

C. Vertical and Horizontal Control

No vertical or horizontal controls were established, recovered, or occupied during data acquisition for OPR-D302-KR-13, which includes H12561. Therefore a Horizontal and Vertical Control Report was not required.

C.1 Vertical Control

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

Standard Vertical Control Methods Used:

Discrete Zoning

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Duck, NC	8651370

Table 8: NWLON Tide Stations

File Name	Status
8651370_verified_07102013_10062013.tid	Verified Observed

Table 9: Water Level Files (.tid)

File Name	Status
D302KR2013CORP.zdf	Final

Table 10: Tide Correctors (.zdf or .tc)

No final tide note was provided by the NOAA Center for Operational Oceanographic Products and Services (CO-OPS). Leidos is not required to have a final tide note from CO-OPS for H12561 however, a final tide note has been provided by Leidos in Appendix I.

The Project Instructions specified NOAA tide station 8651370 Duck, NC as the source for water level correctors. A full explanation of the tide zone assessment is detailed in Section C.4 of the DAPR. For H12561, 8651370 Duck, NC was the source of all final verified water level heights for determining

correctors to soundings. All data for H12561 were contained within two tide zones (SA46 and SA55) which were provided from NOAA.

Leidos did not revise the delivered tide zones for tide station 8651370 Duck, NC. The water level zoning parameters in file D302KR2013CORP.zdf, provided by National Ocean Service (NOS), were deemed adequate for the application of observed verified water levels. As a result, they were accepted as final and applied to all H12561 bathymetry data.

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 18, North.

Please refer to the DAPR for details regarding all antenna and transducer offsets.

Horizontal positioning of the multibeam transducer by the POS/MV was verified by frequent comparison checks against an independent DGPS system. During survey data acquisition, the ISS-2000 real-time system provided a continuous view of the positioning comparison between the POS/MV and the Trimble DGPS. An alarm was triggered within ISS-2000 if the comparisons were not within an acceptable range. Any soundings with total horizontal uncertainties exceeding the maximum allowable IHO S-44 5th edition Order 1a specifications were flagged as invalid and therefore not used in the CUBE Depth calculations. Daily positioning confidence checks for H12561 were conducted several times throughout the day and a daily value is presented as a table within Separates I, "Daily Positioning Confidence Checks". Daily positioning confidence checks for the M/V Atlantic Surveyor were within 0.77 meters.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Driver, VA (289 kHz)
Annapolis, MD (301 kHz)
New Bern, NC (294 kHz)

Table 11: USCG DGPS Stations