

55-F-28

Hwy. # 11

HOILS CREEK



MATERIALS LABORATORY - DEPARTMENT OF HIGHWAYS - ONTARIO
 OFFICE REPORT ON SOIL EXPLORATION

 DRILL RIG CORE DRILL # 54-1
 CASING 3" (STANDARD SAMPLERS TO FIT UNLESS NOTED)
 SAMPLER HAMMER WT. 140 LBS. DROP 30 INCHES

 JOB 55 F28 HWY #11 AT HOLES CK
 DATUM STA 2622+01 LT 23
 COMPILED BY B.H. CHECKED BY
 BORING NO. 1
 DATE REPORT
 BORING DATE 2-8 Nov 1955

SAMPLE CONDITION



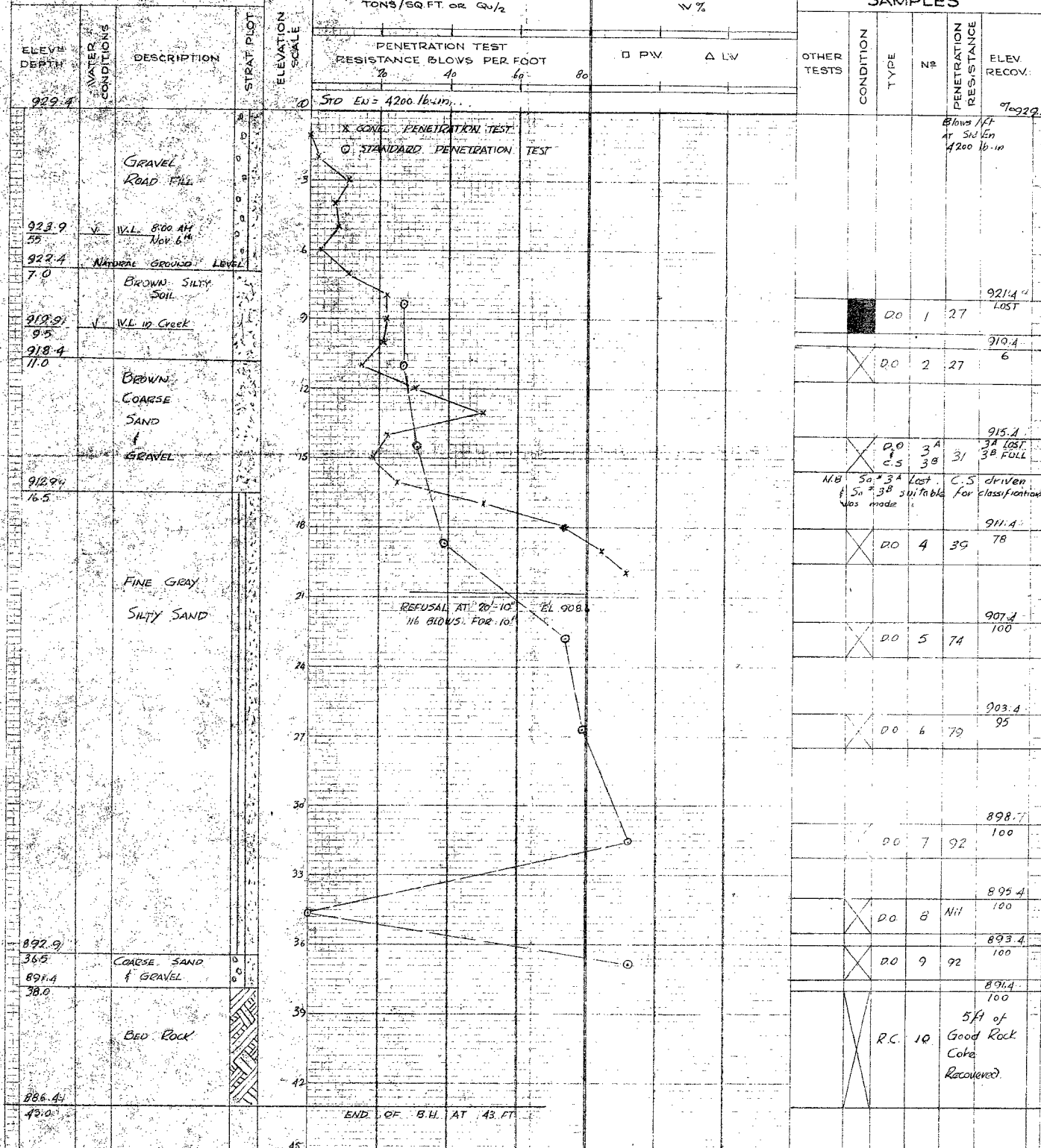
SAMPLE TYPES

 C.S. - CHUNK
 D.O. - DRIVE OPEN
 D.F. - DRIVE FOOT VALVE
 W.S. - WASHED SAMPLE
 R.C. - ROCK CORE
 T.O. - THIN WALLED OPEN

ABBREVIATIONS

 V - INSITU VANE SHEAR TEST
 M - MECHANICAL ANALYSIS
 U - UNCONFINED COMPRESSION
 Q - TRIAXIAL CONSOLIDATED QUICK
 S - TRIAXIAL SLOW
 γ - UNIT WEIGHT
 K - PERMEABILITY
 C - CONSOLIDATION
 CA - CASING
 WL - WATER LEVEL IN CASING
 WT - WATER TABLE IN SOIL

SOIL PROFILE



TL 129

MATERIALS LABORATORY-DEPARTMENT OF HIGHWAYS - ONTARIO
OFFICE REPORT ON SOIL EXPLORATIO

DRILL RIG COEE DOLL 54-1
CASING 8" (STANDARD SAMPLERS TO FIT UNLESS NOTED)
SAMPLER HAMMER WT 140
JOB 55-F-28
DATUM STA 262.16 RT 28
COMPILED BY BH CHECKED BY
BORING N° 3
DATE REPORT
BORING DATE 9-10 Nov 1955

SAMPLE CONDITION



C.S. - CHUNK
D.O. - DRIVE OPEN
D.F. - DRIVE FOOT VALVE
TO - THIN WALLED OPEN

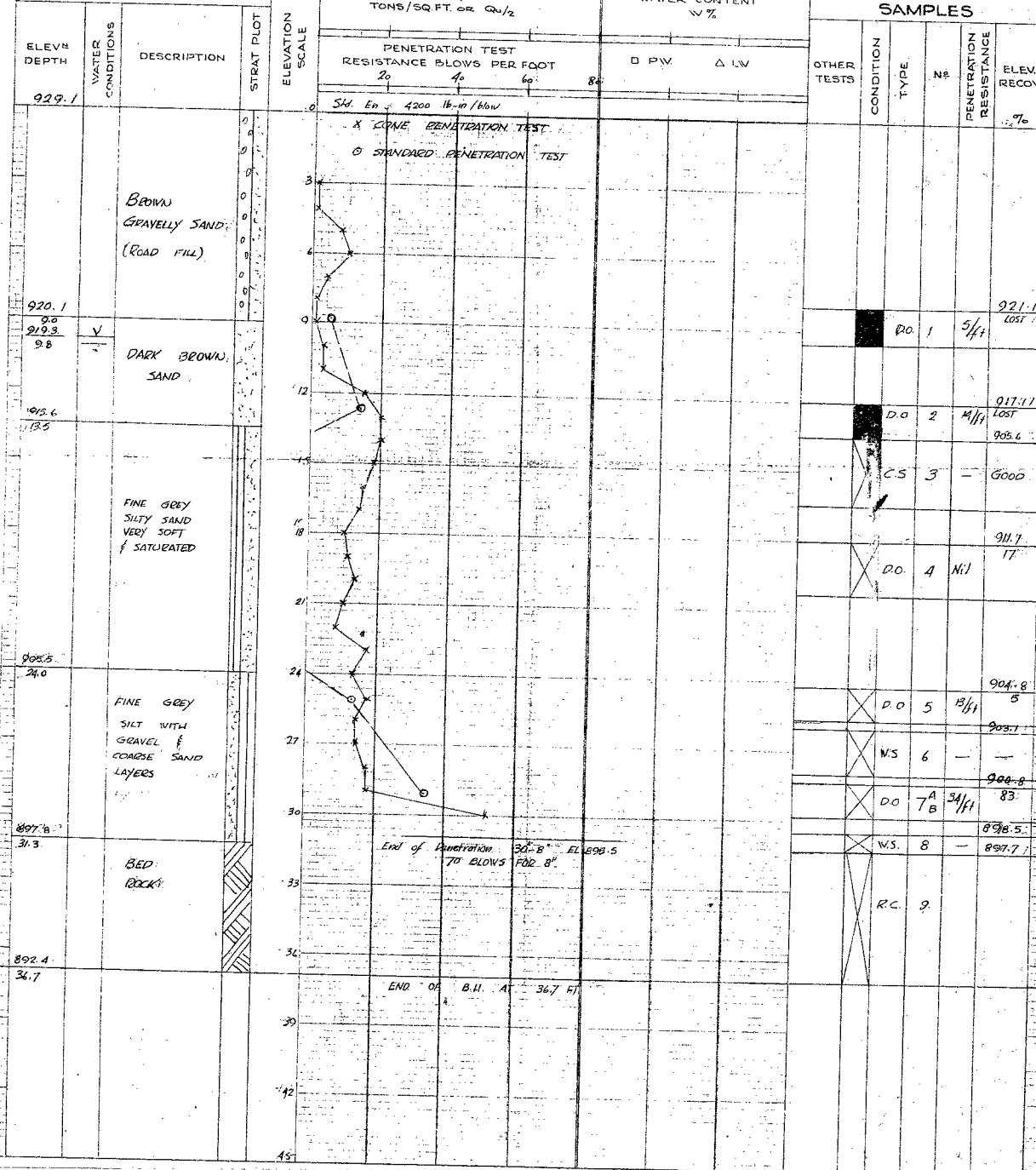
SAMPLE TYPES

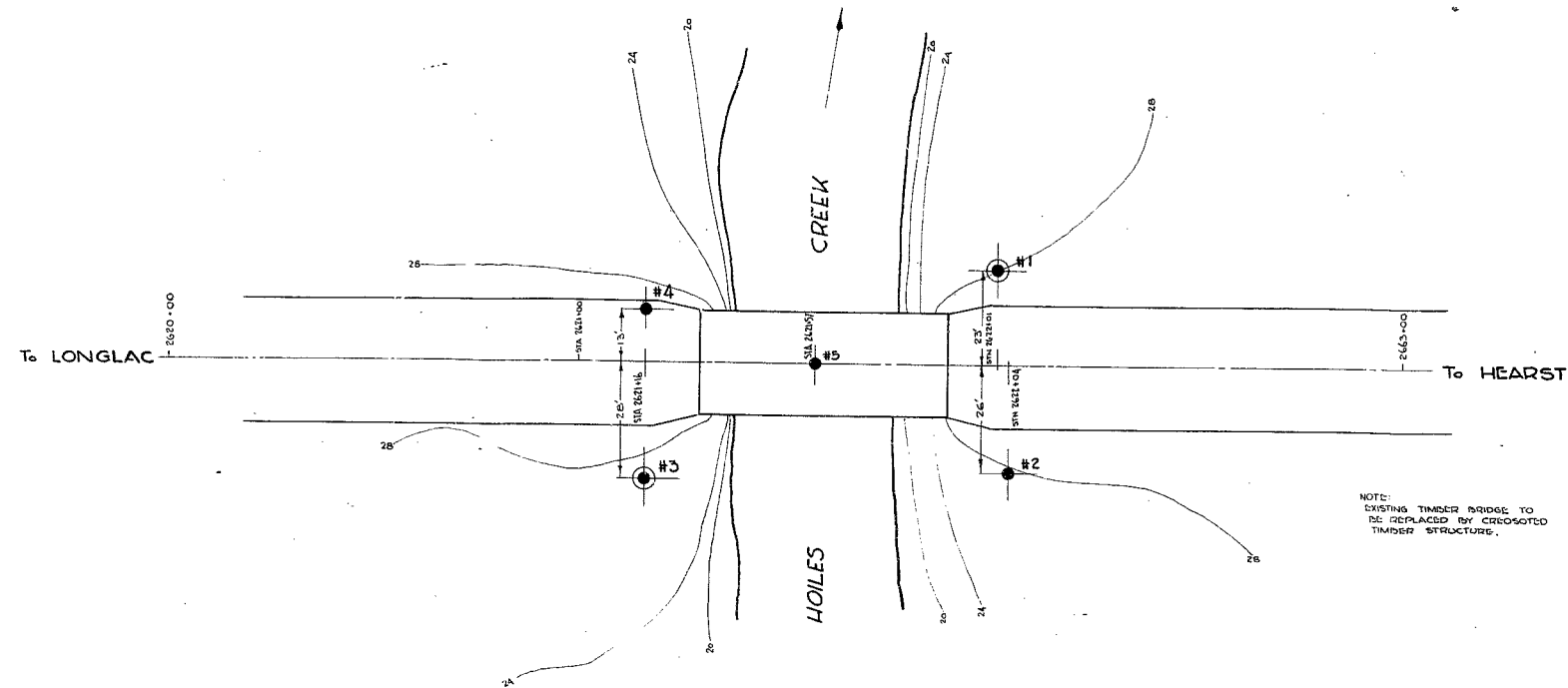
W.S. - WASHED SAMPLE
R.C. - ROCK CORE

ABBREVIATIONS

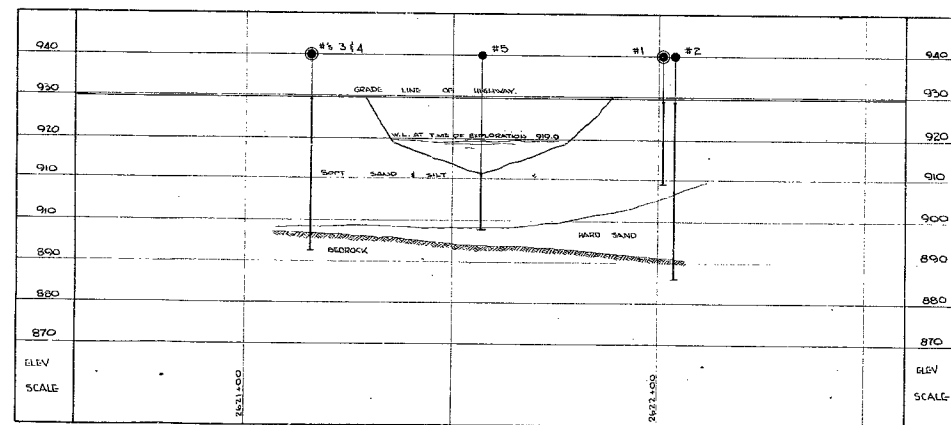
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SOIL PROFILE

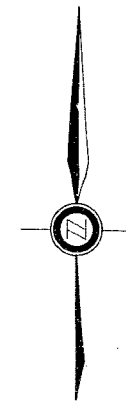




PLAN



PROFILE



LEGEND

- PENETRATION HOLE
- PENETRATION / BOREHOLE

SCALE

HORIZONTAL 1" = 20'

VERTICAL 1" = 20'

PRINT RECORD		
NO.	FOR	DATE

DEPARTMENT OF HIGHWAYS-ONTARIO-			
MATERIALS LABORATORY-TORONTO			
BRIDGE ON			
HWY 11 AT HOILES CR.			
LOCATION OF BOREHOLES			
THE KING'S HIGHWAY No. 11		DIV. No. 16	
CO. DISTRICT OF THUNDER BAY			
26 MILES EAST OF LONGLAC			
JOB NO F-55-28			
APPROVED			
CHIEF BRIDGE ENGINEER		CHIEF ENGINEER	
DESIGN	CHECK	CONTRACT	NUMBERS
DRAWING	NDM	CHECK	
TRACING	NDM	CHECK	B.H.
DATE	26/12/55	LOADING	
DRAWING			F-55-28A

REVISIONS:	DATE	BY	DESCRIPTION

[illegible][illegible]

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, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 26

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REPORT OF FOUNDATION INVESTIGATION

BRIDGE AT MOILES CREEK

ON HIGHWAY # 11

FROM LONGILAC TO HEARST

Copies to:

Mr. A. Toye Bridge Engineer	(2)
Mr. H. Eregaskas Const. Engineer	(1)
Mr. J. Walter Design Engineer	(1)
Mr. E. Orr Dist. Engineer, Cochrane, Ont.	(1)
Mr. G. Farantatos	(1)
File	(1)

Project 55-P-28

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INTRODUCTION

It is proposed to replace the existing timber bridge on Hwy. # 11 at Hoiles Creek with a new cresceted timber structure, the new bridge to be located on the site of the old one.

Subsoil investigation for the bridge site was therefore undertaken to determine the soil characteristics and the depth to which the timber piles should be driven.

SITE CONDITIONS

The stream at the site is 40 ft. wide with a slow current which is not used for logging purposes.

PROCEDURE

During the period Nov. 2nd to Nov. 12, a penetration^c borehole and a dynamic penetration test were made on each bank of the river, and a dynamic penetration test in the middle. They are located as shown on drawing 55F28A. Because of the steep nature of the banks the drill was set up and the holes made on the road shoulders at a height of about 9 ft. above the water level in the river. The dynamic penetration test in the middle of the stream was made from the bridge deck by boring a hole through the timber planks.

The logs of the boreholes and dynamic penetration tests are found in Appendix I.

SOIL CONDITIONS

Fine silty sand tending to silt with coarse sand and gravel in the top and bottom layers, was found to extend from ground level to a depth varying from 38 ft. on the East bank to 31 ft. on the West bank, with bed-rock underlying it.

The material on the West bank is soft, as indicated from the dynamic penetration tests and the small values of the standard penetration resistance in the borehole.

SOIL CONDITIONS (continued)

On the east bank, however, the silty sand was harder and offered a high standard penetration resistance below 20 ft.

The recovery of samples was good.

TEST CONDITIONS

The test results indicated that the silty sand in the river bed is soft to within 3 ft. of rock on the west bank and to within 10 ft. on the east bank of the river. It is probable, therefore, that the river bed is subject to scour to this depth in time of high water, and to prevent undermining of the bridge the piles should be driven into the hard sand as far as bedrock.

If the piles are too hard to drive then they should be jettied down. This method, however should be avoided if possible so as not to destroy the lateral resistance of the piles. To protect the end of the piles from damage while driving the points should be fitted with a suitable form of steel driving shoe.

CONCLUSION

The subsoil on the site is good material for a timber pile foundation.

The piles should be driven to bedrock at an approximate elevation varying from 897.0 on the west bank to 893.0 on the east bank. The piles should be driven to this level as a precaution against undermining by scour. If driving is difficult the piles should be jettied down but care should be taken to see that the lateral resistance will not be destroyed.

A suitable form of steel driving shoe should be fitted to the end of the piles to prevent crushing or damage to the piles, during driving.

G. H. Farantatos,
Foundation Engineer.

APPENDIX I

GRAPH OF CONE PENETRATION TEST

No Blows / ft of Std Energy = 4200 lb-in
20 40 60 80

DATUM STA 2622+04 26' RT
Elev 928.4

DEPTH - FEET

0
2
4
6
8
10
12
14
16
18
20
22
24

END OF TEST 22'-9" 70 Blows for 9"
EI 905.6

HOILES CREEK

JOB F. 55-28

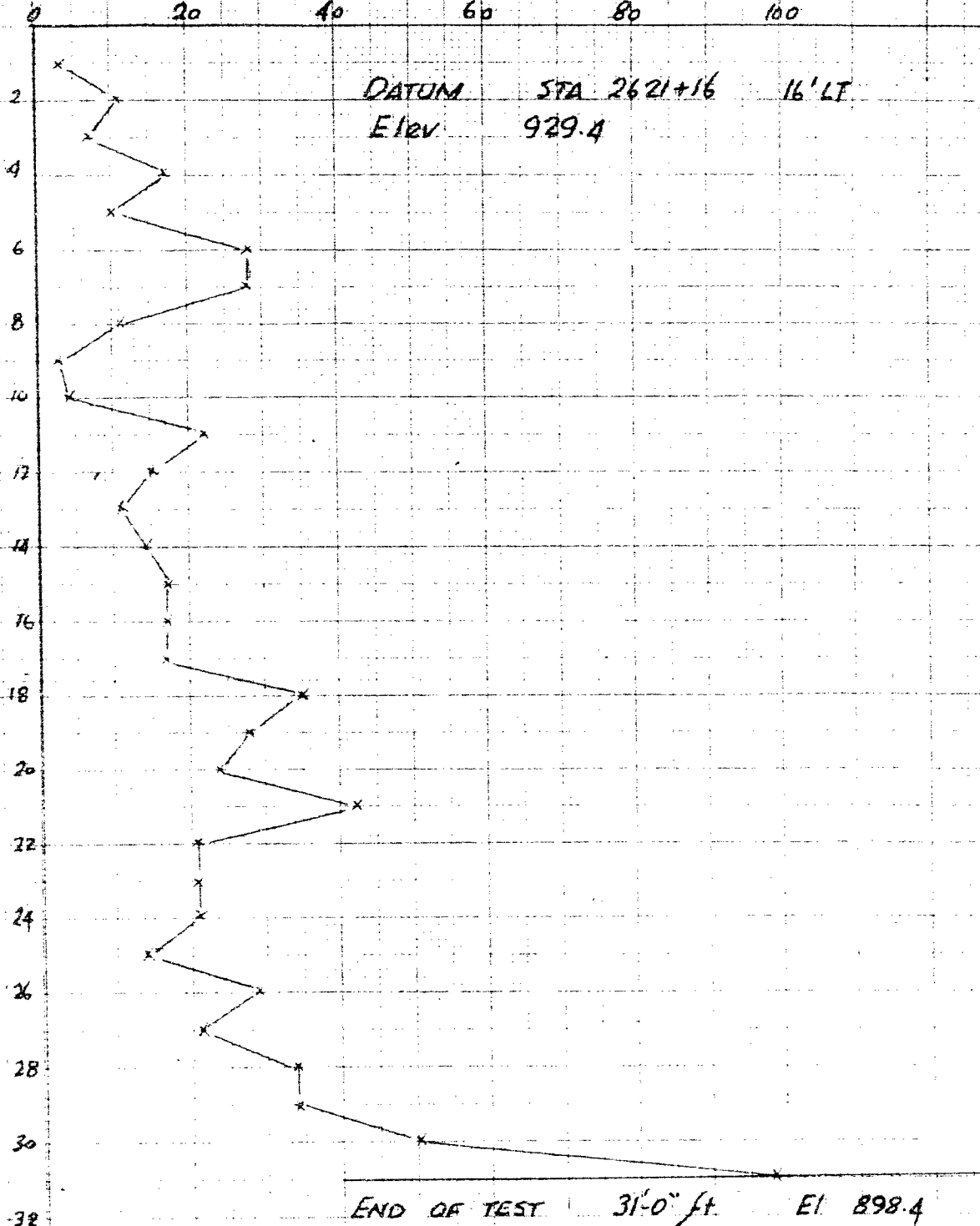
B.H #4

GRAPH OF CONE PENETRATION TEST

No of Blows at Std EA = 4200 lbs-in
20 40 60 80 100

DATUM STA 2621+16 16' LT
Elev 929.4

Depth - Feet



GRAPH OF CONE PENETRATION TEST

No of Blows at Std. En. 4200 16-in
20 40 60 80 100

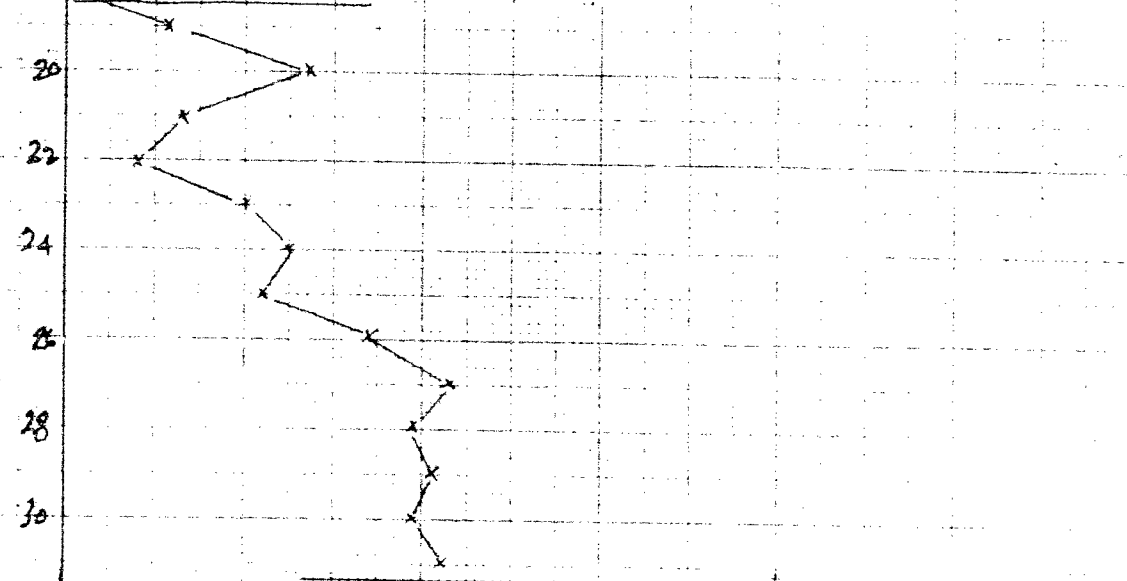
Bridge Deck

DATUM STA 2621+57
ELEV 929.7

9'-10" WATER LEVEL EL 919.9

Depth - feet

18'-7" RIVER BED EL 911.1



REFUSAL 31'-2" 29 BLOWS for 2"
51 898.5