Appendix A.
Construction Verification Data

Appendix A. Construction Verification Data
Contents

NOTE: Appendices A1 and A4 through A7 are not included as they are not relevant to the period covered in this Addendum.

Appendix A2.
RRM

Standard Proctor Test Results Summary
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Appendix A2. RRM Standard Proctor Test Results Summary

Proctor ID#	Date Sampled	Date Approved	Maximum Dry Density (lb/ft^3)	Optimum Moisture Content %	Proctor Description
DB4-20200422	4/22/2020	6/2/2020	107.8	17.9	Sandy, lean clay (CL)
DB7-20200422	4/22/2020	6/2/2020	110.0	17.3	Sandy, lean clay (CL)
NWL-20200422	4/22/2020	6/2/2020	103.9	15.8	Silty sand (SM)
DB2-20200422	4/22/2020	6/8/2020	112.5	15.2	Sandy, lean clay (CL)
DB3-20200422	4/22/2020	6/8/2020	110.0	16.1	Sandy, lean clay (CL)
DB5-20200422	4/22/2020	6/8/2020	110.0	16.2	Sandy, lean clay (CL)
DB6-20200422	4/22/2020	6/8/2020	110.3	17.4	Sandy, lean clay (CL)

Appendix A2. RRM Lift Approval Summaries

October 2019										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
10/01/19	UW2C01190926-00	0	1256	1,256	99.8	0.8	N/A	0	0	N/A
10/01/19	UW1R01190930-00	1	2317	3,573	99.9	1.0	526	0	0	N/A
10/01/19	UW1T13190918-00	0	519	4,092	99.9	0.5	N/A	0	0	N/A
10/02/19	UW2C01191001-00	0	1413	5,505	100.0	0.9	N/A	0	0	N/A
10/02/19	UW2A01191001-00	0	1525	7,030	99.9	0.9	N/A	0	0	N/A
10/03/19	UW1R01191002-00	0	1726	8,756	100.0	1.0	N/A	0	0	N/A
10/07/19	UW2A01191003-00	0	1525	10,281	99.7	0.9	N/A	0	0	N/A
10/07/19	UW1U05190930-00	0	1874	12,155	100.0	0.8	N/A	0	0	N/A
10/08/19	UW1R01191007-00	0	1380	13,535	100.0	0.8	N/A	0	0	N/A
10/08/19	UW2C01191003-00	0	1413	14,948	100.0	0.9	N/A	0	0	N/A
10/09/19	UW1T13191003-00	0	452	15,400	100.0	0.5	N/A	0	0	N/A
10/09/19	UW2C01191009-00	0	1365	16,765	99.2	0.9	N/A	0	0	N/A
10/10/19	UW2A01191008-00	0	1650	18,415	99.8	0.9	N/A	0	0	N/A
10/11/19	UW1R01191010-00	0	1380	19,795	99.8	0.8	N/A	0	0	N/A
10/11/19	UW1R02191010-00	0	1414	21,209	99.8	0.8	N/A	0	0	N/A
10/14/19	UW2C01191014-00	1	1153	22,362	99.9	0.9	525	0	0	N/A
10/14/19	UW1T13191009-00	0	724	23,086	99.5	0.8	N/A	0	0	N/A
10/14/19	UW1S01191009-00	0	1824	24,910	99.0	0.9	N/A	0	0	N/A
10/15/19	UW1S01191014-00	0	2053	26,963	99.8	1.0	N/A	0	0	N/A
10/15/19	UW1R01191015-00	0	857	27,820	99.9	1.0	N/A	0	0	N/A
10/17/19	UW1S01191016-00	0	1642	29,462	99.9	0.8	N/A	0	0	N/A
10/17/19	UW1R01191016-00	0	772	30,234	99.8	0.9	N/A	0	0	N/A
10/17/19	UW1R02191015-00	0	1740	31,974	99.9	1.0	N/A	0	0	N/A
10/21/19	UW2A01191017-00	0	1599	33,573	99.5	0.9	N/A	0	0	N/A
10/22/19	UW1R01191021-00	0	514	34,087	99.9	0.6	N/A	0	0	N/A
10/22/19	UW2C01191017-00	0	1153	35,240	99.5	0.9	N/A	0	0	N/A
10/22/19	UW1U05191007-00	0	1968	37,208	99.8	0.9	N/A	0	0	N/A
10/23/19	UW1R02191022-00	0	1088	38,296	99.9	0.7	N/A	0	0	N/A
10/23/19	UW2A01191022-00	0	1608	39,904	99.4	0.9	N/A	0	0	N/A
10/23/19	UW1S01191021-00	0	1437	41,341	100.0	0.7	N/A	0	0	N/A
10/24/19	UW1S01191024-00	1	1510	42,851	100.0	0.9	526	0	0	N/A
10/24/19	UW2C01191023-00	0	1164	44,015	100.0	1.0	N/A	0	0	N/A
10/24/19	UW1T13191022-00	0	697	44,712	100.0	0.8	N/A	0	0	N/A
10/28/19	UW2A01191028-00	0	1787	46,499	100.0	1.0	N/A	0	0	N/A
10/29/19	UW2C01191028-00	0	1164	47,663	99.9	1.0	N/A	0	0	N/A
10/29/19	UW1S01191029-00	0	1174	48,837	99.8	0.7	N/A	0	0	N/A

Appendix A2. RRM Lift Approval Summaries (*continued)*

October 2019										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
10/30/19	UW1U05191022-00	0	1987	50,824	99.9	0.9	N/A	0	0	N/A
10/31/19	UW2C01191029-00	0	1506	52,330	99.9	1.0	N/A	0	0	N/A
10/31/19	UW2A01191031-00	1	1568	53,898	100.0	1.0	517	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.8
Total Quantity Approved (yd^3) = 53,898
Total # of Nuclear Density Gauge Tests = 0
Total # of Moisture Tests = 4
Quantity per Moisture Test (yd^3) = 13,475
Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued)*

CBCS compaction screen example from October 2019. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.

Appendix A2. RRM Lift Approval Summaries (*continued*)

November 2019										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
11/04/19	UW1S01191030-00	0	547	547	99.9	0.9	N/A	0	0	N/A
11/04/19	UW1R02191030-00	0	1537	2,084	100.0	0.9	N/A	0	0	N/A
11/04/19	UW2A01191031-00	0	1411	3,495	100.0	0.9	N/A	0	0	N/A
11/05/19	UW2C01191104-00	0	1355	4,850	100.0	0.9	N/A	0	0	N/A
11/05/19	UW1U05191101-00	0	1766	6,616	99.8	0.8	N/A	0	0	N/A
11/06/19	UW1R02191105-00	0	1418	8,034	99.9	0.9	N/A	0	0	N/A
11/06/19	UW2A01191105-00	0	1616	9,650	99.7	1.0	N/A	0	0	N/A
11/07/19	UW2C01191106-00	0	1423	11,073	99.8	1.0	N/A	0	0	N/A
11/11/19	UW1P01191106-00	0	1452	12,525	100.0	0.9	N/A	0	0	N/A
11/12/19	UW1U01191111-00	1	996	13,521	99.5	0.7	531	0	0	N/A
11/12/19	UW1P02191111-00	0	1384	14,905	100.0	0.8	N/A	0	0	N/A
11/12/19	UW1U02191111-00	0	972	15,877	99.9	0.7	N/A	0	0	N/A
11/13/19	UW1U01191112-00	0	1257	17,134	99.8	0.9	N/A	0	0	N/A
11/13/19	UW1P01191112-00	0	1614	18,748	99.9	1.0	N/A	0	0	N/A
11/13/19	UW2C01191111-00	0	1423	20,171	100.0	1.0	N/A	0	0	N/A
11/13/19	UW2A01191111-00	0	1616	21,787	100.0	1.0	N/A	0	0	N/A
11/18/19	UW1U02191113-00	0	1397	23,184	100.0	1.0	N/A	0	0	N/A
11/18/19	UW1U02191112-00	1	1085	24,269	99.9	0.9	523	0	0	N/A
11/18/19	UW1U05191106-00	0	1824	26,093	99.6	0.9	N/A	0	0	N/A
11/19/19	UW2A01191118-00	0	1412	27,505	100.0	1.0	N/A	0	0	N/A
11/19/19	UW2C01191118-00	0	1035	28,540	99.4	1.0	N/A	0	0	N/A
11/25/19	UW1T13191125-00	0	766	29,306	99.6	0.8	N/A	0	0	N/A
11/26/19	UW1T13191126-00	0	957	30,263	100.0	1.0	N/A	0	0	N/A
11/27/19	UW1U05191120-00	0	1853	32,116	100.0	0.9	N/A	0	0	N/A
11/27/19	UW1M26191121-00	1	0	32,116	99.9	0.0	517	0	0	N/A
11/27/19	UW1I28191121-00	1	0	32,116	99.9	0.0	517	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.9

Total Quantity Approved (yd^3) = 32,116

Total # of Nuclear Density Gauge Tests = 0

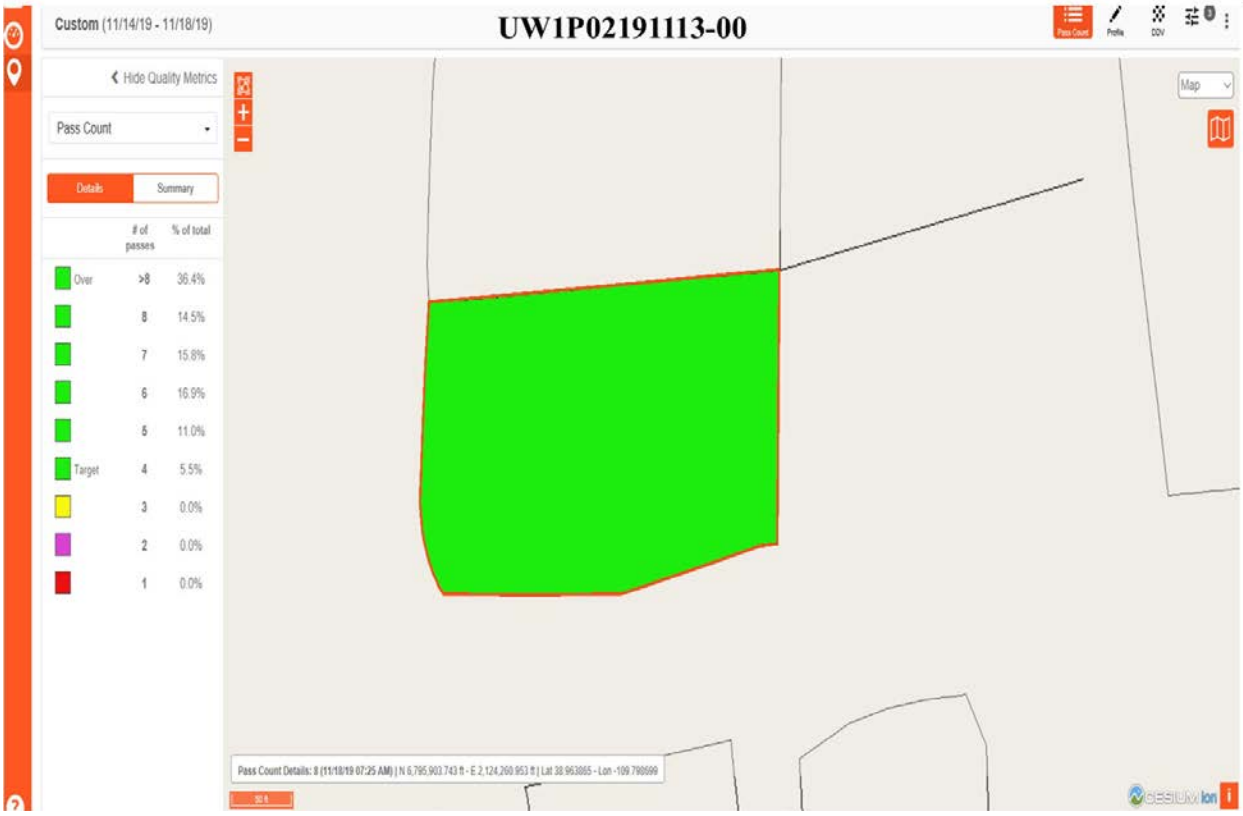
Total # of Moisture Tests = 4

Quantity per Moisture Test (yd^3) = 8,029

Total Average Thickness (ft) = 0.8

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from November 2019. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been



Appendix A2. RRM Lift Approval Summaries (*continued*)

December 2019										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge	# of Sandcone Verifications	Verified Compaction (%)
12/03/19	UW2F16191203-00	0	563	563	100.0	1.0	N/A	0	0	N/A
12/03/19	UW2E09191203-00	0	873	1,436	100.0	1.0	N/A	0	0	N/A
12/04/19	UW2D03191203-00	0	1074	2,510	100.0	1.0	N/A	0	0	N/A
12/04/19	UW2F16191204-00	0	394	2,904	100.0	0.7	N/A	0	0	N/A
12/04/19	UW2E09191204-00	1	698	3,602	100.0	0.8	520	0	0	N/A
12/04/19	UW2D03191204-00	0	1074	4,676	99.7	1.0	N/A	0	0	N/A
12/09/19	UW1U13191209-00	0	4311	8,987	N/A	1.7	N/A	0	0	N/A
12/10/19	UW1U13191209-01	0	1158	10,145	100.0	0.9	N/A	0	0	N/A
12/10/19	UW1U16191210-00	1	999	11,144	N/A	0.8	515	1	0	91.1
12/10/19	UW1U13191210-00	1	1158	12,302	N/A	0.9	515	1	0	90.4
12/11/19	UW1U13191211-00	0	1029	13,331	100.0	0.8	N/A	0	0	N/A
12/11/19	UW1U16191210-01	0	995	14,326	99.9	0.8	N/A	0	0	N/A
12/12/19	UW1U16191211-00	0	1120	15,446	99.8	0.9	N/A	0	0	N/A
12/12/19	UW2E09191212-00	0	698	16,144	100.0	0.8	N/A	0	0	N/A
12/16/19	UW1U13191211-01	0	1287	17,431	100.0	1.0	N/A	0	0	N/A
12/17/19	UW1U16191212-00	0	1067	18,498	100.0	1.0	N/A	0	0	N/A
12/17/19	UW1U13191216-00	0	1317	19,815	99.8	1.0	N/A	0	0	N/A
12/18/19	UW2C01191127-00	0	949	20,764	100.0	1.0	N/A	0	0	N/A
12/18/19	UW2D03191212-00	0	945	21,709	100.0	0.9	N/A	0	0	N/A
12/19/19	UW1U16191217-00	0	1205	22,914	99.7	1.0	N/A	0	0	N/A
12/19/19	UW2F16191204-01	0	475	23,389	100.0	0.9	N/A	0	0	N/A
12/20/19	UW1U16191219-00	0	1085	24,474	100.0	0.9	N/A	0	0	N/A
12/20/19	UW1U13191218-00	0	1317	25,791	100.0	1.0	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.9
Total Quantity Approved (yd^3) = 25,791
Total # of Nuclear Density Gauge Tests = 2
Total # of Moisture Tests = 3
Quantity per Moisture Test (yd^3) = 8,597
Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from December 2019. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.

Appendix A2. RRM Lift Approval Summaries (*continued*)

January 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
01/07/20	UW1U16191220-00	0	959	959	100.0	0.8	N/A	0	0	N/A
01/07/20	UW1U13191220-00	0	922	1,881	100.0	0.7	N/A	0	0	N/A
01/08/20	UW1U16200107-00	0	839	2,720	100.0	0.7	N/A	0	0	N/A
01/08/20	UW1U13200107-00	0	1053	3,773	100.0	0.8	N/A	0	0	N/A
01/09/20	UW1U16200108-00	0	879	4,652	100.0	0.9	N/A	0	0	N/A
01/09/20	UW1U13200108-00	0	1185	5,837	100.0	0.9	N/A	0	0	N/A
01/13/20	UW1U16200109-00	0	1079	6,916	100.0	0.9	N/A	0	0	N/A
01/13/20	UW1U13200109-00	0	1119	8,035	100.0	0.8	N/A	0	0	N/A
01/14/20	UW1U16200113-00	0	960	8,995	99.9	0.8	N/A	0	0	N/A
01/14/20	UW1U13200113-00	0	1059	10,054	100.0	0.9	531	0	0	N/A
01/15/20	UW2F16191219-00	0	440	10,494	99.9	0.8	N/A	0	0	N/A
01/15/20	UW2D03191219-00	0	840	11,334	99.6	0.8	N/A	0	0	N/A
01/15/20	UW2E09191219-00	0	810	12,144	100.0	0.9	N/A	0	0	N/A
01/15/20	UW2F16200115-00	0	440	12,584	100.0	0.8	N/A	0	0	N/A
01/16/20	UW2D03200115-00	0	840	13,424	100.0	0.8	N/A	0	0	N/A
01/16/20	UW2E09200115-00	0	720	14,144	100.0	0.8	N/A	0	0	N/A
01/20/20	UW2D03200116-00	0	945	15,089	99.7	0.9	N/A	0	0	N/A
01/20/20	UW2E09200116-00	0	720	15,809	100.0	0.8	N/A	0	0	N/A
01/20/20	UW2F16200116-00	0	495	16,304	100.0	0.9	N/A	0	0	N/A
01/20/20	UW1U16200114-00	0	870	17,174	100.0	0.9	N/A	0	0	N/A
01/21/20	UW2F16200120-00	0	299	17,473	99.6	0.8	N/A	0	0	N/A
01/22/20	UW2D03200120-00	0	804	18,277	99.9	0.8	N/A	0	0	N/A
01/22/20	UW2E09200120-00	1	688	18,965	99.7	0.9	522	0	0	N/A
01/23/20	UW2D03200123-00	0	1005	19,970	100.0	1.0	N/A	0	0	N/A
01/23/20	UW2E09200122-00	0	611	20,581	99.9	0.8	N/A	0	0	N/A
01/23/20	UW2F16200122-00	0	262	20,843	100.0	0.7	N/A	0	0	N/A
01/27/20	UW2E09200127-00	0	688	21,531	99.9	0.9	N/A	0	0	N/A
01/27/20	UW2D03200123-01	0	904	22,435	99.8	0.9	N/A	0	0	N/A
01/27/20	UW2E09200123-00	0	688	23,123	100.0	0.9	N/A	0	0	N/A
01/27/20	UW2F16200123-00	0	336	23,459	100.0	0.9	N/A	0	0	N/A
01/27/20	UW2F16200127-00	0	374	23,833	100.0	1.0	N/A	0	0	N/A
01/28/20	UW2D03200128-00	0	835	24,668	100.0	0.9	N/A	0	0	N/A
01/28/20	UW2D07200128-00	0	668	25,336	100.0	0.9	N/A	0	0	N/A
01/28/20	UW2D03200127-00	0	835	26,171	100.0	0.9	N/A	0	0	N/A
01/29/20	UW1U13200114-00	0	1032	27,203	100.0	0.8	N/A	0	0	N/A
01/29/20	UW1U05200128-00	1	1238	28,441	100.0	0.6	N/A	0	0	N/A
01/29/20	UW1U16200120-00	0	844	29,285	100.0	0.9	N/A	0	0	N/A

Appendix A2. RRM Lift Approval Summaries (*continued*)

January 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
01/30/20	UW1U13200129-00	0	1085	30,370	100.0	0.8	N/A	0	0	N/A
01/30/20	UW1U16200129-00	0	938	31,308	100.0	1.0	N/A	0	0	N/A
01/30/20	UW2D03200129-00	0	835	32,143	100.0	0.9	N/A	0	0	N/A
01/30/20	UW2D07200129-00	0	743	32,886	100.0	1.0	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.9
Total Quantity Approved (yd^3) = 32,886
Total # of Nuclear Density Gauge Tests = 0
Total # of Moisture Tests = 2
Quantity per Moisture Test (yd^3) = 16,443
Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from January 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.

Appendix A2. RRM Lift Approval Summaries (*continued*)

February 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd³)	Cumulative Quantity Approved (yd³)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
02/03/20	UW1U05200130-00	0	2063	2,063	99.9	1.0	N/A	0	0	N/A
02/03/20	UW1U13200130-00	0	1356	3,419	100.0	1.0	N/A	0	0	N/A
02/04/20	UW2C07200129-00	0	1589	5,008	N/A	1.3	N/A	0	0	N/A
02/04/20	UW1X05200129-00	0	1922	6,930	N/A	1.4	N/A	0	0	N/A
02/04/20	UW1U05200203-00	0	1467	8,397	99.8	0.8	N/A	0	0	N/A
02/04/20	UW1U16200130-00	0	750	9,147	100.0	0.8	N/A	0	0	N/A
02/04/20	UW1U13200204-00	0	1313	10,460	100.0	0.8	N/A	0	0	N/A
02/05/20	UW1X05200204-00	0	961	11,421	99.9	0.7	N/A	0	0	N/A
02/05/20	UW2C07200204-00	0	733	12,154	99.9	0.6	N/A	0	0	N/A
02/06/20	UW1U16200204-00	1	778	12,932	100.0	0.9	478	0	0	N/A
02/06/20	UW1U05200205-00	0	1686	14,618	99.8	0.9	N/A	0	0	N/A
02/10/20	UW1U13200206-00	0	844	15,462	100.0	0.8	N/A	0	0	N/A
02/10/20	UW2C07200205-00	0	957	16,419	99.6	0.8	N/A	0	0	N/A
02/10/20	UW1V11200206-00	0	991	17,410	99.5	0.7	N/A	0	0	N/A
02/10/20	UW1X05200206-00	0	1166	18,576	99.7	0.9	N/A	0	0	N/A
02/11/20	UW2C07200210-00	0	1150	19,726	100.0	0.9	N/A	0	0	N/A
02/11/20	UW1U05200210-00	0	1552	21,278	99.8	0.9	N/A	0	0	N/A
02/12/20	UW1X05200211-00	0	1170	22,448	99.8	0.9	N/A	0	0	N/A
02/12/20	UW1V11200211-00	0	1275	23,723	99.7	0.9	N/A	0	0	N/A
02/12/20	UW1U13200210-00	0	949	24,672	100.0	0.9	N/A	0	0	N/A
02/12/20	UW1U05200211-00	0	1380	26,052	99.9	0.8	N/A	0	0	N/A
02/13/20	UW2C07200212-00	0	1150	27,202	99.9	0.9	N/A	0	0	N/A
02/13/20	UW1U13200212-00	0	1087	28,289	100.0	1.0	N/A	0	0	N/A
02/13/20	UW1V11200212-00	0	1293	29,582	99.6	0.9	N/A	0	0	N/A
02/18/20	UW1U05200213-00	0	1380	30,962	100.0	0.8	N/A	0	0	N/A
02/18/20	UW2C07200213-00	0	1184	32,146	100.0	0.9	N/A	0	0	N/A
02/18/20	UW1X05200213-00	1	1170	33,316	99.9	0.9	N/A	0	0	N/A
02/19/20	UW1U13200218-00	0	978	34,294	99.6	0.9	N/A	0	0	N/A
02/19/20	UW1V11200218-00	0	1293	35,587	99.4	0.9	N/A	0	0	N/A
02/19/20	UW2C07200218-00	0	1184	36,771	99.9	0.9	N/A	0	0	N/A
02/20/20	UW1X05200219-00	0	1039	37,810	99.9	0.8	N/A	0	0	N/A
02/20/20	UW1U05200220-00	1	1380	39,190	99.9	0.8	526	0	0	N/A
02/24/20	UW1U13200220-00	0	855	40,045	99.7	0.8	N/A	0	0	N/A
02/24/20	UW1V11200220-00	1	1096	41,141	99.7	0.9	N/A	0	0	N/A
02/25/20	UW2C07200220-00	0	860	42,001	100.0	0.8	N/A	0	0	N/A
02/25/20	UW1X05200224-00	0	978	42,979	99.8	0.8	N/A	0	0	N/A
02/25/20	UW2A01200225-00	0	0	42,979	99.1	0.0	N/A	0	0	N/A
02/26/20	UW1V11200225-00	0	1096	44,075	99.1	0.9	N/A	0	0	N/A
02/26/20	UW1U05200224-00	0	1635	45,710	99.4	0.9	N/A	0	0	N/A
02/27/20	UW1T13191126-01	3	1631	47,341	100.0	1.8	394, 522	3	0	94.2
02/27/20	UW2C01191218-00	3	1772	49,113	100.0	1.7	396	3	0	96.3

Appendix A2. RRM Lift Approval Summaries (*continued*)

February 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
02/27/20	UW2C07200226-00	1	968	50,081	99.5	0.9	525	0	0	N/A
02/27/20	UW1E30190205-00	0	521	50,602	95.8	0.4	N/A	0	0	N/A
02/27/20	UW1U13200225-00	0	962	51,564	99.2	0.9	N/A	0	0	N/A
02/27/20	UW1I24200226-00	0	201	51,765	95.5	0.1	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.6
Total Quantity Approved (yd^3) = 51,765
Total # of Nuclear Density Gauge Tests = 6
Total # of Moisture Tests = 11
Quantity per Moisture Test (yd^3) = 4,706
Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from February 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.

Appendix A2. RRM Lift Approval Summaries (*continued*)

March 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge	# of Sandcone Verifications	Verified Compaction (%)
03/02/20	UW1U13200227-00	0	946	946	99.6	0.9	N/A	0	0	N/A
03/02/20	UWY29200227-00	0	269	1,215	99.1	0.2	N/A	0	0	N/A
03/02/20	UW1X05200226-00	0	1213	2,428	99.3	0.9	N/A	0	0	N/A
03/02/20	UWY27190131-00	1	636	3,064	100.0	0.4	531	0	0	N/A
03/02/20	UW1V11200302-00	0	1097	4,161	99.1	0.9	N/A	0	0	N/A
03/03/20	UW1X05200302-00	0	1079	5,240	99.8	0.8	N/A	0	0	N/A
03/03/20	UW2A01200226-00	0	996	6,236	99.4	0.8	N/A	0	0	N/A
03/03/20	UW1U01191119-00	1	1415	7,651	100.0	1.0	531	0	0	N/A
03/03/20	UW1P01191119-00	0	1715	9,366	99.8	1.0	N/A	0	0	N/A
03/03/20	UW1U05200227-00	0	1521	10,887	99.3	0.9	N/A	0	0	N/A
03/03/20	UW2C07200302-00	0	844	11,731	99.4	0.8	N/A	0	0	N/A
03/04/20	UW1V11200303-00	1	1097	12,828	99.9	0.9	455	0	0	N/A
03/04/20	UW1U13200303-00	0	946	13,774	100.0	0.9	N/A	0	0	N/A
03/04/20	UW1T13200302-00	0	757	14,531	99.1	0.8	N/A	0	0	N/A
03/05/20	UW1U05200304-00	0	1521	16,052	100.0	0.9	N/A	0	0	N/A
03/05/20	UW1U02200305-00	0	0	16,052	100.0	0.0	N/A	0	0	N/A
03/05/20	UW1R02200305-00	0	0	16,052	99.7	0.0	N/A	0	0	N/A
03/05/20	UW1P02200305-00	0	140	16,192	99.6	0.1	N/A	0	0	N/A
03/09/20	UW1U13200305-00	0	910	17,102	99.7	0.9	N/A	0	0	N/A
03/09/20	UW2A01200304-00	0	1010	18,112	100.0	0.8	N/A	0	0	N/A
03/09/20	UW2C07200304-00	0	853	18,965	99.8	0.8	N/A	0	0	N/A
03/09/20	UW1X05200305-00	0	1256	20,221	100.0	1.0	N/A	0	0	N/A
03/10/20	UW1V11200305-00	0	1164	21,385	100.0	1.0	N/A	0	0	N/A
03/10/20	UW1U05200309-00	0	1721	23,106	100.0	1.0	N/A	0	0	N/A
03/11/20	UW1T13200311-00	0	809	23,915	100.0	0.8	N/A	0	0	N/A
03/11/20	UW1M26200311-00	0	963	24,878	100.0	0.6	N/A	0	0	N/A
03/11/20	UW1X05200310-00	0	1005	25,883	100.0	0.8	N/A	0	0	N/A
03/11/20	UW2C07200310-00	0	747	26,630	100.0	0.7	N/A	0	0	N/A
03/12/20	UW1U13200311-00	0	1097	27,727	99.7	1.0	N/A	0	0	N/A
03/12/20	UW1I28200311-00	0	915	28,642	99.7	0.4	N/A	0	0	N/A
03/12/20	UW1V11200311-00	0	1164	29,806	100.0	1.0	N/A	0	0	N/A
03/16/20	UW1X05200316-00	0	1130	30,936	99.5	0.9	N/A	0	0	N/A
03/16/20	UW2C07200312-00	0	853	31,789	100.0	0.8	N/A	0	0	N/A
03/16/20	UW1U05200312-00	0	1721	33,510	100.0	1.0	N/A	0	0	N/A
03/17/20	UW1T13200316-00	0	910	34,420	100.0	0.9	N/A	0	0	N/A
03/18/20	UW1U13200317-00	0	987	35,407	100.0	0.9	N/A	0	0	N/A
03/18/20	UW1Q23191114-00	0	2439	37,846	N/A	1.6	N/A	0	0	N/A
03/19/20	UW1Q23200319-00	0	1220	39,066	99.9	0.8	N/A	0	0	N/A
03/23/20	UW1V11200318-00	1	1218	40,284	99.5	1.0	489	0	0	N/A
03/23/20	UW1U05200318-00	0	1536	41,820	99.9	0.9	N/A	0	0	N/A
03/23/20	UW1Q23200319-01	0	1525	43,345	100.0	1.0	N/A	0	0	N/A
03/23/20	UW1X05200323-00	0	1304	44,649	99.8	1.0	N/A	0	0	N/A
03/24/20	UW1Q23200323-00	1	1525	46,174	99.9	1.0	64	0	0	N/A
03/24/20	UW1P01200324-00	0	0	44,649	100.0	0.0	N/A	0	0	N/A

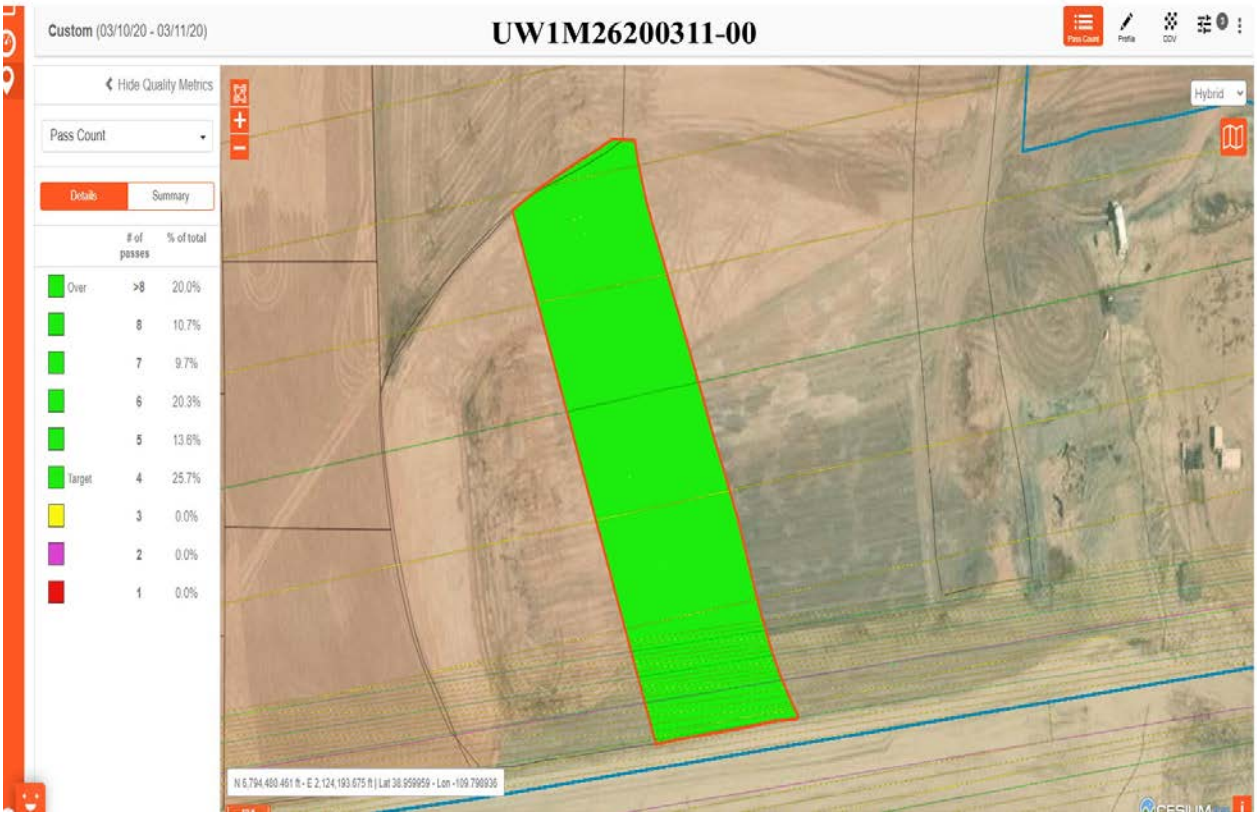
Appendix A2. RRM Lift Approval Summaries *continued*)

March 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
03/25/20	UW1P02200324-00	0	1117	45,766	100.0	0.8	N/A	0	0	N/A
03/25/20	UW1U01200324-00	0	0	45,766	100.0	0.0	N/A	0	0	N/A
03/25/20	UW1U02200324-00	0	888	46,654	100.0	0.8	N/A	0	0	N/A
03/26/20	UW1Q23200325-00	0	2055	48,709	99.7	1.0	N/A	0	0	N/A
03/26/20	UW1X05200325-00	0	1432	50,141	100.0	1.0	N/A	0	0	N/A
03/30/20	UW1Q23200326-00	0	1850	51,991	100.0	0.9	N/A	0	1	N/A
03/31/20	UW1P01200326-00	0	1544	53,535	100.0	0.9	N/A	0	0	N/A
03/31/20	UW1U01200326-00	0	1274	54,809	100.0	0.9	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) =	99.8
Total Quantity Approved (yd^3) =	54,809
Total # of Nuclear Density Gauge Tests =	0
Total # of Moisture Tests =	5
Quantity per Moisture Test (yd^3) =	10,962
Total Average Thickness (ft) =	0.8

Appendix A2. RRM Lift Approval Summaries *continued*)

CBCS compaction screen example from March 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.



Appendix A2. RRM Lift Approval Summaries (*continued*)

April 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
04/01/20	UW1P02200331-00	0	1256	1,256	99.8	0.9	N/A	0	0	N/A
04/01/20	UW1Q23200331-00	1	1850	3,106	100.0	0.9	429	0	0	N/A
04/01/20	UW1U02200331-00	0	999	4,105	99.6	0.9	N/A	0	0	N/A
04/01/20	UW1X05200401-00	0	1432	5,537	100.0	1.0	N/A	0	0	N/A
04/02/20	UW2C07200401-00	0	1091	6,628	99.9	0.7	N/A	0	0	N/A
04/06/20	UW2D03200401-00	0	385	7,013	100.0	0.5	N/A	0	0	N/A
04/06/20	UW1P01200402-00	0	636	7,649	99.9	1.0	N/A	0	0	N/A
04/08/20	UW1P02200406-00	0	1165	8,814	99.7	1.0	N/A	0	0	N/A
04/08/20	UW1U01200402-00	0	1415	10,229	100.0	1.0	N/A	0	0	N/A
04/08/20	UW1U02200406-00	0	736	10,965	100.0	0.9	N/A	0	0	N/A
04/09/20	UW1Q23200406-00	0	1850	12,815	99.9	0.9	N/A	0	0	N/A
04/09/20	UW1X05200408-00	0	1205	14,020	98.7	0.9	N/A	0	0	N/A
04/13/20	UW2A04200318-00	0	2173	16,193	N/A	1.5	N/A	0	0	N/A
04/14/20	UW1P02200414-00	0	1165	17,358	100.0	1.0	N/A	0	0	N/A
04/14/20	UW1U02200414-00	0	736	18,094	99.7	0.9	N/A	0	0	N/A
04/14/20	UW1P02200409-00	1	1774	19,868	99.9	1.0	488	0	0	N/A
04/14/20	UW1U01200409-00	1	1403	21,271	100.0	0.9	487	0	0	N/A
04/14/20	UW1T13200413-00	0	1050	22,321	100.0	1.0	N/A	0	0	N/A
04/15/20	UW1V11200415-00	0	1207	23,528	100.0	0.9	N/A	0	0	N/A
04/15/20	UW1U13200414-00	0	829	24,357	100.0	0.9	N/A	0	0	N/A
04/16/20	UW1U05200414-00	0	1486	25,843	99.6	0.9	N/A	0	0	N/A
04/16/20	UW1Q23200413-00	0	1850	27,693	99.8	0.9	N/A	0	0	N/A
04/20/20	UW2A04200420-00	0	1298	28,991	99.5	0.9	N/A	0	0	N/A
04/20/20	UW2A04200416-00	0	1154	30,145	99.5	0.8	N/A	0	0	N/A
04/20/20	UW1X05200416-00	0	1338	31,483	99.0	1.0	N/A	0	0	N/A
04/21/20	UW2A04200421-00	0	664	32,147	99.3	0.9	N/A	0	0	N/A
04/21/20	UW2C07200420-00	0	1254	33,401	99.0	0.9	N/A	0	0	N/A
04/21/20	UW2D03200420-00	0	516	33,917	100.0	0.7	N/A	0	0	N/A
04/22/20	UW2A01200422-00	0	884	34,801	100.0	0.7	N/A	0	0	N/A
04/22/20	UW2C01200422-00	0	683	35,484	100.0	0.7	N/A	0	0	N/A
04/22/20	UW2A04200421-01	0	1308	36,792	100.0	0.9	N/A	0	0	N/A
04/22/20	UW2A01200421-00	0	1010	37,802	100.0	0.8	N/A	0	0	N/A
04/27/20	UW2A04200422-00	1	664	38,466	99.7	0.9	452	0	0	N/A
04/28/20	UW2C01200427-00	0	437	38,903	99.8	0.7	N/A	0	0	N/A
04/28/20	UW1X05200423-00	0	1284	40,187	99.7	0.9	N/A	0	0	N/A
04/28/20	UW1T13200428-00	0	944	41,131	99.7	0.9	N/A	0	0	N/A
04/28/20	UW2A04200423-00	0	1403	42,534	97.5	0.9	N/A	0	0	N/A
04/29/20	UW1U13200428-00	0	808	43,342	99.8	0.9	N/A	0	0	N/A
04/29/20	UW1U05200428-00	0	1373	44,715	99.9	0.9	N/A	0	0	N/A
04/29/20	UW1V11200428-00	0	1100	45,815	99.9	0.9	N/A	0	0	N/A
04/29/20	UW2A01200427-00	0	616	46,431	99.8	0.7	N/A	0	0	N/A

Appendix A2. RRM Lift Approval Summaries (*continued*)

April 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
04/30/20	UW1T13200429-00	0	944	47,375	99.9	0.9	N/A	0	0	N/A
04/30/20	UW2A04200429-00	0	1403	48,778	99.8	0.9	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.7

Total Quantity Approved (yd^3) = 48,778

Total # of Nuclear Density Gauge Tests = 0

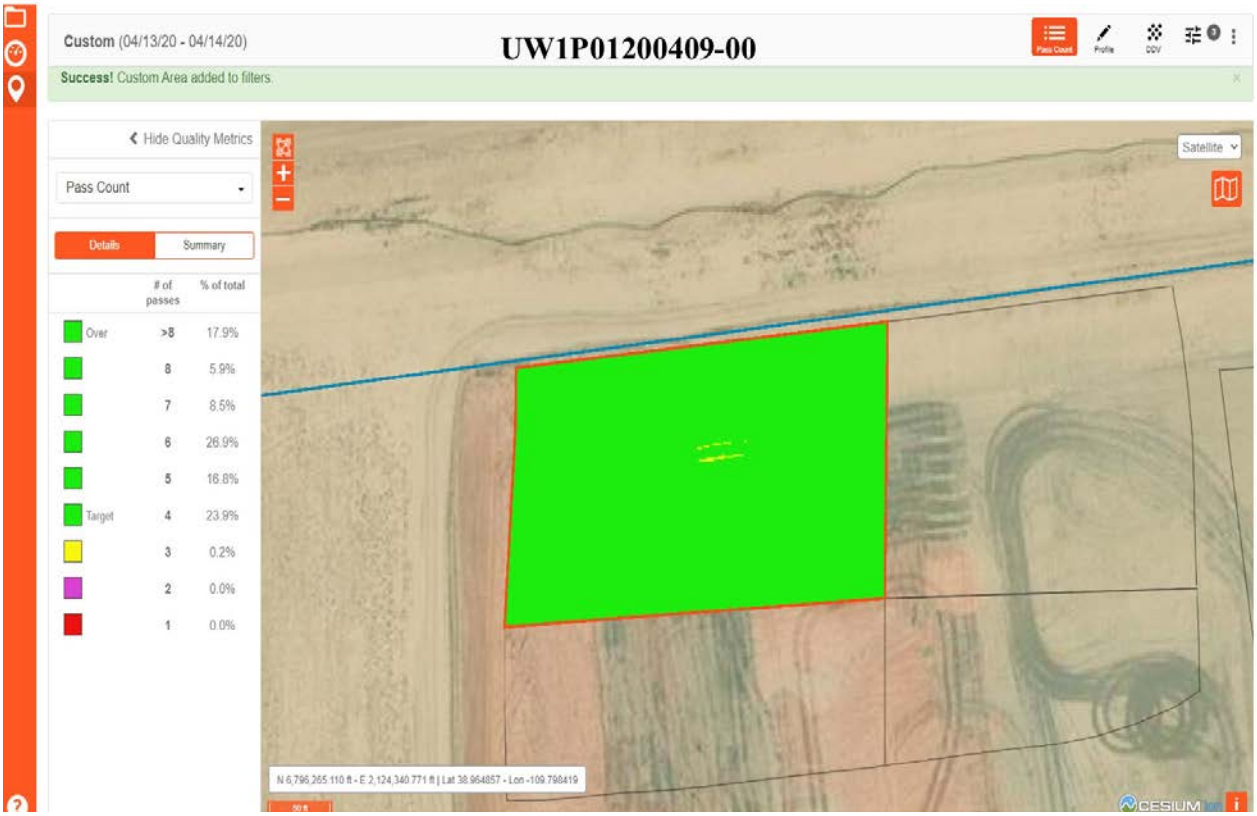
Total # of Moisture Tests = 4

Quantity per Moisture Test (yd^3) = 12,195

Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from April 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.



Appendix A2. RRM Lift Approval Summaries (*continued*)

May 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
05/04/20	UW1R02200429-00	0	454	454	99.9	0.3	N/A	0	0	N/A
05/04/20	UW1U13200430-00	0	719	1,173	100.0	0.8	N/A	0	0	N/A
05/05/20	UW2C01200504-00	0	562	1,735	99.7	0.9	N/A	0	0	N/A
05/05/20	UW1U05200430-00	0	1373	3,108	99.7	0.9	N/A	0	0	N/A
05/05/20	UW2A04200504-00	0	1535	4,643	99.7	0.9	N/A	0	0	N/A
05/05/20	UW2A01200504-00	0	705	5,348	99.7	0.8	N/A	0	0	N/A
05/05/20	UW1V11200430-00	0	978	6,326	99.5	0.8	N/A	0	0	N/A
05/06/20	UW1T13200505-00	0	1910	8,236	99.7	1.0	N/A	0	0	N/A
05/06/20	UW1V11200505-00	0	1557	9,793	99.5	1.0	N/A	0	0	N/A
05/07/20	UW1U05200505-00	1	1235	11,028	99.7	0.9	525	0	0	N/A
05/07/20	UW1R02200505-00	0	1,100	12,128	99.0	0.7	N/A	0	0	N/A
05/12/20	UW2A04200507-00	6	2899	15,027	99.7	1.7	488, 477	6	1	92
05/12/20	UW1V11200512-00	0	1268	16,295	99.9	0.9	N/A	0	0	N/A
05/12/20	UW1T13200511-00	0	1702	17,997	100.0	0.9	N/A	0	0	N/A
05/13/20	UW1R02200511-00	0	1466	19,463	100.0	0.9	N/A	0	0	N/A
05/13/20	UW1U05200512-00	0	1162	20,625	99.8	0.9	N/A	0	0	N/A
05/14/20	UW2C01200513-00	0	421	21,046	99.9	0.8	N/A	0	0	N/A
05/14/20	UW2A01200514-00	0	683	21,729	99.9	0.8	N/A	0	0	N/A
05/14/20	UW2A04200513-00	0	1730	23,459	99.9	0.9	N/A	0	0	N/A
05/18/20	UW1T13200514-00	0	1702	25,161	99.7	0.9	N/A	0	0	N/A
05/18/20	UW1V11200518-00	0	1268	26,429	99.9	0.9	N/A	0	0	N/A
05/19/20	UW1U05200518-00	0	1162	27,591	99.8	0.9	N/A	0	0	N/A
05/19/20	UW1R02200518-00	0	1466	29,057	100.0	0.9	N/A	0	0	N/A
05/20/20	UW1T13200520-00	0	1891	30,948	99.9	1.0	N/A	0	0	N/A
05/20/20	UW2A04200519-00	0	1730	32,678	99.9	0.9	N/A	0	0	N/A
05/21/20	UW1V11200520-00	0	1268	33,946	99.9	0.9	N/A	0	0	N/A
05/26/20	UW1R02200520-00	0	1466	35,412	99.9	0.9	N/A	0	0	N/A
05/26/20	UW1U05200521-00	0	1162	36,574	100.0	0.9	N/A	0	0	N/A
05/27/20	UW2A04200521-00	0	1784	38,358	98.9	0.9	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.8

Total Quantity Approved (yd^3) = 38,358

Total # of Nuclear Density Gauge Tests = 6

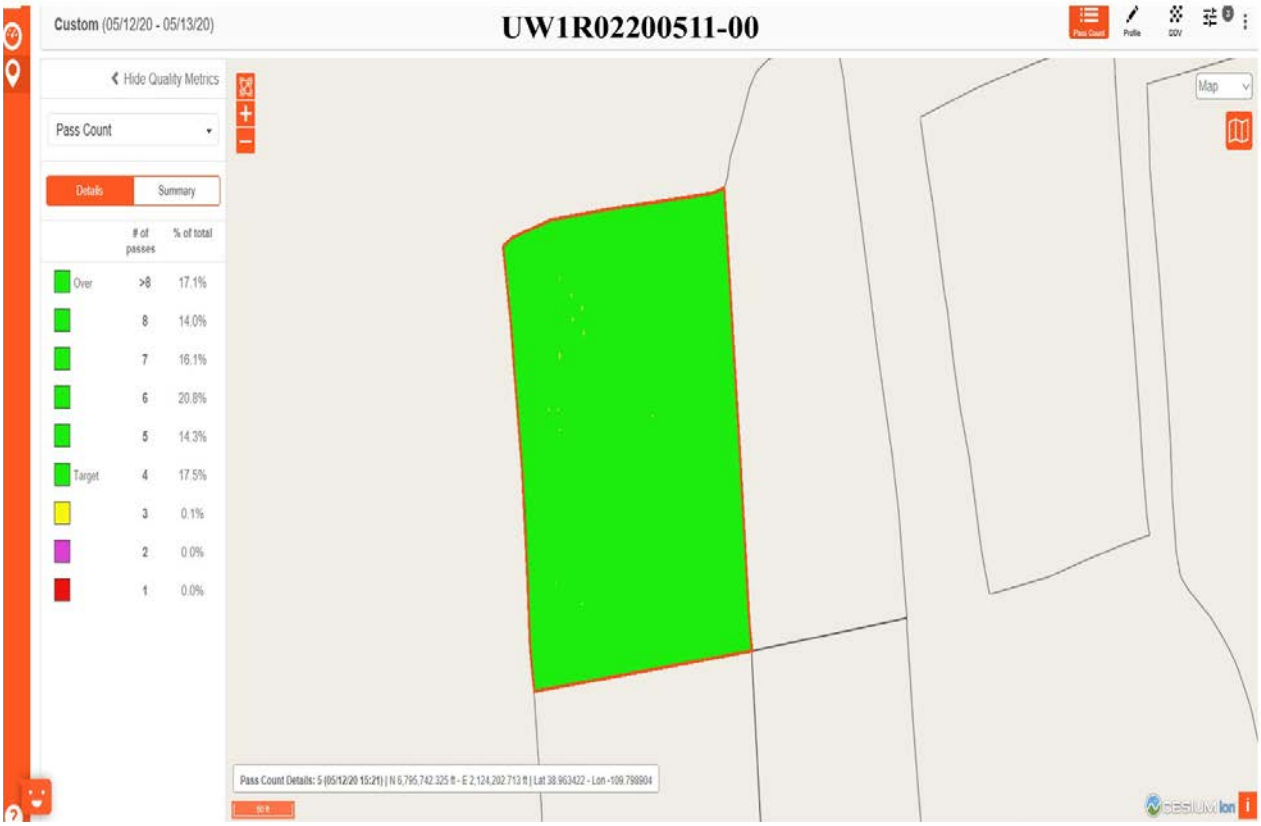
Total # of Moisture Tests = 7

Quantity per Moisture Test (yd^3) = 5,480

Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from May 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.



Appendix A2. RRM Lift Approval Summaries (*continued*)

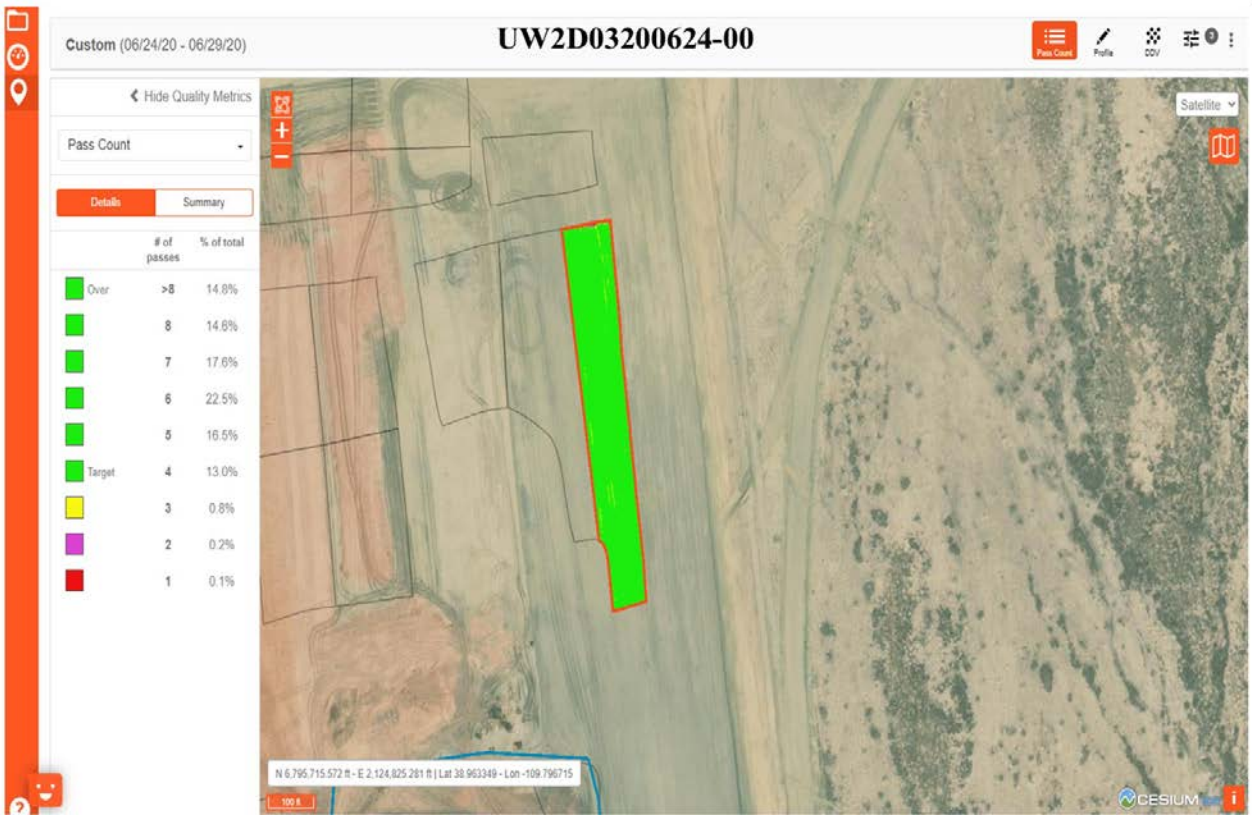
June 2020

Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd³)	Cumulative Quantity Approved (yd³)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge	# of Sandcone Verifications	Verified Compaction (%)
06/01/20	UW1Q23200526-00	0	2352	2,352	99.8	0.9	N/A	0	0	N/A
06/01/20	UW1T13200527-00	1	1668	4,020	99.9	0.9	RRM #488	0	0	N/A
06/02/20	UW1V11200601-00	0	1118	5,138	99.2	0.9	N/A	0	0	N/A
06/04/20	UW1Q23200603-00	6	4443	9,581	100.0	1.7	RRM #477, 455	6	0	90.2
06/08/20	UW2A04200603-00	0	1585	11,166	99.6	0.8	N/A	0	0	N/A
06/08/20	UW1R02200527-00	0	1763	12,929	99.8	0.9	N/A	0	0	N/A
06/08/20	UW1X05200604-00	0	1309	14,238	99.9	0.9	N/A	0	0	N/A
06/08/20	UW1U05200603-00	0	1158	15,396	99.9	0.9	N/A	0	0	N/A
06/09/20	UW1T13200608-00	0	1668	17,064	100.0	0.9	N/A	0	0	N/A
06/09/20	UW1R02200608-00	0	1763	18,827	100.0	0.9	N/A	0	0	N/A
06/11/20	UW1U05200609-00	0	1158	19,985	99.3	0.9	N/A	0	0	N/A
06/11/20	UW1V11200609-00	0	1118	21,103	98.5	0.9	N/A	0	0	N/A
06/11/20	UW2A04200610-00	0	1687	22,790	98.1	0.8	N/A	0	0	N/A
06/11/20	UW2D03200611-00	0	1958	24,748	99.8	0.9	N/A	0	0	N/A
06/15/20	UW2A01200611-00	0	566	25,314	99.3	0.8	N/A	0	0	N/A
06/15/20	UW2C01200611-00	0	264	25,578	99.9	0.8	N/A	0	0	N/A
06/17/20	UW1U05200615-00	0	1257	26,835	99.6	0.9	N/A	0	0	N/A
06/17/20	UW1T13200615-00	1	1296	28,131	99.6	0.8	DB5-20200422	0	0	N/A
06/17/20	UW1V11200615-00	0	1478	29,609	99.7	0.9	N/A	0	0	N/A
06/17/20	UW1R02200615-00	0	1326	30,935	99.3	0.9	N/A	0	0	N/A
06/23/20	UW2D03200617-00	0	1958	32,893	99.0	0.9	N/A	0	0	N/A
06/23/20	UW1Q23200618-00	0	2256	35,149	99.4	0.9	N/A	0	0	N/A
06/23/20	UW2A042000617-00	0	1998	37,147	99.9	0.9	N/A	0	0	N/A
06/24/20	UW1T13200618-00	0	1458	38,605	99.0	0.9	N/A	0	0	N/A
06/24/20	UW1V11200618-00	0	1478	40,083	100.0	0.9	N/A	0	0	N/A
06/24/20	UW1U05200622-00	0	1117	41,200	100.0	0.8	N/A	0	0	N/A
06/24/20	UW1R02200618-00	0	884	42,084	99.7	0.6	N/A	0	0	N/A
06/25/20	UW1Q23200623-00	0	2256	44,340	98.8	0.9	N/A	0	0	N/A
06/25/20	UW2A04200624-00	0	1898	46,238	97.4	0.9	N/A	0	0	N/A
06/29/20	UW2D03200624-00	1	1823	48,061	98.8	0.9	DB7-20200422	0	0	N/A
06/30/20	UW1R02200625-00	0	1073	49,134	99.9	0.8	N/A	0	0	N/A
06/30/20	UW1T13200625-00	0	1278	50,412	99.9	0.9	N/A	0	0	N/A
06/30/20	UW1V11200629-00	0	1384	51,796	100.0	0.9	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.5
Total Quantity Approved (yd³) = 51,796
Total # of Nuclear Density Gauge Tests = 6
Total # of Moisture Tests = 9
Quantity per Moisture Test (yd³) = 5,755
Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from June 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.



Appendix A2. RRM Lift Approval Summaries (*continued*)

July 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
07/01/20	UW1X05200630-00	0	463	463	99.9	0.3	N/A	0	0	N/A
07/01/20	UW1U05200629-00	0	1359	1,822	100.0	1.0	N/A	0	0	N/A
07/02/20	UW2D03200701-00	0	1823	3,645	99.3	0.9	N/A	0	0	N/A
07/02/20	UW2A04200630-00	1	1609	5,254	100.0	0.8	DB7-20200422	0	0	N/A
07/06/20	UW1V11200702-00	0	1384	6,638	99.8	0.9	N/A	0	0	N/A
07/07/20	UW1T13200701-00	0	1278	7,916	99.6	0.9	N/A	0	0	N/A
07/07/20	UW1U05200702-00	0	1223	9,139	99.8	0.9	N/A	0	0	N/A
07/07/20	UW1R02200701-00	0	1207	10,346	99.8	0.9	N/A	0	0	N/A
07/08/20	UW1X05200706-00	0	1388	11,734	99.8	0.9	N/A	0	0	N/A
07/08/20	UW2A04200707-00	0	2011	13,745	99.8	1.0	N/A	0	0	N/A
07/09/20	UW2D03200707-00	0	2025	15,770	100.0	1.0	N/A	0	0	N/A
07/09/20	UW1T13200708-00	1	1278	17,048	99.8	0.9	DB7-20200422	0	0	N/A
07/09/20	UW1R02200708-00	0	1073	18,121	99.9	0.8	N/A	0	0	N/A
07/13/20	UW1U05200709-00	0	1223	19,344	100.0	0.9	N/A	0	0	N/A
07/13/20	UW1V11200709-00	0	1230	20,574	99.9	0.8	N/A	0	0	N/A
07/15/20	UW1Q23200714-00	1	1335	21,909	99.7	0.7	DB7-20200422	0	0	N/A
07/15/20	UW1X05200713-00	0	1388	23,297	99.8	0.9	N/A	0	0	N/A
07/15/20	UW2A04200713-00	0	1810	25,107	99.6	0.9	N/A	0	0	N/A
07/16/20	UW1V11200716-00	0	454	25,561	100.0	0.7	N/A	0	0	N/A
07/16/20	UW1T13200715-00	0	1278	26,839	99.2	0.9	N/A	0	0	N/A
07/16/20	UW1R02200715-00	0	318	27,157	99.8	0.3	N/A	0	0	N/A
07/16/20	UW2D03200714-00	0	1620	28,777	99.6	0.8	N/A	0	0	N/A
07/20/20	UW1U05200716-00	0	1388	30,165	100.0	0.9	N/A	0	0	N/A
07/20/20	UW1Q23200716-00	0	1716	31,881	99.5	0.9	N/A	0	0	N/A
07/21/20	UW1X05200720-00	0	1388	33,269	99.9	0.9	N/A	0	0	N/A
07/23/20	UW2A04200720-00	0	1810	35,079	99.9	0.9	N/A	0	0	N/A
07/23/20	UW2D03200721-00	0	1823	36,902	99.8	0.9	N/A	0	0	N/A
07/27/20	UW1T13200722-00	0	994	37,896	99.9	0.7	N/A	0	0	N/A
07/27/20	UW1V11200723-00	1	1015	38,911	99.9	0.8	DB7-20200422	0	0	N/A
07/27/20	UW1U05200723-00	0	741	39,652	99.9	0.8	N/A	0	0	N/A
07/27/20	UW1R02200722-00	0	1073	40,725	100.0	0.8	N/A	0	0	N/A
07/28/20	UW1X05200723-00	0	1387	42,112	99.9	0.8	N/A	0	0	N/A
07/28/20	UW2A04200727-00	0	1788	43,900	98.4	0.9	N/A	0	0	N/A

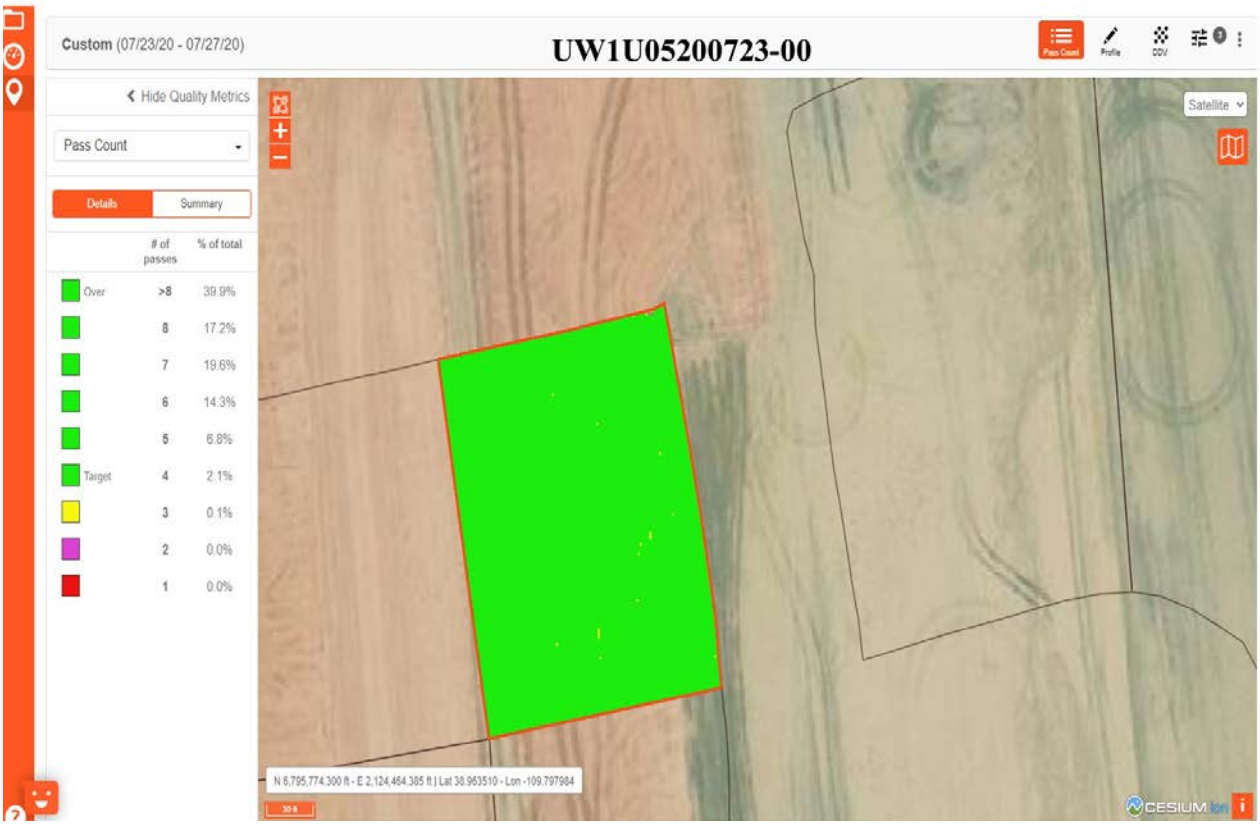
Appendix A2. RRM Lift Approval Summaries (*continued*)

July 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
07/28/20	UW1X05200723-00	0	1387	42,112	99.9	0.8	N/A	0	0	N/A
07/28/20	UW2A04200727-00	0	1788	43,900	98.4	0.9	N/A	0	0	N/A
07/29/20	UW1X05200728-00	1	1214	45,114	100.0	0.7	DB5-20200422	0	0	N/A
07/29/20	UW2D03200728-00	0	1146	46,260	99.7	0.7	N/A	0	0	N/A
07/30/20	UW2A04200729-00	0	1243	47,503	99.5	0.6	N/A	0	0	N/A
07/30/20	UW2D03200729-00	0	1105	48,608	100.0	0.8	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.8
Total Quantity Approved (yd^3) = 48,608
Total # of Nuclear Density Gauge Tests = 0
Total # of Moisture Tests = 5
Quantity per Moisture Test (yd^3) = 9,722
Total Average Thickness (ft) = 0.8

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from July2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.



Appendix A2. RRM Lift Approval Summaries (*continued*)

August 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
08/04/20	UW1X05200803-00	0	1481	6,069	100.0	0.8	N/A	0	0	N/A
08/05/20	UW2A04200804-00	0	2071	8,140	99.6	1.0	N/A	0	0	N/A
08/05/20	UW2D03200805-00	1	1243	9,383	100.0	0.9	DB5-20200422	0	0	N/A
08/06/20	UW1X05200805-00	0	1279	10,662	99.7	0.9	N/A	0	0	N/A
08/10/20	UW2A04200806-00	0	2403	13,065	99.3	1.0	N/A	0	0	N/A
08/11/20	UW2D03200806-00	0	713	13,778	99.1	1.0	N/A	0	0	N/A
08/12/20	UW1T13200810-00	1	1361	15,139	100.0	1.0	DB5-20200422	0	0	N/A
08/12/20	UW1R02200810-00	0	665	15,804	100.0	0.8	N/A	0	0	N/A
08/13/20	UW1V11200811-00	0	1245	17,049	100.0	1.0	N/A	0	0	N/A
08/13/20	UW1U05200811-00	0	741	17,790	100.0	0.8	N/A	0	0	N/A
08/13/20	UW1X05200811-00	0	1756	19,546	100.0	0.9	N/A	0	0	N/A
08/18/20	UW1Z02200812-00	0	2038	21,584	100.0	0.7	N/A	0	0	N/A
08/18/20	UW2A01200818-00	0	497	22,081	99.6	0.6	N/A	0	0	N/A
08/19/20	UW1S03200817-00	0	511	22,592	99.7	0.4	N/A	0	0	N/A
08/19/20	UW1S08200817-00	0	559	23,151	99.9	0.4	N/A	0	0	N/A
08/19/20	UW1P03200813-00	0	721	23,872	99.9	0.5	N/A	0	0	N/A
08/19/20	UW1P08200813-00	1	978	24,850	100.0	0.7	DB5-20200422	0	0	N/A
08/20/20	UW1Q23200818-00	0	1842	26,692	100.0	0.9	N/A	0	0	N/A
08/20/20	UW1Z02200819-00	0	2344	29,036	99.4	0.9	N/A	0	0	N/A
08/20/20	UW2A01200819-00	0	727	29,763	100.0	0.9	N/A	0	0	N/A
08/20/20	UW1X05200817-00	0	1756	31,519	99.9	0.9	N/A	0	0	N/A
08/24/20	UW1Q23200820-00	0	1800	33,319	100.0	0.9	N/A	0	0	N/A
08/25/20	UW1P03200820-00	0	1170	34,489	100.0	0.8	N/A	0	0	N/A
08/25/20	UW1P08200820-00	0	1310	35,799	100.0	0.9	N/A	0	0	N/A
08/26/20	UW1X05200825-00	0	1688	37,487	100.0	0.9	N/A	0	0	N/A
08/26/20	UW1S03200824-00	0	1001	38,488	100.0	0.8	N/A	0	0	N/A
08/26/20	UW1S08200824-00	0	1093	39,581	99.8	0.8	N/A	0	0	N/A
08/27/20	UW2A01200826-00	0	646	40,227	99.8	0.8	N/A	0	0	N/A
08/27/20	UW1Z02200826-00	1	2344	42,571	100.0	0.9	DB4-20200422	0	0	N/A

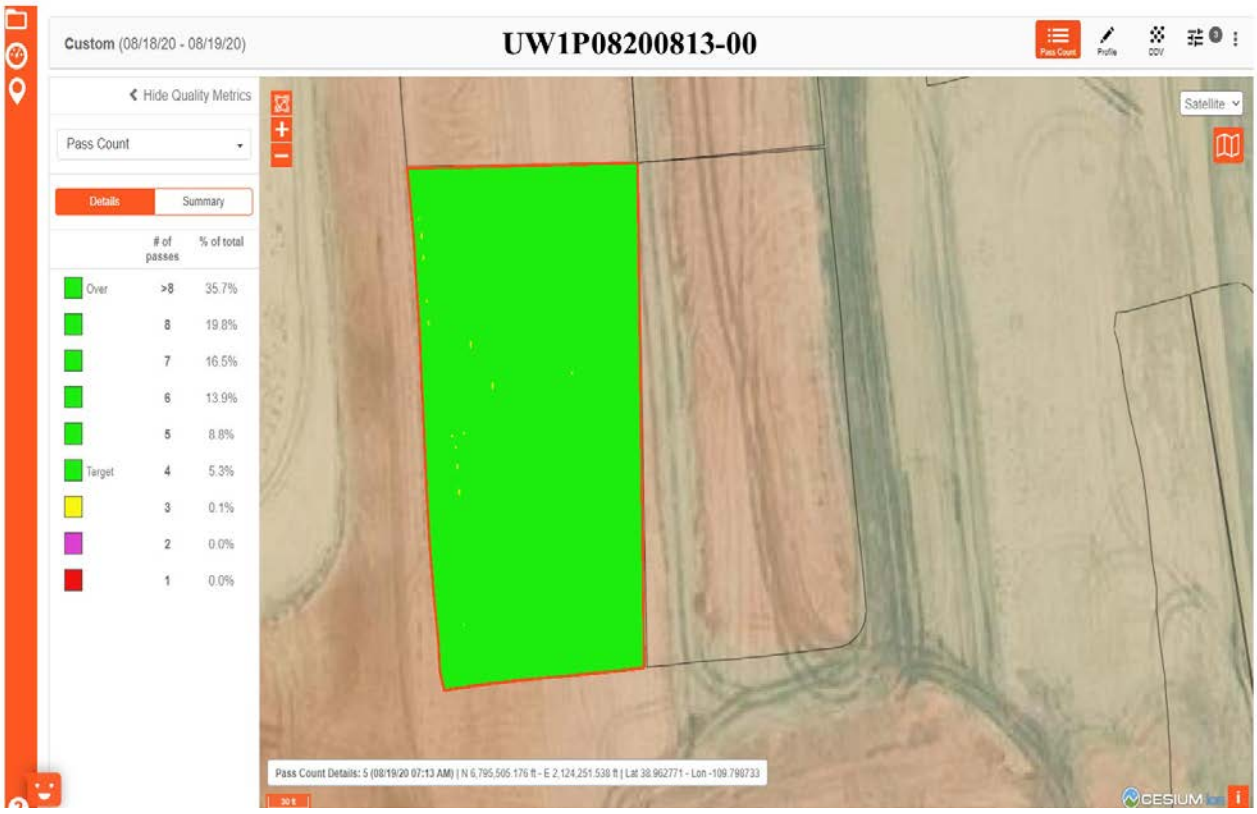
Appendix A2. RRM Lift Approval Summaries (*continued*)

August 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
08/27/20	UW2A10200826-00	0	1136	43,707	N/A	1.6	N/A	0	0	N/A
08/27/20	UW1Z10200820-00	0	1326	45,033	N/A	1.5	N/A	0	0	N/A
08/31/20	UW1P03200831-00	0	1216	46,249	99.8	0.9	N/A	0	0	N/A
08/31/20	UW1P08200831-00	0	1163	47,412	100.0	0.9	N/A	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.8
Total Quantity Approved (yd^3) = 47,412
Total # of Nuclear Density Gauge Tests = 0
Total # of Moisture Tests = 4
Quantity per Moisture Test (yd^3) = 11,853
Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from August 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been recorded.



Appendix A2. RRM Lift Approval Summaries (*continued*)

September 2020										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
09/01/20	UW1S03200831-00	N/A	1213	1,213	99.0	0.9	N/A	0	0	N/A
09/01/20	UW1S08200831-00	1	1177	2,390	100.0	0.9	DB4-202422	0	0	N/A
09/02/20	UW1P03200902-00	N/A	1216	3,606	100.0	0.9	N/A	0	0	N/A
09/02/20	UW1P08200902-00	N/A	1163	4,769	100.0	0.9	N/A	0	0	N/A
09/08/20	UW1X05200901-00	N/A	1630	6,399	100.0	0.9	N/A	0	0	N/A
09/08/20	UW1S03200902-00	N/A	1078	7,477	98.9	0.8	N/A	0	0	N/A
09/08/20	UW1S08200902-00	N/A	916	8,393	99.3	0.7	N/A	0	0	N/A
09/09/20	UW2A01200903-00	N/A	832	9,225	100.0	0.9	N/A	0	0	N/A
09/09/20	UW1Z02200903-00	N/A	2433	11,658	99.2	0.9	N/A	0	0	N/A
09/10/20	UW1P08200909-00	1	1456	13,114	100.0	1.0	DB4-202422	0	0	N/A
09/10/20	UW1Q23200908-00	N/A	2030	15,144	99.7	0.9	N/A	0	0	N/A
09/10/20	UW1P03200909-00	N/A	1461	16,605	99.9	1.0	N/A	0	0	N/A
09/14/20	UW1S03200910-00	N/A	844	17,449	99.9	0.7	N/A	0	0	N/A
09/14/20	UW1S08200910-00	N/A	800	18,249	99.3	0.7	N/A	0	0	N/A
09/15/20	UW1X05200914-00	N/A	1397	19,646	99.4	0.8	N/A	0	0	N/A
09/16/20	UW1P08200914-00	N/A	1615	21,261	99.7	1.0	N/A	0	0	N/A
09/16/20	UW1P03200914-00	N/A	1585	22,846	99.4	1.1	N/A	0	0	N/A
09/17/20	UW1S08200916-00	N/A	1142	23,988	99.7	1.0	N/A	0	0	N/A
09/17/20	UW1S03200916-00	N/A	1085	25,073	99.5	0.9	N/A	0	0	N/A
09/21/20	UW1Z02200914-00	N/A	2506	27,579	99.7	1.0	N/A	0	0	N/A
09/21/20	UW2A01200914-00	N/A	372	27,951	99.7	0.8	N/A	0	0	N/A
09/22/20	UW1T20200917-00	N/A	691	28,642	N/A	1.2	N/A	0	0	N/A
09/22/20	UW1P03200921-00	N/A	1095	29,737	99.9	0.7	N/A	0	0	N/A
09/22/20	UW1P08200921-00	N/A	1114	30,851	100.0	0.7	N/A	0	0	N/A
09/23/20	UW1X05200922-00	1	1729	32,580	99.8	0.9	DB4-202422	0	0	N/A
09/23/20	UW1S03200921-00	N/A	1045	33,625	100.0	0.9	N/A	0	0	N/A
09/23/20	UW1S08200921-00	N/A	956	34,581	100.0	0.9	N/A	0	0	N/A
09/24/20	UW1Z02200923-00	1	1866	36,447	100.0	0.8	DB4-202422	0	0	N/A

Average CBCS Screen Passing Pixels (%) = 99.7

Total Quantity Approved (yd^3) = 36,447

Total # of Nuclear Density Gauge Tests = 0

Total # of Moisture Tests = 4

Quantity per Moisture Test (yd^3) = 9,112

Total Average Thickness (ft) = 0.9

Appendix A2. RRM Lift Approval Summaries (*continued*)

CBCS compaction screen example from September 2020. There are compaction screens for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six wheel passes with the compactor has been

Appendix A2. RRM Lift Approval Package

LIFT APPROVAL FORM

PROJECT: Moab UMTRA **OTHER**

NW CORNER **DATE:** 12/4/2019

See attached for lift map

P 1				
EW:		X		=
NS:		X		=
P 2				
EW:		X		=
NS:		X		=
P 3	N			
EW:		X		=
NS:		X	A	=
P 4				
EW:		X		=
NS:		X		=
P 5				
EW:		X		=
NS:		X		=

Page 2 attached: Y N

IDENTIFY LOTS ABOVE

LIFT ID: UW2E09191204-00 NW CORNER: 6795639 N. 2124889 E.

Uncompacted Thickness: 0.8 Compacted Thickness: N/A Debris Insp. By: N/A Date: N/A Time: N/A

NW CORNER of debris placement: N/A EW Dimension N/A NS Dimension N/A

Lift Area (ft²): 23,559 Lift Volume (yd³): 698

Comments: QC verified that frost was removed prior to placement and compaction. QC verified that the lift area was scarified prior to placement. QC observed the material placed to have proper moisture for compaction. QC performed a moisture test on this lift.

Attached Forms: **Grid Slope** X **Compaction Macro** X **Print Screen** X **Moisture/ Density** X

KEYING IN NOTES: N E S W N/A MOISTURE/ DENSITY TESTS ID # (S): 1

LIFT APPROVED BY: Mitch Hogan/ DATE: 12/4/2019 TIME: 1147

QA/QC APPROVAL 1-8-20 DATE

Density Testing
DOE-EM/GJRAC1783
Rev. 1

QC-F-001
File index No. 43.8.2
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Slope Elevation Survey

	Average lift thickness=		0.8	Bounding Box	Northing	Easting
	Grid Size=	35'		Lower Left	N	
Lift ID:	UW2E09191204-00			Upper Right		A
Last Lift Elevations			Lift Approval Elevations			Lift Thickness
Northing	Easting	Elevation	Northing	Easting	Elevation	Thickness
6,795,404	2,124,959	4,948.5	6,795,404	2,124,959	4,949.2	0.7
6,795,404	2,124,994	4,948.3	6,795,404	2,124,994	4,949.1	0.8
6,795,404	2,125,029	4,948.2	6,795,404	2,125,029	4,949.0	0.8
6,795,439	2,124,959	4,949.1	6,795,439	2,124,959	4,950.0	0.9
6,795,439	2,124,994	4,949.1	6,795,439	2,124,994	4,949.9	0.8
6,795,474	2,124,959	4,950.0	6,795,474	2,124,959	4,950.8	0.8
6,795,474	2,124,994	4,949.8	6,795,474	2,124,994	4,950.7	0.9
6,795,509	2,124,959	4,950.9	6,795,509	2,124,959	4,951.6	0.7
6,795,509	2,124,994	4,950.6	6,795,509	2,124,994	4,951.5	0.8
6,795,544	2,124,959	4,951.7	6,795,544	2,124,959	4,952.4	0.7
6,795,544	2,124,994	4,951.5	6,795,544	2,124,994	4,952.3	0.8
6,795,579	2,124,924	4,952.5	6,795,579	2,124,924	4,953.3	0.8
6,795,579	2,124,959	4,952.5	6,795,579	2,124,959	4,953.2	0.7
6,795,579	2,124,994	4,952.2	6,795,579	2,124,994	4,953.1	0.8
6,795,614	2,124,924	4,953.3	6,795,614	2,124,924	4,954.2	0.9
6,795,614	2,124,959	4,953.2	6,795,614	2,124,959	4,954.0	0.8
6,795,614	2,124,994	4,953.1	6,795,614	2,124,994	4,953.9	0.7
6,795,649	2,124,924	4,954.1	6,795,649	2,124,924	4,954.9	0.8
6,795,649	2,124,959	4,953.9	6,795,649	2,124,959	4,954.8	0.9
6,795,649	2,124,994	4,953.8	6,795,649	2,124,994	4,954.7	0.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
			N/A			0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	12.4.19					0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0

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% =4	100.0%
Elevation Avg	4951.9
Total =4	2163
Total Lines	2163

Pass

Minimum Number of Machine Passes
4

Lift ID: UW2E09191204-00

Northing	Easting	Elevation	# of Passes	Passes =4	Count
6795384	2124954	4948.8	17	1	1
6795384	2124957	4948.8	17	1	1
6795384	2124960	4948.7	28	1	1
6795384	2124963	4948.9	9	1	1
6795384	2124967	4948.8	12	1	1
6795387	2124954	4948.9	13	1	1
6795387	2124957	4948.9	20	1	1
6795387	2124960	4948.8	24	1	1
6795387	2124963	4948.7	8	1	1
6795387	2124967	4948.8	14	1	1
6795387	2124970	4948.6	12	1	1
6795387	2124973	4948.8	6	1	1
6795387	2124977	4948.6	12	1	1
6795387	2124980	4948.8	12	1	1
6795387	2124983	4948.7	19	1	1
6795387	2124987	4948.7	19	1	1
6795390	2124954	4948.9	9	1	1
6795390	2124957	4948.9	17	1	1
6795390	2124960	4948.9	15	1	1
6795390	2124963	4948.9	6	1	1
6795390	2124967	4948.9	13	1	1
6795390	2124970	4948.9	10	1	1
6795390	2124973	4948.8	6	1	1
6795390	2124977	4948.7	13	1	1
6795390	2124980	4948.9	15	1	1
6795390	2124983	4948.8	17	1	1
6795390	2124987	4948.8	16	1	1
6795390	2124990	4948.7	14	1	1
6795390	2124993	4948.8	11	1	1
6795390	2124996	4948.7	16	1	1
6795390	2125000	4948.8	13	1	1
6795390	2125003	4948.6	12	1	1
6795390	2125006	4948.6	16	1	1
6795390	2125010	4948.6	18	1	1
6795394	2124954	4949.0	13	1	1
6795394	2124957	4949.0	19	1	1
6795394	2124960	4949.0	9	1	1
6795394	2124963	4949.0	6	1	1
6795394	2124967	4949.0	10	1	1
6795394	2124970	4949.0	6	1	1
6795394	2124973	4948.8	8	1	1
6795394	2124977	4948.8	11	1	1
6795394	2124980	4948.9	12	1	1
6795394	2124983	4948.9	14	1	1

Lift Height
1' 0"

Thick Lift Threshold
2' 0"

Last Lift Elevation
N/A

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Today (12/04/19)
UW2E09191204-00
Hide Quality Metrics
Pass Count
Details
Summary
# of passes
% of total
Over >8 74.7%
8 9.5%
7 7.1%
6 5.0%
5 2.7%
Target 4 0.9%
3 0.1%
2 0.0%
1 0.0%
Satellite
Pass Count Details: 25 (12/04/19 10:13 AM) | N 6,795,639.159 ft - E 2,124,889.883 ft | Lat 38.963139 - Lon -109.796488

FIELD DENSITY TEST

PROJECT: Moab UMTRA Project **OTHER**

LIFT IDENTIFICATION: UW2E09191204-00 DATE: 12/4/2019

TEST ID NUMBER(S): # 1

TEST LOCATION: Lift Area TEST METHOD: N/A D1556 N/A D6938

ASTM D6938 (DENSITY DETERMINATION)

Make/Model _____ Gauge Serial # _____

Last Calibration Date: N/A

Daily Standard Counts:

Density _____ Moisture _____

_____ Method A (Direct Transmission) or _____ Method B (Backscatter)

Depth Setting _____ (inches) Count Time _____ (minutes)

Moisture Count _____ Density Count _____

Wet Density (ρ_m) _____ (lbs/ft^3) Dry Density _____ (lbs/ft^3)

Moisture Density _____ (lbs/ft^3) Moisture Fraction _____ (%)

N A

MOISTURE DETERMINATION

ASTM D4643

Container ID 102

Scale Serial # 14725064 Last Calibration Date: 1/23/19

Mass of container & wet specimen (M_{cms})	569.8	g
Mass of container & dry specimen (M_{cds})	528.4	g
Mass of water (M_w) $M_w = M_{cms} - M_{cds}$	41.4	g
Mass of container (M_c)	218.8	g
Mass of dry specimen (M_s) $M_s = M_{cds} - M_c$	309.6	g
Moisture content (w) $w = (M_w / M_s) \times 100$	13.4	%

Dry Density $(\rho_d) = (100 \times \rho_m)/(100 + w)$

ρ_d = (100 x #####) /(100 + 13.4) = 0.0 lbs/ft^3

Note: Wet Density from ASTM D 1556 (ρ_m) takes precedence over ASTM D 6938 (ρ_m)

N A

Percent Compaction = ρ_d / $\gamma_d max$ x 100

0.0 / 109.7 x 100 = 0.0 %

ASTM D1556 (DENSITY DETERMINATION)

Testing Apparatus _____ Calibrated Vol. (lbs/ft^3) _____

Bulk Density of sand (ρ_1) _____ g/cm^3 _____ lbs/ft^3

Mass of Sand to Fill Cone & Plate (M_2) _____ g

Mass of bottle & cone **before** filling cone, plate & hole		g
Mass of bottle & cone **after** filling cone, plate & hole		g
Mass of sand to fill cone, plate, & hole (M_1)		g
Mass of sand to fill hole		g
Mass of wet soil & container		g
Mass of container		g
Mass of wet soil (M_3)		g

N A

Test Hole Volume

$V = (M_1 - M_2) / \rho_1$ _____ cm^3

Dry Mass of soil

$M_4 = 100\ M_3 / (w + 100)$ _____ g

Wet Density

$\rho_m = (M_3 / V) \times 62.43$ _____ lbs/ft^3

Dry Density

$\rho_d = M_4 / V$ _____ g/cm^3

Dry Unit Weight

$\gamma_d = \rho_d \times 62.43$ _____ lbs/ft^3

Soil Description: Sand stockpile. Red and brown sand mixed w/ clay. Approx. 2% clay

Proctor ID: RRM # 520

Standard Proctor (ASTM D698)

Maximum Dry Density ($\gamma_d max$) 109.7 (lbs/ft^3)

Optimum Moisture (w_{opt}) 12.4 (%)

Required Moisture: N/A % to N/A %

Required Percent Compaction: 90.0 (%)

Comments:

Microwave oven power setting on HIGH. Initial time setting of 3 minutes and subsequent incremental drying periods of 1 minute until a change of 0.1 % or less of the initial wet mass of the soil.

TEST RESULTS:

_____ Pass X N/A Date: 12/4/19

_____ Failed Moisture

_____ Failed Compaction Time: 0810

By: Mitch Hogan (print) (signature)

QA/QC APPROVAL 1-8-20 DATE

Density Testing
DOE-EM/GJRAC1783

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Appendix A2. Top of Waste Buyoff Survey

Environmental Management - Grand Junction Office
MOAB
UMTRA Project

Top of Waste Buyoff Form

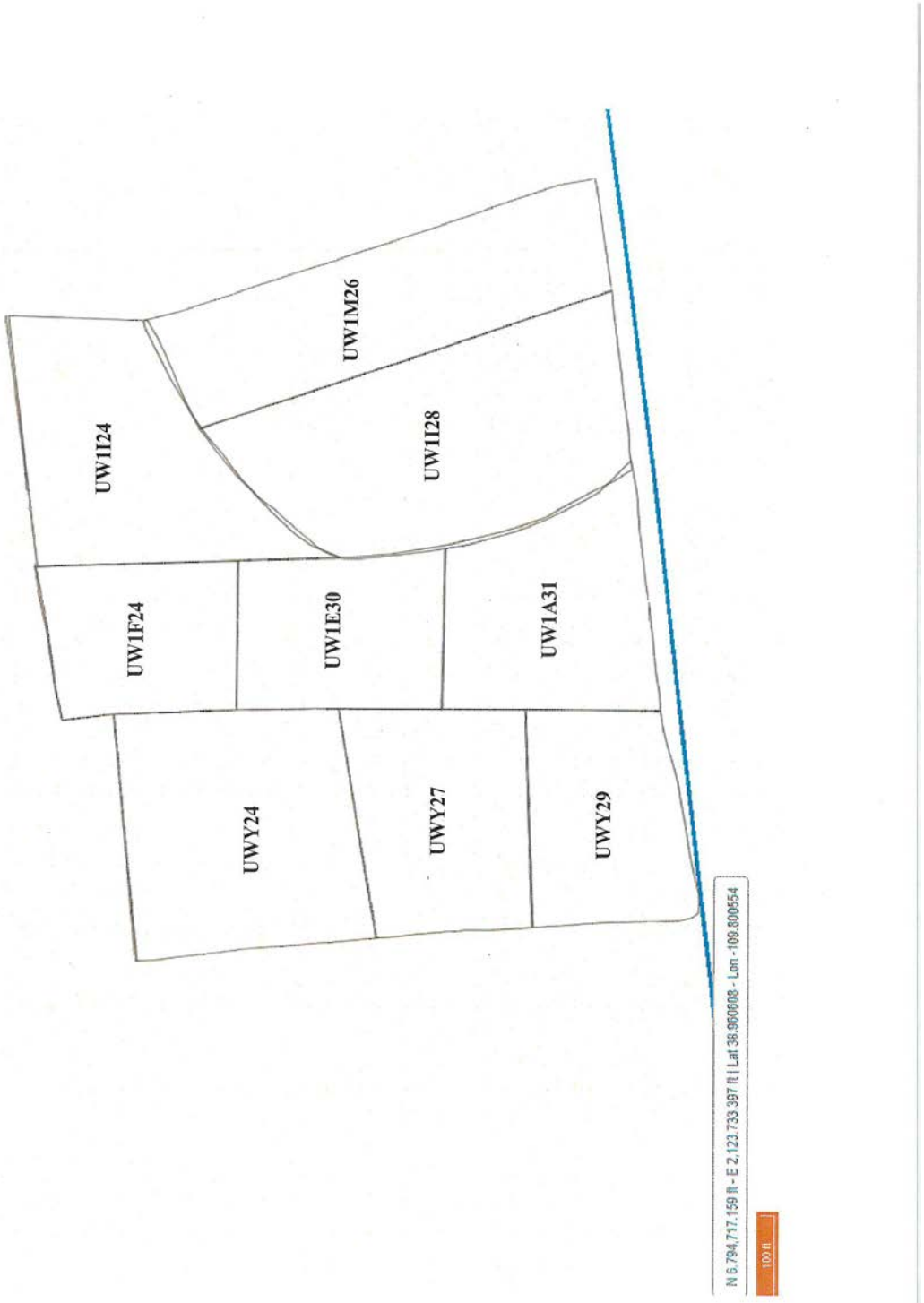
Client: Department of Energy
Project: Moab UMTRA Project
Date: 04/15/2020

In signing this document, the signatory agrees that the lifts are complete and meet both the project specifications and RAIP requirements.

Lift Areas
UWY24, UWY27, UWY29, UW1F24, UW1E30, UW1A31, UW1I24, UW1I28, and UW1M26

Approver Name/Title	Signature	Sign Date
Mike McCullough/ Site Operations Manager		04-16-20
Kathy Turvy/ QA Manager	Kathy Turvy	4/16/20
Max von Zastrow/ QA/QC Representative		4-15-20
Comments		
444,812 ft²		

Appendix A2. Top of Waste Buyoff Survey (Continued)



Appendix A2. Top of Waste Buyoff Survey (Continued)

Appendix A2. Top of Waste Buyoff Survey (Continued)

Appendix A2. Top of Waste Buyoff Survey (Continued)

Top of Waste Buyoff Survey				Date: 4/8/2020	
Lift Area Buyoff ID:			UWY29, UWY27, UWY24, UW1F24, UW1E30, UW1A31, UW1I24, UW1I28, UW1M26		
Point #	Northing	Easting	Measured Elevation from As-Built Surface	Design Elevation	Δ Elevation
1	6794263.81	2123254.31	4967.27	4967.15	0.11
2	6794263.81	2123304.32	4967.27	4967.18	0.09
3	6794263.81	2123354.32	4967.31	4967.21	0.10
4	6794313.81	2123254.31	4968.53	4968.42	0.11
5	6794313.81	2123304.32	4968.54	4968.45	0.09
6	6794313.81	2123354.32	4968.57	4968.47	0.09
7	6794313.81	2123404.32	4968.60	4968.50	0.10
8	6794313.81	2123454.32	4968.63	4968.53	0.10
9	6794313.81	2123504.32	4968.67	4968.56	0.11
10	6794313.81	2123554.32	4968.71	4968.59	0.13
11	6794313.81	2123604.32	4968.74	4968.62	0.13
12	6794313.81	2123654.32	4968.74	4968.64	0.10
13	6794313.81	2123704.32	4968.78	4968.67	0.10
14	6794313.81	2123754.32	4968.77	4968.64	0.13
15	6794363.81	2123254.31	4969.82	4969.68	0.14
16	6794363.81	2123304.32	4969.84	4969.71	0.13
17	6794363.81	2123354.32	4969.85	4969.74	0.11
18	6794363.81	2123404.32	4969.88	4969.77	0.11
19	6794363.81	2123454.32	4969.90	4969.79	0.11
20	6794363.81	2123504.32	4969.92	4969.82	0.10
21	6794363.81	2123554.32	4969.96	4969.85	0.10
22	6794363.81	2123604.32	4970.00	4969.88	0.12
23	6794363.81	2123654.32	4970.03	4969.91	0.13
24	6794363.81	2123704.32	4970.05	4969.94	0.11
25	6794363.81	2123754.32	4969.98	4969.87	0.12
26	6794363.81	2123804.32	4969.71	4969.58	0.12
27	6794363.81	2123854.32	4969.43	4969.30	0.13
28	6794363.81	2123904.32	4969.13	4969.02	0.11
29	6794363.81	2123954.32	4968.86	4968.74	0.12
30	6794363.81	2124004.32	4968.57	4968.45	0.11
31	6794363.81	2124054.32	4968.29	4968.17	0.12
32	6794413.81	2123254.31	4971.07	4970.94	0.13
33	6794413.81	2123304.32	4971.10	4970.97	0.13
34	6794413.81	2123354.32	4971.11	4971.00	0.11
35	6794413.81	2123404.32	4971.12	4971.03	0.09
36	6794413.81	2123454.32	4971.17	4971.06	0.11
37	6794413.81	2123504.32	4971.19	4971.09	0.10
38	6794413.81	2123554.32	4971.21	4971.11	0.10

Appendix A2. Top of Waste Buyoff Survey (Continued)

Top of Waste Buyoff Survey				Date: 4/8/2020	
Lift Area Buyoff ID:			UWY29, UWY27, UWY24, UW1F24, UW1E30, UW1A31, UW1I24, UW1I28, UW1M26		
Point #	Northing	Easting	Measured Elevation from As-Built Surface	Design Elevation	Δ Elevation
39	6794413.81	2123604.32	4971.24	4971.14	0.10
40	6794413.81	2123654.32	4971.29	4971.17	0.11
41	6794413.81	2123704.32	4971.34	4971.20	0.14
42	6794413.81	2123754.32	4971.20	4971.09	0.11
43	6794413.81	2123804.32	4970.92	4970.81	0.11
44	6794413.81	2123854.32	4970.70	4970.53	0.17
45	6794413.81	2123904.32	4970.35	4970.24	0.10
46	6794413.81	2123954.32	4970.06	4969.96	0.10
47	6794413.81	2124004.32	4969.82	4969.68	0.14
49	6794463.81	2123254.31	4972.33	4972.21	0.12
50	6794463.81	2123304.32	4972.37	4972.24	0.13
51	6794463.81	2123354.32	4972.39	4972.26	0.12
52	6794463.81	2123404.32	4972.41	4972.29	0.12
53	6794463.81	2123454.32	4972.41	4972.32	0.08
54	6794463.81	2123504.32	4972.47	4972.35	0.12
55	6794463.81	2123554.32	4972.51	4972.38	0.13
56	6794463.81	2123604.32	4972.53	4972.41	0.13
57	6794463.81	2123654.32	4972.53	4972.43	0.10
58	6794463.81	2123704.32	4972.53	4972.46	0.07
59	6794463.81	2123754.32	4972.43	4972.32	0.11
60	6794463.81	2123804.32	4972.17	4972.03	0.14
61	6794463.81	2123854.32	4971.86	4971.75	0.11
62	6794463.81	2123904.32	4971.57	4971.47	0.10
63	6794463.81	2123954.32	4971.28	4971.19	0.10
64	6794463.81	2124004.32	4971.03	4970.90	0.12
65	6794513.81	2123254.31	4973.59	4973.47	0.12
66	6794513.81	2123304.32	4973.62	4973.50	0.12
67	6794513.81	2123354.32	4973.65	4973.53	0.12
68	6794513.81	2123404.32	4973.65	4973.56	0.09
69	6794513.81	2123454.32	4973.69	4973.59	0.10
70	6794513.81	2123504.32	4973.73	4973.61	0.12
71	6794513.81	2123554.32	4973.75	4973.64	0.11
72	6794513.81	2123604.32	4973.77	4973.67	0.10
73	6794513.81	2123654.32	4973.80	4973.70	0.11
74	6794513.81	2123704.32	4973.82	4973.73	0.09
75	6794513.81	2123754.32	4973.65	4973.54	0.11
76	6794513.81	2123804.32	4973.36	4973.26	0.10
77	6794513.81	2123854.32	4973.06	4972.98	0.09

Appendix A2. Top of Waste Buyoff Survey (Continued)

Top of Waste Buyoff Survey				Date: 4/8/2020	
Lift Area Buyoff ID:			UWY29, UWY27, UWY24, UW1F24, UW1E30, UW1A31, UW1I24, UW1I28, UW1M26		
Point #	Northing	Easting	Measured Elevation from As-Built Surface	Design Elevation	Δ Elevation
78	6794513.81	2123904.32	4972.81	4972.69	0.12
79	6794513.81	2123954.32	4972.51	4972.41	0.10
80	6794513.81	2124004.32	4972.26	4972.13	0.13
81	6794563.81	2123254.31	4974.89	4974.74	0.15
82	6794563.81	2123304.32	4974.86	4974.76	0.10
83	6794563.81	2123354.32	4974.90	4974.79	0.11
84	6794563.81	2123404.32	4974.90	4974.82	0.08
85	6794563.81	2123454.32	4974.98	4974.85	0.13
86	6794563.81	2123504.32	4974.97	4974.88	0.09
87	6794563.81	2123554.32	4975.02	4974.91	0.11
88	6794563.81	2123604.32	4975.03	4974.93	0.09
89	6794563.81	2123654.32	4975.06	4974.96	0.10
90	6794563.81	2123704.32	4975.08	4974.99	0.09
91	6794563.81	2123754.32	4974.88	4974.77	0.12
92	6794563.81	2123804.32	4974.57	4974.48	0.09
93	6794563.81	2123854.32	4974.33	4974.20	0.13
94	6794563.81	2123904.32	4974.01	4973.92	0.09
95	6794563.81	2123954.32	4973.74	4973.64	0.10
96	6794613.81	2123254.31	4976.16	4976.00	0.16
97	6794613.81	2123304.32	4976.12	4976.03	0.09
98	6794613.81	2123354.32	4976.17	4976.06	0.11
99	6794613.81	2123404.32	4976.20	4976.08	0.11
100	6794613.81	2123454.32	4976.20	4976.11	0.09
101	6794613.81	2123504.32	4976.24	4976.14	0.10
102	6794613.81	2123554.32	4976.29	4976.17	0.12
103	6794613.81	2123604.32	4976.30	4976.20	0.10
104	6794613.81	2123654.32	4976.31	4976.23	0.08
105	6794613.81	2123704.32	4976.37	4976.25	0.11
106	6794613.81	2123754.32	4976.11	4975.99	0.12
107	6794613.81	2123804.32	4975.85	4975.71	0.14
108	6794613.81	2123854.32	4975.53	4975.43	0.10
109	6794613.81	2123904.32	4975.26	4975.14	0.12
110	6794613.81	2123954.32	4974.96	4974.86	0.09
111	6794663.81	2123254.31	4977.40	4977.26	0.14
112	6794663.81	2123304.32	4977.40	4977.29	0.11
113	6794663.81	2123354.32	4977.41	4977.32	0.09
114	6794663.81	2123404.32	4977.47	4977.35	0.12
115	6794663.81	2123454.32	4977.49	4977.38	0.12

Appendix A2. Top of Waste Buyoff Survey (Continued)

Top of Waste Buyoff Survey				Date: 4/8/2020	
Lift Area Buyoff ID:			UWY29, UWY27, UWY24, UW1F24, UW1E30, UW1A31, UW1I24, UW1I28, UW1M26		
Point #	Northing	Easting	Measured Elevation from As-Built Surface	Design Elevation	Δ Elevation
116	6794663.81	2123504.32	4977.52	4977.40	0.12
117	6794663.81	2123554.32	4977.55	4977.43	0.11
118	6794663.81	2123604.32	4977.57	4977.46	0.11
119	6794663.81	2123654.32	4977.58	4977.49	0.09
120	6794663.81	2123704.32	4977.59	4977.50	0.09
121	6794663.81	2123754.32	4977.34	4977.22	0.13
122	6794663.81	2123804.32	4977.02	4976.93	0.09
123	6794663.81	2123854.32	4976.77	4976.65	0.12
124	6794663.81	2123904.32	4976.48	4976.37	0.11
125	6794663.81	2123954.32	4976.18	4976.09	0.09
126	6794713.81	2123204.31	4978.62	4978.50	0.12
127	6794713.81	2123254.31	4978.59	4978.53	0.06
128	6794713.81	2123304.32	4978.66	4978.56	0.10
129	6794713.81	2123354.32	4978.69	4978.58	0.11
130	6794713.81	2123404.32	4978.70	4978.61	0.09
131	6794713.81	2123454.32	4978.74	4978.64	0.09
132	6794713.81	2123504.32	4978.77	4978.67	0.10
133	6794713.81	2123554.32	4978.80	4978.70	0.10
134	6794713.81	2123604.32	4978.84	4978.73	0.11
135	6794713.81	2123654.32	4978.83	4978.75	0.07
136	6794713.81	2123704.32	4978.86	4978.72	0.13
137	6794713.81	2123754.32	4978.55	4978.44	0.11
138	6794713.81	2123804.32	4978.25	4978.16	0.09
139	6794713.81	2123854.32	4977.98	4977.88	0.11
140	6794713.81	2123904.32	4977.68	4977.59	0.08
141	6794763.81	2123204.31	4979.93	4979.76	0.17
142	6794763.81	2123254.31	4979.88	4979.79	0.09
143	6794763.81	2123304.32	4979.93	4979.82	0.11
144	6794763.81	2123354.32	4979.94	4979.85	0.10
145	6794763.81	2123404.32	4979.98	4979.88	0.10
146	6794763.81	2123454.32	4980.00	4979.90	0.10
147	6794763.81	2123504.32	4980.06	4979.93	0.12
148	6794763.81	2123554.32	4980.07	4979.96	0.11
149	6794763.81	2123604.32	4980.11	4979.99	0.12
150	6794763.81	2123654.32	4980.12	4980.02	0.10
151	6794763.81	2123704.32	4980.08	4979.95	0.13
152	6794763.81	2123754.32	4979.76	4979.67	0.10
153	6794763.81	2123804.32	4979.52	4979.38	0.14

Appendix A2. Top of Waste Buyoff Survey (Continued)

Top of Waste Buyoff Survey				Date: 4/8/2020	
Lift Area Buyoff ID:			UWY29, UWY27, UWY24, UW1F24, UW1E30, UW1A31, UW1I24, UW1I28, UW1M26		
Point #	Northing	Easting	Measured Elevation from As-Built Surface	Design Elevation	Δ Elevation
154	6794763.81	2123854.32	4979.22	4979.10	0.11
155	6794763.81	2123904.32	4978.92	4978.82	0.10
158	6794813.81	2123504.32	4981.32	4981.20	0.12
159	6794813.81	2123554.32	4981.34	4981.22	0.11
160	6794813.81	2123604.32	4981.37	4981.25	0.11
161	6794813.81	2123654.32	4981.40	4981.28	0.12
162	6794813.81	2123704.32	4981.27	4981.17	0.10
163	6794813.81	2123754.32	4981.00	4980.89	0.11
164	6794813.81	2123804.32	4980.72	4980.61	0.11
165	6794813.81	2123854.32	4980.44	4980.33	0.11
166	6794813.81	2123904.32	4980.13	4980.04	0.09
167	6794863.81	2123504.32	4982.58	4982.46	0.12
168	6794863.81	2123554.32	4982.60	4982.49	0.11
169	6794863.81	2123604.32	4982.63	4982.52	0.11
170	6794863.81	2123654.32	4982.66	4982.54	0.11
171	6794863.81	2123704.32	4982.50	4982.40	0.10
172	6794863.81	2123754.32	4982.24	4982.11	0.13
173	6794863.81	2123804.32	4981.94	4981.83	0.11
174	6794863.81	2123854.32	4981.68	4981.55	0.13
175	6794863.81	2123904.32	4981.38	4981.27	0.11
178	6794913.81	2123904.32	4982.61	4982.49	0.11

Appendix A2. Top of Waste Buyoff Survey (Continued)

Environmental Management - Grand Junction Office
MOAB
UMTRA Project

Top of Waste Buyoff Form

Client: Department of Energy
Project: Moab UMTRA Project
Date: 11/05/2019

In signing this document, the signatory agrees that the lift is complete and meets both the project specifications and RAIP requirements.

Lift Area	Lift Area
UWY23, UWZ20, UW1B18, UW1K21	

Approver Name/Title	Signature	Sign Date
Mike McCullough/ CJ Site Operations Manager		11-05-19
Mitch Hogan/ QA/QC Representative		11.05.2019
Max von Zastrow/ QA/QC Representative		11-5-19
Comments		
Total area 89,806 ft².		
This buyoff is for the south half of the lifts.		

OP-F-013
Rev 0, August 2010

File Index No. 43.1.1
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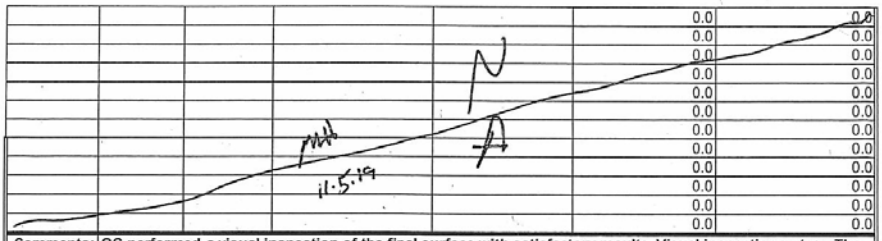
Appendix A2. Top of Waste Buyoff Survey (Continued)

Top Of Waste Buyoff Survey

Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Difference in feet	Difference in inches
	Lift Area Buyoff ID:		UW1B18, UWY23, UWZ20, UW1K21		Date:	11/5/2019
2432_stk	6794864	2123557	4982.499	4982.498	0.0	0.0
2397_stk	6794858	2123507	4982.318	4982.316	0.0	0.0
2362_stk	6794852	2123458	4982.154	4982.134	0.0	0.2
2327_stk	6794846	2123408	4981.984	4981.951	0.0	0.4
2326_stk	6794895	2123402	4983.257	4983.202	0.1	0.7
2361_stk	6794902	2123452	4983.381	4983.384	0.0	0.0
2396_stk	6794908	2123501	4983.568	4983.567	0.0	0.0
2431_stk	6794914	2123551	4983.759	4983.749	0.0	0.1
2291_stk	6794889	2123352	4983.032	4983.02	0.0	0.1
2256_stk	6794883	2123303	4982.838	4982.838	0.0	0.0
2221_stk	6794877	2123253	4982.676	4982.656	0.0	0.2
2186_stk	6794871	2123203	4982.488	4982.474	0.0	0.2
2187_stk	6794821	2123210	4981.242	4981.223	0.0	0.2
2222_stk	6794828	2123259	4981.427	4981.405	0.0	0.3
2257_stk	6794834	2123309	4981.645	4981.587	0.1	0.7
2292_stk	6794840	2123358	4981.798	4981.769	0.0	0.3
2433_stk	6794815	2123563	4981.284	4981.247	0.0	0.4
2398_stk	6794808	2123513	4981.129	4981.065	0.1	0.8
2363_stk	6794802	2123464	4980.894	4980.883	0.0	0.1
2328_stk	6794796	2123414	4980.725	4980.701	0.0	0.3
2293_stk	6794790	2123365	4980.526	4980.518	0.0	0.1
2258_stk	6794784	2123315	4980.341	4980.336	0.0	0.1
2223_stk	6794778	2123265	4980.221	4980.154	0.1	0.8
2188_stk	6794772	2123216	4979.968	4979.972	0.0	0.0
2189_stk	6794722	2123222	4978.741	4978.721	0.0	0.2
2224_stk	6794728	2123271	4978.908	4978.903	0.0	0.1
2259_stk	6794734	2123321	4979.119	4979.085	0.0	0.4
2294_stk	6794741	2123371	4979.294	4979.268	0.0	0.3
2329_stk	6794747	2123420	4979.474	4979.45	0.0	0.3
2364_stk	6794753	2123470	4979.674	4979.632	0.0	0.5
2399_stk	6794759	2123520	4979.826	4979.814	0.0	0.1
2434_stk	6794765	2123569	4979.999	4979.996	0.0	0.0
2435_stk	6794715	2123575	4978.77	4978.745	0.0	0.3
2400_stk	6794709	2123526	4978.585	4978.563	0.0	0.3
2365_stk	6794703	2123476	4978.389	4978.381	0.0	0.1
2330_stk	6794697	2123426	4978.244	4978.199	0.0	0.5
2295_stk	6794691	2123377	4978.029	4978.017	0.0	0.1
2260_stk	6794685	2123327	4977.863	4977.835	0.0	0.3
2225_stk	6794679	2123277	4977.712	4977.652	0.1	0.7
2190_stk	6794673	2123228	4977.495	4977.47	0.0	0.3
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
			N/A		0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0

Appendix A2. Top of Waste Buyoff Survey (Continued)



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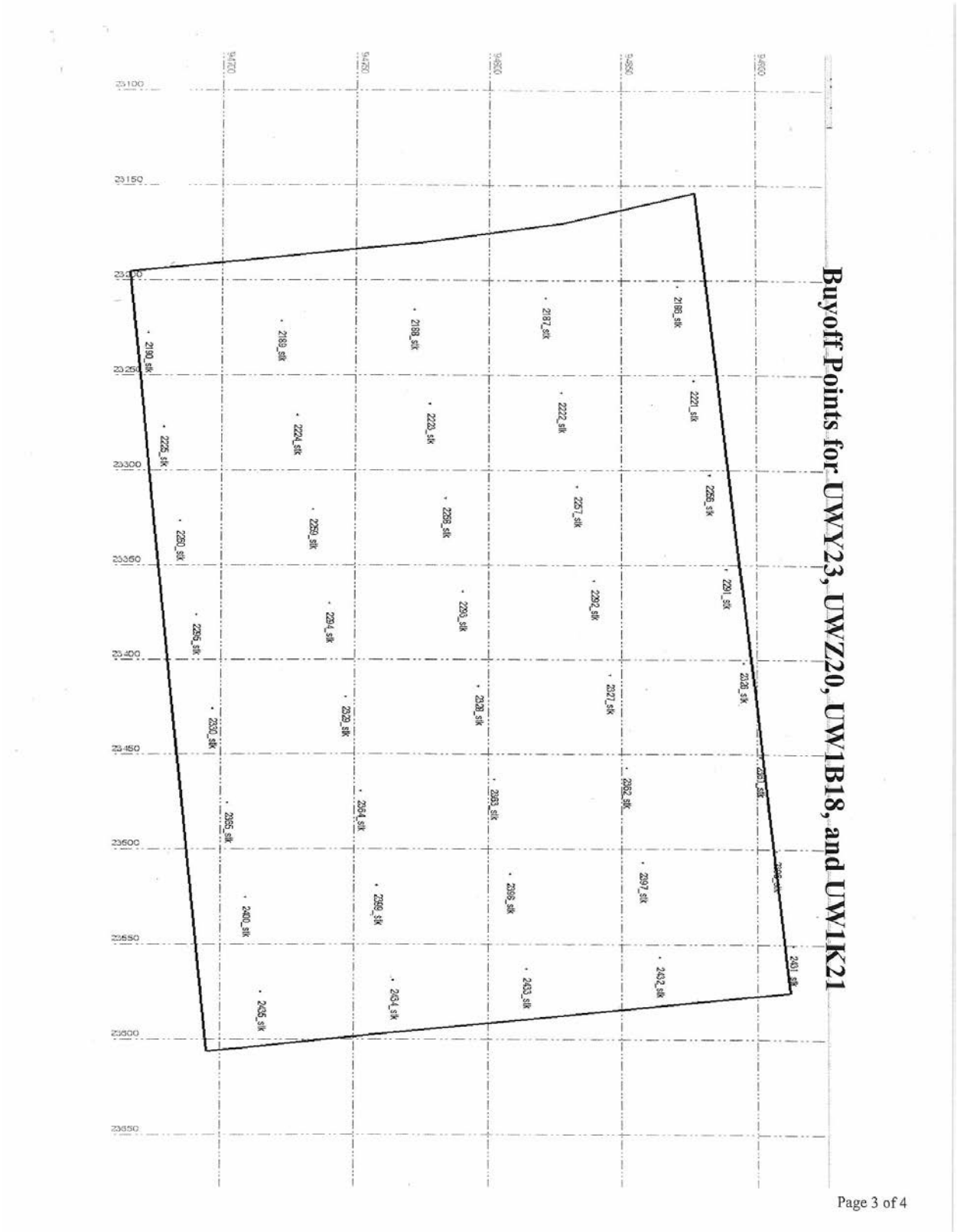
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0

Comments:	QC performed a visual inspection of the final surface with satisfactory results. Visual inspection notes: The area was free of humping, thickened edges and defects. The layer uniform thickness was satisfactory see above survey results for layer thickness. This buyoff report includes areas that were identified in another report. This buyoff is for the south half of the included lifts.
Approval Date: 7/8/2019	Total Square Feet: 89,806
North West Corner: 6794877 N. 2123154 E.	
QC Signature: Max von Zastrow/ Max von Zastrow	Reviewed By: Mitch Hogan/ 11-5-19

Appendix A2. Top of Waste Buyoff Survey (Continued)



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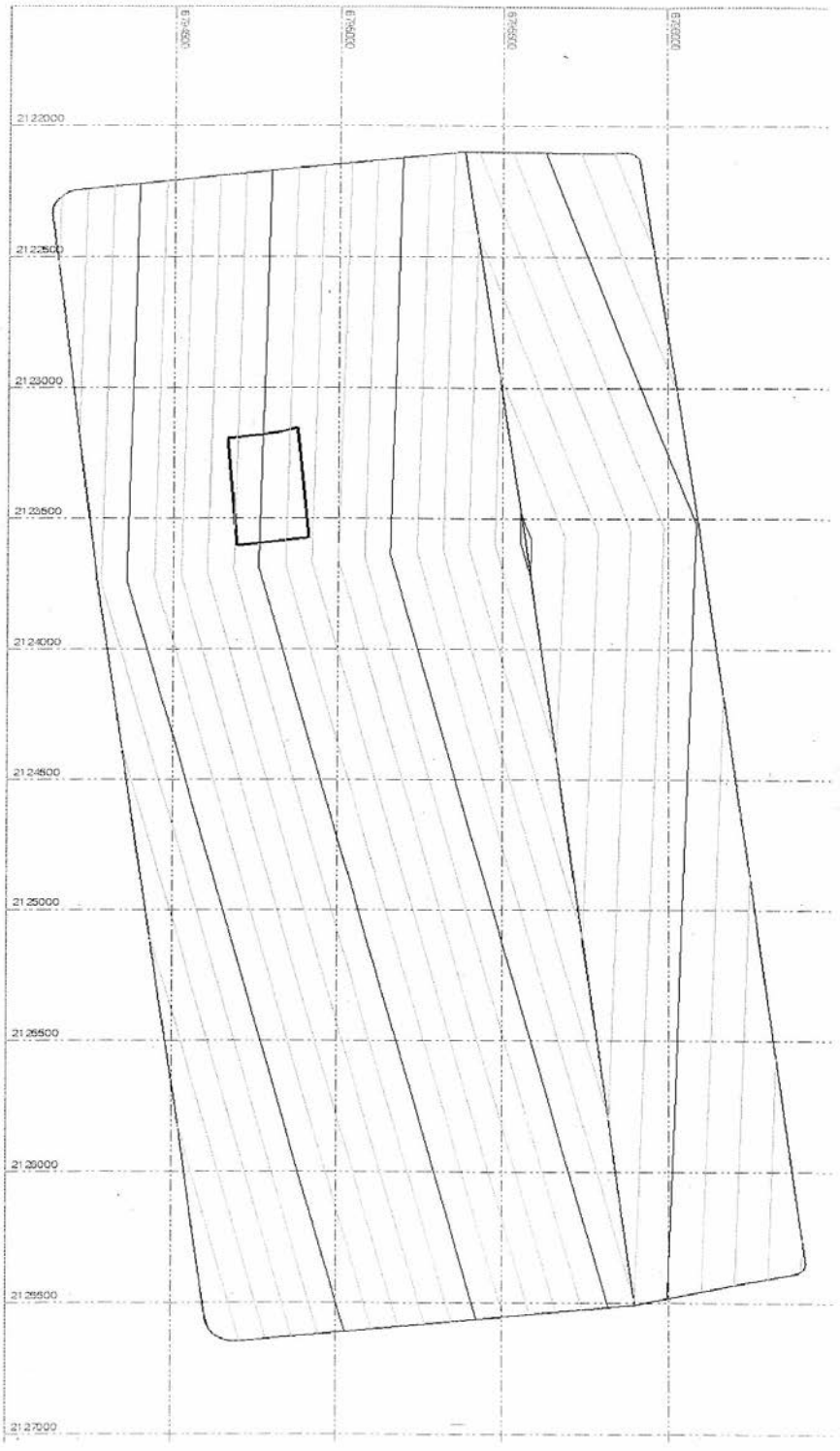
Appendix A2. Top of Waste Buyoff Survey (Continued)



Map of boundary for UWY23, UWZ20, UW1B18, and UW1K21 Buyoff

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Appendix A3.
Interim Cover

Standard Proctor Test Results Summary
Lift Approval Summaries
Lift Approval Package
Buyoff Surveys

Appendix A3. Interim Cover Standard Proctor Test Results Summary

2019					
Proctor ID	Date sampled	Date Approved	Max Dry Density	Optimum Moisture	Proctor Description
Interim cover # 1 (2019)	5/14/2019	5/20/2019	120.5	11.6	Greyish in color and consists mostly fines
Interim cover # 2 (2019)	5/14/2019	5/20/2019	120.0	11.4	Greyish in color and consists mostly fines
2020					
Interim cover #1 (2020)	4/22/2020	4/27/2020	119	12.8	Greyish in color and consists mostly fines
Interim cover #2 (2020)	4/23/2020	4/27/2020	118.2	13.4	Greyish in color and consists mostly fines

Appendix A3. Interim Cover Lift Approval Summaries

November 2019										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
11/14/19	UIY17191022-00	5	3753	3,753	N/A	1.1	IC#1 (2019)	5	0	94.5

Average CBCS Screen Passing Pixels (%) = 0.0
Total Quantity Approved (yd^3) = 3,753
Total # of Nuclear Density Gauge Tests = 5
Total # of Moisture Tests = 5
Quantity per Moisture Test (yd^3) = 751
Total Average Thickness (ft) = 1.1

Appendix A3. Interim Cover Lift Approval Summaries (*Continued*)

December 2019										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
12/12/19	UIX17191212-00	1	843	843	N/A	1.1	IC#1 (2019)	1	0	97.8

Average CBCS Screen Passing Pixels (%) = 0.0
Total Quantity Approved (yd^3) = 843
Total # of Nuclear Density Gauge Tests = 1
Total # of Moisture Tests = 1
Quantity per Moisture Test (yd^3) = 843
Total Average Thickness (ft) = 1.1

Appendix A3. Interim Cover Lift Approval Summaries (*Continued)*

June 2020 Interim Cover										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
06/29/20	UIU19200629-00	16	16890	16890	N/A	1.0	Interim Cover #1	16	0	96.8

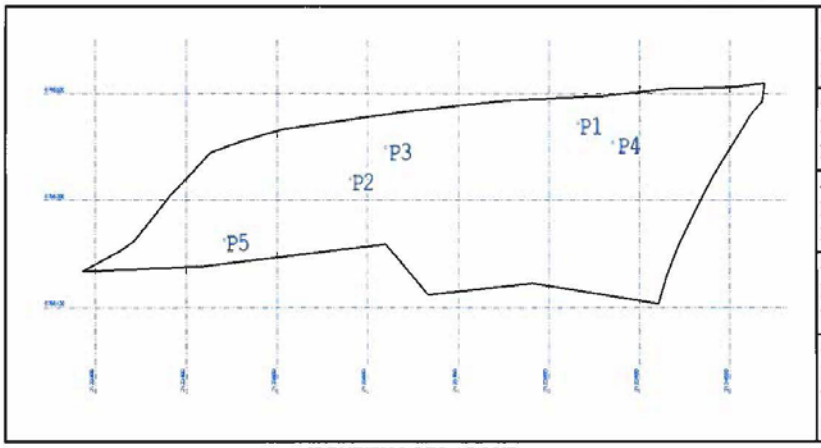
Average CBCS Screen Passing Pixels (%) = 0.0
Total Quantity Approved (yd^3) = 16,890
Total # of Nuclear Density Gauge Tests = 16
Total # of Moisture Tests = 16
Quantity per Moisture Test (yd^3) = 1,056
Total Average Thickness (ft) = 1.0

Appendix A3. Interim Cover Lift Approval Package

LIFT APPROVAL FORM

PROJECT: Moab UMTRA **OTHER**

NW CORNER **DATE:** 10/22/2019



P 1	6795272 N. 2123832 E.				
EW:	751	X	0.726	=	545
NS:	207	X	0.177	=	37
P 2	6795220 N. 2123581 E.				
EW:	751	X	0.391	=	294
NS:	207	X	0.428	=	89
P 3	6795249 N. 2123620 E.				
EW:	751	X	0.444	=	333
NS:	207	X	0.288	=	60
P 4	6795254 N. 2123870 E.				
EW:	751	X	0.776	=	583
NS:	207	X	0.268	=	55
P 5	6795163 N. 2123442 E.				
EW:	751	X	0.207	=	155
NS:	207	X	0.707	=	146

Page 2 attached: Y [N]

IDENTIFY LOTS ABOVE

LIFT ID: UIY17191022-00 NW CORNER: 6795133 N. 2123286 E.

Uncompacted Thickness: 1.1 Compacted Thickness: N/A Debris Insp. By: N/A Date: N/A Time: N/A

NW CORNER of debris placement: N/A EW Dimension N/A NS Dimension N/A

Lift Area (ft²): 92,109 Lift Volume (yd³): 3,753

Comments: QC verified that the RRM was scarified prior to placement. Operations began placement and QC observed for clod size. Clods were removed not meeting the size requirement. Operations used a front end loader for placement and used a motor grader to meet thickness and grade requirements. A loaded haul truck was used for compaction. QC verified thickness using a hand held GPS rover and a nuclear gauge to verified compaction. QC alternated density tests by testing the surface and six to eight inches below, see attached forms for test depths.

Attached Forms: Grid Slope X Compaction Macro N/A Print Screen N/A Moisture/ Density X

KEYING IN NOTES: [N] E S W Satisfactory MOISTURE/ DENSITY TESTS ID # (S): 1, 2, 3, 4, 5

LIFT APPROVED BY: Mitch Hogan/ DATE: 11/14/2019 TIME: 1406

QA/QC APPROVAL 11-18-19 DATE

Density Testing
DOE-EM/GJRAC1783
Rev. 1

QC-F-001
File index No. 43.8.2
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Slope Elevation Survey

	Average lift thickness=	1.09	Bounding Box	Northing	Easting	
	Grid Size=	50'	Lower Left	N		
Lift ID:	UIY17191022-00		Upper Right		A	
Last Lift Elevations			Lift Approval Elevations			Lift Thickness
Northing	Easting	Elevation	Northing	Easting	Elevation	Thickness
6795266	2123961	4990.811	6795266	2123961	4991.965	1.154
6795217	2123967	4989.56	6795217	2123967	4990.706	1.146
6795161	2123923	4988.441	6795161	2123923	4989.589	1.148
6795211	2123917	4989.691	6795211	2123917	4990.789	1.098
6795260	2123911	4990.941	6795260	2123911	4992.1	1.159
6795254	2123862	4991.072	6795254	2123862	4992.203	1.131
6795205	2123868	4989.822	6795205	2123868	4990.95	1.128
6795155	2123874	4988.572	6795155	2123874	4989.727	1.155
6795105	2123880	4987.322	6795105	2123880	4988.473	1.151
6795149	2123824	4988.703	6795149	2123824	4989.703	1.000
6795198	2123818	4989.953	6795198	2123818	4990.972	1.019
6795248	2123812	4991.203	6795248	2123812	4992.362	1.159
6795242	2123762	4991.334	6795242	2123762	4992.14	0.806
6795192	2123769	4990.084	6795192	2123769	4991.236	1.152
6795143	2123775	4988.833	6795143	2123775	4989.836	1.003
6795137	2123725	4988.964	6795137	2123725	4990.115	1.151
6795186	2123719	4990.214	6795186	2123719	4991.288	1.074
6795236	2123713	4991.465	6795236	2123713	4992.534	1.069
6795230	2123663	4991.595	6795230	2123663	4992.738	1.143
6795180	2123669	4990.345	6795180	2123669	4991.403	1.058
6795131	2123675	4989.095	6795131	2123675	4990.096	1.001
6795174	2123620	4990.367	6795174	2123620	4991.489	1.122
6795224	2123614	4991.618	6795224	2123614	4992.62	1.002
6795218	2123564	4991.436	6795218	2123564	4992.463	1.027
6795168	2123570	4990.185	6795168	2123570	4991.295	1.110
6795162	2123520	4990.003	6795162	2123520	4991.163	1.160
6795212	2123514	4991.254	6795212	2123514	4992.392	1.138
6795156	2123471	4989.821	6795156	2123471	4990.963	1.142
6795205	2123465	4991.072	6795205	2123465	4992.026	0.954
6795150	2123421	4989.639	6795150	2123421	4990.673	1.034
6795199	2123415	4990.89	6795199	2123415	4991.957	1.067
6795144	2123372	4989.457	6795144	2123372	4990.611	1.154
6795138	2123322	4989.275	6795138	2123322	4990.359	1.084
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
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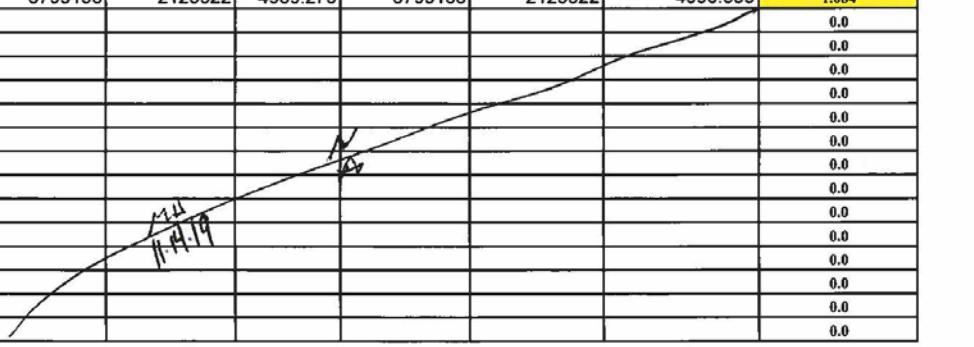

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FIELD DENSITY TEST

PROJECT: Moab UMTRA Project OTHER

LIFT IDENTIFICATION: UIY17191022-00 DATE: 11/12/2019

TEST ID NUMBER(S): # 1 surface

TEST LOCATION: P1 TEST METHOD: ____ D1556 X D6938

ASTM D6938 (DENSITY DETERMINATION)

Make/Model Troxler 3430 Gauge Serial # 23532

Last Calibration Date: 1/23/19

Daily Standard Counts: *Off-Cell Standard*

Density 2242 Moisture 502

Method A (Direct Transmission)

Depth Setting 6 *(inches)* Count Time 1 *(minutes)*

Moisture Count 54 Density Count 1975

Wet Density (ρ_m) 115.0 *(lbs/ft³)* Dry Density 110.2 *(lbs/ft³)*

Moisture Density 4.8 *(lbs/ft³)* Moisture Fraction 4.4 *(%)*

MOISTURE DETERMINATION

____ ASTM D2216 @ 110° C or ____ ASTM D4643

Container ID

Scale Serial # 0 Last Calibration Date: 1/0/00

Mass of container & wet specimen (M_{cms})	N A	g
Mass of container & dry specimen (M_{cds})		g
Mass of water (M_w) $M_w = M_{cms} - M_{cds}$		g
Mass of container (M_c)		g
Mass of dry specimen (M_s) $M_s = M_{cds} - M_c$		g
Moisture content (w) $w = (M_w / M_s) \times 100$		%

Dry Density $(\rho_d) = (100 \times \rho_m)/(100 + w)$

ρ_d = (100 x N/A) (100 + N/A = 110.2 lbs/ft³

Note: Wet Density from ASTM D 1556 (ρ_m) takes precedence over ASTM D 6938 (ρ_m)

Percent Compaction = ρ_d / $\gamma_d max$ x 100

110.2 / 120.5 x 100 = 91.5 %

ASTM D1556 (DENSITY DETERMINATION)

Testing Apparatus ____ Calibrated Vol. *(lbs/ft³)* ____

Bulk Density of sand (ρ_1) ____ g/cm³ ____ lbs/ft³

Mass of Sand to Fill Cone & Plate (M_2) ____ g

Mass of bottle & cone **before** filling cone, plate & hole		g
Mass of bottle & cone **after** filling cone, plate & hole		g
Mass of sand to fill cone, plate, & hole (M_1)		g
Mass of sand to fill hole		g
Mass of wet soil & container	N A	g
Mass of container		g
Mass of wet soil (M_3)		g

Test Hole Volume

$V = (M_1 - M_2) / \rho_1$ ____ cm³

Dry Mass of soil

$M_4 = 100\ M_3 / (w + 100)$ ____ g

Wet Density

$\rho_m = (M_3 / V) \times 62.43$ ____ lbs/ft³

Dry Density

$\rho_d = M_4 / V$ ____ g/cm³

Dry Unit Weight

$\gamma_d = \rho_d \times 62.43$ ____ lbs/ft³

Soil Description: Greyish in color and consits mostly fines

Proctor ID: Interim Cover # 1 (2019)

Standard Proctor (ASTM D698)

Maximum Dry Density ($\gamma_d max$) 120.5 (lbs/ft³)

Optimum Moisture (w_{opt}) 11.6 (%)

Required Moisture: N/A % to N/A %

Required Percent Compaction: 90.0 (%)

Comments:

TEST RESULTS:

X Pass Date: 11/12/19

____ Failed Moisture

____ Failed Compaction Time: 1305

By: Mitch Hogan *(print)* *(signature)*

QA/QC APPROVAL 11-18-19 DATE

Density Testing
DOE-EM/GJRAC1783

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FIELD DENSITY TEST

PROJECT: Moab UMTRA Project **OTHER**

LIFT IDENTIFICATION: UIY17191022-00 DATE: 11/12/2019

TEST ID NUMBER(S): # 2 below surface

TEST LOCATION: P4 TEST METHOD: ____ D1556 X D6938

ASTM D6938 (DENSITY DETERMINATION)

Make/Model Troxler 3430 Gauge Serial # 23532

Last Calibration Date: 1/23/19

Daily Standard Counts: *Off-Cell Standard*

Density 2242 Moisture 502

Method A (Direct Transmission)

Depth Setting 6 *(inches)* Count Time 1 *(minutes)*

Moisture Count 117 Density Count 1459

Wet Density (ρ_m) 127.8 *(lbs/ft³)* Dry Density 115.1 *(lbs/ft³)*

Moisture Density 12.7 *(lbs/ft³)* Moisture Fraction 11.1 *(%)*

MOISTURE DETERMINATION

____ASTM D2216 @ 110° C or ____ ASTM D4643

Container ID

Scale Serial # 0 Last Calibration Date: 1/0/00

Mass of container & wet specimen (M_{cms})	N A	g
Mass of container & dry specimen (M_{cds})		g
Mass of water (M_w) $M_w = M_{cms} - M_{cds}$		g
Mass of container (M_c)		g
Mass of dry specimen (M_s) $M_s = M_{cds} - M_c$		g
Moisture content (w) $w = (M_w / M_s) \times 100$		%

Dry Density $(\rho_d) = (100 \times \rho_m)/(100 + w)$

$\rho d = (100 \times$ N/A $) / (100 +$ N/A $) =$ 115.1 *lbs/ft³*

Note: Wet Density from ASTM D 1556 (ρ_m) takes precedence over ASTM D 6938 (ρ_m)

Percent Compaction = ρ_d / $\gamma_d max \times 100$

115.1 / 120.5 x 100 = 95.5 %

ASTM D1556 (DENSITY DETERMINATION)

Testing Apparatus ____ Calibrated Vol. *(lbs/ft³)* ____

Bulk Density of sand (ρ_1) ____ *g/cm³* ____ *lbs/ft³*

Mass of Sand to Fill Cone & Plate (M_2) ____ *g*

Mass of bottle & cone **before** filling cone, plate & hole	N A	g
Mass of bottle & cone **after** filling cone, plate & hole		g
Mass of sand to fill cone, plate, & hole (M_2)		g
Mass of sand to fill hole		g
Mass of wet soil & container		g
Mass of container		g
Mass of wet soil (M_3)		g

Test Hole Volume

$V = (M_1 - M_2) / \rho_1$ ____ cm^3

Dry Mass of soil

$M_4 = 100\ M_3 / (w + 100)$ ____ g

Wet Density

$\rho_m = (M_3 / V) \times 62.43$ ____ lbs/ft^3

Dry Density

$\rho_d = M_4 / V$ ____ g/cm^3

Dry Unit Weight

$\gamma_d = \rho_d \times 62.43$ ____ lbs/ft^3

Soil Description: Greyish in color and consits mostly fines

Proctor ID: Interim Cover # 1 (2019)

Standard Proctor (ASTM D698)

Maximum Dry Density ($\gamma_d max$) 120.5 (lbs/ft³)

Optimum Moisture (w_{opt}) 11.6 (%)

Required Moisture: N/A % to N/A %

Required Percent Compaction: 90.0 (%)

Comments:

TEST RESULTS:

X Pass Date: 11/12/19

____ Failed Moisture

____ Failed Compaction Time: 1340

By: Mitch Hogan *(print)* *(signature)*

QA/QC APPROVAL 11-18-19 DATE

Density Testing
DOE-EM/GJRAC1783

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FIELD DENSITY TEST

PROJECT: Moab UMTRA Project **OTHER**

LIFT IDENTIFICATION: UIY17191022-00 DATE: 11/12/2019

TEST ID NUMBER(S): # 3 surface

TEST LOCATION: P3 TEST METHOD: ____ D1556 X D6938

ASTM D6938 (DENSITY DETERMINATION)

Make/Model Troxler 3430 Gauge Serial # 23532

Last Calibration Date: 1/23/19

Daily Standard Counts: *Off-Cell Standard*

Density 2242 Moisture 502

Method A (Direct Transmission)

Depth Setting 6 *(inches)* Count Time 1 *(minutes)*

Moisture Count 103 Density Count 1473

Wet Density (ρ_m) 127.5 *(lbs/ft³)* Dry Density 116.5 *(lbs/ft³)*

Moisture Density 11.0 *(lbs/ft³)* Moisture Fraction 9.4 *(%)*

MOISTURE DETERMINATION

____ASTM D2216 @ 110° C or ____ ASTM D4643

Container ID

Scale Serial # 0 Last Calibration Date: 1/0/00

Mass of container & wet specimen (M_{cms})	N	g
Mass of container & dry specimen (M_{cds})	A	g
Mass of water (M_w) $M_w = M_{cms} - M_{cds}$		g
Mass of container (M_c)		g
Mass of dry specimen (M_s) $M_s = M_{cds} - M_c$		g
Moisture content (w) $w = (M_w / M_s) \times 100$		%

Dry Density $(\rho_d) = (100 \times \rho_m)/(100 + w)$

ρ_d = (100 x N/A) / (100 + N/A) = 116.5 lbs/ft³

Note: Wet Density from ASTM D 1556 (ρ_m) takes precedence over ASTM D 6938 (ρ_m)

Percent Compaction = ρ_d / $\gamma_d max$ x 100

116.5 / 120.5 x 100 = 96.7 %

ASTM D1556 (DENSITY DETERMINATION)

Testing Apparatus ____ Calibrated Vol. *(lbs/ft³)* ____

Bulk Density of sand (ρ_1) ____ g/cm³ ____ lbs/ft³

Mass of Sand to Fill Cone & Plate (M_2) ____ g

Mass of bottle & cone **before** filling cone, plate & hole	N	g
Mass of bottle & cone **after** filling cone, plate & hole	A	g
Mass of sand to fill cone, plate, & hole (M_1)		g
Mass of sand to fill hole		g
Mass of wet soil & container		g
Mass of container		g
Mass of wet soil (M_3)		g

Test Hole Volume

$V = (M_1 - M_2) / \rho_1$ ____ cm³

Dry Mass of soil

$M_4 = 100\ M_3 / (w + 100)$ ____ g

Wet Density

$\rho_m = (M_3 / V) \times 62.43$ ____ lbs/ft³

Dry Density

$\rho_d = M_4 / V$ ____ g/cm³

Dry Unit Weight

$\gamma_d = \rho_d \times 62.43$ ____ lbs/ft³

Soil Description: Greyish in color and consits mostly fines

Proctor ID: Interim Cover # 1 (2019)

Standard Proctor (ASTM D698)

Maximum Dry Density ($\gamma_d max$) 120.5 (lbs/ft³)

Optimum Moisture (w_{opt}) 11.6 (%)

Required Moisture: N/A % to N/A %

Required Percent Compaction: 90.0 (%)

Comments:

TEST RESULTS:

X Pass Date: 11/12/19

Failed Moisture

Failed Compaction Time: 1355

By: Max von Zastrow / Max von Zastrow
(print) *(signature)*

QA/QC APPROVAL 11.18.2019 DATE

Density Testing
DOE-EM/GJRAC1783

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FIELD DENSITY TEST

PROJECT: Moab UMTRA Project **OTHER** _____

LIFT IDENTIFICATION: UIY17191022-00 DATE: 11/12/2019

TEST ID NUMBER(S): # 4 surface

TEST LOCATION: P2 TEST METHOD: ____ D1556 X D6938

ASTM D6938 (DENSITY DETERMINATION)

Make/Model Troxler 3430 Gauge Serial # 23532

Last Calibration Date: 1/23/19

Daily Standard Counts: *Off-Cell Standard*

Density 2242 Moisture 502

Method A (Direct Transmission)

Depth Setting 6 *(inches)* Count Time 1 *(minutes)*

Moisture Count 107 Density Count 1469

Wet Density (ρ_m) 127.6 *(lbs/ft³)* Dry Density 116.1 *(lbs/ft³)*

Moisture Density 11.5 *(lbs/ft³)* Moisture Fraction 9.9 *(%)*

MOISTURE DETERMINATION

____ASTM D2216 @ 110° C or ____ ASTM D4643

Container ID _____

Scale Serial # 0 Last Calibration Date: 1/0/00

Mass of container & wet specimen (M_{cms})	N A	g
Mass of container & dry specimen (M_{cds})		g
Mass of water (M_w) $M_w = M_{cms} - M_{cds}$		g
Mass of container (M_c)		g
Mass of dry specimen (M_s) $M_s = M_{cds} - M_c$		g
Moisture content (w) $w = (M_w / M_s) \times 100$		%

Dry Density $(\rho_d) = (100 \times \rho_m)/(100 + w)$

ρd (100 x N/A) (100 + N/A = 116.1 lbs/ft³

Note: Wet Density from ASTM D 1556 (ρ_m) takes precedence over ASTM D 6938 (ρ_m)

Percent Compaction = ρ_d / $\gamma_d max$ x 100

116.1 / 120.5 x 100 = 96.3 %

ASTM D1556 (DENSITY DETERMINATION)

Testing Apparatus ____ Calibrated Vol. *(lbs/ft³)* ____

Bulk Density of sand (ρ_1) _____ *g/cm³* _____ *lbs/ft³*

Mass of Sand to Fill Cone & Plate (M_2) _____ g

Mass of bottle & cone **before** filling cone, plate & hole		g
Mass of bottle & cone **after** filling cone, plate & hole		g
Mass of sand to fill cone, plate, & hole (M_1)		g
Mass of sand to fill hole		g
Mass of wet soil & container	N A	g
Mass of container		g
Mass of wet soil (M_3)		g

Test Hole Volume

$V = (M_1 - M_2) / \rho_1$ _____ cm^3

Dry Mass of soil

$M_d = 100\ M_3 / (w + 100)$ _____ g

Wet Density

$\rho_m = (M_3 / V) \times 62.43$ _____ lbs/ft^3

Dry Density

$\rho_d = M_d / V$ _____ g/cm^3

Dry Unit Weight

$\gamma_d = \rho_d \times 62.43$ _____ lbs/ft^3

Soil Description: Greyish in color and consits mostly fines

Proctor ID: Interim Cover # 1 (2019)

Standard Proctor (ASTM D698)

Maximum Dry Density ($\gamma_d max$) 120.5 (lbs/ft³)

Optimum Moisture (w_{opt}) 11.6 (%)

Required Moisture: N/A % to N/A %

Required Percent Compaction: 90.0 (%)

Comments:

TEST RESULTS:

X Pass Date: 11/12/19

____ Failed Moisture

____ Failed Compaction Time: 1358

By: Max von Zastrow / Max von Zastrow

(print) *(signature)*

QA/QC APPROVAL 11.18.2019 DATE

Density Testing
DOE-EM/GJRAC1783

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FIELD DENSITY TEST

PROJECT: Moab UMTRA Project **OTHER**

LIFT IDENTIFICATION: UIY17191022-00 DATE: 11/12/2019

TEST ID NUMBER(S): # 5 below surface

TEST LOCATION: P5 TEST METHOD: ___ D1556 X D6938

ASTM D6938 (DENSITY DETERMINATION)

Make/Model Troxler 3430 Gauge Serial # 23532

Last Calibration Date: 1/23/19

Daily Standard Counts: *Off-Cell Standard*

Density 2242 Moisture 502

Method A (Direct Transmission)

Depth Setting 6 *(inches)* Count Time 1 *(minutes)*

Moisture Count 144 Density Count 1456

Wet Density (ρ_m) 127.8 *(lbs/ft³)* Dry Density 111.6 *(lbs/ft³)*

Moisture Density 16.1 *(lbs/ft³)* Moisture Fraction 14.5 *(%)*

MOISTURE DETERMINATION

___ASTM D2216 @ 110° C or ___ ASTM D4643

Container ID

Scale Serial # 0 Last Calibration Date: 1/0/00

Mass of container & wet specimen (M_{cms})	N A	g
Mass of container & dry specimen (M_{cds})		g
Mass of water (M_w) $M_w = M_{cms} - M_{cds}$		g
Mass of container (M_c)		g
Mass of dry specimen (M_s) $M_s = M_{cds} - M_c$		g
Moisture content (w) $w = (M_w / M_s) \times 100$		%

Dry Density $(\rho_d) = (100 \times \rho_m)/(100 + w)$

$\rho d = (100 \times$ N/A $) / (100 +$ N/A $) =$ 111.6 *lbs/ft³*

Note: Wet Density from ASTM D 1556 (ρ_m) takes precedence over ASTM D 6938 (ρ_m)

Percent Compaction = ρ_d / $\gamma_d max \times 100$

111.6 / 120.5 x 100 = 92.6 %

ASTM D1556 (DENSITY DETERMINATION)

Testing Apparatus ___ Calibrated Vol. *(lbs/ft³)* ___

Bulk Density of sand (ρ_1) ___ *g/cm³* ___ *lbs/ft³*

Mass of Sand to Fill Cone & Plate (M_2) ___ g

Mass of bottle & cone **before** filling cone, plate & hole	N A	g
Mass of bottle & cone **after** filling cone, plate & hole		g
Mass of sand to fill cone, plate, & hole (M_1)		g
Mass of sand to fill hole		g
Mass of wet soil & container		g
Mass of container		g
Mass of wet soil (M_3)		g

Test Hole Volume

$V = (M_1 - M_2) / \rho_1$ ___ cm^3

Dry Mass of soil

$M_4 = 100\ M_3 / (w + 100)$ ___ g

Wet Density

$\rho_m = (M_3 / V) \times 62.43$ ___ *lbs/ft³*

Dry Density

$\rho_d = M_4 / V$ ___ *g/cm³*

Dry Unit Weight

$\gamma_d = \rho_d \times 62.43$ ___ *lbs/ft³*

Soil Description: Greyish in color and consits mostly fines

Proctor ID: Interim Cover # 1 (2019)

Standard Proctor (ASTM D698)

Maximum Dry Density ($\gamma_d max$) 120.5 (lbs/ft³)

Optimum Moisture (w_{opt}) 11.6 (%)

Required Moisture: N/A % to N/A %

Required Percent Compaction: 90.0 (%)

Comments:

TEST RESULTS:

X Pass Date: 11/12/19

___ Failed Moisture

___ Failed Compaction Time: 1410

By: Max von Zastrow / *(print)* *(signature)*

QA/QC APPROVAL 11.18.2019 DATE

Density Testing
DOE-EM/GJRAC1783

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Appendix A3. Interim Cover Buyoff Surveys

Environmental Management - Grand Junction Office
MOAB
UMTRA Project

Interim Cover Buyoff Form

Client: Department of Energy
Project: Moab UMTRA Project
Date: 12/12/2019

In signing this document, the signatory agrees that the lift is complete and meets both the project specifications and RAIP requirements.

Lift Area	Lift Area
UIX17	

Approver Name/Title	Signature	Sign Date
Mike McCullough/ Operations Site Manager		12-16-19
Mitch Hogan/ QA/QC Representative		12-12-2019
Max von Zastrow/ QA/QC Representative		12-16-2019
Comments		
20,696 ft²		

COPY

OP-F-011
Rev 0, August 2010

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Appendix A3. Interim Cover Buyoff Surveys (*continued)*

Interim Cover Buyoff Survey

Lift Area Buyoff ID:			UIX17		Date:	12/12/2019
Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Difference in feet	Difference in inches
2497_stk	6795124	2123626	4990.2	4989.116	1.0	12.5
2462_stk	6795118	2123576	4990.0	4988.934	1.1	13.0
2427_stk	6795112	2123526	4989.8	4988.752	1.1	13.0
2392_stk	6795106	2123477	4989.7	4988.57	1.1	13.7
2357_stk	6795100	2123427	4989.5	4988.388	1.1	13.5
2322_stk	6795094	2123378	4989.3	4988.206	1.1	12.8
2287_stk	6795088	2123328	4989.0	4988.024	1.0	12.2
2252_stk	6795082	2123278	4988.9	4987.842	1.0	12.1
2217_stk	6795076	2123229	4988.7	4987.66	1.0	12.3
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
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					0.0	0.0
					0.0	0.0

N/A MH 12.12.19

Comments: QC performed a visual inspection of the final surface with satisfactory results. Visual inspection notes: The area was free of humping, thickened edges and defects. The layer uniform thickness was satisfactory see above survey results for layer thickness.

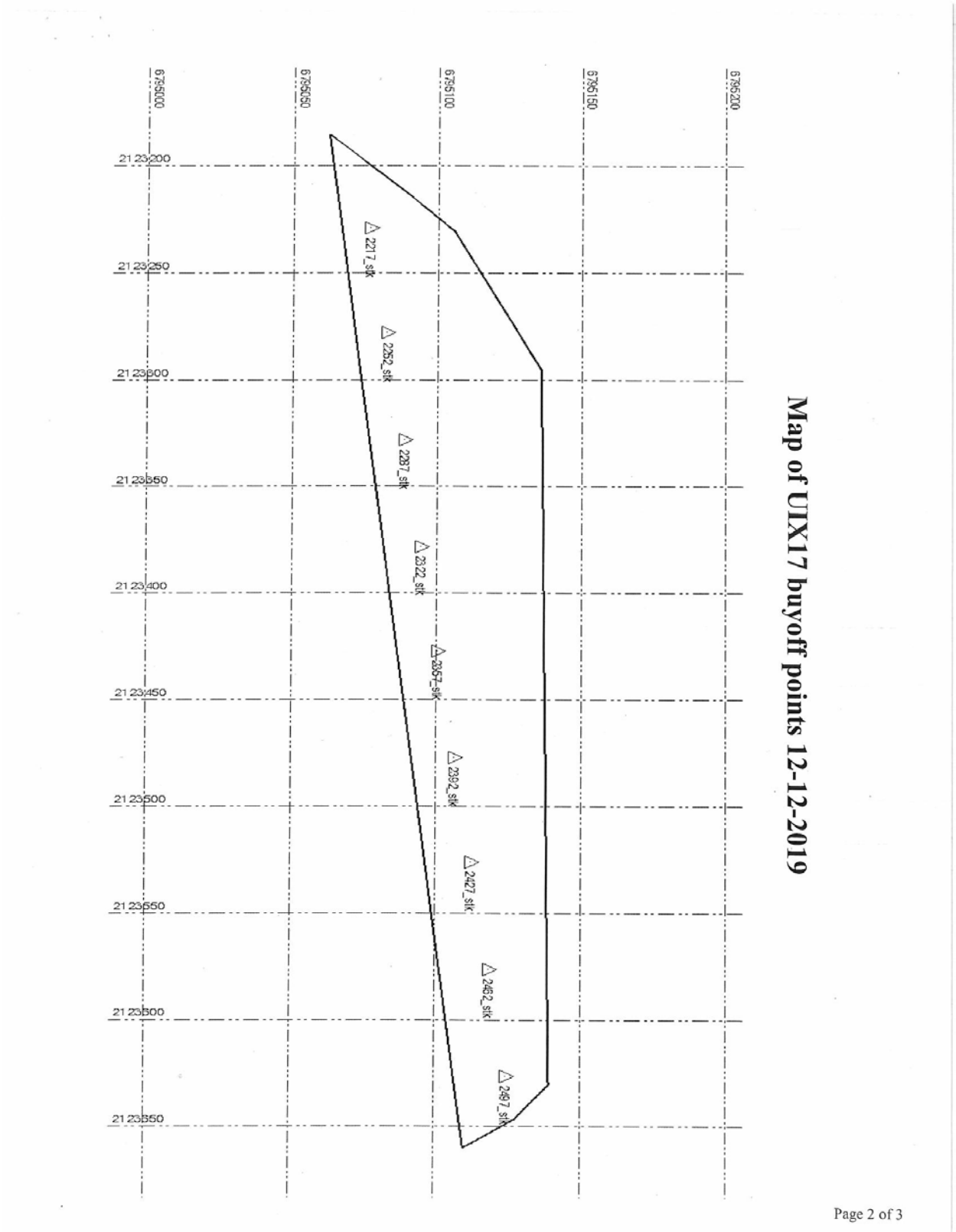
Approval Date: 12/12/20019 Total Square Feet: 20,696

North West Corner: 6795136 N. 2123295 E.

QC Signature:Mitch Hogan/ 12.12.19 Reviewed By:Max von Zastrow/ 12-16-19

EnergySolutions

Pg 1 of 3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Map of UIX17 buyoff points 12-12-2019
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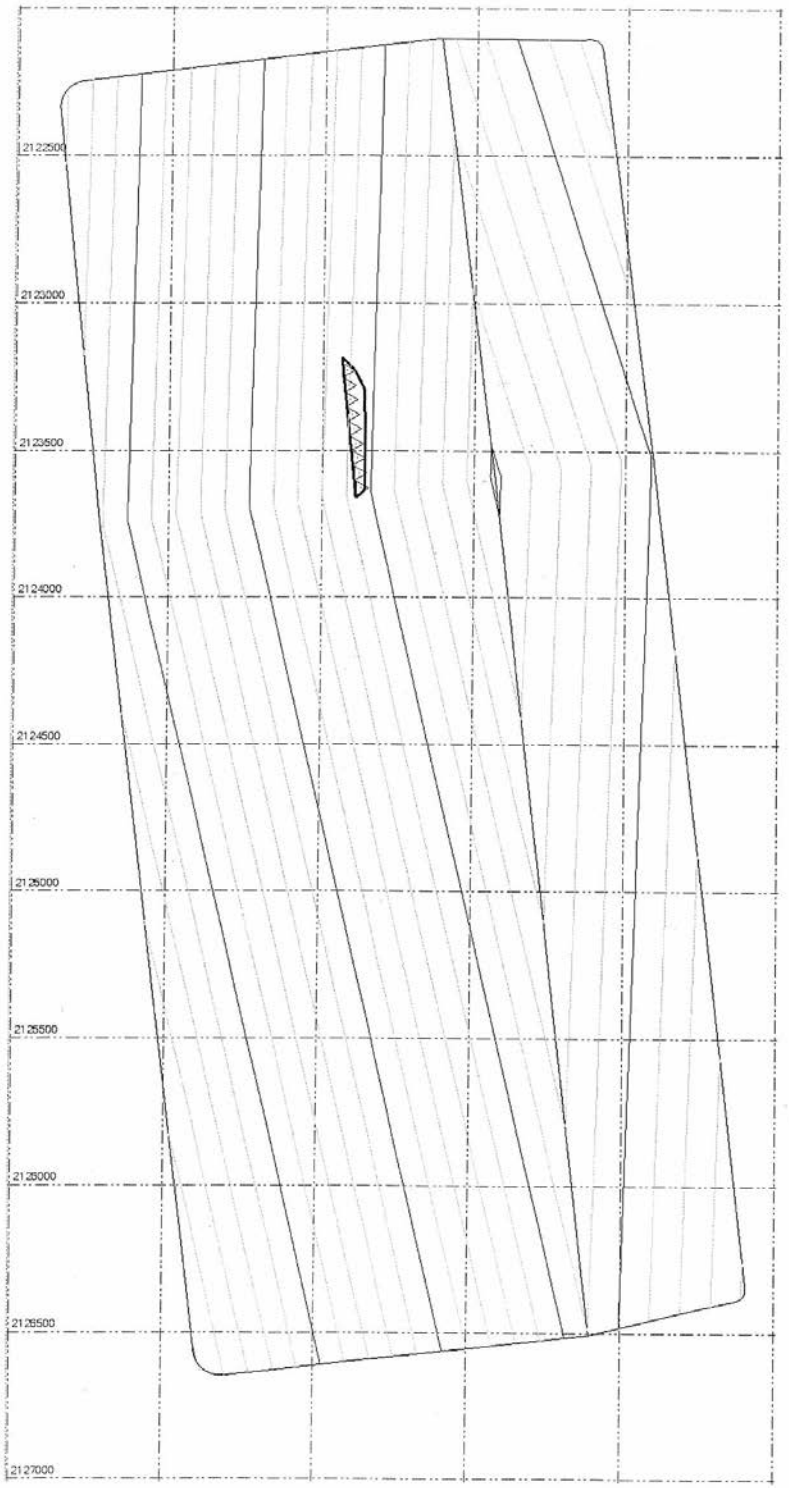

UIX17 Buyoff Map 12-12-2019

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Appendix A3. Interim Cover Buyoff Surveys

Environmental Management - Grand Junction Office
MOAB UMTRA Project

Interim Cover Buyoff Form

Client: Department of Energy
Project: Moab UMTRA Project
Date: 11/25/2019

In signing this document, the signatory agrees that the lift is complete and meets both the project specifications and RAIP requirements.

Lift Area	Lift Area
UIY17	

Approver Name/Title	Signature	Sign Date
Mike McCullough/ Operations Site Manager		11-25-19
Mitch Hogan/ QA/QC Representative		11-25-2019
Max von Zastrow/ QA/QC Representative		11-25-2019
Comments		
103,915 ft²		

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Appendix A3. Interim Cover Buyoff Surveys (*continued)*

Interim Cover Buyoff Survey

Lift Area Buyoff ID:			UIY17		Date:	11/25/2019
Point #	**Northing**	**Easting**	**Surveyed Elevation**	**Design Elevation**	**Difference in feet**	**Difference in inches**
2286	6795138	2123322	4990.359	4989.277	1.1	13.0
2321	6795144	2123372	4990.611	4989.562	1.0	12.6
2391	6795156	2123471	4990.963	4989.838	1.1	13.5
2425	6795212	2123514	4992.392	4991.3	1.1	13.1
2426	6795162	2123520	4991.163	4990.092	1.1	12.9
2461	6795168	2123570	4991.295	4990.271	1.0	12.3
2496	6795174	2123620	4991.489	4990.451	1.0	12.5
2530	6795230	2123663	4992.738	4991.708	1.0	12.4
2565	6795236	2123713	4992.534	4991.497	1.0	12.4
2566	6795186	2123719	4991.288	4990.264	1.0	12.3
2567	6795137	2123725	4990.115	4989.071	1.0	12.5
2601	6795192	2123769	4991.236	4990.097	1.1	13.7
2635	6795248	2123812	4992.362	4991.246	1.1	13.4
2670	6795254	2123862	4992.203	4991.098	1.1	13.3
2671	6795205	2123868	4990.95	4989.869	1.1	13.0
2672	6795155	2123874	4989.727	4988.648	1.1	13.0
2673	6795105	2123880	4988.473	4987.44	1.0	12.4
2705	6795260	2123911	4992.1	4990.948	1.2	13.8
2706	6795211	2123917	4990.789	4989.765	1.0	12.3
2707	6795161	2123923	4989.589	4988.448	1.1	13.7
2740	6795266	2123961	4991.965	4990.916	1.0	12.6
2741	6795217	2123967	4990.706	4989.647	1.1	12.7
					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0
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					0.0	0.0
					0.0	0.0
					0.0	0.0
					0.0	0.0

Comments: QC performed a visual inspection of the final surface with satisfactory results. Visual inspection notes: The area was free of humping, thickened edges and defects. The layer uniform thickness was satisfactory see above survey results for layer thickness.

Approval Date: 11/25/2019 Total Square Feet: 103,915

North West Corner: 6795136 N. 2123295 E.

QC Signature:Mitch Hogan/ *[signature]* 11/25/2019 Reviewed By:Max von Zastrow/

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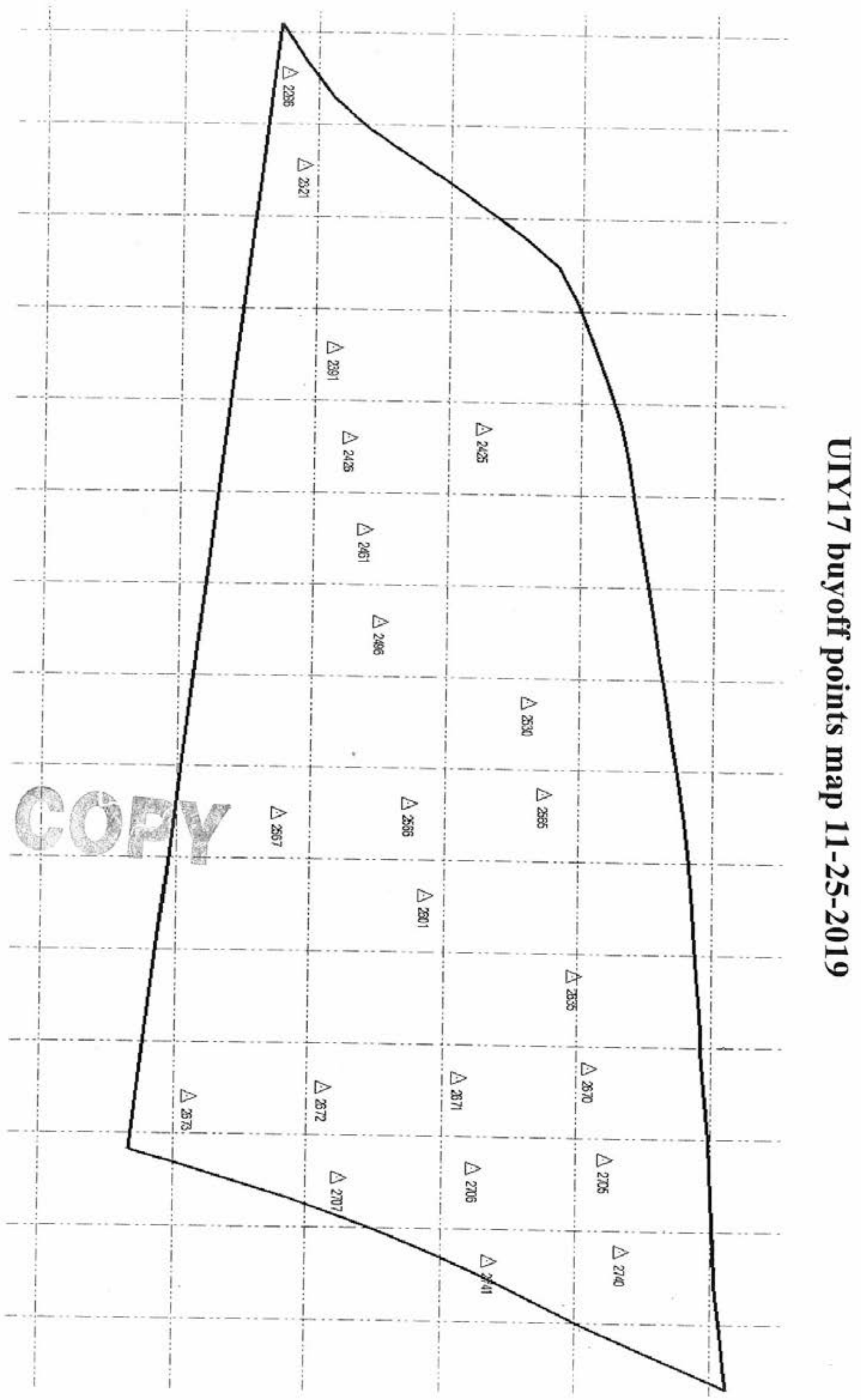
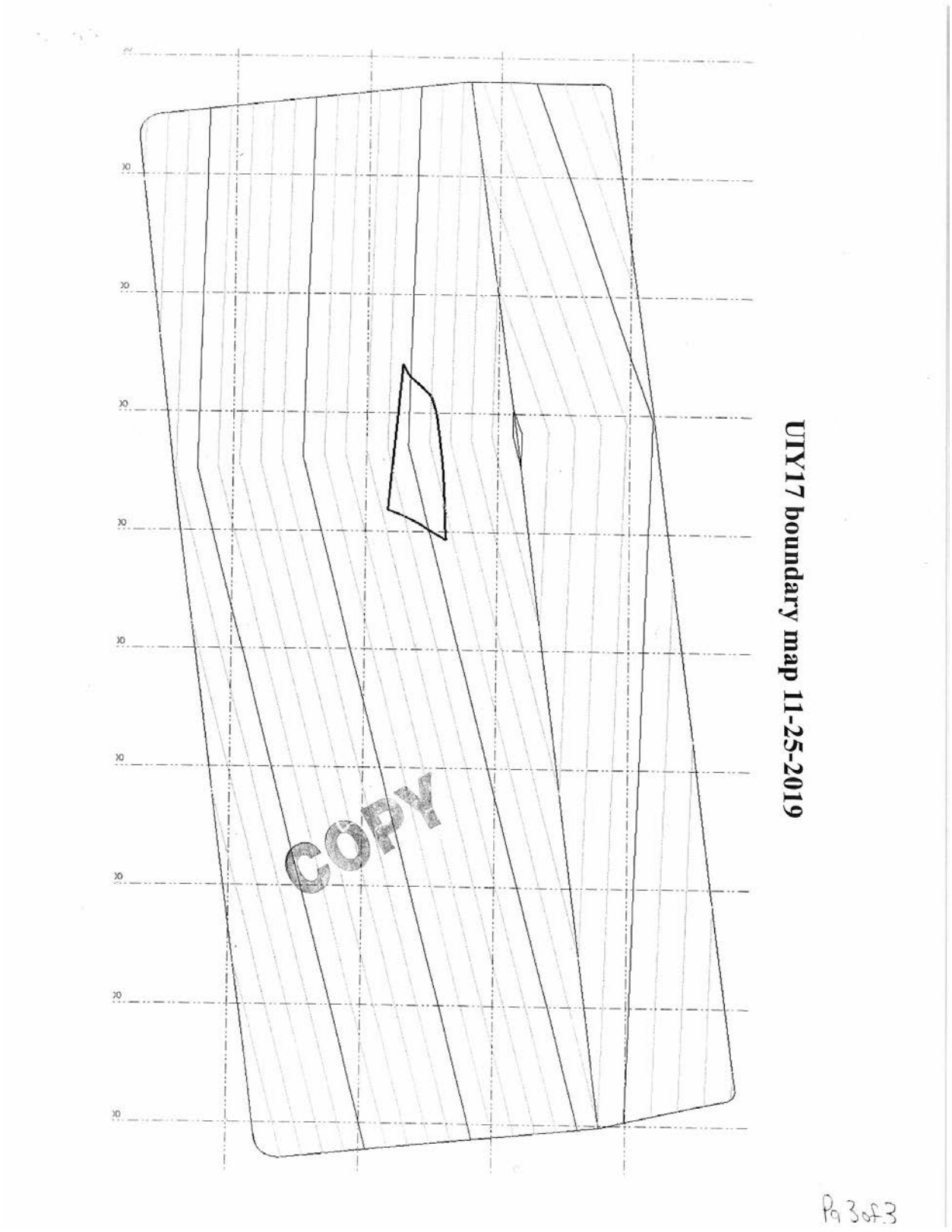
Appendix A3. Interim Cover Buyoff Surveys (*continued)*




UIY17 boundary map 11-25-2019
COPY
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Appendix A8.
Spoils Embankment

Standard Proctor Test Results Summary
Lift Approval Summaries
Lift Approval Package

Appendix A8. Spoils Embankment Standard Proctor Test Results Summaries

Proctor ID#	Date Sampled	Date Approved	Maximum Dry Density (lb/ft^3)	Optimum Moisture Content %	Proctor Description
Spoils Wedge #1 2020	8/17/2020	9/13/2020	117.3	12.6%	Clay Sandy (CL)
Spoils wedge #2 2020	8/17/2020	9/13/2020	116.6	13.0%	Clay Sandy (CL)
Spoils Wedge #3 2020	8/17/2020	9/13/2020	118.4	11.5%	Clay Sandy (CL)
Spoils Wedge #4 2020	8/17/2020	9/13/2020	117.2	13.2%	Clay Sandy (CL)
Spoils Wedge #5 2020	8/17/2020	9/13/2020	117.8	11.2%	Clay Sandy (CL)
Spoils Wedge #6 2020	8/17/2020	9/13/2020	118.3	11.0%	Clay Sandy (CL)
Spoils Wedge #7 2020	9/20/2020	9/21/2020	118.6	11.3%	Clay Sandy (CL)
Spoils Wedge #8 2020	9/20/2020	9/21/2020	117.6	11.7%	Clay Sandy (CL)
Spoils Wedge #9 2020	9/27/2020	9/28/2020	117.1	11.9%	Clay Sandy (CL)
Spoils Wedge #10 2020	9/27/2020	9/28/2020	118.3	11.3%	Clay Sandy (CL)
Spoils Wedge #11 2020	9/27/2020	9/28/2020	115.7	12.6%	Clay Sandy (CL)

Appendix A8. Spoils Embankment Lift Approval Summary

September 2020									
Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CBCS Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
USB88200901-00	2	11480	11,480	N/A	0.7	Spoils Wedge 1 2020	9	0	95
USB88200908-00	2	11371	22,851	N/A	0.7	Spoils Wedge 4 2020	6	0	93.3
USB88200909-00	2	11371	34,222	N/A	0.7	Spoils Wedge 4 2020	6	0	95.7
USB88200910-00	2	11371	45,593	N/A	0.7	Spoils Wedge 4 & 6 2020	6	0	95.8
USB88200914-00	1	11371	56,964	N/A	0.7	Spoils Wedge 6 2020	6	1	92.9
USB88200915-00	1	11371	68,335	N/A	0.7	Spoils Wedge 6 2020	6	0	94.8
USB88200916-00	2	14096	82,431	N/A	0.7	Spoils Wedge 6 2020	7	0	93.1
USB88200921-00	2	14096	96,527	N/A	0.7	Spoils Wedge 8 2020	7	1	93.3
USB88200922-00	1	14096	110,623	N/A	0.7	Spoils Wedge 8 2020	7	0	95
USB88200923-00	1	14096	124,719	N/A	0.7	Spoils Wedge 8 2020	6	0	97.2
USB88200924-00	1	14096	138,815	N/A	0.7	Spoils Wedge 9 2020	8	1	95.5
USB88200929-00	1	14096	152,911	N/A	0.7	Spoils Wedge 9 2020	6	0	94.2

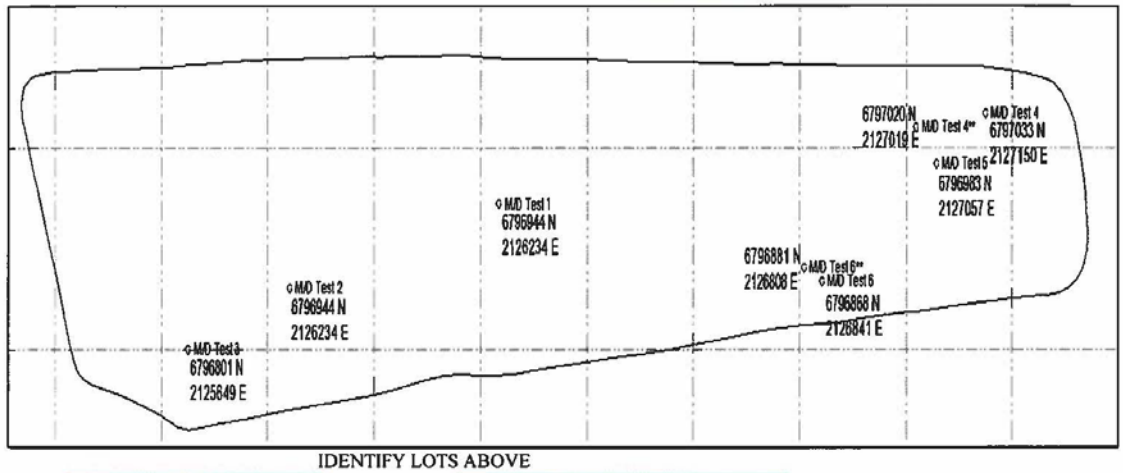
AverageCBCS Screen Passing Pixels (%) = N/A
Total Quantity Approved (yd^3) = 152,911
Total # of Nuclear Density Gauge Tests = 80
Total # of Moisture Tests = 18
Quantity per Moisture Test (yd^3) = 8,495
Total Average Thickness (ft) = 0.7

Appendix A8. Spoils Embankment Lift Approval Package

LIFT APPROVAL FORM

PROJECT: Moab UMTRA **OTHER**

NW CORNER **DATE:** 9/24/2020



IDENTIFY LOTS ABOVE

LIFT ID: USB88200924-00 NW CORNER: 6797205 N. 2125347 E.

Uncompacted Thickness:	0.7	Compacted Thickness:	N/A	Debris Insp. By:	N/A	Date: N/A	Time: N/A
NW CORNER of debris placement:	N/A	EW Dimension	N/A	NS Dimension	N/A		
Lift Area (ft²):	568,028	Lift Volume (yd³):	14,096				

Comments:

Proctor "Spoils Wedge #9 2020" was used for testing. Lifts began on the 24th and continued until the 29th. 8 test were taken. Tests #4 and #6 Failed and were reworked and then retested.

Attached Forms: Grid Slope N/A Compaction Macro N/A Print Screen N/A Moisture/ Density X

KEYING IN NOTES: N E S W N/A MOISTURE/ DENSITY TESTS ~~ID #'(S)~~: 8

LIFT APPROVED BY: Brian Sherman/ DATE: 9/29/2020 TIME: 14:00

QA/QC APPROVAL 10/1/2020 DATE

Density Testing
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FIELD DENSITY TEST

PROJECT:	Moab UMTRA	Standard Count:			Date: 9/28/2020, 09/29/2020	
Lift ID:	USB88200924-00	MS=	627	619		
Make/Model:	Troxler 3430	DS=	1990	1976	Gauge Calibration Date:	7/7/2020
Task:	Sand-Cone and Plate No.				Sand-Cone Calibration Date:	5/4/2020

Test No.	Depth (inches)	Test Location	Test NUC	Type Sand	MDD (pcf)	OMC (%)	WD (pcf)	DD (pcf)	MC (%)	Compaction (%)	Pass Fail	Soil Type	Proctor ID.	Date of Test
#1	8	N-6796944 E-2126234	X		117.1	11.9	124.1	117.0	6.0	100	P		Spoils Wedge #9 2020	9/28/2020
#2	8	N-6796861 E-2125842	X		117.1	11.9	117.6	110.6	6.2	95	P		Spoils Wedge #9 2020	9/28/2020
#3	8	N-6796801 E-2125649	X		117.1	11.9	111.5	106.0	5.1	91	P		Spoils Wedge #9 2020	9/28/2020
#4	8	N-6797033 E-2127150	X		117.1	11.9	104.1	101.4	8.6	87	Fail		Spoils Wedge #9 2020	9/29/2020
#5	8	N-6796983 E-2127057	X	X	117.1	11.9	111.7	106.2	5.2 / 6.6	91/ 94	P		Spoils Wedge #9 2020	9/29/2020
#6	8	N-6796868 E-2126841	X		117.1	11.9	106.6	101.5	5.0	87	Fail		Spoils Wedge #9 2020	9/29/2020
#4**	8	N-6797020 E-2127019	X		117.1	11.9	121.2	112.6	7.7	96	P		Spoils Wedge #9 2020	9/29/2020
#6**	8	N-6798001 E-2126808	X		117.1	11.9	123.8	114.7	8.0	98	P		Spoils Wedge #9 2020	9/29/2020

Legend:* Indicates moisture and density correction for RRM only ** Indicates a retest

Test ID: MC Test #14

Moisture Content:	#3, #4
A. Container No.	1530
B. Container Mass (g):	2780.8
C. Mass of Container & Wet Soil (g)	2720.9
D. Mass of Container & Dry Soil (g)	
E. Moisture Content (%)	

Test ID: Sand Cone #3

Moisture Content:	#3 & #4
A. Container No.	1530
B. Container Mass:	3098.8
C. Mass of Container & Wet Soil	3002.3
D. Mass of Container & Dry Soil	ASTM
E. Moisture Content	

117.1 % MDD
11.9 % OMC

Testing By: Brian Sherman / Date: 9/29/2020 QA/QC Rep: Robert Anderson / Date:

Print / Signature Print / Signature

QC-F-002
Revision 1

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