PE-120-10

Holden Clay Deposit - Vallenar Bay

The Holden clay deposit at the head of Vallenar Bay is situated on a 106-acre tract owned by Mrs. A. J. Holden and on a tract of 33 acres owned by Butch Smeltzer at the head of Vallenar Bay, Gravina Island.

The clay outcrops between high and low tide across the width of the bay and along the banks of Vallenar Creek. The deposit is covered along the beach line by from 3 to 5 feet of fine gravel and also a few small scattered boulders. Exposures measuring 10 feet in thickness are scattered along the bank of the creek where it empties into the bay. Rods driven by Mr. Holden to a depth of 10 feet were still in the deposit. Mr. Holden states that the clay is distributed up the creek valley for a distance of 2 miles.

The deposit is very recent, is laid down horizontally upon the valley floor, and has a known thickness of over 20 feet. The clay is glacial mud deposited from a suspension in dammed glacial waters and is derived from disintegration of the Triassic slates that are found over the width of the valley and extending across the island.

The clay is exposed in banks that range from 10 to 20 feet in height and is covered with a scattering of gravel and vegetation up Vallenar Creek from one-fourth to one-half mile. A good tonnage of this clay could possibly be developed with the aid of an auger drill. One small brick was burned at the assay office, the color after burning being red. However, cracks developed in the brick. This particular piece was overburned.

The clay is light bluish gray in color and of exceedingly fine uniform texture. Extreme fineness of grain is generally associated with slow drying, high shrinkage, low fusion and a tendency to warp. This clay may be suitable for the making of common brick, and baking tests are recommended.

Two 15-pound samples were collected. No. 1 sample is from the clay banks at the mouth of Vallenar Creek on the beach. Sample No. 2 represents the clay from a 20-foot bank located upstream half a mile from the beach.

Results of Tests of Samples Nos. 1 and 2. (x)

Both clays had an average shrinkage of 5.8 percent (based on dry length). The fire data is given in the following tabulation:

Firing temperature		Shrinkage, percent			
		Sample 1		Sample 2	
Cone	Approx. °C	Firing*	Total**	Firing*	Total**
08	950	0.4	5.8	0.2	5.7
06	1010	.2	5.7	.8	5.9
04	1055	1.3	7.4	2.3	6.8
02	1110	6.4	11.2	7.6	13.3
01	1125	8.4	12.9	8.1	12.8
1	1140	7.6	12.6	7.9	12.0

* Dry basis
** Plastic basis

The bars were porous, softer than steel, and salmon-pink up to cone 04; after cone 04, they were vitrified (apparently), harder than steel, and red-brown. At cone 02 the bars started to stick together in the kiln, and at cone 1 had also started to bloat.

These data indicate that the clays have short firing range which might cause trouble in commercial operations. Cone 03 (about 1095° C.) appears to be the best firing temperature. In normal commercial firing the same physical effects usually occur about 2 cones lower than in fast laboratory-firing schedules.

Because of the short firing range, a commercial operation would have to be rather closely controlled. If this could be done, common brick and tile could be made. There would be no difficulty in the pieces sticking together in a kiln fired to a lower temperature, but the brick at the lower temperature would be too porous for even the common uses.

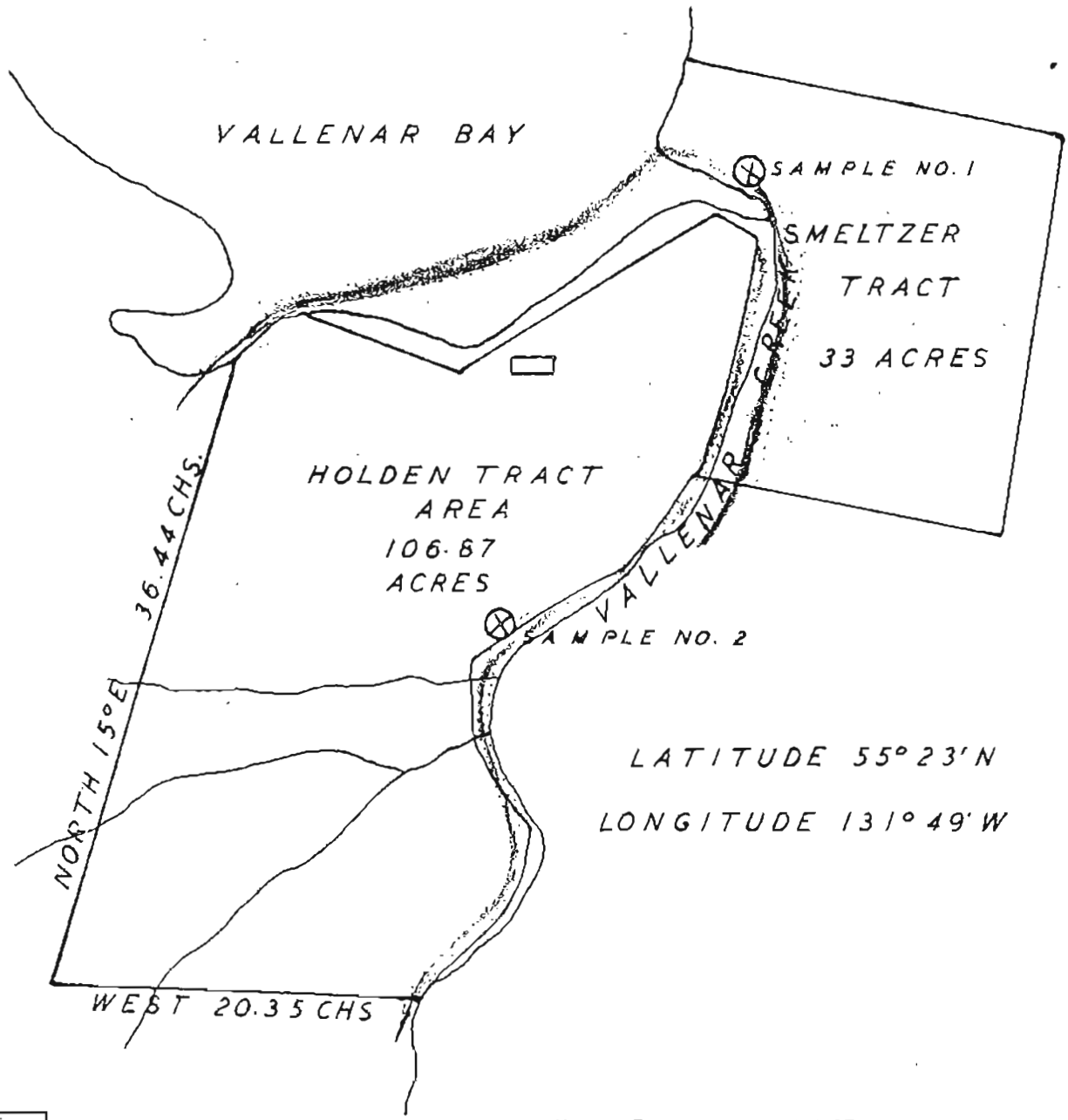
(x) Results of tests of Northwest Experiment Station, U. S. Bureau of Mines, Seattle, Washington - December 20, 1945

TERRITORIAL DEPT. OF MINES

HOLDEN CLAY DEPOSIT

VALLENAR BAY
GRAVINA ISLAND
ALASKA

AUG. 11, 1945



CLAY OUTCROPPINGS

AREA HELD TO BE UNDERLAIN WITH CLAY

W. S. FOLKES PAT. NO. 234
LIST NO. 62126
JULY 13 1918

BY J. C. ROEHM ASSOC. MINING ENGR.