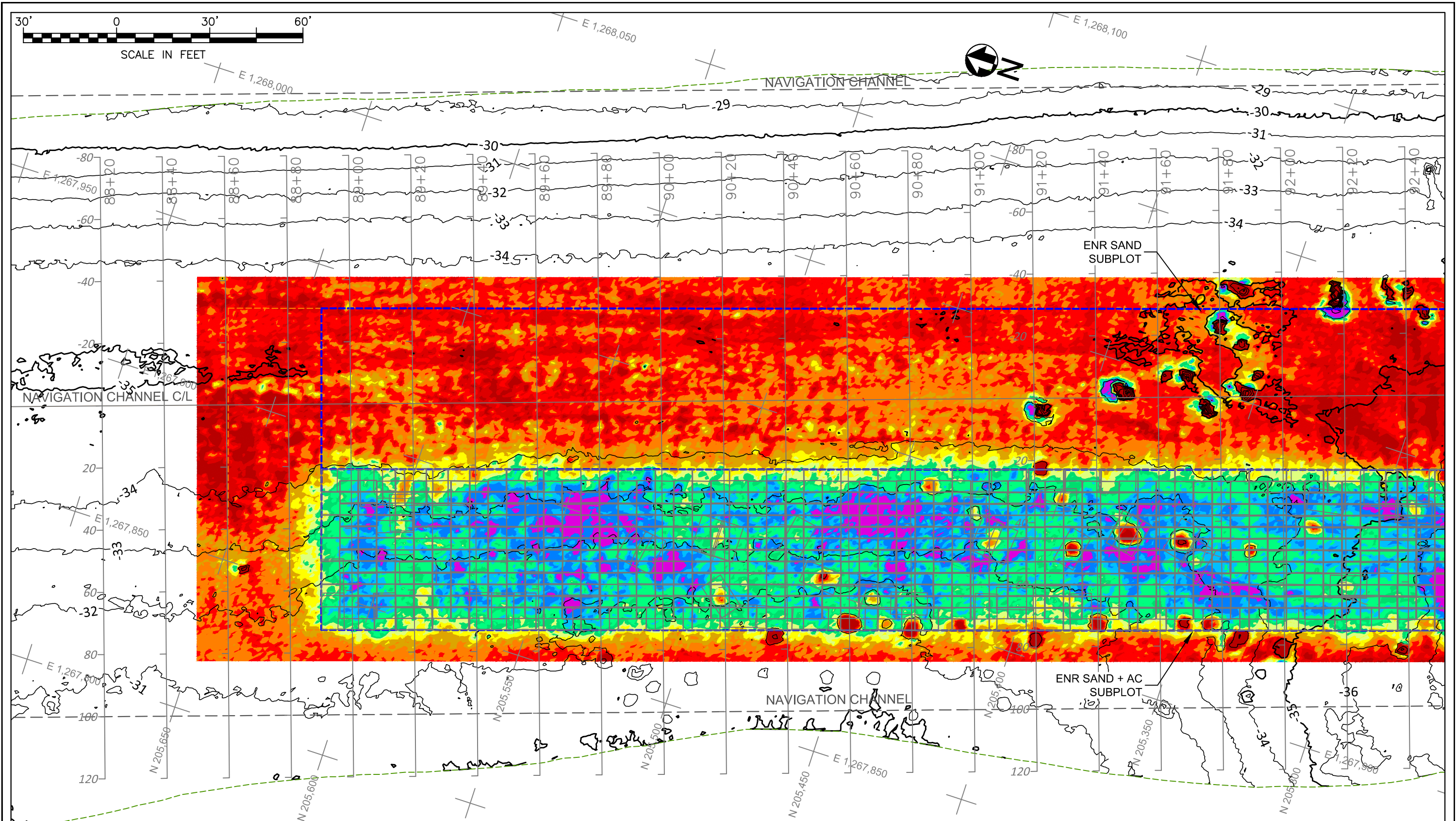
Photo 2-A: KP-3 (Sand barge) proximity to the AML's barge Anchorage Trader. Western Towboat tug shown (yellow and blue paint) is in the process of tying up to the barge to take it downstream to Elliott Bay.

ID	Task Mode	Task Name	Duration	Start	Finish	Jan 8, '17				Jan 15, '17			Jan 22, '17				Jan 29, '17		
						S	M	W	F	S	T	T	S	M	W	F	S		
1		ENR Placement Activities	14 days	Mon 1/9/17	Fri 1/27/17														
2		Subtidal	14 days	Mon 1/9/17	Fri 1/27/17														
3		Place Sand + AC	7 days	Mon 1/9/17	Wed 1/18/17														
4		Clean KP2 Barge, Place Any Remaining Sand + AC Material	1 day	Thu 1/19/17	Thu 1/19/17														
5		Place Sand	6 days	Fri 1/20/17	Fri 1/27/17														
6		Survey Activities	10 days	Mon 1/16/17	Fri 1/27/17														
7		Subtidal: Post-Placement Survey	0 days	Fri 1/27/17	Fri 1/27/17														
8		Remove Basestation Equipment	0 days	Fri 1/27/17	Fri 1/27/17														

Project: 3-Week Look Ahead (1-18) Date: Wed 1/18/17	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			

ID	Task Mode	Task Name	Duration	Start	Finish	Nov 20, '16			Dec 4, '16			Dec 18, '16			Jan 1, '17			Jan 15, '17			Jan 29, '17			Feb 12, '17					
						S	T	M	F	T	S	W	S	T	M	F	T	S	W	S	T	M	F	T	S	W	S		
1		General	180 days	Wed 6/1/16	Tue 2/14/17																								
2		Contract Award	0 days	Wed 6/1/16	Wed 6/1/16																								
3		Phase 1 Notice to Proceed	0 days	Wed 6/1/16	Wed 6/1/16																								
4		Start In-Water Work	0 days	Tue 11/29/16	Tue 11/29/16	◆ 11/29																							
5		Phase 2 Substantial Completion	0 days	Fri 1/27/17	Fri 1/27/17																								
6		Punchlist	2 days	Mon 1/30/17	Tue 1/31/17																								
7		Closeout	10 days	Wed 2/1/17	Tue 2/14/17																								
8		Complete In-Water Work	0 days	Tue 2/14/17	Tue 2/14/17																								
9		Final Acceptance	0 days	Tue 2/14/17	Tue 2/14/17																								
10		Materials Placement	41 days	Tue 11/29/16	Fri 1/27/17																								
11		Test Placement	2 days	Tue 11/29/16	Wed 11/30/16																								
12		Test Placement Area- Sand + AC	1 day	Tue 11/29/16	Tue 11/29/16																								
13		Test Placement Area- Gravelly Sand + AC	1 day	Wed 11/30/16	Wed 11/30/16																								
14		Intertidal Plot	14 days	Thu 12/1/16	Tue 12/20/16																								
15		Intertidal Plot- Gravelly Sand + AC	6 days	Thu 12/1/16	Thu 12/8/16																								
16		Intertidal Plot- Gravelly Sand	7 days	Fri 12/9/16	Mon 12/19/16																								
17		Hydrographic As-Built Survey	0 days	Tue 12/20/16	Tue 12/20/16																								
18		Scour Plot	12 days	Tue 12/20/16	Fri 1/6/17																								
19		Scour Plot- Gravelly Sand + AC	6 days	Tue 12/20/16	Wed 12/28/16																								
20		Scour Plot- Gravelly Sand	6 days	Thu 12/29/16	Fri 1/6/17																								
21		Hydrographic As-Built Survey	0 days	Fri 1/6/17	Fri 1/6/17																								
22		Subtidal Plot	14 days	Mon 1/9/17	Fri 1/27/17																								
23		Subtidal Plot- Sand + AC	8 days	Mon 1/9/17	Thu 1/19/17																								
24		Subtidal Plot- Sand	6 days	Fri 1/20/17	Fri 1/27/17																								
25		Hydrographic As-Built Survey	0 days	Fri 1/27/17	Fri 1/27/17																								

Project: Baseline Schedule-Update Date: Wed 1/18/17	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			



DATUM INFORMATION
 Horizontal: WASHINGTON STATE PLANE NORTH, NAD83, U.S. FEET
 Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

- NOTES**
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 2. HYDROGRAPHIC DATA WAS COLLECTED USING A RESON 7125 400kHz MULTIBEAM, APPLANI WAVEMASTER INERTIAL NAVIGATION SYSTEM, AML CASE SOUND VELOCITY PROFILE, AND HYPACK HYSWEEP 2016
 3. REAL-TIME KINEMATIC (RTK) POSITIONING WAS BASED ON RECORD COORDINATES FOR POINT "LAFARGE 1"
 4. BACKGROUND INFORMATION IS FOR VISUAL REFERENCE ONLY

MATERIAL THICKNESS (PRE VS CURRENT) 	LEGEND 	SURVEY CONTROL LAFARGE 1 N: 205,146.676 E: 1,267,790.900 19.327 LAFARGE 2 N: 205,410.665 E: 1,267,710.952 19.072
	TARGET ONE 	

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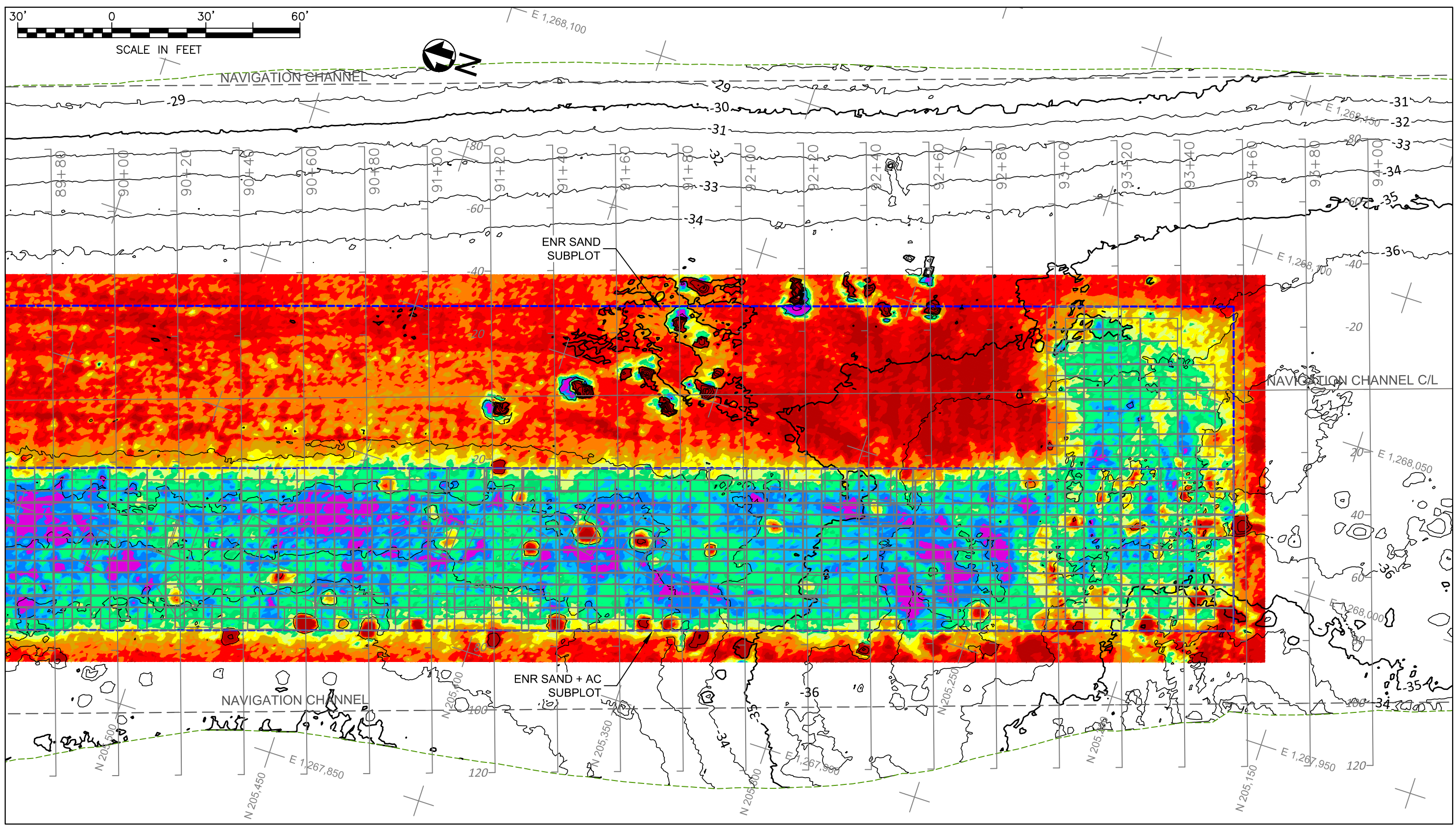
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ENHANCED NATURAL RECOVERY
 ACTIVATED CARBON PILOT STUDY
 DUWAMISH WATERWAY
 CONTRACT # C00992C15

MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

SHEET 1 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 20, 2017
Printer Size: ANSI	Project No.: 2016-000	Draw Date: JAN 23, 2017



DATUM INFORMATION
 Horizontal: WASHINGTON STATE PLANE NORTH, NAD83, U.S. FEET
 Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

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MATERIAL THICKNESS (PRE VS CURRENT) 	LEGEND
	SURVEY CONTROL LAFARGE 1 N: 205,146.676 E: 1,267,791.900 19.327 LAFARGE 2 N: 205,410.165 E: 1,267,710.952 19.072

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 DUWAMISH WATERWAY
 CONTRACT # C00992C15

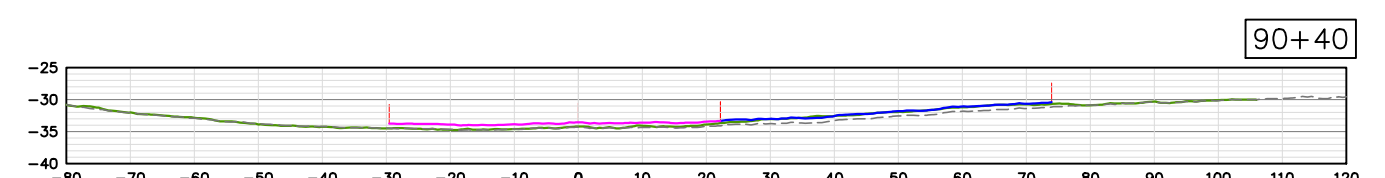
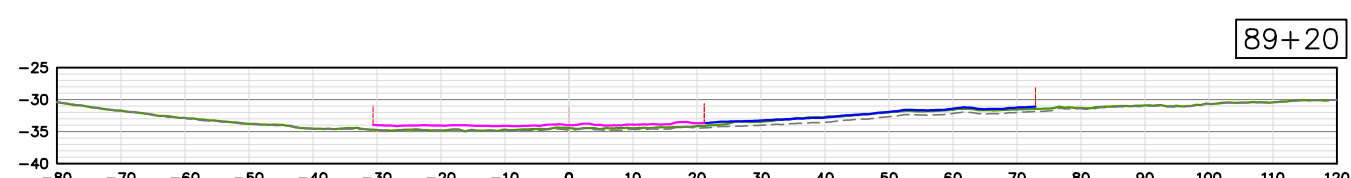
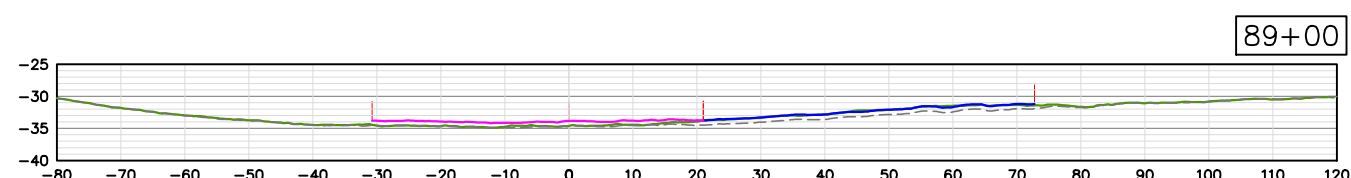
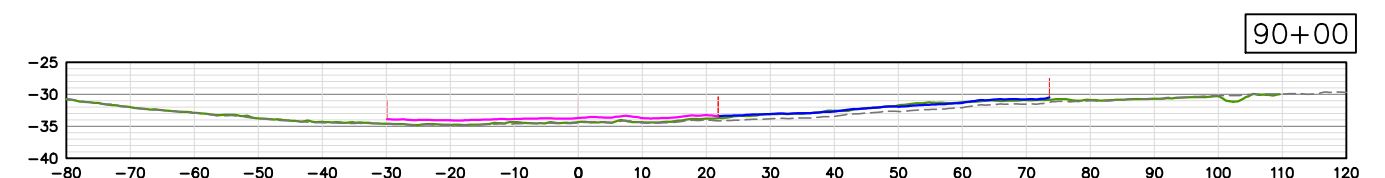
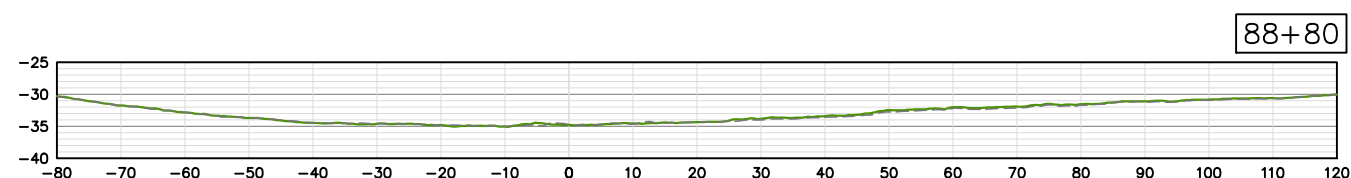
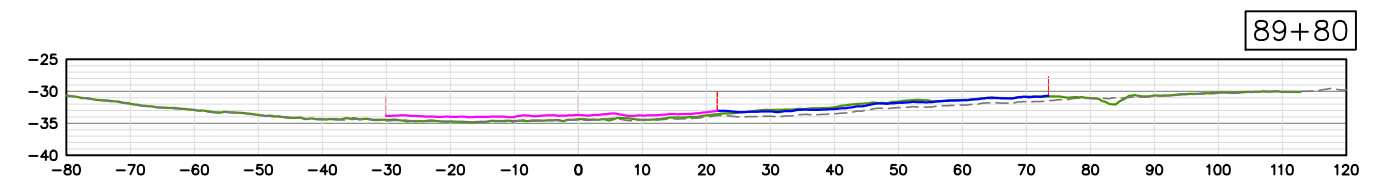
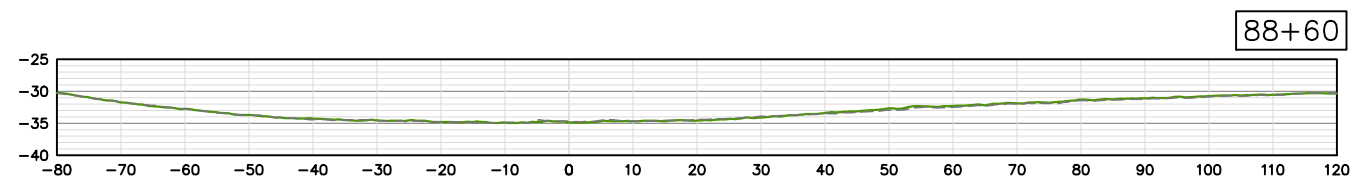
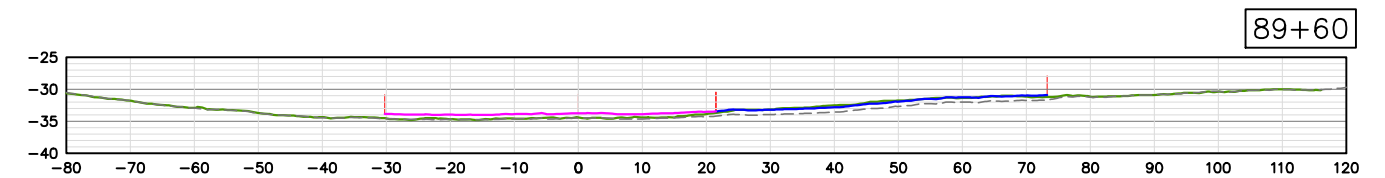
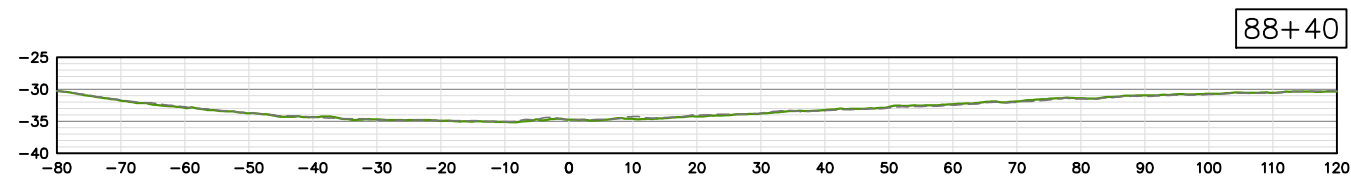
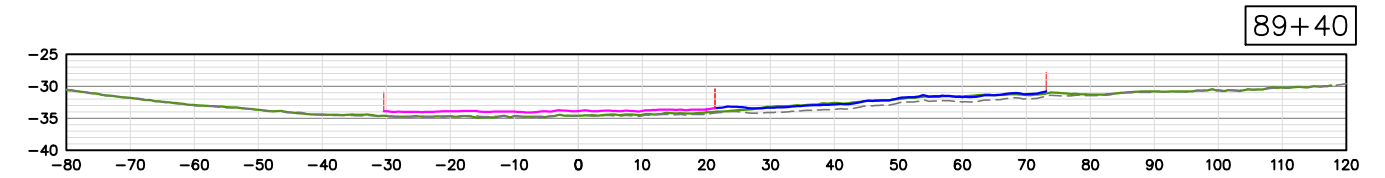
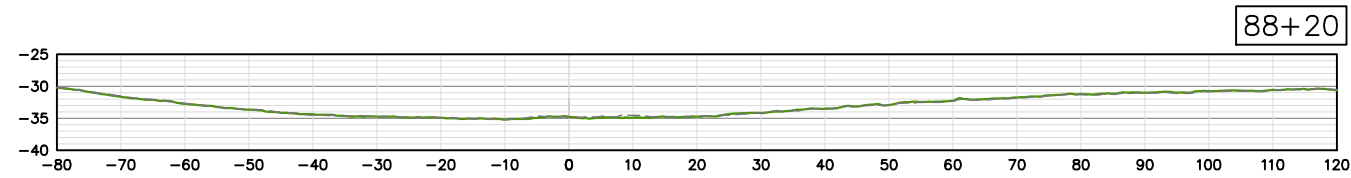
MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

SHEET 2 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 20, 2017
Project No.: 2016-000	Draw Date: JAN 23, 2017	

SAND | SAND+AC

SAND | SAND+AC



DATUM INFORMATION

Horizontal: WASHINGTON STATE PLANE NORTH, NAD83, U.S. FEET
 Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

NOTES

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4. PROFILE VERTICAL MAGNIFICATION IS 1.0

PROFILES LEGEND

- SAND+AC SURFACE PLOT
- SAND SURFACE PLOT
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
 N: 205,146.676
 E: 1,267,790.900
 UTM: 19.327

LAFARGE 2
 N: 205,410.065
 E: 1,267,710.952
 UTM: 19.072

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 CONTRACT # C00992C15

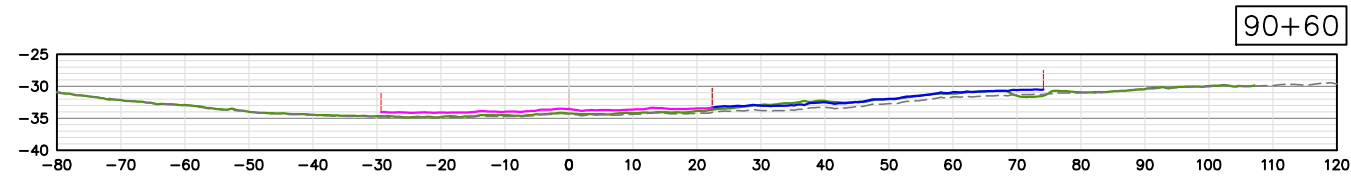
MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

SHEET 3 OF 5

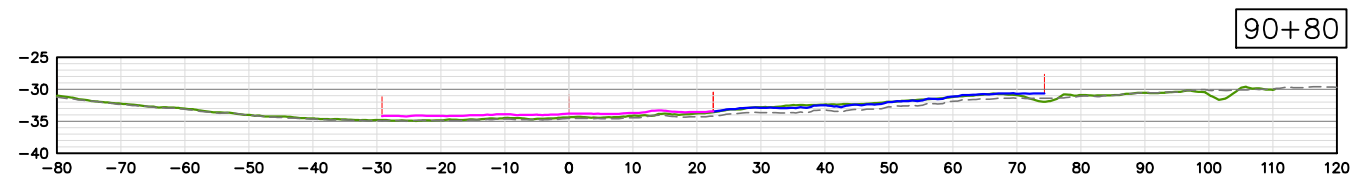
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Printer Size: ANSI	Project No.: 2016-000	Draw Date: JAN 23, 2017

SAND | SAND+AC

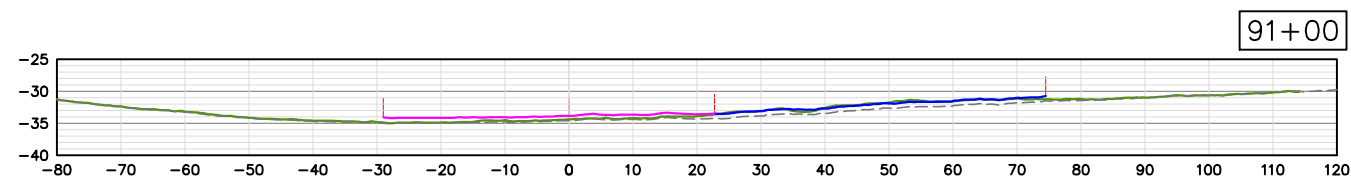
SAND | SAND+AC



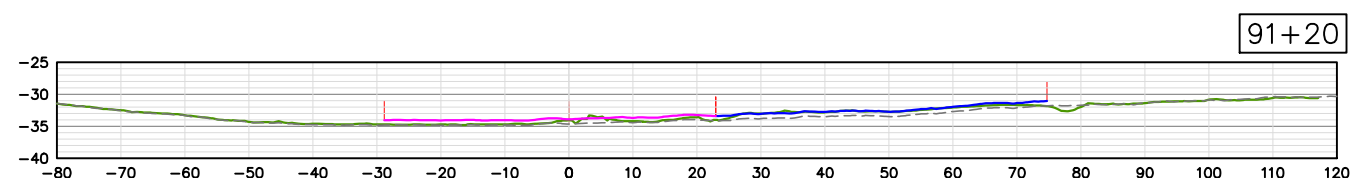
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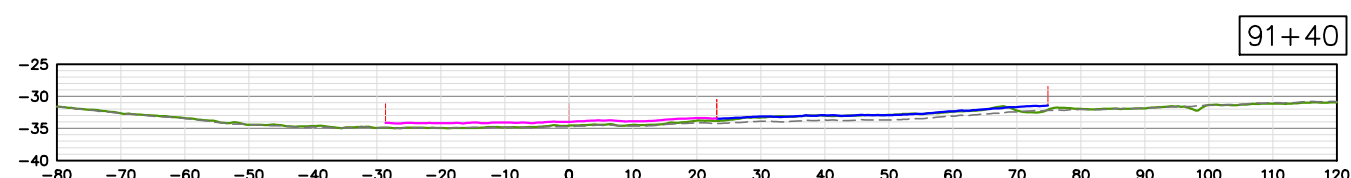
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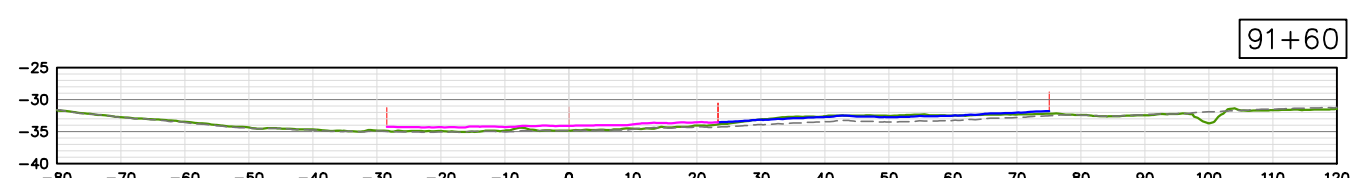
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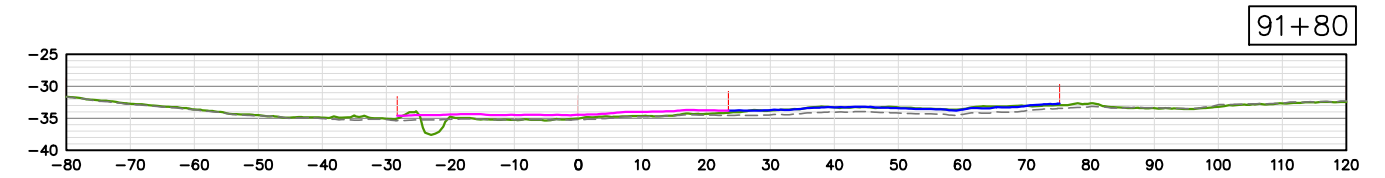
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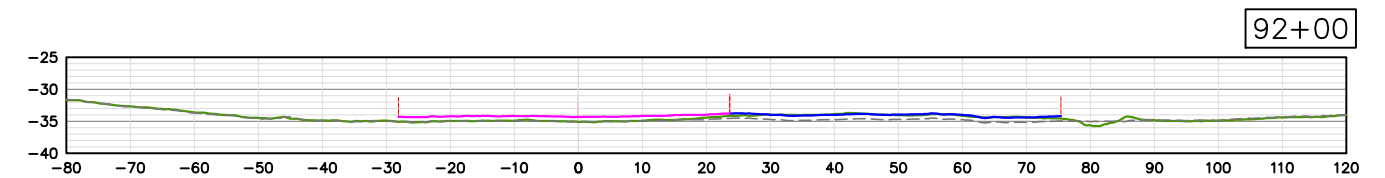
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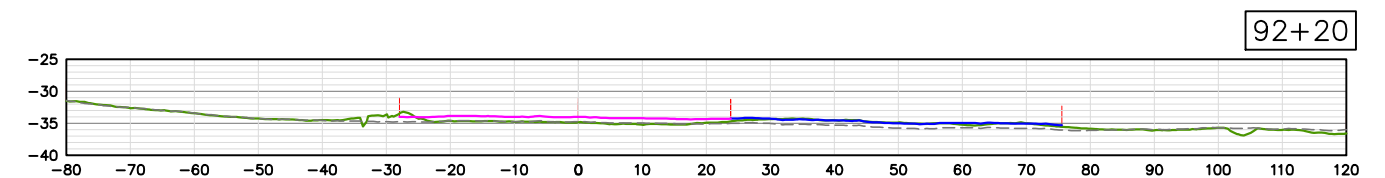
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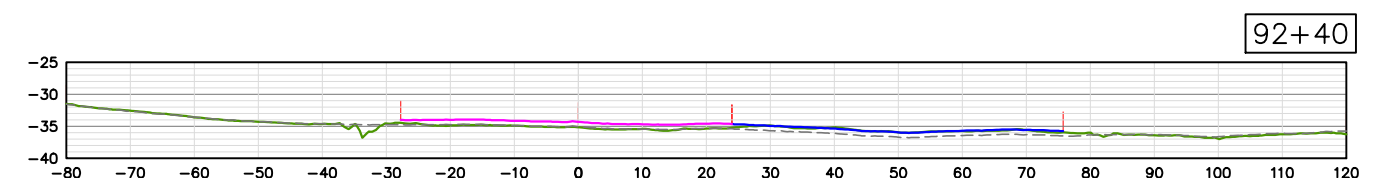
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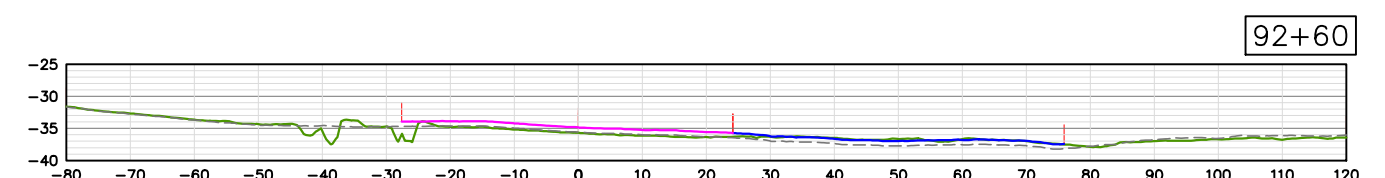
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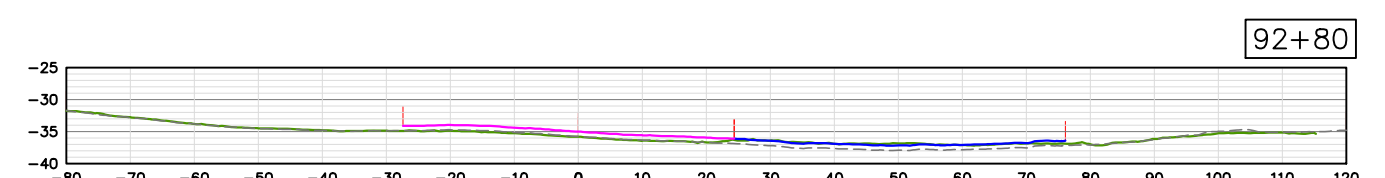
92+20



92+40



92+60



92+80

DATUM INFORMATION

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PROFILES LEGEND

- SAND+AC SURFACE PLOT
- ECHOTENT (0.9 INCHES)
- SAND SURFACE PLOT
- ECHOTENT (0.9 INCHES)
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
 N: 205,146.676
 E: 1,267,790.900
 UTM: 19.327

LAFARGE 2
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 E: 1,267,710.952
 UTM: 19.072

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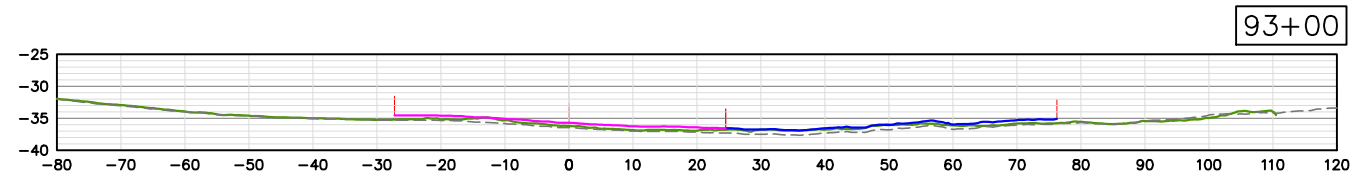
ENHANCED NATURAL RECOVERY
 ACTIVATED CARBON PILOT STUDY
 DUWAMISH WATERWAY
 CONTRACT # C00992C15

MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

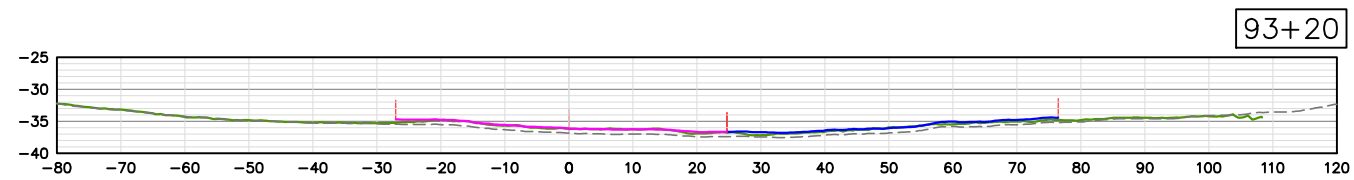
SHEET 4 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 20, 2017
Printer Size: ANSI	Project No.: 2016-000	Draw Date: JAN 23, 2017

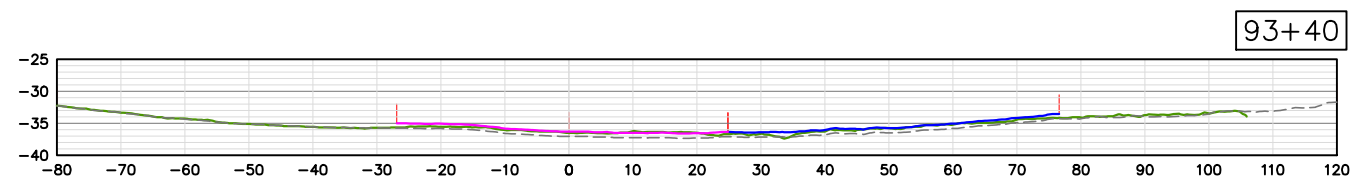
SAND | SAND+AC



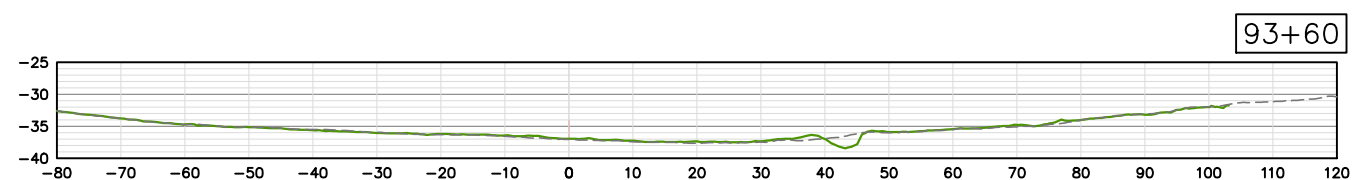
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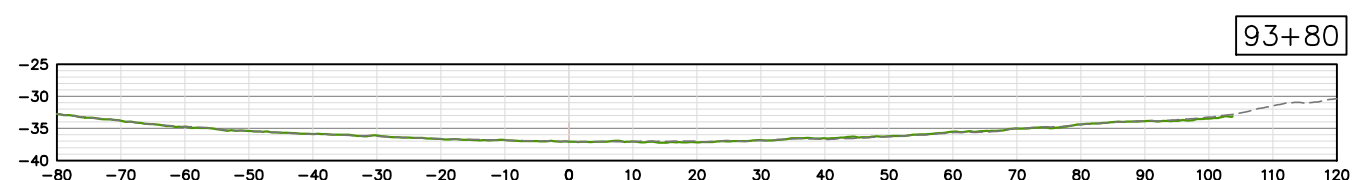
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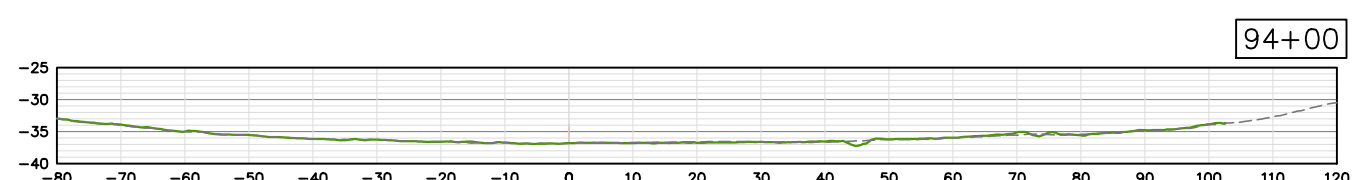
93+40



93+60



93+80



94+00

DATUM INFORMATION

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NOTES

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PROFILES LEGEND

- SAND+AC SUBPLOT ECHENT (0.9 INCHES)
- SAND SUBPLOT ECHENT (0.9 INCHES)
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
 N: 205,146.676
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 Z: 19.327

LAFARGE 2
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 CONTRACT # C00992C15

MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT PROGRESS

SHEET 5 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 20, 2017
Printer Size: ANSI	Project No.: 2016-000	Draw Date: JAN 23, 2017

Owner: King County

Project: Lower Duwamish Waterway ENR/AC Pilot

Dates: January 16, 2017 to January 20, 2017

Weekly Progress Meeting Summary:

- Last scheduled weekly meeting was held on Jan 24th and was summarized in the Weekly Progress Report No. 008.

Construction Progress:

- Schedule (updated weekly by contractor – Attached)
 - NA.
- General progress with respect to schedule
 - Initial placement grid for the Sand ENR at the Subtidal plot was completed on Thursday, Jan 26th.
 - Remaining Sand ENR after initial placement was complete was placed in areas that required additional material in order to achieve the minimum target thickness of 4 inches. These areas were identified using the January 25th bathymetric survey data.
 - Placement
 - Demobilized the KP-3 material barge.
 - Work scheduled for this week:
 - No work is scheduled for this week.

Problems Encountered (If Any) & Associated Action Items: None See Comments below:

Problems Encountered	Date	Required Action	Date Completed

Water Quality Monitoring:

- Observed non-construction-related events that impacted water quality.
 - None
- Summary of water quality criteria violations and actions taken.
 - No WQM activities to report. (No monitoring required or performed based on previous monitoring results).

QA Inspections:

- Results:
 - QA Inspections:
 - None.
 - Surveying (Performed at the end of each shift. Attached is the Jan 26, 2017 survey)
 - Monitoring Activities:
 - None.
- Out of Spec Conditions (if encountered) & Corrective Actions: None See Comments below:

Out of Spec condition	Date	Corrective Action	Date Completed

Weekly Photo Log – LDW ENR/AC Pilot



Photo 1-A: AML barge Whittier Provider being taken upstream with bridle chains hanging from bow.



Photo 1-B: AML barge Fairbanks Provider being taken upstream with bridle chains hanging from bow.

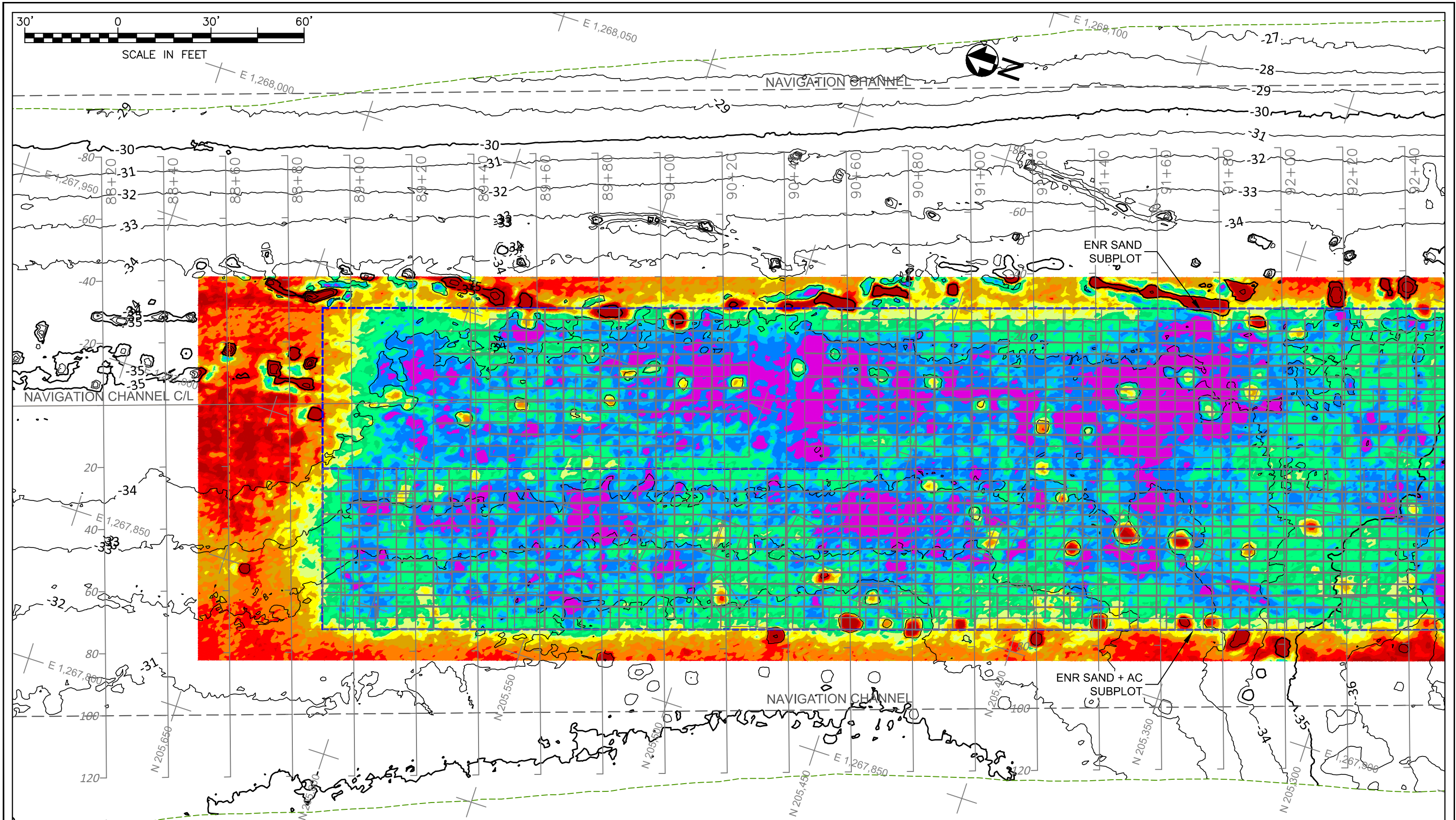
Weekly Photo Log – LDW ENR/AC Pilot



Photo 2-A: Slag ship being taken out to Elliot Bay by 2 Foss tugs after the ship was offloaded at Lafarge.



Photo 2-A: KP-3 barge after the last of the Sand ENR material has been placed.



DATUM INFORMATION
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 Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

- NOTES**
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 3. REAL-TIME KINEMATIC (RTK) POSITIONING WAS BASED ON RECORD COORDINATES FOR POINT "LAFARGE 1"
 4. BACKGROUND INFORMATION IS FOR VISUAL REFERENCE ONLY

MATERIAL THICKNESS (PRE VS CURRENT) TARGET ONE	LEGEND - - - - - SUBPLOT LIMIT - - - - - OPTIONAL EXCESS MATERIAL PLACEMENT - - - - - CURRENT SURVEY EXTENT - - - - - EXISTING STRUCTURES AND EACH - - - - - SURVEY CONTOURS 5 MINUTE INTERVAL □ BUCKET PLACEMENT MARK	SURVEY CONTROL LAFARGE 1 N: 205,146.676 E: 1,267,791.901 19.327 LAFARGE 2 N: 205,410.165 E: 1,267,710.952 19.072
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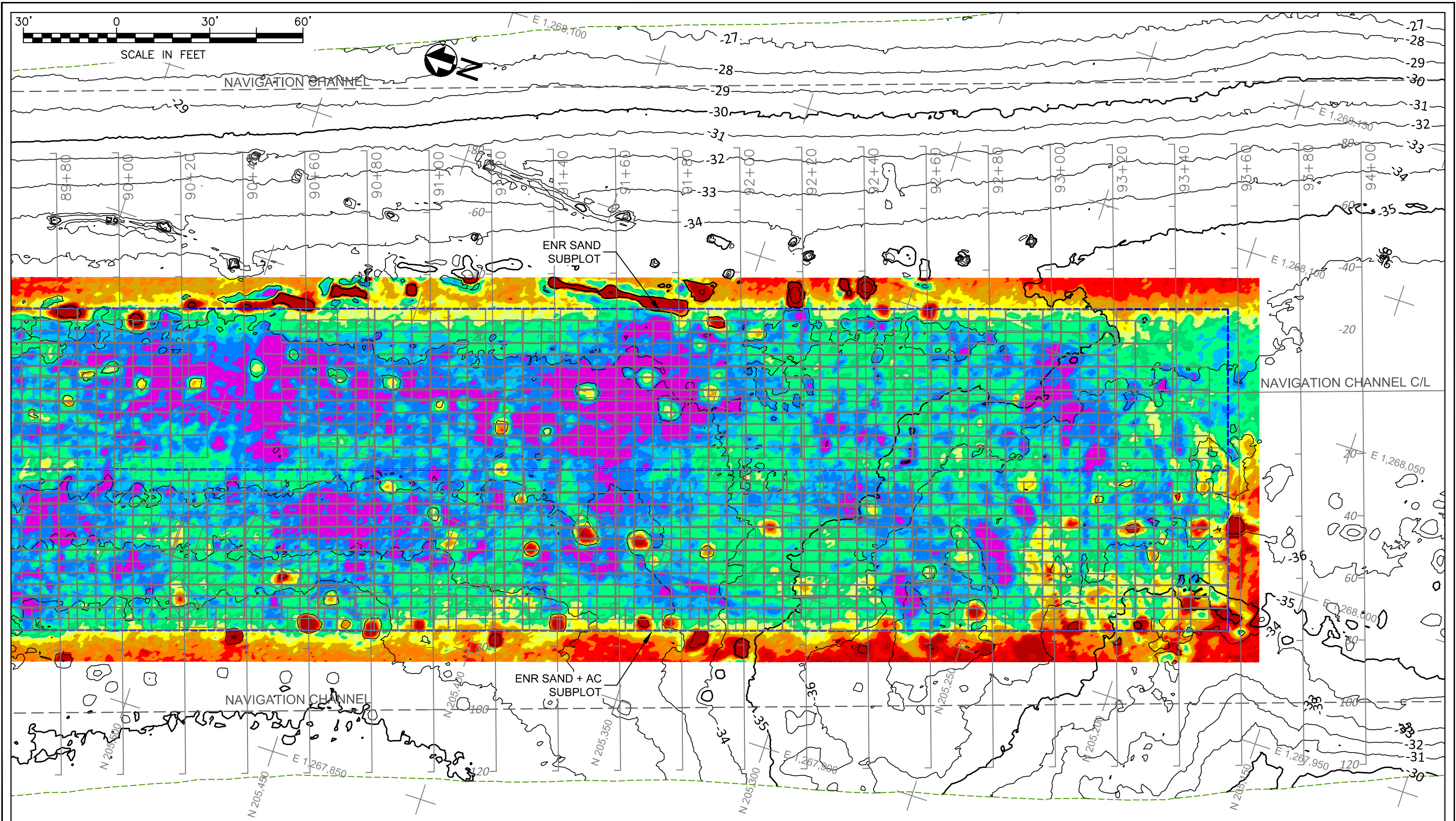
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ENHANCED NATURAL RECOVERY
 ACTIVATED CARBON PILOT STUDY
 DUWAMISH WATERWAY
 CONTRACT # C00992C15

MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT POST-PLACEMENT

SHEET 1 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 26, 2017
Printer Size: ANSI	Project No.: 2016-001	Draw Date: JAN 27, 2017



DATUM INFORMATION
 Horizontal: WASHINGTON STATE PLANE NORTH, NAD83, U.S. FEET
 Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

- NOTES**
1. SURVEY FOR THE SUBTIDAL AREA WAS CONDUCTED BY TERRASOND LIMITED ON JAN 26, 2017
 2. HYDROGRAPHIC DATA WAS COLLECTED USING A RESON 7125 400KH MULTIBEAM, APPLIANI WAVEMASTER INERTIAL NAVIGATION SYSTEM, AML CASE-SOUND VELOCITY PROFILE, AND HYPACK HYSWEEP 2016
 3. REAL-TIME KINEMATIC (RTK) POSITIONING WAS BASED ON RECORD COORDINATES FOR POINT "LAFARGE 1"
 4. BACKGROUND INFORMATION IS FOR VISUAL REFERENCE ONLY

MATERIAL THICKNESS (PRE VS CURRENT) 	LEGEND 	SURVEY CONTROL LAFARGE 1 N: 205,146.676 E: 1,267,791.900 19.327 LAFARGE 2 N: 205,410.65 E: 1,267,710.952 19.072
	TARGET ONE 	

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 DUWAMISH WATERWAY
 CONTRACT # C00992C15**

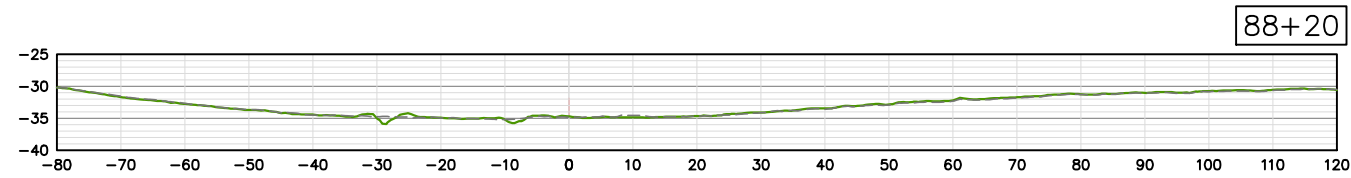
**MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT POST-PLACEMENT**

SHEET 2 OF 5

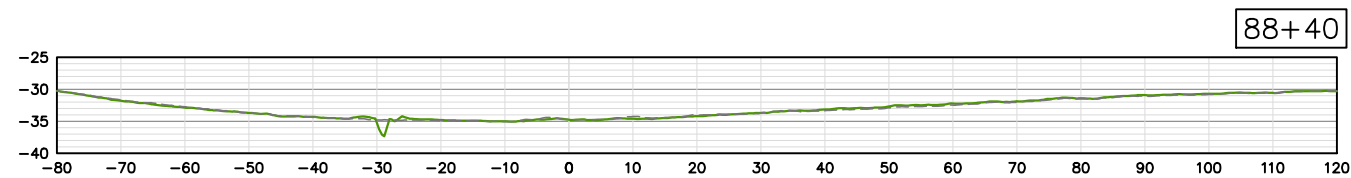
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Printer Size: ANSI	Project No.: 2016-000	Draw Date: JAN 27, 2017

SAND | SAND+AC

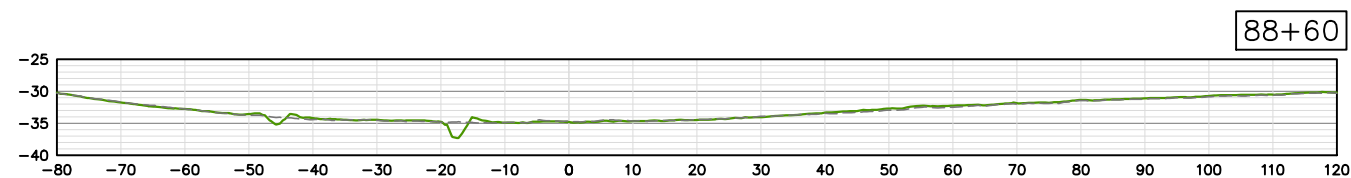
SAND | SAND+AC



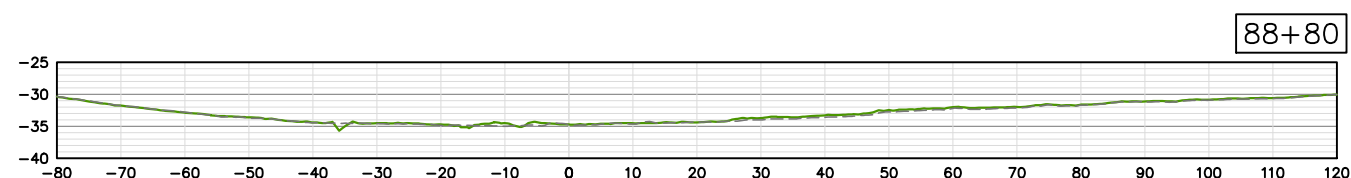
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88+40



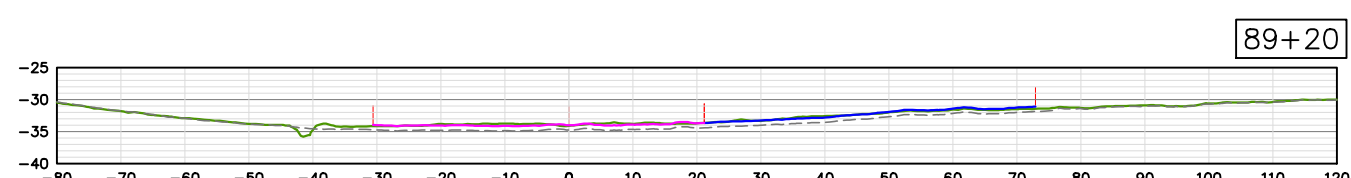
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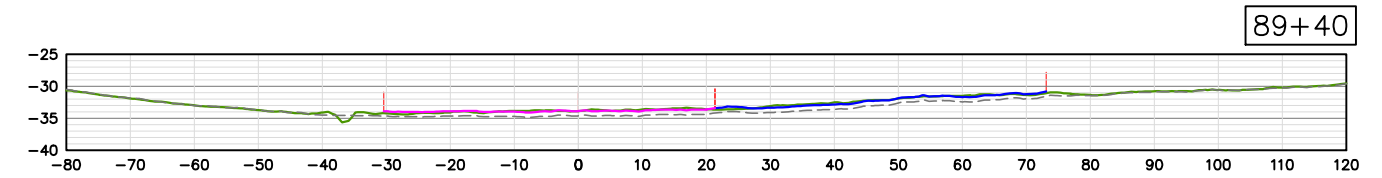
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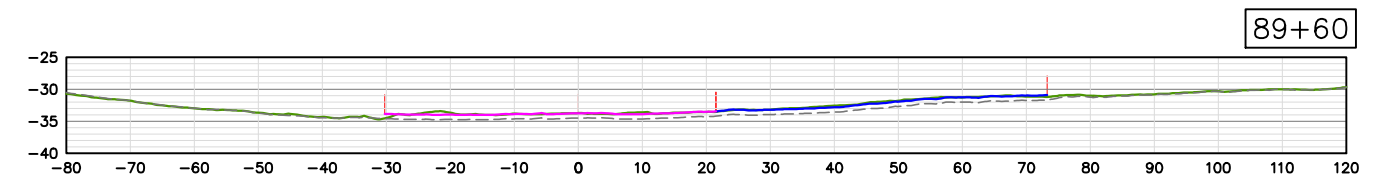
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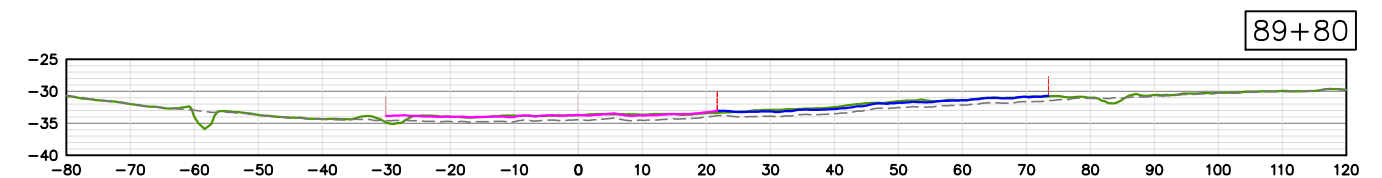
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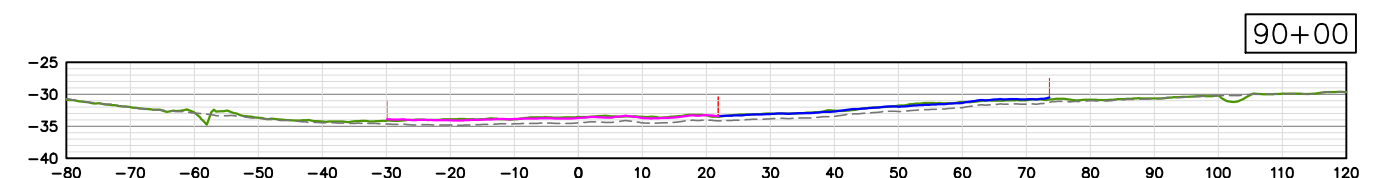
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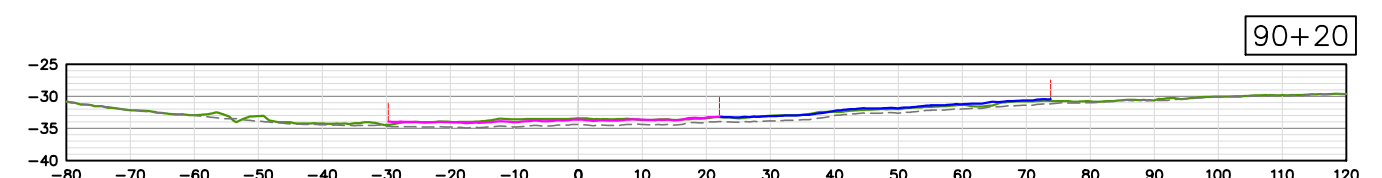
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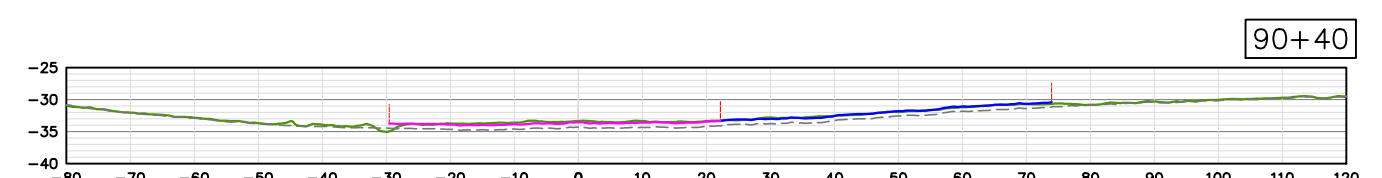
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90+00



90+20



90+40

DATUM INFORMATION

Horizontal: WASHINGTON STATE PLANE NORTH, NAD83, U.S. FEET
Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

NOTES

1. SURVEY FOR THE SUBTIDAL PLOT AREA WAS CONDUCTED BY TERRASOND LIMITED ON JANUARY 26, 2017
2. HYDROGRAPHIC DATA WAS COLLECTED USING A RESON 7125 400kHz MULTIBEAM, APPLIED WAVEMASTER INERTIAL NAVIGATION SYSTEM, AML CASE SOUND VELOCITY PROFILE, AND HYPACK HYSWEEP 2016
3. REAL-TIME KINEMATIC (RTK) POSITIONING WAS BASED ON RECORD COORDINATES FOR POINT "LAFARGE 1"
4. PROFILE VERTICAL MAGNIFICATION IS 1.0

PROFILES LEGEND

- SAND+AC SUBTIDAL PLOT ELEVATION (0.9 INCHES)
- SAND SUBTIDAL PLOT ELEVATION (0.9 INCHES)
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
N: 205,146.676
E: 1,267,790.900
ELEV: 19.327

LAFARGE 2
N: 205,410.065
E: 1,267,710.952
ELEV: 19.072

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DUWAMISH WATERWAY
CONTRACT # C00992C15

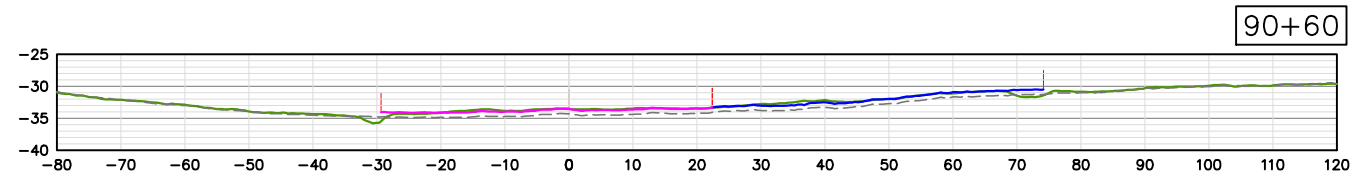
MULTIBEAM HYDROGRAPHIC SURVEY
SUBTIDAL PLOT POST-PLACEMENT

SHEET 3 OF 5

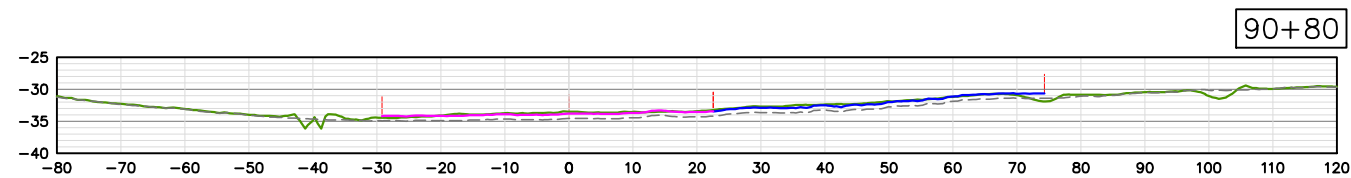
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Printer Size: ANSI	Project No.: 2016-000	Draw Date: JAN 27, 2017

SAND | SAND+AC

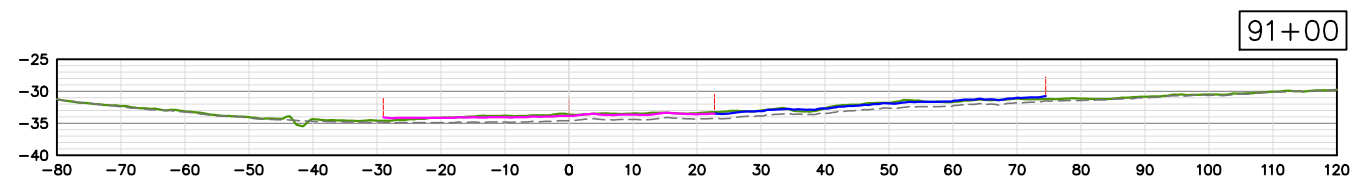
SAND | SAND+AC



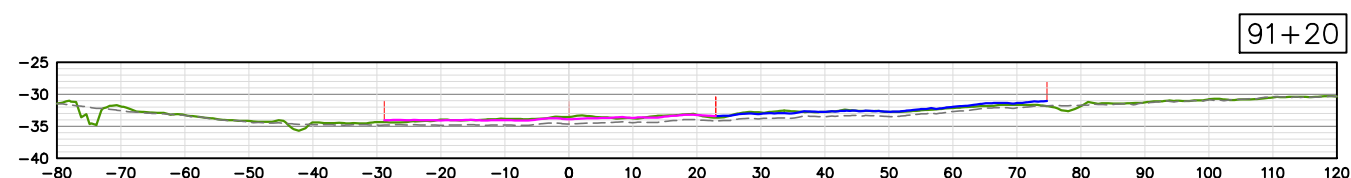
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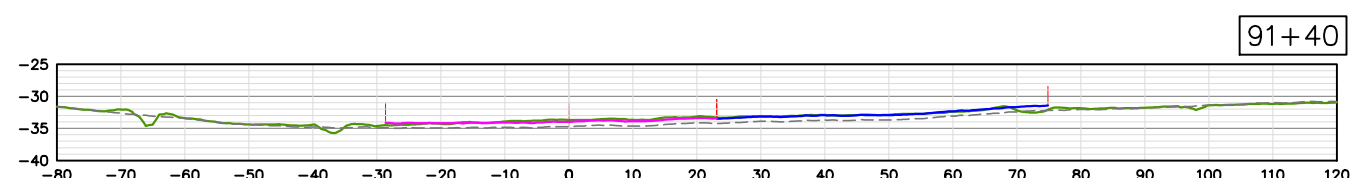
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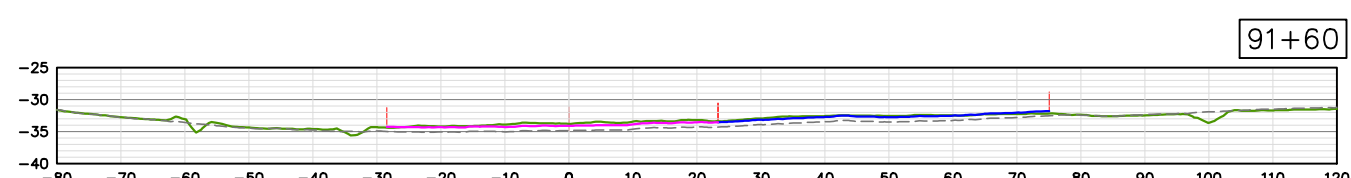
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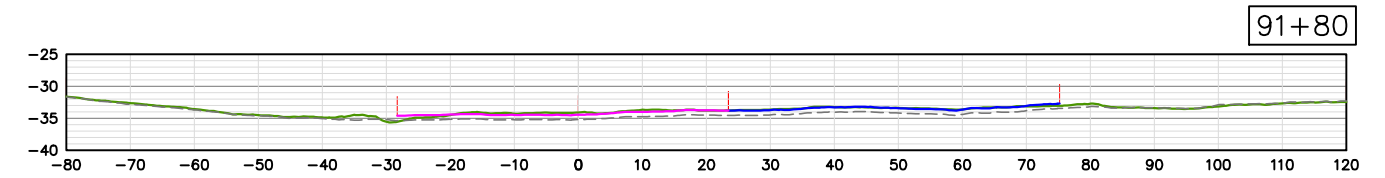
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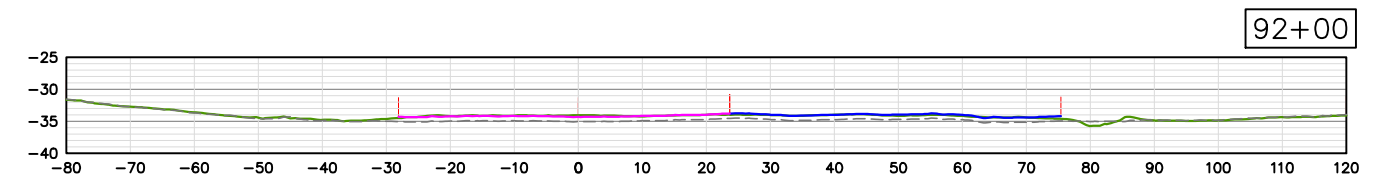
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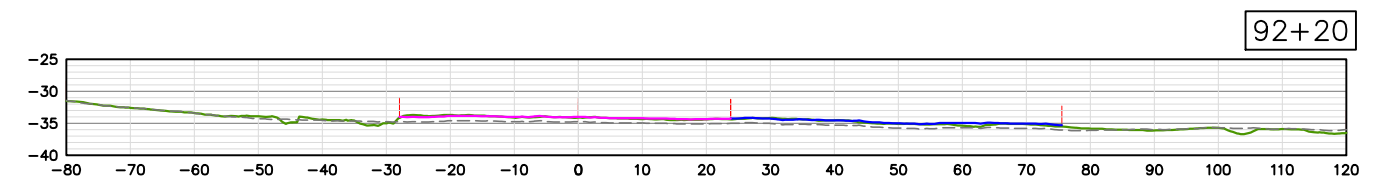
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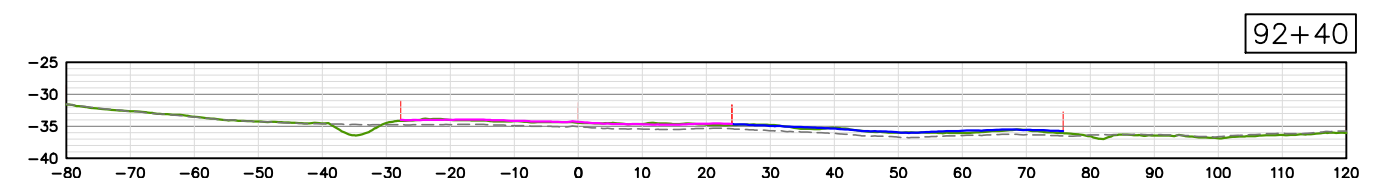
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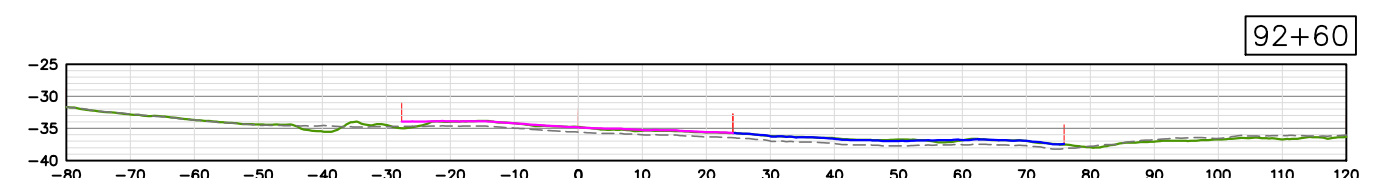
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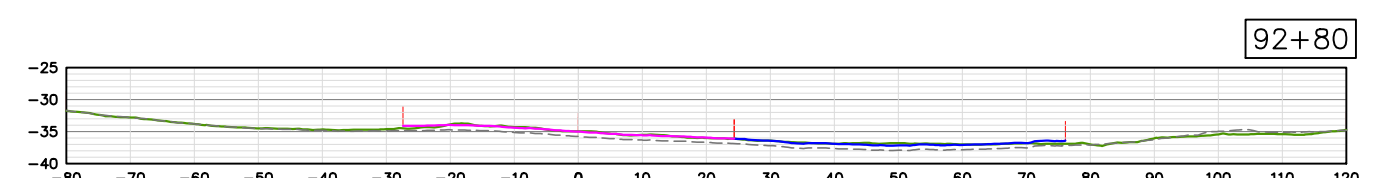
92+20



92+40



92+60



92+80

DATUM INFORMATION

Horizontal: WASHINGTON STATE PLANE NORTH, NAD83, U.S. FEET
Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

NOTES

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4. PROFILE VERTICAL MAGNIFICATION IS 1.0

PROFILES LEGEND

- SAND+AC SUBPLOT E-TENT (09 INCHES)
- SAND SUBPLOT E-TENT (09 INCHES)
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
N: 205,146.676
E: 1,267,790.900
19.327

LAFARGE 2
N: 205,410.065
E: 1,267,710.952
19.072

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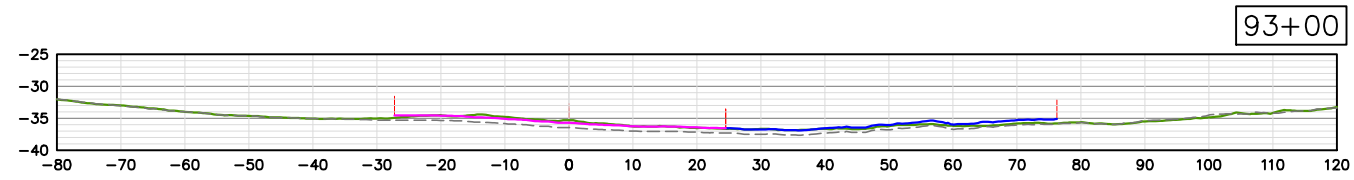
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DUWAMISH WATERWAY
CONTRACT # C00992C15

MULTIBEAM HYDROGRAPHIC SURVEY
SUBTIDAL PLOT POST-PLACEMENT

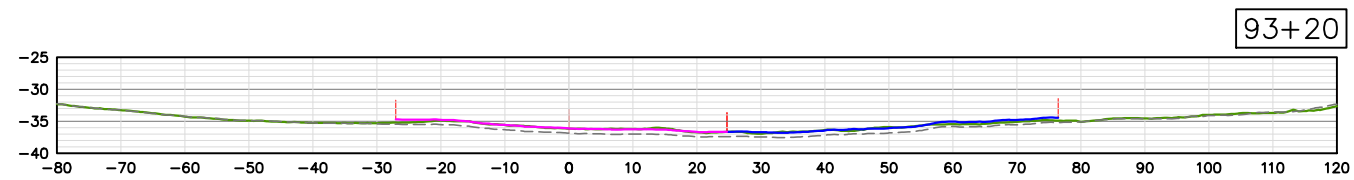
SHEET 4 OF 5

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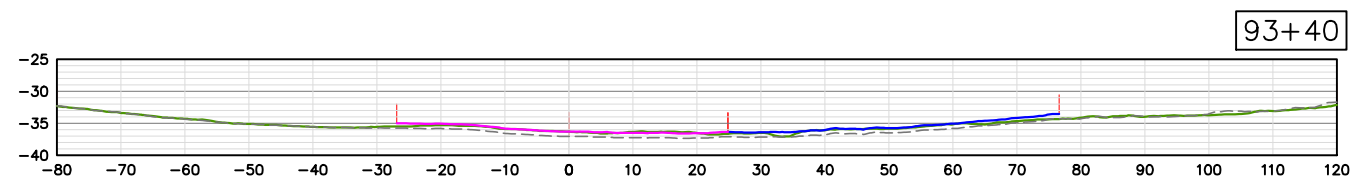
SAND | SAND+AC



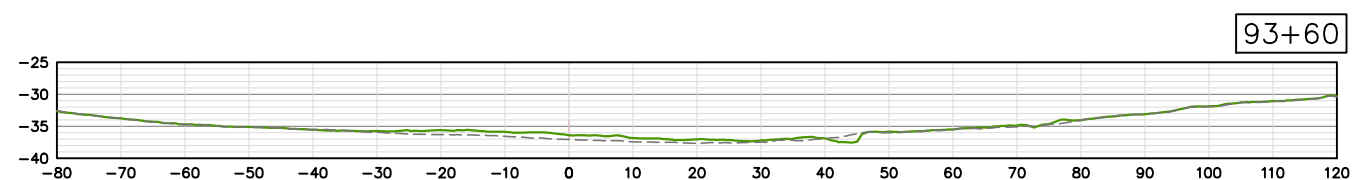
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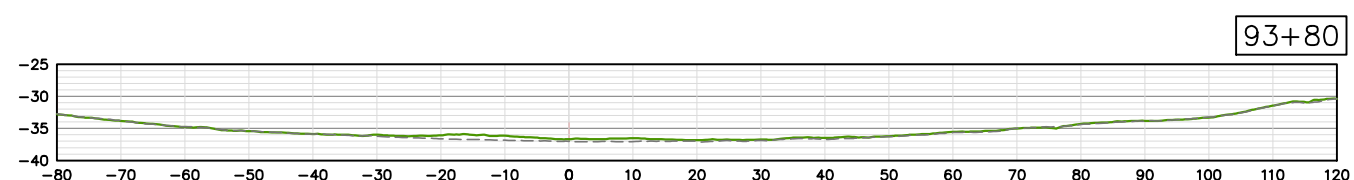
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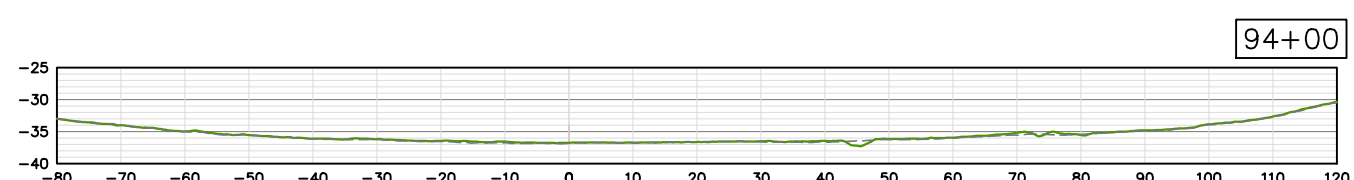
93+40



93+60



93+80



94+00

DATUM INFORMATION

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 Vertical: MEAN LOWER LOW WATER (MLLW) NOS SEATTLE EPOCH 1983-2001

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PROFILES LEGEND

- SAND+AC SUBPLOT ECHENT (09 INCHES)
- SAND SUBPLOT ECHENT (09 INCHES)
- CURRENT SURVEY
- - - PRE-SURVEY (DEC 29, 2016)

SURVEY CONTROL

LAFARGE 1
 N: 205,146.676
 E: 1,267,790.900
 Z: 19.327

LAFARGE 2
 N: 205,410.665
 E: 1,267,710.952
 Z: 19.072

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 CONTRACT # C00992C15

MULTIBEAM HYDROGRAPHIC SURVEY
 SUBTIDAL PLOT POST-PLACEMENT

SHEET 5 OF 5

Drawn: MSK	Checked: LNL	Survey Date: JAN 26, 2017
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