

54F206

Our Reference:
 OF 7554, FD 299
 August 6th, 1954.

SOIL INVESTIGATION REPORT
 For
DEPARTMENT OF HIGHWAYS, CHICAGO
 (W. H. Dillon, Consulting Engineers.)
 at
ALABAMA AVE., BOSTON, ILL.

As requested we carried out a soil investigation on the proposed bridge site, Rochester 3 and 4.

REPORT OF INVESTIGATION

Nine penetration tests were performed at the locations shown on the location map. The results of these tests are shown on the accompanying drawings and are summarized as follows:

SUMMARY

E L E V A T I O N S

Hole No.	Ground Surface	Water Level	2,000 lbs per sq. ft.	4,000 lbs per sq. ft.	Refusal
1	873	866	871	871	862
2	873	866	871	869	853
3	874	866	870	869	855
4	875	866	871	861	853
5	876	866	873	873	858
6	876	866	872	872	858
7	874	866	871	870	861
8	872	866	871	871	862
9	875	866	870	869	858

Two auger borings were performed at holes #1 and #6, with the following results:

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Hole No. 1

Ground Surface Elevation - 879

0'	to	2'	Loamy very fine sand
2'	to	3'	Loamy very fine sand (Slightly Stony)
3'	to	5'	Loose broken gravel
5'	to	13'	Silty very fine saturated sand

Hole No. 6

Ground Surface Elevation - 876

0'	to	2'	Loamy very fine sand
2'	to	4'	Slightly loamy fine sand and gravel
4'	to	9'	Clean fine sand and gravel
9'	to	11'6"	Silty very fine wet sand
11'6"	to	32'	Silty very fine saturated sand

DISCUSSION

An examination of the percussion test summary table indicates that a safe bearing value of 4000 psf is reached in eight of the nine holes above elevation 869. An examination of percussion test diagram #4, however, indicates that a safe bearing value of 4000 psf is not reached until elevation 861, which is five feet below the water table. A bearing value of 4000 psf is reached in hole #4 elevation 870, but, unlike the other eight holes, the bearing val. decreases to 2000 psf at elevation 863.

CONCLUSION

The peculiar result of test #4, coupled with the fact that there is abundant evidence of springs to the West of this site, leads to the belief that basing footings at elevation 861 would probably prove difficult. Excavation below the water table in such sandy material would require shoring; furthermore, there is strong likelihood that boiling would occur in the bottom of such an excavation, leading to difficulties in basing concrete on stable soil. There is also the possibility of undermining of the Southwest portion of this abutment.

W. H. T. Wilson
W. H. T. Wilson, P. Eng.



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Our Reference:
OF 7554 PC 311
August 18, 1954.

CABLEGRAMS:
"FRANKIPILE"



TELEPHONE:
Hudson 8-9009

SOIL INVESTIGATION REPORT
for
DEPARTMENT OF HIGHWAYS, ONTARIO
(M. M. Dillon, Consulting Engineers.)
at
HIGHWAY 401, DORCHESTER #3 & #4.

As requested we carried out a further soil investigation at the proposed bridge site Dorchester #3 and #4 on Highway 401.

REPORT OF INVESTIGATION

Two additional percussion tests were performed at the locations shown on the location sketch. The results of these tests are shown on the accompanying diagrams and are summarized as follows:

S U M M A R Y

E L E V A T I O N S

Hole No:	Ground Surface	2,000 lbs per sq. ft.	4,000 lbs per sq. ft.	Refusal	No. of Blows
10	876	873	872	861	200 for 5"
11	876	871	871	857	200 for 8"

DISCUSSION

The good results obtained on these two holes indicate that the condition encountered at Hole #4 of PC 299 must be of a local nature. It would appear that the footings could be designed as per the report PC 299. Though particular care should be exercised when excavating in the vicinity of Hole #4.

Further work done under PC 300 at the site of the proposed culvert at Dorchester #5 shows that the water found at elevation 866 on this site does not flow to the lower ground owing to a layer of impervious material.

August 18, 1954.

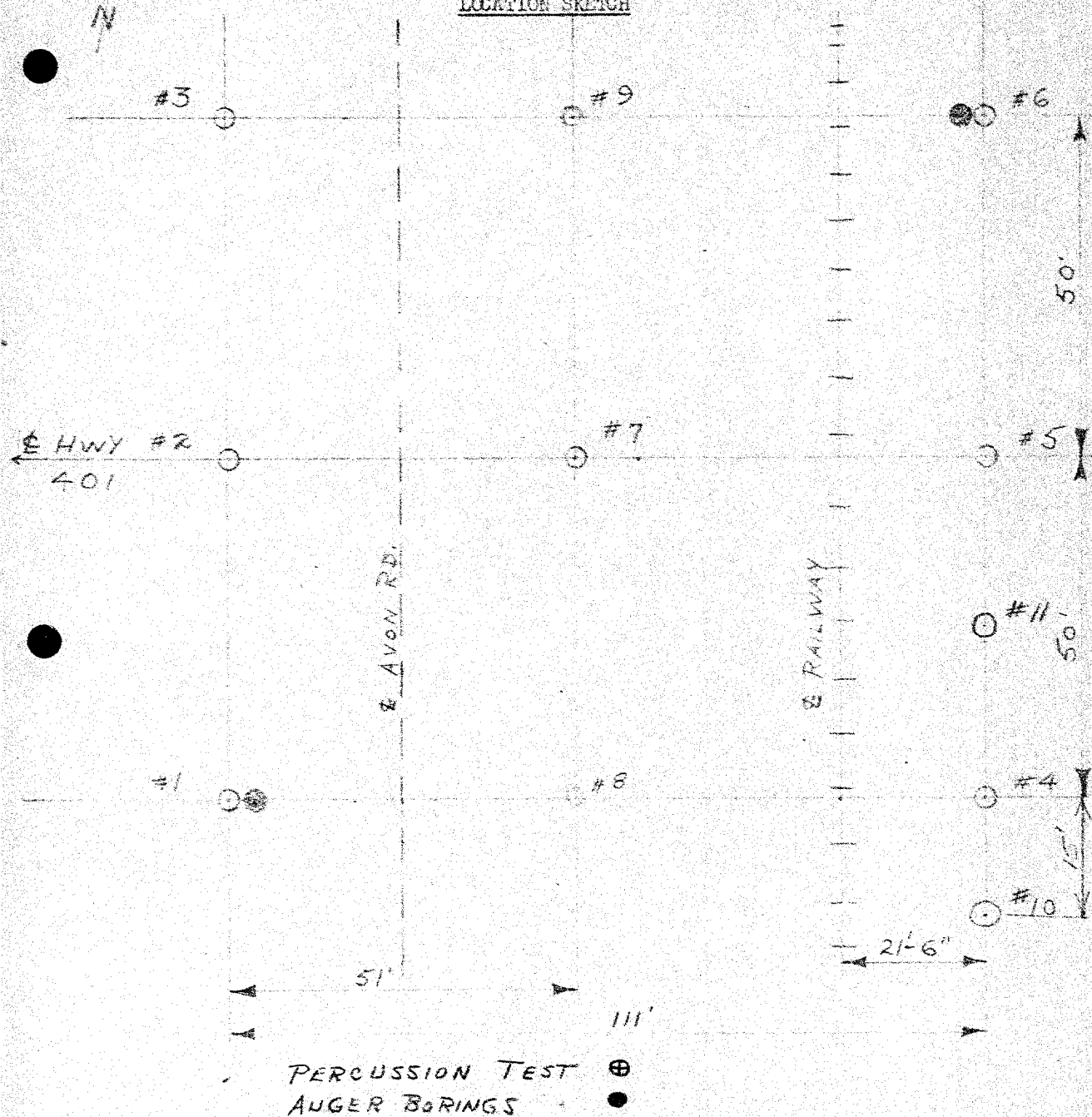
- 2 -

However, this condition may be changed by work at the culvert site allowing the water to escape. Care should be exercised to see that any major change in the ground water conditions does not have a deleterious effect on either of the structures or on the approach fills.

The use of sand drains might be considered to ensure that consolidation due to the changed conditions would take place rapidly.

WHT Wilson
W. H. T. Wilson, P. Eng.

LOCATION SKETCH



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PERCUSSION TEST DIAGRAM

FOR: DEPARTMENT OF HIGHWAYS

AT: HIGHWAY 401, DORCHESTER #3 & #4.

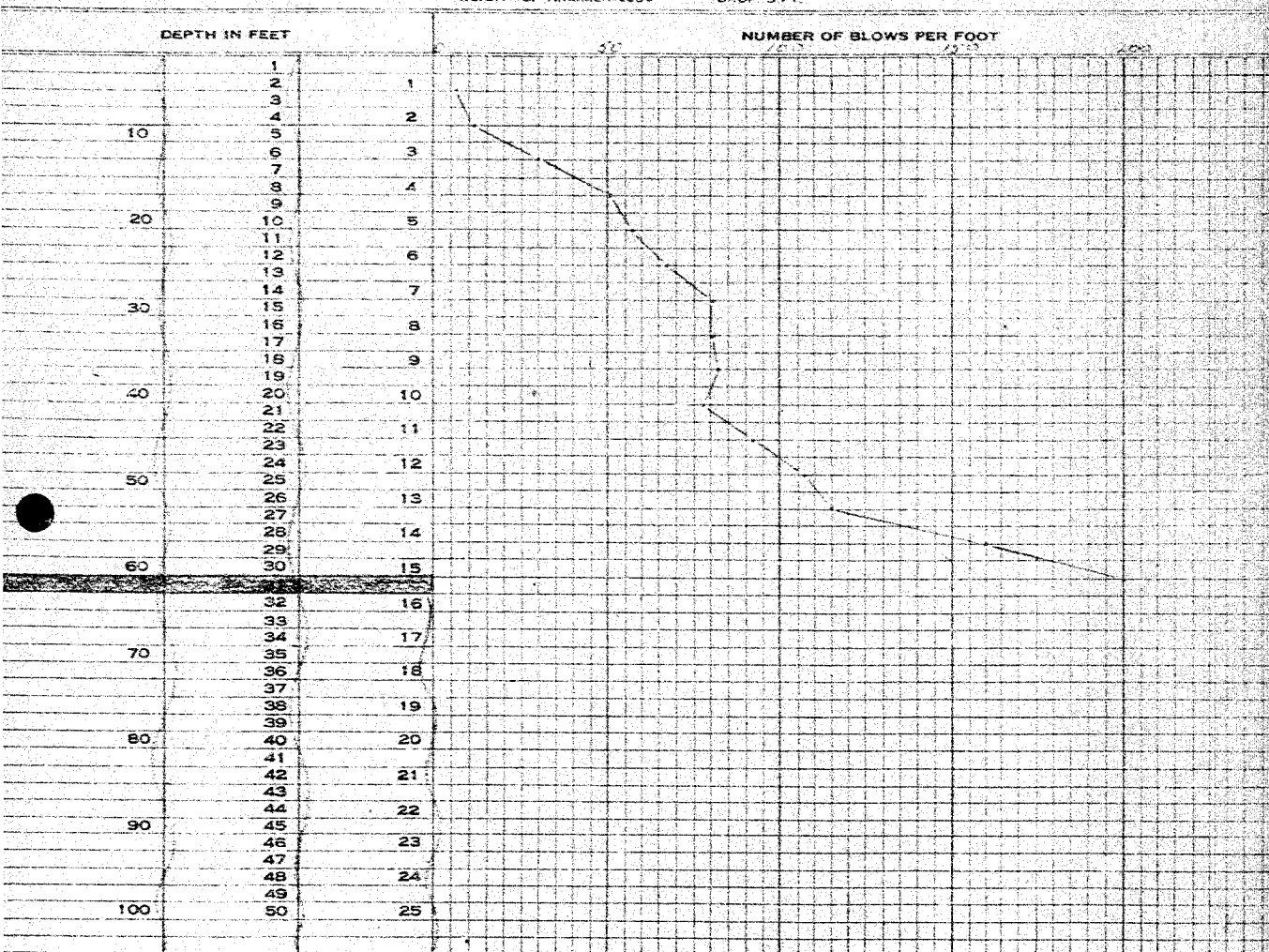
JOB NO. FC 311

DATE: AUGUST 14, 1954.

TEST NO.: 10

WEIGHT OF HAMMER 225#

DROP 3 FT.



Ground Surface Elevation 876
Refusal Elevation 861
Number of Blows 200 for 5"

SIGNED

W.H. White

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PERCUSSION TEST DIAGRAM

FOR: DEPARTMENT OF HIGHWAYS

AT: HIGHWAY 401, DORCHESTER #3 & #4.

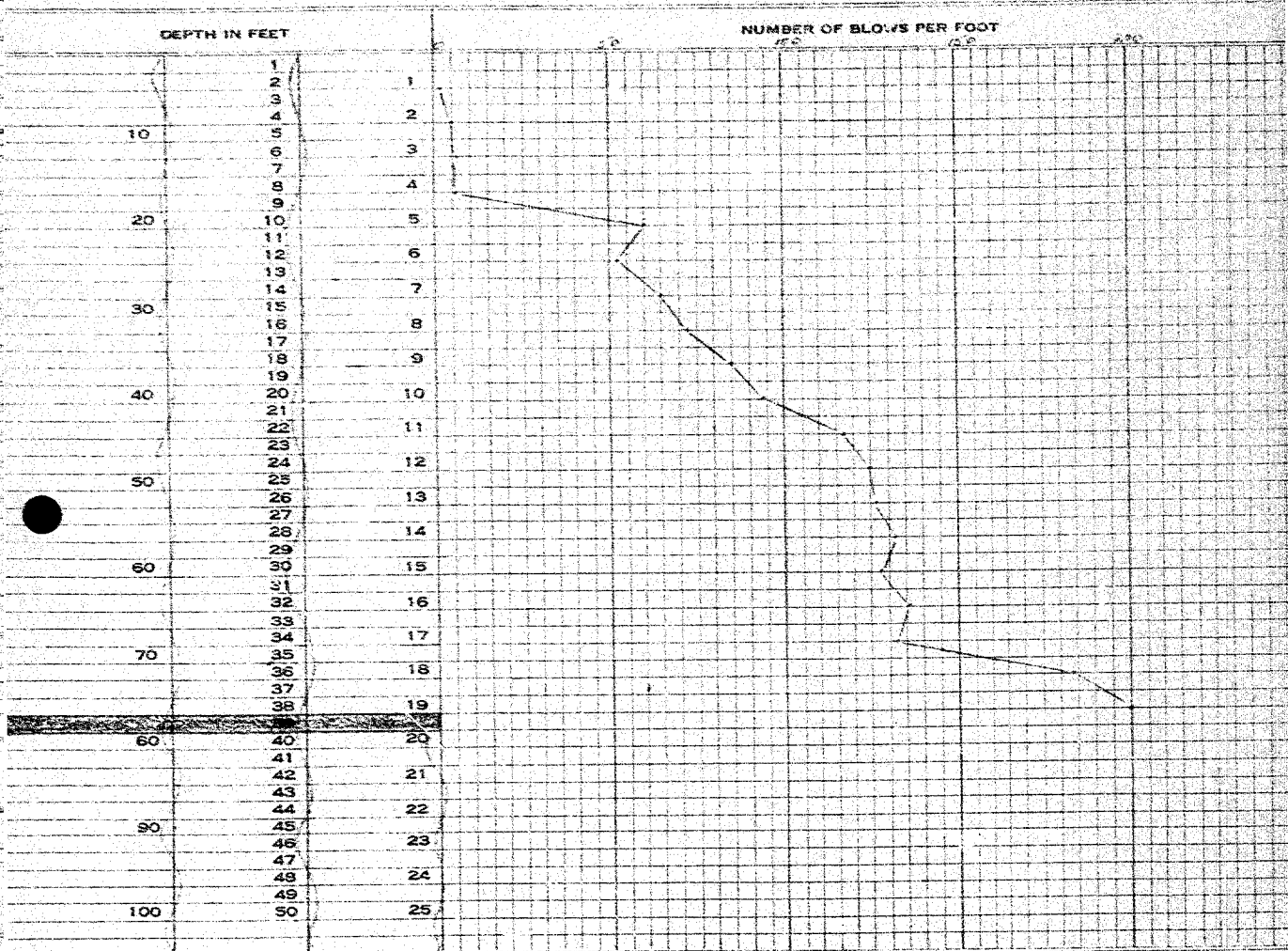
JOB NO. PC 311

DATE: AUGUST 13, 1964.

TEST NO.: 11

WEIGHT OF HAMMER 325#

DROP 3 FT.



Ground Surface Elevation 876
Refusal Elevation 857
Number of Blows 200 for 8"

SIGNED

W.H. White

54-F-206C

Hwy. #401

DORCHESTER #3+4

