U.S. Army Corps of Engineers
Alaska District

Erosion Information Paper – Brevig Mission, Alaska

Current as of November 5, 2007

Community Information

Brevig Mission (BREH-vig), population 324, is at the mouth of Shelman Creek on the north shore of Port Clarence, 5 miles northwest of Teller and 65 miles northwest of Nome. The community is incorporated as a 2nd class city in the unorganized borough.

Description of Erosion Problem

Brevig Mission experiences periodic erosion caused by high tides, storm surges, storm-driven wind and waves, flooding from the Bering Sea, and tidal and river action at Port Clarence. The Port Clarence spit provides some protection. Storm winds from the southwest and south have the greatest potential for causing damage. Storm surges caused major floods (with accompanying erosion) in 1970, November 1974, and September 1986. The worst storm reported was the November 1974 storm, with large storm surge and waves estimated at 10 to 15 feet high. Waves were reportedly hitting the old community hall. It was estimated that 50 feet of the shore was lost during the storm.

According to the 1986 *Brevig Mission, Alaska Coastal Erosion Study*, commissioned by the Corps, all buildings are within the 100 year flood plain. The Alaska Division of Community and Regional Affairs *2004 Community Profile Map* indicates that only the land area at or below the 10-foot contour line, the land along Shelman Creek, and other drainages running through the community are floodprone. At present, the community reports that flooding occurs every year by storm surges or from Shelman Creek washouts. The Corps study reported that permafrost underlies much of Brevig Mission and was measured at an average depth of 10 to 12 feet (maximum to 14 feet) below the surface. In the 1986 study the average erosion rate was estimated to be 0.75 feet per year. Several city council members interviewed during the study indicated the shoreline recedes only during major storms and there was no “routine” erosion every year. The area identified as threatened by erosion is bounded on the east by Shelman Creek and proceeds 1,750 feet to the west.

Potential Damages

The 1986 Corps erosion study reported the old community center, the National Guard Armory, and 3 fuel tanks as threatened structures. The study reported that periodic erosion was damaging roads and washing out the culvert at Shelman Creek. No action, installation of erosion protection, and relocation of threatened facilities were identified as alternatives in the study. Erosion protection was not considered feasible. Relocation of the 3 threatened facilities was

recommended at an estimated cost of $103,000. After 1974, the community responded by locating new construction on higher ground on the landward side of Brevig Lagoon. The Corps study also recommended obtaining beach profiles every 5 to 10 years to monitor erosion.

According to the community erosion survey, the only structures threatened are the subsistence camps on the Brevig-Teller Spit and at Fort Clarence outside the Brevig Mission city limits. These camps are vital to the survival of the community and are at risk from flooding and erosion every spring. The city posted the community erosion survey for public input and 1 person indicated that a cabin and warehouse in the community are threatened. The community reports that every year storms plug the culvert outlet at Shelman Creek with gravel, decreasing the capacity of the culvert. The creek then overflows the road and washes out both sides of the culvert. It is not known if the Shelman Creek culvert has been adequately repaired or replaced. The community has not installed any protective measures, however, they may look into doing so in the future. The community reports that in recent years they have not lost any additional shoreline and damage has not been lasting. They are concerned that over time the damage may increase and become more serious.

Photos and Diagrams

No photos were provided by community or other sources. See attached diagram showing the linear extent of erosion based on the 1986 coastal erosion study.

References

DCED, DCRA. 2004. *Brevig Mission Community Profile Maps.* Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs website: ftp://ftp.dcbd.dced.state.ak.us/profiles/profile-maps.htm

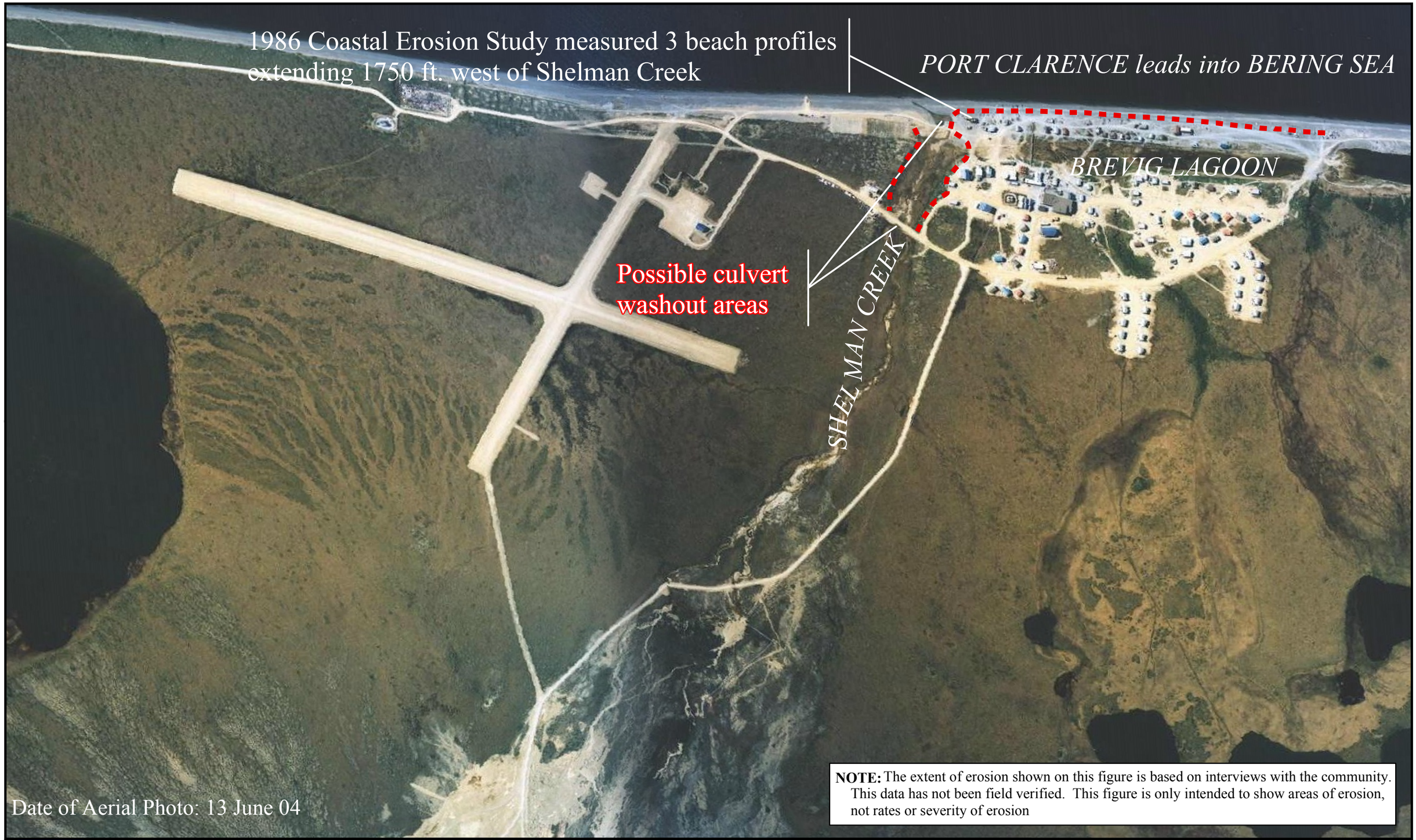
R&M Consultants, Inc. 1986. *Brevig Mission, Alaska Coastal Erosion Study*, prepared for the Alaska District, Corps of Engineers.

USACE. 1992. *Community Information Form*, Brevig Mission.

USACE. 2007. *Alaska Community Erosion Survey, OMB approved number 07100001*, expires September 30, 2009 completed by the Brevig Mission city clerk and submitted via facsimile on October 17, 2007.

Additional Information

This information paper, as well as those for other communities, can be accessed on the internet at www.alaskaerosion.com. For more information please contact the Corps of Engineers, project manager at (907) 753-5694 or email Alaska.Erosion.POA@usace.army.mil



NOTE: The extent of erosion shown on this figure is based on interviews with the community. This data has not been field verified. This figure is only intended to show areas of erosion, not rates or severity of erosion

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--- Linear Extent of Erosion

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Alaska Baseline Erosion

Brevig Mission, Alaska