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Memorandum

Re

Preliminary Ground Examinations

Proposed Julian Townsite Area

The objective of this memorandum is to outline the purpose and procedures, results obtained from the preliminary ground examinations in the proposed Julian townsite area.

Location & Topography

The position of the proposed Julian townsite area consists of a section of Lot #3 lying west of the Julian Road between mile 15.7 and 16.25, and east of the east shore of Wabush Lake. The topography is characterized by low swampy land running parallel to the road, just west of the road, and a ridge of higher ground up to 50 feet above lake level, just east of the lake (see enclosed map). This particular area was selected for testing due to its accessibility and the fact that it is relatively free of near surface outcrops.

Purpose of Tests

The purpose of the preliminary examinations was: (1) to rapidly determine, which portions of the proposed townsite area would require extensive soil sampling to a depth below the lowest

proposed foundation or service facility elevation; (2) to determine the nature and depths of the soil in the wet, boggy areas, and (3) to determine which portions would require very little additional testing other than possibly establishing the depth of soil down to bed rock.

Procedure:

Cut line 110,500 E of the Julian grid survey running adjacent and parallel to the Julian road, was used as a North-South base line for work conducted in the townsite area. Additional cut lines were driven approximately 1400 feet westward, to the lake from 110,500 E on 124,000 N, 125,000 N, and 126,000 N. to provide location control for leveling and test pits. The total area considered for the testing was approximately 2,850,000 square feet.

On 16 November 1962, 27 test holes were dug in this area with a D-7 bulldozer. These holes varied in depth from 1.5 feet to 4.0 feet. As stated above, the main objective was to provide the basic necessary information, as rapidly as possible. The test holes were located from 200 - 250' apart on solid (i.e., not swamp) ground in each of the cross (E-W) lines, and along the ridge of high ground between each of the cross lines (see enclosed map).

Results:

Preliminary examination indicated that the low swampy ground running North & South between 124,000 N and 126,000 N and

extending about 600 feet west of the base line 110, 500 E would require additional and deeper testing to determine whether or not the area is underlain by stable ground within 12-15 feet of the surface, and whether or not the area could be effectively drained and thereby stabilize the soil sufficiently to allow normal household construction and installation of necessary water and sewage facilities.

The initial tests in this area proved the ground to be extremely wet consisting of sand, clay and quicksand, with no stable ground within at least 4.0 feet of the surface.

The higher ground, between the swampy area and the lake, consists of wet sand, clay and cobbles, but is underlain by a layer of durable hard pan from 1.0 to 3.0 feet below the surface. The hard pan should be sampled and subjected to compression and strength tests.

Near surface outcrop was encountered at 125, 600 N X 109, 500 E and 126, 000 N X 109, 450 E and would probably be encountered within 5.0 feet of the surface elsewhere along the ridge north of 125, 500 N. Additional testing would certainly have to be done in this area, to ascertain that the outcrops did not interfere with foundations or water or sewage systems.

Descriptions of each of the test holes are attached to this memo as appendix.

Summary:

In brief, of the 2,850,000 square feet between lines 124,000 N and 126,000 N and 110,500 E and the lake shore, 1,600,000 square feet or approximately 56% of the area would require additional examination to a depth below the lowest proposed foundation or service facility elevation, to determine whether or not stable ground exists within a reasonable depth, and if the area could be effectively drained.

The remaining area of higher ground should also be tested to a depth below any proposed foundation level, to establish depth to rock, but as of now, presents no great drainage problem.

Our experience with poorly drained land and unstable soils in other mining localities and under climatic and geographic conditions similar to those of the Wabush Lake region, suggests that this entire proposed townsite area could, after sufficient study, be acceptable for the development of the Julian townsite following proper drainage.

Appendix "A"
Townsite Area
Ground Examination

Line 124, 000 N

Going West from 110, 500 E

Locations tested	Elevation	Description
110, 450 E	1785	1.0' black soil 1.0' clayey sand and cobbles <u>0.5'</u> wet clay <u>2.50'</u>
110, 275 E	1773	0.75' black soil 2.00' clayey sand <u>0.25'</u> wet clay <u>3.00'</u>
110, 080 E	1768	0.50' very wet black soil <u>1.50'</u> very wet (quick sand) <u>2.00'</u>
109, 950 E	1766	0.50' black soil & cobbles 1.25' wet clayey sand <u>0.50'</u> clay and cobble muck <u>2.25'</u>
109, 750 E	1763	0.50' black soil & cobble 2.00' wet clayey sand <u>.75'</u> wet clay muck <u>3.25'</u>
109, 550 E	1761	0.50' wet black soil & cobbles 1.50' wet clayey sand <u>1.00'</u> wet clay & cobbles <u>3.00'</u>
109, 350 E	1755	0.50' wet black soil & cobbles 1.50' clayey sand 1.00' wet clay <u>1.00'</u> clay hard pan <u>4.00'</u>

Line 124, 000 N

Going West

Location

Elevation

Description

109, 150 S

1742

0.50 black soil
 0.75 wet sand
 1.25 clayey sand
 1.25 wet clay
3.75

Line 109, 500 E (Approx.)

North along Ridge.

124, 200 N

0.50 black soil
 2.00 sand, clay, water (muck!)
 0.50 clay & cobble hard pan
3.00

124, 400 N

0.50 black soil & cobbles
 2.00 sand, clay, water
 0.50 clay & cobble hard pan
3.00

124, 600 N

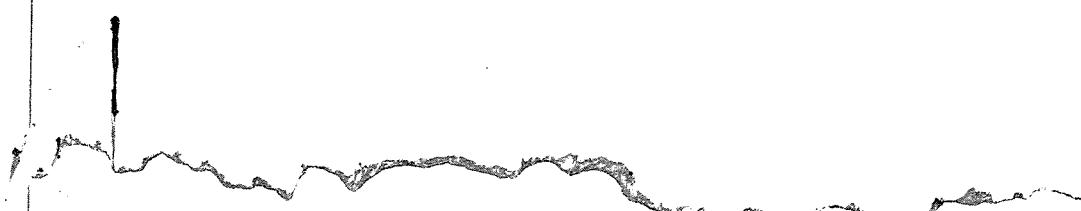
0.50 black soil & cobbles
 1.00 wet sand and cobbles
 0.75 clay & cobble hard pan
2.25

124, 750 N

0.50 black soil & cobbles
 1.50 wet sand & clay muck
 0.75 clay & cobble hard pan
2.75

124, 450 N/109, 750 E

0.50 black soil
 1.00 wet sand & clay
 0.50 clay & cobble hard pan
2.00



Line 125, 600 N

Line 125, 600 N

Going West

Location	Elevation	Description
114, 500 E to 110, 150 E	1759	swamp, very poor soil
110, 150 E	1759	4.0' Muck, (dozer stuck!)
109, 350 E	1763	0.50 black soil 1.50 wet clay, sand muck <u>0.50</u> clay & cobble hardpan 2.50
109, 550 E	1765	0.50 very wet black soil 0.75 clayey sand <u>0.50</u> clay & cobble hardpan 1.75
109, 350 E	1757	0.50 black soil & cobbles 1.00 clayey sand & cobbles <u>0.50</u> clay & cobble hardpan 1.00
109, 050 E	1756	0.50 black soil 1.25 wet clayey sand <u>1.50</u> very wet clay 3.25 (dozer got stuck!)

Line 100, 300' N (approx.)

Going North Along Ridge

Location

25, 100' N

Description

1. 30' black soil
2. 30' clayey sand, not too wet
3. 75' gray & brown hard pan
4. 30'...

25, 100' N

1. 30' black soil
2. 30' clayey sand & cobble
3. 30' gray & brown hard pan
4. 30'...

Line 100, 100' N (approx.), 300' N (approx.) and 300' S

25, 100' N

1. 30' black soil
2. 30' clayey sand
3. 30' gray & brown hard pan

25, 100' N

1. 30' black soil
2. 30' clayey sand
3. 30' gray & brown hard pan
4. 30'...

Line 126, 000 N

Going West

Location	Elevation	Description
110, 500 E to 110, 050 E	1750	swamp, not tested
110, 050 E	1751	0.50 black soil 4.00 bottomless muck, (doser stuck!)
109, 750 E	1761	0.50 black soil 1.00 clayey sand 0.50 clay and cobble hard pan <u>2.00</u>
109, 450 E	1771	0.50 black soil <u>marble outcrop</u>
109, 250 E	1759	0.50 black soil 1.75 clayey sand & cobbles 0.75 clay & cobble hard pan <u>3.00</u>
109, 050 E	1745	0.50 black soil 1.50 large boulders & dry sand 0.50 poor gravel <u>2.50</u>