

# **APPENDIX 'A'**

# **GEOTECHNICAL REPORT**



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*"Engineering and Testing Solutions That Work for You"*

October 28, 2022

File No.: 22-035-03

WSP Canada Inc.  
111 – 93 Lombard Avenue  
Winnipeg, Manitoba  
R3B 3B1

**ATTENTION:** Mark Vogt, P.Eng.

**RE:** 2023 Local Street Renewal Project 23-R-05, Winnipeg, Manitoba

### **Introduction**

ENG-TECH Consulting Limited (ENG-TECH) was retained by WSP Canada Inc. (WSP) to complete a pavement coring and testing program for a future rehabilitation project along sections of various local streets

### **Scope of Work**

The scope of work for the project entailed recovering a total of fifty-seven (57) cores through the existing pavement structure, documenting findings in accordance with Appendix B – Site Investigation Requirements for Public Works Street Projects and providing a report outlining the work conducted, including photographs and pavement core summary tables showing the pavement core thicknesses and locations using UTM coordinates.

The sections of road from which cores were recovered were as follows:

- Woodford Bay - Meadowood Dr / Meadowood Dr – 3 cores
- Morrow Avenue - St Annes Rd / End - 3 cores
- Fernwood Avenue - St Annes Rd / End - 2 cores
- West Fernwood Avenue –Dunkirk Dr / St Mary's Rd - 4 cores
- Regal Avenue - Des Meurons St / St Annes Rd - 4 cores
- Royal Salinger Road - Niakwa Rd / Pebble Beach Rd - 4 cores
- Cherwell Road - Beaverhill Bv / Bluewater Cr N leg - 3 cores
- Stillwater Road - Brookhaven By / Willowlake Cr – 3 cores
- Seabrook Cove - Beaverhill Bv / End – 2 cores
- Radburn Place - End / Beaverhill Bv – 2 cores
- Gatineau Bay - Crestwood Cr / Crestwood Cr - 3 cores
- Agate Bay - Drake Bv / Drake Bv - 3 pavement cores
- Nugent Road - Hatcher Rd / Rougeau Av - 2 cores
- Peake Avenue - Robson St / Plessis Rd – 3 cores
- Horetzky Street - Sanford Fleming Rd / Meadow Gate Dr - 2 cores
- Shields Street - Moberly Av / Sanford Fleming Rd - 2 cores
- Moberly Avenue - Cambie Rd / Whiteway Rd - 4 cores
- Hayes Street - Whiteshell Av / McMeans Av W - 2 cores
- Winona Street - Larche Av W / McMeans Av W - 3 cores
- Whiteshell Avenue - McMeans Av W / Winona St - 3 cores

## Field Program

ENG-TECH conducted the coring program on the local streets between October 5 and October 14, 2022 across the site locations previously stated. The cores were obtained by ENG-TECH at locations determined by WSP using a 100mm and 150mm diameter diamond end core barrels. ENG-TECH repaired the core apertures with a City of Winnipeg approved material (Versaspeed 100) that has been accepted on previous street renewal projects.

## Laboratory Program

ENG-TECH measured core thicknesses and photographed the pavement structure. The core thicknesses, pavement structure and UTM coordinates are outlined in Tables 1 to 20 below. Photographs of each core are shown in the attached Photographs 1 to 57. ENG-TECH also determined concrete compressive strengths in accordance with CSA A23.2-14C – moist condition on select cores from locations determined by WSP. The compressive strength results are shown on the attached Obtaining and Testing Drilled Cores report.

## Closure

ENG-TECH trusts this is all the information required. If you have any questions, please contact the undersigned.

Sincerely,  
ENG-TECH Consulting Limited



Darci Babisky, C.E.T.  
Operations Manager - Laboratory

Enclosures: Table 1 – Summary of Pavement Structure – Woodford Bay (Meadowood Dr)  
Table 2 – Summary of Pavement Structure – Morrow Avenue (St Annes Rd to End)  
Table 3 – Summary of Pavement Structure – Fernwood Avenue (St Annes Rd to End)  
Table 4 – Summary of Pavement Structure – West Fernwood Avenue (Dunkirk Dr to St Mary's Rd)  
Table 5 – Summary of Pavement Structure – Regal Avenue (Des Meurons St to St Annes Rd)  
Table 6 – Summary of Pavement Structure – Royal Salinger Road (Niakwa Rd to Pebble Beach Rd)  
Table 7 – Summary of Pavement Structure – Cherwell Road (Beaverhill Bv to Bluewater Cr N leg)  
Table 8 – Summary of Pavement Structure – Stillwater Road (Brookhaven By to Willowlake Cr)  
Table 9 – Summary of Pavement Structure – Seabrook Cove (Beaverhill Bv / End)  
Table 10 – Summary of Pavement Structure – Radburn Place (End to Beaverhill Bv)  
Table 11 – Summary of Pavement Structure – Gatineau Bay (Crestwood Cr)  
Table 12 – Summary of Pavement Structure – Agate Bay (Drake Bv to Drake Bv)  
Table 13 – Summary of Pavement Structure – Nugent Road (Hatcher Rd to Rougeau Av)  
Table 14 – Summary of Pavement Structure – Peake Avenue (Robson St to Plessis Rd)  
Table 15 – Summary of Pavement Structure – Horetzky Street (Sanford Fleming Rd to Meadow Gate Dr)  
Table 16 – Summary of Pavement Structure – Shields Street (Moberly Av to Sanford Fleming Rd)  
Table 17 – Summary of Pavement Structure – Moberly Avenue (Cambie Rd to Whiteway Rd)  
Table 18 – Summary of Pavement Structure – Hayes Street (Whiteshell Av to McMeans Av W)  
Table 19 – Summary of Pavement Structure – Winona Street (Larche Av W to McMeans Av W)  
Table 20 – Summary of Pavement Structure – Whiteshell Avenue (McMeans Av W to Winona St)  
Obtaining and Testing Drilled Cores report (Ref. No. 22-35-3-1) (8 pages)  
Photographs of Cores (57 cores) (57 pages)

Email: mark.vogt@wsp.com

Table 1 - Summary of Pavement Core Structure Woodford Bay between Meadowood Drive and Meadowood Drive							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
1	October 5, 2022	Northbound	5521549	636685	Asphalt	150	0
					Concrete	150	170
2	October 5, 2022	Southbound	5521588	636750	Asphalt	100	0
					Concrete	100	163
3	October 5, 2022	Eastbound	5521478	636763	Asphalt	100	0
					Concrete	100	140

Table 2 - Summary of Pavement Core Structure Morrow Avenue between St Anne's Road and East End							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
4	October 5, 2022	Westbound	5524077	636653	Asphalt	100	0
					Concrete	100	152
5	October 5, 2022	Eastbound	5524035	636583	Asphalt	100	0
					Concrete	100	136
6	October 5, 2022	Eastbound	5523988	636500	Asphalt	150	0
					Concrete	150	136

Table 3 - Summary of Pavement Core Structure Fernwood Avenue between St Anne's Road and East End							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
7	October 5, 2022	Westbound	5523877	636592	Asphalt	100	0
					Concrete	100	163
8	October 5, 2022	Eastbound	5523855	636558	Asphalt	100	0
					Concrete	100	147

Table 4 - Summary of Pavement Core Structure West Fernwood Avenue between Dunkirk Drive and St Mary's Road							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
9	October 6, 2022	Eastbound	5523314	635567	Asphalt	150	0
					Concrete	150	145
10	October 6, 2022	Westbound	5523352	635630	Asphalt	100	0
					Concrete	100	167
11	October 6, 2022	Eastbound	5523241	635424	Asphalt	100	86
					Concrete	100	157
12	October 6, 2022	Westbound	5523279	635500	Asphalt	150	0
					Concrete	150	175

Table 5 - Summary of Pavement Core Structure Regal Avenue between Des Meurons Street and St Anne's Road							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
13	October 6, 2022	Eastbound	5524710	636437	Asphalt	150	90
					Concrete	150	175
14	October 6, 2022	Westbound	5524752	636506	Asphalt	150	75
					Concrete	150	137
15	October 6, 2022	Westbound	5524634	636291	Asphalt	100	70
					Concrete	100	175
16	October 6, 2022	Eastbound	5524580	636201	Asphalt	100	55
					Concrete	100	138

Table 6 - Summary of Pavement Core Structure Royal Salinger Road between Niakwa Road and Pebble Beach Road							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
17	October 7, 2022	Northbound	5524313	637408	Asphalt	150	0
					Concrete	150	143
18	October 7, 2022	Southbound	5524143	637467	Asphalt	100	0
					Concrete	100	154
19	October 7, 2022	Westbound	5524040	637553	Asphalt	100	0
					Concrete	100	167
20	October 7, 2022	Eastbound	5524080	637739	Asphalt	150	0
					Concrete	150	157

Table 7 - Summary of Pavement Core Structure Cherwell Road between Beaverhill Boulevard and Bluewater Crescent							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
21	October 7, 2022	Southbound	5523219	637957	Asphalt	100	0
					Concrete	100	159
22	October 7, 2022	Northbound	5523126	637991	Asphalt	100	0
					Concrete	100	171
23	October 7, 2022	Southbound	5523080	638001	Asphalt	150	100
					Concrete	150	160

Table 8 - Summary of Pavement Core Structure Stillwater Road between Brookhaven Bay and Willowlake Crescent							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
24	October 7, 2022	Southbound	5523557	638098	Asphalt	150	0
					Concrete	150	152
25	October 7, 2022	Southbound	5523749	638088	Asphalt	100	0
					Concrete	100	142
26	October 11, 2022	Northbound	5523653	638113	Asphalt	100	0
					Concrete	100	163

Table 9 - Summary of Pavement Core Structure Seabrook Cove between Beaverhill Boulevard and West End							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
27	October 11, 2022	Westbound	5523521	639067	Asphalt	100	0
					Concrete	100	149
28	October 11, 2022	-	5523510	639016	Asphalt	100	0
					Concrete	100	135

Table 10 - Summary of Pavement Core Structure Radburn Place between Beaverhill Boulevard and East End							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
29	October 11, 2022	-	5523823	639267	Asphalt	100	0
					Concrete	100	183
30	October 11, 2022	Westbound	5523828	638238	Asphalt	100	0
					Concrete	100	150

Table 11 - Summary of Pavement Core Structure Gatineau Bay between Crestwood Crescent and Crestwood Crescent							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
31	October 11, 2022	Southbound	5524569	638732	Asphalt	150	45
					Concrete	150	155
32	October 11, 2022	Eastbound	5524631	638698	Asphalt	100	0
					Concrete	100	155
33	October 11, 2022	Southbound	5524545	638654	Asphalt	100	0
					Concrete	100	156

Table 12 - Summary of Pavement Core Structure Agate Bay between Drake Boulevard and Drake Boulevard							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
34	October 11, 2022	Westbound	5525618	637401	Asphalt	100	0
					Concrete	100	151
35	October 12, 2022	Southbound	5525612	637324	Asphalt	100	0
					Concrete	100	124
36	October 12, 2022	Eastbound	5525693	637395	Asphalt	150	0
					Concrete	150	165

Table 13 - Summary of Pavement Core Structure Nugent Road between Hatcher Road and Rougeau Avenue							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
37	October 12, 2022	Southbound	5528293	640816	Asphalt	100	0
					Concrete	100	139
38	October 12, 2022	Northbound	5528225	640804	Asphalt	100	0
					Concrete	100	149

Table 14 - Summary of Pavement Core Structure Peake Avenue between Robson Street and Plessis Road							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
39	October 12, 2022	Eastbound	5528580	641771	Asphalt	100	0
					Concrete	100	145
40	October 12, 2022	Westbound	5528580	641706	Asphalt	100	0
					Concrete	100	157
41	October 12, 2022	Westbound	5528579	641628	Asphalt	150	68
					Concrete	150	90

Table 15 - Summary of Pavement Core Structure Horetzky Street between Sanford Fleming Road and Meadow Gate Drive							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
42	October 12, 2022	Southbound	5529995	642106	Asphalt	100	0
					Concrete	100	135
43	October 13, 2022	Northbound	5530057	641081	Asphalt	100	0
					Concrete	100	150

Table 16 - Summary of Pavement Core Structure Shields Street between Moberly Avenue and Sanford Fleming Road							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
44	October 13, 2022	Southbound	5530234	642037	Asphalt	100	0
					Concrete	100	159
45	October 13, 2022	Northbound	5530170	642069	Asphalt	100	0
					Concrete	100	144

Table 17 - Summary of Pavement Core Structure Moberly Avenue between Cambie Road and Whiteway Road							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
46	October 13, 2022	Westbound	5530356	642228	Asphalt	100	0
					Concrete	100	160
47	October 13, 2022	Eastbound	5530250	641980	Asphalt	100	0
					Concrete	100	138
48	October 13, 2022	Westbound	5530276	642044	Asphalt	150	0
					Concrete	150	154
49	October 13, 2022	Eastbound	5530323	642166	Asphalt	150	0
					Concrete	150	150

Table 18 - Summary of Pavement Core Structure Hayes Street between Whiteshell Avenue and McMeans Avenue							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
50	October 13, 2022	Southbound	5530060	642874	Asphalt	100	0
					Concrete	100	159
51	October 13, 2022	Northbound	5530131	642877	Asphalt	100	0
					Concrete	100	170

Table 19 - Summary of Pavement Core Structure Winona Street between Larche Avenue and McMeans Avenue							
Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
52	October 14, 2022	Southbound	5530070	643039	Asphalt	100	0
					Concrete	100	150
53	October 14, 2022	Northbound	5530160	643040	Asphalt	100	0
					Concrete	100	146
54	October 14, 2022	Southbound	5530236	643036	Asphalt	150	0
					Concrete	150	147

Table 20 - Summary of Pavement Core Structure  
 Whiteshell Avenue between McMeans Avenue West and Winona Street

Core No.	Date Collected	Lane	Test Hole Location		Pavement Surface		
			UTM (N)	14U (E)	Type	Core Diameter (mm)	Thickness (mm)
55	October 14, 2022	Westbound	5530191	642969	Asphalt	100	0
					Concrete	100	144
56	October 14, 2022	Eastbound	5530145	642836	Asphalt	100	0
					Concrete	100	157
57	October 14, 2022	Southbound	5530062	642787	Asphalt	150	75
					Concrete	150	100



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**File No.:** 22-035-03  
**Ref. No.:** 22-035-3-1

**Attention:** Mark Vogt, M. Sc., P. Eng.

**Project:** 2023 LOCAL STREET RENEWAL PROJECT 23-R-05, WINNIPEG, MANITOBA

Date Cored: Oct 5/22 to 14/22 Cored By: ENG-TECH (Kyle Zebiere) Page: 1 of 8  
 Date Received: Oct 5/22 Received By: ENG-TECH (Kyle Zebiere) Structure: Pavement  
 Age of Concrete: - Concrete Design Strength: 32 MPa Test Method: CSA A23.2-14C, 9C  
 Core Conditioning: As per CSA A23.2-14C Clause 7.3.1 (moist) Direction of Load: Parallel

Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By ENG-TECH
		Cored (mm)	Tested (mm)					
1	Woodford Bay, West leg, Northbound lane, centerline of lane Northing: 5521549, Easting: 636685	170	-	150	Oct 24/22	-	-	-
2	Woodford Bay, East leg, Southbound lane, centerline of lane Northing: 5521588, Easting: 616750	163	153	100	Oct 24/22	72.7*	1	Kyle Zebiere
3	Woodford Bay, Eastbound lane, centerline of lane Northing: 5521478, Easting: 656763	140	139	100	Oct 24/22	39.9*	1	Kyle Zebiere
4	Morrow Avenue, Westbound lane, South of centerline of lane, Northing: 5524077, Easting: 636653	152	148	100	Oct 24/22	57.8*	1	Kyle Zebiere
5	Morrow Avenue, Eastbound lane, centerline of lane, Northing: 5524035, Easting: 636583	136	128	100	Oct 24/22	80.9*	1	Kyle Zebiere

Reporting of these results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided only on written request.

\*Denotes corrected strength for Length/Diameter ratio less than 2.0 to 1.0.

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2.2

Deviations from test procedure: None

Email: WSP Canada Inc. Contact Group

**ENG-TECH Consulting Limited**

Per

Darci Babisky, C.E.T.  
 Operations Manager - Laboratory  
 Ph: (204) 233-1694 Fx: (204) 235-1579





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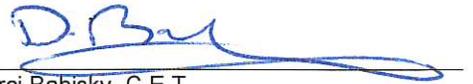
Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By ENG-TECH
		Cored (mm)	Tested (mm)					
6	Morrow Avenue, Eastbound lane, centerline of lane, Northing: 5523988, Easting: 636500	136	-	150	Oct 24/22	-	-	-
7	Fernwood Avenue, Westbound lane, centerline of lane, Northing: 5523877, Easting: 636592	163	148	100	Oct 24/22	74.7*	1	Kyle Zebiere
8	Fernwood Avenue, Eastbound lane, centerline of lane, Northing: 5523855, Easting: 636558	147	137	100	Oct 24/22	63.1*	1	Rey Batac
9	West Fernwood Avenue, Eastbound lane, 0.5 meters South of centerline of lane, Northing: 5523314, Easting: 635567	145	-	150	-	-	-	-
10	West Fernwood Avenue, Westbound lane, centerline of lane, Northing: 5523352, Easting: 635630	167	156	100	Oct 24/22	51.1*	1	Kyle Zebiere
11	West Fernwood Avenue, Eastbound lane, centerline of lane, Northing: 5523241, Easting: 635424	157	129	100	Oct 24/22	54.6*	1	Rey Batac
12	West Fernwood Avenue, Westbound lane, 0.3 meters South of centerline of lane, Northing: 5523279, Easting: 635500	175	-	150	-	-	-	-
13	Regal Avenue, Eastbound lane, 0.3 meters South of centerline of lane, Northing: 5524710, Easting: 636437	137	-	150	-	-	-	-

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2.2

Deviations from test procedure: None

Email: WSP Canada Inc. Contact Group

**ENG-TECH Consulting Limited**

Per   
Darci Babisky, C.E.T.  
Operations Manager - Laboratory  
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Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By ENG-TECH
		Cored (mm)	Tested (mm)					
14	Regal Avenue, Westbound lane, 0.3 meters South of centerline of lane, Northing: 5524752, Easting: 636506	175	-	150	-	-	-	
15	Regal Avenue, Westbound lane, 0.2 meters South of centerline of lane, Northing: 5524634, Easting: 636291	175	152	100	Oct 24/22	59.0*	1	Rey Batac
16	Regal Avenue, Eastbound lane, centerline of lane, Northing: 5524580, Easting: 636201	138	120	100	Oct 24/22	55.8*	1	Rey Batac
17	Royal Salinger Road, Northbound lane, 0.3 meters West of centerline of lane, Northing: 5524313, Easting: 637408	143	-	150	-	-	-	-
18	Royal Salinger Road, Southbound lane, 0.3 meters East of centerline of lane, Northing: 5524143, Easting: 637467	154	136	100	Oct 24/22	34.6*	1	Kyle Zebiere
19	Royal Salinger Road, Westbound lane, centerline of lane, Northing: 5524040, Easting: 637553	167	147	100	Oct 24/22	39.8*	1	Kyle Zebiere
20	Royal Salinger Road, Eastbound lane, centerline of lane, Northing: 5524080, Easting: 637739	157	-	150	-	-	-	-
21	Cherwell Road, Southbound lane, 0.5 meters West of centerline of lane, Northing: 5523219, Easting: 637957	159	143	100	Oct 24/22	41.8*	1	Rey Batac

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2.2

Deviations from test procedure: None

Email: WSP Canada Inc. Contact Group

**ENG-TECH Consulting Limited**

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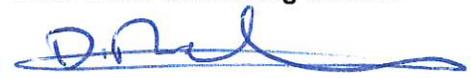
Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By ENG-TECH
		Cored (mm)	Tested (mm)					
22	Cherwell Road, Northbound lane, 0.6 meters West of centerline of lane, Northing: 5523126, Easting: 637991	171	153	100	Oct 24/22	36.4*	1	Kyle Zebiere
23	Cherwell Road, Southbound lane, 0.9 meters East of centerline of lane, Northing: 5523080, Easting: 638001	160	-	150	-	-	-	-
24	Stillwater Road, Southbound lane, centerline of lane, Northing: 5523557, Easting: 638098	152	-	150	-	-	-	-
25	Stillwater Road, Southbound lane, 0.1 meters West of centerline of lane, Northing: 5523744, Easting: 638088	142	124	100	Oct 24/22	42.4*	1	Kyle Zebiere
26	Stillwater Road, Northbound lane, 0.9 meters East of centerline of lane, Northing: 5523653, Easting: 638113	163	148	100	Oct 24/22	45.2*	1	Kyle Zebiere
27	Seabrook Cove, Westbound lane, 1.0 meter South of centerline of lane, Northing: 5523521, Easting: 639067	149	132	100	Oct 24/22	38.8*	1	Kyle Zebiere
28	Seabrook Cove, East lane on West side of cul de sac, 0.6 meters West of centerline of lane, Northing: 5523510, Easting: 639016	135	117	100	Oct 24/22	41.3*	1	Rey Batac
29	Radburn Place, West lane on East side of cul de sac, centerline of lane, Northing: 5523823, Easting: 639 267	183	167	100	Oct 24/22	35.1*	1	Kyle Zebiere

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2.2

Deviations from test procedure: None

Email: WSP Canada Inc. Contact Group

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Per 

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Project: 2023 LOCAL STREET RENEWAL PROJECT 23-R-05, WINNIPEG, MANITOBA  
File No.: 22-035-03  
Ref. No.: 22-35-3-1  
Date Cored: Oct 5/22 to 14/22  
Page: 5 of 8

Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By ENG-TECH
		Cored (mm)	Tested (mm)					
30	Radburn Place, Westbound lane, 1.0 meter North of centerline of lane, Northing: 5523828, Easting: 639238	150	133	100	Oct 24/22	36.2*	1	Kyle Zebiere
31	Gatineau Bay, East leg, Southbound lane, centerline of lane, Northing: 5524569, Easting: 638732	155	-	150	-	-	-	-
32	Gatineau Bay, North leg, Eastbound lane, centerline of lane, Northing: 5524631, Easting: 638654	155	138	100	Oct 24/22	43.5*	1	Kyle Zebiere
33	Gatineau Bay, West leg, Southbound lane, 1.0 meter East of centerline of lane, Northing: 5524545, Easting: 638654	156	142	100	Oct 24/22	45.1*	1	Rey Batac
34	Agate Bay, South leg, Westbound lane, 0.5 meters South of centerline of lane, Northing: 5525612, Easting: 637324	151	136	100	Oct 24/22	43.9*	1	Rey Batac
35	Agate Bay, West leg, Southbound lane, 0.5 meters East of centerline of lane, Northing: 5525612, Easting: 637324	124	113	100	Oct 24/22	45.7*	1	Kyle Zebiere
36	Agate Bay, North leg, Eastbound lane, 0.8 meters North of centerline of lane, Northing: 5525693, Easting: 637395	165	-	150	-	-	-	-
37	Nugent Road, Southbound lane, 1.0 meter East of centerline of lane, Northing: 5528293, Easting: 640816	139	120	100	Oct 24/22	55.8*	1	Rey Batac

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2.2

Deviations from test procedure:

Email: WSP Canada Inc. Contact Group

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Ref. No.: 22-35-3-1  
Date Cored: Oct 5/22 to 14/22  
Page: 6 of 8

Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By ENG-TECH
		Cored (mm)	Tested (mm)					
38	Nugent Road, Northbound lane, 1.0 meter West of centerline of lane, Northing: 5528225, Easting: 640804	149	139	100	Oct 24/22	61.6*	1	Kyle Zebiere
39	Peake Avenue, Eastbound lane, 1.0 meter South of centerline of lane, Northing: 5528580, Easting: 641771	145	138	100	Oct 24/22	67.0*	1	Kyle Zebiere
40	Peake Avenue, Westbound lane, 1.0 meter South of centerline of lane, Northing: 5528579, Easting: 641706	157	148	100	Oct 24/22	81.3*	1	Kyle Zebiere
41	Peake Avenue, Westbound lane, 1.5 meter North of centerline of lane, Northing: 5528579, Easting: 641628	90	-	150	-	-	-	-
42	Horetzky Street, Southbound lane, 0.3 meters West of centerline of lane, Northing: 5529995, Easting: 642106	135	126	100	Oct 24/22	77.6*	1	Rey Batac
43	Horetzky Street, Northbound lane, 1.0 meter West of centerline of lane, Northing: 5530057, Easting: 642081	150	137	100	Oct 24/22	59.0*	1	Kyle Zebiere
44	Shields Street, Southbound lane, 1.0 meter East of centerline of lane, Northing: 5530234, Easting: 642037	159	136	100	Oct 24/22	52.8*	1	Rey Batac
45	Shields Street, Northbound lane, 1.0 meter East of centerline of lane, Northing: 5530170, Easting: 642069	144	132	100	Oct 24/22	58.4*	1	Kyle Zebiere

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2.2

Deviations from test procedure: None

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 File No.: 22-035-03  
 Ref. No.: 22-35-3-1  
 Date Cored: Oct 5/22 to 14/22  
 Page: 7 of 8

Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By ENG-TECH
		Cored (mm)	Tested (mm)					
46	Moberly Avenue, Westbound lane, 1.0 meter South of centerline of lane, Northing: 5530356, Easting:642228	160	150	100	Oct 24/22	57.9*	1	Kyle Zebiere
47	Moberly Avenue, Eastbound lane, 0.3 meters North of centerline of lane, Northing: 5530250, Easting:642980	138	128	100	Oct 24/22	58.6*	1	Rey Batac
48	Moberly Avenue, Westbound lane, 1.0 meter South of centerline of lane, Northing: 5530278, Easting:642044	154	-	150	-	-	-	-
49	Moberly Avenue, Eastbound lane, 1.0 meter South of centerline of lane, Northing: 5530323, Easting:642166	150	-	150	-	-	-	-
50	Hayes Street, Southbound lane, 1.0 meter East of centerline of lane, Northing: 5530060, Easting:642874	159	148	100	Oct 24/22	43.1*	1	Rey Batac
51	Hayes Street, Northbound lane, 0.3 meters East of centerline of lane, Northing: 5530131, Easting:642877	170	158	100	Oct 24/22	43.7*	1	Kyle Zebiere
52	Winona Street, Southbound lane, centerline of lane, Northing: 5530070, Easting:643039	150	138	100	Oct 24/22	43.4*	1	Kyle Zebiere
53	Winona Street, Northbound lane, 0.5 meters East of centerline of lane, Northing: 5530160, Easting:643040	146	131	100	Oct 24/22	50.7*	1	Rey Batac

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2.2

Deviations from test procedure: None

Email: WSP Canada Inc. Contact Group

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 Page: 8 of 8

Core No.	Location on Structure	Length		Average Diameter (mm)	Date Tested (m/d/y)	Compressive Strength (MPa)	Type of Fracture	Tested By
		Cored (mm)	Tested (mm)					
54	Winona Street, Southbound lane, 1.0 meter West of centerline of lane, Northing: 5530236, Easting:643036	147	-	150	-	-	-	
55	Whiteshell Avenue, Westbound lane, 0.3 meters South of centerline of lane, Northing: 5530191, Easting: 642969	144	131	100	Oct 24/22	65.1*	1	Kyle Zebiere
56	Whiteshell Avenue, Eastbound lane, 0.3 meters South of centerline of lane, Northing: 5530145, Easting: 642836	157	146	100	Oct 24/22	43.6*	1	Rey Batac
57	Whiteshell Avenue, Southbound lane, 0.1 meters West of centerline of lane, Northing: 5530062, Easting: 642787	100	-	150	-	-	-	-

Strength Specification: Minimum 85% of design strength on an average of 3 cores - no single less than 75% as per CSA A23.1 Clause 4.4.2.2.2

Comments:

Deviations from test procedure: None  
 Email: WSP Canada Inc. Contact Group

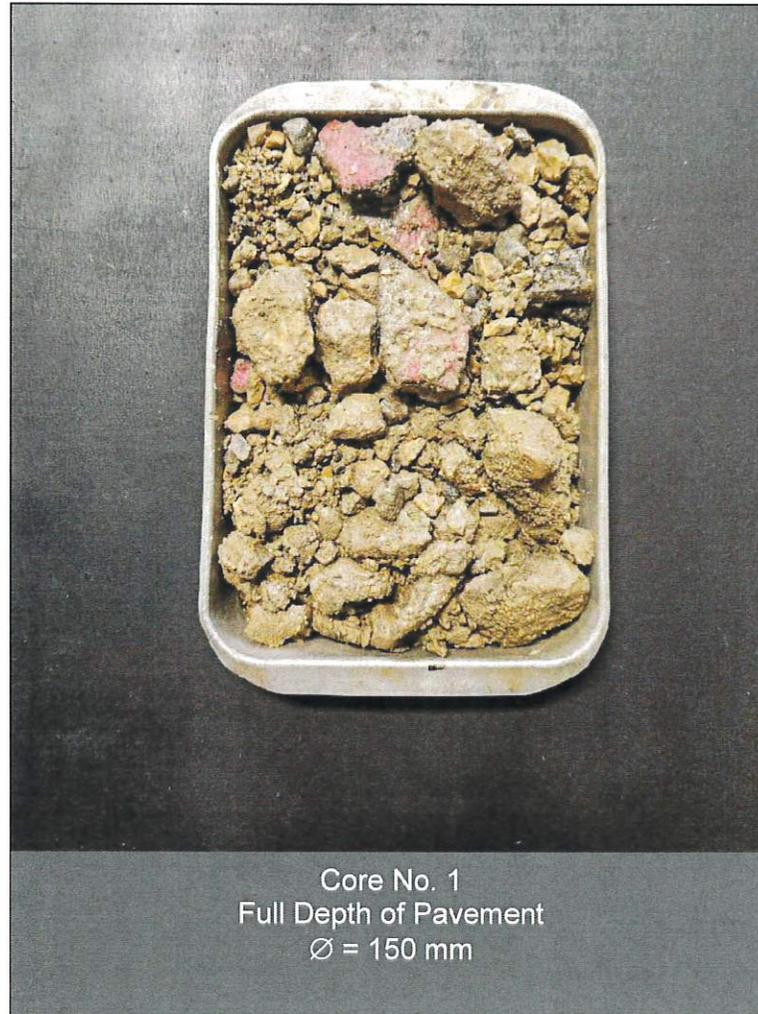
**ENG-TECH Consulting Limited**

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**Photograph 1: Specimen from Woodford Bay, Northbound Lane**



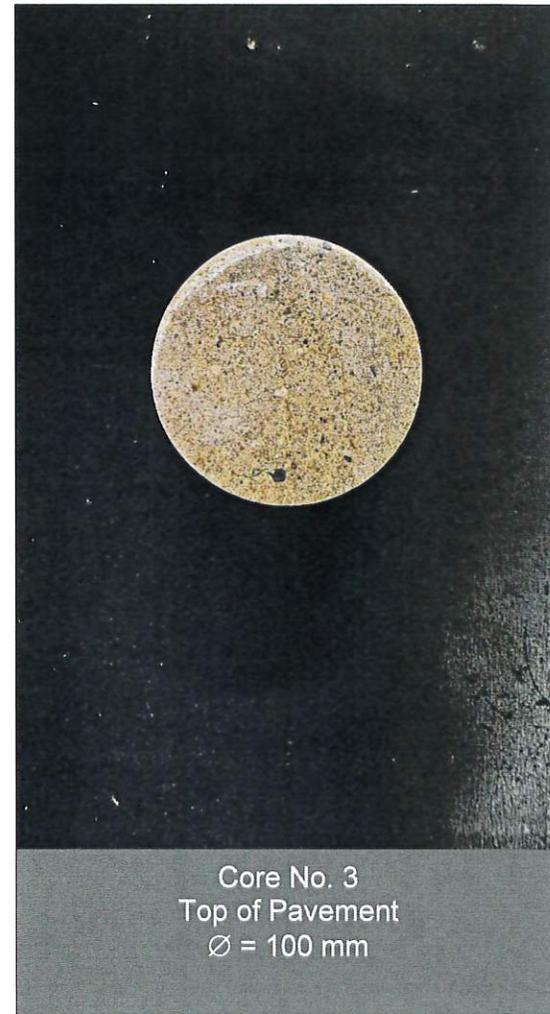
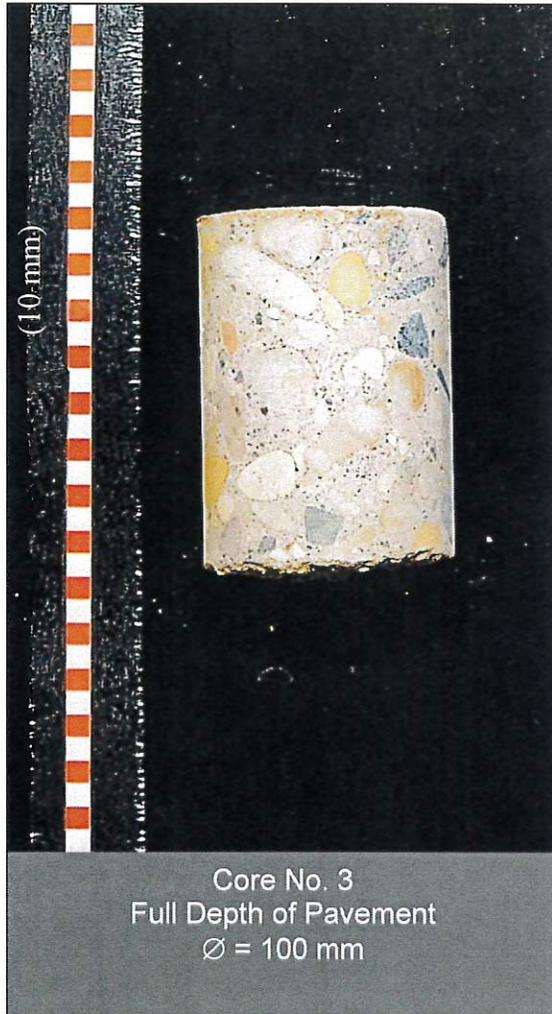
Core No. 1  
Full Depth of Pavement  
Ø = 150 mm



**Photograph 2: Specimen from Woodford Bay, Southbound Lane**



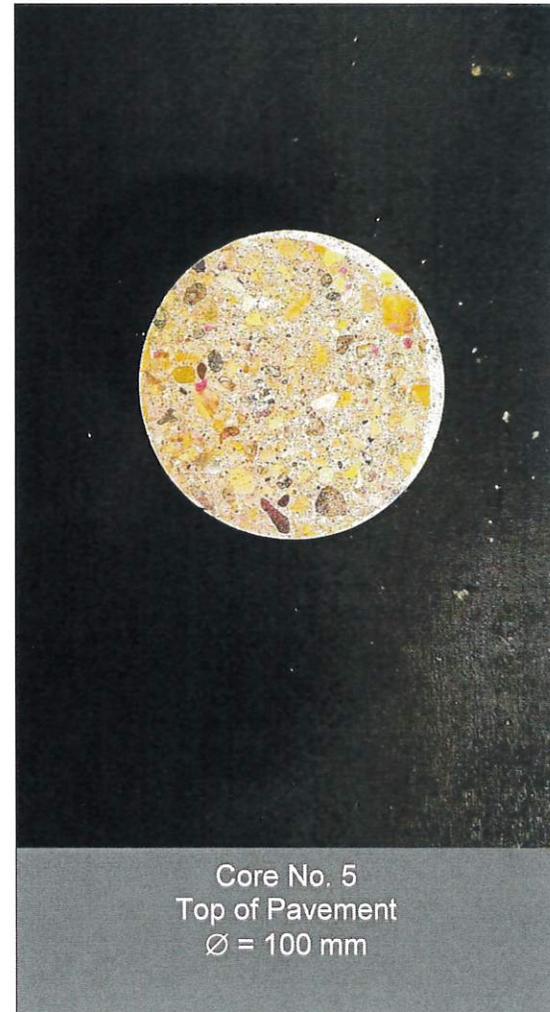
**Photograph 3: Specimen from Woodford Bay, Eastbound Lane**



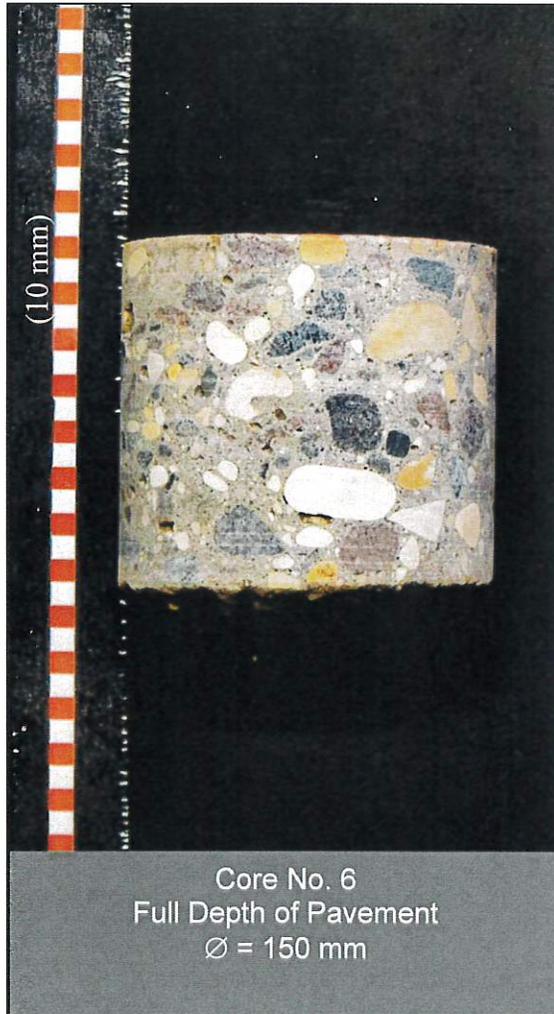
**Photograph 4: Specimen from Morrow Avenue, Westbound Lane**



**Photograph 5: Specimen from Morrow Avenue, Eastbound Lane**



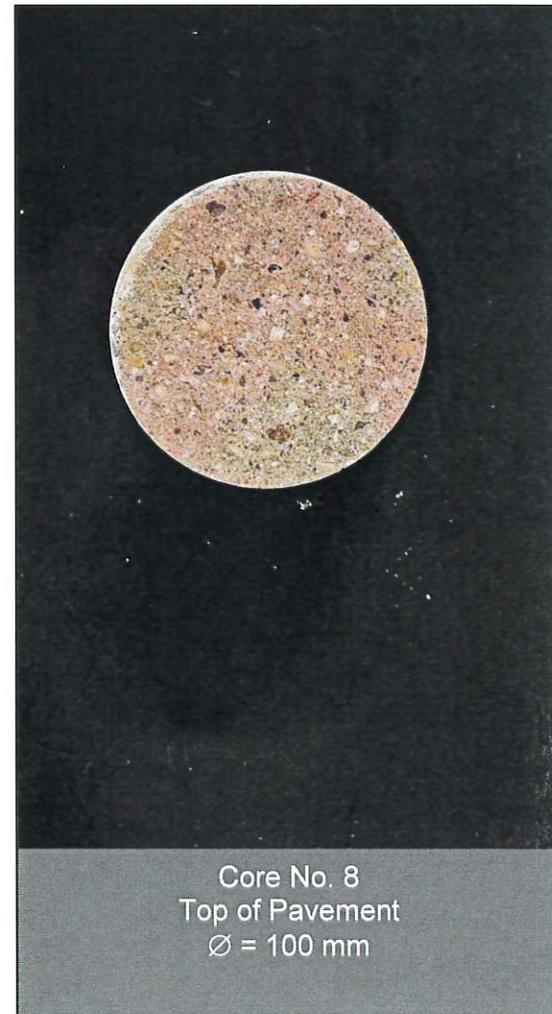
**Photograph 6: Specimen from Morrow Avenue, Eastbound Lane**



**Photograph 7: Specimen from Fernwood Avenue, Westbound Lane**



**Photograph 8: Specimen from Fernwood Avenue, Eastbound Lane**



**Photograph 9: Specimen from West Fernwood Avenue, Eastbound Lane**



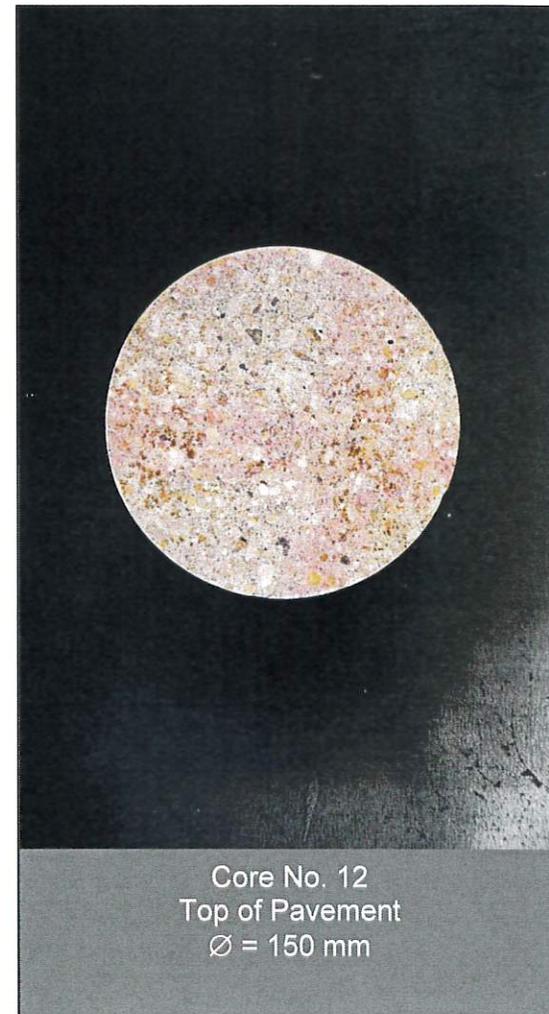
**Photograph 10: Specimen from West Fernwood Avenue, Westbound Lane**



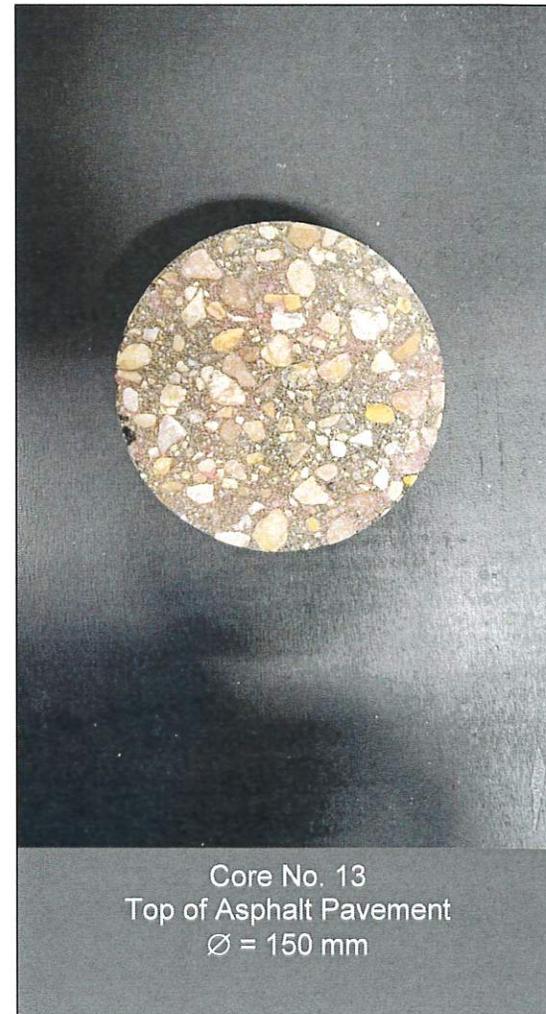
**Photograph 11: Specimen from West Fernwood Avenue, Eastbound Lane**



**Photograph 12: Specimen from West Fernwood Avenue, Westbound Lane**



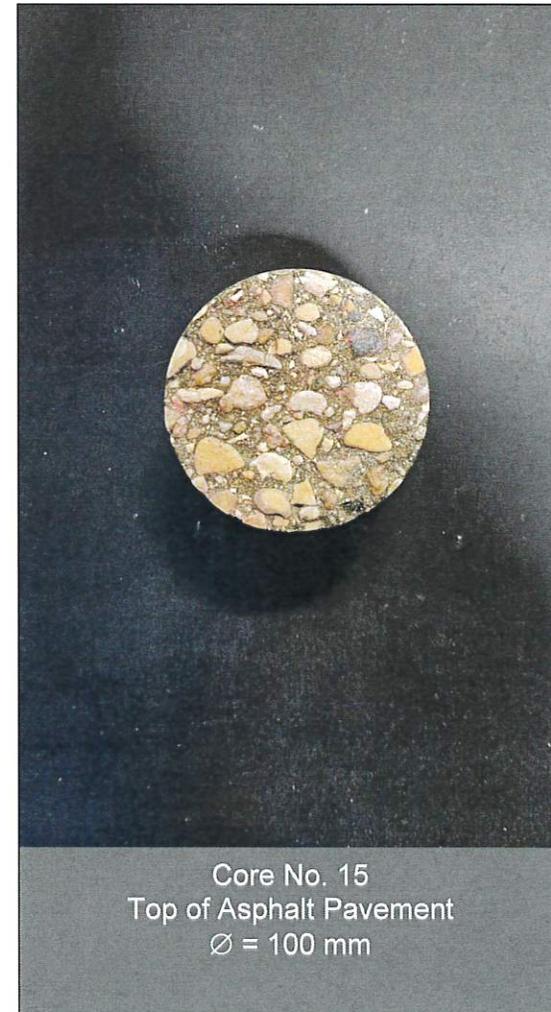
**Photograph 13: Specimen from Regal Avenue, Eastbound Lane**



**Photograph 14: Specimen from Regal Avenue, Westbound Lane**



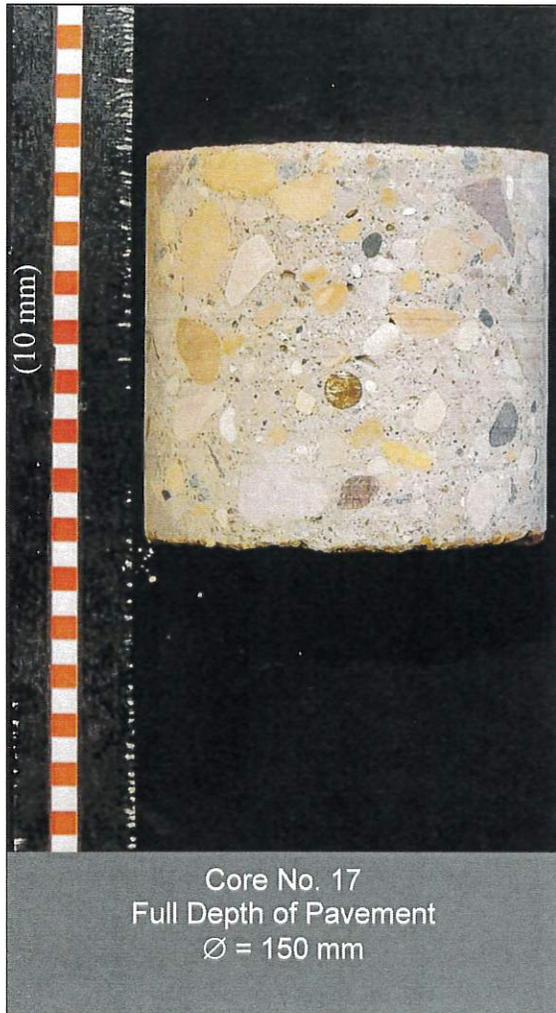
**Photograph 15: Specimen from Regal Avenue, Westbound Lane**



**Photograph 16: Specimen from Regal Avenue, Eastbound Lane**



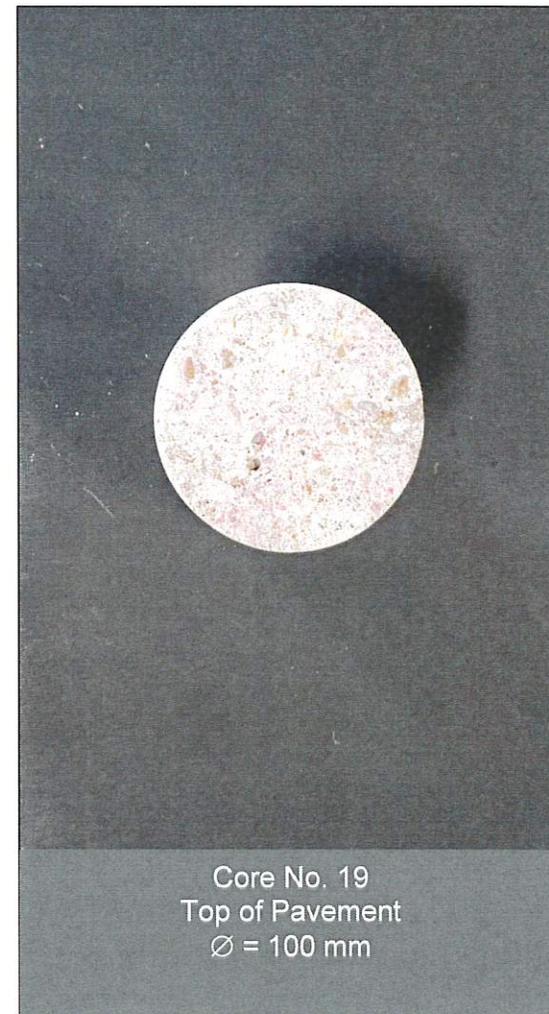
**Photograph 17: Specimen from Royal Salinger Road, Northbound Lane**



**Photograph 18: Specimen from Royal Salinger Road, Southbound Lane**



**Photograph 19: Specimen from Royal Salinger Road, Westbound Lane**



**Photograph 20: Specimen from Royal Salinger Road, Eastbound Lane**



**Photograph 21: Specimen from Cherwell Road, Southbound Lane**



**Photograph 22: Specimen from Cherwell Road, Northbound Lane**



**Photograph 23: Specimen from Cherwell Road, Southbound Lane**



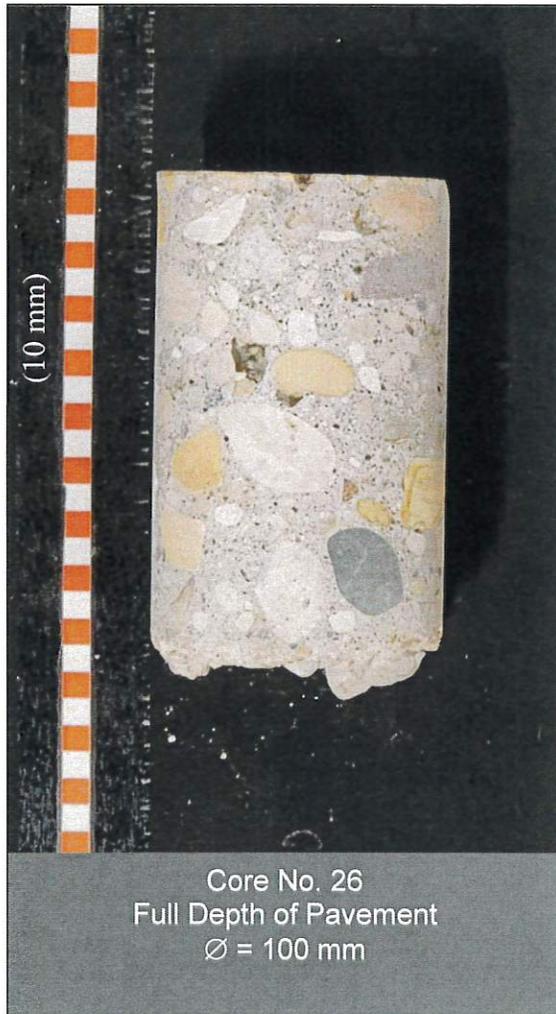
**Photograph 24: Specimen from Stillwater Road, Southbound Lane**



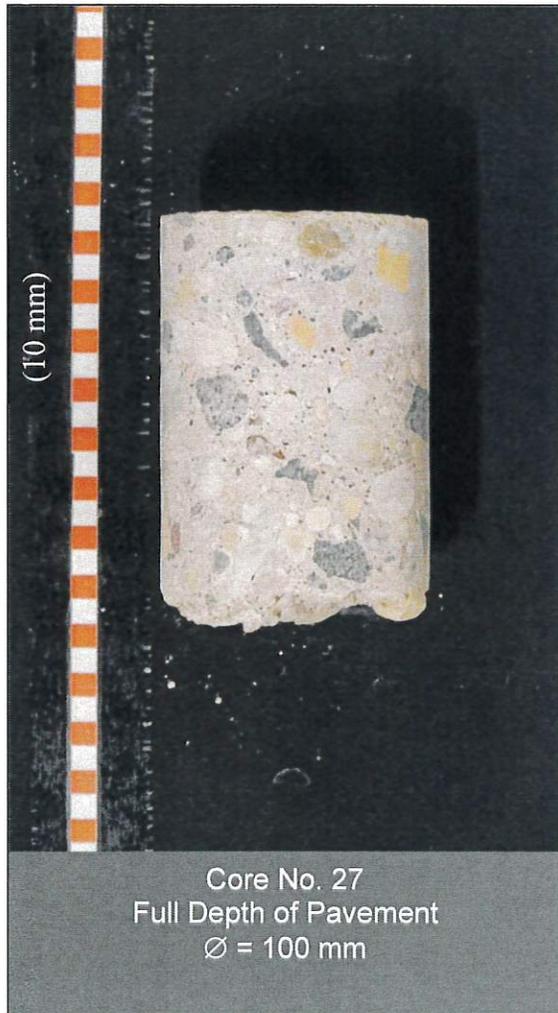
**Photograph 25: Specimen from Stillwater Road, Southbound Lane**



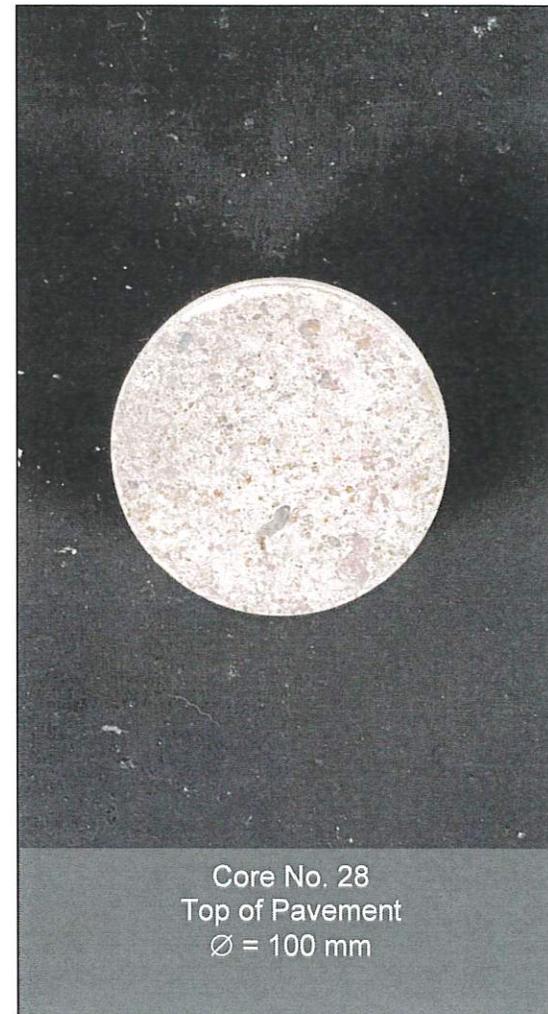
**Photograph 26: Specimen from Stillwater Road, Northbound Lane**



**Photograph 27: Specimen from Seabrook Cove, Westbound Lane**



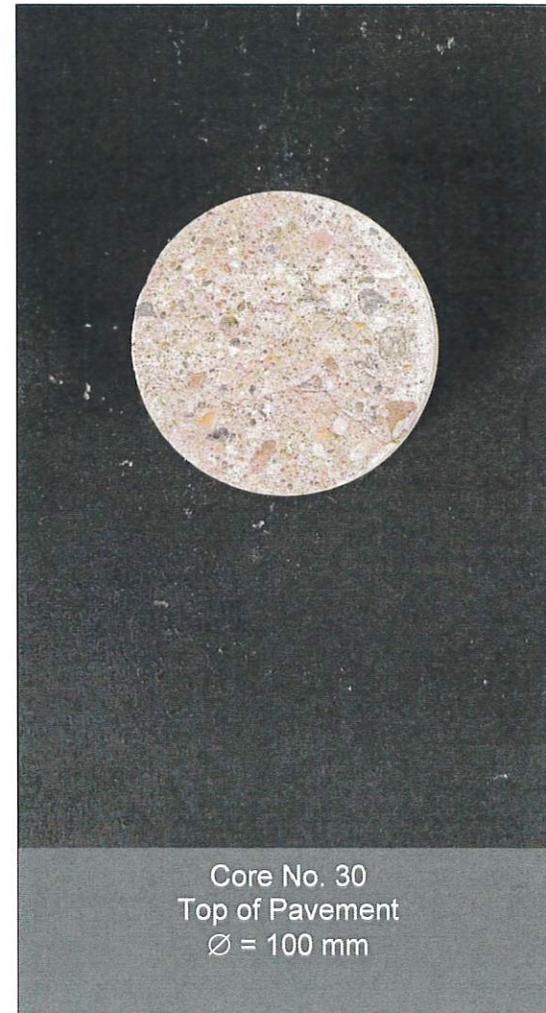
**Photograph 28: Specimen from Seabrook Cove**



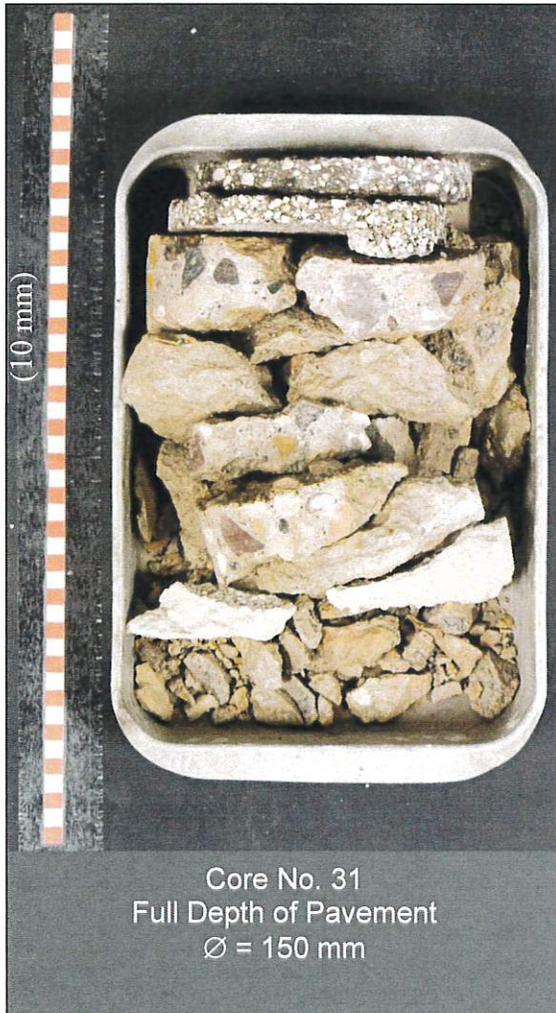
**Photograph 29: Specimen from Radburn Place**



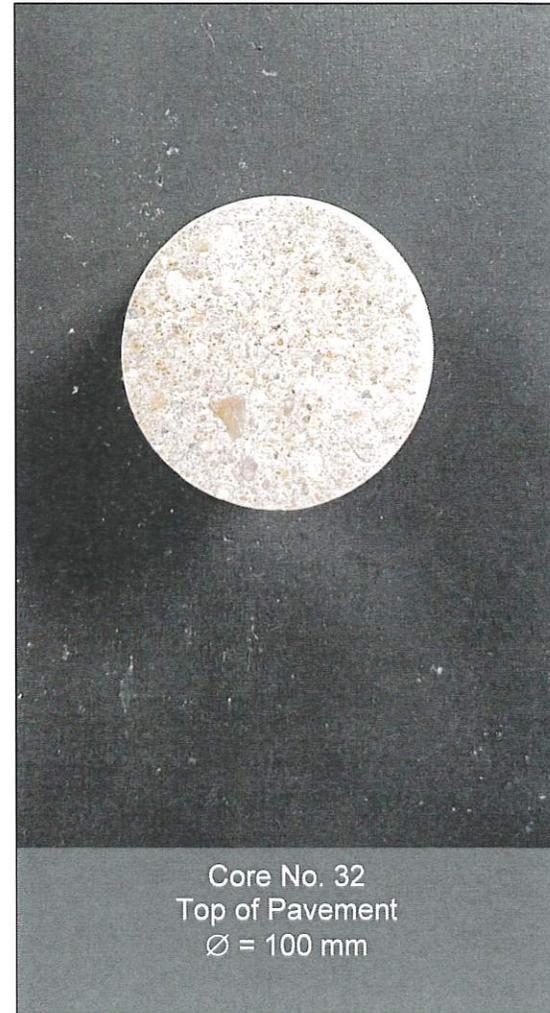
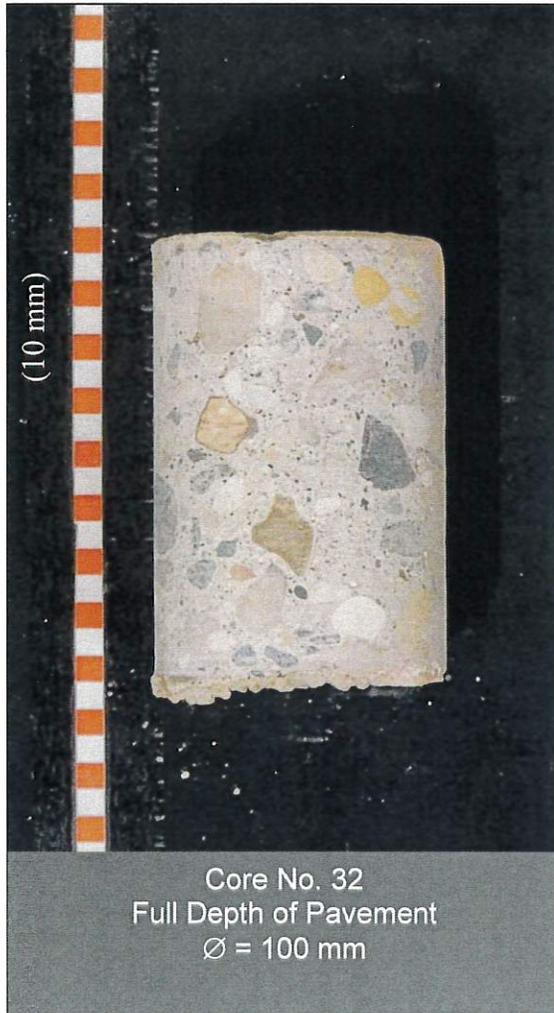
**Photograph 30: Specimen from Radburn Place, Westbound Lane**



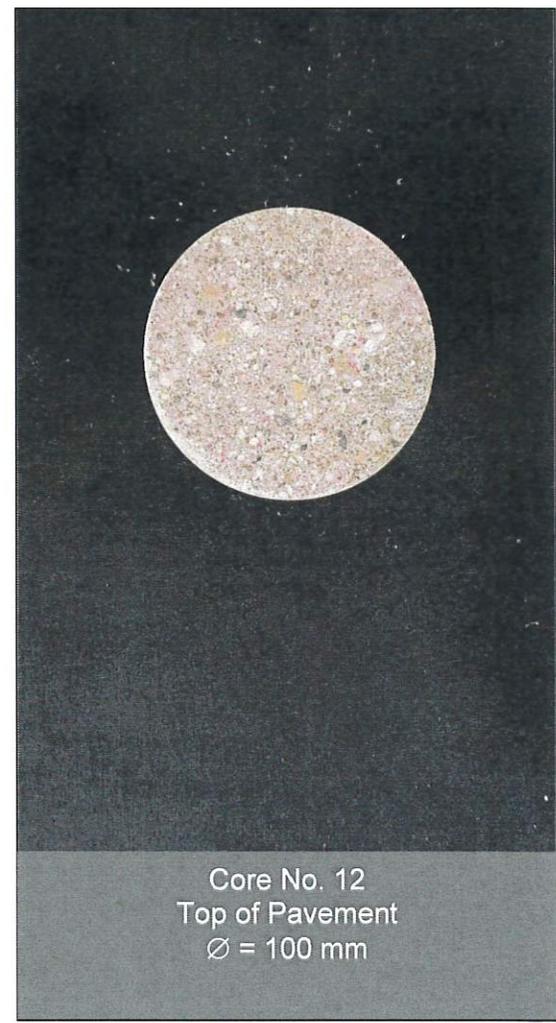
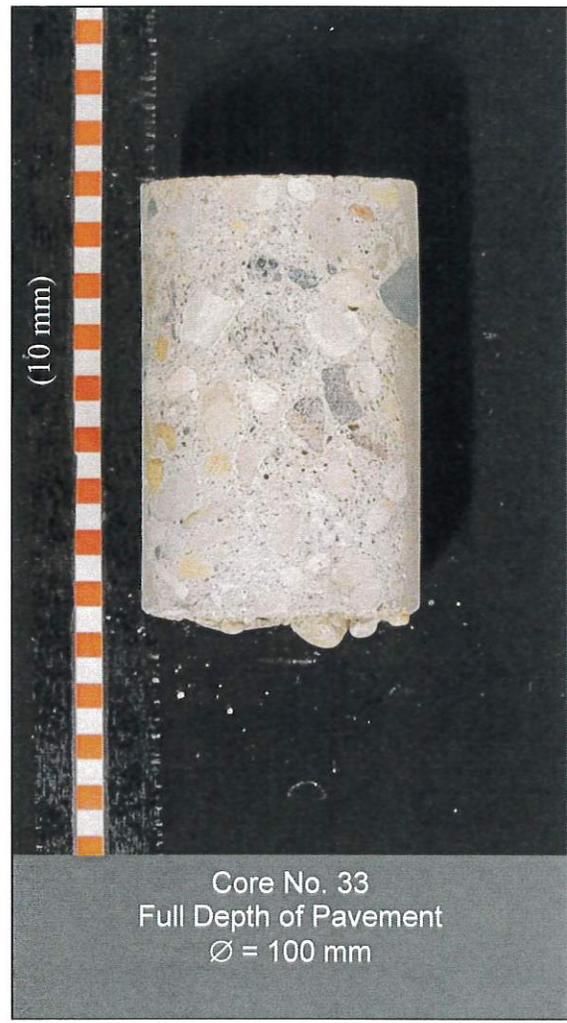
**Photograph 31: Specimen from Gatineau Bay, Southbound Lane**



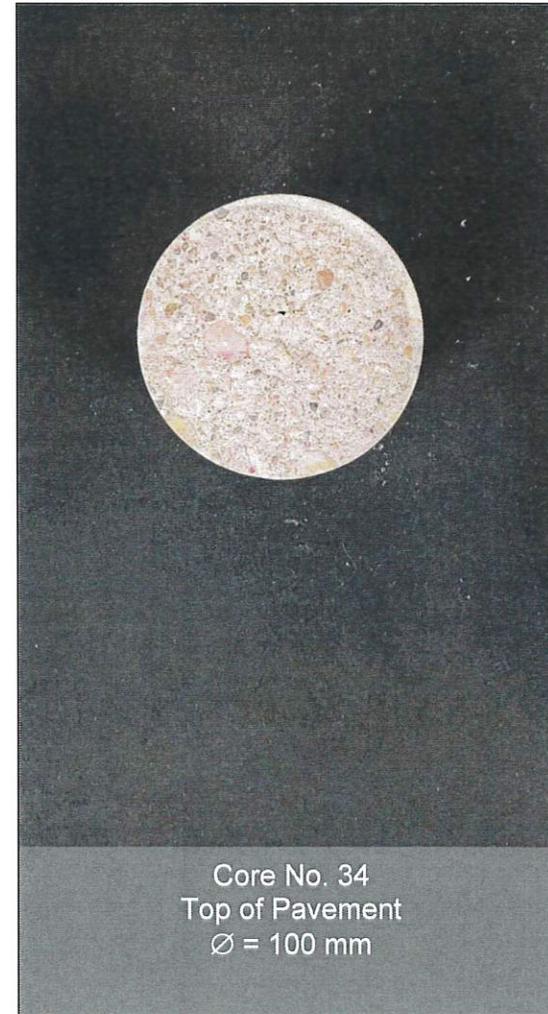
Photograph 32: Specimen from Gatineau Bay, Eastbound Lane



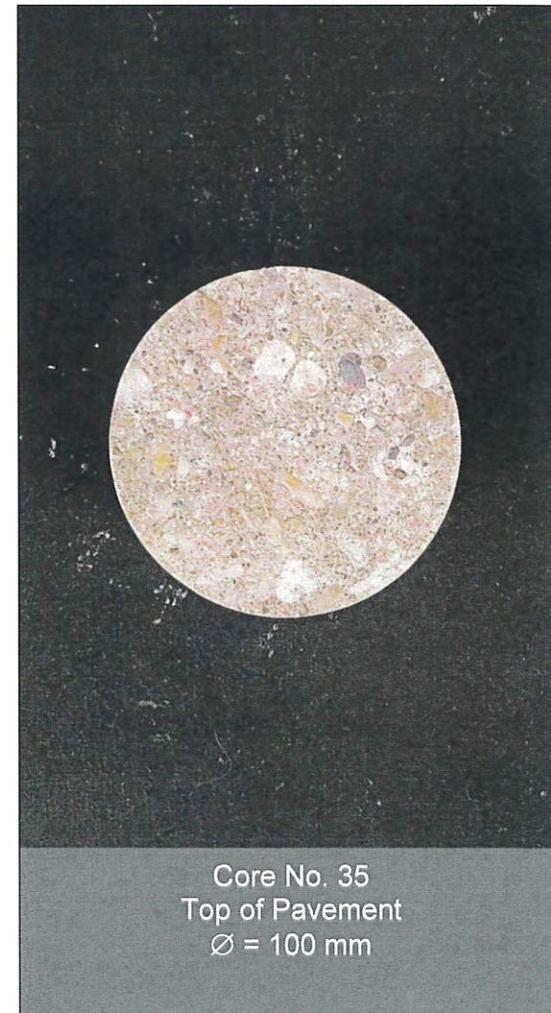
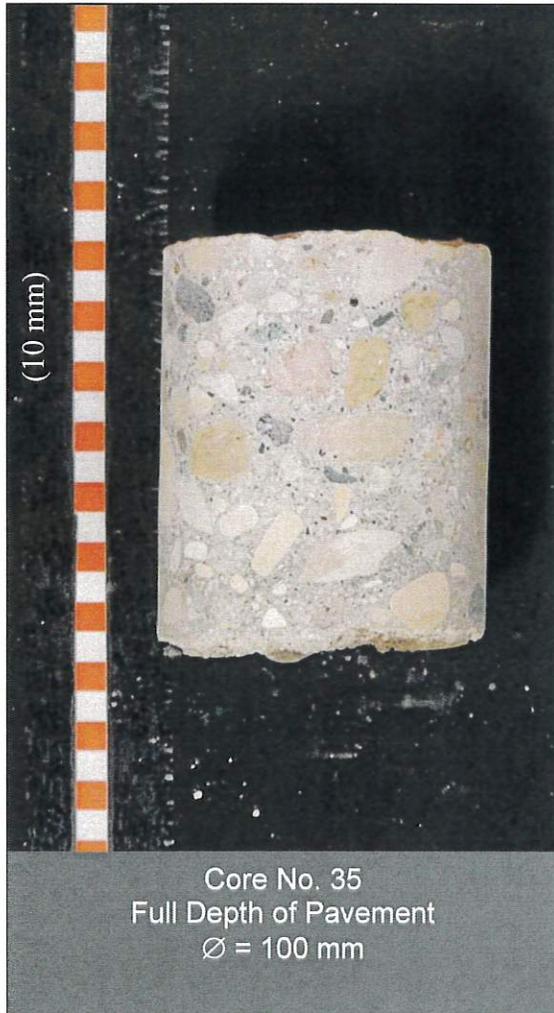
**Photograph 33: Specimen from Gatineau Bay, Southbound Lane**



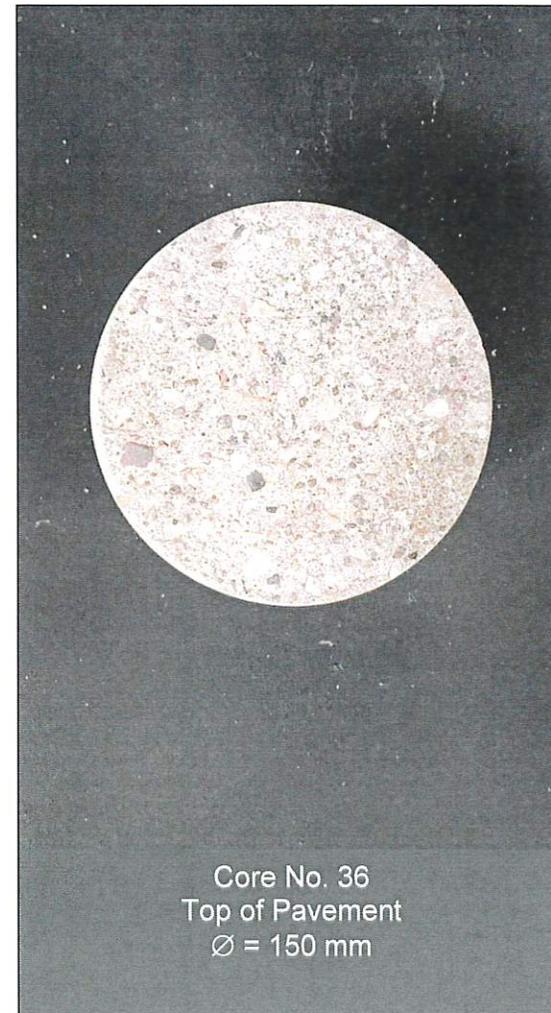
**Photograph 34: Specimen from Agate Bay, Westbound Lane**



**Photograph 35: Specimen from Agate Bay, Southbound Lane**



**Photograph 36: Specimen from Agate Bay, Eastbound Lane**



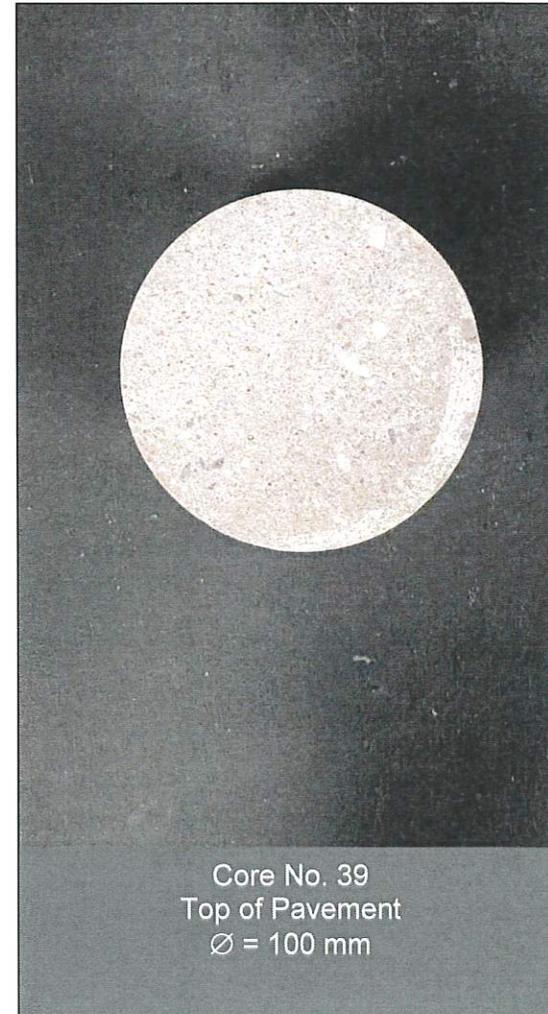
**Photograph 37: Specimen from Nugent Road, Southbound Lane**



**Photograph 38: Specimen from Nugent Road, Northbound Lane**



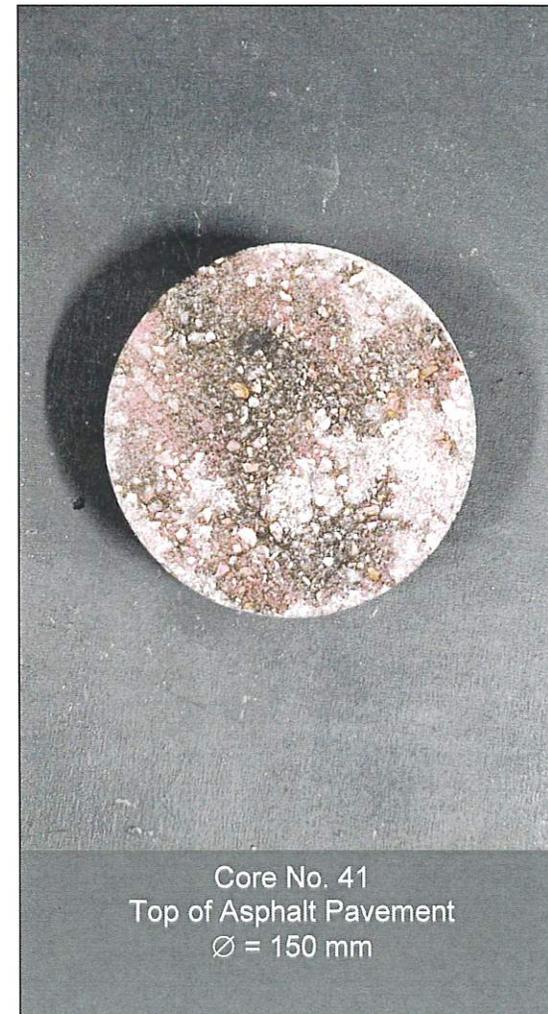
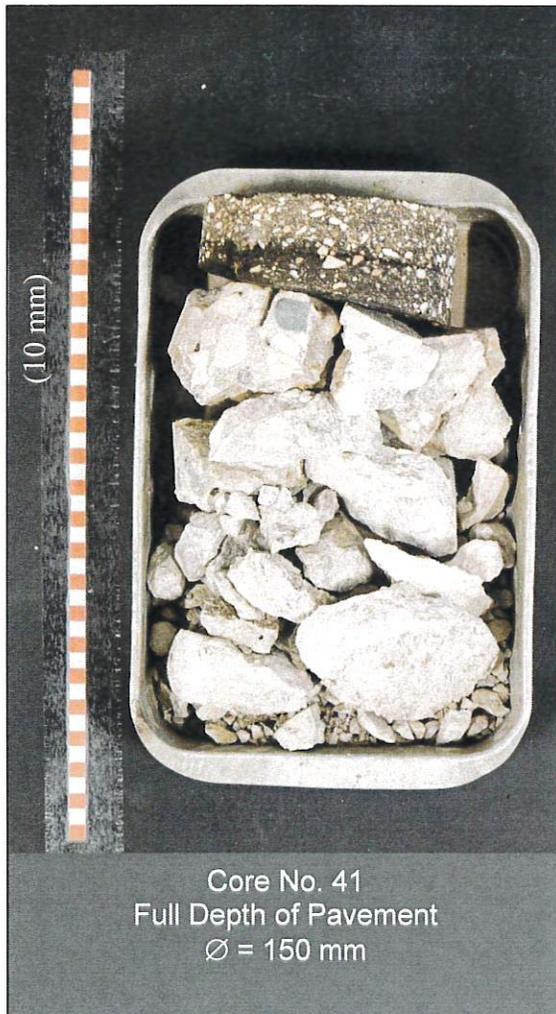
**Photograph 39: Specimen from Peake Avenue, Eastbound Lane**



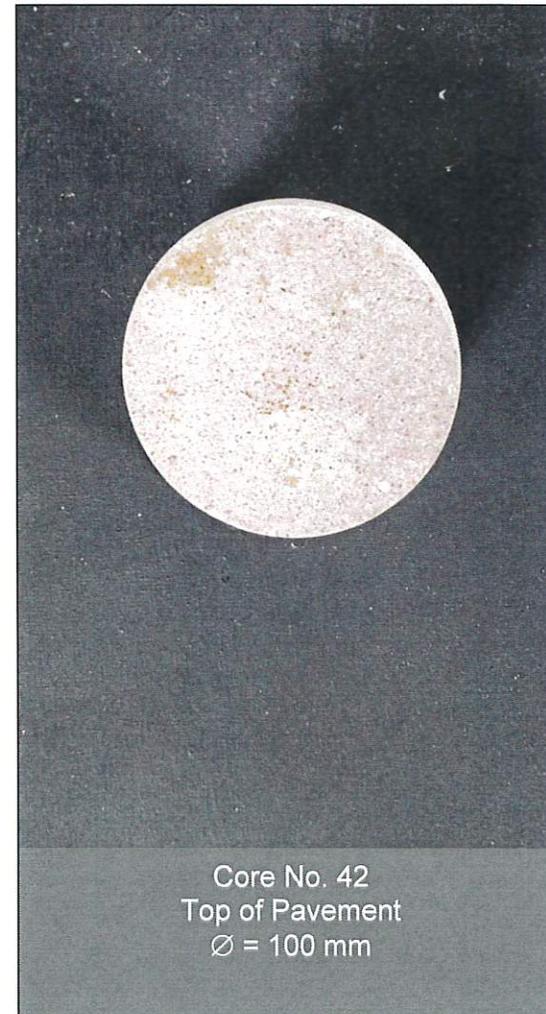
**Photograph 40: Specimen from Peake Avenue, Westbound Lane**



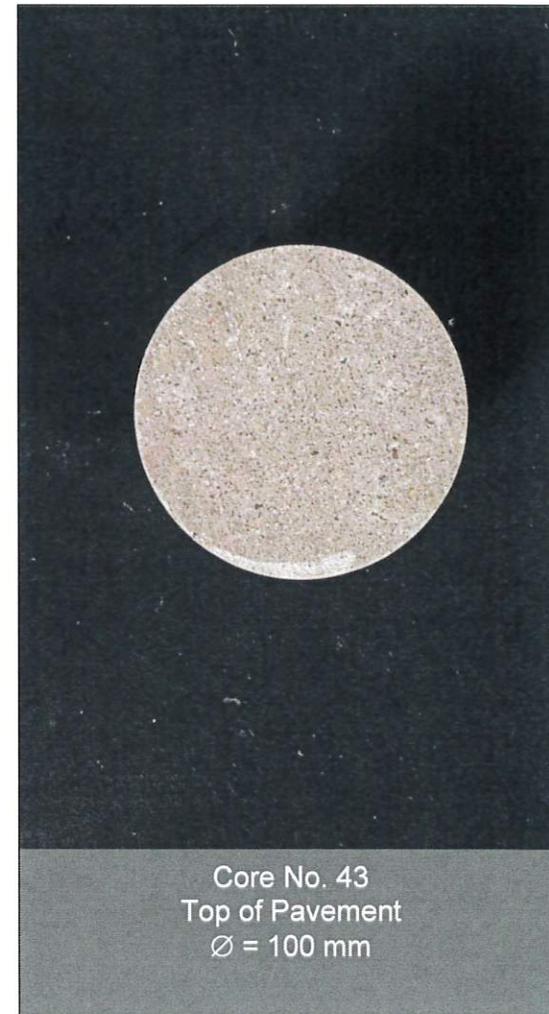
**Photograph 41: Specimen from Peake Avenue, Westbound Lane**



**Photograph 42: Specimen from Horetzky Street, Southbound Lane**



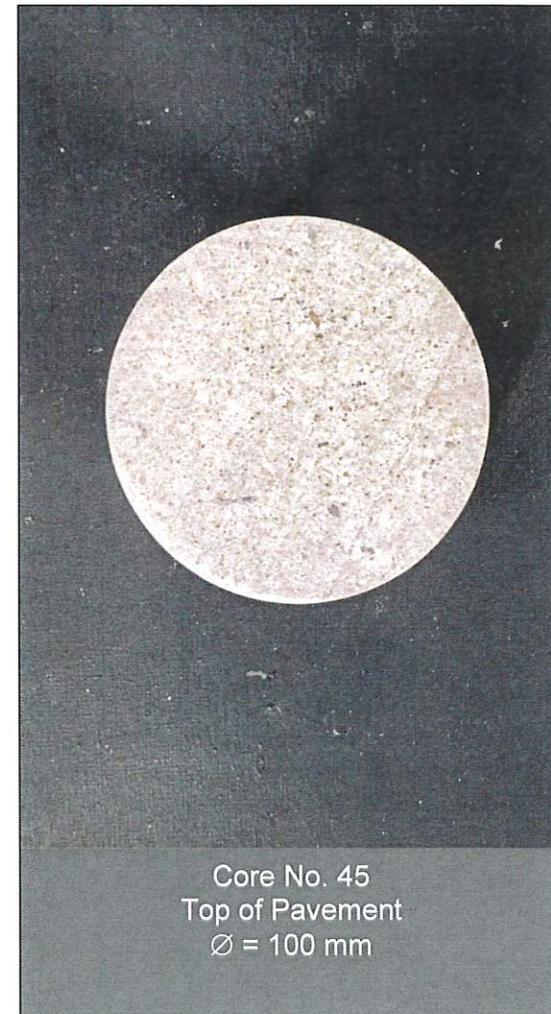
**Photograph 43: Specimen from Horetzky Street, Northbound Lane**



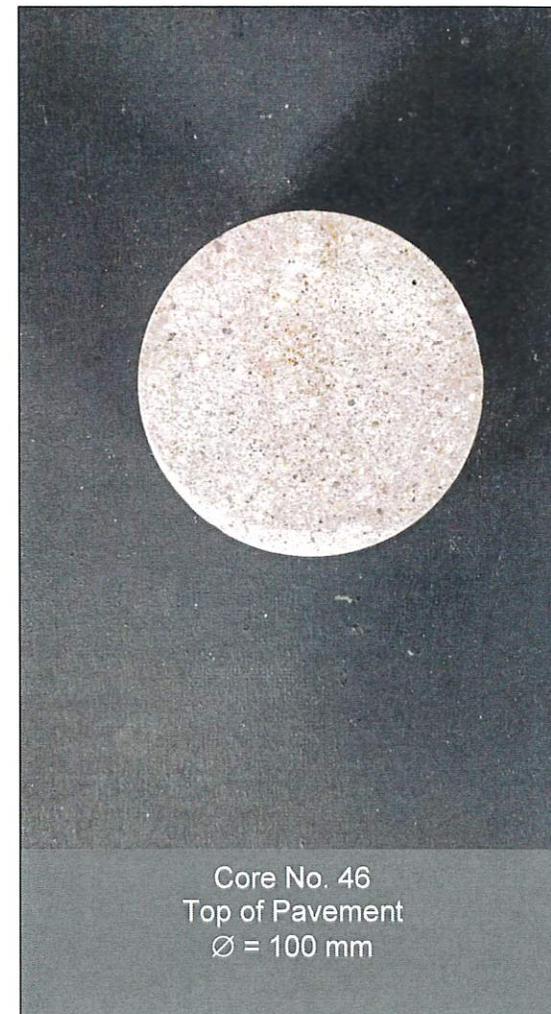
**Photograph 44: Specimen from Shields Street, Southbound Lane**



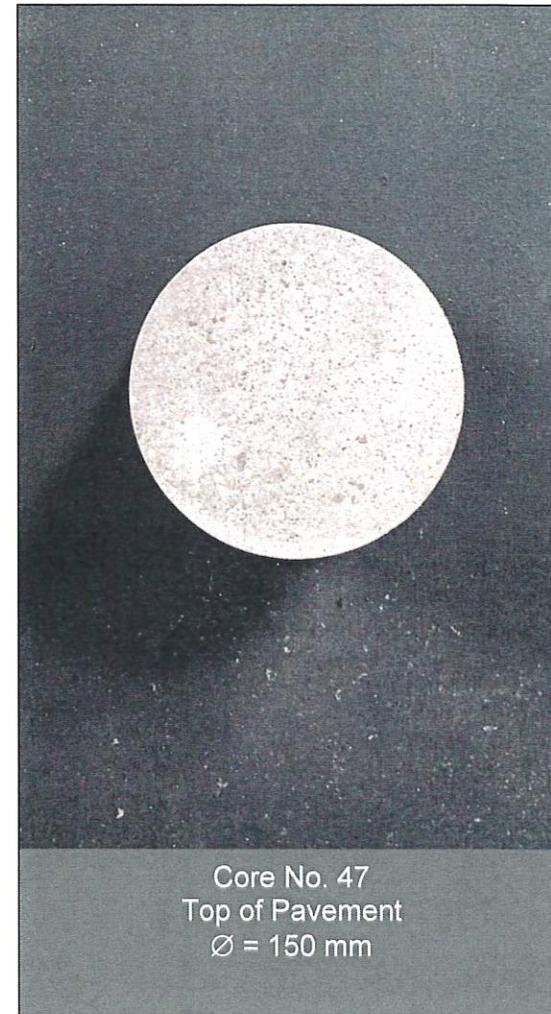
**Photograph 45: Specimen from Shields Street, Northbound Lane**



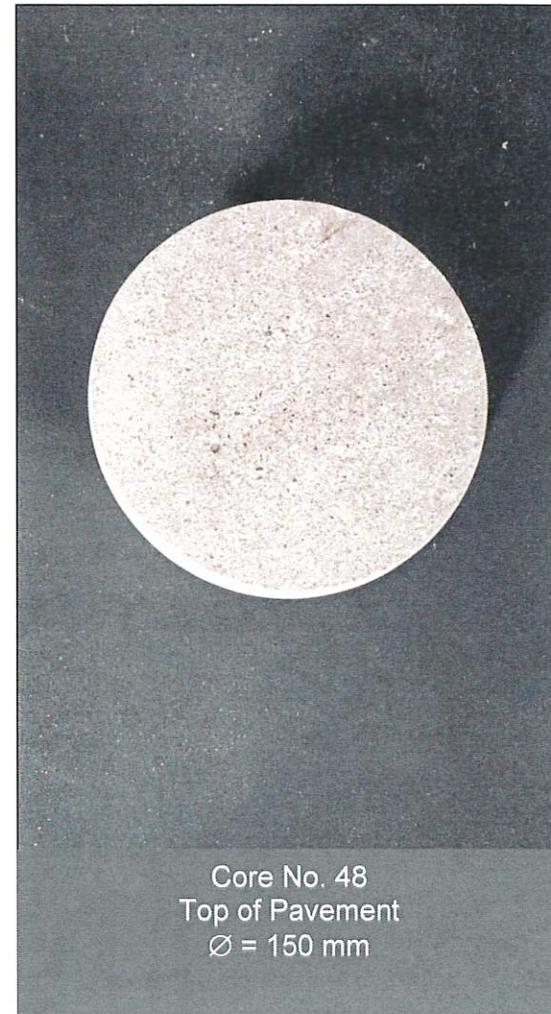
**Photograph 46: Specimen from Moberly Avenue, Westbound Lane**



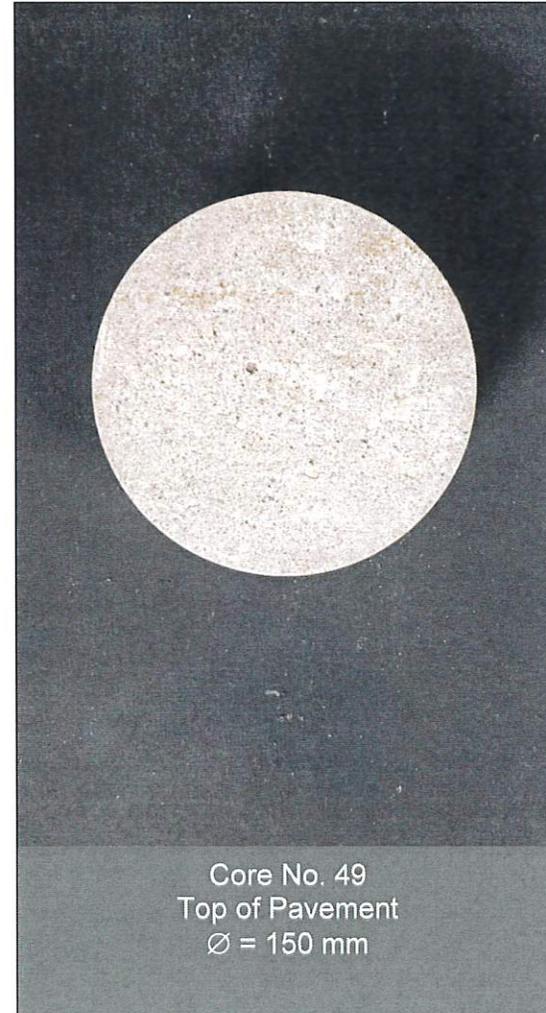
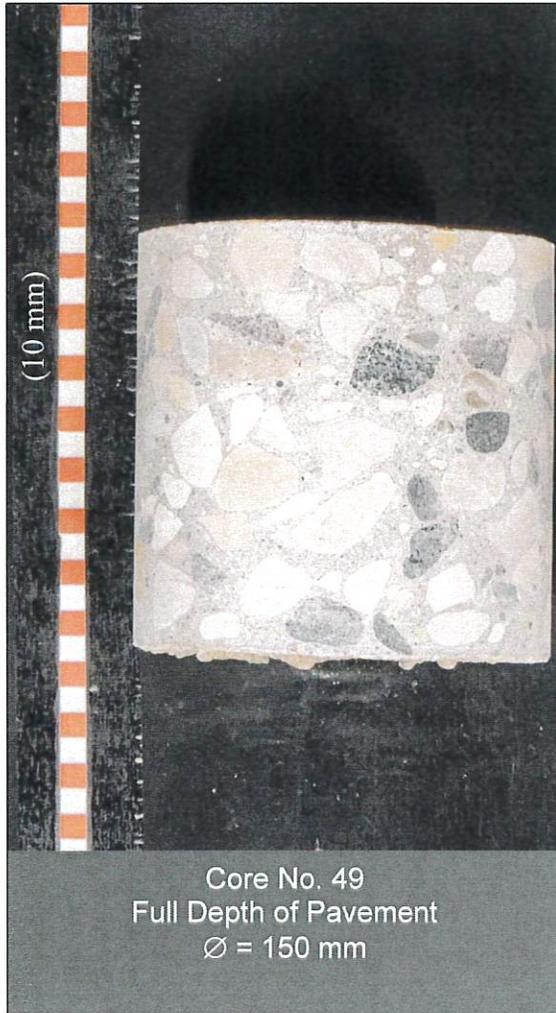
**Photograph 47: Specimen from Moberly Avenue, Eastbound Lane**



**Photograph 48: Specimen from Moberly Avenue, Westbound Lane**



**Photograph 49: Specimen from Moberly Avenue, Eastbound Lane**



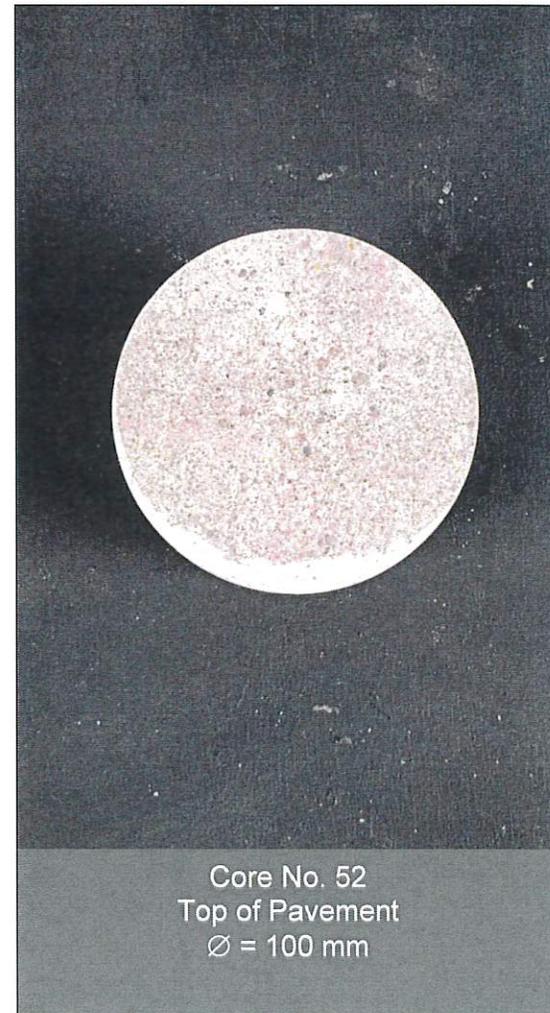
**Photograph 50: Specimen from Hayes Street, Southbound Lane**



Photograph 51: Specimen from Hayes Street, Northbound Lane



**Photograph 52: Specimen from Winona Street, Southbound Lane**



**Photograph 53: Specimen from Winona Street, Northbound Lane**



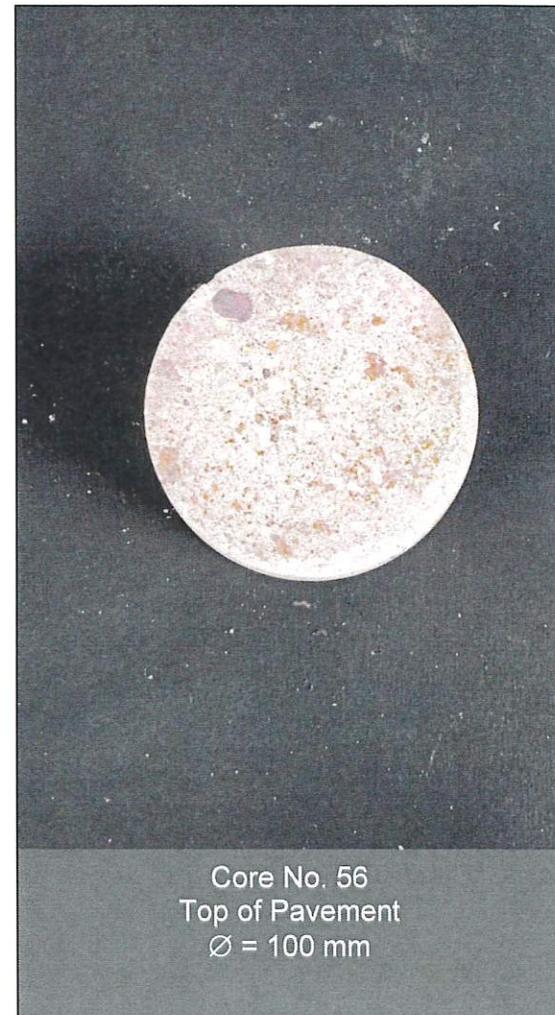
**Photograph 44: Specimen from Winona Street, Southbound Lane**



**Photograph 55: Specimen from Whiteshell Avenue, Westbound Lane**



**Photograph 56: Specimen from Whiteshell Avenue, Eastbound Lane**



**Photograph 57: Specimen from Whiteshell Avenue, Southbound Lane**

