

## C. VERTICAL AND HORIZONTAL CONTROL

Refer to the Vertical and Horizontal Control Report for a detailed description of the vertical and horizontal control used during this survey. A summary of vertical and horizontal control for the survey follows.

### C.1 VERTICAL CONTROL

Vertical control for the survey was based on the Mean Lower Low Water tidal datum (MLLW). The operating National Water Level Observation Network (NWLON) station at Sitka, AK (9451600) served as vertical control for the LADS depth benchmark areas and for the survey area.

Station details are as follows:

Gauge	Location	WGS84	
		Latitude	Longitude
9451600	Sitka Sound Seafood Dock	57° 03.1' N	135° 20.5' W

### C.2 ZONING

NOAA supplied tide zones that cover the extent of the survey area, with time and range correctors relative to the Sitka tide station. These are as follows:

Tide Zone	GS Identifier	Time Corrector	Range Corrector	Reference Station
PAC294	TA1	+0 minutes	x 1.00	9451600
PAC294A	TA2	+0 minutes	x 0.99	9451600
PAC294B	TA3	+0 minutes	x 0.97	9451600
SEA200	TA4	+0 minutes	x 1.00	9451600

An analysis of crosslines and overlaps of the mainlines of sounding concluded that preliminary tide zoning was adequate. Therefore, the preliminary tide zoning correctors have been considered to be the final zoning correctors for the survey.

The verified tides supplied by NOAA were independently checked by John Oswald and Associates. Once the data was checked, a fifth degree polynomial was applied to the tidal data and this data was then supplied to Tenix LADS Inc. for the application of tides.

For final tide application, the time and amplitude correctors were applied to the tidal data delivered by John Oswald and Associates. Soundings were then reduced to MLLW using these corrected tides.

The derived value at the Sitka tide station for the difference between MLLW and MHW is 2.791m. From the final zoning a range factor 0.986 was used for H11539, Sheet AT to determine a MHW line of 2.75m.