

#60-F-276-C

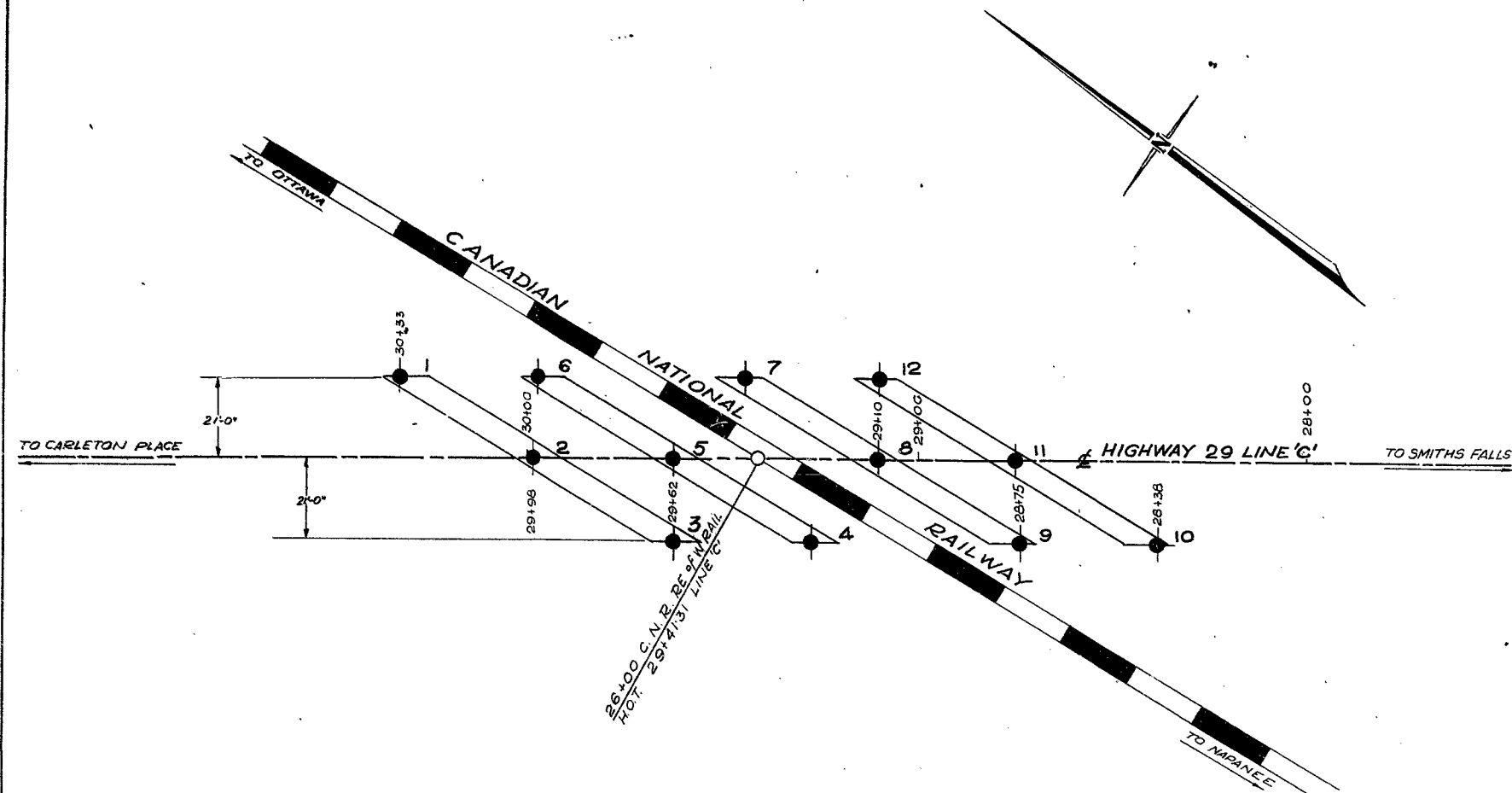
W.P.#271-60

HWY.#29, C.N.R.

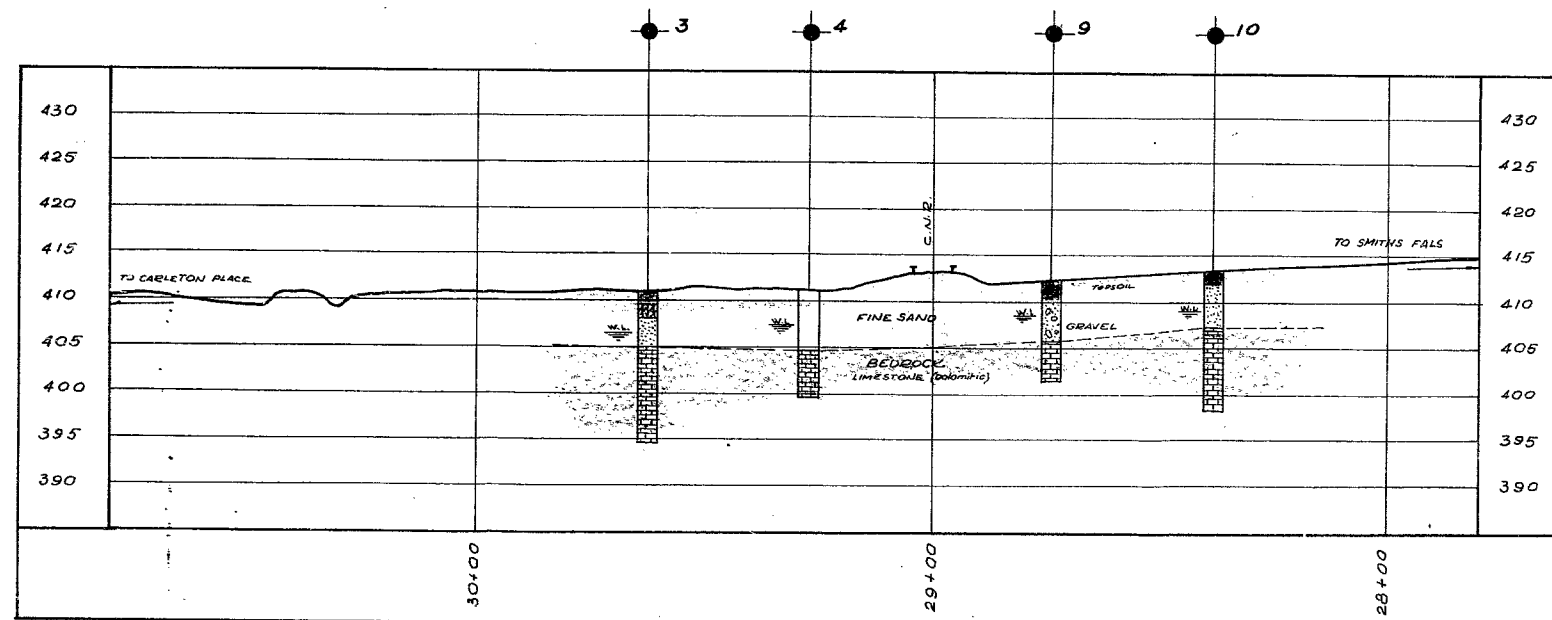
CROSSING - 0.6.

MI. N. OF

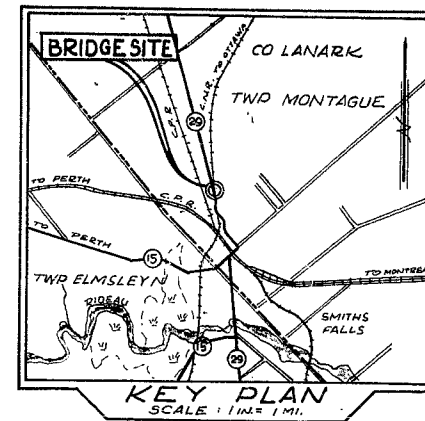
SMITH FALLS



PLAN
SCALE: 1 inch = 20 Feet



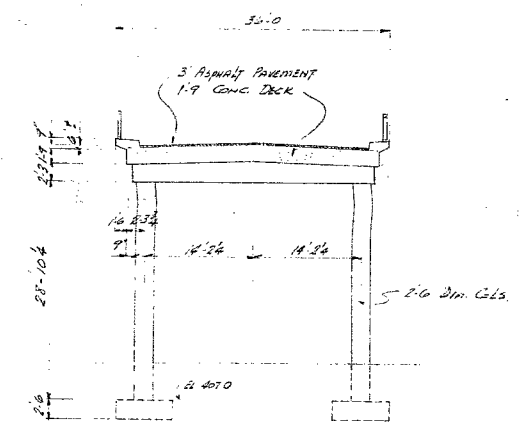
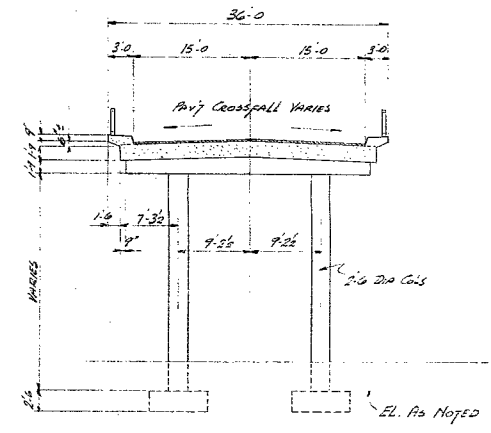
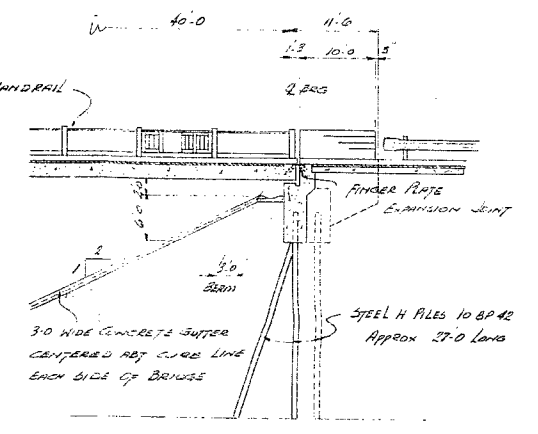
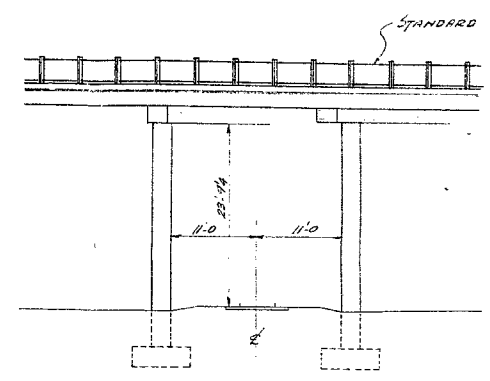
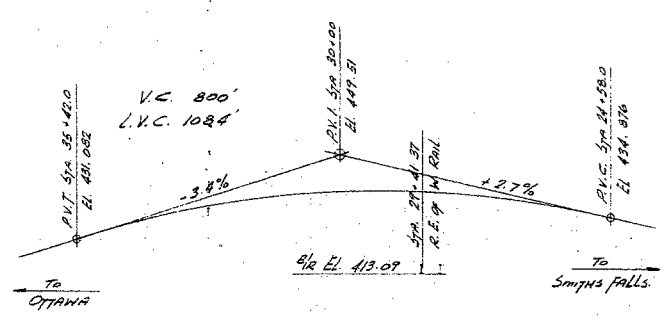
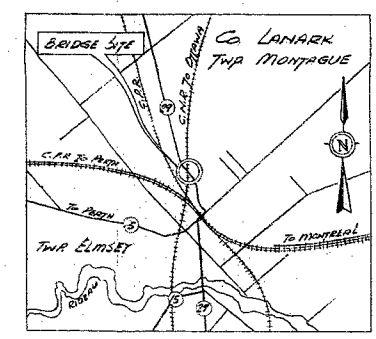
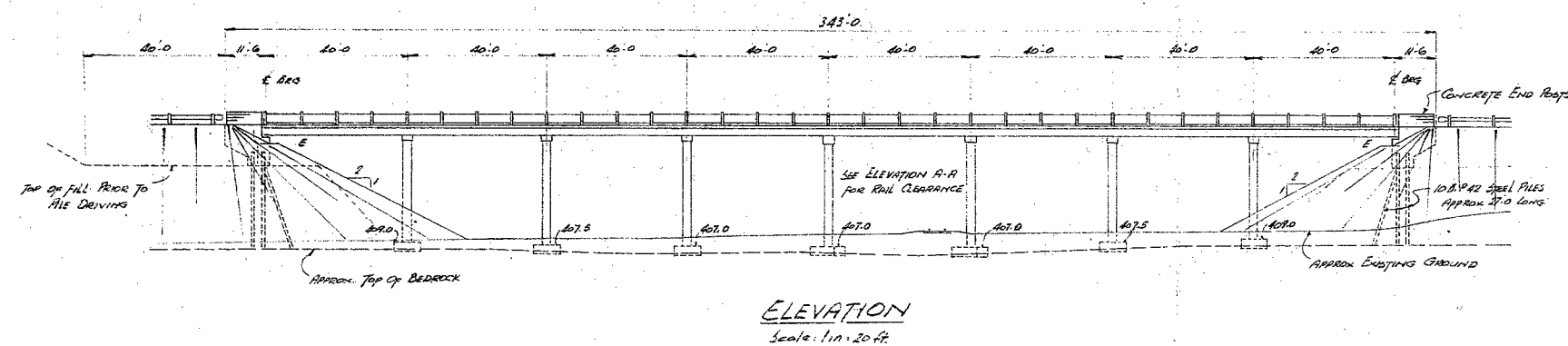
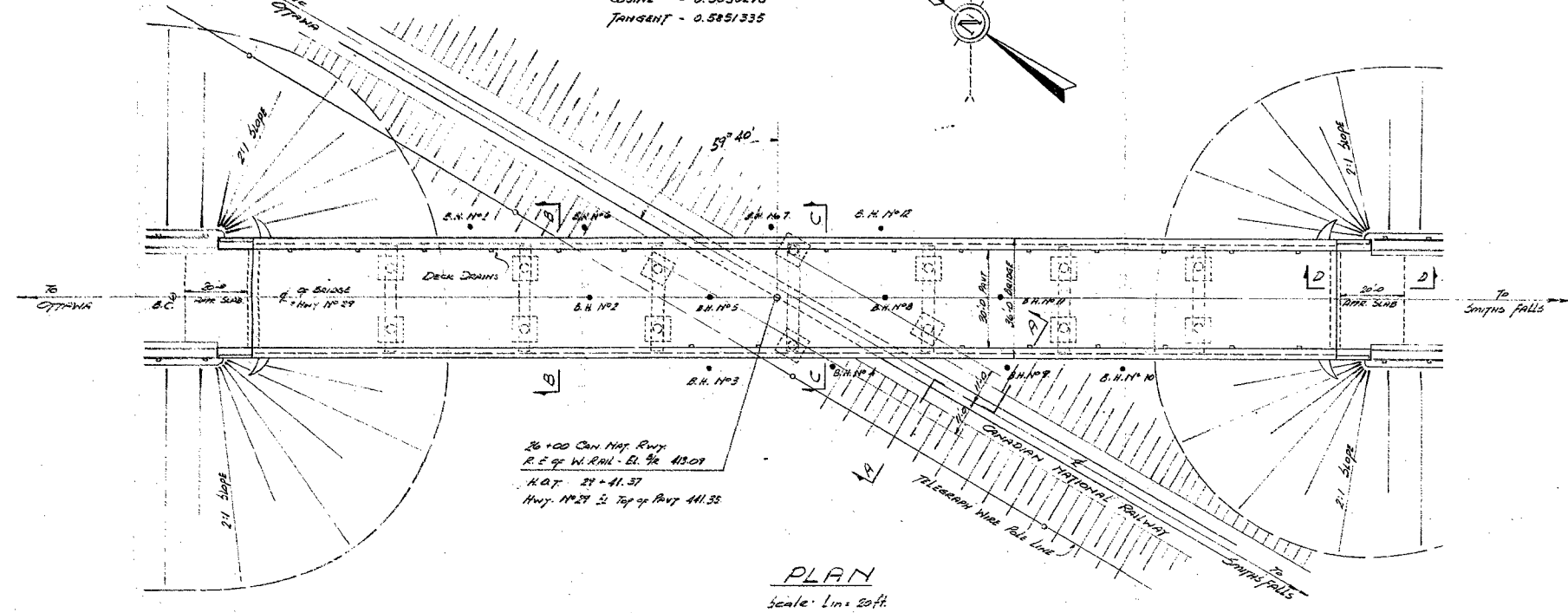
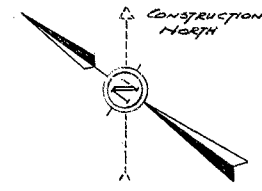
PROFILE
SCALE: HOR. 1 in = 20 Ft. VERT. 1 in = 10 Ft.



LEGEND	
BORE HOLE	
HOLE NO.	BEDROCK ELEVATION
1	406.2
2	405.3
3	405.0
4	404.9
5	406.3
6	405.1
7	405.5
8	404.5
9	405.8
10	407.2
11	407.1
12	406.1

FOUNDATION INVESTIGATION
PROPOSED CROSSING
AT C.N.R. & HWY. NO. 29
William A. Snow & Associates Ltd.

SKEN ANGLE - $59^{\circ}40'$
 SINE - 0.8631019
 COSINE - 0.5050298
 TANGENT - 0.5851335



NOTES
 DESIGN SPECIFICATIONS - C.S.A. 36-1952 AND
 A.S.S.H.O. SPECIFICATIONS FOR HIGHWAY BRIDGES.
 LIVE LOAD - H20-516
 CONCRETE STRENGTH - 3000 P.S.I. THROUGHOUT.
 CLEARANCES DURING CONSTRUCTION TO BE CONFIRMED.
 3 - 4" O.D. DUCTS TO BE PROVIDED ACROSS STRUCTURE
 FOR THE BELL TELEPHONE CO. - LOCATION TO BE CONFIRMED.
 NO PROVISION FOR LIGHTING HAS BEEN MADE ON THE STRUCTURE.
 REFER TO B.A.101 FOR COMPLETE SOILS REPORT.

REVISIONS	DATE	BY	DESCRIPTION
1	1961	AT	REVISED AS PER D.H.O. APPROVAL

DESIGN	CHS	CHECK	LJM
DRAWING	AT	CHECK	GJS
TRACING		CHECK	
DATE	MAY 29 1961	LOADING	516
		DRAWING NUMBER	D-4745-P6

W.P. 271-60

DE LEVIN CATHAR & COMPANY OF CANADA LTD.
 CONSULTING ENGINEERS
 OTTAWA

DEPARTMENT OF HIGHWAYS-ONTARIO
 BRIDGE OFFICE-TORONTO

MONTAGUE TWP. C.N.R. OVERPASS
 HIGHWAY NO. 29. SMITHS FALLS.

THE KING'S HIGHWAY NO. 29 DIST. NO. 9
 CO. LANARK
 TWP. MONTAGUE LOT 29 CON. V

PRELIMINARY DRAWING

APPROVED
 JUN - 1 1961

BRIDGE ENGINEER
 DESIGN ENGINEER

OFFICE LOCATION -
DOWNSVIEW AVE.,
KEELE ST. - HIGHWAY 401
TORONTO, ONTARIO.



ONTARIO
DEPARTMENT OF HIGHWAYS

POSTAL ADDRESS -
DEPARTMENT OF HIGHWAYS
PARLIAMENT BUILDINGS,
TORONTO 5, ONTARIO.

Bridge Division,
June 30, 1961.

MEMORANDUM TO:

Mr. L. Soderman,
Principal Soils & Foundation Engr.,
Department of Highways,
Materials and Research Section,
Downsview, Ontario.

RE: W.P. 271-60,
CNR Overhead,
0.6 Miles N. of Smith Falls,
Hwy. 29, District #9.

Attached is one copy of preliminary drawing
D 4745-P6 for the above structure.

The structure is founded on bedrock as re-
commended in the Foundation report.

SMC/mg

c.c. N. D. Smith.

S. McCombie

S. McCombie,
Bridge Planning Engineer.

NO COMMENT

Mr. A. M. Towne,
Bridge Engineer,
Materials & Research Division,
(Foundation Section).

January 4, 1962.

REVISION OF DRAWINGS --

Attention: Mr. J. B. Curtis.

Re: W.P. 271-60,
Montague Twp. C.N.R. Overhead,
0.6 mi. N. of Smiths Falls,
District No. 9.

We have reviewed the original cross-section drawing prepared by the Kingston Regional Road Design Office, and herewith, are submitting our recommendations for your consideration:-

Your bridge drawings should be revised in the light of the new available information. It is our opinion that the information presented on the drawings should be as precise as possible, and therefore, whenever additional information becomes available, it should be, if possible, incorporated in the design. This will eliminate undesirable discussions and claims during the actual construction operation.

Enclosed, we are returning the original cross-section drawing from Kingston Regional Road Design Office.

AGS/MdeF
Encl.

A. G. Stermac,
A. G. Stermac,
PRINCIPAL FOUNDATION ENGINEER

cc: Messrs. F. I. Hewson
N. D. Smith

Foundations Office ✓
Gen. Files.

OFFICE LOCATION -
DOWNSVIEW AVE.,
KEELE ST. - HIGHWAY 401
TORONTO, ONTARIO.



ONTARIO
DEPARTMENT OF HIGHWAYS

POSTAL ADDRESS -
DEPARTMENT OF HIGHWAYS
PARLIAMENT BUILDINGS,
TORONTO 5, ONTARIO.

Bridge Division,
January 3, 1961.

MEMORANDUM TO:

Mr. A. G. Stermac,
Principal Foundation Eng.,
Department of Highways,
Room 107,
Lab. Bldg.,
DOWNSVIEW, Ontario.

RE: W.P. 271-60
Montague Twp. C.N.R. O'Hd.
0.6 mi. N. of Smiths Falls
District No. 9

Enclosed find a memo dated December 29, 1961,
along with the original cross-section drawing as
received from Kingston Regional Road Design Office
indicating possible changes in the structure foot-
ings due to different bedrock elevations.

Would you kindly advise us whether or not we
should revise our drawings accordingly.

JBC/ea
cc. F. I. Hewson
N. D. Smith

J. B. Curtis,
Bridge Location Engineer.

OFFICE LOCATION

REGIONAL OFFICE,
1082A PRINCESS STREET,
KINGSTON, ONTARIO.
TELEPHONE - LI, 6-1729



ONTARIO

DEPARTMENT OF HIGHWAYS

POSTAL ADDRESS

DEPARTMENT OF HIGHWAYS,
P.O. BOX 373,
KINGSTON,
ONTARIO.

December 29th, 1961.

MEMORANDUM FOR:

J. Curtis,
Road Design Section,
Department of Highways,
Parliament Bldgs.,
Toronto, Ontario.

RE: W.P. 271-60, C.N.R. Overhead at Smiths Falls

Attached please find one roll of original cross sections
at the proposed pier locations.

The rock line as shown in red on the drawing has been
interpolated from borings taken by the William Trow Foundation
Investigation Consultants and the Regional Soils Branch.

The areas shaded blue represent revised elevations for
pier footings established by this office and are herewith
submitted for your approval.

A handwritten signature in cursive script, appearing to read "R.T. Molaro".

R.T. MOLARO

G.H. BOOTH
PROJECT DESIGN SUPERVISOR
RTM/ss

Att'd.

Mr. A. M. Toye,

August 3, 1960.

Bridge Engineer.

FOUNDATION INVESTIGATION REPORT

Materials & Research Section.

by: William A. Trow & Assoc., Ltd.

Attention: Mr. S. McCombie.

Re: Proposed Crossing of C.N.R. - 0.6 Mi.
North of Smiths Falls, Ont., Dist. 8.
W.P. 271-60.

The foundation report for the above site, prepared by W. A. Trow & Associates, accompanies this memo. As indicated in the report, no foundation problems exist since the foundation will be founded directly on bedrock.

If further queries arise in connection with this report, please contact the Foundation Section.

L. G. Soderman,
PRINCIPAL FOUNDATIONS ENGR.

Per:

L. G. Soderman
(K. Peaker,
FOUNDATION FIELD SUPERVISING ENGR.)

KP/ndef
Attach.

cc: Messrs. A. M. Toye (2)
H. A. Fregackes
D. C. Hamby
J. Ford
T. A. Sharpe
J. E. Crispier
A. Watt

Foundations Office
Gen. Files.

WILLIAM A. TROW AND ASSOCIATES LTD.

SITE INVESTIGATIONS
LABORATORY TESTING
SOIL MECHANICS CONSULTATION

23-62-130

BA 1101

W. A. TROW, M.A.S.C., M.E.I.C., P.ENG.

1850 JANE ST.,
WESTON, ONT.
CH. 1-4644

Project: J 552

July 28, 1960

Mr. A. Rutka,
A/Materials and Research Engineer,
Department of Highways of Ontario,
Parliament Buildings,
Toronto 2, Ontario

Attention: Mr. L.G. Soderman
Principal Soils & Foundations Engineer

Re: Foundation Investigation
Proposed Crossing of C.N.R. W.P. 271-60
0.6 Mi. North of Smiths Falls, Ontario

Dear Sirs:

In response to your request of July 8, 1960 we have carried out an investigation of the subsoil conditions at the above site. Bedrock exists at a depth of only 5 to 7 feet at this location. In view of these excellent foundation conditions we limit our report to this brief covering letter.

Drawing 1 has been prepared to indicate the exact positions of the 12 borings put down in this investigation. The logs of each borehole are presented as drawings 2 to 13. An estimated subsoil stratigraphy of the site has been prepared from these boring records and is included on drawing 1. This drawing also contains a table of bedrock elevation at each borehole position.

Thin deposits of topsoil; dry sandy, clayey, silt; and fine sand overly the rock. Only the topsoil need be removed from the approach embankment areas. No embankment stability problems exist and these approaches can be constructed at any convenient stage in the project.

-2-

Bedrock consists of limestone and dolomite in a generally sound condition. Some shallow fractures or irregularities may be encountered on the surface of this rock but these will be limited in area. The sound rock is capable of withstanding foundation pressures in excess of 25 tons per square foot.

A perched water table exists in the fine sand above bedrock. The supply of water is limited by the surface features of the area. Because of this, no excavation difficulties can be foreseen.

Should any questions come to mind regarding this work or the foregoing comments, please call. Thank you for the opportunity to serve you on this project.

DHS/gc
Encls.



Yours very truly,

A handwritten signature in cursive script that reads "D. H. Shields".

D.H. Shields, P.Eng.

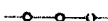


WILLIAM A. TROW & ASSOCIATES LTD.

SITE INVESTIGATIONS SOIL MECHANICS CONSULTATION




DRAWING No 2
PROJECT No J552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 


SHEAR STRENGTH

UNDRAINED TRIAXIAL AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 




NATURAL MOISTURE CONTENT AND LIQUIDITY INDEX

ATTERBERG LIMITS

LIQUID LIMIT 

PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE NO. 1
PROJECT Highway 29 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 411.2
DATUM Base of west rail C.N.R. at point of intersection = 413.1 from D.H.O.


SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT LB BLOWS/FT 80			
	Ground Surface	411.2								
	Topsoil									
	Brown sandy silt-clay, dry	410.3								
	Brown, fine, slightly silty sand	408.7								
		407.7								
		406.2								
	Bedrock - dolomitic limestone- 100% recovery									
			10							
	End of Hole	395.6								
			20							
			30							
			40							


Notes: 1) Uncased, hand auger hole
put down adjacent drill
hole to obtain samples of
overburden
2) Water level recorded after
6 days


SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION

DRAWING No. 3
PROJECT No. J552

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 

2" I.D. SHELBY TUBE 

2" DIA. CONE 

UNDRAINED TRIAXIAL ⊕
AT OVERBURDEN PRESSURE
UNCONFINED COMPRESSION ⊗
VANE TEST AND SENSITIVITY (S) ⊕

NATURAL MOISTURE CONTENT AND LIQUIDITY INDEX





LIQUID LIMIT

PLASTIC LIMIT

SAMPLE TYPE

2" O.D. SPLIT TUBE.....
2" I.D. SHELBY TUBE.....
3" O.D. SHELBY TUBE.....

BOREHOLE NO. 2
PROJECT Highway 29 Overhead
LOCATION Sedalia Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 410.6
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE		350 FT. LB. BLOWS/FT. 50	NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40				
	Ground Surface	410.6	9.7						
	Topsoil	408.1							
	Brown silty, silt-clay, dry	407.0							
	Brown fine sand	405.3							
	Bedrock - 83% core recovery	403.3	10						
	End of Hole								
			40						

Notes: 1) Water level recorded after 6 days


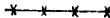

WILLIAM A. TROW & ASSOCIATES LTD.

SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION




DRAWING No 4
PROJECT No J552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH

UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S)  ⁵




NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX

ATTERBERG LIMITS




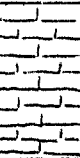
LIQUID LIMIT 

PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No 3
PROJECT Highway 29 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 410.5
DATUM See Hole 1

SYMBOL	SOIL DESCRIPTION	ELEV. FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT. LB BLOWS/FT. 80			
	Ground Surface	410.5	0	SHEAR STRENGTH						
	8 ins. topsoil	409.8	408.2							
	Brown slightly sandy silt-clay, dry	406.9								
	Brown fine sand	405.0								
	Bedrock, dolomitic limestone - 100% recovery		10							
	Bot of Hole	394.8								
	Notes: 1) Uncased hand auger hole put down alongside borehole to obtain samples of overburden 2) Water level recorded after 6 days		20							
			30							
			40							




WILLIAM A. TROW & ASSOCIATES LTD.

SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION




DRAWING No 5
PROJECT No 1552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT AND LIQUIDITY INDEX



ATTERBERG LIMITS

LIQUID LIMIT 
PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No. 4
PROJECT Highway 29 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 411.3
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT. LB. BLOWS/FT 80			
	Ground Surface	411.3	0							
	Drilled AX casing-no samples recovered 	407.6								
		404.9								
	Bedrock-bolonic limestone- 94% recovery		10							
	End of Hole	399.4								
	Notes: 1) Water level recorded after 5 days		20							
			30							
			40							

WILLIAM A. TROW & ASSOCIATES LTD.

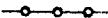
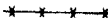

SITE INVESTIGATIONS SOIL MECHANICS CONSULTATION

DRAWING NO. 6




PROJECT NO. J552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH

UNDRAINED TRIAXIAL
AT CYCLOADEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX

ATTERBERG LIMITS

LIQUID LIMIT

PLASTIC LIMIT

SAMPLE TYPE

2" O.D. SPLIT TUBE

2" I.D. SHELBY TUBE

3" O.D. SHELBY TUBE

LI

—○—

—

2

3

3

BOREHOLE NO. 5
PROJECT Highway 29 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 411.0
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE		NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40			
	Ground Surface	411.0	0	350 FT. LB. BLOWS/FT 80				
	Drilled AX casing - no sample recovered	407.5		SHEAR STRENGTH				
		406.3		PSF				
	Bedrock - 100% recovery - Dolomitic limestone							
	End of Hole							
	Notes: 1) Water level recorded after 5 days		10					
			20					
			30					
			40					




WILLIAM A. TROW & ASSOCIATES LTD.

SITE INVESTIGATIONS SOIL MECHANICS CONSULTATION




DRAWING NO 7
PROJECT NO J552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 


SHEAR STRENGTH

UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 




NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX

LI
X

ATTERBERG LIMITS

LIQUID LIMIT 
PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE NO. 6
PROJECT Highway 50 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 410.8
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT. LB BLOWS/FT 80			
	Ground Surface	410.8	0							
	Overburden - Drilled AX casing no samples recovered	407.0								
		405.1								
	Bedrock - 93% recovery - dolomitic limestone									
	End of Hole	400.4	10							
	Notes: 1) Water level recorded after 5 days as shown		20							
			40							

WILLIAM A. TROW & ASSOCIATES LTD.

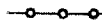
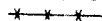

SITE INVESTIGATIONS - SOIL MECHANICS CONSULTATION

DRAWING NO. 9




PROJECT NO. 1552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
 2" I.D. SHELBY TUBE 
 2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL AT OVERBURDEN PRESSURE 
 UNCONFINED COMPRESSION 
 VANE TEST AND SENSITIVITY (SI) 

NATURAL MOISTURE CONTENT AND LIQUIDITY INDEX

ATTERBERG LIMITS

LIQUID LIMIT 
 PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
 2" I.D. SHELBY TUBE 
 3" O.D. SHELBY TUBE 

LI
X

2
3

BOREHOLE No. 7
 PROJECT Highway 40 Overhead
 LOCATION Smiths Falls, Ontario
 HOLE LOCATION See Dwg. 1
 HOLE ELEVATION 412.0
 DATUM See Hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE 350 FT. LB BLOWS/FT		NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40			
	Ground Surface	412.0	0	SHEAR STRENGTH				
	Overburden - drilled AX casing no samples recovered							
	Bedrock - 100% recovery	405.5	10					
	End of Hole	400.0						
	Notes: 1) Auer hole in this area showed 0-1 1/2 ft. dark brown organic sandy topsoil 1 1/2-3 ft. clean, brown, fine sand 3-6 ft. slightly silty, brown, fine sand below 6 ft. grey sandy, clayey silt with gravel sizes 2) Hole caved and dry at 4 ft. after 4 days		20					
			30					
			40					

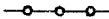
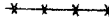
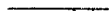
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SITE INVESTIGATIONS SOIL MECHANICS CONSULTATION




DRAWING NO. 9
PROJECT NO. J552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX 

ATTERBERG LIMITS

LIQUID LIMIT 
PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No. 8
PROJECT Highway 20 Overhead
LOCATION Gricks Falls, Ontario
HOLE LOCATION See Log. 1
HOLE ELEVATION 412.0
DATUM See Hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE 350 FT. LB. BLOWS/FT.				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	80			
	Ground Surface	412.0	0	SHEAR STRENGTH P.S.F.						
	Overburden - drilled AX casing, no samples recovered									
	Fractured dolomite as slabs or boulders	406.0								
	Bedrock - 100% recovery End of Hole	404.5 402.5	5 10							
Notes: 1) Auger hole in this area showed 0-1 ft. dark brown organic sandy topsoil 1-3 ft. clean brown fine sand 3-4 ft. slightly silty, brown fine sand 2) Caved and wet at 4 ft. after 4 days										
			20							
			30							
			40							


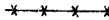

WILLIAM A. TROW & ASSOCIATES LTD.

SITE INVESTIGATIONS - SOIL MECHANICS CONSULTATION




DRAWING No. 10
PROJECT No. J552

LEGEND

PENETRATION RESISTANCE


2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX 





ATTERBERG LIMITS

LIQUID LIMIT 
PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No. 9
PROJECT Highway 20, Orono
LOCATION Salmon Falls, Ontario
HOLE LOCATION See Proj. 1
HOLE ELEVATION 411.8
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV. FEET	DEPTH FEET	PENETRATION RESISTANCE		350 FT. LB. BLOWS/FT. 80	NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60			
	Ground Surface	411.8	0	SHEAR STRENGTH					
				PSF					
	Sandy to soil to brown fine sand	409.3							
	Sand, gravel and boulders	408.3							
	Bedrock - 95% recovery	405.6							
	End of Hole	401.3	10						
	Notes: 1) Water level as indicated, recorded after 4 days		20						
			30						
			40						

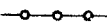
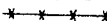
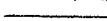
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SITE INVESTIGATIONS - SOIL MECHANICS CONSULTATION




DRAWING No. 11
PROJECT No. J552

LEGEND

PENETRATION RESISTANCE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH

UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX

LI
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ATTERBERG LIMITS




LIQUID LIMIT

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PLASTIC LIMIT

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SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No. 10
PROJECT Highway 29 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 414.0
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE 350 FT. LB BLOWS/FT.		NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND No	NATURAL UNIT WEIGHT P.C.F.
				20	40			
	Ground Surface	414.0	0	SHEAR STRENGTH P S F				
	Overburden - drilled AX casing, no samples recovered	409.0						
		407.2						
	Bedrock - 100% recovery dolomitic limestone		10					
	End of Hole	398.0						
	Notes: 1) Auger hole nearly showed 1 1/2 ft. of topsoil then fine, brown sand 2) Water level as noted recorded after one day		20					
			30					
			40					

SITE INVESTIGATIONS SOIL MECHANICS CONSULTATION

PROJECT No. J552

PENETRATION RESISTANCE

SHEAR STRENGTH

UNDRAINED TRIAXIAL	⊕
AT OVERBURDEN PRESSURE	
UNCONFINED COMPRESSION	⊗
VANE TEST AND SENSITIVITY (5)	⊕ ^s

ATTERBERG LIMITS

PLASTIC LIMIT

SAMPLE TYPE

2" O.D. SPLIT TUBE _____

2" I.D. SHELBY TUBE _____

3" O.D. SHELBY TUBE _____

BOREHOLE NO. 11
PROJECT Highway 29 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 413.1
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT. LB BLOWS/FT. 80			
	Ground Surface	413.1	0							
	Overburden - drilled AX casing, no samples recovered	<u>408.8</u>								
		<u>407.1</u>								
	Bedrock - 83% core recovery	404.1	10							
	End of Hole									
	Notes: 1) Auger hole in this area showed 0-1 ft. dark brown organic sandy topsoil 1 1/2 - 3 ft. clean brown fine sand 3-6 ft. slightly silty, brown fine sand 2) Water level shown recorded after one day		20							
			30							
			40							

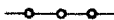
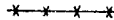
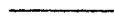
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SITE INVESTIGATIONS · SOIL MECHANICS CONSULTATION




LEGEND

DRAWING No. 13
PROJECT No. J552

PENETRATION RESISTANCE


2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
2" DIA. CONE 

SHEAR STRENGTH




UNDRAINED TRIAXIAL
AT OVERBURDEN PRESSURE 
UNCONFINED COMPRESSION 
VANE TEST AND SENSITIVITY (S) 

NATURAL MOISTURE CONTENT
AND LIQUIDITY INDEX 

ATTERBERG LIMITS

LIQUID LIMIT 
PLASTIC LIMIT 

SAMPLE TYPE

2" O.D. SPLIT TUBE 
2" I.D. SHELBY TUBE 
3" O.D. SHELBY TUBE 

BOREHOLE No. 12
PROJECT Highway 29 Overhead
LOCATION Smiths Falls, Ontario
HOLE LOCATION See Dwg. 1
HOLE ELEVATION 413.1
DATUM See hole 1

SYMBOL	SOIL DESCRIPTION	ELEV FEET	DEPTH FEET	PENETRATION RESISTANCE				NATURAL MOISTURE CONTENT AND ATTERBERG LIMITS % DRY WEIGHT	SAMPLE TYPE AND NO.	NATURAL UNIT WEIGHT P.C.F.
				20	40	60	350 FT. LB. BLOWS/FT. 80			
	Ground Surface			SHEAR STRENGTH						
				P S F						
	Overburden - Drilled AX casing, no samples recovered	413.1	0							