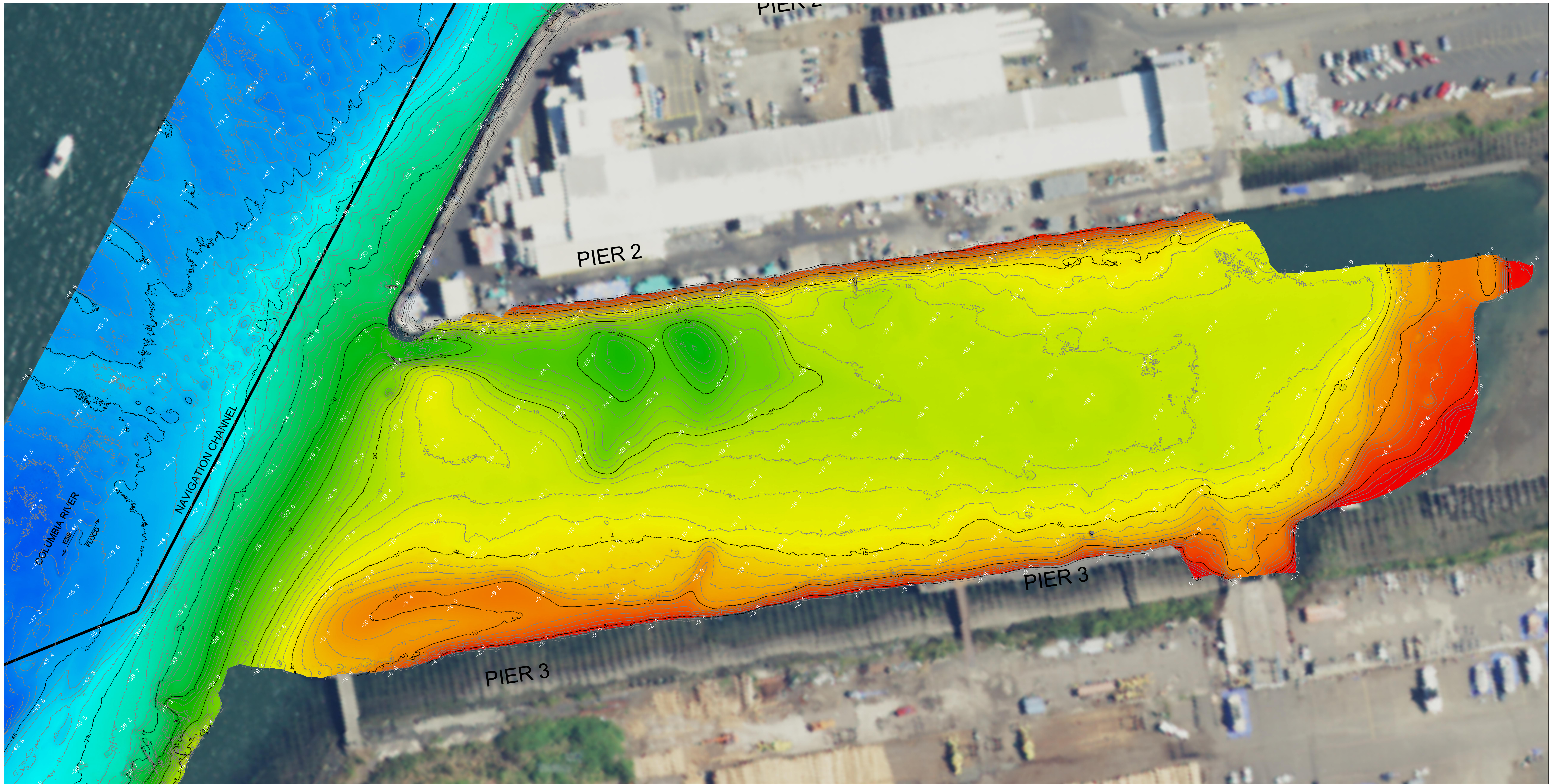


Port of Astoria

Central Waterfront Post-Dredge Bathymetric Survey

March 7, 2023



- NOTES:**
1. HORIZONTAL DATUM: NAD 83 (2011) STATE PLANE COORDINATES, OREGON NORTH ZONE.
 2. UNITS: U.S. SURVEY FEET.
 3. VERTICAL DATUM: MEAN LOWER LOW WATER (MLLW). MLLW DETERMINED FROM USACE TIDE BOARD LOCATED ON THE ASTORIA BRIDGE PIER AND USACE MONUMENT #105 (9.65E+01 56.8771).
 4. CONTOUR INTERVAL: 1 FOOT. CONTOURS WERE DEVELOPED FROM A GRIDDED 1 FT X 1 FT DATASET USING AN INVERSED WEIGHTED AVERAGE OF ALL SOUNDINGS.
 5. ALL HORIZONTAL POSITIONING AND VESSEL ATTITUDE WAS PROVIDED IN REAL TIME USING AN APPLANIX POS-MAY RTK GPS AIDED INERTIAL SENSOR RECEIVING RTK CORRECTIONS FROM A TRIMBLE RTK BASE STATION.
 6. SOUNDINGS WERE COLLECTED USING A RESONANT 2022 MULTIBEAM SONAR SYSTEM AND DATA PROCESSING WAS COMPLETED USING HYDRAKIT SWEEP SOFTWARE.
 7. THIS BATHYMETRIC SURVEY IS REPRESENTATIVE OF THE GENERAL CONDITION OF THE RIVERBED AT THE TIME OF THE SURVEY. THE CONDITION OF THE BOTTOM MAY CHANGE AT ANY TIME AFTER THE DATE OF THIS SURVEY.
 8. ALL BATHYMETRIC DATA WAS COLLECTED IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS HYDROGRAPHIC SURVEY MANUAL (31-1) (16-100) NOVEMBER 2015.

THIS HYDROGRAPHIC SURVEY WAS COMPLETED BY AN AMERICAN CONGRESS ON SURVEYING AND MAPPING CERTIFIED HYDROGRAPHER.

JAMES W. GLAESER DATE
 AMERICAN CONGRESS ON SURVEYING AND MAPPING
 CERTIFIED HYDROGRAPHER #222



NORTHWEST HYDRO INC.
 31 COUGAR CREEK RD.
 SKAMANIA, WA 98648
 PH (360) 241-7313
 EMAIL: james@northwesthydro.com