

Airport Road Improvements



APPENDICES

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Municipal Class Environmental
Assessment
Airport Road
from 1.0km north of Mayfield Road to
0.6km north of King Street

October 2015

 Region of Peel
Working for you

E

GEOTECHNICAL/PAVEMENT



Terraprobe

Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

**PRELIMINARY PAVEMENT DESIGN REPORT
AIRPORT ROAD CLASS ENVIRONMENTAL ASSESSMENT (EA)
FROM 1.0 KM NORTH OF MAYFIELD ROAD
TO 0.6 KM NORTH OF KING STREET
REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

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1 INTRODUCTION

1.1 Background & History

Airport Road is a north-south oriented arterial road under the jurisdiction of the Regional Municipality of Peel (Region of Peel). Outside of the study area and south of Mayfield Road, Airport Road has been widened from a two lane road to a four lane road. These improvements were required to accommodate increased traffic for new industrial developments.

The purpose of this study is to identify long term improvements on Airport Road for the horizon year of 2031 and, geotechnical consulting services are required to support the thirty percent design and cost estimates of this Class Environmental Assessment (EA).

1.2 Terms of Reference

Terraprobe Inc. (Terraprobe) has been retained by IBI Group (IBI) on behalf of the Region of Peel to provide geotechnical engineering services in support of the Airport Road Class EA Study. The pavement investigation and design study includes the following main project components:

- Carrying out a visual pavement condition survey;
- Performing Falling Weight Deflectometer (FWD) testing;
- Carrying out field investigations to determine the existing pavement structures and the subsurface conditions; and
- Collating and interpreting the field investigation data, and completing preliminary pavement designs for rehabilitation and new construction.

1.3 Project Limits

The site is located in the Town of Caledon, Regional Municipality of Peel, Ontario. The roadway is approximately 5.8 km long, extending from 1.0 km north of Mayfield Road to 0.6 km north of King Street. Currently, Airport Road consists of one through lane in each direction, with dedicated turning lanes at the King Street, Old School Road and Healey Road intersections. A site location plan is provided as Figure 1 and site photographs are shown on Figures 2 and 3.

2 DESIGN CRITERIA

2.1 Traffic Volumes

The traffic data for this project was obtained from the report titled *Region of Peel Airport Road EA 1 km North of Mayfield Road to 0.6 km North of King Street Traffic Needs Assessment, dated February 2013*. The interpreted traffic data is summarized in the following table:



Airport Road (1.0 km North of Mayfield Road to 0.6 km North of King Street)	
Parameter	Value
AADT (2011)	8,363
Projected AADT (2019)	10,594
Projected AADT (2021)	11,239
Projected AADT (2038)	15,737
Annual Growth Rate (2011 – 2019)	3%
Annual Growth Rate (2020 – 2038)	2%
Percent Commercial	9
Directional Factor	0.55

3 PAVEMENT PERFORMANCE (EXISTING CONDITION)

A visual inspection of the pavement was carried out on March 29, 2013. The survey was conducted in accordance with the procedures outlined in the Ministry of Transportation of Ontario (MTO) *Manual for Condition Rating of Flexible Pavements - Distress Manifestations (SP-024)*. The Pavement Condition Evaluation Forms are included in Appendix A. Summarized below are the observed pavement distresses and the overall pavement condition of the evaluated pavement section.

Airport Road – 1.0 km North of Mayfield Road to 0.6 km North of King Street

Section	From	To	Overall Condition	General Distresses
Airport Road	1.0 km North of Mayfield Road	0.6 km North of King Street	PCR = 86 RCR = 8 Good	<ul style="list-style-type: none"> ▪ Extensive Slight to Moderate Pavement Edge Cracking ▪ Frequent Slight Centre Line Cracking ▪ Intermittent Very Slight Longitudinal Wheel Track Cracking ▪ Intermittent Very Slight Long Meander and Midlane Cracking ▪ Few Moderate Alligator Cracking ▪ Few Slight to Moderate Cracking

4 PHYSIOGRAPHY

The site is located in the South Slope physiographic region which is defined as the area along the southern slope of the Oak Ridges Moraine that extends along the moraine between Durham Region in the east to the Niagara Escarpment in the west. The South Slope is characterized by topography that gently slopes southward towards Lake Ontario. It consists of a faintly drumlinized clay till plain that contains deeply incised stream valleys.



5 FIELD INVESTIGATIONS AND LABORATORY TESTING

5.1 Surveying

The station chainages are based on plans supplied by the Region of Peel. The borehole locations and their stations were established by referring to physical landmarks shown on these plans such as driveways, intersections and house addresses, as appropriate.

Due to limitations in the surveying methods used, there may be some differences between field stations and those referenced in this report.

5.2 Field Investigation

The field investigation was carried out during the period November 26, 2012 to December 03, 2012 after clearing all underground utilities. A truck mounted drill rig and portable hand operated vibratory equipment (Pionjar) were used to drill the boreholes by specialist drilling contractors. The drilling was observed on a full time basis by a member of Terraprobe's technical staff. The asphalt pavement was also cored at select borehole locations.

The supervisor logged the boreholes and processed the recovered soil samples and asphalt cores for transport to Terraprobe's Brampton laboratory for further examination and testing. The borehole logs, pavement core data and core photographs are presented in Appendix B.

Details of the field investigation are outlined below.

- Asphalt coring (ten cores), borehole drilling (twenty seven boreholes), and sampling of the north bound and south bound lanes of Airport Road including the area of the proposed widening;
- Asphalt coring (two cores), borehole drilling (two boreholes), and sampling of the east and west legs of King Street;
- Asphalt coring (one core), borehole drilling (one borehole), and sampling of the west leg of Old School Road;
- Asphalt coring (one core), borehole drilling (one borehole), and sampling of the east leg of Healey Road; and
- Collecting samples of the pavement base and sub-base granular material and the subgrade soils during the field investigations.

5.3 Laboratory Testing

The asphalt cores were visually examined, measured and photographed. Laboratory testing and visual examinations were also carried out on the granular material (comprising the pavement base and sub-base) and soil samples.

The following laboratory tests and/or examinations were done:

- Moisture content (LS-701) of selected in situ soil and aggregate materials encountered during the field investigations;
- Particle Size Analysis (LS-702 & 602) of the soils and aggregate materials; and
- Visual examination of asphalt cores to determine the types and thickness of the various asphalt layers.



The laboratory testing was conducted at Terraprobe's Brampton laboratory. All tests were carried out in accordance with the materials testing requirements and procedures outlined in the Laboratory Testing Manual of the Ministry of Transportation, or ASTM/AASHTO standards, as applicable. The laboratory test results are provided in Appendix C.

Twelve soil samples were also submitted to AGAT Laboratories (AGAT) for chemical characterization with respect to general inorganic parameters including metals, pH, sodium adsorption ratio (SAR) and electrical conductivity (EC). These are nominal parameters analysed when there are no indications of environmental impacts. The certificates of chemical analysis are provided in Appendix D.

5.4 Falling Weight Deflectometer Testing

Falling weight deflectometer (FWD) load/deflection testing was also completed on November 04, 2012 by Golder Associates Ltd. (Golder). The FWD tests were carried out on Airport Road at approximately 50 m intervals in both directions of travel.

At each test location, three impulsive loads (approximately, 30, 40 and 50 kN) were applied on the road surface and the deflection response of the pavement was measured at different points to obtain the shape of the deflection bowl. The 40 kN load level simulates the wheel load of a standard heavy truck (80 kN single axle load).

The measured FWD dynamic deflections were normalized to represent the equivalent deflection for a design wheel load of 40 kN at a mid-depth asphalt concrete temperature of 21°C. The normalized dynamic deflection was then converted into a representative static deflection that is also adjusted by a spring/fall factor.

The Golder test data and Terraprobe's interpretation of the Normalized FWD Dynamic Deflection test data are presented in Appendix E.

6 SOIL AND PAVEMENT DATA

Reference is made to the Borehole Logs and Pavement Core data in Appendix B for details of the thickness and composition of the pavements and the encountered soil stratigraphy. An overall description of the pavement structure and subgrade soils is given in the following paragraphs. However, the factual data presented in the Borehole Logs governs any interpretation of the site conditions. The soil and pavement conditions encountered within the project limits are briefly described below.

It should be noted that the subsurface conditions are confirmed at the borehole locations only, and may vary at other locations, particularly with respect to depth and condition. Further investigations will be required for detail design.

6.1 Existing Pavement Structures

The average pavement structures of the roadways are summarized in the following table.



Pavement Structure	Airport Road Pavement	Airport Road Shoulders	King Street	Old School Road	Healey Road
Asphaltic Concrete (mm)	200	N/A	230	35	55
Base/ Subbase Course (mm)	690	560	570	565	395
Total Thickness (mm)	890	560	800	600	450

Airport Road

The granular material comprising the base/subbase courses of Airport Road consists of sand and gravel that ranges from 200 mm to 1,260 mm in thickness. The shoulders of Airport Road consist of gravelly sand with some silt that varies from 180 mm to 900 mm in thickness. The moisture content of the granular base/subbase ranges from 1% to 3% by weight.

Grain size distribution tests were conducted on two samples of the granular material retrieved from the shoulders of Airport Road and the results are illustrated on the grain size distribution curves on Figure C1, Appendix C. The results are compared to Ontario Provincial Standard Specifications (OPSS) Granular A and Granular B Type II specifications.

King Street

The granular material comprising the base/subbase courses of King Street ranges from 480 mm to 660 mm in thickness with an average value of 570 mm. The moisture content of the granular base/subbase ranges from 1% to 3% by weight.

Old School Road

The thickness of the granular base/subbase of the Old School Road pavement is 565 mm.

Healey Road

The thickness of the granular base/subbase of the Healey Road pavement is 395 mm and the moisture content of a sample of this material is 1% by weight.

6.2 Topsoil

Topsoil was encountered in the boreholes located in the widening areas beyond the existing pavement platform. The average thickness of the topsoil is ±150 mm. Topsoil thickness may vary between and beyond the boreholes.

6.3 Fills (Clayey Silt to Silty Clay and Sandy Silt)

Fill material consisting of clayey silt and silty clay soils were encountered beneath the pavement structure and topsoil layers, extending to depths ranging from 0.8 m to 1.8 m below ground surface. In Borehole 10 an approximately 800 mm thick sandy silt fill layer was encountered.



At the borehole locations where Standard Penetration tests were conducted, the clayey silt and silty clay fill have a stiff to very stiff consistency based on SPT N-values that ranged from 9 blows to 16 blows per 0.3 m penetration. The sandy silt fill is considered to have a compact relative density based on an SPT N-value of 15 blows per 0.3 m penetration.

The moisture content of the clayey silt and silty clay fill soils range from 14 % to 31 % by weight and a moisture content of 13% (by weight) was recorded for the sandy silt fill.

6.4 Silty Clay Till

Silty clay till was encountered at this site extending to borehole termination depths ranging from 1.4 m to 6.6 m below ground surface. Grain size distribution tests were conducted on six samples of the silty clay till and the results are illustrated on Figure C2. Atterberg limits tests were also conducted on six samples of the silty clay till and the results plotted on the plasticity chart (Figure C3, Appendix C) confirm a low to high plasticity (CL-CH) silty clay soil. The moisture content of samples of the silty clay till ranged from 11% to 27% by weight.

At the borehole locations where Standard Penetration Tests were conducted in the silty clay till the SPT N-values ranged from 9 blows to 31 blows per 0.3 m penetration. Based on these results the silty clay till is considered to have a stiff to hard consistency.

6.5 Ground Water Observations

Free water was not encountered in the boreholes. All of the boreholes were dry and open to their full depth.

6.6 Bedrock

Bedrock was not encountered within the depths of investigation.

7 BORROW MATERIALS

Only approved earth fill should be used for construction. Granular material obtained from removals below existing shoulders can be utilised as fill material provided it is free of topsoil and other deleterious material.

Soils of low to medium frost susceptibility can be used as fill up to the proposed design subgrade elevation. Soils with high frost susceptibility are not recommended for re-use within a zone extending to a maximum depth of 1.2 m below the proposed pavement subgrade. These soils should be segregated and used elsewhere.



8 AGGREGATE/GRANULAR MATERIALS

The aggregates and granular materials should satisfy the requirements given in OPSS.MUNI 1010. The grain size distribution results of two tested samples of the granular material, retrieved from the shoulder of Airport Road; indicates that the shoulder granular does not meet the OPSS MUNI 1010 Granular A and Granular B Type II specifications.

Therefore, granular material salvaged from the shoulders and from below the existing pavement structure cannot be used as Granular B Type II material for pavement construction. However, this granular material can be utilized as fill material provided that it is free of topsoil and other deleterious material.

9 ALIGNMENT AND GRADELINE

No major areas of geotechnical concern were encountered in the boreholes extended within the project limits.

10 PAVEMENT DESIGNS

The pavement structures were designed based on the traffic data provided in the report titled *Region of Peel Airport Road EA 1 km North of Mayfield Road to 0.6 km North of King Street Traffic Needs Assessment, dated February 2013* and, the data obtained from the field investigations.

The following references and guidelines were used for the pavement designs.

- MTO's "Adaptation and Verification of AASHTO Pavement Design Guide for Ontario Conditions, MI-183", March 19, 2008; and
- American Association of State Highway and Transportation Officials, "AASHTO Guide for Design of Pavement Structures", 1993.

10.1 Design Parameters

The pavements were designed using WinPAS12, a pavement design program. The AASHTO pavement design parameters that were used for the designs are presented in the following table.

DESIGN PARAMETER	VALUE
Initial/Terminal Serviceability Index (New Construction)	$P_i = 4.4$ $P_t = 2.2$
Initial/Terminal Serviceability Index (Rehabilitation)	$P_i = 4.4$ $P_t = 2.2$
Loss in Serviceability index	2.2
Desired Reliability (R %) and Standard Deviation (SD)	R = 85 SD = 0.44
Estimated Elastic Modulus of Subgrade Soil (MPa)	30 - 35
Estimated Cumulative ESALS (20 yr. Design Period)	5,600,000 – 6,900,000
Layer Coefficients of Hot Mix Asphalt (HMA)	New HMA = 0.42 Existing HMA=0.28
Layer Coefficient of Granular Materials	Gran. A = 0.14 Gran. B Type II = 0.12 Existing Granular = 0.09
Drainage Coefficient	m = 1.0 (new granular base & subbase) m = 1.0 (existing granular material)



10.2 Pavement Designs

10.2.1 New Construction

The design traffic calculations (Table F1) and the pavement designs are provided in Appendix. For a design traffic of 5,600,000 ESAL's the flexible pavement structure for new construction i.e. pavement widening is:

Hot Mix Asphalt	150 mm
Granular A Base	150 mm
Granular B Type II Subbase*	300 mm
Total Depth	600 mm

* As per request by the Region of Peel.

However, the pavement investigations indicate that "bathtub" construction exists i.e., the pavement thickness is greater than the thickness of the shoulder granular material which is an impediment to reliable lateral drainage. Therefore, we recommend increasing the thickness of the granular subbase in the widening area in order to provide reliable lateral drainage. The recommended pavement structure for new construction (widening) is:

Hot Mix Asphalt	150 mm
Granular A Base	150 mm
Granular B Type II Subbase	600 mm
Total Depth	900 mm
Design Structural Number	118 mm to 124 mm
Structural Number Provided	156 mm

10.2.2 Existing Pavement Rehabilitation

The rehabilitation designs were carried out using the FWD test data as well as the AASHTO 1993 Overlay Design Procedure.

There is a unique relationship between design rebound deflection (in inches) and the allowable ESAL, as presented in the Asphalt Institute¹ design chart of Design Rebound Deflection versus Equivalent 18 kip Single Axle Load.

The Asphalt Institute design chart indicates that a Design Rebound Deflection of 0.57 mm is required for a design ESAL value of 6,900,000. Based on the FWD test data, the derived Representative Spring Static Deflection is 0.53 mm which is lower than the Design Rebound Deflection value. Therefore, the FWD data indicates that the existing pavement is structurally adequate to carry the design traffic over a service life extension of 20 years.

However, the alignment drawings provided by IBI indicate that the vertical alignment of the roadway will be raised in some areas and lowered in other areas. The recommended pavement rehabilitation strategies for these roadway sections are provided in Table F1 in Appendix F.

¹ AI, 1983, Asphalt Overlays of Highway and Street Rehabilitation, Manual Series No. 17, Asphalt Institute.



11 RECOMMENDATIONS AND CONSTRUCTION FEATURES

11.1 Pavement Structure and Material Types

The following mix types are considered suitable for this project.

HL-1 or Superpave 12.5 FC1	Surface Course
HDBC or Superpave 19	Binder Course

Granular A material should be used for the shoulders and as base material for all new roadways and Granular B Type II is recommended as subbase material. Both the Granular A and the Granular B Type II materials should meet the OPSS.MUNI 1010 specifications.

HL-1 and HDBC hot mix asphalt mixes should conform to OPSS 1150 material specification. SP 12.5 FC1 and SP 19 hot mix asphalt types should be designed for Traffic Category C in accordance with OPSS MUNI 1151.

11.2 Padding

Superpave 9.5 (or alternatively HL 3 HS for Marshall mixes) is recommended as padding. Padding should be placed in lifts not exceeding 50 mm.

11.3 Asphalt Cement Grade

Performance graded asphalt cement PG 64-28 conforming to OPSS MUNI 1101 requirements, is recommended for the HMA binder and surface courses.

11.4 Tack Coat

A tack coat (SS-1) should be applied to all construction joints prior to placing hot mix asphalt to create an adhesive bond. Prior to placing hot mix asphalt SS1 tack coat must also be applied to all existing or milled surfaces and between all new lifts.

11.5 Pavement Tapers

At the limits of construction, appropriate tapering of the pavement thickness to match the existing pavement structure should be implemented in accordance with OPSS or applicable Region's practice or specifications.

12 EMBANKMENT MATERIALS & DESIGN

The placement of borrow material must be carefully monitored and properly compacted. Mixing materials from different sources is not recommended because of the risks associated with differential settlement, drainage problems and frost heave. Seeding/mulching should be completed as soon as possible to control erosion.



No slope stability problems are anticipated for earth fills less than 4 m high provided that the constructed side slope geometry is 2 Horizontal:1 Vertical (2H:1V) or flatter. Where existing embankments are to be widened the new fill material should be benched into the existing slope as per current OPSD standards.

13 DRAINAGE

13.1 Culvert Bedding, Cover and Backfill

Bedding for Corrugated Steel Pipe (CSP) and/or minor concrete pipe culverts should be in accordance with the OPSD 802 series. Granular A material is recommending for bedding and cover. Clean native material can also be used as cover provided it is placed below the design frost depth.

Granular frost tapers will be required when the frost line is below the top of culvert.

13.2 Ditches and Subdrains

Ditches are required to collect and remove excess surface water. In cut sections the ditch will be located adjacent to the roadway and the ditch invert must be at least 0.5 m below the top of the subgrade. For fill sections, the ditch invert should extend at least 0.25 m below the base of the fill and should be separated at least 1.5 m horizontally from the toe of the fill.

To promote drainage of the pavement structure, the base and sub-base granulars must extend across the full width of the roadway and must daylight in the ditches.

In all areas where a curb and gutter arrangement is present (urban sections), full-length subdrains placed beneath the curb in accordance with OPSD 216.020 is recommended for pavement drainage. Subdrains should consist of filter wrapped perforated plastic pipe placed in a trench excavated 300 mm by 300 mm into the subgrade. The trench should be backfilled with 19 mm clear stone. The subdrain pipe should be connected to a positive outlet.

14 OTHER DESIGN FEATURES

14.1 Compaction

All granular base and subbase materials should be placed in 150 mm lifts and compacted to 100% of the material's Standard Proctor Maximum Dry Density (SPMDD) at $\pm 2\%$ of its Optimum Moisture Content (OMC). Asphalt concrete should be placed and compacted in accordance with the appropriate OPSS or Region of Peel specifications.

14.2 Excavations

All excavations must be carried out in accordance with the Occupational Health and Safety Act (OHSA). For the purposes of the OHSA, the soils at this site may be classified as:

- Fill material – Type 3 soil.
- Silty Clay Till – Type 2 soil.



14.3 Stripping

For estimating purposes assume an average topsoil thickness of 150 mm in the widening areas.

14.4 Frost Protection

The grain size distribution results of the silty clay till indicate that the percentage of soil particles between 5 µm and 75 µm ranges from about 9% to 35%. Based on MTO's *Pavement Design and Rehabilitation Manual, SDO 90-01*, these soils are categorised as low frost susceptibility (LSFH).

For design purposes assume a frost penetration depth of 1.2 m.

14.5 Soil Chemistry Analysis

Selected soil samples were submitted to Agat Laboratories for chemical characterization with respect to general inorganic parameters including metals, pH, sodium adsorption ratio (SAR) and electrical conductivity (EC) to assess options for reuse or disposal of excess soils that will be generated during construction. Based on visual and/or olfactory screening of soil samples, these nominal parameters are analysed when there are no indications of environmental impacts. However, additional sampling/testing will be required during detail design to confirm disposal or re-use options. The Certificates of Analysis are included in Appendix D.

The analytical results were compared to Table 1 (Residential/Parkland/Industrial/Commercial/Community Property Use) and Table 3 (Industrial/Commercial/Community Property Use) of the *MOE Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, April 15, 2011*. Comparison of the test results to the MOE Standard indicates that the SAR and electrical conductivity of most tested samples exceeded the guideline values. The metal concentrations are generally below the remediation concentrations stipulated in Table 1. The only exception is Sample SS1 from Borehole 3 retrieved at a depth of 0.0 m – 0.6 m from which the lead and mercury concentrations exceed the guideline limits stipulated in Table 1 Standard for Residential/Parkland/ Industrial/ Commercial/Community Property Use. The lead concentration for this sample also exceeds the guideline limit stipulated in Table 3 Standard for Industrial/Commercial/Community Property Use. Refer to the Guideline Violation table in Appendix D for further details.

During the detail design phase, we recommend that additional sampling and chemical testing be conducted on soil samples retrieved in the vicinity of Borehole 3 to further assess the metal concentrations. Soil that does not meet the O. Reg.153/04 Table 3 Standards will typically have to be managed as waste.

15 LIMITATIONS AND RISK

15.1 Procedures

This preliminary investigation has been carried out using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by Terraprobe and other engineering practitioners, working under similar conditions and subject to the time, financial and physical constraints



applicable to this project. The discussions and recommendations that have been presented are based on the factual data obtained by Terraprobe and are to be used only for preliminary designs.

It must be recognized that there are special risks whenever engineering or related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with the most stringent level of care may fail to detect certain conditions. Terraprobe has assumed for the purposes of providing preliminary design parameters and advice, that the conditions that exist between sampling points are similar to those found at the sample locations. The conditions that Terraprobe has interpreted to exist between sampling points can differ from those that actually exist.

It may not be possible to drill a sufficient number of boreholes or sample and report them in a way that would provide all the subsurface information that could affect construction costs, techniques, equipment and scheduling. Further investigations will be required to complete the detail designs.

15.2 Changes in Site and Scope

It must also be recognized that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site have the potential to alter subsurface conditions. Ground water levels are particularly susceptible to seasonal fluctuations.

The discussion and recommendations are based on the factual data obtained from preliminary investigations made at the site by Terraprobe and are intended for use by the owner and its retained designers in the preliminary design phase of the project. If there are changes to the project scope and development features, the interpretations made of the subsurface information, the preliminary geotechnical design parameters and comments relating to constructability issues and quality control may not be relevant or complete for the revised project. Terraprobe should be retained to review the implications of such changes with respect to the contents of this report.

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REFERENCES

American Association of State Highway Officials, *AASHTO Guide for Design of Pavement Structures*, 1993.

Asphalt Institute, *Asphalt Overlays of Highway and Street Rehabilitation, Manual Series No. 17*, 1983.

ASTM D1586 - 08a, *Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils*, 2008.

Chapman, L. J., and Putnam, D.F., 1984. *The Physiography of Southern Ontario*, 3rd Edition. Ontario Geological Survey, Special Volume 2. Ontario Ministry of Natural Resources.

Ministry of Environment Ontario. *Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act*, April 15, 2011.

Ministry of Transportation Ontario, *Adaption and Verification of AASHTO Pavement Design Guide for Ontario Conditions (MI-183)*, 2008.

Ministry of Transportation Ontario. *Pavement Design and Rehabilitation Manual (SDO 90-01)*, 1990.

Ministry of Transportation Ontario, *Manual for Condition Rating of Flexible Pavements - Distress Manifestations (SP-024)*, August 1989.

Region of Peel. *Airport Road EA 1 km North of Mayfield Road to 0.6 km North of King Street Traffic Needs Assessment*, February 2013.

Ontario Provincial Standard Specifications (OPSS)

OPSS.MUNI 1010 Material Specification for Aggregates Base, Subbase, Select Subgrade and Backfill Material.

OPSS.MUNI 1101 Material Specification for Performance Graded Asphalt Cement.

OPSS 1150 Material Specification for Hot Mix Asphalt

OPSS.MUNI 1151 Material Specification for Superpave and Stone Mastic Asphalt Mixtures.

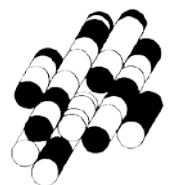
Ontario Provincial Standard Drawings (OPSD)

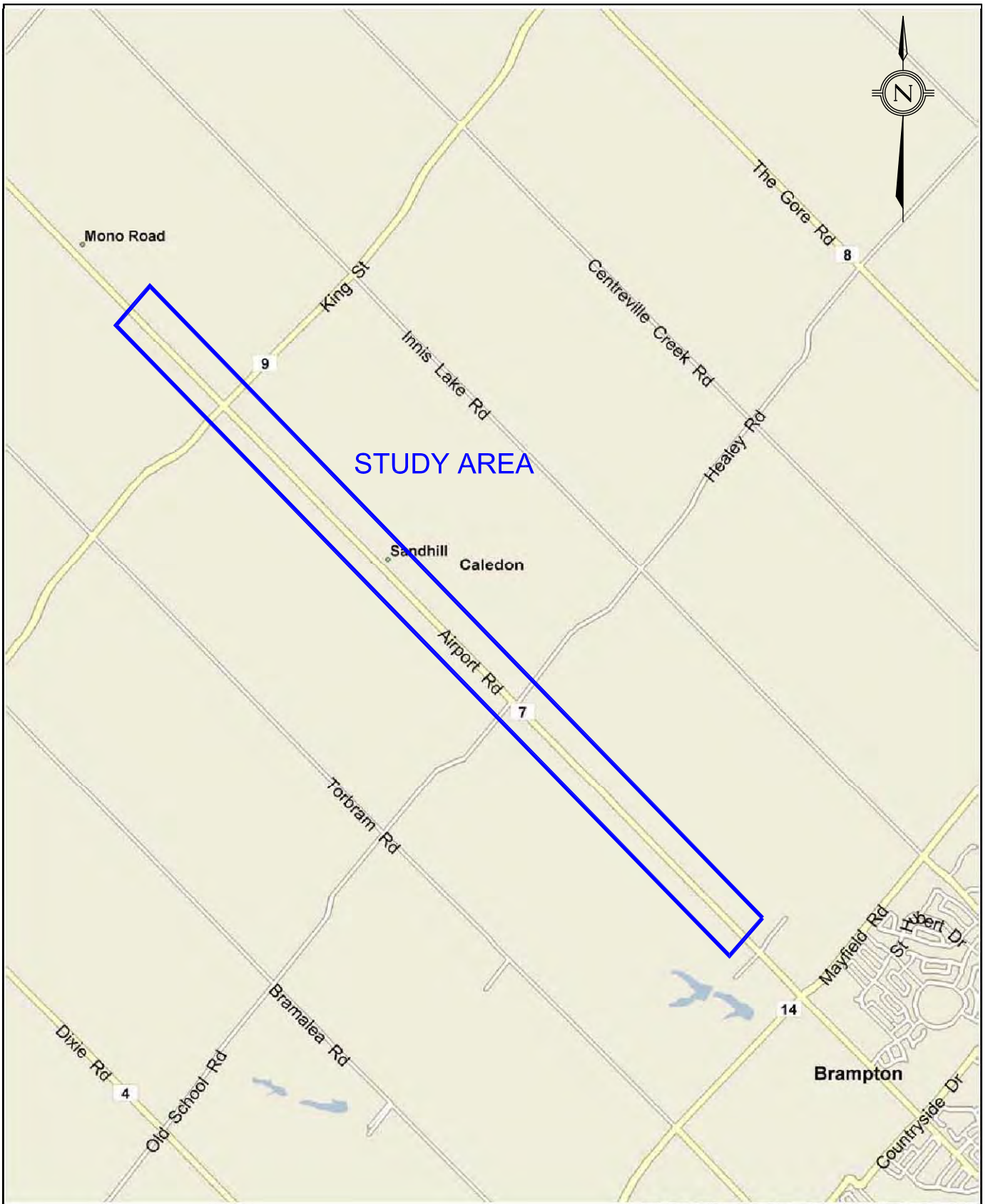
OPSD 216.020 Hot Mix, Concrete, and Composite Pavement on Granular Base, Urban Section.



FIGURES

TERRAPROBE INC.





Title: **AIRPORT ROAD CLASS EA STUDY
Site Location plan**

File No. 11-12-2096

FIGURE:
1



PHOTOGRAPH 1. Approximate Sta. 0+500, Airport Road, urban Cross Section, looking north.



PHOTOGRAPH 2. Approximate Sta. 1+000, Airport Road, urban cross section, looking north.

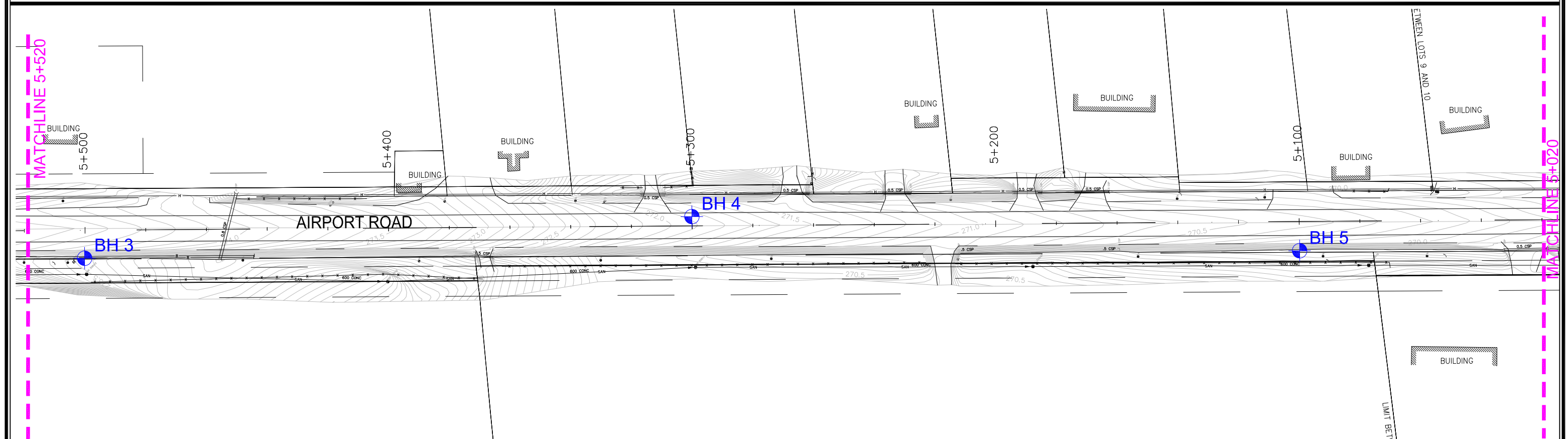
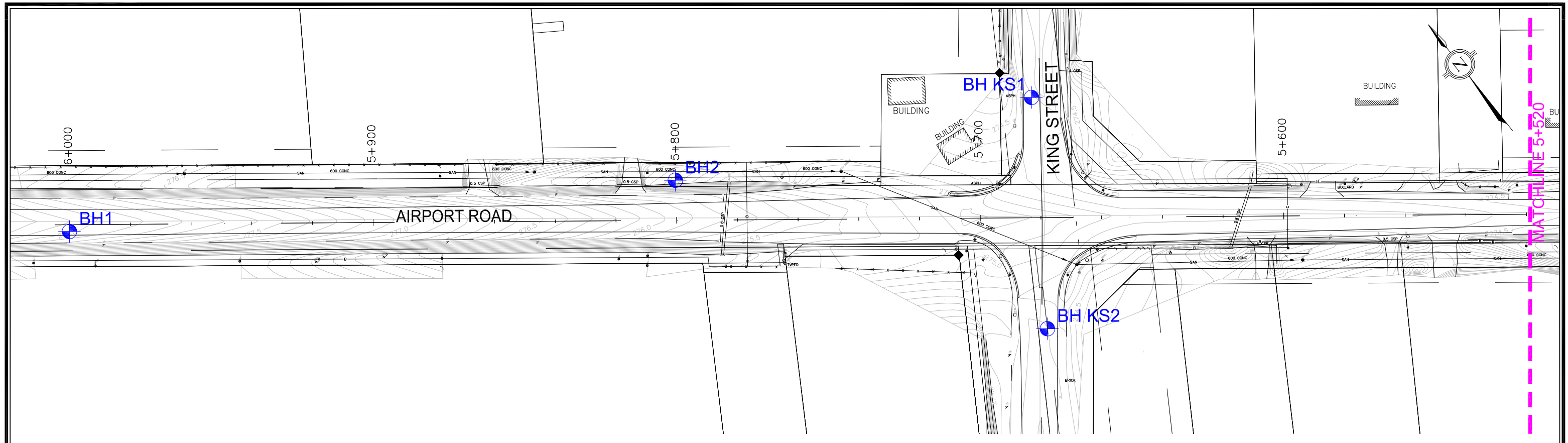
TYPICAL SITE PHOTOGRAPHS




PHOTOGRAPH 3. Approximate Sta. 2+350, Airport Road, rural cross section, looking north.

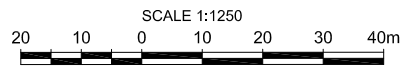


PHOTOGRAPH 4. Approximate Sta. 5+000, Airport Road, rural cross section, looking north.



REFERENCE
 Base plans provided in digital format by IBI Group,
 drawing files Airport 12-4380 base plan .dgn,
 12-4380 Preliminary Property Nov-11 .dgn,
 12-4380 Airport Rd Title Plan .dgn,
 Airport 2d 03-4040 Contour .dgn.

LEGEND
 Borehole Location



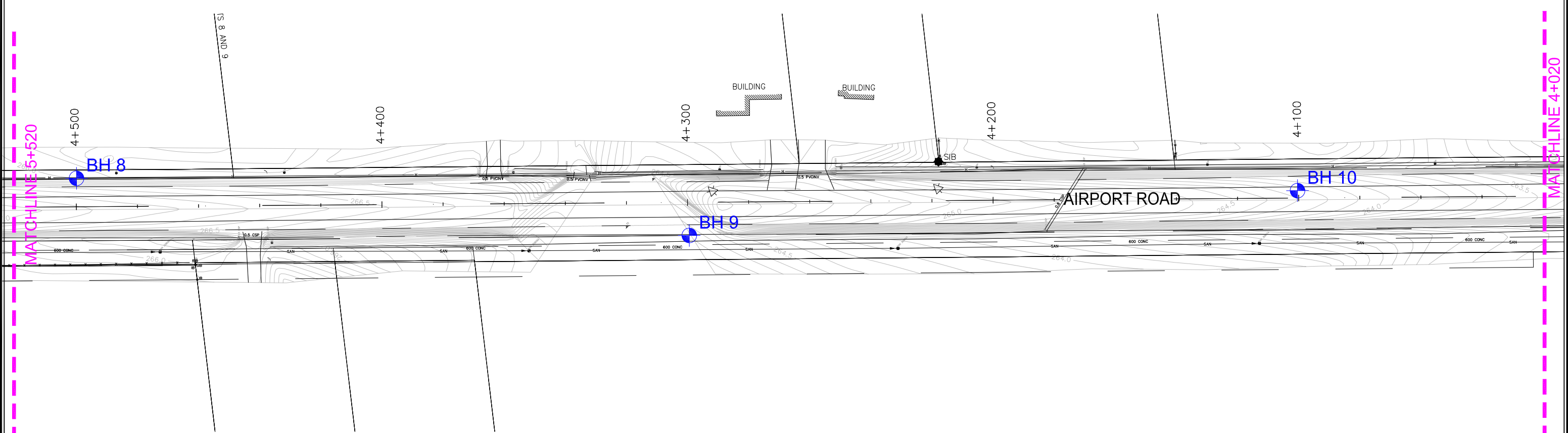
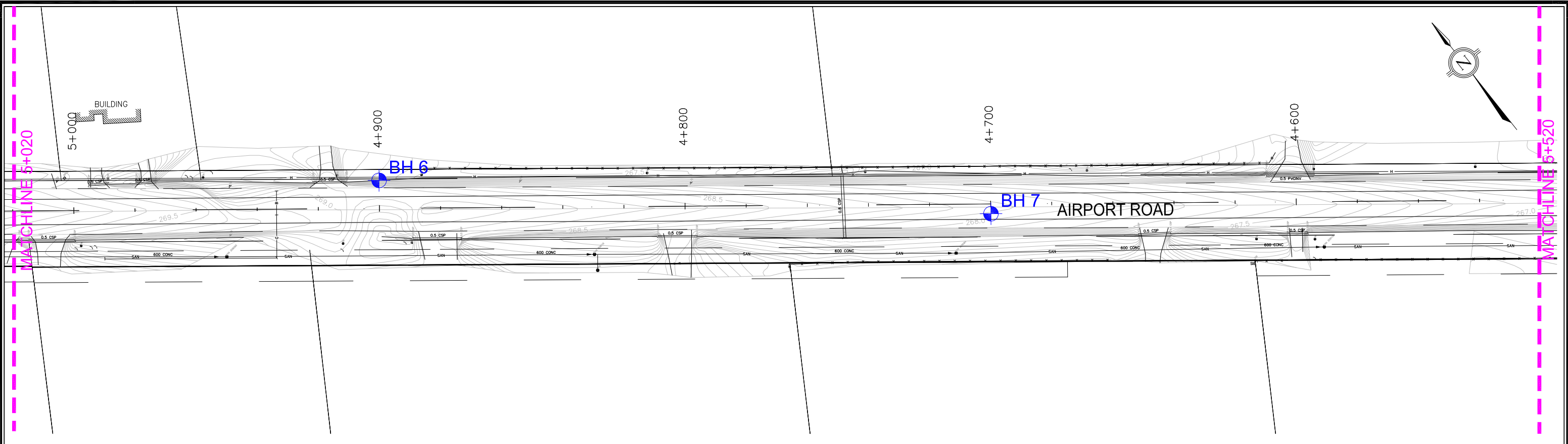

Terraprobe
 11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250

Title:	AIRPORT ROAD CLASS EA STUDY Borehole Location Plan
File No.	11-12-2096


FIGURE:
4

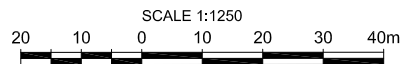
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REFERENCE
 Base plans provided in digital format by IBI Group,
 drawing files Airport 12-4380 base plan .dgn,
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 12-4380 Airport Rd Title Plan .dgn,
 Airport 2d 03-4040 Contour .dgn.

LEGEND
 Borehole Location

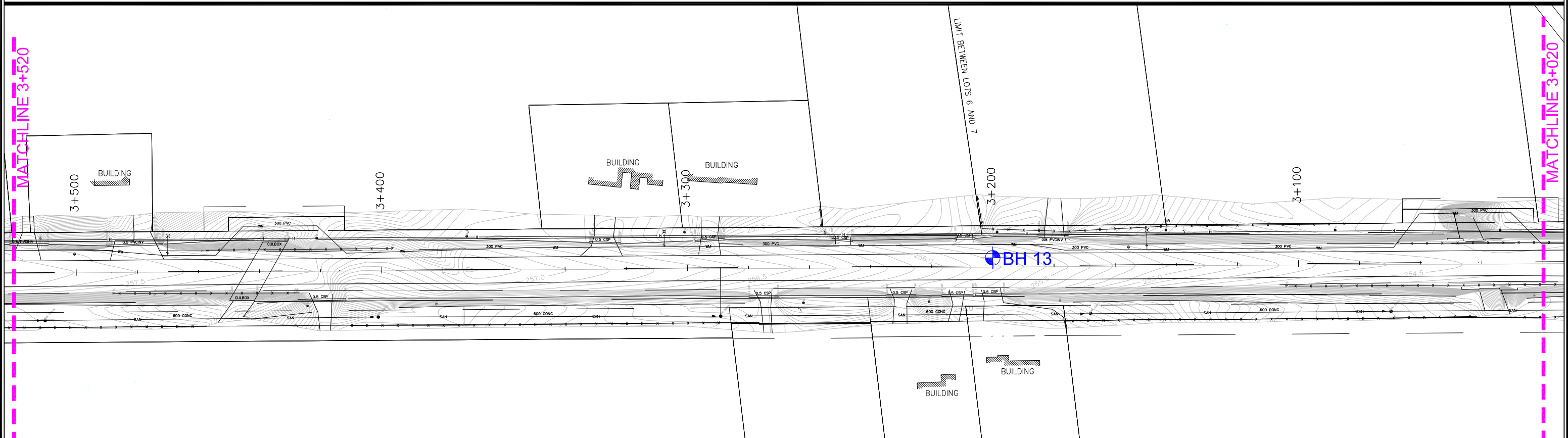
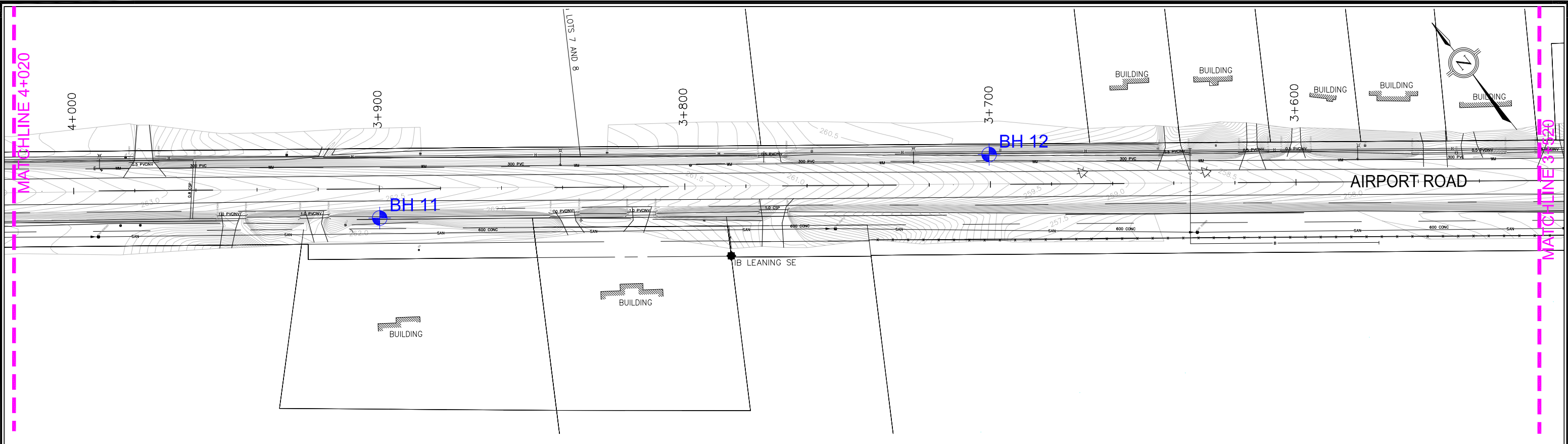



Terraprobe
 11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250


Title:	AIRPORT ROAD CLASS EA STUDY Borehole Location Plan
File No.	11-12-2096

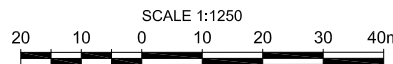
FIGURE :
5

\\PDC\server11\ProjectFiles\11-Civil\2012\11-12-2009 - 2099\11-12-2009 A. Dwg. Log\AutoCAD\11-12-2009 BH Location Plan (MARCH 2013).dwg. 6/24/11



REFERENCE
 Base plans provided in digital format by IBI Group,
 drawing files Airport 12-4380 base plan .dgn,
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 12-4380 Airport Rd Title Plan .dgn,
 Airport 2d 03-4040 Contour .dgn.

LEGEND
 Borehole Location

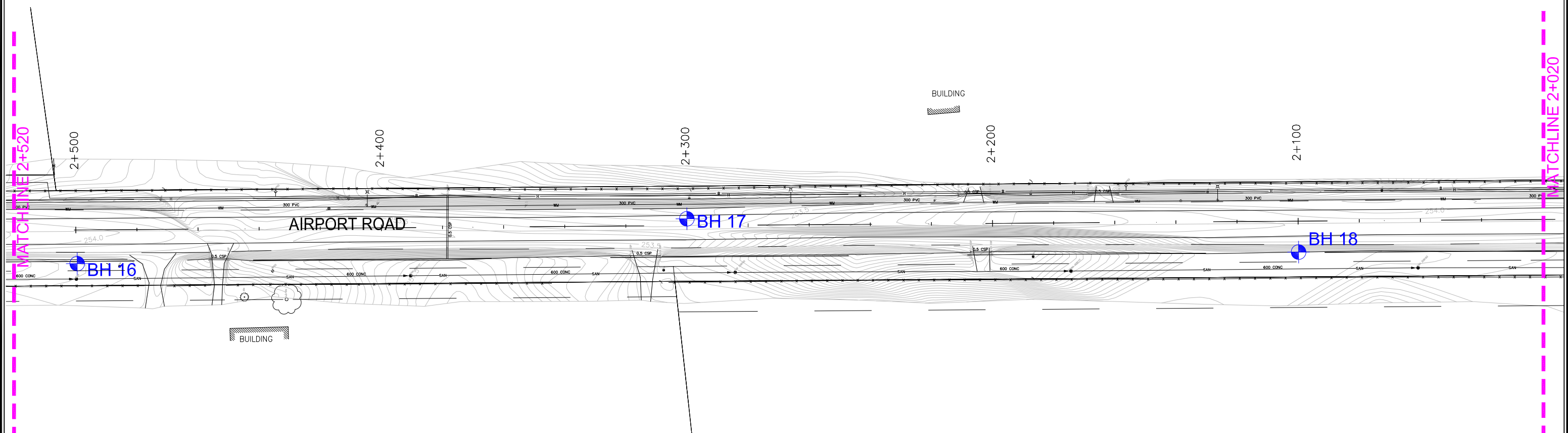
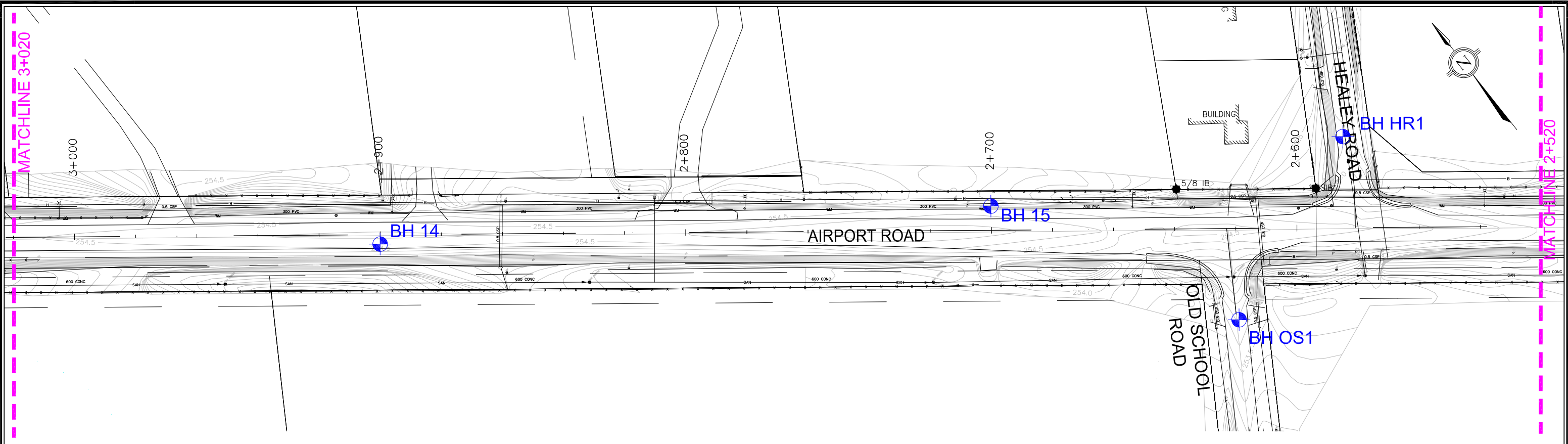



Terraprobe
 11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250


Title: AIRPORT ROAD CLASS EA STUDY Borehole Location Plan	
File No.	11-12-2096

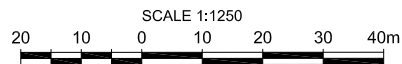
FIGURE :
 6

V:\PDC\Server11-12-2009\11-12-2009\A_Dwg\Logs\AutoCAD\11-12-2009\BH Location Plan (MARCH 2013).dwg 6/24/13



REFERENCE
 Base plans provided in digital format by IBI Group,
 drawing files Airport 12-4380 base plan .dgn,
 12-4380 Preliminary Property Nov-11 .dgn,
 12-4380 Airport Rd Title Plan .dgn,
 Airport 2d 03-4040 Contour .dgn.

LEGEND
 Borehole Location

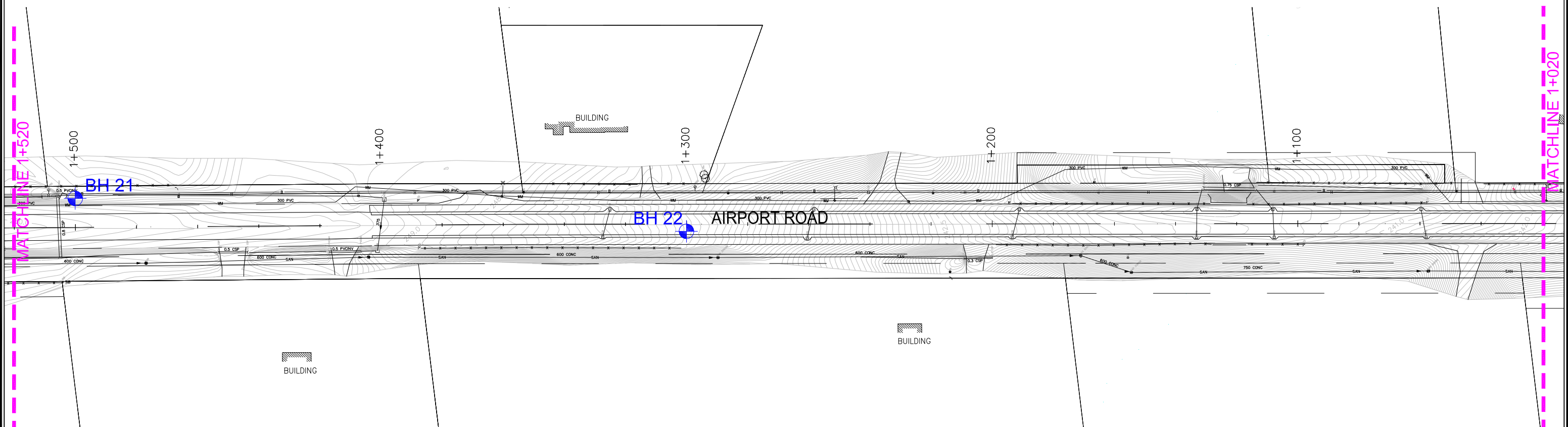
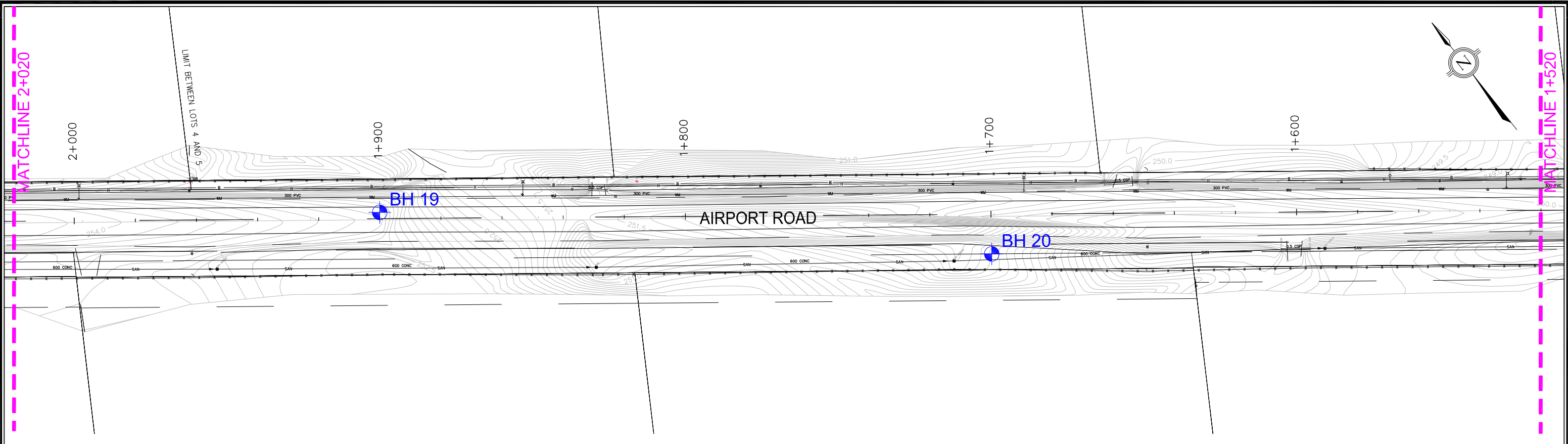



Terraprobe
 11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250


Title:	AIRPORT ROAD CLASS EA STUDY Borehole Location Plan
File No.	11-12-2096

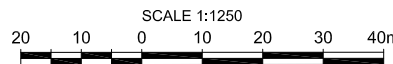
FIGURE :
7

V:\PDC\Server11-12-2006\11-12-2006\A. Dwyer, Logi\AutoCAD\11-12-2006 BH Location Plan (MARCH 2013).dwg, KAMAL



REFERENCE
 Base plans provided in digital format by IBI Group,
 drawing files Airport 12-4380 base plan .dgn,
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 12-4380 Airport Rd Title Plan .dgn,
 Airport 2d 03-4040 Contour .dgn.

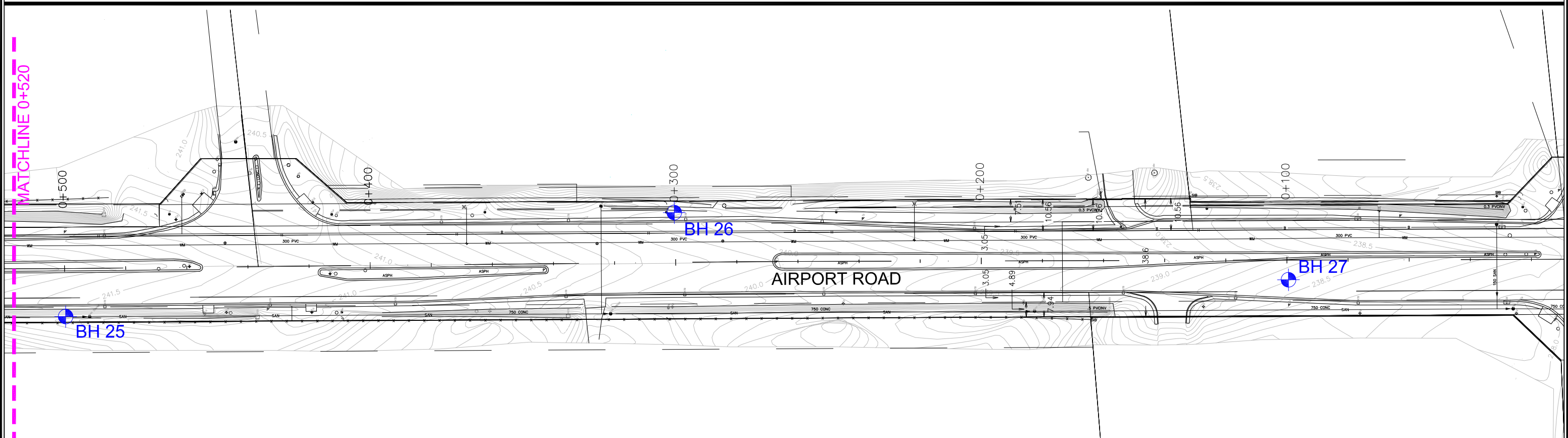
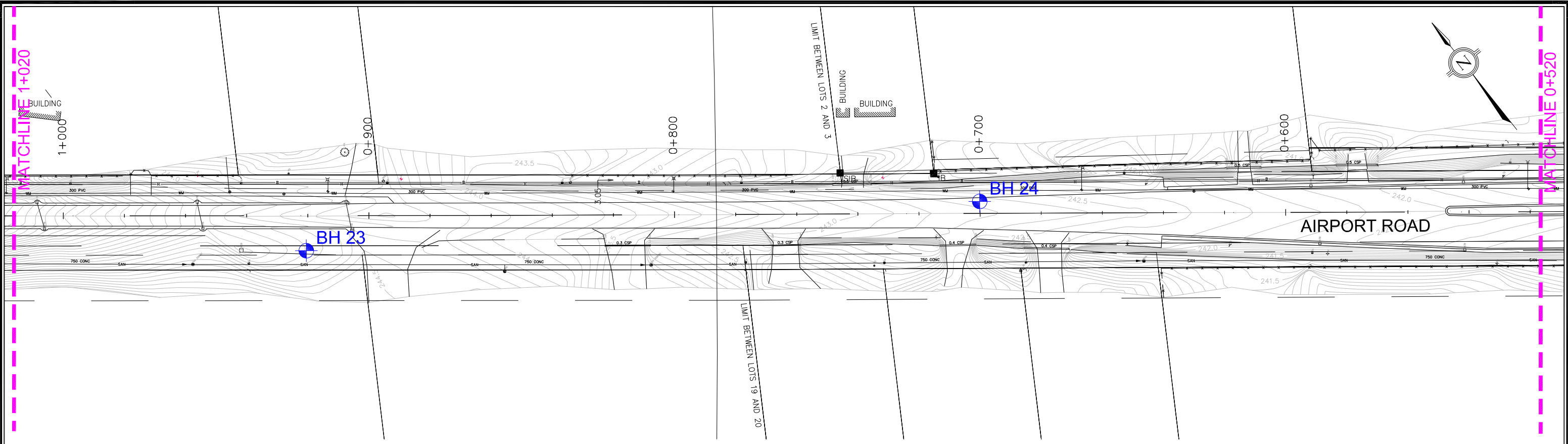
LEGEND
 Borehole Location




Terraprobe
 11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250

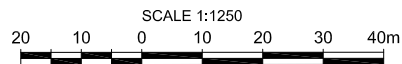
Title:	AIRPORT ROAD CLASS EA STUDY Borehole Location Plan
File No.	11-12-2096

FIGURE :
8



REFERENCE
 Base plans provided in digital format by IBI Group,
 drawing files Airport 12-4380 base plan .dgn,
 12-4380 Preliminary Property Nov-11 .dgn,
 12-4380 Airport Rd Title Plan .dgn,
 Airport 2d 03-4040 Contour .dgn.

LEGEND
 Borehole Location



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 11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250

Title: AIRPORT ROAD CLASS EA STUDY Borehole Location Plan	
File No.	11-12-2096

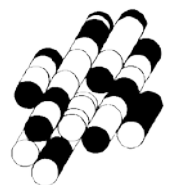
FIGURE:
9

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APPENDIX A

Pavement Condition Evaluation Forms

TERRAPROBE INC.



Ministry of Transportation



Flexible Pavement Condition Evaluation Form

Location: _____ Airport Road _____

District

Highway

From: 1.0 km North of Mayfield Road **To:** 0.6 km North of King Street

Traffic Direction B B - both directions; N - northbound; S - southbound; E - eastbound; W - westbound

LHRS **km** **Section Length** 5 8 0 0 **m**
 begins offset

Facility A A - all lanes; C - collector; E - express; O - others (additional lanes)

Survey Date 1 3 0 3 **year month** **PCR** 8 6 **RCR** 8 0

Class A F - freeway; A - arterial; C - collector; L - local; S - secondary

Contract No. - **WP No.**

Ride Condition Rating (at 80 km/hr)		Severity of Distress	Density of Distress Extent of Occurrence %																
			Very Slight	Slight	Moderate	Severe	Very Severe	Few	Intermittent	Frequent	Extensive	Throughout							
								<10	10-20	20-50	50-80	80-100							
PAVEMENT		1	2	3	4	5	1	2	3	4	5								
Surface Defects	Ravelling & C. Agg. Loss	1																	
	Flushing	2																	
Surface Deformations	Rippling and Shoving	3																	
	Wheel Track Rutting	4																	
	Distortion	5																	
CRACKING	Longitudinal Wheel Track	Single and Multiple	6	✓							✓								
		Alligator	7																
	Centre Line	Single and Multiple	8		✓								✓						
		Alligator	9			✓				✓									
	Pavement Edge	Single and Multiple	10			✓									✓				
		Alligator	11																
Transverse	Half, Full and Multiple	12			✓				✓										
	Alligator	13																	
Longitudinal Meander and Midlane		14	✓							✓									
Random / Map		15																	

PCI Value: 86

Distress Comments: (items not covered above)

Intermittent slight to moderate lane and shoulder drop-off.

Dominant Type	Shoulders	Distress	Severity of Distress				Density of Distress Extent of Occurrence, %			
			Right		Left		Right		Left	
			Mod.	Sev.	Mod.	Sev.	10-30	>30	10-30	>30
Paved Full		Cracking	1	2	1	2	1	2	1	2
Paved Partial		Pavement Edge/ Curb Separation								
Surface Treated		Distortion								
Primed		Breakup/Separation								
Gravel		Edge Break								
		Breakup/Separation								

Maintenance Treatment	EXTENT OF OCCURRENCE, %									
	<10	10-20	20-50	50-80	>80					
	1	2	3	4	5					
Pavement	Manual Patching									
	Machine Patching									
	Spray Patching									
	Rout and Seal Cracks									
Shoulders	Chip Seal									
	Manual Patching									
	Machine Patching									
	Rout and Seal Cracks									
	Chip Seal									

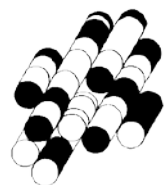
Other Comments: (e.g., subsections, additional contracts)

Evaluated by: _____

APPENDIX B

Borehole Logs Pavement Core Data and Photographs

TERRAPROBE INC.





SAMPLING METHODS		PENETRATION RESISTANCE	
AS	Auger sample	<p>Standard Penetration Test (SPT) N-value (penetration resistance) is defined as the number of blows required to advance a standard 50 mm (2 in.) diameter split spoon sampler for a distance of 0.3 m (12 in.) with a hammer weighing 63.5 kg (140 lb.) falling freely for a distance of 0.76 m (30 in.).</p> <p>Dynamic Cone Penetration Test (DCPT) resistance is defined as the number of blows required to advance a conical steel point 50 mm (2 in.) base diameter tapered 60° to the apex and attached to 'A' size drill rods for a distance of 0.3 m (12 in.), with a hammer weighing 63.5 kg (140 lb.) falling freely for a distance of 0.76 m (30 in.).</p>	
GS	Grab sample		
SS	Split spoon		
ST	Shelby tube		
WS	Wash sample		
RC	Rock core		
SC	Soil core		

COHESIONLESS SOILS		COHESIVE SOILS			MINOR SOIL CONSTITUENTS	
Relative Density	N-value Blows/0.3m	Consistency	N-value Blows/0.3m	Undrained Shear Strength (kPa)	Modifier (e.g)	% by weight
Very loose	< 5	Very soft	< 2	< 12	<i>trace</i> (trace silt)	< 10
Loose	5 – 10	Soft	2 – 4	12 – 25	<i>some</i> (some silt)	10 – 20
Compact	10 – 30	Firm	4 – 8	25 – 50	(<i>ey</i>) or (<i>y</i>) (sandy)	20 – 35
Dense	30 – 50	Stiff	8 – 15	50 – 100	<i>and</i> (sand and silt)	> 35
Very dense	> 50	Very stiff	15 – 30	100 – 200		
		Hard	> 30	> 200		

TESTS AND SYMBOLS

MH	combined sieve and hydrometer analysis		Unstabilized water level
w,	water content		1 st water level measurement
w _L ,	liquid limit		2 nd water level measurement
w _P ,	plastic limit		Most recent water level measurement
I _P ,	plasticity index		Undrained shear strength from field vane (with sensitivity)
k	coefficient of permeability	C _c	compression index (normally consolidated range)
γ	soil unit weight, bulk	C _r	recompression index (overconsolidated range)
G _s	specific gravity	c _v	coefficient of consolidation
φ'	effective angle of internal friction	m _v	coefficient of compressibility (volume change)
c'	effective cohesion	e	void ratio
c _u	undrained shear strength (φ = 0 analysis)		

FIELD MOISTURE DESCRIPTIONS

Dry	refers to a soil sample with a moisture content well below optimum ($w < w_{opt}$), absence of moisture, dusty, dry to the touch.
Moist	refers to a soil sample with a moisture content at or near optimum ($w \approx w_{opt}$), no visible pore water.
Wet	refers to a soil sample with a moisture content well above optimum ($w > w_{opt}$), has visible pore water.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

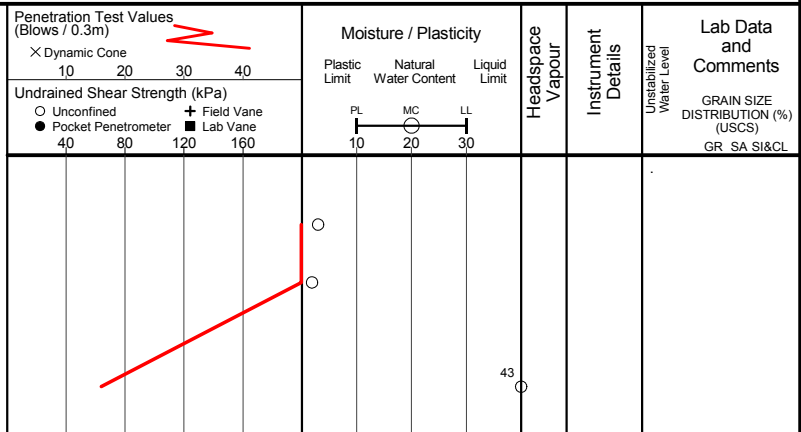
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 6+000

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm ASPHALTIC CONCRETE										
		750mm GRANULAR BASE / SUBBASE		1	SS	62						
				2	SS	50 / 150mm						
1	0.9	FILL, silty clay, trace to some organics, very stiff, dark brown, wet		3	SS	16						
1.8												

END OF BOREHOLE



Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 5+800

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments		
	Elev Depth (m)	Description	Graphic Log	Number	Type							SPT 'N' Value	Dynamic Cone
0		GROUND SURFACE											
0.2		150mm TOPSOIL											
		SILTY CLAY , some sand, trace gravel, brown, moist (GLACIAL TILL)		1A	SS								
				1B									
1				2	SS								
1.8		END OF BOREHOLE											

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 5+500

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		FILL , clayey silt, some sand, trace gravel, trace organics, dark brown, moist		1	SS							

Penetration Test Values (Blows / 0.3m): 10 20 30 40

Dynamic Cone:

Undrained Shear Strength (kPa): 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL)

Legend: Unconfined (circle), Field Vane (+), Pocket Penetrometer (dot), Lab Vane (square)

1.1 **END OF BOREHOLE**

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

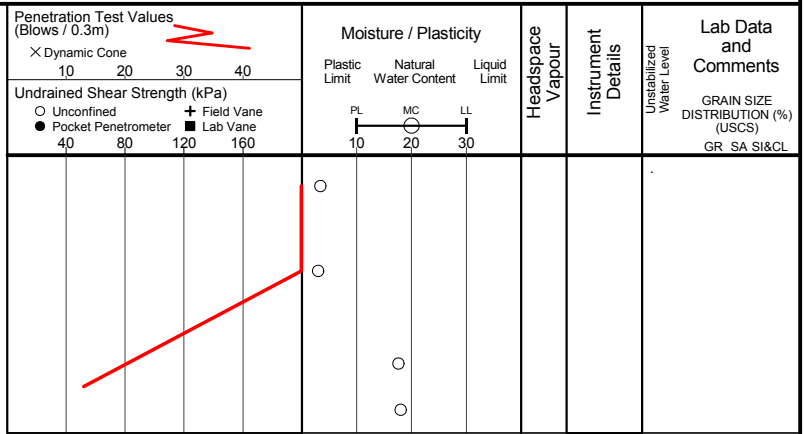
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 5+300

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2	160mm	ASPHALTIC CONCRETE		1	SS	50 / 100mm						
	740mm	GRANULAR BASE / SUBBASE										
1	0.9	FILL , clayey silt, some sand, trace gravel, stiff, greyish brown, moist		2	SS	50 / 150mm						
	1.5	SILTY CLAY , some gravel, trace sand, stiff, brown, moist		3A	SS	13						
	1.8	(GLACIAL TILL)		3B								

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.





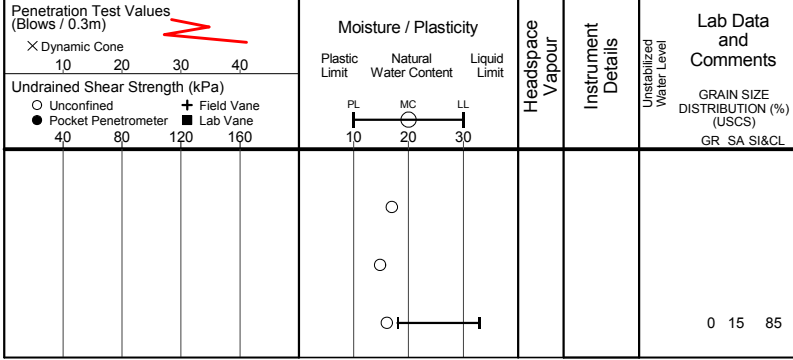
Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 5+100

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		SILTY CLAY , some sand, trace gravel, trace rootlets, brown, moist (GLACIAL TILL)		1A	SS							
				1B								
1				2	SS							
1.4		END OF BOREHOLE										

Borehole was dry and open upon completion of drilling.





Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 4+900

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		1	SS							
1				2	SS							
1.8												

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

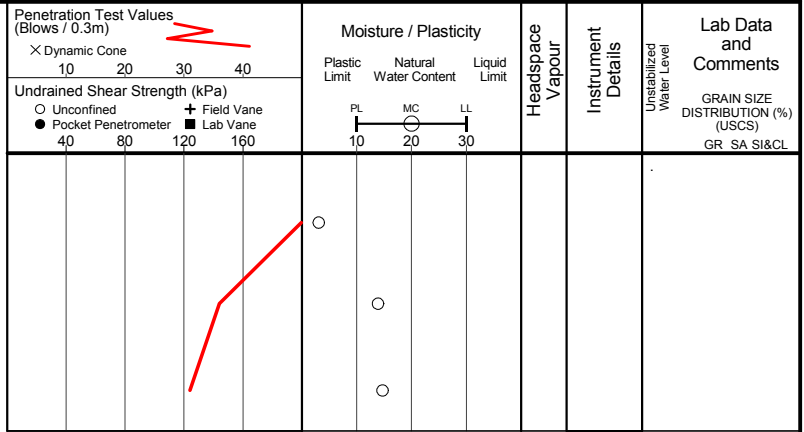
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 4+700

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		210mm ASPHALTIC CONCRETE										
1.0	0.2	1090mm GRANULAR BASE / SUBBASE		1	SS	74						
1.3		SILTY CLAY , trace gravel, trace sand, hard, brown, moist (GLACIAL TILL)		2	SS	36						
1.8	1.3			3	SS	31						

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.





Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 4+500

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		FILL , silty clay, some sand, trace gravel, dark brown, wet		1	SS							
0.9		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		2	SS							
1.8		END OF BOREHOLE										

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

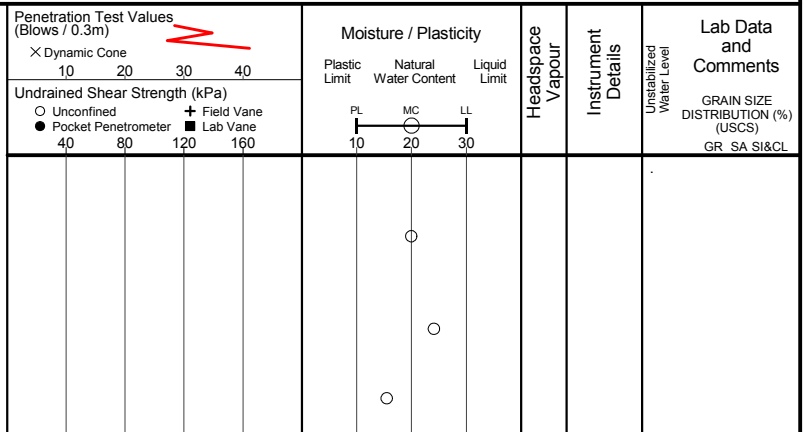
Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 4+300

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		FILL , clayey silt, some sand, trace gravel, dark brown, moist to wet		1	SS							
				2A								
				2B	SS							
1.4		SILTY CLAY , some sand, trace gravel, brown, moist (GLACIAL TILL)										
1.8												

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.





Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

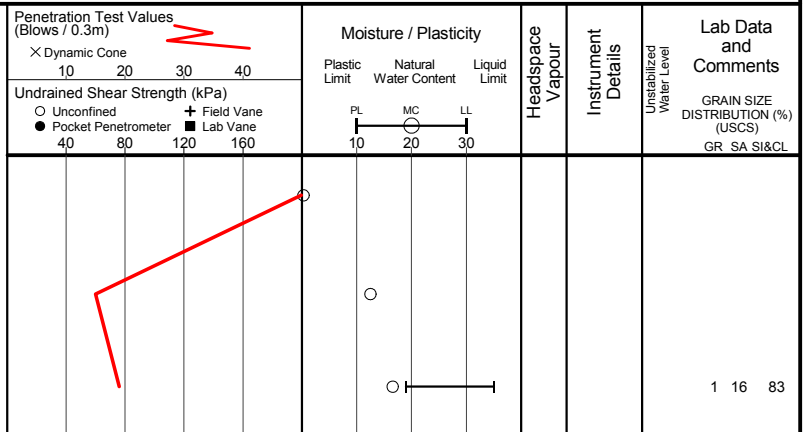
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 4+100

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type						
0		GROUND SURFACE									
0.2		200mm ASPHALTIC CONCRETE									
0.4		200mm GRANULAR BASE / SUBBASE									
		FILL , sandy silt, some clay, trace gravel, compact, greyish brown, moist									
1			2	SS	15						
1.2		SILTY CLAY , some sand, trace gravel, very stiff, brown, moist (GLACIAL TILL)									
1.8			3	SS	19						1 16 83

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario


Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 3+900

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		FILL, silty clay, trace gravel, trace sand, trace rootlets, brown, moist		1	SS							
				2A	SS							
1.5		SILTY CLAY, trace gravel, trace sand, brown, moist										
1.8		(GLACIAL TILL)		2B								

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Penetration Test Values (Blows / 0.3m)
 X Dynamic Cone 

Undrained Shear Strength (kPa)
 O Unconfined + Field Vane
 ● Pocket Penetrometer ■ Lab Vane

Moisture / Plasticity
 Plastic Limit Natural Water Content Liquid Limit

Lab Data and Comments
 GRAIN SIZE DISTRIBUTION (%) (USCS)
 GR SA SI&CL



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 3+700

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		FILL , silty clay, some sand, trace gravel, dark brown, moist		1	SS							
0.9		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		2	SS							
1.8		END OF BOREHOLE										

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

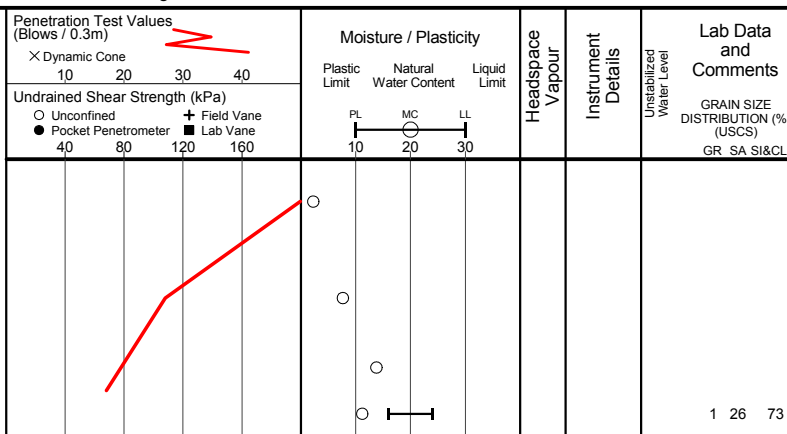
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 3+200

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		240mm ASPHALTIC CONCRETE										
0.2		1260mm GRANULAR BASE / SUBBASE		1	SS	50 / 100mm						
1				2	SS	27						
1.5				3A	SS	17						
1.5		SILTY CLAY , sandy, trace gravel, very stiff, brown, moist										
1.8		(GLACIAL TILL)		3B								

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.



1 26 73



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

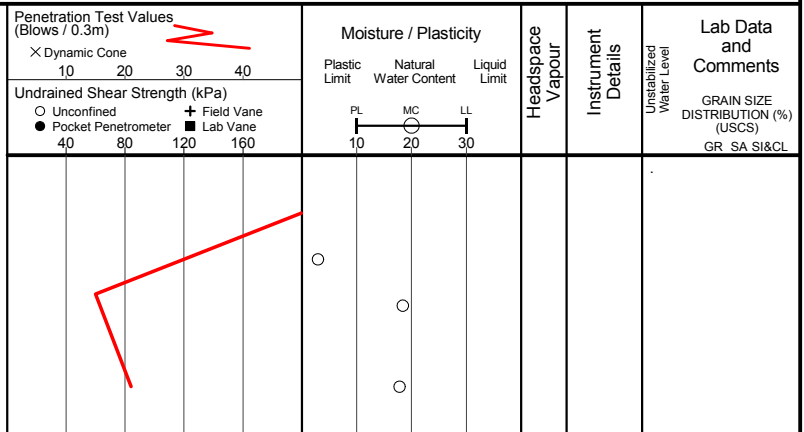
Project No.: 11-12-2096
 Date started : November 27, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 2+900

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2	150mm	ASPHALTIC CONCRETE										
	550mm	GRANULAR BASE / SUBBASE		1	SS	66						
				2A								
0.8		FILL , clayey silt, trace sand, trace gravel, stiff, dark brown, moist		2B	SS	15						
1.2		SILTY CLAY , trace gravel, trace sand, very stiff, brown, moist (GLACIAL TILL)		3	SS	21						
1.8												

END OF BOREHOLE






Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 2+700

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		1	SS							
				2	SS							
1												
1.8												




END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 2+500

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type						
0		GROUND SURFACE									
0.2		150mm TOPSOIL									
		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		1	SS						
				2	SS						
1.8		END OF BOREHOLE									

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 2+300

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		250mm ASPHALTIC CONCRETE										
		510mm GRANULAR BASE / SUBBASE		1	SS	50 / 100mm						
				2A								
1		SILTY CLAY , trace sand, stiff to very stiff, brown, moist (GLACIAL TILL)		2B	SS	9						
				3	SS	27						
1.8		END OF BOREHOLE										0 3 97

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 2+100

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		1A	SS							
				1B								
1				2	SS							
1.4												

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Penetration Test Values (Blows / 0.3m)
 X Dynamic Cone

Undrained Shear Strength (kPa)
 O Unconfined + Field Vane
 ● Pocket Penetrometer ■ Lab Vane




Moisture / Plasticity
 Plastic Limit Natural Water Content Liquid Limit

Lab Data and Comments
 GRAIN SIZE DISTRIBUTION (%) (USCS)
 GR SA SI&CL

Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

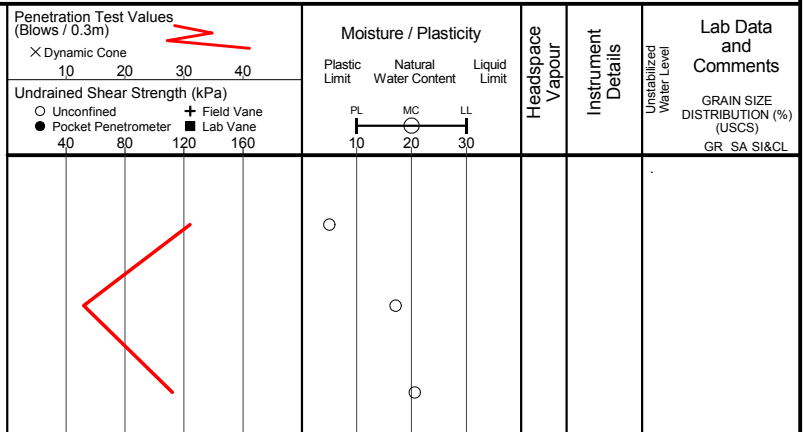
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 1+900

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments	
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value							
0		GROUND SURFACE											
0.2		230mm ASPHALTIC CONCRETE											
0.6		370mm GRANULAR BASE / SUBBASE		1	SS	31							
1.0		SILTY CLAY , trace gravel, trace sand, stiff to very stiff, brown, moist (GLACIAL TILL)		2	SS	13							
				3	SS	28							
1.8													

END OF BOREHOLE




Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 1+700

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		150mm TOPSOIL										
		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		1	SS							
				2	SS							
1												
1.8												




END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

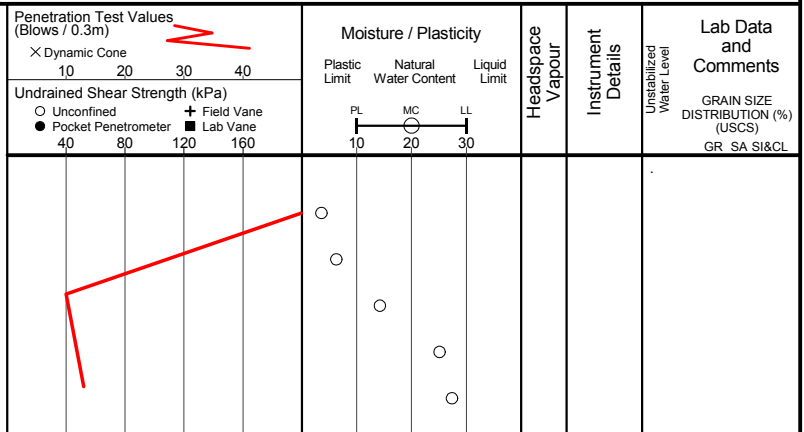
Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 1+500

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		210mm ASPHALTIC CONCRETE										
	0.2	550mm GRANULAR BASE / SUBBASE		1	SS	54						
	0.8	FILL , clayey silt, some sand, trace gravel, stiff, dark brown, moist to wet		2A								
				2B	SS	10						
	1.4	SILTY CLAY , trace gravel, trace sand, stiff, brown, wet (GLACIAL TILL)		3A								
				3B	SS	13						

1.8

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.





Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : November 27, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 1+300

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity			Headspace Vapour	Instrument Details	Lab Data and Comments	
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value			Plastic Limit	Natural Water Content	Liquid Limit				
0	GROUND SURFACE														
0.3	35mm	ASPHALTIC CONCRETE		1A											
0.8	235mm	GRANULAR BASE / SUBBASE		1B	SS	12									
		FILL, clayey silt, some sand, trace gravel, stiff, dark brown, moist													
1		SILTY CLAY, trace gravel, trace sand, firm, brown, moist (GLACIAL TILL)		2	SS	8									
		...at 1.5 m, becoming very stiff													
2				3	SS	26									
3				4	SS	29									
4				5	SS	23									
5				6	SS	19									
6				7	SS	23									
6.6	END OF BOREHOLE														






Borehole was dry and open upon completion of drilling.

Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 0+920

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type						
0		GROUND SURFACE									
0.2		150mm TOPSOIL									
		SILTY CLAY , trace gravel, trace sand, brown, moist (GLACIAL TILL)		1	SS						
				2	SS						
1											
1.8											

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

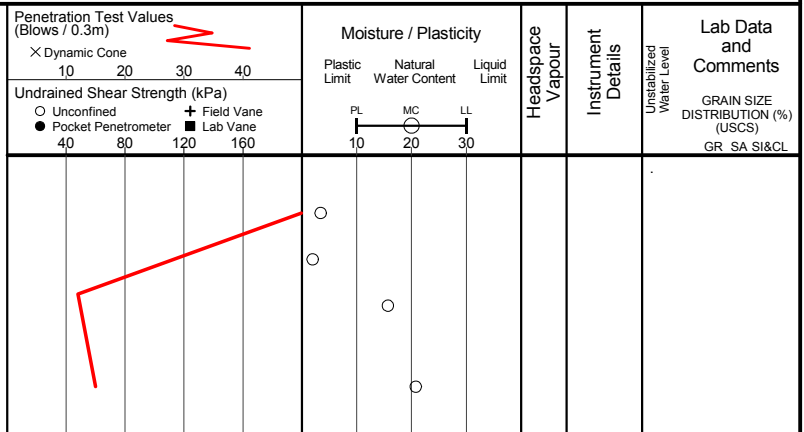
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 0+700

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		170mm ASPHALTIC CONCRETE										
		590mm GRANULAR BASE / SUBBASE		1	SS	67						
				2A								
0.8		SILTY CLAY , trace gravel, trace sand, stiff, brown, moist (GLACIAL TILL)		2B	SS	12						
				3	SS	15						
1.8												

END OF BOREHOLE




Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 0+500

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type						
0		GROUND SURFACE									
0.2		150mm TOPSOIL									
		FILL , clayey silt, some sand, trace gravel, brown, moist		1	SS						
				2	SS						
1											
1.8											

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : December 3, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : PIONJAR Station : 0+300

Depth Scale (m)	SOIL PROFILE		SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type						
0		GROUND SURFACE									
0.2		150mm TOPSOIL									
		FILL , clayey silt, some sand, trace gravel, brown to greyish brown, moist		1	SS						
1				2	SS						
1.8											

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

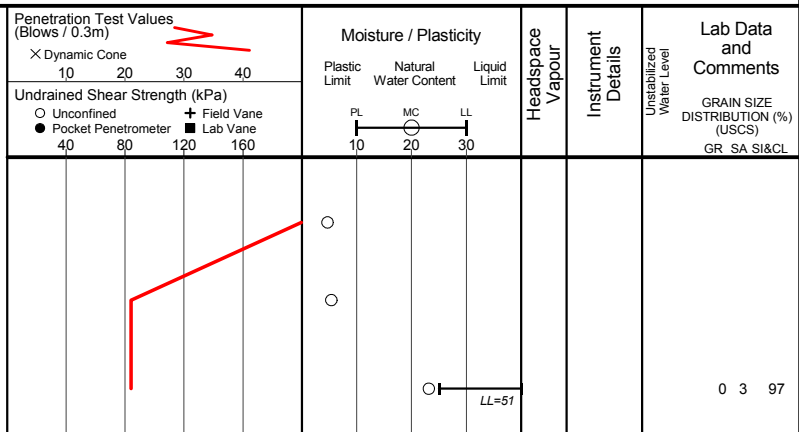
Project No.: 11-12-2096
 Date started : November 27, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers Station : 0+100

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		220mm ASPHALTIC CONCRETE										
0.2		980mm GRANULAR BASE / SUBBASE		1	SS	54						
1				2	SS	21						
1.2		SILTY CLAY , trace sand, very stiff, brown, moist (GLACIAL TILL)		3	SS	21						
1.8												

END OF BOREHOLE





Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

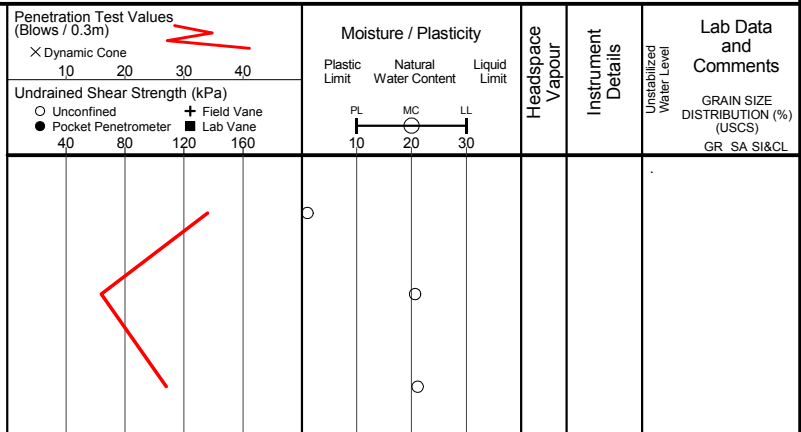
Project No.: 11-12-2096
 Date started : November 27, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.5		55mm ASPHALTIC CONCRETE										
		395mm GRANULAR BASE / SUBBASE		1	SS	34						
1		SILTY CLAY , trace gravel, trace sand, very stiff, brown, moist (GLACIAL TILL)		2	SS	16						
1.8				3	SS	27						

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

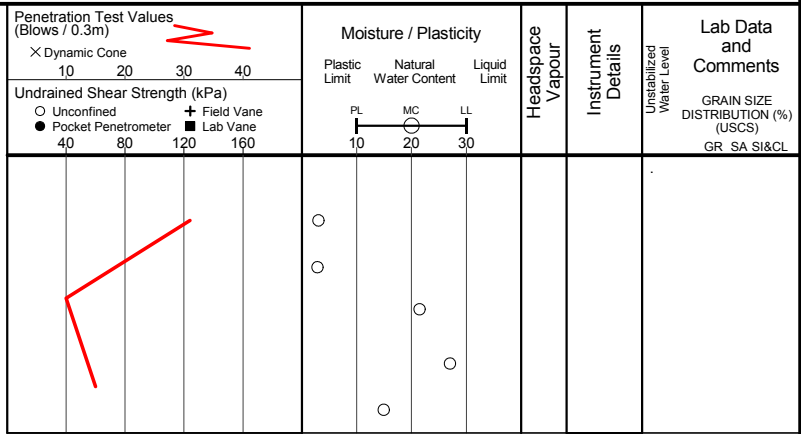
Project No.: 11-12-2096
 Date started : November 26, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		220mm ASPHALTIC CONCRETE										
0.2		480mm GRANULAR BASE / SUBBASE		1	SS	31						
0.8		FILL , clayey silt, trace to some sand, trace gravel, stiff, dark brown, moist to wet		2A								
0.8				2B	SS	10						
1.5				3A								
1.5		SILTY CLAY , trace gravel, trace sand, stiff, brown, moist		3B	SS	15						
1.8		(GLACIAL TILL)										

END OF BOREHOLE




Borehole was dry and open upon completion of drilling.



Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

Project No.: 11-12-2096
 Date started : November 27, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0		GROUND SURFACE										
0.2		240mm ASPHALTIC CONCRETE										
0.9		660mm GRANULAR BASE / SUBBASE		1	SS	50 / 125mm						
				2A	SS	29						
1		FILL , clayey silt, some sand, trace gravel, stiff, dark brown, moist		2B								
				3	SS	9						
1.8		END OF BOREHOLE										

Borehole was dry and open upon completion of drilling.



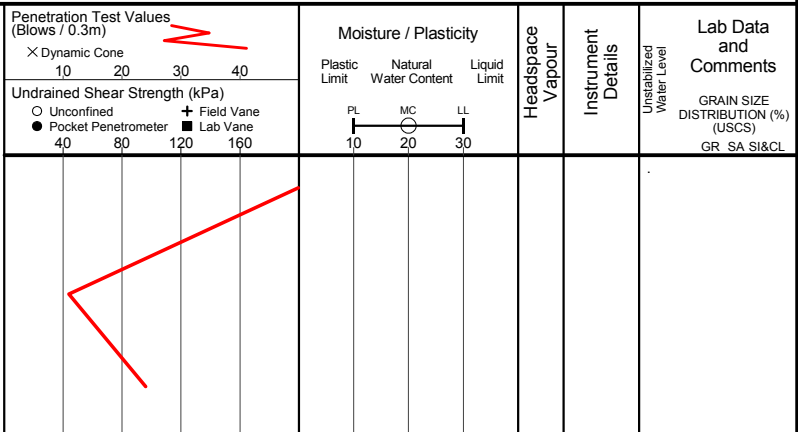
Client : IBI Group
 Project : Airport Road Class EA
 Location : Peel Region, Ontario

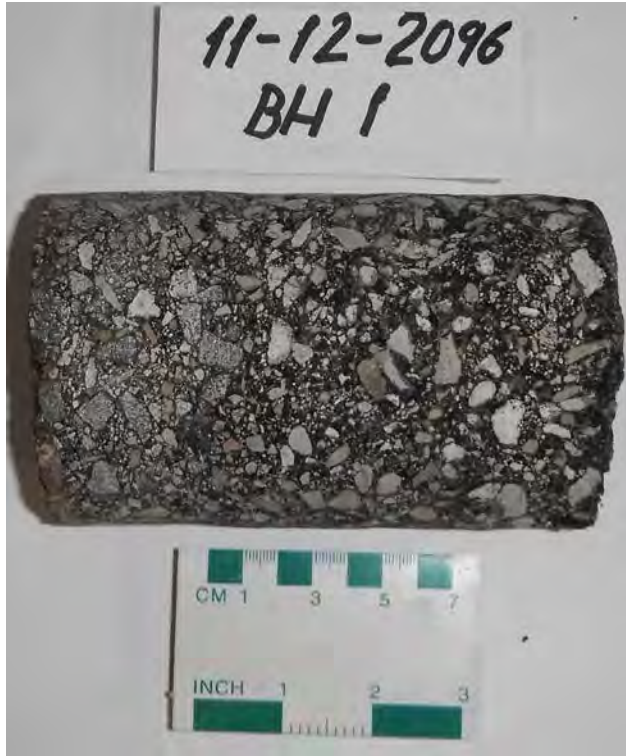
Project No.: 11-12-2096
 Date started : November 27, 2012
 Sheet No. : 1 of 1

Position : Elevation Datum : Geodetic (NAD83)
 Rig type : CME 75 Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Headspace Vapour	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	GROUND SURFACE											
	35mm	ASPHALTIC CONCRETE		1	SS	50 / 125mm						
	565mm	GRANULAR BASE / SUBBASE										
0.6		SILTY CLAY , trace gravel, trace sand, stiff to very stiff, brown, moist (GLACIAL TILL)		2	SS	11						
				3	SS	24						
1.8	END OF BOREHOLE											

Borehole was dry and open upon completion of drilling.





Sta.6+000

Course	Thickness (mm)
Surface Course	50
Binder Course	100
Total	150



Sta. 5+300

Course	Thickness (mm)
Surface Course	50
Binder Course	110
Total	160



Sta. 4+700

Course	Thickness (mm)
Surface Course	50
Binder Course	160
Total	210

Lifts in the binder course were debonded.



Sta. 4+100

Course	Thickness (mm)
Surface Course	60
Binder Course	140
Total	200

Lifts in the binder course were debonded.



Sta. 3+200

Course	Thickness (mm)
Surface Course	60
Binder Course	180
Total	240

Lifts in the binder course were debonded.



Sta. 2+300

Course	Thickness (mm)
Surface Course	50
Binder Course	200
Total	250

Lifts in the binder course were debonded.



Sta. 1+900

Course	Thickness (mm)
Surface Course	50
Binder Course	180
Total	230

Lifts in the binder course were debonded.



Sta. 1+500

Course	Thickness (mm)
Surface Course	50
Binder Course	160
Total	210

Lifts in the binder course were debonded.



Sta. 0+700

Course	Thickness (mm)
Surface Course	50
Binder Course	120
Total	170



Sta. 0+100

Course	Thickness (mm)
Surface Course	60
Binder Course	160
Total	220



Course	Thickness (mm)
Surface Course	40
Binder Course	180
Total	220



Course	Thickness (mm)
Surface Course	40
Binder Course	200
Total	240



Course	Thickness (mm)
Surface Course	40
Total	40

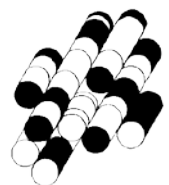


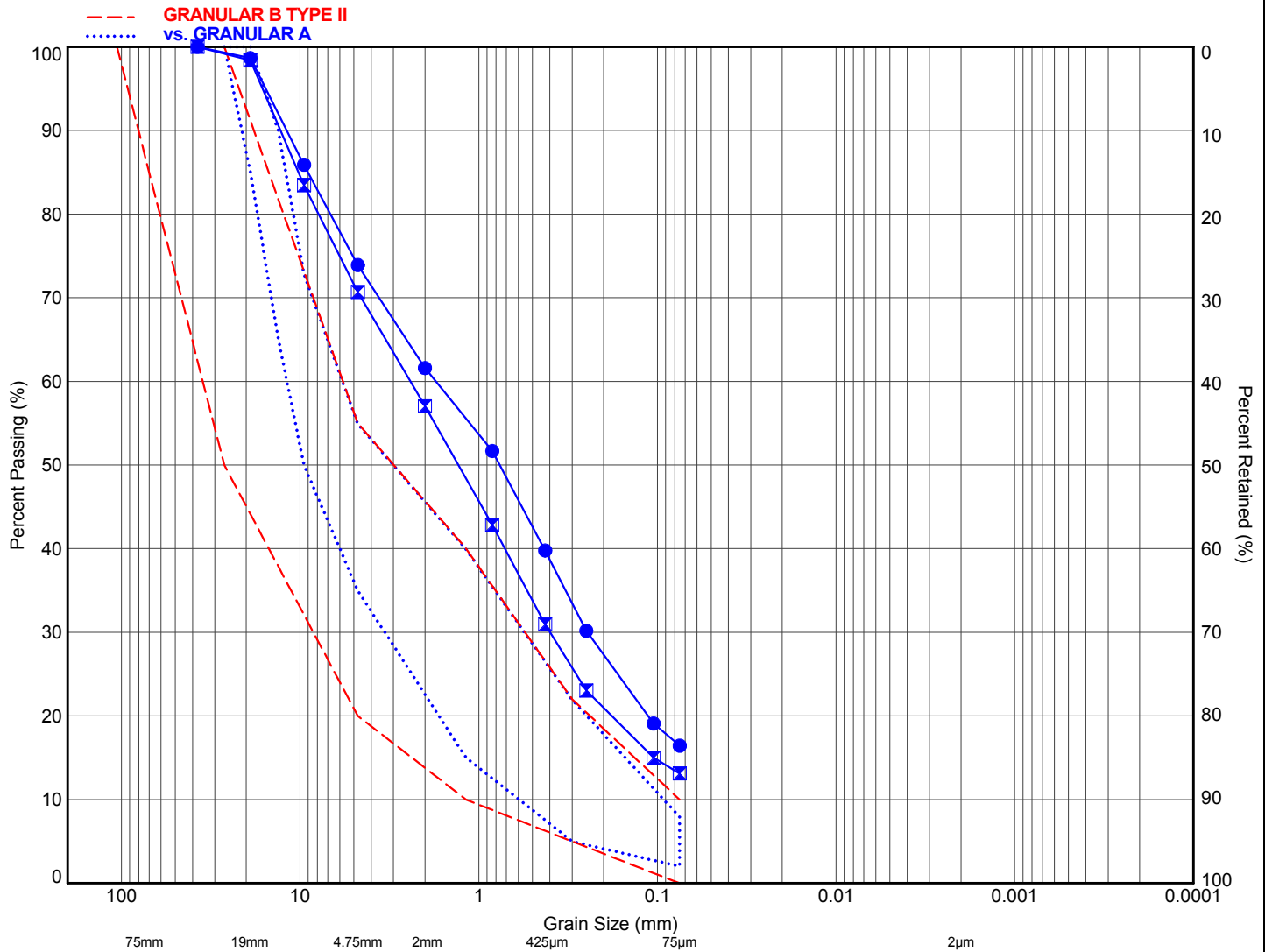
Course	Thickness (mm)
Surface Course	50
Total	50

APPENDIX C

Laboratory Test Results

TERRAPROBE INC.





MTO	COBBLES	GRAVEL		SAND			SILT	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)
●	Sample 1	AS	0.2	26	58			(16)
☒	Sample 2	AS	0.2	29	58			(13)

Notes:
Sample 1: Combined shoulder samples from Sta. 6+000, Sta. 5+300 and Sta. 4+700; and
Sample 2: Combined shoulder samples from Sta. 2+300 and Sta. 1+900.



Terraprobe

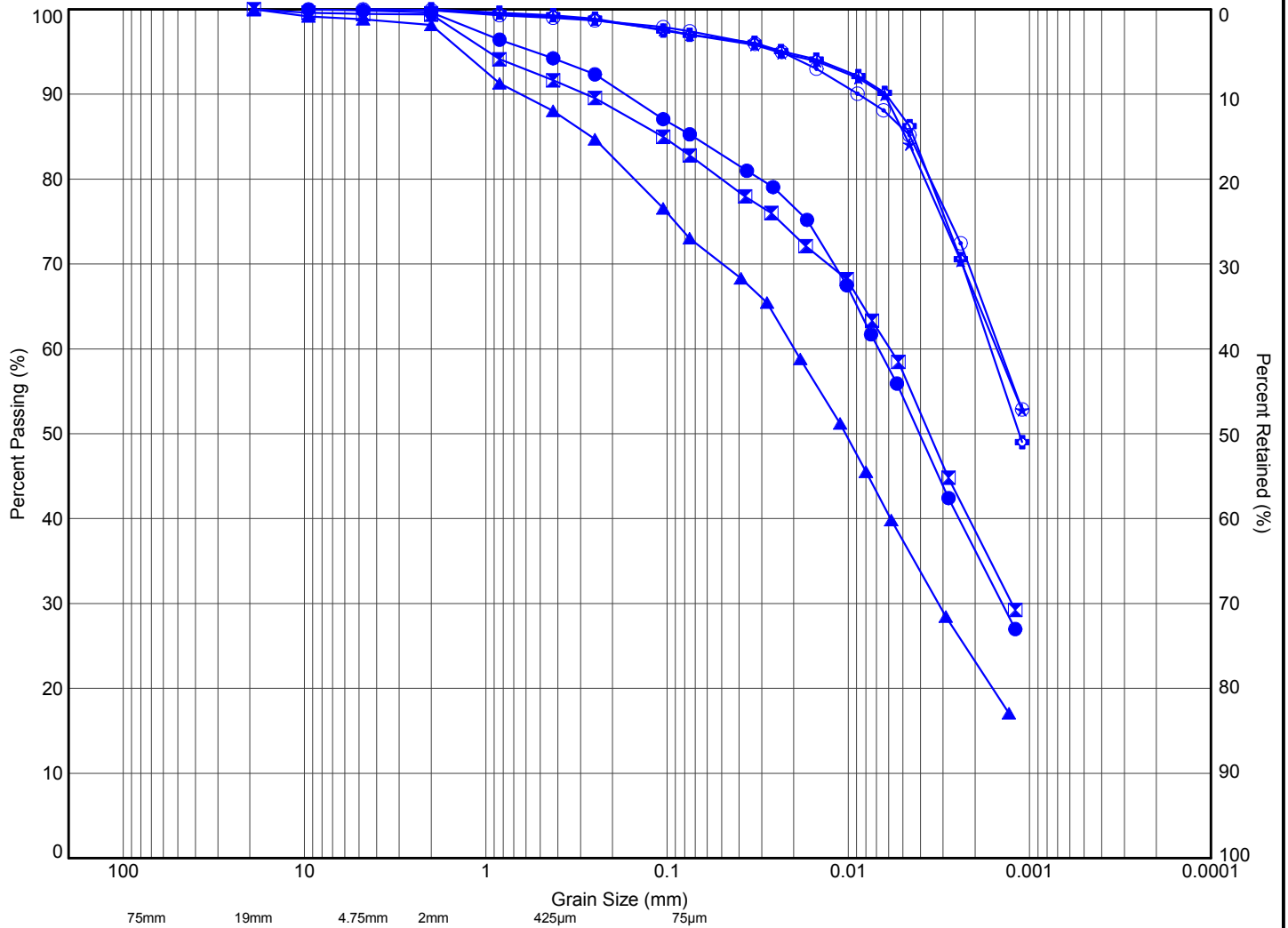
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

**AIRPORT ROAD CLASS EA STUDY
FIGURE C1-GRAVEL SHOULDER**

File No.:

11-12-2096



USCS	COBBLES	GRAVEL		SAND			SILT & CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

UNIFIED SOIL CLASSIFICATION SYSTEM

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt & Clay (%)
● 5	SS2	1.1		0	15	85
☒ 10	SS3	1.5		1	16	83
▲ 13	3B	1.7		1	26	73
★ 17	SS3	1.5		0	3	97
⊙ 22	SS6	4.8		0	3	97
⊠ 27	SS3	1.5		0	3	97



Terraprobe

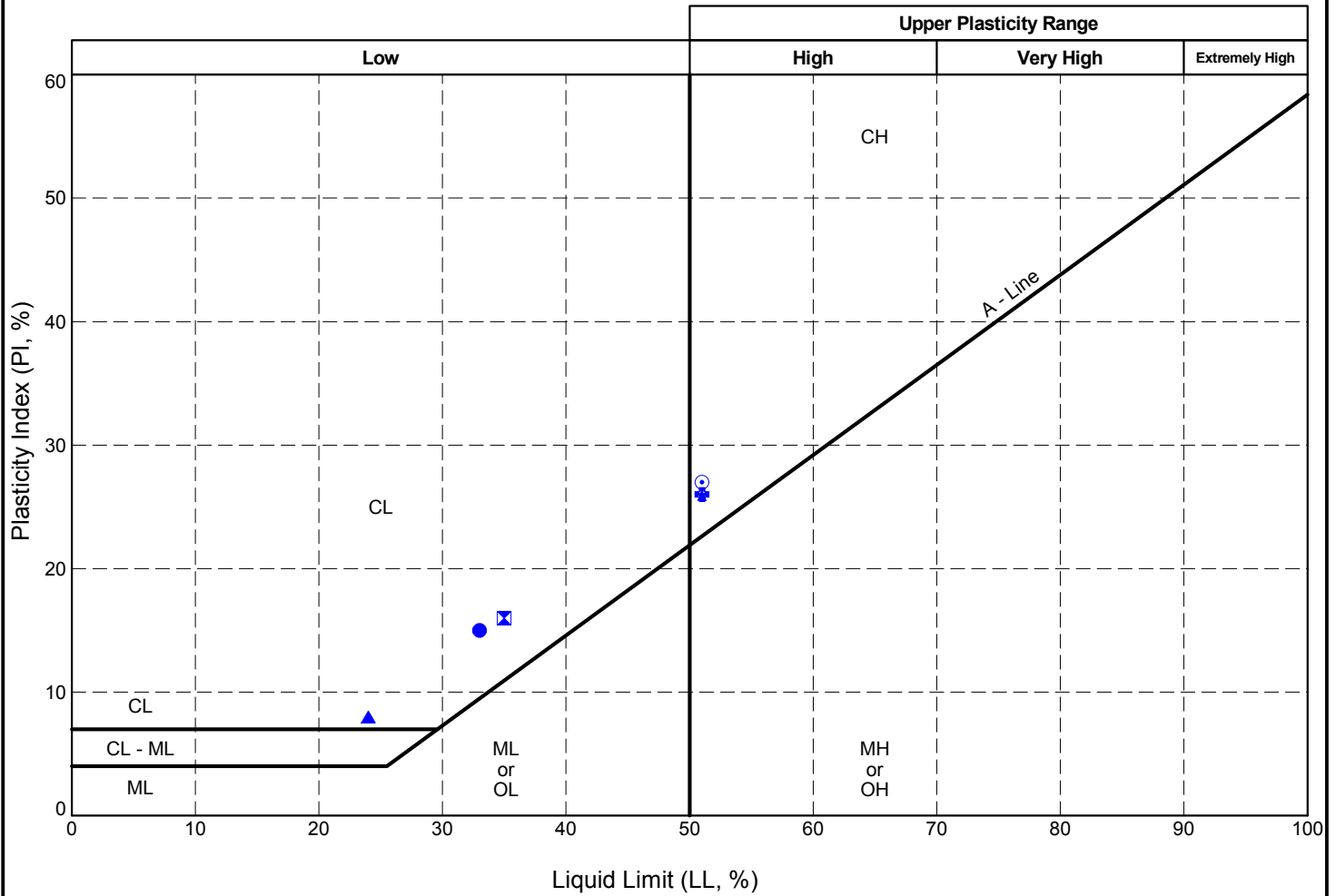
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

**AIRPORT ROAD CLASS EA STUDY
FIGURE C2 - SILTY CLAY TILL**

File No.:

11-12-2096



Borehole	Sample	Depth (m)	LL (%)	PL (%)	PI (%)	USCS Description
● 5	SS2	1.1	33	18	15	,
⊠ 10	SS3	1.5	35	19	16	,
▲ 13	3B	1.7	24	16	8	,
★ 17	SS3	1.5	51	25	26	,
⊙ 22	SS6	4.8	51	24	27	,
⊕ 27	SS3	1.5	51	25	26	,



Terraprobe

11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

**AIRPORT ROAD CLASS EA STUDY
FIGURE C3 - SILTY CLAY TILL**

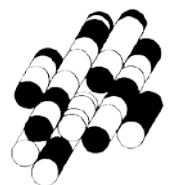
File No.:

11-12-2096

APPENDIX D

Certificates of Analysis (Soil Chemistry)

TERRAPROBE INC.



CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: Hussein Ahmed

PROJECT NO: 11-12-2096

AGAT WORK ORDER: 13T690568

SOIL ANALYSIS REVIEWED BY: Elizabeth Polakowska, MSc (Animal Sci), PhD (Agri Sci), Inorganic Lab
Supervisor

DATE REPORTED: Feb 27, 2013

PAGES (INCLUDING COVER): 6

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

VERSION 1: Report split and re-sent as per clients request on March 14, 2013

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Certificate of Analysis

AGAT WORK ORDER: 13T690568

PROJECT NO: 11-12-2096

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
 TEL (905)712-5100
 FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Hussein Ahmed

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2013-02-21

DATE REPORTED: 2013-02-27

Parameter	Unit	SAMPLE DESCRIPTION:		BH-1P		BH-3 SS-1(0'-2')		BH-6 SS-1(0'-3')		BH-9 SS-1(0'-3')		BH-12		BH-11		BH-16			
		G / S: A	G / S: B	SS-2(4'-6')	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
				SS-2(4'-6')	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				SS-2(4'-6')	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				DATE SAMPLED:	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013		
				RDL	4148055	4148056	4148057	4148058	4148059	4148060	4148061	4148062	4148063	4148064	4148065	4148066	4148067		
Antimony	µg/g	1.3	40	0.8	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]		
Arsenic	µg/g	18	18	1	5[<A]	6[<A]	6[<A]	4[<A]	4[<A]	5[<A]	4[<A]	5[<A]	5[<A]	5[<A]	5[<A]	4[<A]	4[<A]		
Barium	µg/g	220	670	2	124[<A]	112[<A]	118[<A]	84[<A]	102[<A]	110[<A]	138[<A]	110[<A]	110[<A]	110[<A]	110[<A]	110[<A]	138[<A]		
Beryllium	µg/g	2.5	8	0.5	1.1[<A]	0.9[<A]	1.0[<A]	0.7[<A]	0.9[<A]	1.1[<A]	1.6[<A]	1.1[<A]	1.1[<A]	1.1[<A]	1.1[<A]	1.1[<A]	1.6[<A]		
Boron	µg/g	36	120	5	9[<A]	8[<A]	8[<A]	7[<A]	7[<A]	9[<A]	10[<A]	9[<A]	9[<A]	9[<A]	9[<A]	9[<A]	10[<A]		
Boron (Hot Water Soluble)	µg/g		2	0.10	0.19[<B]	0.33[<B]	0.36[<B]	0.25[<B]	0.36[<B]	0.27[<B]	0.24[<B]	0.36[<B]	0.36[<B]	0.27[<B]	0.27[<B]	0.27[<B]	0.24[<B]		
Cadmium	µg/g	1.2	1.9	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]		
Chromium	µg/g	70	160	2	32[<A]	25[<A]	27[<A]	20[<A]	25[<A]	30[<A]	40[<A]	25[<A]	25[<A]	30[<A]	30[<A]	30[<A]	40[<A]		
Cobalt	µg/g	21	80	0.5	13.4[<A]	11.7[<A]	11.8[<A]	8.7[<A]	11.0[<A]	12.4[<A]	17.3[<A]	11.0[<A]	11.0[<A]	12.4[<A]	12.4[<A]	12.4[<A]	17.3[<A]		
Copper	µg/g	92	230	1	27[<A]	29[<A]	31[<A]	27[<A]	23[<A]	33[<A]	29[<A]	27[<A]	27[<A]	33[<A]	33[<A]	33[<A]	29[<A]		
Lead	µg/g	120	120	1	13[<A]	158[>B]	11[<A]	44[<A]	19[<A]	16[<A]	14[<A]	11[<A]	19[<A]	19[<A]	16[<A]	16[<A]	14[<A]		
Molybdenum	µg/g	2	40	0.5	<0.5[<A]	0.6[<A]	1.1[<A]	0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]		
Nickel	µg/g	82	270	1	29[<A]	24[<A]	28[<A]	16[<A]	21[<A]	28[<A]	46[<A]	21[<A]	21[<A]	28[<A]	28[<A]	28[<A]	46[<A]		
Selenium	µg/g	1.5	5.5	0.4	0.6[<A]	0.5[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	0.7[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	0.7[<A]		
Silver	µg/g	0.5	40	0.2	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]		
Thallium	µg/g	1	3.3	0.4	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]		
Uranium	µg/g	2.5	33	0.5	0.8[<A]	0.5[<A]	0.8[<A]	<0.5[<A]	0.7[<A]	0.6[<A]	0.7[<A]	<0.5[<A]	0.7[<A]	0.6[<A]	0.6[<A]	0.6[<A]	0.7[<A]		
Vanadium	µg/g	86	86	1	43[<A]	36[<A]	37[<A]	29[<A]	38[<A]	41[<A]	50[<A]	29[<A]	38[<A]	41[<A]	41[<A]	41[<A]	50[<A]		
Zinc	µg/g	290	340	5	76[<A]	77[<A]	60[<A]	68[<A]	65[<A]	70[<A]	84[<A]	68[<A]	65[<A]	70[<A]	70[<A]	70[<A]	84[<A]		
Chromium VI	µg/g	0.66	8	0.2	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]		
Cyanide	µg/g	0.051	0.051	0.040	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]		
Mercury	µg/g	0.27	3.9	0.10	<0.10[<A]	0.78[A-B]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]		
Electrical Conductivity (2:1)	mS/cm	0.57	1.4	0.005	4.44[>B]	1.05[A-B]	2.33[>B]	0.452[<A]	0.810[A-B]	0.831[A-B]	0.473[<A]	0.810[A-B]	0.810[A-B]	0.831[A-B]	0.831[A-B]	0.831[A-B]	0.473[<A]		
Sodium Adsorption Ratio	NA	2.4	12	NA	22.0[>B]	12.0[B]	19.2[>B]	7.29[A-B]	10.7[A-B]	8.92[A-B]	6.15[A-B]	7.29[A-B]	7.29[A-B]	10.7[A-B]	10.7[A-B]	8.92[A-B]	6.15[A-B]		
pH, 2:1 CaCl2 Extraction	pH Units			NA	7.40	7.89	7.76	7.75	7.78	7.90	7.97	7.75	7.75	7.78	7.90	7.90	7.97		

Certified By:

Elizabeth Polakowska

Certificate of Analysis

AGAT WORK ORDER: 13T690568

PROJECT NO: 11-12-2096

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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TEL (905)712-5100
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Hussein Ahmed

O. Reg. 153(511) - Metals & Inorganics (Soil)

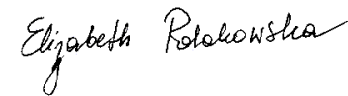
DATE RECEIVED: 2013-02-21

DATE REPORTED: 2013-02-27

Parameter	Unit	SAMPLE DESCRIPTION:		BH-19	BH-22	BH-23	BH-26	BH-27
		G / S: A	G / S: B	SS-2(2'-4')	SS-1B(0'-2')	SS-2(3'-6')	SS-2(3'-6')	SS-1(0'-2')
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2/20/2013	2/20/2013	2/20/2013	2/20/2013	2/20/2013
		RDL	4148062	4148063	4148064	4148065	4148066	
Antimony	µg/g	1.3	40	0.8	<0.8[<A]	<0.8[<A]	<0.8[<A]	<0.8[<A]
Arsenic	µg/g	18	18	1	4[<A]	4[<A]	5[<A]	3[<A]
Barium	µg/g	220	670	2	127[<A]	117[<A]	99[<A]	110[<A]
Beryllium	µg/g	2.5	8	0.5	1.1[<A]	0.9[<A]	1.0[<A]	1.0[<A]
Boron	µg/g	36	120	5	12[<A]	9[<A]	10[<A]	9[<A]
Boron (Hot Water Soluble)	µg/g		2	0.10	0.15[<B]	0.24[<B]	0.15[<B]	0.39[<B]
Cadmium	µg/g	1.2	1.9	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]	<0.5[<A]
Chromium	µg/g	70	160	2	31[<A]	25[<A]	26[<A]	28[<A]
Cobalt	µg/g	21	80	0.5	14.9[<A]	10.0[<A]	12.6[<A]	14.0[<A]
Copper	µg/g	92	230	1	27[<A]	23[<A]	29[<A]	25[<A]
Lead	µg/g	120	120	1	12[<A]	13[<A]	12[<A]	25[<A]
Molybdenum	µg/g	2	40	0.5	<0.5[<A]	0.5[<A]	<0.5[<A]	<0.5[<A]
Nickel	µg/g	82	270	1	32[<A]	22[<A]	28[<A]	25[<A]
Selenium	µg/g	1.5	5.5	0.4	<0.4[<A]	<0.4[<A]	<0.4[<A]	0.5[<A]
Silver	µg/g	0.5	40	0.2	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]
Thallium	µg/g	1	3.3	0.4	<0.4[<A]	<0.4[<A]	<0.4[<A]	<0.4[<A]
Uranium	µg/g	2.5	33	0.5	0.6[<A]	0.6[<A]	0.6[<A]	0.6[<A]
Vanadium	µg/g	86	86	1	42[<A]	32[<A]	35[<A]	40[<A]
Zinc	µg/g	290	340	5	65[<A]	60[<A]	60[<A]	91[<A]
Chromium VI	µg/g	0.66	8	0.2	<0.2[<A]	<0.2[<A]	<0.2[<A]	<0.2[<A]
Cyanide	µg/g	0.051	0.051	0.040	<0.040[<A]	<0.040[<A]	<0.040[<A]	<0.040[<A]
Mercury	µg/g	0.27	3.9	0.10	<0.10[<A]	<0.10[<A]	<0.10[<A]	<0.10[<A]
Electrical Conductivity (2:1)	mS/cm	0.57	1.4	0.005	0.834[A-B]	2.52[>B]	1.28[A-B]	1.72[>B]
Sodium Adsorption Ratio	NA	2.4	12	NA	1.34[<A]	35.9[>B]	4.04[A-B]	11.5[A-B]
pH, 2:1 CaCl ₂ Extraction	pH Units			NA	7.79	7.98	7.82	7.60

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to T1(ALL) - Current, B Refers to T3(ICC) - Current
4148055-4148066 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl₂ extract prepared at 2:1 ratio.

Certified By:



CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Hussein Ahmed

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
4148055	BH-1P SS-2(4'-6')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	4.44
4148055	BH-1P SS-2(4'-6')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	22.0
4148055	BH-1P SS-2(4'-6')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	1.4	4.44
4148055	BH-1P SS-2(4'-6')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	12	22.0
4148056	BH-3 SS-1(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	1.05
4148056	BH-3 SS-1(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Lead	120	158
4148056	BH-3 SS-1(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Mercury	0.27	0.78
4148056	BH-3 SS-1(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	12.0
4148056	BH-3 SS-1(0'-2')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Lead	120	158
4148057	BH-6 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	2.33
4148057	BH-6 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	19.2
4148057	BH-6 SS-1(0'-3')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	1.4	2.33
4148057	BH-6 SS-1(0'-3')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	12	19.2
4148058	BH-9 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	7.29
4148059	BH-12 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	0.810
4148059	BH-12 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	10.7
4148060	BH-11 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	0.831
4148060	BH-11 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	8.92
4148061	BH-16 SS-1(0'-3')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	6.15
4148062	BH-19 SS-2(2'-4')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	0.834
4148063	BH-22 SS-1B(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	2.52
4148063	BH-22 SS-1B(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	35.9
4148063	BH-22 SS-1B(0'-2')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	1.4	2.52
4148063	BH-22 SS-1B(0'-2')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	12	35.9
4148064	BH-23 SS-2(3'-6')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	1.28
4148064	BH-23 SS-2(3'-6')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	4.04
4148065	BH-26 SS-2(3'-6')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	1.72
4148065	BH-26 SS-2(3'-6')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	11.5
4148065	BH-26 SS-2(3'-6')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	1.4	1.72
4148066	BH-27 SS-1(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	0.57	0.734
4148066	BH-27 SS-1(0'-2')	T1(ALL) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	2.4	13.1
4148066	BH-27 SS-1(0'-2')	T3(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	12	13.1

Quality Assurance

CLIENT NAME: TERRAPROBE INC.


AGAT WORK ORDER: 13T690568

PROJECT NO: 11-12-2096

ATTENTION TO: Hussein Ahmed

Soil Analysis															
RPT Date: Feb 27, 2013			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	1	4148046	< 0.8	< 0.8	0.0%	< 0.8	101%	70%	130%	97%	80%	120%	98%	70%	130%
Arsenic	1	4148046	6	6	0.0%	< 1	107%	70%	130%	102%	80%	120%	102%	70%	130%
Barium	1	4148046	94	94	0.0%	< 2	102%	70%	130%	104%	80%	120%	104%	70%	130%
Beryllium	1	4148046	0.8	0.8	0.0%	< 0.5	99%	70%	130%	97%	80%	120%	109%	70%	130%
Boron	1	4148046	7	7	0.0%	< 5	75%	70%	130%	105%	80%	120%	116%	70%	130%
Boron (Hot Water Soluble)	1	4148060	0.27	0.26	4.6%	< 0.10	122%	60%	140%	97%	70%	130%	99%	60%	140%
Cadmium	1	4148046	< 0.5	< 0.5	0.0%	< 0.5	105%	70%	130%	118%	80%	120%	103%	70%	130%
Chromium	1	4148046	21	21	0.0%	< 2	99%	70%	130%	104%	80%	120%	103%	70%	130%
Cobalt	1	4148046	9.5	9.7	2.1%	< 0.5	99%	70%	130%	101%	80%	120%	94%	70%	130%
Copper	1	4148046	28	28	0.0%	< 1	103%	70%	130%	104%	80%	120%	94%	70%	130%
Lead	1	4148046	22	23	4.4%	< 1	105%	70%	130%	106%	80%	120%	104%	70%	130%
Molybdenum	1	4148046	0.7	0.8	13.3%	< 0.5	101%	70%	130%	102%	80%	120%	110%	70%	130%
Nickel	1	4148046	19	19	0.0%	< 1	100%	70%	130%	104%	80%	120%	95%	70%	130%
Selenium	1	4148046	0.6	0.4	NA	< 0.4	113%	70%	130%	104%	80%	120%	97%	70%	130%
Silver	1	4148046	< 0.2	< 0.2	0.0%	< 0.2	74%	70%	130%	106%	80%	120%	104%	70%	130%
Thallium	1	4148046	< 0.4	< 0.4	0.0%	< 0.4	97%	70%	130%	101%	80%	120%	98%	70%	130%
Uranium	1	4148046	0.6	0.6	0.0%	< 0.5	102%	70%	130%	101%	80%	120%	103%	70%	130%
Vanadium	1	4148046	31	31	0.0%	< 1	101%	70%	130%	101%	80%	120%	104%	70%	130%
Zinc	1	4148046	67	69	2.9%	< 5	100%	70%	130%	111%	80%	120%	97%	70%	130%
Chromium VI	1	4148046	< 0.2	< 0.2	0.0%	< 0.2	96%	70%	130%	94%	80%	120%	96%	70%	130%
Cyanide	1	4148046	< 0.040	< 0.040	0.0%	< 0.040	104%	70%	130%	106%	80%	120%	92%	70%	130%
Mercury	1	4148046	< 0.10	< 0.10	0.0%	< 0.10	107%	70%	130%	100%	80%	120%	101%	70%	130%
Electrical Conductivity (2:1)	1	4148046	0.441	0.437	0.9%	< 0.005	99%	90%	110%	NA			NA		
Sodium Adsorption Ratio	1	4148046	5.63	5.55	1.4%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	1	4148046	7.54	7.54	0.0%	NA	100%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable. As the average value (Se) for the sample and a duplicate is less than 5X RDL, lab's RPD acceptance criteria is not applicable.


 Certified By: _____

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T690568

PROJECT NO: 11-12-2096

ATTENTION TO: Hussein Ahmed

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A; SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
pH, 2:1 CaCl ₂ Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

APPENDIX E

FWD Test Results

TERRAPROBE INC.

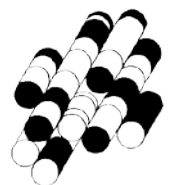


TABLE E PAVEMENT DEFLECTION ANALYSIS
AIRPORT ROAD
1.0 km North of Mayfield Road to 0.6 km North of King Street

Station	Lane	Normalized FWD Dynamic Deflection (mm)
0+000	NBL	0.18
0+050	SBL	0.10
0+100	NBL	0.08
0+150	SBL	0.11
0+200	NBL	0.12
0+250	SBL	0.14
0+300	NBL	0.17
0+350	SBL	0.26
0+400	NBL	0.28
0+450	SBL	0.26
0+500	NBL	0.29
0+550	SBL	0.08
0+600	NBL	0.11
0+650	SBL	0.23
0+700	NBL	0.29
0+750	SBL	0.33 ³
0+800	NBL	0.34 ³
0+850	SBL	0.20
0+900	NBL	0.18
0+950	SBL	0.22
1+000	NBL	0.21
1+050	SBL	0.23
1+100	NBL	0.24
1+150	SBL	0.23
1+200	NBL	0.26
1+250	SBL	0.20
1+300	NBL	0.22
1+350	SBL	0.19
1+400	NBL	0.20
1+450	SBL	0.21
1+500	NBL	0.22
1+550	SBL	0.19
1+600	NBL	0.18
1+650	SBL	0.17
1+700	NBL	0.16
1+750	SBL	0.17
1+800	NBL	0.15
1+850	SBL	0.16
1+900	NBL	0.16
1+950	SBL	0.17
2+000	NBL	0.15
2+050	SBL	0.15
2+100	NBL	0.18
2+150	SBL	0.20
2+200	NBL	0.18
2+250	SBL	0.15
2+300	NBL	0.17

TABLE E PAVEMENT DEFLECTION ANALYSIS
AIRPORT ROAD
1.0 km North of Mayfield Road to 0.6 km North of King Street

Station	Lane	Normalized FWD Dynamic Deflection (mm)
2+350	SBL	0.17
2+400	NBL	0.16
2+450	SBL	0.16
2+500	SBL	0.16
2+550	SBL	0.13
2+600	NBL	0.13
2+650	SBL	0.20
2+700	NBL	0.18
2+750	SBL	0.15
2+800	NBL	0.15
2+850	SBL	0.18
2+900	NBL	0.21
2+950	SBL	0.14
3+000	NBL	0.14
3+050	SBL	0.13
3+100	NBL	0.14
3+150	SBL	0.12
3+200	NBL	0.19
3+250	SBL	0.17
3+300	NBL	0.19
3+350	SBL	0.18
3+400	NBL	0.20
3+450	SBL	0.18
3+500	NBL	0.19
3+550	SBL	0.19
3+600	NBL	0.20
3+650	SBL	0.17
3+700	NBL	0.16
3+750	SBL	0.16
3+800	NBL	0.18
3+850	SBL	0.17
3+900	NBL	0.20
3+950	SBL	0.17
4+000	NBL	0.19
4+050	SBL	0.18
4+100	NBL	0.24
4+150	SBL	0.21
4+200	NBL	0.20
4+250	SBL	0.18
4+300	NBL	0.15
4+350	SBL	0.19
4+400	NBL	0.18
4+450	SBL	0.22
4+500	NBL	0.19
4+550	SBL	0.22
4+600	NBL	0.19
4+650	SBL	0.20

TABLE E PAVEMENT DEFLECTION ANALYSIS
AIRPORT ROAD
1.0 km North of Mayfield Road to 0.6 km North of King Street

Station	Lane	Normalized FWD Dynamic Deflection (mm) ^{1,2}
4+700	NBL	0.19
4+750	SBL	0.18
4+800	NBL	0.17
4+850	SBL	0.19
4+900	NBL	0.16
4+950	SBL	0.17
5+000	NBL	0.15
5+050	SBL	0.13
5+100	NBL	0.14
5+150	SBL	0.14
5+200	NBL	0.12
5+250	SBL	0.17
5+300	NBL	0.16
5+350	SBL	0.20
5+400	NBL	0.18
5+450	SBL	0.19
5+500	NBL	0.18
5+550	SBL	0.18
5+600	NBL	0.15
5+650	SBL	0.17
5+700	NBL	0.17
5+750	SBL	0.17
5+800	NBL	0.15
<hr/>		
Mean		0.18
Standard Deviation		0.04

- Notes: (1) Normalized to 40 kN load and 21°C standard temperature.
(2) Average pavement temperature at the time of testing: 6.7 °C at NBL and 6.0 °C at SBL.
(3) Outliers, not used in the statistical calculations.

ASPHALT INSTITUTE ANALYSIS
AIRPORT ROAD
1.0 km North of Mayfield Road to 0.6 km North of King Street

Design ESALs (including ESALs from 2013 to 2018)	6,900,000
Representative Dynamic Deflection (mm)	0.25
Equivalent Representative Static Deflection (mm)	0.41
Spring Adjustment Factor	1.30
Representative Spring Static Deflection (mm)	0.53
Design Static Deflection (mm)	0.57

November 7, 2012

Document No. 12-1184-0147

Terraprobe
11 Indell Lane
Brampton, Ontario
L6T 3Y3

Attention: Mr. Seth Zhang, M.Eng., M.Sc., P.Eng., PMP

**FACTUAL DATA - FALLING WEIGHT DEFLECTOMETER TESTING
AIRPORT ROAD FROM ~1.0 KM NORTH OF MAYFIELD ROAD TO ~0.6 KM NORTH OF KING ROAD
CALEDON, ONTARIO**

Dear Mr. Zhang,

This letter confirms that the FWD testing at the above referenced site has been carried out with the level of care and skill ordinarily exercised by engineers currently practicing in Ontario. Further, it should be noted that the use of the factual FWD data is governed by and limited to the terms and conditions as set out in the signed General Terms and Conditions.

The factual FWD data has been based on the instructions given to Golder by Terraprobe and communications between Terraprobe and Golder. The instructions from Terraprobe limited the FWD testing along Airport Road to the paved portion of the road from 1.0 km North of Mayfield Road to 0.6 km North of King Road.

The factual FWD data can be relied upon to be accurate to the normal industry standards and to the limitations of the investigation.

The factual FWD data applies only to the subject site as it existed at the time of Golder's site investigation.



Golder Associates Ltd.

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Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

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We trust that this letter and the information provided regarding this FWD test data are acceptable to you. Should you have any further questions, please contact our office.

Yours truly,

GOLDER ASSOCIATES LTD.



Michael P. Navarra, M.A.Sc., P.Eng.
Materials and Pavement Engineer

MPN/ACB/leb

CC: Mr. William Lei, Terraprobe



Andrew Balasundaram, P.Eng.
Principal, Pavement & Materials Engineering

AirportRdSBL

M3

Date-Time: 11/ 4/2012 18:29:46

Sensors: chop chop chop chop chop chop chop chop chop

Weight/spring: 2

Location: Airport. Road

Temp: 17.08

Operator: SS

Comments:

1	1	5.750	1	6.88	4.55	3.71	3.21	2.61	2.04	1.54	1.09	0.82	3.33	42.8
1	1	5.750	1	9.13	6.04	4.96	4.26	3.51	2.74	2.04	1.41	1.03	4.41	42.8
1	1	5.750	1	11.33	7.37	6.03	5.20	4.30	3.35	2.50	1.74	1.26	5.38	42.8

Drop Sequence Completed Time: 18:33 Air Temp (F): 23.0

GPS: Quality : DGPS Fix Latitude = 43 deg50.066644 N Longitude = 79 deg49.132911 W PDOP = 1.50

Note:

2	1	5.650	1	6.84	4.41	3.60	3.08	2.51	1.94	1.44	1.02	0.76	3.23	40.5
2	1	5.650	1	9.13	5.82	4.79	4.11	3.37	2.60	1.90	1.32	0.95	4.29	40.5
2	1	5.650	1	11.16	7.07	5.83	5.00	4.11	3.20	2.34	1.61	1.18	5.22	40.5

Drop Sequence Completed Time: 18:33 Air Temp (F): 22.4

GPS: Quality : DGPS Fix Latitude = 43 deg50.028515 N Longitude = 79 deg49.080976 W PDOP = 1.50

Note:

3	1	5.550	1	6.74	4.69	3.68	3.10	2.47	1.89	1.39	1.01	0.77	3.26	40.8
3	1	5.550	1	8.89	6.13	4.83	4.07	3.25	2.48	1.82	1.27	0.96	4.28	40.8
3	1	5.550	1	11.08	7.52	5.94	5.01	4.05	3.09	2.26	1.57	1.15	5.24	40.8

Drop Sequence Completed Time: 18:34 Air Temp (F): 23.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.989938 N Longitude = 79 deg49.028761 W PDOP = 1.50

Note:

4	1	5.450	1	6.54	4.84	3.93	3.38	2.75	2.10	1.55	0.70	0.63	3.45	40.5
4	1	5.450	1	8.84	6.52	5.30	4.57	3.73	2.86	2.12	1.07	0.80	4.65	40.5
4	1	5.450	1	11.18	8.07	6.56	5.70	4.68	3.59	2.65	1.43	1.11	5.81	40.5

Drop Sequence Completed Time: 18:35 Air Temp (F): 24.7

GPS: Quality : DGPS Fix Latitude = 43 deg49.951566 N Longitude = 79 deg48.976921 W PDOP = 1.50

Note:

5	1	5.350	1	6.74	5.24	4.28	3.66	2.92	2.19	1.54	1.02	0.73	3.71	43.5
5	1	5.350	1	9.06	7.09	5.78	4.92	3.97	2.99	2.08	1.33	0.88	5.05	43.5
5	1	5.350	1	11.18	8.64	7.06	6.03	4.86	3.65	2.55	1.61	1.05	6.20	43.5

Drop Sequence Completed Time: 18:36 Air Temp (F): 23.8

GPS: Quality : DGPS Fix Latitude = 43 deg49.913672 N Longitude = 79 deg48.925205 W PDOP = 1.50

Note:

6	1	5.250	1	6.79	4.50	4.10	3.60	2.94	2.23	1.43	0.76	0.57	3.30	43.0
6	1	5.250	1	8.72	5.72	5.26	4.64	3.80	2.86	1.58	0.91	0.69	4.25	43.0
6	1	5.250	1	11.21	7.33	6.76	5.95	4.88	3.70	1.67	1.16	0.89	5.49	43.0

Drop Sequence Completed Time: 18:37 Air Temp (F): 25.9

GPS: Quality : DGPS Fix Latitude = 43 deg49.874989 N Longitude = 79 deg48.873450 W PDOP = 1.50

Note:

7	1	5.150	1	6.79	3.51	2.91	2.57	2.14	1.71	1.34	1.01	0.77	2.72	49.1
7	1	5.150	1	9.13	4.73	3.96	3.47	2.90	2.32	1.78	1.28	0.85	3.64	49.1
7	1	5.150	1	11.21	5.88	4.93	4.35	3.66	2.90	2.25	1.62	1.21	4.55	49.1

Drop Sequence Completed Time: 18:39 Air Temp (F): 27.4

GPS: Quality : DGPS Fix Latitude = 43 deg49.836304 N Longitude = 79 deg48.821807 W PDOP = 1.50

Note:

8	1	5.050	1	6.64	3.40	2.71	2.34	1.97	1.54	1.18	0.87	0.65	2.46	48.9
8	1	5.050	1	9.11	4.57	3.66	3.16	2.66	2.09	1.58	1.14	0.68	3.30	48.9
8	1	5.050	1	11.25	5.51	4.44	3.83	3.24	2.52	1.93	1.37	0.79	3.99	48.9

Drop Sequence Completed Time: 18:41 Air Temp (F): 26.8

GPS: Quality : DGPS Fix Latitude = 43 deg49.798565 N Longitude = 79 deg48.769640 W PDOP = 1.40

AirportRdSBL

Note:

9 1 4.950 1 6.79 4.72 3.69 3.08 2.43 1.80 1.26 0.86 0.65 3.27 48.9
 9 1 4.950 1 8.98 6.03 4.73 3.97 3.13 2.35 1.60 1.08 0.81 4.20 48.9
 9 1 4.950 1 11.33 7.36 5.78 4.84 3.86 2.90 2.00 1.32 0.97 5.15 48.9

Drop Sequence Completed Time: 18:42 Air Temp (F): 28.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.760379 N Longitude = 79 deg48.716748 W PDOP = 1.40

Note:

10 1 4.850 1 6.74 5.20 4.10 3.44 2.72 2.01 1.37 0.60 0.56 3.67 40.8
 10 1 4.850 1 8.96 6.77 5.36 4.47 3.56 2.64 1.80 1.14 0.78 4.71 40.8
 10 1 4.850 1 11.23 8.28 6.55 5.48 4.34 3.23 2.20 1.94 0.86 5.74 40.8

Drop Sequence Completed Time: 18:43 Air Temp (F): 25.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.721716 N Longitude = 79 deg48.664835 W PDOP = 1.50

Note:

11 1 4.750 1 6.71 4.73 3.72 3.14 2.50 1.87 1.69 1.00 0.77 3.28 42.5
 11 1 4.750 1 9.08 6.34 5.03 4.25 3.40 2.58 1.87 1.30 0.99 4.42 42.5
 11 1 4.750 1 11.35 7.84 6.24 5.30 4.30 3.28 2.75 1.73 1.32 5.56 42.5

Drop Sequence Completed Time: 18:43 Air Temp (F): 24.4

GPS: Quality : DGPS Fix Latitude = 43 deg49.683430 N Longitude = 79 deg48.613027 W PDOP = 1.40

Note:

12 1 4.650 1 6.79 5.34 4.32 3.65 2.90 2.19 1.53 1.07 0.79 3.82 39.5
 12 1 4.650 1 9.11 7.05 5.70 4.85 3.87 2.93 2.05 1.37 0.99 5.11 39.5
 12 1 4.650 1 11.16 8.73 7.07 6.02 4.81 3.64 2.55 1.67 1.22 6.30 39.5

Drop Sequence Completed Time: 18:44 Air Temp (F): 24.4

GPS: Quality : DGPS Fix Latitude = 43 deg49.645497 N Longitude = 79 deg48.561421 W PDOP = 1.40

Note:

13 1 4.550 1 6.62 5.60 4.49 3.78 3.02 2.28 1.63 1.13 0.80 4.00 40.5
 13 1 4.550 1 8.91 7.50 6.02 5.10 4.06 3.09 2.20 1.49 1.00 5.39 40.5
 13 1 4.550 1 11.06 9.29 7.48 6.32 5.07 3.86 2.75 1.83 1.30 6.70 40.5

Drop Sequence Completed Time: 18:45 Air Temp (F): 24.4

GPS: Quality : DGPS Fix Latitude = 43 deg49.606956 N Longitude = 79 deg48.509058 W PDOP = 1.40

Note:

14 1 4.450 1 6.76 5.71 4.56 3.85 3.06 2.27 1.56 1.03 0.75 4.01 41.5
 14 1 4.450 1 9.03 7.58 6.08 5.16 4.09 3.05 2.09 1.33 0.93 5.33 41.5
 14 1 4.450 1 11.18 9.31 7.46 6.35 5.07 3.79 2.62 1.66 1.15 6.57 41.5

Drop Sequence Completed Time: 18:45 Air Temp (F): 23.6

GPS: Quality : DGPS Fix Latitude = 43 deg49.568737 N Longitude = 79 deg48.457192 W PDOP = 1.40

Note:

15 1 4.350 1 6.74 4.88 3.87 3.36 2.78 2.20 1.74 0.88 0.65 3.44 41.5
 15 1 4.350 1 9.11 6.55 5.25 4.53 3.78 3.01 2.37 1.74 1.28 4.65 41.5
 15 1 4.350 1 11.18 8.12 6.52 5.66 4.74 3.75 2.96 2.16 1.61 5.83 41.5

Drop Sequence Completed Time: 18:46 Air Temp (F): 23.8

GPS: Quality : DGPS Fix Latitude = 43 deg49.530451 N Longitude = 79 deg48.405079 W PDOP = 1.40

Note:

16 1 4.250 1 7.01 4.95 3.90 3.34 2.70 2.08 1.55 1.12 0.83 3.48 40.6
 16 1 4.250 1 8.94 6.30 4.99 4.28 3.50 2.68 2.01 1.41 1.02 4.44 40.6
 16 1 4.250 1 10.55 7.43 5.93 5.06 4.14 3.18 2.37 1.66 1.21 5.27 40.6

Drop Sequence Completed Time: 18:47 Air Temp (F): 23.8

GPS: Quality : DGPS Fix Latitude = 43 deg49.491971 N Longitude = 79 deg48.352998 W PDOP = 1.40

Note:

17 1 4.150 1 6.74 5.47 4.34 3.68 2.98 2.29 1.64 1.08 0.74 3.90 41.9
 17 1 4.150 1 8.91 7.09 5.60 4.78 3.89 2.97 2.12 1.36 0.90 5.03 41.9
 17 1 4.150 1 10.57 8.32 6.60 5.60 4.58 3.49 2.49 1.58 1.10 5.91 41.9

Drop Sequence Completed Time: 18:48 Air Temp (F): 23.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.453799 N Longitude = 79 deg48.301163 W PDOP = 1.40

AirportRdSBL

Note:

18 1 4.050 1 6.69 4.68 3.70 3.15 2.52 1.92 1.41 1.00 0.76 3.26 42.2
 18 1 4.050 1 9.01 6.20 4.91 4.22 3.38 2.57 1.87 1.30 0.99 4.38 42.2
 18 1 4.050 1 10.60 7.17 5.66 4.87 3.94 3.00 2.19 1.51 1.12 5.06 42.2

Drop Sequence Completed Time: 18:49 Air Temp (F): 23.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.415084 N Longitude = 79 deg48.248752 W PDOP = 1.40

Note:

19 1 3.950 1 6.86 4.57 3.61 3.06 2.42 1.81 1.32 0.91 0.48 3.14 42.0
 19 1 3.950 1 9.16 5.90 4.70 3.96 3.15 2.40 1.69 1.17 0.64 4.11 42.0
 19 1 3.950 1 10.62 6.83 5.41 4.58 3.65 2.77 1.99 1.33 0.98 4.75 42.0

Drop Sequence Completed Time: 18:50 Air Temp (F): 22.1

GPS: Quality : DGPS Fix Latitude = 43 deg49.376631 N Longitude = 79 deg48.196405 W PDOP = 1.40

Note:

20 1 3.850 1 6.64 4.59 3.69 3.13 2.47 1.84 1.29 0.90 0.65 3.29 42.5
 20 1 3.850 1 8.91 5.97 4.77 4.07 3.22 2.41 1.67 1.11 0.70 4.28 42.8
 20 1 3.850 1 10.67 6.96 5.58 4.75 3.77 2.81 1.94 1.25 0.76 5.02 42.8

Drop Sequence Completed Time: 18:51 Air Temp (F): 20.6

GPS: Quality : DGPS Fix Latitude = 43 deg49.338762 N Longitude = 79 deg48.144753 W PDOP = 1.30

Note:

21 1 3.750 1 6.67 4.11 3.35 2.86 2.27 1.73 1.26 0.91 0.68 3.01 41.1
 21 1 3.750 1 8.96 5.44 4.46 3.80 3.04 2.32 1.68 0.97 0.87 4.00 41.1
 21 1 3.750 1 10.55 6.41 5.25 4.49 3.61 2.74 1.98 1.35 1.00 4.73 41.1

Drop Sequence Completed Time: 18:52 Air Temp (F): 22.1

GPS: Quality : DGPS Fix Latitude = 43 deg49.300655 N Longitude = 79 deg48.092865 W PDOP = 1.30

Note:

22 1 3.650 1 6.59 4.45 3.63 3.09 2.51 1.93 0.96 0.68 0.63 3.21 41.1
 22 1 3.650 1 9.16 6.00 4.89 4.17 3.41 2.61 1.93 0.92 0.81 4.34 41.1
 22 1 3.650 1 10.74 7.05 5.77 4.93 4.04 3.09 2.27 1.18 1.01 5.10 41.1

Drop Sequence Completed Time: 18:52 Air Temp (F): 21.5

GPS: Quality : DGPS Fix Latitude = 43 deg49.262194 N Longitude = 79 deg48.040239 W PDOP = 1.30

Note:

23 1 3.550 1 6.86 5.04 4.03 3.41 2.73 2.08 1.48 1.03 0.75 3.53 40.4
 23 1 3.550 1 9.01 6.53 5.28 4.50 3.63 2.73 1.95 1.29 0.95 4.62 40.4
 23 1 3.550 1 10.55 7.68 6.21 5.29 4.28 3.24 2.32 1.54 1.11 5.45 40.4

Drop Sequence Completed Time: 18:53 Air Temp (F): 20.6

GPS: Quality : DGPS Fix Latitude = 43 deg49.224023 N Longitude = 79 deg47.988228 W PDOP = 1.30

Note:

24 1 3.450 1 6.84 4.84 3.97 3.46 2.85 2.22 1.67 1.20 0.86 3.58 41.4
 24 1 3.450 1 8.96 6.34 5.25 4.58 3.81 2.97 2.21 1.53 1.11 4.70 41.4
 24 1 3.450 1 10.79 7.54 6.26 5.47 4.55 3.55 2.68 1.81 1.30 5.63 41.4

Drop Sequence Completed Time: 18:54 Air Temp (F): 20.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.185650 N Longitude = 79 deg47.935686 W PDOP = 1.30

Note:

25 1 3.350 1 6.67 4.50 3.65 3.17 2.62 2.04 1.53 1.07 0.75 3.29 40.5
 25 1 3.350 1 8.96 6.05 4.92 4.25 3.53 2.75 2.04 1.36 0.96 4.44 40.5
 25 1 3.350 1 10.74 7.22 5.90 5.09 4.24 3.30 2.46 1.66 1.14 5.33 40.5

Drop Sequence Completed Time: 18:55 Air Temp (F): 20.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.147655 N Longitude = 79 deg47.883730 W PDOP = 1.30

Note:

26 1 3.250 1 6.62 4.43 3.75 3.27 2.67 2.03 1.46 0.98 0.48 3.23 40.7
 26 1 3.250 1 8.91 5.99 5.07 4.41 3.63 2.76 1.97 1.29 0.67 4.37 40.7
 26 1 3.250 1 10.82 7.14 6.04 5.27 4.34 3.30 2.38 1.53 0.78 5.23 40.7

Drop Sequence Completed Time: 18:56 Air Temp (F): 20.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.109605 N Longitude = 79 deg47.831754 W PDOP = 1.30

AirportRdSBL

Note:

27 1 3.150 1 6.76 3.20 2.57 2.22 1.85 1.45 1.11 0.78 0.59 2.28 40.1
27 1 3.150 1 9.01 4.23 3.38 2.96 2.45 1.93 1.45 1.02 0.73 2.98 40.1
27 1 3.150 1 10.82 4.98 4.01 3.49 2.92 2.29 1.72 1.22 0.86 3.54 40.1

Drop Sequence Completed Time: 18:56 Air Temp (F): 20.6

GPS: Quality : DGPS Fix Latitude = 43 deg49.071320 N Longitude = 79
deg47.779896 W PDOP = 1.30

Note:

28 1 3.050 1 6.49 3.31 2.65 2.27 1.88 1.49 1.19 0.93 0.46 2.36 41.4
28 1 3.050 1 8.89 4.52 3.63 3.10 2.56 2.03 1.60 1.21 0.67 3.24 41.4
28 1 3.050 1 10.82 5.46 4.39 3.76 3.12 2.47 1.93 1.43 0.80 3.95 41.4

Drop Sequence Completed Time: 18:57 Air Temp (F): 21.5

GPS: Quality : DGPS Fix Latitude = 43 deg49.033039 N Longitude = 79
deg47.727914 W PDOP = 1.30

Note:

29 1 2.950 1 6.67 3.77 2.84 2.36 1.87 1.40 1.07 0.77 0.58 2.41 41.1
29 1 2.950 1 9.18 5.11 3.90 3.21 2.57 1.94 1.43 1.03 0.79 3.27 41.1
29 1 2.950 1 11.08 6.07 4.63 3.86 3.07 2.36 1.75 1.24 0.92 3.91 41.1

Drop Sequence Completed Time: 18:58 Air Temp (F): 20.9

GPS: Quality : DGPS Fix Latitude = 43 deg48.994672 N Longitude = 79
deg47.675951 W PDOP = 1.30

Note:

30 1 2.850 1 6.76 4.86 4.00 3.44 2.83 2.21 1.67 1.22 0.93 3.52 40.8
30 1 2.850 1 9.03 6.44 5.34 4.60 3.82 2.96 2.25 1.60 1.21 4.70 40.8
30 1 2.850 1 11.13 7.74 6.45 5.57 4.61 3.58 2.73 1.94 1.46 5.68 40.8

Drop Sequence Completed Time: 18:58 Air Temp (F): 20.3

GPS: Quality : DGPS Fix Latitude = 43 deg48.956154 N Longitude = 79
deg47.623325 W PDOP = 1.30

Note:

31 1 2.750 1 6.81 4.01 3.30 2.83 2.34 1.80 1.33 0.91 0.62 3.04 40.8
31 1 2.750 1 8.96 5.25 4.32 3.74 3.07 2.38 1.76 1.17 0.79 3.99 40.8
31 1 2.750 1 11.13 6.44 5.29 4.59 3.77 2.91 2.14 1.42 0.96 4.90 40.8

Drop Sequence Completed Time: 18:59 Air Temp (F): 19.7

GPS: Quality : DGPS Fix Latitude = 43 deg48.917851 N Longitude = 79
deg47.571327 W PDOP = 1.30

Note:

32 1 2.650 1 6.79 5.56 4.45 3.84 3.17 2.46 1.78 1.17 0.64 4.01 40.8
32 1 2.650 1 8.59 6.88 5.55 4.78 3.95 3.04 2.20 1.43 0.70 4.95 40.8
32 1 2.650 1 11.06 8.81 7.06 6.12 5.05 3.90 2.82 1.79 0.90 6.35 40.8

Drop Sequence Completed Time: 19:00 Air Temp (F): 20.9

GPS: Quality : DGPS Fix Latitude = 43 deg48.879570 N Longitude = 79
deg47.519489 W PDOP = 1.30

Note:

33 1 2.550 1 6.86 3.38 2.64 2.27 1.87 1.51 1.15 0.84 0.65 2.38 39.1
33 1 2.550 1 9.08 4.40 3.48 2.98 2.47 1.95 1.50 1.06 0.81 3.10 39.1
33 1 2.550 1 11.25 5.36 4.26 3.67 3.04 2.39 1.83 1.28 0.96 3.78 39.1

Drop Sequence Completed Time: 19:01 Air Temp (F): 18.5

GPS: Quality : DGPS Fix Latitude = 43 deg48.841151 N Longitude = 79
deg47.467109 W PDOP = 1.90

Note:

34 1 2.500 1 6.59 4.01 3.28 2.90 2.51 2.07 1.73 1.33 1.05 2.99 39.5
34 1 2.500 1 9.03 5.39 4.48 3.93 3.41 2.82 2.37 1.79 1.45 4.06 39.5
34 1 2.500 1 11.13 6.61 5.51 4.84 4.26 3.46 2.93 2.23 1.77 5.02 39.5

Drop Sequence Completed Time: 19:03 Air Temp (F): 16.8

GPS: Quality : DGPS Fix Latitude = 43 deg48.822598 N Longitude = 79
deg47.441455 W PDOP = 1.90

Note:

35 1 2.450 1 6.71 4.07 3.36 2.89 2.39 1.89 1.49 1.11 0.85 2.88 40.4
35 1 2.450 1 9.01 5.36 4.43 3.83 3.18 2.50 1.96 1.16 1.09 3.83 40.4
35 1 2.450 1 11.08 6.67 5.52 4.78 3.97 3.14 2.46 1.81 1.38 4.80 40.4

Drop Sequence Completed Time: 19:04 Air Temp (F): 17.7

GPS: Quality : DGPS Fix Latitude = 43 deg48.803375 N Longitude = 79
deg47.415640 W PDOP = 1.90

AirportRdSBL

Note:

36	1	2.350	1	6.54	4.37	3.45	2.94	2.44	1.92	1.47	1.04	0.74	2.97	39.5
36	1	2.350	1	8.89	5.86	4.66	3.95	3.28	2.57	1.97	1.37	0.96	4.01	39.5
36	1	2.350	1	10.96	7.13	5.66	4.84	4.03	3.13	2.42	1.66	1.17	4.90	39.5

Drop Sequence Completed Time: 19:05 Air Temp (F): 17.4

GPS: Quality : DGPS Fix Latitude = 43 deg48.764944 N Longitude = 79

deg47.362957 W PDOP = 2.00

Note:

37	1	2.250	1	6.84	4.06	3.35	2.96	2.57	2.09	1.72	1.31	1.00	3.02	39.5
37	1	2.250	1	8.98	5.30	4.41	3.91	3.39	2.75	2.27	1.69	1.27	3.98	39.5
37	1	2.250	1	11.25	6.64	5.52	4.92	4.27	3.46	2.84	2.14	1.58	4.98	39.5

Drop Sequence Completed Time: 19:06 Air Temp (F): 18.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.726849 N Longitude = 79

deg47.311380 W PDOP = 2.00

Note:

38	1	2.150	1	6.71	5.12	4.20	3.66	3.09	2.45	1.94	1.42	1.08	3.82	38.8
38	1	2.150	1	9.16	6.90	5.69	4.97	4.25	3.36	2.63	1.91	1.41	5.19	38.8
38	1	2.150	1	11.04	8.46	7.00	6.13	5.23	4.16	3.28	2.37	1.75	6.41	38.8

Drop Sequence Completed Time: 19:06 Air Temp (F): 18.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.688590 N Longitude = 79

deg47.259360 W PDOP = 2.00

Note:

39	1	2.050	1	6.64	3.97	3.21	2.82	2.41	1.95	1.58	1.21	0.95	2.94	39.1
39	1	2.050	1	8.86	5.24	4.27	3.71	3.20	2.59	2.07	1.55	1.23	3.90	39.1
39	1	2.050	1	11.08	6.46	5.27	4.63	3.98	3.23	2.55	1.90	1.48	4.83	39.1

Drop Sequence Completed Time: 19:07 Air Temp (F): 17.7

GPS: Quality : DGPS Fix Latitude = 43 deg48.650444 N Longitude = 79

deg47.207487 W PDOP = 2.00

Note:

40	1	1.950	1	6.84	4.52	3.81	3.34	2.81	2.25	1.76	1.32	1.00	3.38	39.5
40	1	1.950	1	9.03	5.91	5.00	4.38	3.69	2.90	2.26	1.62	1.24	4.42	39.5
40	1	1.950	1	11.28	7.38	6.30	5.50	4.65	3.66	2.87	2.03	1.43	5.54	39.5

Drop Sequence Completed Time: 19:08 Air Temp (F): 17.1

GPS: Quality : DGPS Fix Latitude = 43 deg48.612027 N Longitude = 79

deg47.155122 W PDOP = 2.00

Note:

41	1	1.850	1	6.74	4.30	3.32	2.85	2.40	1.89	1.53	1.22	0.95	3.00	39.8
41	1	1.850	1	9.08	5.72	4.45	3.81	3.18	2.51	2.01	1.52	1.18	3.99	39.8
41	1	1.850	1	11.35	7.06	5.52	4.74	3.98	3.18	2.52	1.87	1.48	4.95	39.8

Drop Sequence Completed Time: 19:09 Air Temp (F): 15.3

GPS: Quality : DGPS Fix Latitude = 43 deg48.574139 N Longitude = 79

deg47.103539 W PDOP = 2.00

Note:

42	1	1.750	1	6.81	4.48	3.78	3.33	2.83	2.27	1.82	0.95	0.78	3.51	39.5
42	1	1.750	1	9.06	5.83	4.96	4.35	3.71	2.98	2.35	1.19	1.01	4.57	39.5
42	1	1.750	1	11.23	7.20	6.12	5.41	4.61	3.72	2.76	1.56	1.27	5.67	39.5

Drop Sequence Completed Time: 19:10 Air Temp (F): 16.8

GPS: Quality : DGPS Fix Latitude = 43 deg48.535874 N Longitude = 79

deg47.051613 W PDOP = 2.00

Note:

43	1	1.650	1	6.76	4.54	3.76	3.31	2.82	2.27	1.86	1.45	1.14	3.38	39.2
43	1	1.650	1	8.89	5.86	4.91	4.32	3.67	2.91	2.33	1.76	1.37	4.42	39.2
43	1	1.650	1	11.25	7.37	6.20	5.46	4.66	3.69	2.92	2.17	1.65	5.57	39.2

Drop Sequence Completed Time: 19:10 Air Temp (F): 15.9

GPS: Quality : DGPS Fix Latitude = 43 deg48.497989 N Longitude = 79

deg46.999952 W PDOP = 2.40

Note:

44	1	1.550	1	6.62	4.86	3.90	3.38	2.80	2.19	1.73	1.32	1.03	3.60	39.1
44	1	1.550	1	8.91	6.51	5.23	4.53	3.76	2.93	2.30	1.69	1.29	4.82	39.1
44	1	1.550	1	11.16	8.19	6.62	5.73	4.76	3.73	2.89	2.11	1.58	6.11	39.1

Drop Sequence Completed Time: 19:11 Air Temp (F): 16.2

GPS: Quality : DGPS Fix Latitude = 43 deg48.459482 N Longitude = 79

deg46.947569 W PDOP = 2.00

AirportRdSBL

Note:

45 1 1.450 1 6.76 5.38 4.52 3.90 3.19 2.50 1.87 1.33 1.01 4.12 38.8
 45 1 1.450 1 9.08 7.29 6.14 5.32 4.37 3.40 2.52 1.76 1.32 5.58 38.8
 45 1 1.450 1 11.30 9.04 7.64 6.59 5.44 4.22 3.14 2.17 1.61 6.93 38.8

Drop Sequence Completed Time: 19:12 Air Temp (F): 16.2

GPS: Quality : DGPS Fix Latitude = 43 deg48.421346 N Longitude = 79
 deg46.895525 W PDOP = 2.10

Note:

46 1 1.350 1 6.62 4.82 4.00 3.49 2.94 2.33 1.85 1.37 1.06 3.60 39.5
 46 1 1.350 1 8.81 6.64 5.51 4.82 4.08 3.24 2.52 1.82 1.36 4.99 39.5
 46 1 1.350 1 11.13 8.33 6.94 6.10 5.16 4.08 3.18 2.26 1.68 6.29 39.5

Drop Sequence Completed Time: 19:12 Air Temp (F): 15.9

GPS: Quality : DGPS Fix Latitude = 43 deg48.383059 N Longitude = 79
 deg46.843458 W PDOP = 1.60

Note:

47 1 1.250 1 6.71 5.10 4.16 3.64 3.05 2.79 1.97 1.49 0.87 3.76 39.1
 47 1 1.250 1 9.20 6.77 5.57 4.87 4.11 3.26 2.60 1.95 1.46 5.02 39.1
 47 1 1.250 1 11.25 8.44 6.91 6.09 5.16 4.11 3.25 2.37 1.80 6.26 39.1

Drop Sequence Completed Time: 19:14 Air Temp (F): 15.3

GPS: Quality : DGPS Fix Latitude = 43 deg48.345003 N Longitude = 79
 deg46.791456 W PDOP = 1.60

Note:

48 1 1.150 1 6.69 6.00 5.08 4.43 3.67 2.86 2.15 1.00 0.83 4.59 38.8
 48 1 1.150 1 8.86 7.87 6.66 5.82 4.86 3.77 2.82 1.95 1.02 6.00 38.8
 48 1 1.150 1 11.18 9.85 8.34 7.34 6.10 4.75 3.56 2.43 1.31 7.57 38.8

Drop Sequence Completed Time: 19:15 Air Temp (F): 16.2

GPS: Quality : DGPS Fix Latitude = 43 deg48.306724 N Longitude = 79
 deg46.739401 W PDOP = 1.60

Note:

49 1 1.050 1 6.71 5.98 5.02 4.35 3.58 2.74 2.02 1.39 1.06 4.52 39.2
 49 1 1.050 1 8.94 7.92 6.69 5.81 4.80 3.69 2.69 1.84 1.31 6.01 39.2
 49 1 1.050 1 11.08 9.92 8.35 7.27 6.02 4.61 3.37 2.25 1.68 7.52 39.2

Drop Sequence Completed Time: 19:15 Air Temp (F): 15.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.268509 N Longitude = 79
 deg46.687408 W PDOP = 1.60

Note:

50 1 0.950 1 6.74 5.72 4.80 4.24 3.54 2.80 1.44 1.13 0.95 4.57 38.9
 50 1 0.950 1 9.11 7.69 6.47 5.71 4.81 3.76 2.89 1.50 1.26 6.13 38.9
 50 1 0.950 1 11.18 9.51 8.04 7.10 6.00 4.73 3.66 2.00 1.67 7.63 38.9

Drop Sequence Completed Time: 19:18 Air Temp (F): 12.1

GPS: Quality : DGPS Fix Latitude = 43 deg48.229931 N Longitude = 79
 deg46.634829 W PDOP = 0.00

Note:

51 1 0.850 1 7.01 5.28 4.48 3.93 3.24 2.51 1.88 1.36 1.06 4.03 38.6
 51 1 0.850 1 8.98 6.84 5.86 5.13 4.23 3.28 2.44 1.68 1.30 5.22 38.6
 51 1 0.850 1 11.25 8.47 7.27 6.39 5.30 4.10 3.04 2.09 1.59 6.50 38.6

Drop Sequence Completed Time: 19:20 Air Temp (F): 8.8

GPS: Quality : DGPS Fix Latitude = 43 deg48.192035 N Longitude = 79
 deg46.583001 W PDOP = 0.00

Note:

52 1 0.750 1 6.74 8.53 6.92 5.71 4.34 3.07 1.93 1.28 1.04 5.85 38.5
 52 1 0.750 1 8.76 11.09 9.04 7.43 5.66 4.01 2.49 1.54 1.30 7.68 38.5
 52 1 0.750 1 10.86 13.98 11.45 9.46 7.23 5.14 3.14 1.95 1.62 9.73 38.5

Drop Sequence Completed Time: 19:21 Air Temp (F): 10.9

GPS: Quality : DGPS Fix Latitude = 43 deg48.153368 N Longitude = 79
 deg46.531004 W PDOP = 0.00

Note:

53 1 0.650 1 6.84 6.29 5.07 4.22 3.23 2.34 1.56 1.07 0.81 4.35 39.2
 53 1 0.650 1 8.96 8.02 6.50 5.42 4.18 3.06 2.04 1.41 0.97 5.62 39.2
 53 1 0.650 1 11.04 9.69 7.87 6.56 5.11 3.77 2.56 1.70 1.21 6.82 39.2

Drop Sequence Completed Time: 19:21 Air Temp (F): 10.3

GPS: Quality : DGPS Fix Latitude = 43 deg48.114992 N Longitude = 79
 deg46.479210 W PDOP = 2.20

AirportRdSBL

Note:

54 1 0.550 1 7.01 2.22 2.01 1.89 1.74 1.50 1.35 1.11 0.60 1.91 39.6
 54 1 0.550 1 9.13 2.93 2.64 2.48 2.33 1.96 1.79 1.49 0.89 2.55 39.6
 54 1 0.550 1 11.25 3.58 3.26 3.06 2.82 2.41 2.16 1.76 1.40 3.11 39.6

Drop Sequence Completed Time: 19:22 Air Temp (F): 10.3

GPS: Quality : DGPS Fix Latitude = 43 deg48.076286 N Longitude = 79
 deg46.427313 W PDOP = 2.20

Note:

55 1 0.450 1 6.98 7.05 5.74 4.82 3.75 2.71 1.80 0.82 0.71 4.98 38.9
 55 1 0.450 1 8.91 8.93 7.26 6.12 4.79 3.46 2.26 1.50 1.03 6.32 38.9
 55 1 0.450 1 11.06 10.90 8.89 7.48 5.87 4.27 2.79 1.77 1.37 7.77 38.9

Drop Sequence Completed Time: 19:23 Air Temp (F): 10.3

GPS: Quality : DGPS Fix Latitude = 43 deg48.038127 N Longitude = 79
 deg46.376026 W PDOP = 1.60

Note:

56 1 0.350 1 7.06 7.13 5.74 4.81 3.70 2.66 1.73 1.13 0.83 5.12 38.6
 56 1 0.350 1 9.13 9.10 7.38 6.19 4.80 3.44 2.23 1.40 1.03 6.54 38.6
 56 1 0.350 1 11.25 11.14 9.06 7.60 5.90 4.25 2.73 1.70 1.19 8.05 38.6

Drop Sequence Completed Time: 19:24 Air Temp (F): 10.9

GPS: Quality : DGPS Fix Latitude = 43 deg47.999754 N Longitude = 79
 deg46.324338 W PDOP = 1.60

Note:

57 1 0.250 1 6.86 3.78 3.21 2.86 2.49 2.10 1.78 1.43 1.13 2.89 39.2
 57 1 0.250 1 9.01 4.99 4.23 3.81 3.33 2.70 2.29 1.80 1.42 3.83 39.2
 57 1 0.250 1 11.25 6.23 5.33 4.78 4.19 3.41 2.86 2.20 1.69 4.85 39.2

Drop Sequence Completed Time: 19:24 Air Temp (F): 12.1

GPS: Quality : DGPS Fix Latitude = 43 deg47.961063 N Longitude = 79
 deg46.272725 W PDOP = 1.60

Note:

58 1 0.150 1 7.06 3.03 2.64 2.40 2.15 1.84 1.65 1.35 0.82 2.46 40.2
 58 1 0.150 1 9.16 3.90 3.40 3.09 2.76 2.33 2.09 1.72 1.37 3.18 40.2
 58 1 0.150 1 11.77 4.95 4.33 3.95 3.54 2.95 2.62 2.13 1.70 4.01 40.2

Drop Sequence Completed Time: 19:25 Air Temp (F): 12.4

GPS: Quality : DGPS Fix Latitude = 43 deg47.922742 N Longitude = 79
 deg46.220847 W PDOP = 1.60

Note:

59 1 0.050 1 7.64 2.89 2.59 2.44 2.01 1.86 1.78 1.49 0.95 2.53 39.9
 59 1 0.050 1 9.11 3.34 3.01 2.82 2.63 2.26 1.98 1.70 1.38 2.93 39.9
 59 1 0.050 1 10.94 4.01 3.62 3.42 3.13 2.75 2.44 2.02 1.63 3.52 39.9

Drop Sequence Completed Time: 19:26 Air Temp (F): 12.7

GPS: Quality : DGPS Fix Latitude = 43 deg47.883928 N Longitude = 79
 deg46.169894 W PDOP = 1.60

Note:

AirportRdNBL

M3

Date-Time: 11/ 4/2012 17: 20: 13

Sensors: chop chop chop chop chop chop chop chop chop

Weight/spring: 2

Location: Airport. Road

Temp: 30.03

Operator: SS

Comments:

1 1 0.000 1 6.42 4.66 4.29 4.00 3.61 3.01 2.61 2.05 1.23 4.09 38.0
1 1 0.000 1 8.76 6.25 5.77 5.39 4.69 4.07 3.51 2.71 2.15 5.45 38.0
1 1 0.000 1 11.11 7.88 7.30 6.83 6.19 5.16 4.48 3.50 2.58 6.95 38.0

Drop Sequence Completed Time: 17:20 Air Temp (F): 25.9

GPS: Quality : DGPS Fix Latitude = 43 deg47.860716 N Longitude = 79 deg46.131652 W PDOP = 1.90

Note:

2 1 0.100 1 6.71 2.10 1.92 1.83 1.70 1.49 1.40 1.13 0.74 2.05 38.0
2 1 0.100 1 9.06 2.82 2.57 2.44 2.28 1.98 1.82 1.17 0.97 2.46 38.0
2 1 0.100 1 11.21 3.47 3.17 3.00 2.79 2.41 2.21 1.41 0.98 3.04 38.0

Drop Sequence Completed Time: 17:24 Air Temp (F): 25.6

GPS: Quality : DGPS Fix Latitude = 43 deg47.898452 N Longitude = 79 deg46.184269 W PDOP = 1.80

Note:

3 1 0.200 1 6.86 3.13 2.65 2.38 2.09 1.75 1.53 1.24 0.99 2.47 38.0
3 1 0.200 1 8.89 4.15 3.51 3.13 2.75 2.30 1.96 1.56 1.21 3.28 38.0
3 1 0.200 1 11.13 5.18 4.40 3.97 3.46 2.85 2.45 1.92 1.50 4.13 38.0

Drop Sequence Completed Time: 17:25 Air Temp (F): 25.3

GPS: Quality : DGPS Fix Latitude = 43 deg47.936613 N Longitude = 79 deg46.235678 W PDOP = 1.80

Note:

4 1 0.300 1 6.49 4.19 3.50 3.11 2.71 2.21 1.84 1.45 0.87 3.27 38.0
4 1 0.300 1 8.89 5.84 4.88 4.34 3.79 3.08 2.55 1.97 1.51 4.52 38.0
4 1 0.300 1 11.18 7.22 6.10 5.42 4.74 3.87 3.22 2.45 1.87 5.66 38.0

Drop Sequence Completed Time: 17:26 Air Temp (F): 24.4

GPS: Quality : DGPS Fix Latitude = 43 deg47.975029 N Longitude = 79 deg46.287599 W PDOP = 1.80

Note:

5 1 0.400 1 6.59 7.23 5.79 4.80 3.73 2.71 1.81 1.18 0.87 5.00 37.3
5 1 0.400 1 9.08 9.85 7.92 6.58 5.12 3.74 2.43 1.55 1.14 6.88 37.3
5 1 0.400 1 11.04 11.89 9.57 7.98 6.20 4.54 2.99 1.88 1.43 8.34 37.3

Drop Sequence Completed Time: 17:27 Air Temp (F): 23.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.014242 N Longitude = 79 deg46.340596 W PDOP = 1.80

Note:

6 1 0.500 1 6.67 7.69 6.28 5.24 4.05 2.91 1.90 1.23 0.89 5.53 37.0
6 1 0.500 1 8.86 10.29 8.38 7.02 5.47 3.97 2.58 1.60 1.20 7.33 37.0
6 1 0.500 1 11.06 12.59 10.31 8.67 6.78 4.92 3.19 2.04 1.49 9.10 37.0

Drop Sequence Completed Time: 17:28 Air Temp (F): 23.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.053023 N Longitude = 79 deg46.392547 W PDOP = 1.80

Note:

7 1 0.600 1 6.81 3.01 2.60 2.31 2.02 1.66 1.39 1.09 0.56 2.41 37.3
7 1 0.600 1 9.03 3.93 3.39 3.00 2.59 2.09 1.71 1.34 0.77 3.09 37.3
7 1 0.600 1 11.40 4.89 4.22 3.77 3.25 2.63 2.12 1.65 0.94 3.90 37.3

Drop Sequence Completed Time: 17:29 Air Temp (F): 23.6

GPS: Quality : DGPS Fix Latitude = 43 deg48.091303 N Longitude = 79 deg46.443949 W PDOP = 1.80

Note:

8 1 0.700 1 6.74 7.39 5.90 4.85 3.68 2.55 1.61 1.10 0.75 5.15 37.3
8 1 0.700 1 8.76 10.05 8.08 6.61 5.02 3.54 2.17 1.47 0.98 6.94 37.3
8 1 0.700 1 11.06 12.73 10.28 8.43 6.43 4.51 2.76 1.71 1.23 8.89 37.3

Drop Sequence Completed Time: 17:30 Air Temp (F): 24.4

GPS: Quality : DGPS Fix Latitude = 43 deg48.129638 N Longitude = 79 deg46.495467 W PDOP = 1.80

AirportRdNBL

Note:

9 1 0.800 1 6.62 8.80 6.88 5.61 4.21 2.93 1.85 1.23 0.92 5.86 37.0
 9 1 0.800 1 8.86 11.89 9.34 7.62 5.72 4.02 2.44 1.51 1.10 7.95 37.0
 9 1 0.800 1 11.16 14.73 11.64 9.50 7.17 5.03 3.06 1.87 1.36 9.95 37.0

Drop Sequence Completed Time: 17:30 Air Temp (F): 23.6

GPS: Quality : DGPS Fix Latitude = 43 deg48.168277 N Longitude = 79 deg46.547262 W PDOP = 1.80

Note:

10 1 0.900 1 6.84 4.87 3.93 3.38 2.81 2.20 1.69 1.23 0.68 3.52 36.6
 10 1 0.900 1 8.98 6.46 5.21 4.51 3.76 2.93 2.23 1.57 1.18 4.71 36.6
 10 1 0.900 1 11.18 7.87 6.35 5.50 4.58 3.60 2.74 1.92 1.38 5.72 36.6

Drop Sequence Completed Time: 17:32 Air Temp (F): 21.8

GPS: Quality : DGPS Fix Latitude = 43 deg48.211628 N Longitude = 79 deg46.605981 W PDOP = 1.80

Note:

11 1 1.000 1 6.49 5.58 4.67 4.09 3.45 2.65 2.01 1.43 1.04 4.28 36.3
 11 1 1.000 1 9.03 7.53 6.29 5.54 4.64 3.64 2.75 1.90 1.34 5.76 36.3
 11 1 1.000 1 10.99 9.19 7.68 6.77 5.69 4.46 3.41 2.33 1.71 7.02 36.3

Drop Sequence Completed Time: 17:33 Air Temp (F): 23.6

GPS: Quality : DGPS Fix Latitude = 43 deg48.249929 N Longitude = 79 deg46.657805 W PDOP = 1.80

Note:

12 1 1.100 1 6.91 6.39 5.40 4.71 3.85 3.00 2.17 1.44 1.04 4.86 35.4
 12 1 1.100 1 8.94 8.47 7.19 6.25 5.19 4.00 2.89 1.90 1.35 6.42 35.4
 12 1 1.100 1 11.08 10.57 8.96 7.81 6.45 4.99 3.59 2.34 1.55 8.05 35.4

Drop Sequence Completed Time: 17:34 Air Temp (F): 21.2

GPS: Quality : DGPS Fix Latitude = 43 deg48.290914 N Longitude = 79 deg46.713843 W PDOP = 1.80

Note:

13 1 1.200 1 6.79 6.87 5.55 4.83 4.01 3.08 2.23 1.56 0.74 4.96 36.3
 13 1 1.200 1 9.08 9.13 7.40 6.44 5.34 4.14 3.00 2.05 1.03 6.59 36.3
 13 1 1.200 1 11.13 11.05 8.96 7.80 6.50 5.02 3.66 2.49 1.76 8.01 36.3

Drop Sequence Completed Time: 17:35 Air Temp (F): 22.1

GPS: Quality : DGPS Fix Latitude = 43 deg48.329346 N Longitude = 79 deg46.766020 W PDOP = 1.80

Note:

14 1 1.300 1 6.81 5.80 4.90 4.33 3.69 3.01 2.37 1.77 1.36 4.53 36.7
 14 1 1.300 1 9.06 7.78 6.61 5.85 5.03 4.05 3.23 2.38 1.82 6.09 36.7
 14 1 1.300 1 11.16 9.65 8.24 7.31 6.27 5.03 4.04 2.96 2.25 7.58 36.7

Drop Sequence Completed Time: 17:36 Air Temp (F): 20.3

GPS: Quality : DGPS Fix Latitude = 43 deg48.369073 N Longitude = 79 deg46.819990 W PDOP = 1.80

Note:

15 1 1.400 1 6.71 5.07 4.36 3.81 3.16 2.43 1.89 1.41 1.08 3.79 37.0
 15 1 1.400 1 8.96 6.92 5.92 5.17 4.31 3.35 2.55 1.85 1.40 5.11 37.0
 15 1 1.400 1 11.18 8.71 7.46 6.56 5.43 4.24 3.22 2.31 1.72 6.48 37.0

Drop Sequence Completed Time: 17:37 Air Temp (F): 21.8

GPS: Quality : DGPS Fix Latitude = 43 deg48.407634 N Longitude = 79 deg46.872869 W PDOP = 1.80

Note:

16 1 1.500 1 6.67 5.63 4.81 4.28 3.73 3.03 2.47 1.84 0.99 4.44 37.0
 16 1 1.500 1 9.03 7.62 6.51 5.84 5.07 4.13 3.36 2.47 1.83 6.01 37.0
 16 1 1.500 1 11.23 9.47 8.12 7.25 6.33 5.14 4.19 3.08 2.27 7.45 37.0

Drop Sequence Completed Time: 17:37 Air Temp (F): 22.4

GPS: Quality : DGPS Fix Latitude = 43 deg48.445767 N Longitude = 79 deg46.924973 W PDOP = 1.80

Note:

17 1 1.600 1 6.96 4.79 3.95 3.45 2.91 2.36 1.90 1.46 1.17 3.56 37.3
 17 1 1.600 1 9.08 6.45 5.31 4.63 3.93 3.12 2.48 1.81 1.36 4.79 37.3
 17 1 1.600 1 11.23 8.01 6.61 5.78 4.91 3.91 3.09 2.24 1.67 5.98 37.3

Drop Sequence Completed Time: 17:38 Air Temp (F): 23.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.485072 N Longitude = 79 deg46.978570 W PDOP = 1.80

AirportRdNBL

Note:

18 1 1.700 1 6.59 4.33 3.65 3.27 2.88 2.37 1.96 1.56 1.24 3.40 36.4
 18 1 1.700 1 9.06 5.77 4.86 4.38 3.80 3.10 2.55 1.92 1.44 4.53 36.4
 18 1 1.700 1 11.30 7.21 6.13 5.50 4.79 3.89 3.19 2.39 1.77 5.67 36.4

Drop Sequence Completed Time: 17:39 Air Temp (F): 23.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.523257 N Longitude = 79

deg47.030616 W PDOP = 1.80

Note:

19 1 1.800 1 6.84 4.10 3.39 2.92 2.42 1.93 1.52 1.14 0.90 3.08 36.4
 19 1 1.800 1 9.01 5.43 4.44 3.82 3.19 2.51 1.93 1.46 1.11 4.01 36.4
 19 1 1.800 1 11.28 6.74 5.52 4.79 4.00 3.15 2.43 1.75 1.36 5.00 36.4

Drop Sequence Completed Time: 17:40 Air Temp (F): 21.8

GPS: Quality : DGPS Fix Latitude = 43 deg48.561575 N Longitude = 79

deg47.082625 W PDOP = 1.80

Note:

20 1 1.900 1 6.81 4.15 3.41 2.98 2.54 2.08 1.68 1.32 1.04 3.11 36.4
 20 1 1.900 1 8.94 5.43 4.45 3.89 3.33 2.66 2.15 1.61 1.26 4.04 36.4
 20 1 1.900 1 11.18 6.78 5.59 4.90 4.20 3.38 2.75 2.07 1.57 5.07 36.4

Drop Sequence Completed Time: 17:41 Air Temp (F): 19.4

GPS: Quality : DGPS Fix Latitude = 43 deg48.601403 N Longitude = 79

deg47.136705 W PDOP = 1.80

Note:

21 1 2.000 1 6.76 3.95 3.40 3.03 2.65 2.15 1.76 1.34 1.03 3.11 36.4
 21 1 2.000 1 9.01 5.19 4.49 3.98 3.45 2.79 2.26 1.70 1.27 4.08 36.4
 21 1 2.000 1 11.35 6.47 5.59 4.98 4.34 3.50 2.82 2.13 1.57 5.11 36.4

Drop Sequence Completed Time: 17:42 Air Temp (F): 19.7

GPS: Quality : DGPS Fix Latitude = 43 deg48.639891 N Longitude = 79

deg47.189009 W PDOP = 1.80

Note:

22 1 2.100 1 6.74 4.67 4.00 3.54 3.06 2.45 1.91 1.42 1.05 3.68 35.7
 22 1 2.100 1 8.96 6.28 5.40 4.79 4.12 3.31 2.62 1.93 1.44 4.94 35.7
 22 1 2.100 1 11.30 7.75 6.64 5.91 5.10 4.11 3.25 2.36 1.77 6.13 35.7

Drop Sequence Completed Time: 17:43 Air Temp (F): 17.4

GPS: Quality : DGPS Fix Latitude = 43 deg48.677995 N Longitude = 79

deg47.240866 W PDOP = 2.40

Note:

23 1 2.200 1 6.67 4.59 3.90 3.46 2.99 2.40 1.93 1.42 1.07 3.74 35.7
 23 1 2.200 1 9.03 6.13 5.20 4.63 3.99 3.23 2.60 1.91 1.43 5.00 35.7
 23 1 2.200 1 11.18 7.65 6.53 5.81 5.00 4.06 3.25 2.40 1.78 6.26 35.7

Drop Sequence Completed Time: 17:44 Air Temp (F): 18.8

GPS: Quality : DGPS Fix Latitude = 43 deg48.716123 N Longitude = 79

deg47.292550 W PDOP = 2.40

Note:

24 1 2.300 1 6.93 4.49 3.80 3.41 3.00 2.49 2.07 1.57 0.95 3.51 35.7
 24 1 2.300 1 9.03 5.92 5.03 4.53 4.01 3.31 2.75 2.07 1.55 4.64 35.7
 24 1 2.300 1 11.21 7.27 6.20 5.59 4.97 4.10 3.44 2.61 1.92 5.73 35.7

Drop Sequence Completed Time: 17:45 Air Temp (F): 19.1

GPS: Quality : DGPS Fix Latitude = 43 deg48.754573 N Longitude = 79

deg47.344778 W PDOP = 2.40

Note:

25 1 2.400 1 6.84 4.12 3.31 2.86 2.38 1.86 1.42 0.99 0.55 3.00 35.7
 25 1 2.400 1 9.16 5.48 4.41 3.83 3.19 2.48 1.88 1.28 0.87 4.01 35.7
 25 1 2.400 1 11.33 6.79 5.51 4.76 3.96 3.07 2.32 1.58 1.07 5.02 35.7

Drop Sequence Completed Time: 17:46 Air Temp (F): 19.7

GPS: Quality : DGPS Fix Latitude = 43 deg48.792780 N Longitude = 79

deg47.396975 W PDOP = 2.40

Note:

26 1 2.600 1 6.96 3.63 2.94 2.54 2.14 1.69 1.30 0.95 0.72 2.60 35.4
 26 1 2.600 1 8.98 4.74 3.80 3.31 2.77 2.18 1.71 1.21 0.89 3.37 35.4
 26 1 2.600 1 11.30 5.86 4.72 4.10 3.45 2.72 2.12 1.52 0.95 4.19 35.4

Drop Sequence Completed Time: 17:51 Air Temp (F): 20.9

GPS: Quality : DGPS Fix Latitude = 43 deg48.868790 N Longitude = 79

deg47.500216 W PDOP = 2.30

AirportRdNBL

Note:

27	1	2.700	1	6.67	4.61	3.79	3.27	2.69	2.08	1.52	1.04	0.72	3.48	35.4
27	1	2.700	1	9.06	6.20	5.08	4.38	3.61	2.78	2.03	1.34	0.91	4.69	35.4
27	1	2.700	1	11.13	7.64	6.23	5.42	4.46	3.43	2.51	1.67	1.09	5.79	35.4

Drop Sequence Completed Time: 17:55 Air Temp (F): 19.7

GPS: Quality : DGPS Fix Latitude = 43 deg48.906691 N Longitude = 79

deg47.551530 W PDOP = 1.50

Note:

28	1	2.800	1	6.69	4.15	3.28	2.81	2.31	1.80	1.33	0.90	0.60	2.96	35.7
28	1	2.800	1	8.96	5.39	4.25	3.64	3.02	2.33	1.70	1.14	0.76	3.81	35.7
28	1	2.800	1	11.23	6.69	5.29	4.54	3.78	2.91	2.14	1.40	0.95	4.78	35.7

Drop Sequence Completed Time: 17:56 Air Temp (F): 20.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.944991 N Longitude = 79

deg47.603659 W PDOP = 1.50

Note:

29	1	2.900	1	6.49	5.39	4.51	3.90	3.21	2.53	1.71	1.42	1.06	4.13	35.0
29	1	2.900	1	8.81	7.37	6.18	5.37	4.46	3.51	2.72	1.96	1.42	5.62	35.0
29	1	2.900	1	11.25	9.30	7.81	6.78	5.69	4.48	3.48	2.50	1.81	7.13	35.0

Drop Sequence Completed Time: 17:56 Air Temp (F): 20.0

GPS: Quality : DGPS Fix Latitude = 43 deg48.983267 N Longitude = 79

deg47.655844 W PDOP = 1.50

Note:

30	1	3.000	1	6.71	3.82	3.02	2.62	2.16	1.70	1.36	0.70	0.60	2.68	35.3
30	1	3.000	1	9.01	5.06	4.04	3.50	2.88	2.28	1.80	0.93	0.76	3.59	35.3
30	1	3.000	1	11.28	6.32	5.05	4.42	3.65	2.88	2.29	1.20	0.97	4.53	35.3

Drop Sequence Completed Time: 17:58 Air Temp (F): 21.5

GPS: Quality : DGPS Fix Latitude = 43 deg49.020874 N Longitude = 79

deg47.706984 W PDOP = 1.60

Note:

31	1	3.100	1	6.71	3.82	2.99	2.53	2.05	1.54	1.15	0.83	0.44	2.63	34.7
31	1	3.100	1	9.03	5.11	3.99	3.37	2.70	2.05	1.50	1.05	0.61	3.49	34.7
31	1	3.100	1	11.38	6.38	5.00	4.23	3.39	2.56	1.88	1.29	0.72	4.40	34.7

Drop Sequence Completed Time: 17:58 Air Temp (F): 20.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.059452 N Longitude = 79

deg47.759137 W PDOP = 1.50

Note:

32	1	3.200	1	6.79	4.94	4.09	3.58	3.00	2.33	1.73	1.13	0.76	3.65	34.1
32	1	3.200	1	9.11	6.51	5.41	4.70	3.93	3.08	2.27	1.46	0.94	4.82	34.1
32	1	3.200	1	10.52	7.58	6.31	5.48	4.59	3.58	2.62	1.68	1.07	5.62	34.1

Drop Sequence Completed Time: 18:00 Air Temp (F): 19.4

GPS: Quality : DGPS Fix Latitude = 43 deg49.098083 N Longitude = 79

deg47.811499 W PDOP = 1.50

Note:

33	1	3.300	1	6.69	4.94	4.03	3.45	2.82	2.15	1.54	1.01	0.44	3.63	34.4
33	1	3.300	1	8.94	6.56	5.34	4.60	3.76	2.88	2.03	1.28	0.58	4.77	34.4
33	1	3.300	1	10.55	7.71	6.28	5.40	4.41	3.36	2.38	1.51	0.67	5.63	34.4

Drop Sequence Completed Time: 18:01 Air Temp (F): 16.2

GPS: Quality : DGPS Fix Latitude = 43 deg49.136098 N Longitude = 79

deg47.863085 W PDOP = 1.50

Note:

34	1	3.400	1	6.57	5.06	4.15	3.57	2.95	2.34	1.80	1.28	0.95	3.68	34.1
34	1	3.400	1	8.91	6.89	5.64	4.88	4.11	3.19	2.45	1.72	1.22	5.02	34.1
34	1	3.400	1	10.64	8.06	6.62	5.72	4.83	3.78	2.89	2.03	1.44	5.90	34.1

Drop Sequence Completed Time: 18:02 Air Temp (F): 17.1

GPS: Quality : DGPS Fix Latitude = 43 deg49.174236 N Longitude = 79

deg47.915170 W PDOP = 1.50

Note:

35	1	3.500	1	6.86	5.07	4.12	3.46	2.72	2.08	1.46	0.99	0.71	3.51	34.7
35	1	3.500	1	8.96	6.69	5.40	4.54	3.66	2.72	1.92	1.27	0.90	4.64	34.7
35	1	3.500	1	10.57	7.81	6.30	5.33	4.30	3.23	2.29	1.51	1.08	5.45	34.7

Drop Sequence Completed Time: 18:02 Air Temp (F): 18.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.212265 N Longitude = 79

deg47.967145 W PDOP = 1.50

AirportRdNBL

Note:

36 1 3.600 1 6.49 5.28 4.30 3.63 2.96 2.22 1.57 1.07 0.82 3.76 34.7
 36 1 3.600 1 8.89 7.09 5.76 4.89 3.96 3.00 2.10 1.43 1.04 5.15 34.7
 36 1 3.600 1 10.60 8.37 6.81 5.79 4.68 3.60 2.50 1.68 1.25 6.06 34.7

Drop Sequence Completed Time: 18:04 Air Temp (F): 18.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.250330 N Longitude = 79

deg48.019334 W PDOP = 1.50

Note:

37 1 3.700 1 6.76 4.39 3.54 2.99 2.39 1.83 1.35 0.68 0.56 3.17 34.4
 37 1 3.700 1 9.01 5.77 4.65 3.98 3.21 2.42 1.75 0.82 0.69 4.15 34.4
 37 1 3.700 1 11.01 6.85 5.52 4.70 3.80 2.89 2.08 1.02 0.81 4.95 34.4

Drop Sequence Completed Time: 18:04 Air Temp (F): 18.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.288407 N Longitude = 79

deg48.071222 W PDOP = 1.50

Note:

38 1 3.800 1 6.86 4.96 3.88 3.29 2.65 2.05 1.51 1.06 0.52 3.41 34.4
 38 1 3.800 1 9.18 6.46 5.11 4.33 3.50 2.69 1.97 1.36 0.70 4.46 34.4
 38 1 3.800 1 10.89 7.47 5.90 4.98 4.06 3.14 2.31 1.49 0.87 5.17 34.4

Drop Sequence Completed Time: 18:05 Air Temp (F): 17.1

GPS: Quality : DGPS Fix Latitude = 43 deg49.326478 N Longitude = 79

deg48.123404 W PDOP = 1.50

Note:

39 1 3.900 1 6.88 5.38 4.43 3.74 3.02 2.28 1.57 0.76 0.59 3.85 34.4
 39 1 3.900 1 9.01 6.94 5.70 4.85 3.93 2.95 2.04 0.85 0.74 4.96 34.4
 39 1 3.900 1 10.77 8.12 6.64 5.65 4.57 3.48 2.42 1.09 0.86 5.81 34.4

Drop Sequence Completed Time: 18:06 Air Temp (F): 18.8

GPS: Quality : DGPS Fix Latitude = 43 deg49.364861 N Longitude = 79

deg48.175843 W PDOP = 1.50

Note:

40 1 4.000 1 6.71 4.96 4.05 3.44 2.80 2.16 1.59 1.13 0.84 3.61 34.1
 40 1 4.000 1 9.01 6.60 5.40 4.62 3.78 2.88 2.12 1.45 1.08 4.76 34.1
 40 1 4.000 1 10.96 7.94 6.50 5.58 4.59 3.51 2.59 1.79 1.29 5.76 34.1

Drop Sequence Completed Time: 18:07 Air Temp (F): 17.7

GPS: Quality : DGPS Fix Latitude = 43 deg49.402805 N Longitude = 79

deg48.227449 W PDOP = 1.50

Note:

41 1 4.100 1 6.69 6.21 5.17 4.40 3.54 2.64 1.78 1.12 0.77 4.66 34.4
 41 1 4.100 1 8.86 8.38 6.98 5.91 4.77 3.55 2.41 1.50 1.04 6.25 34.4
 41 1 4.100 1 10.79 10.09 8.41 7.15 5.77 4.31 2.92 1.79 1.23 7.50 34.4

Drop Sequence Completed Time: 18:08 Air Temp (F): 17.7

GPS: Quality : DGPS Fix Latitude = 43 deg49.441026 N Longitude = 79

deg48.279365 W PDOP = 1.50

Note:

42 1 4.200 1 6.57 5.36 4.46 3.90 3.28 2.51 1.88 1.28 0.96 4.00 34.1
 42 1 4.200 1 8.91 7.11 5.94 5.19 4.40 3.39 2.53 1.76 1.25 5.34 34.1
 42 1 4.200 1 10.84 8.58 7.20 6.28 5.30 4.13 3.10 2.14 1.55 6.48 34.1

Drop Sequence Completed Time: 18:09 Air Temp (F): 17.4

GPS: Quality : DGPS Fix Latitude = 43 deg49.479351 N Longitude = 79

deg48.331284 W PDOP = 1.50

Note:

43 1 4.300 1 6.91 4.05 3.31 2.88 2.41 1.90 1.44 0.70 0.60 3.01 34.7
 43 1 4.300 1 9.16 5.42 4.44 3.89 3.24 2.56 1.95 0.97 0.75 4.01 34.7
 43 1 4.300 1 11.06 6.55 5.39 4.70 3.96 3.10 2.39 1.16 0.89 4.87 34.7

Drop Sequence Completed Time: 18:09 Air Temp (F): 17.7

GPS: Quality : DGPS Fix Latitude = 43 deg49.517720 N Longitude = 79

deg48.383394 W PDOP = 1.50

Note:

44 1 4.400 1 6.88 4.86 3.87 3.27 2.64 2.04 1.27 1.09 0.67 3.42 34.7
 44 1 4.400 1 9.08 6.43 5.17 4.42 3.55 2.74 1.42 1.12 1.03 4.55 34.7
 44 1 4.400 1 11.16 7.95 6.38 5.44 4.42 3.44 2.59 1.78 1.30 5.65 34.7

Drop Sequence Completed Time: 18:10 Air Temp (F): 17.7

GPS: Quality : DGPS Fix Latitude = 43 deg49.555814 N Longitude = 79

deg48.435231 W PDOP = 1.50

AirportRdNBL

Note:

45 1 4.500 1 6.62 4.92 4.12 3.60 2.97 2.28 1.69 1.20 0.86 3.69 34.7
 45 1 4.500 1 9.06 6.70 5.63 4.91 4.05 3.13 2.30 1.58 1.14 5.01 34.7
 45 1 4.500 1 11.23 8.35 7.05 6.14 5.08 3.94 2.89 1.97 1.39 6.26 34.7

Drop Sequence Completed Time: 18:11 Air Temp (F): 18.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.593868 N Longitude = 79

deg48.487326 W PDOP = 1.50

Note:

46 1 4.600 1 6.86 5.01 4.18 3.65 3.04 2.40 1.80 1.27 0.93 3.75 34.0
 46 1 4.600 1 9.03 6.64 5.58 4.87 4.09 3.21 2.40 1.66 1.17 4.97 34.0
 46 1 4.600 1 11.18 8.20 6.85 6.02 5.07 3.98 2.99 2.03 1.44 6.16 34.0

Drop Sequence Completed Time: 18:11 Air Temp (F): 18.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.632242 N Longitude = 79

deg48.539229 W PDOP = 1.50

Note:

47 1 4.700 1 6.76 5.04 4.21 3.59 2.84 2.17 1.57 1.07 0.77 3.67 34.0
 47 1 4.700 1 9.13 6.75 5.63 4.79 3.89 2.93 2.08 1.39 0.98 4.90 34.0
 47 1 4.700 1 11.11 8.34 6.95 5.96 4.83 3.65 2.60 1.71 1.23 6.10 34.0

Drop Sequence Completed Time: 18:12 Air Temp (F): 20.6

GPS: Quality : DGPS Fix Latitude = 43 deg49.670791 N Longitude = 79

deg48.591265 W PDOP = 1.50

Note:

48 1 4.800 1 6.74 4.61 3.95 3.39 2.69 2.06 1.49 0.96 0.67 3.33 34.0
 48 1 4.800 1 9.01 6.03 5.18 4.43 3.59 2.72 1.97 1.04 0.80 4.33 34.0
 48 1 4.800 1 11.38 7.51 6.42 5.51 4.46 3.40 2.48 1.69 1.03 5.44 34.0

Drop Sequence Completed Time: 18:13 Air Temp (F): 20.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.708662 N Longitude = 79

deg48.642931 W PDOP = 1.50

Note:

49 1 4.900 1 6.88 4.51 3.51 2.89 2.25 1.71 1.23 0.88 0.44 2.99 34.0
 49 1 4.900 1 8.94 5.84 4.55 3.74 2.96 2.22 1.54 1.10 0.57 3.86 34.0
 49 1 4.900 1 11.35 7.16 5.58 4.62 3.68 2.76 1.93 1.34 0.75 4.75 34.0

Drop Sequence Completed Time: 18:14 Air Temp (F): 19.4

GPS: Quality : DGPS Fix Latitude = 43 deg49.746940 N Longitude = 79

deg48.694835 W PDOP = 1.50

Note:

50 1 5.000 1 6.69 4.14 3.16 2.62 2.09 1.58 1.14 0.78 0.59 2.82 34.1
 50 1 5.000 1 9.03 5.37 4.10 3.41 2.72 2.06 1.46 0.99 0.73 3.63 34.1
 50 1 5.000 1 11.18 6.53 5.00 4.16 3.35 2.54 1.81 1.21 0.98 4.43 34.1

Drop Sequence Completed Time: 18:14 Air Temp (F): 19.7

GPS: Quality : DGPS Fix Latitude = 43 deg49.785568 N Longitude = 79

deg48.746978 W PDOP = 1.50

Note:

51 1 5.100 1 6.76 3.87 3.24 2.83 2.37 1.89 1.48 1.07 0.80 2.92 34.0
 51 1 5.100 1 9.01 5.08 4.23 3.71 3.12 2.49 1.92 1.37 1.00 3.83 34.0
 51 1 5.100 1 11.30 6.22 5.20 4.55 3.86 3.05 2.39 1.70 1.20 4.73 34.0

Drop Sequence Completed Time: 18:15 Air Temp (F): 20.0

GPS: Quality : DGPS Fix Latitude = 43 deg49.824510 N Longitude = 79

deg48.798351 W PDOP = 1.50

Note:

52 1 5.200 1 6.88 3.24 2.59 2.19 1.78 1.40 1.06 0.79 0.36 2.28 33.7
 52 1 5.200 1 9.06 4.20 3.36 2.85 2.31 1.80 1.37 1.00 0.51 2.89 33.7
 52 1 5.200 1 11.28 5.14 4.14 3.53 2.85 2.21 1.69 1.20 0.59 3.61 33.7

Drop Sequence Completed Time: 18:17 Air Temp (F): 23.3

GPS: Quality : DGPS Fix Latitude = 43 deg49.862568 N Longitude = 79

deg48.850134 W PDOP = 1.50

Note:

53 1 5.300 1 6.93 4.41 3.56 3.07 2.55 2.01 1.56 1.13 0.87 3.22 34.4
 53 1 5.300 1 9.03 5.70 4.63 4.02 3.34 2.63 2.00 1.43 1.08 4.13 34.4
 53 1 5.300 1 11.21 7.08 5.74 4.98 4.18 3.30 2.52 1.57 1.33 5.17 34.4

Drop Sequence Completed Time: 18:19 Air Temp (F): 20.6

GPS: Quality : DGPS Fix Latitude = 43 deg49.900536 N Longitude = 79

deg48.903203 W PDOP = 1.50

AirportRdNBL

Note:

54 1 5.400 1 6.79 4.79 3.89 3.34 2.75 2.13 1.60 0.84 0.60 3.46 33.7
 54 1 5.400 1 9.03 6.24 5.08 4.38 3.62 2.81 2.10 0.95 0.78 4.53 33.7
 54 1 5.400 1 11.28 7.63 6.24 5.38 4.47 3.47 2.61 1.22 0.97 5.58 33.7

Drop Sequence Completed Time: 18:21 Air Temp (F): 19.1

GPS: Quality : DGPS Fix Latitude = 43 deg49.938249 N Longitude = 79 deg48.955010 W PDOP = 1.50

Note:

55 1 5.500 1 6.88 4.75 3.80 3.21 2.56 1.95 1.39 0.98 0.51 3.33 34.4
 55 1 5.500 1 9.08 6.23 4.98 4.22 3.37 2.56 1.82 1.24 0.62 4.36 34.4
 55 1 5.500 1 11.28 7.69 6.15 5.19 4.19 3.18 2.27 1.51 0.78 5.35 34.4

Drop Sequence Completed Time: 18:21 Air Temp (F): 19.1

GPS: Quality : DGPS Fix Latitude = 43 deg49.976625 N Longitude = 79 deg49.006644 W PDOP = 1.50

Note:

56 1 5.600 1 6.86 4.15 3.36 2.85 2.25 1.75 1.27 0.90 0.68 2.93 34.1
 56 1 5.600 1 8.98 5.40 4.39 3.71 2.98 2.28 1.63 1.15 0.87 3.84 34.1
 56 1 5.600 1 11.35 6.69 5.45 4.64 3.75 2.83 2.04 1.41 1.04 4.80 34.1

Drop Sequence Completed Time: 18:22 Air Temp (F): 18.5

GPS: Quality : DGPS Fix Latitude = 43 deg50.014740 N Longitude = 79 deg49.058549 W PDOP = 1.50

Note:

57 1 5.700 1 6.86 4.53 3.61 3.05 2.47 1.92 1.46 1.09 0.84 3.13 34.4
 57 1 5.700 1 8.91 5.81 4.65 3.95 3.21 2.49 1.88 1.35 0.96 4.03 34.4
 57 1 5.700 1 11.16 7.21 5.78 4.90 3.99 3.11 2.37 1.70 1.24 5.04 34.4

Drop Sequence Completed Time: 18:24 Air Temp (F): 19.4

GPS: Quality : DGPS Fix Latitude = 43 deg50.053042 N Longitude = 79 deg49.110534 W PDOP = 1.50

Note:

58 1 5.800 1 6.57 3.85 3.19 2.79 2.33 1.83 1.46 1.10 0.72 2.86 34.4
 58 1 5.800 1 8.84 5.16 4.31 3.74 3.14 2.46 1.88 1.41 0.78 3.85 34.4
 58 1 5.800 1 10.99 6.42 5.37 4.67 3.93 3.08 2.39 1.74 1.36 4.81 34.4

Drop Sequence Completed Time: 18:25 Air Temp (F): 19.7

GPS: Quality : DGPS Fix Latitude = 43 deg50.091252 N Longitude = 79 deg49.161958 W PDOP = 1.50

Note:

APPENDIX F

Traffic Data Analyses and Pavement Designs

TERRAPROBE INC.

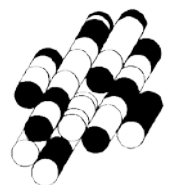


Table F1
Airport Road Class EA Study
1 km North of Mayfield Road to 0.6 km North of King Street
Region of Peel
Equivalent Single Axle Load Calculations (AADT DATA)

Description - Old Church Road	Year			
Traffic Data Year	2011	2019	2021	2038
Design Year				
Analysis Period				
1a) Average Annual Daily Traffic (AADT)	8,363	10,594	11,239	15,737
Annual Growth Rate (%)		3%	2%	
1b) Truck fraction of total traffic		9%	9%	
Number of lanes in one direction		2	2	
1c) Directional Factor		0.55	0.55	
1d) Lane distribution Factor		0.9	0.9	
Daily Truck Volume		472	501	
Road Classification		Urban Arterial (minor)		
2) Breakdown of Truck Proportions				
	Class 1	0.65	0.65	
	Class 2	0.05	0.05	
	Class 3	0.20	0.20	
	Class 4	0.10	0.10	
3) Daily Truck Volumes (4 Classes)		2019 to 2020	2021 to 2038	
	Class 1	307	325	
	Class 2	24	25	
	Class 3	94	100	
	Class 4	47	50	
4) Truck Factors (4 Classes)				
	Class 1	0.5	0.5	
	Class 2	2.3	2.3	
	Class 3	1.6	1.6	
	Class 4	5.5	5.5	
5) Daily ESALs per Truck Class (4 Classes)				
	Class 1	153	163	
	Class 2	54	58	
	Class 3	151	160	
	Class 4	260	275	
6) Total Daily ESALs in Design Lane		618	656	
7) Total Base Year ESALs		2019	2021	
Number of Days of Truck Traffic		365	365	
Total Base Year ESALs		225,669	239,408	
8) Cumulative ESALs for Design Period				
Design Period		2	18	
Annual Growth Rate (%)		3%	2%	
Geometric Growth Factor		2.0	21.4	
		458,108	5,126,289	
Cumulative ESALs for the Design Period			5,584,400	

Note: ESAL Calculations are based on "Procedures for Estimating Traffic Loads for Pavement Design", Hajek, J., 1995, and "Adaptation and Verification of AASHTO Pavement Design Guide for Ontario Conditions" (MI-83), 2008.

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

Flexible Design Inputs

Project Name: Airport Road Class EA Study
Route: Airport Road
Location: 1 km North of Mayfield Road to 0.6 km North of King Street
Owner/Agency: Region of Peel/IBI
Design Engineer:

Flexible Pavement Design/Evaluation

Structural Number	124.16	Subgrade Resilient Modulus	30.00 MPa
Total Flexible ESALs	5,600,000	Initial Serviceability	4.40
Reliability	85.00 percent	Terminal Serviceability	2.20
Overall Standard Deviation	0.44		

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.42	1.00	150.00	63.00
Graded Stone Base	0.14	1.00	150.00	21.00
Granular Subbase	0.FG	1.00	600.00	72.00
			Σ SN	156.00

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

Flexible Design Inputs

Project Name: Airport Road Class EA Study
Route: Airport Road
Location: 1 km North of Mayfield Road to 0.6 km North of King Street
Owner/Agency: Region of Peel/IBI
Design Engineer:

Flexible Pavement Design/Evaluation

Structural Number	118.25	Subgrade Resilient Modulus	35.00 MPa
Total Flexible ESALs	5,600,000	Initial Serviceability	4.40
Reliability	85.00 percent	Terminal Serviceability	2.20
Overall Standard Deviation	0.44		

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.42	1.00	150.00	63.00
Graded Stone Base	0.14	1.00	150.00	21.00
Granular Subbase	0.12	1.00	600.00	72.00
			Σ SN	156.00

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
 American Concrete Pavement Association

Flexible Design Inputs

Project Name: Airport Road Class EA Study
 Route: Airport Road
 Location: 1 km North of Mayfield Road to 0.6 km North of King Street
 Owner/Agency: Region of Peel/IBI
 Design Engineer:

Flexible Pavement Design/Evaluation

Structural Number	124.16	Subgrade Resilient Modulus	30.00 MPa
Total Flexible ESALs	5,600,000	Initial Serviceability	4.40
Reliability	85.00 percent	Terminal Serviceability	2.20
Overall Standard Deviation	0.44		

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.42	1.00	50.00	21.00
Asphalt Cement Concrete	0.28	1.00	150.00	42.00
Graded Stone Base	0.09	1.00	690.00	62.10
			Σ SN	125.10

Table F1 Existing Pavement Rehabilitation Strategies

From Station	To Station	Grade Changes (mm)	Rehabilitation Strategies
0+450	0+545	0 to -160	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
0+545	0+835	0 to +420	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
0+835	1+045	0 to -500	Full depth reconstruction in accordance with the pavement structure provided in Section 10.2.1 for new construction (widening).
1+045	1+285	0 to +940	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
1+285	1+465	0 to -280	Full depth reconstruction in accordance with the pavement structure provided in Section 10.2.1 for new construction (widening).
1+465	1+890	0 to +1150	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
1+890	2+045	0 to -320	Full depth reconstruction in accordance with the pavement structure provided in Section 10.2.1 for new construction (widening).
2+045	2+155	0 to +185	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
2+155	2+235	0 to -215	Full depth reconstruction in accordance with the pavement structure provided in Section 10.2.1 for new construction (widening).
2+235	3+300	0 to +1550	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
3+300	3+390	0 to -70	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
3+390	5+635	0 to +630	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD;



From Station	To Station	Grade Changes (mm)	Rehabilitation Strategies
			<ul style="list-style-type: none"> ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
5+635	5+695	0 to -150	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
5+695	5+935	0 to +515	<ul style="list-style-type: none"> ▪ Remove existing asphaltic concrete full depth; ▪ Regrade existing granular material with Granular B Type II as necessary to subbase design elevation and recompact to 100% SPMDD; ▪ Place 150 mm of Granular A and compact to 100% SPMDD; and ▪ Place 100 mm of HL 8 HS hot mix asphalt binder course and 50 mm of HL 1 hot mix asphalt surface course.
Roundabout at Sta. 2+600		Na	Full depth reconstruction in accordance with the pavement structure provided in Section 10.2.1 for new construction (widening).
Roundabout at Sta. 5+700		na	Full depth reconstruction in accordance with the pavement structure provided in Section 10.2.1 for new construction (widening).

Notes: + signifies a grade raise; - signifies a grade lowering.

