

Mr. A. M. Toye,  
Bridge Engineer.  
Materials and Research Division,  
(Foundation Section)

February 27, 1962.

REVIEW OF SOILS REPORT BY  
RAYMOND CONCRETE PILE CO., and  
COUNTY PLAN.

Attention: Mr. K. L. Kleinsteinber,  
Municipal Bridge Liaison Engr.

Re: Reconstruction of DeHart's Bridge,  
Whitby Twp., Lot #24, Con. VII,  
County of Ontario.

We have reviewed the Plan and Foundation Report for  
the above project. Our comments are as follows:-

The soils consultant has made no specific recommendations with regard to a suitable method of dewatering the excavations. We have discussed this matter with him and find that he is uncertain as to whether or not a wellpoint method would be successful in the fine-grained subsoil. Our experience has shown that such a material can be successfully dewatered by this means, provided that a proper technique utilizing suitable filters, is employed. An alternative method would be to drive interlocking sheet piling to a depth below the footing base equal to the height of the water table above it.

If you have any further queries in connection with  
this project, please contact this Office.

KGS/MdeF

cc: Foundations Office  
Gen. Files.

A. G. Stermac,  
PRINCIPAL FOUNDATION ENGR.  
Per:

*K. G. Selby*  
(K. G. Selby,  
SR. PROJECT FOUNDATION ENGR.)



ONTARIO

DEPARTMENT OF HIGHWAYS

Bridge Division.

Memo to Mr. A. Stermac,  
Principal Foundation Engineer,  
Materials & Research Section,  
Room 107, Lab. Building.  
From G. C. E. Burkhardt

Date February 10, 1962.  
Subject County of Ontario, Con. VII  
Reconstruction of  
DeHart's Bridge, Lot 24  
Twp. Whitby Report File BA1355

We are enclosing, herewith, a copy of the Foundation Report, by Raymond Concrete Pile Company Limited, and a copy of plans for your comments.

We intend to approve the plans in the near future. No major changes in the overall design of the structure will be incorporated in our approval.

GCEB/ea

*G. C. E. Burkhardt*  
G. C. E. Burkhardt,  
for K. L. Kleinsteinber,  
Municipal Bridge Liaison Engineer.

*Heu:*

*File 22.1962*

*agp*

MAILING ADDRESS  
P.O. Box 216, Postal Station "K"  
TORONTO 12, ONT.



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UNIVERSITY 6-6871

# RAYMOND

CONCRETE PILE COMPANY, LIMITED

HIGHWAY NO. 7, UNIONVILLE, ONTARIO

293-2486

TELEPHONES

364-3644

61-F-258M

## SOIL INVESTIGATION REPORT

**PROJECT:** Proposed Bridge Reconstruction

**SITE:** DeHart's Bridge  
Concession 7, Whitby Township

**CLIENT:** County of Ontario  
Whitby, Ontario.

**TOPOGRAPHY:** At the time of the field work, a location plan and profile were supplied by the County. Elevations were supplied, based on a bench mark as shown on the borehole location plan.

**DATE OF FIELD WORK:** 21 November to 22 November 1961

**OUR JOB NUMBER:** Raylin B-1230-2

**CLIENT'S PROJECT NUMBER:** B - 68

**DATE OF REPORT:** 1 December 1961.

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### INTRODUCTION

Two boreholes were made by the Raymond Concrete Pile Co. Ltd. at the above site, for purposes of evaluating soil conditions for foundation design of the proposed bridge construction.

The borings were made by standard exploratory techniques, using 2½" casing. The Standard Penetration Test was performed every 2 to 3 feet to a depth of 15 feet, and at 5 foot intervals thereafter.



### INTRODUCTION - Continued

A record was kept of the number of blows required to drive the 2" O.D. Sampling Spoon one foot, using a 140 lb. weight falling freely 30 inches. Soil samples were obtained after completion of each driving test.

Ground water levels were not observed. However, due to the granular nature of the soil deposits and nearness of the stream, for all intent and purpose the ground water level would be that of the stream.

### SOIL CONDITIONS

Soil conditions observed at the two locations were similar and are loose to dense brown gravelly sand underlying 6 inches to 2'-4" of topsoil, extending to a depth of 8.5 feet below ground surface. Underlying the brown sand is a dense very silty fine grey sand, extending to completion of both boreholes. At the location of borehole #2 the grey sand extended to elevation 40, at which depth the N value is recorded as 100 blows for 9 inches, or practical refusal.

### CONCLUSIONS

Assuming that the bridge foundations will be placed some 3 to 4 feet below present creek bottom, this would place the bottom of the foundation at approximate elevation 51.

Below elevation 54 foundations will be in the dense grey sand having an average minimum N value of 26, this being based on borehole #1. With an N value of 26, and making reference to Terzachi and Peck, a soil bearing value of 4000 pounds per square foot is recommended with a maximum allowable settlement of 1 inch.

CONCLUSIONS - Continued

It is pointed out that with the deposits being sand, as excavations are taken below the ground water level, water problems will arise, and if a differential hydrostatic head is formed, a possible "quick" condition will be formed. This condition should not be allowed, since it will affect and reduce the above bearing value.

RAYMOND CONCRETE PILE COMPANY LIMITED

*James Hodd*

jh/c

James Hodd, P. Eng.  
Manager - Soil Investigation Department

# RAYMOND

CONCRETE PILE COMPANY LTD.

## LOCATION PLAN

To COUNTY OF ONTARIO

Date

NOVEMBER

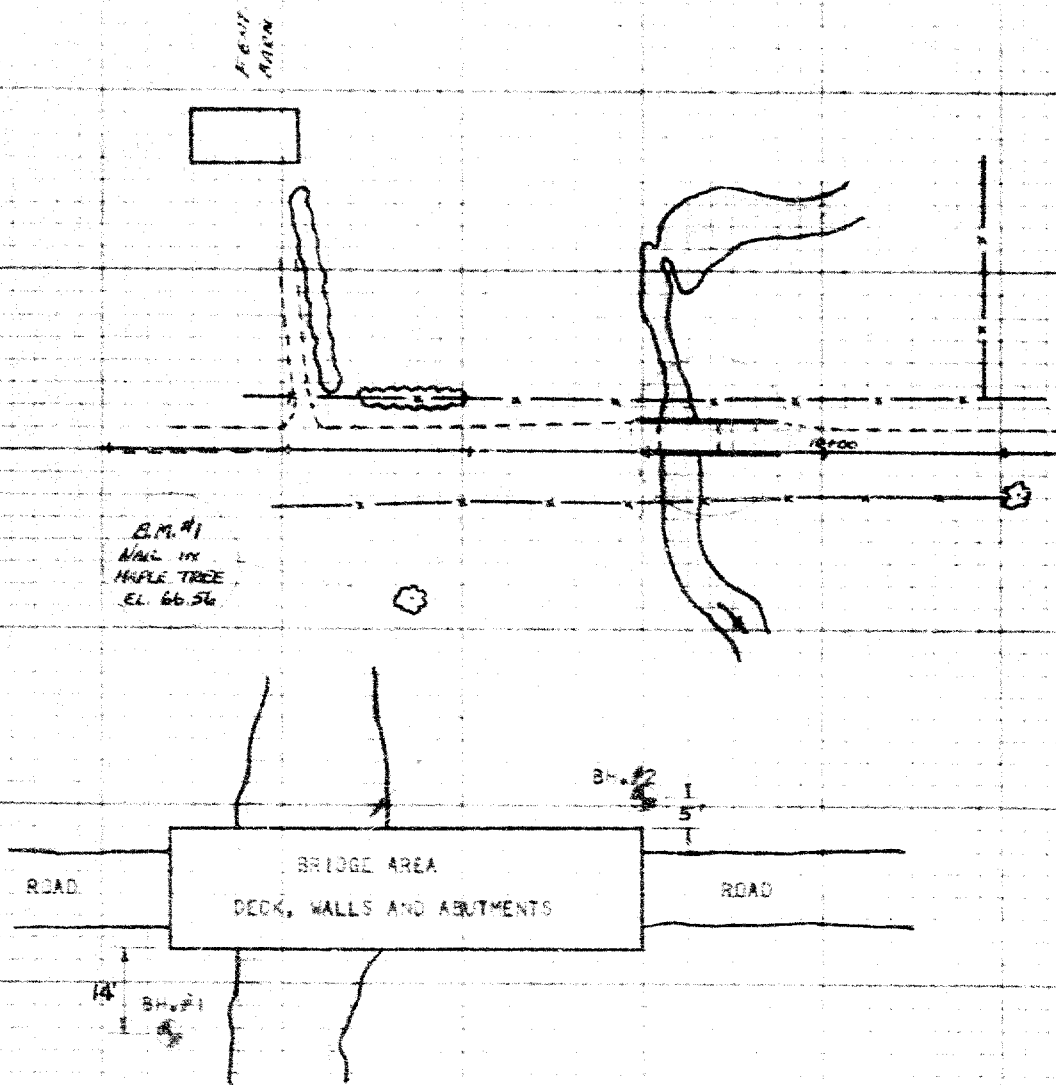
19 61

Address WHITBY, ONTARIO

Project B-68 DEHART'S BRIDGE

CON. 7, TOWNSHIP OF WHITBY

SCALE 1" = 100'



Compass Points

SCALE 1" = 30'



This boring report prepared in the  
 TORONTO OFFICE of the  
 Raymond Concrete Pile Company Ltd.

By J. HODG  
 Job No. B-1230-T  
 Page 60

# TEST BORING REPORT

## RAYMOND

CONCRETE PILE COMPANY LTD.  
SOIL TEST DIVISION

To COUNTY OF ONTARIO

Date

NOVEMBER1961Job No. B-1230-YLocation of Borings DEHART'S BRIDGE, CON. 7, WHITBY TOWNSHIPAll borings are plotted to a scale of 1" = 5 ft. using BENCH MARK AS SHOWN as a fixed datum.No. \_\_\_\_\_  
ELEVATIONNo. 1

No. \_\_\_\_\_

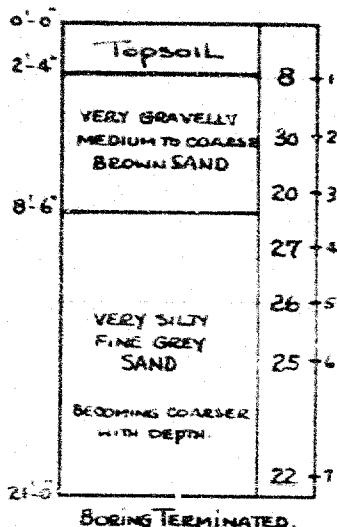
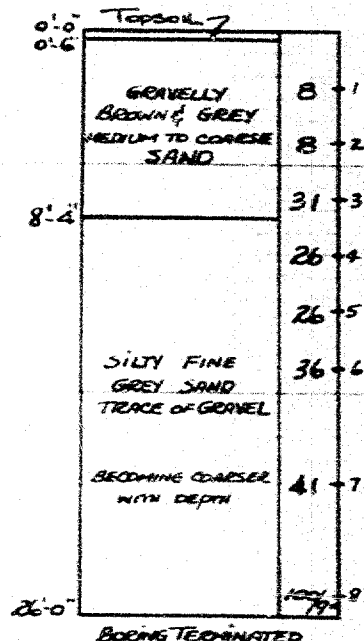
No. 2

70.0

60.0

50.0

40.0

CREEK WATER LEVELClassifications are made by VISUAL inspection.

Water levels (WL). Figure indicates time of reading (hours) after completion of boring. Water levels indicated are those observed when borings were made, or as noted. Porosity of the soil strata, variations of rainfall, site topography, etc., may cause changes in these levels.

Figures in right hand column indicate number of blows required to drive 2" O.D. sampling pipe one foot, using 140-lb. weight falling 30 inches.

Total Footage \_\_\_\_\_  
Foreman K. KITCHENER  
Classification by K. KITCHENER  
Sheet \_\_\_\_\_ of \_\_\_\_\_

#61-F-258m

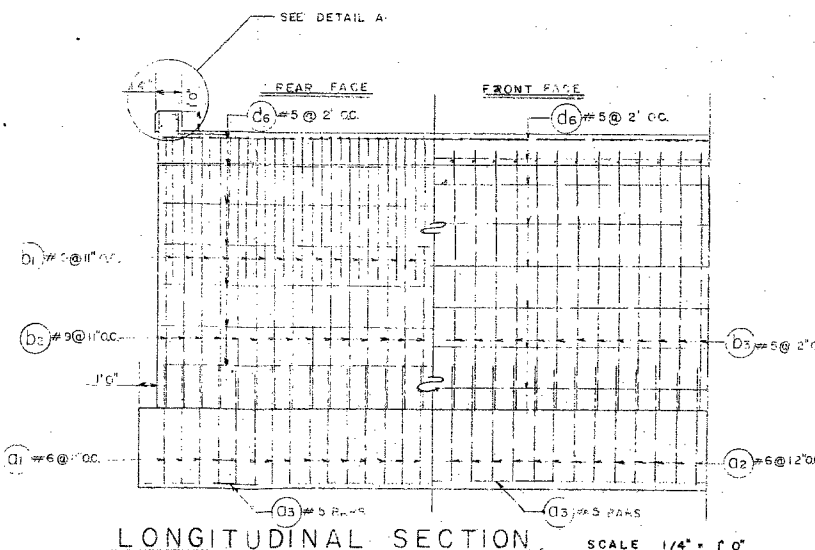
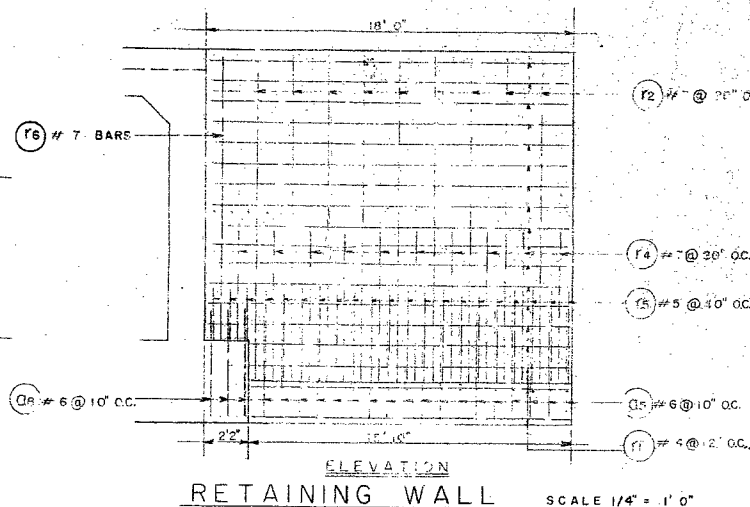
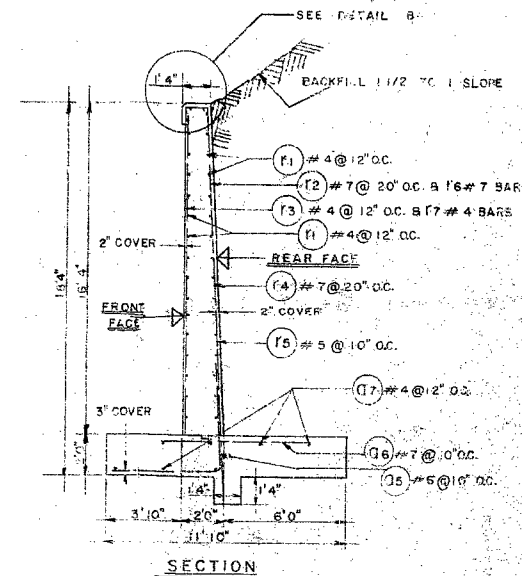
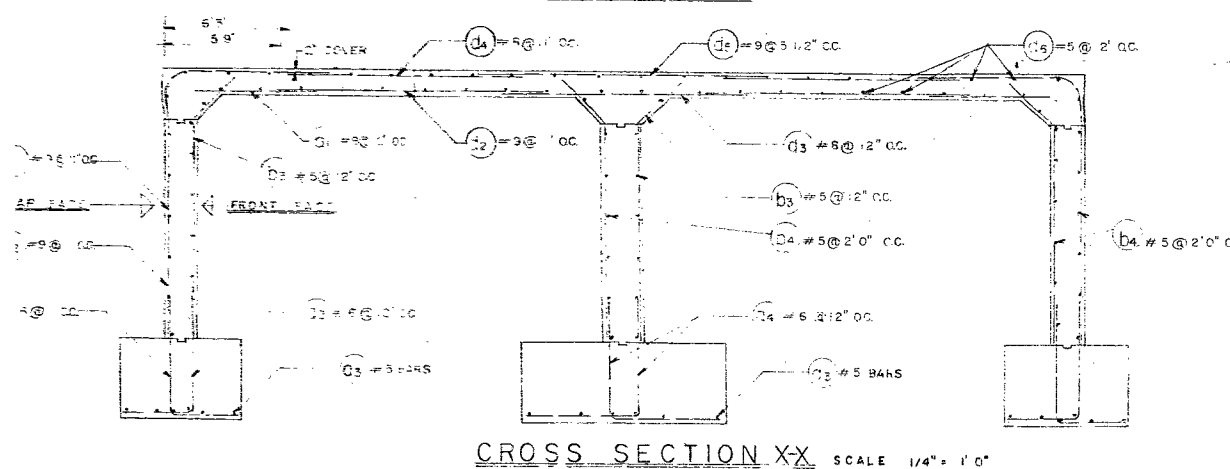
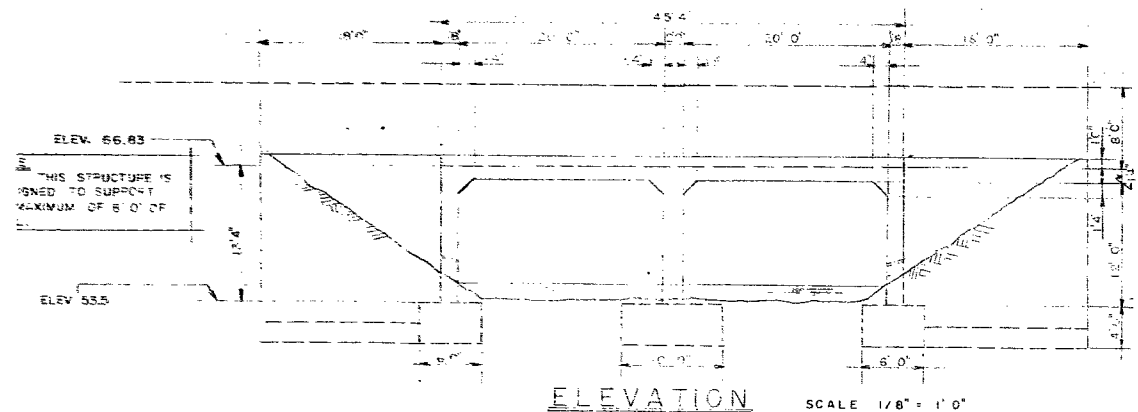
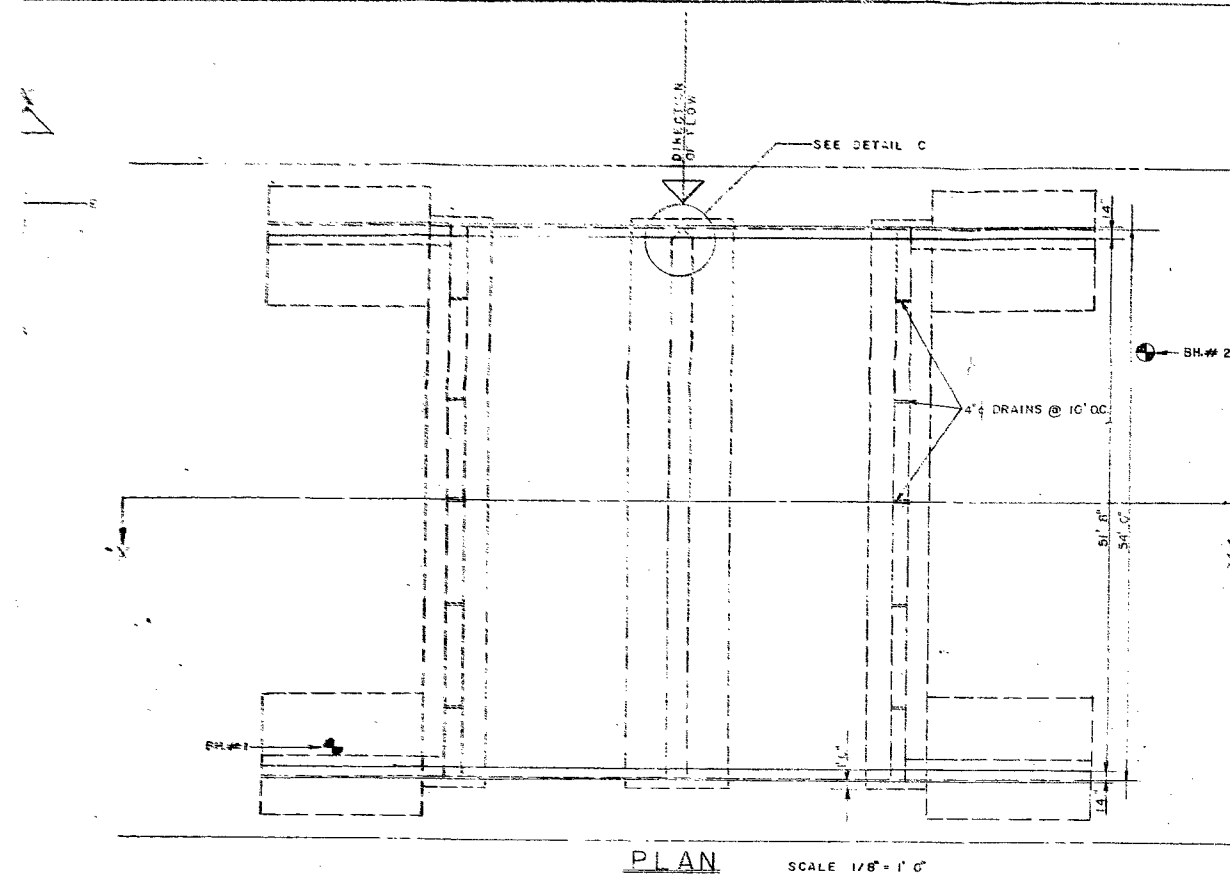
DEHART'S BRIDGE

LOT 24 CON. VII

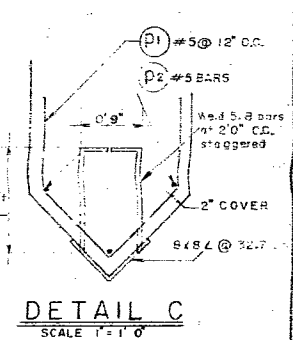
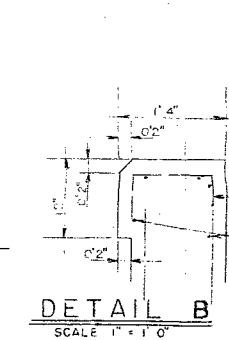
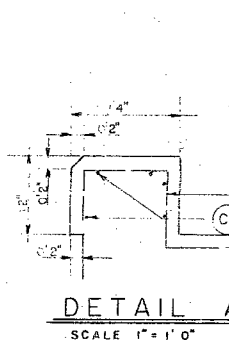
WHITBY

Twp.





| MARK                  | NO. | SIZE | LENGTH  | TYPE | A      | B      | C      | D     | E     | H     | K     | O | R | SHAPE | LOCATION                                       | DESCRIPTION                                      |
|-----------------------|-----|------|---------|------|--------|--------|--------|-------|-------|-------|-------|---|---|-------|--|--|
| <b>FOOTINGS</b>       |     |      |         |      |        |        |        |       |       |       |       |   |   |       |  |  |
| D1                    | 18  | #6   | 9' 2"   | 1    |        | 3' 5"  | 5' 9"  |       |       |       |       |   |   |       | END WALL FOOTING                               | BOTTOM OF FOOTING                                |
| D2                    | 18  | #6   | 9' 2"   | 1    |        | 3' 5"  | 5' 9"  |       |       |       |       |   |   |       | END WALL FOOTING                               | DO.  |
| D3                    | 36  | #6   | 28' 6"  | ST.  |        |        |        |       |       |       |       |   |   |       | WALL BARS FOOTING                              | DO.  |
| D4                    | 18  | #6   | 11' 5"  | 1    |        | 5' 6"  | 5' 9"  |       |       |       |       |   |   |       | PIER FOOTING                                   | DO.  |
| D5                    | 72  | #6   | 10' 5"  | 1    |        | 5' 5"  | 5' 1"  |       |       |       |       |   |   |       | RETAINING WALL FOOTING                         | DO.  |
| D6                    | 72  | #6   | 5' 3"   | ST.  |        |        |        |       |       |       |       |   |   |       | RETAINING WALL FOOTING                         | TOP OF FOOTING                                   |
| D7                    | 36  | #4   | 15' 9"  | ST.  |        |        |        |       |       |       |       |   |   |       | RETAINING WALL FOOTING                         | BOTTOM OF FOOTING                                |
| D8                    | 12  | #6   | 10' 11" | 1    |        | 5' 5"  | 5' 6"  |       |       |       |       |   |   |       | RETAINING WALL FOOTING                         | END OF WALL FOOTING TO BE IN BOTTOM OF RET. WALL |
| <b>WALLS</b>          |     |      |         |      |        |        |        |       |       |       |       |   |   |       |  |  |
| D1                    | 116 | #9   | 1' 4"   | 2    | 1' 10" | 5' 10" | 5' 10" |       |       |       |       |   |   |       | REAR FACE CULVERT WALL                         | ALTERNATING WITH D2                              |
| D2                    | 116 | #9   | 20' 7"  | 2    | 1' 10" | 5' 10" | 5' 10" |       |       |       |       |   |   |       | REAR FACE CULVERT WALL                         | ALTERNATING WITH D1                              |
| D3                    | 220 | #5   | 13' 9"  | 3    |        | 3' 6"  | 10' 8" |       |       | 2' 0" | 2' 0" |   |   |       | FRONT FACE CULVERT WALL                        | VERTICAL STEEL                                   |
| D4                    | 72  | #5   | 27' 6"  | ST.  |        |        |        |       |       |       |       |   |   |       | FRONT FACE CULVERT WALL                        | HIGH STEEL SHAPED AT CENTER OF WALLS             |
| <b>CURBS</b>          |     |      |         |      |        |        |        |       |       |       |       |   |   |       |  |  |
| C1                    | 100 | #5   | 5' 2"   | 4    |        | 1' 0"  | 1' 0"  | 2' 6" | 0' 8" |       |       |   |   |       | CURBS ON BECK                                  | ATTACHED TO DECK STEEL                           |
| C2                    | 20  | #5   | 23' 3"  | ST.  |        |        |        |       |       |       |       |   |   |       | DO.  | SPliced AT CENTER                                |
| C3                    | 44  | #5   | 3' 2"   | 5    |        | 1' 0"  | 1' 6"  | 0' 8" |       |       |       |   |   |       | RETAINING WALL CURB                            | ATTACHED TO CULVERT STEEL IN RETAINING WALLS     |
| <b>PIER</b>           |     |      |         |      |        |        |        |       |       |       |       |   |   |       |  |  |
| P1                    | 11  | #5   | 4' 8"   | 6    |        | 1' 2"  | 1' 2"  |       |       |       |       |   |   |       | CENTER PIER NORTH SIDE                         | REINFORCING FOR ICE BR.                          |
| P2                    | 3   | #5   | 10' 8"  | ST.  |        |        |        |       |       |       |       |   |   |       | DO.  | DO.  |
| <b>DECK</b>           |     |      |         |      |        |        |        |       |       |       |       |   |   |       |  |  |
| D1                    | 106 | #8   | 6' 0"   | ST.  |        |        |        |       |       |       |       |   |   |       | INTRADOS OF BECK                               | TIED TO D1 BARS                                  |
| D2                    | 212 | #9   | 13' 0"  | ST.  |        |        |        |       |       |       |       |   |   |       | INTRADOS OF BECK                               | DO.  |
| D3                    | 11  | #8   | 12' 0"  | ST.  |        |        |        |       |       |       |       |   |   |       | INTRADOS OF BECK                               | DO.  |
| D4                    | 12  | #8   | 11' 6"  | ST.  |        |        |        |       |       |       |       |   |   |       | EXTRADOS OF BECK                               | TIED TO D2 BARS                                  |
| D5                    | 117 | #9   | 14' 0"  | ST.  |        |        |        |       |       |       |       |   |   |       | EXTRADOS OF BECK                               | CENTERED OVER PIER                               |
| D6                    | 96  | #5   | 27' 6"  | ST.  |        |        |        |       |       |       |       |   |   |       | INTRADOS & EXTRADOS DECK                       | DO.  |
| <b>RETAINING WALL</b> |     |      |         |      |        |        |        |       |       |       |       |   |   |       |  |  |
| R1                    | 15  | #5   | 17' 6"  | ST.  |        |        |        |       |       |       |       |   |   |       | FRONT & BACK RET. WALL                         | VERTICAL   |
| R2                    | 36  | #7   | 16' 0"  | ST.  |        |        |        |       |       |       |       |   |   |       | REAR FACE RETAINING WALL                       | VERTICAL   |
| R3                    | 60  | #5   | 15' 6"  | ST.  |        |        |        |       |       |       |       |   |   |       | FRONT & BACK RETAINING WALL                    | DO.  |
| R4                    | 30  | #7   | 7' 6"   | ST.  |        |        |        |       |       |       |       |   |   |       | REAR FACE RETAINING WALL                       | ALTERNATE WITH R2                                |
| R5                    | 84  | #5   | 4' 4"   | ST.  |        |        |        |       |       |       |       |   |   |       | REAR FACE RETAINING WALL                       | SPACED BETWEEN R2 & R4                           |
| R6                    | 4   | #7   | 14' 0"  | ST.  |        |        |        |       |       |       |       |   |   |       | REAR FACE RETAINING WALL                       | VERTICAL   |
| R7                    | 8   | #4   | 13' 6"  | ST.  |        |        |        |       |       |       |       |   |   |       | FRONT FACE RETAINING WALL AT MAIN WALL FOOTING | DO.  |



DESIGN LOADING H20-S16-44 PLUS FILL AS NOTED

**DE HART BRIDGE**

FOR COUNTY OF ONTARIO—ENGINEERS OFFICE  
CON VII LOT 24 WHITBY TOWNSHIP

**DETAILS**

DEC. 20/61 AS NOTED

WB-28-2