

## **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 Sand Point, AK (9459450) established vertical control for the LADS depth benchmark areas and for datum determination at the subordinate tide station installed at Dolgoi Harbor, Dolgoi Island. The Dolgoi Harbor tide station served as vertical control for the survey areas around the Pavlof Islands.

Station details are as follows:

<b>Gauge</b>	<b>Location</b>	<b>WGS84</b>	
		<b>Latitude</b>	<b>Longitude</b>
9459758	Dolgoi Harbor, Dolgoi Island	55° 07.2' N	161° 47.5' W

**Table 4 – Dolgoi Harbor Tide Gauge**

## APPENDIX IV – TIDES AND WATER LEVELS

### Abstract of Times of Hydrography

Start and End times refer to tidal applications requirement.

Time on Task indicates actual time of task in the survey area. All times and dates are in UTC.

#### 05\_7Pavlof

Date Flown	JD	Sortie No	Start Time	End Time	Time on Task
May-15-05	135	2	0:06	7:00	6:54
May-16-05	136	3	20:06	2:00	5:54
May-19-05	139	5	20:06	4:00	7:54
May-20-05	140	6	23:06	5:00	5:54
May-21-05	141	7	22:06	4:30	6:24
May-22-05	142	8	21:06	6:00	8:54
May-24-05	144	9	14:36	20:00	5:24
June-3-05	154	13	21:06	23:54	2:48
June-4-05	155	14	14:06	16:54	2:48
June-28-05	179	18	19:06	2:30	7:24
July-1-05	182	19	21:36	4:00	6:24
July-6-05	187	21	15:36	22:54	7:18
July-10-05	191	23	17:36	23:30	5:54
July-12-05	193	24	22:06	5:00	6:54
July-15-05	196	26	2:06	7:00	4:54
July-28-05	209	29	0:06	5:06	5:00
July-30-05	211	30	19:00	1:00	5:00
Aug-3-05	215	31	14:00	22:00	8:00
Aug-8-05	220	33	17:00	21:12	4:12

# TIDAL DATUMS

Tidal datums at SAND POINT, POPOF ISLAND based on:

LENGTH OF SERIES:	19 Years
TIME PERIOD:	January 1983 - December 2001
TIDAL EPOCH:	1983-2001
CONTROL TIDE STATION:	

Elevations of tidal datums referred to Mean Lower Low Water (MLLW), in METERS:

HIGHEST OBSERVED WATER LEVEL (12/31/1986)	= 3.531
MEAN HIGHER HIGH WATER (MHHW)	= 2.204
MEAN HIGH WATER (MHW)	= 1.988
MEAN TIDE LEVEL (MTL)	= 1.197
MEAN SEA LEVEL (MSL)	= 1.181
MEAN LOW WATER (MLW)	= 0.406
MEAN LOWER LOW WATER (MLLW)	= 0.000
LOWEST OBSERVED WATER LEVEL (11/15/1993)	= -1.120

Bench Mark Elevation Information                      In METERS above:

Stamping or Designation	MLLW	MHW
9450 R 1991	4.593	2.605
9450 S 1991	4.582	2.594
9450 T 1991	3.836	1.848
9450 U 1991	4.397	2.409
945 9450 SHEET PILE BOLT	4.006	2.018
9450 V 1992	4.180	2.192
9450 W 1992	3.553	1.565
9450 X 1992	3.731	1.743
9450 Y 1997	4.559	2.571
1293-1 1984	3.585	1.598

**Datums**Click [HERE](#) for printable version**Data Units:**

Feet



Meters

[Apply Change](#)

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**Oct 2 2006 13:45      ELEVATIONS ON STATION DATUM**  
**National Ocean Service (NOAA)****Station: 9459758****T.M.: 0 W****Name: DOLGOI HARBOR, DOLGOI ISLAND, AK****Units: Meters****Status: Accepted****Epoch: 1983-2001**

<b>Datum</b>	<b>Value</b>	<b>Description</b>
MHHW	8.271	Mean Higher-High Water
MHW	8.068	Mean High Water
DTL	7.237	Mean Diurnal Tide Level
MTL	7.335	Mean Tide Level
MSL	7.317	Mean Sea Level
MLW	6.603	Mean Low Water
MLLW	6.203	Mean Lower-Low Water
GT	2.067	Great Diurnal Range
MN	1.464	Mean Range of Tide
DHQ	0.203	Mean Diurnal High Water Inequality
DLQ	0.400	Mean Diurnal Low Water Inequality
HWI	11.39	Greenwich High Water Interval (in Hours)
LWI	4.96	Greenwich Low Water Interval (in Hours)
NAVD		North American Vertical Datum
Maximum		Highest Water Level on Station Datum
Max Date		Date Of Highest Water Level
Max Time		Time Of Highest Water Level
Minimum		Lowest Water Level on Station Datum
Min Date		Date Of Lowest Water Level
Min Time		Time Of Lowest Water Level

To refer Water Level Heights to a Tidal Datum, apply the desired Datum Value.

Click [HERE](#) for further station information including New Epoch products.

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## APPENDIX V – SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

-----Original Message-----

**From:** Edward J Van Den Ameele [mailto:Edward.J.Vandenameele@noaa.gov]  
**Sent:** Tuesday, May 20, 2003 1:10 AM  
**To:** 'John K Longenecker'; 'Gary Nelson'  
**Cc:** 'John Lowell'  
**Subject:** RE: PHB\_visit\_7\_May\_03

See my two comments below; I'm sure John and Gary will have additional comments  
-EJ

-----Original Message-----

**From:** John K Longenecker [mailto:John.K.Longenecker@noaa.gov]  
**Sent:** Monday, May 19, 2003 7:55 AM  
**To:** Gary Nelson  
**Cc:** John Lowell; Edward J Van Den Ameele  
**Subject:** PHB\_visit\_7\_May\_03

Could you please review and comment or give concurrence to the following statements or assumptions from the recent meeting at PHB? I will compile the response to Mark. Thanks.

**John**

Lidar Anywhere Task Order 1 OPR–P183-KR-03

*Attendees:*

Gary Nelson  
Bob Mihailov  
Bruce Olmstead  
John Lowell  
John Longenecker  
Edward J Van den Ameele  
Mark Sinclair

A meeting was held at Pacific Hydro Branch on 7 May, 2003 at the request of Tenix LADS Inc. The purpose of the meeting was to outline the TLI LADS Mk II survey plan and clarify items in the Statement of Work for Lidar Survey Services.

Summary of items raised:

The SOW states certain versions of software are to be used. It is acceptable for delivered data to be compatible with the latest versions of Caris and Microstation.

The requirements for reporting were discussed. 1 HVCR and 1 DAPR are to be provided per Task Order, however each smoothsheet is to have a separate DR which will facilitate standard archiving practices.

Soundings in kelp were discussed. Sparse soundings in kelp are to be retained in the data set as they provide useful data, even if the coverage in these areas is incomplete. EJ: I believe it was also decided to delineate and denote the extents of kelp areas on the smooth sheet (i.e. with dashed line and "kelp" annotation)

Automatically generated contours on smooth sheets which are close to gaps in the data, due to kelp or white water, may be placed in the wrong position if they are interpolated from the nearest soundings. In such cases, contours are to be manually edited to reflect the best estimate of the true position of the feature. EJ: This discussion mainly was in reference to the MLLW and MHW lines; and incorrect interpolation of the shoreline from irregularly spaced soundings.

The requirement to bin the final data set was discussed. A 3 meter bin may be used for the sounding data set in lieu of the 5 meter bin.

The depiction of drying soundings on the smoothsheet was discussed. Drying soundings shall be at the same density as depths. The datum and units stated in the SOW are to be used.

2D Microstation seed files shall be provided to PHB. It was noted that AHB specifies 3D seed files.

The importance of the correct production of smoothsheets was discussed. Gary Nelson offered to review early drafts and provide feedback. He will also provide an example of a smoothsheet and microstation files.

EJ advised that for the 2001 survey work, the list of doubtful soundings provided in the DR was very helpful. Such a list shall be provided in the event that doubtful depths are retained in the dataset.

More information on the interpretation of raw laser waveforms was requested. MJS will plan to visit PHB on his next trip to Alaska and provide a presentation on waveform interpretation.

Prepared by Mark Sinclair  
Project Director  
Tenix LADS Inc  
14 May 03