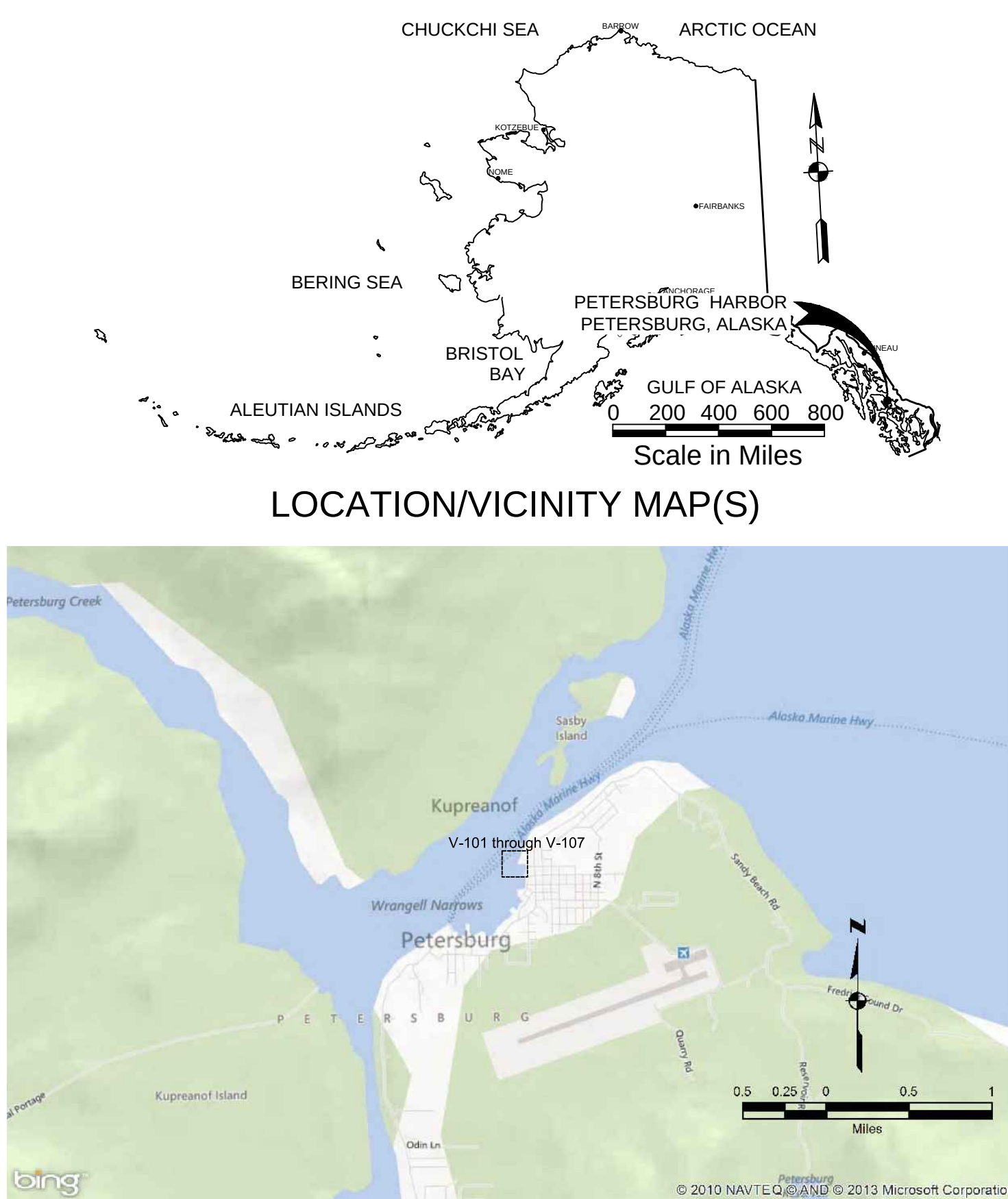




- NOTES**
- ALL HORIZONTAL AND VERTICAL CONTROL WAS PERFORMED AND PROVIDED BY R&M ENGINEERING-KETCHIKAN, INC. AUGUST 22, 2013. REFER TO THE CONTROL REPORT SIGNED BY GREGORY SCHEFF LSN6700 DATED SEPTEMBER 17, 2013.
  - HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD 83, IN SURVEY FEET, HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT HORIZONTAL CONTROL VALUES "N 1,818,870.65" AND "E 2,827,683.27".
  - VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0), HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT VERTICAL CONTROL STATION VALUE OF 23.98' MLLW.
  - BATHYMETRY WAS COLLECTED AUGUST 26-27, 2013 BY TERRASOUND LIMITED. SOUNDINGS WERE COLLECTED USING RESON SEABAT 7125 SV2 MULTIBeam ECHOSOUNDER (600kHz 512 BEAMS EQUAL ANGLE). BEAM STEERING WAS ACCOMPLISHED USING A SOUND VELOCITY PROFILER LOCATED AT THE SONAR HEAD. SOUND VELOCITY THROUGH THE WATER COLUMN WAS MEASURED AND APPLIED USING AN ODOM DEH-BAR PRO SOUND VELOCITY PROFILER. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A POS MV WAVEMASTER INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TOPCON HYPER V GPS RECEIVER SET AT CONTROL STATION "NH-1 1997". SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HPYACK "HYDROEYE 2013" INTEGRATED SOFTWARE (V2013). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.1). ADDITIONAL COVERAGE ALONG THE SOUTH BOAT RAMP WAS PROVIDED BY THE USACE AND INCORPORATED.
  - SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
  - THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
  - MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE AVERAGE BIASED. VOLUME SOUNDINGS ARE BINNED AT 1 FEET AND ARE AVERAGE BIASED.
  - FLOATS 1, 2, HEADWALL, TRANSIENT AND SKIFF WERE REMOVED AT TIME OF SURVEY.
  - IMAGES ARE FOR REFERENCE ONLY AND WERE PROVIDED BY THE USACE.

| SURVEY CONTROL DATA |              |              |       |                                            |
|---------------------|--------------|--------------|-------|--------------------------------------------|
| STATION             | NORTHING     | EASTING      | MLLW  | DESCRIPTION                                |
| 1346E 2003          | 1,769,457.40 | 2,833,296.22 | 17.68 | NOAA / NOS 3.5" DBC (SOLID)                |
| 143A 2006           | 1,814,207.81 | 2,823,232.54 | 27.14 | NOAA / NOS BENCH MARK 4" DBC FND GOOD COND |
| NH-1 1997           | 1,818,870.65 | 2,827,683.27 | 23.98 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-2 1997           | 1,818,753.15 | 2,828,219.63 | 33.13 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-3 2000           | 1,819,014.58 | 2,827,753.09 | 25.58 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-4 2000           | 1,818,325.29 | 2,827,135.91 | 25.35 | USACE 3-1/4" DB CAP DESTROYED              |
| NH-5 2003           | 1,819,618.09 | 2,828,298.02 | 52.42 | USACE 3-1/4" DB CAP DESTROYED              |
| NH-6 2003           | 1,818,814.73 | 2,828,296.24 | 40.97 | USACE 3-1/4" DB CAP DESTROYED              |
| PH-1                | 1,819,565.09 | 2,827,988.98 | 24.38 | 2-1/2" FLAT BRASS CAP NSF                  |
| SIGNAL 4            | 1,822,039.29 | 2,828,110.85 | 19.84 | US ENGINEERS SURVEY MARK SBC NSF           |
| SIGNAL 8            | 1,819,519.84 | 2,823,246.95 | 20.39 | US ENGINEERS SURVEY MARK SBC NSF           |
| WN-1A 1999          | 1,821,893.61 | 2,830,057.14 | 24.19 | USACE 3-1/4" DB CAP NSF                    |
| WN-1B 1999          | 1,821,072.48 | 2,829,142.76 | 24.47 | USACE 3-1/4" DB CAP NSF                    |
| WN-2A 1999          | 1,815,318.43 | 2,820,933.42 | 19.38 | USACE 3-1/4" DB CAP NSF                    |
| WN-2B 1999          | 1,817,808.98 | 2,825,272.30 | 25.17 | USACE 3-1/4 INCH DOMED BRASS CAP           |

| NAVIGATION AIDS |              |              |                                                    |
|-----------------|--------------|--------------|----------------------------------------------------|
| USCG NO.        | NORTHING     | EASTING      | DESCRIPTION                                        |
| 1,819,057.60    | 2,826,637.30 |              | OCEAN BEAUTY SEAFOOD PIER LIGHTS (S) - ON BUILDING |
| 1,819,623.30    | 2,827,472.70 |              | PETERSBURG FISHERIES DOCK LIGHTS (S) - ON BUILDING |
| 23180           | 1,819,250.40 | 2,826,847.60 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (N) - ON BUILDING |
| 23190           | 1,819,769.90 | 2,827,556.20 | PETERSBURG FISHERIES DOCK LIGHTS (N) - ON BUILDING |

| DREDGE LIMITS |              |              |        |              |
|---------------|--------------|--------------|--------|--------------|
| CORNER        | NORTHING     | EASTING      | CORNER | NORTHING     |
| 1             | 1,819,002.75 | 2,827,079.82 | 9      | 1,819,305.50 |
| 2             | 1,819,007.75 | 2,827,073.82 | 10     | 1,818,934.72 |
| 3             | 1,819,116.75 | 2,826,959.81 | 11     | 1,818,986.77 |
| 4             | 1,819,178.41 | 2,827,017.41 | 12     | 1,818,982.28 |
| 5             | 1,819,320.84 | 2,826,872.78 | 13     | 1,819,133.70 |
| 6             | 1,819,543.80 | 2,827,099.80 | 14     | 1,819,378.72 |
| 7             | 1,819,605.27 | 2,827,452.88 | 15     | 1,819,587.12 |
| 8             | 1,819,610.10 | 2,827,530.94 | 16     | 1,820,127.45 |
| 9             | 1,819,593.84 | 2,827,736.00 | 17     | 1,820,127.45 |
| 9a            | 1,819,464.87 | 2,827,720.55 | 18     | 1,820,114.24 |
| 9c            | 1,819,460.99 | 2,827,646.77 | 19     | 1,819,947.13 |
| 9e            | 1,819,424.48 | 2,827,655.61 | 20     | 1,819,948.72 |
| 9f            | 1,819,428.87 | 2,827,716.24 | 21     | 1,819,804.21 |
| 9g            | 1,819,396.78 | 2,827,712.39 | 22     | 1,819,799.27 |
| 9h            | 1,819,391.21 | 2,827,652.97 | 23     | 1,819,949.84 |
| 9i            | 1,819,303.00 | 2,827,659.51 | 24     | 1,819,809.38 |

**BATHYMETRY**

US Army Corps of Engineers  
ALASKA DISTRICT

CONTRACT NO. W15-CE-001  
CONTRACTOR: TERRASOUND LIMITED  
CITY: SITKA  
STATE: ALASKA  
DATE: 2013-08-27

PROJECT: PETERSBURG HARBOR  
SUBPROJECT: PREDREDGE SURVEY  
SHEET: 1 OF 7

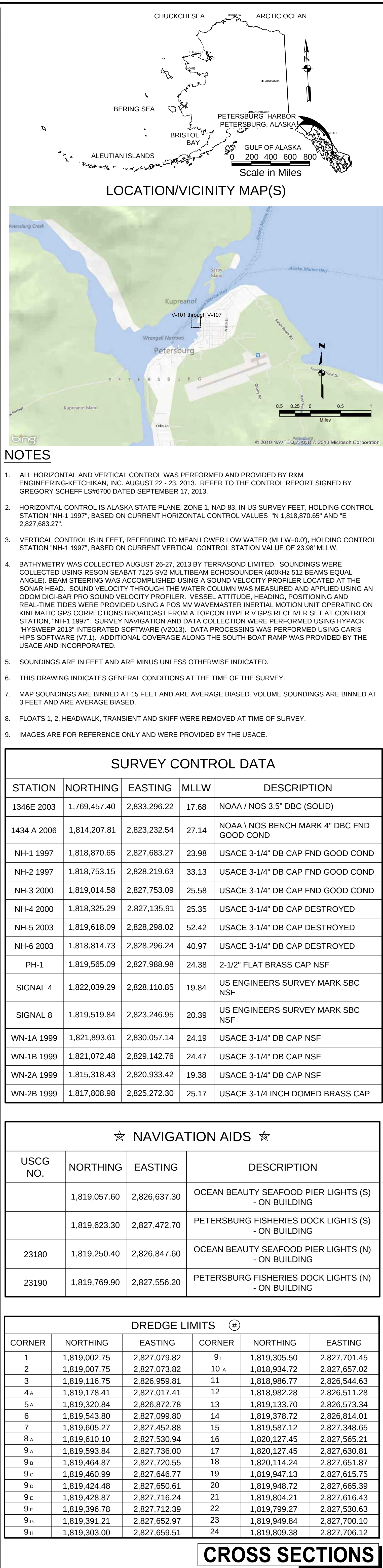
PETERSBURG, ALASKA  
PETERSBURG HARBOR  
PREDREDGE SURVEY  
AUGUST 26-27, 2013

SHEET IDENTIFICATION  
V-101



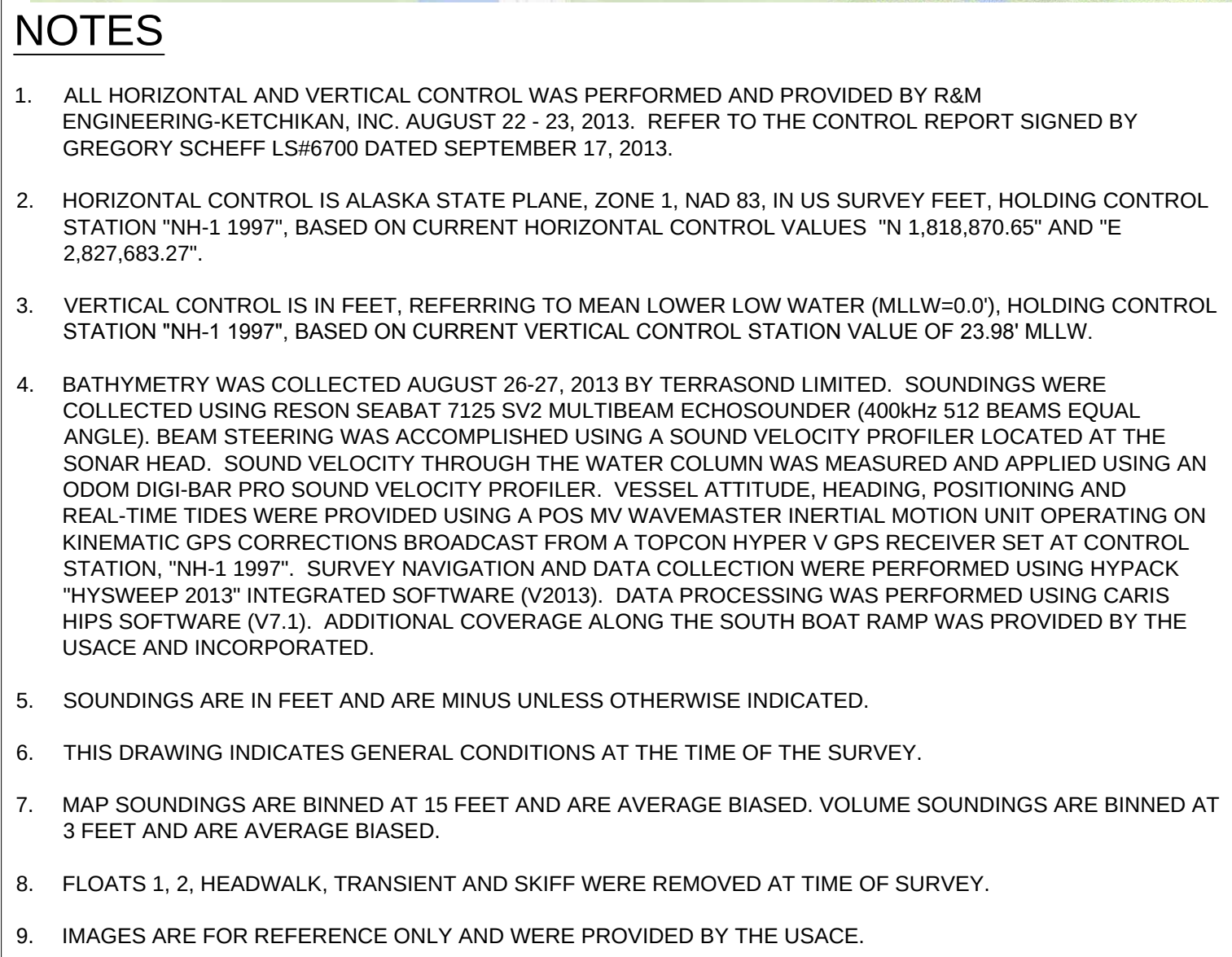
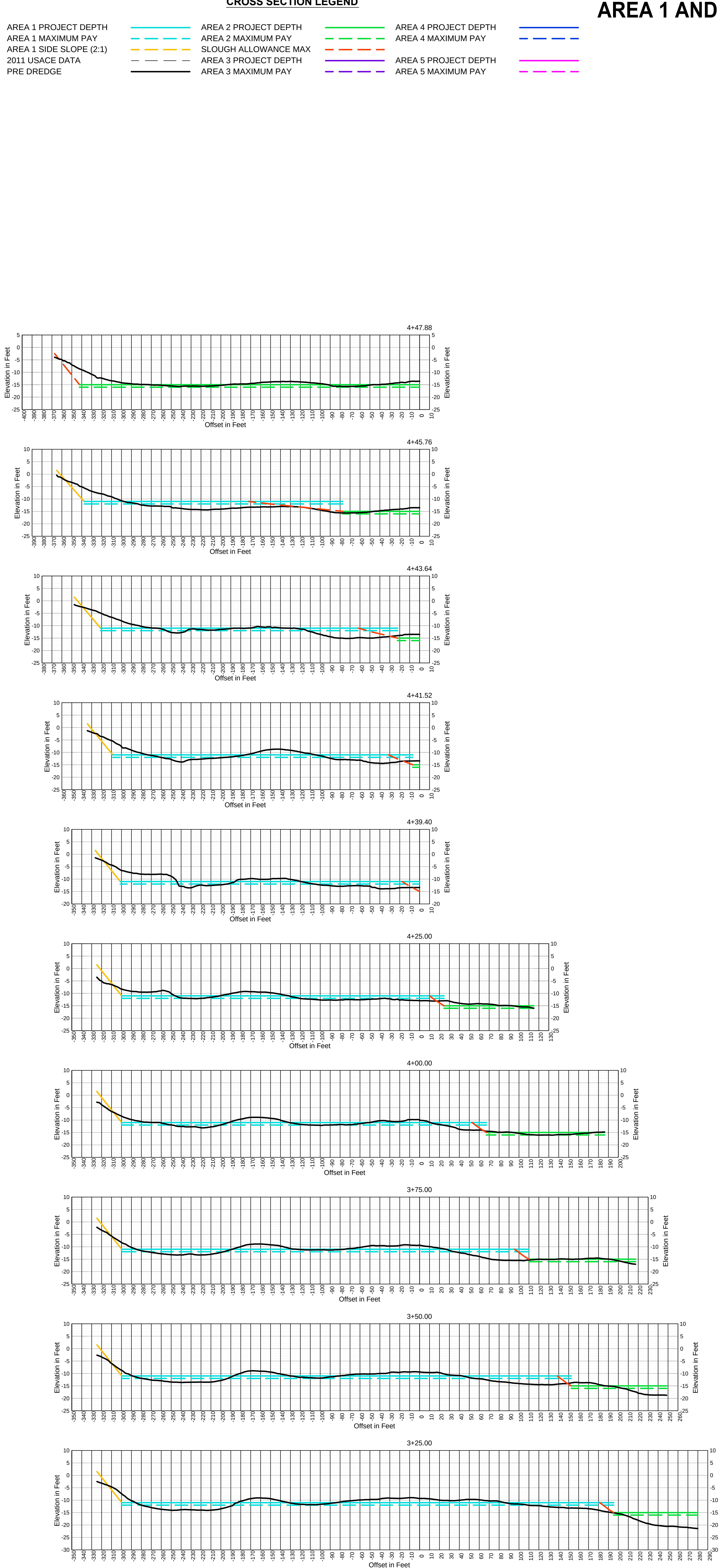






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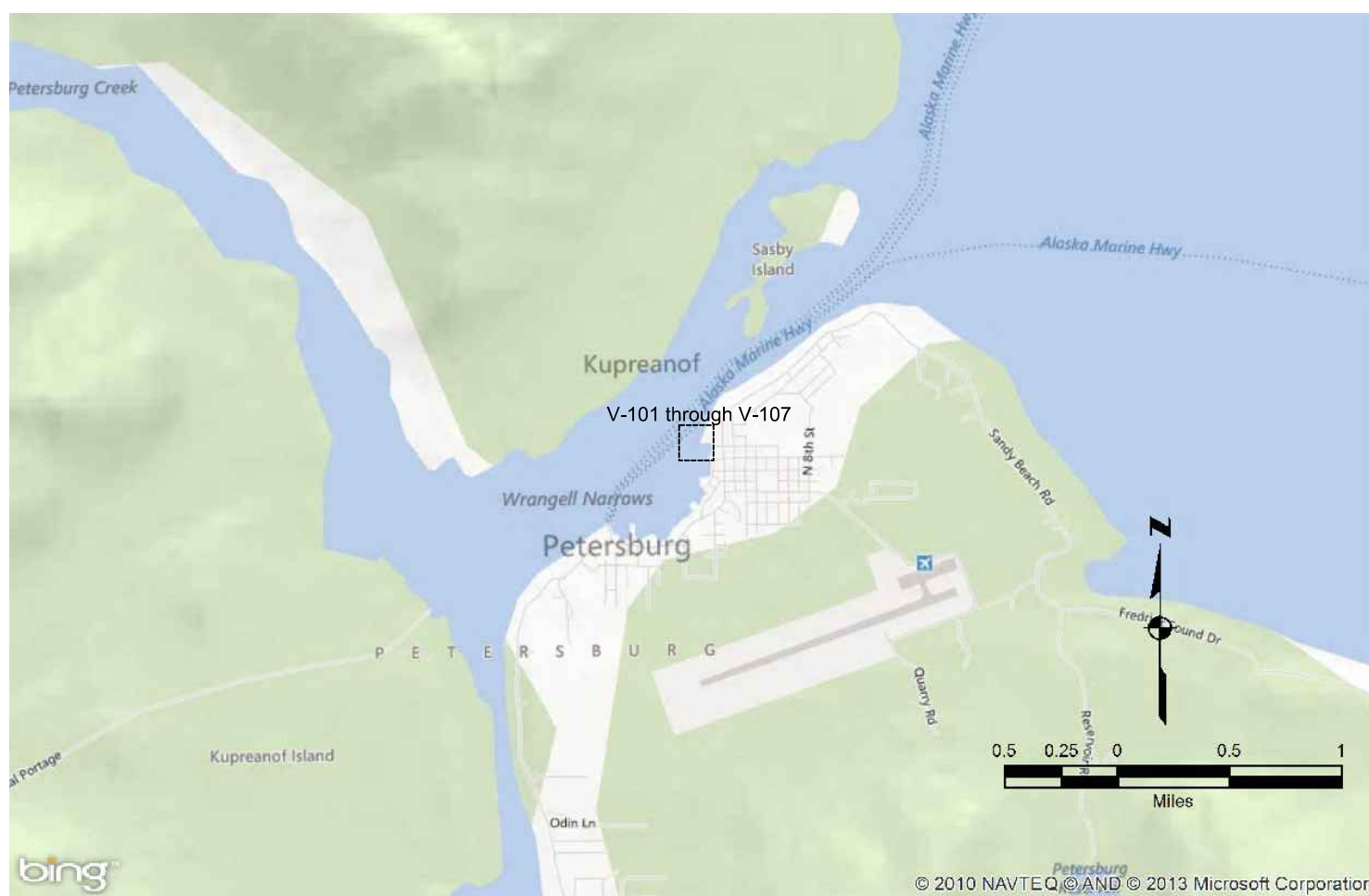


| SURVEY CONTROL DATA |              |              |       |                                            |
|---------------------|--------------|--------------|-------|--------------------------------------------|
| STATION             | NORTHING     | EASTING      | MLLW  | DESCRIPTION                                |
| 1346E 2003          | 1,769,457.40 | 2,833,296.22 | 17.68 | NOAA / NOS 3.5" DBC (SOLID)                |
| 1434 A 2006         | 1,814,207.81 | 2,823,232.54 | 27.14 | NOAA 1 NOS BENCH MARK 4" DBC FND GOOD COND |
| NH-1 1997           | 1,818,870.65 | 2,827,683.27 | 23.98 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-2 1997           | 1,818,753.15 | 2,828,219.63 | 33.13 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-3 2000           | 1,810,914.58 | 2,827,753.09 | 25.58 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-4 2000           | 1,818,325.29 | 2,827,135.91 | 25.35 | USACE 3-1/4" DB CAP DESTROYED              |
| NH-5 2003           | 1,819,618.09 | 2,828,998.02 | 52.42 | USACE 3-1/4" DB CAP DESTROYED              |
| NH-6 2003           | 1,818,814.73 | 2,828,296.24 | 40.97 | USACE 3-1/4" DB CAP DESTROYED              |
| PH-1                | 1,819,565.09 | 2,827,988.98 | 24.38 | 2-1/2" FLAT BRASS CAP NSF                  |
| SIGNAL 4            | 1,822,039.29 | 2,828,110.85 | 19.84 | US ENGINEERS SURVEY MARK SBC NSF           |
| SIGNAL 8            | 1,819,519.84 | 2,823,246.95 | 20.39 | US ENGINEERS SURVEY MARK SBC NSF           |
| WN-1A 1999          | 1,821,893.61 | 2,830,057.14 | 24.19 | USACE 3-1/4" DB CAP NSF                    |
| WN-1B 1999          | 1,821,072.48 | 2,829,142.76 | 24.47 | USACE 3-1/4" DB CAP NSF                    |
| WN-2A 1999          | 1,815,318.43 | 2,820,933.42 | 19.38 | USACE 3-1/4" DB CAP NSF                    |
| WN-2B 1999          | 1,817,808.98 | 2,825,272.30 | 25.17 | USACE 3-1/4 INCH DOMED BRASS CAP           |

| ★ NAVIGATION AIDS ★ |              |              |                                                       |
|---------------------|--------------|--------------|-------------------------------------------------------|
| USCG<br>NO.         | NORTHING     | EASTING      | DESCRIPTION                                           |
|                     | 1,819,057.60 | 2,826,637.30 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (S)<br>- ON BUILDING |
|                     | 1,819,623.30 | 2,827,472.70 | PETERSBURG FISHERIES DOCK LIGHTS (S)<br>- ON BUILDING |
| 23180               | 1,819,250.40 | 2,826,847.60 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (N)<br>- ON BUILDING |
| 23190               | 1,819,769.90 | 2,827,556.20 | PETERSBURG FISHERIES DOCK LIGHTS (N)<br>- ON BUILDING |

| DREDGE LIMITS <sup>(#)</sup> |              |              |                |              |              |
|------------------------------|--------------|--------------|----------------|--------------|--------------|
| CORNER                       | NORTHING     | EASTING      | CORNER         | NORTHING     | EASTING      |
| 1                            | 1,819,002.75 | 2,827,079.82 | 9 <sub>a</sub> | 1,819,305.50 | 2,827,701.45 |
| 2                            | 1,807,007.75 | 2,827,073.82 | 10             | 1,818,934.72 | 2,827,657.02 |
| 3                            | 1,819,116.75 | 2,826,959.81 | 11             | 1,818,986.77 | 2,826,544.63 |
| 4 <sub>A</sub>               | 1,819,178.41 | 2,827,017.41 | 12             | 1,818,982.28 | 2,826,511.28 |
| 5                            | 1,819,320.84 | 2,826,872.78 | 13             | 1,819,133.70 | 2,826,573.34 |
| 6                            | 1,819,543.80 | 2,827,099.80 | 14             | 1,818,378.72 | 2,826,814.01 |
| 7                            | 1,819,605.27 | 2,827,452.88 | 15             | 1,819,587.12 | 2,827,348.65 |
| 8 <sub>A</sub>               | 1,819,610.10 | 2,827,530.94 | 16             | 1,820,127.45 | 2,827,565.21 |
| 9 <sub>A</sub>               | 1,819,593.84 | 2,827,736.00 | 17             | 1,820,127.45 | 2,827,630.81 |
| 9 <sub>B</sub>               | 1,819,464.87 | 2,827,720.55 | 18             | 1,820,114.24 | 2,827,651.87 |
| 9 <sub>C</sub>               | 1,819,460.99 | 2,827,646.77 | 19             | 1,819,947.13 | 2,827,615.75 |
| 10                           | 1,819,424.48 | 2,827,650.61 | 20             | 1,819,948.72 | 2,827,665.39 |
| 9 <sub>E</sub>               | 1,819,428.87 | 2,827,716.24 | 21             | 1,819,804.21 | 2,827,616.43 |
| 9 <sub>F</sub>               | 1,819,396.78 | 2,827,712.39 | 22             | 1,819,799.27 | 2,827,530.63 |
| 9 <sub>G</sub>               | 1,819,391.21 | 2,827,652.97 | 23             | 1,819,949.84 | 2,827,700.10 |
| 9 <sub>H</sub>               | 1,819,303.00 | 2,827,659.51 | 24             | 1,819,809.38 | 2,827,706.12 |





ALL HORIZONTAL AND VERTICAL CONTROL WAS PERFORMED AND PROVIDED BY R&M ENGINEERING-KETCHIKAN, INC. AUGUST 22 - 23, 2013. REFER TO THE CONTROL REPORT SIGNED BY GREGORY SCHEFF LS#16700 DATED SEPTEMBER 17, 2013.

HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD 83, IN US SURVEY FEET. HOLDING CONTROL STATION "NH-1997", BASED ON CURRENT HORIZONTAL CONTROL VALUES "N 1,818,870.65" AND "E 2,827,683.27".

VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0'). HOLDING CONTROL STATION "NH-1997", BASED ON CURRENT VERTICAL CONTROL STATION VALUE OF 23.98' MLLW.

BATHYMETRY WAS COLLECTED AUGUST 26-27, 2013 BY TERRASOUND LIMITED. SOUNDINGS WERE COLLECTED USING RECON SEABAT 7125 S2 MULTIBEAM ECHOSOUNDER (400kHz; 512 BEAMS EQUAL ANGLE). BEAM STEERING WAS CONTROLLED USING A SOUND VELOCITY PROFIER LOCATED AT THE SOUND HEAD. SOUND VELOCITY THROUGH THE WATER COLUMN WAS MEASURED AND APPLIED USING AN ODOM DIGI-BAR PRO SOUND VELOCITY PROFILER. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A POS MV WAVEMASTER INERTIAL MOTION UNIT OPERATING ON A REAL-TIME CORRECTED GPS DATA ACQUISITION FROM A TOPCON HYPER V GPS RECEIVER SET AT CONTROL STATION, "NH-1997". SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPPACK "HYSWEEP 2013" INTEGRATED SOFTWARE (V2013). DATA PROCESSING WAS PERFORMED USING CARIS HIPS V14.0.1. ADDITIONAL COVERAGE ALONG THE SOUTH BATHY RAMP WAS PROVIDED BY THE USACE AND INCORPORATED.

SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

MAP SOUNDINGS ARE BINNED AT 15 FEET AND AN AVERAGE BINED. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE AVERAGE BINED.

FLOATS 1, 2, HEADWALK, TRANSIENT AND SKIFF WERE REMOVED AT TIME OF SURVEY.

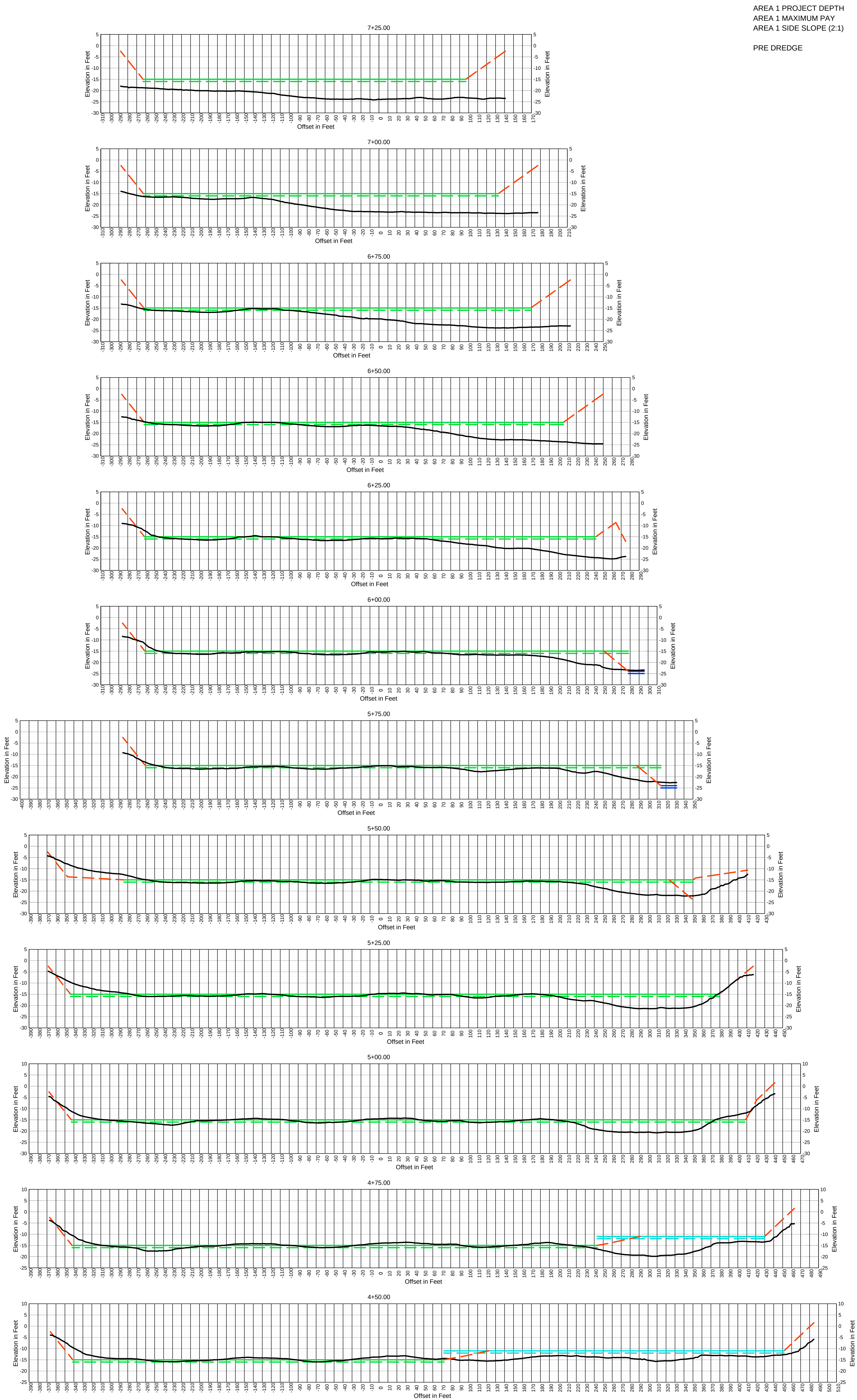
IMAGES ARE FOR REFERENCE ONLY AND WERE PROVIDED BY THE USACE.

| SURVEY CONTROL DATA |              |              |       |                                            |
|---------------------|--------------|--------------|-------|--------------------------------------------|
| STATION             | NORTHING     | EASTING      | MLLW  | DESCRIPTION                                |
| 1346E 2003          | 1,769,457.40 | 2,833,296.22 | 17.68 | NOAA \ NOS 3.5" DBC (SOLID)                |
| 1434 A 2006         | 1,814,207.81 | 2,823,232.54 | 27.14 | NOAA \ NOS BENCH MARK 4" DBC FND GOOD COND |
| NH-1 1997           | 1,818,870.65 | 2,827,683.27 | 23.98 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-2 1997           | 1,818,753.15 | 2,828,219.63 | 33.13 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-3 2000           | 1,819,014.58 | 2,827,753.09 | 25.58 | USACE 3-1/4" DB CAP FND GOOD COND          |
| NH-4 2000           | 1,818,325.29 | 2,827,135.91 | 25.35 | USACE 3-1/4" DB CAP DESTROYED              |
| NH-5 2003           | 1,819,618.09 | 2,828,298.02 | 52.42 | USACE 3-1/4" DB CAP DESTROYED              |
| NH-6 2003           | 1,818,814.73 | 2,828,296.24 | 40.97 | USACE 3-1/4" DB CAP DESTROYED              |
| PH-1                | 1,819,565.09 | 2,827,988.98 | 24.38 | 2-1/2" FLAT BRASS CAP NSF                  |
| SIGNAL 4            | 1,822,039.29 | 2,828,110.85 | 19.84 | US ENGINEERS SURVEY MARK SBC NSF           |
| SIGNAL 8            | 1,819,519.84 | 2,823,246.95 | 20.39 | US ENGINEERS SURVEY MARK SBC NSF           |
| WN-1A 1999          | 1,821,893.61 | 2,830,057.14 | 24.19 | USACE 3-1/4" DB CAP NSF                    |
| WN-1B 1999          | 1,821,072.48 | 2,829,142.76 | 24.47 | USACE 3-1/4" DB CAP NSF                    |
| WN-2A 1999          | 1,815,318.43 | 2,820,933.42 | 19.38 | USACE 3-1/4" DB CAP NSF                    |
| WN-2B 1999          | 1,817,808.98 | 2,825,272.30 | 25.17 | USACE 3-1/4 INCH DOMED BRASS CAP           |

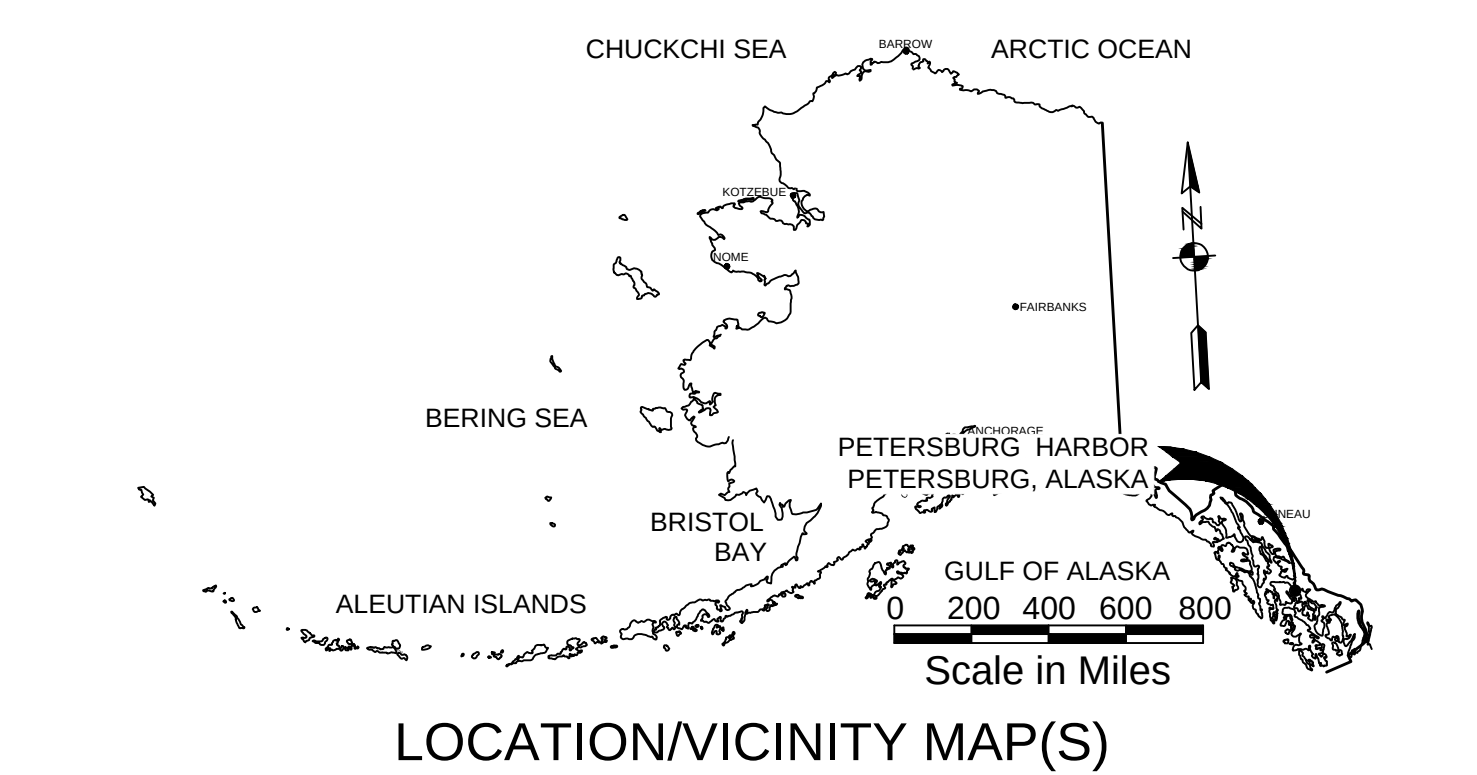
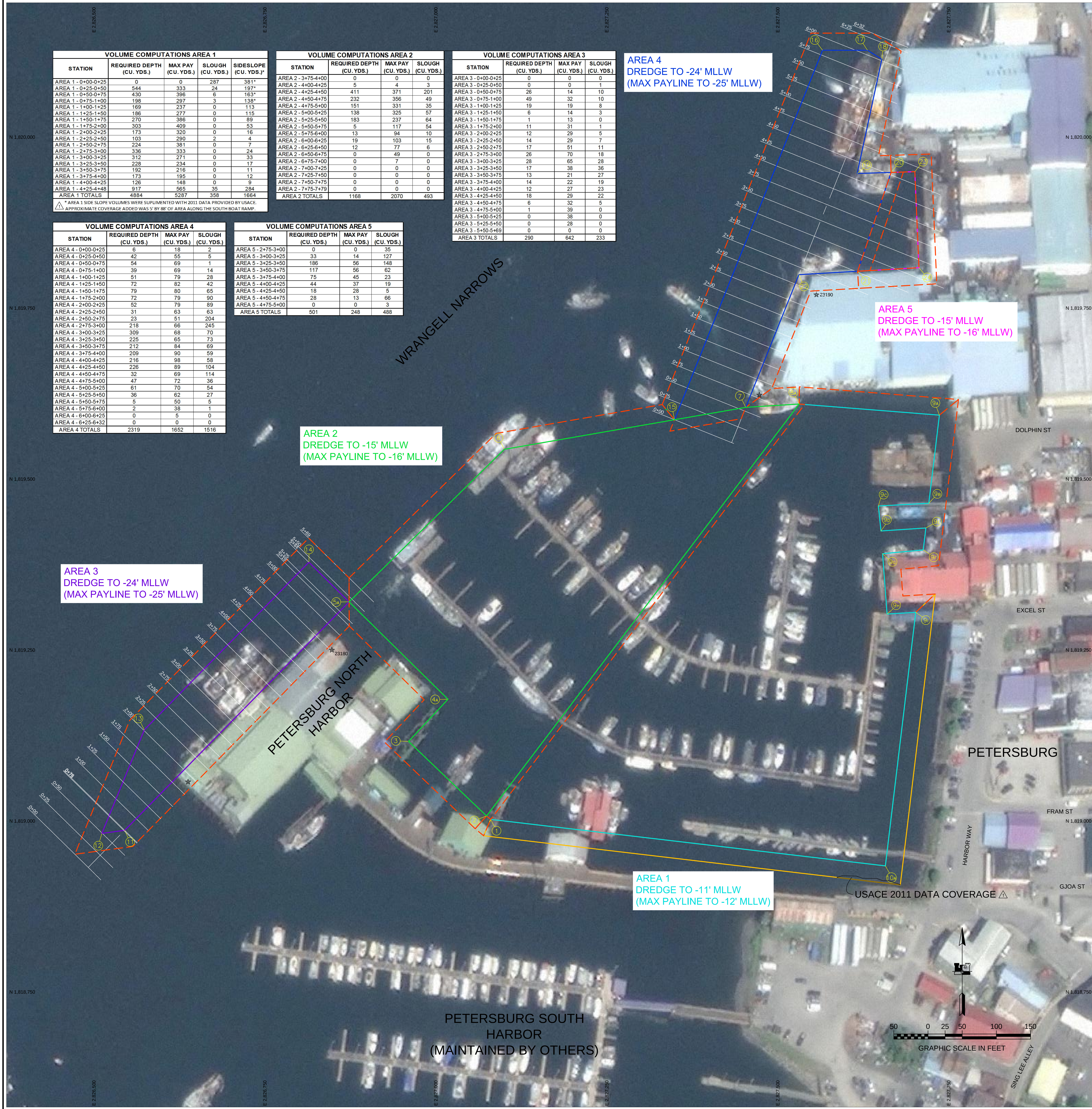
| ☆ NAVIGATION AIDS ☆ |              |              |                                                       |
|---------------------|--------------|--------------|-------------------------------------------------------|
| USCG NO.            | NORTHING     | EASTING      | DESCRIPTION                                           |
|                     | 1,819,057.60 | 2,826,637.30 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (S)<br>- ON BUILDING |
|                     | 1,819,623.30 | 2,827,472.70 | PETERSBURG FISHERIES DOCK LIGHTS (S)<br>- ON BUILDING |
| 23180               | 1,819,250.40 | 2,826,847.60 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (N)<br>- ON BUILDING |
| 23190               | 1,819,769.90 | 2,827,556.20 | PETERSBURG FISHERIES DOCK LIGHTS (N)<br>- ON BUILDING |

| DREDGE LIMITS <sup>(#)</sup> |              |              |                 |              |              |
|------------------------------|--------------|--------------|-----------------|--------------|--------------|
| CORNER                       | NORTHING     | EASTING      | CORNER          | NORTHING     | EASTING      |
| 1                            | 1,819,002.75 | 2,827,079.82 | 9 <sub>1</sub>  | 1,819,305.50 | 2,827,701.45 |
| 2                            | 1,819,007.75 | 2,827,073.82 | 10 <sub>1</sub> | 1,818,934.72 | 2,827,657.02 |
| 3                            | 1,819,116.75 | 2,826,959.81 | 11 <sub>1</sub> | 1,818,966.77 | 2,826,544.63 |
| 4 <sub>A</sub>               | 1,819,178.41 | 2,827,017.41 | 12 <sub>1</sub> | 1,818,902.28 | 2,826,511.28 |
| 5 <sub>A</sub>               | 1,819,320.84 | 2,826,872.78 | 13 <sub>1</sub> | 1,819,133.70 | 2,826,575.34 |
| 6                            | 1,819,543.80 | 2,827,099.80 | 14              | 1,819,378.72 | 2,826,814.01 |
| 7                            | 1,819,605.27 | 2,827,452.88 | 15              | 1,819,587.12 | 2,827,348.65 |
| 8 <sub>A</sub>               | 1,819,610.10 | 2,827,530.94 | 16              | 1,820,127.45 | 2,827,565.21 |
| 9 <sub>A</sub>               | 1,819,593.84 | 2,827,736.00 | 17              | 1,820,127.45 | 2,827,630.81 |
| 9 <sub>B</sub>               | 1,819,464.87 | 2,827,720.55 | 18              | 1,820,114.24 | 2,827,651.87 |
| 10 <sub>C</sub>              | 1,819,460.99 | 2,827,646.77 | 19              | 1,819,947.13 | 2,827,615.75 |
| 9 <sub>D</sub>               | 1,819,424.48 | 2,827,650.61 | 20              | 1,819,948.72 | 2,827,665.39 |
| 9 <sub>E</sub>               | 1,819,428.87 | 2,827,716.24 | 21              | 1,819,804.21 | 2,827,616.43 |
| 9 <sub>F</sub>               | 1,819,396.78 | 2,827,712.39 | 22              | 1,819,799.27 | 2,827,530.63 |
| 9 <sub>G</sub>               | 1,819,391.21 | 2,827,652.97 | 23              | 1,819,949.84 | 2,827,700.10 |
| 9 <sub>H</sub>               | 1,819,303.00 | 2,827,659.51 | 24              | 1,819,809.38 | 2,827,706.12 |

## CROSS SECTIONS







| SURVEY CONTROL DATA |              |              |       |                                           |
|---------------------|--------------|--------------|-------|-------------------------------------------|
| STATION             | NORTHING     | EASTING      | MLLW  | DESCRIPTION                               |
| 1346E 2003          | 1,769,457.40 | 2,833,296.22 | 17.68 | NOAA / NOS 3.5" DB (SOLID)                |
| 1434 A 2006         | 1,814,207.81 | 2,823,232.54 | 27.14 | NOAA / NOS BENCH MARK 4" DB FND GOOD COND |
| NH-1 1997           | 1,818,870.65 | 2,827,683.27 | 23.98 | USACE 3-1/4" DB CAP FND GOOD COND         |
| NH-2 1997           | 1,818,753.15 | 2,828,219.63 | 33.13 | USACE 3-1/4" DB CAP FND GOOD COND         |
| NH-3 2000           | 1,819,014.58 | 2,827,753.09 | 25.58 | USACE 3-1/4" DB CAP FND GOOD COND         |
| NH-4 2000           | 1,818,325.29 | 2,827,135.91 | 25.35 | USACE 3-1/4" DB CAP DESTROYED             |
| NH-5 2003           | 1,819,618.09 | 2,828,298.02 | 52.42 | USACE 3-1/4" DB CAP DESTROYED             |
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| PH-1                | 1,819,565.09 | 2,827,988.98 | 24.38 | 2-1/2" FLAT BRASS CAP NSF                 |
| SIGNAL 4            | 1,822,039.29 | 2,828,110.85 | 19.84 | US ENGINEERS SURVEY MARK SBC NSF          |
| SIGNAL 8            | 1,819,519.84 | 2,823,246.95 | 20.39 | US ENGINEERS SURVEY MARK SBC NSF          |
| WN-1A 1999          | 1,821,893.61 | 2,830,057.14 | 24.19 | USACE 3-1/4" DB CAP NSF                   |
| WN-1B 1999          | 1,821,072.48 | 2,829,142.76 | 24.47 | USACE 3-1/4" DB CAP NSF                   |
| WN-2A 1999          | 1,815,318.43 | 2,820,933.42 | 19.38 | USACE 3-1/4" DB CAP NSF                   |
| WN-2B 1999          | 1,817,808.98 | 2,825,272.30 | 25.17 | USACE 3-1/4 INCH DOMED BRASS CAP          |

| NAVIGATION AIDS |              |              |                                                    |  |
|-----------------|--------------|--------------|----------------------------------------------------|--|
| USCG NO.        | NORTHING     | EASTING      | DESCRIPTION                                        |  |
|                 | 1,819,057.60 | 2,826,637.30 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (S) - ON BUILDING |  |
|                 | 1,819,623.30 | 2,827,472.70 | PETERSBURG FISHERIES DOCK LIGHTS (S) - ON BUILDING |  |
| 23180           | 1,819,250.40 | 2,826,847.60 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (N) - ON BUILDING |  |
| 23190           | 1,819,769.90 | 2,827,556.20 | PETERSBURG FISHERIES DOCK LIGHTS (N) - ON BUILDING |  |

| DREDGE LIMITS |              |              |        |              |
|---------------|--------------|--------------|--------|--------------|
| CORNER        | NORTHING     | EASTING      | CORNER | NORTHING     |
| 1             | 1,819,002.75 | 2,827,079.82 | 9      | 1,819,305.50 |
| 2             | 1,819,007.75 | 2,827,073.82 | 10     | 1,818,934.72 |
| 3             | 1,819,116.75 | 2,826,959.81 | 11     | 1,818,986.77 |
| 4             | 1,819,178.41 | 2,827,017.41 | 12     | 1,818,982.28 |
| 5             | 1,819,320.84 | 2,826,872.78 | 13     | 1,819,133.70 |
| 6             | 1,819,543.80 | 2,827,099.80 | 14     | 1,819,378.72 |
| 7             | 1,819,605.27 | 2,827,452.88 | 15     | 1,819,587.12 |
| 8             | 1,819,610.10 | 2,827,530.94 | 16     | 1,820,127.45 |
| 9             | 1,819,593.84 | 2,827,736.00 | 17     | 1,820,127.45 |
| 10            | 1,819,464.87 | 2,827,720.55 | 18     | 1,820,114.24 |
| 11            | 1,819,460.99 | 2,827,646.77 | 19     | 1,819,947.13 |
| 12            | 1,819,424.48 | 2,827,650.61 | 20     | 1,819,948.72 |
| 13            | 1,819,428.87 | 2,827,716.24 | 21     | 1,819,804.21 |
| 14            | 1,819,396.78 | 2,827,712.39 | 22     | 1,819,799.27 |
| 15            | 1,819,391.21 | 2,827,652.97 | 23     | 1,819,949.84 |
| 16            | 1,819,303.00 | 2,827,659.51 | 24     | 1,819,809.38 |

| CROSS SECTIONS |              |              |        |              |
|----------------|--------------|--------------|--------|--------------|
| CORNER         | NORTHING     | EASTING      | CORNER | NORTHING     |
| 1              | 1,819,002.75 | 2,827,079.82 | 9      | 1,819,305.50 |
| 2              | 1,819,007.75 | 2,827,073.82 | 10     | 1,818,934.72 |
| 3              | 1,819,116.75 | 2,826,959.81 | 11     | 1,818,986.77 |
| 4              | 1,819,178.41 | 2,827,017.41 | 12     | 1,818,982.28 |
| 5              | 1,819,320.84 | 2,826,872.78 | 13     | 1,819,133.70 |
| 6              | 1,819,543.80 | 2,827,099.80 | 14     | 1,819,378.72 |
| 7              | 1,819,605.27 | 2,827,452.88 | 15     | 1,819,587.12 |
| 8              | 1,819,610.10 | 2,827,530.94 | 16     | 1,820,127.45 |
| 9              | 1,819,593.84 | 2,827,736.00 | 17     | 1,820,127.45 |
| 10             | 1,819,464.87 | 2,827,720.55 | 18     | 1,820,114.24 |
| 11             | 1,819,460.99 | 2,827,646.77 | 19     | 1,819,947.13 |
| 12             | 1,819,424.48 | 2,827,650.61 | 20     | 1,819,948.72 |
| 13             | 1,819,428.87 | 2,827,716.24 | 21     | 1,819,804.21 |
| 14             | 1,819,396.78 | 2,827,712.39 | 22     | 1,819,799.27 |
| 15             | 1,819,391.21 | 2,827,652.97 | 23     | 1,819,949.84 |
| 16             | 1,819,303.00 | 2,827,659.51 | 24     | 1,819,809.38 |



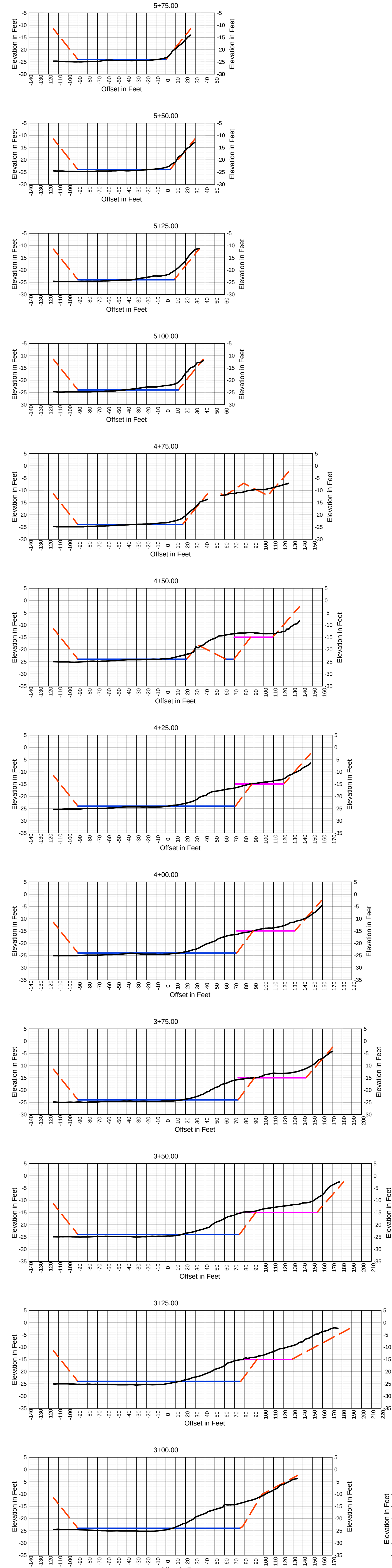
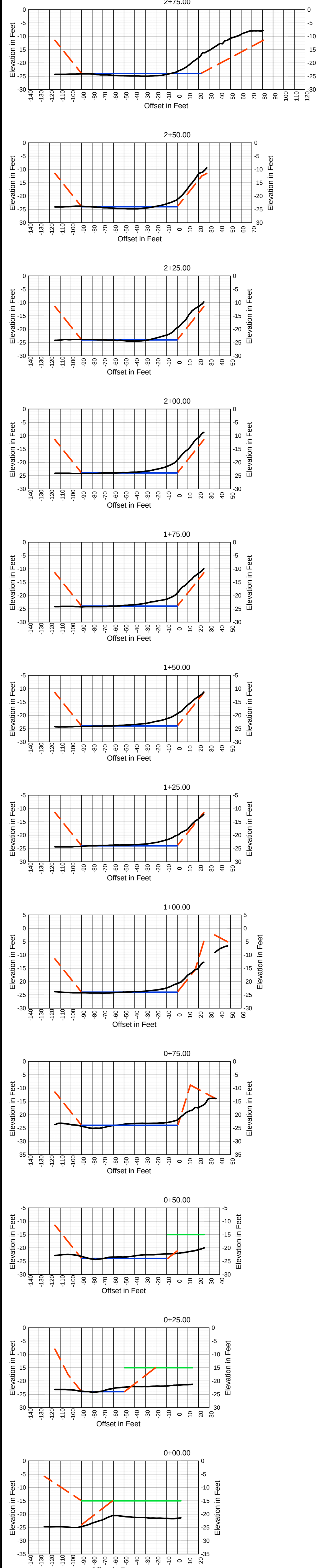
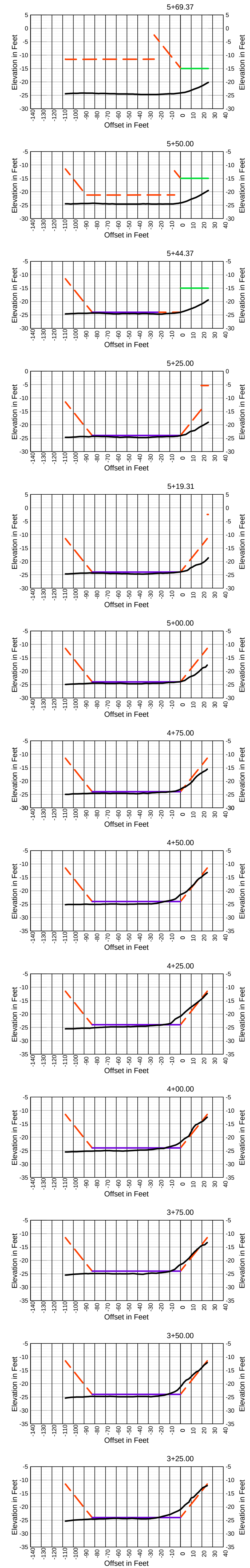
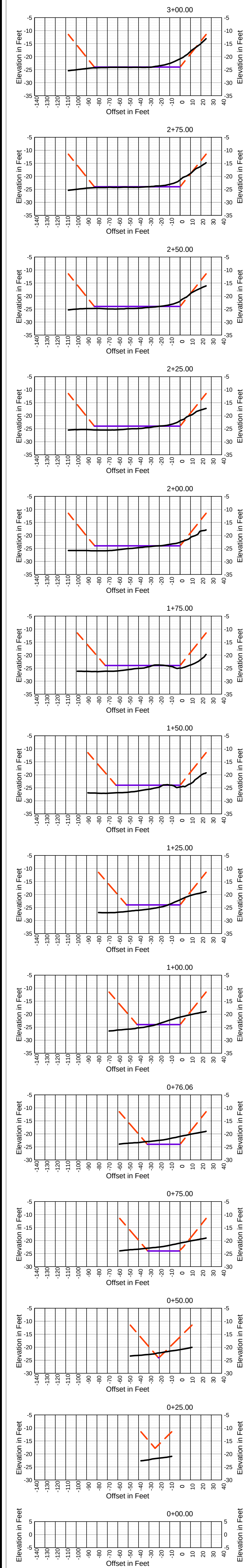
### AREA 3

**CROSS SECTION LEGEND**

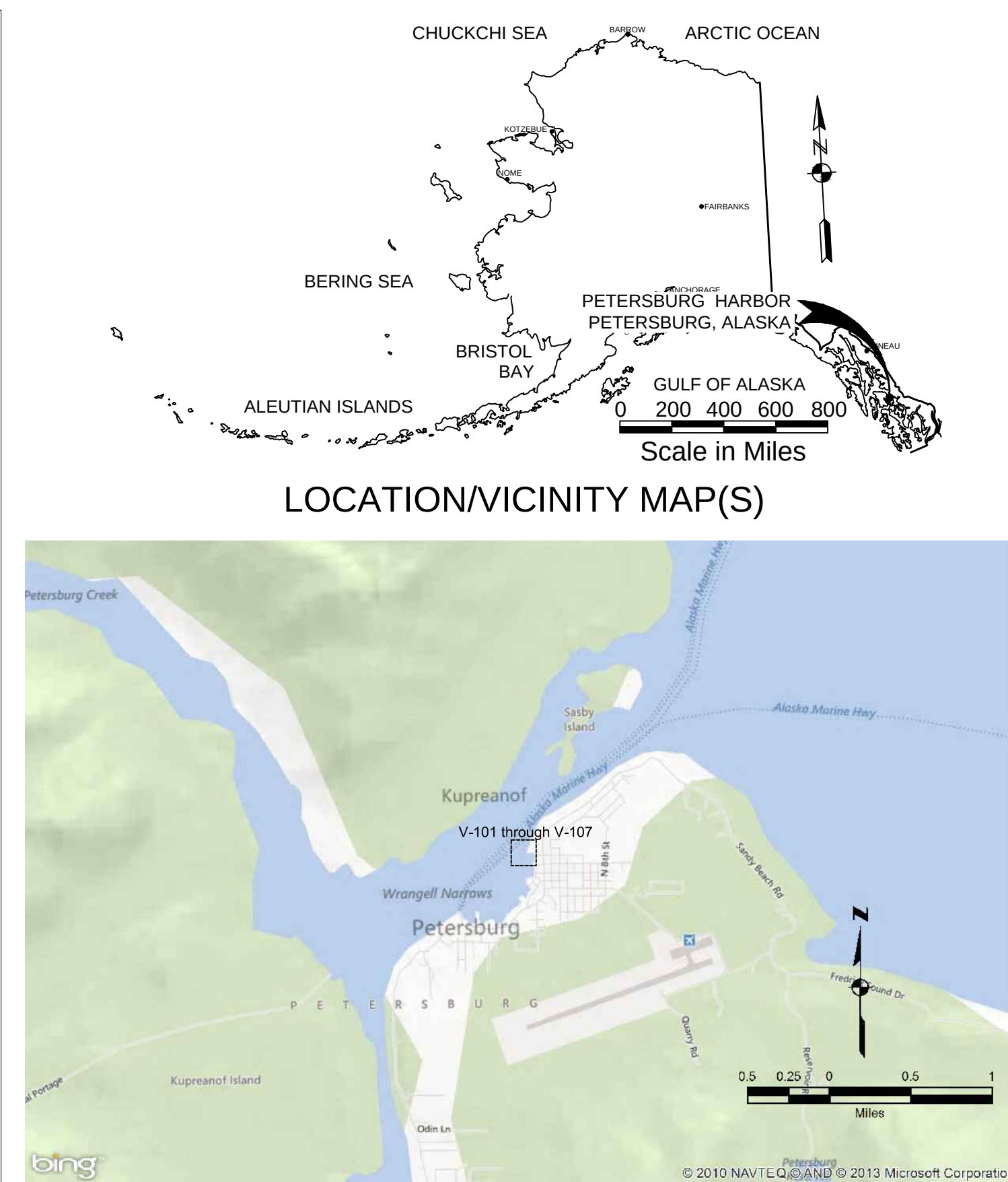
AREA 1 PROJECT DEPTH  
AREA 1 MAXIMUM PAY  
AREA 1 SIDE SLOPE (2:1)  
SLOUGH ALLOWANCE MA  
PRE DREDGE

AREA 2 PROJECT DEPTH  
AREA 2 MAXIMUM PAY

 AREA 3 PROJECT DEPTH  
 AREA 3 MAXIMUM PAY  
 AREA 4 PROJECT DEPTH  
 AREA 4 MAXIMUM PAY  
 AREA 5 PROJECT DEPTH  
 AREA 5 MAXIMUM PAY



## AREA 4 AND 5



## NOTES

1. ALL HORIZONTAL AND VERTICAL CONTROL WAS PERFORMED AND PROVIDED BY R&M ENGINEERING-KETCHIKAN, INC. AUGUST 22 - 23, 2013. REFER TO THE CONTROL REPORT SIGNED BY GREGORY SCHEFF LSI#6700 DATED SEPTEMBER 17, 2013.
2. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, MAP 93, IN US FEET VELOCITY. HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT HORIZONTAL CONTROL VALUES "N 1,618.870.65" AND "E 2,627.683.27".
3. VERTICAL CONTROL IS IN FEET. REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0), HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT VERTICAL CONTROL STATION VALUE OF 23.98' MLLW.
4. BATHYMETRY WAS COLLECTED AUGUST 26-27, 2013 BY TERRASOON LIMITED. SOUNDINGS WERE COLLECTED USING RESON SEABAT 7225 SV25 MULTIBEAM ECHOSOUNDER (400kHz/5.12 BEAMS EQUAL ANGLE). BEAM STEERING WAS ACCOMPLISHED USING A SOUND VELOCITY PROFILER LOCATED AT THE SURFACE. SOUND VELOCITY THROUGH THE WATER COLUMN WAS MEASURED AND APPLIED USING AN ODOM DIGI-BAR PRO SOUND VELOCITY PROFILER. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A POS MV WAVEMASTER INERTIAL MOTION UNIT OPERATING ON REAL-TIME CORRECTIONS RECEIVED FROM A TOPCON HYPER V GPS RECEIVER SET AT CONTROL STATION, "NH-1 1997". SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPERAC "HYSWEEP 2013" INTEGRATED SOFTWARE (V2013). DATA PROCESSING WAS PERFORMED USING CAPSAC "HYPERAC" (V2.07.11). ADDITIONAL COVERAGE ALONG THE SOUTH BOLT RAMP WAS PROVIDED BY THE USACE AND INCORPORATED.
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
7. MAP SOUNDINGS ARE BINNET AT 15 FEET AND ARE AVERAGE BASED. VOLUME SOUNDINGS ARE BINNET AT 3 FEET AND ARE AVERAGE BASED.
8. FLOATS 1, 2, HEADWALK, TRANSIENT AND SKIFF WERE REMOVED AT TIME OF SURVEY.
9. IMAGES ARE FOR REFERENCE ONLY AND WERE PROVIDED BY THE USACE.

SURVEY CONTROL DATA

| STATION     | NORTHING     | EASTING      | MLLW  | DESCRIPTION                              |
|-------------|--------------|--------------|-------|------------------------------------------|
| 1346E 2003  | 1,769,457.40 | 2,833,296.22 | 17.68 | NOAA / NOS 3.5" DBC (SOLID)              |
| 1434 A 2006 | 1,814,207.61 | 2,823,232.54 | 27.14 | NOAA NOS BENCH MARK 4" DBC FND GOOD COND |
| NH-1 1997   | 1,818,870.65 | 2,827,683.27 | 23.98 | USACE 3-1/4" DB CAP FND GOOD COND        |
| NH-2 1997   | 1,818,753.15 | 2,828,219.63 | 33.13 | USACE 3-1/4" DB CAP FND GOOD COND        |
| NH-3 2000   | 1,819,014.58 | 2,827,753.09 | 25.58 | USACE 3-1/4" DB CAP FND GOOD COND        |
| NH-4 2000   | 1,818,325.29 | 2,827,135.91 | 25.35 | USACE 3-1/4" DB CAP DESTROYED            |
| NH-5 2003   | 1,819,618.09 | 2,828,298.02 | 52.42 | USACE 3-1/4" DB CAP DESTROYED            |
| NH-6 2003   | 1,818,814.73 | 2,828,296.24 | 40.97 | USACE 3-1/4" DB CAP DESTROYED            |
| PH-1        | 1,819,565.09 | 2,827,988.98 | 24.38 | 2-1/2" FLAT BRASS CAP NSF                |
| SIGNAL 4    | 1,822,039.29 | 2,828,110.85 | 19.84 | US ENGINEERS SURVEY MARK SBC NSF         |
| SIGNAL 8    | 1,819,519.84 | 2,823,246.95 | 20.39 | US ENGINEERS SURVEY MARK SBC NSF         |
| WN-1A 1999  | 1,821,893.61 | 2,830,057.14 | 24.19 | USACE 3-1/4" DB CAP NSF                  |
| WN-1B 1999  | 1,821,072.48 | 2,829,142.76 | 24.47 | USACE 3-1/4" DB CAP NSF                  |
| WN-2A 1999  | 1,815,318.43 | 2,820,933.42 | 19.38 | USACE 3-1/4" DB CAP NSF                  |
| WN-2B 1999  | 1,817,808.98 | 2,825,272.30 | 25.17 | USACE 3-1/4 INCH DOMED BRASS CAP         |

☆ NAVIGATION AIDS ☆

| USCG NO. | NORTHING     | EASTING      | DESCRIPTION                                           |
|----------|--------------|--------------|-------------------------------------------------------|
|          | 1,819,057.60 | 2,826,637.30 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (S)<br>- ON BUILDING |
|          | 1,819,623.30 | 2,827,472.70 | PETERSBURG FISHERIES DOCK LIGHTS (S)<br>- ON BUILDING |
| 23180    | 1,819,250.40 | 2,826,847.60 | OCEAN BEAUTY SEAFOOD PIER LIGHTS (N)<br>- ON BUILDING |
| 23190    | 1,819,769.90 | 2,827,556.20 | PETERSBURG FISHERIES DOCK LIGHTS (N)<br>- ON BUILDING |

## DREDGE LIMITS (1)

| CORNER         | NORTHING     | EASTING      | CORNER          | NORTHING     | EASTING      |
|----------------|--------------|--------------|-----------------|--------------|--------------|
| 1              | 1,819.002.75 | 2,827.079.82 | 9 <sub>a</sub>  | 1,819.305.50 | 2,827.701.45 |
| 2              | 1,819.007.75 | 2,827.073.82 | 10 <sub>a</sub> | 1,818.934.72 | 2,827.657.02 |
| 3              | 1,819.116.75 | 2,826.959.81 | 11              | 1,818.986.77 | 2,826.654.63 |
| 4 <sub>A</sub> | 1,819.178.41 | 2,827.017.41 | 12              | 1,818.982.28 | 2,826.511.28 |
| 5 <sub>A</sub> | 1,819.320.84 | 2,826.872.78 | 13              | 1,819.133.70 | 2,826.573.34 |
| 6              | 1,819.543.80 | 2,827.099.80 | 14              | 1,819.378.72 | 2,826.814.01 |
| 7              | 1,819.605.27 | 2,827.452.88 | 15              | 1,819.587.12 | 2,827.348.65 |
| 8 <sub>A</sub> | 1,819.610.10 | 2,827.530.94 | 16              | 1,820.127.45 | 2,827.565.21 |
| 9 <sub>A</sub> | 1,819.593.84 | 2,827.736.00 | 17              | 1,820.127.45 | 2,827.630.81 |
| 9 <sub>B</sub> | 1,819.464.87 | 2,827.720.55 | 18              | 1,820.114.24 | 2,827.651.87 |
| 9 <sub>C</sub> | 1,819.460.99 | 2,827.646.77 | 19              | 1,819.947.13 | 2,827.615.75 |
| 9 <sub>D</sub> | 1,819.424.48 | 2,827.650.61 | 20              | 1,827.948.72 | 2,827.665.39 |
| 9 <sub>E</sub> | 1,819.428.87 | 2,827.716.24 | 21              | 1,819.804.21 | 2,827.616.43 |
| 9 <sub>F</sub> | 1,819.396.78 | 2,827.712.39 | 22              | 1,827.799.27 | 2,827.530.63 |
| 9 <sub>G</sub> | 1,819.391.21 | 2,827.652.97 | 23              | 1,819.949.84 | 2,827.700.10 |
| 9 <sub>H</sub> | 1,819.303.00 | 2,827.659.51 | 24              | 1,819.809.38 | 2,827.706.12 |

## CROSS SECTIONS