

**Project Notes
for the
Survey of**

**ST. PAUL HARBOR
PROJECT CONDITION SURVEY
AND
SALT LAGOON CHANNEL SURVEY**

ST. PAUL, ALASKA

Survey of: MARCH 5 – 14, 2005

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St. Paul, Alaska

Harbor Condition Survey and Salt Lagoon Channel

March 5 – 14, 2005

St. Paul Harbor and the Salt Lagoon Channel were surveyed concurrently by Terra Surveys on March 5 – 14, 2005. The entire survey was conducted in Alaska State Plane, Zone 9, US Survey feet, NAD83(1992) values based on USACE Survey No. 2018-03 – Man-made Reef, Project Condition Survey dated May 17-19, 2003. The tidal datum for Village Cove (Station ID 9464212) was updated by NOAA/NOS (to the 1983-2001 Tidal Epoch) on June 28, 2004. All control monuments in the harbor were resurveyed to reflect this updated vertical datum. The final data sets for these two individual surveys are all-inclusive. That is to say that two unique data points files for the entire survey were produced in the two coordinate systems specified below.

St Paul Harbor – Project Condition Survey

The horizontal datum for the Harbor Condition Survey is in NAD83(1992) as stated above. The updated vertical datum reflects an elevation change of -0.54 feet to the control values seen on the previous plats.

Bathymetry in the federal project limits was conducted at 25 foot line spacing. The remaining area of Village Cove inside the historic survey limits and the entrance channel were surveyed at 50 foot line spacing. The main breakwater and the large detached breakwater were cross-sectioned at 100 foot stations and profiled along the centerline at 50 foot stations. No new damage was noted. Significant construction has taken place within the harbor since the last condition survey. A small detached breakwater approximately 500 feet southwest of the lagoon channel entrance has been completed. Bathymetry limits were expanded to encompass the area surrounding the new breakwater and it was cross-sectioned at 50 foot stations. The “Spending Beach” retainment structure appears to be complete or nearing completion. Bathymetry was collected around the toe, and the upland centerline and seaward side-slope were profiled at roughly 100 foot stations. The intent was to depict the general size and location but not conduct a complete as-built as it was deemed outside the project scope through correspondence between the Corps and Terra Surveys.

Aides to navigation within the project limits were located and related to the new horizontal datum. No damage or movement was observed as indicated in the photographs included in this report.

St Paul Harbor – Salt Lagoon Channel – Project Condition Survey

The horizontal datum for the Salt Lagoon Channel remains in NAD27 and the MLLW vertical datum remains the same as indicated on the USACE Construction Plans for the St. Paul Harbor Improvements Phase II, Inv. No. DACW85-02-R-0013, Sheet H-2. All final survey data was adjusted to superceded values to accommodate active construction efforts and data comparison necessities. Survey point data was translated; holding NAD27 record coordinates for “DUMP 1995”, and rotated; holding the record bearing between “DUMP 1995” and “SP-2 1979”. The

vertical adjustment equated to a straight shift based on the vertical values given on the plans for these same two monuments. The relative vertical difference between them remains the same on both datum values.

The Salt Lagoon Channel was surveyed through a combination of land-based RTK GPS and bathymetry. Cross-sections were surveyed at 25 foot stations along the channel alignment at 25 foot point spacing up to the apparent mean-high-water line. The portions of the cross-sections from roughly 2-3 feet water depth up to mean-high-water were surveyed during lower tides using chest waders and RTK backpacks. At high water, bathymetry was collected in the channel proper with sufficient overlap with the land based work. Differences between the two methods were typically +/- 0.1' - 0.2' over this irregular surface.

There is a sufficient number of control monuments within the harbor area and thusly, no new monuments were established this survey.

Difficulties encountered through the course of this survey were limited to ice and algae slip-hazards while walking the breakwaters and riding the ocean swell near the outside face of the main breakwater. Weather down-time was not a factor during the bathymetric survey due to upland survey coverage opportunities through stormy weather periods.

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