

64-F-245C

W.P. 316-64-1

" 316-64-2

KINGSTON + WOLFE Is.

FERRY DOCK AT

ROGERS ROAD +

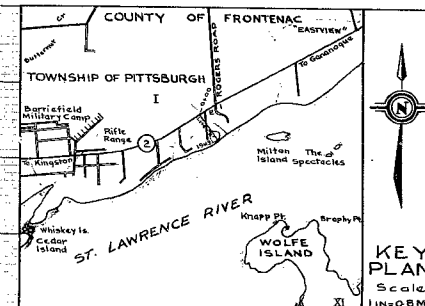
KNAPP POINT

MADE UP BY OR HAD BY BEFORE DATE
CHORD SECTION 10 X 10
2000000 0

MADE UP BY OR HAD BY BEFORE DATE
CHORD SECTION 10 X 10
2000000 0

HWY. No 2 SEE PLAN No 6-B-20
PROFILE No C-1149

PROFILE
OF
PROPOSED ACCESS ROAD
IN THE TOWNSHIP OF
PITTSBURGH
IN THE COUNTY OF
FRONTENAC
STA. 0+00 TO STA. 19+13
LINE "B"
"AT ROGERS ROAD DOCK SITE"



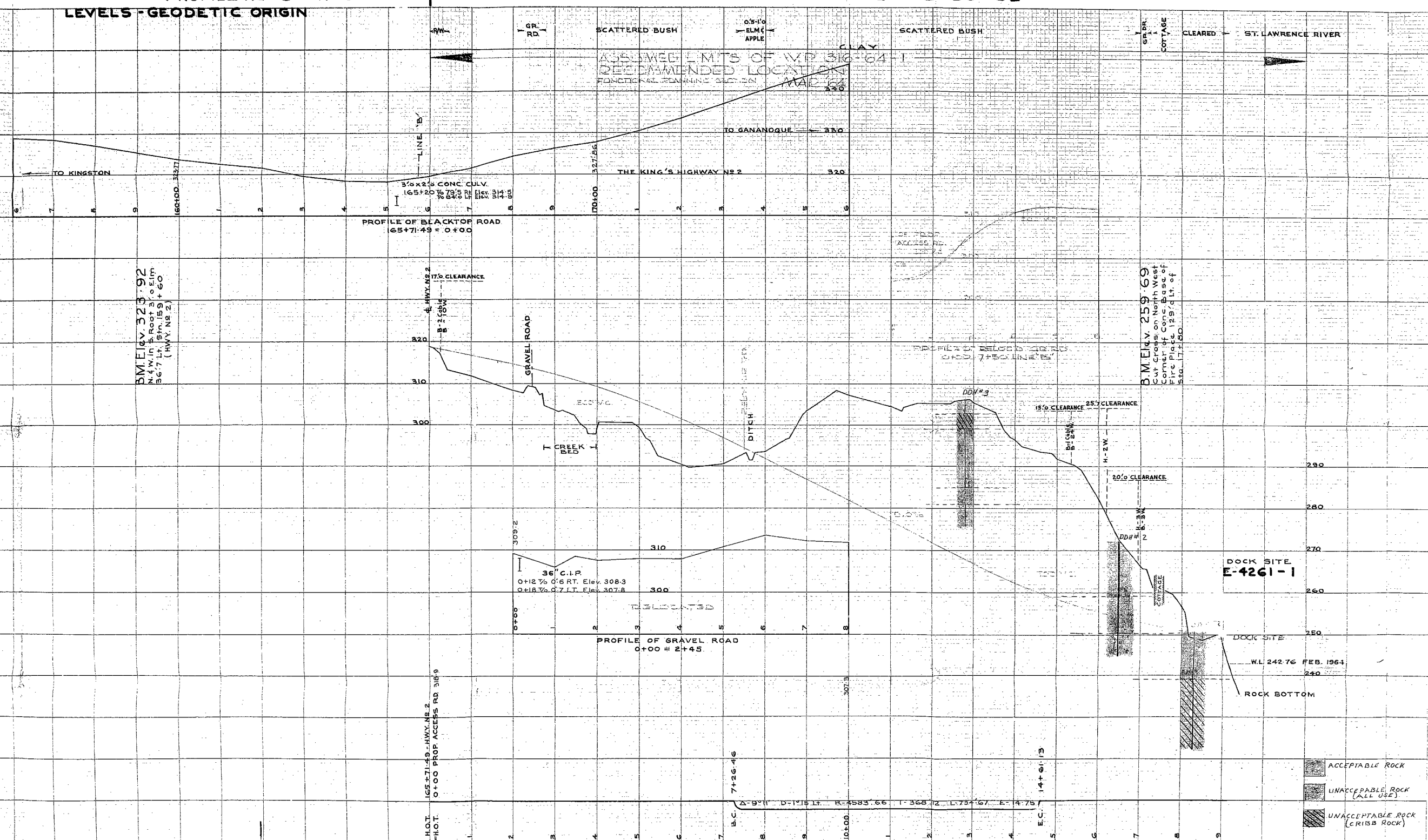
LEVELS - GEODETIC ORIGIN

| | | | |
|---|------------------------------|---|-------|
| DEPARTMENT OF HIGHWAYS ONTARIO | | | |
| DESIGN BRANCH | | | |
| ENGINEERING SURVEYS DIVISION | | | |
| SCALE HOR. 1 IN. = 100 FT. VERT. 1 IN. = 10 FT. | DISTRICT KINGSTON | REGION EASTERN | |
| W.O. No 7016-63-92 | Date of Survey MARCH 1964 | Date of Profile MARCH 1964 | |
| SURVEY BY Chief of Party - E. BEEMER Supervisor - G. CASTELLO | | DRAWN BY Draftsman - T.H. NORTH Supervisor - G. BROWN | |
| TRACED BY Draftsman - T.H. NORTH Supervisor - G. BROWN | | CHECKED BY Draftsman - S.J. CAMILLERI Supervisor - G. BROWN | |
| PROFILE No C-20-32 | STUDY PLAN No F-3035 | PLAN No B-20-27 | |
| DATE | REVISIONS & ADDITIONS | BY | CHKD. |
| | | | |

BM Elev. 323.92
N 4 W in E. Road Sta. 0 ELEV.
36.7 (HWY No 2)

C-20-32

PROP. ACCESS RD. LINE 'B' SEE PLAN NO B-20-27
THIS PROFILE NO C-20-32



DIAMOND DRILL INVESTIGATION

W.P. 316-64-1

316-64-2✓

FERRY DOCK SITES, KINGSTON
AND WOLFE ISLAND.

64-F-245C

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

To: Mr. A.P. Watt,
Bridge Location Engineer,
Administration Building.

FROM: Mr. B.K. Glassford

DATE: April 28th. 1964.

OUR FILE REF.

IN REPLY TO

SUBJECT:

A.P. 316-64-1
316-64-2

Attached are the reports, logs of holes and profiles for the diamond drill investigation of bedrock on the above work projects at Kingston and Wolfe Island.

The drilling was done under supervision of the Materials and Research geologist, Mr. O. Valkirs, of the Kingston regional office. The log of holes were completed by him and revised slightly at the Materials and Research laboratory. Sections of the investigational report were done by Mr. Valkirs, the remainder of the report was completed at the Toronto laboratory after examination and testing of the cores.

B.K. Glassford

B.K. Glassford,
Geologist.

BKD:ch

Mr. A.P. Watt,
Bridge Design Section,
Administration Building.

Mr. B.K. Glassford

April 22nd. 1964.

W.P. 316-64-1, Ferry Dock, Rogers Road East of Kingston,
District 8

W.P. 316-64-2, Ferry Dock, Knapp Point Wolfe Island,
District 8

Diamond drill core investigation work was carried out for the above work projects from March 31st. to April 9th.

Three diamond drill cores of bedrock were taken at the following points for W.P. 316-64-1.

| <u>D.D.H.</u> | <u>Station</u> | <u>Collar Elevation</u> | <u>Gradeline Elevation</u> | <u>Depth of Hole</u> |
|---------------|---------------------------------|-----------------------------|--------------------------------|--------------------------|
| 1 | 18 + 32 7' W. of centre line | 250.4' | 234' | 28' 3" |
| 2 | 16 + 51 2' W. of centre line | 272.2' | 255' | 27' 11" |
| 3 | 12 + 80 on centre line | 306.3' | 280' | 29' 2" |

DDH #1

Bedrock in this drill hole consists mainly of medium hard to hard limestone of a grey to dark grey colour, aphanitic in texture, with some shale partings and soft limestone in transitional sections. The bedding in the upper 10 feet is thin to thick bedded (3" to 18"). The structure of the rock is stylolitic in appearance. Below the 10 foot mark and to the 22 foot horizon there appears to be an increase in argillaceous content of the limestone. Rock from 0' to 10' should make suitable cribbing fill material for the dock, while larger blocks from the thicker beds near the top should provide material for the causeway framework. Rock from 10' to the bottom of the hole appears highly argillaceous and clayey, and hence undesirable for crib work, but should make causeway fill material if used above water level.

cont'd

DDH #2

Bedrock here is a limestone, dark grey colour, medium hard to soft, aphanitic in texture with shale partings. There appears to be some lost core in the drilling, probably due to shaley material. Rock from below the overburden to approximately 13 feet appears suitable for rock cribbing material. From 13 feet to 22 feet the material is undesirable and should not be used for either cribb fill or causeway fill. From 22 feet to the bottom of the hole (27 feet) the rock appears acceptable for cribb fill material.

DDH #3

Bedrock here is a medium hard to soft, dark grey fine grained limestone with shale partings and clayey lime sections. Below the 1 foot of overburden the first 3 feet of rock would be acceptable for cribb fill material. Between 3 feet and 7 feet the rock is not acceptable for cribb work, but could be used for causeway fill material above water levels. Rock from 7 feet to 21 feet appears acceptable for cribb fill material. Between 21 feet and 24 feet there is a bad section of soft clayey limestone which is unacceptable and should not be used for either cribb or causeway fill material. From 24 feet to the bottom of the hole (29' 2") the rock appears acceptable for cribb fill use.

In summary of the above descriptions; rock material indicated as acceptable could be used for cribb fill and/or causeway break-water core fill material. Rock described as not being acceptable for cribb material aggregate for the most part should be avoided and wasted. Sections as indicated could possibly be used for core rock in the causeway if used above the water levels. Further breakdown and disintegration of the rock used should occur with resulting settlement in the cribs and causeway. Future fill replacement will be required at a later date.

In appraising the rock in these cores from this site two main considerations were kept in mind.

1. Rock material was not a high grade, excellent, hard type limestone. Its physical conditions were appraised good or bad for the intended use.
2. The intended use was a fill material for both above and below water levels.

cont'd.....

From these descriptions and from the plotted profile of the bore holes it appears that a specific selective mining or quarrying operation would be necessary to obtain material from the excavation for each intended use. This would call for a close supervision of the contractor's drilling, blasting and excavation procedures.

It is further suggested that the outer limits of the breakwater below and above water levels be fortified with an armour type rock. A rock of this type is available on the site a few hundred feet east of the proposed right of way. This rock is an extremely hard wearing and durable quartzite, which would add greatly to the physical resistance to wave and water action on the exposed perimeter of the breakwater causeway.

Knapp's Point, Wolfe Island

One diamond drill core of bedrock was taken at Knapp's Point, Wolfe Island, for I.P. 316-64-2.

| <u>D.D.H.</u> | <u>Station</u> | <u>Collar Elevation</u> | <u>Graveline Elevation</u> | <u>Depth of Hole</u> |
|---------------|----------------|-----------------------------|--------------------------------|--------------------------|
| 4 | 70 + 35 | 245.0' | | 16' 11" |

DDH #4

There was no overburden at this drill site. Bedrock here consists of a medium hard, dark grey, aphanitic limestone with narrow transitional bedding of argillaceous and clayey layers. There are some shale partings present. Rock from the top of the bore hole to 16' 11" (bottom) appears suitable for crib fill and causeway breakwater fill material.

Additional investigation was carried out for possible sites of bedrock which could be suitable as fill in timber cribs as well as for causeway. No diamond drilling was done in the areas described below.

A knoll of bedrock located close to Sta. 62+00 and west of it contains mostly shaley or clayey limestone with 1 1/2 - 2 ft. layers of medium to hard limestone and less 1 - 5 ft. layers of shale or clay. A cross section at Sta. 70+00 and 300 ft. west of it is as follows:

- 0 - 5' Shale or claystone platy and very soft.
- 5 - 6' Limestone, shaley, thin bedded to platy soft.
- 6 - 6½' Shale or claystone, platy and very soft.
- 6½ - 8½' Limestone, medium hard to hard, dark grey, medium thick beds.
- 8½ - 9' Shale or claystone, platy and soft.
- 9 - 12' Limestone, medium hard to hard, few shale seams and partings, thick bedded.

One sample (64-LR-1014) was taken at the outcrop on river's shore from the depth of 0 to 12 feet. All material taken in sample has been exposed to weathering for a considerable time period. Depth of excavation will be limited from 12 to 15 feet by the water level in St. Lawrence River. Excavation below water level could be hindered by seepage zones of water in bedrock. The layer of bedrock below 12' is the same as the top of D.D.H. 4 was placed.

A large knoll of bedrock around Sta. 60+00 appears to be very similar to the knoll described above (e.g. knoll west of Sta. 68+00). This area is covered by overburden, but the few outcrops indicate that the upper 0 - 5' contain mostly shale or shaley limestone and below it 5 to 10 feet there are 1 - 2 foot layers or medium hard to hard limestone with few shale partings or seams (1 - 6" thick) and few (6" - 12" thick) layers of shaley limestone.

A small quarry located approximately 750' east of Sta. 4+00 has a small 8'± face and in cross-section it consists of:

- 0 - 2' limestone, medium hard to soft
- 2 - 5' shale, platy and soft
- 5 - 8' limestone, in parts shaley, medium thick bedded with shale partings and few shale seams, medium hard to hard.

A quarry located west of D.H.O. Patrol Yard on north side of Hwy. 95 and approximately 2½ miles from Sta. 00+20 has a 15 - 20 foot face and it contains mostly soft shaley limestone with few layers of shale and few 1 - 2 foot layers of medium hard to hard limestone. Bedrock in this quarry appears to be non-uniform in horizontal extend as well. A small section located in northeast corner of quarry contains a better quality stone than the rest of quarry.

cont'd

A fairly large quarry located approximately one mile west of the Village of Wolfe Island and approximately 4 miles from the job site has a 20 - 25 foot face. The upper 10' in this quarry contain mostly shaley limestone with few thin layers of shale and medium hard limestone. Below 10' to 13' the bedrock is mostly medium hard to hard limestone in parts slightly shaley. Below 13', the bedrock is shaley limestone to shale.

There appears to be certain sections of limestone in the above described quarries on Wolfe Island that would be suitable for cribb fill material. Mining of this material would probably involve selective quarrying methods, with wasting of the unacceptable shaley and claystone rock horizons.

B.E. Glassford,
Geologist.

BKG:ch

MEMORANDUM

To: Mr. A.P. Watt,
Bridge Design Engineer,
Administration Building.

From: Mr. B.K. Glassford

Date: April 24th. 1964.

Our File Ref.

IN REPLY TO

SUBJECT: W.P. 316-64-1, Ferry Dock at Rogers Road, East of Kingston,
District #

W.P. 316-64-2, Ferry Dock at Knapp's Point, Wolfe Island,
District #

The following are answers to your questions to Mr. A. J. Stermac, Principal Foundation Engineer, contained in your letter to him of April 1st.

W.P. 316-64-1

1. If the rock is suitable for use in timber cribs?

Certain beds of the limestone between specific footage levels appears suitable for timber cribb fill material. These beds are described in the descriptions of each diamond drill hole and are drawn in on the grade profile map. Other sections of the limestone appear unacceptable for cribb fill rock.

2. If the rock is suitable for use in a rock fill causeway?

Certain sections of the limestone appear acceptable for causeway fill rock, some sections for use above the water level only. These sections are described in the diamond drill hole report and are also marked on the grade profile map.

3. What the probable size of the rock breakage will be?

The probable size of rock breakage will be from a maximum of 2 feet to approximately 15 inches, or 15% below the

4. Characteristics of the rock in regard to under water excavation?

Breakage of the limestone at the under water section should be in the maximum to average sizes (as described in 3) for the first 10 feet below the ground elevation level at shore-line (see description of BDN #1 and profile of same bore hole on the grade line profile G-20-32). Below this footage breakage sizes should be smaller with considerable more fines. This breakage appraisal will of course depend on the powder load and the blast hole pattern and method used by the contractor.

5. The bearing strength of the rock?

The crushing strength of the rock below the deck cribbing and on which the cribb timbers rest should be in excess for the load which will be placed upon it. This crushing strength would be considered at 8 to 10 tons per square foot.

N.L. 214-412

1. If the rock is suitable for use in timber crib fill?

Rock from the dock slip area would be suitable for cribb fill material. Adjacent material in the rock outcrops appears unsuitable for rock cribb fill material, but would make core fill above water levels for breakwater causeway fill material.

2. If rock in the quarry 1 mile from the dock site is suitable for cribb fill material?

Certain sections of the limestone quarry face appear suitable for cribb fill rock. These bedding levels would have to be indicated to the contractor by the geologist.

3. Probable size of rock breakage?

Maximum breakage size would be 1 1/2 feet, with the average size 6 to 8 inches and with approximately 20% fines, or 20% below the 1 inch screen size.

-3-

4. Characteristics of the rock in regard to under water excavation?

Breakage of the limestone at the under water section should be in the maximum to average sizes (as described in 3)). This breakage appraisal will of course depend on the powder load and the blast hole pattern and method used by the contractor.

5. Bearing value of the rock?

The crushing strength of the rock below the deck cribbing and on which the cribbing rests should be in excess for the loading which will be placed upon it. The crushing strength would be considered at 8 to 10 tons per square foot.

B.K. Glasford
B.K. Glasford,
Geologist.

BKG:ch

HOLE NO. 1 SHEET NO. 1

900

PROPERTY Mrs. M. Beach & Miss J. Rogers
LOCATION Pittsburg Twp. Lot 1 Con. 1
P. 315-64; Rogers rd. Dock Site
St. 18+32; 7' west of centre line
LATITUDE _____
DEPARTURE _____
BEARING _____

TOTAL FOOTAGE 28' 3"

ELEV. COLLAR 2521.2"
DATUM 2504.1"
DATE STARTED March 31, 1964
DATE COMPLETED " 31, 1964
DRILLED BY Johnston's Drilling Co.
LOGGED BY G. Jenkins

DATE OF EXAMINATION:

April 15/64

B. K. Hancock

DIAMOND DRILL RECORD

HOLE NO. 1 SHEET NO. 2

PROPERTY Mrs. A. Beach & Miss J. Rogers
LOCATION Pittsburg Twp. Lot 1 Con. 1
H.P. 316-64; Rogers Rd. Dock Site
St. 18+32; 7' West of centre line
LATITUDE _____
DEPARTURE _____
BEARING _____

DIP
90°

TOTAL FOOTAGE 28' 3"

ELEV. COLLAR 251' 2"
DATUM 250.4'
DATE STARTED March 31, 1964
DATE COMPLETED " 31, 1964
DRILLED BY Johnston's Drilling Co.
LOGGED BY O. Walkers

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------------|---------------|---|---------------|--|--|---------|
| FROM | TO | | | | | |
| <u>17' 0"</u> | <u>17' 9"</u> | <u>Limestone, argillaceous, med grey. Med crystalline to aphanitic, Med to thin bedded, stylolitic in spots rusty, med. hard</u> | | | | |
| <u>17' 9"</u> | <u>21' 9"</u> | <u>Limestone, argillaceous to carbonaceous, med grey to black, med crystalline to aphanitic. Med bedded to platy and fissile of shale, stylolitic, med hard</u> | | | | |
| <u>21' 9"</u> | <u>22' 2"</u> | <u>Lost core Poss. soft clayey LS Sec core at 22' 2"</u> | | | | |
| <u>22' 2"</u> | <u>24' 1"</u> | <u>Limestone, shaley to argillaceous, black to med grey mottled, aphanitic to med crystalline, irregular thin bedded to platy, soft, 50% shale</u> | | | | |
| <u>24' 1"</u> | <u>24' 5"</u> | <u>Clay and shaley limestone, brownish grey to black aphanitic, thin bedded, very soft</u> | | | | |
| <u>24' 5"</u> | <u>27' 0"</u> | <u>Limestone, shaley to argillaceous, black to med grey, mottled aphanitic to med crystalline, irregular thin bedded to platy, soft, 50% shale</u> | | | | |

HOLE NO. 3 SHEET NO. 10

591

900

TOTAL FOOTAGE 28' 3"

1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 26

DATE STARTED

UNIVERSITY OF CALIFORNIA, BERKELEY

SECRET

第 196 号 2000 年 12 月 1 日

2012

230

73 71 135

100-443886-100

INDEX

DATE OF EXAMINATION: April 3, 1964

62-15194-100

Office

0144

DIAMOND DRILL RECORD

FILE NO. 2 SHEET NO. 1

| | |
|-----------|---|
| PROPERTY | Mrs. M. Beach & Miss J. Rogers |
| LOCATION | Pittsburg Twp. Lot 1 Con. I W.P. 310-64, Rogers ad. Dock Site St. 16+51; 2' west of centre line |
| LATITUDE | approx. 76° 24' 15" |
| DEPARTURE | 44° 30' 15" |
| BEARING | |

900

ELEV. COLLAR 2721.6"
 DATUM 272.5'
 DATE STARTED April 2, 1964
 DATE COMPLETED April 2, 1964
 DRILLED BY Johnston's Drilling Co.
 LOGGED BY C. Valkirs

TOTAL FOOTAGE 27'

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------|--------|---|------------------|--|--|---------|
| FROM | TO | | | | | |
| 0 | 4' 0" | Casing, overburden | | | | |
| 4' 0" | 5' 8" | Limestone, shaley to argillaceous, med grey to black, mottled, aphanitic, irregular thin bedded to platy, partly cross laminated, med hard | | | | |
| 5' 8" | 5' 10" | Clay, calcareous, light to med grey, aphanitic, thin bedded, soft | | | | |
| 5' 10" | 6' 5" | Limestone, shaley to argillaceous, med grey to black, aphanitic, irregular thin bedded to platy, cross laminated from 5' 10" to 6' 0", soft to med. hard, 30% shale | | | | |
| 6' 5" | 8' 4" | Limestone, argillaceous, light to med grey, aphanitic, med to thin bedded, rusty spots from 7' 1" to 7' 4", soft. | | | | |
| 8' 4" | 9' 4" | Clay, calcareous, brownish light to med grey, aphanitic med bedded, soft to very soft. | | | | |

DATE OF EXAMINATION

DIAMOND DRILL RECORD

HOLE NO. 2 DEPTH 2

PROPERTY Mrs. W. Beach & Miss J. Rogers
LOCATION Millburg Twp. Lot 1, Cont. 1
N.E. 1/4-34, Rogers W. Dock Site
W. 10-51, 2' west of centre line
LATITUDE Approx. 76° 24' 15"
DEPARTURE 0 34' 17"
BEARING

DIP

90°

ELEV. COLLAR

272° 6"

BATHY

272.5'

DATE STARTED

April 2, 1964

DATE COMPLETED

April 2, 1964

DRILLED BY

Johnston's Drilling Co.

LOGGED BY

C. Valke

TOTAL FOOTAGE 27' 1"

| FOOTAGE | | FORMATION | SAMPLE NUMBER | REMARKS |
|---------|-------|---|---------------|---------|
| FROM | TO | | | |
| 1.00 | 13.00 | Limestone, shaley to argillaceous, dark gray to black, spongy, irregular thin bedded to platy, partly cross laminated, med. hard. | | |
| | | 45° break at 11' | | |
| 13.00 | 20.00 | Limestone, argillaceous to shaley, med gray to black, partly mottled and spotty, spongy, med to thin bedded, soft to med hard | | |
| 20.00 | 27.00 | S.s. & calcareous, med to dark gray, spongy thin bedded to platy, soft to very soft. | | |
| 27.00 | 27.10 | Limestone, shaley to argillaceous, med to dark gray, mottled, spotty, spongy, thick bedded, soft to med hard. | | |
| 27.10 | 27.15 | Limestone, argillaceous, light to med gray, mottled, spongy to med crystalline, thick bedded, soft to med hard. | | |
| 27.15 | 27.17 | S.s. & calcareous, dark gray (greenish), spongy thin bedded to platy, soft to very soft. | | |

DATE OF EXAMINATION

DIAMOND DRILL RECORD

NOLE NO. 2 SHEET NO. 3

| | |
|-----------|------------------------------------|
| PROPERTY | Mrs. M. Beach & Miss J. Rogers |
| LOCATION | Pittsburg Twp. Lot 1 Con. 1 |
| | N. P. 316-54, Rogers Rd. Dock Site |
| | St. 16+51; 2' west of centre line |
| LATITUDE | Approx. 76° 24' 15" |
| DEPARTURE | 44° 30' 15" |
| BEARING | |

DIP

900

ELEV. COLLAR

DATUM

DATE STARTED

DATE COMPLETED

DRILLED BY

LOGGED BY

TOTAL FOOTAGE 27' 3"

272: 6ⁿ

272.51

April 2, 1964

April 2, 1964

Johnston's Drilling Co.

C. Valkirs

[illegible]

DATE OF EXAMINATION April 2, 1964.

April 15 1964

C. Valkirs

13 H Glasgow

DIAMOND DRILL RECORD

HOLE NO. 3 DEPTH 10

PROPERTY Mrs. M. Beach & Miss J. Rogers
LOCATION Pittsburg Twp. Lot E Con. I
N.P. 316-64, Rogers Rd. Doc. Site
St. 12-80
LATITUDE _____
DEPARTURE _____
BEARING _____



30°

ELEV. COLLAR

206-9

DATUM

106.2

DATE STARTED

42-113-1364

DATE COMPLETED

APR 10 1954

DRILLED BY

Johnston's Drilling Co.

LOGGED BY

C. Valkirs

TOTAL FOOTAGE 29' 2"

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | REMARKS |
|---------|--------|--|------------------|--|---------|
| FROM | TO | | | | |
| 0 | 1' 3" | Casing, overburden (mostly weathered rock) | | | |
| 1' 3" | 2' 4" | Limestone, shaley, med to dark grey, aphanitic, thin bedded, med hard to hard, weathered at 1' 10" | | | |
| 2' 4" | 3' 7" | Limestone, argillaceous, light to med grey, aphanitic thin bedded, soft | | | |
| 3' 7" | 5' 10" | Clay, calcareous, greenish brownish grey, aphanitic weathered between beds, soft to very soft | | | |
| 5' 10" | 7' 3" | Limestone, argillaceous, greenish light to med grey, aphanitic, thin bedded to platy. | | | |
| 7' 3" | 7' 10" | Claystone, calcareous and shaley, med grey to black aphanitic, thin bedded to platy, med hard. | | | |
| 7' 10" | 9' 0" | Limestone and shale (clayey), bluish grey to black, aphanitic, thin bedded to fissile, med hard, shale partings. | | | |

DATE OF EXAMINATION

DIAMOND DRILL RECORD

PROPERTY LOCATION Mrs. M. Beach & Miss J. Rogers
Pittsburg Twp. Lot 2 Con. 1
N.P. 316-64, Rogers Rd. Dock Site
St. 12+80
LATITUDE _____
DEPARTURE _____
BEARING _____

DIP

90°

TOTAL FOOTAGE 29' 2"

HOLE NO. 3 SHEET NO. 2

ELEV. COLLAR 306' 9"
DATUM 306.3'
DATE STARTED April 3, 1964
DATE COMPLETED April 6, 1964
DRILLED BY Johnston's Drilling Co.
LOGGED BY G. Valkirs

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------|--------|---|---------------|--|--|---------|
| FROM | TO | | | | | |
| 9'0" | 10'11" | Limestone, shaley, med to dark grey, aphanitic, thin bedded to fissile, med hard. | | | | |
| 10'11" | 11'3" | Shale, calcareous and clayey, dark grey, fissile, soft | | | | |
| 11'3" | 13'0" | Limestone shaley and shale, dark grey to black, aphanitic thin bedded to fissile, med. hard | | | | |
| 13'0" | 13'3" | Shale, calcareous, dark grey to black, aphanitic, fissile soft | | | | |
| 13'3" | 15'4" | Limestone, shaley and clayey, med grey to black, mottled aphanitic, thin bedded to fissile, calcite crystals, med hard, shale partings. | | | | |
| 15'4" | 15'10" | Shale, calcareous, greyish black, aphanitic, fissile and very soft. | | | | |
| 15'10" | 16'8" | Limestone shaley, dark grey to black, mottled aphanitic, thin bedded to fissile, calcite crystals, med. hard. | | | | |

DATE OF EXAMINATION _____

DIAMOND DRILL RECORD

PILE NO. 3 SHEET NO. 3

PROPERTY Mrs. M. Beach & Miss J. Rogers
LOCATION Pittsburg Twp. Lot E Con. I
W.P. 316-64, Rogers Rd. Dock Site
St. 12+80
LATITUDE
DEPARTURE
BEARING

DIP
90°
TOTAL FOOTAGE 29' 2"

ELEV. COLLAR 306' 9"
DATUM 305.3'
DATE STARTED April 3, 1964
DATE COMP. April 6, 1964
DRILLED BY Johnston's Drilling Co.
LOGGED BY C. Valkirs

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------|--------|--|---------------|--|--|---------|
| FROM | TO | | | | | |
| 16' 8" | 17' 5" | Clay, calcareous, med to dark grey, aphanitic, soft | | | | |
| 17' 5" | 18' 1" | Limestone, argillaceous, med to dark grey, aphanitic, med. bedded, med. hard. | | | | |
| 18' 1" | 18' 4" | Clay, calcareous, med grey, aphanitic, soft, | | | | |
| 18' 4" | 19' 2" | Limestone, argillaceous, med to dark grey, aphanitic, med. bedded, med hard | | | | |
| 19' 2" | 19' 7" | Clay, calcareous, light grey, aphanitic, 2" sandy seam at 19' 4", soft. | | | | |
| 19' 7" | 21' 5" | Limestone with numerous very thin shale partings, med to dark grey, aphanitic, thin bedded to platy, stylolites, hard to med hard. | | | | |
| 21' 5" | 23' 3" | Limestone, argillaceous, light to med grey, aphanitic, med to thick bedded, soft | | | | |

DATE OF EXAMINATION

DIAMOND DRILL RECORD

514

900

TOTAL FOOTAGE 23 2

HOLE NO. 3

| | |
|-----------|---|
| PROPERTY | Mrs. M. Beach & Miss J. Rogers |
| LOCATION | Pittsburg Twp. Lot 2 Con. 1 W.P. 316-64, Rogers Ad. Dock Site St. 12+80 |
| LATITUDE | |
| DEPARTURE | |
| BEARING | |

ELEV. COLLAR 306.77
 DATUM 305.31
 DATE STARTED April 3, 1964
 DATE COMPLETED April 6, 1964
 DRILLED BY Houston's Drilling Co.
 LOGGED BY C. V. Kirs

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------|---------|---|------------------|--|--|---------|
| FROM | TO | | | | | |
| 23' 3" | 23' 8" | Clay, calcareous, med grey (greenish) aphanitic, soft | | | | |
| 23' 8" | 26' 5" | Limestone, argillaceous light to med grey, slightly mottled, aphanitic to crystalline, thick bedded to platy, med hard. Numerous very thin shale partings from 24' 7" to 24' 11" | | | | |
| 26' 5" | 26' 10" | Limestone, shaley, dark grey to black, aphanitic thin bedded to platy, cross-laminated, soft | | | | |
| 26' 10" | 29' 2" | Limestone, argillaceous, light to med grey, slightly mottled, aphanitic to crystalline, med to thick bedded, med hard. | | | | |

DATE OF EXAMINATION April 7, 1964

April 16, 1964

0. Values

B. H. Thompson

DIAMOND DRILL RECORD

HOLE NO. 4 SHEET NO. 1

PROPERTY Mrs. Mary Darling
LOCATION Knapp Point, Wolfe Island
W.P. 316-64-2
St. 70+35
LATITUDE _____
DEPARTURE _____
BEARING _____

900

TOTAL FOOTAGE 16' 11"

ELEV. COLLAR

DAYUM

DATE STARTED

DATE COMPLETED

DRILLED BY

LOGGED BY

245

April 8, 1964

8, 1964

Johnston's Drilling Co.

O. Valkirs

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------|-------|--|------------------|--|--|---------|
| FROM | TO | | | | | |
| 0 | 0'11" | Limestone, numerous shale partings, med to dark grey, aphanitic, thin bedded, hard | | | | |
| 0'11" | 2' 4" | Limestone, shaley, dark grey to black, aphanitic thin bedded to platy, med hard 1/2" shale seam at 1'10". Numerous shale partings | | | | |
| 2'4" | 2'11" | Limestone, slightly shaley, dark grey to black, aphanitic to crystalline, thin bedded, pyrite, med hard. | | | | |
| 2'11" | 3'1" | Limestone, slightly shaley, dark grey to black, aphanitic to crystalline, thin bedded, pitted, med. hard | | | | |
| 3' 1" | 4' 0" | Limestone, shaley, med to dark grey, mottled, aphanitic to crystalline, med to thin bedded, med hard | | | | |
| 4' 0" | 4'3" | Shale, calcareous, greenish med, grey, aphanitic thin bedded to platy, soft | | | | |

DATE OF EXAMINATION

DEPARTMENT OF HIGHWAYS ONTARIO

DIAMOND DRILL RECORD

HOLE NO. 4 SHEET NO. 2

PROPERTY Mrs. Mary Darling
LOCATION Knapp Point, Wolfe Island
W.P. 316-64-2
St. 70+35
LATITUDE _____
DEPARTURE _____
BEARING _____

DIP
90°

TOTAL FOOTAGE 16' 11"

ELEV. COLLAR _____
DATUM 245'
DATE STARTED April 8, 1964
DATE COMPLETED 8, 1964
DRILLED BY Johnston's Drilling Co.
LOGGED BY O. Valkirs

| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------|--------|---|---------------|--|--|---------|
| FROM | TO | | | | | |
| 4' 3" | 4' 6" | Limestone, shaley, med grey to black, mottled, aphanitic to crystalline, thin bedded, shale partings, thin seams, med. hard | | | | |
| 4' 6" | 5' 1" | Limestone, slightly shaley, med to dark grey, mottled, aphanitic to crystalline, med bedded, hard to med hard | | | | |
| 5' 1" | 6' 5" | Limestone, shaley, med grey to black, aphanitic thin bedded to platy, cross-laminated with numerous shale partings and few seams, med. hard | | | | |
| 6' 5" | 6' 6" | Shale, calcareous, brownish grey, aphanitic, platy, soft | | | | |
| 6' 6" | 7' 8" | Limestone, slightly shaley, med to dark grey, aphanitic to crystalline, thin bedded Pitted from 7' to 7' 4". Few shale partings. Med. hard to hard. | | | | |
| 7' 8" | 7' 11" | Shale, calcareous, dark grey to black, in parts greenish, aphanitic, platy, soft | | | | |

DIAMOND DRILL RECORD

HOLE NO. 4 SHEET NO. 3

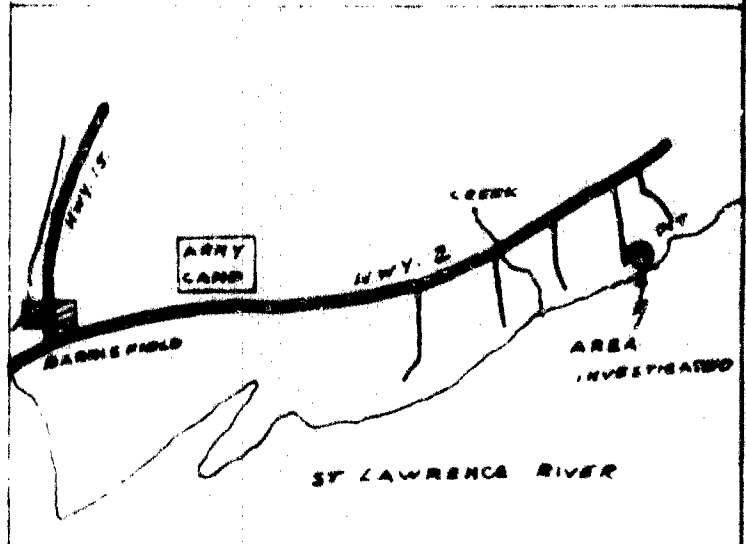
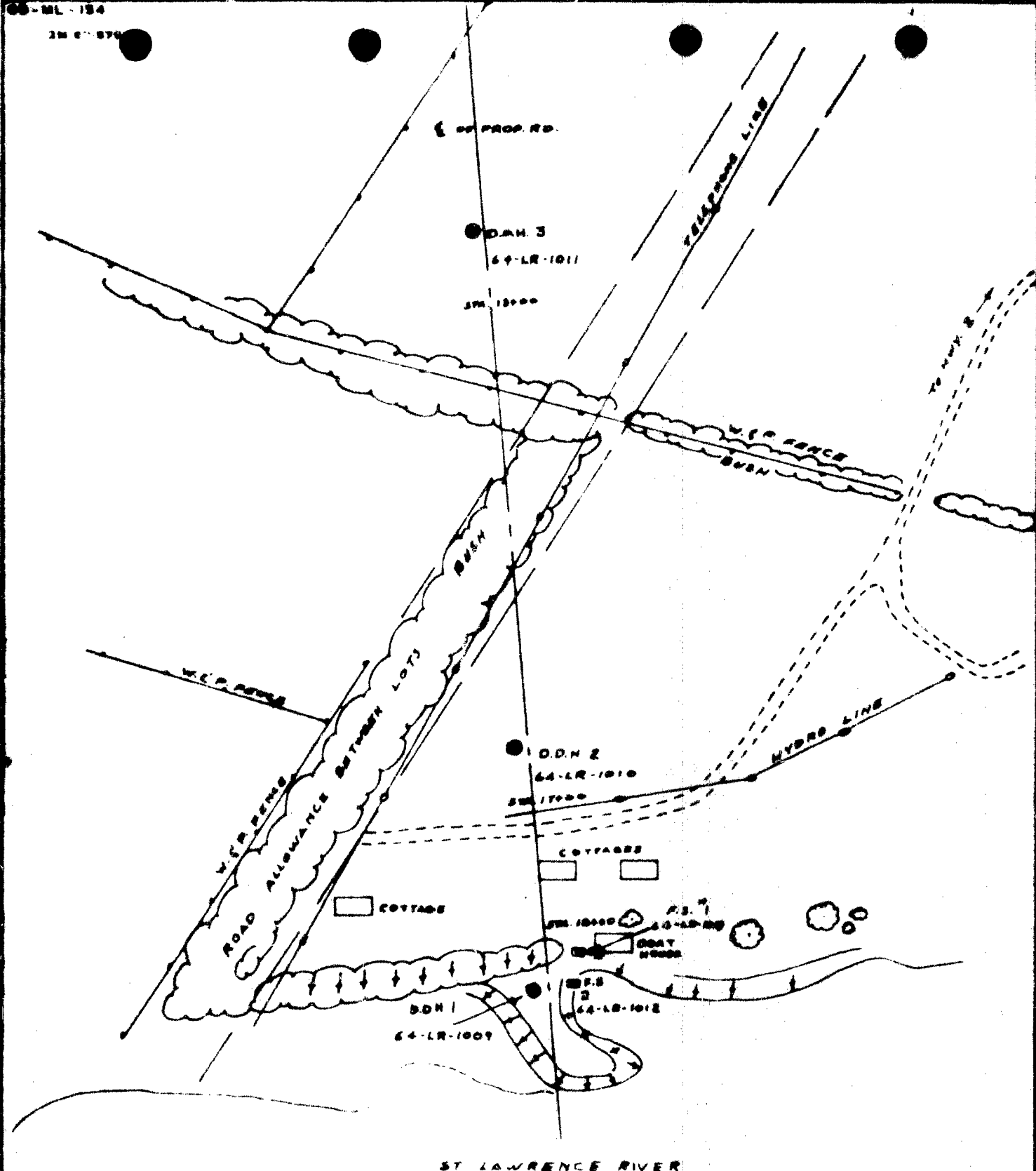
PROPERTY Mrs. Mary Darling
LOCATION Knapp Point, Wolfe Island
W.P. 316-64-2
St. 70+35
LATITUDE _____
DEPARTURE _____
BEARING _____

DIP
90°

TOTAL FOOTAGE 16' 11"

ELEV. COLLAR _____
DATUM 245'
DATE STARTED April 8, 1964
DATE COMPLETED " 8, 1964
DRILLED BY Johnston's Drilling Co.
LOGGED BY O. Valkirs

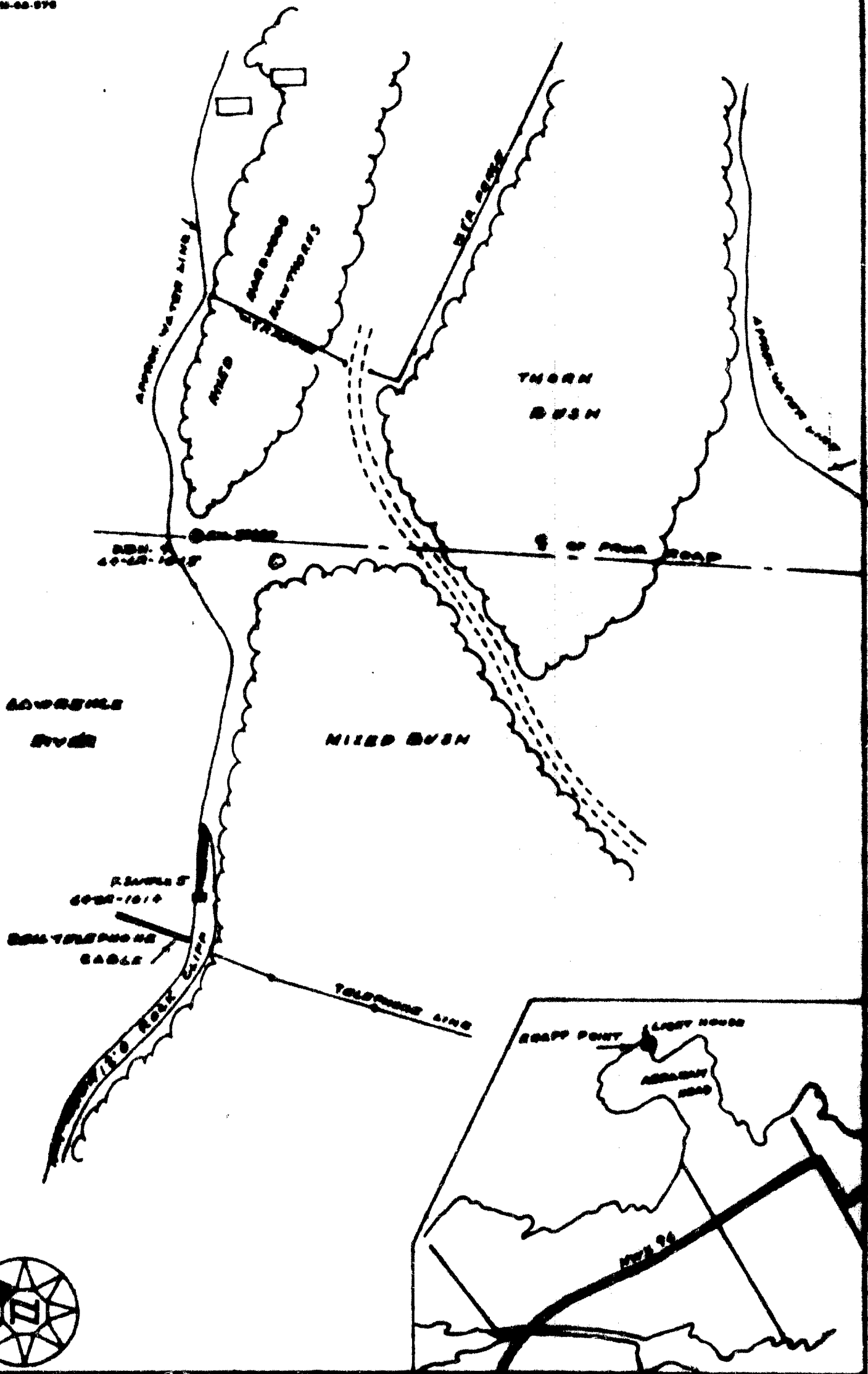
| FOOTAGE | | FORMATION | SAMPLE NUMBER | | | REMARKS |
|---------|---------|--|---------------|--|--|---------|
| FROM | TO | | | | | |
| 7' 11" | 8' 4" | Limestone, slightly shaley, aphanitic to crystalline thin bedded, shale partings at 8' 2", med hard | | | | |
| 8' 4" | 10' 0" | Limestone, shaley, greenish med grey to black, med bedded, cross-laminated with shale, mottled, med hard | | | | |
| 10' 0" | 13' 2" | Limestone, shaley, greenish, med to dark grey, med. bedded, aphanitic, shale partings, med hard. | | | | |
| 13' 2" | 13' 3" | Shale, dark grey to black, in parts greenish, aphanitic, platy, soft | | | | |
| 13' 3" | 13' 10" | Limestone, shaley, med to dark grey, aphanitic, med bedded, cross-laminated, med hard. | | | | |
| 13' 10" | 14' 5" | Limestone, slightly shaley, med grey, aphanitic, med bedded, med hard to hard. | | | | |
| 14' 5" | 14' 6" | Shale, dark grey to black, aphanitic, platy, soft. | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



| | | | | |
|------------------|---|--|--|--|
| 4 v 2 8 | PIT NAME <u>WAL. R. BRACK-HILL, BRACK AND</u> ROW COUNTY <u>FRONTENAC</u> TOWNSHIP <u>PITTSBURG</u> LOT <u>1</u> CONC <u>1</u> | | | |
| | WP NO <u>216-68-1</u> CONT NO _____ HWY NO <u>2</u> CO-ORD _____ MILITIA SHEET <u>WOLF ISLAND</u> E <input type="checkbox"/> W <input type="checkbox"/> PIT NO (S.I.) <u>2</u> APPROX SCALE <u>1:100</u> SKETCHED BY <u>C. VALKIE</u> TRACE BY <u>N. SUTZ</u> DATE <u>2 APR. 42</u> | | | |

DEFECTS IN NEGATIVE DUE TO
CONDITION OF ORIGINAL DOCUMENT

13500000



PIT NAME ANDERSON, J. H. PIT LOCATION 2.5 MI. S. OF LAWRENCE R. BRIDGE AT BRIDGE
COUNTY WISCONSIN TOWNSHIP WALTON LOT 7 CONC 10.00
W.P. NO. 100-40-2 CONT. NO. 100-40-2 HWY. NO. 94 CO-ORD. 100-40-2
MILITIA SHEET 100-40-2 ☒ ☐ (PIT NO. 10.1) APPROX. SCALE 1:1000
CONTAINED BY 100-40-2 TOWNED BY WALTON DATE 100-40-2