February 1, 2022

O'Reilly Development Company, LLC
Attn: Denise Heintz
5051 S. National Avenue, Suite 4-100
Springfield, Missouri 65810

RE: Princeton Senior Living Facility
Special Inspection Services – Final Report
1701 SE Oldham Parkway
Lee's Summit, Missouri
Olsson Project No. B18-1450

Dear Ms. Heintz:

In accordance with your request, Olsson, Inc. has provided construction observation and testing services for the above referenced project. Our services were performed on a part-time basis as scheduled by your on-site representative between February 14 and November 23, 2021.

Summary of Activities

Reinforced Concrete

Field tests were performed and compressive strength test specimens cast with concrete sampled from the light pole bases within the south parking area and the south entrance approach from Princeton Drive. Results of the recent concrete compressive strength tests have been submitted separately.

Wood Framing

The following items within the wood framing for the new building were observed:

February 25	-	Independent Living West Building B first floor shear wall hold-down anchor installation
March 11	-	Independent Living West Building B first floor shear wall hold-down anchor installation
March 31	-	Assisted Living Building F exterior sheathing nail patterns
April 7	-	Assisted Living Building E exterior sheathing nail patterns
April 22	-	Assisted Living Building D exterior sheathing nail patterns
May 17	-	Independent Living Buildings A and G first floor shear wall hold-down anchor installation
	-	Assisted Living Buildings D, E, and F first floor shear wall hold-down anchor installation

1700 E. 123rd Street / Olathe, KS 66061
O 913.829.0078 / **olsson.com**

May 19 - Independent Living buildings D, E, and F interior wall sheathing nail patterns

June 7 - Assisted Living Building D, E, and F interior demising wall sheathing nail patterns

Asphaltic Concrete

Field density tests were performed on the asphaltic concrete base and surface courses placed within the Frontage Road turn lanes. Samples of the hot mix asphalt delivered to the site were obtained for laboratory testing. Results of the field and laboratory tests are enclosed.

Field density tests were also performed in the asphaltic concrete surface course placed in the parking lots and drive lanes surrounding the new building. A Marshall density value was provided by the asphalt supplier to determine the compaction percentages of the in-place material. Results of the field density tests are summarized in the enclosed Asphalt Compaction Test Reports.

Corrected Variances

Structural Steel

The column base anchor bolted connections identified in Discrepancy List item Nos. 1 and 2 were observed to be completed in accordance with the project plans and specifications.

Asphaltic Concrete

Damaged areas within the parking lot and drive lane asphaltic concrete base course surrounding the new building were identified and marked for replacement. The asphalt was removed from the referenced areas and the underlying subgrade soils over-excavated to expose stiff clay soils. The over-excavations were backfilled with compacted pavement base rock. Field density tests were performed in the compacted base rock and the results are summarized in the enclosed Compaction Test Report.

Final Report

This report represents Olsson's final special inspections for the Princeton Senior Living Facility project located in Lee's Summit, Missouri. The special inspection items observed and tested by our field personnel have included site grading, foundation bearing materials, reinforced concrete, post-installed anchors, structural masonry, wood framing, structural steel, and asphaltic concrete. The items observed and/or tested by our field personnel and explicitly reported in this or previously submitted summary reports were in compliance with the project specifications. At this time, all known discrepancies with the project specifications have been resolved.

If you have any questions regarding this report, or if we may be of any further service, please contact us at 913.829.0078.

Respectfully Submitted,
OLSSON, INC.

Stewart Legg
Project Manager

Bryan Johnson, P.E.
Office Leader

CC: Steve Monsanto – O'Reilly Build
Drew Davis – O'Reilly Build
Rachel Henry – O'Reilly Build
Scott Auman – SWD Architects
City of Lee's Summit

SPECIAL INSPECTION DISCREPANCY LIST

olsson

Project Name: Princeton Senior Living Community Date: February 1, 2022

Project No.: B18-1450 Revision No.: Final Report

Note: Discrepancies have to be repaired and observed by our representatives before a final acceptance letter will be issued.

Item numbers previously reported and repaired that have been closed from the Discrepancy List are as follows:

Item numbers reported that require consulting by the project engineer are as follows:

Item No.	Status		Tech.	Discrepancies
	Open	Closed		
1	9-24-20	4-27-21	RH	Area A entry canopy • Columns at Grids E-3 and E-5 had less than full nut engagement to anchor rods • Column to beam connection at Grid D-5 had one tension control bolt that was not fully tensioned • Numerous bolted connections were missing washers (4-27-21) Area A column base connections observed completed per project specifications.
2	9-24-20	4-27-21	RH	Area E entry canopy column at Grid A-6 is missing a washer at one base anchor bolt connection. (4-27-21) Area E column base connection at Grid A-6 observed completed per project specifications.

Olathe
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Olathe, KS 66061
Phone: 913-829-0078 | Fax: 913-829-0258

Compaction Test Report

Report #: SNG-000005
Test Method: D6938 / T310

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Optimum Moisture Tolerance (%)	Remark
53		11/17/21	66840	A	SP	9.1	130.3	4.1	123.8	128.9	Backscatter	95	95 / 103	NA	A1
54		11/17/21	66840	A	SP	9.1	130.3	2.7	124.4	127.8	Backscatter	95	95 / 103	NA	A1
55		11/17/21	98459	C	GP	9.8	127.8	4.7	120.9	126.6	Backscatter	95	95 / 103	NA	A1
56		11/17/21	98459	C	GP	9.8	127.8	4.7	121.0	126.7	Backscatter	95	95 / 103	NA	A1
57		11/17/21	98459	C	GP	9.8	127.8	4.0	120.9	125.7	Backscatter	95	95 / 103	NA	A1
58		11/17/21	98459	C	GP	9.8	127.8	2.0	123.0	125.5	Backscatter	96	95 / 103	NA	A1
59		11/17/21	98459	C	GP	9.8	127.8	4.0	121.1	126.0	Backscatter	95	95 / 103	NA	A1
60		11/17/21	98459	C	GP	9.8	127.8	2.6	121.3	124.4	Backscatter	95	95 / 103	NA	A1

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
53	Pavement Subgrade: E parking lot, SE corner, E of generator, S	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin
54	Pavement Subgrade: E parking lot, SE corner, E of generator, Middle	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin
55	Pavement Subgrade: E parking lot, SE corner, E of generator, N	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin
56	Pavement Subgrade: E parking lot, SE corner, E of trash area, S	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin
57	Pavement Subgrade: E parking lot, SE corner, E of trash area, Middle	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin
58	Pavement Subgrade: E parking lot, SE corner, E of trash area, N	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin
59	Pavement Subgrade: E parking lot, curve at N end, E	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin
60	Pavement Subgrade: E parking lot, curve at N end, W	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Kuszmaul, Kaitlin

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61		11/19/21	66840	A	SP	9.1	130.3	5.4	131.3	138.4	2	101	95 / 103	NA	A1
62		11/19/21	66840	A	SP	9.1	130.3	9.7	128.9	141.4	2	99	95 / 103	NA	A1
63		11/19/21	66840	A	SP	9.1	130.3	8.4	127.6	138.3	2	98	95 / 103	NA	A1
64		11/19/21	66840	A	SP	9.1	130.3	8.1	129.4	139.9	2	99	95 / 103	NA	A1
65		11/19/21	66840	A	SP	9.1	130.3	7.4	126.4	135.7	2	97	95 / 103	NA	A1
66		11/19/21	66840	A	SP	9.1	130.3	9.3	127.6	139.5	2	98	95 / 103	NA	A1
67		11/19/21	66840	A	SP	9.1	130.3	6.6	131.1	139.8	2	101	95 / 103	NA	A1
68		11/19/21	66840	A	SP	9.1	130.3	11.6	127.0	141.7	2	97	95 / 103	NA	A1

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
61	Pavement Subgrade: G7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
62	Pavement Subgrade: G7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
63	Pavement Subgrade: G7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
64	Pavement Subgrade: G7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
65	Pavement Subgrade: F7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
66	Pavement Subgrade: F7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
67	Pavement Subgrade: F7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
68	Pavement Subgrade: F9	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin

Remarks	Comments
A1: Tests results comply with specifications	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Olathe, KS 66061
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Compaction Test Report

Report #: SNG-000005
Test Method: D6938 / T310

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Optimum Moisture Tolerance (%)	Remark
69		11/19/21	66840	A	SP	9.1	130.3	10.7	130.6	144.6	2	100	95 / 103	NA	A1
70		11/19/21	66840	A	SP	9.1	130.3	10.7	130.6	144.6	2	100	95 / 103	NA	A1
71		11/19/21	66840	A	SP	9.1	130.3	4.8	130.7	137.0	2	100	95 / 103	NA	A1
72		11/19/21	66840	A	SP	9.1	130.3	7.0	129.0	138.0	2	99	95 / 103	NA	A1
73		11/19/21	66840	A	SP	9.1	130.3	11.2	128.1	142.5	2	98	95 / 103	NA	A1
74		11/19/21	66840	A	SP	9.1	130.3	5.4	134.4	141.6	2	103	95 / 103	NA	A1
75		11/19/21	66840	A	SP	9.1	130.3	10.9	126.5	140.3	2	97	95 / 103	NA	A1

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
69	Pavement Subgrade: F9	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
70	Pavement Subgrade: F9	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
71	Pavement Subgrade: F9	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
72	Pavement Subgrade: F9	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
73	Pavement Subgrade: C9	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
74	Pavement Subgrade: C9	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin
75	Pavement Subgrade: C7	0.0	Grade	InstroTek, Inc. / 3500 / 3008 / 09/09/2016	Justice, Colin

Remarks	Comments
A1: Tests results comply with specifications	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Stewart Legg
Reviewer

Olathe
1700 East 123rd Street
Olathe, KS 66061
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Asphalt Compaction Test Report

Report #: BNG-000002
Test Method:

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
49		09/09/21	Asphaltic Concrete Pavement: South lane extension, 50' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	151.0	Backscatter	101	95 / 103	A	3009	McIntosh, Tyler
50		09/09/21	Asphaltic Concrete Pavement: South lane extension, 150' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	144.3	Backscatter	96	95 / 103	A	3009	McIntosh, Tyler
51		09/09/21	Asphaltic Concrete Pavement: South lane extension, 250' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	144.0	Backscatter	96	95 / 103	A	3009	McIntosh, Tyler
52		09/09/21	Asphaltic Concrete Pavement: South lane extension, 350' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	144.5	Backscatter	96	95 / 103	A	3009	McIntosh, Tyler
53		09/09/21	Asphaltic Concrete Pavement: South lane extension, 450' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	149.9	Backscatter	100	95 / 103	A	3009	McIntosh, Tyler
54		09/09/21	Asphaltic Concrete Pavement: South lane extension, 550' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	149.6	Backscatter	100	95 / 103	A	3009	McIntosh, Tyler
55		09/09/21	Asphaltic Concrete Pavement: South lane extension, 650' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	149.8	Backscatter	100	95 / 103	A	3009	McIntosh, Tyler

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Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
56		09/09/21	Asphaltic Concrete Pavement: South lane extension, 750' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	144.6	Backscatter	96	95 / 103	A	3009	McIntosh, Tyler
57		09/09/21	Asphaltic Concrete Pavement: South lane extension, 850' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	149.7	Backscatter	100	95 / 103	A	3009	McIntosh, Tyler
58		09/09/21	Asphaltic Concrete Pavement: South lane extension, 950' W from E edge of newly paved area	First Base Course			150.2	Supplied Value	146.4	Backscatter	97	95 / 103	A	3009	McIntosh, Tyler
59		09/09/21	Asphaltic Concrete Pavement: South lane extension, 50' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	148.4	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler
60		09/09/21	Asphaltic Concrete Pavement: South lane extension, 150' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	150.1	Backscatter	100	95 / 103	A	3009	McIntosh, Tyler
61		09/09/21	Asphaltic Concrete Pavement: South lane extension, 250' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	144.8	Backscatter	96	95 / 103	A	3009	McIntosh, Tyler
62		09/09/21	Asphaltic Concrete Pavement: South lane extension, 350' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	149.2	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler

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Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
63		09/09/21	Asphaltic Concrete Pavement: South lane extension, 450' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	149.5	Backscatter	100	95 / 103	A	3009	McIntosh, Tyler
64		09/09/21	Asphaltic Concrete Pavement: South lane extension, 550' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	148.3	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler
65		09/09/21	Asphaltic Concrete Pavement: South lane extension, 650' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	147.6	Backscatter	98	95 / 103	A	3009	McIntosh, Tyler
66		09/09/21	Asphaltic Concrete Pavement: South lane extension, 750' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	149.7	Backscatter	100	95 / 103	A	3009	McIntosh, Tyler
67		09/09/21	Asphaltic Concrete Pavement: South lane extension, 850' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	143.6	Backscatter	96	95 / 103	A	3009	McIntosh, Tyler
68		09/09/21	Asphaltic Concrete Pavement: South lane extension, 950' W from E edge of newly paved area	Second Base Course			150.2	Supplied Value	147.6	Backscatter	98	95 / 103	A	3009	McIntosh, Tyler
69		09/09/21	Asphaltic Concrete Pavement: North lane extension, 50' W from E edge of newly paved area	Base		150.2	150.2	Supplied Value	148.0	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler

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Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
70		09/09/21	Asphaltic Concrete Pavement: North lane extension, 150' W from E edge of newly paved area	Base			150.2	Supplied Value	148.3	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler
71		09/09/21	Asphaltic Concrete Pavement: North lane extension, 250' W from E edge of newly paved area	Base			150.2	Supplied Value	149.4	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler
72		09/09/21	Asphaltic Concrete Pavement: North lane extension, 350' W from E edge of newly paved area	Base			150.2	Supplied Value	146.9	Backscatter	98	95 / 103	A	3009	McIntosh, Tyler
73		09/09/21	Asphaltic Concrete Pavement: North lane extension, 450' W from E edge of newly paved area	Base			150.2	Supplied Value	148.4	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler
74		09/09/21	Asphaltic Concrete Pavement: North lane extension, 550' W from E edge of newly paved area	Base			150.2	Supplied Value	147.6	Backscatter	98	95 / 103	A	3009	McIntosh, Tyler
75		09/09/21	Asphaltic Concrete Pavement: North lane extension, 650' W from E edge of newly paved area	Base			150.2	Supplied Value	148.2	Backscatter	99	95 / 103	A	3009	McIntosh, Tyler
76		09/09/21	Asphaltic Concrete Pavement: North lane extension, 750' W from E edge of newly paved area	Base			150.2	Supplied Value	145.4	Backscatter	97	95 / 103	A	3009	McIntosh, Tyler

Remarks	Comments
A: Tests results comply with specifications	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter"

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Lee's Summit, MO

Gauge Information							
Gauge SN	**Make**	**Model**	**Density Count**	**Moisture Count**	**Standard Count Date**	**Last Calibration Date**	**Last Calibrated By**
3009	InstroTek, Inc.	3500	2339	458	09/09/21	09/09/16	InstroTek, Inc.

Charles Johnson
Project Manager

Olathe
1700 East 123rd Street
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Asphalt Compaction Test Report

Report #: BNG-000003
Test Method:

Client:
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Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
77		10/05/21	Asphalt Pavement Subgrade: South side parking lot	First Base Course			150.2	Supplied Value	150.8	Backscatter	100	95 / 103	A	3281	Shehata, Nader
78		10/05/21	Asphalt Pavement Subgrade: South side parking lot	First Base Course			150.2	Supplied Value	152.8	Backscatter	102	95 / 103	A	3281	Shehata, Nader
79		10/05/21	Asphalt Pavement Subgrade: South side drive road	First Base Course			150.2	Supplied Value	149.8	Backscatter	100	95 / 103	A	3281	Shehata, Nader
80		10/05/21	Asphalt Pavement Subgrade: South side drive road	First Base Course			150.2	Supplied Value	147.9	Backscatter	98	95 / 103	A	3281	Shehata, Nader
81		10/05/21	Asphalt Pavement Subgrade: South East corner, drive road	First Base Course			150.2	Supplied Value	145.3	Backscatter	97	95 / 103	A	3281	Shehata, Nader
82		10/05/21	Asphalt Pavement Subgrade: East side parking lot	First Base Course			150.2	Supplied Value	154.9	Backscatter	103	95 / 103	A	3281	Shehata, Nader
83		10/05/21	Asphalt Pavement Subgrade: East side parking lot	First Base Course			150.2	Supplied Value	148.8	Backscatter	99	95 / 103	A	3281	Shehata, Nader
84		10/05/21	Asphalt Pavement Subgrade: East side parking lot	First Base Course			150.2	Supplied Value	143.5	Backscatter	96	95 / 103	A	3281	Shehata, Nader
85		10/05/21	Asphalt Pavement Subgrade: North East side parking lot	First Base Course			150.2	Supplied Value	153.8	Backscatter	102	95 / 103	A	3281	Shehata, Nader
86		10/05/21	Asphalt Pavement Subgrade: North side parking lot	First Base Course			150.2	Supplied Value	153.5	Backscatter	102	95 / 103	A	3281	Shehata, Nader
87		10/05/21	Asphalt Pavement Subgrade: North side parking lot, by main entrance	First Base Course			150.2	Supplied Value	153.0	Backscatter	102	95 / 103	A	3281	Shehata, Nader
88		10/05/21	Asphalt Pavement Subgrade: Northwest Corner parking lot.	First Base Course			150.2	Supplied Value	151.2	Backscatter	101	95 / 103	A	3281	Shehata, Nader

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Asphalt Compaction Test Report

Report #: BNG-000003
Test Method:

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
89		10/05/21	Asphalt Pavement Subgrade: West road 4' strip adjacent to sidewalk	First Base Course			150.2	Supplied Value	153.2	Backscatter	102	95 / 103	A	3281	Shehata, Nader
90		10/05/21	Asphalt Pavement Subgrade: West road 4' strip adjacent to sidewalk	First Base Course			150.2	Supplied Value	152.4	Backscatter	101	95 / 103	A	3281	Shehata, Nader
91		10/05/21	Asphalt Pavement Subgrade: West road 4' strip adjacent to sidewalk	First Base Course			150.2	Supplied Value	153.2	Backscatter	102	95 / 103	A	3281	Shehata, Nader

Remarks	Comments
A: Tests results comply with specifications	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter"

Gauge Information

Gauge SN	Make	Model	Density Count	Moisture Count	Standard Count Date	Last Calibration Date	Last Calibrated By
3281	Instrotek	Explorer 3500	2428	395	10/05/21	09/13/17	Instrotek

Charles Johnson
Project Manager

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Asphalt Compaction Test Report

Report #: BNG-000004
Test Method:

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
92		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 10ft East, 10ft South from the west edge sidewalk	Surface			150.2	Supplied Value	152.3	Backscatter	101	95 / 103	A	32640	Wang, Jiewen
93		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 20ft East,10 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	152.2	Backscatter	101	95 / 103	A	32640	Wang, Jiewen
94		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 30ft East,10 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	148.5	Backscatter	99	95 / 103	A	32640	Wang, Jiewen
95		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 40ft East,15 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	150.0	Backscatter	100	95 / 103	A	32640	Wang, Jiewen
96		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 10ft East,25 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	148.9	Backscatter	99	95 / 103	A	32640	Wang, Jiewen
97		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 20ft East,25 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	150.7	Backscatter	100	95 / 103	A	32640	Wang, Jiewen
98		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 30ft East,25 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	152.9	Backscatter	102	95 / 103	A	32640	Wang, Jiewen

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Asphalt Compaction Test Report

Report #: BNG-000004
Test Method:

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
99		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 40ft East,25 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	147.0	Backscatter	98	95 / 103	A	32640	Wang, Jiewen
100		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 40ft East,35 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	146.2	Backscatter	97	95 / 103	A	32640	Wang, Jiewen
101		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 30ft East,35 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	153.8	Backscatter	102	95 / 103	A	32640	Wang, Jiewen
102		11/20/21	Asphaltic Concrete Pavement: SW parking lot, 20ft East,35 ft South from the west edge sidewalk	Surface			150.2	Supplied Value	151.9	Backscatter	101	95 / 103	A	32640	Wang, Jiewen

Remarks	Comments
A: Tests results comply with specifications	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter"

Gauge Information

Gauge SN	Make	Model	Density Count	Moisture Count	Standard Count Date	Last Calibration Date	Last Calibrated By
32640	Troxler	3440	1875	664	11/20/21	05/18/15	Calibration Solutions, LLC

Charles Johnson
Project Manager

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Asphalt Compaction Test Report

Report #: BNG-000005
Test Method:

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
103		12/15/21	Asphaltic Concrete Pavement: 5' N of SW corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	144.4	Backscatter	94	92 / 96	A	3986	Pointer, Bradly
104		12/15/21	Asphaltic Concrete Pavement: 100' N of SW corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	145.0	Backscatter	94	92 / 96	A	3986	Pointer, Bradly
105		12/15/21	Asphaltic Concrete Pavement: 200' N of SW corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	142.2	Backscatter	92	92 / 96	A	3986	Pointer, Bradly
106		12/15/21	Asphaltic Concrete Pavement: 300' N of SW corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	141.2	Backscatter	92	92 / 96	A	3986	Pointer, Bradly
107		12/15/21	Asphaltic Concrete Pavement: 400' N of SW corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	144.5	Backscatter	94	92 / 96	A	3986	Pointer, Bradly
108		12/15/21	Asphaltic Concrete Pavement: 5' N of SE corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	149.4	Backscatter	97	92 / 96	B	3986	Pointer, Bradly
109		12/15/21	Asphaltic Concrete Pavement: 100' N of SE corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	141.4	Backscatter	92	92 / 96	A	3986	Pointer, Bradly

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Asphalt Compaction Test Report

Report #: BNG-000005
Test Method:

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
110		12/15/21	Asphaltic Concrete Pavement: 200' N of SE corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	146.4	Backscatter	95	92 / 96	A	3986	Pointer, Bradly
111		12/15/21	Asphaltic Concrete Pavement: 300' N of SE corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	141.5	Backscatter	92	92 / 96	A	3986	Pointer, Bradly
112		12/15/21	Asphaltic Concrete Pavement: 400' N of SE corner of SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	145.1	Backscatter	94	92 / 96	A	3986	Pointer, Bradly
113		12/15/21	Asphaltic Concrete Pavement: 100' E of NE corner of SE Oldham Road/SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	143.2	Backscatter	93	92 / 96	A	3986	Pointer, Bradly
114		12/15/21	Asphaltic Concrete Pavement: 10' N of NE corner of SE Oldham Road/SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	147.2	Backscatter	95	92 / 96	A	3986	Pointer, Bradly
115		12/15/21	Asphaltic Concrete Pavement: 100' W of NE corner of SE Oldham Road/SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	146.1	Backscatter	95	92 / 96	A	3986	Pointer, Bradly
116		12/15/21	Asphaltic Concrete Pavement: 200' W of NE corner of SE Oldham Road/SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	143.8	Backscatter	93	92 / 96	A	3986	Pointer, Bradly

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Asphalt Compaction Test Report

Report #: BNG-000005
Test Method:

Client:
O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Test Results

Test #	Retest Of	Test Date	Test Location	Material	Mix Design	Thickness (in)	Max Density (pcf)	Max Density Source	In Place Density (pcf)	Probe Depth (in)	Percent Comp.	Min/Max Comp. (%)	Remark	Gauge SN	Technician
117		12/15/21	Asphaltic Concrete Pavement: 300' W of NE corner of SE Oldham Road/SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	146.4	Backscatter	95	92 / 96	A	3986	Pointer, Bradly
118		12/15/21	Asphaltic Concrete Pavement: 400' W of NE corner of SE Oldham Road/SE Princeton Drive	Surface			154.2	Type 5-01R20_02 / ASTM D 2041	143.6	Backscatter	93	92 / 96	A	3986	Pointer, Bradly

Remarks	Comments
A: Tests results comply with specifications **B:** Tests results do not comply with specifications	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter"

Gauge Information

Gauge SN	Make	Model	Density Count	Moisture Count	Standard Count Date	Last Calibration Date	Last Calibrated By
3986	Instrotek	3500	2453	724	12/15/21	03/05/20	Instrotek

Charles Johnson
Project Manager

Moisture-Density Relationship

Report #: MF0137-000001

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Project:

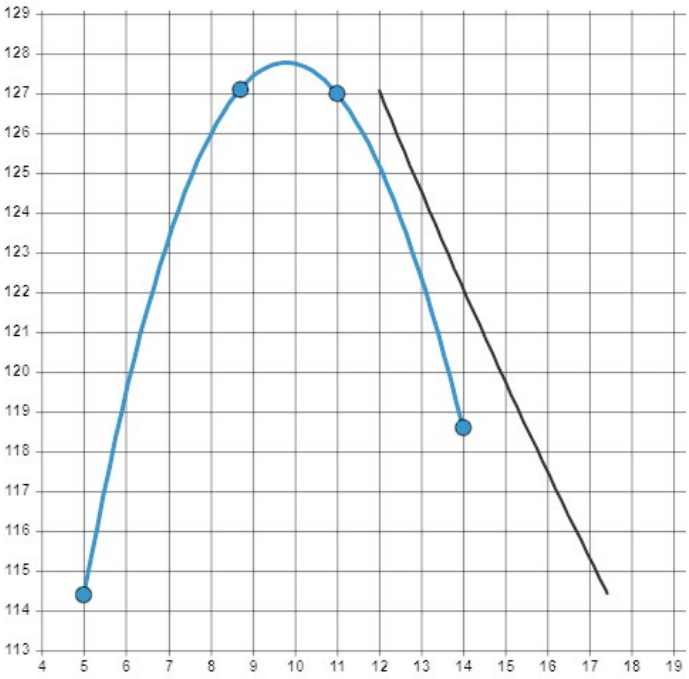
B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Sample Information

Sample Number:	98459	**Sampled By:**	Caulfield, Justin
Location:	Other	**Sample Date:**	11/29/2021
Location Details:	Not Specified		
Received Date:	11/29/2021		
Tested By:	Aggeler, Nicholas		
Tested Date:	11/29/2021		
Description:	GP Poorly Graded Gravel with Sand - gray		

Laboratory Data

Lab Address: 1700 East 123rd Street, Olathe, KS, 66061



Maximum Dry Density (pcf):	127.8
Optimum Moisture (%):	9.8
Method:	C (ASTM D698)
Preparation Method:	Moist
Rammer Type:	Mechanical
Specific Gravity:	2.70
Specific Gravity Source:	Assumed

Remarks:

Sieve Analysis of Aggregates

ASTM C136

Report #: MF0136-000001
12/08/2021

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Client:

O'Reilly Development Company LLC
5051 S National Ave Ste 4-100
Springfield, MO 65810

Project:

B18-1450
O'Reilly Development Senior Living Facility Lee's Summit MO Testing
1701 SE Oldham Road
Lee's Summit, MO

Sample Information

Sample Number: 98459
Sampled By: Caulfield, Justin
Sample From:
Sample Date: 11/29/2021
Location: Other
Location Details: Not Specified
Received Date: 11/29/2021
Lab: 1700 East 123rd Street, Olathe, KS, 66061
Tested Date: 11/29/2021
Tested By: Caulfield, Justin

Laboratory Data

Specification Agency: Other
Specification: 3,2,1-1/2, 1-1/4, 1, 3/4, 1/2, 3/8, #4, #8, #10, #16, #30, #40, #50, #100, #200

Sieve Size	Percent Passing	Specification	Result
37.5 mm (1.5 inch)	100	-	Pass
25 mm (1 inch)	98	-	Pass
19 mm (3/4 inch)	95	-	Pass
12.5 mm (1/2 inch)	86	-	Pass
9.5 mm (3/8 inch)	80	-	Pass
4.75 mm (No. 4)	66	-	Pass
2.36 mm (No. 8)	51	-	Pass
1.18 mm (No. 16)	37	-	Pass
600 µm (No. 30)	29	-	Pass
300 µm (No. 50)	25	-	Pass
150 µm (No. 100)	22	-	Pass
75 µm (No. 200)	19.7	-	Pass

#200 Loss By Washing ASTM C136 (%): 19.5

General

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Report of Asphaltic Concrete Test Results

Project Information	
Project Name:	O'Reilly Development Senior Living Facility
Project Number:	B18-1450
Client Name:	O'Reilly Development Company LLC
Project Location:	Lee's Summit, MO

Sample Information				
Description:	APWA Type 5-01R20			
Sample Date:	15-Dec-21		**TIME**	**TONS**
Sample I.D.:	Type 5-01R20_02	**Belt:**	--	--
Supplier:	Hot Mix Materials Inc.	**Hot Mix:**	--	--

GRAIN SIZE DATA - ASTM D5444, C136, C117 (Percent Passing)

Sieve Size	Belt Sample	FRAP Sample	Hot-Mix Sample*	Master Limits	JMF Limits
25mm (1")	--	--	--	100	100
19mm (3/4")	--	--	100	95 - 100	95-100
12.5mm (1/2")	--	--	91	--	85-95
9.5mm (3/8")	--	--	85	--	75-85
4.75mm (No.4)	--	--	61	--	59-69
2.36 mm (No.8)	--	--	37	28 - 100	44-52
1.18mm (No.16)	--	--	25	--	31-39
600µm (No.30)	--	--	17	--	21-29
300µm (No.50)	--	--	10	--	11-19
150µm (No.100)	--	--	6	--	--
75µm (No.200)	--	--	4.7	2 - 6	3.1-7.1

***EXTRACTION DATA - ASTM D6307**

	FRAP	HMA Sample	Plant Setting	Recycled AC%
%AC, Total Mix Basis	--	4.80	5.25	--

Aggregate Type	%**	Aggregate Type	%**
0754 MM (3/4")	27.0	**Holiday Sand**	6.0
0932 MM (3/8")	17.0	**Granite Sand**	24.0
0965 MM (Dust)	6.0	**F-RAP**	20.0

VOLUMETRIC DATA 6" NOMINAL SIZE Gyratory Specimens

	Sample*	Specifications	Test Standard
Mix bulk specific gravity @ Ndes, Gmb	2.319		
%Voids @ Ndes	6.3	2.6 - 4.6	ASTM D3203
%VMA @ Ndes, Gsb basis	14.6	13 Min.	
%VEA @ Ndes	8.3	9.0 - 11.0	=%VMA - %Voids
%Gmm @ Nini	85.5	90.5 Maximum	ASTM D2726
Ratio (-) 75µm (No.200) to %Eff Binder	1.3	0.6 - 1.2	
Tensile Strength Ratio, %	--		AASHTO T283
Max Theoretical Specific Gravity, Gmm	2.474		ASTM D2041
Max Theo. Density, pcf	154.2		
Effective specific gravity Agg., Gse	2.661		
Bulk Specific Gravity of Total Agg., Gsb	2.584		ASTM C128, 127
Specific Gravity of Asphalt, Gb	1.033		
Shale or Shale-Like (virgin aggregates only)	--		

COMMENTS:

ASTM D6307, Section 12 not performed.

*from uncompacted mat

**total aggregate basis