

APPENDIX 'A'

GEOTECHNICAL REPORT

APPENDIX 'A' - GEOTECHNICAL REPORT

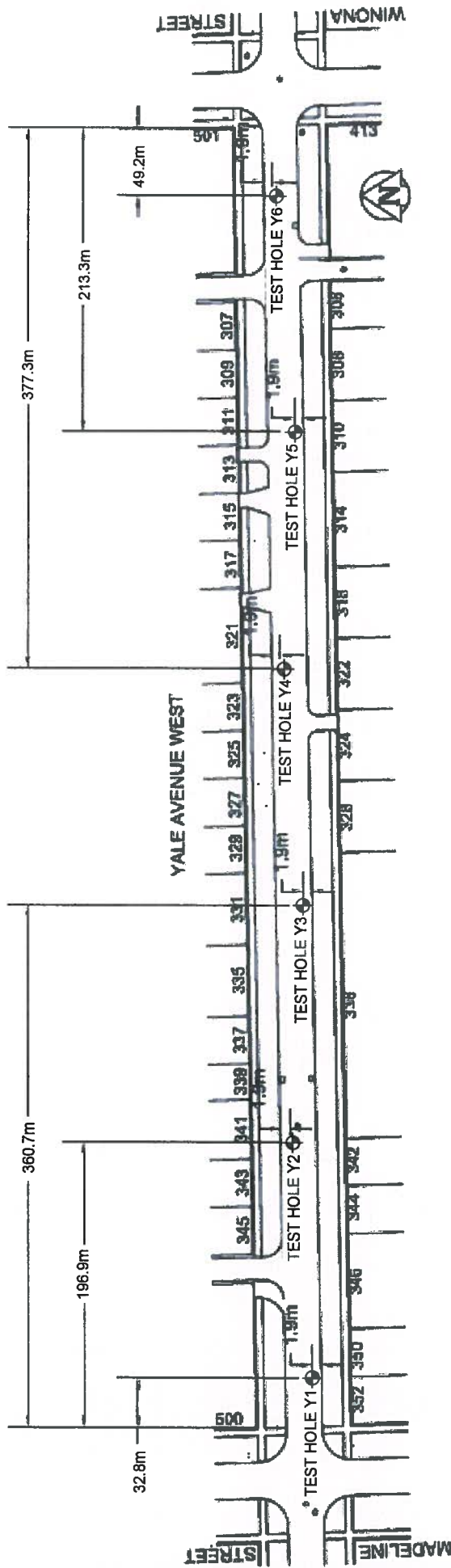
GEOTECHNICAL REPORT FOR:

- i) Besant Street from Hampstead Avenue to Munroe Avenue
- ii) Yale Avenue West from Madeline Street to Winona Street

The geotechnical report is provided to aid in the Contractor's evaluation of the existing pavement structure and/or soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in pavement structure and/or soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.

TEST HOLE LOCATION PLANS AND TEST HOLE LOGS

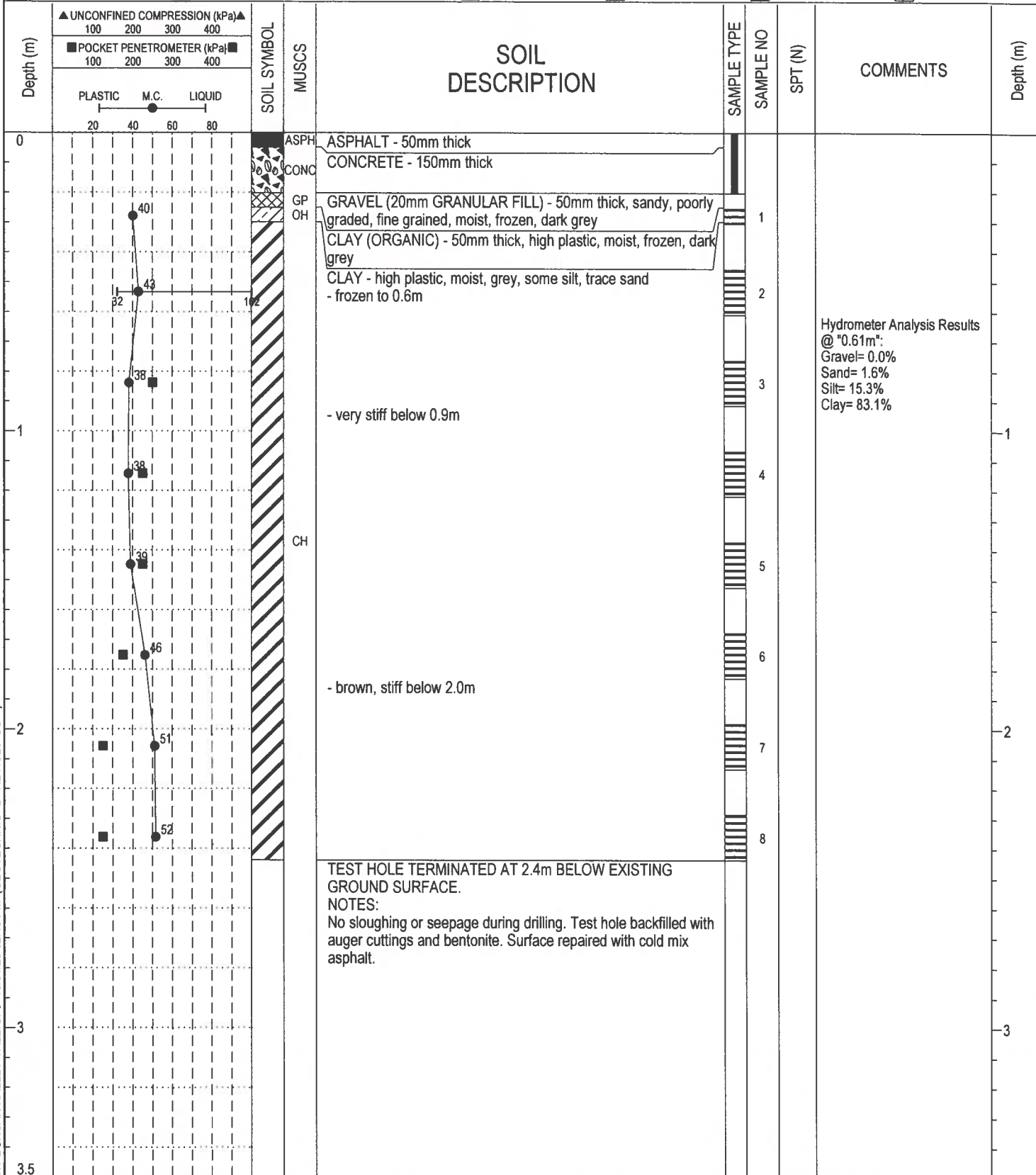
BESANT STREET from Hampstead Avenue to Munroe Avenue
and
YALE AVENUE WEST from Madeline Street to Winona Street



NOTE: THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC EARTH & ENVIRONMENTAL REPORT No. WX10545.1000 DATED JANUARY 2010.	CLIENT LOGO 	CLIENT: THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT TECHNOLOGY SERVICES BRANCH 108 - 1189 PACIFIC AVE	DWN BY: MD CHKD BY: RB DATUM: NAD98 PROJECTION: UTM Zone 0 SCALE: AS SHOWN	PROJECT 2010 RESIDENTIAL STREET RENEWALS	DATE: JANUARY 2010
					PROJECT NO: WX10545.1000
AMEC Earth & Environmental 440 DOVERCOURT DRIVE WINNIPEG, MANITOBA, R3T 4M PHONE: 204.488.2887 FAX: 204.488.6281			TITLE TESTHOLE LOCATION PLAN YALE AVENUE WEST MADELINE STREET TO WINONA STREET		REV. NO.: A FIGURE NO.: FIGURE 4

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: B1
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:

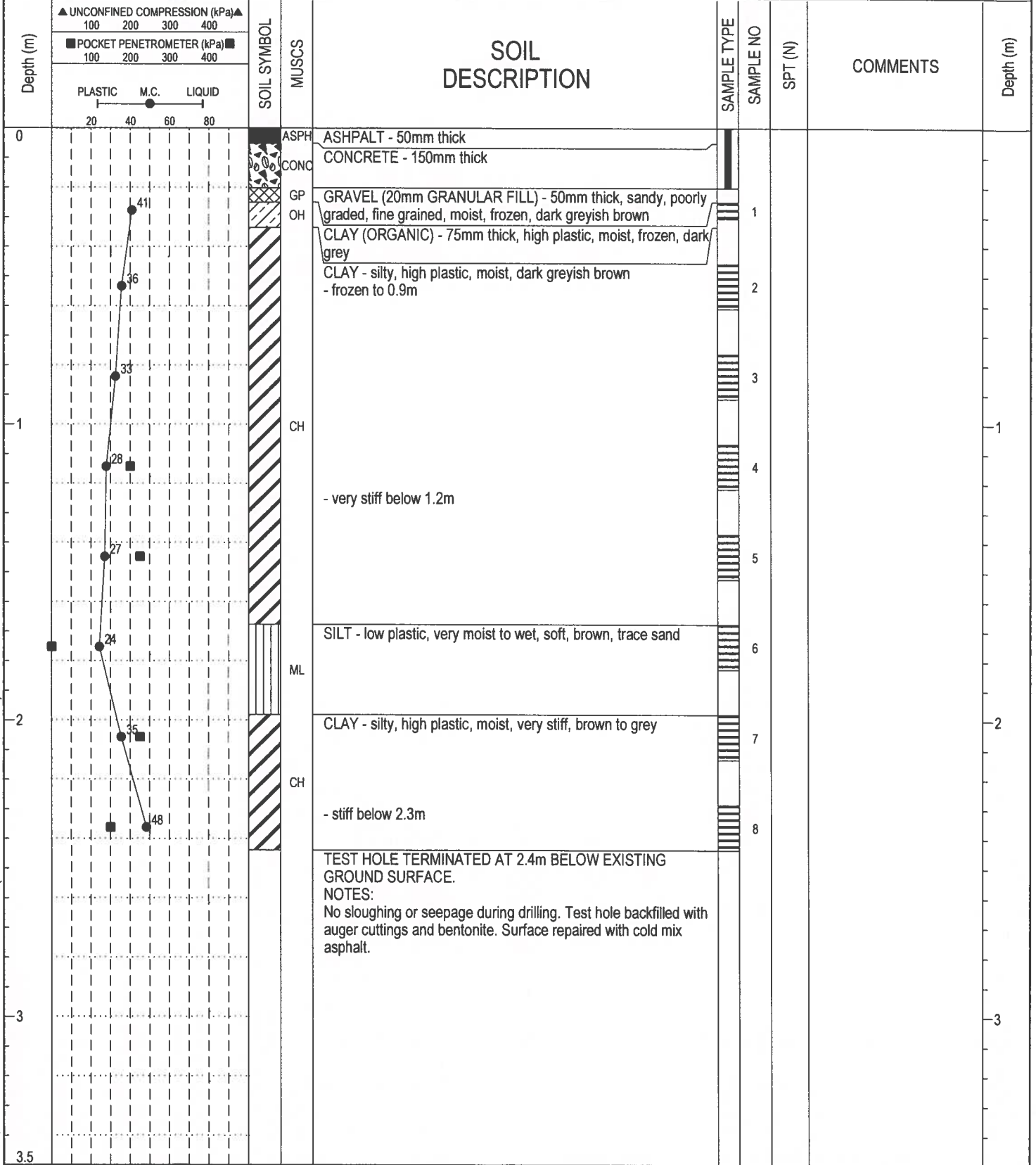
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



10545 BESANT DUNCAN HALLET YALE.GPJ 10/01/25 02:43 PM (GEOTECHNICAL - REVISED COW)

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: B2
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:

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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



10545 BESANT DUNCAN HALLET YALE.GPJ 10/01/25 02:43 PM (GEOTECHNICAL - REVISED COW)



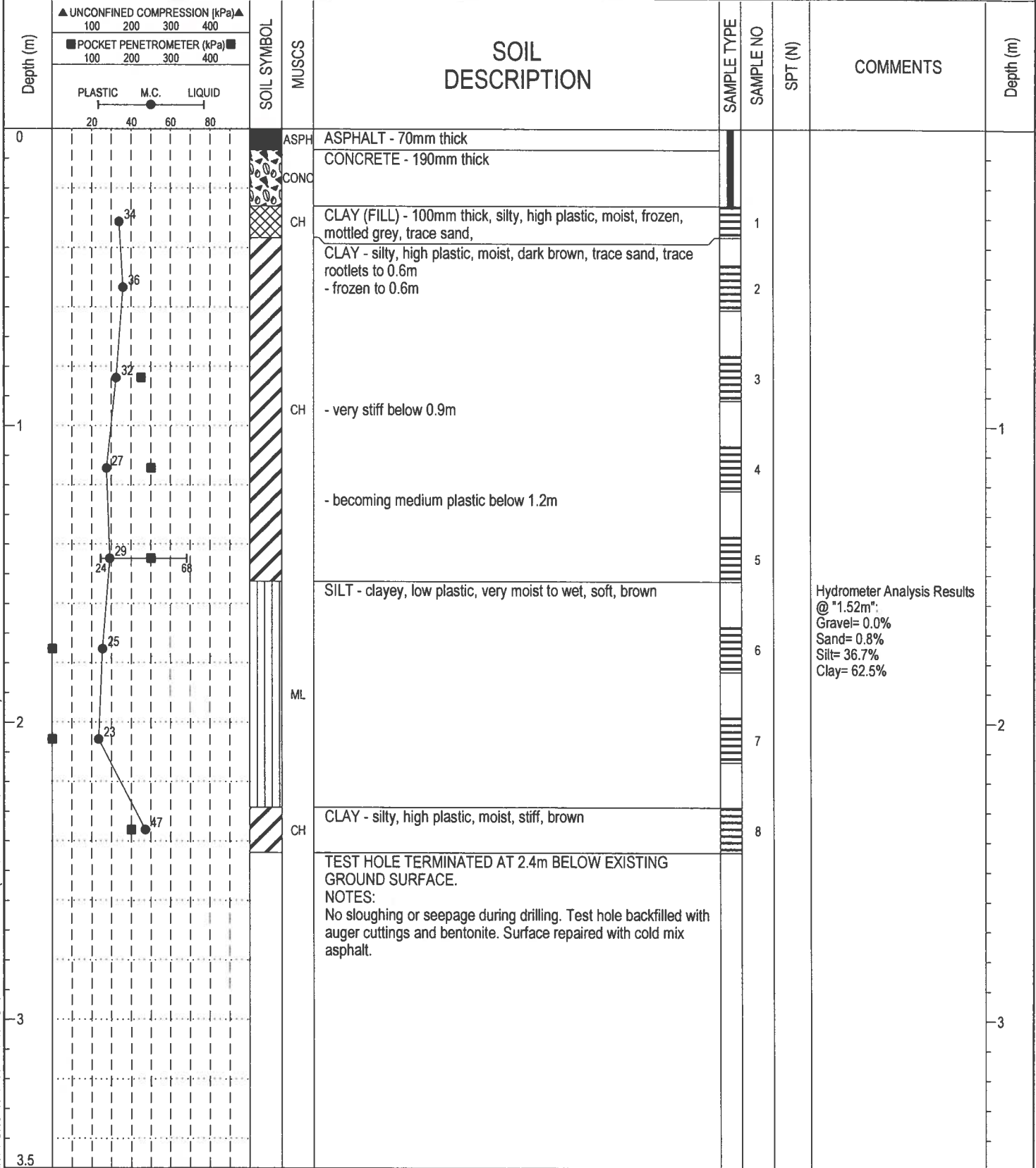
AMEC Earth and Environmental
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 6

COMPLETION DEPTH: 2.4 m
COMPLETION DATE: 21 December 2009

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: B3
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:

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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



10545 BESANT DUNCAN HALLET YALE.GPJ 10/01/25 02:43 PM (GEOTECHNICAL - REVISED COW)

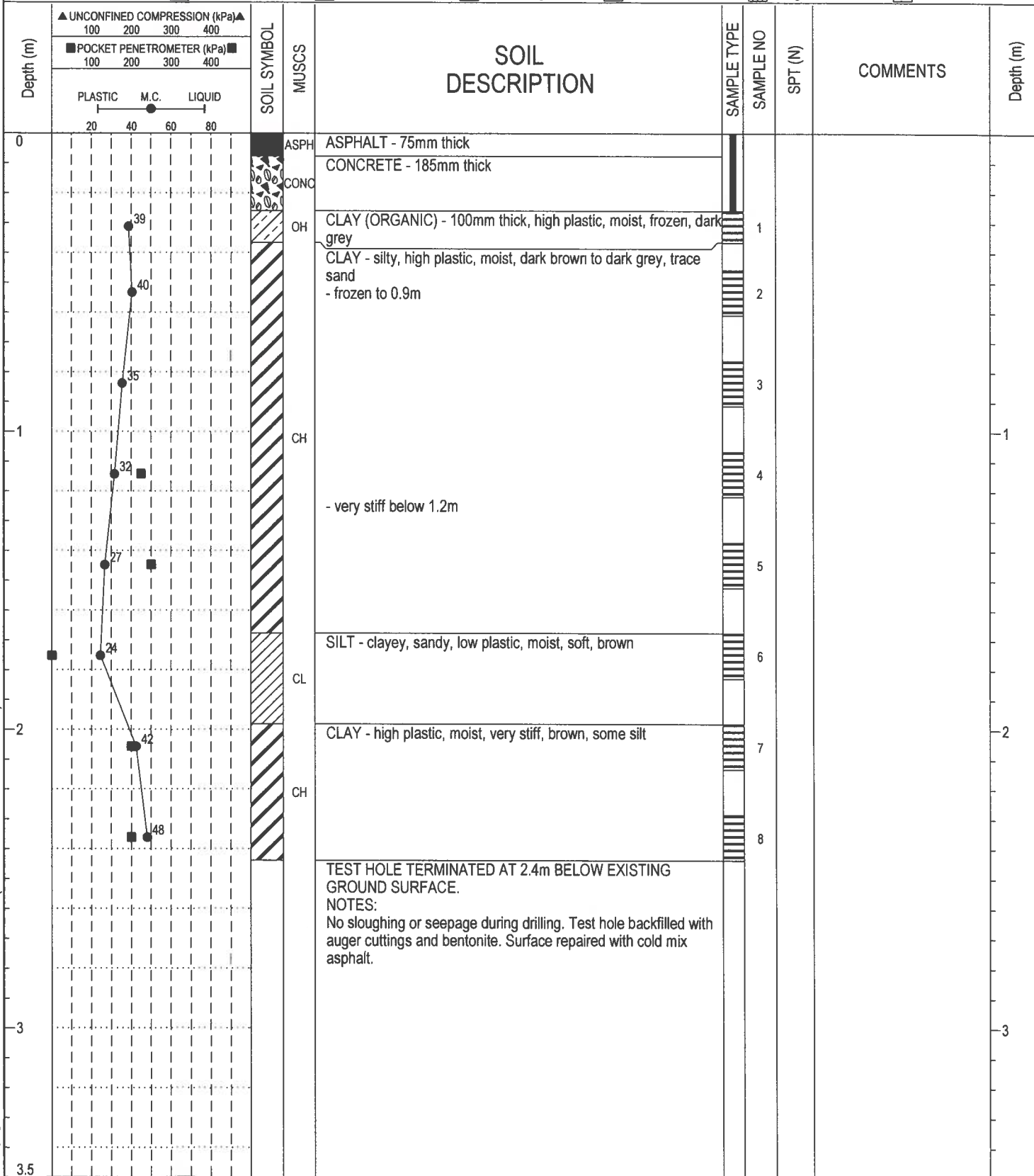


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LOGGED BY: AL
 REVIEWED BY: RB
 Figure No. 7

COMPLETION DEPTH: 2.4 m
 COMPLETION DATE: 21 December 2009

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: B4
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:
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10545 BESANT DUNCAN HALLET YALE.GPJ 10/01/25 02:44 PM (GEOTECHNICAL - REVISED COW)

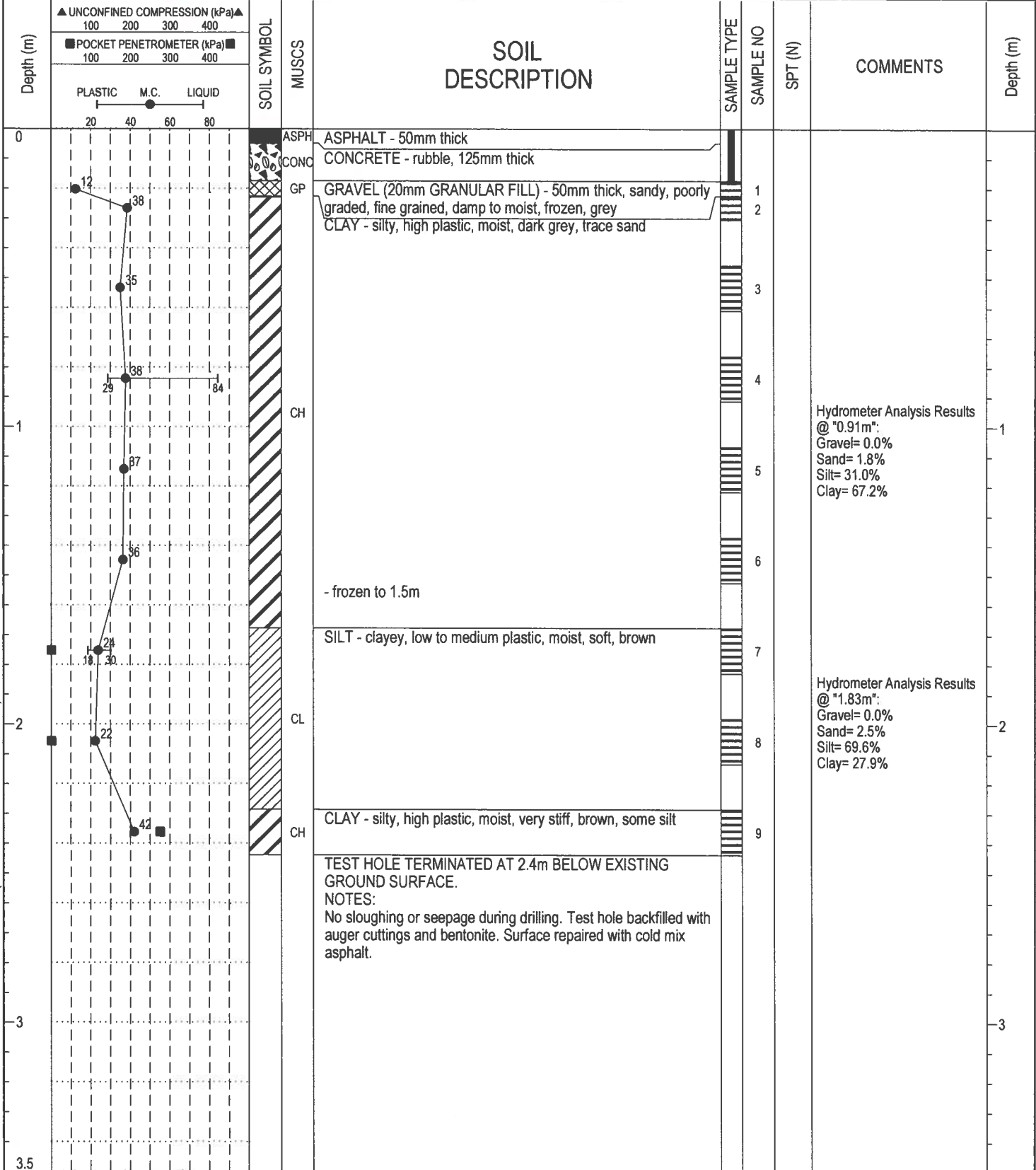


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REVIEWED BY: RB
Figure No. 8

COMPLETION DEPTH: 2.4 m
COMPLETION DATE: 21 December 2009

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: D1				
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545				
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:				
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



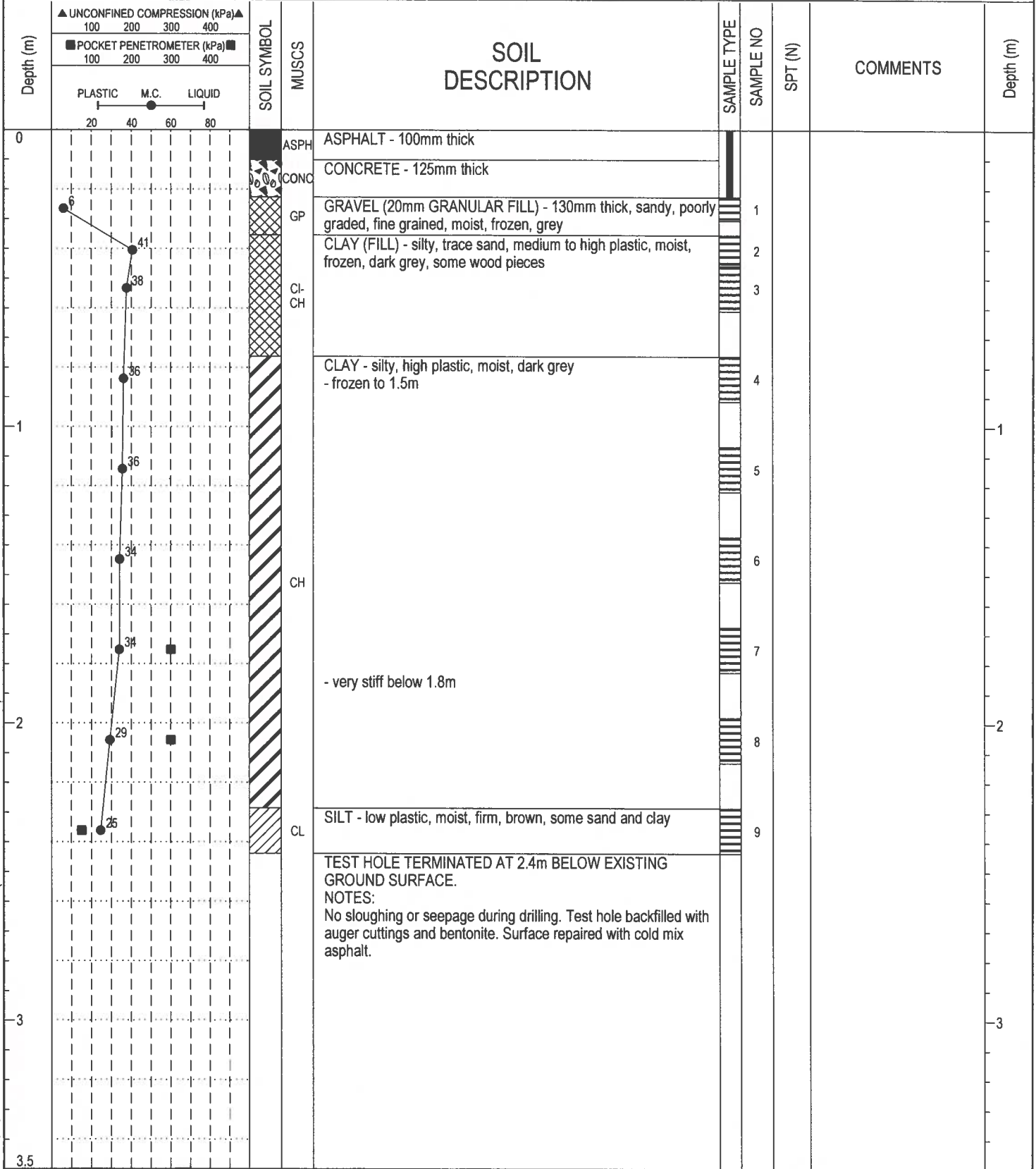
10545 BESANT DUNCAN HALLET YALE.GPJ 10/01/25 02:44 PM (GEOTECHNICAL - REVISED COW)



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LOGGED BY: AL	COMPLETION DEPTH: 2.4 m
REVIEWED BY: RB	COMPLETION DATE: 22 December 2009
Figure No. 9	Page 1 of 1

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: D2
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Pea Gravel <input checked="" type="checkbox"/> Drill Cuttings <input type="checkbox"/> Grout <input type="checkbox"/> Slough <input type="checkbox"/> Sand	



10545 BESANT DUNCAN HALLET YALE.GPJ 10/01/25 02:44 PM (GEOTECHNICAL - REVISED COW)



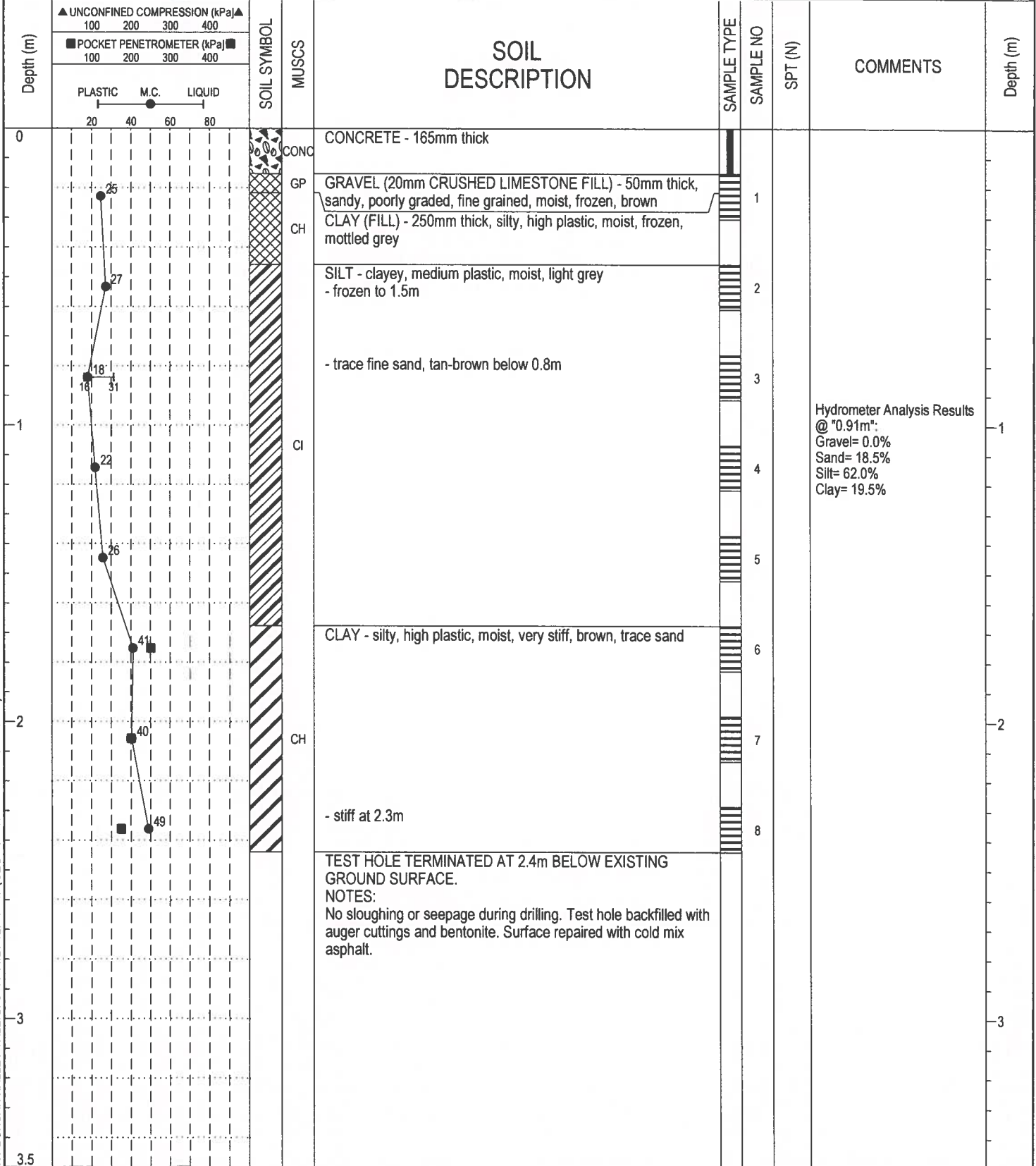
AMEC Earth and Environmental
Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 10

COMPLETION DEPTH: 2.4 m
COMPLETION DATE: 22 December 2009

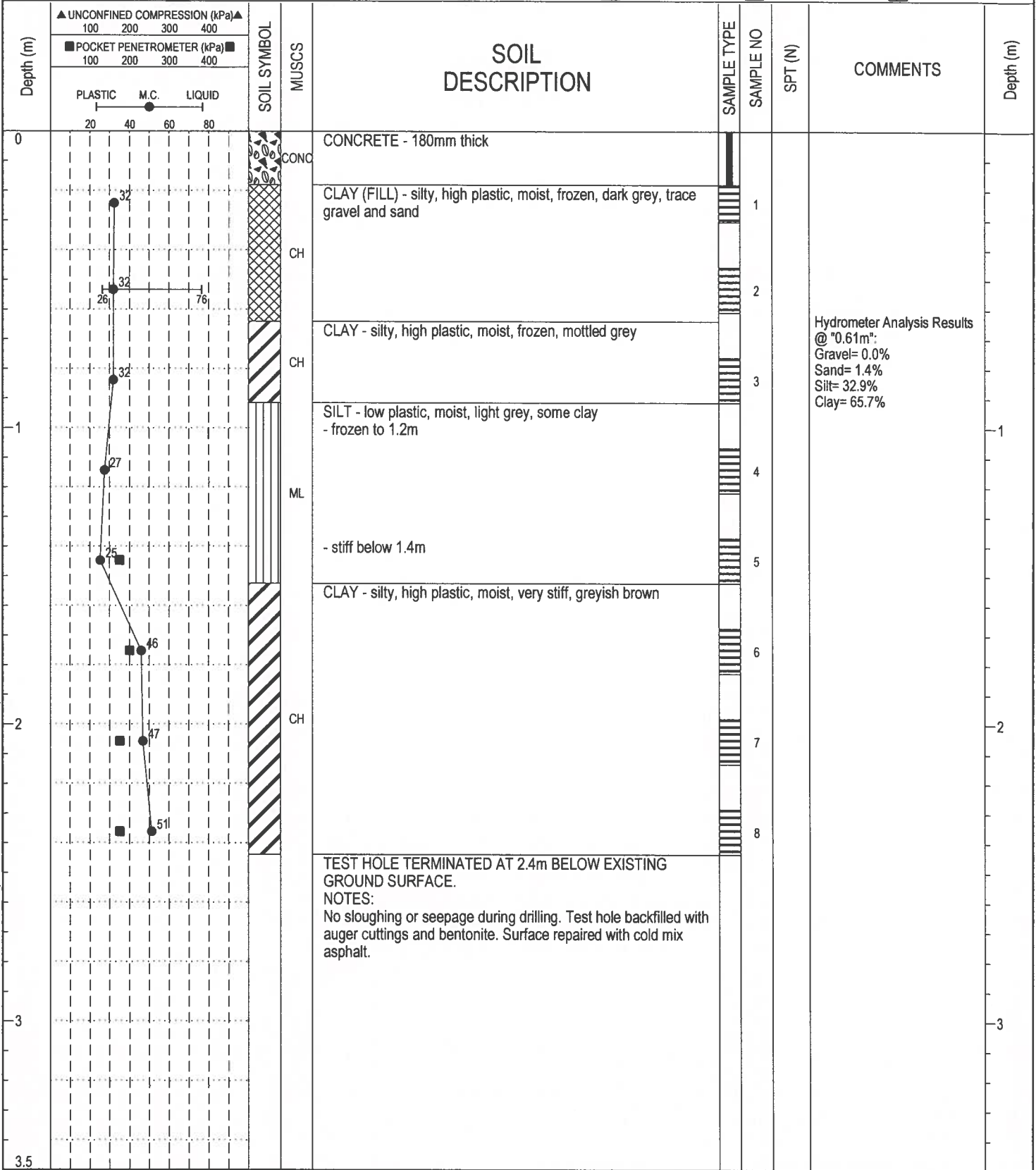
PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: Y3
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:

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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



10545 BESANT DUNCAN HALLET YALE GP J 10/01/25 02:44 PM (GEOTECHNICAL - REVISED COW)

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: Y4				
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545				
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:				
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand

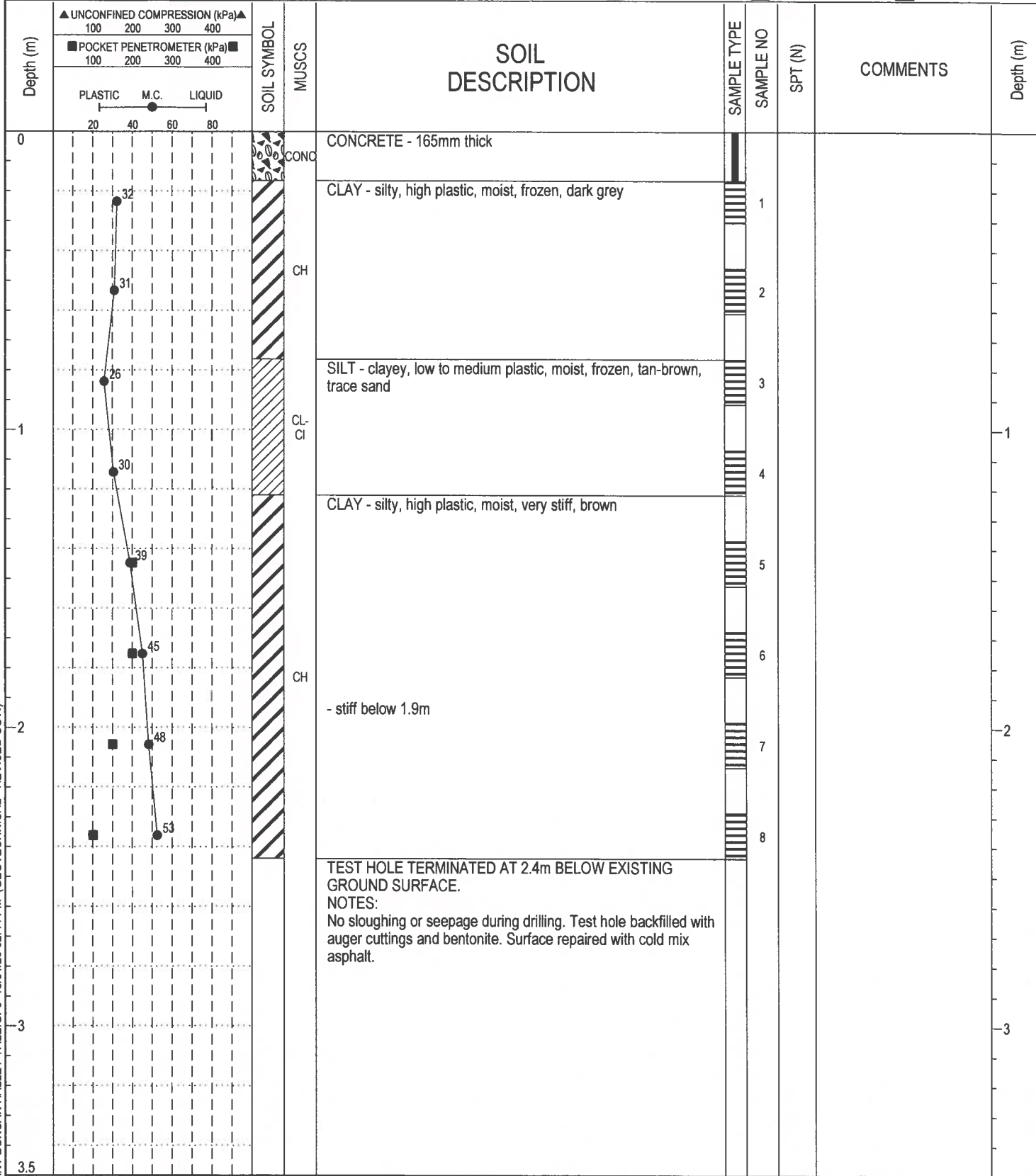


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Winnipeg, Manitoba

LOGGED BY: AL
REVIEWED BY: RB
Figure No. 19

COMPLETION DEPTH: 2.4 m
COMPLETION DATE: 21 December 2009

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: Y5				
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545				
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:				
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



10545 BESANT DUNCAN HALLET YALE.GPJ 10/01/25 02:44 PM (GEOTECHNICAL - REVISED COW)

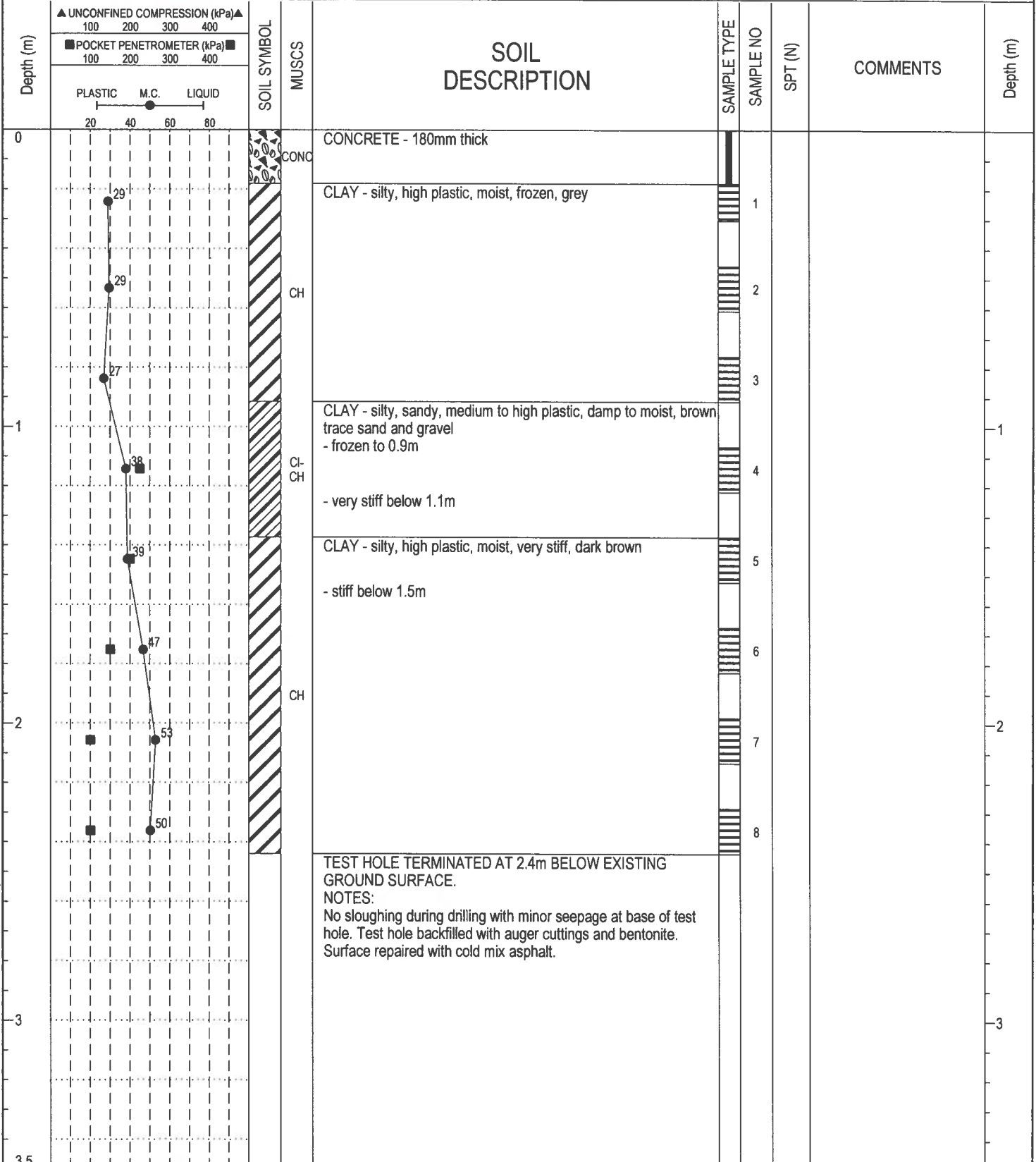


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 Winnipeg, Manitoba

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 REVIEWED BY: RB
 Figure No. 20

COMPLETION DEPTH: 2.4 m
 COMPLETION DATE: 21 December 2009
 Page 1 of 1

PROJECT: Geotechnical Investigation	DRILLED BY: Maple Leaf Drilling Ltd.	BORE HOLE NO: Y6				
CLIENT: City of Winnipeg	DRILL TYPE: Truck Mounted B-40	PROJECT NO: WX10545				
LOCATION: Winnipeg, Manitoba	DRILL METHOD: 125mm Solid Stem Auger	ELEVATION:				
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite	<input type="checkbox"/> Pea Gravel	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Grout	<input type="checkbox"/> Slough	<input type="checkbox"/> Sand



10545 BESANT DUNCAN HALLET YALE, GPJ 10/01/25 02:44 PM (GEO TECHNICAL - REVISED COW)

CORE PHOTOS

BESANT STREET from Hampstead Avenue to Munroe Avenue (B1-B4)
and
YALE AVENUE WEST from Madeline Street to Winona Street (Y1-Y6)

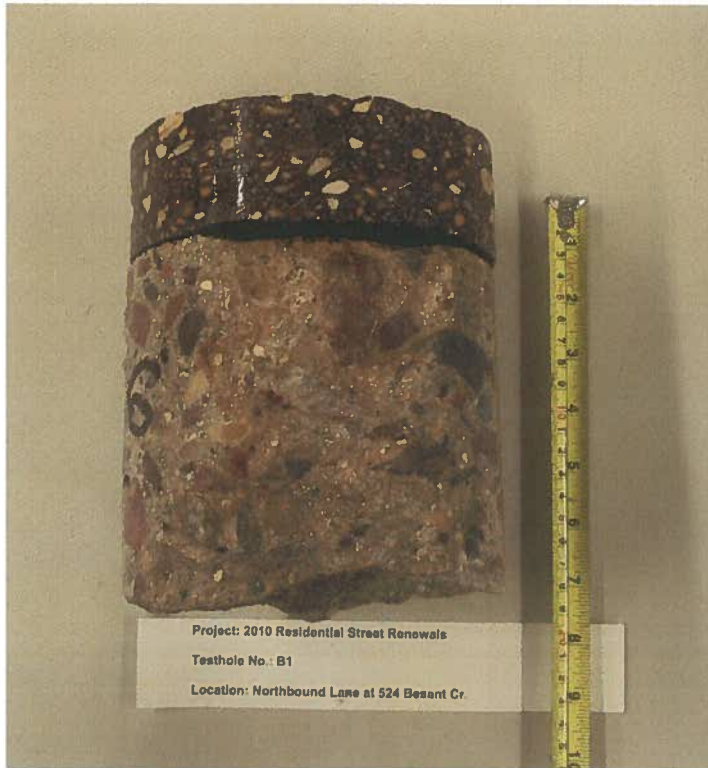



Photo 1: Test Hole B1: 524 Besant Cres., Northbound Lane, 10 m S of S sidewalk at Munroe, 1.9m W of E curb



Photo 2: Test Hole B2: 518 Besant Cres. Southbound Lane, 65m S of S sidewalk at Munroe, 1.9m E of W curb

 Earth & Environmental CITY OF WINNIPEG		GEOTECHNICAL INVESTIGATION BESANT CRESCENT WINNIPEG, MANITOBA		
Drawn: N/A	Scale: N/A	December 2009	Project No.: WX10545	Figure: B1

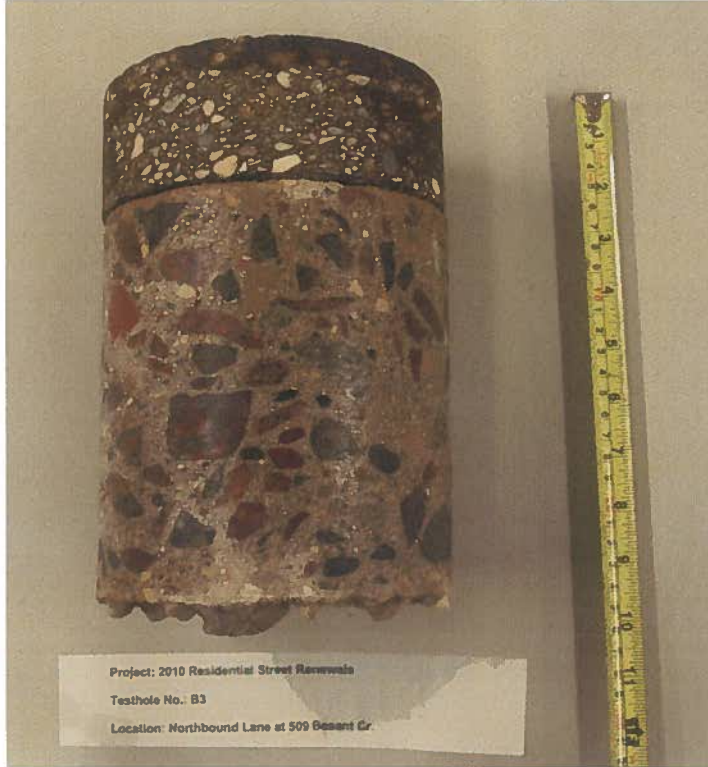


Photo 3: Test Hole B3: 509 Besant Cres., Northbound Lane, 115 m S of S Munroe sidewalk, 1.9m E of W curb

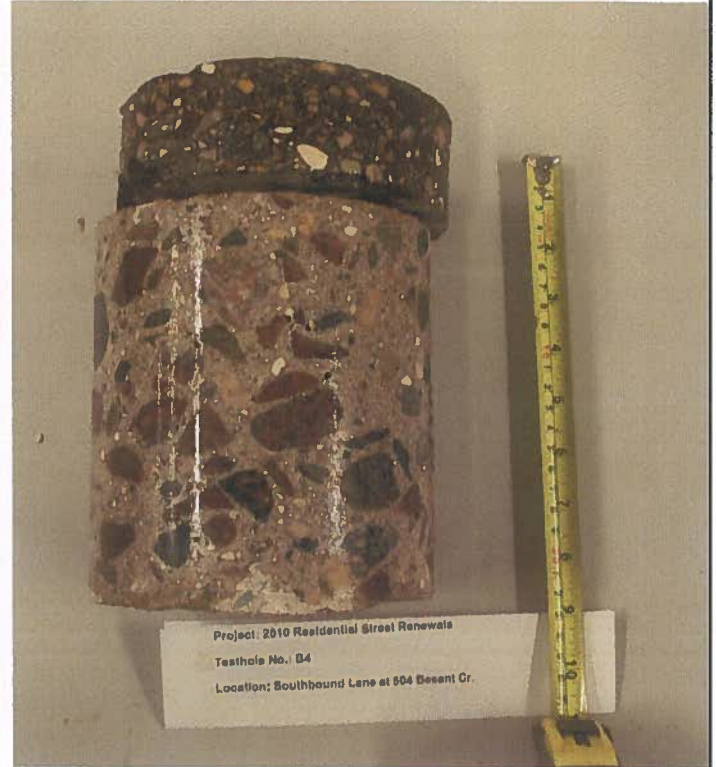


Photo 4: Test Hole B4: 504 Besant Cres. Southbound Lane, 165m S of S Munroe sidewalk, 1.9m E of W curb



Earth & Environmental
CITY OF WINNIPEG

**GEOTECHNICAL INVESTIGATION
BESANT CRESCENT
WINNIPEG, MANITOBA**

Drawn: N/A	Scale: N/A	December 2009	Project No.: WX10545	Figure: B2
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Photo 12: Test Hole Y1: 350 Yale Ave. W., Eastbound Lane, 10 m E of E sidewalk at Madeline St., 1.9m N of S curb

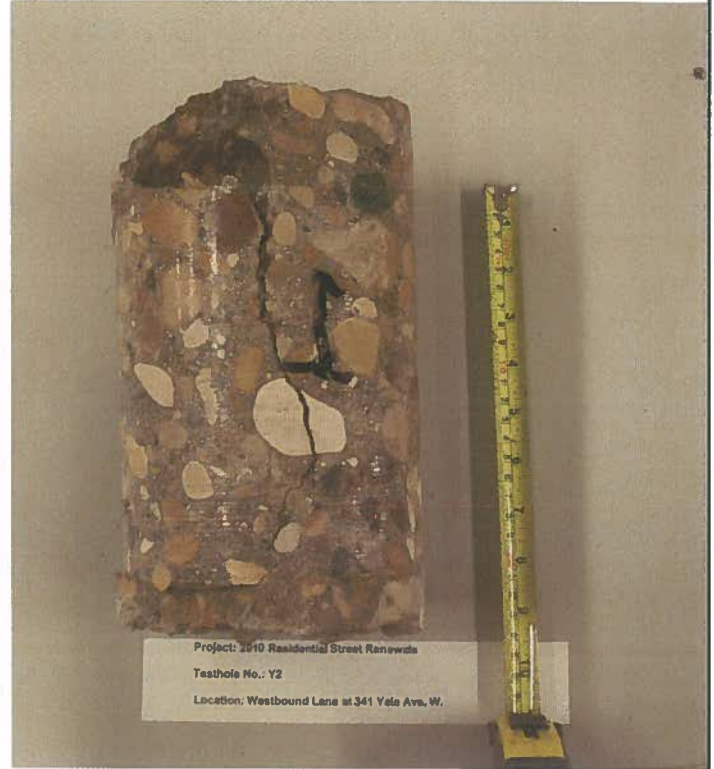


Photo 13: Test Hole Y2: 341 Yale Ave. W., Westbound Lane, 60 m E of E sidewalk at Madeline St., 1.9m S of N curb

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**GEOTECHNICAL INVESTIGATION
YALE AVENUE WEST
WINNIPEG, MANITOBA**

Drawn: N/A	Scale: N/A	December 2009	Project No.: WX10545	Figure: B7
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Photo 14: Test Hole Y3: 331 Yale Ave. W., Eastbound Lane, 110 m E of E sidewalk at Madeline St., 1.9m N of S curb

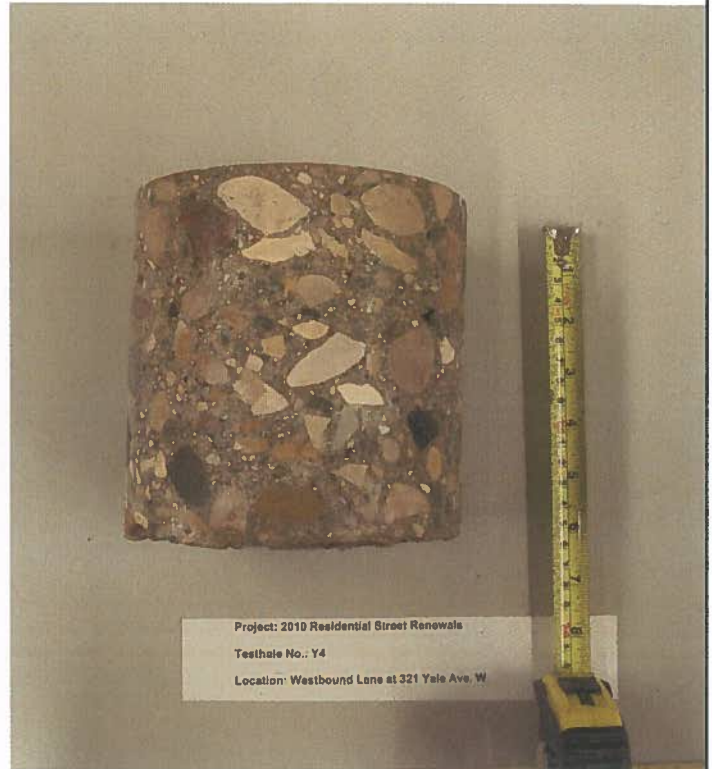



Photo 15: Test Hole Y4: 321 Yale Ave. W., Westbound Lane, 115 m W of W sidewalk at Winona St., 1.9m S of N curb

 Earth & Environmental CITY OF WINNIPEG		GEOTECHNICAL INVESTIGATION YALE AVENUE WEST WINNIPEG, MANITOBA		
Drawn: N/A	Scale: N/A	December 2009	Project No.: WX10545	Figure: B8

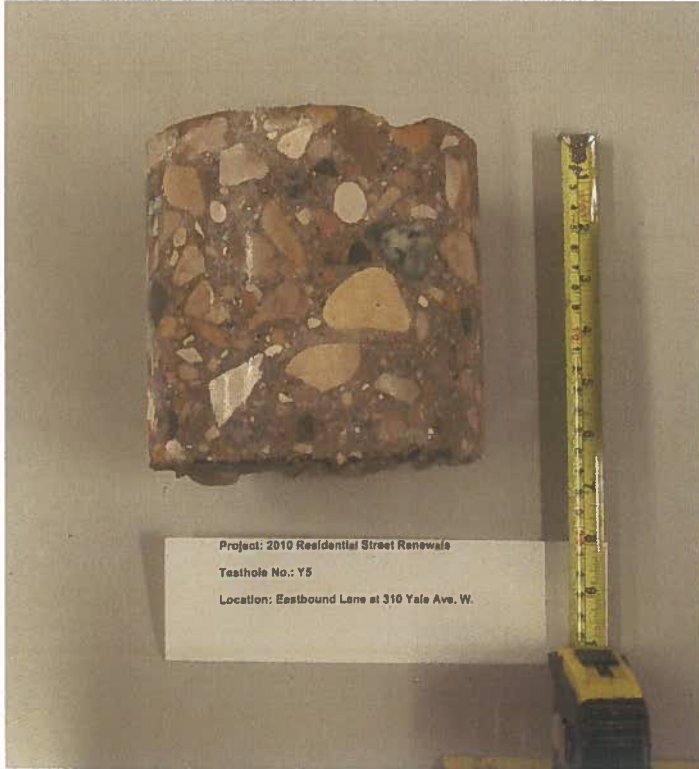


Photo 16: Test Hole Y5: 311 Yale Ave. W., Eastbound Lane, 65 m W of W sidewalk at Winona St., 1.9m N of S curb

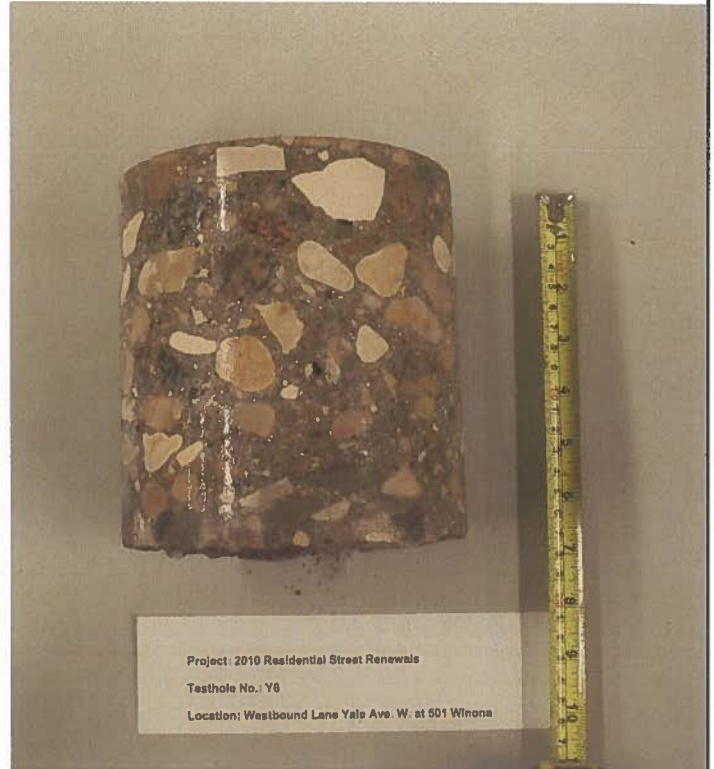



Photo 17: Test Hole Y6: Westbound Lane, Yale Ave. W. at 501 Winona, 15 m W of W sidewalk at Winona St., 1.9m S of N curb

 Earth & Environmental CITY OF WINNIPEG		GEOTECHNICAL INVESTIGATION YALE AVENUE WEST WINNIPEG, MANITOBA		
Drawn: N/A	Scale: N/A	December 2009	Project No.: WX10545	Figure: B9