



U.S. Army Corps  
of Engineers  
Alaska District

## **ALASKA BASELINE EROSION ASSESSMENT**

### **Erosion Information Paper - Galena, Alaska**

Current as of December 5, 2007

#### **Community Information**

Galena (guh-LEE-nuh) a.k.a. Louden, population 650, is on the north bank of the Yukon River, about 270 miles west of Fairbanks and about 325 miles north-northwest of Anchorage. Galena is just northeast of the Innoko National Wildlife Refuge. Access to the community is by water or air. Galena serves as the transportation, government, and commercial center for much of the western Alaska interior. The community is incorporated as a 1st class city in the unorganized borough. Fish wheels; boat, snowmachine and ATV ramps; and barge access are community activities using the river shoreline.

#### **Description of Erosion Problem**

The City of Galena, comprised of “old town” and “new town”, is eroded along the banks of the Yukon River. The primary cause of the erosion is the thawing of the permafrost layer along the bank after spring breakup when river water levels subside. The thawing sections become unstable and susceptible to continuous sloughing from near-shore currents and wave action during the warmer season. The *Galena Comprehensive Plan* indicates that over the past 55-60 years a 6-mile section of the Yukon River appears to be migrating northward (towards the community). Recently, river erosion took out a portion of Campion Road, about 1.5 miles past new town. The most severe erosion area is a 300 to 400 foot section along this roadway. Over the past years high water to near flooding conditions has been increasing the erosion along the “old town” area.

#### **Potential Damages**

A severe flood in 1971 resulted in the development of a 2nd community site called “new town”, at Alexander Lake, about 1 1/2 miles east of “old town”. Since that time, city offices, the health clinic, schools, washeteria, store, and more than 150 homes have been constructed at new town. Old town is shielded from flood waters by a flood control levee that also provides a road connecting the 2 community areas. The city manager reports that the levee was constructed in the 1940's to protect the Galena Air Force Base and airfield from flooding. The community suffered a major flood in 1945.

The city manager reports all of old town will be lost to ongoing river erosion if left in its unprotected state. A problem in old town is the loss of access to lots that have been cut off by erosion taking out 1st Avenue. Now, access requires trespassing on private property. This concern was expressed by the city manager in the survey, and was included as concern in the 1998 *Galena Comprehensive Plan*. Campion Road continues to be at risk from advancing river erosion. This road provides an important link to major infrastructure. Infrastructure at risk

includes a) the Very High Frequency Omni-directional Radio (VOR) station, a short-range air navigation aid used for landing, terminal, and en route guidance; b) a U.S. Air Force Loran station; c) the city and military landfills; d) silt pits used for road construction; e) a cemetery; and f) several cabins (currently unoccupied).

Galena has been the recipient of a number of erosion protection and bank stabilization projects, starting in the late 1950's. These projects have been constructed by various agencies, including the U.S. Air Force, the State of Alaska, the Corps of Engineers, and the city. Projects have included a) thermal sheet pile (sheet pile backed soil freezing probes), approximately 75 feet long, installed off the end of the runway at the edge of the riverbank; b) bank stabilization installations funded with state legislative grants in 1983, 1984 and 1987, totaling about \$4.4 million; c) placement of 1,590 feet of armor rock erosion protection in 1988, authorized by Section 116 of Public Law (PL) 99-190; d) emergency bank stabilization measures since 2001, provided under Title I of the Energy and Water Appropriations Act (PL 106-377), totaling about \$6 million; e) an additional 2,275 feet of armor rock to protect new town. According to the community survey the city had received state grant funds they used to place recycled concrete along the shore in old town, but the rebar in the concrete caused problems and the concrete was removed. Additional bank stabilization using existing stockpiled rock was proposed in a 2006 Corps assessment.

## Photos and Diagrams

A photo of old town Galena from the State Division of Community and Regional Affairs Community Photo Library is attached. Also, attached are diagrams depicting the linear extent of erosion.

## References

**City of Galena. 1998.** *Galena Comprehensive Plan 1998 Update*. Prepared by the City of Galena, with assistance from Dames and Moore and the University of Washington.

**DCCED, DCRA. 1994.** *Alaska Legislative Appropriations for Flood and Erosion control, 1972-1991*, collected by Department of Commerce, Community and Economic Development, Division of community and Regional Affairs, floodplain management program intern.

**USACE. 2002.** *Emergency Bank Stabilization Letter Report: Galena, Alaska*. Alaska District, U.S. Army Corps of Engineers.

**USACE. 2006.** *EA and FONSI Additional Bank Stabilization and Rock Stockpile Removal*. Alaska District, U.S. Army Corps of Engineers.

**USACE. 2006.** *Flood Control Projects Summary*. Alaska District, U.S. Army Corps of Engineers.

**USACE. 2007.** *Alaska Community Erosion Survey, OMB approved number 07100001*, expires September 30, 2009 administered to Walt Wilcox, Galena city manager on December 5, 2007.

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## Additional Information

This information paper, as well as those for other communities, can be accessed on the internet at [www.alaskaerosion.com](http://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](mailto:Alaska.Erosion.POA@usace.army.mil)



**Photo 1: Old Town Galena fronting the Yukon River is backed by the Galena airport. Photo is courtesy of the Division of Community and Regional Affairs, Community Photo Library © 1996.**

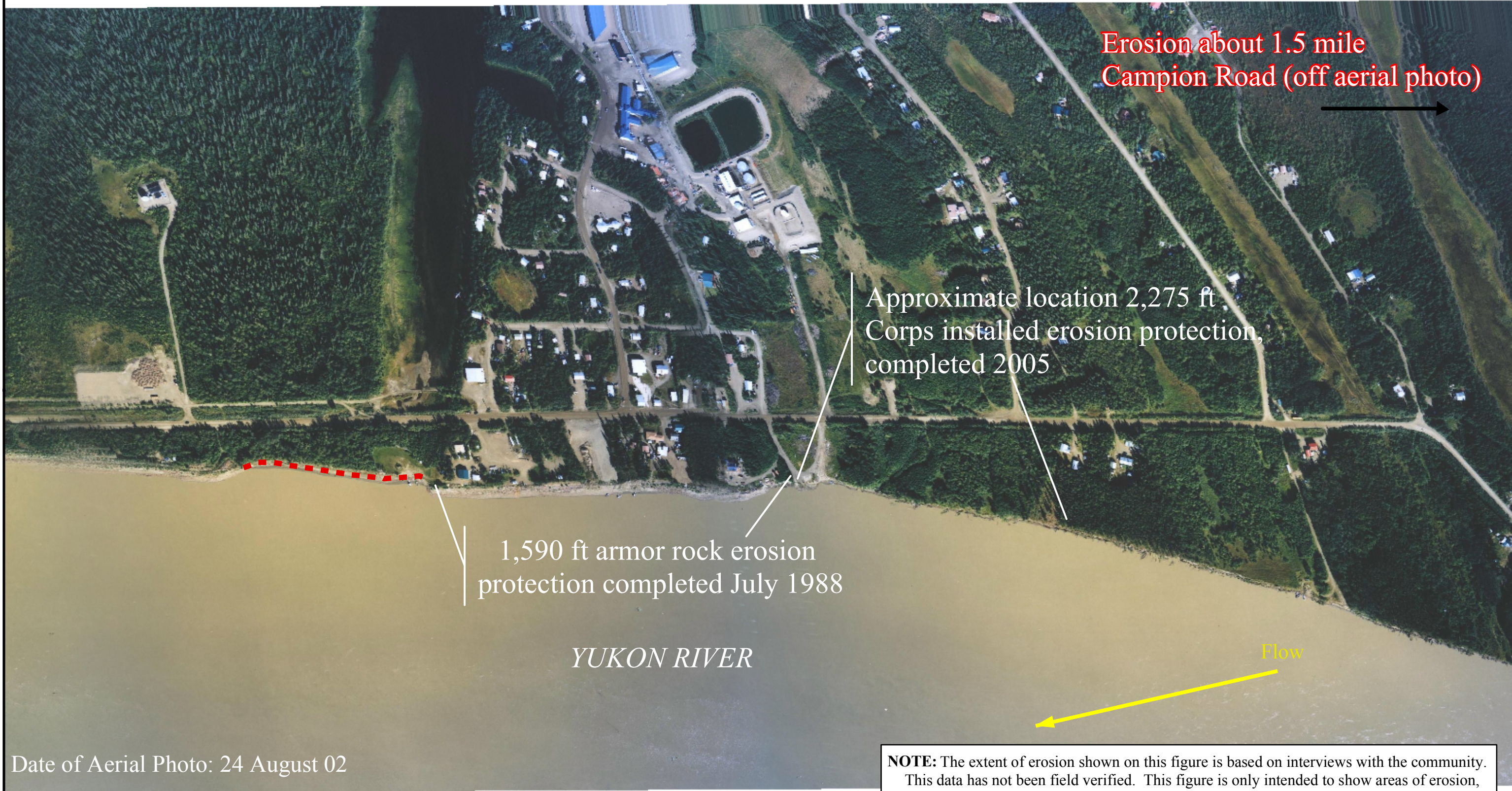




Date of Aerial Photo: 24 August 02

**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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