



October 10, 2023

Department of Environment and Climate
Environmental Approvals Branch
14 Fultz Blvd
Winnipeg, MB R3Y 0L6

Attention: Edwin Yazon, P.Eng.

**RE: LANDFILL DISPOSAL CELL CONSTRUCTION (CELL 34)
BRADY ROAD RESOURCE MANAGEMENT FACILITY (CLIENT FILE NO.: 5556.00)**

Following up on our communications (conversations, site meetings, and emails), the attached documents are being submitted to satisfy requirements of Conditions 32 through 37 of Environment Act License 3081R, in relation to the 60 mil high density polyethylene (HDPE) liner that was installed in the new landfill disposal cell (Cell 34) between September 19 and September 25, 2023.

In addition, a laboratory analysis report is being submitted to satisfy requirements of Conditions 27 through 31 of Environment Act License 3081R, in relation to the 150mm compacted clay liner that was constructed beneath the HDPE liner. The analysed sample was obtained from a representative Shelby Tube sample that was collected at the direction of representatives from your office (Mehak Bajwa and Edwin Yazon) on September 15, 2023.

Sincerely,



Ash Raichura, P.Eng.
Project Coordinator

Attachments: HDPE Liner QA-QC Package (Titan Environmental Containment)
HDPE Liner – Destructive Testing Analysis Report (Sageos CTT Group)
Compacted Clay Liner - Laboratory Analysis Report (Eng Tech Limited)
HDPE Liner Installation photographs (set of 12)

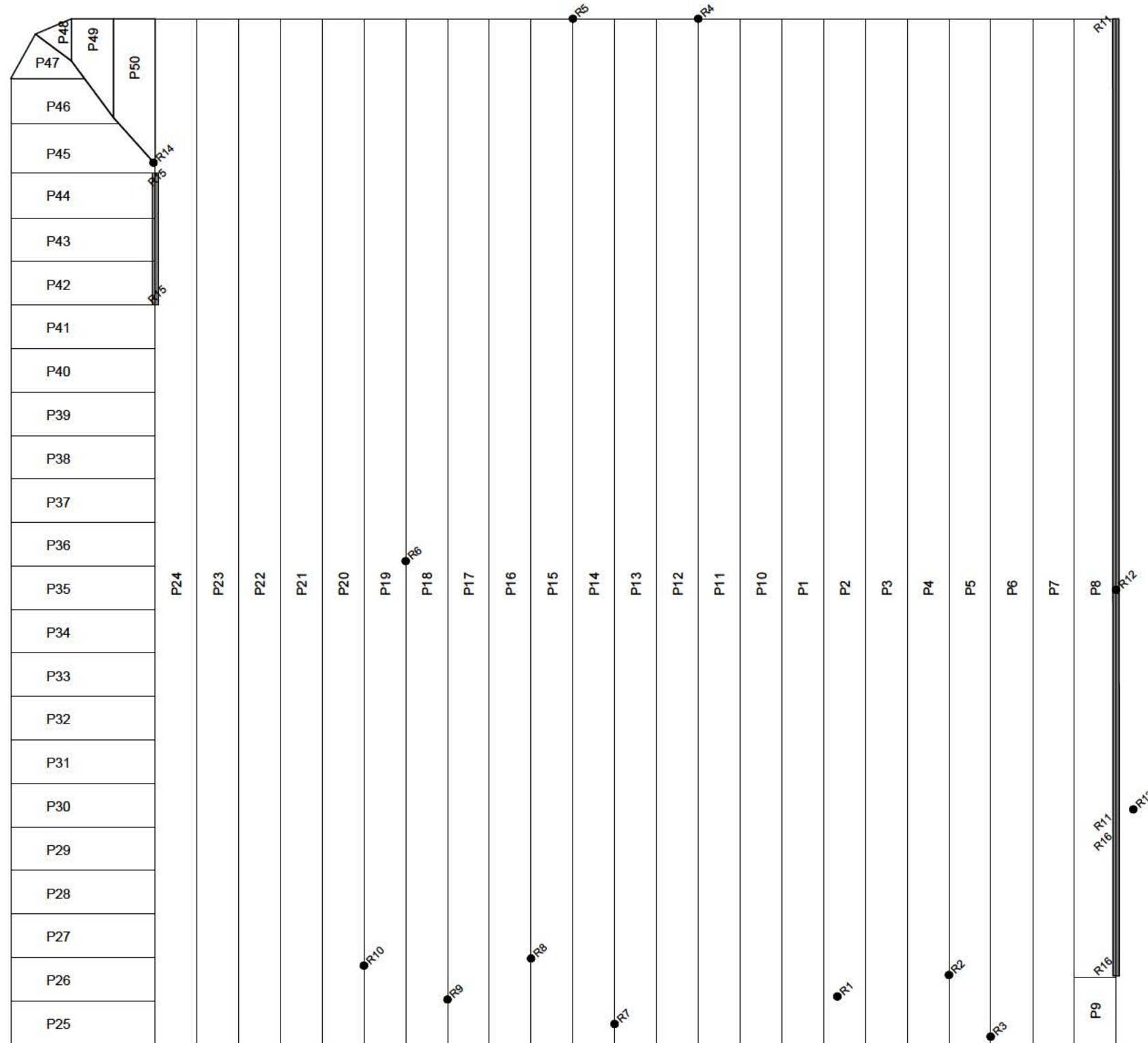
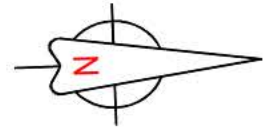
- c: Michael Gordichuk, Manager of Solid Waste Services, City of Winnipeg (email)
Chris Kozak, Superintendent of Operations, City of Winnipeg (email)
Asit Dey, Engineering Manager, Environmental Approvals Branch, Manitoba Government (email)
Mehak Bajwa, Senior Environmental Engineer, Environmental Approvals Branch, Manitoba Government (email)



GEOMEMBRANE
QA-QC PACKAGE
FOR 60mil HDPE GEOMEMBRANE

TITAN ENVIRONMENTAL CONTAINMENT

L220033
BRADY ROAD RESOURCE MANAGEMENT FACILITY – CELL 34
WINNIPEG, MB
COMPLETED SEPTEMBER 28, 2023



Report any discrepancies to Titan Environmental Containment Ltd. Do not scale dimensions from drawing. Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Titan Environmental Containment Ltd. Final Panel Locations to be installed at the discretion of the TITAN field Superintendent as see fit to existing site conditions..

NOT APPROVED FOR CONSTRUCTION

PROJ. NO.:	L220033	Brady Road Resource Management Facility - Cell 34 Construction		
DATE:	27-SEPT-23	TITAN ENVIRONMENTAL CONTAINMENT LTD.		
DRAWN BY:	EA	CLIENT:	CITY OF WINNIPEG	
REV. BY:	EA	DWG TITLE:	60mil HDPE AS-BUILT	
SCALE:	NTS	REV. NO.:	000	DWG NO.: 001



PANEL PLACEMENT LOG

Project Name: Brady Landfill Cell 34		Product Type: 60 mil HDPE			
DATE	PANEL NUMBER	ROLL NUMBER	LENGTH	WIDTH	COMMENTS
DD/MM/YY			<input checked="" type="checkbox"/> FEET / METERS		
19/09/23	P1	3147	540.00	22.00	
19/09/23	P2	3150	540.00	22.00	
19/09/23	P3	3156	540.00	22.00	
19/09/23	P4	3160	540.00	22.00	
19/09/23	P5	3153	540.00	22.00	
19/09/23	P6	3143	540.00	22.00	
19/09/23	P7	3138	540.00	22.00	
19/09/23	P8	3146	504.50	12.70	
20/09/23	P9	3146	35.50	22.00	
20/09/23	P10	3142	540.00	22.00	
20/09/23	P11	3155	540.00	22.00	
20/09/23	P12	3154	540.00	22.00	
20/09/23	P13	3152	540.00	22.00	
20/09/23	P14	3151	540.00	22.00	
20/09/23	P15	3166	540.00	22.00	
20/09/23	P16	3140	540.00	22.00	
20/09/23	P17	3167	540.00	22.00	
20/09/23	P18	3158	540.00	22.00	
20/09/23	P19	3164	540.00	22.00	
20/09/23	P20	3141	540.00	22.00	
21/09/23	P21	3163	540.00	22.00	
21/09/23	P22	3164	540.00	22.00	
21/09/23	P23	3159	540.00	22.00	
21/09/23	P24	3157	540.00	22.00	
21/09/23	P25	3168	73.00	22.00	
21/09/23	P26	3168	73.00	22.00	
21/09/23	P27	3168	76.00	22.00	
21/09/23	P28	3168	76.00	22.00	
21/09/23	P29	3168	76.00	22.00	
21/09/23	P30	3168	76.00	22.00	
21/09/23	P31	3168	76.00	22.00	
21/09/23	P32	3145	76.00	22.00	
21/09/23	P33	3145	76.00	22.00	
21/09/23	P34	3145	76.00	22.00	
21/09/23	P35	3145	76.00	22.00	
21/09/23	P36	3145	76.00	22.00	
21/09/23	P37	3145	76.00	22.00	



WEDGE SEAM LOG

Project Name: Brady Landfill Cell 34

Product Type: 60 mil HDPE

NOTE: ALL AIR TESTING MUST MAINTAIN A CONSISTENT READING FOR A MINIMUM OF 5 MINUTES.

SEAM LOG							AIR TEST INFORMATION				
BETWEEN PANELS	WELD DATE	TIME OF DAY		TECHNICIAN	WEDGE #	SEAM LENGTH	TEST DATE	START PSI	FINISH PSI	TEST RESULTS	QC TECHNICIAN
		DD/MM/YY	AM								
P1/P2	19/09/23		3:58	AS	48	540	21/09/23	47	46	Pass	AS
P2/P3	19/09/23		3:58	BF	43	540	21/09/23	58	58	Pass	AS
P3/P4	19/09/23		5:05	BF	43	540	21/09/23	57	56	Pass	AS
P4/P5	19/09/23		5:05	AS	48	540	21/09/23	51	51	Pass	AS
P5/P6	19/09/23		6:10	AS	48	540	21/09/23	51	50	Pass	AS
P6/P7	19/09/23		6:10	BF	43	540	21/09/23	50	50	Pass	AS
P7/P8	19/09/23		6:30	JP	47	504.5	21/09/23	58	58	Pass	AS
P7/P9	20/09/23	8:40		BF	43	35.5	21/09/23	60	59	Pass	AS
P8/P9	20/09/23	8:30		BF	43	22	21/09/23	51	51	Pass	AS
P1/P10	20/09/23	10:53		AS	32	540	21/09/23	47	46	Pass	AS
P10/P11	20/09/23	11:05		BF	43	540	21/09/23	60	60	Pass	AS
P11/P12	20/09/23		12:01	AS	32	540	21/09/23	45	45	Pass	AS
P12/P13	20/09/23		2:00	BF	43	540	21/09/23	47	47	Pass	AS
P13/P14	20/09/23		3:03	BF	43	540	21/09/23	60	60	Pass	AS
P14/P15	20/09/23		3:00	AS	32	540	21/09/23	54	53	Pass	AS
P15/P16	20/09/23		3:55	AS	32	540	21/09/23	60	59	Pass	AS
P16/P17	20/09/23		4:01	BF	43	540	21/09/23	45	44	Pass	AS
P17/P18	20/09/23		4:54	AS	32	540	21/09/23	47	46	Pass	AS
P18/P19	20/09/23		5:15	BF	43	540	21/09/23	57	55	Pass	AS
P19/P20	20/09/23		5:53	AS	32	540	21/09/23	49	48	Pass	AS
P20/P21	21/09/23	8:38		BF	43	540	21/09/23	46	44	Pass	AS
P21/P22	21/09/23	8:39		JP	32	540	21/09/23	43	42	Pass	AS
P22/P23	21/09/23	9:40		BF	43	540	21/09/23	49	48	Pass	AS
P23/P24	21/09/23	9:43		JP	32	540	21/09/23	41	40	Pass	AS
P25/P26	21/09/23	11:30		BF	43	73	22/09/23	60	59	Pass	AS
P26/P27	21/09/23	11:35		JP	32	73	22/09/23	45	45	Pass	AS
P27/P28	21/09/23	11:39		BF	43	76	22/09/23	43	42	Pass	AS
P28/P29	21/09/23	11:50		JP	32	76	22/09/23	48	48	Pass	AS
P29/P30	21/09/23	11:50		BF	43	76	22/09/23	50	49	Pass	AS
P30/P31	21/09/23		12:00	JP	32	76	22/09/23	50	49	Pass	AS
P31/P32	21/09/23		12:02	BF	43	76	22/09/23	57	56	Pass	AS
P32/P33	21/09/23		12:07	JP	32	76	22/09/23	43	42	Pass	AS
P33/P34	21/09/23		12:16	BF	43	76	22/09/23	49	48	Pass	AS
P34/P35	21/09/23		12:17	JP	32	76	22/09/23	47	45	Pass	AS
P35/P36	21/09/23		12:29	BF	43	76	22/09/23	60	58	Pass	AS
P36/P37	21/09/23		12:27	JP	32	76	22/09/23	60	60	Pass	AS



WEDGE SEAM LOG

Project Name: Brady Landfill Cell 34

Product Type: 60 mil HDPE

NOTE: ALL AIR TESTING MUST MAINTAIN A CONSISTENT READING FOR A MINIMUM OF 5 MINUTES.

SEAM LOG							AIR TEST INFORMATION				
BETWEEN PANELS	WELD DATE	TIME OF DAY		TECHNICIAN	WEDGE #	SEAM LENGTH	TEST DATE	START PSI	FINISH PSI	TEST RESULTS	QC TECHNICIAN
		DD/MM/YY	AM								
P37/P38	21/09/23		12:37	BF	43	76	22/09/23	50	48	Pass	AS
P38/P39	21/09/23		12:37	JP	32	76	22/09/23	58	57	Pass	AS
P39/P40	21/09/23		12:48	BF	43	76	22/09/23	47	46	Pass	AS
P40/P41	21/09/23		12:48	JP	32	76	22/09/23	51	49	Pass	AS
P41/P42	21/09/23		12:58	BF	43	76	22/09/23	60	58	Pass	AS
P42/P43	21/09/23		12:58	JP	32	76	22/09/23	57	55	Pass	AS
P24/P25	21/09/23		3:55	JP	32	22	22/09/23	60	59	Pass	AS
P24/P26	21/09/23		3:55	JP	32	22	22/09/23	58	57	Pass	AS
P24/P27	21/09/23		3:55	JP	32	22	22/09/23	53	51	Pass	AS
P24/P28	21/09/23		3:55	JP	32	22	22/09/23	47	45	Pass	AS
P24/P29	21/09/23		3:55	JP	32	22	22/09/23	50	49	Pass	AS
P24/P30	21/09/23		3:55	JP	32	22	22/09/23	47	46	Pass	AS
P24/P31	21/09/23		3:55	JP	32	22	22/09/23	58	57	Pass	AS
P24/P32	21/09/23		3:55	JP	32	22	22/09/23	50	50	Pass	AS
P24/P33	21/09/23		3:55	JP	32	22	22/09/23	52	50	Pass	AS
P24/P34	21/09/23		3:55	JP	32	22	22/09/23	50	48	Pass	AS
P24/P35	21/09/23		3:55	JP	32	22	22/09/23	48	46	Pass	AS
P24/P36	21/09/23		3:55	JP	32	22	22/09/23	50	49	Pass	AS
P24/P37	21/09/23		3:55	JP	32	22	22/09/23	57	57	Pass	AS
P24/P38	21/09/23		3:55	JP	32	22	22/09/23	54	53	Pass	AS
P24/P39	21/09/23		3:55	JP	32	22	22/09/23	58	57	Pass	AS
P24/P40	21/09/23		3:55	JP	32	22	22/09/23	58	57	Pass	AS
P24/P41	21/09/23		3:55	JP	32	22	22/09/23	47	46	Pass	AS
P43/P44	22/09/23		3:25	JP	47	76	22/09/23	50	49	Pass	AS
P44/P45	22/09/23		3:40	JP	47	76	22/09/23	45	44	Pass	AS
P45/P46	22/09/23		4:00	JP	47	69.6	22/09/23	51	50	Pass	AS
P46/P47	22/09/23		4:15	JP	47	38	22/09/23	55	53	Pass	AS
P48/P49	22/09/23		4:58	JP	47	22.2	22/09/23	57	56	Pass	AS
P49/P50	22/09/23		4:44	JP	47	52	22/09/23	54	52	Pass	AS
P50/P45	22/09/23		5:25	JP	47	10	22/09/23	57	57	Pass	AS
P50/P46	22/09/23		5:25	JP	47	18.5	22/09/23	60	59	Pass	AS
P49/P46	22/09/23		5:25	JP	47	17	22/09/23	60	58	Pass	AS
P49/P47	22/09/23		5:25	JP	47	11	22/09/23	60	60	Pass	AS
P47/P48	22/09/23		5:25	JP	47	22.8	22/09/23	57	56	Pass	AS
P24/P45	22/09/23		5:30	JP	47	6	22/09/23	60	60	PASS	AS
P24/P50	22/09/23		5:30	JP	47	76	22/09/23	60	59	PASS	AS



WEDGE TRIAL LOG

Project Name: Brady Landfill Cell 34

Product Type: 60 mil HDPE

Wedge #: 48
Date: Sept 19, 2023
Sheet Type: 60 mil HDPE

Time: <u>2:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>AS</u>			
Ambient Temp: <u>19</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>115</u>	F.T.B.	✓
	<u>114</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>115</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
	<u>112</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>147</u>	F.T.B.	✓
	<u>149</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Wedge Speed: _____ ft/hr			
Wedge Temp: _____ °C/°F			
INSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Wedge #: 43
Date: Sept 19, 2023
Sheet Type: 60 mil HDPE

Time: <u>2:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>BF</u>			
Ambient Temp: <u>19</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>115</u>	F.T.B.	✓
	<u>119</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>119</u>	F.T.B.	✓
	<u>112</u>	F.T.B.	✓
	<u>111</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>148</u>	F.T.B.	✓
	<u>147</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Wedge Speed: _____ ft/hr			
Wedge Temp: _____ °C/°F			
INSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:



WEDGE TRIAL LOG

Project Name: Brady Landfill Cell 34

Product Type: 60 mil HDPE

Wedge #: 47
Date: Sept 19, 2023
Sheet Type: 60 mil HDPE

Time: <u>5:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>JP</u>			
Ambient Temp: <u>20</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>123</u>	F.T.B.	✓
	<u>122</u>	F.T.B.	✓
	<u>122</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>123</u>	F.T.B.	✓
	<u>125</u>	F.T.B.	✓
	<u>124</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>150</u>	F.T.B.	✓
	<u>148</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Wedge Speed: _____ ft/hr			
Wedge Temp: _____ °C/°F			
INSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Wedge #: 32
Date: Sept 20, 2023
Sheet Type: 60 mil HDPE

Time: <u>8:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>AS</u>			
Ambient Temp: <u>14</u> °C			
Wedge Speed: <u>500</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>111</u>	F.T.B.	✓
	<u>112</u>	F.T.B.	✓
	<u>111</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>114</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
	<u>112</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>144</u>	F.T.B.	✓
	<u>146</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: <u>1:30</u> am/pm		BREAK TYPE	PASS
Technician: <u>AS</u>			
Ambient Temp: <u>20</u> °C			
Wedge Speed: <u>500</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F			
INSIDE PEEL	<u>118</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
	<u>119</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>116</u>	F.T.B.	✓
	<u>118</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>146</u>	F.T.B.	✓
	<u>149</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:



WEDGE TRIAL LOG

Project Name: Brady Landfill Cell 34

Product Type: 60 mil HDPE

Wedge #: 43
Date: Sept 20, 2023
Sheet Type: 60 mil HDPE

Time: <u>8:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>BF</u>			
Ambient Temp: <u>14</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>116</u>	F.T.B.	✓
	<u>114</u>	F.T.B.	✓
	<u>113</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>113</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
	<u>116</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>146</u>	F.T.B.	✓
	<u>145</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: <u>1:30</u> am/pm		BREAK TYPE	PASS
Technician: <u>BF</u>			
Ambient Temp: <u>20</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>117</u>	F.T.B.	✓
	<u>119</u>	F.T.B.	✓
	<u>116</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>115</u>	F.T.B.	✓
	<u>118</u>	F.T.B.	
	<u>118</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>147</u>	F.T.B.	✓
	<u>146</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Wedge #: 32
Date: Sept 21, 2023
Sheet Type: 60 mil HDPE

Time: <u>8:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>JP</u>			
Ambient Temp: <u>15</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>121</u>	F.T.B.	✓
	<u>122</u>	F.T.B.	✓
	<u>124</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>122</u>	F.T.B.	✓
	<u>122</u>	F.T.B.	✓
	<u>124</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>148</u>	F.T.B.	✓
	<u>149</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: <u>1:40</u> am/pm		BREAK TYPE	PASS
Technician: <u>JP</u>			
Ambient Temp: <u>21</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>126</u>	F.T.B.	✓
	<u>127</u>	F.T.B.	✓
	<u>123</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>120</u>	F.T.B.	✓
	<u>121</u>	F.T.B.	✓
	<u>123</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>145</u>	F.T.B.	✓
	<u>143</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:



WEDGE TRIAL LOG

Project Name: Brady Landfill Cell 34

Product Type: 60 mil HDPE

Wedge #: 43
Date: Sept 21, 2023
Sheet Type: 60 mil HDPE

Time: <u>8:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>BF</u>			
Ambient Temp: <u>15</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>119</u>	F.T.B.	✓
	<u>120</u>	F.T.B.	✓
	<u>118</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>118</u>	F.T.B.	✓
	<u>120</u>	F.T.B.	✓
	<u>121</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>146</u>	F.T.B.	✓
	<u>149</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: <u>1:40</u> am/pm		BREAK TYPE	PASS
Technician: <u>BF</u>			
Ambient Temp: <u>21</u> °C			
Wedge Speed: <u>600</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>121</u>	F.T.B.	✓
	<u>120</u>	F.T.B.	✓
	<u>123</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>119</u>	F.T.B.	✓
	<u>120</u>	F.T.B.	✓
	<u>120</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>149</u>	F.T.B.	✓
	<u>150</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Wedge #: 47
Date: Sept 22, 2023
Sheet Type: 60 mil HDPE

Time: <u>2:45</u> am/pm		BREAK TYPE	PASS
Technician: <u>JP</u>			
Ambient Temp: <u>17</u> °C			
Wedge Speed: <u>500</u> ft/hr			
Wedge Temp: <u>860</u> °C/°F ✓			
INSIDE PEEL	<u>117</u>	F.T.B.	✓
	<u>111</u>	F.T.B.	✓
	<u>119</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL	<u>119</u>	F.T.B.	✓
	<u>121</u>	F.T.B.	✓
	<u>120</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>146</u>	F.T.B.	✓
	<u>145</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Wedge Speed: _____ ft/hr			
Wedge Temp: _____ °C/°F			
INSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
OUTSIDE PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTE:



EXTRUDER TRIAL LOG

Project Name: Brady landfil

Product Type: 60 mil HDPE

Extruder#: 21

Date: Sept 21, 2023

Sheet Type: 60 mil HDPE

Time: <u>9:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>GS</u>			
Ambient Temp: <u>15</u> °C			
Ext Barrel Temp: <u>460</u> °C/°F ✓			
Ext Air Temp: <u>470</u> °C/°F ✓			
PEEL	<u>113</u>	F.T.B.	✓
	<u>99</u>	F.T.B.	✓
	<u>103</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>148</u>	F.T.B.	✓
	<u>147</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	

NOTES:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Ext Barrel Temp: _____ °C/°F			
Ext Air Temp: _____ °C/°F			
PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTES:

Extruder#: 21

Date: Sept 22, 2023

Sheet Type: 60 mil HDPE

Time: <u>8:30</u> am/pm		BREAK TYPE	PASS
Technician: <u>GS</u>			
Ambient Temp: <u>14</u> °C			
Ext Barrel Temp: <u>460</u> °C/°F ✓			
Ext Air Temp: <u>470</u> °C/°F ✓			
PEEL	<u>113</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
	<u>114</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
SHEAR	<u>149</u>	F.T.B.	✓
	<u>147</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	

NOTES:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Ext Barrel Temp: _____ °C/°F			
Ext Air Temp: _____ °C/°F			
PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTES:



EXTRUDER TRIAL LOG

Project Name: Brady Landfill Cell 34

Product Type: 60 mil HDPE

Extruder#: 21

Date: Sept 23, 2023

Sheet Type: 60 mil HDPE

Time: <u>9:00</u> am/pm		BREAK TYPE	PASS
Technician: <u>GS</u>			
Ambient Temp: <u>15</u> °C			
Ext Barrel Temp: <u>460</u> °C/°F ✓			
Ext Air Temp: <u>470</u> °C/°F ✓			
PEEL	<u>117</u>	F.T.B.	✓
	<u>115</u>	F.T.B.	✓
	<u>117</u>	F.T.B.	✓
		F.T.B.	
SHEAR	<u>143</u>	F.T.B.	✓
	<u>146</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTES:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Ext Barrel Temp: _____ °C/°F			
Ext Air Temp: _____ °C/°F			
PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTES:

Extruder#: 21

Date: Sept 25, 2023

Sheet Type: 60 mil HDPE

Time: <u>8:30</u> am/pm		BREAK TYPE	PASS
Technician: <u>GS</u>			
Ambient Temp: <u>12</u> °C			
Ext Barrel Temp: <u>460</u> °C/°F ✓			
Ext Air Temp: <u>47</u> °C/°F ✓			
PEEL	<u>118</u>	F.T.B.	✓
	<u>116</u>	F.T.B.	✓
	<u>118</u>	F.T.B.	✓
		F.T.B.	
SHEAR	<u>145</u>	F.T.B.	✓
	<u>145</u>	F.T.B.	✓
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTES:

Time: _____ am/pm		BREAK TYPE	PASS
Technician: _____			
Ambient Temp: _____ °C			
Ext Barrel Temp: _____ °C/°F			
Ext Air Temp: _____ °C/°F			
PEEL		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
SHEAR		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	
		F.T.B.	

NOTES:



DESTRUCTIVE TEST LOG

Project Name: Brady Landfill Cell 34

Sheet Type: 60 mil HDPE

DT#: 1			
Between Panels:	<u>P1,P2</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>12:30</u>		
INSIDE PEEL	116	F.T.B.	✓
	115	F.T.B.	✓
	115	F.T.B.	✓
	118	F.T.B.	✓
	114	F.T.B.	✓
OUTSIDE PEEL	118	F.T.B.	✓
	116	F.T.B.	✓
	116	F.T.B.	✓
	116	F.T.B.	✓
	114	F.T.B.	✓
SHEAR	146	F.T.B.	✓
	145	F.T.B.	✓
	140	F.T.B.	✓
	140	F.T.B.	✓
	146	F.T.B.	✓

NOTE:

DT#: 2			
Between Panels:	<u>P2,P3</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>12:45</u>		
INSIDE PEEL	114	F.T.B.	✓
	118	F.T.B.	✓
	119	F.T.B.	✓
	116	F.T.B.	✓
	116	F.T.B.	✓
	115	F.T.B.	✓
OUTSIDE PEEL	116	F.T.B.	✓
	118	F.T.B.	✓
	117	F.T.B.	✓
	114	F.T.B.	✓
	147	F.T.B.	✓
SHEAR	148	F.T.B.	✓
	145	F.T.B.	✓
	148	F.T.B.	✓
	148	F.T.B.	✓
	148	F.T.B.	✓

NOTE:

DT#: 3			
Between Panels:	<u>P3,P4</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 21, 2023</u>		
Time:	<u>1:30</u>		
INSIDE PEEL	110	F.T.B.	✓
	117	F.T.B.	✓
	118	F.T.B.	✓
	119	F.T.B.	✓
	117	F.T.B.	✓
OUTSIDE PEEL	114	F.T.B.	✓
	118	F.T.B.	✓
	118	F.T.B.	✓
	116	F.T.B.	✓
	120	F.T.B.	✓
SHEAR	148	F.T.B.	✓
	146	F.T.B.	✓
	145	F.T.B.	✓
	145	F.T.B.	✓
	148	F.T.B.	✓

NOTE:

DT#: 4			
Between Panels:	<u>P4,P5</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>12:57</u>		
INSIDE PEEL	119	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
	121	F.T.B.	✓
	118	F.T.B.	✓
	116	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	118	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
	149	F.T.B.	✓
SHEAR	150	F.T.B.	✓
	149	F.T.B.	✓
	148	F.T.B.	✓
	148	F.T.B.	✓
	145	F.T.B.	✓

NOTE:



DESTRUCTIVE TEST LOG

Project Name: Brady Landfill Cell 34

Sheet Type: 60 mil HDPE

DT#: 5			
Between Panels:	<u>P5,P6</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>1:04</u>		
INSIDE PEEL	119	F.T.B.	✓
	121	F.T.B.	✓
	124	F.T.B.	✓
	124	F.T.B.	✓
	121	F.T.B.	✓
OUTSIDE PEEL	119	F.T.B.	✓
	124	F.T.B.	✓
	125	F.T.B.	✓
	123	F.T.B.	✓
	119	F.T.B.	✓
SHEAR	147	F.T.B.	✓
	149	F.T.B.	✓
	144	F.T.B.	✓
	145	F.T.B.	✓
	145	F.T.B.	✓

NOTE:

DT#: 6			
Between Panels:	<u>P6,P7</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>1:16</u>		
INSIDE PEEL	116	F.T.B.	✓
	117	F.T.B.	✓
	116	F.T.B.	✓
	118	F.T.B.	✓
	119	F.T.B.	✓
	117	F.T.B.	✓
OUTSIDE PEEL	118	F.T.B.	✓
	118	F.T.B.	✓
	119	F.T.B.	✓
	121	F.T.B.	✓
	149	F.T.B.	✓
SHEAR	150	F.T.B.	✓
	147	F.T.B.	✓
	149	F.T.B.	✓
	148	F.T.B.	✓
	148	F.T.B.	✓

NOTE:

DT#: 7			
Between Panels:	<u>P7,P8</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>1:25</u>		
INSIDE PEEL	117	F.T.B.	✓
	121	F.T.B.	✓
	124	F.T.B.	✓
	120	F.T.B.	✓
	122	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	119	F.T.B.	✓
	121	F.T.B.	✓
	120	F.T.B.	✓
SHEAR	119	F.T.B.	✓
	148	F.T.B.	✓
	145	F.T.B.	✓
	142	F.T.B.	✓
	142	F.T.B.	✓

NOTE:

DT#: 8			
Between Panels:	<u>P1,P10</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept22, 2023</u>		
Time:	<u>1:39</u>		
INSIDE PEEL	117	F.T.B.	✓
	118	F.T.B.	✓
	119	F.T.B.	✓
	121	F.T.B.	✓
	122	F.T.B.	✓
	120	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	119	F.T.B.	✓
	120	F.T.B.	✓
	122	F.T.B.	✓
SHEAR	148	F.T.B.	✓
	148	F.T.B.	✓
	149	F.T.B.	✓
	147	F.T.B.	✓
	143	F.T.B.	✓

NOTE:



DESTRUCTIVE TEST LOG

Project Name: Brady Landfill Cell 34

Sheet Type: 60 mil HDPE

DT#: 9			
Between Panels:	<u>P10,P11</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>1:48</u>		
INSIDE PEEL	116	F.T.B.	✓
	114	F.T.B.	✓
	116	F.T.B.	✓
	114	F.T.B.	✓
	113	F.T.B.	✓
OUTSIDE PEEL	116	F.T.B.	✓
	117	F.T.B.	✓
	114	F.T.B.	✓
	116	F.T.B.	✓
	115	F.T.B.	✓
SHEAR	146	F.T.B.	✓
	149	F.T.B.	✓
	146	F.T.B.	✓
	148	F.T.B.	✓

NOTE:

DT#: 10			
Between Panels:	<u>P11,P12</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>1:59</u>		
INSIDE PEEL	119	F.T.B.	✓
	121	F.T.B.	✓
	121	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	120	F.T.B.	✓
	120	F.T.B.	✓
	123	F.T.B.	✓
	119	F.T.B.	✓
SHEAR	146	F.T.B.	✓
	148	F.T.B.	✓
	146	F.T.B.	✓
	147	F.T.B.	✓

NOTE:

DT#: 11			
Between Panels:	<u>P12,P13</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>2:10</u>		
INSIDE PEEL	120	F.T.B.	✓
	121	F.T.B.	✓
	119	F.T.B.	✓
	121	F.T.B.	✓
	118	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	121	F.T.B.	✓
	123	F.T.B.	✓
	121	F.T.B.	✓
SHEAR	119	F.T.B.	✓
	148	F.T.B.	✓
	149	F.T.B.	✓
	145	F.T.B.	✓
	147	F.T.B.	✓

NOTE:

DT#: 12			
Between Panels:	<u>P13,P14</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>2:21</u>		
INSIDE PEEL	119	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
	122	F.T.B.	✓
	118	F.T.B.	✓
OUTSIDE PEEL	119	F.T.B.	✓
	121	F.T.B.	✓
	122	F.T.B.	✓
	122	F.T.B.	✓
SHEAR	120	F.T.B.	✓
	147	F.T.B.	✓
	148	F.T.B.	✓
	149	F.T.B.	✓
	145	F.T.B.	✓

NOTE:



DESTRUCTIVE TEST LOG

Project Name: Brady Landfill Cell 34

Sheet Type: 60 mil HDPE

DT#: 13			
Between Panels: <u>P14,P15</u>		BREAK TYPE	PASS
QA Monitor: <u>AS</u>			
Date: <u>Sept21, 2023</u>			
Time: <u>1:30</u>			
INSIDE PEEL	111	F.T.B.	✓
	113	F.T.B.	✓
	112	F.T.B.	✓
	115	F.T.B.	✓
	111	F.T.B.	✓
OUTSIDE PEEL	111	F.T.B.	✓
	114	F.T.B.	✓
	116	F.T.B.	✓
	117	F.T.B.	✓
	115	F.T.B.	✓
SHEAR	146	F.T.B.	✓
	145	F.T.B.	✓
	144	F.T.B.	✓
	144	F.T.B.	✓
	147	F.T.B.	✓

NOTE:

DT#: 14			
Between Panels: <u>P15,P16</u>		BREAK TYPE	PASS
QA Monitor: <u>AS</u>			
Date: <u>Sept 22,2 023</u>			
Time: <u>2:33</u>			
INSIDE PEEL	119	F.T.B.	✓
	118	F.T.B.	✓
	120	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
OUTSIDE PEEL	120	F.T.B.	✓
	118	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
	119	F.T.B.	✓
SHEAR	149	F.T.B.	✓
	150	F.T.B.	✓
	148	F.T.B.	✓
	147	F.T.B.	✓
	148	F.T.B.	✓

NOTE:

DT#: 15			
Between Panels: <u>P16,P17</u>		BREAK TYPE	PASS
QA Monitor: <u>AS</u>			
Date: <u>Sept 22, 2023</u>			
Time: <u>2:45</u>			
INSIDE PEEL	118	F.T.B.	✓
	119	F.T.B.	✓
	118	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	123	F.T.B.	✓
	119	F.T.B.	✓
	119	F.T.B.	✓
	120	F.T.B.	✓
SHEAR	147	F.T.B.	✓
	146	F.T.B.	✓
	148	F.T.B.	✓
	149	F.T.B.	✓
	145	F.T.B.	✓

NOTE:

DT#: 16			
Between Panels: <u>P17,P18</u>		BREAK TYPE	PASS
QA Monitor: <u>AS</u>			
Date: <u>Sept 22, 2023</u>			
Time: <u>2:56</u>			
INSIDE PEEL	120	F.T.B.	✓
	121	F.T.B.	✓
	118	F.T.B.	✓
	117	F.T.B.	✓
	120	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	122	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
	121	F.T.B.	✓
SHEAR	147	F.T.B.	✓
	148	F.T.B.	✓
	149	F.T.B.	✓
	151	F.T.B.	✓
	150	F.T.B.	✓

NOTE:



DESTRUCTIVE TEST LOG

Project Name: Brady Landfill Cell 34

Sheet Type: 60 mil HDPE

DT#: 17			
Between Panels:	<u>P18,P19</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>3:03</u>		
INSIDE PEEL	118	F.T.B.	✓
	119	F.T.B.	✓
	122	F.T.B.	✓
	122	F.T.B.	✓
	121	F.T.B.	✓
OUTSIDE PEEL	119	F.T.B.	✓
	120	F.T.B.	✓
	122	F.T.B.	✓
	121	F.T.B.	✓
	119	F.T.B.	✓
SHEAR	149	F.T.B.	✓
	149	F.T.B.	✓
	147	F.T.B.	✓
	148	F.T.B.	✓
	150	F.T.B.	✓

NOTE:

DT#: 18			
Between Panels:	<u>P19,P20</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>3:14</u>		
INSIDE PEEL	118	F.T.B.	✓
	119	F.T.B.	✓
	121	F.T.B.	✓
	121	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	121	F.T.B.	✓
	119	F.T.B.	✓
	122	F.T.B.	✓
	146	F.T.B.	✓
SHEAR	149	F.T.B.	✓
	148	F.T.B.	✓
	146	F.T.B.	✓
	146	F.T.B.	✓
	146	F.T.B.	✓

NOTE:

DT#: 19			
Between Panels:	<u>P20,P21</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>3:23</u>		
INSIDE PEEL	118	F.T.B.	✓
	121	F.T.B.	✓
	121	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
	118	F.T.B.	✓
SHEAR	149	F.T.B.	✓
	150	F.T.B.	✓
	151	F.T.B.	✓
	148	F.T.B.	✓
	148	F.T.B.	✓

NOTE:

DT#: 20			
Between Panels:	<u>P21,P22</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>3:37</u>		
INSIDE PEEL	121	F.T.B.	✓
	119	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
	123	F.T.B.	✓
	122	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	122	F.T.B.	✓
	119	F.T.B.	✓
	122	F.T.B.	✓
	148	F.T.B.	✓
SHEAR	150	F.T.B.	✓
	151	F.T.B.	✓
	149	F.T.B.	✓
	148	F.T.B.	✓

NOTE:



DESTRUCTIVE TEST LOG

Project Name: Brady Landfill Cell 34

Sheet Type: 60 mil HDPE

DT#: 21			
Between Panels:	<u>P22,P23</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>3:44</u>		
INSIDE PEEL	119	F.T.B.	✓
	120	F.T.B.	✓
	119	F.T.B.	✓
	123	F.T.B.	✓
	119	F.T.B.	✓
OUTSIDE PEEL	119	F.T.B.	✓
	119	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
	121	F.T.B.	✓
SHEAR	149	F.T.B.	✓
	150	F.T.B.	✓
	151	F.T.B.	✓
	149	F.T.B.	✓
	148	F.T.B.	✓

NOTE:

DT#: 22			
Between Panels:	<u>P23,P24</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 21, 2023</u>		
Time:	<u>1:30</u>		
INSIDE PEEL	123	F.T.B.	✓
	127	F.T.B.	✓
	125	F.T.B.	✓
	122	F.T.B.	✓
	122	F.T.B.	✓
	125	F.T.B.	✓
OUTSIDE PEEL	123	F.T.B.	✓
	121	F.T.B.	✓
	124	F.T.B.	✓
	122	F.T.B.	✓
	151	F.T.B.	✓
SHEAR	149	F.T.B.	✓
	153	F.T.B.	✓
	150	F.T.B.	✓
	149	F.T.B.	✓
	149	F.T.B.	✓

NOTE:

DT#: 23			
Between Panels:	<u>P30,P31</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>3:55</u>		
INSIDE PEEL	119	F.T.B.	✓
	121	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
	119	F.T.B.	✓
OUTSIDE PEEL	119	F.T.B.	✓
	118	F.T.B.	✓
	120	F.T.B.	✓
	121	F.T.B.	✓
	120	F.T.B.	✓
SHEAR	147	F.T.B.	✓
	148	F.T.B.	✓
	147	F.T.B.	✓
	149	F.T.B.	✓
	150	F.T.B.	✓

NOTE:

DT#: 24			
Between Panels:	<u>P36,P37</u>	BREAK TYPE	PASS
QA Monitor:	<u>AS</u>		
Date:	<u>Sept 22, 2023</u>		
Time:	<u>4:03</u>		
INSIDE PEEL	121	F.T.B.	✓
	119	F.T.B.	✓
	121	F.T.B.	✓
	121	F.T.B.	✓
	123	F.T.B.	✓
	118	F.T.B.	✓
OUTSIDE PEEL	121	F.T.B.	✓
	122	F.T.B.	✓
	121	F.T.B.	✓
	119	F.T.B.	✓
	148	F.T.B.	✓
SHEAR	147	F.T.B.	✓
	146	F.T.B.	✓
	147	F.T.B.	✓
	148	F.T.B.	✓
	148	F.T.B.	✓

NOTE:



SUB-GRADE ACCEPTANCE

PROJECT: <u>Brady landfill</u>	LOCATION: <u>Brady landfill</u>
PROJECT #: <u>L220033</u>	CONTRACTOR: <u>Win-tec</u>
OWNER: <u>City of Winnipeg</u>	QA/QC: <u>Adam Starkman</u>
ENGINEER: <u>City of Winnipeg</u>	DATE: <u>Sept 19,2023</u>

This document certifies that on Sept 19,2023, the project superintendant, Glen Solk, for TITAN ENVIRONMENTAL CONTAINMENT has inspected the surface of the sub-grade and has found that it meets the installation of the geomembrane and geosynthetics as per engineer specifications.

TITAN ENVIRONMENTAL CONTAINMENT accepts only the surface of the sub-grade and holds no responsibility of the structural strength of the containment system used on this project. Any and all failure causing damage to the geomembranes and geosynthetics being installed on this project will be repaired or replaced at the General contractors or Owners expense.

TITAN ENVIRONMENTAL CONTAINMENT will only accept Sub-grade on a daily installation and will not be held accountable for any damages to Sub-grade out side our control.

Area Being Accepted: Landfill Cell 34

TITAN REPRESENTATIVE

Sept 19,2023

DATE

GENERAL CONTRACTOR, OWNER REPRESENTATIVE

Sept 19,2023

DATE



420 Turenne Street Winnipeg, Manitoba R2J 3W8
Phone: (204) 233-1694 Fax: (204) 235-1579
E-mail: engtech@mymts.net
www.eng-tech.ca

October 10, 2023

Project No. 23-253-04

Wintec Building Service
80 Lakeside Road
Navin, Manitoba
R5T 0E2

ATTENTION: Jarrod Boscow

RE: Brady Road Landfill, Waste Disposal Cell 34 Construction – TH1 Hydraulic Conductivity

ENG-TECH Consulting Limited (ENG-TECH) extracted a total of four (4) Shelby tube samples from the above project on September 15, 2023 at the ENG-TECH laboratory. One (1) hydraulic conductivity test was performed on sample ST1, which was selected by City of Winnipeg. The soil sample was prepared for testing in accordance with ASTM D5084-16a, *Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter*.

The soil sample was visually classified as a medium plastic clay and capable of obtaining a hydraulic conductivity of less than 1×10^{-7} cm/sec. The final hydraulic conductivity values (k_{20}) for sample ST-1 was 2.2×10^{-10} m/sec. The hydraulic conductivity test data is summarized in Table 1, while the graphical representations of the hydraulic conductivity versus elapsed time are shown in Charts 1. Photographs of the soil sample are attached.

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

Sincerely,
ENG-TECH Consulting Limited



Amruthraj Muthuraj, M.Eng., E.I.T
Engineering Department

CDH/raj

Attachments Table 1 – Hydraulic Conductivity Test Data Brady Landfill - Cell 34 Construction
Chart 1 – Hydraulic Conductivity Versus Elapsed Time Brady Landfill - Cell 34 Construction: Sample TH1
Photograph 1



Clark Hryhoruk, M.Sc., P.Eng.
President

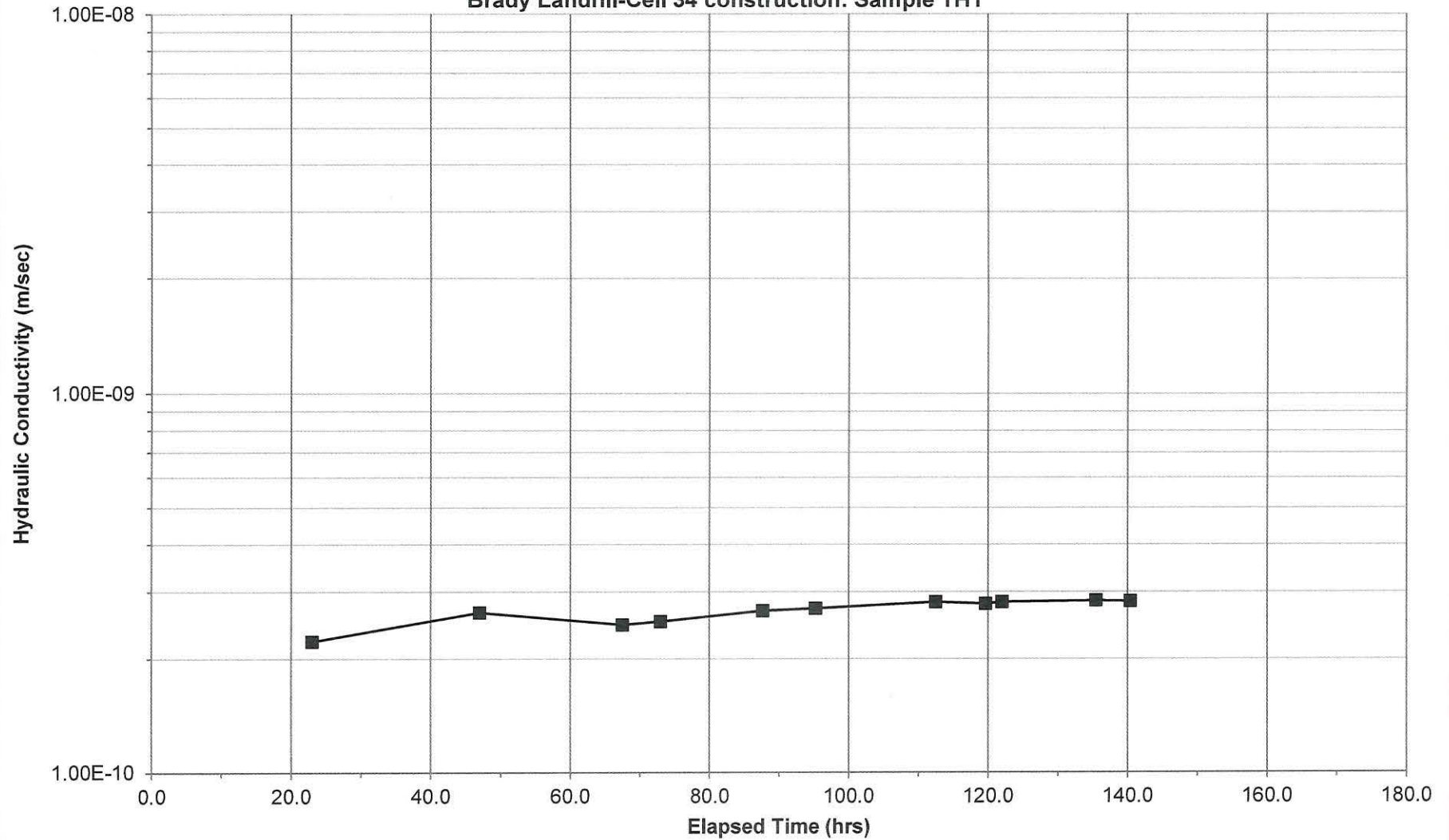


**TABLE 1
HYDRAULIC CONDUCTIVITY TEST DATA
BRADY LANDFILL- CELL 34 CONSTRUCTION**

SAMPLE ID	ST1
INITIAL VALUES	
ENG-TECH Reference No.	23-253-04-6
Length of Sample in Tube (cm)	~70
Length (cm)	6.92
Diameter (cm)	7.42
Area (cm ²)	43.3
Volume (cm ³)	299.9
Water Content (%)	27.5
Bulk Dry Density (kg/m ³)	1,423
Specific Gravity (G _s) (assumed)	2.70
Void Ratio	0.897
Degree of Saturation (%)	82.8
FINAL VALUES	
Length (cm)	6.97
Diameter (cm)	7.53
Area (cm ²)	44.5
Volume (cm ³)	310.2
Water Content (%)	40.2
Bulk Dry Density (kg/m ³)	1,294
Specific Gravity (G _s) (assumed)	2.70
Void Ratio	1.087
Degree of Saturation (%)	99.9
CONSOLIDATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
PERMEATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
Hydraulic Gradient	16.1
Permeant Fluid	Potable Tap Water
HYDRAULIC CONDUCTIVITY AT TEST TEMPERATURE: 21°C (cm/sec)	9.4 x 10 ⁻⁹
HYDRAULIC CONDUCTIVITY TEMPERATURE CORRECTED TO 20°C (K₂₀) (cm/sec)	9.2 x 10 ⁻⁹



Chart 1: Hydraulic Conductivity Versus Elapsed Time
Brady Landfill-Cell 34 construction: Sample TH1





PHOTOGRAPH #1: Sample ST1 after completion of hydraulic conductivity testing.