

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

Non-Standard Vertical Control Methods Used:

Constant Separation

Ellipsoid to Chart Datum Separation File:

OPR-P385-KR-13_Sep_Model_MLLW-NAD83(2011)

Note: "Constant Separation" was selected as the separation method, however, a custom model was used.

All sounding data was tide corrected using ellipsoid-referenced surveying techniques (ERS) to MLLW using a model of ellipsoid to MLLW separation values. Discrete tide zones were also developed for the project but were used for comparison purposes only. ERS had a clear advantage for minimizing tide error over discrete tide zones in this extreme tidal regime. Note that a copy of the CARIS data corrected with the discrete tide zones is included with the survey deliverables for comparison purposes only.

The separation model was developed by TerraSond's tides subcontractor, JOA Surveys LLC. For data points in the model, JOA established the separation between the NAD83 ellipsoid and MLLW at the continuously operating NWON tide station Anchorage, AK (945-5920) and the installed tide stations at Fire Island, AK (945-5912), and Goose Creek (945-5963) as well as short-duration bottom mounted tide gauges deployed by TerraSond at four sites throughout the project area. The separation model, which is included with the project CARIS and ERS deliverables, was applied using CARIS HIPS' "Compute GPSTide" routine to all lines. MLLW to NAD83 ellipsoid separations in this sheet ranged from 2.142 m to 3.238 m at an estimated error of 0.153 m to 0.206 m.

A comparison of the data corrected with ERS and discrete tide zones is included in Separate I.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is UTM Zone 6 N.

The following PPK methods were used for horizontal control:

Single Base

The following user installed stations were used for horizontal control:

HVCR Site ID	Base Station ID
POA2	POA2

Table 8: User Installed Base Stations

The project base station (POA2) broadcast RTK positions for real time and preliminary positioning. All RTK positions were replaced in processing with PPK positions.

C.3 Additional Horizontal or Vertical Control Issues

3.3.1 ERS to Discrete Tide Zones Comparison Report

A comparison of the data corrected with ERS and discrete tide zones is included in Separate I.