



**FINAL PAVEMENT DESIGN REPORT
AGREEMENT NUMBER: 5006-E-0088
HIGHWAY 69 AND SECORD ROAD (HIGHWAY 7042)
Secord Road: From South Jct. Highway 69/Secord Road,
Northerly 8.4 km
&
Highway 69: From 8.3 km North of Highway 637,
Northerly 8.6 km
NORTHEASTERN REGION
SUDBURY AREA**

**January 31, 2008
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And

Section B Highway 69

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PROJECT DESIGN SUMMARY

This Project involves the investigation and design of the pavement structure, frost heaves and centreline culvert installations on Secord Road (Highway 7042) (Section A) and the investigation of the pavement structure on Highway 69 together with the design of 4 centreline culvert installations (Section B).

SECTION A SECORD ROAD (HIGHWAY 7042)

SECTION A - PROJECT DESIGN SUMMARY

Secord Road (Highway 7042) is an undivided two lane Secondary Highway and is classified as a Rural Local Undivided Minor Secondary Highway. Secord Road is located at the south Jct. of Highway 69/Secord Road and runs northerly 8.4 km to the north Jct. of Highway 69/Secord Road, in the Townships of Secord, Dill and Burwash, Sudbury Area.

The rehabilitation of Secord Road for 8.4 km is required to correct surface and structural deficiencies resulting in pavement distresses including cracking and surface distortions. Work on this highway includes rehabilitation of the existing pavement surface throughout the project area, treatment of 10 areas of isolated pavement distress, replacement of 19 centreline culverts and other highway improvements. Pavement Design recommendations are required for this work.

A summary of the general pavement structure rehabilitation design recommendations for Secord Road are as follows:

- In-place process the existing surface and underlying granular to a depth of 80 mm to 120 mm where applicable and correct crossfall
- Place 100 mm of Granular 'A' (where applicable)
- Resurface with a Double Surface Treatment followed by a Single Surface Treatment
- Pave with 60 mm Superpave 12.5 (where applicable)

Section B HIGHWAY 69

SECTION B - PROJECT DESIGN SUMMARY

This Project involves the investigation of the pavement structure on Highway 69 and the design of 4 centreline culvert installations.

Highway 69 is an undivided two lane Kings Highway and is classified as a Rural Arterial undivided highway. The section of Highway 69 included in this assignment is located from 8.3 km north of Highway 637, northerly 8.6 km in the Townships of Secord, Dill and Burwash, Sudbury Area

Four (4) centerline culverts have been identified for replacement in the Culvert Inventory and Recommendations Chart.

This Pavement Design Report has been prepared by DST Consulting Engineers. The detail design will be performed by others.

A summary of the general pavement structure rehabilitation design recommendations for the culverts on Highway 69 are as follows:

- Replace culverts by trench reinstatement
- Embedment material shall be Granular 'B' Type 1
- Backfill with Granular 'B' Type 1
- 150 mm of Granular 'A'
- 2-60 mm lifts of Superpave 12.5
- PGAC 52-34

SECTION A SECORD ROAD (HIGHWAY 7042)

1.0 INTRODUCTION

DST Consulting Engineers Inc. (DST) has been retained by The Ministry of Transportation to provide Pavement Design – Medium Complexity, Soils and Pavement Investigations – Routine, services under Agreement Number 5006-E-0088.

1.1 Project Scope

The Project involves the investigation and design of the following for Secord Road;

- a.) the pavement structure
- b.) 10 Frost Heaves
- c.) 19 centreline culvert replacements

The Pavement Engineering requirements for Secord Road include;

Pavement Structure Design, soils investigation, laboratory testing and the preparation of the contract borehole data sheets.

The investigation for Secord Road is located as follows:

- From the South Jct. of Hwy 69 and Secord Road, Station 10+000, northerly to Station 10+900; and from Station 11+700 to Station 18+440 (North Jct. of Secord Road and Hwy 69).
- Station 10+900 to Station 11+700 is not included; this section will be abandoned and included with the new Highway 69 interchange. A new section of Secord Road is being constructed under Contract 2006-5157, from Station 9+130 Secord Road to Station 10+000/H.O.T. Station 10+000 McVittie Road/H.O.T. Station 10+000 Service Road, this is not part of the assignment.

A summary of the major components of the proposed work that are addressed in this report is as follows:

- Soils investigation for Secord Road and areas of pavement distress
- Provide Pavement Structure recommendations for Secord Road and areas of pavement distress

- Provide design recommendations for 19 centreline culverts on Secord Road
- Visual ditch condition survey

The MTO has identified the following ten (10) Pavement Distress Areas (Frost Heaves) along Secord Road:

No.	Township	Station to Station	Description
1.	Secord	11+916 – 11+950	Moderate Frost Heave
2.	Secord	12+075 – 12+125	Severe Frost Heave
3.	Secord	12+300 – 12+340	Severe Frost Heave
4.	Secord	12+340 – 12+375	Severe Frost Heave
5.	Secord	12+650 – 12+725	Severe Frost Heave @ Emergency # 701
6.	Secord	12+900 – 13+100	Severe Frost Heave @ curve
7.	Secord	13+225 – 13+300	Very Severe Frost Heave 30 S/W of Emergency # 866
8.	Secord	14+300 – 14+350	Severe Frost Heave
9.	Secord	14+965 – 15+015	Severe Frost Heave
10.	Secord	16+075 – 16+125	Severe Frost Heave

Nineteen (19) CSP centreline culverts along Secord Road have been identified for investigation and replacement by the MTO. There were listed on the Culvert Inventory and Recommendation Sheet and as follows:

Number *	Twp.	Station to Station	Action Required	Comments
18	Secord	Station 10+010	Replace	Inadequate cover Very poor condition
21	Secord	Station 11+190	Replace	These 3 culverts are not required (see the current contract).
22	Secord	Station 11+360	Replace	
23	Secord	Station 11+603	Replace	
26	Secord	Station 12+231	Replace	Very poor condition Holes in invert, scaling
27	Secord	Station 12+596	Replace	Very poor condition
28	Secord	Station 12+669	Replace	Poor condition
29	Secord	Station 12+706	Replace	Inadequate cover Very poor condition
30	Secord	Station 12+829	Replace	Inadequate cover Poor condition
31	Secord	Station 13+042	Replace	Very poor condition Fish Habitat
33	Secord	Station 13+338	Replace	Very poor condition
34	Secord	Station 13+545	Replace	Very poor condition
38	Secord	Station 15+413	Replace	Poor condition
42	Secord	Station 16+009	Replace	Inadequate cover Poor condition
45	Secord	Station 16+704	Replace	Inadequate cover Poor condition
47	Secord	Station 17+134	Replace	This culvert has been replaced recently.
49	Secord	Station 17+992	Replace	Culvert not found/covered
51	Secord	Station 18+194	Replace	Very poor condition
54	Secord	Station 18+549	Replace	Poor condition
* NUMBERED as per Culvert Inspection Summary Report				

Recommended treatments for centreline culvert replacements and Frost Heaves, identified by the MTO, are included within this report.

Drainage improvements are recommended throughout the limits of the project by ditch cleanout based on a visual investigation by DST Consulting Engineers.

1.2 Design Criteria (Secord Road)

As per e-mail from Jason Wright, Geotechnical Section, MTO dated Wednesday August 29, 2007;

The Design Criteria is as follows:

- Pavement width – 2 lanes at 3.0 m
- Shoulder width – 0.5 m

- Rounding width – 0.5 m

A Pavement Engineering Design Presentation was held on October 31, 2007 at the MTO Northeastern Regional Office. At this meeting Paul Lecoarer, Manager, Engineering, MTO Northeastern Region, indicated that pavement width is to be changed to 3.25 m with a 0.5 m shoulder.

The existing horizontal alignment will be retained. The vertical alignment will be retained except for areas where a 100 mm grade raise is recommended.

2.0 GENERAL DATA

Data has been compiled from the following Ministry sources and referenced in this report where appropriate;

- Performance Record Data Sheet (Secord Road, Highway 7042), dated June 2006
- RFQ documents for Consultant Agreement # 5006-E-0088
- Culvert Inspection Summary Report
- Plan drawings for G.W.P. 312-99-00 (Contract 2006-5157)
- Traffic Volumes as per RFQ
- Pavement Design Presentation Meeting

The information in the following sections was obtained from the Ministry of Transportation RFQ document.

2.1 Construction History

Secord Road has been treated with Surface Treatment numerous times over the course of its life and has been graded to gravel in many locations due to the roughness and age of the road. Two sections of Secord Road in the north end have recently been upgraded in 2007 and used as a haul road under an existing ongoing contract. Station 14+250 to Station 17+760 has been reconstructed as follows; in-place process to a depth of 200 mm, add 150 mm of new Granular 'A', add 50 mm of Granular 'M' and Double Surface Treated. Station 17+000 to Station 18+440 has been reconstructed as follows; in-place process to depth of 200 mm, add 150 mm of new Granular 'A' and paved with 60 mm of 12.5 Superpave.

2.2 Surface Deficiencies

The Surface Treated section is very rough and uneven. Manual patching has been completed over 50% of the length of the project.

The gravel section is also rough and uneven and requires continual maintenance.

The newly placed Double Surfaced Treated section and Superpave section are in excellent condition. The existing shoulders are gravel.

As previously stated, the RFQ listed 10 pavement distress areas within this section of highway.

3.0 FIELD INVESTIGATIONS

DST commenced and completed the field investigations for this project in August 2007.

Soil investigations utilized a CME 55 drill rig equipped for geotechnical soil investigations.

Site investigation and field testing was completed in conformance with the requirements specified in Section 3.5.G.2.1, Site Investigation and Field Testing. (Page 13 of Agreement Number 5006-E-0088).

Five (5) mid-lane boreholes per kilometre were advanced through the existing surface on Secord Road. Boreholes were also advanced at culverts and frost heaves as per RFQ. Additional boreholes were advanced through existing hot mix patches.

The existing pavement, base and subbase thicknesses were determined from the median thickness found in the mid-lane boreholes. Mid-lane boreholes were completed throughout the project based on one borehole being placed randomly within 200 m sublots. The offset distance is approximately 1.6 m left or right of centreline.

The field investigation included a total of 490 boreholes, and 129 samples. A total of 83 samples were tested to determine the base, subbase and/or subgrade properties, based on a minimum of one sample of each of the existing base, subbase and subgrade materials per kilometre and 10 frost heaves. Samples were tested in DST's Thunder Bay Laboratory which is CCIL Asphalt Laboratory A, B, E and Aggregate Laboratory C and D certified and participates in the Ministry's Multi-laboratory correlation programs.

The Granular 'A' and Granular 'B' gradation test results have been tabulated within the enclosed Gradation Chart.

3.1 Existing Surface Types

Secord Road has the following existing surface types;

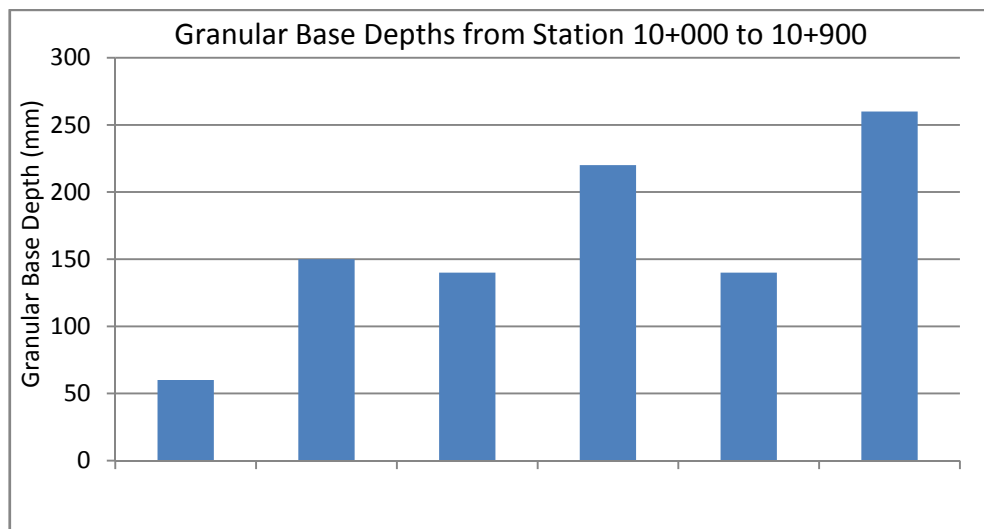
1. **Station 10+000 to Station 10+900;** boreholes indicate approximately 40 mm to 110 mm of Surface Treatment .
2. **Station 10+900 to Station 11+700** has been abandoned and will be incorporated with the new interchange on the New Highway 69.
3. **Station 11+700 to Station 14+250** consists of a gravel surface. The borehole logs indicate that the gravel surface is typically 90 mm to 420 mm in thickness and is crushed gravel with sand.
4. **Station 14+250 to Station 17+700** consists of a newly placed Double Surface Treatment. The typical section on Sheet 198 SECTION A-A, Contract 2006-5157, WP. 312-99-00 indicates the following was to be constructed;
 - Double Surface Treatment
5. **Station 17+760 to 18+440** has been resurfaced with 60 mm of SP12.5. The typical section on Sheet 198 Contract 2006-5157, WP. 312-99-00 indicates that the following was to be constructed;
 - 60 mm Superpave 12.5

3.2 Existing Base Material

The following charts are for informational purposes only. Data within the charts have been placed left to right in order of increasing station; however, the horizontal axes are not to scale.

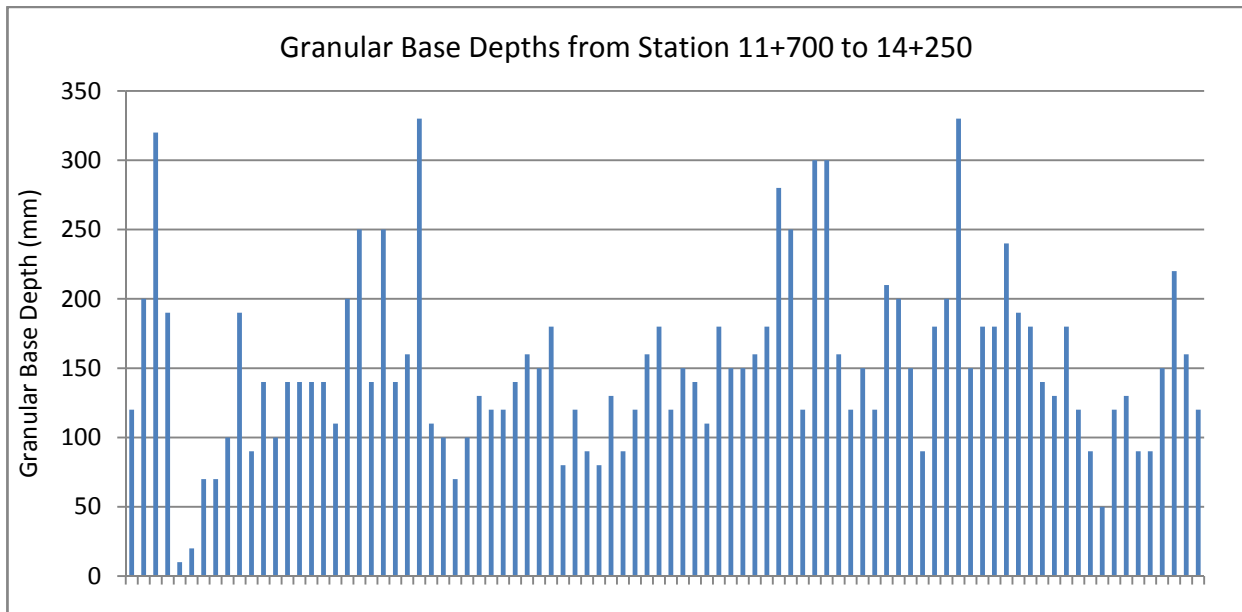
Section 1: Station 10+000 to Station 10+900

The borehole logs indicate a variable base depth from 60 mm to 260 mm. The average base depth is 156 mm.



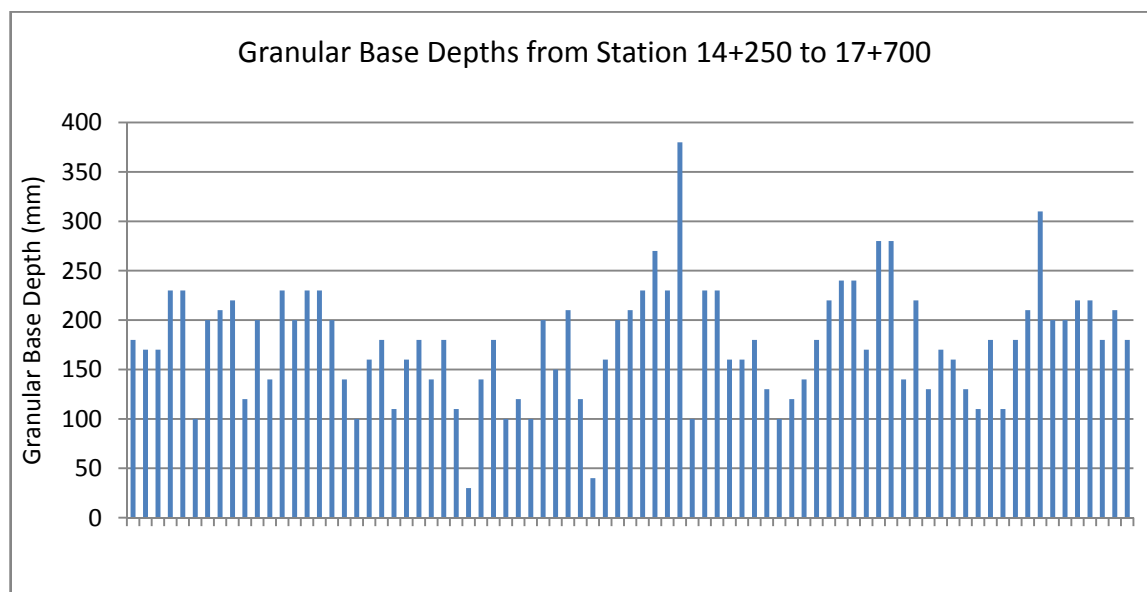
Section 2: Station 11+700 to Station 14+250

The borehole logs indicate a variable base depth from 10 mm to 330 mm. The average base depth is 152 mm.



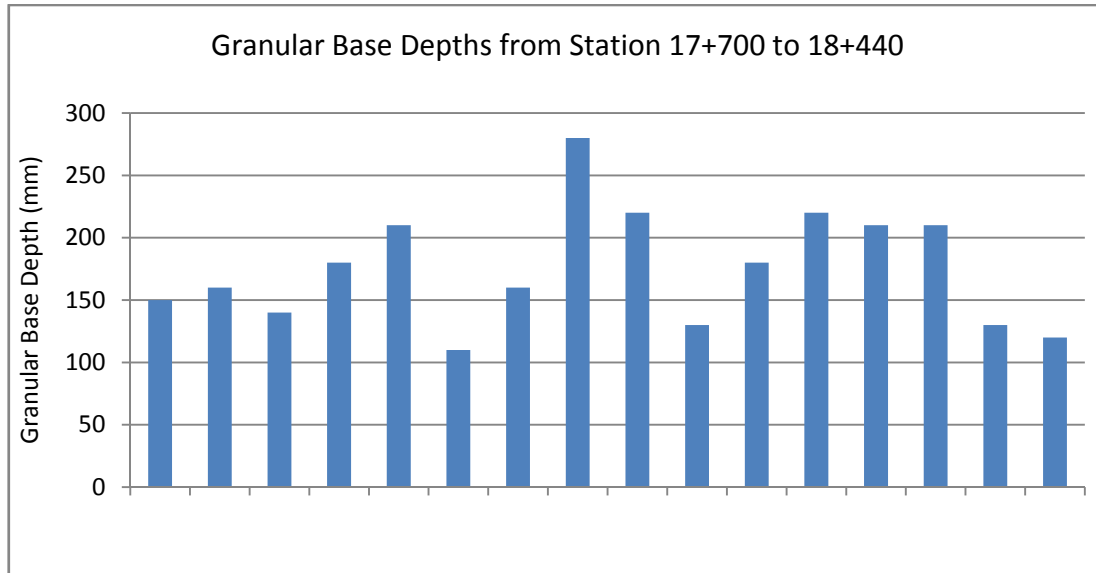
Section 3: Station 14+250 to Station 17+700

The borehole logs indicate a variable base depth from 30 mm to 380 mm. The average base depth is 177 mm.



Section 4: Station 17+700 to Station 18+440

The borehole logs indicate a variable base depth from 110 mm to 280 mm. The average base depth is 178 mm.



3.3 Existing Base Summary

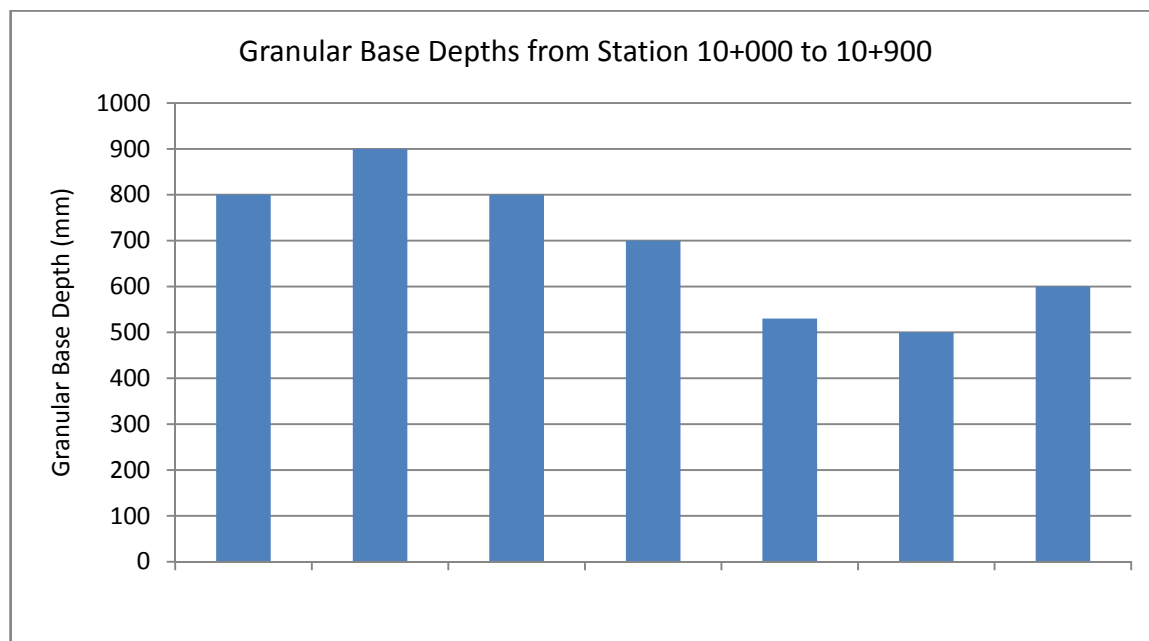
Eighteen (18) of the (22) base samples tested for Secord Road did not meet the Granular 'A' gradation specification. The samples contained excess material passing one or more of the sieves ranging from the 19 mm to the 75 μ m sieve. The percent passing the 75 μ m sieve varied from 3.4 to 9.7 percent and the percent crushed particles ranged from 46.2 to 91.4 percent. Refer to the Granular 'A' Gradation Chart within the Appendices.

3.4 Existing Subbase Material

The following charts are for informational purposes only. Data within the charts have been placed left to right in order of increasing station; however, the horizontal axes are not to scale.

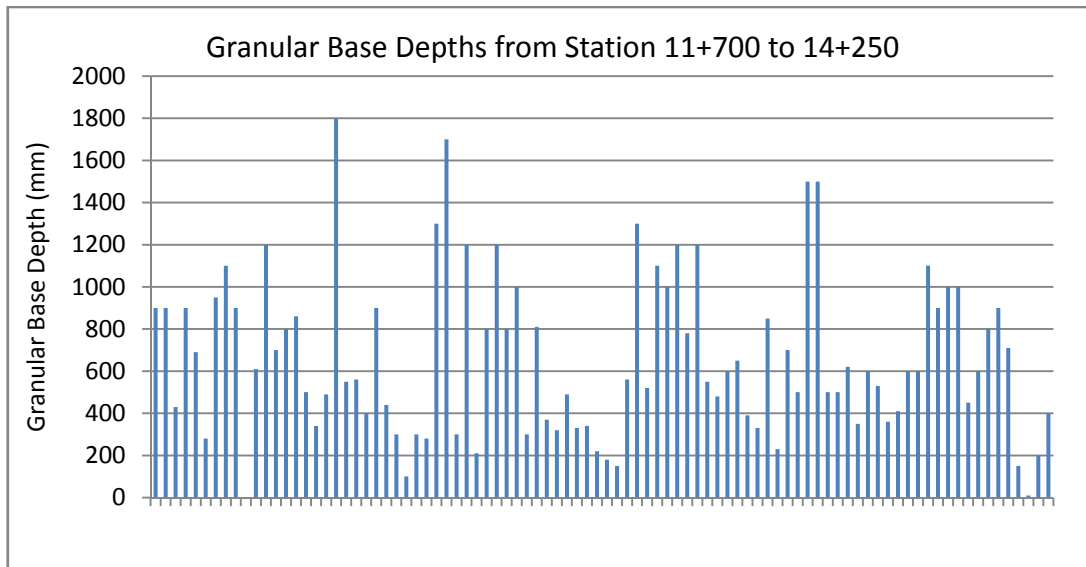
Section 1: Station 10+000 to Station 10+900

The borehole logs indicate a variable subbase depth from 490 mm to 890 mm. The average subbase depth is 690 mm.



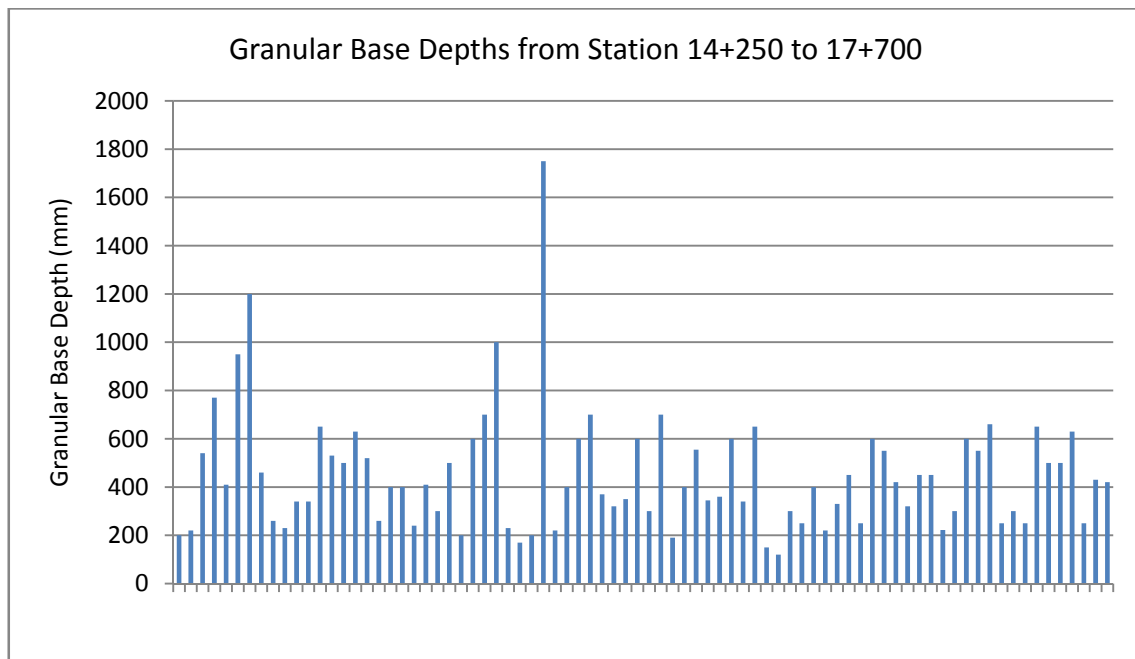
Section 2: Station 11+700 to Station 14+250

The borehole logs indicate a variable subbase depth from 190 mm to 1800 mm. The average subbase depth is 680 mm.



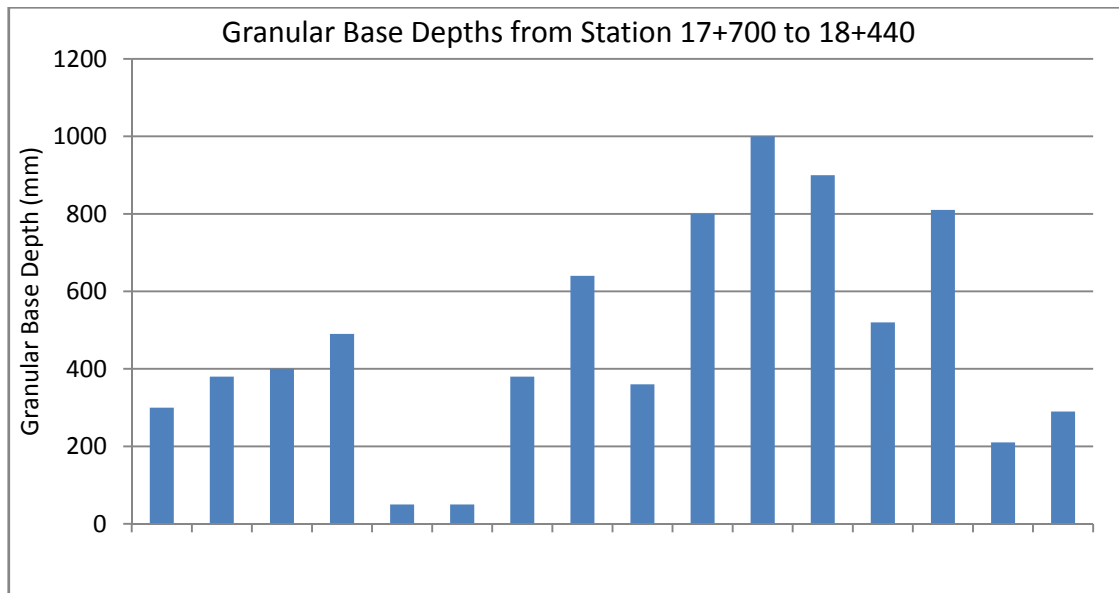
Section 3: Station 14+250 to Station 17+700

The borehole logs indicate a variable subbase depth from 190 mm to 1700 mm. The average subbase depth is 451 mm.



Section 4: Station 17+700 to Station 18+440

The borehole logs indicate a variable subbase depth from 90 mm to 990 mm. The average subbase depth is 449 mm.



3.5 Existing Subbase Summary

Grainsize distribution tests performed on (22) subbase samples indicate that nineteen (19) of the samples tested did not meet a Granular 'B' Type I gradation specification. The samples generally contained excess fines on the 75 μm sieve, ranging up to 21.5 percent. Occasional samples also contained excess passing the 300 μm sieve.

3.6 Existing Subgrade

Section 1: Station 10+000 to Station 10+900

The borehole logs indicate that the subgrade in this section is primarily grey silty clay, cobbles/some cobbles.

Section 2: Station 11+700 to Station 14+250

The borehole logs indicate that the subgrade in this section is primarily brown silt some sand, trace of gravel. A few of the borehole logs indicate bedrock.

Section 3: Station 14+250 to Station 17+700

The borehole logs indicate that the subgrade in this section is primarily a brown silty clay/sand, trace of gravel. A few of the borehole logs indicate rock fill.

Section 4: Station 17+700 to Station 18+440

The borehole logs indicate that the subgrade in this section is primarily brown silty sand, trace of gravel. A few of the borehole logs indicate rock fill.

3.7 Existing Subgrade Summary

The subgrade varies throughout the length of the project. Grainsize distribution tests performed on forty seven (47) subgrade samples indicate the following:

- Twenty-five (25) samples contained material less than 40% passing the 75 µm sieve
- Fifteen (15) samples contained material between 40 and 55% passing the 75 µm sieve and
- Seven (7) samples contained material greater than 55% passing the 75 µm sieve.

The lab results of the 14 samples taken for the Atterberg Limit test had the following soil types:

- 2 samples were identified as CL
- 9 samples were identified as CI
- 3 samples were identified as CH

4.0 CONSTRUCTION MATERIALS

The MTO Aggregate Section was contacted concerning the availability of material for this project. The letter requesting aggregate information by DST to the Ministry is attached as Appendix E. An Aggregate Sources List will be produced by the MTO.

The following asphalt and granular materials will be used on this project. These materials are to meet appropriate Ministry OPSS specifications, including Standard and Non-Standard Special Provisions.

For design purposes the volume conversion rates as shown may be used for design:

- Superpave 12.5 (SP 12.5) conversion factor of 2.45 t/m³
- Granular 'A' conversion factor of 2.40 t/m³
- Granular 'B' Type I, conversion factor of 2.00 t/m³
- Class 2 aggregate, 18 kg/m²
- Application of binder as follows;
- HF-150S Primer, 1.65 kg/m² (initial application)
- HF-150S Primer, 1.55 kg/m² (second application)
- HF-150S Primer, 1.55 kg/m² (follow up Single Surface Treatment)
- Application of aggregate; initial application – 18 kg/m² , second application 19 kg/m²
- Follow up Single Surface Treatment - 19 kg/m²

Actual volume conversion rates will vary depending on the material source used.

5.0 PAVEMENT DESIGN ALTERNATIVES

A Pavement Design Strategy Meeting for this project was held at the MTO North Bay Regional Complex on October 31, 2007. All of the MTO recommendations and clarifications have been added to this report. The minutes of the meeting are in Appendix D.

5.1 Pavement Design Criteria

The MTO Routine Method was applied for this project. The AASHTO Pavement Design Method was not considered practical due to the low traffic volumes, and the lack of traffic composition information.

The MTO provided the most recent traffic data for Secord Road:

- the 2007 Average Annual Daily Traffic (AADT) is 204 with 2 % commercial.

5.2 Design Pavement Structure Granular Base Equivalent (GBE)

Routine (Empirical) Method

Existing Granular Base Equivalency -Page 154 of the Pavement Design and Rehabilitation Manual, Table 3.5 – Granular Base Equivalency Factors, indicates the equivalency factors of various materials for new projects, resurfacing projects and reconstruction projects.

For design calculations, the following Granular Base Equivalency (GBE) Factors have been used:

Existing Surface Treatment – a granular base equivalency factor of 0.0 was used for this material.

Existing SP 12.5 – a granular base equivalency factor of 2.0 was used for this material.

Existing Base Material – Table 3.5 recommends a granular base equivalency factor of 0.75 be used for old base material for a resurfacing project. Due to the high percentage of test results indicating that the material does not meet gradation specifications (the material being slightly finer than specifications on the 19 mm to the 75 µm sieves), a granular base equivalency factor of 0.50 was used.

New Base Material – For design calculations, a granular equivalency of 1.0 was used

Pulverized Material – For design calculations, a granular equivalency of 0.5 was used.

Pulverized Bituminous Surface Material (Superpave 12.5) – For design calculations, a granular equivalency of 1.0 was used

Existing Subbase Material – For design calculations, a granular base equivalency factor of 0.3 was used. While the Pavement Design and Rehabilitation Manual recommends a granular base equivalency factor for an old Granular Subbase for a resurfacing project as 0.5, the lower factor was used due to out of specification subbase material.

5.1.2 Existing GBE

Using the average existing Base and Subbase thicknesses, the following existing pavement structure strength is calculated:

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	GBE
10+000 to 10+900	Surface Treatment	20	0	0
	Base Material	156	0.50	78
	Subbase Material	690	0.3	207
	Total GBE			285

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	GBE
11+700 to 14+250	Gravel Surface	0	0	0
	Base Material	152	0.50	76
	Subbase Material	660	0.3	198
	Total GBE			274

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	GBE
14+250 to 17+700	Double Surface Treatment	0	0	0
	Base Material	177	0.5	87
	Existing subbase	451	0.3	135
	Total GBE			222

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	GBE
17+700 to 18+440	Superpave 12.5	60	2	120
	Base Material	178	0.50	89
	Existing subbase	449	0.3	135
	Total GBE			344

5.2.2 Target GBE

Using the MTO Structural Design Guidelines for Flexible Pavements, the structural strength as expressed in GBE is as follows:

- Using Table 3.4 of the Pavement Design and Rehabilitation Manual, Structural Design Guidelines for the MTO Routine Design Method, the surface type under an AADT of 200 – 500 is Surface Treatment.
- Using Table 3.3, the existing AADT is 204 and falls in the 200 to 1000 AADT category. In Northern Ontario, the granular depths recommended are no less than those for 2000 – 3000 AADT. Under subgrade type, SANDS and SILTS, 5-75µm less than 40%, the design pavement structure is as follows:
 - Base - 150 mm
 - Subbase - 300 mm
 - Target GBE - 350

The new pavement structure design which meets the design criteria with the Routine Method and the target GBE is as follows:

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	New GBE
10+000 to 10+900	Surface Treatment	20	0	0
	New Granular 'A' Base Material	100	1.0	100
	In-place processed Base Material	80	0.5	40
	Existing Base Material	96	0.5	48
	Existing subbase	690	0.3	207
	Total GBE			395

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	New GBE
11+700 to 14+250	Surface Treatment	20	0	0
	New Granular 'A' Base Material	100	1.0	100
	In-place processed Material	80	0.5	40
	Existing Base Material	72	0.5	36
	Existing subbase	680	0.3	204
	Total GBE			380

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	New GBE
14+250 to 17+700	Double Surface Treatment	20	0	0
	New Granular 'A'	100	1.0	100
	In-place processed Material	80	1.0	80
	Existing Granular 'A' Base Material	97	.50	49
	Existing subbase	451	0.3	135
	Total GBE			364

Station to Station	Pavement Structure Elements	Thickness (mm)	Factor	GBE
17+700 to 18+440	Superpave 12.5	60	2	120
	In-place processed Material	120	1.0	120
	Base Material	118	0.5	64
	Existing subbase	449	0.3	135
	Total GBE			439

5.3 Present Worth Method – Life Cycle Cost Analysis

This method is not applicable to the Secord Road pavement design.

5.4 1997 AASHTO Pavement Design Method

An alternative pavement design method is the DARWin Pavement Design and Analysis System. This method was not considered practical due to the low traffic volumes and the lack of traffic composition information.

5.5 Design Summary

Based on the AADT, the only alternative Pavement Design recommended is a Double Surface Treatment. Conventional resurfacing such as Mill/Pave, Pad/Pave, Excavate/Pave, Hot-in-place Recycling, Cold-in-place Recycling, Micro Surfacing are not considered suitable alternatives.

6.0 RECOMMENDATIONS

6.1 Pavement Structure Secord Road

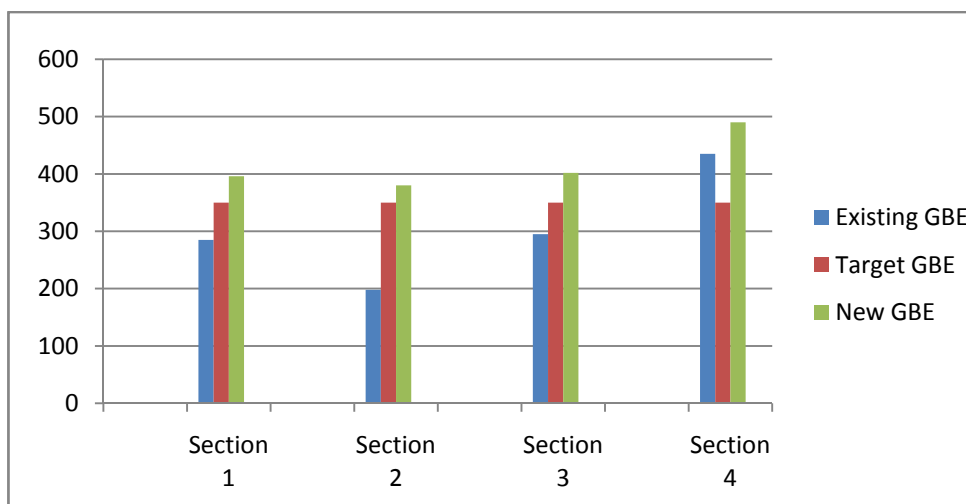
The following pavement recommendations apply:

Station to Station	Recommendations	Existing GBE	Target GBE	New GBE
Section 1 10+000 To 10+900	In-place process to a depth of 80 mm , apply 100 mm of new Granular 'A" and resurface with a Double Surface Treatment	285	350	395

Station to Station	Recommendations	Existing GBE	Target GBE	New GBE
Section 2 11+700 To 14+250	In-place process to a depth of 80 mm , apply 100 mm of new Granular 'A" and resurface with a Double Surface Treatment	274	350	380

Station to Station	Recommendations	Existing GBE	Target GBE	New GBE
Section 3 14+250 To 17+700	In-place process to a depth of 80 mm, apply 100 mm of Granular 'A' and resurface with a Double Surface Treatment	222	350	364

Station to Station	Recommendations	Existing GBE	Target GBE	New GBE
Section 4 17+700 To 18+440	In-place process to a depth of 120 mm and resurface 60 mm Superpave 12.5	344	350	439



6.2 Surface Treatment with Class 2 Aggregate

A Double Surface Treatment (DST) consists of two applications of Binder and Class 2 aggregate placed over a granular surface. The new DST section should be followed by a Single Surface Treatment the following year.

This surface treatment should be placed from Station 10+000 to 10+900 and from Station 11+700 to 14+250. The condition of reconstructed Surface Treated Section from Station 14+250 to 17+760 should be ascertained at the end of the proposed truck haul. If it has failed due to the number and weight of the haul trucks, it should also be reconstructed.

6.3 Paved Section

Station 17+760 to Station 18+440 is currently paved with a single 60 mm lift of Superpave 12.5.

The condition of the paved section should be ascertained at the end of the proposed truck haul. If it has failed due to the number and weight of the haul trucks, it should also be reconstructed. The recommended treatment is to in-place process to a depth of 120 mm and resurface with 60 mm of Superpave 12.5.

The grade of asphalt cement used shall be PG 52-34. A tack coat shall be applied prior to placing the surface course. Special Provision 308S01 shall be used.

6.4 In-Place Full Depth Reclamation of Bituminous Pavement and Underlying Granulars

In-place process the existing Surface Treatment from the existing edge of pavement, approximately Station 10+010 to Station 10+900 and from Station 11+700 to Station 14+250 to a depth of 80 mm. As recommended above, the existing roadway from 14+250 to 18+440 should be re-evaluated at the end of the truck haul. If required, in-place process the existing Superpave Section to a depth of 120 mm and resurface.

The in-place processing shall be carried out full roadway width, from inside edge of rounding to inside edge of rounding. Generally, the crossfall and superelevation shall be corrected by grading the in-place processed material prior to applying any granular grade raises and resurfacing.

6.5 Grade Raise

A 100 mm grade raise from Station 10+000 to Station 10+900 and from Station 11+700 to Station 14+250 is required to increase the strength of the pavement structure. The newly reconstructed section from Station 14+250 to Station 17+700 may require the same grade raise after the truck haul has been completed and the surface deficiencies ascertained as previously recommended.

6.6 Granular Materials

It is recommended that the granular materials required for this project be specified as Granular 'A' and Granular 'B' Type I meeting the specifications of Special Provision SP110S13.

6.7 Transition Treatments

If transition treatments are required, it is recommended that all transitions be treated as per the appropriate section of OPSD 205. The MTO Pavement Design and Rehabilitation Manual indicate a frost penetration of 2.1 m in the Sudbury Area. A 't' depth of 1.2 m is to be used.

6.8 Widening

It is anticipated that some granular material may "spill over" onto the existing foreslopes in areas where the existing shoulder narrows. This is a result of maintaining the minimum platform width and raising the profile grade by 100 mm. Due to economical reasons, it is not recommended to strip the existing topsoil from the foreslope within these areas. The new slopes can be steepened slightly, thereby minimizing the impact on the foreslope.

6.9 Stripping

This project has varying depths of topsoil. For design purposes assume an average depth of 150 mm for stripping operations. All excavated material from the stripping operations is to be disposed of as per OPSS 180. Waste disposal areas are to be determined during Detailed Design.

6.10 Excavated Materials

Unless otherwise stated all excavated rock and earth material can be used to flatten the inside slopes.

For design purposes, all material from frost heave excavations is to be considered as waste material and disposed of as per OPSS 180.

6.11 Drainage

The condition of the existing ditches was visually inspected by DST staff in August 2007. In general the existing ditches are substandard. Ditching improvements have been recommended.

6.12 Ditch Cleanout Operations

Ditch cleanout areas have been recommended to remove vegetation, winter sand and other debris from the existing ditches. All excavated material is to be disposed within waste disposal areas as per OPSS 180.

STATION	DESCRIPTION	RECOMMENDATION
10+000 to 10+270 Rt	Shallow ditches through earth cut	Earth ditch clean out
10+000 to 10+500 Lt	Shallow ditches through shallow fill area	Earth ditch clean out
10+375 to 10+525 Rt	Shallow ditches through shallow fill	Earth ditch clean out
11+770 to 11+800 Rt	Shallow ditches	Earth ditch clean out
11+770 to 11+820 Lt	Shallow ditches	Earth ditch clean out
11+800 to 11+850 Rt	Shallow ditch through RC	Rock ditch clean out
11+820 to 11+830 Lt	No ditch Around, Bedrock Knob	Rock ditch clean out
11+850 to 11+910	Shallow Ditches through Shallow EC/EF	Earth ditch clean out
11+950 to 11+980 Rt	No ditch through shallow rock	Rock ditch clean out
11+955 to 11+970 Lt	No ditch through shallow fill	Ditch cleanout on left
11+990 to 12+040 Rt	Shallow ditches CSP @ 11+990 not to be replaced	Earth ditch clean out
12+040 to 12+075 Rt	No ditching	Provide ditch cleanout on right
12+075 to 12+125	Frost Heave Location	Provide ditch cleanout on right
12+050 to 12+125	Frost heave, no ditches	
12+125 to 12+220	Shallow earth ditch	Earth ditch clean out
12+182 to 12+195 Lt	Shallow earth ditch	Earth ditch clean out
12+202 to 12+295 Lt	Shallow earth ditch	Provide ditch cleanout on left
12+295 to 12+300	Shallow ditch through rock cut	Rock ditch clean out
12+300 to 12+340	Frost heave location	

STATION	DESCRIPTION	RECOMMENDATION
12+250 to 12+300 Rt	Shallow ditches	Earth ditch clean out
12+340 to 12+450 Rt	No ditch through rock cut	Provide ditching on right
12+340 to 12+480 Lt	No ditch through rock cut	Provide ditching on left
12+340 to 12+375	Frost heave location	
12+450 to 12+590 Rt	Shallow ditch through shallow EC/EF	Earth ditch clean out
12+455 to 12+475 Lt	Shallow ditch through rock cut	Rock ditch clean out
12+500 to 12+517 Lt	Shallow ditch through rock cut	Rock ditch clean out
12+577 to 12+590 Lt	Shallow ditch	Earth ditch clean out
12+600 to 12+635 Rt	Shallow ditch through rock cut	Rock ditch clean out
12+609 to 12+625 Lt	No ditch through shallow bedrock	Rock ditch clean out
12+640 to 12+683 Lt	Shallow ditches	Earth ditch clean out left
12+668 to 12+715 Rt	Shallow ditches	Earth ditch clean out
12+612 to 12+735 Lt	Shallow ditches	Earth ditch clean out
12+725 to 12+785 Rt	Shallow ditch through rock cut	Rock ditch clean out
12+735 to 12+792 Lt	Shallow ditch through rock cut	Rock ditch clean out
12+820 to 12+845 Rt	Vegetation in ditch CSP @ 12+827	Earth ditch clean out
12+845 to 12+940	Shallow ditch through rock cut	Rock ditch clean out
12+910 to 12+935 Lt	No ditch through rock cut	Rock ditch clean out
12+940 to 12+975 Rt	Shallow ditch through E/C E/fill	Earth ditch clean out
12+975 to 13+000 Lt	No ditch through rock cut	Rock ditch clean out
13+000 to 13+030 Lt	Shallow ditch	Earth ditch clean out
13+045 to 13+162 Rt	No ditching through E/C	Earth ditch clean out
13+050 to 13+090 Lt	No ditching through shallow E/C.EF	Earth ditch clean out
13+100 to 13+225 Lt	Vegetation in ditch	Earth ditch clean out
13+190 to 13+220 Rt	Vegetation in ditch	Earth ditch clean out
13+250 to 13+305 Rt	Vegetation in ditch	Earth ditch clean out
12+305 to 12+315	Driveway	Reset entrance csp lower
13+255 to 13+315 Lt	Shallow ditch	Earth ditch clean out
13+315 to 13+408 Rt	Shallow ditch	Earth ditch clean out
13+315 to 13+398 Lt	shallow fill	Earth ditch clean out
13+409 to 13+450 Lt	Shallow ditch	Earth ditch clean out
13+417 to 13+450 Rt	shallow fill/cut	Earth ditch clean out
13+450 to 13+495 Rt	No ditch through earth cut	Earth ditch clean out
13+450 to 13+500 Lt	No ditch through earth cut	Earth ditch clean out
13+500 to 13+530 Lt	Shallow ditch	Rock ditch clean out
13+510 to 13+545 Rt	Shallow ditch	Earth ditch clean out
13+545 to 13+575 Rt	No ditch through earth cut	Earth ditch clean out
13+575 to 13+610 Rt	No ditch through rock cut	Rock ditch clean out
13+600 to 13+685 Lt	Shallow ditch	Earth ditch clean out
13+610 to 13+685 Rt	Shallow ditch	Earth ditch clean out
13+685 to 13+705 Rt	No ditch on right	Earth ditch clean out
13+685 to 13+750 Lt	Shallow ditch	Earth ditch clean out
13+705 to 13+713 Rt	Driveway with no entrance CSP (File #970)	MTO design section to review. Provide entrance csp if required
13+713 to 13+850 Rt	Shallow EC/EF	Earth ditch clean out
13+785 to 14+005 Lt	Shallow EC/EF	Earth ditch clean out
13+993 to 14+030 Rt	Shallow EC/EF	Earth ditch clean out
14+065 to 14+130 Rt	Shallow EC/EF	Earth ditch clean out
14+144	CSP with no cover	

STATION	DESCRIPTION	RECOMMENDATION
14+160 = 5+595 (contract chainage)	Newer CSP, south end of new S/T	
14+160 to 14+316 Lt	Start of Cont. Shallow E/C/EF	Earth ditch clean out
14+316 to 14+320	Entrance left into gravel pit, - old entrance CSP	
14+190 to 6+265 Rt	Shallow E/C/EF	Earth ditch clean out
14+316 to 6+386 Lt	Shallow E/C/EGF	Earth ditch clean out
6+280 to 6+477 Rt	Shallow E/C/EF	Earth ditch clean out
6+404 to 6+465 Lt	Shallow E/C/EF	Earth ditch clean out
6+476 to 6+680 Lt	Shallow E/C/EF	Earth ditch clean out
6+485 to 6+567 Rt	Shallow fill area, no ditch	Earth ditch clean out
6+585 to 6+675 Rt	Shallow fill area, no ditch	Earth ditch clean out
6+675	End of new DST, Start old ST/HMP	
6+680 to 6+695	Entrance left along RR tracks - No CSP	Ditch through or install CSP
6+685 = 15+250	Painted station on road	
6+695 to 6+713 Lt	Shallow fill	Earth ditch clean out
6+722	Centreline RR Tracks	
6+735 = 15+300	Painted Station on Road Centreline	
6+784 = ??+?50	Start new DST, End old ST/HMP	
7+246 to 7+269	New bailey bridge	
15+980 to 16+085 Lt	Shallow fill/cut, no CSP @ 15+980	Earth ditch clean out
15+980 to 16+080 Rt	Shallow ditch through shallow earth fill,	Earth ditch clean out
16+085 to 16+402 Lt	Shallow ditch through rock cut	Rock ditch clean out
16+225 to 16+325 Rt	Shallow ditch, water ponding through earth cut	Earth ditch clean out

6.13 Pavement Distress Areas (Frost Heaves)

The RFQ documents identified 10 areas of isolated pavement distress on this project.

Treatment recommendations for the identified pavement distresses follow.

Frost heave and distress treatment excavation depths specified in this section of the report are referenced to the top of the existing surface.

Unless otherwise recommended, backfill to the frost heaves excavations shall consist of granular materials. A 150 mm granular base course layer shall be provided.

Tapers shall be constructed at the ends of the frost heave excavation. Unless otherwise recommended, the tapers shall be constructed with uniform slopes from the bottom of the excavation up to the existing road surface.

Ditches provided to drain the frost heaves shall be constructed to a minimum of 250 mm below the bottom of the treatment excavations, as shown on OPSD 205.06.

For design purposes, assume all excavated material to be wasted.

Undulations within the bedrock may trap some water, however, the impacts of this may be minor, and therefore, shattering of the bedrock under the lanes is not recommended.

The following is a summary of field results together with recommendations for frost heave treatments.

No.	Township	Station to Station	Distress Description & Recommendations
1.	Secord	11+916 to 11+950	Moderate Frost Heave This FH was identified by the MTO. The borehole logs and field review indicate the probable cause is insufficient drainage of the pavement structure and a subgrade of CL, inorganic clayey silts of low plasticity, gravelly clays, sandy clays, and lean clays. A pocket of earth at Station 11+935 and 11+945 may be the cause of the frost heave. Sample #94 & #95 The depth to bedrock varied between 250 mm to 1.3 m. Excavate as per OPSD 205.06, d = 500 mm and k = 1.4 or to bedrock.
2.	Secord	12+075 to 12+125	Severe Frost Heave. This FH was identified by the MTO. The borehole logs and field review indicate the probable cause is insufficient drainage of the pavement structure and a subgrade of CI, inorganic silty clays of medium plasticity. Sample #13, #14 & #15 The field survey indicates that the FH is located in a rock to earth transition. Bedrock was encountered at a depth of 1.2 m. Excavate as per OPSD 205.06, d = 300 mm and k = 1.4
3.	Secord	12+300 to 12+340	Severe Frost Heave. This FH was identified by the MTO. The borehole logs and field review indicate the probable cause is insufficient drainage of the pavement structure and a subgrade of CI, inorganic silty clays of medium plasticity. Sample #19, #18 The field survey indicates that the FH is located in a rock to earth transition. The depth to bedrock varied between 350 mm to 1.5 m. Excavate as per OPSD 205.06, d = 300 mm and k = 1.4. and continue the excavation to 12+375. A 2 nd layer of surface treatment extends from Station 12+320 to Station 12+350 approximately 130 mm below the road surface. A knob of rock at Station 12+300 Lt. may be the cause of the frost heave.
4.	Secord	12+340 to 12+375	Severe Frost Heave Situation very similar to adjacent frost heave from Station 12+300 to Station 12+340. The above 2 frost heaves should be combined, and tapers at Station 12+300 and Station 12+375. The depth to bedrock varied between 350 mm to 1.5 m. Excavate as per OPSD 205.06, d = 300 mm and k = 1.4. Sample #21, # 22
5.	Secord	12+650 to 12+725	Severe Frost Heave @ Emergency # 701 This FH was identified by the MTO. The probable cause is drainage and a subgrade of CI, inorganic silty clays of medium plasticity. Sample #34 This FH is over 2 centreline culverts located at Stations 12+669 and 12+706 and is in a rock to earth transition. Refer to Section 6.13 for culvert replacement recommendations which will resolve the frost heave problem.

No.	Township	Station to Station	Distress Description & Recommendations
6.	Secord	12+900 to 13+100	Severe Frost Heave @ curve This FH was identified by the MTO. The probable cause is a subgrade of CI, inorganic silty clays of medium plasticity. Sample #45 The field survey indicates that the FH is located in a rock to earth transition. Bedrock occurs between 550 mm to 1.5 m below profile grade. Excavate as per OPSD 205.06, d = 200 mm and k = 1.4. A 2 nd layer of asphalt is located 130 mm below the granular surface from Station 12+960 to Station 13+050.
7.	Secord	13+225 to 13+300	Very Severe Frost Heave 30 S/W of Emergency # 866 This FH was identified by the MTO. The probable cause is insufficient drainage and a subgrade consisting of CH, inorganic clays of high plasticity, fat clays. Sample #57 The boreholes indicate that bedrock varies in depth from, 3.1 m to 1.5 m. Excavate as per OPSD 205.06, d = 200 mm and k = 1.4 The Engineering Properties of CH list this soil as, susceptibility to frost action, negligible.
8.	Secord	14+300 to 14+350	Severe Frost Heave This FH was identified by the MTO. The probable cause is insufficient drainage and a subgrade consisting of CH, inorganic clays of high plasticity, fat clays. Sample #63 The field survey indicates that the lateral drainage is impeded on the left side by an entrance culvert that is too high. Excavate as per OPSD 205.06, d = 200 mm and k = 1.4 The Engineering Properties of CH list this soil as, susceptibility to frost action, negligible.
9.	Secord	14+965 to 15+015	Severe Frost Heave This FH was identified by the MTO. The frost heave is caused by a layer of brown/grey silty sand. Excavate as per OPSD 205.06, d = 200 mm and k = 1.4 Sample #71, 72, 73, 74
10.	Secord	16+075 to 16+125	Severe Frost Heave This FH was identified by the MTO. The probable cause is insufficient drainage and a subgrade consisting of grey silty sand. The field survey indicates that the FH is located in a rock to earth transition. Excavate as per OPSD 205.06, d = 100 mm and k = 1.4 or bedrock. This FH is in a Rock to Earth transition.

6.14 Culverts

For entrance culvert replacements, backfill the excavation with granular material.

For design purposes, a Type 1 soil condition can be used unless otherwise indicated. The borehole logs indicate the soil and ground water conditions at the time of the field investigations only. Due to the variability of the water table and seasonal fluctuations, the contractor is to ascertain the soil type at each culvert replacement with respect to the Ontario Health and Safety (OHS) Regulations at the time of construction.

Nineteen (19) CSP centreline culverts on Secord Road have been identified on the MTO Culvert Inventory and Recommendation Sheet for investigation and replacement.

The borehole logs indicate that a second thin layer of asphalt was encountered at variable depths below the surface.

The recommended treatments are as follows:

- The embedment, backfill and excavation are to be as per OPSD 802.01 unless otherwise stated.
- The embedment material is to be specified as Granular 'B' Type 1.
- Backfill the excavation with 150 mm Granular 'A' over Granular B Type 1.
- Provide Frost tapers as per OPSD.

Further recommendations for specific locations are outlined in the chart below.

Number	Twp.	Station – Station	Action Required	Recommendations
18	Secord	Station 10+010	Replace Very poor condition (Inadequate cover)	d=100 mm
21	Secord	Station 11+190	Replace	These 3 culverts are not required and have been replaced under the current contract.
22	Secord	Station 11+360	Replace	
23	Secord	Station 11+603	Replace	
26	Secord	Station 12+231	Replace Very poor condition	d=250 mm The borehole logs indicate a 30mm thick layer of asphalt 300 mm below the top of surface at Station 12+230.
27	Secord	Station 12+596	Replace Very poor condition	d=160 mm
28	Secord	Station 12+669	Replace Very poor condition	d=200 mm
29	Secord	Station 12+706	Replace Very poor condition Inadequate cover	d=190 mm Note: Because of the close proximity of the tapers (overlap), excavate to a depth of 2.0 m from 12+669 to a depth of 1.0 m at Station 12+706, allowing for a taper to Station 12+725 A n 80mm thick layer of asphalt was encountered from 130 to 200mm below the top of the surface course from Station 12+706 to Station 12+720 This was also identified as a severe frost heave at the 2 centreline culverts.
30	Secord	Station 12+829	Replace Poor condition Inadequate cover	d=130 mm
31	Secord	Station 13+042	Replace Very poor condition	d=190 mm The borehole logs indicate a 20 to 110mm layer of ST was encountered from 50 to 150 mm below the surface from Station 13+031 to Station 13+049.
33	Secord	Station 13+338	Replace Very poor condition	d=190 mm A 2 nd layer of asphalt was encountered @ 150 mm below the surface course from Station 13+328 to Station 13+346
34	Secord	Station 13+545	Replace Very poor condition	d=200 mm A 2 nd layer of asphalt was encountered @ 250 mm below the surface course from Station 13+545 to Station 13+557
38	Secord	Station 15+413	Replace Poor condition	d=250 mm
42	Secord	Station 16+009	Replace Inadequate cover	d=200 mm
45	Secord	Station 16+704	Replace Inadequate cover	d=250 mm
47	Secord	Station 17+134	Replace	This culvert has been replaced recently.
49	Secord	Station 17+992	Replace	d=240 mm
51	Secord	Station 18+194	Replace Very poor condition	d=240 mm
54	Secord	Station 18+549	Replace Poor condition	d=200 mm

6.15 Erosion Control

Samples have been assessed for soil erodibility using the Wischmeier nomograph in cut areas.

The value of K generally is less than 0.3 indicating nonerodible soils.

6.16 Seeding and Mulching

The recommended seed mixture to be specified is the MTO Standard Roadside Seed Mix. Seed and mulch is to be applied as per OPS 572 over all newly constructed earth foreslopes and backslopes. It is recommended that seed and mulch be applied to slopes soon after slopes are shaped to the final grade.

SECTION B: HIGHWAY 69

1.0 INTRODUCTION

DST Consulting Engineers Inc. (DST) has been retained by The Ministry of Transportation to provide Pavement Design – Medium Complexity, Soils and Pavement Investigations – Routine, services under Agreement Number 5006-E-0088.

1.1 Project Scope

The Pavement Engineering requirements for Highway 69 include; the investigation of the pavement structure on Highway 69 for 8.6 km, the investigation and design for four (4) centreline culvert replacements, pavement coring for depth only, laboratory testing and the preparation of the contract borehole data sheets.

A summary of the major components of the proposed work that are addressed in this report is as follows:

- Soils investigation for Highway 69
- Design recommendations for 4 centreline culverts on Highway 69

Four (4) CSP centreline culverts on Highway 69 have been identified on the MTO Culvert Inventory and Recommendation Sheet for investigation and replacement, as summarized below.

Culverts on Highway 69:

Number	Twp.	Station to Station	Action Required	Comments
3	Burwash	Station 13+740	Assumed to be Acceptable	Submerged
5	Burwash	Station 14+938	Replace	Poor condition
11	Burwash	Station 17+638	Replace	Poor condition
13	Burwash	Station 18+074	Replace	Poor condition
NOTE: culvert numbers are as per Inventory Sheet				

2.0 GENERAL DATA

Data has been compiled from the following Ministry sources and referenced in this report where appropriate;

- Performance Record Data Sheet (Secord Road, Highway 7042), dated June 2006
- RFQ documents for Consultant Agreement # 5006-E-0088
- Culvert Inspection Summary Report
- Plan drawings for G.W.P. 312-99-00 (Contract 2006-5157)
- Traffic Volumes as per RFQ
- Pavement Design Presentation Meeting

This section of Highway 69 is reported to be in good condition with a PCI of 84 and an RCI of 7.6.

2.1 Construction History

This section of Highway 69 was last resurfaced in 1993 under Contract 93-203 and resurfaced, approximately 12 years prior to that contract. As indicated at the Pavement Design Selection Meeting, approximately 50% of this section of Highway 69 was resurfaced in 2003.

3.0 FIELD INVESTIGATIONS

DST commenced and completed the field investigations for this project in August 2007.

Soil investigations utilized a CME 55 drill rig equipped for geotechnical soil investigations.

Site investigation and field testing was completed in conformance with the requirements specified in Section 3.5.G.2.1, Site Investigation and Field Testing (Page 13 of Agreement Number 5006-E-0088).

Five (5) boreholes per kilometre were advanced at the edge of pavement along Highway 69 (not through the pavement). Boreholes were also advanced at culverts as per RFQ. The pavement thickness was measured at the edge of pavement.

Core holes were advanced on Highway 69 to determine the thickness of the existing asphalt.

The field investigation included a total of 51 boreholes, 42 core holes and 21 samples. A total of 20 samples were tested to determine the base, subbase and/or subgrade properties, based on a minimum of one sample of each of the existing base, subbase and subgrade materials per kilometre. Samples were tested in DST's Thunder Bay Laboratory which is CCIL Asphalt Laboratory A, B, E and Aggregate Laboratory C and D certified and participates in the Ministry's Multi-laboratory correlation programs.

The Granular 'A' and Granular 'B' gradation test results have been tabulated within the enclosed Gradation Chart.

Refer to Appendix B for Asphalt Core Field Data for Highway 69 data.

4.0 GRANULAR MATERIAL

The MTO Aggregate Section was contacted concerning the availability of material for this project. The letter requesting aggregate information by DST to the Ministry is attached as Appendix E. An Aggregate Sources List will be produced by the MTO.

The following asphalt and granular materials will be used on this project. These materials are to meet appropriate Ministry OPSS specifications, including Standard and Non-Standard Special Provisions.

For design purposes the volume conversion rates as shown may be used for design:

- Superpave 12.5 (SP 12.5) conversion factor of 2.45 t/m³
- Granular 'A' conversion factor of 2.40 t/m³
- Granular 'B' Type I, conversion factor of 2.00 t/m³

Actual volume conversion rates will vary depending on the material source used.

5.0 RECOMMENDATIONS

5.1 Culverts

Due to the variability of the water table and seasonal fluctuations, the contractor is to ascertain the soil type at each culvert replacement with respect to the Ontario Health and Safety (OHS) Regulations at the time of construction.

For design purposes, a Type 3 soil condition can be used unless otherwise indicated. The borehole logs indicate the soil and ground water conditions at the time of the field investigations only.

The recommended treatments are as follows:

- Replace by trench reinstatement.
- The embedment material is to be specified as Granular 'B' Type1.
- Backfill the excavation with 150 mm Granular 'A' over Granular B Type 1.

Further recommendations for specific locations are given in the following table.

Number	Twp.	Station to Station	Action Required	Recommendations
3	Burwash	Station 13+740	Assumed to be Acceptable Submerged	Submerged
5	Burwash	Station 14+938	Replace Poor condition	Poor condition A 2 nd layer of asphalt @ 130 mm.
11	Burwash	Station 17+638	Replace Poor condition	
13	Burwash	Station 18+074	Replace Poor condition	
NOTE: culvert numbers are as per Inventory Sheet				

5.2 Paving

The culvert replacements on Highway 69 shall consist of two 60 mm lifts of Superpave 12.5.

The surface course shall be keyed 300 mm in to the existing pavement.

The grade of asphalt cement specified shall be PG 52-34.

A tack coat shall be applied prior to placing the surface course. Special Provision 308S01 shall be used.

6.0 LIMITATIONS OF REPORT

A description of limitations that are inherent in carrying out site investigation studies is given in Appendix A and this forms an integral part of this report.

7.0 CLOSURE

We trust that this satisfies your present needs. If you have any further questions or comments, please contact the undersigned at your convenience.

For **DST CONSULTING ENGINEERS INC.**

Prepared by:

Reviewed by:



Dan Boland
Project Manager

Mike Fabius, P. Eng.
Principal

Reviewed By:

J David Shaw
Project Manager

APPENDIX 'A'
LIMITATIONS OF REPORT

LIMITATIONS OF REPORT

GEOTECHNICAL STUDIES

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. Note that no scope of work, no matter how exhaustive, can identify all conditions below ground. Subsurface and groundwater conditions between and beyond the testholes may differ from those encountered at the specific locations tested, and conditions may become apparent during construction which were not detected and could not be anticipated at the time of the site investigation. Conditions can also change with time. It is recommended practice that DST Consulting Engineers be retained during construction to confirm that the subsurface conditions throughout the site do not deviate materially from those encountered in the testholes. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the testhole locations and should not be used for other purposes, such as grading, excavation, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with details stated in this report. Since all details of the design may not be known, we recommend that we be retained during the final stage to verify that the design is consistent with our recommendations, and that assumptions made in our analysis are valid.

Unless otherwise noted, the information contained herein in no way reflects on environmental aspects of either the site or the subsurface conditions.

The comments given in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of testholes may not be sufficient to determine all the factors that may affect construction methods and costs, e.g. the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusion as to how the subsurface conditions may affect their work.

Any results from an analytical laboratory or other subcontractor reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warranty their accuracy. Similarly, DST cannot warranty the accuracy of information supplied by the client.

A P P E N D I X 'B'

**BOREHOLE LOGS,
ASPHALT CORE DATA
AND
PEDO SKETCHES**

Secord Township (Highway 7042)

Station 10+016 4.7 Rt

0 - 60 Asph
60 - 180 Cr Sa & Gr
180 - 1.2 Br F - Co Sa some Gr Tr Si Cob
1.2 - 1.5 Blk F Fib Org some Sa Tr Cob Cl
1.5 - 1.8 Gry Si(y) Cl some Sa Tr Cob

Station 10+016 4.7 Rt @ 1.6

% Passing 4.75 mm 99.6%

% Passing 75 µm 89.4%

FMC 27.9%

HSFH

GS ML

Not Suitable for Granular 'B'

Station 10+019 4.5 Rt

0 - 40 Asph
40 - 100 Cr Sa & Gr
100 - 1.1 Br F - Co Sa some Gr Tr Si Cob
(wet @ 1.1)
1.1 - 1.6 Gry F - Co Sa some Gr Tr Si Cob
1.6 - 1.8 Gry Si(y) Cl Tr Sa Cob

Station 10+022 4.5 Rt

0 - 40 Asph
40 - 190 Cr Sa & Gr
190 - 1.0 Br F - Co Sa some Gr Tr Si Cob
1.0 - 1.4 Blk F Fib Org some Sa Tr Cob
1.4 - 1.8 Gry Sa(y) Si some Cl

Station 10+063 1.7 Rt

0 - 110 Asph
110 - 250 Cr Sa & Gr
250 - 280 Asph
280 - 1.0 Gry F - Co Sa with Gr some Si Tr
Cob
1.0 - 1.3 Blk F - Co Fib Org some Sa Tr Gr
Cob Cl

1.3 - 1.5 Gry Si some Sa Cl Tr Gr

Station 10+063 1.7 Rt @ 0.1 m

% Passing 4.75 mm 68.9%

% Passing 75 µm 4.2%

FMC 3.2%

LSFH

GS

SW

Not Suitable for Granular 'A'

Station 10+063 1.7 Rt @ 0.4 m

% Passing 4.75 mm 63.5%

% Passing 75 µm 13.5%

FMC 6.9%

LSFH

GS

SM

Not Suitable for Granular 'B'

Station 10+063 1.7 Rt @ 1.4 m

% Passing 4.75 mm 99.7%

% Passing 75 µm 81.4%

FMC 26.1%

HSFH

GS

ML

Station 10+273 1.8 Lt

0 - 20 Asph
20 - 240 Cr Sa & Gr
240 - 270 Asph
170 - 800 Gry F - Co Sa with Gr some Si
Cob
800 - 1.1 Blk F - Co Fib Org some Sa Tr Gr
Cob
1.1 - 1.5 Gry Sa(y) Si Tr Gr Cob Cl

Station 10+414 1.5 Rt

0 - 20 Asph
20 - 160 Cr Sa & Gr
160 - 190 Asph
190 - 400 Gry F - Co Sa some Gr Si Cob
400 NFP Cob *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 10+624 1.4 Lt

0 - 20 Asph
20 - 280 Cr Sa & Gr
280 - 350 Asph
350 - 850 Gry F - Co Sa with Gr some Cob
Si
850 NFP Cob *

Station 11+595 9.0 Lt D-0.4

0 - 75 Tps
75 - 400 Br Si(y) Sa some Gr Tr Cob
400 NFP Cob *

Station 11+615 8.0 Lt D-0.5

0 - 25 Tps
25 - 300 Br Si(y) Sa some Gr Tr Cob
300 NFP Cob *

Station 11+635 8.0 Lt D-0.9

0 - 25 Tps
25 - 300 Br Si some Sa Tr Gr Cob
300 - 1.0 Si(y) Cl some Sa
1.0 NFP Cob *

Station 11+875 7.0 Rt D-1.0

0 - 100 Tps (standing wat @ 050)
100 - 500 Gry Si some Sa Cl Tr Gr Cob
500 - 800 Br Si(y) Cl Tr Sa Gr Cob
800 NFP Cob *

Station 11+895 9.0 Rt D-0.4

0 - 80 Tps
80 - 400 Br Si(y) Sa Tr Gr
400 - 1.0 Br Si(y) Cl some Sa Tr Gr Cob
1.0 NFP Cob *

Station 11+905 2.9 Lt

0 - 200 Cr Sa & Gr
200 - 1.1 Br Si some Sa Cl Tr Gr
1.1 NFP BR *

Station 11+905 3.3 Rt

0 - 290 Cr Sa & Gr
290 - 600 Gry Si some Sa Tr Org Gr
600 NFP BR *

Station 11+905 3.3 Rt @ 0.4 m

% Passing 4.75 mm 99.5%
% Passing 75 µm 88.6%
FMC 19.0%
LSFH
GS ML
Not Suitable for Granular 'B'

Station 11+915 2.9 Lt

0 - 130 Cr Sa & Gr
130 - 800 Br Si some Sa Cl Tr Gr
800 NFP BR *

Station 11+915 3.4 Rt

0 - 90 Cr Sa & Gr
90 - 1.3 Br Si with Sa some Cl Tr Gr
1.3 NFP BR *

Station 11+915 3.4 Rt @ 0.8 m

% Passing 4.75 mm 98.6%
% Passing 75 µm 75.3%
FMC 20.8%
HSFH
GS ML
Not Suitable for Granular 'B'

Station 11+915 8.0 Rt D-0.3

0 - 50 Tps
50 - 400 Br Si some Sa Tr Gr Cob
400 NFP Cob *

Station 11+925 2.7 Lt

0 - 330 Cr Sa & Gr
330 - 350 Br Si some Sa Tr Gr Cob
350 NFP Bld *

Station 11+925 3.0 Rt

0 - 230 Cr Sa & Gr
230 - 700 Br Si some Sa Cl Tr Gr
700 NFP BR *

Station 11+935 2.7 Rt

0 - 250 Cr Sa & Gr
250 - 650 Gry Sa(y) Si Tr Gr
650 - 1.2 Br Si some Sa Cl Tr Gr
1.2 NFP BR *

Station 11+935 2.8 Lt

0 - 320 Cr Sa & Gr
320 - 750 Gry Sa(y) Si Tr Gr
750 - 2.0 Br Si some Sa Cl Tr Gr

Station 11+945 2.6 Lt

0 - 400 Cr Sa & Gr
400 - 750 Gry Sa(y) Si Tr Gr Org
750 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 NFP BR *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 11+945 3.0 Rt

0 - 300 Cr Sa & Gr
300 - 800 Gry Sa(y) Si Tr Gr
800 - 2.0 Br Si some Sa Cl Tr Gr

Station 11+955 13.0 Rt D+0.1

0 - 50 Tps
50 - 600 Br Si some Sa Cl
600 - 950 Br Si(y) Cl some Sa
950 NFP BR *

Station 11+955 2.6 Lt

0 - 200 Cr Sa & Gr
200 - 500 Gry Sa(y) Si Tr Gr
500 - 800 Br Si some Sa Cl Tr Gr
800 NFP BR *

Station 11+955 3.0 Rt

0 - 120 Cr Sa & Gr
120 - 1.1 Br Si some Sa Cl Tr Gr
1.1 NFP BR *

Station 11+955 8.0 Rt D-0.1

0 - 700 Br Si some Sa Cl
700 - 1.0 Br Si some Sa
1.0 NFP BR *

Station 11+955 8.0 Rt D-0.4

0 - 100 Tps
100 - 400 Br Si some Sa Tr Cob
400 - 700 Br Si(y) Cl some Sa
700 NFP Cob *

Station 11+955 9.0 Lt D-0.8

0 - 100 Tps
100 - 300 Br Si some Sa Tr Gr Cob
300 NFP BR *

Station 11+965 12.0 Rt D+0.2

0 - 30 Tps
30 NFP BR *

Station 11+965 13.0 Lt D-0.3

0 - 50 Tps
50 NFP BR *

Station 11+965 2.5 Lt

0 - 250 Cr Sa & Gr
250 NFP BR *

Station 11+965 2.9 Rt

0 - 250 Cr Sa & Gr
250 NFP BR *

Station 11+965 7.0 Rt D-0.0

0 - 100 Br F - Co Sa with Gr Tr Si
100 NFP BR *

Station 11+965 8.0 Lt D-0.1

0 BR on Surf

Station 11+975 13.0 Lt D-0.6

0 BR on Surf

Station 11+975 8.0 Lt

0 - 50 Tps
50 NFP BR *

Station 11+975 8.0 Rt D-0.6

0 - 100 Tps (wet @ 0.0)
100 - 400 Gry Sa Si Tr Gr Cob
400 NFP BR *

Station 11+985 8.0 Lt D-0.8

0 - 100 Tps
100 - 700 Gry Si(y) Sa Tr Gr Cob
700 - 1.2 Br Si(y) Cl some Sa
1.2 NFP BR *

Station 11+990 7.0 Lt D-1.0

0 - 100 Tps (wet @ 0.0)
100 - 900 Gry Si(y) Sa Tr Gr Cob
900 NFP Cob *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+021 1.8 Rt

0 - 190 Cr Sa & Gr
190 - 210 Asph
210 - 700 Br F - Co Sa some Gr Si Tr Cob
700 - 1.4 Br Si(y) Cl some Sa Tr Gr Cob
1.4 NFP Bld *

Station 12+021 1.8 Rt @ 0.1 m

% Passing 4.75 mm 65.8%
% Passing 75 µm 10.1%
FMC 2.0%
LSFH
GS SW-SM

Not Suitable for Granular 'A'

Station 12+021 1.8 Rt @ 0.4 m

% Passing 4.75 mm 87.1%
% Passing 75 µm 16.2%
FMC 5.2%
LSFH
GS SM

Not Suitable for Granular 'B'

Station 12+021 1.8 Rt @ 0.8 m

% Passing 4.75 mm 99.3%
% Passing 75 µm 72.1%
FMC 19.5%
HSFH
GS ML

Not Suitable for Granular 'B'

Station 12+025 8.0 Rt D-0.5

0 - 25 Tps
25 - 350 Br Si(y) Sa some Gr Cob
350 - 500 Br Si some Sa Cl Tr Cob
500 NFP Cob *

Station 12+045 8.0 Lt D-0.45

0 - 50 Tps
50 - 500 Br Sa(y) Si Tr Gr Cob
500 NFP Cob *

Station 12+055 11.0 Rt D+0.2

0 - 50 Tps
50 - 400 Br Si some Sa Cl Tr Gr Cob
400 NFP BR *

Station 12+055 6.0 Rt D-0.0

0 - 300 Br F - Co Sa some Gr Cob Tr Si
300 NFP Cob *

Station 12+065 13.0 Lt D-0.3

0 - 50 Tps
50 - 600 Br Sa(y) Si Tr Gr Cob
600 NFP Cob *

Station 12+065 3.1 Lt

0 - 140 Cr Sa & Gr
140 - 180 Asph
180 - 280 Br F - Co Sa with Gr Tr Si Cob
280 - 1.9 Br Si some Sa Cl Tr Gr Cob
(moist @ 1.0)
1.9 NFP Bld *

Station 12+065 3.5 Rt

0 - 10 Cr Sa & Gr
10 - 700 Br Sa(y) Si Tr Gr Cob
700 NFP BR *

Station 12+065 3.5 Rt @ 0.2 m

% Passing 4.75 mm 96.3%
% Passing 75 µm 72.3%
FMC 16.6%
HSFH
GS ML

Not Suitable for Granular 'B'

Station 12+065 8.0 Lt D-0.1

0 - 300 Br F - Co Sa some Gr Tr Cob
300 NFP Cob *

Station 12+075 12.0 Rt D+0.5

0 - 100 Tps
100 NFP BR *

Station 12+075 13.0 Lt D+0.2

0 BR on Surf

Station 12+075 3.5 Lt

0 - 180 Cr Sa & Gr
180 - 300 Br F - Co Sa with Gr Tr Si Cob
300 - 1.1 Br Si some Sa Cl Tr Gr Cob
1.1 NFP BR *

Station 12+075 3.5 Rt

0 - 20 Cr Sa & Gr
20 - 300 Br F - Co Sa some Gr Cob Tr Si
300 NFP BR *

Station 12+075 3.5 Rt @ 0.1 m

% Passing 4.75 mm 55.8%
% Passing 75 µm 15.5%
FMC 6.5%
LSFH
GS SM

Not Suitable for Granular 'A'

Station 12+075 7.0 Rt D-0.0

0 - 100 Br F - Co Sa some Gr Cob Tr Si
100 NFP Cob *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+075 8.0 Lt D-0.1

0 - 25 Tps
25 - 200 Br Si(y) Sa some Gr Tr Cob
200 NFP Cob *

Station 12+085 12.0 Rt D+0.4

0 BR on Surf

Station 12+085 3.5 Lt

0 - 140 Cr Sa & Gr
140 - 160 Asph
160 - 440 Br F - Co Sa with Gr Tr Si Cob
440 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 NFP BR *

Station 12+085 3.5 Rt

0 - 70 Cr Sa & Gr
70 - 160 Br F - Co Sa some Gr Cob Tr Si
160 - 1.3 Br Sa(y) Si Tr Gr Cob
1.3 NFP Bld *

Station 12+085 7.0 Rt D-0.1

0 - 300 Br Si some Sa Tr Gr Cob
300 NFP BR *

Station 12+085 8.0 Lt

0 - 25 Tps
25 - 400 Br Si(y) Sa some Gr Tr Cob
400 NFP Cob *

Station 12+095 13.0 Rt D+0.2

0 - 350 Br Sa(y) Si Tr Gr Cob
350 NFP Cob *

Station 12+095 3.5 Lt

0 - 140 Cr Sa & Gr
140 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 NFP BR *

Station 12+095 3.5 Rt

0 - 70 Cr Sa & Gr
70 - 1.2 Br Sa(y) Si Tr Gr Cob Cl (moist @ 1.0)
1.2 NFP Bld *

Station 12+095 3.5 Rt @ 0.8 m

% Passing 4.75 mm	99.5%
% Passing 75 µm	80.0%
FMC	17.9%
HSFH	
GS	ML
Not Suitable for Granular 'B'	

Station 12+095 7.0 Lt D-0.3

0 - 200 Br F - Co Sa with Gr Tr Cob Si
200 - 600 Br Si some Sa Cl Tr Gr Cob
600 NFP Cob *

Station 12+095 8.0 Rt D-0.1

0 - 300 Br Sa(y) Si Tr Gr Cob
300 NFP BR *

Station 12+105 3.5 Lt

0 - 140 Cr Sa & Gr
140 - 160 Asph
160 - 220 Cr Sa & Gr
220 - 600 Br Sa(y) Si Tr Gr Cob
600 NFP Bld *

Station 12+105 3.5 Rt

0 - 70 Cr Sa & Gr
70 - 1.3 Br Sa(y) Si Tr Gr Cob Cl
1.3 NFP Bld *

Station 12+105 7.0 Rt D-0.2

0 - 20 Tps
20 - 300 Br Sa(y) Si Tr Gr Cob
300 NFP Cob *

Station 12+105 8.0 Lt D-0.4

0 - 20 Tps
20 - 300 Br Si some Sa Cl Tr Gr Cob
300 NFP Cob *

Station 12+115 3.5 Lt

0 - 140 Cr Sa & Gr
140 - 500 Br Sa(y) Si Tr Gr Cob
500 NFP Bld *

Station 12+115 3.5 Rt

0 - 100 Cr Sa & Gr
100 - 600 Br Sa(y) Si Tr Gr Cob Cl
600 - 1.1 Br Si some Cl Sa Tr Gr Cob
1.1 NFP Bld *

Station 12+115 3.5 Rt @ 0.7 m

% Passing 4.75 mm	97.8%
% Passing 75 µm	72.7%
FMC	18.9%
HSFH	
GS	ML
Not Suitable for Granular 'B'	

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+115 8.0 Lt D-0.5

0 - 25 Tps
25 - 300 Br F - Co Sa some Sa Si Tr Gr Cob
300 - 1.0 Br Si some Sa
1.0 NFP Cob *

Station 12+125 3.2 Lt

0 - 110 Cr Sa & Gr
110 - 130 Asph
130 - 150 Cr Sa & Gr
150 - 170 Asph
170 - 180 Cr Sa & Gr
180 - 200 Asph
200 - 600 Br Sa(y) Si Tr Gr Cob
600 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+125 3.5 Rt

0 - 190 Cr Sa & Gr
190 - 700 Br Sa(y) Si Tr Gr Cob
700 - 1.5 Br Si some Cl Sa Tr Gr Cob
(moist @ 800)
1.5 NFP Bld *

Station 12+125 7.0 Rt D-0.5

0 - 20 Tps
20 - 350 Br Si(y) Sa Tr Gr Cob
350 NFP Cob *

Station 12+125 8.0 Lt D-0.5

0 - 100 Tps
100 - 1.1 Br Si(y) Cl some Sa Tr Gr Cob
1.1 NFP BR *

Station 12+135 3.4 Lt

0 - 200 Cr Sa & Gr
200 - 450 Br Sa(y) Si Tr Gr Cob
450 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+135 3.5 Rt

0 - 90 Cr Sa & Gr
90 - 500 Br Sa(y) Si Tr Gr Cob
500 - 700 Br Si(y) Cl some Sa Tr Gr Cob
700 - 2.0 Br Si some Sa Cl Tr Gr Cob

Station 12+145 7.0 Lt D-0.4

0 - 75 Tps
75 - 300 Br Sa(y) Si Tr Gr Cob
300 - 1.1 Br Si(y) Cl some Sa Tr Gr Cob
1.1 NFP Cob *

Station 12+145 8.0 Lt D-0.4

0 - 20 Tps
20 - 300 Br Sa(y) Si Tr Gr Cob
300 - 1.0 Br Si(y) Cl some Sa Tr Gr Cob
1.0 NFP Cob *

Station 12+218 3.0 Lt

0 - 140 Cr Sa & Gr
140 - 300 Br F - Co Sa some Gr Tr Si
300 - 360 Asph
360 - 400 Cr Sa & Gr
400 - 700 Gry F - Co Sa some Gr Si Tr Cob
700 NFP BR *

Station 12+221 3.0 Lt

0 - 250 Cr Sa & Gr
250 - 330 Br F - Co Sa some Gr Tr Si
330 - 340 Asph
340 - 470 Cr Sa & Gr
470 - 550 Br F - Co Sa with Gr Tr Si Cob
550 - 700 Gry F - Co Sa some Gr Si Tr Cob
700 NFP BR *

Station 12+222 1.4 Lt

0 - 250 Cr Sa & Gr
250 - 400 Br F - Co Sa some Gr Tr Si Cob
400 - 800 Gry F - Co Sa some Gr Si Tr Cob
800 NFP BR *

Station 12+224 3.0 Lt

0 - 140 Cr Sa & Gr
140 - 1.0 Br F - Co Sa some Gr Tr Si Cob
1.0 - 1.5 Br/Gry Si(y) Cl some Sa Tr Gr
Cob (standing wat @ 1.2)

Station 12+228 3.0 Lt

0 - 160 Cr Sa & Gr
160 - 600 Br F - Co Sa some Gr Tr Si Cob
600 NFP Cob *

Station 12+231 2.8 Lt

0 - 300 Cr Sa & Gr
300 - 330 Asph
330 - 410 Cr Sa & Gr
410 - 600 Gry Si(y) Sa some Gr Tr Cob
600 NFP Bld *

Station 12+260 8.0 Lt D-0.5

0 - 500 Blk F - Co Fib Org some Sa Tr Si
500 - 2.0 Br Si(y) Cl

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+270 8.0 Rt D-0.8

0 - 300 Blk F - Co Fib Org some Sa (wet @ 0.1)
300 - 2.0 Gry Si(y) Cl some Sa TR Gr

Station 12+280 13.0 Lt D+0.2

0 BR on Surf

Station 12+280 8.0 Lt D-0.6

0 - 100 Tps
100 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 NFP BR *

Station 12+290 3.0 Lt

0 - 80 Cr Sa & Gr
80 - 110 Asph
110 - 150 Cr Sa & Gr
150 - 180 Asph
180 - 400 Cr Sa & Gr
400 - 1.3 Br Si(y) Cl some Sa Tr Gr Cob
1.3 NFP BR *

Station 12+290 3.5 Rt

0 - 110 Cr Sa & Gr
110 - 200 Br Si some Sa Tr Gr Cob
200 NFP Bld *

Station 12+290 8.0 Rt D-0.7

0 - 100 Tps
100 - 1.5 Br Si(y) Cl some Sa
1.5 NFP Cob *

Station 12+300 12.0 Lt D+0.4

0 BR on Surf

Station 12+300 2.8 Lt

0 - 120 Cr Sa & Gr
120 - 300 Br F - Co Sa with Gr Tr Si
300 - 350 Br Si(y) Cl some Sa Tr Gr
350 NFP BR *

Station 12+300 3.5 Rt

0 - 100 Cr Sa & Gr
100 - 140 Asph
140 - 300 Cr Sa & Gr
300 - 400 Br Si some Sa Tr Gr Cob
400 NFP Bld *

Station 12+300 7.0 Lt D-0.2

0 - 75 Tps
75 - 500 Br Si some Sa Cl Tr Gr Cob
500 NFP BR *

Station 12+300 9.0 Rt D-0.5

0 - 100 Tps
100 - 500 Br Si(y) Cl some Sa Tr Gr Cob
500 NFP Cob *

Station 12+310 13.0 Rt D-0.0

0 - 200 OB
200 NFP BR *

Station 12+310 3.0 Lt

0 - 90 Cr Sa & Gr
90 - 450 Gry Si some Sa Tr Cl Org Cob
450 - 900 Br Si(y) Cl some Sa Tr Gr Cob
900 NFP BR *

Station 12+310 3.0 Rt @ 0.2 m

% Passing 4.75 mm	93.9%
% Passing 75 µm	72.0%
FMC	18.6%
HSFH	
GS	ML
Not Suitable for Granular 'B'	

Station 12+310 3.3 Rt

0 - 70 Cr Sa & Gr
70 - 350 Br Si some Sa Gr Cob
350 NFP NFP Bld *

Station 12+310 3.3 Rt @ 0.1 m

% Passing 4.75 mm	47.2%
% Passing 75 µm	28.8%
FMC	5.7%
LSFH	
GS	GM
Not Suitable for Granular 'A'	

Station 12+310 8.0 Rt D-0.3

0 - 200 OB
200 NFP BR *

Station 12+320 13.0 Rt D-0.0

0 - 100 Tps
100 - 500 Br Si some Sa Tr Gr Cob
500 NFP Cob *

Station 12+320 3.0 Lt

0 - 80 Cr Sa & Gr
80 - 120 Asph
120 - 160 Cr Sa & Gr
160 - 180 Asph
180 - 330 Cr Sa & Gr
330 - 450 Br Si some Cl Sa Tr Gr Cob
450 NFP Bld *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+320 3.4 Rt

0 - 100 Cr Sa & Gr
100 - 120 Asph
120 - 300 Cr Sa & Gr
300 - 450 Br Si some Sa Tr Gr Cob Cl
450 - 1.5 Br Si(y) Cl some Sa Tr Gr Cob
1.5 NFP BR *

Station 12+320 3.4 Rt @ 0.8 m

% Passing 4.75 mm 99.0%
% Passing 75 µm 85.6%
FMC 21.5%
HSFH
GS ML
Not Suitable for Granular 'B'

Station 12+320 8.0 Rt D-0.4

0 - 700 Br Sa(y) Si Tr Gr Cob
700 NFP Cob *

Station 12+320 9.0 Lt D-.75

0 - 100 Tps
100 - 1.1 Br Si some Sa Cl Tr Gr Cob
1.1 NFP Cob *

Station 12+330 3.0 Lt

0 - 130 Cr Sa & Gr
130 - 170 Asph
170 - 450 Cr Sa & Gr
450 - 470 Asph
470 - 500 Cr Sa & Gr
500 - 550 Br Si some Sa Cl Tr Gr Cob
550 NFP Bld *

Station 12+330 3.0 Rt

0 - 130 Cr Sa & Gr
130 - 220 Br Si some Sa Tr Gr Cob
220 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+340 13.0 Rt D+1.5

0 BR on Surf

Station 12+340 3.0 Lt

0 - 90 Cr Sa & Gr
90 - 120 Asph
120 - 290 Cr Sa & Gr
290 - 420 Old Surf Treat
420 - 550 Cr Sa & Gr
550 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+340 3.0 Rt

0 - 120 Cr Sa & Gr
120 - 560 Br Si some Sa Tr Gr Cob
560 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+340 8.0 Rt D-0.1

0 - 150 OB
150 NFP BR *

Station 12+340 9.0 Lt D-1.0

0 - 25 Tps
25 - 800 Br Si some Sa Cl Tr Gr Cob
800 NFP Cob *

Station 12+350 3.0 Lt

0 - 120 Cr Sa & Gr
120 - 150 Asph
150 - 230 Cr Sa & Gr
230 - 250 Asph
250 - 400 Cr Sa & Gr
400 - 450 Br Si some Sa Tr Cl Gr Cob
450 NFP Bld *

Station 12+350 3.0 Rt

0 - 120 Cr Sa & Gr
120 - 700 Br Si some Sa Tr Gr Cob
700 - 1.2 Br Si(y) Cl some Sa Tr Gr Cob
1.2 - 1.6 Br Si(y) Cl some Sa Gr Cob Tr Bld
1.6 NFP BR *

Station 12+360 13.0 Lt D-1.5

0 BR on Surf

Station 12+360 13.0 Rt D+1.3

0 - 300 OB
300 NFP BR *

Station 12+360 2.8 Lt

0 - 160 Cr Sa & Gr
160 - 190 Asph
190 - 420 Br F - Co Sa and Si some Gr
420 - 500 Br Si some Sa Tr Gr Cl Cob
500 NFP Bld *

Station 12+360 2.8 Rt @ 0.2 m

% Passing 4.75 mm 87.1%
% Passing 75 µm 45.4%
FMC 13.9%
MSFH
GS SM
Not Suitable for Granular 'B'

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+360 2.8 Rt

0 - 140 Cr Sa & Gr
140 - 300 Br F - Co Sa with Gr some Si Tr
Cob
300 - 350 Br Si some Sa Cob Gr
350 NFP NFP Bld *

Station 12+360 2.8 Rt @ 0.1 m

% Passing 4.75 mm 43.7%
% Passing 75 µm 8.3%
FMC 2.6%
LSFH
GS GW-GM
Not Suitable for Granular 'A'

Station 12+360 8.0 Lt D-0.3

0 - 300 OB
300 NFP BR *

Station 12+360 8.0 Rt D-0.0

0 - 300 Br F - Co Sa some Gr Si Tr Cob
300 NFP BR *

Station 12+370 2.8 Lt

0 - 180 Cr Sa & Gr
180 - 210 Asph
210 - 400 Br F - Co Sa with Gr some Si Tr
Cob
400 NFP Bld *

Station 12+370 3.0 Rt

0 - 160 Cr Sa & Gr
160 - 330 Br F - Co Sa with Gr some Si
330 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 NFP BR *

Station 12+370 3.0 Rt @ 0.7 m

% Passing 4.75 mm 98.2%
% Passing 75 µm 79.7%
FMC 15.5%
HSFH
GS ML
Not Suitable for Granular 'B'

Station 12+380 13.0 Rt D+0.5

0 - 400 OB
400 NFP BR *

Station 12+380 14.0 Lt D+1.0

0 BR on Surf

Station 12+380 2.8 Lt

0 - 120 Cr Sa & Gr
120 - 160 Asph
160 - 350 Br F - Co Sa some Gr Si Tr Cob
350 NFP Bld *

Station 12+380 3.0 Rt

0 - 150 Cr Sa & Gr
150 - 180 Asph
180 - 350 Br Gr(y) Sa some Si
350 - 1.4 Br Si some Sa Cl Tr Gr Cob
1.4 - 2.0 Gry Si some Sa Tr Cl Gr Cob (wet
@ 1.5)

Station 12+380 3.0 Rt @ 1.5 m

% Passing 4.75 mm 99.7%
% Passing 75 µm 86.7%
FMC 20.4%
HSFH
GS ML

Station 12+380 8.0 Rt D-0.1

0 - 50 Bld
50 NFP Bld *

Station 12+380 9.0 Lt D-0.3

0 BR on Surf

Station 12+390 3.0 Lt

0 - 150 Cr Sa & Gr
150 - 300 Br F - Co Sa some Si Gr Tr Cob
300 NFP Bld *

Station 12+390 3.0 Rt

0 - 180 Cr Sa & Gr
180 - 220 Asph
220 - 360 Br Gr(y) Sa some Si
360 - 1.1 Br Si some Sa Cl Tr Gr Cob
1.1 NFP Bld *

Station 12+400 13.0 Rt D+0.5

0 BR on Surf

Station 12+400 8.0 Lt D-0.5

0 - 100 Tps
100 - 500 Br Sa(y) Si Tr Gr Cob
500 NFP Cob *

Station 12+400 8.0 Rt D-0.3

0 - 150 OB
150 NFP BR *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+420 13.0 Lt D+0.2

0 BR on Surf

Station 12+420 13.0 Rt D+0.9

0 BR on Surf

Station 12+420 8.0 Lt D-0.0

0 - 250 Br F - Co Sa some Gr Tr Si
250 NFP BR *

Station 12+420 8.0 Rt D-0.0

0 - 150 Br F - Co Sa some Gr Cob Gr Si
150 NFP Bld *

Station 12+432 1.6 Rt

0 - 140 Cr Sa & Gr
140 - 180 Asph
180 - 400 Br F - Co Gr and Si some Sa Tr
Cob
400 - 700 Gry Si some Sa Cl Tr Org Gr Cob
700 NFP BR *

Station 12+432 1.6 Rt @ 0.3 m

% Passing 4.75 mm 59.5%

% Passing 75 µm 45.7%

FMC 19.5%

MSFH

GS SM

Not Suitable for Granular 'B'

Station 12+440 14.0 Rt D-0.8

0 BR on Surf

Station 12+440 8.0 Lt D-0.95

0 - 50 Tps
50 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 NFP Cob *

Station 12+440 9.0 Rt D-0.3

0 - 300 Br F - Co Sa Tr Gr Cob Si
300 - 600 Br Si some Sa Tr Gr Cl Cob
600 NFP BR *

Station 12+583 3.5 Rt

0 - 110 Cr Sa & Gr
110 - 550 Br F - Co Sa some Gr Cob Tr Si
550 - 1.6 Gry Si(y) Sa Tr Gr Cob Cl (wet @
1.0)
1.6 - 1.9 Gry Si(y) Cl Tr Sa Gr Cob

Station 12+586 3.5 Rt

0 - 180 Cr Sa & Gr
180 - 700 Br F - Co Sa some Gr Cob Tr Si
700 NFP Cob *

Station 12+589 3.5 Rt

0 - 180 Cr Sa & Gr
180 - 1.2 Br F - Co Sa some Gr Cob Tr Si
1.2 NFP Cob *

Station 12+593 3.5 Rt

0 - 150 Cr Sa & Gr
150 - 1.2 Br F - Co Sa with Gr some Cob Tr
Si
1.2 - 2.0 Gry Si(y) Cl some Sa Tr Org Cob
Gr

Station 12+596 3.5 Rt

0 - 160 Cr Sa & Gr
160 - 800 Br F - Co Sa with Gr some Cob Tr
Si
800 - 1.4 Gry Si(y) Cl some Sa Org Tr Gr
1.4 - 2.0 Gry Si(y) Cl Tr Sa

Station 12+640 8.0 Rt D-1.4

0 - 20 Tps
20 - 150 Br F - Co Sa some Si Tr Gr Cob
150 NFP Cob *

Station 12+640 9.0 Lt D-1.9

0 - 50 Cob/Bld Tr Sa Gr
500 NFP Cob *

Station 12+645 1.5 Rt

0 - 180 Cr Sa & Gr
180 - 600 Br F - Co Sa with Gr Tr Cob Si
600 - 900 Br Gry Si some Sa Cl Tr Gr Cob
900 NFP Bld *

Station 12+650 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 500 Br F - Co Sa with Gr Tr Si Cob
500 - 700 Gry Si some Cl Sa Tr Gr Cob
700 - 1.1 Gry Si some Cl Org Sa Tr Gr Cob
1.1 NFP Bld *

Station 12+650 2.5 Lt @ 0.8 m

% Passing 4.75 mm 99.5%

% Passing 75 µm 83.6%

FMC 28.1%

HSFH

GS ML

Not Suitable for Granular 'B'

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+650 2.8 Rt

0 - 280 Cr Sa & Gr
280 - 400 Br F - Co Sa with Gr Tr Si Cob
400 - 800 Gry Br Si some Sa Cl Tr Cob
800 - 1.4 Br Si(y) Cl some Sa Tr Cob Gr
1.4 NFP Cob *

Station 12+660 2.5 Lt

0 - 200 Cr Sa & Gr
200 - 260 Surf Treat
260 - 300 Cr Sa & Gr
300 - 700 Br Si some Sa Cl Tr Gr Cob
700 NFP Cob *

Station 12+660 2.7 Rt

0 - 250 Cr Sa & Gr
250 - 380 Br F - Co Sa some Gr Tr Si
380 - 800 Br Si some Sa Tr Cl
800 NFP Cob *

Station 12+660 2.7 Rt @ 0.1 m

% Passing 4.75 mm 51.9%
% Passing 75 µm 7.6%
FMC 2.7%

LSFH

GS SW-SM

Suitable for Granular 'A'

Station 12+660 2.7 Rt @ 0.4 m

% Passing 4.75 mm 98.3%
% Passing 75 µm 86.3%
FMC 17.6%

HSFH

GS ML

Not Suitable for Granular 'B'

Station 12+660 8.0 Rt D-1.2

0 - 200 OB
200 NFP BR *

Station 12+660 9.0 Lt D-1.3

0 - 200 Br Sa with Gr some Si Cob (wet
@ 100)
200 NFP BR *

Station 12+664 2.6 Rt

0 - 120 Cr Sa & Gr
120 - 160 Asph
160 - 320 Cr Sa & Gr
320 - 600 Br Si some Sa Cl Tr Gr Cob
600 NFP Bld *

Station 12+667 2.6 Rt

0 - 300 Cr Sa & Gr
300 - 370 Asph
370 - 550 Br F - Co Sa with Gr Tr Cob Si
550 NFP Cob *

Station 12+670 2.5 Lt

0 - 330 Cr Sa & Gr
330 - 950 Br F - Co Sa some Gr Cob Tr Si
900 NFP Cob *

Station 12+670 2.6 Rt

0 - 300 Cr Sa & Gr
300 - 950 Br F - Co Sa with Gr Tr Cob Si
950 NFP Cob *

Station 12+670 2.6 Rt @ 0.4 m

% Passing 4.75 mm 71.2%
% Passing 75 µm 5.1%
FMC 4.3%

LSFH

GS SW

Suitable for Granular 'B'

Station 12+673 2.6 Rt

0 - 160 Cr Sa & Gr
160 - 260 Asph
260 - 400 Cr Sa & Gr
400 - 550 Br Si some Sa Cl Tr Cob Gr
550 NFP Cob *

Station 12+676 2.6 Rt

0 - 120 Cr Sa & Gr
120 - 170 Asph
170 - 300 Cr Sa & Gr
300 - 450 Br Si some Sa Cl Tr Gr Cob
450 NFP Cob *

Station 12+680 2.5 Lt

0 - 150 Cr Sa & Gr
150 - 260 Br F - Co Sa some Gr Tr Cob Si
260 - 450 Gry Si some Sa Cl Tr Gr Cob
450 - 500 Gry Blk Si some Org Sa Cl Tr Gr
Cob
500 NFP Bld *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+680 2.6 Rt

0 - 150 Cr Sa & Gr
150 - 440 Br F - Co Sa some Gr Tr Si Cob
440 - 1.0 Br Si(y) Cl some Sa Tr Gr Cob
1.0 NFP Cob *

Station 12+680 2.6 Rt @ 0.6 m

% Passing 4.75 mm 85.2%
% Passing 75 µm 59.1%
FMC 16.3%
HSFH
GS ML
Not Suitable for Granular 'B'

Station 12+680 8.0 Lt D-0.3

0 - 100 Tps
100 NFP BR *

Station 12+680 8.0 Rt D-0.9

0 - 100 Tps
100 - 900 Gry Si(y) Cl some Sa Tr Gr Cob
900 NFP BR *

Station 12+690 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 450 Br Si some Sa Tr Cl Gr Cob
450 NFP Cob *

Station 12+690 2.6 Rt

0 - 120 Cr Sa & Gr
120 - 200 Surf Treat
200 - 230 Cr Sa & Gr
230 - 350 Br Si some Sa Tr Gr Cob
350 NFP BR *

Station 12+694 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 250 Surf Treat
250 - 300 Cr Sa & Gr
300 - 600 Gry Si some Sa Tr Cl Gr Cob
600 - 800 Br Si(y) Cl some Sa Tr Gr Cob
800 NFP Cob *

Station 12+697 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 260 Surf Treat
260 - 370 Cr Sa & Gr
370 - 650 Gry Si some Sa Tr Cl Gr Cob
650 - 800 Br Si(y) Cl some Sa Tr Gr Cob
800 NFP Bld *

Station 12+700 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 300 Surf Treat
300 - 440 Br F - Co Sa with Gr Tr Si Cob
440 - 700 Gry Si some Sa Tr Cl Gr Cob
700 NFP Bld *

Station 12+700 2.6 Rt

0 - 210 Cr Sa & Gr
210 - 320 Asph
320 - 500 Cr Sa & Gr
500 - 800 Br Si some Sa Cl Tr Gr Cob
800 - 900 Br Gry Si(y) Cl some Sa Tr Gr Cob
900 NFP Bld *

Station 12+700 8.0 Lt D-0.8

0 - 100 Tps (wet @ 100)
100 - 400 Br F - Co Sa some Gr Si Tr Cob
400 - 1.0 Br Si(y) Cl some Sa
1.0 NFP Cob *

Station 12+700 9.0 Rt D-0.45

0 - 25 Tps
25 - 350 Br F - Co Sa some Gr Si Tr Cob
350 NFP Cob *

Station 12+703 2.5 Lt

0 - 240 Cr Sa & Gr
240 - 600 Br F - Co Sa with Gr Tr Si Cob
600 NFP Cob *

Station 12+706 2.5 Lt

0 - 190 Cr Sa & Gr
190 - 270 Asph
270 - 330 Cr Sa & Gr
330 - 600 Br Si some Sa Tr Cl Gr Cob
600 NFP Bld *

Station 12+709 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 260 Asph
260 - 330 Cr Sa & Gr
330 - 750 Br Si some Sa Tr Cl Gr Cob
750 - 900 Blk Cl some Sa Org Tr Gr Cob
900 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+710 2.8 Rt

0 - 200 Cr Sa & Gr
200 - 280 Asph
280 - 500 Br F - Co Sa some Gr Tr Si Cob
500 - 700 Gry Br Si(y) Cl Tr Sa Gr Cob
700 NFP Bld *

Station 12+712 2.5 Lt

0 - 140 Cr Sa & Gr
140 - 180 Surf Treat
180 - 280 Cr Sa & Gr
280 - 750 Br Si some Sa Tr Cl Gr Cob
750 - 1.3 Br Si(y) Cl some Sa Org Tr Gr Cob
1.3 - 1.8 Br Gry Si(y) Cl some Sa Tr Gr Cob
1.8 NFP Bld *

Station 12+712 2.5 Lt @ 1.4 m

% Passing 4.75 mm 99.8%
% Passing 75 µm 81.8%
FMC 23.6%
HSFH
GS ML

Station 12+720 2.5 Lt

0 - 130 Cr Sa & Gr
130 - 140 Surf Treat
140 - 290 Br F - Co Sa with Gr Tr Si Cob
290 - 1.3 Gry Si some Sa Cl Tr Gr
1.3 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+720 2.5 Lt @ 0.5 m

% Passing 4.75 mm 99.4%
% Passing 75 µm 88.0%
FMC 20.7%
HSFH
GS ML

Station 12+720 3.0 Rt

0 - 150 Cr Sa & Gr
150 - 200 Asph
200 - 450 Br F - Co Sa some Gr Cob Tr Si
450 - 1.8 Br Si(y) Cl some Sa Tr Gr Cob
1.8 NFP BR *

Station 12+720 8.0 Lt

0 - 75 Tps
75 - 600 Br Si some Sa Cl
600 - 1.2 Br Si(y) Cl some Sa Tr Gr Cob
1.2 NFP Cob *

Station 12+720 9.0 Rt D-1.0

0 - 100 Tps
100 - 900 Br Si some Cl Sa Tr Gr
900 NFP BR *

Station 12+730 2.5 Lt

0 - 130 Cr Sa & Gr
130 - 140 Surf Treat
140 - 280 Cr Sa & Gr
280 - 800 Gry Si some Sa Tr Cl Gr Cob
800 - 2.0 Gry Br Si(y) Cl some Sa Tr Gr Cob

Station 12+730 2.8 Rt

0 - 90 Cr Sa & Gr
90 - 130 Asph
130 - 280 Cr Sa & Gr
280 - 360 Asph
360 - 500 Br F - Co Sa with Gr Tr Si Cob
500 - 1.7 Br Si(y) Cl some Sa Tr Gr Cob
1.7 NFP BR *

Station 12+740 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 1.0 Gry Si some Sa Cl Tr Gr Cob
1.0 NFP BR *

Station 12+740 8.0 Lt D-0.7

0 - 20 Tps
20 - 700 Br Si some Sa Cl
700 NFP Cob *

Station 12+740 8.0 Rt D-500

0 - 300 Br Sa(y) Si some Gr Cob
300 NFP Cob *

Station 12+817 3.0 Rt

0 - 170 Cr Sa & Gr
170 - 320 Br F - Co Sa some Gr Tr Si Cob
320 - 380 Surf Treat
380 - 470 Cr Sa & Gr
470 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+820 3.0 Rt

0 - 90 Cr Sa & Gr
90 - 800 Br F - Co Sa some Gr Tr Cob Si
800 - 1.1 Br Si some Sa Cl Tr Gr Cob
1.1 - 1.5 Br Si(y) Cl some Sa Tr Cob Gr

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+823 3.0 Rt

0 - 50 Cr Sa & Gr
50 - 500 Br F - Co Sa some Gr Cob Tr Si
500 NFP Cob *

Station 12+826 3.0 Rt

0 - 120 Cr Sa & Gr
120 - 800 Br F - Co Sa some Gr Cob Tr Si
800 - 1.1 Gry Si some Cl Sa Tr Org Cob Gr
1.1 - 1.5 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+829 3.0 Rt

0 - 130 Cr Sa & Gr
130 - 600 Br F - Co Sa some Gr Cob Tr Si
600 - 1.0 Gry Si some Cl Sa Org Tr Gr Cob
1.0 - 1.5 Br Si some Cl Sa Tr Gr Cob

Station 12+831 3.0 Rt

0 - 90 Cr Sa & Gr
90 - 600 Br F - Co Sa some Gr Cob Tr Si
600 - 1.5 Br Si some Cl Sa Tr Gr Cob

Station 12+834 3.0 Rt

0 - 90 Cr Sa & Gr
90 - 350 Br F - Co Sa some Gr Cob Tr Si
350 - 800 Br Si some Cl Sa Tr Gr Cob
800 NFP Bld *

Station 12+860 7.0 Rt D-0.3

0 - 20 Tps
20 - 300 Br Sa(y) Si Tr Gr Cob
300 NFP Cob *

Station 12+880 10.0 Lt D-1.1

0 - 300 OB
300 NFP BR *

Station 12+880 12.0 Rt D+1.8

0 - 100 Tps
100 NFP BR *

Station 12+880 15.0 Lt D-2.3

0 - 100 OB
100 NFP BR *

Station 12+880 7.0 Rt D-0.1

0 - 20 Tps
20 - 150 Br Sa(y) Si Tr Gr Cob
150 NFP BR *

Station 12+890 2.6 Lt

0 - 120 Cr Sa & Gr
120 - 340 Br F - Co Sa some Gr Cob Si
340 - 1.5 Br Si some Sa Tr Gr Cob Cl
1.5 NFP BR *

Station 12+890 3.0 Rt

0 - 150 Br F - Co Sa with Gr some Cob Tr Si
150 NFP BR *

Station 12+896 1.4 Lt

0 - 220 Cr Sa & Gr
220 - 1.5 Br Si some Sa Tr Gr Cob Si

Station 12+900 12.0 Rt D+1.7

0 - 100 OB
100 NFP BR *

Station 12+900 14.0 Lt D-0.4

0 - 100 Tps
100 - 500 Br Si some Sa Cl Tr Gr Cob
500 NFP BR *

Station 12+900 3.0 Rt

0 - 220 Br F - Co Sa with Cob some Gr Tr Si
220 NFP BR *

Station 12+900 3.7 Lt

0 - 160 Cr Sa & Gr
160 - 1.5 Br Si some Sa Tr Gr Cob Si
1.5 NFP BR *

Station 12+900 7.0 Rt D-0.1

0 - 150 OB
150 NFP BR *

Station 12+900 9.0 Lt D-0.9

0 - 300 OB
300 NFP BR *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+910 2.9 Lt

0 - 100 Cr Sa & Gr
100 - 1.4 Br Si some Sa Tr Gr Cl Cob (wet
@ 1.4)
1.4 - 1.9 Gry Sa(y) Si Tr Cl Gr Cob
1.9 NFP BR *

Station 12+910 2.9 Lt @ 1.4 m

% Passing 4.75 mm 99.9%
% Passing 75 µm 88.8%
FMC 24.2%
HSFH
GS ML

Station 12+910 3.0 Rt

0 - 140 Cr Sa & Gr
140 - 500 Br Sa(y) Si Tr Gr Cob
500 NFP BR *

Station 12+920 12.0 Lt D+0.7

0 - 100 OB
100 NFP BR *

Station 12+920 13.0 Rt D-1.9

0 - 100 OB
100 NFP BR *

Station 12+920 3.0 Rt

0 - 100 Cr Sa & Gr
100 - 550 Br Sa(y) Si Tr Gr Cl Cob
500 NFP BR *

Station 12+920 3.3 Lt

0 - 150 Cr Sa & Gr
150 - 190 Surf Treat
190 - 2.0 Br Si some Sa Cl Tr Gr Cob

Station 12+920 7.0 Lt D-0.1

0 - 500 Br Si some Sa Tr Cl Gr Cob
500 NFP BR *

Station 12+920 8.0 Rt D-0.1

0 - 150 OB
150 NFP BR *

Station 12+930 3.0 Lt

0 - 100 Cr Sa & Gr
100 - 600 Br Si some Sa Tr Cl Gr Cob
600 - 1.0 Br Si(y) Cl Tr Sa Gr Cob
1.0 - 1.8 Gry Sa(y) Si Tr Cl Gr
1.8 NFP BR *

Station 12+930 3.0 Lt @ 0.7 m

% Passing 4.75 mm 100.0%
% Passing 75 µm 94.4%
FMC 27.3%
HSFH
GS ML

Not Suitable for Granular 'B'

Station 12+930 3.2 Rt

0 - 100 Cr Sa & Gr
100 - 360 Br Si(y) Sa some Cob Tr Gr Org
360 - 1.5 Br Sa(y) Si Tr Gr Cob
1.5 NFP BR *

Station 12+940 10.0 Lt D-0.3

0 - 500 Br Sa(y) Si some Gr Tr Cob
500 NFP BR *

Station 12+940 13.0 Rt D+1.0

0 - 100 Tps
100 NFP BR *

Station 12+940 15.0 Lt D-0.2

0 - 100 OB
100 NFP BR *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+940 2.7 Rt

0 - 160 Cr Sa & Gr
160 - 400 Br Si with Sa Tr Gr Cob Org
400 - 2.0 Gry Br Si Tr Sa Cl Gr Cob

Station 12+940 2.7 Rt @ 0.1 m

% Passing 4.75 mm 56.2%
% Passing 75 µm 12.1%
FMC 2.4%
LSFH
GS SM

Not Suitable for Granular 'A'

Station 12+940 2.7 Rt @ 0.2 m

% Passing 4.75 mm 97.9%
% Passing 75 µm 68.5%
FMC 31.5%
HSFH
GS ML

Not Suitable for Granular 'B'

Station 12+940 2.7 Lt @ 1.0 m

% Passing 4.75 mm 99.6%
% Passing 75 µm 93.4%
FMC 25.8%
HSFH
GS ML

Station 12+940 3.0 Lt

0 - 90 Cr Sa & Gr
90 - 500 Br Si some Sa Tr Cl Gr Cob
500 NFP BR *

Station 12+940 8.0 Rt D-0.4

0 BR on Surf

Station 12+950 3.1 Rt

0 - 140 Cr Sa & Gr
140 - 200 Surf Treat
200 - 2.0 Br Si some Sa Cl Tr Gr Cob

Station 12+960 10.0 Lt D-0.5

0 - 100 Tps
100 - 1.3 Br Si(y) Cl some Sa Tr Gr Cob
1.3 NFP Cob *

Station 12+960 2.8 Rt

0 - 100 Cr Sa & Gr
100 - 160 Surf Treat
160 - 260 Cr Sa & Gr
260 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 NFP Bld *

Station 12+960 3.0 Lt

0 - 120 Cr Sa & Gr
120 - 600 Br F - Co Gr(y) Sa Tr Si Cob
600 NFP Cob *

Station 12+960 3.0 Lt @ 0.3 m

% Passing 4.75 mm 65.1%
% Passing 75 µm 13.2%
FMC 3.8%
LSFH
GS SM

Not Suitable for Granular 'B'

Station 12+960 9.0 Rt D-0.6

0 - 50 Tps
50 - 1.2 Br Si some Sa Tr Cl Gr Cob
1.2 NFP Cob *

Station 12+970 2.6 Lt

0 - 180 Cr Sa & Gr
180 - 260 Surf Treat
260 - 760 Br F - Co Sa some Gr Tr Si Cob
760 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 12+970 2.7 Rt

0 - 100 Cr Sa & Gr
100 - 130 Asph
130 - 280 Cr Sa & Gr
280 - 900 Br Si some Sa Tr Cl Gr Cob
900 - 1.2 Br Si(y) Cl some Sa Tr Gr
1.2 - 2.0 Br Si some Sa Cl Tr Gr Cob

Station 12+980 10.0 Rt D-1.0

0 - 300 Br Si(y) Cl some Sa Tr Gr Cob
300 - 850 Gry Si some Sa Cl Tr Gr Cob
850 NFP BR *

Station 12+980 13.0 Lt D+0.8

0 BR on Surf

Station 12+980 2.7 Rt

0 - 90 Cr Sa & Gr
90 - 110 Asph
110 - 200 Surf Treat
200 - 300 Cr Sa & Gr
300 - 1.0 Br Si some Sa Tr Cl Cob Gr
1.0 - 1.5 Br Si(y) Cl some Sa Tr Gr Cob
1.5 NFP Bld *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 12+980 3.1 Lt

0 - 230 Cr Sa & Gr
230 - 250 Surf Treat
250 - 700 Br F - Co Sa some Gr Cob Si
700 NFP Bld *

Station 12+980 8.0 Lt D-0.3

0 - 75 OB
75 NFP BR *

Station 12+990 2.6 Rt

0 - 80 Cr Sa & Gr
80 - 100 Surf Treat
100 - 280 Br F - Co Sa
280 - 500 Br Si some Sa Tr Cl Gr Cob
500 NFP Bld *

Station 12+990 2.8 Lt

0 - 150 Cr Sa & Gr
150 - 180 Surf Treat
180 - 300 Br F - Co Sa some Gr Cob Tr Si
300 NFP Bld *

Station 13+000 13.0 Lt D+0.4

0 - 100 BR
100 NFP BR *

Station 13+000 2.6 Lt

0 - 100 Cr Sa & Gr
100 - 130 Surf Treat
130 - 300 Br F - Co Sa some Gr Cob Tr Si
300 NFP Bld *

Station 13+000 3.2 Rt

0 - 170 Cr Sa & Gr
170 - 220 Surf Treat
220 - 310 Br F - Co Sa with Gr Tr Si Cob
310 - 500 Br Si some Sa Tr Cl Gr Cob
500 NFP Cob *

Station 13+000 8.0 Lt D-0.4

0 - 400 OB
400 NFP BR *

Station 13+000 8.0 Rt D-1.2

0 - 100 Br Sa some Bld (wet @ 100)
100 NFP Bld *

Station 13+010 2.5 Lt

0 - 180 Cr Sa & Gr
180 - 750 Br F - Co Sa some Gr Cob Tr Si
750 - 850 Br Sa(y) Si some Cl Tr Gr Cob
Org
850 NFP Bld *

Station 13+010 2.5 Lt @ 0.8 m

% Passing 4.75 mm 94.6%
% Passing 75 µm 62.9%
FMC 20.6%
HSFH
GS ML
Not Suitable for Granular 'B'

Station 13+010 2.5 Rt

0 - 100 Cr Sa & Gr
100 - 200 Surf Treat
200 - 500 Br F - Co Sa some Gr Tr Cob Si
500 - 650 Br Si some Sa Tr Cl Gr Cob
650 NFP Bld *

Station 13+020 8.0 Rt D-1.7

0 - 300 Br Gr(y) Sa some Cob Tr Si (wet @ 100)
300 NFP Bld *

Station 13+020 9.0 Lt D-0.8

0 - 20 Tps
20 - 400 Br F - Co Sa some Gr Si Tr Cob
400 NFP Cob *

Station 13+031 2.6 Rt

0 - 200 Cr Sa & Gr
200 - 230 Surf Treat
230 - 700 Br F - Co Sa some Gr Cob Tr Si
700 - 1.2 Gry Si(y) Cl some Sa Tr Gr Cob
1.2 - 1.7 Gry Si(y) Cl some Sa Org Tr Gr Cob
1.7 NFP Bld *

Station 13+034 3.0 Rt

0 - 150 Cr Sa & Gr
150 - 650 Br F - Co Sa some Gr Tr Si Cob
650 - 2.1 Gry Si(y) Cl some Sa Tr Gr Org Cob (wet @ 1.5)
2.1 NFP Bld *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 13+037 2.5 Rt

0 - 160 Cr Sa & Gr
160 - 180 Surf Treat
180 - 600 Br F - Co Sa some Gr Tr Si Cob
600 - 1.4 Gry Si(y) Cl some Sa Tr Gr Cob
1.4 - 2.3 Gry Si Sa Cl Org Tr Cob Gr
(standing wat @ 2.0)
2.3 NFP Bld *

Station 13+040 2.6 Rt

0 - 180 Cr Sa & Gr
180 - 290 Surf Treat
290 - 1.6 Br F - Co Sa some Gr Tr Si Cob
1.6 - 1.9 Gry Si(y) Sa some Gr Tr Cob
1.9 - 2.2 Wd with Sa some Gr Cob Si
2.2 NFP Bld *

Station 13+040 9.0 Lt D-2.1

0 - 500 Br F - Co Sa some Gr Cob Tr Si
Bld
500 NFP Bld *

Station 13+040 9.0 Rt D-2.1

0 - 100 Br Sa some Bld (wet @ surf)
100 NFP Bld *

Station 13+043 2.6 Rt

0 - 130 Cr Sa & Gr
130 - 170 Surf Treat
170 - 700 Br F - Co Sa some Gr Tr Cob Si
700 - 900 Br Si(y) Cl some Sa Tr Gr Cob
Org
900 - 2.0 Gry Sa(y) Si Tr Org Cl Gr Cob
2.0 NFP Cob *

Station 13+046 3.0 Rt

0 - 110 Cr Sa & Gr
110 - 160 Surf Treat
160 - 300 Br F - Co Sa some Gr Tr Si Cob
300 - 950 Br Si some Sa Cl Tr Gr Cob
950 NFP Bld *

Station 13+049 2.4 Rt

0 - 50 Cr Sa & Gr
50 - 80 Surf Treat
80 - 230 Cr Sa & Gr
230 - 240 Surf Treat
240 - 600 Br F - Co Sa some Gr Tr Si Cob
600 - 2.3 Br Si some Sa Cl Tr Gr Cob
2.3 NFP Cob *

Station 13+055 1.6 Rt

0 - 130 Cr Sa & Gr
130 - 700 Br F - Co Sa with Gr some Si Tr
Cob
700 - 1.5 Br Si(y) Cl Tr Sa Gr Cob
1.5 NFP Cob *

Station 13+055 1.6 Rt @ 0.1 m

% Passing 4.75 mm 71.0%
% Passing 75 µm 9.0%
FMC 2.6%

LSFH

GS SW-SM

Not Suitable for Granular 'A'

Station 13+055 1.6 Rt @ 0.3 m

% Passing 4.75 mm 75.4%
% Passing 75 µm 17.3%
FMC 4.1%

LSFH

GS SM

Not Suitable for Granular 'B'

Station 13+055 1.6 Rt @ 1.0 m

% Passing 4.75 mm 99.1%
% Passing 75 µm 93.0%
FMC 27.1%

HSFH

GS ML

Station 13+215 2.3 Rt

0 - 230 Cr Sa & Gr
230 - 260 Asph
260 - 400 Br F - Co Sa with Gr Tr Si Cob
400 - 1.6 Br Si some Sa Cl Tr Gr Cob
1.6 - 2.0 Br Si(y) Cl

Station 13+215 2.6 Lt

0 - 300 Cr Sa & Gr
300 - 400 Surf Treat
400 - 700 Br Si some Sa Cl Tr Gr Cob
700 - 1.6 Red Br Si(y) Cl Tr Sa Gr
1.6 - 2.0 Br Si(y) Cl some Sa Tr Gr

Station 13+215 8.0 Rt D-1.4

0 - 50 Tps
50 - 500 Br Si some Sa Cl Tr Gr Cob
500 - 2.0 Br Si(y) Cl some Sa

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 13+225 2.5 Rt

0 - 420 Cr Sa & Gr
420 - 440 Surf Treat
440 - 560 Cr Sa & Gr
560 - 1.2 Gry Si some Sa Cl Tr Gr Cob
1.2 - 1.8 Gry Sa(y) Si some Cl Org Tr Gr Cob
1.8 - 2.0 Gry Si some Cl Sa Tr Gr Cob

Station 13+225 2.5 Rt @ 0.1 m

% Passing 4.75 mm 56.5%
% Passing 75 µm 10.3%
FMC 3.0%

LSFH

GS SW-SM

Not Suitable for Granular 'A'

Station 13+225 2.5 Rt @ 0.6 m

% Passing 4.75 mm 98.2%
% Passing 75 µm 83.2%
FMC 18.3%

HSFH

GS ML

Not Suitable for Granular 'B'

Station 13+225 2.5 Rt @ 1.2 m

% Passing 4.75 mm 99.3%
% Passing 75 µm 66.5%
FMC 34.9%

HSFH

GS ML

Station 13+225 2.6 Lt

0 - 160 Cr Sa & Gr
160 - 480 Br F - Co Sa some Gr Cob Tr Si
480 - 520 Asph
520 - 750 Br F - Co Sa some Gr Tr Si
750 - 2.0 Gry Si some Sa Cl Tr Gr Cob

Station 13+235 2.5 Lt

0 - 400 Cr Sa & Gr
400 - 1.1 Br F - Co Sa some Gr Cob Tr Si
1.1 - 2.0 Gry Si some Sa Cl Tr Gr Cob

Station 13+235 2.6 Rt

0 - 220 Cr Sa & Gr
220 - 500 Br F - Co Sa with Gr Tr Si
500 - 530 Asph
530 - 700 Br F - Co Sa with Gr Tr Si
700 - 1.4 Gry Si some Cl Sa Tr Gr Cob
1.4 - 1.8 Gry Si some Cl Sa Org Tr Gr
1.8 - 2.0 Gry Si some Cl Sa Tr Gr

Station 13+235 8.0 Rt D-1.6

0 - 100 Tps (wet @ 100)
100 - 800 Gry Si(y) Cl some Sa Org
800 - 2.0 Gry Si(y) Cl some Sa

Station 13+245 2.6 Rt

0 - 380 Cr Sa & Gr
380 - 400 Surf Treat
400 - 600 Cr Sa & Gr
600 - 1.4 Gry Si some Cl Sa Tr Gr Cob Org
1.4 - 2.0 Br Si(y) Cl Tr Sa Gr

Station 13+245 2.9 Lt

0 - 160 Cr Sa & Gr
160 - 430 Br F - Co Sa some Gr Cob Tr Si
430 - 470 Asph
470 - 850 Br F - Co Sa some Gr Tr Si
850 - 2.0 Gry Si some Sa Cl Tr Gr

Station 13+255 10.0 Lt D-1.2

0 - 10 Tps
10 - 900 Br Si(y) Sa Tr Gr Cob
900 NFP Cob *

Station 13+255 2.7 Lt

0 - 200 Cr Sa & Gr
200 - 600 Br F - Co Sa some Gr Cob Tr Si
600 NFP Cob *

Station 13+255 2.9 Rt

0 - 240 Cr Sa & Gr
240 - 600 Br F - Co Sa some Gr Tr Si Cob
600 - 1.5 Red Br Si(y) Cl Tr Sa Gr
1.5 - 2.0 Br Sa Tr Gr

Station 13+255 2.9 Rt @ 1.0 m

% Passing 4.75 mm 100.0%
% Passing 75 µm 97.5%
FMC 35.0%
HSFH
GS ML

Station 13+255 8.0 Rt D-0.9

0 - 100 Tps
100 - 1.5 Br Si(y) Cl some Sa Tr Gr Cob
1.5 NFP Cob *

Station 13+265 3.0 Rt

0 - 120 Cr Sa & Gr
120 - 650 Br F - Co Sa some Gr Cob Tr Si
650 - 1.5 Gry Si some Sa Cl Tr Gr Cob
1.5 NFP BR *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 13+265 3.4 Lt

0 - 40 Cr Sa & Gr
40 - 700 Br F - Co Sa some Gr Cob Tr Si
700 - 2.0 Gry Si some Cl Sa Tr Gr Cob

Station 13+270 1.6 Lt

0 - 90 Cr Sa & Gr
90 - 600 Br F - Co Sa some Gr Cob Tr Si
600 - 800 Gry Si some Sa Cl Tr Gr Cob
800 NFP Cob *

Station 13+275 13.0 Rt D+1.0

0 - 100 Tps
100 - 800 Br Si(y) Cl some Sa Tr Gr Cob
800 NFP Cob *

Station 13+275 2.9 Rt

0 - 160 Cr Sa & Gr
160 - 650 Br F - Co Sa some Gr Cob Tr Si
650 NFP BR *

Station 13+275 3.1 Lt

0 - 110 Cr Sa & Gr
110 - 650 Br F - Co Sa some Gr Cob Tr Si
650 - 1.1 Gry Si some Sa Cl Tr Gr Cob
1.1 NFP BR *

Station 13+275 8.0 Rt D-0.4

0 - 50 Tps
50 - 600 Sa(y) Si
600 NFP BR *

Station 13+275 9.0 Lt D-0.4

0 - 50 Tps
50 - 700 Br Si some Sa Cl Tr Gr Cob
700 NFP Cob *

Station 13+285 2.7 Rt

0 - 90 Cr Sa & Gr
90 - 700 Br F - Co Sa some Gr Cob Tr Si
700 - 2.0 Red Br Si(y) Cl Tr Sa Gr

Station 13+285 3.0 Lt

0 - 130 Cr Sa & Gr
130 - 600 Br F - Co Sa some Gr Cob Tr Si
600 - 2.0 Red Br Si(y) Cl Tr Sa Gr

Station 13+295 2.6 Rt

0 - 110 Cr Sa & Gr
110 - 700 Br F - Co Sa
700 - 2.0 Red Br Si(y) Cl Tr Sa

Station 13+295 3.1 Lt

0 - 110 Cr Sa & Gr
110 - 650 Br F - Co Sa some Gr Cob Tr Si
650 - 2.0 Red Br Si(y) Cl Tr Sa Gr

Station 13+295 8.0 Rt D-0.6

0 - 100 Tps
100 - 800 Br Si some Sa Cl Tr Gr Cob
800 - 2.0 Br Si(y) Cl some Sa

Station 13+295 9.0 Lt D-0.6

0 - 100 Tps
100 - 300 Gry Si(y) Cl some Sa Tr Gr Cob
300 - 1.5 Br Si some Sa Cl Tr Gr Cob
1.5 NFP Cob *

Station 13+305 3.2 Lt

0 - 200 Cr Sa & Gr
200 - 300 Surf Treat
300 - 800 Gry Si some Sa Cl Tr Gr Cob
800 - 1.8 Br Si(y) Cl some Sa Tr Gr
1.8 - 2.0 Red Br Si(y) Cl Tr Sa

Station 13+310 2.5 Rt

0 - 180 Cr Sa & Gr
180 - 250 Surf Treat
250 - 280 Cr Sa & Gr
280 - 800 Gry Si some Sa Cl Tr Gr Cob
800 - 2.0 Br Si(y) Cl some Sa Tr Gr Cob

Station 13+315 10.0 Lt D-0.5

0 - 50 Tps
50 - 150 Br F - Co Sa Tr Si Cob
150 - 500 Br Si some Sa Tr Gr Cob
500 NFP Cob *

Station 13+315 8.0 Rt D-0.65

0 - 100 Tps
100 - 1.0 Br Si some Sa Cl Tr Gr Cob
1.0 - 1.3 Br Si(y) Cl
1.3 NFP Cob *

Station 13+315 9.0 Lt D-0.6

0 - 50 Tps
50 - 150 Br F - Co Sa some Si Gr Cob
150 NFP Cob *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 13+328 2.9 Lt

0 - 80 Cr Sa & Gr
80 - 170 Surf Treat
170 - 480 Br F - Co Sa with Gr Tr Si Cob
480 - 1.3 Gry Si some Sa Cl Tr Gr Cob
1.3 - 1.5 Red Br Si(y) Cl Tr Sa Gr

Station 13+331 2.9 Lt

0 - 110 Cr Sa & Gr
110 - 180 Surf Treat
180 - 340 Br F - Co Sa with Gr Tr Si Cob
340 - 1.3 Gry Si some Sa Cl Tr Gr Cob
1.3 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 13+333 11.0 Lt

0 - 100 Tps (wet @ 0.0)
100 - 1.0 Br Si(y) Cl some Sa Tr Gr Cob
1.0 NFP Cob *

Station 13+334 2.9 Lt

0 - 100 Cr Sa & Gr
100 - 230 Surf Treat
230 - 340 Br F - Co Sa with Gr Tr Si
340 - 1.3 Gry Si some Sa Cl Tr Gr Cob
1.3 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 13+337 2.9 Lt

0 - 190 Cr Sa & Gr
190 - 200 Surf Treat
200 - 1.1 Gry Si some Sa Cl Tr Gr Cob
1.1 - 1.2 Blk F - Co Fib Org Tr Sa Gr
1.2 - 1.5 Br Si(y) Cl some Sa

Station 13+340 2.9 Lt

0 - 70 Cr Sa & Gr
70 - 200 Surf Treat
200 - 400 Br F - Co Sa with Gr Tr Si
400 - 750 Gry Si some Sa Cl Tr Gr
750 - 950 Blk F - Co Fib Org Tr Sa Gr
950 - 1.3 Gry Si some Cl Sa Tr Gr
1.3 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 13+343 2.9 Lt

0 - 70 Cr Sa & Gr
70 - 190 Surf Treat
190 - 410 Br F - Co Sa with Gr Tr Si
410 - 700 Gry Si some Sa Cl Tr Gr
700 - 900 Blk F - Co Fib Org Tr Sa Gr
900 - 1.2 Gry Si some Cl Sa Tr Gr
1.2 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 13+346 2.9 Lt

0 - 50 Cr Sa & Gr
50 - 150 Surf Treat
150 - 490 Br F - Co Sa with Gr Tr Si
490 - 800 Gry Si some Sa Cl Tr Gr
800 - 1.0 Blk F - Co Fib Org Tr Sa Gr
1.0 - 1.4 Gry Si some Cl Sa Tr Gr
1.4 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 13+431 1.7 Rt

0 - 210 Cr Sa & Gr
210 - 330 Surf Treat
330 - 640 Br F - Co Sa with Gr Tr Si
640 - 1.1 Gry Si some Sa Cl Tr Gr Cob
1.1 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 13+539 2.5 Rt

0 - 130 Cr Sa & Gr
130 - 650 Br F - Co Sa some Gr Tr Si Cob
650 - 1.5 Gry Si some Sa Tr Cl Gr

Station 13+542 2.5 Rt

0 - 50 Cr Sa & Gr
50 - 400 Br F - Co Sa some Gr Tr Si Cob
400 - 1.1 Gry Si some Sa Cl Tr Gr Cob
1.1 NFP Bld *

Station 13+545 2.5 Rt

0 - 200 Cr Sa & Gr
200 - 270 Surf Treat
270 - 750 Br F - Co Sa with Gr Tr Si Cob
750 - 1.0 Gry Si some Sa Cl Org Tr Gr Cob
1.0 - 1.5 Gry Si some Sa Cl Tr Gr

Station 13+548 2.5 Rt

0 - 190 Cr Sa & Gr
190 - 260 Surf Treat
260 - 560 Br F - Co Sa with Gr Tr Si Cob
560 - 1.4 Gry Si some Sa Tr Cl Gr Cob
1.4 NFP Bld *

Station 13+554 2.5 Rt

0 - 130 Cr Sa & Gr
130 - 180 Surf Treat
180 - 300 Br F - Co Sa with Gr Tr Si
300 - 400 Gry Si some Sa Tr Gr Cl
400 NFP BR *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 13+557 2.5 Rt

0 - 160 Cr Sa & Gr
160 - 200 Surf Treat
200 - 460 Br F - Co Sa with Gr Tr Si
460 - 1.0 Gry Si some Sa Cl Tr Gr Cob Org
1.0 NFP BR *

Station 13+666 1.2 Lt

0 - 170 Cr Sa & Gr
170 - 400 Br F - Co Sa some Gr Cob Tr Si
400 NFP Cob *

Station 13+827 1.5 Rt

0 - 200 Cr Sa & Gr
200 - 800 Gry Si some Sa Cl Tr Gr
800 - 1.5 Gry Si(y) Cl some Sa Tr Gr

Station 14+025 1.3 Lt

0 - 140 Cr Sa & Gr
140 - 160 Surf Treat
160 - 260 Cr Sa & Gr
260 - 280 Surf Treat
280 - 460 Cr Sa & Gr
460 - 1.0 Br Si with Sa some Gr
1.0 - 1.5 Br Si Tr Sa Cl Gr (wet @ 1.1)

Station 13+275 2.9 Rt @ 0.3 m

% Passing 26.5 mm 76.6%
% Passing 4.75 mm 53.8%
% Passing 75 µm 2.3%
FMC 1.4%
MSFH
GS ML

Not Suitable for Granular 'A'

Station 14+025 1.3 Lt @ 0.5 m

% Passing 4.75 mm 87.4%
% Passing 75 µm 59.4%
FMC 14.6%
HSFH
GS ML

Not Suitable for Granular 'B'

Station 14+025 1.3 Lt @ 1.2 m

% Passing 4.75 mm 100.0%
% Passing 75 µm 90.9%
FMC 23.1%
HSFH
GS ML

Station 14+247 1.4 Rt

0 - 30 Surf Treat
30 - 220 Cr Sa & Gr
220 - 700 Br F - Co Sa with Gr Tr Si
700 - 1.5 Br Si(y) Cl Tr Sa Gr
Station 14+247 1.4 Rt @ 1.0 m
% Passing 4.75 mm 100.0%
% Passing 75 µm 96.6%
FMC 31.7%
HSFH
GS ML

Station 14+290 3.4 Lt

0 - 20 Surf Treat
20 - 240 Cr Sa & Gr
240 - 700 Br F - Co Sa with Gr Tr Si
700 - 2.0 Br Si(y) Cl some Sa Tr Gr

Station 14+290 3.5 Rt

0 - 30 Surf Treat
30 - 300 Cr Sa & Gr
300 - 2.0 Br Si(y) Cl some Sa Tr Gr

Station 14+290 8.0 Lt D-0.7

0 - 20 Tps
20 - 800 Br Si some Sa Tr Gr Cob
800 NFP Cob *

Station 14+290 8.0 Rt D-0.5

0 - 50 Tps
50 - 1.2 Br Si some Sa Cl Tr Gr Cob
1.2 NFP Cob *

Station 14+300 3.4 Lt

0 - 20 Surf Treat
20 - 140 Cr Sa & Gr
140 - 400 Br F - Co Sa with Gr Tr Si
400 - 800 Br Si some Sa Tr Gr Cl
800 - 2.0 Br Si(y) Cl some Sa Tr Gr

Station 14+300 3.5 Rt

0 - 30 Asph
30 - 200 Cr Sa & Gr
200 - 460 Br F - Co Sa with Gr Tr Si
460 - 660 Gry Si some Sa Tr Cl Gr
660 - 2.0 Br Si(y) Cl some Sa Tr Gr

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 14+310 3.5 Lt

0	- 20	Surf Treat
20	- 220	Cr Sa & Gr
220	- 450	Br F - Co Sa with Gr Tr Si
450	- 1.0	Br Si some Sa Tr Gr
1.0	- 1.3	Br Si(y) Cl some Sa Tr Gr (wet @ 1.3)
1.3	- 1.8	Br Si(y) Sa some Cl Tr Gr
1.8	- 2.0	Br Si(y) Cl some Sa Tr Gr

Station 14+310 3.5 Rt

0	- 30	Surf Treat
30	- 260	Cr Sa & Gr
260	- 480	Gry Si some Sa Org Tr Cl Gr
480	- 800	Gry Si some Sa Cl Tr Gr
800	- 2.0	Br Si(y) Cl some Sa Tr Gr

Station 14+310 8.0 Lt D-0.7

0	- 20	Tps
20	- 850	Br Si some Sa Tr Gr Cob
	850	NFP Cob *

Station 14+310 8.0 Rt D-0.4

0	- 25	Tps
25	- 400	Br Si some Sa Cl Tr Gr Cob
	400	NFP Cob *

Station 14+320 3.5 Lt

0	- 20	Surf Treat
20	- 160	Cr Sa & Gr
160	- 500	Br F - Co Sa with Gr Tr Si
500	- 750	Gry Si some Sa Tr Gr
750	- 2.0	Br Si some Cl Sa Tr Gr (wet @ 1.3)

Station 14+320 3.5 Rt

0	- 30	Surf Treat
30	- 260	Cr Sa & Gr
260	- 600	Br Si Tr Sa Gr
800	- 1.6	Br Si(y) Cl Tr Sa (wet @ 1.3)
1.6	- 2.0	Br Si some Cl Tr Gr Sa

Station 14+320 3.5 Rt @ 0.1 m

% Passing 4.75 mm	47.5%
% Passing 75 µm	15.5%
FMC	5.0%

LSFH

GS GM

Not Suitable for Granular 'A'

Station 14+320 3.5 Rt @ 0.4 m

% Passing 4.75 mm	99.3%
% Passing 75 µm	93.3%
FMC	17.0%

HSFH

GS ML

Not Suitable for Granular 'B'

Station 14+320 3.5 Rt @ 1.0 m

% Passing 4.75 mm	100.0%
% Passing 75 µm	98.1%
FMC	30.8%

HSFH

GS ML

Station 14+320 3.5 Rt @ 1.8 m

% Passing 4.75 mm	99.9%
% Passing 75 µm	98.5%
FMC	28.4%

HSFH

GS ML

Station 14+330 3.2 Lt

0	- 20	Surf Treat
20	- 750	Cr Sa & Gr
750	- 900	Br F - Co Sa with Gr Tr Si
900	- 1.4	Br Si(y) Cl some Sa Tr Gr (wet @ 1.4)
1.4	- 1.8	Br Sa(y) Si some Cl Tr Gr
1.8	- 2.0	Br Si(y) Cl some Sa Tr Gr

Station 14+330 3.5 Rt

0	- 30	Surf Treat
30	- 130	Cr Sa & Gr
130	- 900	Br Si some Sa Tr Gr Cl
900	- 1.6	Br Si(y) Cl some Sa Tr Gr (wet @ 1.6)
1.6	- 2.0	Br Sa(y) Si some Cl Tr Gr

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 14+330 8.0 Lt D-0.5

0 - 20 Tps
20 - 700 Br Si some Sa Tr Gr Cob
700 NFP Cob *

Station 14+330 8.0 Rt D-0.3

0 - 20 Tps
20 - 800 Br Si some Sa Cl Tr Gr Cob
800 - 1.2 Br Si(y) Cl some Sa Tr Gr Cob
1.2 NFP Cob *

Station 14+340 3.3 Lt

0 - 20 Surf Treat
20 - 220 Cr Sa & Gr
220 - 750 Br F - Co Sa with Gr Tr Si
750 - 1.0 Gry Si some Sa Tr Gr
1.0 - 1.4 Br Si(y) Cl some Sa Tr Gr (wet @ 1.4)
1.4 - 2.0 Br Sa(y) Si some Cl Tr Gr

Station 14+340 3.5 Rt

0 - 30 Surf Treat
30 - 180 Cr Sa & Gr
180 - 520 Br Si some Sa Tr Gr
520 - 1.4 Br Si(y) Cl some Sa Tr Gr
1.4 - 2.0 Br Si(y) Sa some Cl Tr Gr

Station 14+350 3.4 Lt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 700 Br F - Co Sa with Gr Tr Si
700 - 1.4 Br Si some Sa Cl Tr Gr (wet @ 1.4)
1.4 - 2.0 Br Sa(y) Si some Cl Tr Gr

Station 14+350 3.5 Rt

0 - 30 Surf Treat
30 - 230 Cr Sa & Gr
230 - 1.2 Br Si(y) Cl some Sa Tr Gr (wet @ 1.2)
1.2 - 2.0 Br Si(y) Sa some Cl Tr Gr

Station 14+350 7.0 Rt D-0.3

0 - 20 Tps
20 - 500 Br Si some Sa Cl Tr Gr Cob
500 NFP Cob *

Station 14+350 8.0 Lt D-0.5

0 - 20 Tps
20 - 900 Br Si some Sa Tr Gr Cob
900 NFP Cob *

Station 14+360 3.4 Lt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 750 Br F - Co Sa with Gr Tr Si
750 - 1.8 Br Si some Sa Cl Tr Gr (wet @ 1.4)
1.8 - 2.0 Br Sa(y) Si some Cl Tr Gr

Station 14+360 3.5 Rt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 1.4 Br Si some Sa Cl Tr Gr
1.4 - 2.0 Br Si(y) Cl some Sa Tr Gr

Station 14+370 7.0 Lt D-0.4

0 - 20 Tps
20 - 900 Br Si some Sa Tr Gr Cob
900 NFP Cob *

Station 14+370 8.0 Rt D-0.3

0 - 20 Tps
20 - 800 Br Si some Sa Tr Gr Cob
800 NFP Cob *

Station 14+468 1.5 Lt

0 - 20 Surf Treat
20 - 270 Cr Sa & Gr
270 - 900 Br F - Co Sa some Gr Tr Si
900 - 1.5 Br Si(y) Sa Tr Gr

Station 14+620 1.4 Rt

0 - 20 Surf Treat
20 - 160 Cr Sa & Gr
160 - 300 Br F - Co Sa with Gr Tr Si
300 - 400 Br Gry Si some Sa Tr Gr
400 - 1.5 Br F - Co Sa Tr Si Gr

Station 14+867 1.3 Lt

0 - 20 Surf Treat
20 - 120 Cr Sa & Gr
120 - 1.5 Br F - Co Sa Tr Si Gr

Station 14+945 8.0 Lt D-0.5

0 - 25 Tps
25 - 300 Br F - Co Sa some Gr Tr Cob
300 NFP Cob *

Station 14+950 8.0 Lt

0 - 50 Tps
50 - 500 Br F - Co Sa
500 NFP Cob *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 14+955 3.5 Lt

0 - 20 Surf Treat
20 - 60 Cr Sa & Gr
60 - 360 Br F - Co Sa with Gr Tr Si
360 - 700 Br Si(y) Sa Tr Gr
700 - 2.0 Br F - Co Sa Tr Gr Si

Station 14+955 3.5 Rt

0 - 20 Surf Treat
20 - 180 Cr Sa & Gr
180 - 700 Br F - Co Sa some Gr Tr Si
700 - 900 Br Gry Si(y) Sa Tr Gr Cob
900 - 2.0 Br F - Co Sa Tr Gr Si

Station 14+955 8.0 Rt D-0.4

0 - 25 Tps
25 - 900 Br Si(y) Sa Tr Gr Cob
900 NFP Cob *

Station 14+965 3.4 Rt

0 - 20 Surf Treat
20 - 190 Cr Sa & Gr
190 - 450 Br F - Co Si(y) Sa Tr Gr
450 - 800 Br Sa and Si Tr Gr
800 - 2.0 Br F - Co Sa some Gr Tr Si (wet @ 1.7)

Station 14+965 3.4 Rt @ 0.1 m

% Passing 4.75 mm 42.8%
% Passing 75 µm 6.1%
FMC 3.0%
LSFH

GS GW-GM

Not Suitable for Granular 'A' (Mica in sample)

Station 14+965 3.4 Rt @ 0.3 m

% Passing 4.75 mm 91.6%
% Passing 75 µm 34.7%
FMC 11.9%
LSFH

GS SM

Not Suitable for Granular 'B'

Station 14+965 3.4 Rt @ 0.6 m

% Passing 4.75 mm 95.8%
% Passing 75 µm 48.8%
FMC 18.7%
MSFH

GS SM

Not Suitable for Granular 'B'

Station 14+965 3.4 Rt @ 1.1 m

% Passing 4.75 mm 85.5%
% Passing 75 µm 4.0%
FMC 4.7%
LSFH

GS SW

Suitable for Granular 'B'

Station 14+965 4.2 Lt

0 - 20 Surf Treat
20 - 160 Cr Sa & Gr
160 - 2.0 Br F - Co Sa some Gr Tr Si

Station 14+975 3.4 Rt

0 - 20 Surf Treat
20 - 160 Cr Sa & Gr
160 - 430 Surf Treat Sa Gr (layered)
430 - 760 Br Si(y) Sa Tr Gr
760 - 2.0 Br F - Co Sa some Gr Tr Si (wet @ 1.7)

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 14+975 3.5 Lt

0 - 20 Surf Treat
20 - 190 Cr Sa & Gr
190 - 2.0 Br F - Co Sa Tr Gr Si (wet @ 1.7)

Station 14+975 8.0 Rt D-0.4

0 - 25 Tps
25 - 500 Br Si(y) Sa Tr Gr Cob
500 NFP Cob *

Station 14+975 9.0 Lt D-0.4

0 - 20 Tps
20 - 500 Br F - Co Sa some Gr Tr Cob
500 NFP Cob *

Station 14+985 3.4 Rt

0 - 20 Surf Treat
20 - 180 Cr Sa & Gr
180 - 460 Br F - Co Sa some Gr Tr Si
460 - 700 Br Si(y) Sa Tr Gr Org
700 - 2.0 Br F - Co Sa some Gr Tr Si (wet @ 1.8)

Station 14+985 7.5 Lt

0 - 20 Surf Treat
20 - 120 Cr Sa & Gr
120 - 400 Br Si(y) Sa some Gr
400 - 2.0 Br F - Co Sa Tr Gr Si (wet @ 1.6)

Station 14+995 3.4 Rt

0 - 20 Surf Treat
20 - 200 Cr Sa & Gr
200 - 600 Br F - Co Sa some Gr Si
600 - 2.0 Br F - Co Sa some Gr Tr Si (wet @ 1.8)

Station 14+995 3.5 Lt

0 - 20 Surf Treat
20 - 220 Cr Sa & Gr
220 - 2.0 Br F - Co Sa some Gr Tr Si (wet @ 1.8)

Station 14+995 8.0 Rt D-0.4

0 - 25 Tps
25 - 700 Si(y) Sa Tr Gr Cob
700 NFP Cob *

Station 15+005 3.4 Lt

0 - 20 Surf Treat
20 - 170 Cr Sa & Gr
170 - 2.0 Br F - Co Sa Tr Gr Si (wet @ 1.7)

Station 15+005 3.4 Rt

0 - 20 Surf Treat
20 - 160 Cr Sa & Gr
160 - 400 Br F - Co Sa some Gr Tr Si
400 - 700 Br Si(y) Sa Tr Gr Org
700 - 2.0 Br F - Co Sa some Gr Tr Si (wet @ 1.9)

Station 15+015 3.4 Rt

0 - 20 Surf Treat
20 - 190 Cr Sa & Gr
190 - 650 Br Si(y) Sa Tr Gr Org
650 - 2.0 Br F - Co Sa Tr Gr Si (wet @ 1.7)

Station 15+015 3.5 Lt

0 - 20 Surf Treat
20 - 230 Cr Sa & Gr
230 - 2.0 Br F - Co Sa Tr Gr Si (wet @ 1.7)

Station 15+015 8.0 Lt D-0.5

0 - 20 Tps
20 - 400 Br F - Co Sa some Gr Tr Cob Si
400 NFP Cob *

Station 15+015 8.0 Rt D-0.3

0 - 20 Tps
20 - 350 Br Si(y) Sa Tr Gr Cob
350 NFP Cob *

Station 15+025 3.4 Rt

0 - 20 Surf Treat
20 - 130 Cr Sa & Gr
130 - 240 Br F - Co Sa some Gr Tr Si
240 - 700 Br Si(y) Sa Tr Gr Org
700 - 2.0 Br F - Co Sa Tr Gr Si (wet @ 1.8)

Station 15+033 9.0 Lt D-0.4

0 - 500 Br F - Co Sa some Gr Tr Cob Si
500 NFP Cob *

Station 15+035 9.0 Rt D-0.4

0 - 25 Tps
25 - 800 Br Si(y) Sa Tr Gr Cob
800 NFP Cob *

Station 15+062 1.6 Rt

0 - 20 Surf Treat
20 - 180 Cr Sa & Gr
180 - 1.5 Br F - Co Sa Tr Gr Si

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 15+229 1.5 Lt

0 - 20 Surf Treat
20 - 80 Cr Sa & Gr
80 - 1.3 Br F - Co Sa Tr Gr Si
1.3 - 1.5 Br Gry Si(y) Sa Tr Gr

Station 15+404 2.3 Lt

0 - 20 Surf Treat
20 - 180 Cr Sa & Gr
180 - 400 Br F - Co Sa with Gr Tr Si RF
400 NFP RF

Station 15+407 2.3 Lt

0 - 20 Surf Treat
20 - 220 Cr Sa & Gr
220 - 400 Br F - Co Sa with Gr Tr Si Cob
400 - 550 Br F - Co Sa with Gr Tr Si Cob RF
550 NFP RF

Station 15+410 2.3 Lt

0 - 20 Surf Treat
20 - 230 Cr Sa & Gr
230 - 400 Br F - Co Sa with Gr Tr Si
400 - 500 Br F - Co Sa with Gr Tr Si RF
500 NFP RF

Station 15+413 2.2 Lt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 450 Br F - Co Sa with Gr Tr Si Cob RF
450 NFP RF

Station 15+416 2.2 Lt

0 - 20 Surf Treat
20 - 220 Cr Sa & Gr
220 - 2.0 Br F - Co Sa with Gr some Cob Tr Si

Station 15+419 2.3 Lt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 620 Br F - Co Sa with Gr some Cob Tr Si
620 - 650 Asph
650 - 1.1 Br F - Co Sa with Gr Tr Si Cob
1.1 - 1.7 Gry F - Co Sa with Gr some Si Tr Cob
1.7 - 2.0 Gry Si(y) Sa Tr Gr Cob

Station 15+422 2.3 Lt

0 - 20 Surf Treat
20 - 230 Cr Sa & Gr
230 - 450 Br F - Co Sa with Gr some Cob Tr Si
450 NFP Cob *

Station 15+441 1.6 Rt

0 - 20 Surf Treat
20 - 400 Cr Sa & Gr
400 - 1.5 Br Si(y) Sa Tr Gr

Station 15+667 1.6 Lt

0 - 20 Surf Treat
20 - 120 Cr Sa & Gr
120 - 500 Br F - Co Sa some Cob Gr Tr Si
500 - 550 Asph
550 - 700 Br F - Co Sa some Gr Cob Tr Si
700 - 1.0 Gry F - Co Sa some Si Gr Cob
1.0 NFP Bld *

Station 15+868 1.7 Rt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 300 Surf Treat
300 - 400 Br F - Co Sa with Gr Tr Si
400 - 430 Surf Treat
430 - 500 Br F - Co Sa some Gr Si Tr Cob
500 - 850 Br Gry Si(y) Sa Tr Gr Cob RF

Station 15+870 15.0 Lt

0 - 230 Cr Sa & Gr
230 - 1.0 Br F - Co Sa some Gr Cob Tr Si
1.0 NFP Bld *

Station 15+973 2.8 Lt

0 - 20 Surf Treat
20 - 180 Cr Sa & Gr
180 - 550 Br F - Co Sa some Gr Tr Si Cob
550 - 1.2 Gry Si some Sa Cl Org Tr Gr Cob
1.2 NFP BR *

Station 15+976 2.8 Lt

0 - 20 Surf Treat
20 - 180 Cr Sa & Gr
180 - 500 Br F - Co Sa some Gr Tr Si Cob
500 - 650 Gry Si(y) Sa Tr Gr Cob Sh Rk
650 NFP Sh Rk *

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 15+979 2.8 Lt

0 - 20 Surf Treat
20 - 200 Cr Sa & Gr
200 - 650 Br F - Co Sa some Gr Cob Si Tr
Sh Rk
650 NFP Sh Rk *

Station 15+982 2.8 Lt

0 - 20 Surf Treat
20 - 150 Cr Sa & Gr
150 - 500 Br F - Co Sa some Gr Cob Tr Si
Sh Rk
500 NFP Sh Rk *

Station 15+985 2.8 Lt

0 - 20 Surf Treat
20 - 120 Cr Sa & Gr
120 - 700 Br F - Co Sa some Gr Tr Si Cob
700 - 1.2 Br Gry Si(y) Sa Tr Gr Cob
1.2 NFP Bld *

Station 15+988 2.8 Lt

0 - 20 Surf Treat
20 - 140 Cr Sa & Gr
140 - 600 Br F - Co Sa some Gr Tr Si Cob
600 - 1.0 Br Gry Sa(y) Si Tr Cl Org Gr Cob
1.0 NFP Bld *

Station 15+991 2.8 Lt

0 - 70 Surf Treat
70 - 160 Cr Sa & Gr
160 - 750 Br F - Co Sa some Gr Tr Si Cob
750 NFP Bld *

Station 16+003 1.4 Lt

0 - 20 Surf Treat
20 - 200 Cr Sa & Gr
200 - 950 Br F - Co Gr(y) Sa Tr Si Cob
950 - 1.2 Gry Si(y) Sa Tr Gr
1.2 - 1.5 Br Sa(y) Si Tr Gr
Station 16+003 1.4 Lt @ 0.1 m

% Passing 4.75 mm 49.5%
% Passing 75 µm 6.8%
FMC 2.4%

LSFH

GS

GW-SM

Not Suitable for Granular 'A' Mica in sample.

Station 16+003 1.4 Lt @ 0.4 m

% Passing 4.75 mm 68.7%
% Passing 75 µm 9.7%
FMC 3.4%

LSFH

GS

SW-SM

Not Suitable for Granular 'B'

Station 16+035 7.0 Lt D-0.5

0 - 20 Tps
20 - 900 Gry Si(y) Sa some Gr Tr Cob
900 NFP Cob *

Station 16+045 12.0 Lt D+0.8

0 BR on Surf

Station 16+045 7.0 Lt D-0.3

0 - 20 Tps
20 - 400 Br Si(y) Sa
400 NFP BR *

Station 16+055 12.0 Lt D-0.0

0 - 200 OB
200 NFP Bld *

Station 16+055 7.0 Lt D-0.2

0 - 200 OB
200 NFP BR *

Station 16+065 2.9 Rt

0 - 20 Surf Treat
20 - 240 Cr Sa & Gr
240 - 450 Br F - Co Sa some Gr Tr Si
450 - 1.1 Gry Si(y) Sa Tr Gr
1.1 - 2.0 Br Sa(y) Si Tr Gr (wet @ 1.5)

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 16+065 3.2 Lt

0 - 20 Surf Treat
20 - 150 Cr Sa & Gr
150 - 470 Br F - Co Sa some Gr Tr Si
470 - 800 Gry Si(y) Sa Tr Gr Org
800 - 1.3 Br Sa(y) Si Tr Gr Org Cob
1.3 NFP Bld *

Station 16+065 7.0 Rt D-0.4

0 - 20 Tps
20 - 1.2 Br Si(y) Sa some Gr Tr Cob
1.2 NFP Cob *

Station 16+075 2.8 Lt

0 - 20 Surf Treat
20 - 190 Cr Sa & Gr
190 - 700 Surf Treat Sa Gr (layered)
700 - 1.0 Gry Si(y) Sa Tr Gr
1.0 - 2.0 Br Sa(y) Si Tr Gr

Station 16+075 3.4 Rt

0 - 20 Surf Treat
20 - 260 Cr Sa & Gr
260 - 600 Br F - Co Sa some Gr Tr Si Cob
600 - 1.0 Gry Si(y) Sa Tr Gr
1.0 - 2.0 Br Sa(y) Si Tr Gr

Station 16+075 7.0 Lt D-0.2

0 - 20 Tps
20 - 600 Si(y) Sa some Gr Tr Cob
600 NFP Cob *

Station 16+085 2.8 Lt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 300 Surf Treat
300 - 600 Br F - Co Sa some Gr Tr Si
600 - 1.0 Gry Si(y) Sa Tr Gr
1.0 - 2.0 Br Sa(y) Si Tr Gr

Station 16+085 3.4 Rt

0 - 20 Surf Treat
20 - 260 Cr Sa & Gr
260 - 700 Br F - Co Sa some Gr Tr Si
700 - 1.2 Gry Si with Sa Tr Gr
1.2 - 2.0 Br Si some Sa Tr Gr (wet @ 1.5)

Station 16+085 3.4 Rt @ 0.7 m

% Passing 4.75 mm 97.5%
% Passing 75 µm 72.3%
FMC 15.9%
HSFH
GS ML

Not Suitable for Granular 'B'

Station 16+085 3.4 Rt @ 1.5 m

% Passing 4.75 mm 99.5%
% Passing 75 µm 88.3%
FMC 29.0%
HSFH
GS ML

Station 16+085 8.0 Rt

0 - 20 Tps
20 - 1.3 Br Si(y) Sa some Gr Tr Cob
1.3 NFP Cob *

Station 16+095 13.0 Lt D+1.8

0 BR on Surf

Station 16+095 3.0 Rt

0 - 20 Surf Treat
20 - 300 Cr Sa & Gr
300 - 700 Br F - Co Sa some Gr Tr Si
700 - 1.0 Gry Si(y) Sa Tr Gr
1.0 - 2.0 Br Sa(y) Si Tr Gr (wet @ 1.2)

Station 16+095 3.3 Lt

0 - 20 Surf Treat
20 - 180 Cr Sa & Gr
180 - 600 Br F - Co Sa some Gr Tr Si Cob
600 NFP Bld *

Station 16+095 8.0 Lt D-0.3

0 - 20 Tps
20 - 350 Br Si(y) Sa some Gr Tr Cob
350 NFP Cob *

Station 16+105 3.3 Lt

0 - 20 Surf Treat
20 - 150 Cr Sa & Gr
150 - 300 Br F - Co Sa some Gr Cob Tr Si
300 NFP Bld *

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Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 16+105 3.3 Rt

0 - 20 Surf Treat
20 - 300 Cr Sa & Gr
300 - 800 Br F - Co Sa Si Gr Tr Si
800 - 1.1 Gry Sa(y) Si some Org Tr Gr (wet @ 1.1)
1.1 - 2.0 Br Sa(y) Si Tr Gr

Station 16+105 8.0 Lt D-0.5

0 - 20 Tps
20 - 200 Br F - Co Sa some Gr Tr Si Cob
200 NFP Cob *

Station 16+105 8.0 Rt D-0.4

0 - 20 Tps
20 - 600 Br Si(y) Sa some Gr Tr Cob
600 NFP BR *

Station 16+115 12.0 Rt D-0.3

0 - 500 OB
500 NFP BR *

Station 16+115 2.7 Lt

0 - 20 Surf Treat
20 - 130 Cr Sa & Gr
130 - 250 Br F - Co Sa some Gr Cob
250 NFP Cob *

Station 16+115 3.3 Rt

0 - 20 Surf Treat
20 - 300 Cr Sa & Gr
300 - 320 Surf Treat
320 - 400 Br F - Co Sa some Gr Si Cob
400 NFP BR *

Station 16+115 7.0 Rt D-0.1

0 - 20 Tps
20 - 700 Br F - Co Sa some Gr Tr Si Cob
700 NFP BR *

Station 16+125 3.0 Lt

0 - 20 Surf Treat
20 - 120 Cr Sa & Gr
120 - 550 Br F - Co Sa some Gr Cob Tr Si
RF
550 NFP RF *

Station 16+125 3.4 Rt

0 - 20 Surf Treat
20 - 160 Cr Sa & Gr
160 - 400 Br F - Co Sa some Gr Tr Si
400 - 700 Br Sa(y) Si Tr Gr Cob
700 NFP Bld *

Station 16+125 7.0 Rt D-0.4

0 - 50 Tps
50 - 1.0 Br Si(y) Sa some Gr Tr Si Cob
1.0 NFP Cob *

Station 16+125 9.0 Lt D-0.7

0 - 20 Tps
20 - 1.5 Br Si(y) Sa some Gr Tr Bld
1.5 NFP Bld *

Station 16+135 3.3 Lt

0 - 20 Surf Treat
20 - 200 Cr Sa & Gr
200 - 500 Br F - Co Sa some Gr Cob Tr Si
RF
500 NFP RF *

Station 16+135 3.4 Rt

0 - 20 Surf Treat
20 - 300 Cr Sa & Gr
300 - 2.0 Gry Sa(y) Si Tr Gr (wet @ 700)

Station 16+257 1.7 Rt

0 - 20 Surf Treat
20 - 130 Cr Sa & Gr
130 - 500 Br F - Co Sa some Gr Tr Si
500 - 800 Gry Si(y) Sa Tr Gr
800 - 1.5 Br Sa(y) Si Tr Gr

Station 16+476 1.6 Lt

0 - 20 Surf Treat
20 - 200 Cr Sa & Gr
200 - 600 Br F - Co Sa some Gr Tr Si
600 - 1.1 Gry Si(y) Sa Tr Gr (wet @ 1.0)
1.1 - 1.5 Gry Sa(y) Si Tr Gr

Station 16+611 1.5 Rt

0 - 20 Surf Treat
20 - 130 Cr Sa & Gr
130 - 320 Br F - Co Sa some Gr Tr Si
320 - 1.0 Gry Si(y) Sa Tr Gr Org (wet @ 1.0)
1.0 - 1.5 Br Sa(y) Si Tr Gr

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 16+692 3.2 Lt

0 - 20 Surf Treat
20 - 230 Cr Sa & Gr
230 - 600 Br F - Co Sa some Gr Tr Si
600 - 1.0 Gry Si(y) Sa Tr Gr Org (wet @ 1.0)
1.0 - 1.7 Br Sa(y) Si Tr Gr
1.7 - 2.2 Br Si some Sa Cl Tr Gr

Station 16+695 3.7 Lt

0 - 20 Surf Treat
20 - 210 Cr Sa & Gr
210 - 600 Br F - Co Sa some Gr Tr Si
600 - 1.0 Gry Si(y) Sa Tr Gr Org (wet @ 1.0)
1.0 - 1.4 Br Sa(y) Si Tr Gr
1.4 - 2.2 Br Si some Sa Cl Tr Gr

Station 16+698 3.2 Lt

0 - 20 Surf Treat
20 - 220 Cr Sa & Gr
220 - 500 Br F - Co Sa with Gr Tr Si Cob
500 NFP Cob *

Station 16+701 3.2 Lt

0 - 20 Surf Treat
20 - 250 Cr Sa & Gr
250 - 1.1 Br F - Co Sa some Gr Tr Si Cob
1.1 - 1.5 Br F - Co Sa with Gr some Si Tr
Cob Wd(moist @ 1.2)
1.5 NFP Cob *

Station 16+704 3.2 Lt

0 - 20 Surf Treat
20 - 280 Cr Sa & Gr
280 - 900 Br F - Co Sa some Gr Tr Si Cob
900 NFP Cob *

Station 16+707 3.2 Lt

0 - 20 Surf Treat
20 - 240 Cr Sa & Gr
240 - 900 Br F - Co Sa some Gr Tr Si
900 - 1.8 Gry Si some Sa Cl Tr Gr Org (wet @ 1.0)
1.8 - 2.7 Gry Sa(y) Si Tr Gr

Station 16+710 3.2 Lt

0 - 20 Surf Treat
20 - 200 Cr Sa & Gr
200 - 800 Br F - Co Sa some Gr Tr Si Cob
800 NFP Cob *

Station 16+817 1.5 Lt

0 - 20 Surf Treat
20 - 160 Cr Sa & Gr
160 - 460 Br F - Co Sa some Gr Tr Si
460 - 900 Gry Si(y) Sa Tr Gr (wet @ 900)
900 - 1.5 Br Sa(y) Si Tr Gr

Station 17+060 1.6 Rt

0 - 20 Surf Treat
20 - 140 Cr Sa & Gr
140 - 700 Br F - Co Sa with Gr some Si
700 - 1.5 Gry Si some Sa Tr Gr (wet @ 1.3)

Station 17+060 1.6 Rt @ 0.1 m

% Passing 4.75 mm 57.2%
% Passing 75 µm 8.3%
FMC 2.1%

LSFH

GS

SW-SM

Not Suitable for Granular 'A' – Mica in sample.

Station 17+060 1.6 Rt @ 0.4 m

% Passing 4.75 mm 79.3%
% Passing 75 µm 16.8%
FMC 3.6%

LSFH

GS

SM

Not Suitable for Granular 'B'

Station 17+060 1.6 Rt @ 1.0 m

% Passing 4.75 mm 99.7%
% Passing 75 µm 80.0%
FMC 16.0%

HSFH

GS

ML

Station 17+222 1.5 Lt

0 - 20 Surf Treat
20 - 220 Cr Sa & Gr
220 - 600 Br F - Co Sa some Gr Tr Si Cob
600 - 1.5 Br Si(y) Sa Tr Gr (wet @ 1.3)

Station 17+462 1.6 Rt

0 - 20 Surf Treat
20 - 230 Cr Sa & Gr
230 - 900 Br F - Co Sa some Gr Tr Si
900 - 1.2 Gry Si(y) Sa Tr Gr Org (wet @ 1.2)
1.2 - 1.5 Br Si(y) Sa Tr Gr

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 17+628 1.6 Lt

0 - 20 Surf Treat
20 - 200 Cr Sa & Gr
200 - 700 Br F - Co Sa some Gr Tr Si
700 - 1.5 Br Si(y) Sa Tr Gr (wet @ 1.3)

Station 17+892 1.7 Rt

0 - 50 Asph
50 - 330 Cr Sa & Gr
330 - 600 Br F - Co Sa some Gr Tr Si
600 - 1.1 Gry Si(y) Sa Tr Gr
1.1 - 1.5 Br Si(y) Sa Tr Gr

Station 17+983 3.8 Lt

0 - 60 Asph
60 - 250 Cr Sa & Gr
250 - 600 Br F - Co Sa some Gr Tr Si
600 - 1.0 Rd Br F - Co Sa Tr Gr Si
1.0 - 1.4 Br F - Co Sa some Si Tr Gr
1.4 NFP BR *

Station 17+986 3.8 Lt

0 - 60 Asph
60 - 210 Cr Sa & Gr
210 - 600 Br F - Co Sa some Gr Tr Si
600 - 800 Rd Br F - Co Sa Tr Gr Si RF
800 NFP RF *

Station 17+989 3.8 Lt

0 - 60 Asph
60 - 220 Cr Sa & Gr
220 - 600 Br F - Co Sa some Gr Tr Si
600 - 900 Rd Br F - Co Sa Tr Gr Si RF
900 NFP RF *

Station 17+992 3.8 Lt

0 - 60 Asph
60 - 200 Cr Sa & Gr
200 - 600 Br F - Co Sa some Tr Gr Si RF
1.0 NFP RF *

Station 17+995 3.8 Lt

0 - 60 Asph
60 - 240 Cr Sa & Gr
240 - 750 Br F - Co Sa some Gr Tr Si Cob
RF
750 NFP RF *

Station 17+998 3.8 Lt

0 - 60 Asph
60 - 250 Cr Sa & Gr
250 - 750 Br F - Co Sa some Gr Tr Si Sh Rk
750 NFP Sh Rk *

Station 18+001 3.8 Lt

0 - 60 Asph
60 - 170 Cr Sa & Gr
170 - 750 Br F - Co Sa some Gr Tr Si Sh Rk
750 NFP Sh Rk *

Station 18+027 1.6 Lt

0 - 60 Asph
60 - 220 Cr Sa & Gr
220 - 600 Br F - Co Gr(y) Sa some Si Tr
Cob
600 - 1.1 Br Si(y) Sa Tr Gr Cob
1.1 NFP Bld *

Station 18+027 1.6 Lt @ 0.1 m

% Passing 4.75 mm 54.0%
% Passing 75 µm 8.6%
FMC 1.3%

LSFH

GS

SW-SM

Not Suitable for Granular 'A' – Mica in sample.

Station 18+027 1.6 Lt @ 0.4 m

% Passing 4.75 mm 68.0%
% Passing 75 µm 14.3%
FMC 4.4%

LSFH

GS

SM

Not Suitable for Granular 'B'

Station 18+185 3.5 Lt

0 - 60 Asph
60 - 340 Cr Sa & Gr
340 - 1.0 Br Sa(y) Si Tr Gr
1.0 - 3.8 Br Si(y) Cl some Sa Tr Gr (wet @
3.0)

Station 18+185 3.5 Lt @ 1.1 m

% Passing 4.75 mm 100.0%
% Passing 75 µm 96.4%
FMC 33.9%

HSFH

GS

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Secord Township (Highway 7042)

Station 18+188 3.5 Lt

0 - 60 Asph
60 - 240 Cr Sa & Gr
240 - 600 Br F - Co Sa some Gr TR Si
600 - 1.4 Br Sa(y) Si Tr Gr Cob
1.4 NFP Cob *

Station 18+191 3.5 Lt

0 - 70 Asph
70 - 200 Cr Sa & Gr
200 - 1.0 Br F - Co Sa some Gr Tr Si Cob
1.0 - 1.5 Br Sa(y) Si Tr Gr Cob Org
1.5 NFP Cob *

Station 18+194 3.5 Lt

0 - 60 Asph
60 - 240 Cr Sa & Gr
240 - 3.0 Br F - Co Sa
3.0 - 3.8 Gry Si(y) Cl some Sa Tr Wd Gr
(moist @ 3.3)

Station 18+197 3.5 Lt

0 - 70 Asph
70 - 240 Cr Sa & Gr
240 - 1.3 Br F - Co Sa some Gr Tr Si Cob
1.3 NFP Cob *

Station 18+200 3.5 Lt

0 - 70 Asph
70 - 280 Cr Sa & Gr
280 - 800 Br F - Co Sa some Gr Tr Si Cob
800 - 900 Br F - Co Sa some Gr Tr Si Cob
RF
900 NFP RF *

Station 18+203 3.5 Lt

0 - 70 Asph
70 - 280 Cr Sa & Gr
280 - 1.1 Br F - Co Sa some Gr Tr Si Cob
1.1 NFP Cob *

Station 18+234 1.6 Rt

0 - 60 Asph
60 - 190 Cr Sa & Gr
190 - 400 Br F - Co Sa some Gr Tr Si
400 - 900 Gry Sa(y) Si Tr Gr
900 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 18+450 1.6 Lt

0 - 60 Asph
60 - 180 Cr Sa & Gr
180 - 470 Br F - Co Sa some Gr Tr Si Cob
470 - 800 Gry Sa(y) Si Tr Gr
800 - 1.5 Br Si(y) Cl some Sa Tr Gr

*Note: 3 attempts made within 1 m, no further penetration possible.

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Burwash Township (Highway 69)

Station 11+400 4.4 Rt

0 - 170 Asph
170 - 500 Cr Sa & Gr
500 - 1.0 Br F - Co Sa some Si Tr Gr (wet @ 1.0)

1.0 - 1.5 Br F - Co Sa with Si Tr Gr

Station 11+400 4.4 Rt @ 0.1 m

% Passing 4.75 mm 59.7%
% Passing 75 µm 6.2%
FMC 2.2%
LSFH
GS SW-SM

Not Suitable for Granular 'A'

Station 11+400 4.4 Rt @ 0.5 m

% Passing 4.75 mm 92.2%
% Passing 75 µm 12.5%
FMC 6.9%
LSFH
GS SM

Not Suitable for Granular 'B'

Station 11+400 4.4 Rt @ 1.1 m

% Passing 4.75 mm 98.5%
% Passing 75 µm 21.5%
FMC 17.0%
LSFH
GS SM

Not Suitable for Granular 'B'

Station 11+600 4.4 Lt

0 - 170 Asph
170 - 230 Cr Sa & Gr
230 - 280 Asph
280 - 500 Cr Sa & Gr
500 - 1.5 Br F - Co Sa Tr Si Gr

Station 11+800 4.5 Rt

0 - 130 Asph
130 - 200 Cr Sa & Gr
200 - 240 Asph
240 - 370 Cr Sa & Gr
370 - 500 Br F - Co Sa some Gr Tr Si Cob
500 NFP Cob *

Station 12+000 4.3 Lt

0 - 120 Asph
120 - 280 Cr Sa & Gr
280 - 600 Br F - Co Sa some Gr Tr Si
600 - 750 Br F - Co Sa some Gr Tr Si Cob
RF
700 NFP RF *

Station 12+200 4.5 Rt

0 - 120 Asph
120 - 400 Cr Sa & Gr
400 - 1.2 Br F - Co Sa and Gr Tr Si (moist @ 1.2)
1.2 - 1.5 Gry F - Co Sa some Si Tr Gr Cob

Station 12+400 4.5 Lt

0 - 120 Asph
120 - 200 Cr Sa & Gr
200 - 240 Asph
240 - 380 Cr Sa & Gr
380 - 410 Asph
410 - 650 Br F - Co Sa with Gr Tr Si RF
650 NFP RF *

Station 12+400 4.5 Lt @ 0.1 m

% Passing 4.75 mm 54.6%
% Passing 75 µm 6.2%
FMC 2.8%
LSFH
GS SW-SM

Suitable for Granular 'A'

Station 12+400 4.5 Lt @ 0.5 m

% Passing 4.75 mm 55.7%
% Passing 75 µm 6.5%
FMC 2.4%
LSFH
GS SW-SM

Suitable for Granular 'B'

Station 12+600 4.5 Rt

0 - 130 Asph
130 - 500 Cr Sa & Gr
500 - 1.0 Br F - Co Sa with Gr Tr Si
1.0 - 1.5 Br F - Co Sa Tr Si Gr (moist @ 1.2)

Station 12+800 4.3 Lt

0 - 120 Asph
120 - 410 Cr Sa & Gr
410 - 900 Br F - Co Sa with Gr Tr Si
900 - 1.5 Gry F - Co Sa Tr Si Gr Cob (wet @ 1.3)

Station 13+000 4.6 Rt

0 - 70 Asph
70 - 360 Cr Sa & Gr
360 - 900 Br F - Co Sa some Gr Tr Si
900 - 1.5 Gry F - Co Sa Tr Gr Si Cob (wet @ 1.2)

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Burwash Township (Highway 69)

Station 13+200 4.3 Lt

0 - 70 Asph
70 - 380 Cr Sa & Gr
380 - 1.0 Br F - Co Sa Tr Gr Si Cob (wet @ 1.0)
1.0 - 1.5 Gry F - Co Sa Tr Gr Si Cob

Station 13+400 4.3 Rt

0 - 60 Asph
60 - 450 Cr Sa & Gr
450 - 1.5 Br F - Co Sa Tr Gr Si Cob (wet @ 1.0)

Station 13+600 4.3 Lt

0 - 130 Asph
130 - 450 Cr Sa & Gr
450 - 900 Br F - Co Sa Tr Gr Si Cob
900 - 1.1 Br F - Co Sa some Gr Tr Si Cob
RF
1.1 NFP RF *

Station 13+600 4.3 Lt @ 0.1 m

% Passing 4.75 mm 61.4%
% Passing 75 µm 7.9%
FMC 1.8%

LSFH

GS SW-SM

Not Suitable for Granular 'A'

Station 13+600 4.3 Lt @ 0.6 m

% Passing 4.75 mm 90.1%
% Passing 75 µm 6.0%
FMC 8.7%

LSFH

GS SW-SM

Suitable for Granular 'B'

Station 13+736 4.5 Rt

0 - 150 Asph
150 - 550 Cr Sa & Gr
550 - 1.0 Br F - Co Sa some Gr Tr Si Cob
1.0 - 1.4 Br F - Co Sa some Gr Si Tr Cob
RF
1.4 NFP RF *

Station 13+740 4.5 Rt

0 - 170 Asph
170 - 540 Cr Sa & Gr
540 - 900 Br F - Co Sa some Gr Tr Si Cob
900 - 1.0 Br F - Co Sa some Gr Tr Si Cob
RF
1.0 NFP RF *

Station 13+743 4.5 Rt

0 - 130 Asph
130 - 490 Cr Sa & Gr
490 - 900 Br F - Co Sa some Gr Tr Si Cob
900 - 1.0 Br F - Co Sa some Gr Tr Si Cob
RF
1.0 NFP RF *

Station 13+800 4.4 Rt

0 - 120 Asph
120 - 460 Cr Sa & Gr
460 - 900 Br F - Co Sa some Gr Tr Si Cob
900 - 1.1 Br F - Co Sa some Gr Tr Si Cob
RF
1.1 NFP RF *

Station 14+000 7.6 Lt

0 - 60 Asph
60 - 400 Cr Sa & Gr
400 - 1.0 Br F - Co Sa some Gr Tr Si Cob
1.0 - 1.5 Br F - Co Sa some Gr Si Tr Cob
RF (wet @ 1.2)

Station 14+200 7.3 Rt

0 - 90 Asph
90 - 420 Cr Sa & Gr
420 - 1.5 Br F - Co Sa Tr Gr Si Cob

Station 14+400 4.3 Lt

0 - 110 Asph
110 - 350 Cr Sa & Gr
350 - 1.5 Br F - Co Sa Tr Gr Si Cob (wet @ 1.2)

Station 14+600 8.9 Rt

0 - 110 Asph
110 - 230 Cr Sa & Gr
230 - 400 Br F - Co Sa with Gr some Cob
RF Tr Si
400 NFP RF *

Station 14+800 4.4 Lt

0 - 70 Asph
70 - 400 Cr Sa & Gr
400 - 1.5 Br F - Co Sa some Gr Tr Si Cob
(wet @ 1.3)

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Burwash Township (Highway 69)

Station 14+935 8.2 Rt

0 - 40 Asph
40 - 110 Cr Sa & Gr
110 - 160 Asph
160 - 550 Cr Sa & Gr
550 - 1.7 Br F - Co Sa some Gr Tr Si Cob
(wet @ 1.6)
1.7 - 3.0 Gry Si with Sa some Cl Sa Tr Gr
Cob

Station 14+935 8.2 Rt @ 1.8 m

% Passing 4.75 mm 99.9%
% Passing 75 µm 71.8%
FMC 20.6%
HSFH
GS ML

Station 14+938 8.9 Rt

0 - 40 Asph
40 - 110 Cr Sa & Gr
110 - 140 Asph
140 - 450 Cr Sa & Gr
450 - 2.4 Br F - Co Sa some Gr Tr Si Cob
(wet @ 1.6)
2.4 - 3.0 Br Gry Si some Cl Sa Tr Gr Cob

Station 14+942 8.8 Rt

0 - 40 Asph
40 - 460 Cr Sa & Gr
460 - 1.9 Br F - Co Sa some Gr Tr Si Cob
(wet @ 1.7)
1.9 - 3.0 Br Gry Si some Cl Sa Tr Gr Cob

Station 15+000 8.9 Rt

0 - 40 Asph
40 - 320 Cr Sa & Gr
320 - 800 Br F - Co Sa some Gr Tr Si Cob
800 - 900 Br Si some Cl Sa Tr Gr Cob RF
900 NFP RF *

Station 15+200 4.3 Lt

0 - 60 Asph
60 - 430 Cr Sa & Gr
430 - 900 Br F - Co Sa some Gr Tr Si Cob
900 - 1.5 Br Si(y) Sa Tr Gr Cob

Station 15+400 8.1 Rt

0 - 120 Asph
120 - 460 Cr Sa & Gr
460 - 1.5 Br F - Co Gr(y) Sa some Gr Tr Si
Cob

Station 15+400 4.3 Lt @ 0.1 m

% Passing 4.75 mm 58.6%
% Passing 75 µm 7.0%
FMC 2.8%
LSFH

GS SW-SM

Not Suitable for Granular 'A'

Station 15+400 8.1 Rt @ 0.6 m

% Passing 4.75 mm 69.0%
% Passing 75 µm 5.7%
FMC 2.7%
LSFH

GS SW-SM

Suitable for Granular 'B'

Station 15+600 4.3 Lt

0 - 190 Asph
190 - 420 Cr Sa & Gr
420 - 1.5 Br F - Co Sa some Sa Cl Tr Si
Cob (wet @ 1.4)

Station 15+800 9.1 Rt

0 - 130 Asph
130 - 440 Cr Sa & Gr
440 - 1.5 Br F - Co Sa some Gr Tr Cob Si
(wet @ 1.4)

Station 16+000 8.9 Rt

0 - 190 Asph
190 - 470 Cr Sa & Gr
470 - 1.3 Br F - Co Sa some Gr Tr Si Cob
(wet @ 1.2)
1.3 - 1.5 Br F - M Sa some Si Tr Gr

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Burwash Township (Highway 69)

Station 16+600 8.5 Rt

0 - 170 Asph
170 - 460 Cr Sa & Gr
460 - 900 Br F - Co Sa Tr Gr Si Cob
900 - 1.5 Br Gry Si(y) Sa some Gr Tr Cob

Station 16+600 8.5 Rt @ 0.1 m

% Passing 4.75 mm 55.2%
% Passing 75 µm 7.2%
FMC 3.4%
LSFH
GS SW-SM

Not Suitable for Granular 'A'

Station 16+600 8.5 Rt @ 0.6 m

% Passing 4.75 mm 94.8%
% Passing 75 µm 5.6%
FMC 4.1%
LSFH
GS SW-SM

Suitable for Granular 'B'

Station 16+600 8.5 Rt @ 1.0 m

% Passing 4.75 mm 82.4%
% Passing 75 µm 37.1%
FMC 9.7%
LSFH
GS SM

Station 16+800 8.9 Rt

0 - 100 Asph
100 - 390 Cr Sa & Gr
390 - 1.5 Br F - Co Sa Tr Gr Cob Si

Station 17+000 8.2 Lt

0 - 130 Asph
130 - 320 Cr Sa & Gr
320 - 900 Br F - Co Sa some Gr Tr Si
900 - 1.5 Br Si(y) Cl some Sa Tr Gr

Station 17+200 8.3 Lt

0 - 220 Asph
220 - 460 Cr Sa & Gr
460 - 1.5 Br F - Co Sa some Gr Tr Si Cob

Station 17+400 8.3 Lt

0 - 120 Asph
120 - 420 Cr Sa & Gr
420 - 1.1 Br F - Co Sa Tr Gr Si
1.1 - 1.5 Gry Si(y) Cl some Sa Gr

Station 17+400 8.3 Lt @ 0.1 m

% Passing 4.75 mm 61.2%
% Passing 75 µm 6.6%
FMC 2.4%
LSFH
GS SW-SM

Not Suitable for Granular 'A'

Station 17+400 8.3 Lt @ 0.6 m

% Passing 4.75 mm 99.2%
% Passing 75 µm 8.6%
FMC 4.8%
LSFH
GS SW-SM

Not Suitable for Granular 'B'

Station 17+400 8.3 Lt @ 1.2 m

% Passing 4.75 mm 89.7%
% Passing 75 µm 41.0%
FMC 11.4%
MSFH
GS SM

Station 17+600 8.3 Lt

0 - 170 Asph
170 - 360 Cr Sa & Gr
360 - 1.5 Br F - Co Sa Tr Gr Si

Station 17+635 8.3 Lt

0 - 100 Asph
100 - 320 Cr Sa & Gr
320 - 1.8 Br F - Co Sa Tr Gr Cob (wet @ 1.7)
1.8 - 3.1 Gry Si(y) Cl some Sa Tr Gr

Station 17+638 8.3 Lt

0 - 100 Asph
100 - 480 Cr Sa & Gr
480 - 3.1 Br F - Co Sa some Gr Tr Si (wet @ 1.7)

Station 17+642 8.3 Lt

0 - 90 Asph
90 - 260 Cr Sa & Gr
260 - 1.8 Br F - Co Sa some Gr Tr Si (wet @ 1.7)
1.8 - 3.1 Gry Si(y) Cl some Sa Tr Gr

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

Burwash Township (Highway 69)

Station 17+800 8.3 Lt

0 - 100 Asph
100 - 470 Cr Sa & Gr
470 - 900 Br F - Co Sa Tr Gr Si (wet @ 900)
900 - 1.4 Gry F - Co Sa some Gr Si
1.4 - 1.5 Gry Si(y) Cl some Sa Tr Gr

Station 18+000 8.3 Lt

0 - 100 Asph
100 - 420 Cr Sa & Gr
420 - 800 Br F - Co Sa Tr Si Gr Cob
800 - 1.0 Br Gry Si some Org Sa
1.0 - 1.5 Br M - Co Sa Tr Si Gr

Station 18+071 8.3 Lt

0 - 120 Asph
120 - 380 Cr Sa & Gr
380 - 1.9 Br F - Co Sa Tr Gr Si Cob (wet @ 1.8)
1.9 - 2.1 Gry F - Co Sa some Si Tr Gr Cob
RF
2.1 NFP RF *

Station 18+074 8.3 Lt

0 - 160 Asph
160 - 360 Cr Sa & Gr
360 - 2.4 Br F - Co Sa some Gr Tr Si Cob (wet @ 1.8)
2.4 - 3.1 Gry Si(y) Cl some Sa Tr Gr Cob

Station 18+077 8.3 Lt

0 - 130 Asph
130 - 450 Cr Sa & Gr
450 - 2.1 Br F - Co Sa some Gr Tr Si Cob (wet @ 1.7)
2.1 - 3.1 Gry Si(y) Cl some Sa Tr Gr

Station 18+200 8.3 Lt

0 - 180 Asph
180 - 400 Cr Sa & Gr
400 - 900 Br F - Co Sa some Gr Tr Si
900 - 1.5 Gry Si(y) Cl some Sa Tr Gr

Station 18+400 8.3 Lt

0 - 270 Asph
270 - 440 Cr Sa & Gr
440 - 1.0 Br F - Co Sa Tr Gr Si (wet @ 1.0)
1.0 - 1.5 Gry Sa with Si Cl Tr Gr

Station 18+400 8.3 Lt @ 0.1 m

% Passing 4.75 mm 45.5%
% Passing 75 µm 3.5%
FMC 1.5%

LSFH

GS

GW

Suitable for Granular 'A'

Station 18+400 8.3 Lt @ 0.6 m

% Passing 4.75 mm 98.6%
% Passing 75 µm 4.7%
FMC 4.8%

LSFH

GS

SW

Suitable for Granular 'B'

Station 18+400 8.3 Lt @ 1.2 m

% Passing 4.75 mm 95.6%
% Passing 75 µm 35.5%
FMC 15.9%

LSFH

GS

SM

Station 18+600 4.7 Rt

0 - 90 Asph
90 - 320 Cr Sa & Gr
320 - 1.1 Br F - Co Sa some Gr Tr Si
1.1 - 1.3 Br F - Co Sa some Gr Tr Si Sh Rk
1.3 NFP Sh Rk *

Station 18+800 4.4 Lt

0 - 70 Asph
70 - 390 Cr Sa & Gr
390 - 1.5 Br F - Co Sa some Gr Tr Si (wet @ 1.2)

Station 19+000 4.8 Rt

0 - 70 Asph
70 - 410 Cr Sa & Gr
410 - 800 Br F - Co Sa some Gr Tr Si
800 - 900 Br F - Co Sa some Gr Tr Si RF
900 NFP RF *

*Note: 3 attempts made within 1 m, no further penetration possible.

Agreement No: 5006-E-0088

Secord Road and Highway 69 from 8.3 km North of Highway 637 Northerly 8.6 km

ASPHALT CORE FIELD DATA

Agreement No.: 5562-06-00
 Township: Burwash

Project No.: GS-TB-007293

Date Sampled: August 2007
 Page 1

Highway 69 from 8.3km North of Highway 637, Northerly 8.6km

Core #	Station	CL Offset	Core Dimensions (mm)		Rut Depth (mm)		% Cross Fall	Remarks (Include patch length, entrances, widenings, etc.)
			Diameter	Depth	Outside Track	Inside Track		
	11+400	0.9 Rt	50	130	8	3	1.1	
	11+600	3.4 Lt	50	180	5	10	1.0	
	11+800	0.8 Rt	50	140	8	1	0.9	
	12+000	3.2 Lt	50	90	5	2	1.3	HL2 at bottom 20 mm
	12+200	1.0 Rt	50	160	10	3	1.2	in pieces
	12+400	3.2 Lt	50	140	10	5	1.2	
	12+600	1.0 Rt	50	160	13	6	1.1	
	12+800	3.4 Lt	50	150	2	4	1.0	
	13+000	0.9 Rt	50	120	1	0	1.1	
	13+200	3.0 Lt	50	120	4	1	1.2	
	13+400	1.0 Rt	50	160	3	0	1.1	
	13+600	3.1 Lt	50	150	1	2	1.3	
	13+800	0.9 Rt	50	140	8	2	1.0	
	14+000	3.0 Lt	50	90	12	2	1.0	in pieces, measured hole
	14+200	1.1 Rt	50	110	8	5	1.1	
	14+400	3.3 Lt	50	130	2	4	1.2	
	14+600	1.0 Rt	50	180	6	5	1.0	
	14+800	3.2 Lt	50	170	9	9	1.0	
	15+000	0.6 Rt	50	220	7	3	0.6	
	15+200	3.1 Lt	50	170	6	8	0.9	
	15+400	2.8 Rt	50	120	4	8	1.2	
	15+600	3.1 Lt	50	200	9	10	1.4	
	15+800	1.0 Rt	50	200	1	4	1.3	
	16+000	3.0 Lt	50	220	4	3	1.1	
	16+200	Rt	50					Construction Zone
	16+400	Lt	50					Construction Zone
	16+600	0.9 Rt	50	200	0	2	0.8	
	16+800	3.0 Rt	50	220	5	6	1.0	
	17+000	3.7 Lt	50	150	0	0	1.5	
	17+100	7.3 Lt	50	170	2	2	3.2	in pieces, measured hole
	17+200	3.0 Lt	50	190	0	0	1.0	
	17+400	3.1 Lt	50	190	0	1	1.0	in pieces
	17+600	3.0 Lt	50	140	0	0	0.6	in pieces

ASPHALT CORE FIELD DATA

Agreement No.: 5562-06-00

Township: Burwash

Project No.: GS-TB-007293

Date Sampled: August 2007

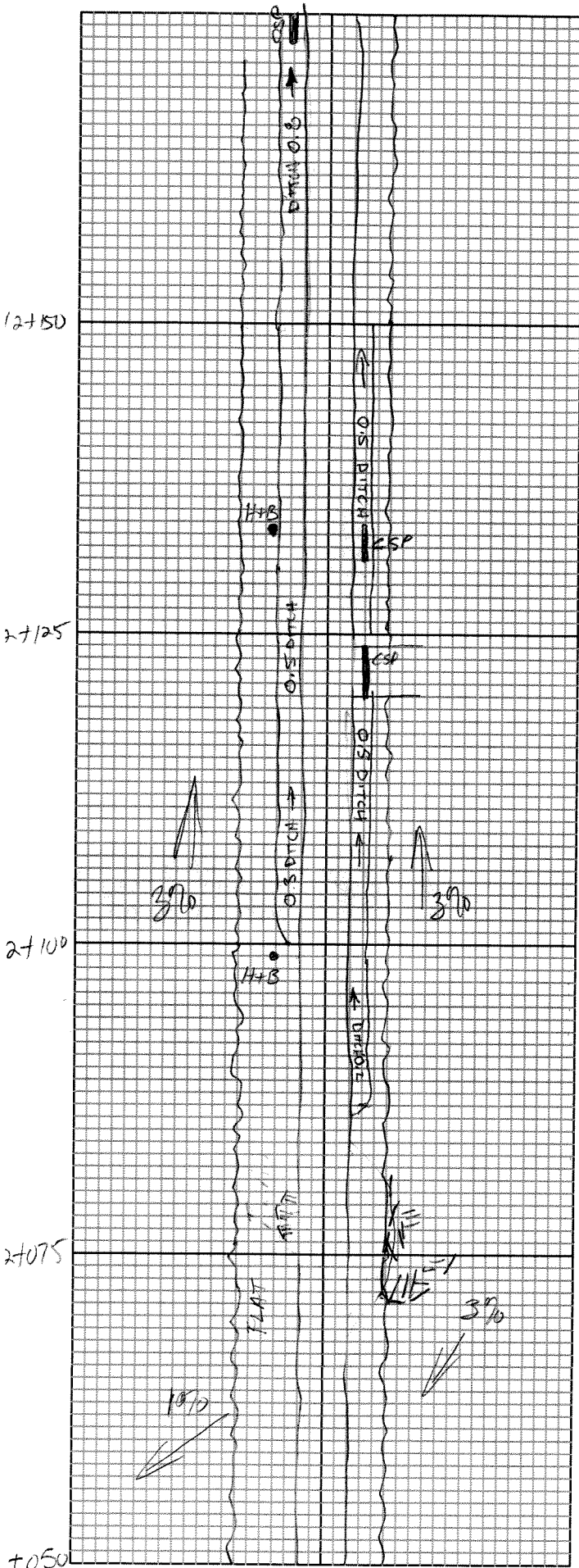
Page 2

Highway 69 from 8.3km North of Highway 637, Northerly 8.6km

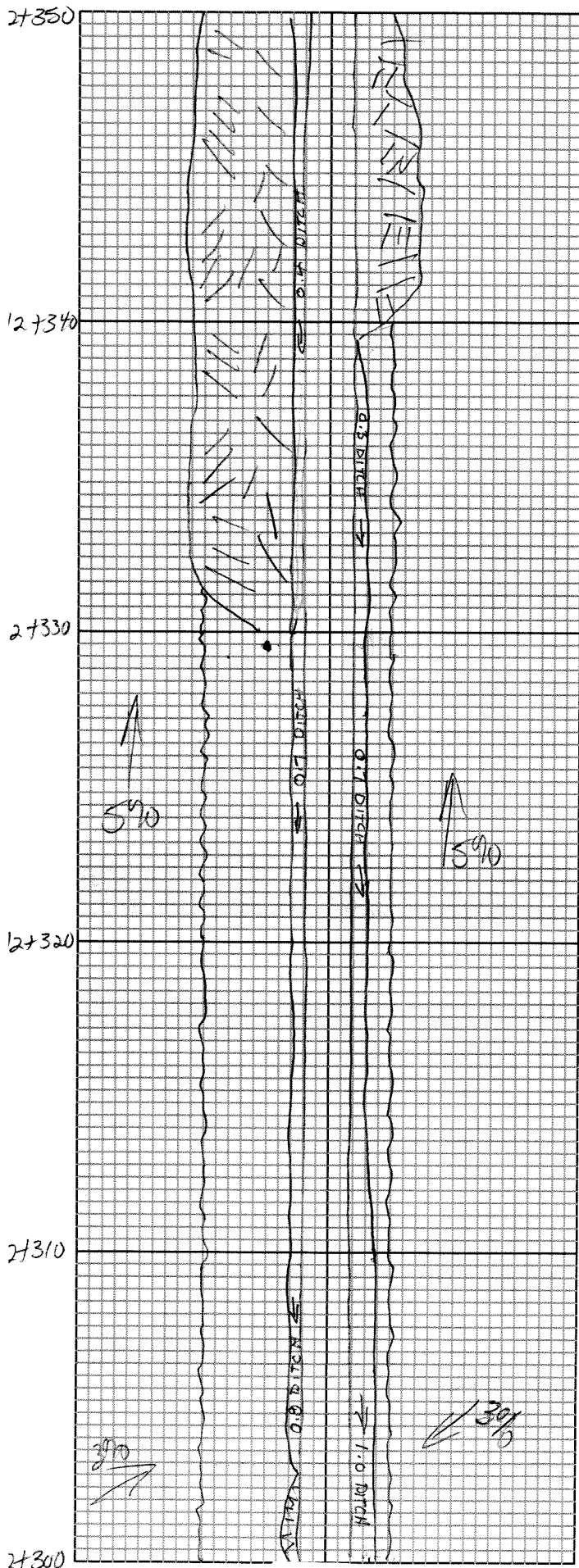
Core #	Station	CL Offset	Core Dimensions (mm)		Rut Depth (mm)		% Cross Fall	Remarks (Include patch length, entrances, widenings, etc.)
			Diameter	Depth	Outside Track	Inside Track		
	17+800	3.0 Lt	50	190	0	0	1.0	
	17+900	6.9 Lt	50	170	2	2	2.1	
	18+000	3.1 Lt	50	190	1	0	1.1	
	18+200	3.0 Lt	50	190	2	0	1.2	in pieces, measured hole
	18+400	3.0 Lt	50	190	0	0	1.1	
	18+400	7.0 Lt	50	190	3	1	3.1	in pieces
	18+600	0.7 Rt	50	180	8	6	0.6	in pieces
	18+800	2.7 Lt	50	150	9	1	1.3	in pieces, gummy – measured hole
	19+000	0.8 Rt	50		4	1	1.3	
Average Asphalt Thickness			163 mm					
Maximum Depth			220 mm Station 15+000, 16+000, 16+800					
Minimum Depth			90 mm Station 12+000, 14+000					



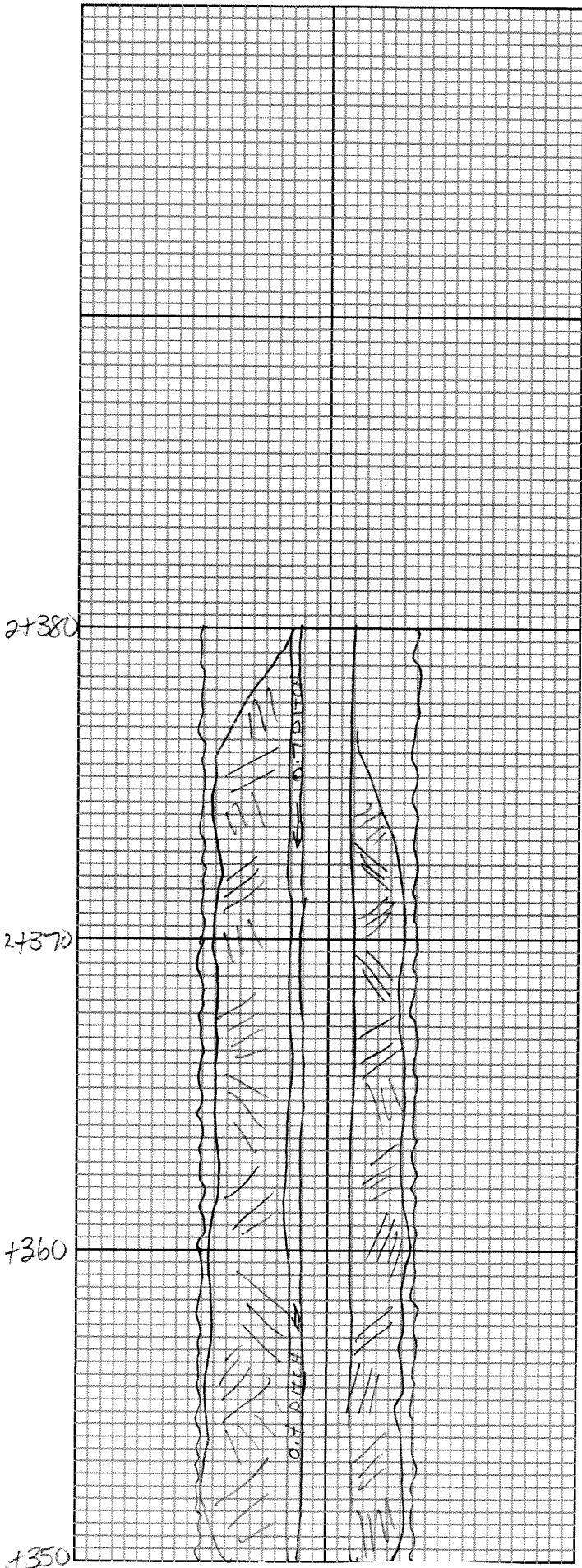
11+916 TO 11+950



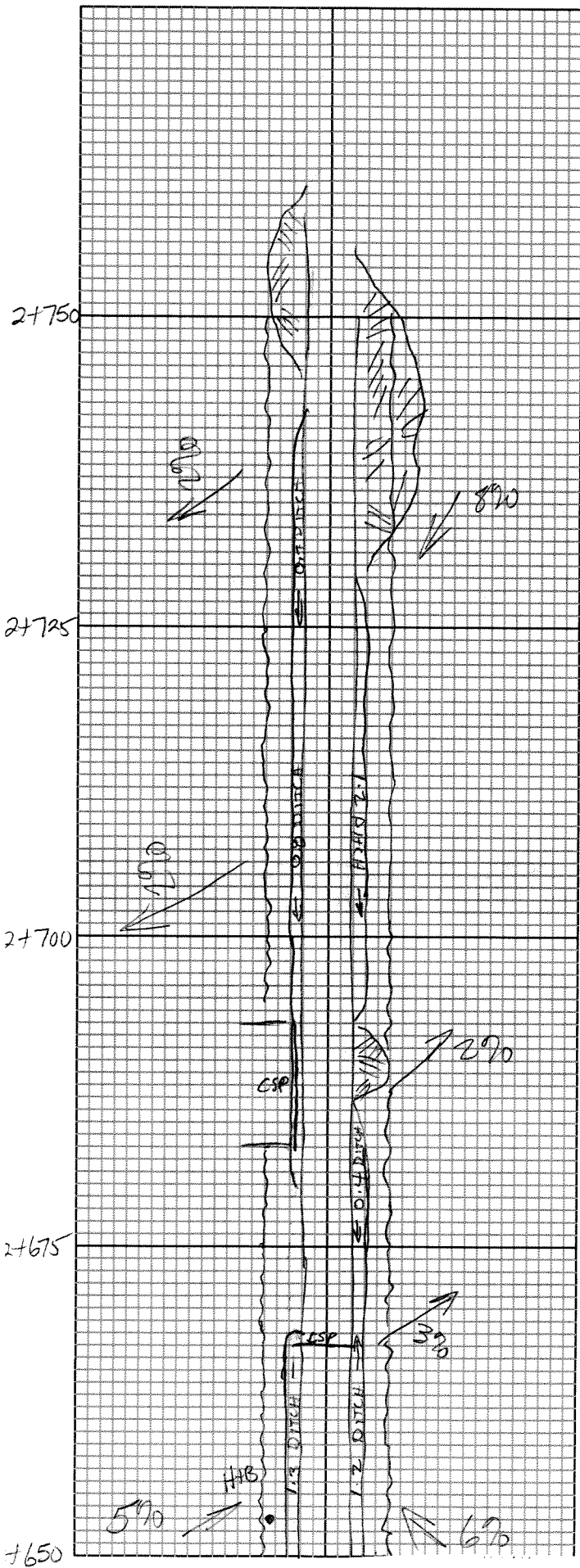
12+075 TO 12+125

$$12 + 300 \quad \text{TO} \quad 12 + 340$$


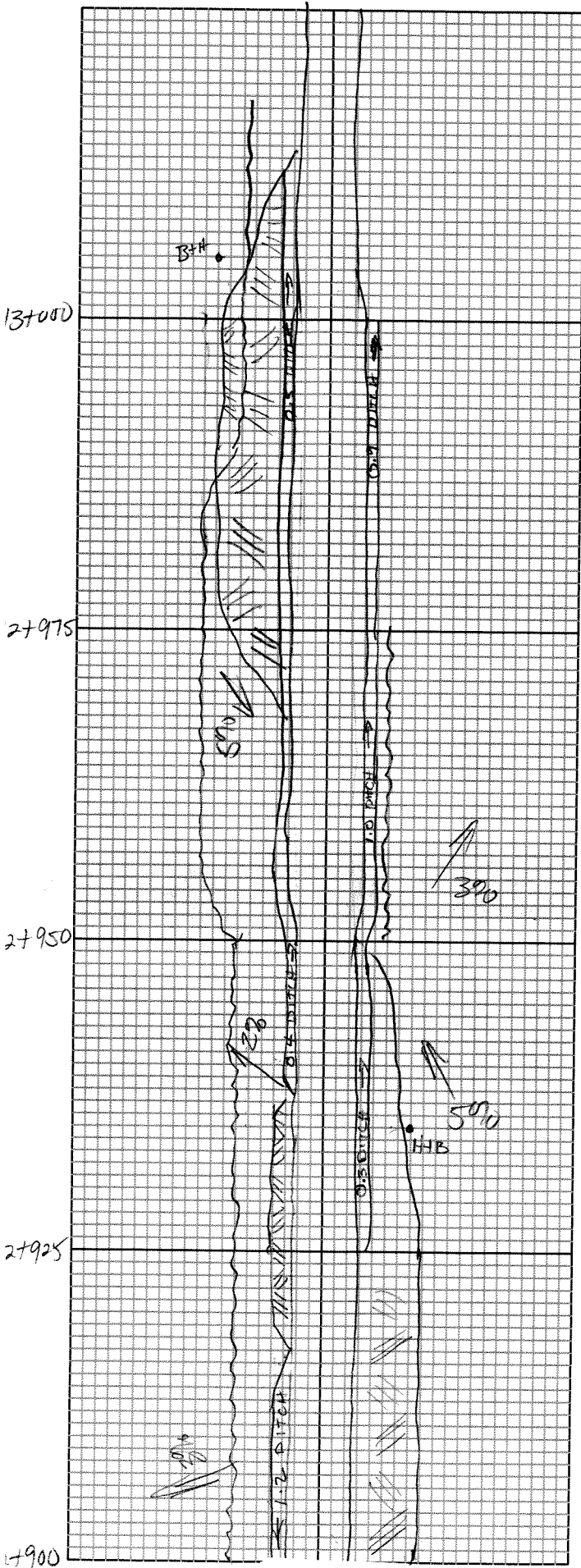
ENGINEER: Dave Shaw



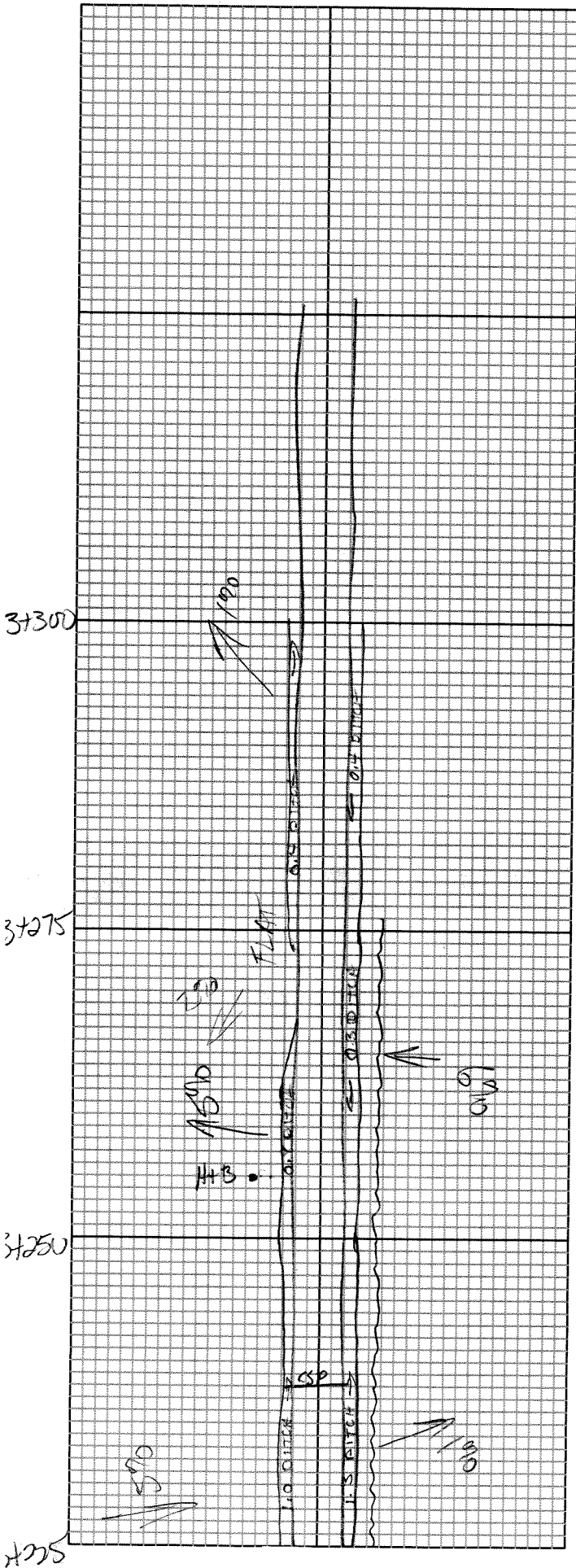
SEVERE FROST HEAVE
12+340 TO 12+375



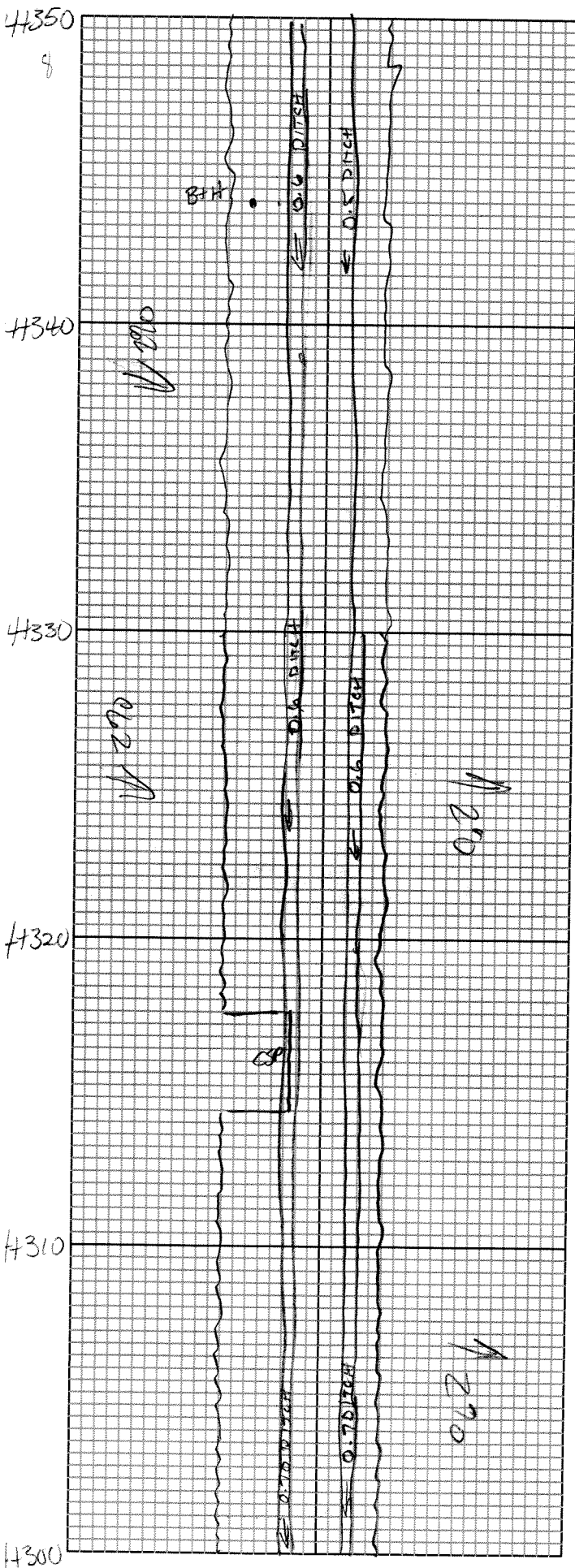
12+650 TO 12+725



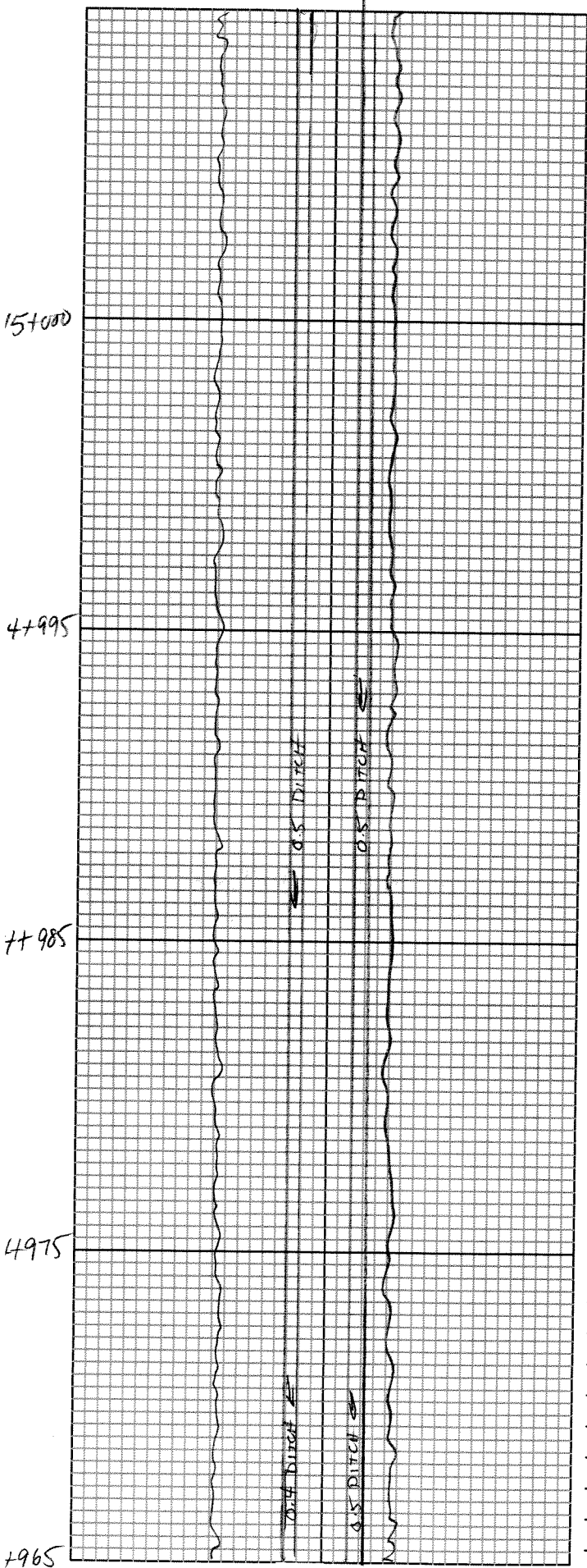
12+900 TO 13+000



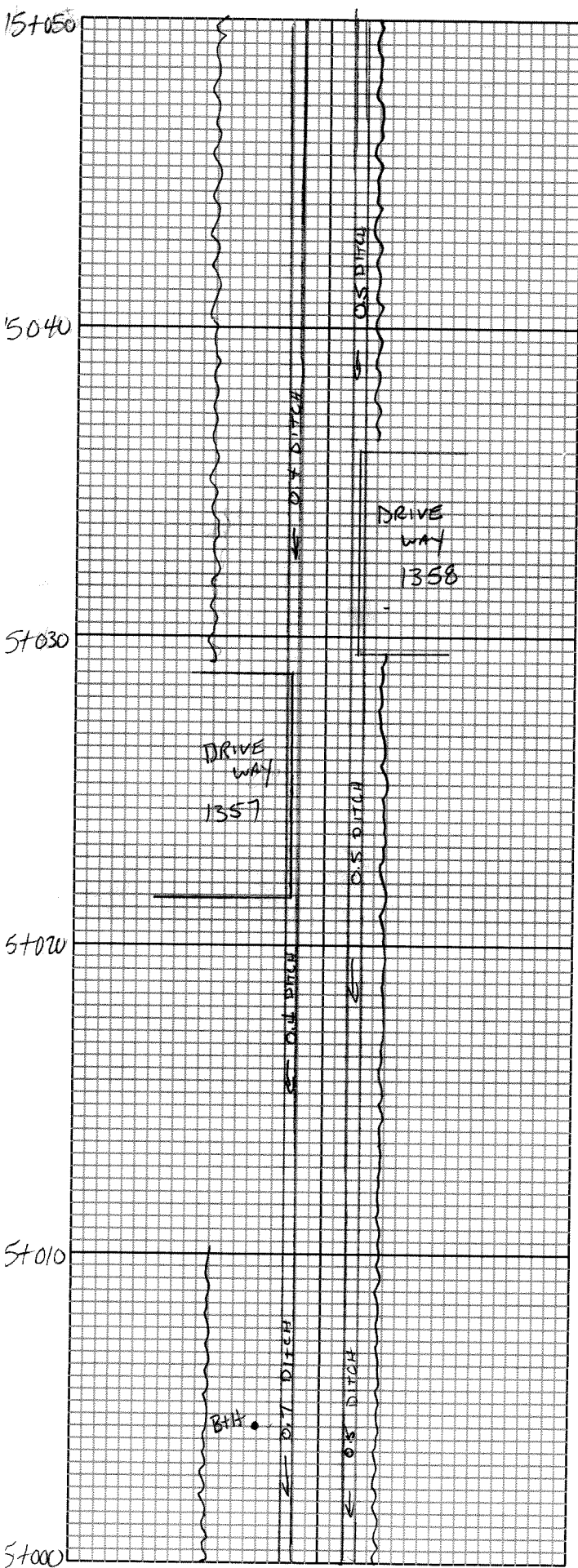
VERY SEVERE FROST HEAVE
13+225 + 13+300



SEVERE FROST HEAVE
14+300 TO 14+350



SEVERE FROST HEAVE
74+965 TO 75+000



SEVERE FROST HEAVE
14+965 TO 15+015

43

16+075 - 16+150

16+150

16+125

16+100

16+075

0.9

1.2 DITCH

DITCH 1:1

0.2 DITCH

0.3 DITCH

A P P E N D I X 'C'

LABORATORY TEST RESULTS

CONT No:
Agreement No.: 5005-E-0088
GRANULAR 'A' GRADATION

METRIC

DIMENSIONS ARE IN METERS AND/OR MILLIMETERS
UNLESS OTHERWISE SHOWN

GRANULAR BASE GRADATION

[illegible]

CONT No:

Agreement No.: 5005-E-0088

METRIC

GRANULAR 'B' GRADATION

DIMENSIONS ARE IN METERS AND/OR MILLIMETERS UNLESS
OTHERWISE SHOWN**GRANULAR SUBBASE GRADATION**

LOCATION				PERCENT PASSING								
Station	Offset (m)	Township	Sample Depth	150 mm (100%)	26.5 mm (50-100%)	4.75 mm (20-100%)	1.18 mm (10-100%)	300 µm (2-65%)	75 µm (0 -8%)	% FMC	Acceptable for Granular 'B' (Yes/No)	
HIGHWAY 69												
11+400	4.4 Rt	Burwash	0.5 m	100	100.0	92.2	80.6	56.5	12.5	6.9		x
11+400	4.4 Rt	Burwash	1.1 m	100	100.0	98.5	94.6	87.2	21.5	17.0		x
12+400	4.5 Lt	Burwash	0.5 m	100	100.0	55.7	33.2	15.8	6.5	2.4	x	
13+600	4.3 Lt	Burwash	0.6 m	100	100.0	90.1	78.1	38.5	6.0	8.7	x	
14+935	8.2 Rt	Burwash	1.8 m	100	100.0	99.9	99.1	83.8	71.8	20.6		x
15+400	8.1 Rt	Burwash	0.6 m	100	100.0	69.0	51.3	23.9	5.7	2.7	x	
16+600	8.5 Rt	Burwash	0.6 m	100	100.0	94.8	90.2	45.0	5.6	4.1	x	
16+600	8.5 Rt	Burwash	1.0 m	100	100.0	92.4	68.6	49.9	37.1	9.7		x
17+400	8.3 Lt	Burwash	0.6 m	100	100.0	99.2	97.0	51.4	8.6	2.8		x
17+400	8.3 Lt	Burwash	1.2 m	100	100.0	89.7	75.8	56.1	41.0	11.4		x
18+400	8.3 Lt	Burwash	0.6 m	100	100.0	98.6	96.4	48.8	4.7	4.8	x	
18+400	8.3 Lt	Burwash	1.2 m	100	100.0	95.6	84.7	55.6	35.5	15.9		x
HIGHWAY 7042												
10+016	4.7 Rt	Secord	1.6 m	100	100.0	99.6	97.6	93.5	89.4	27.9		x
10+063	1.7 Rt	Secord	0.4 m	100	85.2	63.5	44.0	26.2	13.5	6.9		x
10+063	1.7 Rt	Secord	1.4 m	100	100.0	99.7	95.7	88.9	81.4	26.1		x
11+905	3.3 Rt	Secord	0.4 m	100	100.0	99.5	97.5	93.7	88.6	19.0		x
11+915	3.4 Rt	Secord	0.8 m	100	100.0	98.6	96.8	90.7	75.3	20.8		x
12+021	1.8 Rt	Secord	0.4 m	100	100.0	87.1	65.0	28.9	16.2	5.2		x
12+021	1.8 Rt	Secord	0.8 m	100	100.0	99.3	95.1	83.8	72.1	19.5		x
12+065	3.5 Rt	Secord	0.2 m	100	100.0	96.3	91.2	82.2	72.3	16.6		x
12+095	3.5 Rt	Secord	0.8 m	100	100.0	99.5	97.5	92.0	80.0	17.9		x
12+115	3.5 Rt	Secord	0.7 m	100	100.0	97.8	96.2	88.7	72.7	18.9		x
12+320	3.4 Rt	Secord	0.8 m	100	100.0	99.0	97.7	94.1	85.6	21.5		x
12+370	3.0 Rt	Secord	0.7 m	100	100.0	98.2	95.1	90.0	79.7	15.5		x
12+380	3.0 Rt	Secord	1.5 m	100	100.0	99.7	98.5	95.3	86.7	20.4		x
12+310	3.0 Rt	Secord	0.2 m	100	100.0	93.9	90.3	83.9	72.0	18.6		x
12+360	2.8 Rt	Secord	0.2 m	100	100.0	87.1	75.0	58.2	45.4	13.9		x
12+432	1.6 Rt	Secord	0.3 m	100	62.7	59.5	56.0	50.9	45.7	19.5		x
12+660	2.7 Rt	Secord	0.4 m	100	100.0	98.3	94.5	90.2	86.3	17.6		x
12+670	2.6 Rt	Secord	0.4 m	100	95.3	71.2	40.9	9.8	5.1	4.3	x	
12+680	2.6 Rt	Secord	0.6 m	100	90.3	85.2	75.9	65.5	59.1	16.3		x
12+650	2.5 Lt	Secord	0.8 m	100	100.0	99.5	96.6	90.9	83.6	28.1		x
12+712	2.5 Lt	Secord	1.4 m	100	100.0	99.8	98.9	95.2	81.8	23.6		x

GRANULAR 'B' GRADATION

METRIC

DIMENSIONS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

GRANULAR SUBBASE GRADATION

[illegible]

DST CONSULTING ENGINEERS INC.

605 Hewitson Street

Thunder Bay, Ontario

P7B 5V5

Tel: (807) 623-2929 Fax: (807) 623-1792

LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 2

Sample Depth (m): 1.6 m

Station: 10+016 4.7 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

214.1

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.8

C. MASS PASS 4.75 MM (A-B) (kg)

213.3

D. % COARSE AGGREGATE ((B/A)*100)

0.4

E. % FINE AGGREGATE ((C/A)*100)

99.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0.8	99.6	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

215.0

G. MASS OF FINE AGG. AFTER WASH (kg)

24.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	4.4	97.6	10-100
	300 µm	13.23	93.5	2-65
	75 µm	21.97	89.4	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		115.2	389	329.3	214.1	27.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		115.2	330.2	215.0	139.48	24.28

DST CONSULTING ENGINEERS INC.

605 Hewitson Street

Thunder Bay, Ontario

P7B 5V5

Tel: (807) 623-2929 Fax: (807) 623-1792

LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 4

Depth: 0.1 m

Station: 10+063 1.7 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2511.9

B. MASS RETAINED 4.75 MM SIEVE (kg)

781.7

C. MASS PASS 4.75 MM (A-B) (kg)

1730.2

D. % COARSE AGGREGATE ((B/A)*100)

31.1

E. % FINE AGGREGATE ((C/A)*100)

68.9

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	69.1	97.2	85-100
	13.2 mm	332.1	86.8	65-90
	9.5 mm	493.5	80.4	50-73
	4.75 mm	781.7	68.9	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

266.7

G. MASS OF FINE AGG. AFTER WASH (kg)

253.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	81.5	47.8	15-40
	300 µm	203.09	16.4	5-22
	75 µm	250.51	4.2	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		300.6	2893.3	2812.5	2511.9	3.2
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.2	385.9	266.7	373.05	253.85
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

DST CONSULTING ENGINEERS INC.

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P7B 5V5

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 5

Sample Depth (m): 0.4 m

Station: 10+063 1.7 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1806.8

B. MASS RETAINED 4.75 MM SIEVE (kg)

658.6

C. MASS PASS 4.75 MM (A-B) (kg)

1148.2

D. % COARSE AGGREGATE ((B/A)*100)

36.5

E. % FINE AGGREGATE ((C/A)*100)

63.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	266.7	85.2	50-100
	4.75 mm	658.6	63.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

280.5

G. MASS OF FINE AGG. AFTER WASH (kg)

222.6

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	86.16	44.0	10-100
	300 µm	164.95	26.2	2-65
	75 µm	220.8	13.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		298.6	2230.7	2105.4	1806.8	6.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.2	400.7	280.5	342.78	222.58

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 7

Sample Depth (m): 1.4 m

Station: 10+063 1.7 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

235

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.8

C. MASS PASS 4.75 MM (A-B) (kg)

234.2

D. % COARSE AGGREGATE ((B/A)*100)

0.3

E. % FINE AGGREGATE ((C/A)*100)

99.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0.8	99.7	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

234.8

G. MASS OF FINE AGG. AFTER WASH (kg)

44.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	9.35	95.7	10-100
	300 µm	25.33	88.9	2-65
	75 µm	42.92	81.4	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		114.9	411.3	349.9	235	26.1
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		114.9	349.7	234.8	159.23	44.33

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 94

Sample Depth (m): 0.4 m

Station: 11+905 3.3 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

353.7

B. MASS RETAINED 4.75 MM SIEVE (kg)

1.7

C. MASS PASS 4.75 MM (A-B) (kg)

352.0

D. % COARSE AGGREGATE ((B/A)*100)

0.5

E. % FINE AGGREGATE ((C/A)*100)

99.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	1.7	99.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

180.4

G. MASS OF FINE AGG. AFTER WASH (kg)

21.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	3.58	97.5	10-100
	300 µm	10.57	93.7	2-65
	75 µm	19.71	88.6	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		116.3	537.1	470	353.7	19.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		116.3	296.7	180.4	137.27	20.97

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 95

Sample Depth (m): 0.8 m

Station: 11+915 3.4 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

384.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

5.2

C. MASS PASS 4.75 MM (A-B) (kg)

379.4

D. % COARSE AGGREGATE ((B/A)*100)

1.4

E. % FINE AGGREGATE ((C/A)*100)

98.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	5.2	98.6	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

190.0

G. MASS OF FINE AGG. AFTER WASH (kg)

47.1

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	3.59	96.8	10-100
	300 µm	15.27	90.7	2-65
	75 µm	45.06	75.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		117.6	582.2	502.2	384.6	20.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		117.6	307.6	190.0	164.68	47.08

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 8

Depth: 0.1 m

Station: 12+021 1.8 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2586.8

B. MASS RETAINED 4.75 MM SIEVE (kg)

884.5

C. MASS PASS 4.75 MM (A-B) (kg)

1702.3

D. % COARSE AGGREGATE ((B/A)*100)

34.2

E. % FINE AGGREGATE ((C/A)*100)

65.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	55.5	97.9	85-100
	13.2 mm	196.9	92.4	65-90
	9.5 mm	505.2	80.5	50-73
	4.75 mm	884.5	65.8	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

270.9

G. MASS OF FINE AGG. AFTER WASH (kg)

231.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	92.94	43.2	15-40
	300 µm	176.01	23.1	5-22
	75 µm	229.39	10.1	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		307.3	2945.1	2894.1	2586.8	2.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.4	390.3	270.9	351.08	231.68
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 9

Sample Depth (m): 0.4 m

Station: 12+021 1.8 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1525.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

196.4

C. MASS PASS 4.75 MM (A-B) (kg)

1328.8

D. % COARSE AGGREGATE ((B/A)*100)

12.9

E. % FINE AGGREGATE ((C/A)*100)

87.1

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	196.4	87.1	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

252.1

G. MASS OF FINE AGG. AFTER WASH (kg)

206.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	64.07	65.0	10-100
	300 µm	168.52	28.9	2-65
	75 µm	205.29	16.2	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		301.1	1905.8	1826.3	1525.2	5.2
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		138.2	390.3	252.1	344.49	206.29

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 10

Sample Depth (m): 0.8 m

Station: 12+021 1.8 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

484

B. MASS RETAINED 4.75 MM SIEVE (kg)

3.3

C. MASS PASS 4.75 MM (A-B) (kg)

480.7

D. % COARSE AGGREGATE ((B/A)*100)

0.7

E. % FINE AGGREGATE ((C/A)*100)

99.3

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	3.3	99.3	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

224.5

G. MASS OF FINE AGG. AFTER WASH (kg)

62.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	9.44	95.1	10-100
	300 µm	35	83.8	2-65
	75 µm	61.49	72.1	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		115.5	693.9	599.5	484	19.5
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		115.6	340.1	224.5	178.26	62.66

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 11

Sample Depth (m): 0.2 m

Station: 12+065 3.5 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1405.8

B. MASS RETAINED 4.75 MM SIEVE (kg)

52.0

C. MASS PASS 4.75 MM (A-B) (kg)

1353.8

D. % COARSE AGGREGATE ((B/A)*100)

3.7

E. % FINE AGGREGATE ((C/A)*100)

96.3

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	52	96.3	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

148.3

G. MASS OF FINE AGG. AFTER WASH (kg)

39.1

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	7.81	91.2	10-100
	300 µm	21.7	82.2	2-65
	75 µm	37.02	72.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		286.5	1925.9	1692.3	1405.8	16.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		121.1	269.4	148.3	160.16	39.06

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 12

Depth: 0.1 m

Station: 12+075 3.5 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2207.8

B. MASS RETAINED 4.75 MM SIEVE (kg)

976.9

C. MASS PASS 4.75 MM (A-B) (kg)

1230.9

D. % COARSE AGGREGATE ((B/A)*100)

44.2

E. % FINE AGGREGATE ((C/A)*100)

55.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	672.2	69.6	100
	19.0 mm	738.9	66.5	85-100
	13.2 mm	808.3	63.4	65-90
	9.5 mm	886.4	59.9	50-73
	4.75 mm	976.9	55.8	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

212.0

G. MASS OF FINE AGG. AFTER WASH (kg)

157.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	34.66	46.6	15-40
	300 µm	81.78	34.2	5-22
	75 µm	152.96	15.5	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		297.1	2649.1	2504.9	2207.8	6.5
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.6	331.6	212.0	277.51	157.91
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

DST CONSULTING ENGINEERS INC.

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 13

Sample Depth (m): 0.8 m

Station: 12+095 3.5 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1024.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

5.4

C. MASS PASS 4.75 MM (A-B) (kg)

1019.2

D. % COARSE AGGREGATE ((B/A)*100)

0.5

E. % FINE AGGREGATE ((C/A)*100)

99.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	5.4	99.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

204.4

G. MASS OF FINE AGG. AFTER WASH (kg)

41.6

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	3.99	97.5	10-100
	300 µm	15.26	92.0	2-65
	75 µm	40.04	80.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		296.2	1503.9	1320.8	1024.6	17.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.4	323.8	204.4	161.04	41.64

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 14

Sample Depth (m): 0.7 m

Station: 12+115 3.5 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

918.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

19.9

C. MASS PASS 4.75 MM (A-B) (kg)

898.4

D. % COARSE AGGREGATE ((B/A)*100)

2.2

E. % FINE AGGREGATE ((C/A)*100)

97.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	19.9	97.8	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

256.0

G. MASS OF FINE AGG. AFTER WASH (kg)

68.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	4.3	96.2	10-100
	300 µm	23.79	88.7	2-65
	75 µm	65.87	72.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		332.8	1424.5	1251.1	918.3	18.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118.1	374.1	256.0	186.61	68.51

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 18

Depth: 0.1 m

Station: 12+310 3.3 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

1724.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

910.3

C. MASS PASS 4.75 MM (A-B) (kg)

814.1

D. % COARSE AGGREGATE ((B/A)*100)

52.8

E. % FINE AGGREGATE ((C/A)*100)

47.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	722.6	58.1	100
	19.0 mm	758.2	56.0	85-100
	13.2 mm	804.1	53.4	65-90
	9.5 mm	842.8	51.1	50-73
	4.75 mm	910.3	47.2	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

205.6

G. MASS OF FINE AGG. AFTER WASH (kg)

80.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	29.49	40.4	15-40
	300 µm	60.61	33.3	5-22
	75 µm	80.09	28.8	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		293.9	2116.4	2018.3	1724.4	5.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118.5	324.1	205.6	199.38	80.88
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 19

Sample Depth (m): 0.8 m

Station: 12+320 3.4 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

626.8

B. MASS RETAINED 4.75 MM SIEVE (kg)

6.1

C. MASS PASS 4.75 MM (A-B) (kg)

620.7

D. % COARSE AGGREGATE ((B/A)*100)

1.0

E. % FINE AGGREGATE ((C/A)*100)

99.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	6.1	99.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

238.4

G. MASS OF FINE AGG. AFTER WASH (kg)

33.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	3.27	97.7	10-100
	300 µm	11.83	94.1	2-65
	75 µm	32.43	85.6	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		294.7	1056.2	921.5	626.8	21.5
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.6	359	238.4	154.33	33.73

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 20

Depth: 0.1 m

Station: 12+360 2.8 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

3247.5

B. MASS RETAINED 4.75 MM SIEVE (kg)

1827.0

C. MASS PASS 4.75 MM (A-B) (kg)

1420.5

D. % COARSE AGGREGATE ((B/A)*100)

56.3

E. % FINE AGGREGATE ((C/A)*100)

43.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	105.2	96.8	85-100
	13.2 mm	808.4	75.1	65-90
	9.5 mm	1321.6	59.3	50-73
	4.75 mm	1827	43.7	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

267.2

G. MASS OF FINE AGG. AFTER WASH (kg)

220.2

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	88.96	29.2	15-40
	300 µm	160	17.5	5-22
	75 µm	216.79	8.3	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		313.4	3644.1	3560.9	3247.5	2.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.6	387.8	267.2	340.77	220.17
Asphalt Coated	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed
		1032.12		26.82		2.6

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 21

Sample Depth (m): 0.7 m

Station: 12+370 3.0 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1128.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

20.3

C. MASS PASS 4.75 MM (A-B) (kg)

1108.0

D. % COARSE AGGREGATE ((B/A)*100)

1.8

E. % FINE AGGREGATE ((C/A)*100)

98.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	20.3	98.2	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

213.6

G. MASS OF FINE AGG. AFTER WASH (kg)

42.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	6.75	95.1	10-100
	300 µm	17.8	90.0	2-65
	75 µm	40.32	79.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		299.4	1602.9	1427.7	1128.3	15.5
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.1	333.7	213.6	162.08	41.98

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 22

Sample Depth (m): 1.5 m

Station: 12+380 3.0 Rt

Township: Secord

MTD LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1029

B. MASS RETAINED 4.75 MM SIEVE (kg)

3.0

C. MASS PASS 4.75 MM (A-B) (kg)

1026.1

D. % COARSE AGGREGATE ((B/A)*100)

0.3

E. % FINE AGGREGATE ((C/A)*100)

99.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	2.95	99.7	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

262.0

G. MASS OF FINE AGG. AFTER WASH (kg)

36.8

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	3.08	98.5	10-100
	300 µm	11.57	95.3	2-65
	75 µm	34.31	86.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		300.5	1539.6	1329.5	1029	20.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.2	382.16	262.0	157	36.8

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 24

Sample Depth (m): 0.2 m

Station: 12+310 3.0 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1056.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

64.2

C. MASS PASS 4.75 MM (A-B) (kg)

992.0

D. % COARSE AGGREGATE ((B/A)*100)

6.1

E. % FINE AGGREGATE ((C/A)*100)

93.9

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	64.2	93.9	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

213.0

G. MASS OF FINE AGG. AFTER WASH (kg)

54.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	8.31	90.3	10-100
	300 µm	22.84	83.9	2-65
	75 µm	49.63	72.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		301.2	1554.2	1357.4	1056.2	18.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.3	333.3	213.0	174.64	54.34

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 26

Sample Depth (m): 0.3 m

Station: 12+432 1.6 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

488.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

197.6

C. MASS PASS 4.75 MM (A-B) (kg)

290.7

D. % COARSE AGGREGATE ((B/A)*100)

40.5

E. % FINE AGGREGATE ((C/A)*100)

59.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	182.0	62.7	50-100
	4.75 mm	197.6	59.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

207.0

G. MASS OF FINE AGG. AFTER WASH (kg)

48.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	12.27	56.0	10-100
	300 µm	29.99	50.9	2-65
	75 µm	47.94	45.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.9	704.2	609.2	488.3	19.5
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.7	327.7	207.0	169.64	48.94

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 31

Depth: 0.1 m

Station: 12+660 2.7 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS, INITIAL IN
BOX BELOW & FILL IN ALL
SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2913.7

B. MASS RETAINED 4.75 MM SIEVE (kg)

1402.5

C. MASS PASS 4.75 MM (A-B) (kg)

1511.2

D. % COARSE AGGREGATE ((B/A)*100)

48.1

E. % FINE AGGREGATE ((C/A)*100)

51.9

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	68.6	97.6	85-100
	13.2 mm	597.3	79.5	65-90
	9.5 mm	979.9	66.4	50-73
	4.75 mm	1402.5	51.9	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

320.4

G. MASS OF FINE AGG. AFTER WASH (kg)

275.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	117.63	32.8	15-40
	300 µm	217.53	16.7	5-22
	75 µm	273.58	7.6	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		299.7	3291.9	3213.4	2913.7	2.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		115.7	436.1	320.4	391.14	275.44
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

DST CONSULTING ENGINEERS INC.

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 32

Sample Depth (m): 0.4 m

Station: 12+660 2.7 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

498.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

8.5

C. MASS PASS 4.75 MM (A-B) (kg)

489.7

D. % COARSE AGGREGATE ((B/A)*100)

1.7

E. % FINE AGGREGATE ((C/A)*100)

98.3

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	8.5	98.3	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

128.6

G. MASS OF FINE AGG. AFTER WASH (kg)

16.2

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	5	94.5	10-100
	300 µm	10.6	90.2	2-65
	75 µm	15.72	86.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.8	705.5	618	498.2	17.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.6	248.2	128.6	135.79	16.19

DST CONSULTING ENGINEERS INC.

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P7B 5V5

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 25

Sample Depth (m): 0.2 m

Station: 12+360 2.8 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1098.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

141.9

C. MASS PASS 4.75 MM (A-B) (kg)

956.7

D. % COARSE AGGREGATE ((B/A)*100)

12.9

E. % FINE AGGREGATE ((C/A)*100)

87.1

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	141.9	87.1	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

218.3

G. MASS OF FINE AGG. AFTER WASH (kg)

109.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	30.2	75.0	10-100
	300 µm	72.48	58.2	2-65
	75 µm	104.39	45.4	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		305.3	1556.8	1403.9	1098.6	13.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		116.3	334.6	218.3	225.8	109.5

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 33

Sample Depth (m): 0.4 m

Station: 12+670 2.6 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1849.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

533.6

C. MASS PASS 4.75 MM (A-B) (kg)

1316.0

D. % COARSE AGGREGATE ((B/A)*100)

28.8

E. % FINE AGGREGATE ((C/A)*100)

71.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	87.0	95.3	50-100
	4.75 mm	533.6	71.2	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

311.0

G. MASS OF FINE AGG. AFTER WASH (kg)

289.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	132.4	40.9	10-100
	300 µm	268.15	9.8	2-65
	75 µm	288.5	5.1	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		307.3	2235.8	2156.9	1849.6	4.3
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		117.7	428.7	311.0	407.21	289.51

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 34

Sample Depth (m): 0.6 m

Station: 12+680 2.6 Rt

Township: Secord

MTD LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

567.5

B. MASS RETAINED 4.75 MM SIEVE (kg)

83.9

C. MASS PASS 4.75 MM (A-B) (kg)

483.6

D. % COARSE AGGREGATE ((B/A)*100)

14.8

E. % FINE AGGREGATE ((C/A)*100)

85.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	55.0	90.3	50-100
	4.75 mm	83.9	85.2	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

187.5

G. MASS OF FINE AGG. AFTER WASH (kg)

57.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	20.46	75.9	10-100
	300 µm	43.32	65.5	2-65
	75 µm	57.38	59.1	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		116.2	776.4	683.7	567.5	16.3
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		116.3	303.8	187.5	174.22	57.92

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 35

Sample Depth (m): 0.8 m

Station: 12+650 2.5 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

477.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

2.5

C. MASS PASS 4.75 MM (A-B) (kg)

474.8

D. % COARSE AGGREGATE ((B/A)*100)

0.5

E. % FINE AGGREGATE ((C/A)*100)

99.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	2.53	99.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

235.2

G. MASS OF FINE AGG. AFTER WASH (kg)

38.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	6.77	96.6	10-100
	300 µm	20.29	90.9	2-65
	75 µm	37.55	83.6	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.7	731.9	598	477.3	28.1
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.7	355.9	235.2	159.03	38.33

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 36

Sample Depth (m): 1.4 m

Station: 12+712 2.5 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

505.9

B. MASS RETAINED 4.75 MM SIEVE (kg)

1.1

C. MASS PASS 4.75 MM (A-B) (kg)

504.8

D. % COARSE AGGREGATE ((B/A)*100)

0.2

E. % FINE AGGREGATE ((C/A)*100)

99.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	1.1	99.8	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

279.5

G. MASS OF FINE AGG. AFTER WASH (kg)

54.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	2.51	98.9	10-100
	300 µm	12.94	95.2	2-65
	75 µm	50.35	81.8	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.4	744.9	625.3	505.9	23.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.6	399.1	279.5	173.93	54.33

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 37

Sample Depth (m): 0.5 m

Station: 12+720 2.5 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

540.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

3.2

C. MASS PASS 4.75 MM (A-B) (kg)

537.4

D. % COARSE AGGREGATE ((B/A)*100)

0.6

E. % FINE AGGREGATE ((C/A)*100)

99.4

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	3.22	99.4	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

270.4

G. MASS OF FINE AGG. AFTER WASH (kg)

34.1

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	4.92	97.6	10-100
	300 µm	10.69	95.5	2-65
	75 µm	30.95	88.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		132.9	785.6	673.5	540.6	20.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		132.9	403.3	270.4	167.04	34.14

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 41

Depth: 0.1 m

Station: 12+940 2.7 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2732.9

B. MASS RETAINED 4.75 MM SIEVE (kg)

1198.0

C. MASS PASS 4.75 MM (A-B) (kg)

1534.9

D. % COARSE AGGREGATE ((B/A)*100)

43.8

E. % FINE AGGREGATE ((C/A)*100)

56.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	54.1	98.0	85-100
	13.2 mm	435	84.1	65-90
	9.5 mm	778.3	71.5	50-73
	4.75 mm	1198	56.2	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

289.6

G. MASS OF FINE AGG. AFTER WASH (kg)

229.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	98.3	37.1	15-40
	300 µm	172.86	22.6	5-22
	75 µm	227.25	12.1	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		306.8	3104.6	3039.7	2732.9	2.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		115.4	405	289.6	345.1	229.7
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 42

Sample Depth (m): 0.2 m

Station: 12+940 2.7 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

690.5

B. MASS RETAINED 4.75 MM SIEVE (kg)

14.2

C. MASS PASS 4.75 MM (A-B) (kg)

676.3

D. % COARSE AGGREGATE ((B/A)*100)

2.1

E. % FINE AGGREGATE ((C/A)*100)

97.9

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	14.24	97.9	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

177.6

G. MASS OF FINE AGG. AFTER WASH (kg)

54.8

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	10.37	92.2	10-100
	300 µm	28.62	82.2	2-65
	75 µm	53.32	68.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		136.1	1044.1	826.6	690.5	31.5
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		136.1	313.7	177.6	190.88	54.78

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 43

Sample Depth (m): 1.0 m

Station: 12+940 2.7 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

496

B. MASS RETAINED 4.75 MM SIEVE (kg)

2.0

C. MASS PASS 4.75 MM (A-B) (kg)

494.0

D. % COARSE AGGREGATE ((B/A)*100)

0.4

E. % FINE AGGREGATE ((C/A)*100)

99.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	2	99.6	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

184.1

G. MASS OF FINE AGG. AFTER WASH (kg)

12.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.94	99.1	10-100
	300 µm	2.79	98.1	2-65
	75 µm	11.53	93.4	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		136.2	760.2	632.2	496	25.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		136.2	320.3	184.1	148.55	12.35

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 44

Sample Depth (m): 1.4 m

Station: 12+910 2.9 Lt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

643.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.7

C. MASS PASS 4.75 MM (A-B) (kg)

642.9

D. % COARSE AGGREGATE ((B/A)*100)

0.1

E. % FINE AGGREGATE ((C/A)*100)

99.9

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0.7	99.9	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

139.0

G. MASS OF FINE AGG. AFTER WASH (kg)

16.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.45	99.6	10-100
	300 µm	2.1	98.4	2-65
	75 µm	15.4	88.8	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		135.9	935.2	779.5	643.6	24.2
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		136	275	139.0	152.37	16.37

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P7B 5V5

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 45

Sample Depth (m): 0.7 m

Station: 12+930 3.0 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

645

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.0

C. MASS PASS 4.75 MM (A-B) (kg)

645.0

D. % COARSE AGGREGATE ((B/A)*100)

0.0

E. % FINE AGGREGATE ((C/A)*100)

100.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0	100.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

163.6

G. MASS OF FINE AGG. AFTER WASH (kg)

10.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.07	100.0	10-100
	300 µm	0.89	99.5	2-65
	75 µm	9.09	94.4	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		135	956.3	780	645	27.3
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		135	298.6	163.6	145.34	10.34

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 46

Sample Depth (m): 0.3 m

Station: 12+960 3.0 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

567.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

197.8

C. MASS PASS 4.75 MM (A-B) (kg)

369.4

D. % COARSE AGGREGATE ((B/A)*100)

34.9

E. % FINE AGGREGATE ((C/A)*100)

65.1

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	197.8	65.1	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

229.5

G. MASS OF FINE AGG. AFTER WASH (kg)

184.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	79.31	42.6	10-100
	300 µm	152.15	22.0	2-65
	75 µm	183.05	13.2	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		102.5	691.5	669.7	567.2	3.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		102.5	332	229.5	286.88	184.38

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 47

Sample Depth (m): 0.8 m

Station: 13+010 2.5 Lt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

576.9

B. MASS RETAINED 4.75 MM SIEVE (kg)

31.3

C. MASS PASS 4.75 MM (A-B) (kg)

545.6

D. % COARSE AGGREGATE ((B/A)*100)

5.4

E. % FINE AGGREGATE ((C/A)*100)

94.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	31.3	94.6	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

133.9

G. MASS OF FINE AGG. AFTER WASH (kg)

47.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	11.64	86.4	10-100
	300 µm	27.34	75.3	2-65
	75 µm	44.89	62.9	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		121.5	817.5	698.4	576.9	20.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		121.5	255.4	133.9	168.48	46.98

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 51

Depth: 0.1 m

Station: 13+055 1.6 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS, INITIAL IN
BOX BELOW & FILL IN ALL
SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2918.1

B. MASS RETAINED 4.75 MM SIEVE (kg)

847.5

C. MASS PASS 4.75 MM (A-B) (kg)

2070.6

D. % COARSE AGGREGATE ((B/A)*100)

29.0

E. % FINE AGGREGATE ((C/A)*100)

71.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	29.9	99.0	85-100
	13.2 mm	196.5	93.3	65-90
	9.5 mm	405.8	86.1	50-73
	4.75 mm	847.5	71.0	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

295.6

G. MASS OF FINE AGG. AFTER WASH (kg)

259.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	114.13	43.6	15-40
	300 µm	212.24	20.0	5-22
	75 µm	258.11	9.0	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		296.2	3289.9	3214.3	2918.1	2.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		125.4	421	295.6	384.78	259.38
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 52

Sample Depth (m): 0.3 m

Station: 13+055 1.6 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1140.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

280.8

C. MASS PASS 4.75 MM (A-B) (kg)

859.6

D. % COARSE AGGREGATE ((B/A)*100)

24.6

E. % FINE AGGREGATE ((C/A)*100)

75.4

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	280.8	75.4	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

222.9

G. MASS OF FINE AGG. AFTER WASH (kg)

172.6

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	78.43	48.9	10-100
	300 µm	149.59	24.8	2-65
	75 µm	171.71	17.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		294.9	1481.9	1435.3	1140.4	4.1
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.7	342.6	222.9	292.34	172.64

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 53

Sample Depth (m): 1.0 m

Station: 13+055 1.6 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

425.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

3.8

C. MASS PASS 4.75 MM (A-B) (kg)

421.4

D. % COARSE AGGREGATE ((B/A)*100)

0.9

E. % FINE AGGREGATE ((C/A)*100)

99.1

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	3.8	99.1	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

213.4

G. MASS OF FINE AGG. AFTER WASH (kg)

13.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	4.96	96.8	10-100
	300 µm	9.8	94.6	2-65
	75 µm	13.1	93.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		118	658.5	543.2	425.2	27.1
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118	331.4	213.4	131.53	13.53

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 54

Depth: 0.1 m

Station: 13+225 2.5 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2988.7

B. MASS RETAINED 4.75 MM SIEVE (kg)

1300.0

C. MASS PASS 4.75 MM (A-B) (kg)

1688.7

D. % COARSE AGGREGATE ((B/A)*100)

43.5

E. % FINE AGGREGATE ((C/A)*100)

56.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	74.3	97.5	85-100
	13.2 mm	517.8	82.7	65-90
	9.5 mm	879.4	70.6	50-73
	4.75 mm	1300	56.5	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

305.4

G. MASS OF FINE AGG. AFTER WASH (kg)

251.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	94.02	39.1	15-40
	300 µm	183.96	22.5	5-22
	75 µm	249.53	10.3	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		319	3397	3307.7	2988.7	3.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.9	425.3	305.4	371.62	251.72
Asphalt Coated	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed
		1276.32		6.02		0.5

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 55

Sample Depth (m): 0.6 m

Station: 13+225 2.5 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

427.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

7.9

C. MASS PASS 4.75 MM (A-B) (kg)

419.3

D. % COARSE AGGREGATE ((B/A)*100)

1.8

E. % FINE AGGREGATE ((C/A)*100)

98.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	7.9	98.2	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

210.1

G. MASS OF FINE AGG. AFTER WASH (kg)

32.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	9	93.9	10-100
	300 µm	20.26	88.7	2-65
	75 µm	31.93	83.2	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		117.4	622.7	544.6	427.2	18.3
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		117.3	327.4	210.1	150.04	32.74

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 56

Sample Depth (m): 1.2 m

Station: 13+225 2.5 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
	LS 601	Wash Pass 75 µm Sieve
	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

327.1

B. MASS RETAINED 4.75 MM SIEVE (kg)

2.4

C. MASS PASS 4.75 MM (A-B) (kg)

324.7

D. % COARSE AGGREGATE ((B/A)*100)

0.7

E. % FINE AGGREGATE ((C/A)*100)

99.3

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	2.4	99.3	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

159.6

G. MASS OF FINE AGG. AFTER WASH (kg)

55.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	5.89	95.6	10-100
	300 µm	28.27	81.7	2-65
	75 µm	52.65	66.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.8	560.9	446.9	327.1	34.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.7	279.3	159.6	175.61	55.91

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 57

Sample Depth (m): 1.0 m

Station: 13+255 2.9 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

292.9

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.0

C. MASS PASS 4.75 MM (A-B) (kg)

292.9

D. % COARSE AGGREGATE ((B/A)*100)

0.0

E. % FINE AGGREGATE ((C/A)*100)

100.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0	100.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

139.3

G. MASS OF FINE AGG. AFTER WASH (kg)

3.6

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.48	99.7	10-100
	300 µm	1.61	98.8	2-65
	75 µm	3.45	97.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		117.5	512.8	410.4	292.9	35.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		117.4	256.7	139.3	120.96	3.56

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 58

Depth: 0.3 m

Station: 13+275 2.9 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

3076.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

1420.0

C. MASS PASS 4.75 MM (A-B) (kg)

1656.4

D. % COARSE AGGREGATE ((B/A)*100)

46.2

E. % FINE AGGREGATE ((C/A)*100)

53.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	720	76.6	100
	19.0 mm	825.7	73.2	85-100
	13.2 mm	970.7	68.4	65-90
	9.5 mm	1116.9	63.7	50-73
	4.75 mm	1420	53.8	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

345.5

G. MASS OF FINE AGG. AFTER WASH (kg)

330.8

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	157.98	29.2	15-40
	300 µm	291.71	8.4	5-22
	75 µm	330.73	2.3	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		297.3	3416.2	3373.7	3076.4	1.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		116.4	461.9	345.5	447.23	330.83
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 59

Sample Depth (m): 0.5 m

Station: 14+025 1.3 Lt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

573.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

72.0

C. MASS PASS 4.75 MM (A-B) (kg)

501.3

D. % COARSE AGGREGATE ((B/A)*100)

12.6

E. % FINE AGGREGATE ((C/A)*100)

87.4

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	72	87.4	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

131.8

G. MASS OF FINE AGG. AFTER WASH (kg)

44.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	13.43	78.5	10-100
	300 µm	23.99	71.5	2-65
	75 µm	42.24	59.4	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		117.1	774.1	690.4	573.3	14.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		117	248.8	131.8	161.91	44.91

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 60

Sample Depth (m): 1.2 m

Station: 14+025 1.3 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

368.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.0

C. MASS PASS 4.75 MM (A-B) (kg)

368.6

D. % COARSE AGGREGATE ((B/A)*100)

0.0

E. % FINE AGGREGATE ((C/A)*100)

100.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0	100.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

159.1

G. MASS OF FINE AGG. AFTER WASH (kg)

16.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.75	99.5	10-100
	300 µm	2.16	98.6	2-65
	75 µm	14.54	90.9	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		125.3	579	493.9	368.6	23.1
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		113.9	273	159.1	130.35	16.45

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 61

Sample Depth (m): 1.0 m

Station: 14+247 1.4 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

375

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.0

C. MASS PASS 4.75 MM (A-B) (kg)

375.0

D. % COARSE AGGREGATE ((B/A)*100)

0.0

E. % FINE AGGREGATE ((C/A)*100)

100.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0	100.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

184.8

G. MASS OF FINE AGG. AFTER WASH (kg)

7.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.4	99.8	10-100
	300 µm	2.48	98.7	2-65
	75 µm	6.35	96.6	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		118.2	612.2	493.2	375	31.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118.1	302.9	184.8	125.64	7.54

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 62

Depth: 0.1 m

Station: 14+320 3.5 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN
BOX BELOW & FILL IN ALL
SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2684.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

1409.2

C. MASS PASS 4.75 MM (A-B) (kg)

1275.4

D. % COARSE AGGREGATE ((B/A)*100)

52.5

E. % FINE AGGREGATE ((C/A)*100)

47.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	83.3	96.9	85-100
	13.2 mm	666	75.2	65-90
	9.5 mm	1013.3	62.3	50-73
	4.75 mm	1409.2	47.5	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

310.3

G. MASS OF FINE AGG. AFTER WASH (kg)

211.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	82.17	34.9	15-40
	300 µm	153.19	24.1	5-22
	75 µm	208.81	15.5	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		296.7	3114.5	2981.3	2684.6	5.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.6	429.9	310.3	331	211.4
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 62

Sample Depth (m): 0.4 m

Station: 14+320 3.5 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

469.5

B. MASS RETAINED 4.75 MM SIEVE (kg)

3.2

C. MASS PASS 4.75 MM (A-B) (kg)

466.3

D. % COARSE AGGREGATE ((B/A)*100)

0.7

E. % FINE AGGREGATE ((C/A)*100)

99.3

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	3.2	99.3	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

121.0

G. MASS OF FINE AGG. AFTER WASH (kg)

7.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	1.34	98.2	10-100
	300 µm	3.72	96.3	2-65
	75 µm	7.34	93.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.2	669.4	589.7	469.5	17.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.1	241.1	121.0	127.55	7.45

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 63

Sample Depth (m): 1.0 m

Station: 14+320 3.5 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

344.7

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.0

C. MASS PASS 4.75 MM (A-B) (kg)

344.7

D. % COARSE AGGREGATE ((B/A)*100)

0.0

E. % FINE AGGREGATE ((C/A)*100)

100.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0	100.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

169.9

G. MASS OF FINE AGG. AFTER WASH (kg)

4.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.03	100.0	10-100
	300 µm	0.4	99.8	2-65
	75 µm	3.23	98.1	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		115.7	566.5	460.4	344.7	30.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		115.7	285.6	169.9	119.73	4.03

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 64

Sample Depth (m): 1.8 m

Station: 14+320 3.5 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

467.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.7

C. MASS PASS 4.75 MM (A-B) (kg)

466.6

D. % COARSE AGGREGATE ((B/A)*100)

0.1

E. % FINE AGGREGATE ((C/A)*100)

99.9

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0.7	99.9	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

154.1

G. MASS OF FINE AGG. AFTER WASH (kg)

2.1

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.76	99.4	10-100
	300 µm	1.14	99.1	2-65
	75 µm	2.05	98.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		116.5	716.3	583.8	467.3	28.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118.9	273	154.1	120.97	2.07

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 71

Depth: 0.1 m

Station: 14+965 3.4 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2324.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

1328.4

C. MASS PASS 4.75 MM (A-B) (kg)

995.9

D. % COARSE AGGREGATE ((B/A)*100)

57.2

E. % FINE AGGREGATE ((C/A)*100)

42.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	24.9	98.9	100
	19.0 mm	87.6	96.2	85-100
	13.2 mm	656.4	71.8	65-90
	9.5 mm	942.4	59.5	50-73
	4.75 mm	1328.4	42.8	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

344.3

G. MASS OF FINE AGG. AFTER WASH (kg)

300.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	122.61	27.6	15-40
	300 µm	224.48	14.9	5-22
	75 µm	295.11	6.1	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		301.1	2696.2	2625.4	2324.3	3.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		117.6	461.9	344.3	418.04	300.44
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 72

Sample Depth (m): 0.3 m

Station: 14+965 3.4 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

291

B. MASS RETAINED 4.75 MM SIEVE (kg)

24.4

C. MASS PASS 4.75 MM (A-B) (kg)

266.6

D. % COARSE AGGREGATE ((B/A)*100)

8.4

E. % FINE AGGREGATE ((C/A)*100)

91.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	24.4	91.6	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

133.6

G. MASS OF FINE AGG. AFTER WASH (kg)

83.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	22.84	76.0	10-100
	300 µm	60	50.5	2-65
	75 µm	83.07	34.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		121	446.7	412	291	11.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		121	254.6	133.6	204.9	83.9

DST CONSULTING ENGINEERS INC.

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P7B 5V5

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 73

Sample Depth (m): 0.6 m

Station: 14+965 3.4 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

211.5

B. MASS RETAINED 4.75 MM SIEVE (kg)

8.8

C. MASS PASS 4.75 MM (A-B) (kg)

202.7

D. % COARSE AGGREGATE ((B/A)*100)

4.2

E. % FINE AGGREGATE ((C/A)*100)

95.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	8.8	95.8	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

151.9

G. MASS OF FINE AGG. AFTER WASH (kg)

75.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	15.45	86.1	10-100
	300 µm	47.28	66.0	2-65
	75 µm	74.57	48.8	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		121.5	372.6	333	211.5	18.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		121.5	273.4	151.9	196.81	75.31

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 74

Sample Depth (m): 1.1 m

Station: 14+965 3.4 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

648.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

94.2

C. MASS PASS 4.75 MM (A-B) (kg)

554.4

D. % COARSE AGGREGATE ((B/A)*100)

14.5

E. % FINE AGGREGATE ((C/A)*100)

85.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	94.2	85.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

276.9

G. MASS OF FINE AGG. AFTER WASH (kg)

264.1

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	65.57	65.2	10-100
	300 µm	233.45	13.4	2-65
	75 µm	263.85	4.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		117.2	796.3	765.8	648.6	4.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		117.2	394.1	276.9	381.33	264.13

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 82

Depth: 0.1 m

Station: 16+003 1.4 Lt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2217.7

B. MASS RETAINED 4.75 MM SIEVE (kg)

1119.3

C. MASS PASS 4.75 MM (A-B) (kg)

1098.4

D. % COARSE AGGREGATE ((B/A)*100)

50.5

E. % FINE AGGREGATE ((C/A)*100)

49.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	24.7	98.9	100
	19.0 mm	61.2	97.2	85-100
	13.2 mm	417.9	81.2	65-90
	9.5 mm	715.4	67.7	50-73
	4.75 mm	1119.3	49.5	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

261.9

G. MASS OF FINE AGG. AFTER WASH (kg)

229.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	100.12	30.6	15-40
	300 µm	173.69	16.7	5-22
	75 µm	226	6.8	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		301.1	2571.3	2518.8	2217.7	2.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		116.3	378.2	261.9	345.31	229.01
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 83

Sample Depth (m): 0.4 m

Station: 16+003 1.4 Lt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1508.8

B. MASS RETAINED 4.75 MM SIEVE (kg)

472.6

C. MASS PASS 4.75 MM (A-B) (kg)

1036.2

D. % COARSE AGGREGATE ((B/A)*100)

31.3

E. % FINE AGGREGATE ((C/A)*100)

68.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	472.6	68.7	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

259.6

G. MASS OF FINE AGG. AFTER WASH (kg)

223.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	83.99	46.5	10-100
	300 µm	185.28	19.7	2-65
	75 µm	222.86	9.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		305	1864.9	1813.8	1508.8	3.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.6	379.2	259.6	343.49	223.89

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 86

Sample Depth (m): 0.7 m

Station: 16+085 3.4 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

390.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

9.8

C. MASS PASS 4.75 MM (A-B) (kg)

380.4

D. % COARSE AGGREGATE ((B/A)*100)

2.5

E. % FINE AGGREGATE ((C/A)*100)

97.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	9.8	97.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

189.7

G. MASS OF FINE AGG. AFTER WASH (kg)

57.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	4.39	95.2	10-100
	300 µm	9.77	92.5	2-65
	75 µm	49.09	72.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.4	572.7	510.6	390.2	15.9
					0	
					0	
FINE:					0	
	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.4	310.1	189.7	177.94	57.54

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 87

Sample Depth (m): 1.5 m

Station: 16+085 3.4 Rt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

259

B. MASS RETAINED 4.75 MM SIEVE (kg)

1.4

C. MASS PASS 4.75 MM (A-B) (kg)

257.6

D. % COARSE AGGREGATE ((B/A)*100)

0.5

E. % FINE AGGREGATE ((C/A)*100)

99.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	1.4	99.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

127.3

G. MASS OF FINE AGG. AFTER WASH (kg)

16.2

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	1.33	98.4	10-100
	300 µm	3.39	96.8	2-65
	75 µm	14.32	88.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.5	453.6	378.5	259	29.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.5	246.8	127.3	135.68	16.18

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 90

Depth: 0.1 m

Station: 17+060 1.6 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2098.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

898.2

C. MASS PASS 4.75 MM (A-B) (kg)

1200.1

D. % COARSE AGGREGATE ((B/A)*100)

42.8

E. % FINE AGGREGATE ((C/A)*100)

57.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	41.3	98.0	85-100
	13.2 mm	290.6	86.2	65-90
	9.5 mm	516.7	75.4	50-73
	4.75 mm	898.2	57.2	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

301.9

G. MASS OF FINE AGG. AFTER WASH (kg)

260.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	114.72	35.5	15-40
	300 µm	200.72	19.2	5-22
	75 µm	257.96	8.3	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		294.5	2436.2	2392.8	2098.3	2.1
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118.9	420.8	301.9	379.62	260.72
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 91

Sample Depth (m): 0.4 m

Station: 17+060 1.6 Rt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

1480.8

B. MASS RETAINED 4.75 MM SIEVE (kg)

305.8

C. MASS PASS 4.75 MM (A-B) (kg)

1175.0

D. % COARSE AGGREGATE ((B/A)*100)

20.7

E. % FINE AGGREGATE ((C/A)*100)

79.3

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	305.8	79.3	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

295.0

G. MASS OF FINE AGG. AFTER WASH (kg)

234.2

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	101.59	52.0	10-100
	300 µm	194.8	27.0	2-65
	75 µm	232.42	16.8	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		289	1822.9	1769.8	1480.8	3.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118.9	413.9	295.0	353.14	234.24

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 92

Sample Depth (m): 1.0 m

Station: 17+060 1.6 Rt

Township: Secord

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

317.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

1.1

C. MASS PASS 4.75 MM (A-B) (kg)

316.5

D. % COARSE AGGREGATE ((B/A)*100)

0.3

E. % FINE AGGREGATE ((C/A)*100)

99.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	1.1	99.7	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

162.1

G. MASS OF FINE AGG. AFTER WASH (kg)

37.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	3.51	97.5	10-100
	300 µm	6.9	95.4	2-65
	75 µm	32.04	80.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120	488.5	437.6	317.6	16.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120	282.1	162.1	157.01	37.01

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 97

Depth: 0.1 m

Station: 18+027 1.6 Lt

Township: Second

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2509.9

B. MASS RETAINED 4.75 MM SIEVE (kg)

1155.0

C. MASS PASS 4.75 MM (A-B) (kg)

1354.9

D. % COARSE AGGREGATE ((B/A)*100)

46.0

E. % FINE AGGREGATE ((C/A)*100)

54.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	33.9	98.6	85-100
	13.2 mm	392.8	84.3	65-90
	9.5 mm	691	72.5	50-73
	4.75 mm	1155	54.0	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

338.6

G. MASS OF FINE AGG. AFTER WASH (kg)

288.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	118.37	35.1	15-40
	300 µm	212.37	20.1	5-22
	75 µm	284.42	8.6	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		295.5	2839.1	2805.4	2509.9	1.3
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.1	457.7	338.6	408	288.9
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11

GRANULAR 'B' - LAB PROGRAM/WORKSHEET

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 98

Sample Depth (m): 0.4 m

Station: 18+027 1.6 Lt

Township: Secord

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

897.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

286.8

C. MASS PASS 4.75 MM (A-B) (kg)

610.6

D. % COARSE AGGREGATE ((B/A)*100)

32.0

E. % FINE AGGREGATE ((C/A)*100)

68.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	146.3	83.7	50-100
	4.75 mm	286.8	68.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

301.3

G. MASS OF FINE AGG. AFTER WASH (kg)

240.7

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	93.38	47.0	10-100
	300 µm	193.2	24.4	2-65
	75 µm	238.17	14.3	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.1	1055.7	1016.5	897.4	4.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.1	420.4	301.3	359.78	240.68

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 7042

DST Sample No.: 100

Sample Depth (m): 1.1 m

Station: 18+185 3.5 Lt

Township: Second

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

284.5

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.0

C. MASS PASS 4.75 MM (A-B) (kg)

284.5

D. % COARSE AGGREGATE ((B/A)*100)

0.0

E. % FINE AGGREGATE ((C/A)*100)

100.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0	100.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

146.0

G. MASS OF FINE AGG. AFTER WASH (kg)

5.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	0.09	99.9	10-100
	300 µm	1.04	99.3	2-65
	75 µm	5.22	96.4	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.3	501.3	404.8	284.5	33.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.4	266.4	146.0	125.87	5.47

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1001

Depth: 0.1 m

Station: 11+400 4.4 Rt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2905.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

1172.0

C. MASS PASS 4.75 MM (A-B) (kg)

1733.3

D. % COARSE AGGREGATE ((B/A)*100)

40.3

E. % FINE AGGREGATE ((C/A)*100)

59.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	41.5	98.6	85-100
	13.2 mm	398.1	86.3	65-90
	9.5 mm	729.6	74.9	50-73
	4.75 mm	1172	59.7	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

315.9

G. MASS OF FINE AGG. AFTER WASH (kg)

284.6

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	114.14	38.1	15-40
	300 µm	220.85	18.0	5-22
	75 µm	282.88	6.2	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		295.5	3265.2	3200.8	2905.3	2.2
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.2	436.1	315.9	404.79	284.59
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1002

Sample Depth (m): 0.5 m

Station: 11+400 4.4 Rt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

659

B. MASS RETAINED 4.75 MM SIEVE (kg)

51.4

C. MASS PASS 4.75 MM (A-B) (kg)

607.6

D. % COARSE AGGREGATE ((B/A)*100)

7.8

E. % FINE AGGREGATE ((C/A)*100)

92.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	51.4	92.2	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

257.7

G. MASS OF FINE AGG. AFTER WASH (kg)

224.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	32.54	80.6	10-100
	300 µm	99.7	56.5	2-65
	75 µm	222.73	12.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.5	824.2	778.5	659	6.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.5	377.2	257.7	343.83	224.33

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1003

Sample Depth (m): 1.1 m

Station: 11+400 4.4 Rt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

448.7

B. MASS RETAINED 4.75 MM SIEVE (kg)

6.6

C. MASS PASS 4.75 MM (A-B) (kg)

442.1

D. % COARSE AGGREGATE ((B/A)*100)

1.5

E. % FINE AGGREGATE ((C/A)*100)

98.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	6.6	98.5	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

215.0

G. MASS OF FINE AGG. AFTER WASH (kg)

171.8

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	8.64	94.6	10-100
	300 µm	24.65	87.2	2-65
	75 µm	168.11	21.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.9	644.8	568.6	448.7	17.0
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.9	334.9	215.0	291.72	171.82

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1005

Depth: 0.1 m

Station: 12+400 4.5 Lt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2357.5

B. MASS RETAINED 4.75 MM SIEVE (kg)

1071.4

C. MASS PASS 4.75 MM (A-B) (kg)

1286.1

D. % COARSE AGGREGATE ((B/A)*100)

45.4

E. % FINE AGGREGATE ((C/A)*100)

54.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	40.1	98.3	85-100
	13.2 mm	389	83.5	65-90
	9.5 mm	695.4	70.5	50-73
	4.75 mm	1071.4	54.6	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

330.0

G. MASS OF FINE AGG. AFTER WASH (kg)

293.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	118.28	35.0	15-40
	300 µm	224.16	17.5	5-22
	75 µm	292.2	6.2	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		305.1	2728.4	2662.6	2357.5	2.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.1	449.1	330.0	413	293.9
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1006

Sample Depth (m): 0.5 m

Station: 12+400 4.5 Lt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
	LS 601	Wash Pass 75 µm Sieve
	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

935.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

414.1

C. MASS PASS 4.75 MM (A-B) (kg)

521.3

D. % COARSE AGGREGATE ((B/A)*100)

44.3

E. % FINE AGGREGATE ((C/A)*100)

55.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	414.1	55.7	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

242.7

G. MASS OF FINE AGG. AFTER WASH (kg)

215.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	97.97	33.2	10-100
	300 µm	173.96	15.8	2-65
	75 µm	214.33	6.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.3	1076.7	1054.7	935.4	2.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.3	362	242.7	334.34	215.04

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1008

Depth: 0.1 m

Station: 13+600 4.3 Lt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2867.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

1107.4

C. MASS PASS 4.75 MM (A-B) (kg)

1760.2

D. % COARSE AGGREGATE ((B/A)*100)

38.6

E. % FINE AGGREGATE ((C/A)*100)

61.4

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	32.1	98.9	100
	19.0 mm	135.4	95.3	85-100
	13.2 mm	353.9	87.7	65-90
	9.5 mm	664.4	76.8	50-73
	4.75 mm	1107.4	61.4	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

333.0

G. MASS OF FINE AGG. AFTER WASH (kg)

291.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	116.97	39.8	15-40
	300 µm	225.75	19.8	5-22
	75 µm	290.15	7.9	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		294.7	3212.6	3162.3	2867.6	1.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		121.3	454.3	333.0	413.17	291.87
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1009

Sample Depth (m): 0.6 m

Station: 13+600 4.3 Lt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

716.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

71.1

C. MASS PASS 4.75 MM (A-B) (kg)

645.5

D. % COARSE AGGREGATE ((B/A)*100)

9.9

E. % FINE AGGREGATE ((C/A)*100)

90.1

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	71.1	90.1	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

312.1

G. MASS OF FINE AGG. AFTER WASH (kg)

292.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	41.6	78.1	10-100
	300 µm	178.85	38.5	2-65
	75 µm	291.25	6.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.2	897.9	835.8	716.6	8.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.2	431.3	312.1	411.17	291.97

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1013

Sample Depth (m): 1.8 m

Station: 14+935 8.2 Rt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

324.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

0.3

C. MASS PASS 4.75 MM (A-B) (kg)

324.0

D. % COARSE AGGREGATE ((B/A)*100)

0.1

E. % FINE AGGREGATE ((C/A)*100)

99.9

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	0.3	99.9	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

161.2

G. MASS OF FINE AGG. AFTER WASH (kg)

45.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	1.23	99.1	10-100
	300 µm	25.92	83.8	2-65
	75 µm	45.28	71.8	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.5	510.6	443.8	324.3	20.6
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.5	280.7	161.2	164.93	45.43

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1016

Depth: 0.1 m

Station: 15+400 8.1 Rt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2306.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

954.9

C. MASS PASS 4.75 MM (A-B) (kg)

1351.5

D. % COARSE AGGREGATE ((B/A)*100)

41.4

E. % FINE AGGREGATE ((C/A)*100)

58.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	52.7	97.7	85-100
	13.2 mm	359.5	84.4	65-90
	9.5 mm	615	73.3	50-73
	4.75 mm	954.9	58.6	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

292.4

G. MASS OF FINE AGG. AFTER WASH (kg)

259.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	91.8	40.2	15-40
	300 µm	185.2	21.5	5-22
	75 µm	257.7	7.0	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		302.4	2672.8	2608.8	2306.4	2.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.2	411.6	292.4	378.57	259.37
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1017

Sample Depth (m): 0.6 m

Station: 15+400 8.1 Rt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

810.2

B. MASS RETAINED 4.75 MM SIEVE (kg)

251.4

C. MASS PASS 4.75 MM (A-B) (kg)

558.8

D. % COARSE AGGREGATE ((B/A)*100)

31.0

E. % FINE AGGREGATE ((C/A)*100)

69.0

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	251.4	69.0	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

275.3

G. MASS OF FINE AGG. AFTER WASH (kg)

253.3

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	70.49	51.3	10-100
	300 µm	179.94	23.9	2-65
	75 µm	252.42	5.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.4	952.2	930.6	810.2	2.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.4	395.7	275.3	373.68	253.28

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1019

Depth: 0.1 m

Station: 16+600 8.5 Rt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2461

B. MASS RETAINED 4.75 MM SIEVE (kg)

1103.2

C. MASS PASS 4.75 MM (A-B) (kg)

1357.8

D. % COARSE AGGREGATE ((B/A)*100)

44.8

E. % FINE AGGREGATE ((C/A)*100)

55.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	53.1	97.8	85-100
	13.2 mm	342.9	86.1	65-90
	9.5 mm	680.9	72.3	50-73
	4.75 mm	1103.2	55.2	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

317.3

G. MASS OF FINE AGG. AFTER WASH (kg)

277.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	111.66	35.8	15-40
	300 µm	212.33	18.3	5-22
	75 µm	275.86	7.2	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		294.5	2839.5	2755.5	2461	3.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		118.7	436	317.3	396.22	277.52
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1020

Sample Depth (m): 0.6 m

Station: 16+600 8.5 Rt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

703.6

B. MASS RETAINED 4.75 MM SIEVE (kg)

36.6

C. MASS PASS 4.75 MM (A-B) (kg)

667.0

D. % COARSE AGGREGATE ((B/A)*100)

5.2

E. % FINE AGGREGATE ((C/A)*100)

94.8

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	36.6	94.8	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

330.4

G. MASS OF FINE AGG. AFTER WASH (kg)

312.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	15.92	90.2	10-100
	300 µm	173.58	45.0	2-65
	75 µm	310.89	5.6	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.7	853.4	824.3	703.6	4.1
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.7	451.1	330.4	433.05	312.35

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1021

Sample Depth (m): 1.0 m

Station: 16+600 8.5 Rt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

438

B. MASS RETAINED 4.75 MM SIEVE (kg)

77.0

C. MASS PASS 4.75 MM (A-B) (kg)

361.0

D. % COARSE AGGREGATE ((B/A)*100)

17.6

E. % FINE AGGREGATE ((C/A)*100)

82.4

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	77	82.4	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

182.1

G. MASS OF FINE AGG. AFTER WASH (kg)

101.4

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	30.62	68.6	10-100
	300 µm	71.93	49.9	2-65
	75 µm	100.16	37.1	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.5	601.2	558.5	438	9.7
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.5	302.6	182.1	221.88	101.38

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1022

Depth: 0.1 m

Station: 17+400 8.3 Lt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

1931.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

749.1

C. MASS PASS 4.75 MM (A-B) (kg)

1182.2

D. % COARSE AGGREGATE ((B/A)*100)

38.8

E. % FINE AGGREGATE ((C/A)*100)

61.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	36.8	98.1	100
	19.0 mm	63.3	96.7	85-100
	13.2 mm	308.8	84.0	65-90
	9.5 mm	457.9	76.3	50-73
	4.75 mm	749.1	61.2	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

292.5

G. MASS OF FINE AGG. AFTER WASH (kg)

262.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	101.58	40.0	15-40
	300 µm	199.35	19.5	5-22
	75 µm	260.85	6.6	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		293.6	2271.4	2224.9	1931.3	2.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		116.3	408.8	292.5	378.3	262
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1023

Sample Depth (m): 0.6 m

Station: 17+400 8.3 Lt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:

FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

491.1

B. MASS RETAINED 4.75 MM SIEVE (kg)

3.9

C. MASS PASS 4.75 MM (A-B) (kg)

487.2

D. % COARSE AGGREGATE ((B/A)*100)

0.8

E. % FINE AGGREGATE ((C/A)*100)

99.2

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	3.9	99.2	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

212.4

G. MASS OF FINE AGG. AFTER WASH (kg)

194.8

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	4.76	97.0	10-100
	300 µm	102.31	51.4	2-65
	75 µm	193.96	8.6	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		116.2	631	607.3	491.1	4.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		116.2	328.6	212.4	310.95	194.75

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1024

Sample Depth (m): 1.2 m

Station: 17+400 8.3 Lt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

352.9

B. MASS RETAINED 4.75 MM SIEVE (kg)

36.2

C. MASS PASS 4.75 MM (A-B) (kg)

316.7

D. % COARSE AGGREGATE ((B/A)*100)

10.3

E. % FINE AGGREGATE ((C/A)*100)

89.7

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	36.2	89.7	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

192.8

G. MASS OF FINE AGG. AFTER WASH (kg)

105.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	29.94	75.8	10-100
	300 µm	72.18	56.1	2-65
	75 µm	104.68	41.0	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		120.7	513.9	473.6	352.9	11.4
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.7	313.5	192.8	226.22	105.52

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LABORATORY TEST SERIES #11, 12**GRANULAR 'A' - LAB PROGRAM/WORKSHEET**

Contract #: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1027

Depth: 0.1 m

Station: 18+400 8.3 Lt

Township: Burwash

	MTO LS NO.	LABORATORY TESTS
<input checked="" type="checkbox"/>	LS 601	Wash Pass 75 µm Sieve
<input checked="" type="checkbox"/>	LS 602	Washed Gradation
<input checked="" type="checkbox"/>	LS 607	Percent Crushed
<input checked="" type="checkbox"/>	LS 621	Percent Asphalt Coated

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:

FILL IN SHADED AREAS, INITIAL IN BOX BELOW & FILL IN ALL SHADED AREAS.

A. MASS TOTAL SAMPLE (kg)

2225.3

B. MASS RETAINED 4.75 MM SIEVE (kg)

1212.7

C. MASS PASS 4.75 MM (A-B) (kg)

1012.6

D. % COARSE AGGREGATE ((B/A)*100)

54.5

E. % FINE AGGREGATE ((C/A)*100)

45.5

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	26.5 mm	0	100.0	100
	19.0 mm	30.0	98.7	85-100
	13.2 mm	419.9	81.1	65-90
	9.5 mm	733.7	67.0	50-73
	4.75 mm	1212.7	45.5	35-55

F. ORIGINAL MASS OF FINE AGG. (kg)

275.6

G. MASS OF FINE AGG. AFTER WASH (kg)

254.9

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	133.2	23.5	15-40
	300 µm	224.58	8.4	5-22
	75 µm	254.4	3.5	2-8 (10)

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		307.2	2566.4	2532.5	2225.3	1.5
					0	
					0	
					0	
FINE:	Pan #	Tare	Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		120.1	395.7	275.6	374.99	254.89
	Pan #	Mass of Sample		Total Mass of % Crush Sample		% Crushed

DST CONSULTING ENGINEERS INC.

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LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1028

Sample Depth (m): 0.6 m

Station: 18+400 8.3 Lt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

(ALL MASSES ARE FOR A DRIED SAMPLE)

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

504.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

7.2

C. MASS PASS 4.75 MM (A-B) (kg)

497.2

D. % COARSE AGGREGATE ((B/A)*100)

1.4

E. % FINE AGGREGATE ((C/A)*100)

98.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	7.2	98.6	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

234.9

G. MASS OF FINE AGG. AFTER WASH (kg)

224.5

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	5.08	96.4	10-100
	300 µm	118.72	48.8	2-65
	75 µm	223.7	4.7	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		119.5	648.3	623.9	504.4	4.8
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		119.5	354.4	234.9	344.01	224.51

DST CONSULTING ENGINEERS INC.

605 Hewitson Street

Thunder Bay, Ontario

P7B 5V5

Tel: (807) 623-2929 Fax: (807) 623-1792

LABORATORY TEST SERIES #11**GRANULAR 'B' - LAB PROGRAM/WORKSHEET**

Agreement No.: 5006-E-0088

DST Ref. #: GS-TB-007293

Client: Ministry of Transportation

Location: Highway 69

DST Sample No.: 1029

Sample Depth (m): 1.2 m

Station: 18+400 8.3 Lt

Township: Burwash

MTO LS NO.	LABORATORY TESTS
LS 601	Wash Pass 75 µm Sieve
LS 602	Washed Gradation

(ALL MASSES ARE FOR A DRIED SAMPLE)

NOTE:FILL IN SHADED AREAS AND
INITIAL IN BOX BELOW

TOTAL WT. SAMPLE

10378.5 g

A. MASS TOTAL SAMPLE (kg)

321.4

B. MASS RETAINED 4.75 MM SIEVE (kg)

14.2

C. MASS PASS 4.75 MM (A-B) (kg)

307.2

D. % COARSE AGGREGATE ((B/A)*100)

4.4

E. % FINE AGGREGATE ((C/A)*100)

95.6

TECH

	SIEVES	X. CUMMULATIVE MASS	% PASSING ((A-X)/A)*100	SPECIFICATION LIMITS % PASSING
COARSE AGGREGATE CUMMULATIVE MASS	150 mm	0	100.0	100
	26.5 mm	0.0	100.0	50-100
	4.75 mm	14.2	95.6	20-100

F. ORIGINAL MASS OF FINE AGG. (kg)

233.3

G. MASS OF FINE AGG. AFTER WASH (kg)

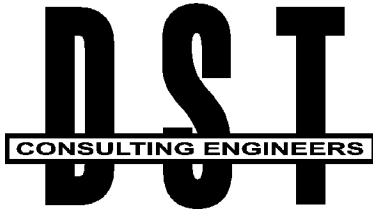
148.0

	SIEVES	Y. CUMMULATIVE MASS	% PASSING ((F-Y)/F)*E	SPECIFICATION LIMITS % PASSING
FINE AGGREGATE CUMMULATIVE MASS	1.18 mm	26.49	84.7	10-100
	300 µm	97.56	55.6	2-65
	75 µm	146.63	35.5	0-8 (0-10) ¹

COARSE:	Pan #	Tare	Wet Wt + Tare	Dry Wt + Tare	Dry Weight	Ave. Moist Cont %
		115.2	487.8	436.6	321.4	15.9
					0	
					0	
					0	
FINE:	Pan #	Tare	Dry Wt + Tare	Dry Wt	Dry Wash Wt + Tare	Dry Wash Wt.
		115.2	348.5	233.3	263.2	148

A P P E N D I X 'D'

PAVEMENT DESIGN MEETING MINUTES



DST Consulting Engineers
605 Hewitson Street
Thunder Bay ON, P7B 5V5
Tel: 807-623-2929
Fax: 807-623-1792
E-mail: thunderbay@dstgroup.com

MINISTRY OF TRANSPORTATION

MINUTES OF Pavement Engineering Design Presentation

G.W.P. 5562-06-00

Detailed Pavement Investigation and Design for Secord Road and Highway 69, on Secord Road from South Junction of Highway 69/Secord Road, Northerly 8.4km and on Highway 69 from 8.3km North of Highway 637, Northerly 8.6km

Date: **October 31, 2007, 10:00 am to 12:00 am**

Meeting Location: **Ontario Boardroom, 1th Floor**
 MTO NER Regional Office, North Bay

Attendees: Ministry of Transportation (MTO)

P. Lecoarer	Manager, Engineering
Dale Smith	Head, Geotechnical Section
Jason Wright	A/ Geotechnical Engineer
Rob Long	Pavement Design Evaluation Officer
Will Larose	Senior Designer
Mike Nadeau	Senior Project Engineer
Mike Pearsal	A/ Head P@D

DST Consulting Engineers Inc. (DST)

Dan Boland

Distribution:	Attendees		
	Desmond Smith	Project Manager	DST
	Lorraine Downey	Manager, Operations Services	MTO
	Greg Godin	Regional Contracts Engineer	MTO
	Derek Thompson	Head, Quality Assurance	MTO
	Josée Vallée	Project Engineer, Planning and Design	MTO

File

The purpose of this Pavement Engineering Design Presentation Meeting was to present the pavement structure design alternatives considered and the recommendations for the pavement structure rehabilitation.

Robert Long indicated the following;

In general the MTO is looking for more information to paint thorough picture of what was found during the investigations pertaining to the quality and thickness of the material found in the base, subbase and subgrade. Also the MTO is looking for more detail regarding drainage, frost heaves, ditching and culvert replacements.

Dan Boland indicated that this will be addressed in the Pavement Design Report.

ITEM	DISCUSSION	ACTION BY
1.0	Dale Smith indicated that the description for the predominant surface deficiencies be deleted	DST
2.0	Paul Lecoarer indicated that a platform width of 3.25 m and 0.5 m shoulder be maintained for a consistent crossection.	DST
3.0	A discussion about the possibility of sliver widening and its impact on platform. All grade raise areas that will impact the platform will be highlighted. DST will make recommendations.	DST
4.0	Ditch cleanout areas will be included in the PDR	DST
5.0	Areas that require OPSD/geodetic ditching will be identified by DST	DST
6.0	DST will clarify in-place processed material.	DST
7.0	Subgrade details will be included in the PDR under the existing pavement Structure section	DST
8.0	2 % commercial will be used as per MTO	
9.0	GBE calculation to be clarified by the MTO and method revised by DST.	MTO
10.0	Identify single surface treatment after the double surface treatment	DST
11.0	Surface treatment to be identified as DST	DST
12.0	Secord Road North is being temporarily rehabilitated with 60mm SP12.5 to accommodate heavy trucks hauling material in the area. Following the hauling on the north section of Secord Road some rehab work may be necessary. The rehab will be superpave, not ST.	DST
13.0	Dale Smith noted that 50 % of Highway 69 was resurfaced in this area in 2003.	DST
14.0	Jason Wright noted that the PCI and RCI values for Secord road are not reliable	DST

15.0	The gravel surface section starts at Station 11+700 not Station 11+770	
16.0	To scarify or in-place process?	MTO
17.0	Highway 7042 will not be transferred	MTO
18.0	Frost Heave alternatives will be included in the PDR. (ditching vs full excavation with tapers)	DST

Please report any errors or omissions to these minutes to the undersigned.

Minutes prepared by:

DST CONSULTING ENGINEERS INC.

Dan Boland

A P P E N D I X 'E'

MTO AGGREGATE SECTION LETTER

Request for Aggregate Information

Agreement Number: 5006-E-0088

For

Highway 69 and Secord Road (Highway 7042)

Secord Road: From South Jct. Highway 69/Secord Road, Northerly 8.4 km's

&

Highway 69: From 8.3 km's North of Highway 637, Northerly 8.6 km's

Northeastern Region

September 2007

Att: Kevin Sheppard, MTO

Aggregates Unit

Submitted by:

DST CONSULTING ENGINEERS INC.

Aggregate Information:

Aggregate Information is required for economic analysis of alternatives and inclusion in the Pavement Design Report as per RFQ page 23.

This Project involves the investigation and design of the pavement structure, 10 frost heaves and 15 centreline culvert replacements on Secord Road and the investigation and design for 4 centreline culvert replacements on Highway 69.

Potential quantities of aggregate required:

- Superpave 12.5 – very small quantity (culverts on Hwy 69)
- Granular 'A' – 12,000 t
- Class 2 Aggregate – 1000 t
- Primer – 95 t

We trust that this satisfies your present needs. If you have any further questions or comments, please contact the undersigned at your convenience.

For DST CONSULTING ENGINEERS INC.

Prepared by:

Dan Boland

Project Manager

A P P E N D I X 'F'
SPECIAL PROVISION 308S01

TACK COAT – Item No.

Special Provision No. 308S01

July 2007

Alternate tack coat application requirements.

308.07.01 Application of Tack Coat

Subsection 308.07.01 of OPSS 308 is amended by deleting point f) and replacing it with the following:

- f) The surface of any binder courses that have been left open to traffic over at least one winter, and the surface of all the top binder courses.

WARRANT: With this item when recommended by the Head of the Geotechnical Section based on Regional exemptions to the normal requirement to tack coat all binder surfaces.