

# **APPENDIX 'C'**

## **PAVEMENT CORE REPORT**



**Stantec Consulting Ltd.**  
500-311 Portage Avenue, Winnipeg MB R3B 2B9

May 30, 2016  
File: 123312537

**Attention: Mr. David Wiebe**  
Dillon Consulting Limited  
1558 Willson Place  
Winnipeg, MB R3T 0Y4

Dear Mr. Wiebe,

**Reference: Waverley Underpass Preliminary Engineering Study – Winnipeg, Manitoba**

On May 6, 9, 10, 11 and 12, 2016, a total of 29 core samples were recovered from specific locations from the pavement of Wilkes Avenue, Waverley Avenue, Grant Ave and Taylor Avenue. Another 2 cores were recovered from the Active Transportation Pathway on Waverley Street from Victor Lewis Drive to Wilkes Avenue. The purpose of the coring program was to determine the thickness of the asphalt and/or concrete surface including the full depth thickness of the pavement structure (asphalt, concrete and granular) in Core No. 1, 3, 7, 14, 17, 30 and 31. The core locations, pavement thickness, and condition of pavement structure are summarized in the attached Table 1. A core location plan and photographs of the core samples are attached to this report.

We appreciate the opportunity to assist you on this project. Please contact the undersigned if you have any questions regarding our report

Regards,

**STANTEC CONSULTING LTD.**

Prepared by:

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May 30, 2016  
Mr. David Wiebe  
Page 2 of 2

**Reference: Waverley Underpass Preliminary Engineering Study – Winnipeg, Manitoba**

Attachment:

- Figure 1: Core Location Plan – Waverley St / Wilkes Ave
- Figure 2: Core Location Plan – Waverley St / Grant Ave
- Figure 3: Core Location Plan – Taylor Ave
- Figure 4: Core Location Plan – Taylor Ave
- Table 1 – Pavement Structure Summary
- Core Photos

c. Jason Thompson, C.E.T., [Jason.thompson@stantec.com](mailto:Jason.thompson@stantec.com)

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2016/05/27 10:50 AM By: Bun. Sofhea



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May, 2016  
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### Legend

- CORE WITH FULL DEPTH
- ⊕ CORE ONLY

### Notes

IMAGE SOURCE:  
GOOGLE EARTH

Client/Project

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 WAVERLEY UNDERPASS  
 PRELIMINARY ENGINEERING STUDY

Figure No.

1

Title

CORE LOCATION PLAN  
 WAVERLEY ST / WILKES AVE



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2016/05/27 10:51 AM By: Bun\_Sothea





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-  CORE WITH FULL DEPTH
-  CORE ONLY

### Notes

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GOOGLE EARTH

### Client/Project

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 WAVERLEY UNDERPASS  
 PRELIMINARY ENGINEERING STUDY

### Figure No.

2

### Title

CORE LOCATION PLAN  
 WAVERLEY ST / GRANT AVE



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2016/05/27 10:53 AM By: Bun\_Sothea



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Legend

 CORE ONLY

Notes

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PRELIMINARY ENGINEERING STUDY

Figure No.

3

Title

CORE LOCATION PLAN  
TAYLOR AVE



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### Legend

 CORE ONLY

### Notes

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PRELIMINARY ENGINEERING STUDY

Figure No.

4

Title

CORE LOCATION PLAN  
TAYLOR AVE

**TABLE 1  
PAVEMENT STRUCTURE SUMMARY  
WAVERLEY UNDERPASS PRELIMINARY ENGINEERING STUDY**

Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
1	<b>Wilkes Avenue (eastbound)</b> Centreline of eastbound median curb lane 76 m west of southwest corner of Waverley Street and Wilkes Avenue	-	195	195	760	<ul style="list-style-type: none"> <li>• Sound concrete pavement</li> <li>• 760 mm thickness of granular base found below pavement</li> </ul>
2	<b>Waverley Street (northbound)</b> 1 m west of east curb 29 m south of southeast corner Waverley Street and Hurst Way	125	205	330	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
3	<b>Waverley Street (northbound)</b> Centreline of northbound median curb lane 82 m south of southeast corner Waverley Street and Hurst Way	100	205	305	230	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• 230 mm thickness of granular base mixed with some clay found below pavement</li> </ul>
4	<b>Waverley Street (northbound)</b> 1 m west of east curb 134 m south of southeast corner Waverley Street and Hurst Way	100	205	305	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>



Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
5	<b>Waverley Street (northbound)</b> 1 m west of east curb 54 m north of northeast corner of Waverley Street and Mathers Avenue	60	260	320	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Granular base found below pavement</li> </ul>
6	<b>Waverley Street (northbound)</b> 1 m west of east curb 156 m north of northeast corner of Waverley Street and Mathers Avenue	75	245	320	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base with some clay found below pavement</li> </ul>
7	<b>Waverley Street (northbound)</b> Centreline of northbound median curb lane 256 m north of northeast corner of Waverley Street and Mathers Avenue	110	190	300	125	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> </ul>
8	<b>Waverley Street (northbound)</b> 1 m west of east curb 21 m south of southeast corner of Waverley Street and Grant Avenue	70	180	250	-	<ul style="list-style-type: none"> <li>• Delaminated asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Granular base found below pavement</li> </ul>

Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
9	<b>Waverley Street (southbound)</b> 1 m east of west curb 75 m south of southwest corner of Waverley Street and Grant Avenue	90	210	300	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
10	<b>Waverley Street (southbound)</b> 1 m east of west curb 170 m south of southwest corner of Waverley Street and Grant Avenue	60	220	280	-	<ul style="list-style-type: none"> <li>• Delaminated asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Clay found below pavement</li> </ul>
11	<b>Waverley Street (southbound)</b> 1 m west of median curb 220 m south of southwest corner of Waverley Street and Grant Avenue	150	230	380	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Clay found below pavement</li> </ul>
12	<b>Waverley Street (southbound)</b> 1 m east of west curb 9 m north of northwest corner Waverley Street and Mathers Avenue	60	190	255	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Granular base found below pavement</li> </ul>



Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
13	<b>Grant Avenue (westbound)</b> 1 m south of north curb 31 m west of northwest corner of Grant Avenue and Waverley Street	90	250	340	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated and fracture at bottom</li> <li>• Clay found below pavement</li> </ul>
14	<b>Grant Avenue (westbound)</b> Centreline of curb lane 38 m west of northwest corner of Grant Avenue and Oxford Street	80	265	345	50	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> </ul>
15	<b>Grant Avenue (westbound)</b> 1 m south of north curb 18 m west of northwest corner of Grant Avenue and Cambridge Street	80	220	300	-	<ul style="list-style-type: none"> <li>• Delaminated asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Granular base found below pavement</li> </ul>
16	<b>Grant Avenue (eastbound)</b> 1 m north of south curb 10 m west of southwest corner of Grant Avenue and Oxford Street	100	240	340	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>

Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
17	<b>Grant Avenue (eastbound)</b> Centreline of median curb lane 15 m east of southeast of Grant Avenue and Waverley Street	125	235	360	75	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> </ul>
18	<b>Grant Avenue (eastbound)</b> 1 m north of south curb 33 m east of southeast corner of Grant and Montrose Street	85	255	340	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Clay found below pavement</li> </ul>
19	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 35 m west of northwest corner of Taylor Avenue and Borebank Street	80	180	260	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
20	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 35 m west of northwest corner of Taylor Avenue and Campbell Street	70	190	260	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Granular base found below pavement</li> </ul>



Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
21	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 57 m east of northeast corner of Taylor Avenue and Campbell Street	120	220	340	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
22	<b>Taylor Avenue (eastbound)</b> 1 m north of south curb 21 m west of southwest corner of Taylor Avenue and Brock Street	85	195	280	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
23	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 61 m east of northeast corner of Taylor Avenue and Brock Street	70	195	265	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Granular base found below pavement</li> </ul>
24	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 219 m west of northwest corner of Taylor Avenue and Ash Street	100	180	280	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top of concrete pavement deteriorated</li> <li>• Granular base found below pavement</li> </ul>

Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
25	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 120 m west of northwest corner of Taylor Avenue and Ash Street	100	180	280	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
26	<b>Taylor Avenue (eastbound)</b> 1 m north of south curb 20 m west of northwest corner of Taylor Avenue and Ash Street	70	185	255	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Top and bottom of concrete deteriorated</li> <li>• Granular base found below pavement</li> </ul>
27	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 69 m east of northeast corner of Taylor Avenue and Ash Street	60	180	240	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
28	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 168 m east of northeast corner of Taylor Avenue and Ash Street	65	225	290	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>



Core No.	Core Location	Pavement Structure Thickness (mm)				Comments
		Asphalt	Concrete	Total	Granular Base	
29	<b>Taylor Avenue (westbound)</b> 1 m south of north curb 136 m west of northwest corner of Taylor Avenue and Waverley Street	60	190	250	-	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> <li>• Asphalt pavement not bonded to underlying concrete pavement</li> <li>• Sound concrete pavement</li> <li>• Granular base found below pavement</li> </ul>
30	<b>Active Transportation Pathway</b> 115 m south of Hurst Way	90	-	90	610	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> </ul>
31	<b>Active Transportation Pathway</b> 107 m north of Victor Lewis Drive	70	-	70	610	<ul style="list-style-type: none"> <li>• Sound asphalt pavement</li> </ul>



Core no. 1



Core no. 2



Core no. 3



Core no. 4





Core no. 5



Core no. 6



Core no. 7



Core no. 8





Core No. 9



Core no. 10



Core no. 11



Core no. 12





Core no. 13



Core no. 14



Core no. 15



Core no. 16





Core no. 17



Core no. 18



Core no. 19



Core no. 20





Core no. 21



Core no. 22



Core no. 23



Core no. 24





Core no. 25



Core no. 26



Core no. 27



Core no. 28



Core no. 29



Core no. 30



Core no. 31