December 4, 2025

NW-2025-225

Matt Udovitsch
Federal Cleanup Director
Moab UMTRA Project
U.S. Department of Energy
Office of Environmental Management
200 Grand Ave. Suite 500
Grand Junction, CO 81501

SUBJECT: Task Order No. 05 89303322DEM000073 – *Moab UMTRA Project Interim Completion Report* (Deliverable Number 29c, Table J-4).

Dear Mr. Udovitsch:

Attached is the *Moab UMTRA Project Interim Completion Report,* submitted as a RAC contract deliverable for information.

If you have any questions or comments, please feel free to contact me at 970.257.2117.

Sincerely,

Greg D. Church
Program Manager
North Wind Portage

Enclosure/s: 1

cc:

DOE: Chris Pulskamp
Michael Forsgren
Liz Moran
Kenneth Schafer
Moab Letter Book (B. Michel)

TAC: Project Records
Carla Johnson

RAC: Heather White
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North Wind Portage Records (C Reyes)

DOE-EM/GJRAC2040-O

Moab UMTRA Project
Crescent Junction Disposal Cell Interim Completion Report Addendum - O

Revision 0

December 2025

U.S. Department of Energy

Office of Environmental Management

Prepared by the Remedial Action Contractor under contract number 89303322DEM000073
for the U.S. Department of Energy Office of Environmental Management, Grand Junction, Colorado.

Moab UMTRA Project
Crescent Junction Disposal Cell Interim Completion Report
Addendum O

Revision 0

Review and Approval

11/26/2025

X Kathy Turvy

Kathy Turvy
RAC Quality Assurance Manager
Signed by: KATHRYN TURVY (Affiliate)

11/26/2025

X Greg D. Church

Greg D. Church
RAC Program Manager
Signed by: GREGORY CHURCH (Affiliate)

Revision History

Revision	Date	Description
0	December 2025	Initial issue.

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Attachments

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Acronyms and Abbreviations

ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials International
CAT	Caterpillar
CBCS	Computer Based Compaction System
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOE O	DOE Order
ft	foot/feet
GPS	Global Positioning System
NQA	Nuclear Quality Assurance
QA	quality assurance
Ra-226	radium-226
RAC	Remedial Action Contract or Contractor
RAIP	Remedial Action Inspection Plan
RAP	Remedial Action Plan
RRM	residual radioactive material
TAC	Technical Assistance Contractor
UMTRA	Uranium Mill Tailings Remedial Action
yd^3	cubic yard(s)

Executive Summary

This Interim Completion Report, Addendum M, documents the construction of a portion of the disposal cell near Crescent Junction, Utah. The disposal cell is being constructed under the U.S. Department of Energy (DOE) Moab Uranium Mill Tailings Remedial Action (UMTRA) Project. The purpose of the disposal cell is to isolate and stabilize uranium mill tailings and other contaminated materials, known as residual radioactive material (RRM), removed from the former millsite in Moab, Utah. The disposal cell is designed to be effective for 1,000 years to the extent reasonably achievable, with a minimum performance period of 200 years.

The Crescent Junction disposal cell will require many years to construct. Multiple Interim Completion Reports will be prepared to compile and document data collected during the ongoing construction process. These Interim Completion Reports will be written in the format of sequential addenda referenced in a Final Completion Report that will be prepared to address the entire cell construction.

This Addendum addresses activities performed by North Wind Portage, the DOE Remedial Action Contractor (RAC) for the Moab Project, from October 1, 2024, through September 30, 2025. This Report includes placement of 741,000 yd^3 of RRM, and 21,703 yd^3 of interim cover materials.

This Addendum also demonstrates that the referenced portion of the disposal cell was constructed in accordance with the *Moab UMTRA Project Final Remedial Action Plan and Site Design for Stabilization of Moab Title I Uranium Mill Tailings at the Crescent Junction, Utah, Disposal Site* (RAP) (DOE-EM/GJ1547). The RAP received conditional concurrence from the U.S. Nuclear Regulatory Commission. Included in this Report are a critical review, design assessment, and remedial action assessment of activities performed during this Report period. Also provided are associated data tables, photographs, laboratory results, and other supporting documentation.

The Moab Project follows the American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance-1 (NQA-1) requirements for quality assurance (QA), including conducting audits and surveillances during the design and construction of the cell.

1.0 Introduction

The scope of the Moab Project is to relocate residual radioactive material (RRM) from the former uranium ore-processing facility and from off-site properties known as vicinity properties in Moab, Utah, to an engineered disposal cell constructed near Crescent Junction, Utah. Most of the processing buildings at the Moab site were demolished and placed in the southern corner of the tailings pile. An interim cover was placed over the tailings pile as part of decommissioning activities between 1988 and 1995. The estimated volume of the tailings pile before relocation began was 12 million yd^3 (16 million tons). The RRM is being transported to Crescent Junction primarily by rail.

The Moab site is located about 3 miles northwest of the city of Moab in Grand County. The Crescent Junction site is located northeast of the junction of Interstate 70 and U.S. Highway 191, approximately 30 miles north of the Moab site, also in Grand County (see Figure 1). The completed disposal cell will generally be rectangular and will encompass approximately 230 acres. Figure 2 shows general features of the Crescent Junction site.

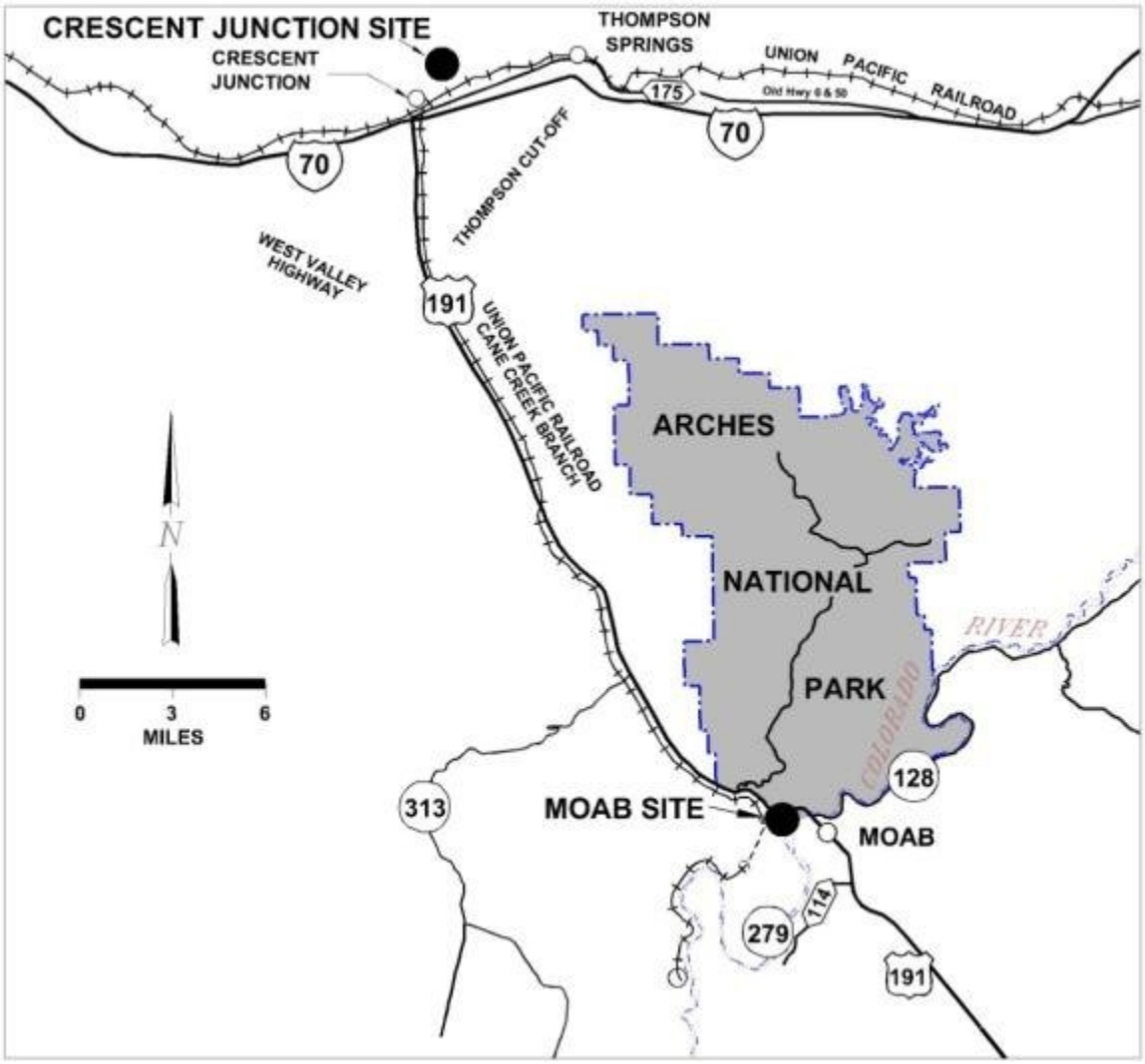

Figure 1. Location of Moab and Crescent Junction Sites

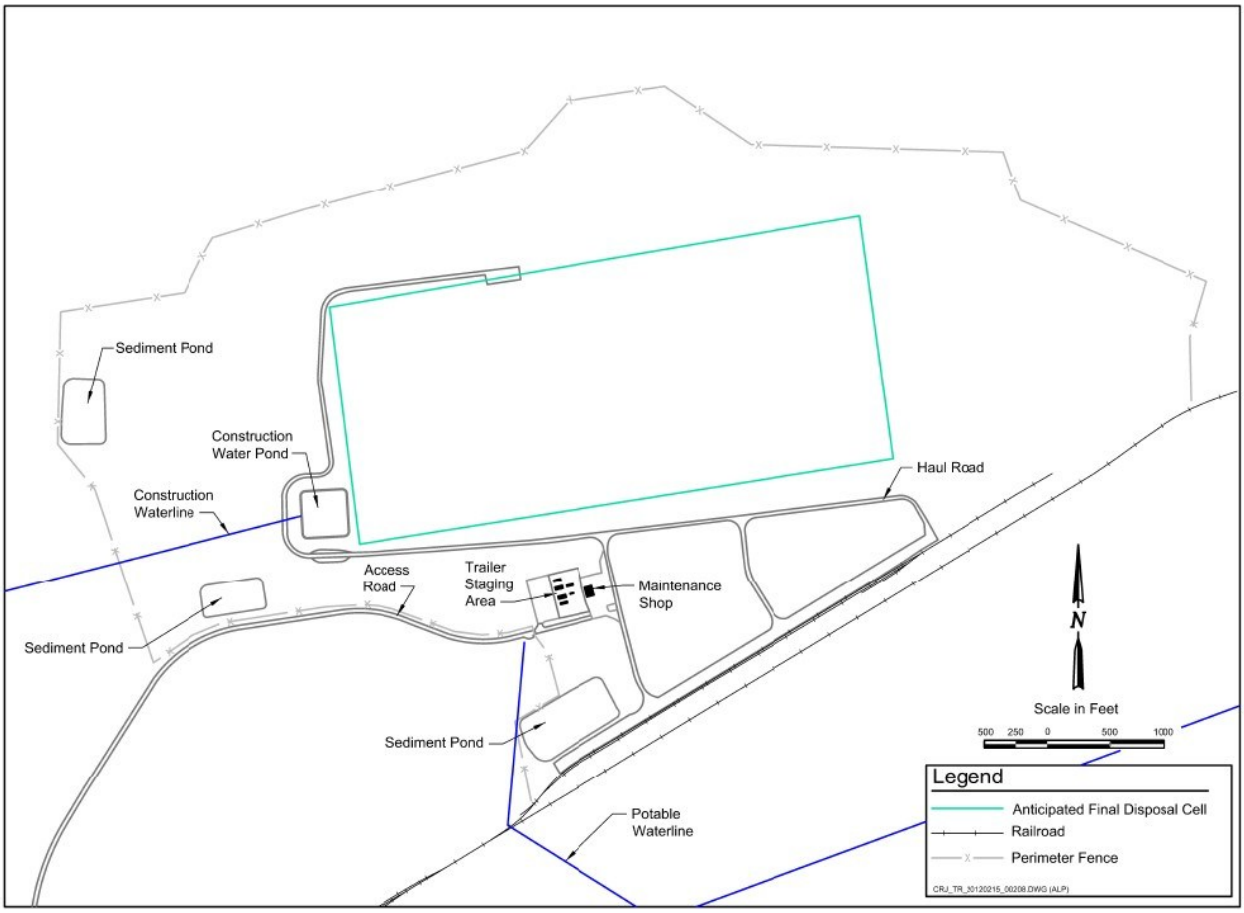

Figure 2. Crescent Junction Site Features

This Addendum documents activities performed by the remedial action contractor (RAC) for the Project from October 1, 2024, through September 30, 2025.

Addendum O sections are outlined below.

- Section 2.0 summarizes the results of critical aspects of the disposal cell construction and provides tables and figures summarizing data found in Appendix A.
- Section 3.0 describes any differences in the completed design from design requirements in the RAP.
- Section 4.0 provides verification that placement of RRM and interim cover was conducted according to RAP requirements.
- Section 5.0 is a list of references for this document.
- Appendix A includes test results to demonstrate compliance with compaction requirements.
- Appendix B contains photographs of the various stages of cell construction.
- Attachment 1. Procedures and Work Instructions
- Attachment 2. NRC Correspondence

2.0 Critical Review

The Critical Review provides key technical information about the disposal cell construction. This section contains tables summarizing inspections or tests for cell excavation, embankment

construction, RRM placement, and cell cover material placement as appropriate for this report period. The table's reference criteria and material testing procedures used to verify cell excavation and placement of each type of material, performed in accordance with design specifications or drawings and with Addendum E of the *Remedial Action Plan* (RAP), the *Remedial Action Inspection Plan* (RAIP). The distribution survey associated with each material type is also included in this section, as appropriate. Figure 3 shows the general extent of cell cover layers as of the end of this Addendum period.

Information regarding total lifts of compacted material, tests performed, and geotechnical data are summarized in Table 1. Additional geotechnical data, including proctor test result summaries, lift approval summaries, and lift approval packages, as appropriate, are located in Appendix A.

A lift approval package consists of documentation of tests conducted to demonstrate that the lift met requirements. A package could include lift approval forms and associated figures, slope elevation surveys, and field density tests.

Table 1. Lifts/Testing Totals

Area/ Material	Total Volume Placed (yd^3)	Total Number of Lifts Approved	Lifts Approved Using CBCS	Lifts Approved Not Using CBCS	Total Number of Standard Proctor Tests	Total Number of In-place Density/Moisture Tests	Total Average for All In-place Density Tests Performed (%)	Total Average CBCS Passes that Meet Compaction Criteria (%)	Total Number of Soil Classifications	Total Number of Durability Tests	Total Number of Gradation Tests
Cell Perimeter Embankment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RRM	741,000	102	99	3	29	88	95.9	99.6	N/A	N/A	N/A
Interim Cover	21,703	1	0	1	18	28	96.4	N/A	N/A	N/A	N/A
Radon Barrier	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Infiltration and Bio-intrusion Barrier	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Frost Protection Layer	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-in. Cap Rock	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

CBCS = Computer Based Compaction System; in. = inch

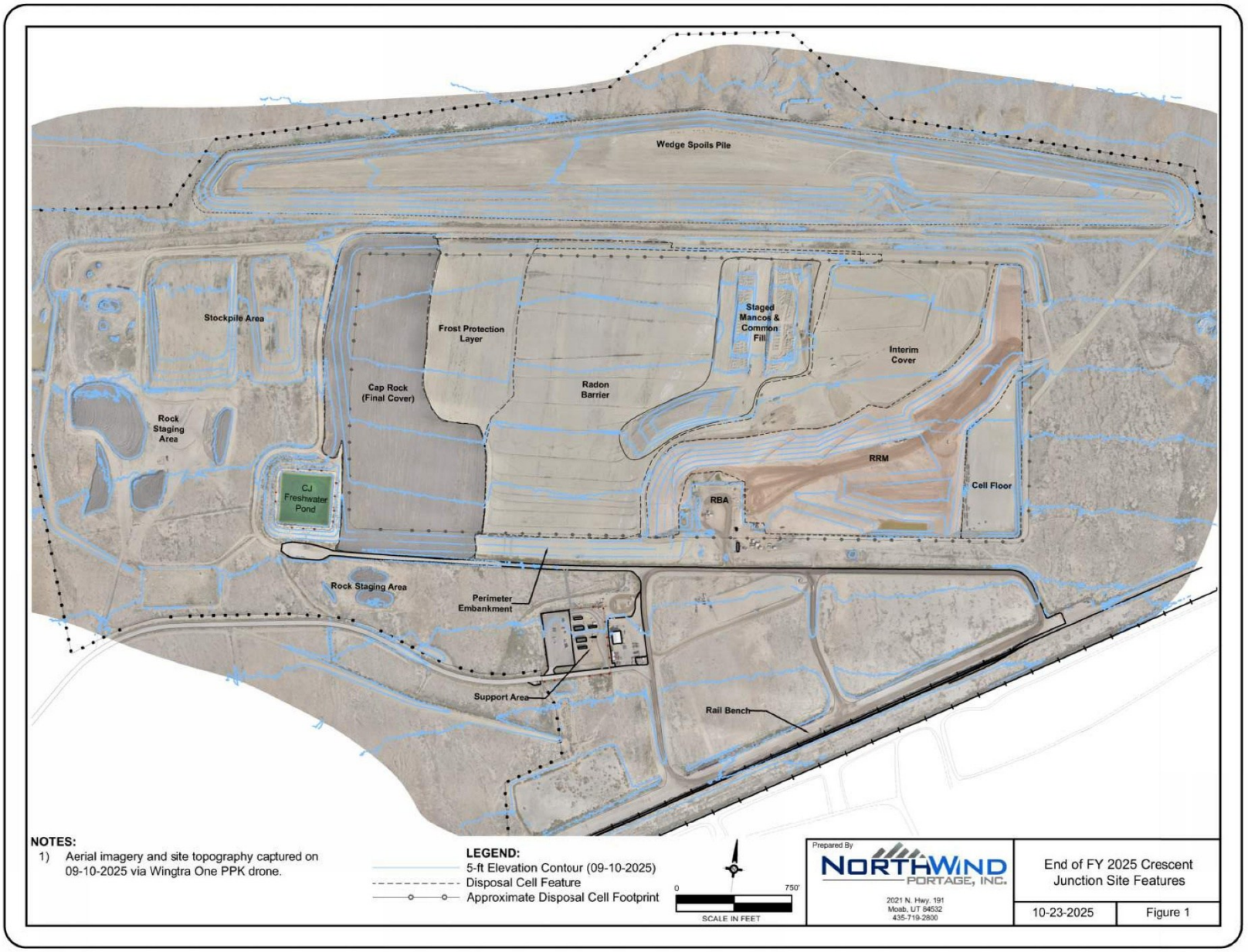

Figure 3. General Extent of Cover Layers and Cell Floor Excavation

2.1 Cell Excavation

No activities associated with the cell excavation were conducted during this period.

2.2 Perimeter Embankment

No activities associated with the perimeter embankment were conducted during this period.

2.3 Residual Radioactive Material (RRM)

2.3.1 Computer Based Compaction System Performance Verification Testing

The Project used machines equipped with a Computer Based Compaction System (CBCS) to meet RRM compaction requirements as specified in Section 6.4.3 of the RAIP. Additional information about the computer-based compaction system verification testing is provided in Section 4.3 of this Addendum.

The RAIP also requires periodic verification of the CBCS compaction by comparing the results to in-place, nuclear density gauge test results. Table 2 shows the results of the comparison tests performed during this reporting period.

Table 2. CBCS Performance Verification Testing

Lift ID Number	Test Performance Date	In-place Density Compaction (%)	Lift Area Meeting CBCS Compaction Criteria (%)
UW2F16241205-00	12/10/2024	95.2	99.9
UW1W20250114-00	01/15/2025	95	99.9
UW2K11250320-00	03/27/2025	96.4	99.9
UW2Z18250807-00	08/13/2025	97.7	92.4

2.3.2 RRM Placement

RRM inspections and tests are shown in Table 3. The distribution of survey points is shown in Figure 4. The standard proctor test results summary, lift approval summaries, one lift approval package for RRM, and top-of-waste buyoff survey are provided in Appendix A2.

Table 3. RRM Inspection and Testing

Inspection or Test Type	Criteria and Method Number	RAP Specification Section or Drawing Number	RAIP Section Number	Verification Results
Visual Observation	Scarify, at a minimum, the top 1 in. of subsoil or preceding RRM lift using a footed roller or a dozer before placing subsequent RRM layers. Fill materials shall be placed in continuous and planar lifts. The method of dumping and spreading RRM shall result in loose lifts of nearly uniform thickness, with average thickness not to exceed 24 in. Compaction equipment shall consist of footed rollers. Footed rollers shall have a minimum weight of 45,000 lb, and at least one tamping foot shall be provided for each 110 in^2 of drum surface. The length of each tamping foot from the outside surface of the drum shall be at least 6 in. After lift placement, moisture content shall be maintained until the next lift is placed. Erosion that occurs in RRM layers shall be repaired and grades re-established. If freezing or desiccation occurs, the affected soil shall be reconditioned.	Specification 31-00-20 Sections 1.3.2, 3.2.1, 3.2.4, 3.5.1, and 3.5.2	6.4.2, 6.4.3	Visually verified throughout material preparation, ground preparation, and RRM placement. Documented in lift approval packages.
Laboratory Compaction Characteristics	Assessment tests shall be performed on RRM to ensure compliance with specified requirements and to develop compaction requirements for placement. Perform tests (standard proctor) in accordance with the following standards, as applicable: *ASTM D698 and D2216.	Specification 31-00-20 Section 3.1.1 and 3.4.1	6.4.3	Twenty-nine tests were performed to determine compaction characteristics.
Visual Observation	RRM shall be placed and compacted within the moisture content range needed to achieve 90% of the laboratory determined maximum dry density of each type of material. The range in moisture content shall be maintained uniform throughout each lift as necessary to achieve 90% compaction and dust control. The moisture content shall be maintained uniform throughout each lift.	Specification 31-00-20 Section 3.2.2	6.4.3	Daily observations were performed during placement.
In-place Density/ Moisture Test	Density tests must meet at least 90% of the material's maximum dry density in accordance with *ASTM D698. Perform in accordance with the following standards, as applicable: *ASTM D1556, D2216, D4643, and D6938.	Specification 31-00-20 Sections 3.2.2, 3.2.3	6.4.3	Twenty-nine tests were performed with average in-place density of 95.9% of the laboratory-determined maximum dry density.

Table 3. RRM Inspection and Testing (continued)

Inspection or Test Type	Criteria and Method Number	RAP Specification Section or Drawing Number	RAIP Section Number	Verification Results
Compaction by CBCS	QC shall monitor CBCS compaction by visually inspecting the process and reviewing the computer records for each layer of soil placed.	Specification 31-00-20 Section 3.4.1	6.4.3	99 lifts were approved using the CBCS.
Visual Observation	Each container of demolition debris shall be placed in the cell along with RRM. Debris shall not contain free liquids. Debris shall be sized to minimize voids. Pipes and ducts that are 6 in. or greater in diameter shall be crushed, filled, or cut.	Specification 31-00-20 Section 3.2.5	6.4.4	Daily observations were performed during placement
Visual Inspection	Debris may be placed as a sacrificial lift at the bottom of the disposal cell in a 2-ft lift. Debris in sacrificial lifts shall contain no free liquids and shall be oriented in a manner that minimizes voids and contained within the 2-ft lift profile. Sacrificial debris lifts are not subject to moisture and compaction criteria.	Specification 31-00-20 Section 3.2.5	6.4.4	Inspections were performed during debris placement. and documented in lift approval packages.

ASTM = ASTM International; in. = inches; in^2 = square inches; lb = pounds; lb/ft^2 = pounds per square foot; QC = quality control.
*ASTM Standard titles are included in the References (see Section 5.0).

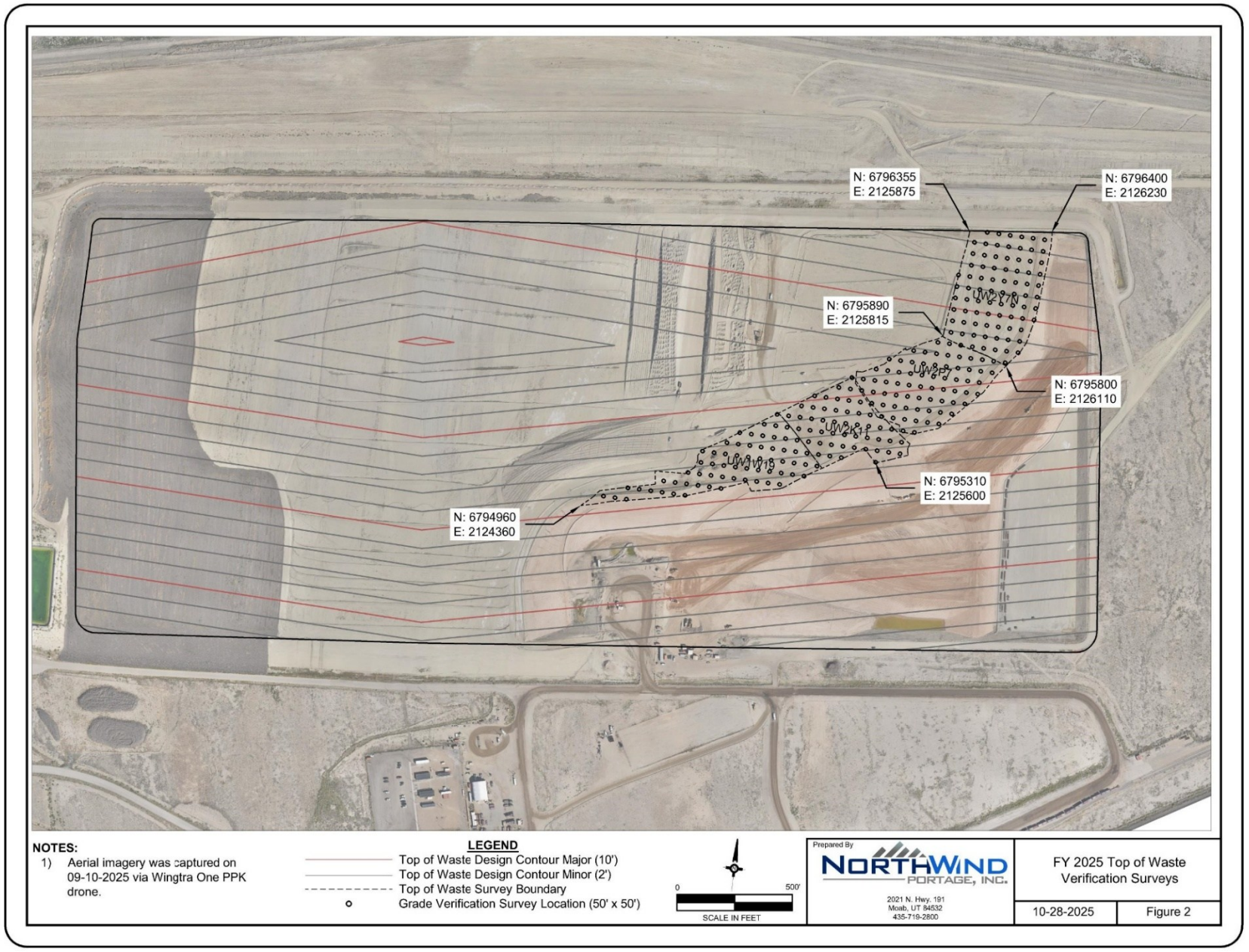

Figure 4. Distribution of Survey Points to Verify Compliance with RRM Specifications

2.4 Interim Cover

The inspection and testing for the interim cover can be found in Table 4. The distribution of survey points is shown in Figure 5. The standard proctor test results summary, lift approval summaries, one lift approval package, and buyoff surveys for the interim cover are provided in Appendix A3.

Table 4. Interim Cover Inspection and Testing

Inspection or Test Type	Criteria and Method Number	RAP Specification Section or Drawing Number	RAIP Section Number	Verification Results
Visual Observation	Common fill (1 ft clean compacted): loose lifts with an average thickness not to exceed 14 in. Interim cover is placed in continuous and approximately horizontal lifts. Soil shall be free of roots, debris, and organic or frozen material. After lift placement, moisture content shall be maintained until the next lift is placed. Erosion that occurs in the RRM layers shall be repaired and grades re-established. Freezing and desiccation of the RRM shall be prevented. If freezing or desiccation occurs, the affected soil shall be reconditioned, as directed.	Specification 31-00-20 Section 3.2.1	6.5.4	Visually verified throughout material preparation, ground preparation, and interim cover placement. Documented on lift approvals.
Visual Observation	Visual inspection of the process and review of computer records.	Specification 31-00-20 Section 3.4.1	6.5	Lift approvals document the approval process.
High-Accuracy GPS Survey	The top surface of the interim cover shall be no greater than 2 in. above the lines and grades shown on the drawings. No minus tolerance will be permitted.	Specification 31-00-20 Section 3.3	6.5.5	Completed using high-accuracy GPS.
In-Place Density/ Moisture Test	Compaction and moisture content tests shall be performed in accordance with the following as applicable: ASTM D1556, D2216, D4643, and D6938.	Specification 31-00-20 Section 3.4.1	6.5.4	One approved lift; using in-place density/moisture testing. Eighteen in-place tests were performed with average density 96.4% of laboratory-determined maximum dry density.
Laboratory Compaction Characteristics	Common fill. Perform in accordance with the following as applicable: ASTM D698 and D2216.	Specification 31-00-20 Section 3.1.1	6.5.4	Eighteen tests and one sand cone were performed to determine compaction characteristics.

Table 4. Interim Cover Inspection and Testing (continued)

Inspection or Test Type	Criteria and Method Number	RAP Specification Section or Drawing Number	RAIP Section Number	Verification Results
Visual Observation	A smooth, non-vibratory steel-wheeled roller shall be used to produce a smooth compacted surface on the top of the completed interim cover layer, such that direct rainfall causes minimal erosion. Steel-wheeled rollers shall weigh a minimum of 20,000 lb. The final lift shall be rolled smooth with at least 3 passes of the smooth steel-wheeled roller to provide a smooth surface or proof rolled with rubber-tired construction equipment, such as a loaded dump truck or loaded scraper, with a minimum weight of 45,000 lb to produce a smooth compacted surface on the top of the completed interim cover layers, such that direct rainfall causes minimal erosion.	Specification 31-00-20 Section 1.3.2, 1.3.3 and 3.2.4	6.5.5	Visually verified cover compaction using rubber-tired construction equipment performed on the final lift of the interim cover.

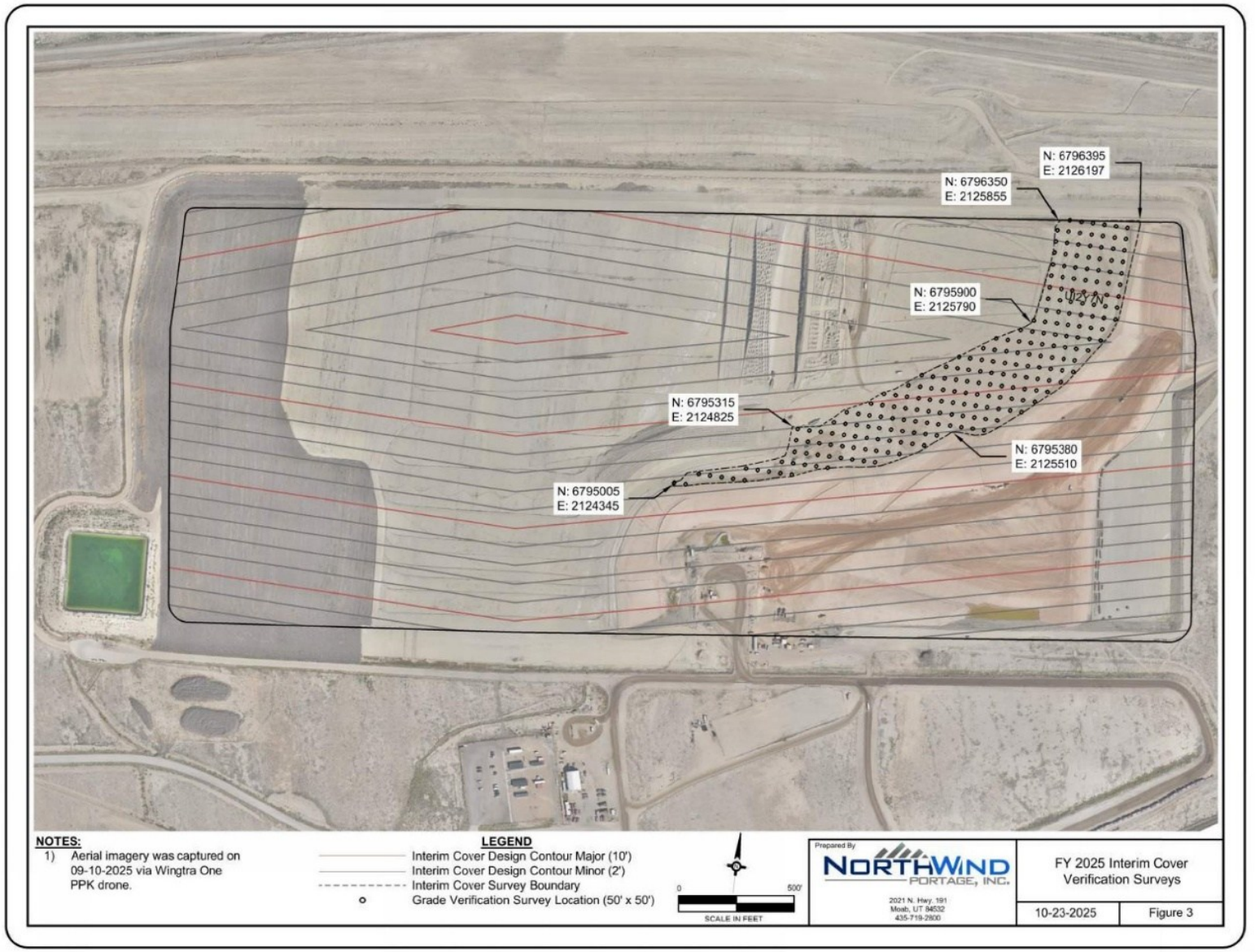

Figure 5. Distribution of Survey Points to Verify Compliance with Interim Cover Specifications

2.5 Radon Barrier

2.5.1 Radon Barrier Placement

No activities associated with the radon barrier were conducted during this period.

2.6 Infiltration and Bio-intrusion Barrier

No activities associated with this material layer were conducted during this period.

2.7 Frost Protection Layer

No activities associated with this material layer were conducted during this period.

2.8 Cap Rock and Armoring

No activities associated with this material layer were conducted during this period.

3.0 Design Assessment

The disposal cell design incorporates established design criteria, drawings and specifications, and calculations, all of which are included in the RAP and in Interim Completion Report addenda.

This section discusses design criteria changes, changes to the design of the disposal cell, associated erosion control features, fulfillment of QA requirements, and compliance with permit requirements.

3.1 Design Criteria Changes

No changes to the design criteria were made during this period.

3.2 Design Changes

No changes to the design were made during the period.

3.3 QA Requirements

There were no QA requirements for design changes during this period.

QA activities were conducted in accordance with the *Moab UMTRA Project Quality Assurance Plan for the Remedial Action Contractor* (DOE-EM/GJRAC1766), and compliant with:

- ASME NQA-1 2008 and addenda through 2009 consensus standard, "Quality Assurance Requirements for Nuclear Facility Applications."
- DOE Order (O) 226.1B, Chg. 1, "Implementation of Department of Energy Oversight Policy."
- Title 10 Code of Federal Regulations Part 830 (10 CFR 830) Subpart A, "Nuclear Safety Management, Quality Assurance Requirements."
- DOE Office of Environmental Management EM-QA-001, "EM Quality Assurance Program."
- DOE O 414.1E, "Quality Assurance."

3.4 Permits and Agreements

The Project complies with permits and agreements applicable to the Crescent Junction site. The permits and agreements are summarized in Table 5.

Table 5. Crescent Junction Site Permits and Agreements

Agreement Number	Document Name or Description	Issuing Agency	Purpose
400-00177	Easement for Green River Pump Station	Utah Division of Forestry, Fire, and State Lands	ROW easement to construct and operate water pipeline in the Green River.
4P-082341-1	UDOT Encroachment Permit	UDOT	To construct waterline within UDOT 60-ft ROW and operate within 20-ft ROW for State Route 19 near City of Green River.
FWS/R6-UT-06-F-014	Biological Opinion	U.S. Fish and Wildlife Service	U.S. Fish and Wildlife Service issued Biological Opinion for Green River Pump Station.
1-92-677	Green River Water Right	State Water Engineer	Gives DOE right to divert 323 acre-feet or ~200 gallons per minute from Green River for Crescent Junction disposal site.
DE-RO01-06GJ68009	Access Roadway Contract and Grant of Easement	Private Owner	Perpetual easement and ROW for construction of an access roadway and related utilities at the disposal site.
Folder No. 02392-96	Pipeline Crossing Agreement	Union Pacific Railroad	Agreement grants right to construct, maintain, and operate one underground waterline and access for phone line and 1.5-in. conduit across Union Pacific Railroad's property at milepost 533.2, Green River Subdivision.
Folder No. 02399-44	Pipeline Crossing Agreement	Union Pacific Railroad	Agreement grants right to construct, maintain, and operate one underground waterline and access for phone line and 1.25-in. conduit at milepost 0.25, Cane Creek Subdivision, Thompson Springs, for the disposal site.
Folder No. 2537-02	Industrial Track Contract	Union Pacific Railroad	Covers construction, maintenance, and operation of 5,209-ft Track A, 3,524-ft Track B, and 617-ft Track C at milepost 533.21, Green River Subdivision line.
Property No. 70-4; 189A: AEQ	Easement	UDOT	Easement for waterline across UDOT property near Floy Wash that allows 60-ft construction ROW and 20-ft permanent ROW.
Public Land Order 7697	Permanent Land Transfer	BLM	Order permanently transferred 500 acres of BLM public domain land to DOE for disposal cell.
REEMCBCDOE-3-15-0702	Real Estate License	Rocky Mountain Power	Power line extension to dump ramp.

Table 5. Crescent Junction Site Permits and Agreements (continued)

Agreement Number	Document Name or Description	Issuing Agency	Purpose
REEMCBCDOE-6-08-0308 SITLA No. 1345	Waterline Easement	SITLA	Easement to construct waterline within 60-ft ROW and operate within 20-ft ROW on three parcels of SITLA land near Green River and Crescent Junction.
REEMCBCDOE-6-08-0309	Waterline Easement	City of Green River	Easement to construct waterline within 60 ft of County Road 175 or old Highway 6 and 50 ROWs within Green River city limits and operate within 20-ft ROWs.
REEMCBCDOE-6-12-0302	Waterline Easement	Private Owner	Permanent easement across private land near Crescent Junction to construct waterline within 60-ft ROW and operate within 20-ft ROW.
Resolution 2006-2741	Grand County Council Resolution	Grand County	Approves conditional use permit for the Project.
Statewide Utility License Agreement No. 8439	Utility License	UDOT	License with state of Utah to construct waterline across UDOT property.
U.S. DOT-SP 14283	Special Permit	U.S. DOT	Permit to transport mill tailings from Moab site to the disposal site.
UTR359187	Storm Water Permit	Utah Division of Water Quality	To limit the discharge of pollutants from disposal cell construction activities.
UTU-83354	Waterline ROW	BLM Moab Field Office	For construction of 14.5 miles of waterline on BLM land from Green River to disposal site.
UTU-83396	Utility ROW	BLM Moab Field Office	For buried telephone line at the disposal site.
UTU-83450	Utility ROW	BLM Moab Field Office	ROW for power line to the disposal site.
Not assigned	Memorandum of Agreement	BLM Moab Field Office	Between DOE and BLM for management of existing uses on lands withdrawn in conjunction with the Project.
Not assigned	Water Use Agreement	Thompson Special Service District	Water use agreement among Thompson Special Service District in Grand County, Crescent Junction Properties, Inc., and DOE to install potable waterline from Thompson Springs, Utah, to the disposal site.

BLM = U.S. Bureau of Land Management; ft = feet; in. = inches; MOU = Memorandum of Understanding; ROW = right-of-way; SITLA = School and Institutional Trust Lands Administration; UDOT = Utah Department of Transportation; U.S. DOT = U.S. Department of Transportation.

4.0 Remedial Action Assessment

This section describes pre-excavation site conditions, construction activities, and verifications performed at the Crescent Junction disposal site.

4.1 Pre-excavation Site Conditions

Pre-excavation site conditions were discussed in Addendum A of the *Moab UMTRA Project Crescent Junction Disposal Cell Interim Completion Report* (DOE-EM/GJRAC2040-A).

4.2 Cell Construction

Cell construction during this period included two major activities:

- Placement of RRM to the design thickness and assuring that the radium-226 (Ra-226) activity in the upper 7 feet (ft.) of placed material does not exceed design criteria.
- Placement of Interim Cover to the design thickness.

The *Moab UMTRA Project Lift Approval Procedure* (DOE-EM/GJRAC1803) was used to ensure that the material placed met the compaction criteria. Descriptions of compaction equipment used during the above cell construction activities are provided in Table 6.

Each activity performed as part of this Addendum is further described in the following subsections. Photographs representative of the cell construction activities are included in Appendix B.

Table 6. Compaction Equipment Used during Cell Construction

Compaction Equipment	Machine Weight (lbs.)	Equipped with CBCS	Material Layer						
			RRM	Interim Cover	Radon Barrier	Infiltration and Bio- intrusion Barrier	Frost Protection	Perimeter Embankment	Spoils Embankment
CAT 825H Soils Compactor	69,000	X	X						
Sakai SV544D Soils Compactor	25,090	X	X						
CAT140M Blade	43,834			X					
Komatsu 275AX Bulldozer	112,466	X	X						
CAT D6K Bulldozer	48,500	X		X					
CAT D6 Bulldozer	34,361	X	X						
Tractor & Doubles	45,000			X					
Water Truck	54,000			X					

CAT = Caterpillar; lbs. = pounds

4.2.1 Excavation

No excavation activities were performed during this period.

4.2.2 Perimeter Embankment Construction

There were no perimeter embankment construction activities during this period.

4.2.3 RRM Placement

Placement of RRM in the disposal cell continued east from where it ended, as shown in Addendum N of the *Moab UMTRA Project Crescent Junction Disposal Cell Interim Completion Report* (DOE-EM/GJ2040-N). The RRM was loaded into dump trucks and driven to the placement area, where it was spread for compaction using a bulldozer. A Caterpillar (CAT) 825H soils compactor, Sakai SV544D soils compactor, CAT D6 bulldozer, and Komatsu 275AX bulldozer were used to compact the RRM in place. In July 2023, DOE requested a variance to approve construction specifications for placement of demolition debris in the Crescent Junction Disposal Cell. The items are incompatible with size reduction through shearing or other means. NRC accepted the variance in its response letter dated October 3, 2023. In August 2024, DOE submitted a variance request to both the construction specifications and the remedial action inspection plan for disposal of debris at the Crescent Junction disposal cell. NRC accepted the variance in its response letter dated May 19, 2025. Copies of the correspondence between DOE and NRC regarding size variances are included in Attachment 2.

4.2.4 Cover and Rock Armoring Placement

The cover on the disposal cell consists of multiple layers of soil and rock as illustrated in Figure 5 of the Remedial Action Selection Report of the RAP. Once the RRM placed in the cell has reached the design thickness, a minimum of 1 foot (ft) of interim cover is placed over the RRM. The interim cover material comes from soils excavated to create the cell that have been stockpiled on-site. During this Addendum period, 21,703 yd^3 of interim cover was placed.

4.2.5 Spoils Embankment Construction

There were no spoils embankment activities during this period.

4.3 Soil Compaction and Testing

Initial CBCS compaction setup and verification is documented in Crescent Junction *Interim Completion Report* Addendum I. The CBCS compaction is periodically verified by performing in-place tests using a nuclear density gauge manufactured by Troxler Electronic Laboratories, Inc., following ASTM methods and in compliance with the RAIP. The individual nuclear density tests verify that the compaction achieved with the CBCS is greater than or equal to the required 90 percent. The CBCS compaction results are compared to the nuclear density gauge results in Table 2.

4.4 Lift Approval

The *Lift Approval Procedure* and Addenda B and E of the RAP were followed to verify that each lift met established criteria. Results of lifts are documented in lift approval packages. A sample lift approval for RRM placed during this Report period is provided in Appendix A.

4.5 Geotechnical Testing

The following procedure, which is provided in Attachment 1, was used to ensure cell construction was performed in compliance with the RAP.

The *Moab UMTRA Project CJ Cell Verification Survey Procedures* (DOE-EM/GJRAC3048) provides requirements and methods to perform grade verification surveys for various cell "buyoffs".

The RAIP describes methods and frequencies for performing tests to verify that material placed in the cell meets the requirements. Geotechnical tests fall within two general categories: soils testing and aggregate testing. The *Moab UMTRA Project Moisture/Density Testing Procedure* (DOE-EM/GJRAC1783) provides requirements and methods for the proper moisture/density testing of soils placed in the cell. Only soils testing was used during this Addendum period, as described below.

4.5.1 Soils Testing

Laboratory and/or field soils geotechnical tests were conducted on every lift of each material layer placed to support verification that specified compaction requirements were met. Test requirements varied depending on whether the CBCS was used for demonstrating compaction.

Because the soils in the RRM can vary in composition, compaction curves were developed to determine the maximum dry density and optimum moisture content for that material to achieve compaction.

Results of tests conducted are shown in the standard proctor test results summary tables included in Appendix A. Over time, the RRM was found to have a consistent soil type, so the need for sets of standard proctor tests was eliminated, and standard proctors were completed in the frequency required by the RAIP. The tables also summarize the tests performed to determine soil type and geotechnical properties.

Material is compacted to meet 90 percent of the laboratory-determined maximum dry density in accordance with ASTM D698. When practical, thickness of each lift was surveyed and verified using a high-accuracy GPS; otherwise, manual measurements were taken.

4.5.2 Aggregate Testing

There were no aggregate testing activities during this period.

4.6 Radiological Verification

Section 5 of the Remedial Action Selection Report of the RAP, Radon Attenuation, identifies two primary verification criteria associated with construction of the disposal cell: radium-226 (Ra-226) measurements in RRM placed in the upper 7 ft and radon flux measurements to verify the integrity of the radon barrier. Addendum A of this Report provides an explanation of this verification process.

During this Addendum period, 112 samples of RRM were taken in 4 lifts in the upper 7 ft of the disposal cell. The Ra-226 activity of the material ranged from 259.3 to 611.1 picocuries per gram(pCi/g). Table 7 shows the average results for material placed in each lift tested.

Table 7. Results of Ra-226 Activity in Upper 7 Feet of Placed RRM

Lift Identification No.	Samples Taken	Lift Average (pCi/g)	Lift Area (m^2)
UW2Y7N	28	372	16,375
UW2P7	28	332	16,375
UW2K11	28	380	11,846
UW1W19	28	354	13,029

4.7 QA Requirements

QA activities were conducted in accordance with documents identified in Section 3.3. During construction activities, surveillances and assessments were performed by the RAC to verify and ensure that these activities were performed in accordance with established plans, drawings, instructions, procedures, specifications, and other applicable documents.

In addition, the Technical Assistance Contractor (TAC) supports the DOE in the assessment of the RAC.

During the period of this Addendum, multiple oversight inspections, one management assessment, and four assessments were performed (see Table 8). Corrective actions were developed to address any deficiencies identified during the assessments.

Table 8. Inspections and Assessments Conducted during Construction

Date	Conducted By	Type	Assessment Number	Scope
3/10/25	RAC	Assessment	MB-25-A-004	The scope of this surveillance was to evaluate and verify proper implementation of MB-IWP/JSA-010, Revision 21, Outside Transportation - Crescent Junction, DOE-EM/GJRAC2173, Crescent Junction Radiological Buffer Area Contamination Control, and DOE-EM/GJRAC1972, Routine Radiological Surveys Procedure.
5/14/24	RAC	Assessment	MB-25-A-006	The scope of this surveillance was to evaluate and verify proper implementation of MB-IWP/JSA-010, Revision 21, Outside Transportation - Crescent Junction, DOE-EM/GJRAC2173, Crescent Junction Radiological Buffer Area Contamination Control, and DOE-EM/GJRAC1972, Routine Radiological Surveys Procedure.
8/28/25	RAC	Assessment	MB-25-A-013	The scope of this surveillance was to evaluate and verify proper implementation of MB-IWP/JSA-011, Disposal Cell Operations
9/03/25	RAC	Assessment	MB-25-A-014	The scope of this surveillance was to evaluate and verify proper implementation of MB-IWP/JSA-101, Direct Placement of the Fernald Rail
9/08/25	RAC	Management Assessment	MA-25-030	The scope of this Management Assessment was to evaluate effectiveness of the RAIP methods for testing and inspection of construction methods in verifying compliance with design specification requirements in the RAP.
Daily/ Weekly	DOE/TAC	Oversight	NA	Operational awareness oversight “boots-on-the-ground”: conducted to verify compliance to Project/contractual requirements including Remedial Action Plan specifications.

ISMS = Integrated Safety Management System.

4.8 Monitoring for Presence of Free Liquids

Table 9 provides the results of the standpipe monitoring (locations shown on Figure 6) for the presence of free liquids in the disposal cell. During this reporting period, no water was present in either standpipe.

Table 9. Results of Monitoring for Presence of Fluids in Standpipes 01 and 02

Date Monitored	Presence or Level of Fluids (ft)	
	Standpipe 01	Standpipe 02
12/19/24	Dry	Dry
02/26/25	Dry	Dry
5/29/25	Dry	Dry
7/31/25	Dry	Dry

Notes: Dry = no fluids present,

4.9 Monitoring for Presence of Groundwater

In addition to monitoring the standpipe, monitoring wells 0202, 0203, 0205, and 0210 (Figure 6) were also checked for the presence of groundwater. These results are presented in Table 10. Groundwater has consistently been detected in wells 0202 and 0205 since June 2019 and June 2015, respectively. Wells 0203 and 0210 were dry throughout this reporting period.

Table 10. Results of Monitoring for Presence of Groundwater

Date Monitored	Monitor Well Number			
	0202	0203	0205	0210
12/19/24	DTW = 48.65 TD =NM	DTW = Dry TD =61.39	DTW = 44.68 TD = NM	DTW = Dry TD = 54.64
2/26/25	DTW = 48.15 TD = NM	DTW = Dry TD = 61.37	DTW = 45.22 TD =NM	DTW = Dry TD = 54.60
5/29/25	DTW = 48.23 TD = NM	DTW = Dry TD = 61.41	DTW = 45.88 TD = NM	DTW = Dry TD = 54.63
7/31/25	DTW = 48.43 TD = NM	DTW = Dry TD = 61.37	DTW = 46.15 TD = NM	DTW = Dry TD = 54.58

Notes: DTW = Depth to Water (ft below top of casing), Dry = no water present,
TD = Total Depth (ft below top of casing), NM = Not Measured

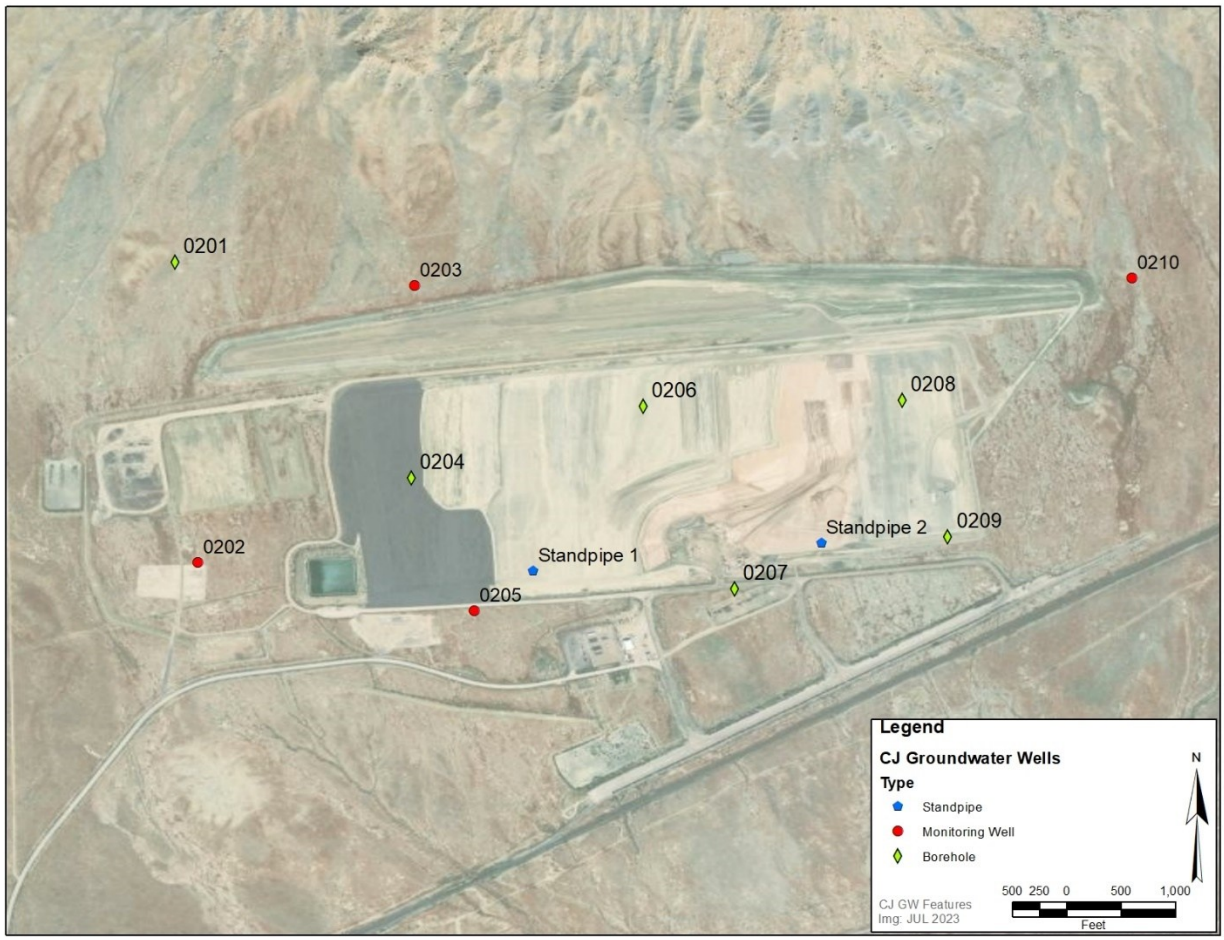

Figure 6. Locations of Monitoring Wells and Standpipe

Water level, precipitation, and recovery test data along with the analytical results continue to suggest that the groundwater source is associated with surface runoff.

5.0 References

10 CFR 830 Subpart A (Code of Federal Regulations), "Nuclear Safety Management, Quality Assurance Requirements."

ASME (American Society of Mechanical Engineers), Nuclear Quality Assurance (NQA)-1 2008 and addenda through 2009 consensus standard, "Quality Assurance Requirements for Nuclear Facility Applications (QA)."

ASTM (ASTM International) Standard D698, "Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort."

ASTM Standard D1556, "Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method."

ASTM Standard D2216, "Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass."

ASTM Standard D4643, "Standard Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Heating."

ASTM Standard D6938, “Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).”

DOE (U.S. Department of Energy), *Moab UMTRA Project Final Remedial Action Plan and Site Design for Stabilization of Moab Title I Uranium Mill Tailings at the Crescent Junction, Utah, Disposal Site,* Addendum E, *Remedial Action Inspection Plan* (DOE-EM/GJ1547).

DOE (U.S. Department of Energy), *Moab UMTRA Project Quality Assurance Plan for the Remedial Action Contractor* (DOE-EM/GJRAC1766).

DOE (U.S. Department of Energy), *Moab UMTRA Project Moisture/Density Testing Procedure* (DOE-EM/GJRAC1783).

DOE (U.S. Department of Energy), *Moab UMTRA Project Lift Approval Procedure* (DOE-EM/GJRAC1803).

DOE (U.S. Department of Energy), *Moab UMTRA Project Crescent Junction Disposal Cell Interim Completion Report*, Addendum A (DOE-EM/GJRAC2040-A).

DOE (U.S. Department of Energy), *Moab UMTRA Project Crescent Junction Disposal Cell Interim Completion Report*, Addendum M (DOE-EM/GJRAC2040-M).

DOE (U.S. Department of Energy), *Moab UMTRA Project CJ Cell Verification Survey Procedures (DOE-EM/GJRAC3048)*

DOE Office of Environmental Management, “EM Quality Assurance Program” (EM-QA-001).

DOE, Order 226.1B, Chg. 1, “Implementation of Department of Energy Oversight Policy.”
DOE, Order 414.1E, “Quality Assurance.”

Attachment 1.
Procedures and Work Instructions
CJ Cell Verification Survey Procedures (DOE-EM/GJRAC3048)

DOE-EM/GJRAC3048

Moab UMTRA Project
CJ Cell Verification Survey Procedures

Revision 1

February 2025

U.S. Department of Energy

Office of Environmental Management

Prepared by the Remedial Action Contractor under contract number 89303322DEM000073
for the U.S. Department of Energy Office of Environmental Management, Grand Junction, Colorado.

DOE-EM/GJRAC3048

Moab UMTRA Project
CJ Cell Verification Survey Procedures

Revision 1

Review and Approval

2/17/2025

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Tammy Hooker
RAC Quality Assurance Representative
Signed by: Tammy Hooker

2/19/2025

X Kathy Turvy

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2/17/2025

X Tim Mason

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Revision History

Revision	Date	Description
0	January 2021	Initial issue.
1	February 2025	Revision includes Figure 3 Control Point and signatory update.

Attachment 1. Procedures and Work Instructions
CJ Cell Verification Survey Procedures

Contents

Figures

Attachment 1. Procedures and Work Instructions
CJ Cell Verification Survey Procedures

1.0 General

1.1 Purpose

The purpose of this procedure is to provide the methodology to be followed by Quality Control (QC) personnel to perform grade verification surveys for various cell "buyoffs". These verification surveys ensure that the design tolerances for a particular cell feature have been met before building upon the cell feature with the subsequent feature of work. Work features requiring buyoff verification surveys include:

- Cell floor (and associated side slopes)
- Top of Waste Finish Grade
- Top of Interim Cover
- Thickness of Radon Barrier
- Thickness of Bio-intrusion Layer
- Thickness of Frost Protection Layer
- Thickness of Cap Rock

1.2 Scope

This procedure applies to all grade buyoff verification surveys of CJ cell features.

1.3 Definitions

CAD – Computer Aided Design. Software utilized to model or depict topography, create as-builds, or create design models.

GNSS – Global Navigational Satellite System. A satellite navigational system that provides autonomous geo-spatial positioning with global coverage.

TBC–Trimble Business Center. CAD software package used with Trimble hardware for preparing design data or analyzing field data.

Trimble Rover – Equipment consisting of a Trimble GNSS receiver and a Trimble Data Collector. This equipment, when used with a GNSS base station, site calibration (localization) and various designs files is used to capture position data and compare positional data to design grades in real time.

Trimble SCS 900 – Trimble software package utilized on Trimble Data Collectors (TSC2, TSC3, or TSC7).

Trimble TSC2, TSC3, or TSC7 – Trimble data collector utilized as a component of the Trimble Rover.

1.4 Records

All documentation created with this procedure is considered a Project Record and will be managed in accordance with *the Moab UMTRA Project Records Management Manual* (DOE-EM/GJ1545). Moab UMTRA Records are retained and maintained in accordance with federal orders, policies, and regulations.

Following the QA Manager approval of the QC documents, the original documentation shall be transmitted to Records by the QA Manager.

2.0 Responsibilities

2.1 Personnel Duties and Responsibilities

2.1.1 Quality Assurance Manager

The Quality Assurance (QA) Manager is responsible for:

- Implementing and directing Quality Control (QC) activities contained within this procedure.
- Identifying QC problems.
- Initiating, recommending, and/or providing QC solutions.
- Submitting finalized QC documentation to the Client.

2.1.2 Quality Control Representative

The QC Representative is responsible for the proper execution of this procedure and providing the results and associated documentation to the QA Manager.

2.1.3 Operations/Site Manager

The Operations/Site Manager has overall authority and responsibility for the Crescent Junction Project Site. This manager issues directives to all personnel and subcontractors to accomplish the project objectives.

2.1.4 Equipment Operators

Equipment operators are responsible for excavating and placing materials (soil, RRM, cap rock, etc.) in accordance with the specifications and notifying the QC Representative or their supervisor when a work feature is ready for verification.

2.1.5 All Personnel

All employees are responsible for identifying safety hazards and complying with the applicable Radiological Work Permits and Integrated Work Plans. All personnel have a duty and responsibility to stop work in the event they believe a work condition is unsafe for them or their peers.

2.2 Precautions and Limitations

2.2.1 Pause Work

Work shall be immediately terminated by any personnel who believe the activity in progress is unsafe and/or may create an unsafe condition. Work will resume when the condition is corrected.

2.2.2 Safety Protocols

When working around grading or compacting equipment, all personnel shall remain clear of any operating equipment and maintain positive communication with the equipment operator. This communication includes both visual and audio methods.

3.0 Requirements and Procedure

3.1 Tolerances

A. **Cell Floor**
   Compare actual grade (measured to design grade). Acceptable tolerance is +/- 0.1 FT.
B. **RRM**
   Placed to Design grade up to +2" above, no minus tolerance.
C. **Interim Cover**
   Placed to Design grade up to +2" above, no minus tolerance.
D. **Radon Barrier**
   4' Minimum Thickness (As-built Top of Radon Barrier – As-Built Top of Interim Cover must be at least 4.0')
E. **Infiltration and Bio intrusion Barrier**
   6" Minimum Thickness (As-built Top of Infiltration and Bio intrusion Barrier – As-Built Top of Radon Barrier must be at least 0.5' [6 inches])
F. **Frost Protection Layer**
   3' Minimum Thickness (As-Built Top of Frost Protection Layer – As-Built Top of Infiltration and Bio intrusion Barrier must be at least 3.0')
G. **Cap Rock**
   6" Minimum Thickness (As-Built Finish Grade [Top of Rock] – As-Built Top of Frost Protection Layer must be at least 0.5' [6 inches]).

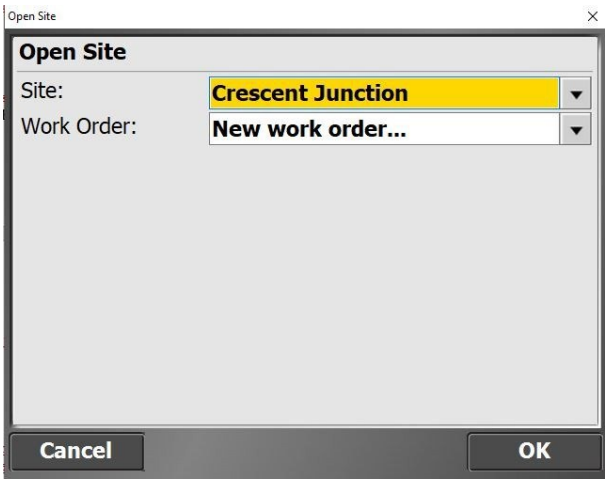
Note: To make thickness comparisons, the as-built points must be collected at the same X&Y coordinates. To accomplish this, the site has an established grid system over the cell which is utilized throughout the project for all verification surveys of all layers.

3.2 Procedure

3.2.1 Field Procedure

Step 1.On the Data Collector open the Site "CRESCENT JUNCTION" and create a new work order (Figure 1).
The work order naming convention is:

Year, Month, Day then the name of what you are doing.
(Example: 20201130 Cell Floor Buyoff).



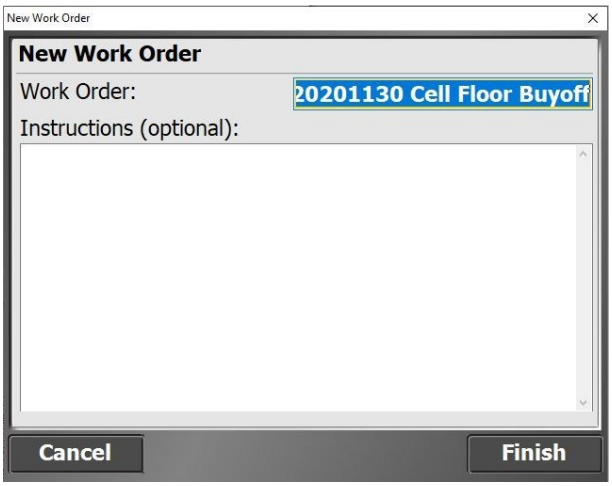


Figure 1. Create New Work Order

Step 2: Select the design associated with the verification buyoff survey you are conducting (Figure 2). Current designs on the data collector include:

- Cell Floor FG
- Cap FG
- Top of Waste
- Interim Cover

Additional designs, such as designs for the bio-intrusion layer, radon barrier, and frost protection layers will be created and installed later, but the methods described herein will be applicable.

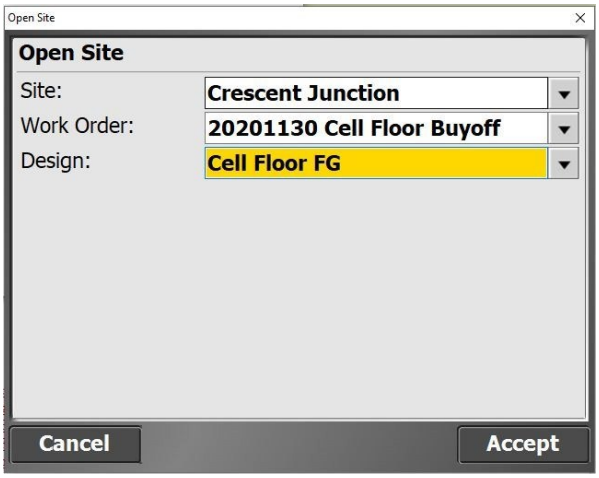


Figure 2. Select Associated Design

Step 3: With the Work Order set up and created, check into a control point to ensure that the rover and base station are reading correctly. To access this function, hit the Home key, then go to GPS and then recheck system (Figure 3).

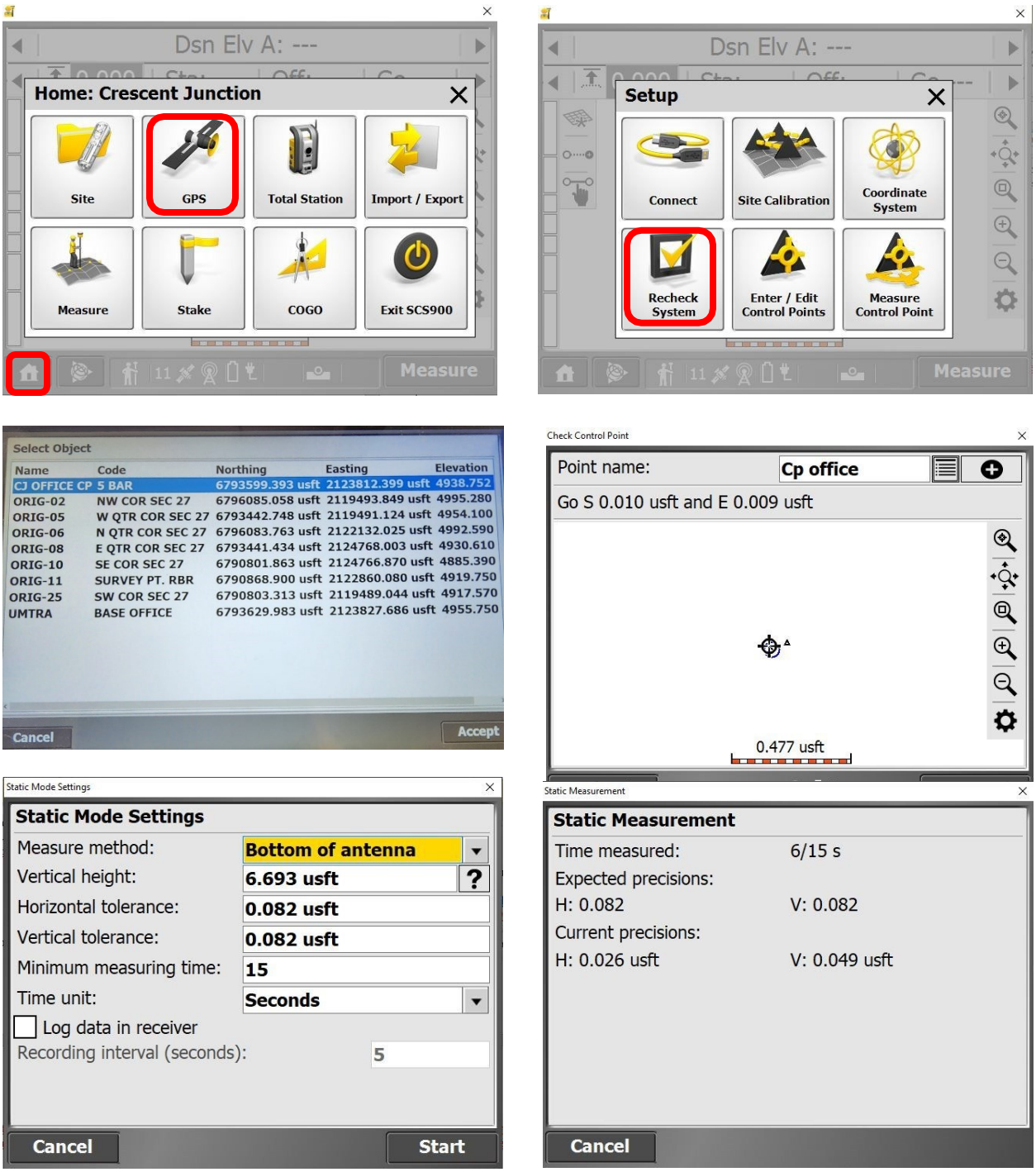


Figure 3. Check Control Point

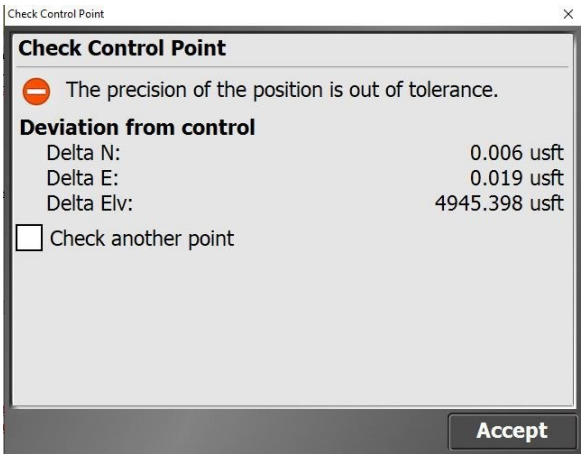


Figure 3. Check Control Point (continued)

This will say “The precision of the position is in tolerance”. This screenshot is from the emulator, which does not have elevation readings, which is why it is off. Ensure all delta readings are less than 0.082 FT (1-inch).

Step 4: Once the rover has been checked into a control point, switch into “Stake” mode. To do so, hit the Home Key, and then select Stake (Figure 4).

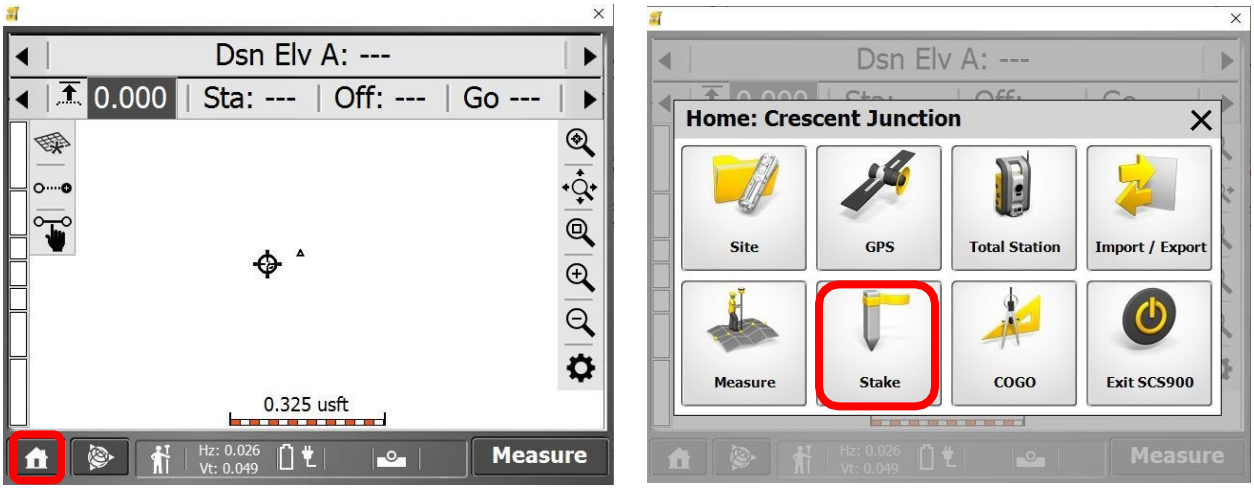


Figure 4. Switch into Stake Mode

Step 5: Once in Stake (stakeout) mode, pick the object to stake. While you may stakeout lines, surfaces, and points, verification occurs on a 50’ x 50’ grid. This same grid is utilized throughout all layers within the cell. As such select points. If no points are showing on the screen they may not be selected for display. The points can be toggled on and off for display using the Gear/Cog on the lower right-hand side of the display. Typically, it is much easier to display just the points without the name, elevation or code displayed. (Figure 5)

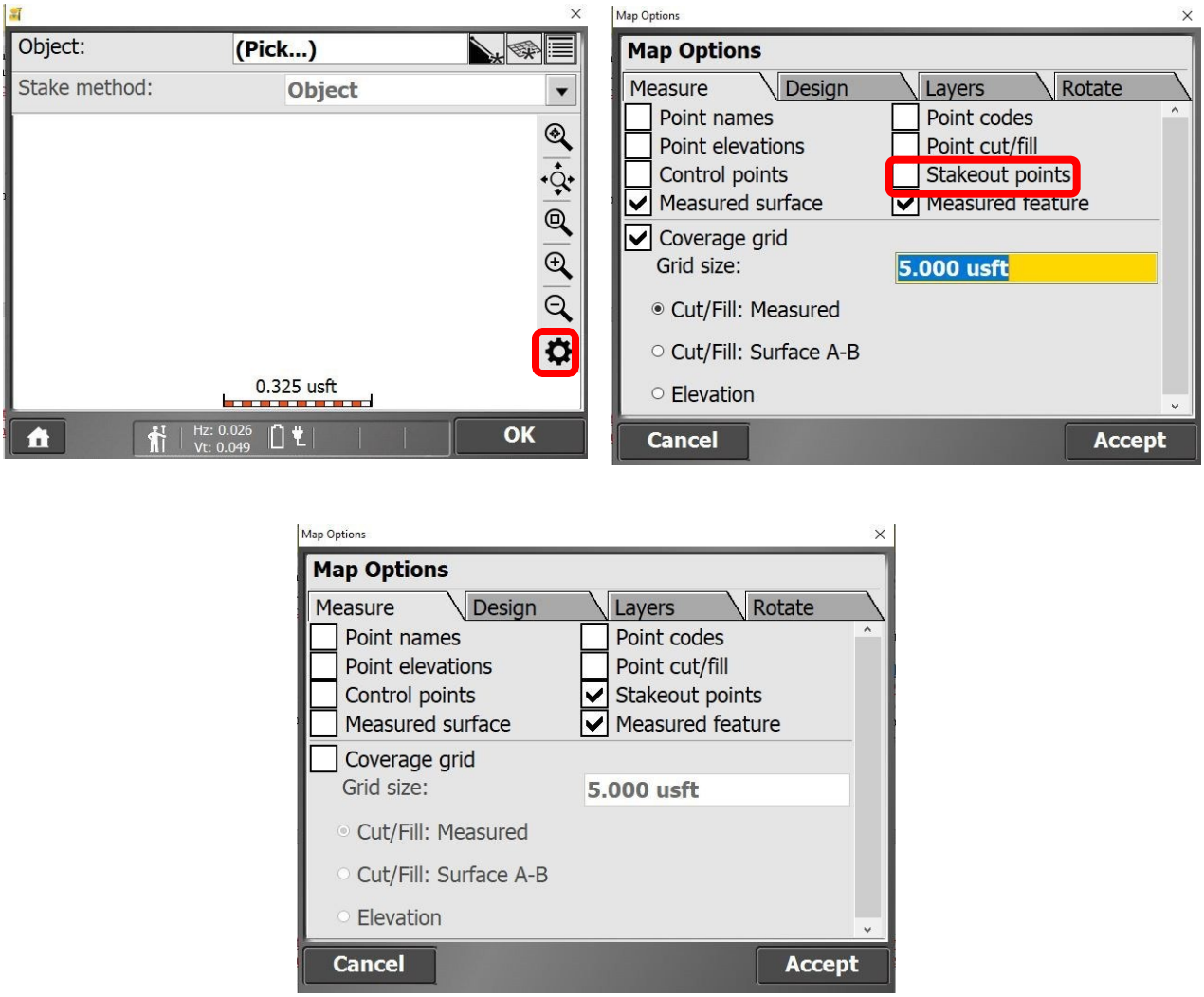


Figure 5. Stakeout Mode

Step 6: Select a point nearby where you are standing (Figure 6). Walk to the point and place the rover rod directly over the point, plumbing up the rod using the level bubble. The residuals (error between your X and Y position and the point location) should be less than 0.082 FT (sub-inch). Once within this range, and with the rod plumb, hit enter to record the point (or hit "stake" on the screen). You don't need the diagram.

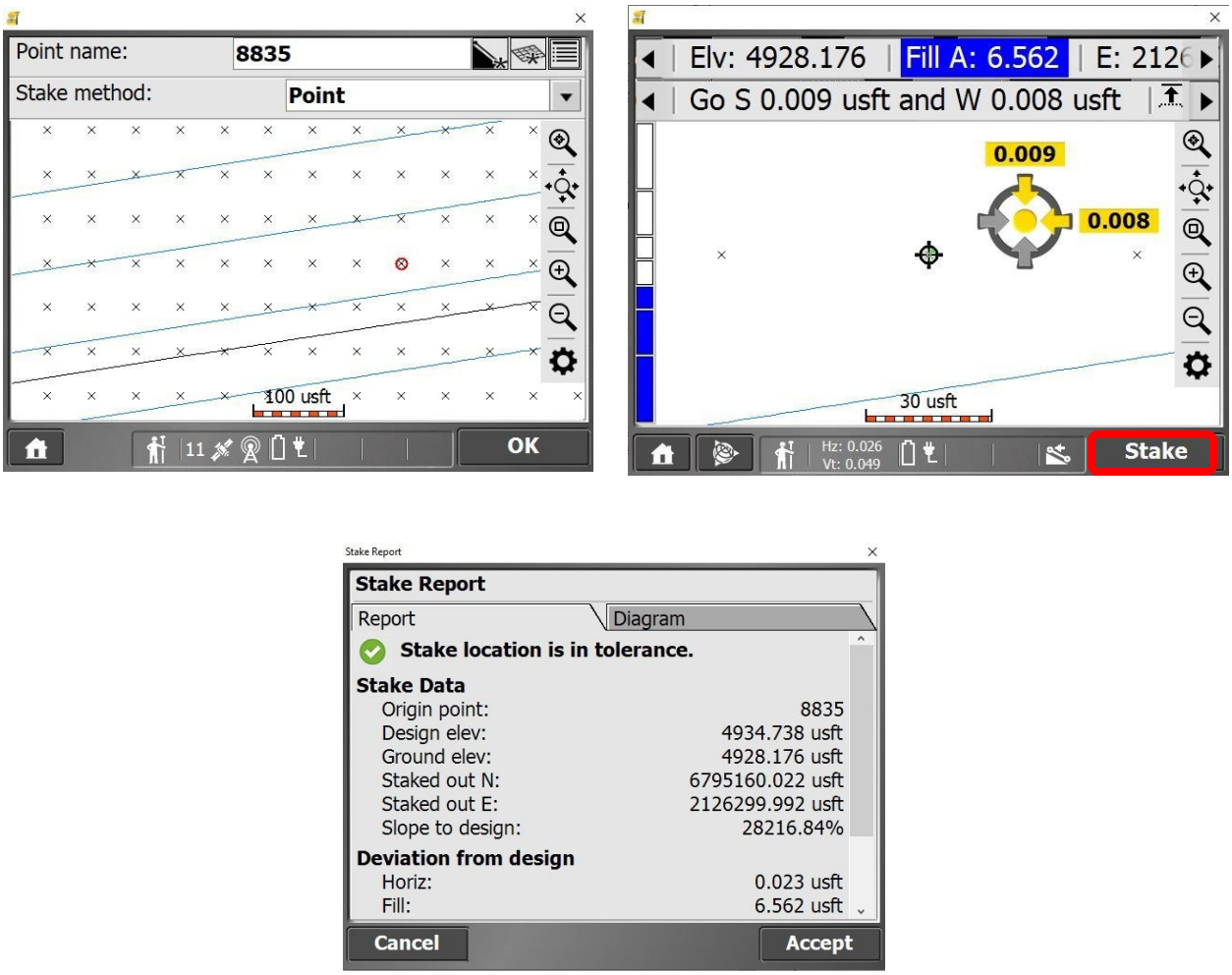


Figure 6. Select Points

Note: The Cut/Fill value should be within the specified grade tolerance. The screenshot is from an emulator that does not contain elevation data.

Step 7: Repeat Step 6 for all points located within the buyoff footprint.

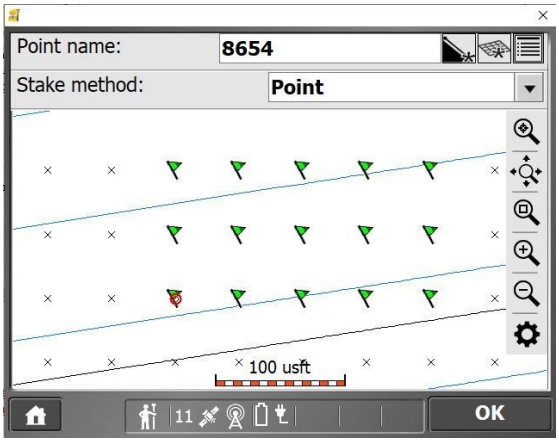


Figure 7. Select All Points

Step 8: Switch the rover into Measure mode (Figure 8) instead of Stake Mode. To do this, hit the Home key, then the Measure button.

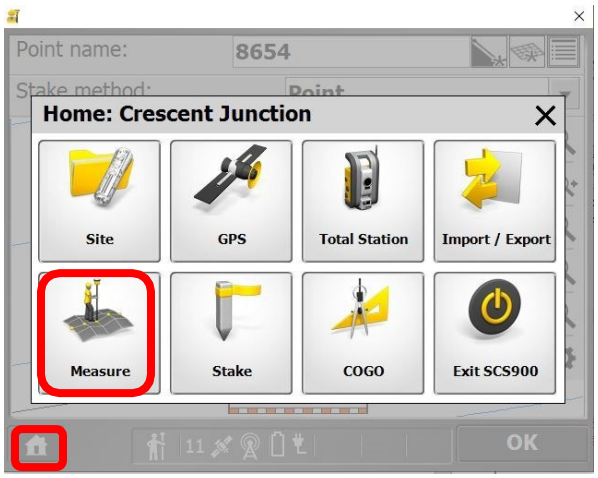


Figure 8. Measure Mode

Step 9: Once in Measure mode, "shoot in" any grade breaks within the buyoff area and the perimeter of the buyoff area (Figure 9), using point codes to describe the point. Typical codes include Top, Toe, Brk1, 2, BDR, etc. These points are not used for grade verification but are used to create the as-build of the area within the verification survey.

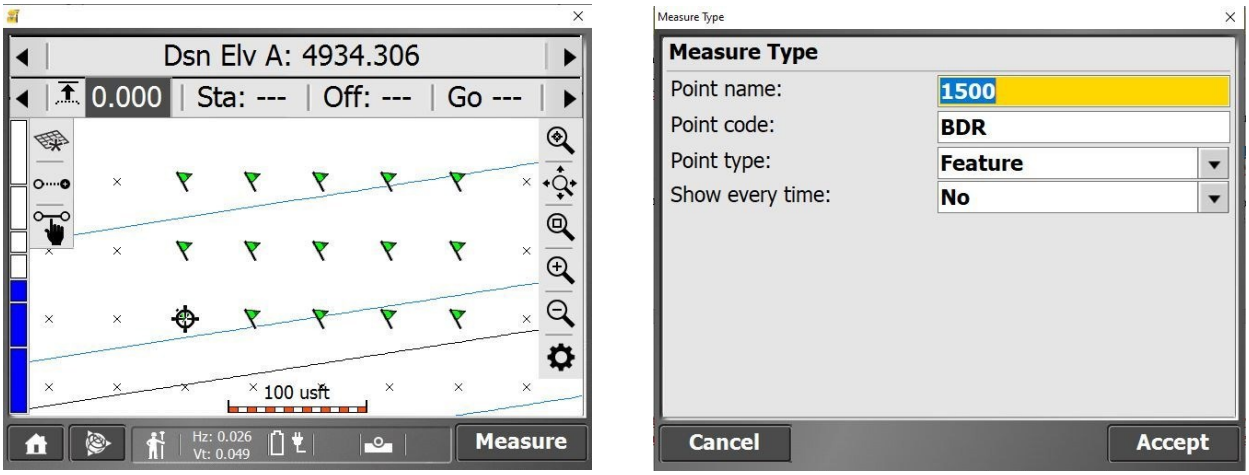


Figure 9. Shoot In and Grade Breaks

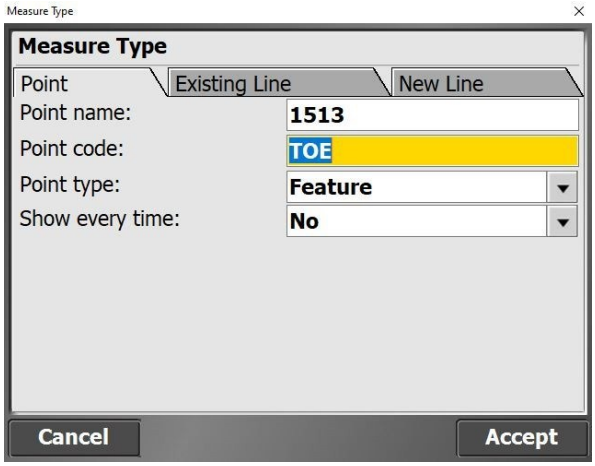


Figure 9. Shoot In and Grade Breaks (continued)

Step10: With the grade verification and topo data collected, the next step is to export the data for use in the office (Figure 10). Hit the Home Key, then Import / Export. Then Export a "Record.txt" File.

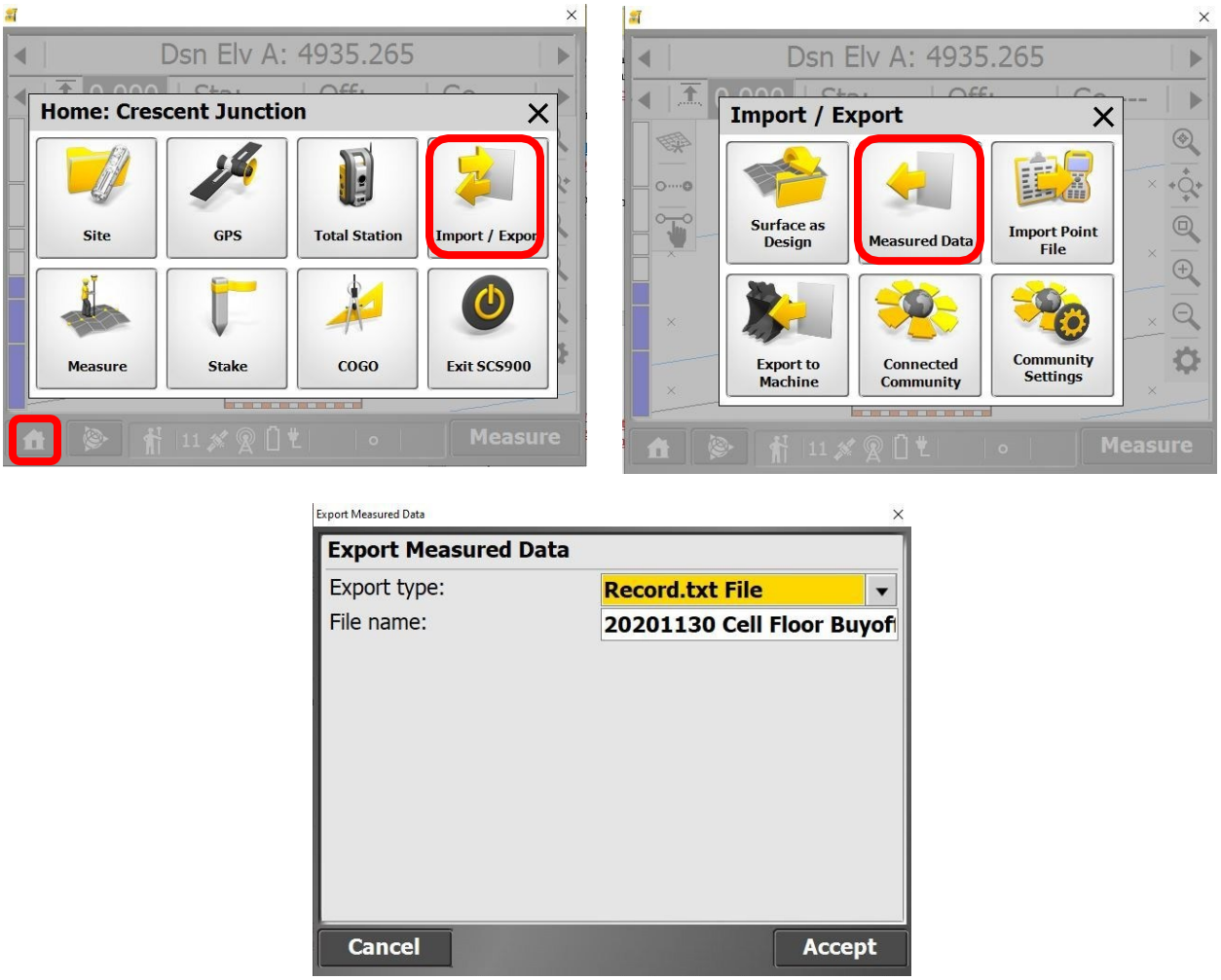


Figure 10. Export Topo Data

3.2.2 Office Procedure

Step 1: Transfer the field collected information from the data collector to the L: Drive Server. A Directory called Trimble Synchronizer Data houses the data backup for the Data Collectors. Within this directory you will find two directories, one named "PC" and the other named "GGE Collector 2" (Figure 11). The "PC" directory is the backup from the TSC7 while the "GGE Collector 2" directory is the backup from the TSC2. Plug an IT issued USB flash drive (thumb drive) into the data collector USB port and then copy the entire directory from the data collector onto the flash drive. Remove the flash drive from the data collector and then plug it into the site computer and then transfer the same directory into the appropriate directory on the server.

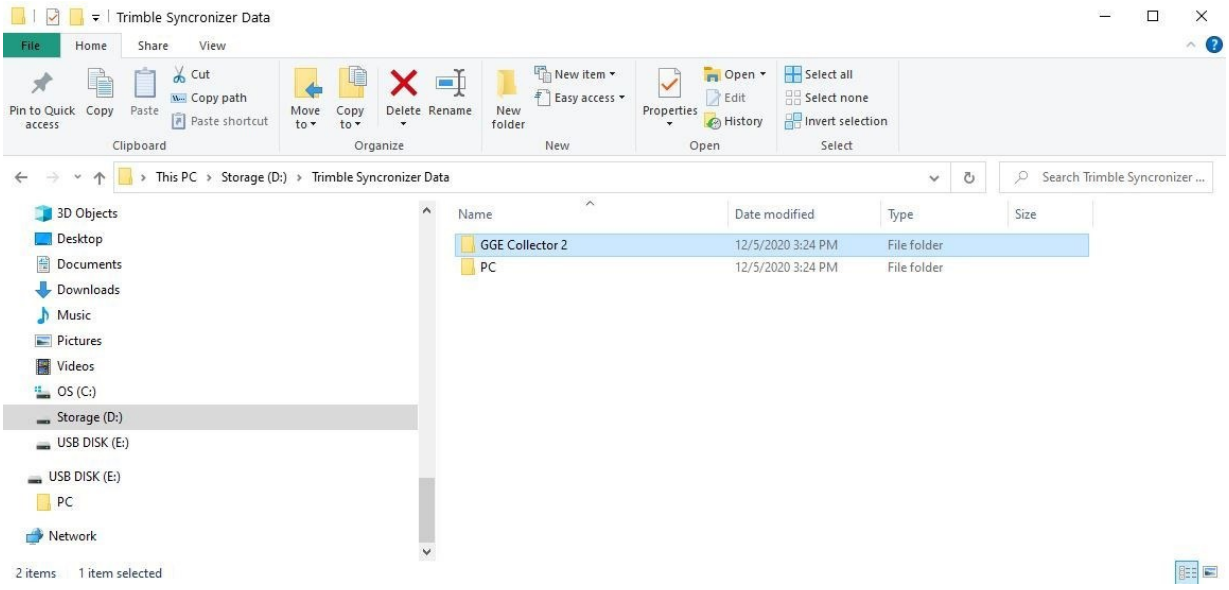


Figure 11. Data Collectors Directories

Step 2: Locate the appropriate SCS Report Utility in the “Forms” directory on the L: drive (Figure 11). Open this Excel File. Use Excel “SCS Report Utility-64” that corresponds to the data collector in which you conducted the survey. (SCS Report Utility-64 TSC7 and SCS Report Utility-64 TSC2).

Figure 12. SCS Report Utility

Step 3: Click on "1 Import Record" (Figure 13). Navigate to the Trimble Synchronizer directory, proper controller directory, the in Trimble SCS900 Data > Crescent Junction> Work Orders > Work Order Name> Output. Then click on the record.txt file.

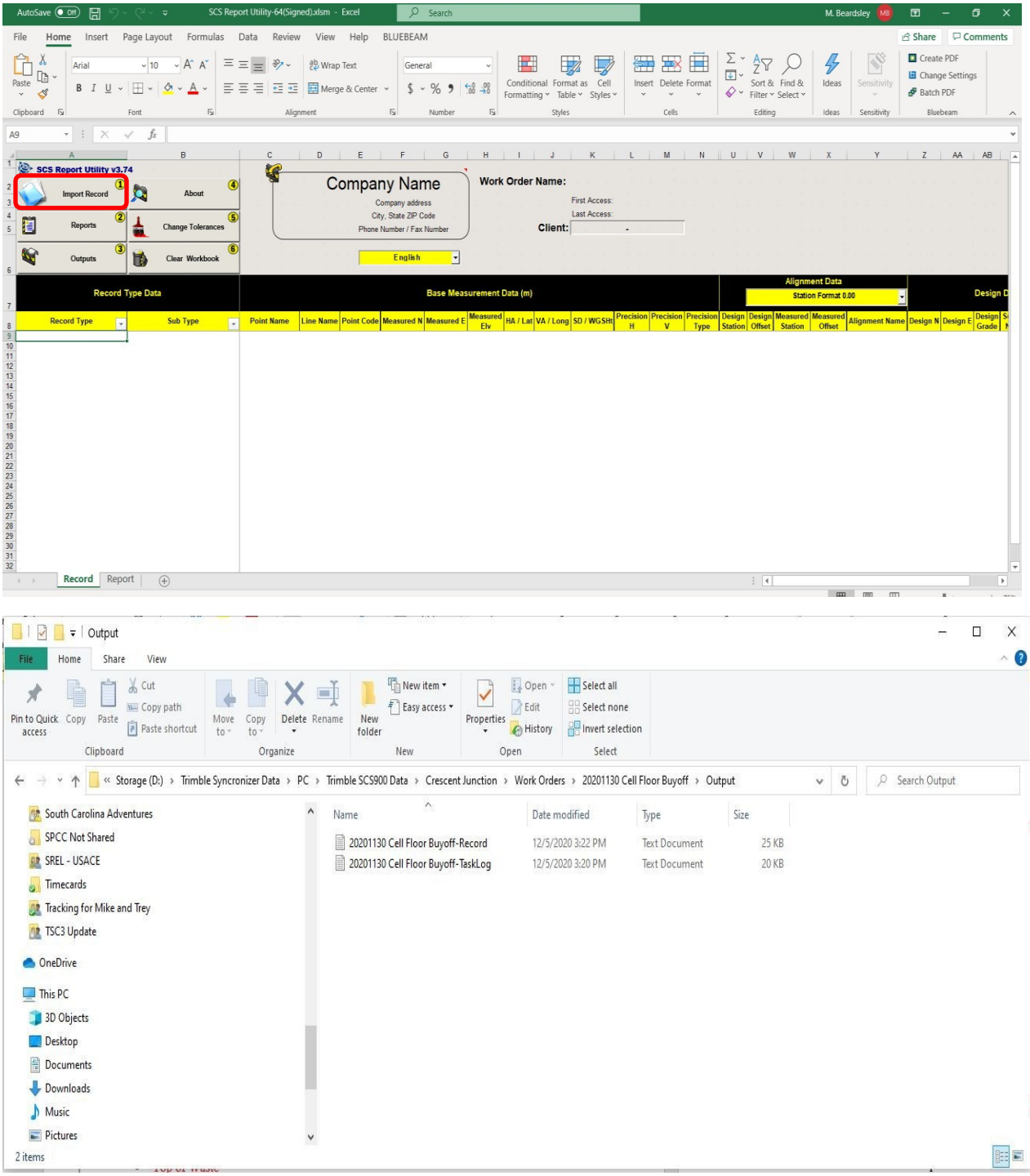


Figure 13. Import Record

Step 4: Once this data is opened you may create several new report tabs in the excel file. Create the Stakeout Features Tab, Measured Features Tab, and a custom Tab of Stakeout Features containing "Point Name, Measured Northing, Measured Easting, Measured Grade, Design Elevation, and Cut/Fill". All 3 tabs will be created at the bottom of the excel file (Figure 14).

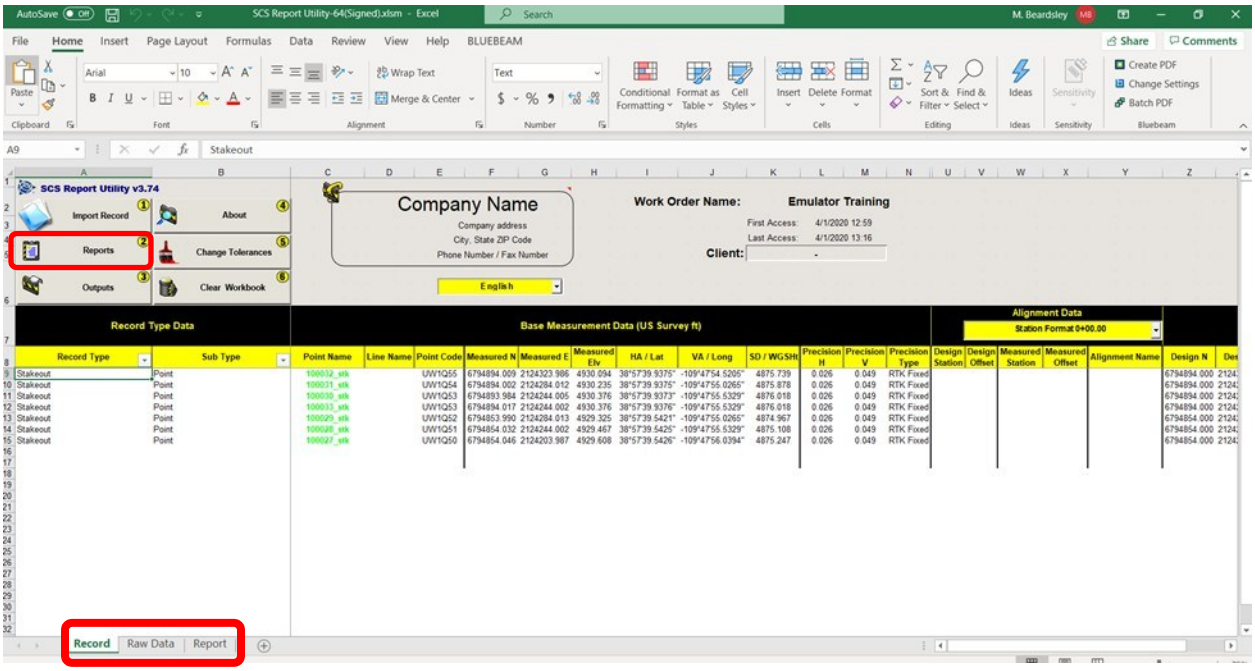
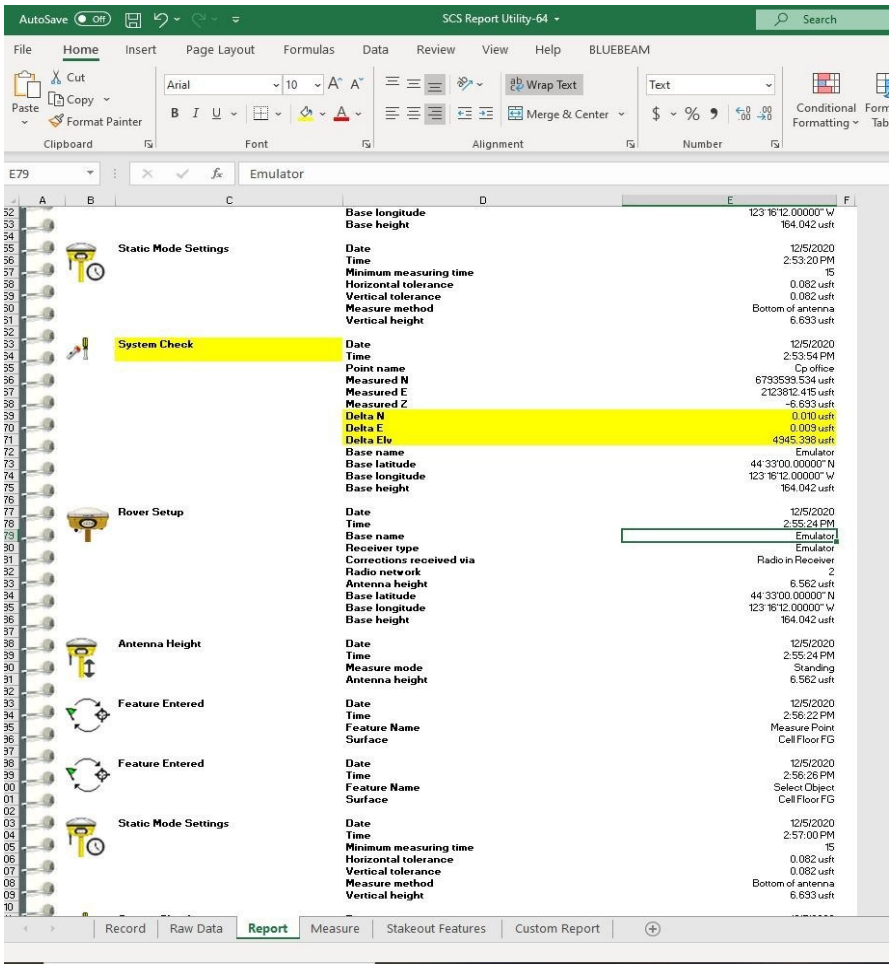


Figure 14. Create Report Tabs in Excel

Next review each tab. In the Report Tab (Figure 15), verify the Control Point Check in. In the Measured Features tab, review the measured as-built features and export a .CSV file of these features (P,N,E,Z,D format).

Store the as-built information in the location per the CJ Directory and Data Storage Procedure. Then review the Stakeout Features Tab. In this tab you will find how well the measured feature compared to the design feature. The cut/fill tells the elevation difference (Measured Elevation – Design Grade). Ensure these values meet the tolerance requirements for the survey. See Tolerance Requirements in Section 3.1. The data in the Custom Tab may then be cut and paste into the Buyoff Form.



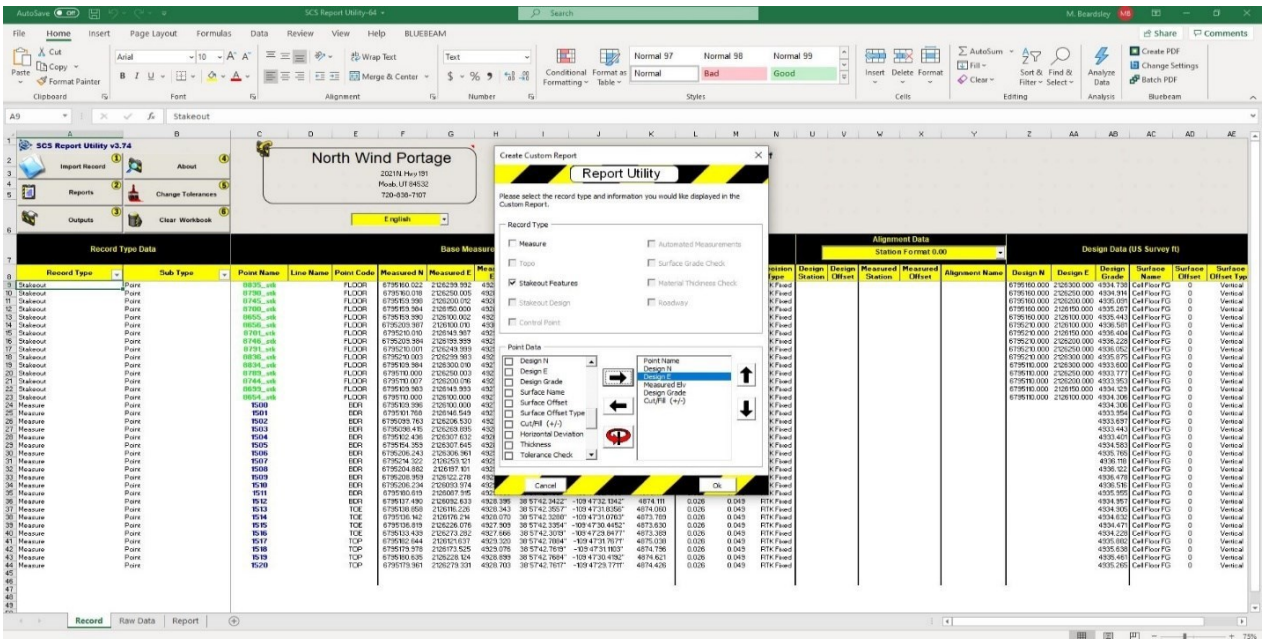


Figure 15. Report Tab

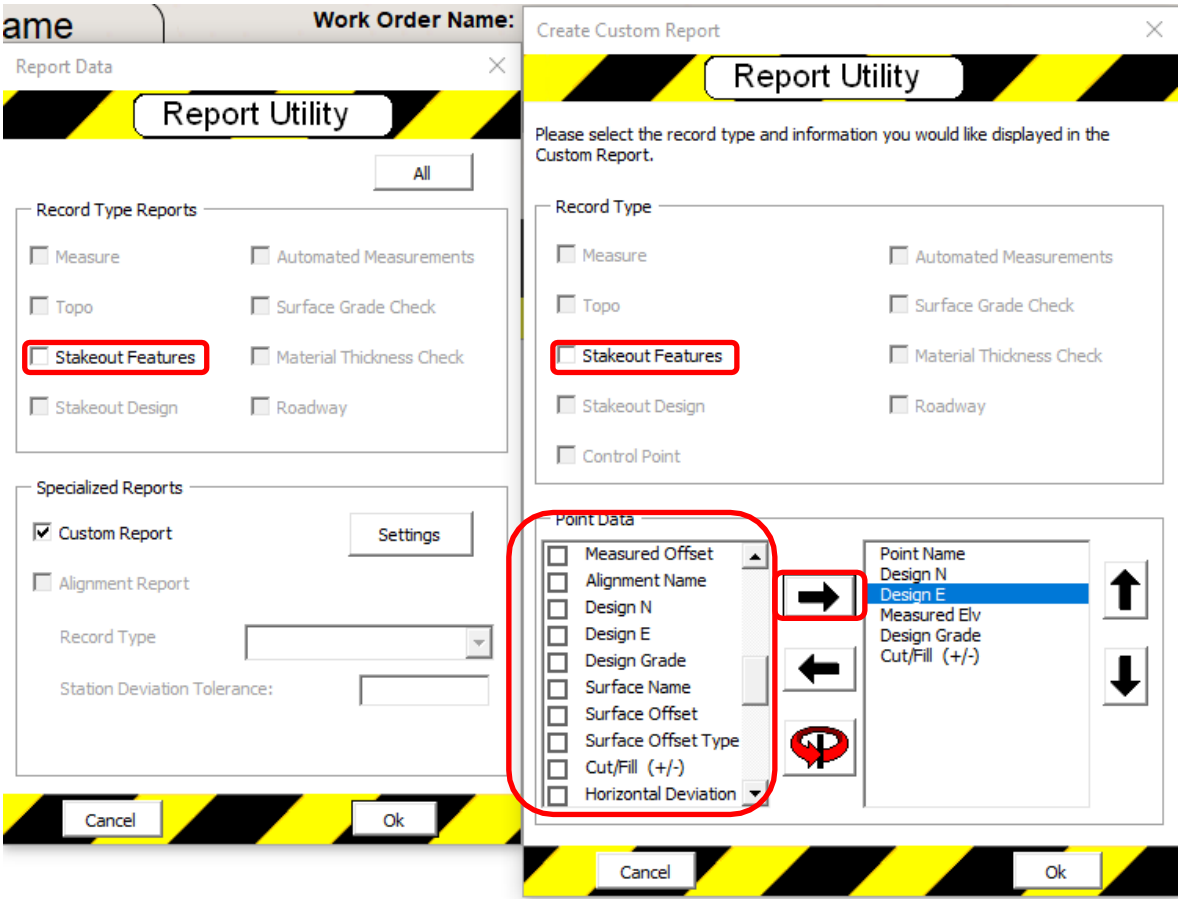


Figure 15. Report Tab (continued)

Note: The Cut/Fill value identified in the reports above can be generated manually by subtracting the Design Grade Value from the Measured Elevation. In the Buyoff form it may be useful to show this math rather than copy and pasting this value so that reviewers can more readily find where these values came from.

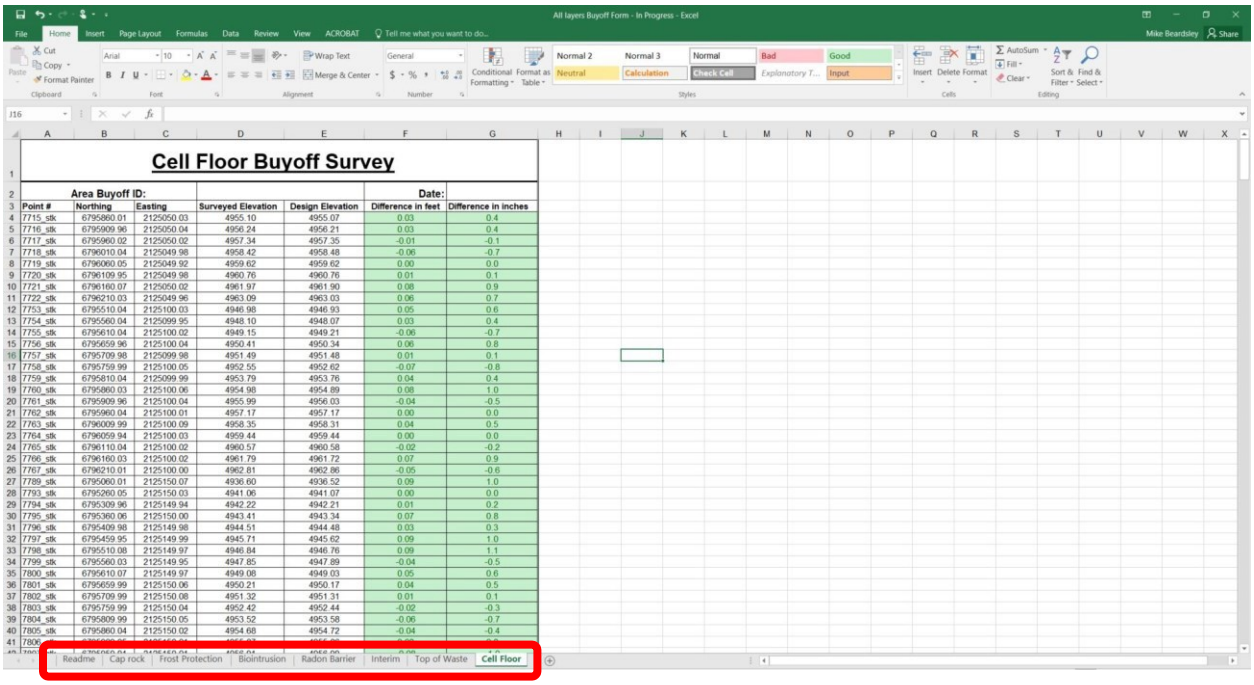
Step 5: Export Data to an excel file (Figure 16) with date and name of the buyoff you are doing.

	A	B	C	D	E	F	G
1	**Point Name**	**Measured N**	**Measured E**	**Measured Elv**	**Design Grade**	**Cut/Fill (+/-)**	
2	**21067_stk**	6794409.990	2123649.971	4972.144	4972.072	0.072	
3	**21030_stk**	6794359.949	2123600.054	4970.877	4970.780	0.098	
4	**21066_stk**	6794360.032	2123649.935	4970.836	4970.808	0.028	
5	**21102_stk**	6794360.015	2123700.072	4970.840	4970.836	0.004	
6	**21101_stk**	6794309.973	2123699.945	4969.666	4969.572	0.093	
7	**21138_stk**	6794310.038	2123749.998	4969.613	4969.571	0.042	
8	**21029_stk**	6794310.004	2123599.946	4969.553	4969.516	0.037	
9	**20993_stk**	6794309.941	2123550.011	4969.569	4969.488	0.082	
10	**20956_stk**	6794309.951	2123500.019	4969.550	4969.460	0.091	
11	**20919_stk**	6794310.015	2123450.011	4969.554	4969.431	0.123	
12	**20882_stk**	6794309.974	2123400.047	4969.497	4969.403	0.093	
13	**20845_stk**	6794310.021	2123350.002	4969.391	4969.375	0.015	
14	**20808_stk**	6794310.036	2123300.068	4969.363	4969.347	0.016	

	A	B	C	D	E	F	G
1	Point Nan	Design N	Design E	Design Gr	Measured	Cut/Fill (+/-)	
2	100133_st	6794610	2122250	4984.336	4983.991	-0.345	
3	100134_st	6794660	2122250	4985.6	4985.321	-0.278	
4	100135_st	6794710	2122250	4986.863	4986.607	-0.257	
5	100136_st	6794760	2122250	4988.127	4987.826	-0.301	
6	100093_st	6794760	2122200	4988.098	4987.827	-0.271	
7	100092_st	6794710	2122200	4986.834	4986.43	-0.404	
8	100091_st	6794660	2122200	4984.419	4984.909	0.49	
9	100090_st	6794610	2122200	4981.901	4982.395	0.494	
10							
11							

Figure 16. Export Data into Excel

Step 6: Copy and paste the values above into the “All Layers Buyoff Form”. Make sure to select the correct buyoff tab on the bottom of the sheet (Figure 17). Complete this report and provide the signed and complete report (Figure 18) to the QA Manager for review and submission to Records.



Cell Floor Buyoff Survey

Area Buyoff ID: Date:

Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Difference in feet	Difference in inches
7715_stk	6795880.01	2125050.03	4955.10	4955.07	0.03	0.4
7716_stk	6795909.96	2125050.04	4956.24	4956.21	0.03	0.4
7717_stk	6795960.02	2125050.02	4957.34	4957.35	-0.01	-0.1
7718_stk	6796010.04	2125049.98	4958.42	4958.48	-0.06	-0.7
7719_stk	6796060.05	2125049.92	4959.62	4959.62	0.00	0.0
7720_stk	6796109.95	2125049.98	4960.76	4960.76	0.01	0.1
7721_stk	6796160.07	2125050.02	4961.97	4961.90	0.08	0.9
7722_stk	6796210.03	2125049.96	4963.09	4963.03	0.06	0.7
7753_stk	6795510.04	2125100.03	4946.98	4946.93	0.05	0.6
7754_stk	6795560.04	2125099.95	4948.10	4948.07	0.03	0.4
7755_stk	6795610.04	2125100.02	4949.15	4949.21	-0.06	-0.7
7756_stk	6795659.96	2125100.04	4950.41	4950.34	0.06	0.8
7757_stk	6795709.98	2125099.98	4951.49	4951.48	0.01	0.1
7758_stk	6795759.99	2125100.05	4952.55	4952.62	-0.07	-0.8
7759_stk	6795810.04	2125099.99	4953.79	4953.76	0.04	0.4
7760_stk	6795860.03	2125100.06	4954.98	4954.89	0.08	1.0
7761_stk	6795909.96	2125100.04	4955.99	4956.03	-0.04	-0.5
7762_stk	6795960.04	2125100.01	4957.17	4957.17	0.00	0.0
7763_stk	6796009.99	2125100.09	4958.35	4958.31	0.04	0.5
7764_stk	6796059.94	2125100.03	4959.44	4959.44	0.00	0.0
7765_stk	6796110.04	2125100.02	4960.57	4960.58	-0.02	-0.2
7766_stk	6796160.03	2125100.02	4961.79	4961.72	0.07	0.9
7767_stk	6796210.01	2125100.00	4962.81	4962.86	-0.05	-0.6
7789_stk	6795060.01	2125150.07	4936.60	4936.52	0.09	1.0
7793_stk	6795260.05	2125150.03	4941.06	4941.07	0.00	0.0
7794_stk	6795309.96	2125149.94	4942.22	4942.21	0.01	0.2
7795_stk	6795360.06	2125150.00	4943.41	4943.34	0.07	0.8
7796_stk	6795409.98	2125149.98	4944.51	4944.48	0.03	0.3
7797_stk	6795459.95	2125149.99	4945.71	4945.62	0.09	1.0
7798_stk	6795510.08	2125149.97	4946.84	4946.76	0.09	1.1
7799_stk	6795560.03	2125149.95	4947.85	4947.89	-0.04	-0.5
7800_stk	6795610.07	2125149.97	4949.08	4949.03	0.05	0.6
7801_stk	6795659.99	2125150.06	4950.21	4950.17	0.04	0.5
7802_stk	6795709.99	2125150.08	4951.32	4951.31	0.01	0.1
7803_stk	6795759.99	2125150.04	4952.42	4952.44	-0.02	-0.3
7804_stk	6795809.99	2125150.05	4953.52	4953.58	-0.06	-0.7
7805_stk	6795860.04	2125150.02	4954.68	4954.72	-0.04	-0.4

Readme | Cap rock | Frost Protection | Biointrusion | Radon Barrier | Interim | Top of Waste | Cell Floor

Figure 17. All Layers Buyoff Form

Step 7: Export both the stakeout report and the measured features report to comma separated value (.csv) files.

Step 8: Put the .csv file into an As-Built directory (per the CJ Directory Structure SOP)

Step 9: Create a TBC file (.vce) or open existing TBC file of applicable As-Built file. Create a layer to match work order name and import the As-Built points. Draw grade breaks as appropriate. Save this file in the same As-Built directory as identified in the previous step.

Attachment 2.
NRC Correspondence

Letter dated October 3, 2023, regarding variance for demolition debris placement (Intermodal Containers)

Letter dated May 19, 2025, regarding variance for demolition debris placement (Fernald Rail)

Attachment 2. Letter dated October 3, 2023, regarding variance for demolition debris placement (Intermodal Containers)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 3, 2023

Matthew Udovitsch
Acting Federal Cleanup Director
Moab Uranium Mill Tailings
Remedial Action Project
U.S. Department of Energy
200 Grand Avenue, Suite 500
Grand Junction, CO 81501

SUBJECT: UNITED STATES NUCLEAR REGULATORY COMMISSION STAFF REVIEW OF VARIANCE REQUEST FOR DEMOLITION DEBRIS PLACEMENT IN CRESCENT JUNCTION DISPOSAL CELL (DOCKET WM00110).

Dear Mr. Udovitsch:

By letter dated August 1, 2023, the U.S. Department of Energy, Office of Environmental Management (DOE-EM) submitted a variance request to the construction specifications for disposal of demolition debris at the Crescent Junction disposal cell. The submittal is available in the U.S. Nuclear Regulatory Commission (NRC) Agencywide Documents Access and Management System (ADAMS) under accession number ML23213A196. In its submittal, DOE-EM requested a variance from specifications related to placement and compaction of residual radioactive material (RRM), including placement of demolition debris. Additionally, DOE-EM requested a variance to the remedial action inspection plan related to the demolition debris.

As described in its submittal, DOE-EM is seeking a variance to accommodate disposal of:

- Model I-42/OT/AL 42 cubic yard intermodal containers;
- Model I-32/OT/AT 32 cubic yard intermodal containers; and
- PacTec Lift Pac Type IP-1 containers.

According to DOE-EM, these containers will hold RRM, including demolition debris, that is larger in size and may be contaminated with asbestos. The larger material cannot be re-sized; the potential presence of asbestos represents a health risk to workers. Instead of re-sizing the material, DOE-EM proposed utilizing a controlled low-strength material (CLSM) to fill voids within the containers. DOE-EM also plans to maintain a minimum separation distance between containers to facilitate placement and compaction of RRM between containers. DOE-EM's request for a variance seeks to minimize risks to improve safety and minimize health risks to workers.

The NRC staff has completed its review of DOE-EM's variance request. By using CLSM within the containers, DOE-EM has identified and selected an alternative to the original specification that will fill voids within the containers. The NRC staff recognizes that maintaining separation between containers will allow for proper placement and compaction of the RRM around the containers. By using CLSM to fill voids and maintain the ability to compact around the outside of the containers, DOE-EM's proposed variance will minimize the potential for differential settlement. Therefore, DOE-EM's approach is acceptable to the

NRC staff.

A copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System component of the NRC's ADAMS. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading- rm/adams.html.

If you have any questions regarding this letter, please contact me at (301) 415-0724, or by e-mail at douglas.mandeville@nrc.gov.

Sincerely,

Signed by Mandeville, Douglas on 10/03/23

Douglas Mandeville, Project Manager
Uranium Recovery and Materials
Decommissioning Branch
Division of Decommissioning, Uranium
Recovery and Waste Programs
Office of Nuclear Material
Safety and Safeguards

Docket No.: WM00110

cc: C. Pulskamp (DOE)
Moab Mill ListServ

Attachment 2. Letter dated October 3, 2023, regarding variance for demolition debris placement (Intermodal Containers)

Letter to M. Udovitsch DOE-EM re NRC Staff Review of Variance Request for Demolition Debris Placement in Crescent Junction Disposal Cell DATE October 3, 2023

DISTRIBUTION:

ADAMS Accession No.: Ltr ML23251A092

OFFICE	NMSS/DUWP/URMDB	NMSS/DUWP /URMDB	NMSS/DUWP/URMDB
NAME	DMandeville *DM*	RVon *RV*	DMandeville *DM*
DATE	Sep 14, 2023	Oct 3, 2023	Oct 3, 2023

OFFICIAL RECORD COPY

Attachment 2. Letter dated May 19, 2025, regarding variance for demolition debris placement (Fernald Rail)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 19, 2025

Matthew Udovitsch
Acting Federal Cleanup Director
Moab Uranium Mill Tailings
Remedial Action Project
U.S. Department of Energy
200 Grand Avenue, Suite 500
Grand Junction, CO 81501

SUBJECT: UNITED STATES NUCLEAR REGULATORY COMMISSION STAFF REVIEW OF VARIANCE REQUEST FOR DEMOLITION DEBRIS PLACEMENT IN CRESCENT JUNCTION DISPOSAL CELL (DOCKET WM00110).

Dear Mr. Udovitsch:

By letter dated August 29, 2024, the U.S. Department of Energy, Office of Environmental Management (DOE-EM) submitted a variance request to both the construction specifications and the remedial action inspection plan for disposal of debris at the Crescent Junction disposal cell. The submittal is available in the U.S. Nuclear Regulatory Commission (NRC) Agencywide Documents Access and Management System (ADAMS) under accession number ML24242A318.

As described in its submittal, DOE-EM is seeking the variance to accommodate disposal residual radioactive material (RRM) consisting of:

- A total of 31 sets of rails with attached wooden ties;
- A total of 37 unattached rails;
- A total of 620 unattached rail ties;
- Approximately 150 pieces of contaminated equipment that will have no residual value at the end of the project; and
- Approximately 420 intermodal containers that were used to convey residual radioactive material from Moab to Crescent Junction.

According to DOE-EM,

The NRC staff has completed its review of DOE-EM's variance request. In its submittal, DOE-EM has identified and selected alternative approaches to the original specification that aim to minimize the potential for future settlement within the disposal cell. DOE-EM's approaches include: maintaining consistent, parallel orientation of longer pieces of RRM, removal of fluids, dispersed placement to avoid overlapping with previously placed RRM, filling gaps or voids within RRM, size reduction to fit within a 2-ft thick lift, use of standard compaction equipment or hand compaction as necessary, and positioning of RRM to allow for soil placement around items.

Attachment 2. Letter dated May 19, 2025, regarding variance for demolition debris placement (Fernald Rail)

Based on its review of the submittal, the NRC staff recognizes that DOE-EM has proposed several measures to place RRM and to maintain separation between the RRM. These measures facilitate placement of soils around the RRM. The continued use of standard compaction equipment, supplemented by hand compaction, when necessary, will allow for proper compaction of the RRM. Based on its review, the NRC staff concludes that DOE-EM's proposed variance will minimize the potential for differential settlement. Therefore, DOE-EM's approach is acceptable to the NRC staff.

A copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System component of the NRC's ADAMS. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading- rm/adams.html.

If you have any questions regarding this letter, please contact me at (301) 415-0724, or by e-mail at douglas.mandeville@nrc.gov.

Sincerely,

Signed by Mandeville, Douglas
on 05/19/25

Douglas Mandeville, Project Manager
Uranium Recovery and Materials
Decommissioning Branch
Division of Decommissioning, Uranium
Recovery and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket No.: WM00110

cc: C. Pulskamp (DOE)
Moab Mill ListServ

Attachment 2. Letter dated May 19, 2025, regarding variance for demolition debris placement (Fernald Rail)

Ltr from D. Mandeville, NRC to M. Udovitsch, DOE EM re NRC review of Variance Request for Disposal of Items at Crescent Junction, Moab Uranium Mill Tailings Remedial Action Project
DATE May 19, 2025

DISTRIBUTION:

ADAMS Accession No.: ML25105A186; Ltr ML25105A186

OFFICE	NMSS/DUWP/URMDB	NMSS/DUWP /URMDB	NMSS/DUWP/URMDB
NAME	DMandeville *DM*	RVonTill *RV*	DMandeville *DM*
DATE	May 13, 2025	May 19, 2025	May 19, 2025

OFFICIAL RECORD COPY

CJ Interim Completion Report – Addendum O
Appendices

Appendix A.
Construction Verification Data

&

Appendix B.
Photos

Appendix A.
Construction Verification Data

Contents

NOTE: Appendices A1 and A4 through A8 are not included as they are not relevant to the period covered in this Addendum.

Appendix A2.
RRM

Standard Proctor Test Results Summary
Lift Approval Summaries
Lift Approval Package
Top of Waste Buyoff Surveys

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
RRM # 521 (Set # 172)	10/04/2017	10/16/2017	109.3	11.1	Sand stockpile. Red and brown sand mixed w/sweet sugar sand. Approx. 1% clay.
DB4-20200422	7/7/2021	7/26/2021	108	17.5	Sandy, lean clay (CL)
DB5-20210408	4/8/2021	5/5/2021	108.5	16.8	Sandy, lean clay (CL)
DB6-20210707	7/7/2021	7/26/2021	105.7	18.6	Sandy, lean clay (CL)
NWL-20200422	4/22/2020	6/2/2020	103.9	15.8	Silty sand (SM)
DB2-20200422	04/22/2020	06/08/2020	110.3	17.4	Sandy, lean clay (CL)

Appendix A2. RRM Lift Approval Summaries

October 2024

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 (%)
10/02/24	UW2I15240925-00	0	11288	11,288	99.8	1.9	N/A	0	0	0
10/07/24	UW2R9240930-00	0	9934	21,222	99.3	1.9	N/A	0	0	0
10/08/24	UW1X20241003-00	0	1828	23,050	100.0	1.7	N/A	0	0	0
10/09/24	UW2F18241003-00	0	2932	25,982	99.8	1.9	N/A	0	0	0
10/09/24	UW2X13241007-00	0	5405	31,387	99.9	1.7	N/A	0	0	0
10/15/24	UW2I15241009-00	1	10929	42,316	98.5	1.9	NWL-20200422	0	0	0
10/21/24	UW2R9241015-00	1	9636	51,952	100.0	1.9	RRM-521	0	0	0
10/21/24	UW1X20241017-00	0	2011	53,963	99.7	1.9	N/A	0	0	0
10/22/24	UW2F18241021-00	0	3159	57,122	99.9	2.0	N/A	0	0	0
10/28/24	UW2I15241022-00	1	11880	69,002	99.9	2.0	RRM-521	0	0	0
10/31/24	UW2R9241028-00	1	10607	79,609	100.0	2.0	RRM-521	0	0	0
					Average CBCS Screen Passing Pixels (%) =	99.7				
					Total Quantity Approved (yd^3) =	79,609				
					Total # of Nuclear Density Gauge Tests =	0				
					Total # of Moisture Tests =	4				
					Quantity per Moisture Test (yd^3) =	19,902				
					Total Average Thickness (ft) =	1.9				

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

CBCS screen shot example from October 2024. There are compaction screen shots 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 2024										
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 (%)
11/04/24	UW1X20241031-00	0	2036	2,036	100.0	2.0	0	0	0	0
11/06/24	UW2F17241031-00	0	3406	5,442	100.0	2.0	0	0	0	0
11/14/24	UW2R8241106-00	1	11579	17,021	99.9	2.0	RRM-521	0	0	0
11/14/24	UW2I14241031-00	2	12,349	29,370	99.9	2.0	DB2-20200422	0	0	0
11/18/24	UW1X20241114-00	0	2563	31,933	100.0	2.0	N/A	0	0	0
11/19/24	UW2F16241114-00	0	3594	35,527	99.4	2.0	N/A	0	0	0
11/26/24	UW2I14241118-00	1	11457	46,984	99.9	1.9	DB2-20200422	0	0	0
					Average CBCS Screen Passing Pixels (%) =	99.9				
					Total Quantity Approved (yd^3) =	46,984				
					Total # of Nuclear Density Gauge Tests =	0				
					Total # of Moisture Tests =	4				
					Quantity per Moisture Test (yd^3) =	11,746				
					Total Average Thickness (ft) =	2.0				

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

CBCS screen shot example from November 2024. There are compaction screen shots 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)*

December 2024										
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 (%)
12/03/24	UW2O21241126-00	2	6470	6,470	100.0	1.7	NWL-20200422 DB4-20210707	0	0	0
12/05/24	UW2Q8241125-00	1	11558	18,028	98.0	2.0	NWL-20200422	0	0	0
12/05/24	UW1X20241204-00	0	2142	20,170	100.0	1.7	N/A	0	0	0
12/10/24	UW2F16241205-00	6	3247	23,417	99.9	1.8	NWL-20200422 RRM-521	6	0	95.2
12/16/24	UW2I14241209-00	1	12493	35,910	100.0	2.0	RRM-521	0	0	0
12/19/24	UW2Q8241216-00	0	11805	47,715	99.7	2.0	N/A	0	0	0
12/19/24	UW1W20241219-00	1	2480	50,195	99.6	2.0	RRM-521	0	0	0
				Average CBCS Screen Passing Pixels (%) =	99.6					
				Total Quantity Approved (yd^3) =	50,195					
				Total # of Nuclear Density Gauge Tests =	6					
				Total # of Moisture Tests =	11					
				Quantity per Moisture Test (yd^3) =	4,563					
				Total Average Thickness (ft) =	1.9					

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

CBCS screen shot example from December 2024. There are compaction screen shots 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 2025										
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 (%)
01/06/25	UW2F16241219-00	1	3711	3,711	99.9	2.0	RRM-521	0	0	0
01/07/25	UW2H14241219-00	1	12581	16,292	99.7	2.0	RRM-521	0	0	0
01/09/25	UW2Q8250106-00	0	12570	28,862	99.6	2.0	N/A	0	0	0
01/15/24	UW1W20250114-00	6	2646	31,508	99.9	2.0	RRM-521	6	0	95
01/16/25	UW2F16250109-00	0	6540	38,048	99.9	2.0	N/A	0	0	0
01/21/25	UW2K12250109-00	3	8865	46,913	99.4	2.0	RRM-521	0	0	0
01/27/25	UW2Q8250120-00	0	11570	58,483	99.8	1.8	N/A	0	0	0
01/29/25	UW1W20250127-00	1	2558	61,041	97.3	1.9	N/A	0	0	0
01/30/25	UW2F16250127-00	0	6010	67,051	100.0	1.8	N/A	0	0	0
					Average CBCS Screen Passing Pixels (%) =	99.5				
					Total Quantity Approved (yd^3) =	67,051				
					Total # of Nuclear Density Gauge Tests =	6				
					Total # of Moisture Tests =	12				
					Quantity per Moisture Test (yd^3) =	5,588				
					Total Average Thickness (ft) =	1.9				

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

CBCS screen shot example from January 2025. There are compaction screen shots 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 2025										
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 (%)
02/04/25	UW2K12250130-00	0	8,077	8,077	98.7	1.8	N/A	0	0	0
02/11/25	UW2Q8250204-00	1	12781	20,858	99.8	2.0	RRM-521	0	0	0
02/12/25	UW1W20250211-00	0	2612	23,470	99.4	2.0	N/A	0	0	0
02/17/25	UW2F16250211-00	0	6,517	29,987	100.0	2.0	N/A	0	0	0
02/19/25	UW2K11250217-00	0	9005	38,992	99.6	1.9	N/A	0	0	0
02/25/25	UW2P7250219-00	1	11951	50,943	100.0	1.7	DB6-20210707	0	0	0
02/26/25	UW1W19250225-00	0	2033	52,976	100.0	1.2	N/A	0	0	0
02/27/25	UW2E15250226-00	0	2563	55,539	99.5	0.7	N/A	0	0	0
02/27/25	UW2K11250226-00	1	2012	57,551	99.2	0.4	NWL-20200422	0	0	0
					Average CBCS Screen Passing Pixels (%) =	99.6				
					Total Quantity Approved (yd^3) =	57,551				
					Total # of Nuclear Density Gauge Tests =	0				
					Total # of Moisture Tests =	3				
					Quantity per Moisture Test (yd^3) =	19,184				
					Total Average Thickness (ft) =	1.5				

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

CBCS screen shot example from February 2025. There are compaction screen shots 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 2025										
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 (%)
03/05/25	UW1W19250227-00	1	9915	9,915	100.0	1.9	DB2-20200422	0	0	0
03/10/25	UW2K11250305-00	0	9155	19,070	100.0	1.9	N/A	0	0	0
03/17/25	UW2P7250310-00	1	13863	32,933	100.0	2.0	DB5-20210408	0	0	0
03/24/25	UW1W19250317-00	1	10429	43,362	99.5	2.0	DB5-20210408	0	0	0
03/27/25	UW2K11250320-00	12	9615	52,977	99.9	2.0	DB5-20210408	11	1	96.04
				Average CBCS Screen Passing Pixels (%) =		99.9				
				Total Quantity Approved (yd^3) =		52,977				
				Total # of Nuclear Density Gauge Tests =		11				
				Total # of Moisture Tests =		15				
				Quantity per Moisture Test (yd^3) =		3,532				
				Total Average Thickness (ft) =		2.0				

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

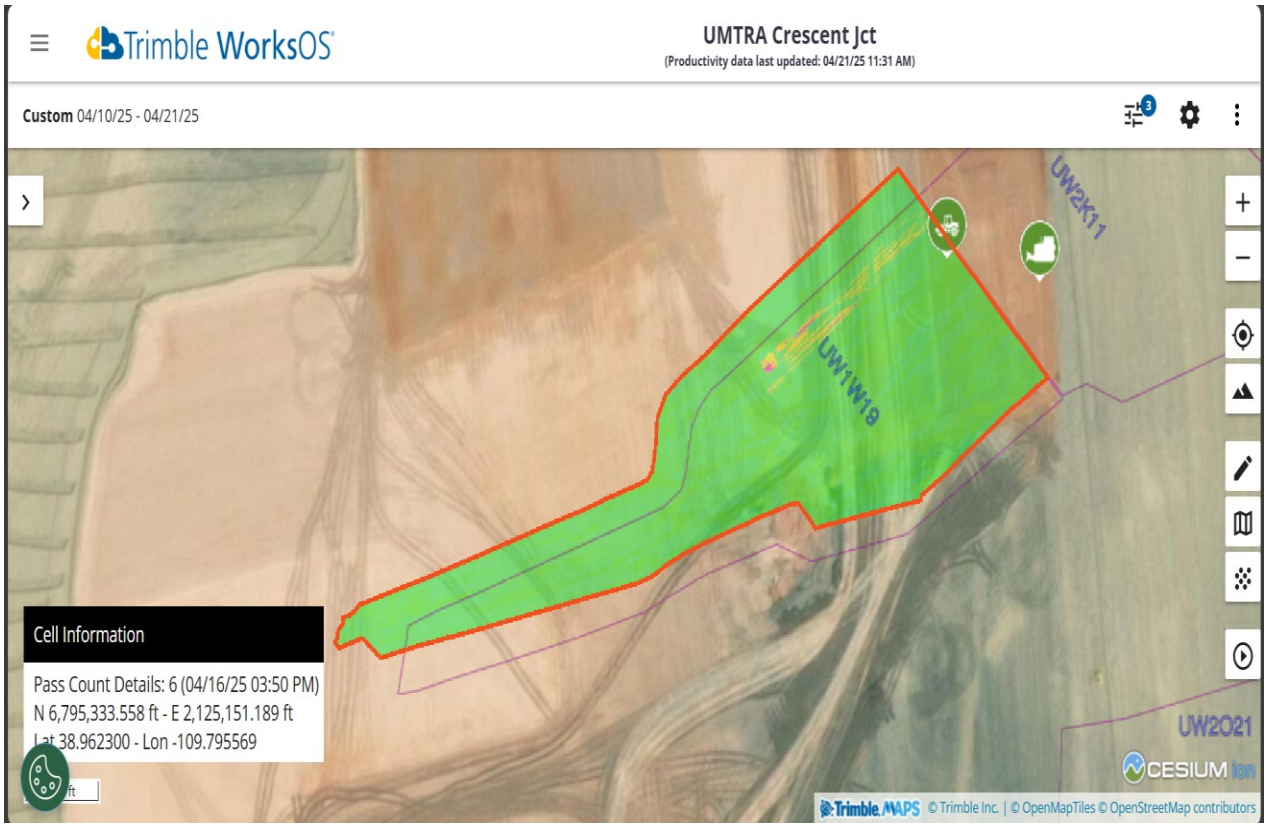
CBCS screen shot example from March 2025. There are compaction screen shots for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six-wheel passes with the compactor has been recorded.

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

April 2025										
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 (%)
04/02/25	UW2P7250326-00	0	13536	13,536	100.0	2.0	N/A	0	0	0
04/10/25	UW2Y7N250402-00	2	12114	25,650	100.0	1.9	RRM-521	0	0	0
04/21/25	UW2O21250318-00	0	6906	32,556	100.0	1.9	N/A	0	0	0
04/21/25	UW1W19250410-00	0	10634	43,190	98.3	2.0	N/A	0	0	0
04/22/25	UW2K11250416-00	0	17199	60,389	99.3.	2.0	N/A	0	0	0
04/28/25	UW2P7250422-00	1	13850	74,239	99.7	2.0	RRM-521	0	0	0
				Average CBCS Screen Passing Pixels (%) =		99.6				
				Total Quantity Approved (yd^3) =		74,239				
				Total # of Nuclear Density Gauge Tests =		0				
				Total # of Moisture Tests =		3				
				Quantity per Moisture Test (yd^3) =		24,746				
				Total Average Thickness (ft) =		2.0				

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

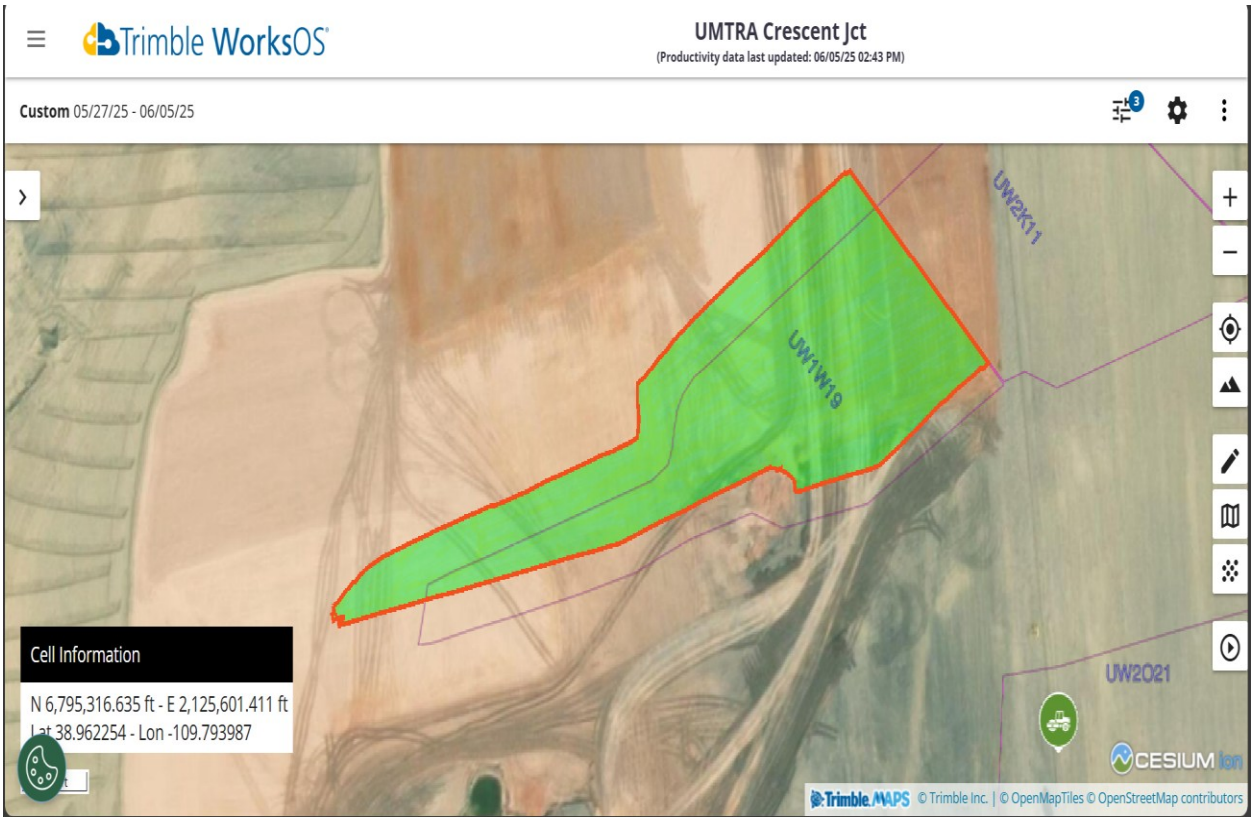
CBCS screen shots example from April 2025. There are compaction screen shots for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six-wheel passes with the compactor has been recorded.



May 2025										
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 (%)
05/06/25	UW2Y7N250428-00	1	13178	13,178	100.0	2.0	RRM-521	0	0	0
05/07/25	UW2Y7N250507-00	1	13362	26,540	99.9	2.0	RRM-521	0	0	0
05/22/25	UW2P7250505-00	1	13147	39,687	100.0	2.0	RRM-521	0	0	0
					Average CBCS Screen Passing Pixels (%) =	100.0				
					Total Quantity Approved (yd^3) =	39,687				
					Total # of Nuclear Density Gauge Tests =	0				
					Total # of Moisture Tests =	3				
					Quantity per Moisture Test (yd^3) =	13,229				
					Total Average Thickness (ft) =	2.0				

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

CBCS screen shot example from May 2025. There are compaction screen shots 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 2025										
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 (%)
06/02/25	UW2K11250521-00	0	9551	9,551	99.7	2.0	N/A	0	0	0
06/05/25	UW2O21250529-00	0	6466	16,017	97.8	1.8	N/A	0	0	0
06/05/25	UW1W19250527-00	1	10637	26,654	100.0	2.0	RRM-521	0	0	0
06/09/25	UW2V20250603-00	0	4138	30,792	100.0	1.9	N/A	0	0	0
06/10/25	UW2O21250605-00	0	6856	37,648	100.0	1.9	N/A	0	0	0
06/10/25	UW2V20250609-00	0	4307	41,955	100.0	2.0	N/A	0	0	0
06/10/25	UW2O21250610-00	1	7168	49,123	100.0	2.0	RRM-521	0	0	0
06/16/25	UW2V20250612-00	0	3182	52,305	100.0	2.0	N/A	0	0	0
06/19/25	UW2Z18250617-00	1	4695	57,000	N/A	2.0	RRM-521	0	0	0
06/19/25	UW2X15250617-00	0	4830	61,830	N/A	2.0	N/A	0	0	0
06/24/25	UW2Z18250619-00	1	4191	66,021	98.7	1.8	RRM-521	0	0	0
06/25/25	UW2X15250624-00	0	4336	70,357	99.2	1.8	N/A	0	0	0
06/30/25	UW2Z18250625-00	0	4556	74,913	98.0	2.0	N/A	0	0	0
				Average CBCS Screen Passing Pixels (%) =		99.4				
				Total Quantity Approved (yd^3) =		74,913				
				Total # of Nuclear Density Gauge Tests =		0				
				Total # of Moisture Tests =		4				
				Quantity per Moisture Test (yd^3) =		18,728				
				Total Average Thickness (ft) =		1.9				
2' Sacrificial lift UW2V20250612-00 & UW2X15250617-00										

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

CBCS screen shot example from June 2025. There are compaction screen shots 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 2025										
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 (%)
07/01/25	UW2X15250626-00	0	4914	4,914	99.2	2.0	N/A	0	0	0
07/02/25	UW3A26250702-00	0	597	5,511	N/A	2.0	N/A	0	0	0
07/02/25	UW2Z18250701-00	1	4641	10,152	99.2	2.0	RRM-521	0	0	0
07/02/25	UW3A26250702-01	0	579	10,731	99.2	1.9	N/A	0	0	0
07/03/25	UW3A26250703-00	0	617	11,348	99.3	2.0	N/A	0	0	0
07/03/25	UW3A26250703-01	0	595	11,943	99.2	2.0	N/A	0	0	0
07/09/25	UW2X13250702-00	0	11,537	23,480	99.0	2.0	N/A	0	0	0
07/10/25	UW2Z18250708-00	2	4909	28,389	99.9	2.0	RRM-521	0	0	0
07/16/25	UW2X13250710-00	0	10,009	38,398	99.7	1.9	N/A	0	0	0
07/16/25	UW2O22250616-00	0	4,836	43,234	100.0	2.0	N/A	0	0	0
07/17/25	UW2Z18250716-00	2	5,004	48,238	100.0	2.0	RRM-521	0	0	0
07/23/25	UW2X13250717-00	2	10,330	58,568	100.0	2.0	RRM-521	0	0	0
07/24/25	UW2Z18250723-00	0	4,575	63,143	100.0	2.0	N/A	0	0	0
07/30/25	UW2X13250724-00	4	8,460	71,603	100.0	2.0	RRM-521	0	0	0
07/30/25	UW2Z18250730-00	0	4419	76,022	99.2	1.9	N/A	0	0	0
				Average CBCS Screen Passing Pixels (%) =	99.6					
				Total Quantity Approved (yd³) =	76,022					
				Total # of Nuclear Density Gauge Tests =	0					
				Total # of Moisture Tests =	11					
				Quantity per Moisture Test (yd³) =	6,911					
				Total Average Thickness (ft) =	2.0					
UW3A26250702-00 is a 2' Sacrificial lift										

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

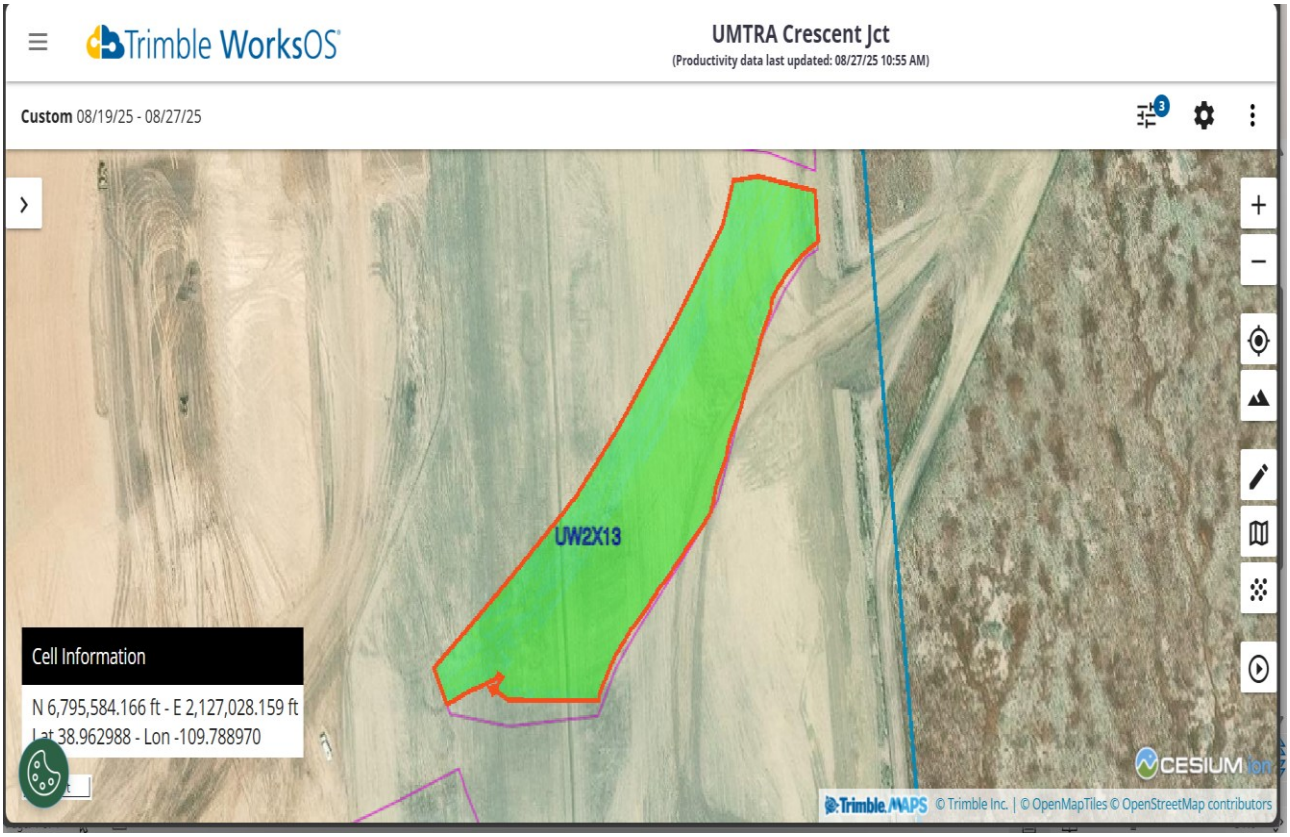
CBCS screen shot example from July 2025. There are compaction screen shots for each lift approved on record. The number of passing pixels reported refers to the percentage of the lift which has green pixels. A green pixel verifies that the minimum of six-wheel passes with the compactor has been recorded.

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

August 2025										
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 (%)
08/05/25	UW2X13250730-00	0	8310	8,310	100.0	2.0	N/A	0	0	0
08/07/25	UW2O22250805-00	2	8129	16,439	99.8	2.0	RRM-521	0	0	0
08/13/25	UW2Z18250807-00	7	4,549	20,988	92.4	2.0	RRM-521	6	0	97.7
08/19/25	UW2X13250811-00	1	8,334	29,322	100.0	2.0	RRM-521	0	0	0
08/21/25	UW2P23250814-00	1	8,273	37,595	99.4	2.0	RRM-521	0	0	0
08/27/25	UW2X13250819-00	1	8,608	46,203	100.0	2.0	RRM-521	0	0	0
08/27/25	UW3F6N250821-00	0	3,611	49,814	100.0	1.8	N/A	0	0	0
					Average CBCS Screen Passing Pixels (%) =	98.8				
					Total Quantity Approved (yd^3) =	49,814				
					Total # of Nuclear Density Gauge Tests =	6				
					Total # of Moisture Tests =	12				
					Quantity per Moisture Test (yd^3) =	4,151				
					Total Average Thickness (ft) =	2.0				

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

CBCS screens shot example from August 2025. There are compaction screen shots 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 2025										
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 (%)
09/02/25	UW2P23250825-00	2	8083	8,083	99.7	2.0	RRM-521	0	0	0
09/08/25	UW2X13250827-00	0	8523	16,606	100.0	2.0	N/A	0	0	0
09/08/25	UW3F6N250902-00	2	3,932	20,538	100.0	2.0	RRM-521	0	0	0
09/09/25	UW2P23250904-00	0	8,260	28,798	100.0	2.0	N/A	0	0	0
09/15/25	UW2X13250908-00	1	8,579	37,377	100.0	2.0	RRM-521	0	0	0
09/17/25	UW2P23250911-00	1	7,180	44,557	98.5	1.9	RRM-521	0	0	0
09/22/25	UW2X13250915-00	0	8,319	52,876	100.0	2.0	N/A	0	0	0
09/22/25	UW2P23250918-00	0	7,400	60,276	100.0	2.0	N/A	0	0	0
09/24/25	UW2X13250922-00	0	8,316	68,592	99.8	2.0	N/A	0	0	0
09/29/25	UW2Q23250924-00	0	3366	71,958	100.0	2.0	N/A	0	0	0

Average CBCS Screen Passing Pixels (%) = 99.8

Total Quantity Approved (yd^3) = 71,958

Total # of Nuclear Density Gauge Tests = 0

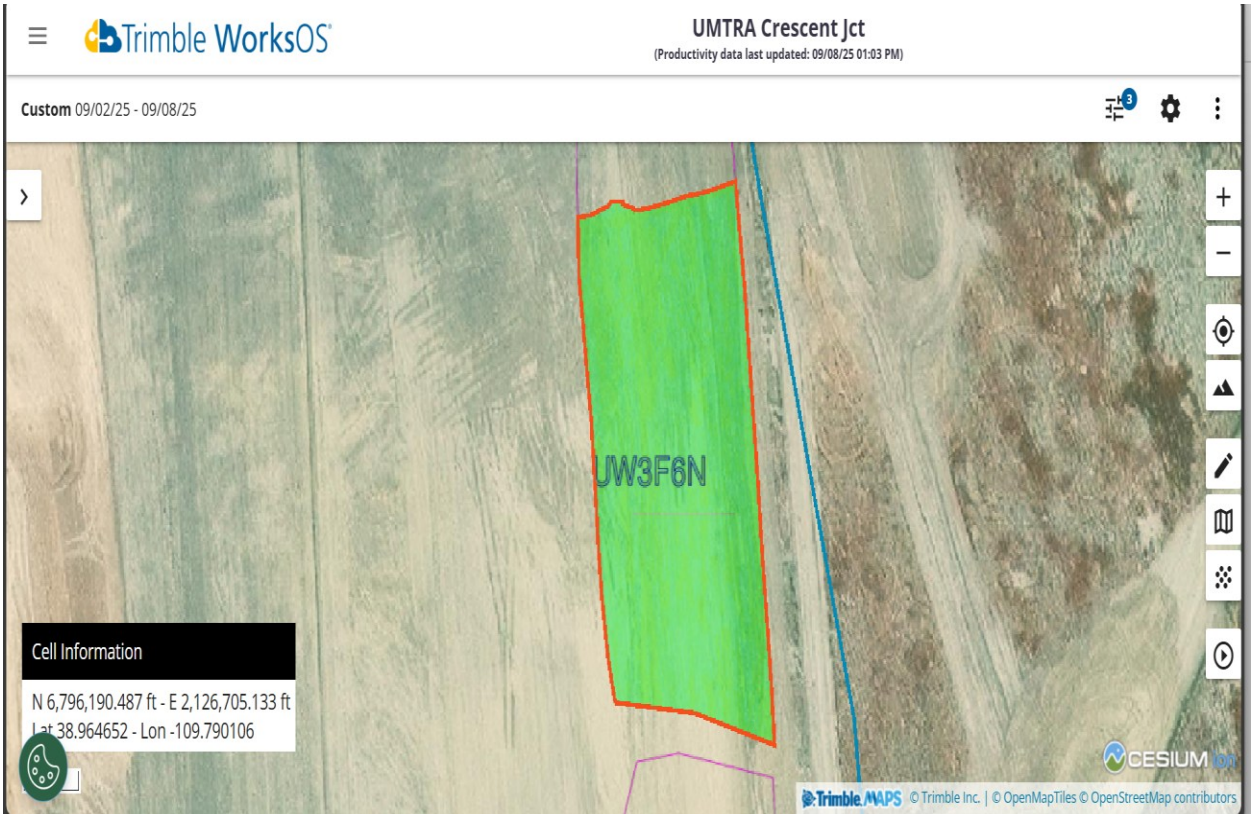
Total # of Moisture Tests = 6

Quantity per Moisture Test (yd^3) = 11,993

Total Average Thickness (ft) = 2.0

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

CBCS screen shot example from September 2025. There are compaction screen shots 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.

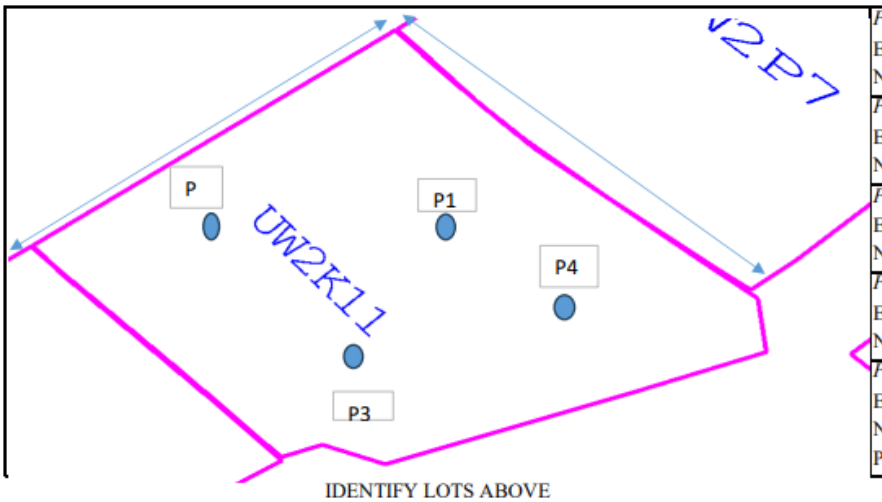


Appendix A2. RRM Lift Approval Package

LIFT APPROVAL FORM

PROJECT: Moab UMTRA **OTHER**

NW CORNER **DATE:** 3/20/2025



P 1	NE Corner					
EW:	378	X	0.550	=	208	
NS:	352	X	0.360	=	127	
P 2	NE Corner					
EW:	378	X	0.280	=	106	
NS:	352	X	0.660	=	232	
P 3	SE Corner					
EW:	378	X	0.450	=	170	
NS:	352	X	0.750	=	264	
P 4	SE Corner					
EW:	378	X	0.280	=	106	
NS:	352	X	0.380	=	134	
P 5	N					
EW:		X		=		
NS:		X	A	=		

Page 2 attached: Y N

IDENTIFY LOTS ABOVE

LIFT ID: UW2K11250320-00 NW CORNER: 6795628 N 2125494 E

Uncompacted Thickness: 2.0 Compacted Thickness: N/A Debris Insp. By: N/A Date: N/A Time: N/A

NW CORNER of debris placement: N/A EW Dimension 378' NS Dimension 352'

Lift Area (ft²): 127,513 Lift Volume (yd³): 9,615

Comments: :This is the second lift in the 707. QC visually confirmed that the lift area was scarified and moisture conditioned prior to placement. QC visually observed the material being placed to have proper moisture for compaction. QC verified material compaction using the CBCS . QC conducted visual assessments throughout the shift. This lift was compacted with the 825H. All debris pipe and ducts that are 6" or greater in diameter shall be crushed , or if crushing is impractical, shall be cut in half longitudinally or filled. Debris shall be spread and /or oriented in a manner that results in a minimum of voids and contain no free liquids . QC performed 11 nuclear density tests using proctor DB5-20210408 with an optium of 16.8 sandy lean clay like material, and one sandcone. This lift passed, each hole had a 6", 12" and 18" hole.

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

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

LIFT APPROVED BY: Tammy Hooker DATE: 3/27/2025 TIME: 1406

QA/QC APPROVAL DATE

Density Testing
DOE-EM/GJRAC1783
Rev. 1

QC-F-001
File index No. 43.8.2
Page ___ of ___

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

Slope Elevation Survey

Average lift thickness=	2.0	Bounding Box	Northing	Easting	
Grid Size=	60'	Lower Left	N		
Lift ID:	UW2K11250320-00	Upper Right		A	

Last Lift Elevations			Lift Approval Elevations			Lift Thickness
Northing	Easting	Elevation	Northing	Easting	Elevation	Thickness
6,795,314	2,125,384	4,978.3	6,795,314	2,125,384	4,980.2	1.9
6,795,314	2,125,444	4,977.8	6,795,314	2,125,444	4,979.9	2.2
6,795,314	2,125,564	4,977.3	6,795,314	2,125,564	4,979.2	1.8
6,795,314	2,125,624	4,976.8	6,795,314	2,125,624	4,978.9	2.1
6,795,374	2,125,324	4,980.1	6,795,374	2,125,324	4,982.1	2.0
6,795,374	2,125,384	4,979.7	6,795,374	2,125,384	4,981.7	2.0
6,795,374	2,125,444	4,979.2	6,795,374	2,125,444	4,981.4	2.2
6,795,374	2,125,504	4,978.8	6,795,374	2,125,504	4,981.0	2.2
6,795,374	2,125,564	4,978.8	6,795,374	2,125,564	4,980.7	1.9
6,795,374	2,125,624	4,978.3	6,795,374	2,125,624	4,980.4	2.0
6,795,374	2,125,684	4,978.0	6,795,374	2,125,684	4,980.1	2.1
6,795,374	2,125,744	4,977.5	6,795,374	2,125,744	4,979.7	2.2
6,795,434	2,125,264	4,981.9	6,795,434	2,125,264	4,983.9	2.0
6,795,434	2,125,324	4,981.4	6,795,434	2,125,324	4,983.5	2.2
6,795,434	2,125,384	4,981.2	6,795,434	2,125,384	4,983.2	2.0
6,795,434	2,125,444	4,980.8	6,795,434	2,125,444	4,982.8	2.0
6,795,434	2,125,504	4,980.4	6,795,434	2,125,504	4,982.5	2.1
6,795,434	2,125,564	4,980.1	6,795,434	2,125,564	4,982.2	2.1
6,795,434	2,125,624	4,979.9	6,795,434	2,125,624	4,981.9	1.9
6,795,434	2,125,684	4,979.4	6,795,434	2,125,684	4,981.5	2.1
6,795,494	2,125,324	4,983.1	6,795,494	2,125,324	4,985.0	1.9
6,795,494	2,125,384	4,982.5	6,795,494	2,125,384	4,984.7	2.1
6,795,494	2,125,444	4,982.1	6,795,494	2,125,444	4,984.3	2.2
6,795,494	2,125,504	4,982.1	6,795,494	2,125,504	4,984.1	1.9
6,795,494	2,125,564	4,981.5	6,795,494	2,125,564	4,983.6	2.1
6,795,494	2,125,624	4,981.1	6,795,494	2,125,624	4,983.3	2.2
6,795,554	2,125,384	4,984.2	6,795,554	2,125,384	4,986.1	2.0
6,795,554	2,125,444	4,983.8	6,795,554	2,125,444	4,985.8	2.0
6,795,554	2,125,504	4,983.3	6,795,554	2,125,504	4,985.4	2.0
6,795,554	2,125,564	4,983.1	6,795,554	2,125,564	4,985.1	1.9
6,795,614	2,125,504	4,984.9	6,795,614	2,125,444	4,987.2	2.3
6,795,614	2,125,504	4,984.9	6,795,614	2,125,444	4,986.4	1.5
						0.0
						0.0
						0.0
				N		0.0
				A th 3/25/2025		0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0

% =4	99.9%
Elevation Avg	4982.8
Total =4	11014
Total Lines	11029

Pass

Minimum Number of Machine Passes
4

Lift ID: UW2K11250320-00

Northing	Easting	Elevation	# of Passes	Passes =4	Count
6795272	2125392	4978.9	7	1	1
6795272	2125396	4978.9	5	1	1
6795275	2125389	4979.0	8	1	1
6795275	2125392	4979.0	10	1	1
6795275	2125396	4979.0	9	1	1
6795275	2125399	4979.0	7	1	1
6795275	2125402	4978.8	7	1	1
6795278	2125386	4979.1	6	1	1
6795278	2125389	4979.0	9	1	1
6795278	2125392	4979.1	8	1	1
6795278	2125396	4979.0	8	1	1
6795278	2125399	4979.1	13	1	1
6795278	2125402	4979.1	11	1	1
6795278	2125406	4979.0	8	1	1
6795281	2125383	4979.1	6	1	1
6795281	2125386	4979.1	7	1	1
6795281	2125389	4979.1	7	1	1
6795281	2125392	4979.2	8	1	1
6795281	2125396	4979.1	10	1	1
6795281	2125399	4979.1	9	1	1
6795281	2125402	4979.1	14	1	1
6795281	2125406	4979.2	9	1	1
6795281	2125409	4979.1	7	1	1
6795281	2125412	4978.8	6	1	1
6795285	2125379	4979.4	6	1	1
6795285	2125383	4979.4	7	1	1
6795285	2125386	4979.3	7	1	1
6795285	2125389	4979.2	5	1	1
6795285	2125392	4979.2	7	1	1
6795285	2125396	4979.3	6	1	1
6795285	2125399	4979.2	11	1	1
6795285	2125402	4979.3	9	1	1
6795285	2125406	4979.2	5	1	1
6795285	2125409	4979.1	9	1	1
6795285	2125412	4979.2	7	1	1
6795285	2125416	4979.0	6	1	1
6795288	2125376	4979.3	10	1	1
6795288	2125379	4979.2	11	1	1
6795288	2125383	4979.3	9	1	1
6795288	2125386	4979.4	6	1	1
6795288	2125389	4979.4	7	1	1
6795288	2125392	4979.3	6	1	1
6795288	2125396	4979.3	7	1	1
6795288	2125399	4979.3	10	1	1

Lift Height
1' 0"

Thick Lift Threshold
2' 0"

Last Lift Elevation
N/A


Trimble WorksOS
UMTRA Crescent Jct
(Productivity data last updated: 03/26/25 03:27 PM)
Custom 03/20/25 - 03/26/25
UW2P7
UW2K11

FIELD DENSITY TEST

PROJECT: Moab UMTRA | **Standard Count:** | **Date:** 3/27/2025
Lift ID: UW2K11250320-00 | MS= 492 494 423
Make/Model: Troxler 3430 | DS= 1995 2352 2366 | **Gauge Calibration Date:** 1/28/2025
Task RRM | **Sand-Cone and Plate No.** N/A | **Sand-Cone Calibration Date:** N/A

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
P3	6	See Map on Pg. 1	X		110.0	16.1	123.2	109.5	12.5	99.5	P	CL	DB3-20200422	3/27/2025
	12	See Map on Pg. 1		X	105.7	18.6	112.0	100.1	11.9	94.7	P	CL	DB6-20210707	3/27/2025
	18	See Map on Pg. 1	X		110.0	16.1	126.8	110.6	14.6	100.5	P	CL	DB5-20210408	3/27/2025
P4	6	See Map on Pg. 1	X		108.5	16.8	115.8	102.8	12.6	94.7	P	CL	DB5-20210408	3/27/2025
	12	See Map on Pg. 1	X		108.5	16.8	120.1	108.1	11.1	99.6	P	CL	DB5-20210408	3/27/2025
	18	See Map on Pg. 1	X		105.7	18.6	119.3	104.1	14.6	98.5	P	CL	DB6-20210707	3/27/2025

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

Moisture Content:	P3@-6"	Moisture Content:	P4@-6"
A. Container No.	P-4	A. Container No.	P-2
B. Container Mass (g):	288.3	B. Container Mass:	287.8
C. Mass of Container & Wet Soil (g)	705	C. Mass of Container & Wet Soil	635.3
D. Mass of Container & Dry Soil (g)	658.7	D. Mass of Container & Dry Soil	596.3
E. Moisture Content (%)	12.50	E. Moisture Content	12.64

ASTM D698

Testing By: Alfredo Tellez/ **Date:** 3/27/2025 **QA/QC:** Tammy Hooker
Print / Signature Print / Signature

QC-F-002
Revision 1

File index No. 43.8.2
Page___ of ___

FIELD DENSITY TEST

PROJECT: Moab UMTRA | **Standard Count:** | **Date:** 3/27/2025
Lift ID: UW2K11250320-00 | MS= 492 494 493
Make/Model: Troxler 3430 | DS= 1995 2362 2337 | **Gauge Calibration Date:** 1/28/2025
Task RRM | **Sand-Cone and Plate No.** N/A | **Sand-Cone Calibration Date:** N/A

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
P1	6	See Map on Pg. 1	X		108.5	16.8	116.9	103.5	12.9	95.4	P	CL	DB5-20210408	3/27/2025
P1	12	See Map on Pg. 1	X		108.5	16.8	117.4	102.5	14.5	94.5	P	CL	DB5-20210408	3/27/2025
P1	18	See Map on Pg. 1	X		108.5	16.8	110.2	98.8	11.5	91.1	P	CL	DB5-20210408	3/27/2025
P2	6	See Map on Pg. 1	X		110.0	16.1	124.9	110.9	12.6	100.8	P	CL	DB3-20200422	3/27/2025
P2	12	See Map on Pg. 1	X		108.5	16.8	112.5	100.4	12.1	92.5	P	CL	DB5-20210408	3/27/2025
P2	18	See Map on Pg. 1	X		108.5	16.8	111.4	98.4	13.2	90.7	P	CL	DB5-20210408	3/27/2025

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

Moisture Content:	P1@-6"	Moisture Content:	P2@-6"
A. Container No.	CAT	A. Container No.	A-1
B. Container Mass (g):	216.7	B. Container Mass:	214
C. Mass of Container & Wet Soil (g)	539.8	C. Mass of Container & Wet Soil	472.8
D. Mass of Container & Dry Soil (g)	502.9	D. Mass of Container & Dry Soil	443.9
E. Moisture Content (%)	12.89	E. Moisture Content	12.57

ASTM D698

Testing By: Alfredo Tellez **Date:** 3/27/2025 **QA/QC Rep:** Tammy Hooker/
Print / Signature Print / Signature

QC-F-002
Revision 1

File index No. 43.8.2
Page___ of ___

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

Project: Moab UMTRA **Report Date:** 3/27/2025

Lift ID: UW2K11250320-00

Item #	Sample ID: P1-12		Resulting % M.C.
1)	Container ID:	DOG	
2)	Mass of container:	289.8	
3)	Mass of container & wet soil:	674.5	
4)	Mass of container & dry soil:	625.7	14.53

Item #	Sample ID: P2-12		Resulting % M.C.
1)	Container ID:	P-3	
2)	Mass of container:	287.2	
3)	Mass of container & wet soil:	622.7	
4)	Mass of container & dry soil:	586.4	12.13

Item #	Sample ID: P1-18		Resulting % M.C.
1)	Container ID:	P-1	
2)	Mass of container:	289.9	
3)	Mass of container & wet soil:	706.1	
4)	Mass of container & dry soil:	663.2	11.49

Item #	Sample ID: P2-18		Resulting % M.C.
1)	Container ID:	P-2	
2)	Mass of container:	287.1	
3)	Mass of container & wet soil:	614.1	
4)	Mass of container & dry soil:	575.9	13.23

Item #	Sample ID:		Resulting % M.C.
1)	Container ID: N		
2)	Mass of container: A		
3)	Mass of container & wet soil:		
4)	Mass of container & dry soil:		#DIV/0!

Item #	Sample ID:		Resulting % M.C.
1)	Container ID: N		
2)	Mass of container: A		
3)	Mass of container & wet soil:		
4)	Mass of container & dry soil:		#DIV/0!

$$\% \text{ M.C.} = \frac{\text{Item (3)} - \text{Item (4)}}{\text{Item (4)} - \text{Item (2)}} \text{x} 100$$

Project: Moab UMTRA **Report Date:** 3/27/2025

Lift ID: UW2K11250320-00

Item #	Sample ID: *P3-12		Resulting % M.C.
1)	Container ID:	P-5	
2)	Mass of container:	288	
3)	Mass of container & wet soil:	745.9	
4)	Mass of container & dry soil:	697.2	11.90

Item #	Sample ID: *P4-12		Resulting % M.C.
1)	Container ID:	A-1	
2)	Mass of container:	214.0	
3)	Mass of container & wet soil:	471.0	
4)	Mass of container & dry soil:	445.3	11.11

Item #	Sample ID: *P3-18		Resulting % M.C.
1)	Container ID:	CAT	
2)	Mass of container:	216.6	
3)	Mass of container & wet soil:	547	
4)	Mass of container & dry soil:	504.8	14.64

Item #	Sample ID: *P4-18		Resulting % M.C.
1)	Container ID:	P-3	
2)	Mass of container:	287.0	
3)	Mass of container & wet soil:	641.1	
4)	Mass of container & dry soil:	606.8	10.73

Item #	Sample ID:		Resulting % M.C.
1)	Container ID: N		
2)	Mass of container: A		
3)	Mass of container & wet soil:		
4)	Mass of container & dry soil:		#DIV/0!

Item #	Sample ID:		Resulting % M.C.
1)	Container ID: N		
2)	Mass of container: A		
3)	Mass of container & wet soil:		
4)	Mass of container & dry soil:		#DIV/0!

$$\% \text{ M.C.} = \frac{\text{Item (3)} - \text{Item (4)}}{\text{Item (4)} - \text{Item (2)}} \text{x} 100$$

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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: 06/10/2025

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

Excavation Area	Lift Area
TOP OF WASTE	UW2Y7N250522-00

Approver Name/Title	Signature	Sign Date
Don Janz/ CJ Operations/Site Mgr.		6/10/25
Tammy Hooker/ QA/QC Representative		6/10/2025
Alfredo Tellez/ QA/QC Representative		6-10-2025
Kathy Turvy/ QA/AC Manager	Kathy Turvy	6-10-2025
Comments		
. This lift was placed in 2' lifts, compacted, graded, and surveyed.		

Appendix A2. Top of Waste Buyoff Survey *(continued)*

Top of Waste Grade Verification Survey

Buyoff ID: UW27N250522-00 — **Date: 6/4/2025**

Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Δ in feet	Δ in inches
12815_stk	6795860.03	2126000.04	4993.08	4993.06	0.02	0.3
12778_stk	6795859.99	2125950.02	4993.12	4993.09	0.03	0.4
12742_stk	6795859.98	2125900.01	4993.13	4993.12	0.01	0.1
12707_stk	6795909.96	2125849.99	4992.19	4992.14	0.05	0.6
12743_stk	6795909.95	2125900.04	4992.14	4992.11	0.03	0.4
12779_stk	6795910.02	2125949.97	4992.14	4992.08	0.06	0.7
12816_stk	6795910.00	2126000.01	4992.10	4992.05	0.05	0.6
12817_stk	6795960.00	2126000.03	4991.07	4991.04	0.03	0.3
12780_stk	6795959.99	2125949.95	4991.12	4991.07	0.05	0.6
12744_stk	6795960.02	2125899.96	4991.14	4991.10	0.04	0.5
12708_stk	6795959.98	2125850.00	4991.16	4991.13	0.03	0.3
12709_stk	6796010.06	2125849.96	4990.14	4990.12	0.02	0.2
12745_stk	6796009.97	2125899.96	4990.15	4990.09	0.06	0.7
12781_stk	6796010.00	2125950.04	4990.09	4990.06	0.03	0.4
12818_stk	6796010.02	2125999.97	4990.06	4990.03	0.03	0.3
12819_stk	6796059.99	2125999.99	4989.05	4989.02	0.03	0.4
12820_stk	6796110.00	2126000.04	4988.04	4988.01	0.03	0.3
12783_stk	6796109.99	2125950.03	4988.06	4988.04	0.02	0.2
12782_stk	6796060.01	2125949.96	4989.06	4989.05	0.01	0.2
12746_stk	6796060.03	2125900.01	4989.14	4989.08	0.06	0.7
12710_stk	6796060.02	2125850.04	4989.15	4989.11	0.03	0.4
12711_stk	6796110.02	2125849.98	4988.12	4988.10	0.02	0.2
12747_stk	6796109.96	2125900.00	4988.11	4988.07	0.03	0.4
12712_stk	6796159.99	2125850.04	4987.13	4987.09	0.04	0.5
12748_stk	6796160.05	2125900.03	4987.12	4987.06	0.05	0.6
12784_stk	6796160.04	2125949.98	4987.08	4987.03	0.04	0.5
12821_stk	6796159.96	2126000.00	4987.02	4987.00	0.02	0.3
12858_stk	6796159.97	2126049.97	4987.02	4986.97	0.06	0.7
12859_stk	6796209.97	2126050.04	4985.98	4985.96	0.02	0.3
12822_stk	6796210.00	2125999.96	4986.03	4985.99	0.04	0.5
12785_stk	6796209.99	2125949.99	4986.05	4986.02	0.03	0.4
12749_stk	6796209.98	2125899.98	4986.07	4986.05	0.02	0.2
12750_stk	6796260.05	2125900.01	4985.05	4985.04	0.01	0.1
12786_stk	6796260.03	2125949.99	4985.03	4985.01	0.02	0.2
12823_stk	6796260.03	2125999.99	4985.03	4984.98	0.05	0.6
12860_stk	6796260.05	2126050.03	4985.00	4984.95	0.05	0.6
12861_stk	6796309.96	2126050.03	4984.00	4983.94	0.06	0.7
12824_stk	6796310.04	2126000.01	4984.01	4983.97	0.04	0.5
12787_stk	6796310.00	2125949.98	4984.03	4984.00	0.03	0.4
12751_stk	6796310.06	2125900.00	4984.09	4984.03	0.06	0.7
12788_stk	6796360.03	2125950.02	4983.02	4982.99	0.03	0.4
12825_stk	6796360.02	2126000.02	4983.00	4982.96	0.04	0.5
12862_stk	6796360.02	2126050.02	4982.96	4982.93	0.03	0.4
12857_stk	6796109.97	2126050.02	4988.02	4987.98	0.04	0.5
12856_stk	6796060.02	2126050.03	4989.03	4988.99	0.04	0.5
12855_stk	6796009.97	2126049.98	4990.06	4990.00	0.06	0.7
12854_stk	6795960.03	2126050.00	4991.03	4991.01	0.03	0.3
12853_stk	6795910.03	2126050.00	4992.03	4992.02	0.01	0.2
12852_stk	6795860.03	2126050.00	4993.07	4993.03	0.04	0.5
12889_stk	6795860.03	2126100.01	4993.03	4993.00	0.03	0.4
12890_stk	6795909.98	2126099.99	4992.01	4991.99	0.02	0.2
12891_stk	6795959.95	2126100.01	4991.01	4990.98	0.03	0.4
12892_stk	6796009.98	2126100.00	4990.00	4989.97	0.03	0.4
12893_stk	6796060.04	2126100.00	4989.00	4988.96	0.04	0.5
12894_stk	6796109.98	2126100.04	4988.00	4987.95	0.06	0.7
12895_stk	6796160.04	2126100.03	4986.99	4986.94	0.05	0.6
12896_stk	6796210.00	2126100.02	4985.96	4985.93	0.03	0.4
12897_stk	6796260.02	2126100.00	4984.97	4984.92	0.05	0.6
12898_stk	6796310.03	2126100.02	4983.95	4983.91	0.04	0.5
12899_stk	6796360.00	2126100.05	4982.94	4982.90	0.04	0.5
12936_stk	6796359.97	2126150.00	4982.92	4982.87	0.05	0.6
12972_stk	6796360.04	2126199.99	4982.87	4982.84	0.04	0.5
12971_stk	6796310.03	2126200.02	4983.87	4983.85	0.02	0.3
12935_stk	6796310.01	2126149.98	4983.91	4983.88	0.04	0.4
12934_stk	6796260.04	2126149.98	4984.92	4984.89	0.03	0.4
12970_stk	6796259.99	2126200.04	4984.90	4984.86	0.04	0.5

Top of Waste
Grade Verification Form

NORTHWIND PORTAGE, INC.

12969_stk	6796210.00	2126199.96	4985.91	4985.87	0.05	0.5
12933_stk	6796210.01	2126150.01	4985.93	4985.90	0.03	0.4
12932_stk	6796159.99	2126150.02	4986.93	4986.91	0.02	0.3
12968_stk	6796160.02	2126200.05	4986.90	4986.88	0.03	0.3
12967_stk	6796110.06	2126200.00	4987.93	4987.89	0.04	0.5
12931_stk	6796110.01	2126150.03	4987.97	4987.92	0.05	0.6
12930_stk	6796059.97	2126149.98	4988.96	4988.93	0.03	0.4
12966_stk	6796060.01	2126200.04	4988.95	4988.90	0.06	0.7
12929_stk	6796009.98	2126149.98	4989.98	4989.94	0.04	0.5
12928_stk	6795960.03	2126150.01	4990.97	4990.95	0.03	0.3
12927_stk	6795909.99	2126149.99	4991.97	4991.96	0.01	0.2
12965_stk	6796010.04	2126200.02	4989.93	4989.91	0.02	0.3
12926_stk	6795860.03	2126149.97	4992.99	4992.97	0.03	0.3
12888_stk	6795809.97	2126099.99	4992.11	4992.07	0.04	0.5

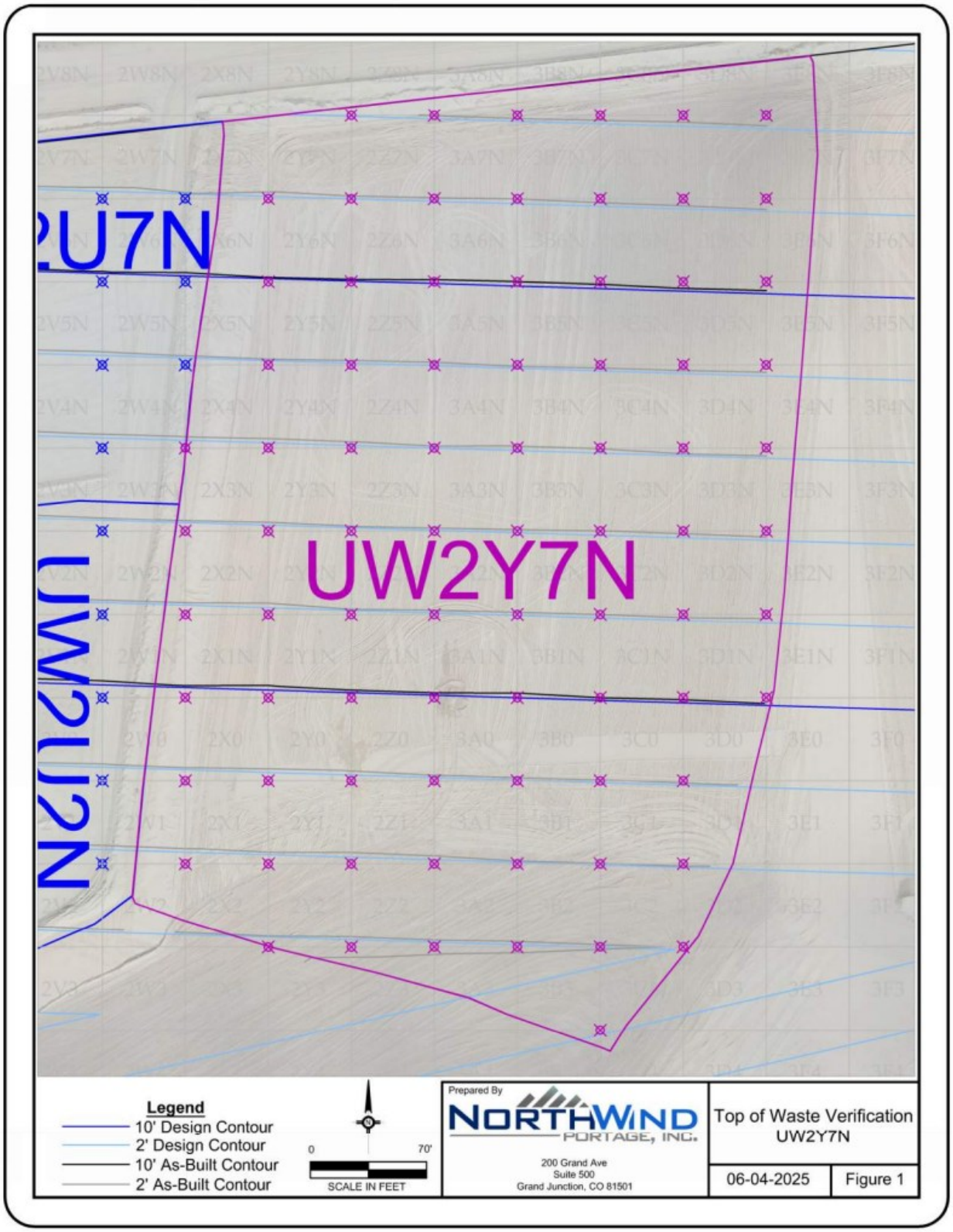
Comments: QC performed a visual inspection of the final surface with satisfactory results. The grading tolerance for the top of waste is -0 FT to +0.17 FT (-0 IN to +2 IN).

Approval Date: 6-10-25 — Total Square Feet: 194,013 FT²

Northwest Corner: N: 6796356 E: 2125873

QC Signature: — Reviewed By:

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: 06/23/2025

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

Excavation Area	Lift Area
TOP OF WASTE	UW2P7250611-00

Approver Name/Title	Signature	Sign Date
Don Janz/ CJ Operations/Site Mgr.		6/23/25
Tammy Hooker/ QA/QC Representative		6-23-25
Alfredo Tellez/ QA/QC Representative		6-23-25
Kathy Turvy/ QA/AC Manager	Kathy Turvy	6/23/2025
Comments		
. This lift was placed in 2' lifts, compacted, graded, and surveyed.		

Top of Waste Grade Verification Survey

Buyoff ID: UW2P7250611-00 — Date: 6/22/2025

Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Δ in feet	Δ in inches
12706_stk	6795859.96	2125850.01	4993.19	4993.15	0.03	0.4
12670_stk	6795859.96	2125799.99	4993.21	4993.18	0.03	0.4
12633_stk	6795810.01	2125749.99	4994.07	4994.04	0.03	0.4
12597_stk	6795809.99	2125699.99	4994.27	4994.25	0.01	0.1
12669_stk	6795810.04	2125800.00	4993.79	4993.76	0.03	0.3
12705_stk	6795809.96	2125849.99	4993.53	4993.48	0.05	0.6
12741_stk	6795809.99	2125900.01	4993.24	4993.19	0.04	0.5
12777_stk	6795809.98	2125950.01	4992.96	4992.91	0.05	0.6
12814_stk	6795810.03	2126000.04	4992.64	4992.63	0.01	0.2
12851_stk	6795810.01	2126049.97	4992.40	4992.35	0.05	0.6
12850_stk	6795760.03	2126050.05	4991.15	4991.12	0.02	0.3
12813_stk	6795759.96	2126000.02	4991.45	4991.41	0.05	0.6
12776_stk	6795760.00	2125950.01	4991.73	4991.69	0.05	0.6
12740_stk	6795760.04	2125899.97	4991.99	4991.97	0.02	0.3
12704_stk	6795759.96	2125849.97	4992.28	4992.25	0.03	0.4
12668_stk	6795760.01	2125799.96	4992.59	4992.53	0.05	0.6
12632_stk	6795760.01	2125750.01	4992.84	4992.82	0.03	0.3
12596_stk	6795760.05	2125700.00	4993.13	4993.10	0.03	0.4
12559_stk	6795759.96	2125649.97	4993.40	4993.38	0.02	0.2
12521_stk	6795710.02	2125599.98	4992.45	4992.44	0.02	0.2
12484_stk	6795709.95	2125549.97	4992.77	4992.72	0.05	0.6
12522_stk	6795760.04	2125599.97	4993.70	4993.66	0.04	0.4
12558_stk	6795709.98	2125650.00	4992.19	4992.15	0.04	0.5
12595_stk	6795710.01	2125700.02	4991.90	4991.87	0.02	0.3
12631_stk	6795709.95	2125749.98	4991.60	4991.59	0.01	0.1
12667_stk	6795709.96	2125800.02	4991.34	4991.31	0.03	0.3
12703_stk	6795710.02	2125850.03	4991.07	4991.03	0.04	0.5
12739_stk	6795710.04	2125900.03	4990.79	4990.74	0.05	0.6
12775_stk	6795710.01	2125950.04	4990.51	4990.46	0.04	0.5
12812_stk	6795710.03	2126000.00	4990.22	4990.18	0.04	0.4
12811_stk	6795660.03	2126000.02	4988.97	4988.95	0.02	0.2
12774_stk	6795660.03	2125950.03	4989.27	4989.24	0.03	0.4
12738_stk	6795660.02	2125900.00	4989.54	4989.52	0.02	0.3
12702_stk	6795659.98	2125849.97	4989.83	4989.80	0.03	0.3
12666_stk	6795659.99	2125799.99	4990.10	4990.08	0.02	0.2
12630_stk	6795659.97	2125750.04	4990.38	4990.36	0.02	0.2
12594_stk	6795659.96	2125699.99	4990.67	4990.65	0.02	0.3
12557_stk	6795660.01	2125650.04	4990.95	4990.93	0.02	0.3
12520_stk	6795659.98	2125599.95	4991.23	4991.21	0.02	0.3
12483_stk	6795659.97	2125549.98	4991.55	4991.49	0.05	0.6
12446_stk	6795659.96	2125499.98	4991.83	4991.78	0.05	0.6
12445_stk	6795610.05	2125500.01	4990.57	4990.55	0.02	0.2
12482_stk	6795610.02	2125549.95	4990.30	4990.27	0.03	0.3
12519_stk	6795610.02	2125600.00	4990.00	4989.98	0.01	0.2
12556_stk	6795609.98	2125650.02	4989.73	4989.70	0.02	0.3
12593_stk	6795610.01	2125699.97	4989.44	4989.42	0.02	0.2
12629_stk	6795610.02	2125749.98	4989.19	4989.14	0.05	0.6
12665_stk	6795610.04	2125799.98	4988.90	4988.86	0.05	0.6
12701_stk	6795610.00	2125849.94	4988.62	4988.57	0.04	0.5
12737_stk	6795609.94	2125900.06	4988.33	4988.29	0.04	0.4
12743_stk	6795609.96	2125899.98	4988.31	4988.29	0.01	0.2
12773_stk	6795610.03	2125949.97	4988.04	4988.01	0.03	0.4
12736_stk	6795560.00	2125900.05	4987.08	4987.07	0.01	0.1
12700_stk	6795559.97	2125849.96	4987.37	4987.35	0.02	0.3
12664_stk	6795560.01	2125800.05	4987.67	4987.63	0.04	0.4
12628_stk	6795559.99	2125749.97	4987.94	4987.91	0.03	0.3
12592_stk	6795559.97	2125699.99	4988.23	4988.19	0.03	0.4
12555_stk	6795559.98	2125650.04	4988.50	4988.48	0.03	0.3
12518_stk	6795560.04	2125599.99	4988.78	4988.76	0.02	0.3
12481_stk	6795559.95	2125549.98	4989.08	4989.04	0.04	0.5
12699_stk	6795510.03	2125850.04	4986.15	4986.12	0.03	0.3
12663_stk	6795510.00	2125799.97	4986.43	4986.40	0.02	0.3
12627_stk	6795510.03	2125750.02	4986.72	4986.69	0.04	0.4
12591_stk	6795509.98	2125699.98	4987.01	4986.97	0.04	0.5
12554_stk	6795509.98	2125650.03	4987.26	4987.25	0.01	0.2
12517_stk	6795509.95	2125599.99	4987.56	4987.53	0.03	0.4

Top of Waste
Grade Verification Form

NORTHWIND PORTABLE, INC.

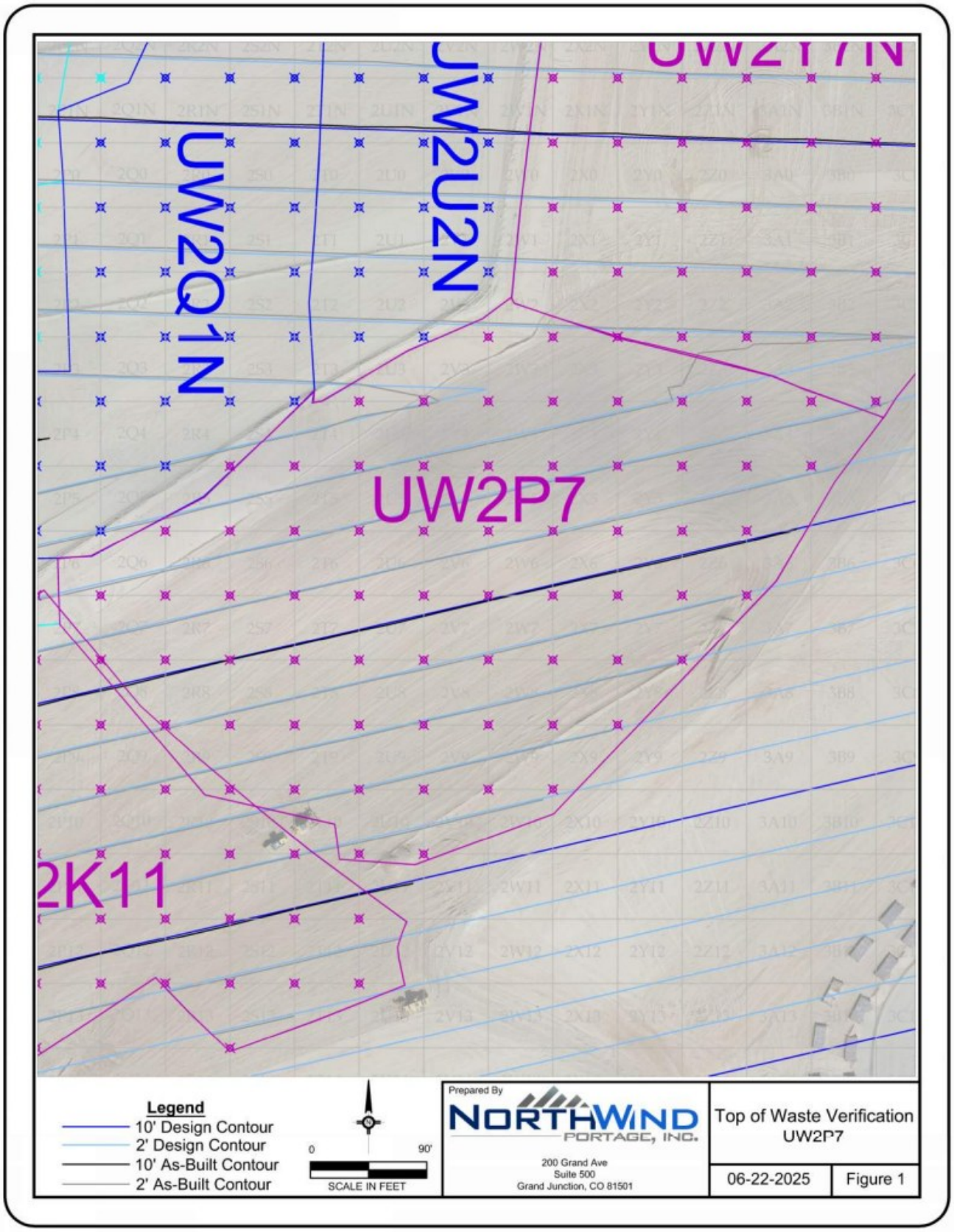
12626_stk	6795459.98	2125749.98	4985.51	4985.46	0.05	0.6
12590_stk	6795460.02	2125700.00	4985.79	4985.74	0.05	0.5

Comments: QC performed a visual inspection of the final surface with satisfactory results. The grading tolerance for the top of waste is -0 FT to +0.17 FT (-0 IN to +2 IN).

Approval Date: Total Square Feet: 163,522 FT²

Northwest Corner: N: 6795660 E: 2125450

QC Signature: Reviewed By:


UW2U2N
UW2Q1N
UW2P7
2K11
Legend
10' Design Contour
2' Design Contour
10' As-Built Contour
2' As-Built Contour
0
90'
SCALE IN FEET
Prepared By
NORTHWIND
PORTAGE, INC.
200 Grand Ave
Suite 500
Grand Junction, CO 81501
Top of Waste Verification
UW2P7
06-22-2025
Figure 1

Environmental Management - Grand Junction Office
MOAB
UMTRA Project

Top of Waste Buyoff Form

Client: Department of Energy
Project: Moab UMTRA Project
Date: 06/23/2025

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

Excavation Area	Lift Area
TOP OF WASTE	UW2K11250611-00

Approver Name/Title	Signature	Sign Date
Don Janz/ CJ Operations/Site Mgr.		6/23/25
Tammy Hooker/ QA/QC Representative		6/23/25
Alfredo Tellez/ QA/QC Representative		6-23-25
Kathy Turvy/ QA/AC Manager	Kathy Turvy	6/23/2025
Comments		
. This lift was placed in 2' lifts, compacted, graded, and surveyed.		

Top of Waste Grade Verification Survey

Buyoff ID: UW2K11250611-00 — Date: 6/22/2025

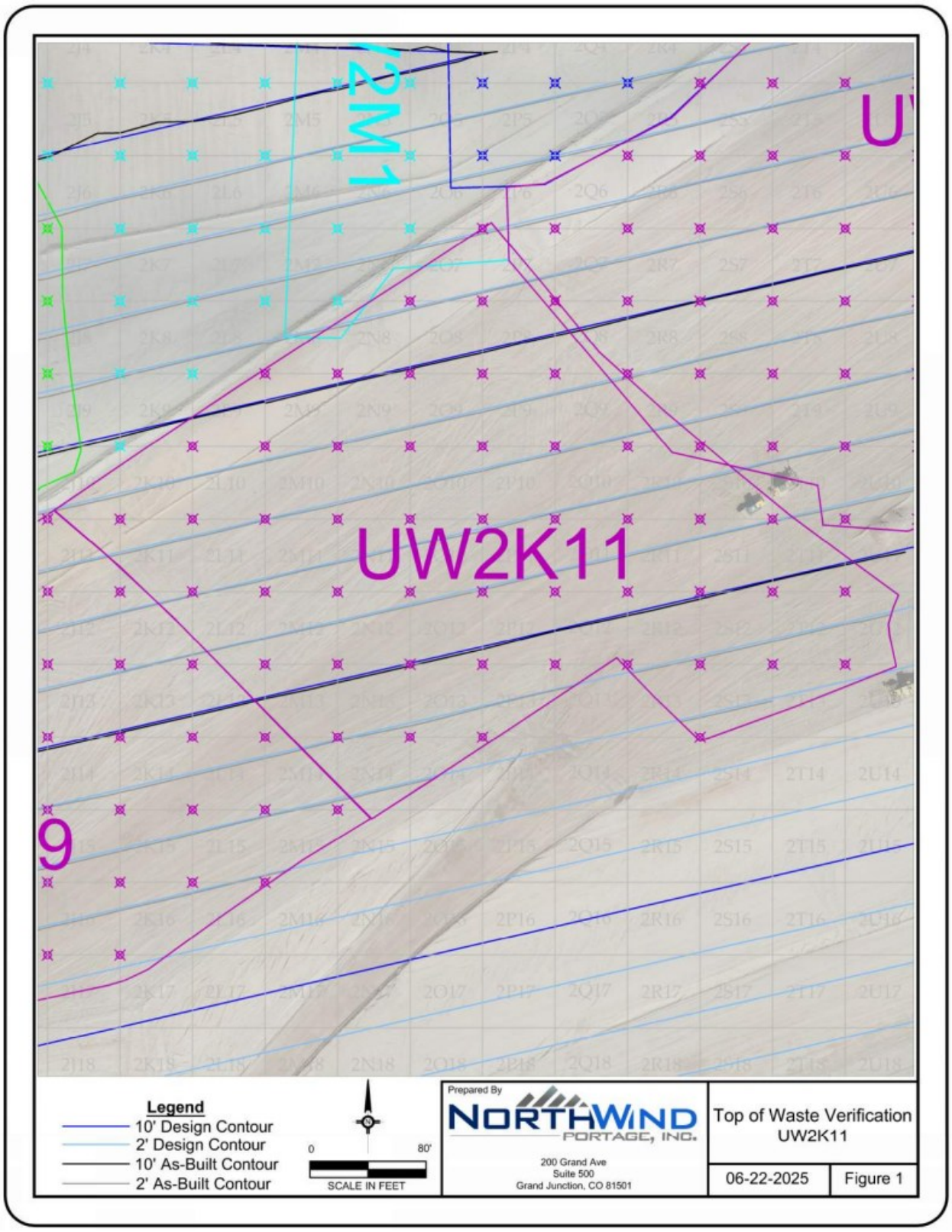
Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Δ in feet	Δ in inches
12589_stk	6795410.04	2125699.99	4984.54	4984.52	0.02	0.3
12553_stk	6795459.97	2125650.01	4986.04	4986.02	0.02	0.2
12517_stk	6795509.96	2125600.01	4987.58	4987.53	0.05	0.6
12445_stk	6795610.03	2125500.02	4990.59	4990.55	0.05	0.5
12410_stk	6795660.01	2125449.96	4992.11	4992.06	0.05	0.6
12409_stk	6795610.00	2125449.97	4990.86	4990.83	0.03	0.3
12444_stk	6795559.97	2125499.99	4989.35	4989.32	0.03	0.3
12481_stk	6795560.01	2125550.01	4989.09	4989.04	0.05	0.6
12480_stk	6795509.98	2125550.03	4987.83	4987.81	0.02	0.2
12516_stk	6795459.99	2125599.98	4986.32	4986.31	0.02	0.2
12552_stk	6795409.97	2125649.98	4984.81	4984.80	0.02	0.2
12588_stk	6795360.01	2125700.05	4983.34	4983.29	0.05	0.6
12551_stk	6795359.96	2125649.98	4983.63	4983.57	0.06	0.7
12515_stk	6795410.04	2125600.00	4985.12	4985.08	0.04	0.5
12479_stk	6795460.04	2125549.99	4986.62	4986.59	0.03	0.4
12443_stk	6795509.99	2125500.04	4988.13	4988.10	0.04	0.4
12408_stk	6795559.98	2125449.99	4989.65	4989.60	0.05	0.6
12373_stk	6795610.00	2125399.99	4991.15	4991.11	0.03	0.4
12513_stk	6795309.99	2125600.03	4982.67	4982.63	0.04	0.5
12514_stk	6795359.99	2125600.01	4983.90	4983.85	0.05	0.6
12478_stk	6795409.97	2125550.01	4985.41	4985.36	0.04	0.5
12442_stk	6795460.02	2125500.00	4986.89	4986.87	0.02	0.3
12407_stk	6795510.04	2125449.98	4988.41	4988.38	0.03	0.4
12372_stk	6795560.03	2125400.00	4989.92	4989.89	0.03	0.4
12336_stk	6795559.97	2125349.96	4990.20	4990.17	0.03	0.4
12371_stk	6795509.98	2125400.00	4988.69	4988.66	0.03	0.4
12406_stk	6795459.94	2125450.01	4987.20	4987.15	0.05	0.6
12441_stk	6795410.01	2125499.97	4985.67	4985.64	0.02	0.3
12477_stk	6795360.02	2125549.99	4984.17	4984.14	0.03	0.4
12440_stk	6795359.99	2125500.02	4984.43	4984.42	0.02	0.2
12405_stk	6795409.96	2125450.00	4985.97	4985.93	0.04	0.5
12370_stk	6795460.03	2125400.01	4987.45	4987.43	0.02	0.2
12335_stk	6795510.01	2125350.02	4988.98	4988.94	0.04	0.5
12300_stk	6795560.01	2125299.99	4990.47	4990.45	0.02	0.3
12299_stk	6795509.99	2125300.00	4989.25	4989.22	0.03	0.3
12334_stk	6795459.99	2125350.01	4987.76	4987.72	0.04	0.5
12369_stk	6795409.96	2125400.03	4986.24	4986.21	0.03	0.3
12404_stk	6795359.98	2125449.99	4984.75	4984.70	0.05	0.6
12403_stk	6795310.02	2125450.01	4983.49	4983.48	0.01	0.1
12368_stk	6795360.03	2125400.02	4985.03	4984.98	0.04	0.5
12333_stk	6795409.96	2125350.00	4986.51	4986.49	0.02	0.3
12298_stk	6795459.99	2125300.01	4988.02	4988.00	0.02	0.2
12262_stk	6795510.01	2125249.98	4989.52	4989.51	0.01	0.2
12261_stk	6795459.98	2125250.05	4988.32	4988.28	0.03	0.4
12297_stk	6795409.98	2125299.96	4986.80	4986.77	0.03	0.4
12332_stk	6795359.98	2125350.00	4985.32	4985.27	0.05	0.6
12367_stk	6795310.00	2125400.02	4983.81	4983.76	0.05	0.6
12331_stk	6795310.03	2125350.02	4984.06	4984.04	0.02	0.2
12296_stk	6795360.03	2125299.97	4985.57	4985.55	0.02	0.2
12260_stk	6795409.98	2125250.01	4987.07	4987.05	0.02	0.2
12224_stk	6795459.99	2125200.04	4988.62	4988.56	0.05	0.6

Comments: QC performed a visual inspection of the final surface with satisfactory results. The grading tolerance for the top of waste is -0 FT to +0.17 FT (-0 IN to +2 IN).

Approval Date: Total Square Feet: 120,660 FT^2

Northwest Corner: N: 6795466 E: 2125155

QC Signature: Reviewed By:


UW2M1
UW2K11
9
Legend
10' Design Contour
2' Design Contour
10' As-Built Contour
2' As-Built Contour
0
80'
SCALE IN FEET
Prepared By
NORTHWIND
PORTAGE, INC.
200 Grand Ave
Suite 500
Grand Junction, CO 81501
Top of Waste Verification
UW2K11
06-22-2025
Figure 1

Environmental Management - Grand Junction Office
MOAB
UMTRA Project

Top of Waste Buyoff Form

Client: Department of Energy
Project: Moab UMTRA Project
Date: 06/23/2025

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

Excavation Area	Lift Area
TOP OF WASTE	UW1W19250611-00

Approver Name/Title	Signature	Sign Date
Don Janz/ CJ Operations/Site Mgr.		6/23/25
Tammy Hooker/ QA/QC Representative		6-23-25
Alfredo Tellez/ QA/QC Representative		6.23.25
Kathy Turvy/ QA/AC Manager	Kathy Turvy	6/24/2025
Comments		
. This lift was placed in 2' lifts, compacted, graded, and surveyed.		

Top of Waste Grade Verification Survey

Buyoff ID: UW1W19250611-00 — Date: 6/22/2025

Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Δ in feet	Δ in inches
12187_stk	6795460.01	2125150.03	4988.88	4988.84	0.04	0.5
12223_stk	6795410.01	2125199.99	4987.36	4987.34	0.02	0.2
12259_stk	6795359.98	2125250.01	4985.84	4985.83	0.01	0.1
12295_stk	6795309.95	2125300.01	4984.36	4984.32	0.04	0.5
12330_stk	6795259.97	2125349.99	4982.85	4982.82	0.04	0.4
12294_stk	6795260.03	2125300.03	4983.12	4983.10	0.02	0.3
12258_stk	6795309.98	2125250.00	4984.65	4984.60	0.05	0.6
12222_stk	6795360.02	2125199.96	4986.14	4986.11	0.03	0.4
12186_stk	6795410.01	2125150.04	4987.66	4987.62	0.04	0.5
12149_stk	6795410.01	2125100.04	4987.93	4987.90	0.03	0.3
12185_stk	6795359.99	2125150.05	4986.44	4986.39	0.04	0.5
12221_stk	6795310.01	2125199.98	4984.93	4984.89	0.04	0.5
12257_stk	6795259.98	2125250.04	4983.41	4983.38	0.03	0.4
12293_stk	6795210.00	2125299.96	4981.89	4981.87	0.01	0.2
12256_stk	6795209.98	2125250.02	4982.18	4982.15	0.03	0.4
12220_stk	6795260.02	2125200.03	4983.71	4983.66	0.05	0.6
12184_stk	6795310.00	2125150.04	4985.21	4985.17	0.04	0.5
12148_stk	6795359.97	2125100.03	4986.72	4986.68	0.04	0.5
12111_stk	6795359.99	2125050.04	4987.00	4986.96	0.04	0.5
12147_stk	6795310.02	2125100.01	4985.49	4985.45	0.04	0.5
12183_stk	6795260.02	2125149.97	4983.96	4983.94	0.01	0.2
12219_stk	6795209.97	2125200.00	4982.47	4982.44	0.03	0.4
12218_stk	6795160.02	2125200.02	4981.25	4981.21	0.04	0.5
12182_stk	6795209.96	2125150.03	4982.77	4982.72	0.05	0.6
12146_stk	6795259.97	2125100.02	4984.27	4984.23	0.04	0.5
12110_stk	6795310.00	2125049.98	4985.76	4985.73	0.03	0.3
12075_stk	6795360.03	2124999.97	4987.29	4987.24	0.05	0.6
12074_stk	6795309.99	2124999.97	4986.04	4986.02	0.02	0.2
12109_stk	6795260.02	2125050.03	4984.55	4984.51	0.04	0.5
12145_stk	6795210.00	2125100.05	4983.03	4983.00	0.03	0.4
12181_stk	6795159.95	2125150.01	4981.52	4981.49	0.03	0.3
12144_stk	6795159.98	2125100.01	4981.83	4981.78	0.05	0.6
12108_stk	6795210.00	2125050.04	4983.31	4983.28	0.03	0.3
12073_stk	6795260.00	2124999.96	4984.84	4984.79	0.05	0.6
12038_stk	6795310.02	2124950.03	4986.35	4986.30	0.05	0.6
12037_stk	6795259.95	2124950.03	4985.10	4985.07	0.03	0.3
12072_stk	6795210.00	2125000.04	4983.60	4983.57	0.03	0.4
12107_stk	6795159.98	2125050.00	4982.08	4982.06	0.02	0.3
12071_stk	6795159.98	2125000.03	4982.39	4982.34	0.05	0.6
12036_stk	6795210.01	2124949.98	4983.88	4983.85	0.03	0.3
12001_stk	6795259.95	2124899.98	4985.37	4985.36	0.02	0.2
11964_stk	6795210.03	2124849.99	4984.46	4984.41	0.05	0.6
12000_stk	6795209.96	2124900.01	4984.16	4984.13	0.03	0.3
12035_stk	6795160.01	2124950.05	4982.65	4982.62	0.03	0.4
12034_stk	6795110.05	2124950.02	4981.43	4981.40	0.03	0.4
11999_stk	6795159.98	2124899.97	4982.93	4982.91	0.02	0.3
11963_stk	6795160.01	2124849.98	4983.21	4983.19	0.03	0.3
11998_stk	6795109.97	2124900.04	4981.73	4981.68	0.05	0.6
11965_stk	6795260.03	2124850.02	4985.68	4985.64	0.04	0.5
11962_stk	6795109.98	2124849.99	4982.00	4981.96	0.04	0.4
11926_stk	6795159.96	2124800.00	4983.51	4983.47	0.04	0.5
11925_stk	6795110.01	2124800.02	4982.27	4982.24	0.02	0.3
11924_stk	6795059.99	2124799.96	4981.04	4981.02	0.02	0.2
11888_stk	6795109.96	2124750.00	4982.55	4982.53	0.02	0.3
11851_stk	6795110.03	2124700.00	4982.84	4982.81	0.03	0.4
11887_stk	6795060.03	2124750.00	4981.35	4981.30	0.05	0.6
11850_stk	6795059.98	2124699.97	4981.61	4981.58	0.02	0.3
11813_stk	6795060.03	2124650.03	4981.89	4981.87	0.03	0.3
11776_stk	6795060.04	2124600.04	4982.20	4982.15	0.05	0.6
11740_stk	6795060.00	2124549.96	4982.47	4982.43	0.04	0.5
11739_stk	6795009.99	2124550.05	4981.23	4981.21	0.02	0.3
11703_stk	6795010.03	2124499.98	4981.54	4981.49	0.05	0.6
11667_stk	6795010.03	2124449.95	4981.82	4981.77	0.05	0.6

Comments: QC performed a visual inspection of the final surface with satisfactory results. The grading tolerance for the top of waste is -0 FT to +0.17 FT (-0 IN to +2 IN).

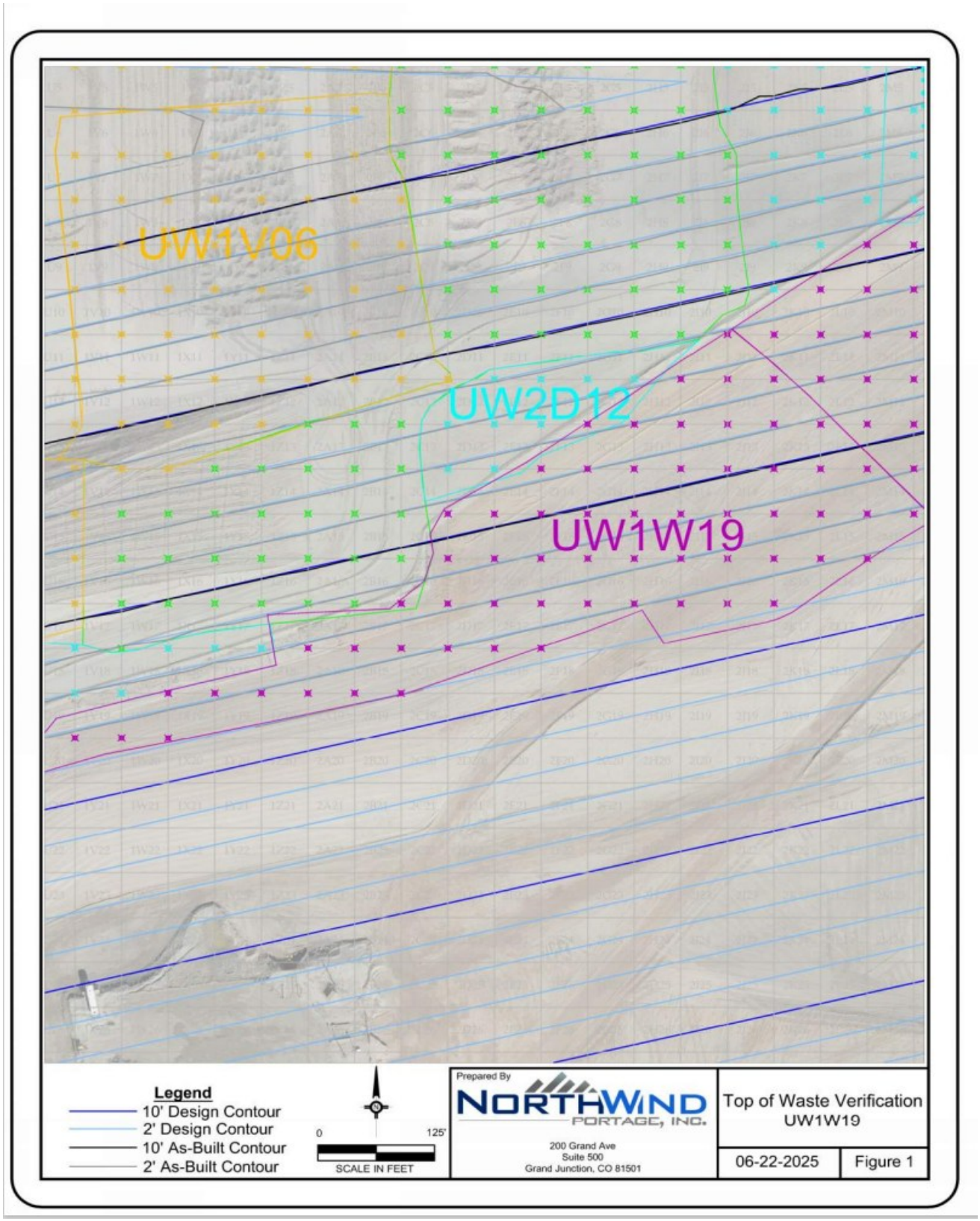
Approval Date: Total Square Feet: 150,508 FT²

Northwest Corner: N: 6795030 E: 2124430

QC Signature: Reviewed By:

Top of Waste
Grade Verification Form

NORTHWIND PORTAGE, INC.


UW1V06
UW2D12
UW1W19
Legend
10' Design Contour
2' Design Contour
10' As-Built Contour
2' As-Built Contour
0
125'
SCALE IN FEET
Prepared By
NORTHWIND
PORTAGE, INC.
200 Grand Ave
Suite 500
Grand Junction, CO 81501
Top of Waste Verification
UW1W19
06-22-2025
Figure 1

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

2025					
Proctor ID	**Date sampled**	**Date Approved**	**Max Dry Density**	**Optimum Moisture**	**Proctor Description**
RB/Interim Cover #6 2023	1/26/2023	2/1/2023	116.8 & 119.5	13.0 & 12.1	Weathered Shale
RB/Interim Cover #10 2023	2/8/2023	2/13/2023	121.8 & 130.0	11.8 & 9.0	Weathered Shale

Oversized (Rock) Correction

Appendix A3. Interim Cover Lift Approval Summaries

August 2025 Interim Cover										
Date	Lift ID #	# of Passing Moisture Tests	Quantity Approved (yd^3)	Cumulative Quantity Approved (yd^3)	CAES Screen Passing Pixels (%)	Average Thickness (ft)	Proctor ID #	# of Nuclear Density Gauge Verifications	# of Sandcone Verifications	Verified Compaction (%)
09/15/2025	UI2Y7N250915-00	28	21703	21,703	N/A	1.0	RB/INC 6,10	18	1	96.4

Average CBCS Screen Passing Pixels (%) = 0.0

Total Quantity Approved (yd^3) = 21,703

Total Nuclear Density Gauge Tests = 18

Total # of Moisture Tests = 28

Quantity per Moisture Test (yd^3) = 775

Total Average Thickness (ft) = 1.0

Appendix A3. Interim Cover Lift Approval Package

LIFT APPROVAL FORM

PROJECT: Moab UMTRA OTHER

NW CORNER DATE: 9/15/2025

See attached for lift map

	See map for location		
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: UI2Y7N250915-00 NW CORNER: 6796360 N 215900 E

Uncompacted Thickness: 1.0 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): 585,975 Lift Volume (yd³): 21,703

Comments: QC visually confirmed that the lift area was scarified and free of roots and debris and moisture conditioned prior to placement. QC visually observed the material being placed to have proper moisture for compaction. Moisture content shall be within the range needed to achieve a minimum of 90% . Compaction was checked in the bottom half and the top half of the lift. Verification of in place density tests vere taken two for every 5,000 cubic yards. This is a one foot lift placed to design up to 2" above line, no minus tolerance, with a protecive layer of 8" (minimum). QC performed 18 nuclear density test and 1 sand cone on 19 different holes all tests vere surveyed for exact location (see map).. Note UI2Y7N250915-00 is a lift area that was combined with 4 other lifts UW2Y7N, UW2K11, UW1W19 and UW2P7. QC surveyed this lift for completion. QC performed 9 moisture test of the RB/INC pile . The computer based compaction was not used on this lift to generate a grid slope. This lift is verified from survey points from TOW to survey points Interim Cover and cad built astec design.

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

KEYING IN NOTES: [N] E S [W] Satisfactory MOISTURE/ DENSITY TESTS ID # (S): P0-P18 tests see map

LIFT APPROVED BY: Alfredo Tellez/ DATE: 9/15/2025 TIME: 1500

Tammy Hooker/ 9/15/2025

QA/QC APPROVAL DATE

Density Testing
DOE-EM/GJRAC1783
Rev. 1

QC-F-001
File index No. 43.8.2
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Appendix A3. Interim Cover Lift Approval Package *(continued)*

FIELD DENSITY TEST

PROJECT:	Moab UMTRA		**Standard Count:**					**Date:**	8/26/2025						
Lift ID:	UI2Y7N250915-00		**MS=**	434	492	491									
Make/Model:	Troxler 3430		**DS=**	1982	1990	1976		**Gauge Calibration Date:**					8/25/2025		
Task	RRM		**Sand-Cone and Plate No.**			N/A		**Sand-Cone Calibration Date:**					N/A		

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
P0	6	See Map on Pg. 1	X		130.0	9	130.8	103.4	8.4	120.7	P	CL	RB #10 2023	8/26/2025
P1	4	See Map on Pg. 1	X		119.5	12.1	119.0	108.8	9.4	93.2	P	CL	RB #6 2023	8/26/2025
P2	6	See Map on Pg. 1	X		130.0	9	125.7	117.7	6.8	90.5	P	CL	RB #10 2023	9/2/2025
P3	8	See Map on Pg. 1	X		130.0	9	133.9	126.1	6.2	97.0	P	CL	RB #10 2023	9/2/2025
P4	4	See Map on Pg. 1	X		130.0	9	132.4	123.2	7.5	94.8	P	CL	RB #10 2023	9/2/2025
P5	6	See Map on Pg. 1	X		130.0	9	130.9	122.6	6.7	94.3	P	CL	RB #10 2023	9/2/2025
P6	8	See Map on Pg. 1	X		130.0	9	138.9	130.8	6.2	100.6	P	CL	RB #10 2023	9/2/2025

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

Moisture Content:		**Moisture Content:**			
A. Container No.		**A. Container No.**			
B. Container Mass (g):		**B. Container Mass:**			
C. Mass of Container & Wet Soil (g)		**C. Mass of Container & Wet Soil**			
D. Mass of Container & Dry Soil (g)		**D. Mass of Container & Dry Soil**		**ASTM**	**D698**
E. Moisture Content (%)		**E. Moisture Content**			

Testing By: Alfredo Tellez **Date:** 9/2/2025 **QA/QC Rep:** Tammy Hooker/

Print / Signature **Print / Signature**

QC-F-002
Revision 1

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Page___ of ___

FIELD DENSITY TEST

PROJECT: Moab UMTRA			**Standard Count:**						**Date:** 9/2/2025					
Lift I UI2Y7N250915-00			**MS=**	434	495	493								
Make/Model: Troxler 3430			**DS=**	1982	1980	1973			**Gauge Calibration Date:**			8/25/2025		
Task RRM			**Sand-Cone and Plate No.**			N/A			**Sand-Cone Calibration Date:**			N/A		
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**
P7	6	See Map on Pg. 1	X		130.0	9	145.7	136.9	6.4	105.3	P	CL	RB/Int #10 2023	9/2/2025
P8	4	See Map on Pg. 1	X		130.0	9	127.0	114.0	6.7	91.5	P	CL	RB/Int #10 2023	9/8/2025
P9	6	See Map on Pg. 1	X		130.0	9	131.0	120.9	8.3	93.0	P	CL	RB/Int #10 2023	9/8/2025
P10	8	See Map on Pg. 1	X		130.0	9	128.6	119.6	7.5	92.0	P	CL	RB/Int #10 2023	9/8/2025
P11	6	See Map on Pg. 1	X		130.0	9	135.8	128.1	6.0	98.5	P	CL	RB/Int #10 2023	9/8/2025
P12	4	See Map on Pg. 1	X		130.0	9	133.9	126.3	6.1	97.2	P	CL	RB/Int #10 2023	9/9/2025
P13	6	See Map on Pg. 1	X		130.0	9	132.9	122.5	8.5	94.2	P	CL	RB/Int #10 2023	9/9/2025

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

Moisture Content:	P3@-6"	**Moisture Content:**	P4@-6"		
A. Container No.		**A. Container No.**			
B. Container Mass (g):		**B. Container Mass:**			
C. Mass of Container & Wet Soil (g)		**C. Mass of Container & Wet Soil**			
D. Mass of Container & Dry Soil (g)		**D. Mass of Container & Dry Soil**		**ASTM**	**D698**
E. Moisture Content (%)		**E. Moisture Content**			

Testing By: Alfredo Tellez/ **Date:** 9/9/2025 **QA/QC:** Tammy Hooker

Print / Signature **Print / Signature**

QC-F-002
Revision 1

File index No. 43.8.2
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FIELD DENSITY TEST

PROJECT:	Moab UMTRA	**Standard Count:**		**Date:**	9/9/2025
Lift ID:	UI2Y7N250915-00	**MS=**	489 491 491		
Make/Model:	Troxler 3430	**DS=**	1956 1973 1998	**Gauge Calibration Date:**	8/25/2025
Task	RRM	**Sand-Cone and Plate No.**	N/A	**Sand-Cone Calibration Date:**	N/A

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
P 14	6	See Map on Pg. 1		X	130.0	9	132.7	125.8	5.6	96.8	P	Weathered Shale	#10 2023	9/9/2025
P 15	8	See Map on Pg. 1	X		130.0	9	127.0	118.4	7.3	91.1	P	Weathered Shale	#10 2023	9/9/2025
P 16	4	See Map on Pg. 1	X		130.0	9	133.7	123.9	7.9	95.3	P	Weathered Shale	#10 2023	9/10/2025
P 17	6	See Map on Pg. 1	X		130.0	9	131.9	123.0	7.2	94.6	P	Weathered Shale	#10 2023	9/10/2025
P 18	6	See Map on Pg. 1	X		130.0	9	127.6	119.1	7.2	91.6	P	Weathered Shale	#10 2023	9/10/2025

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

Moisture Content:	**P1@-6"**	**Moisture Content:**	P2@-6"		
A. Container No.		**A. Container No.**			
B. Container Mass (g):		**B. Container Mass:**			
C. Mass of Container & Wet Soil (g)		**C. Mass of Container & Wet Soil**			
D. Mass of Container & Dry Soil (g)		**D. Mass of Container & Dry Soil**		**ASTM**	**D698**
E. Moisture Content (%)		**E. Moisture Content**			

Testing By: Alfredo Tellez **Date:** **9/10/2025** **QA/QC Rep:** Tammy Hooker/

Print / Signature **Print / Signature**

QC-F-002
Revision 1

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Appendix A3. Interim Cover Lift Approval Package *(continued)*

Project: Moab UMTRA

Lift ID: UI2Y7N250915-00

Report Date 08/07/2025

Item #	Sample ID: Proctor #10 2023		Resulting % M.C.
1)	Container ID:	P-1	
2)	Mass of container:	288.1	
3)	Mass of container & wet soil:	654.1	
4)	Mass of container & dry soil:	619.7	10.37

Report Date 08/20/2025

Item #	Sample ID: Proctor #6 2023		Resulting % M.C.
1)	Container ID:	P-5	
2)	Mass of container:	288.0	
3)	Mass of container & wet soil:	715.7	
4)	Mass of container & dry soil:	674.9	10.55

Report Date 08/11/2025

Item #	Sample ID: Proctor #6 2023		Resulting % M.C.
1)	Container ID:	CAT	
2)	Mass of container:	216.8	
3)	Mass of container & wet soil:	530.4	
4)	Mass of container & dry soil:	498.6	11.28

Report Date 08-20-2025

Item #	Sample ID: *P2-18 Proctor #10 2023		Resulting % M.C.
1)	Container ID:	A-2	
2)	Mass of container:	287.9	
3)	Mass of container & wet soil:	693.1	
4)	Mass of container & dry soil:	658.4	9.37

Report Date 08/11/2025

Item #	Sample ID: PS Proctor #10 2023		Resulting % M.C.
1)	Container ID:	A-1	
2)	Mass of container:	214.1	
3)	Mass of container & wet soil:	494.7	
4)	Mass of container & dry soil:	470.4	9.5

Report Date 08/20/2025

Item #	Sample ID: Proctor #10 2023		Resulting % M.C.
1)	Container ID:	DOG	
2)	Mass of container:	289.9	
3)	Mass of container & wet soil:	693.8	
4)	Mass of container & dry soil:	660.9	8.9

Appendix A3. Interim Cover Lift Approval Package *(continued)*

Project: Moab UMTRA

Lift ID: UI2Y7N250915-00

Report Date 08/20/2025

Item #	Sample ID: Proctor #10		Resulting % M.C.
1)	Container ID:	P-4	
2)	Mass of container:	288.5	
3)	Mass of container & wet soil:	647	
4)	Mass of container & dry soil:	608.8	**11.32**

Report Date 00/00/0000

Item #	Sample ID:		Resulting % M.C.
1)	Container ID:		N A
2)	Mass of container:		
3)	Mass of container & wet soil:		
4)	Mass of container & dry soil:		**#DIV/0!**

Report Date 08/20/2025

Item #	Sample ID: Proctor #10		Resulting % M.C.
1)	Container ID:	P-3	
2)	Mass of container:	286.6	
3)	Mass of container & wet soil:	726.9	
4)	Mass of container & dry soil:	691.9	**8.64**

Report Date 00/00/0000

Item #	Sample ID:		Resulting % M.C.
1)	Container ID:		N
2)	Mass of container:		
3)	Mass of container & wet soil:		
4)	Mass of container & dry soil:		**#DIV/0!**

Report Date 9/3/2025

Item #	Sample ID: Proctor 10		N A Resulting % M.C.
1)	Container ID:	P-4	
2)	Mass of container:	287.9	
3)	Mass of container & wet soil:	721..2	
4)	Mass of container & dry soil:	693.9	**6.72**

Report Date 00/00/0000

Item #	Sample ID:		Resulting % M.C.
1)	Container ID:		N A
2)	Mass of container:		
3)	Mass of container & wet soil:		
4)	Mass of container & dry soil:		**#DIV/0!**

SAND CONE CALCULATIONS

Sand Cone Mass	Mass(g)	Mass (lb)	
Before	6954	***15.3***	
After	3642	***8.0***	
		TOTAL SAND USED (lb)	***6.8***
Soil Collected Mass	Mass (g)	Mass (lb)	
Mass of Bag	9.3	4.4	
Mass of Wet Soil + Bag	1987		
		TOTAL WET SOIL (lb)	***4.4***
VOLUME OF SOIL REMOVED	Mass (lbs)		
Sand Used	***6.8***		
Sand Used to Fill Cone & Plate	4.1	**VOLME OF SOIL REMOVED (cf)**	***0.03***
(See Calibration on Board)			
BULK DENSITY OF SAND(pcf)	97.3		
(See Calibration on Board)			
MOISTURE CONTENT	Mass (g)		
Container Mass	216.5		
Container + Wet Soil Mass	596.6		
Container + Dry Soil Mass	576.4	**Moisture Content %**	***5.6***

WET DENSITY

132.7 (PCF)

DRY DENSITY

125.8 (PCF)

PERCENT of PROCTOR	(PCF)		
Calculated Dry Density	125.8		
Maximum Dry Density	130	Percent of Proctor %	96.8

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: 09/15/2025

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

Excavation Area	Lift Area
Interim Cover	UI2Y7N250915-00

Approver Name/Title	Signature	Sign Date
Don Janz/ CJ Operations/Site Mgr.		9/15/25
Tammy Hooker/ QA/QC Representative		9-15-2025
Alfredo Tellez/ QA/QC Representative		9-15-2025
Kathy Turvy/ QA/AC Manager		9/16/25
Comments		
This lift area was placed in 1' lift and compacted, graded and surveyed. Compaction was approved with 18 nuclear density tests and 1 sand cone with a minimum of 90%. With an average of 96.4 and 1 sand cone 0f 96.8%. This lift was compacted with a motor grader and rubber tire loaded side dump truck.		

Interim Cover Grade Verification Survey

Buyoff ID:UI2Y7N250915-00 Date: 9/15/2025

Point #	Northing	Easting	Surveyed Elevation	Design Elevation	Δ in feet	Δ in inches
22441_stk	6795410.02	2125500.02	4986.70	4986.64	0.06	0.7
22442_stk	6795459.99	2125499.97	4987.91	4987.87	0.04	0.5
22443_stk	6795510.03	2125499.98	4989.15	4989.10	0.06	0.7
22444_stk	6795560.01	2125500.01	4990.38	4990.32	0.06	0.7
22409_stk	6795610.00	2125449.95	4991.88	4991.83	0.05	0.6
22445_stk	6795610.04	2125499.98	4991.57	4991.55	0.02	0.3
22482_stk	6795610.02	2125549.99	4991.31	4991.27	0.04	0.5
22481_stk	6795559.99	2125549.95	4990.07	4990.04	0.03	0.4
22480_stk	6795510.04	2125550.00	4988.84	4988.81	0.02	0.3
22478_stk	6795410.03	2125549.97	4986.42	4986.36	0.06	0.7
22515_stk	6795410.05	2125600.03	4986.14	4986.08	0.06	0.8
22516_stk	6795460.05	2125599.96	4987.34	4987.31	0.03	0.4
22517_stk	6795509.96	2125599.96	4988.55	4988.53	0.02	0.2
22518_stk	6795559.94	2125600.02	4989.79	4989.76	0.03	0.4
22519_stk	6795610.06	2125599.99	4991.01	4990.98	0.02	0.3
22520_stk	6795660.00	2125599.98	4992.24	4992.21	0.03	0.4
22483_stk	6795659.98	2125549.99	4992.55	4992.49	0.06	0.7
22552_stk	6795410.06	2125650.02	4985.82	4985.80	0.02	0.2
22553_stk	6795459.97	2125650.01	4987.07	4987.02	0.04	0.5
22554_stk	6795510.05	2125649.97	4988.27	4988.25	0.02	0.3
22555_stk	6795559.97	2125649.99	4989.52	4989.48	0.04	0.5
22556_stk	6795609.98	2125649.99	4990.76	4990.70	0.05	0.6
22407_stk	6795509.95	2125450.05	4989.43	4989.38	0.05	0.6
22404_stk	6795359.95	2125450.00	4985.71	4985.70	0.01	0.1
22557_stk	6795660.00	2125649.99	4991.97	4991.93	0.04	0.5
22558_stk	6795709.97	2125649.96	4993.21	4993.15	0.06	0.7
22595_stk	6795710.07	2125699.99	4992.92	4992.87	0.04	0.5
22594_stk	6795659.94	2125700.02	4991.66	4991.65	0.01	0.2
22593_stk	6795610.03	2125699.99	4990.44	4990.42	0.02	0.2
22592_stk	6795560.02	2125699.98	4989.23	4989.19	0.03	0.4
22591_stk	6795510.05	2125700.05	4988.00	4987.97	0.03	0.4
22590_stk	6795460.03	2125699.96	4986.79	4986.74	0.05	0.6
22627_stk	6795510.03	2125749.97	4987.72	4987.69	0.03	0.4
22628_stk	6795559.96	2125750.04	4988.94	4988.91	0.03	0.4
22629_stk	6795610.00	2125749.97	4990.16	4990.14	0.02	0.3
22630_stk	6795660.02	2125750.00	4991.41	4991.36	0.04	0.5
22631_stk	6795710.04	2125750.02	4992.62	4992.59	0.03	0.4
22632_stk	6795759.95	2125749.98	4993.83	4993.82	0.02	0.2
22667_stk	6795709.97	2125799.96	4992.33	4992.31	0.02	0.3
22666_stk	6795659.99	2125800.04	4991.10	4991.08	0.02	0.2
22665_stk	6795609.95	2125800.01	4989.89	4989.86	0.03	0.4
22664_stk	6795559.98	2125800.04	4988.66	4988.63	0.03	0.3
22663_stk	6795509.98	2125799.99	4987.42	4987.40	0.02	0.2
22700_stk	6795560.04	2125850.03	4988.38	4988.35	0.03	0.4
22701_stk	6795610.02	2125850.03	4989.62	4989.57	0.05	0.6
22702_stk	6795660.01	2125850.01	4990.83	4990.80	0.03	0.3
22704_stk	6795759.98	2125850.05	4993.29	4993.25	0.04	0.5
22703_stk	6795710.02	2125850.01	4992.09	4992.03	0.06	0.8
22739_stk	6795709.97	2125899.97	4991.81	4991.74	0.06	0.8
22738_stk	6795659.96	2125900.03	4990.56	4990.52	0.05	0.5
22737_stk	6795610.00	2125900.02	4989.32	4989.29	0.03	0.4
22740_stk	6795759.98	2125900.00	4993.03	4992.97	0.06	0.7
22705_stk	6795810.01	2125850.03	4994.50	4994.48	0.02	0.2
22669_stk	6795809.99	2125800.04	4994.79	4994.76	0.03	0.4
22668_stk	6795760.03	2125799.99	4993.59	4993.53	0.05	0.6
22596_stk	6795760.00	2125699.99	4994.12	4994.10	0.03	0.3
22559_stk	6795760.00	2125650.06	4994.41	4994.38	0.03	0.4
22522_stk	6795760.01	2125600.04	4994.70	4994.66	0.04	0.5
22521_stk	6795710.02	2125600.05	4993.48	4993.44	0.04	0.5
22484_stk	6795710.02	2125549.97	4993.75	4993.72	0.03	0.3
22446_stk	6795660.01	2125500.01	4992.80	4992.78	0.02	0.3
22410_stk	6795660.02	2125449.98	4993.10	4993.06	0.04	0.5
22408_stk	6795559.99	2125449.97	4990.65	4990.60	0.05	0.6

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22406_stk	6795459.97	2125450.05	4988.20	4988.15	0.04	0.5
22405_stk	6795409.96	2125450.00	4986.96	4986.93	0.03	0.4
22368_stk	6795359.96	2125400.02	4986.01	4985.98	0.02	0.3
22367_stk	6795309.96	2125400.00	4984.77	4984.76	0.02	0.2
22331_stk	6795309.97	2125350.03	4985.07	4985.04	0.03	0.3
22332_stk	6795359.96	2125350.01	4986.30	4986.27	0.03	0.4
22296_stk	6795360.03	2125300.02	4986.59	4986.55	0.04	0.5
22297_stk	6795409.99	2125299.99	4987.81	4987.77	0.04	0.5
22333_stk	6795409.99	2125350.01	4987.52	4987.49	0.03	0.3
22369_stk	6795409.98	2125400.06	4987.24	4987.21	0.03	0.4
22633_stk	6795810.01	2125750.03	4995.09	4995.04	0.05	0.6
22741_stk	6795809.96	2125900.02	4994.22	4994.19	0.02	0.3
22777_stk	6795810.01	2125949.97	4993.96	4993.91	0.05	0.6
22778_stk	6795860.01	2125950.06	4994.15	4994.09	0.06	0.7
22744_stk	6795960.06	2125900.04	4992.14	4992.10	0.04	0.5
22745_stk	6796009.99	2125899.99	4991.14	4991.09	0.05	0.6
22746_stk	6796060.06	2125900.00	4990.11	4990.08	0.03	0.3
22747_stk	6796109.97	2125900.02	4989.11	4989.07	0.04	0.5
22748_stk	6796160.04	2125899.98	4988.11	4988.06	0.05	0.6
22713_stk	6796210.00	2125850.06	4987.14	4987.08	0.06	0.7
22712_stk	6796159.99	2125850.05	4988.15	4988.09	0.06	0.7
22711_stk	6796110.00	2125849.99	4989.16	4989.10	0.06	0.7
22710_stk	6796059.96	2125850.02	4990.14	4990.11	0.03	0.3
22709_stk	6796010.05	2125850.04	4991.15	4991.12	0.03	0.3
22708_stk	6795960.01	2125850.05	4992.19	4992.13	0.06	0.7
22707_stk	6795910.00	2125849.96	4993.18	4993.14	0.04	0.4
22706_stk	6795860.04	2125850.04	4994.19	4994.15	0.04	0.5
22742_stk	6795860.05	2125900.04	4994.16	4994.12	0.04	0.5
22743_stk	6795910.03	2125900.04	4993.15	4993.11	0.04	0.5
22776_stk	6795760.06	2125949.97	4992.73	4992.69	0.04	0.5
22775_stk	6795710.05	2125950.02	4991.50	4991.46	0.04	0.5
22774_stk	6795660.00	2125949.98	4990.28	4990.24	0.05	0.5
22298_stk	6795460.02	2125300.01	4989.03	4989.00	0.04	0.4
22299_stk	6795510.03	2125300.03	4990.28	4990.22	0.05	0.6
22262_stk	6795510.00	2125249.99	4990.53	4990.51	0.02	0.3
22334_stk	6795460.02	2125349.95	4988.76	4988.72	0.05	0.6
22335_stk	6795510.04	2125349.96	4989.97	4989.94	0.03	0.3
22336_stk	6795560.05	2125350.01	4991.18	4991.17	0.01	0.2
22372_stk	6795560.04	2125400.03	4990.95	4990.89	0.07	0.8
22371_stk	6795509.99	2125399.95	4989.68	4989.66	0.02	0.3
22370_stk	6795459.95	2125399.96	4988.50	4988.43	0.06	0.8
22779_stk	6795910.02	2125950.04	4993.12	4993.08	0.04	0.5
22780_stk	6795959.99	2125950.03	4992.11	4992.07	0.04	0.5
22781_stk	6796010.01	2125950.05	4991.09	4991.06	0.03	0.3
22782_stk	6796060.04	2125950.03	4990.10	4990.05	0.05	0.6
22783_stk	6796109.97	2125949.98	4989.07	4989.04	0.03	0.4
22784_stk	6796159.97	2125949.97	4988.07	4988.03	0.04	0.5
22785_stk	6796209.98	2125950.02	4987.07	4987.02	0.05	0.6
22749_stk	6796210.06	2125900.01	4987.10	4987.05	0.05	0.6
22750_stk	6796259.97	2125900.00	4986.09	4986.04	0.05	0.6
22714_stk	6796259.98	2125849.95	4986.12	4986.07	0.05	0.6
22751_stk	6796310.02	2125900.05	4985.09	4985.03	0.06	0.7
23223_stk	6796360.02	2125899.96	4984.07	4984.02	0.05	0.6
22670_stk	6795860.04	2125799.99	4994.22	4994.18	0.04	0.5
22634_stk	6795860.00	2125749.94	4994.27	4994.21	0.05	0.6
22597_stk	6795810.05	2125699.98	4995.31	4995.25	0.05	0.6
22447_stk	6795709.98	2125500.00	4994.04	4994.00	0.04	0.5
22373_stk	6795609.99	2125400.01	4992.17	4992.11	0.05	0.6
22337_stk	6795609.99	2125350.02	4992.46	4992.40	0.06	0.7
22261_stk	6795460.07	2125249.99	4989.31	4989.28	0.03	0.4
22479_stk	6795460.02	2125550.00	4987.65	4987.59	0.06	0.7
22715_stk	6796309.94	2125850.02	4985.12	4985.06	0.06	0.7
22788_stk	6796360.03	2125950.00	4984.01	4983.99	0.02	0.3
22825_stk	6796360.02	2126000.06	4984.02	4983.96	0.06	0.7
22862_stk	6796359.97	2126049.96	4983.97	4983.93	0.04	0.5
22787_stk	6796310.04	2125950.06	4985.02	4985.00	0.02	0.2
22786_stk	6796259.97	2125950.01	4986.05	4986.01	0.03	0.4
22671_stk	6795909.98	2125800.00	4993.22	4993.17	0.05	0.6

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22560_stk	6795809.99	2125650.04	4995.34	4995.28	0.05	0.6
22225_stk	6795510.01	2125200.05	4990.83	4990.79	0.04	0.5
22187_stk	6795460.03	2125149.97	4989.87	4989.84	0.02	0.3
22149_stk	6795410.04	2125100.03	4988.95	4988.90	0.05	0.6
22112_stk	6795410.05	2125049.96	4989.20	4989.18	0.02	0.2
22075_stk	6795360.00	2125000.00	4988.28	4988.24	0.03	0.4
22038_stk	6795310.05	2124950.00	4987.35	4987.30	0.05	0.6
22001_stk	6795260.01	2124899.97	4986.42	4986.36	0.06	0.7
22037_stk	6795260.02	2124950.03	4986.10	4986.07	0.03	0.4
22074_stk	6795310.06	2125000.03	4987.04	4987.02	0.02	0.2
22111_stk	6795359.98	2125050.00	4988.00	4987.96	0.04	0.5
22148_stk	6795360.05	2125100.02	4987.73	4987.68	0.06	0.7
22185_stk	6795360.01	2125150.07	4987.46	4987.39	0.06	0.7
22222_stk	6795360.03	2125199.97	4987.16	4987.11	0.05	0.6
22223_stk	6795410.03	2125200.01	4988.39	4988.34	0.06	0.7
22186_stk	6795410.00	2125150.06	4988.66	4988.62	0.04	0.5
22823_stk	6796259.95	2125999.95	4986.00	4985.98	0.02	0.2
22824_stk	6796309.97	2126000.02	4985.00	4984.97	0.03	0.4
22861_stk	6796310.00	2126050.01	4984.98	4984.94	0.04	0.5
22860_stk	6796260.01	2126050.01	4985.97	4985.95	0.02	0.3
22897_stk	6796259.97	2126099.96	4985.96	4985.92	0.04	0.4
22896_stk	6796210.01	2126100.02	4986.95	4986.93	0.03	0.3
22859_stk	6796209.97	2126049.95	4987.02	4986.96	0.06	0.7
22822_stk	6796210.02	2126000.00	4987.04	4986.99	0.05	0.6
22821_stk	6796160.02	2126000.03	4988.05	4988.00	0.05	0.6
22858_stk	6796160.01	2126050.06	4988.00	4987.97	0.03	0.4
22895_stk	6796160.04	2126099.97	4987.96	4987.94	0.02	0.3
22894_stk	6796110.03	2126099.99	4988.98	4988.95	0.03	0.3
22857_stk	6796110.06	2126049.99	4989.03	4988.98	0.05	0.6
22820_stk	6796110.04	2126000.02	4989.04	4989.01	0.03	0.4
22819_stk	6796059.95	2126000.01	4990.06	4990.02	0.04	0.5
22856_stk	6796059.97	2126050.05	4990.04	4989.99	0.05	0.6
22893_stk	6796060.03	2126100.04	4989.97	4989.96	0.02	0.2
22930_stk	6796059.99	2126150.02	4989.97	4989.93	0.05	0.6
22931_stk	6796110.03	2126150.03	4988.96	4988.92	0.04	0.5
22932_stk	6796160.00	2126150.05	4987.94	4987.91	0.03	0.4
22929_stk	6796010.05	2126150.01	4990.98	4990.94	0.05	0.6
22892_stk	6796010.03	2126100.02	4991.01	4990.97	0.04	0.5
22855_stk	6796010.04	2126050.04	4991.04	4991.00	0.04	0.5
22818_stk	6796009.99	2126000.02	4991.09	4991.03	0.06	0.7
22817_stk	6795959.97	2125999.95	4992.05	4992.04	0.01	0.1
22854_stk	6795960.04	2126049.98	4992.03	4992.01	0.03	0.3
22891_stk	6795959.96	2126100.04	4992.01	4991.98	0.03	0.4
22928_stk	6795959.99	2126150.02	4992.01	4991.95	0.06	0.7
22890_stk	6795910.03	2126099.98	4993.01	4992.99	0.02	0.3
22853_stk	6795910.03	2126050.04	4993.06	4993.02	0.05	0.6
22816_stk	6795909.96	2126000.04	4993.09	4993.05	0.04	0.5
22815_stk	6795859.99	2126000.06	4994.11	4994.06	0.05	0.6
22852_stk	6795860.03	2126050.00	4994.05	4994.03	0.02	0.3
22889_stk	6795860.02	2126099.95	4994.02	4994.00	0.02	0.2
22851_stk	6795810.03	2126049.95	4993.37	4993.35	0.02	0.2
22813_stk	6795759.94	2126000.01	4992.42	4992.41	0.02	0.2
22814_stk	6795810.01	2126000.01	4993.68	4993.63	0.05	0.6
22812_stk	6795710.01	2126000.06	4991.24	4991.18	0.06	0.7
22899_stk	6796359.97	2126100.05	4983.95	4983.90	0.05	0.6
22936_stk	6796360.03	2126150.01	4983.89	4983.87	0.03	0.3
22935_stk	6796310.04	2126150.02	4984.92	4984.88	0.04	0.5
22898_stk	6796310.06	2126099.99	4984.95	4984.91	0.05	0.6
22934_stk	6796260.01	2126149.98	4985.91	4985.89	0.02	0.2
22933_stk	6796210.05	2126149.97	4986.92	4986.90	0.02	0.3
22224_stk	6795459.94	2125200.01	4989.61	4989.56	0.05	0.6
22258_stk	6795310.04	2125250.01	4985.67	4985.60	0.06	0.7
22257_stk	6795259.97	2125249.96	4984.40	4984.38	0.02	0.2
22294_stk	6795259.97	2125299.99	4984.16	4984.10	0.06	0.7
22221_stk	6795310.01	2125199.96	4985.94	4985.89	0.05	0.6
22220_stk	6795260.05	2125199.98	4984.72	4984.66	0.06	0.7
22219_stk	6795210.02	2125200.01	4983.49	4983.44	0.05	0.6
22182_stk	6795209.97	2125150.03	4983.76	4983.72	0.04	0.5

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NORTHWIND PORTAGE, INC.

22183_stk	6795260.02	2125149.94	4985.00	4984.94	0.05	0.6
22184_stk	6795310.00	2125149.97	4986.22	4986.17	0.05	0.6
22147_stk	6795310.04	2125100.01	4986.49	4986.45	0.04	0.5
22146_stk	6795260.04	2125099.96	4985.25	4985.23	0.03	0.3
22145_stk	6795209.99	2125099.98	4984.05	4984.00	0.05	0.6
22108_stk	6795210.00	2125050.05	4984.32	4984.28	0.03	0.4
22109_stk	6795260.03	2125049.97	4985.57	4985.51	0.06	0.7
22110_stk	6795310.06	2125050.02	4986.78	4986.73	0.05	0.5
22073_stk	6795259.96	2125000.00	4985.86	4985.79	0.07	0.8
22072_stk	6795209.97	2125000.03	4984.59	4984.57	0.03	0.3
22036_stk	6795210.05	2124949.99	4984.87	4984.85	0.02	0.2
22035_stk	6795159.97	2124950.05	4983.67	4983.62	0.05	0.6
21966_stk	6795309.98	2124850.04	4987.89	4987.86	0.03	0.3
22002_stk	6795309.99	2124900.04	4987.61	4987.58	0.03	0.4
21965_stk	6795259.95	2124850.03	4986.68	4986.64	0.05	0.5
22259_stk	6795359.96	2125250.03	4986.89	4986.83	0.06	0.8
22260_stk	6795410.03	2125250.04	4988.11	4988.05	0.06	0.7
22295_stk	6795309.98	2125300.00	4985.34	4985.32	0.02	0.3
22300_stk	6795560.00	2125300.05	4991.48	4991.45	0.03	0.4
22000_stk	6795209.94	2124899.98	4985.19	4985.13	0.06	0.7
21999_stk	6795160.04	2124899.97	4983.94	4983.91	0.04	0.4
21963_stk	6795159.99	2124850.01	4984.21	4984.19	0.03	0.3
21964_stk	6795209.97	2124849.98	4985.46	4985.41	0.04	0.5
21888_stk	6795110.05	2124749.96	4983.58	4983.53	0.05	0.6
21851_stk	6795110.00	2124699.99	4983.87	4983.81	0.06	0.7
21814_stk	6795110.02	2124650.05	4984.13	4984.09	0.04	0.4
21776_stk	6795060.04	2124600.03	4983.19	4983.15	0.04	0.4
21740_stk	6795059.96	2124550.00	4983.46	4983.43	0.03	0.3
21704_stk	6795060.04	2124500.03	4983.76	4983.71	0.04	0.5
21630_stk	6795010.05	2124399.99	4983.09	4983.05	0.04	0.4
21813_stk	6795060.02	2124650.01	4982.92	4982.87	0.06	0.7
21668_stk	6795060.01	2124450.04	4984.05	4984.00	0.06	0.7
21593_stk	6795010.01	2124350.01	4983.40	4983.33	0.06	0.8
21926_stk	6795159.96	2124800.02	4984.52	4984.47	0.05	0.6
21925_stk	6795110.06	2124800.00	4983.29	4983.24	0.04	0.5
22071_stk	6795159.98	2125000.02	4983.36	4983.34	0.01	0.2
21962_stk	6795109.99	2124850.03	4983.01	4982.96	0.05	0.6

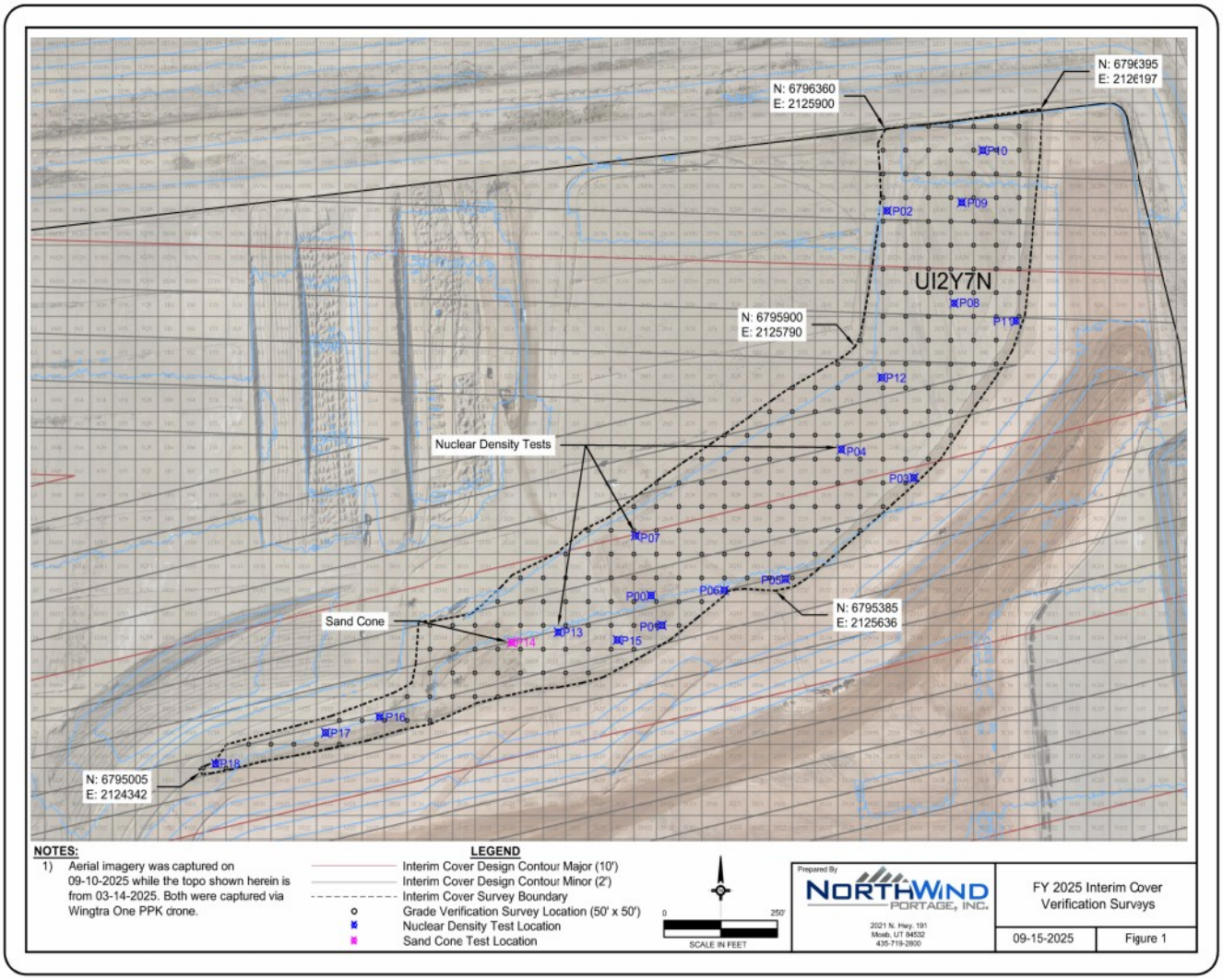
Comments: QC performed a visual inspection of the final surface with satisfactory results. The grading tolerance for this cap layer is -0 FT to +0.17 FT (-0 IN to +2 IN).

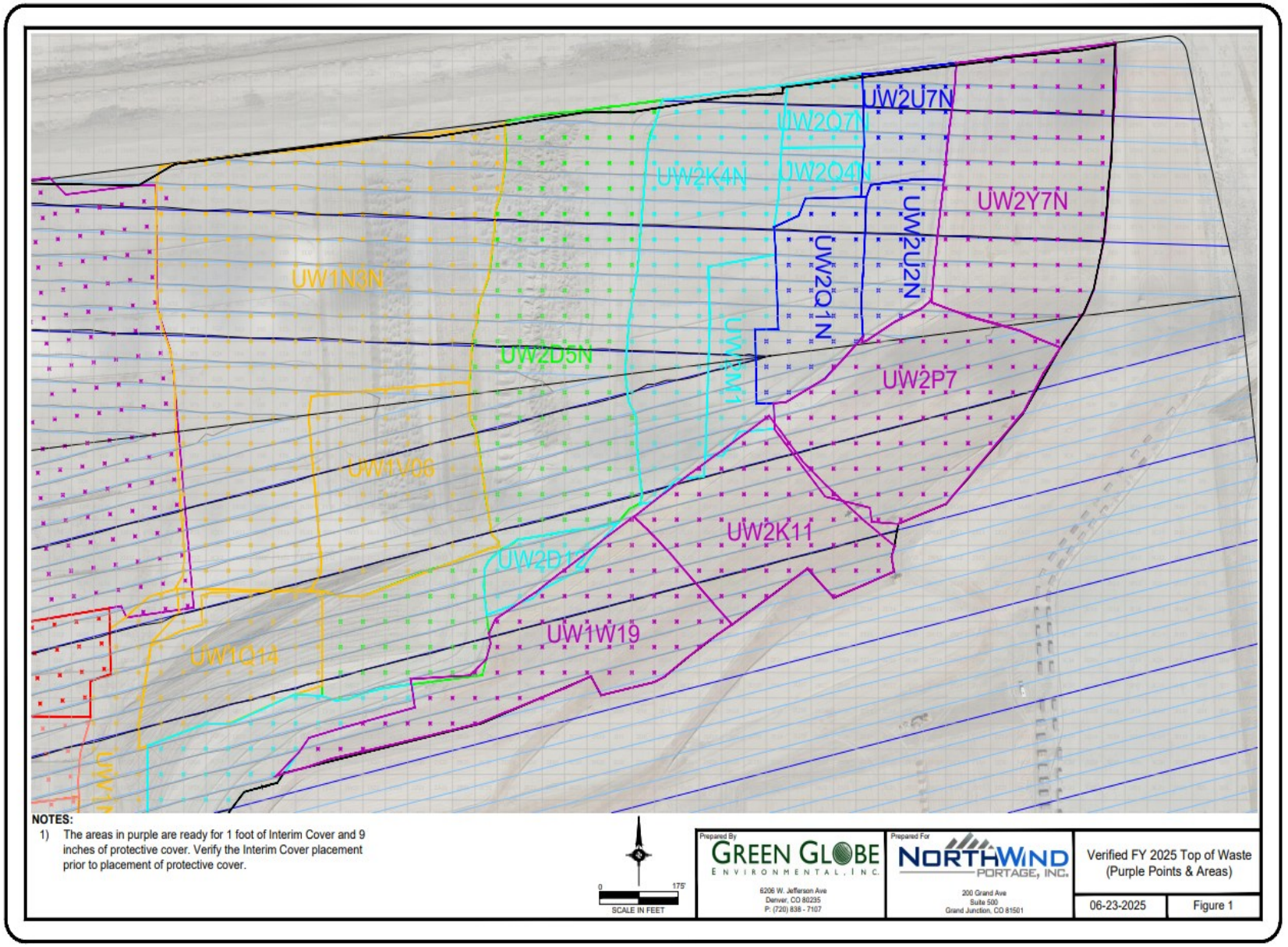
Approval Date: **Total Square Feet:** 585,975

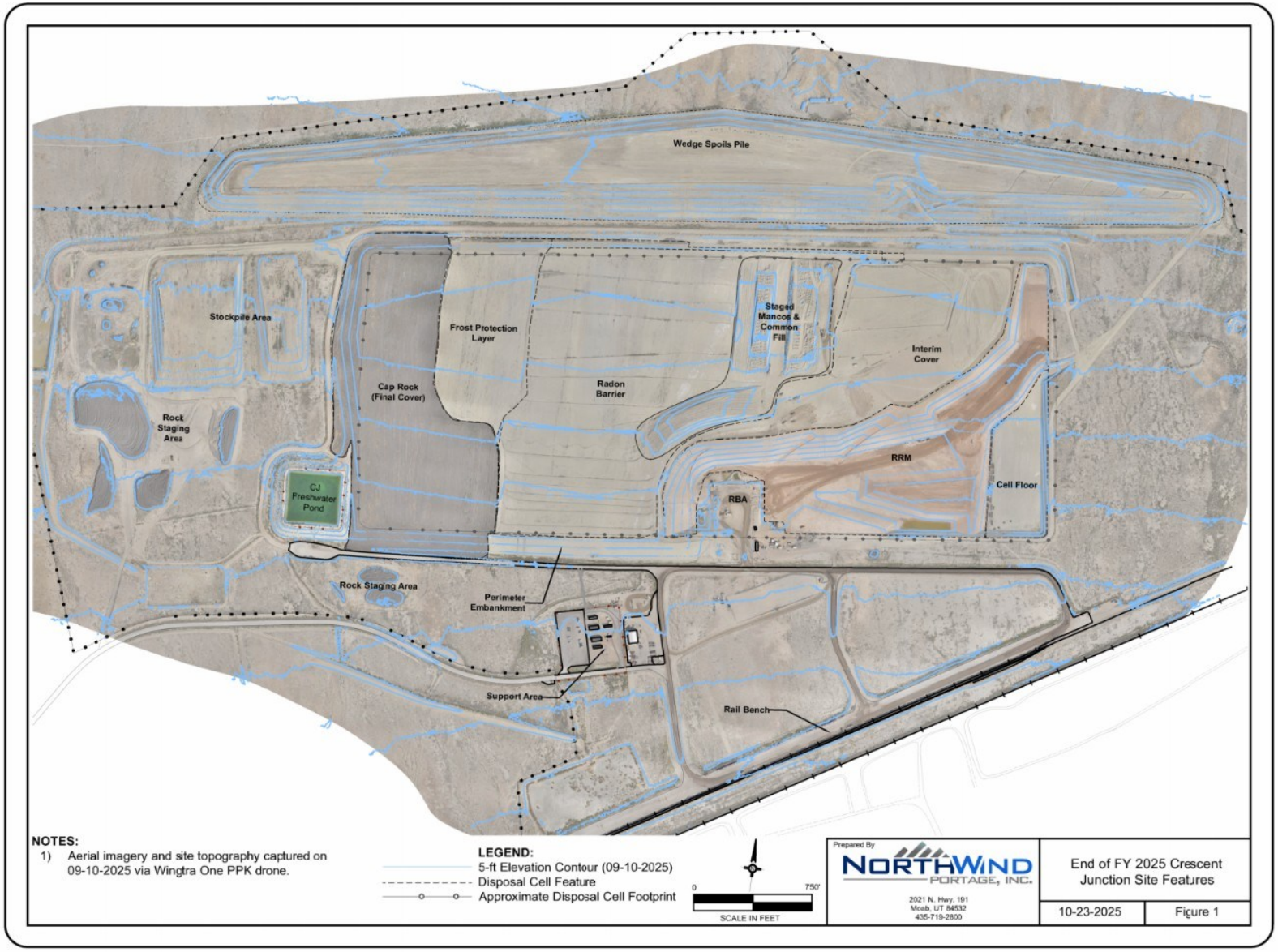
Northwest Corner: N: 6796360, E: 2125900

QC Signature: **Reviewed By:**

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




UW2U7N
UW2Q7N
UW2K4N
UW2Q4N
UW2Y7N
UW2U2N
UW2Q1N
UW1N3N
UW2D5N
UW1W1
UW2P7
UW1V06
UW2K11
UW2D12
UW1W19
UW1Q14
NOTES:
1) The areas in purple are ready for 1 foot of Interim Cover and 9 inches of protective cover. Verify the Interim Cover placement prior to placement of protective cover.
0
175'
SCALE IN FEET
Prepared By
GREEN GLOBE
ENVIRONMENTAL, INC.
6206 W. Jefferson Ave
Denver, CO 80235
P: (720) 838 - 7107
Prepared For
NORTHWIND
PORTAGE, INC.
200 Grand Ave
Suite 500
Grand Junction, CO 81501
Verified FY 2025 Top of Waste
(Purple Points & Areas)
06-23-2025
Figure 1


Wedge Spoils Pile
Stockpile Area
Frost Protection Layer
Staged Mancos & Common Fill
Interim Cover
Cap Rock (Final Cover)
Radon Barrier
Rock Staging Area
RRM
Cell Floor
CJ Freshwater Pond
RBA
Rock Staging Area
Perimeter Embankment
Support Area
Rail Bench
NOTES:
1) Aerial imagery and site topography captured on 09-10-2025 via Wingtra One PPK drone.
LEGEND:
5-ft Elevation Contour (09-10-2025)
Disposal Cell Feature
Approximate Disposal Cell Footprint
0
750'
SCALE IN FEET
Prepared By
NORTHWIND PORTAGE, INC.
2021 N. Hwy. 191
Moab, UT 84532
435-719-2800
End of FY 2025 Crescent Junction Site Features
10-23-2025
Figure 1

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

OCS UNIT Location	Date sample was counted	Tech name who collected the Sample	Tech name who counted the Sample	Weigh of Sample in grams	Counting time in Seconds	Net Peaks CTS	Weekly Correction Factor	Sample Analysis in pCi/g	Sample Information
Unit #2 MCB #1	9/22/2025	MB	MB	324.6	500	1186	607.8	4.4	UI22YN Interim 1
Unit #2 MCB #1	9/22/2025	MB	MB	363.4	500	1380	607.8	4.6	UI22YN Interim 2
Unit #2 MCB #1	9/22/2025	MB	MB	389.2	500	1445	607.8	4.5	UI22YN Interim 3
Unit #2 MCB #1	9/22/2025	MB	MB	361.1	500	1261	607.8	4.2	UI22YN Interim 4
Unit #2 MCB #1	9/22/2025	MB	MB	357	500	1279	607.8	4.4	UI22YN Interim 5
Unit #2 MCB #1	9/22/2025	MB	MB	349.4	500	1177	607.8	4.1	UI22YN Interim 6
Unit #2 MCB #1	9/22/2025	MB	MB	366	500	1276	607.8	4.2	UI22YN Interim 7
Unit #2 MCB #1	9/22/2025	MB	MB	353.6	500	1259	607.8	4.3	UI22YN Interim 8
Unit #2 MCB #1	9/22/2025	MB	MB	428.3	500	1295	607.8	3.7	UI22YN Interim 9
Unit #2 MCB #1	9/22/2025	MB	MB	315.6	500	1070	607.8	4.1	UI22YN Interim 10
Unit #2 MCB #1	9/22/2025	MB	MB	363.3	500	964	607.8	3.2	UI22YN Interim 11
Unit #2 MCB #1	9/22/2025	MB	MB	389.7	500	1123	607.8	3.5	UI22YN Interim 12
Unit #2 MCB #1	9/22/2025	MB	MB	340.3	500	1073	607.8	3.8	UI22YN Interim 13
Unit #2 MCB #1	9/22/2025	MB	MB	355.8	500	1636	607.8	5.6	UI22YN Interim 14
Unit #2 MCB #1	9/22/2025	MB	MB	367.3	500	1430	607.8	4.7	UI22YN Interim 15
Unit #2 MCB #1	9/22/2025	MB	MB	362.7	500	1046	607.8	3.5	UI22YN Interim 16
Unit #2 MCB #1	9/22/2025	MB	MB	350	500	1166	607.8	4.0	UI22YN Interim 17
Unit #2 MCB #1	9/22/2025	MB	MB	392.6	500	922	607.8	2.9	UI22YN Interim 18
Unit #2 MCB #1	9/22/2025	MB	MB	358.3	500	1032	607.8	3.5	UI22YN Interim 19
Unit #2 MCB #1	9/22/2025	MB	MB	342.5	500	1280	607.8	4.5	UI22YN Interim 20
Unit #2 MCB #1	9/23/2025	MB	MB	314.4	500	1024	607.8	4.0	UI22YN Interim 21
Unit #2 MCB #1	9/23/2025	MB	MB	311.1	500	885	607.8	3.5	UI22YN Interim 22
Unit #2 MCB #1	9/23/2025	MB	MB	287.8	500	1342	607.8	5.7	UI22YN Interim 23
Unit #2 MCB #1	9/23/2025	MB	MB	320.8	500	1124	607.8	4.3	UI22YN Interim 24
Unit #2 MCB #1	9/23/2025	MB	MB	294.4	500	1030	607.8	4.3	UI22YN Interim 25
Unit #2 MCB #1	9/23/2025	MB	MB	306	500	1111	607.8	4.4	UI22YN Interim 26
Unit #2 MCB #1	9/23/2025	MB	MB	326.3	500	1509	607.8	5.6	UI22YN Interim 27
Unit #2 MCB #1	9/23/2025	MB	MB	327.9	500	1277	607.8	4.7	UI22YN Interim 28
Unit #2 MCB #1	9/23/2025	MB	MB	338.6	500	1291	607.8	4.6	UI22YN Interim 29
Unit #2 MCB #1	9/23/2025	MB	MB	333.7	500	1343	607.8	4.9	UI22YN Interim 30
Unit #2 MCB #1	9/23/2025	MB	MB	336.8	500	1035	607.8	3.7	UI22YN Interim 31

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

OCS UNIT Location	Date sample was counted	Tech name who collected the Sample	Tech name who counted the Sample	Weigh of Sample in grams	Counting time in Seconds	Net Peaks CTS	Weekly Correction Factor	Sample Analysis in pCi/g	Sample Information
Unit #2 MCB #1	9/23/2025	MB	MB	344.2	500	1438	607.8	5.1	UI22YN Interim 32
Unit #2 MCB #1	9/23/2025	MB	MB	340.6	500	846	607.8	3.0	UI22YN Interim 33
Unit #2 MCB #1	9/23/2025	MB	TM	307.7	500	1146	607.8	4.5	UI22YN Interim 34
Unit #2 MCB #1	9/23/2025	MB	TM	303.6	500	929	607.8	3.7	UI22YN Interim 35
Unit #2 MCB #1	9/23/2025	MB	TM	325.6	500	1388	607.8	5.2	UI22YN Interim 36
Unit #2 MCB #1	9/23/2025	MB	TM	378.5	500	803	607.8	2.6	UI22YN Interim 37
Unit #2 MCB #1	9/23/2025	MB	TM	331.3	500	1060	607.8	3.9	UI22YN Interim 38
Unit #2 MCB #1	9/23/2025	MB	TM	326.8	500	1383	607.8	5.1	UI22YN Interim 39
Unit #2 MCB #1	9/23/2025	MB	TM	315.7	500	994	607.8	3.8	UI22YN Interim 40
Unit #2 MCB #1	9/23/2025	MB	TM	322.6	500	563	607.8	2.1	UI22YN Interim 41
Unit #2 MCB #1	9/23/2025	MB	TM	333	500	1353	607.8	4.9	UI22YN Interim 42
Unit #2 MCB #1	9/23/2025	MB	TM	322.5	500	1191	607.8	4.5	UI22YN Interim 43
Unit #2 MCB #1	9/23/2025	MB	TM	318	500	1163	607.8	4.4	UI22YN Interim 44
Unit #2 MCB #1	9/23/2025	MB	TM	324.6	500	945	607.8	3.5	UI22YN Interim 45
Unit #2 MCB #1	9/24/2025	MB	TM	337.3	500	1380	607.8	5.0	UI22YN Interim 46
Unit #2 MCB #1	9/24/2025	MB	TM	326.7	500	1579	607.8	5.9	UI22YN Interim 47
Unit #2 MCB #1	9/24/2025	MB	TM	342.5	500	948	607.8	3.4	UI22YN Interim 48
Unit #2 MCB #1	9/24/2025	MB	TM	343.7	500	1013	607.8	3.6	UI22YN Interim 49
Unit #2 MCB #1	9/24/2025	MB	TM	329.9	500	1196	607.8	4.4	UI22YN Interim 50
Unit #2 MCB #1	9/24/2025	MB	TM	355.5	500	1288	607.8	4.4	UI22YN Interim 51
Unit #2 MCB #1	9/24/2025	MB	TM	343.8	500	1440	607.8	5.1	UI22YN Interim 52
Unit #2 MCB #1	9/24/2025	MB	TM	338.3	500	769	607.8	2.8	UI22YN Interim 53
Unit #2 MCB #1	9/24/2025	MB	TM	352	500	1684	607.8	5.8	UI22YN Interim 54
Unit #2 MCB #1	9/24/2025	MB	TM	395.7	500	1496	607.8	4.6	UI22YN Interim 55

CJ Interim Completion Report – Addendum O

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