National Security Technologies LLC
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DOE/NV/25946--1242

EVAPOTRANSPIRATION COVER FOR THE 92-ACRE AREA RETIRED MIXED WASTE PITS

Area 5 Waste Management Division
Nevada National Security Site

INTERIM CQA REPORT

Prime Contract No.: DE-AC52-06NA25946

Prepared for:
National Nuclear Security Administration
Nevada Site Office
Las Vegas, Nevada

Prepared by:

The Delphi Groupe, Inc.
2211 South IH35, Ste 400
Austin, Texas 78741
Tel: 512-462-1181

and

J. A. Cesare and Associates, Inc.
106 Cassia Way
Henderson, Nevada 89014
Tel: 702-564-3331

June 20, 2011

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Tel: 702-564-3331

June 20, 2011

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 INTRODUCTION

This Interim Construction Quality Assurance (CQA) Report is for the 92-Acre Evapotranspiration Cover, Area 5 Waste Management Division (WMD) Retired Mixed Waste Pits, Nevada National Security Site, Nevada for the period of January 20, 2011 to May 12, 2011.

Construction was approved by the Nevada Division of Environmental Protection (NDEP) under the "Approval of Corrective Action Decision Document / Corrective Action Plan (CADD/CAP) for Corrective Action Unit (CAU) 111: Area 5 WMD Retired Mixed Waste Pits, Nevada National Security Site, Nevada, on January 6, 2011, pursuant to Subpart XII.8a of the Federal Facility Agreement and Consent Order.

The project is located in Area 5 of the Radioactive Waste Management Complex (RWMC) at the Nevada National Security Site (NNSS), formerly known as the Nevada Test Site, located in southern Nevada, approximately 65 miles northwest of Las Vegas, Nevada, in Nye County. The project site, in Area 5, is located in a topographically closed basin approximately 14 additional miles north of Mercury Nevada, in the north-central part of Frenchman Flat.

The Area 5 RWMS uses engineered shallow-land burial cells to dispose of packaged waste. The 92-Acre Area encompasses the southern portion of the Area 5 RWMS, which has been designated for the first final closure operations. This area contains 13 Greater Confinement Disposal (GCD) boreholes, 16 narrow trenches, and 9 broader pits. With the exception of two active pits (P03 and P06), all trenches and pits in the 92-Acre Area had operational covers approximately 2.4 meters thick, at a minimum, in most areas when this project began.

The units within the 92-Acre Area are grouped into the following six informal categories based on physical location, waste types and regulatory requirements:

- Pit 3 Mixed Waste Disposal Unit (MWDU)
- Corrective Action Unit (CAU) 111
- CAU 207
- Low-level waste disposal units
- Asbestiform low-level waste disposal units
- One transuranic (TRU) waste trench

As agreed by NDEP and the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO) on February 14, 2008, the entire 92-Acre Area will be closed under the Federal Facility Agreement and Consent Order (FFACO). In July 2009, the *"Corrective Action Decision Document/Corrective Action Plan for the 92-Acre Area and Corrective Action Unit 111: Area 5 MWD Retired Mixed Waste Pits, Nevada Test Site, Nevada" (*the CADD/CAP) was submitted and conditionally approved by NDEP subject to final approval of the final plans and specifications for the closure (NNSA/NSO, 2009).

Since the submittal of the 2009 CADD/CAP, several National Security Technologies, LLC (NSTec) discussions ensued that focused on the efficacy and economies of some aspects of the 2009 CADD/CAP design. As a result of the discussions NSTec Engineering undertook an Alternatives Evaluation to re-examine certain design aspects.

An enhanced design was developed to improve cover performance and to reduce construction costs. Revisions made to the 2009 CADD/CAP redesigned the final grading plan and cover system construction specifications.

The "*Design of Revisions to the Evapotranspiration Cover for the 92-Acre Area: Area 5 Waste Management Division, Retired Mixed Waste Pits, Nevada National Security Site, Nevada*" (CH2M Hill, 2010) documents were used for construction and performed under Prime Contract: DE-AC52-06NA25946.

Closure activities that have been performed to date for the engineered evapotranspiration cover over the 92-Acre Area, are covered in this report and includes the following:

- Demolition of existing ancillary structures, inclusive of fencing, gates and signage
- Excavation and grading the existing covers
- Filling in and covering active cells as part of the closure including access ramps
- Fill placement to design grades, ripping, rock removal and track walking cover surfaces
- Soil stabilization of the completed covers
- Construction of storm water runoff and erosion control features
- Construction of access roads and use restriction (UR) warning signs

Work yet to be performed and scheduled to begin in October 2011 includes the following:

- Disking of the cover surface and seeding to establish vegetation on the cover
- Installing subsidence survey monuments
- Cleanup of site and return to preconstruction conditions.
- Implementing post-closure inspections and monitoring

1.2 REFERENCES

Construction of the 92 Acre Area Evapotranspiration Cover was performed in accordance with the approved design documents, as referenced below, and as incorporated into the NDEP Approval dated January 6, 2011.

NSTec was responsible for all aspects of the construction of the covers and site work in accordance with the Design Engineer's approved design. The approved design documents are as follows:

- **Design Report** entitled: "*Final* Design of Revisions to the Evapotranspiration Cover for the 92-Acre Area: Area 5 Waste Management Division Retired Mixed Waste Pits, Nevada National Security Site, Nevada. Approved October 2010.

- **Drawings** entitled: "Nevada National Security Site, 92 Acre Grading and Drainage, Area 5 Radioactive Waste Management Site" Approved: October 6, 2010, Sixteen (16) sheets.

- **Specifications** entitled: "Nevada National Security Site, 92 Acre Grading and Drainage, Construction Specification", Document No. 10088-SPC-G01, Revision 0. Approved: October 6, 2010.

- **CQA Plan entitled:** "Construction Quality Assurance Plan for 92-Acre Area Evapotranspiration Cover Nevada National Security Site, Nevada", Document No. 10088-CQAP-01, Revision 0. Approved October 2010.

Only these versions of design documents were to be used in the field for constructing and documenting construction.

2.0 CONSTRUCTION SUMMARY

2.1 PARTIES INVOLVED AND RESPONSIBILITIES

The following parties were involved in construction of the 92-Acre Area Evapotranspiration Cover Project.

Permitting Agency: The Nevada Division of Environmental Protection (NDEP) has the authority to review reports for the construction and operation of the subject waste containment facility. The NDEP has the responsibility and authority to review CQA documentation during and after facility construction. The intent of this review is to confirm that the CQA program was adhered to, that the facility was constructed in conformance with the appropriate regulations and conditions and that the facility was constructed in substantial conformance with the drawings and specifications.

Owner: The Owner is the National Nuclear Security Administration (NNSA) who owns the waste containment facility. The Owner is responsible for complying with all applicable regulatory requirements of the Permitting Agency. The owner has the authority to select and dismiss organizations charged with design, construction, and CQA.

Operator: The Operator is National Security Technologies, LLC (NSTec), the primary contractor for the Nevada National Security Site (NNSS). The Operator is the organization that operates the waste containment facility and has the responsibility for the site's management and operations.

Construction and Oversight: National Security Technologies, LLC (NSTec) is responsible for conducting construction oversight and construction for the general purpose of achieving, continuously throughout construction, the design engineer's compliance with the requirements of:

- The Nevada Division of Environmental Protection CADD/CAP Approval Documents
- Prime contract DE-AC52-06NA25946
- CH2MHill's Approved Design
- NSTec policies, practices, and standards as established for the 92 Acre Area Cover construction in work packages specifically prepared for this work, and
- Area 5 facilities and operation coordination

The construction work was performed by NSTec's own forces. NSTec maintains overall responsibility for adequacy of the construction, as well as safe completion of construction and construction documentation consistent with design and regulatory/permit requirements.

Design Engineer: The Design Engineer is CH2M Hill, a subcontractor of NSTec, and is responsible for the design of an evapotranspiration cover that fulfills the operational requirements of the Owner, complies with accepted design practices for waste containment facilities, and meets or exceeds the minimum requirements of the Permitting Agency.

Earthwork and Soil Stabilization : Earthwork, including personnel, equipment and grade control, was performed by NSTec, with the responsibility to construct the earthwork portion of the facility in accordance with the design criteria, drawings, and specifications to the satisfaction of the CQA Engineer and Owner. Soil stabilization was performed by a subcontractor, TRUK Enterprises, under direct NSTec supervision.

Surveying: NSTec provided construction surveying throughout the project. Jemison Surveying & Services (JS&S), a licensed surveyor in the State of Nevada, provided third party surveying services. JS&S was responsible for verifying the elevations of the certification points located on the covers and providing as-built topography of the completed covers and drainage features.

CQA Team: J. A. Cesare and Associates, Inc. (JA Cesare), as a sub consultant to The Delphi Group, Inc., provided independent CQA personnel for the project. The CQA Personnel include the CQA Engineer, CQA Resident Manager and CQA Technician. The responsibility of the CQA Personnel is to observe and document the construction activities and inspect materials and documentation in order to confirm whether the work and materials are in conformance with drawings and specifications for the project. The overall responsibility of the CQA Personnel is confirming the facility is constructed in accordance with the plans and specifications.

The CQA Engineer is John J. Durkin, P.E. (Nevada #9708) a professional engineer registered in the State of Nevada and assigned the responsibility for all aspects of CQA Plan implementation. The CQA Resident Engineer is designated by the CQA Engineer to act on his behalf and report any deviations from the approved plans to the CQA Engineer. The CQA Resident Engineer is Linda D. Carvolth, P.E. and the CQA Technician is Darrin Anderson, employed by NSTec. CQA Personnel engineering licenses are provided in Appendix 8.

During construction of the 92-Acre Area Evapotranspiration Cover, either the CQA Officer or CQA Engineer was on-site part-time and observed the following construction activities:

- Subgrade preparation of the 92-Acre Cover Areas
- Soil excavation, fill placement and slope construction
- Ripping the cover surface, rock removal and track walking
- Application of soil stabilization product
- As built surveying of completed covers, control points and drainage features

The CQA Personnel also performed material sampling, soil classification, compaction testing, moisture testing and laboratory testing during construction of the covers. Daily reports by the CQA Engineer and CQA Resident Manager are included in Appendix 1 and Laboratory test results are provided in Appendix 2.

2.2 CONSTRUCTION CHRONOLOGY

The following summary includes some of the major project milestones accomplished from conceptual design and permitting to project completion.

- NDEP and the NNSA/NSO agreed, February 14, 2008, the entire 92-Acre Area will be closed.
- The *"Corrective Action Decision Document/Corrective Action Plan for the 92-Acre Area and Corrective Action Unit 111: Area 5 MWD Retired Mixed Waste Pits, Nevada Test Site, Nevada" (*the CADD/CAP) was submitted and conditionally approved by NDEP subject to final approval of the final plans and specifications for the closure in July 2009.
- CH2M Hill prepared the *Design of Revisions to the Evapotranspiration Cover for the 92-Acre Area: Area 5 Waste Management Division, Retired Mixed Waste Pits, Nevada National Security Site, Nevada* and was approved in October 2010.

Pre-Construction Meeting: A pre-construction meeting with representatives from National Security Technologies, The Delphi Group, Inc. and J. A. Cesare and Associates, Inc. occurred at Area 5, Bldg. 05-7 Conference Room on January 18, 2011.

Project Initiation: Project work commenced on January 20, 2011.

Completion of Excavation and Grading: Excavation and grading including ripping, rock removal and track walking of the North, South and West Covers was completed on April 25, 2011.

Soil Stabilization: Application of the soil stabilization product began on April 25, 2011 and was completed on the North, South and West Covers on April 28, 2011.

Surveying: As built survey on the completed cover surfaces and the drainage features was completed on May 12, 2011.

Project Completion: Construction of the 92-Acre Evapotranspiration Cover earthwork and soil stabilization and drainage features was completed on May 10, 2011. Seeding of the cover is planned to begin in October, 2011 and is expected to be completed by the end of December 2011. Settlement monuments will be installed and surveyed as the last work item.

3.0 WORK ITEMS

The 92-Acre Grading and Drainage Construction Specifications included sections for: General Requirements, Earthwork, and Exterior Improvements. These sections included: Site Clearing, Excavation, Earthwork, Temporary Erosion and Sediment Control and Seeding. The following is a summary of each of these work items performed during construction.

3.1 SITE CLEARING – SECTION 31 10 00

Site Clearing included work necessary to clear the construction area of interfering or objectionable material, vegetation and other organic matter prior to the start of any earthwork. The areas needed for waste disposal, borrow, or site improvements were cleared within the limits shown on the drawings or provided in the specifications. Any rubbish, trash and junk observed on the surface of the site was removed from the entire area within the construction limits. Clearing and grubbing was performed as required and debris was disposed off site or buried in designated onsite disposal areas at the direction of the Operator.

3.2 EXCAVATION – SECTION 31 23 16

Excavation covers work associated with construction of the 92-Acre Grading and Drainage project and includes excavating borrow soils and drainage channels adjacent to the evapotranspiration final cover as shown on the drawings. Prior to excavating, site clearing was performed as specified in Section 31 10 00.

Excavation activities for the 92-Acre Covers were performed by equipment operators employed by NSTec. Excavation and earthwork began on January 20, 2011 and was completed on April 25, 2011.

Excavation limits were established by National Security Technologies (NSTec) prior to the beginning of construction. A Global Positioning System (GPS) base station was set up on a temporary bench mark that was established adjacent to the CAAB Building 05-31. The temporary benchmark was set by NSTec from an Area 5 permanent benchmark and verified by other benchmarks and control points established in Area 5.

Excavation was performed to the lines, grades and dimensions shown in the drawings and as necessary to accomplish the work. Excavations were generally made to within a tolerance of plus or minus 0.1 foot except where dimensions or grades are shown or specified as maximum or minimum. Cut slopes were shaped, trimmed and finished to conform to the lines, grades and cross sections shown on the drawings. The materials excavated within the 92 Acre area were not stockpiled but used to cover waste containers or for construction of the covers.

3.3 EARTHWORK – SECTION 31 20 00

The Earthwork Section provides for all grading and backfill associated with construction of the 92-Acre Grading and Drainage project. The Evapotranspiration (ET) final covers were constructed within the ET final cover and grading limits as shown on the Drawings. The final cover was separated into the three separate covers and designated the North Cover, South Cover and West Cover as shown on the Drawings.

Excavation, surface preparation, fill placement, grading, and grade control during construction was provided by NSTec. The surface of the existing covers that required fill was prepared by ripping with a D10 dozer. The existing cover materials consisted of silty sand and gravel soils. Unsuitable materials were removed from the surface and the placement surfaces were free of water, debris and foreign material during placement of fill materials. Fill materials were placed and spread in lifts of uniform thickness in a manner that avoided segregation and care was made to reduce compaction of the materials as much as possible prior to placing succeeding lifts.

During construction, earthen materials from within Radioactive Waste Management Complex were classified in accordance with the Unified Soil Classification System (USCS). Six samples of fill materials were collected throughout the construction period and sieve analysis and maximum dry density/moisture content relationships by ASTM Test Method D 698 (Standard Proctor) were performed. All six samples were classified as silty sand with gravel (SM). Laboratory test results are provided in Appendix 2-A.

Each layer of fill material was placed in an uncompacted lift no greater than 18-inches thick. Field compaction and moisture content testing was performed by an NSTec technician in the presence of the CQA Personnel. CQA Personnel selected density/moisture content test locations that provided uniform testing coverage of the subgrade and fill surfaces. Field density and moisture content tests were performed using a calibrated nuclear density gauge in accordance with ASTM D 6938 test method. A minimum of 1 field density and 1 moisture test per acre was performed on each of the subgrade, intermediate lifts, and the final cover surface. Visual-manual classification of the soils was performed. The fill material was consistently identified as silty sand with gravel throughout construction.

In-place density of cover material was specified to be no than less than 75 percent and no greater than 85 percent relative compaction as determined by ASTM D698 and no greater than 103 pounds per cubic foot dry density. Moisture contents were specified to be no greater than 1 percent dry of optimum moisture content. Field moisture/density test results are summarized in Appendix 2-B and field moisture contents are summarized in Appendix 2-C.

Motor graders and D6 Dozers, were equipped with GPS in order to construct accurate grade elevations. When the top lift of the cover met the lines, grades and dimensions shown on the drawings and in the project documents, the surface was cross ripped with a D10 dozer to a depth of 36 inches and ripped again in a single direction with a motor grader to a depth of 14 inches. Rocks larger than 9 inches in diameter and visible on the surface of the cover, were manually removed with a bobcat skid steer equipped with a rock rake.

The CQA Engineer verified the in-place density and moisture contents were within the specified relative compaction and moisture content requirements. A Caterpillar D6 low ground pressure bull dozer track walked the surface of the covers. The drainage features around the covers and the Arizona Crossing were then constructed.

Upon completion of final cover fill placement and final surface preparation, the Operator and CQA personnel conducted post-construction observations to check for material and placement imperfections and to identify those areas that require corrective action. The final grading for all landfill areas was observed to ensure drainage features were free of depressions and drained away from the covers.

As-built and record verification surveys were performed on the cover surfaces when the requirements for earthwork activities were met. Final surveys to establish the as-built topography of the cells including the control point coordinates and elevations were performed by Jemeson Surveying & Services, JS&S. Grades were considered acceptable when compared to the project drawings, yielding the specified tolerances. As-built control point elevations and topography of the 92-Acre Cover and drainage facilities, prepared by JS&S is provided in Appendix 7.

3.3 TEMPORARY EROSION AND SEDIMENT CONTROL – SECTION 01 57 13

This section covers work necessary for stabilization of soil to prevent erosion after construction and land disturbing activities prior to seeding of the final cover. The minimum areas requiring soil erosion and sediment control measures are the final cover areas and borrow area.

The soil binder product used was Soiltac. The application process resulted in a uniformly treated mixture that contains the required amount of soil binder product as recommended by the manufacturer. The soil stabilization product was applied by a truck mounted spray boom and hoses. The total application rate to stabilize the surface of the final cover exceeds the manufacturers' recommendation. The certificate of completion with the rates applied and manufacturers' product information are provided in Appendix 3-A and 3-B.

The soil binder product was applied to all final cover areas within 7 calendar days of Engineer acceptance of final grades. The soil binder application is intended to provide 100% control efficiency of PM10 and control erosion for a minimum of 6 months from date of application. Photographs of application procedures are shown in Appendix 9.

3.5 SEEDING – SECTION 32 93 01

This section covers the work necessary to perform final soil preparation, seeding and mulching of the final cover. Work limits include the entire final cover area, generally described as the area bordered by the toe of the 3:1 sideslopes on each cover area.

Seeding of the Evapotranspiration Cover is planned to begin in October 2011.

4.0 REQUESTS FOR INFORMATION AND ENGINEERING CHANGE NOTICES

REQUESTS FOR INFORMATION

Additional information requested from the Design Engineer and requests for changes to the plans and specifications are addressed as Request for Information (RFI's). The following is a list and brief description of the RFI's generated during the project. The complete RFI's are provided in Appendix 6-A.

RFI-11-0025 – This Request for Information (RFI) is to clarify the Construction Quality Assurance Plan requirements for subgrade and fill moisture contents. The Construction Specifications and the Construction Quality Assurance Plan appeared to conflict. Engineering Change Notice (ECN) Number 10088-ECN-02 was issued to modify the CQA Plan to specify the subgrade and fill materials should have a maximum moisture content of 1% dry of optimum moisture content. Engineering Change Notice (ECN) Number 10088-ECN-02 was issued to revise Section 4 of the CQA Plan and is provided in Appendix 6-B..

RFI-11-0026 – This RFI requests revision of the Construction Specification (10088-SPG-G01) requirements to remove the bale size requirement for straw mulch. The specification requires unnecessary bale size which could limit vendors who are otherwise capable of performing the work. The engineer concurred with the recommendation and deleted the second and third sentences of Section 32 93 01, Seeding, Part 2.02, Straw Mulch, B. ECN-03 is provided in Appendix 6-B.

RFI-11-0030 – This RFI requests to obtain a revised design for the West Cover in the two areas where the design is not consistent with Area 5 knowledge. Revision to the drawings will ensure proper coverage of buried waste in the final closure design and eliminate unnecessary cover construction. Engineering Change Notice (ECN) Number 10088-ECN-01 was issued to revise grading and control points in these areas and is provided in Appendix 6-B.

RFI-11-0031 – This RFI requests revision of the Construction Specification (10088-SPG-G01) requirements to allow changes in ripping methodology and testing requirements based on field performance tests. Engineering Change Notice Number 10088-ECN-04 was issued to provide modifications to the Specification Section 31 20 00, Earthwork, regarding ripping methodology, testing frequency and subgrade lift requirements. The specification changes reduced additional work and testing to result in a significant impact to the schedule. ECN-04 is provided in Appendix 6-B.

RFI-11-0039 – This RFI requests revision of the Construction Specification 10088-SPG-G01, Section 1.09 TRAFFIC CONTROL to allow other than low ground pressure (LGP) vehicles on the final cover surface to complete revegetation tasks such as site preparation, seeding straw mulch and crimping. The engineer approved the revision and ECN Number 10088-ECN-06 was issued to provide modifications to Section 1.09. ECN-06 is provided in Appendix 6-B.

RFI-11-0079 – This RFI requests revision of the drainage swales grading and controls at the road adjacent to the West Cover. A revision was necessary to accommodate existing roadway and traffic patterns. The engineer approved the revision and ECN Number 10088-ECN-09 was issued to provide drainage modifications and is provided in Appendix 6-B.

RFI-11-0086 – This RFI requests revision of the Construction Quality Assurance Plan (10088-CQAP-01) to be in agreement with approved revisions to Construction Specification (10088-SPG-G01) requirements. A revision was necessary to align the CQA Plan with the Construction Specification as revised with 10088-ECN-04 and approved RFI-11-0031. The engineer agreed with a revision to CQA Plan Tables 4-1 and 4-2 and is provided in 10088-ECN-08. The ECN is provided in Appendix 6-B.

RFI-11-0093 - This RFI requests revision of the Construction Specification (10088-SPG-G01) Section 31 20 00, Part 3.01, E Tolerances to within -0.15 foot to +0.4 foot. The impact would be reworking the cover surfaces with no additional benefit. Engineering Change Notice Number 10088-ECN-10 was issued to provide modifications to the Specification Section 31 20 00, Earthwork, revising final grade tolerances. ECN-10 is provided in Appendix 6-B.

RFI-11-0094 - This RFI requests revision of the Construction Specification (10088-SPG-G01) Section 31 20 00, Part 2.03 to delete requirement for a 6-inch layer of fine aggregate material between the geocomposite material and rip rap and also delete the note requiring well graded gravel to fill voids in the Arizona Crossing rip rap material. The impact would be additional materials and labor would be required. RFI-10 is provided in Appendix 6-A.

ENGINEERING CHANGE NOTICES

Changes to the design drawings and specifications, as typically outlined in an RFI, are provided from the Design Engineer through Engineering Change Notices (ECN's). The following is a list and brief description of the ECN's generated during the project. ECN's are provided in Appendix 6-B.

10088-ECN-01 – ECN-01 is a modification to the Cover Grading over the CWI trenches and P11 on the West Cover.

10088-ECN-02 – ECN-02 is a modification to the Construction Quality Assurance Plan (100-CQAP-01) requirements for subgrade and fill moisture content.

10088-ECN-03 – ECN-03 is a modification to Specification Section 32 93 01, Seeding, regarding bale size requirement for straw.

10088-ECN-04 – ECN-04 is a modification to Specification Section 31 20 00, EARTHWORK, regarding ripping methodology, testing frequency and subgrade lift requirements.

10088-ECN-05 – ECN-05 contains revised grading and control points over the westerly portion of Cell P03 of the North Cover.

10088-ECN-06 – ECN-06 is a modification to Specification Section 32 93 01 SEEDING, allowing standard revegetation equipment on the final cover surface for the purpose of straw mulch application.

10088-ECN-07 – ECN-07 contains revised grading and control points over the southwest portion of the West Cover P05.

10088-ECN-08 – ECN-08 is a modification to the Construction Quality Assurance Plan, Section 4.1, material testing tables 4-1 and 4-2.

10088-ECN-09 – ECN-09 is a modification to the drainage swales grading and control at the road on the east side of the West Cover.

10088-ECN-10 – This ECN is a modification to Specification Section 31 20 00, EARTHWORK, revising final grade tolerances.

10088-ECN-11 – This ECN is a modification to Specification Section 31 20 00 Earthwork and Drawing 10088-C-5001 to delete note requiring placement of gravel for the Arizona crossing.

5.0 CONCLUSION AND INTERIM CERTIFICATION

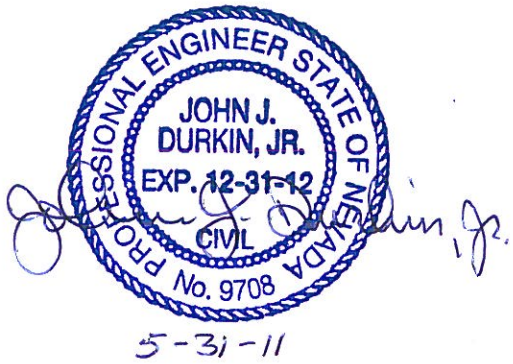
J. A. Cesare and Associates, Inc. provided Construction Quality Assurance services during construction for the 92 Acre Area Evapotranspiration Cover Project at the Area 5 Radioactive Waste Management Complex within the Nevada National Security Site (NNSS). These services were provided in a manner that is consistent with current standards of practice and the degree of care and skill ordinarily exercised under similar conditions by reputable members of the same profession in similar localities. The conclusions presented in this Interim Construction Acceptance Report are based upon observations made by J. A. Cesare and Associates representatives at selected locations and times during the 92 Acre Evapotranspiration Cover construction.

The signature and seal provided below is a declaration by the CQA Engineer that, in his professional judgement, the subject project was constructed in a manner consistent with the approved Construction Quality Assurance Program and referenced design documents, specifications, and drawings.

This Interim Construction Acceptance report was prepared under the CQA Engineer's direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of the Professional Engineer's knowledge and belief to be true and accurate.

J. A. Cesare and Associates, Inc.

By:



5-31-11

John J. Durkin, Jr., P.E.
CQA Engineer

Linda Carvolth, P.E.
CQA Resident Manager

APPENDIX 1

CQA Daily Reports

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-011811-DR **Prepared By:** John Durkin **Date:** January 18, 2011
Project No. 10.1161

Weather Conditions: Clear to partly cloudy, winds 0-10 mph out of south, 50 to 70 degrees F.

Work Summary:

The field preconstruction meeting for the 92-Acre Area Evapotransporation Cover for Area 5 was held today at the Nevada National Security Site (NNSS) Area 5, Building 05A-7, Conference Room. The purpose of the meeting was to discuss project construction, scheduling and CQA program observations.

The project is planned to begin January 20, 2011 by grading the surface of the existing cells in the closure area to design elevations provided on the project drawings. Earth moving equipment, operators and soils testing technician will be provided by NSTec and are scheduled to work Monday through Thursday. Grading and soil preparation is expected to be completed by June, 2011. Vegetation planting for the cover is planned to be performed from December, 2011 to February, 2012.

The tasks and responsibilities of the Third Party Independent Consultant, J. A. Cesare and Associates, Inc. were discussed. A CQA representative from J. A. Cesare is planned to be onsite two days per week to perform the tasks outlined in the Construction Quality Assurance Plan dated October, 2010 by CH2MHill.

A tour of the project work area was provided by John Miller with NSTec and it was noted that cells P03 and P06 have not been filled and the majority of the fill material required will be placed in those cells. Questions on the compaction and moisture specifications during fill placement were discussed and will be addressed in an RFI to the design engineer that will be put together by Pat Arnold.

CQA representatives will be allowed to enter the cell area unescorted upon completion of the RWO training. It was approved that J. A. Cesare's business vehicles could be used in the controlled area with random, radiation screening to be performed by facility personnel.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork NA	NA	NA
Surveying NA	NA	NA
CQA Resident Manager **CQA Engineer**	Linda Carvolth, PE John Durkin, PE	Work has not yet started.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)

Meeting 1	**Meeting 2**
Purpose: Discuss Project Start Up **Attendees:** See Notes below **Results:** Work is planned to begin 1/20/11.	NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
NA	NA	NA

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
NA	NA

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Meeting Participants were: Patrick Arnold and John Miller with NSTec
John Durkin and Linda Carvolth with J. A. Cesare and Associates, Inc.
Bill Donahoe with Delphi

Meeting Minutes are Attached.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE
	

MEETING MINUTES

Subject:	92-Acre Area Evapotranspiration Cover for Area 5 at the Nevada National Security Site.			
Date:	January 18, 2011			
Time:	12:30 – 3:00 pm			
Location:	Nevada Nuclear Security Site (NNSS) Area 5 / Building 05A-7 / Conference Room			
Attendees:	Patrick Arnold	NSTec	(702) 295-2261	
	John C. Miller	NSTec	(702) 295-5646	
	William Donahoe	Delphi	(702) 295-2712	
	John Durkin	JA Cesare	(702) 564-3331	
	Linda Carvolth	JA Cesare	(702) 564-3331	
Introductions:	Phillip Ralph	NSTec	(702) 295-1380	QA
	Wade Russell	NSTec	(702) 295-7611	Safety
	James Loughney	NSTec	(702) 295-6987	RWO Training

This meeting was the "in the field" kick-off of the new Task Order #35, in support of the Waste Management Division. Discussions centered on the Delphi deliverables and tasks that are projected to be completed by J.A. Cesare and Associates, Inc. (Third Party Independent Consultant) for the Subject project over the period of December-2010 through June-2011 during soil preparation; and then beginning again in December-2011 with completion by February-2012 during the vegetation planting. The defined tasks, responsibilities and qualifications are defined in the "Construction Quality Assurance Plan dated September 10, 2010 by **CH2M**HILL.

The basic agreement was that J.A. Cesare would have site presence on Tuesday and Thursday each week that measurement would be required and or as the schedule demands. The Work Package was expected to be signed off and ready for work to begin by 01/20/11.

An office/lab work location was provided in building 05A-6 with a working computer (B042860) and telephone (295-0240). A work area was identified for the drying oven and other measurement instruments.

Discussions were held as to the Trimble GPS equipment that has been added to the dozer(s) and scraper(s) that will work the cover dirt; the basic cover levels above the waste; the final contour and 18 inches of top grade that will be prepared for vegetation planting. The time frame was also discussed with the concern about getting a late start and the possibility that additional equipment would have to be brought in to insure the schedule is met.

A riding tour was given on the 92 acre cover with parameters defined and general Engineered grading plans detailed with proposed drainage profiles.

It was determined that a local RWO Training class would be provided on 01/20/11 at 1300 hours in the 05A-7 facility. This in addition to their other training would allow J.A. Cesare to enter the cell area unescorted. It was approved that their business vehicle could be used in the controlled area with radom, radiation screening to be done by facility personnel.

Pat Arnold has committed to submitting a RFI on some confusing statements between the Construction Specification and the CQA Plan. One discussed in the meeting was the amount of "Moisture Control". An additional point that needs clarification was discussed during the walk-down. The "Compaction & Moisture" content is to be taken during the fill of cell P03 & 06 or just during the final 18 inches in the top cover. These are further detailed in the attached E-Mail from John Durkin, dated 01/19/11.

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-012511-DR **Prepared By:** John Durkin **Date:** January 25, 2011
Project No. 10.1161

Weather Conditions: Clear, winds 0-5 mph out of south, 40 to 60 degrees F.

Work Summary: Earth moving for the 92-Acre Cover project began last week on Thursday, 1-20-11. Grading continued on Friday 1-21-11 and yesterday 1-24-11. Earthwork consisted of cutting and filling the surface of Cells P04 and P05 last week and filling Cell P03 yesterday and today.

Cells P04 and P05 have been previously covered with the minimum 2.5 m (8.2") of soil fill material. There is approximately 1 to 2 feet of cut on the north end of these cells and approximately 1 foot of fill on the south end. NSTec is planning on ripping both the surface and subgrade when the top of cover is at grade. An RFI by Pat Arnold to the design engineer is intended to address this requirement. Last week soil was cut from the north end of both cells and placed in the middle of Cell 5 and on a 45 foot width on the east edge of Cell P04. Fill was placed approximately 1 foot in depth. The earthwork crew concentrated on filling Cell P03 this week. Soil was hauled from the west side of the RCRA cell spoils pile, by 631 scrapers to fill over the stacked waste containers.

Site personnel began surveys with ground penetrating radar (GPR) over the south end of Cell P-11 where the cover design shows adding a cover over 130' of desert as noted in RFI 11-05-001. The RFI also describes Cell CWI where Idaho fuel is buried and is in a cut area. Site personnel will be performing GPR on the CWI surface and in the triangular borrow area on the west side of Cell T07, to confirm buried waste is not present in these areas.

An NSTec field technician tested inplace density on the surface of Cell T07 at three locations and in the triangular borrow area to the west at three locations. Density and moisture tests were performed with a nuclear gauge at depths of 12", 8" and 4". The densities ranged from 99.4 to 109.9 pounds per cubic foot (pcf) with moistures ranging from 5.0 to 6.3%. Summary tables with the compaction test results are attached.

Three locations were also tested on the desert surface south of the RWMC. The densities ranged from 99.7 to 107.1 pcf with moistures ranging from 5.0 to 6.0%. A soil sample was obtained and transported to the J.A. Cesare laboratory for moisture/density relationship testing.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork NA	D-10 Dozer, 631 Scrapers and Loader	Cell P03, Soil fill placed to cover waste.
Surveying NA	NA	NA
CQA Resident Manager **CQA Engineer** **CQA Technician**	Linda Carvolth, PE John Durkin, PE Darrin Anderson, NSTec	Observed earth moving from the stockpile to Cell P03. Tested soil conditions to determine existing soil density.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** **Attendees:** NA **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observation of previously performed grading.	Cells 4 and 5	NSTec field technician with provided test results of inplace density tests on existing soil cap.

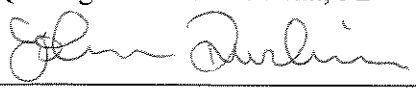
Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Existing soils on the surface of cell cover	Troxler Nuclear Gauge #23205 calibrated 12-2010.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

A soil sample was obtained in the desert south of the RWM Complex (at N 765438, E 708394) and transported to the J. A. Cesare laboratory for a proctor test to determine maximum dry density and optimum moisture content of the native soils.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE
	

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-012711-DR **Prepared By:** John Durkin **Date:** January 27, 2011
Project No. 10.1161

Weather Conditions: Partly cloudy to clear, winds 5-10 mph out of south, 40 to 65 degrees F.

Work Summary:

Earth moving for the 92-Acre Cover continued yesterday and today. Earthwork consisted of cutting and filling the surface of Cells P04 and P05 and filling over waste containers in Cell P03. Soil material was hauled from the RCRA Cell spoils stockpile at the north end of the RWMC to both fill areas with 631 scrapers. Material in the stockpile primarily consists of silty sand with gravel and occasional rocks less than 6 inches in diameter.

The fill materials were placed near optimum moisture content. The higher than expected moisture content is due to recent rain events and moisture application by onsite water pull equipment during stockpiling and excavation. Cells P04 and P05 have been previously covered with the minimum 2.5 m (8.2") of soil fill material. A 14 H blade with GPS controlled grading hardware continued to level Cells P05 and P04. One 631 scraper provided fill material where needed. Fill was also placed for the 10' horizontal to 1' vertical slope between Cells P04 and P05. Due to the shallow depth of fill, NSTec is planning on ripping both the subgrade and 18" cover layer at one time when the cover is at grade. An RFI to the engineer is intended to confirm that this method is acceptable.

A Radiological Determination for Release of Items form was used to obtain two soils samples from within the RCMC. The RCRA Cell stockpile material was sampled from the area between Cells P04 and P05. Material from the proposed borrow area west of T07 on the south cover was also sampled. Both sample areas contained granular materials. The soil samples were swiped, tested and released to be transported off site.

Laboratory tests designated to be performed on the soil samples include moisture/density relationships, sieve analysis and plasticity index. Maximum dry density of the soil will be obtained to determine the percent compaction of the existing top of the cover and the compaction of the cover after the surface has been constructed to grade, ripped and the soil processed to receive the vegetative cover.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading	D-10 Dozer, 3-631 Scrapers, Loader and water pull	Cell P03, Soil fill placed to cover waste and fill low areas of Cells P04 & P05 surface.
Surveying Grade control	GPS mounted on 14 H Blade	Cells P04 and P05.
CQA Resident Manager **CQA Engineer** **CQA Technician**	John Durkin, PE	Observed earth moving from the stockpile to Cell P03 and grading on Cells P04 and P05.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** **Attendees:** NA **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observation of grading and obtaining soil samples	Cells 4 and 5	Soil samples will be transported to our soils lab. Lab test results are not yet available.

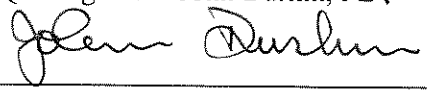
Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
No density or moisture tests performed.	None required.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE, 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-020111-DR **Prepared By:** Linda Carvolth **Date:** February 1, 2011
Project No. 10.1161

Weather Conditions: Mostly sunny, winds calm in the early morning, increasing gradually to 20-30 mph sustained by 11:00 AM with gusts to 44 mph by mid afternoon. Wind conditions continued throughout the day. Temperatures ranged from 41° F to 54° F.

Work Summary:

Grading operations for the 92-Acre Cover continued Friday (1-28-11) and Monday (1-31-11). Work consisted of placing fill at Cell P03 over waste containers on Friday and fill placement at Cells P03, P04, and P05 on Monday. In addition to fill placement on Friday, laborers completed the west perimeter fence reconfiguration which consisted of installing new fence, sign transfers, and flagging installation.

Today earthwork was approximately to grade in Cell P05, and approximately 30% complete in Cell P04. Cell P03 has received 66,627 cubic yards of fill to date. Fill placement was ongoing throughout the day in Cell P04 and in the morning hours in Cell P03.

Operations were shut down for fill placement at Cell P03 at approximately noon due to high winds. Soil material was hauled from the RCRA Cell spoils stockpile at the north end of the RWMC to both fill areas with 631 scrapers. Material in the stockpile was primarily composed of silty sand with gravel and occasional rocks less than 6 inches in diameter.

A meeting was held today for the purpose of fine tuning the schedule to meet the May deadline. Attendees were John Miller, Richie Costa, and myself. A possibility of a six day workweek was discussed. John Miler said this was possible. Partial certifications of the Cells were discussed with respect to the 7-day window for the soil binder application. More than likely we will have one certification for all the cells, and the soil binder will be applied in one visit. Seeding is planned for October. John Miller will spend time this afternoon fine tuning the schedule.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading	Push Dozer, 3-631 Scrapers, Loader and water pull	Cell P03, Soil fill placed to cover waste. Fill areas of Cells P04 bringing up to grade.
Surveying Grade control	GPS mounted on 14 H Blade	Cell P04.
CQA Resident Manager **CQA Engineer** **CQA Technician**	Linda Carvolth, PE	Observed earth moving from the stockpile to Cell P03 and grading on Cell P04.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)

Meeting 1	Meeting 2
Purpose: Fine tune the schedule to meet May's deadline. **Attendees**: John Miller, Richie Costa, Linda Carvolth **Results:** John Miller will work on the schedule this afternoon in preparation of a morning meeting (2-2-11) with Pat Arnold.	Program of the Day (POD) held at 1630 hours.

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observation of grading	Cell 4	NA.

Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
No density or moisture tests performed today.	None required.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
High Winds. Operations were shut down for fill placement in Cell P03.	Weather conditions will be monitored for fill placement in Cell P03 for 2-2-11. Winds are expected to die down by mid day.

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Meeting Participants (Meeting #1):

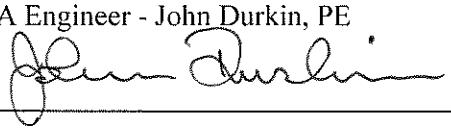
John Miller

Richie Costa

Linda Carvolth

Meeting Participants (Meeting #2):

Area 5 Employees

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE
	

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-020211-DR **Prepared By:** Linda Carvolth **Date:** February 2, 2011
Project No. 10.1161

Weather Conditions: Sunny, winds calm in early morning, picking up to approximately 18 mph from the NE by mid day. Temperatures ranged from 27° F to 45° F.

Work Summary:

Grading operations for the 92-Acre Cover continued today. Work consisted of placing fill at Cell P03 over waste containers, and grading Cell P04 with a GPS assisted dozer. Soil material was hauled from the RCRA Cell spoils stockpile at the north end of the RWMC to fill Cell P03 with 631 scrapers.

Placing fill in Cell P03 is a priority and should continue until the cell is filled. Material in the stockpile was primarily composed of silty sand with gravel and occasional rocks less than 6 inches in diameter.

A site tour was taken by John Miller, Richie Costa, and myself. Cut and fill sections were reviewed at cell perimeters. Nine control points will need to be changed at the Idaho fuel area in Cell CW1 located at the north end of Cells P04 and P05. John Miller forwarded information on the original grade of the area so new cap elevations can be calculated. This is to help assist is providing a resolution for the RFI pertaining to this.

John Miller informed me that a new Water Master arrived yesterday, and there are now a total of three on site.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading	D-10 Dozer, 3-631E Scrapers, Loader and water pull	Cell P03, Soil fill placed to cover waste. Fill areas of Cells P04 grading.
Surveying Grade control	GPS mounted on Dozer	Cell P04 surface grading.
CQA Resident Manager **CQA Engineer** **CQA Technician**	Linda Carvolth, PE	Observed earth moving from the stockpile to Cell P03 and grading on Cell P04.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** No meetings were held today. **Attendees:** **Results:**	**Meeting 2**

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observation of grading	Cell 4	NA.

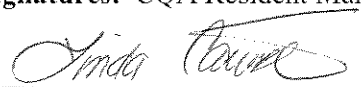
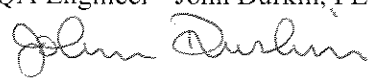
Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
No density or moisture tests performed today.	None required.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
No problems were encountered today.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE
	

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-020311-DR **Prepared By:** Linda Carvolth **Date:** February 3, 2011
Project No. 10.1161

Weather Conditions: Sunny, north winds less than 10 mph. Temperatures ranged from 19° F to 47° F.

Work Summary:

Grading operations for the 92-Acre Cover continued today. Work consisted of placing fill at Cell P03 over waste containers. Soil material was hauled from the RCRA Cell spoils stockpile at the north end of the RWMC to fill Cell P03 with 631E scrapers. Material in the stockpile was primarily composed of silty sand with gravel and occasional rocks less than 6 inches in diameter.

The results of the ground penetrating radar (GPR) tests were received today. The GPR did not indicate any waste was buried beneath the area south of Cell P11. In Cell CW1, the GPR indicated Idaho fuel was located at approximately 7.5' below existing ground surface in some areas.

Work will not take place in the area south of Cell P11, and the Idaho fuel area until RFI is resolved. The south cap borrow area will be cut at 1', 2' and 3' today for an evaluation of the percentage of compaction at different depths.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading	D-10 Dozer, 3-631 Scrapers, Loader and water pull	Cell P03, Soil fill placed to cover waste.
Surveying NA	NA	NA
CQA Resident Manager **CQA Engineer** **CQA Technician**	Linda Carvolth, PE	Observed earth moving from the stockpile to Cell P03.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** No meetings were held today. **Attendees:** **Results:**	**Meeting 2**

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
NA	NA	NA.

Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile	NA
Construction Materials & Test Equipment Used	**Equipment Calibrations**
No density or moisture tests performed today.	None required.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
No problems were encountered today.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-020811-DR **Prepared By:** Linda Carvolth **Date:** February 8, 2011
Project No. 10.1161

Weather Conditions: Sunny, winds from the north at 20 -30 mph. Winds tapering off by mid-day. Temperatures ranged from 26° F to 56° F.

Work Summary:

Grading operations continued Friday (2-4-11) and Saturday (2-5-11) placing fill material in Cell P03. Waste containers in Cell P03 were covered by 2-5-11. On Monday (2-7-11) Cell P03 was cleared as unclassified with security requirements reduced, and the gates removed. Grading operations continued 2-7-11 on the west cover.

Today, backfill material is being placed at Cell P11 and bladed and fill placement also at Cell P03. To date Cell P11 is 80% complete, Cell P04 is 95% complete, and Cell P05 is 90% complete.

Density tests were obtained on 2-7-11 at a depths of 16" to 48" on the south cap borrow area. Using a standard proctor of 116.0 pounds per cubic foot (PCF) at 11% moisture, test results varied from 101.8 to 107.1 (pcf) dry density, and 87.8%-92.3% compaction percent. Percent moisture ranged from 5.0%-6.5%. A summary table of field density tests is attached.

In Cell P03, John Miller took GPS points on the cover face approximately 8.5' below existing grade this morning to determine the western most edge of waste container placement. I verified these GPS points. They were at the west end of the cell, south side was Elevation: 3189.7, Northing 767,824.24, and Easting 708,562.50; and the north side was Elevation: 3191.53, Northing 767,949.36, and Easting 708,587.74. All waste containers are placed east of these points. There is a possibility the area west of these points will not need a cap.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading	D-10 Dozer, 631 Scrapers, Loader and water pull	Cell P03 and Cell P11
Surveying NA	NA	NA
CQA Resident Manager **CQA Engineer** **CQA Technician**	Linda Carvolth, PE	Observed earth moving from the stockpile to Cell P03 and P11.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)

Meeting 1	Meeting 2
Purpose: No meetings were held today. **Attendees:** **Results:**	

CQA Inspections Conducted & Standard Test Methods	Location	Results (see Field and Lab Test Reports)
NA	NA	NA.

Description of Materials Received on Site	Quality Documentation Provided
Silty sand with gravel soil from RCRA stockpile	NA

Construction Materials & Test Equipment Used	Equipment Calibrations
No density or moisture tests performed today.	None required.

Construction Problems and Actions	Results of Actions Taken (Solutions or Dispositions)
No problems were encountered today.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-021011-DR **Prepared By:** John Durkin **Date:** February 10, 2011
Project No. 10.1161

Weather Conditions: Clear, winds from the north at 10-15 mph. Winds tapering off by mid-day. Temperatures ranged from 34° F to 56° F.

Work Summary:

Grading operations continued Wednesday (2-9-11) with fill placement in Cell P03 and on the North Cover area. Waste containers in Cell P03 are covered with soil and fill placement was concentrated on the northeast end of the cell. Two 631E scrapers transported granular fill from the RCRA spoils stockpile to Cell P03 and fill material over the waste areas is nearing existing natural grade elevation.

Grading began on the North Cover yesterday with two 637E self loading scrapers, a D-6 low ground pressure (LGP) dozer and 14H blade. The North Cover was surveyed on Wednesday and grade stakes were set. The majority of fill areas are less than one foot in depth with the exception of a strip on the north side of the cell. This area was ripped with a D-10 dozer to a depth of 18 inches. Moisture samples were obtained and density tests are scheduled to be performed by Darin with NSTec on Monday.

Grading was not performed on the west cover today as Cells P04, P05 and P11 are close to finish grade. J. Miller and I checked elevations on Cell CW1 over the Idaho Fuel Disposal area and approximately 1 foot of soil will be required to achieve the 8.2 foot thick cover. On Tuesday (2-8-11) a test area approximately 100' x 100' was cross ripped on Cell P05 to a depth of 34.5 inches with a D-10 Dozer and ripped one direction with a blade to a depth of 15.8". Compaction tests were performed to determine density of the surface. Test results are in a summary table, attached.

The South Cover was driven by J. Miller and myself using GPS to determine the cut and fill areas. In general Cell P02 and the rest of the South Cover to the east has more than a foot of fill to be placed and the subgrade will require ripping. J. Miller summarized ripping requirements from our discussions with P. Arnold today in a Memo to Louis Gregory dated February 10, 2011 titled 92 Acre Ripping Requirements and is attached to this report.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	2 D-10 Dozers, 2 651 Scrapers, 2 637 Scrapers, D-6 Dozer, 14H blade and 2 water pulls	Cell P03 and North Cover
Surveying Site survey of control points on Wednesday 2-9-11	NSTec Surveyors	Placed grade stakes on the surface of the North and South Cover Areas
CQA Resident Manager **CQA Engineer** **CQA Technician**	John Durkin, PE	Observed earth moving and fill placement in Cell P03 and on North Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)

Meeting 1	Meeting 2
Conference Call at 9:00 am **Purpose:** Discuss ripping subgrade soils. **Attendees**: John Miller, John Durkin and Pat Arnold **Results:** Will request information from design engineer.	NA

CQA Inspections Conducted & Standard Test Methods	Location	Results (see Field and Lab Test Reports)
Observed fill placement and obtained moisture samples	Cell P03 and North Cover	Soil Materials were visually classified as Silty Sand with gravel per ASTM classification.

Description of Materials Received on Site	Quality Documentation Provided
Silty sand with gravel soil from RCRA stockpile.	NA

Construction Materials & Test Equipment Used	Equipment Calibrations
Soil samples were obtained on the North Cover subgrade for moisture tests.	NA

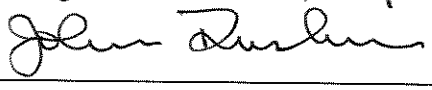
Construction Problems and Actions	Results of Actions Taken (Solutions or Dispositions)
No problems were encountered today.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

In the Meeting 1 conference call, ripping the subgrade of fill areas before fill placement was discussed. The earthwork crew will be directed to rip the subgrade in areas that fill is going to be placed on the North and South Cover areas before fill material is placed.

Plans for the West Cover include cross ripping the cover fill surface to a depth of 30 inches using a D-10 Dozer with ripper spacing of 4.5 feet. A 14H blade will then rip one direction to a depth of 15.8 inches and the area will be track walked with a LGP dozer.

In other areas when fill material is placed on the subgrade it is proposed that each 18 inch lift is cross ripped and will be verified with visual observation and not tested for compaction. These recommendations are planned to be submitted to the design engineer by Pat Arnold for approval.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-021411-DR **Prepared By:** John Durkin **Date:** February 14, 2011
Project No. 10.1161

Weather Conditions: Partly cloudy, winds from the south at 10-15 mph, temperatures ranging from 40° F to 60° F.

Work Summary:

Grading operations continued on Friday (2-11-11) and Saturday (2-12-11) with fill placement in Cell P03 and on the North, South and West Cover areas. Fill placement with silty, sand and gravel soil from the RCRA Cell spoils stockpile was transported by 631E scrapers and fill placement was concentrated on the northeast side of the cell. The fill elevation over the waste area is within a few feet of existing natural grade elevation.

A minor amount of earthwork was performed on the North Cover TRU trenches Friday and Saturday. Today, two 637E self loading scrapers, a D-6 low ground pressure (LGP) dozer, 14H blade and water pull worked to level the North Cover area. Grade stakes indicate the majority of the subgrade is within 1 foot of the final cover elevation. An area with 2-3 feet of fill on the north side of the cell was tested for moisture and density by Darin with NSTec and the area met the subgrade specifications.

Grading on the West Cover consisted of constructing the perimeter 3:1 slopes. Approximately 1 foot of granular soil, from the borrow area west of T07, was placed on Cell CW1.

The South Cover subgrade was cross ripped to a depth of 18" with a D-10 dozer from Cell P02 to the eastern edge of the cover. Grading is planned to start on the east end of the cover on Cell P09 when the subgrade is approved. Moisture samples and compaction and moisture tests were performed on the subgrade of Cell P09 today, at a frequency of 5 tests per acre. The areas tested passed compaction and moisture specifications. Test locations were determined using GPS equipment. Testing on the South Cover will continue tomorrow.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	2 D-10 Dozers, 2 651 Scrapers, 2 637 Scrapers, D-6 Dozer, 14H blade and 2 water pulls	Cell P03 and North, South and West Covers
Surveying Site Grades	NSTec using GPS	Checked grade elevations and located moisture and compaction test locations.
CQA Resident Manager **CQA Engineer** **CQA Technician**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving and fill placement in Cell P03 and on North Cover. Tested moisture and compaction on South Cover
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** **Attendees:** NA **Results:**	**Meeting 2** NA

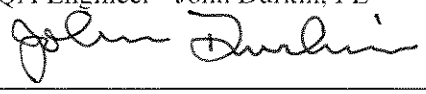
CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed fill placement, obtained moisture samples and observed compaction tests	Cell P03, North, South and West Covers	Soil Materials were visually classified as Silty Sand with gravel per ASTM classification.

Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile.	NA
Construction Materials & Test Equipment Used	**Equipment Calibrations**
Soil samples were obtained on the North Cover subgrade for moisture tests.	NSTec Troxler Nuclear Gauge with current calibration.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
No problems were encountered today.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-021511-DR **Prepared By:** John Durkin **Date:** February 15, 2011
Project No. 10.1161

Weather Conditions: Cloudy, winds from the southwest at 0-15 mph, high temperatures 55° F to 65° F.

Work Summary:

Grading operations continued today with fill placement on the North Cover areas. Fill was placed in Cell P03 and over Trenches T01 to T08 of the North Cover area. Fill materials consisted of silty, sand and gravel soil from the RCRA Cell spoils stockpile and was transported by 631E scrapers. Fill placement was concentrated on the north side of cell P03. The fill elevation over the waste area is within a few feet of existing natural grade elevation.

Earthwork equipment also concentrated on the North Cover TRU trenches today. Two 637E self loading scrapers, a D-6 low ground pressure (LGP) dozer with GPS, a 14H blade and water pull worked to level the North Cover area. Samples of the fill material on the east end and west end of the north cover were obtained for laboratory testing to classify the material and determine a moisture/density curves.

Grading on the West Cover was minimal and grading consists of constructing the perimeter 3:1 slopes. Approximately 1 foot of granular soil, from the borrow area west of T07, is being placed on Cell CW1.

The South Cover subgrade was cross ripped to a depth of 18" with a D-10 dozer from Cell P02 to the eastern edge of the cover. Grading is planned to start on the east end of the cover on Cell P09 when the subgrade is approved.

Moisture samples and compaction and moisture tests were performed on the subgrade of Cells P09 and P07 today, at a frequency of 5 tests per acre. Darrin Anderson and John Moralles with NSTec performed the density tests using a nuclear gauge. The areas tested passed compaction and moisture specifications. Test locations were determined using GPS equipment. Testing on the South Cover will continue tomorrow.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	D-10 Dozer, 2 651 Scrapers, 2 637 Scrapers, D-6 Dozer, 14H blade and 2 water pulls	Cell P03 and North Cover
Surveying Site Grades	NSTec using GPS	Checked grade elevations and located moisture and compaction test locations.
CQA Resident Manager **CQA Engineer** **CQA Technician**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving and fill placement in Cell P03 and on the North Cover. Tested moisture and compaction on South Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** Discuss project schedule **Attendees**: J. Miller, R. Costa, P. Arnold and myself **Results:** Discussion of construction issues	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed fill placement, obtained soil samples and observed compaction tests	Cell P03, North, South and West Covers	Soil Materials were visually classified as Silty Sand with gravel per ASTM classification.

Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile.	NA
Construction Materials & Test Equipment Used	**Equipment Calibrations**
Soil samples were obtained on the North and South cover subgrade for laboratory tests.	NSTec Troxler Nuclear Gauge with current calibration.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
No problems were encountered today.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-021611-DR **Prepared By:** John Durkin **Date:** February 16, 2011
Project No. 10.1161

Weather Conditions: Cloudy ,cold front moving through the region, winds from the south at 20 to 30 mph, gusts to 65 mph and blowing dust, temperatures 45° F to 55° F.

Work Summary:

Grading operations continued today with fill placement on the North Cover areas and some earthwork activities on the South Cover. Fill was placed in Cell P03 and over Trenches T01 to T08 of the North Cover area. Fill materials consisted of silty, sand and gravel soil from the RCRA Cell spoils stockpile and was transported by 631E scrapers. Fill placement was concentrated on the north side of cell P03. The fill elevation over the P03 waste area is within a few feet of existing natural grade elevation.

Earthwork equipment also continued on the North Cover TRU trenches today. Two 637E self loading scrapers, a D-6 low ground pressure (LGP) dozer with GPS, a 14H blade and water pull worked to level the North Cover area south of Cell P03.

The South Cover subgrade has been cross ripped to a depth of 18" with a D-10 dozer from Cell P02 to the eastern edge of the cover. Grading started on Cell P09 with two scrapers constructing a ramp on the east end of the cover.

Compaction and moisture tests were performed on the subgrade of Cells P01 and P06 today, at a frequency of 5 tests per acre. A soil sample for moisture testing was also obtained at each test location. Darrin Anderson and John Moralles with NSTec performed the density tests using a nuclear gauge.

Compaction tests were performed at 35 locations. Testing was stopped due to rain, high winds and blowing dust. The areas tested passed compaction and moisture specifications. Test locations were determined using GPS equipment.

Approximately 30 more compaction tests are required on the South Cover subgrade and are scheduled to be performed on Friday, 2-18-11.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	D-10 Dozer, 2 651 Scrapers, 2 637 Scrapers, D-6 Dozer, 14H blade and 2 water pulls	Cell P03 and North& South Cover Areas
Surveying Site Grades	NSTec using GPS	Checked grade elevations and located moisture and compaction test locations.
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec John Morrales, NSTec	Observed earth moving and fill placement in Cell P03 and on the North Cover. Tested moisture and compaction on South Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Telephone Meeting** **Purpose:** Discuss reducing compaction test frequency **Attendees:** J. Miller, P. Arnold, J. Durkin **Results:** Questions will be forwarded to the design engr.	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed fill placement, observed compaction tests and collected moisture samples	Cell P03, North and South Covers	Soil Materials were visually classified as Silty Sand with gravel per ASTM classification.

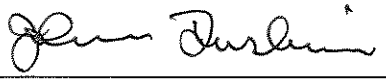
Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile.	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Soil samples were obtained for moisture and visual classification on the South cover subgrade.	NSTec Troxler Nuclear Gauge with current calibration.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
No problems were encountered today other than high winds that stopped construction in Area 5 at approximately 2 pm.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

An RFI is being generated with the recent compaction and moisture test results requesting review of the test frequency specifications.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-021811-DR **Prepared By:** John Durkin **Date:** February 18, 2011
Project No. 10.1161

Weather Conditions: Clear to mostly cloudy, winds from the SW at 0 to 20 mph, gusts to 27 mph in afternoon, temperatures 40° F to 57° F.

Work Summary:

Grading operations continued today with fill placement on the North Cover area south of Cell P03 and earthwork activities on the South Cover that included filling Cell P06. Grading on the North Cover consisted of cuts and fills over Trenches T01 to T08. Cuts and fills generally balance over the North Cover trenches. The majority of the cut is on the east end and the fills are in the center and west ends of the cover.

Fill materials consisted of silty, sand and gravel soil at approximate moisture contents ranging from 3% to 5%. A water pull adds enough moisture for dust control. Earthwork equipment on the North Cover TRU trenches consisted of two 637E self loading scrapers, a D6 low ground pressure (LGP) dozer with GPS, 14H blade and water pull to level the North Cover area south of Cell P03.

The South Cover subgrade has been cross ripped to a depth of 18" with a D10 dozer from the east side of Cell P02 to the eastern edge of the cover. Two 651 scrapers hauled granular material from the RCRA spoils stockpile and placed the material on Cell P09 at the east end of the cover. The scrapers are also dumping material on the north side of Cell P06 and a loader is pushing soil over the top of the waste containers.

Compaction and moisture tests were performed on the subgrade of Cells P01, T02, T03 and T04, at a frequency of 5 tests per acre. A soil sample for moisture testing was also obtained at each test location. Darrin Anderson with NSTec performed the density tests using a nuclear gauge. Test locations were determined for the majority of the locations using GPS equipment. Compaction tests were performed at 24 locations. The areas tested passed compaction and moisture specifications and the South Cover is approved for 18 inches of fill material.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	D-10 Dozer, 2 651 Scrapers, 2 637 Scrapers, D-6 Dozer, 14H blade, loader and 2 water pulls	North & South Cover Areas
Surveying Site Grades	NSTec using GPS	Checked grade elevations and located moisture and compaction test locations.
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving and fill placement in on the North and South Covers. Tested moisture and compaction on South Cover subgrade.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** N/A **Attendees:** **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed fill placement, compaction tests and collected moisture samples	North and South Covers	Soil Materials were visually classified as Silty Sand with gravel per ASTM classification.

Description of Materials Received on Site	**Quality Documentation Provided**
Silty sand with gravel soil from RCRA stockpile to South Cover.	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Soil samples were obtained for moisture and visual classification on the South cover subgrade.	NSTec Troxler Nuclear Gauge with current calibration.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
No problems were encountered today .	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

RFI NUMBERS 11-0025 and 11-0026 were approved, signed and received from the design engineer.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-022211-DR **Prepared By:** John Durkin **Date:** February 22, 2011
Project No. 10.1161

Weather Conditions: Clear to partly cloudy, winds from the south at 0 to 10 mph, temperatures 35° F to 55° F.

Work Summary:

Grading operations continued today with fill placement on the TRU Trenches North Cover area south of Pit 3 and earthwork activities on the South Cover that concentrated on placing fill on Cell P09. Grading on the TRU Trenches Cover consisted of minor cuts and fills over Trenches T01 to T08. A motor grader and D6 dozer with GPS continued to level the cover surface. A water master applied water for dust control. The cover is approximately 85% completed and only a small amounts of fill is required to be imported to this cover.

A paddle wheel scraper excavated fill from the borrow area on the west side of the south cover, adjacent to T07, and placed the material on the TRU Trenches where needed. The material was visually classified by the Unified Soil Classification System as silty, sand with gravel, soil group SM and meets the specification requirements. Pit 3 is near the natural grade elevation over the areas covering waste, though the Pit 3 ramp requires fill material. Approximately 40,000 cubic yards of fill is estimated to be required to finish filling Pit 3 including ramp and cover.

Yesterday was Presidents Day holiday and many semi trailer loads of waste arrived this morning. Most of the earthwork equipment operators were assigned to unload the trucks. Equipment working on the cover areas consisted of 1 scraper, 1 D10 push dozer, D6 dozer, 14H motor grader, 1 paddle wheel scraper and water master. Fill material, consisting of silty, sand and gravel soil was hauled from the RCRA spoils stockpile with the 651 scraper and placed on Cell P09 on the South Cover.

Moisture contents of soil samples obtained on the south cover were tested on site for moisture content per ASTM D2216. Laboratory tested moisture contents of the South Cover subgrade samples from Cell P01 ranged from 2.6% to 6.8% and is acceptable per the project specifications.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 1 651 Scraper, D6 Dozer, 14H blade, paddle wheel scraper and water wagon	TRU Trenches & South Cover Areas
Surveying Site Grades	NSTec using GPS	Checked grade elevations
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE	Observed earth moving and fill placement on the TRU Trenches and South Covers.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** NA **Attendees:** **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed fill placement	North and South Covers	Soil Materials were visually classified as Silty Sand with gravel (SM) per ASTM classification.

Description of Materials Received on Site	**Quality Documentation Provided**
	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Silty, sand with gravel soil from RCRA stockpile to South Cover.	N/A

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
No construction problems observed.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE John J. Durkin

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-024211-DR **Prepared By:** John Durkin **Date:** February 24, 2011
Project No. 10.1161

Weather Conditions: Partly cloudy, with SE winds at 15 to 25 mph, temperatures 38° F to 55° F.

Work Summary:

Grading operations continued today with grading on the TRU Trench north cover area and the South Cover. The TRU trench cover is approximately 87% completed and the 3:1 slopes are beginning to be constructed. Equipment working on the TRU Trenches north cover consisted of a D6 dozer, 14H motor grader, paddle wheel scraper and water master for dust control. Fill material, consisting of silty, sand and gravel soil is classified SM per the Unified Soil Classification System and was placed primarily on the south cover .

In the morning I rode with J. Miller and R. Costa to observe construction of the north, west and south covers. Fill material has been placed to the natural grade elevation over the waste containers in Pit 3. NSTec survey had placed grade stakes for the equipment operators to see the cuts and fills required. The equipment operators were placing ribbon on the stakes 18 inches above the base to mark the first lift of fill above the subgrade. The subgrade for Pit 3 has not yet been ripped.

A relatively large quantity of waste has been transported to the RWM Complex this week and the majority of the earthwork operators have been occupied unloading and placing the waste containers in the active cells. Several new operators have completed their safety courses this week and are planned to help increase earthwork production.

There was a safety issue with one of the water masters in the morning. Grading and material placement was not performed on the covers much of the day. Moisture contents of soil samples obtained on the south cover were tested on site for moisture content per ASTM D2216. Laboratory tested moisture contents of the South Cover subgrade samples for Cell P06 ranged from 3.3% to 8.0% and is acceptable per the project specifications.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 1 651 Scraper, D6 Dozer, 14H blade, paddle wheel scraper & water master	TRU Trench North Cover Area south of Pit 3
Surveying Site Grades	NSTec surveyors	Set grade stakes on North Cover Pit 3. Ribbon was placed on the grade stakes at 18" for equipment operators.
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE	Observed earth moving on the TRU Trenches North Cover and South Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)

Meeting 1	Meeting 2
Purpose: Discussed Soil Stabilization RFP **Attendees:** J. Miller, P. Arnold, R. Costa, M. McCollough, J. Fretter, W. , Dave Anderson **Results:** Will further discuss equipment requirements for stabilization and seeding with CH2MHill.	NA

CQA Inspections Conducted & Standard Test Methods	Location	Results (see Field and Lab Test Reports)
Observed grading operations	North Cover over TRU trenches and South Cover.	Soil Materials were visually classified as Silty Sand with gravel (SM) per ASTM classification.

Description of Materials Received on Site	Quality Documentation Provided
NA	NA

Construction Materials & Test Equipment Used	Equipment Calibrations
Silty, sand with gravel soil inplace on the North Cover.	N/A

Construction Problems and Actions	Results of Actions Taken (Solutions or Dispositions)
Water master had a safety issue and corrective actions will be taken.	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Visitors were bused to the site yesterday as part of the soil stabilization and seeding prebid meeting.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE
	John J. Durkin

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-030111-DR **Prepared By:** Linda Carvolth **Date:** March 1, 2011
Project No. 10.1161

Weather Conditions: Mostly cloudy, winds from the north at 0-5 mph, temperatures 38° F to 60° F.

Work Summary:

Grading operations continued today on the North TRU Trench and South Cover areas. Fill placement on the South Cover was primarily concentrated in cell P06 using 651 scrapers. Fill material consisted of silty, sand and gravel soil designated as SM per the Unified Soil Classification System. This material meets project specifications requirements.

Work in the TRU Trench areas consisted of construction of the 3:1 slopes utilizing a 14H blade. Equipment used in the North TRU Trench surface area consisted of a D10 dozer, a paddle wheel scraper, and a 14H blade. The D6 dozer was not in operation today. Water masters were utilized in both the North and South Cover areas for dust control purposes.

I was informed this morning by John Miller that ripping the subgrade in Cell P03 began on Friday, February 25th, and this area will be ready for subgrade density / moisture testing more than likely on Wednesday or Thursday of this week. RFI -11- 0031 pertaining to compaction and testing requirements has been approved per verbal from John Miller.

The West Cap should be completed this week on Thursday and Friday, and will then be ripped and track walked.

The earth moving operations observed today were in compliance with the project specifications.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 651 Scrapers, 14H blade, paddle wheel scraper & water master	TRU Trench North Cover Area and fill placement on the South Cover at Cell P06
Surveying NA	NA	NA
CQA Resident Manager **CQA Engineer** **CQA Technicians**	Linda Carvolth, PE	Observed earth moving on the TRU Trenches North Cover and South Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** **Attendees:** NA **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading operations	North Cover over TRU trenches and South Cover.	Soil Materials were visually classified as Silty Sand with gravel (SM) per ASTM classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Silty, sand with gravel soil (SM) placed on the South Cover.	N/A

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-030311-DR **Prepared By:** John Durkin **Date:** March 3, 2011
Project No. 10.1161

Weather Conditions: Partly cloudy, with SE winds at 5 to 10 mph, temperatures 40° F to 65° F.

Work Summary: Grading operations continued today with fill placement and grading on the South Cover area and on the TRU Trench north cover slopes. The TRU trench cover is approximately 95% completed and the 3:1 slopes are beginning constructed with the D6 dozer equipped with GPS. The South Cover is where the majority of the equipment is working. Equipment working on the South Cover included 2 - 14H motor graders with GPS, water master for dust control and 3- 651 scrapers. The scrapers were transporting material to the south cover from the RCRA Cell spoils stockpile. A D10 push dozer loaded the scrapers. The fill material placed on the south cover, consisted of silty, sand and gravel soil and was visually classified SM per the Unified Soil Classification System.

Fill material has been placed to the natural grade elevation over the waste containers in Pit 3. The subgrade for Pit 3 has been cross ripped over the waste containers. The ramp area of Pit 3 has yet to be filled and the east side of the pit is above the subgrade elevation and will be ripped when the center portion of the cell is filled to the east end elevation.

The cross ripped area was tested for compaction and moisture content with a nuclear soil density gauge and moisture samples were also obtained. Six compaction tests were performed on the area and exceeded the revised 1 test per acre frequency specification. Compaction tests averaged 81.5% and 3.8% moisture.

On the south cover, grading concentrated on bringing Cell P01 to grade. Fill material is also being stockpiled on the northside of the open P06 cell to fill over the waste containers. In the afternoon I rode with J. Miller in his vehicle equipped with GPS to obtain a volume of material that had been placed on the south cover during the shift and identify the areas that had 18 inches of material placed and required cross ripping before additional fill material is placed. The areas identified for ripping are planned to be ripped and tested for compaction and moisture content on Mon. 3-7-11.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 3-651 Scrapers, D6 Dozer, 2-14H blades & water master	South Cover and TRU trenches 3:1 Slopes
Surveying Site Grades	NSTec with GPS Equipment	South Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving on the TRU Trenches North Cover and South Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** NA **Attendees:** **Results:**	**Meeting 2** NA

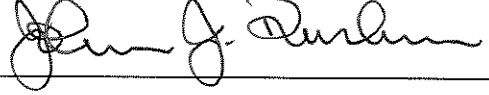
CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading operations	TRU trench 3:1 slopes and South Cover.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Silty, sand with gravel soil tested tested with nuclear soil density gauge.	Current calibration on nuclear gauge.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-030711-DR **Prepared By:** John Durkin **Date:** March 7, 2011
Project No. 10.1161

Weather Conditions: Partly Cloudy to cloudy, with NW winds at 25 to 35 mph, temperatures 40° F to 60° F.

Work Summary:

Grading operations continued today with fill placement and grading on the South Cover area and on the first lift of the Pit 3 cover. The South Cover work focused on filling and grading the south edge outside of the cover boundary south of trenches T06, P02, T04, and T03. The same general area within the cover boundary is planned to be ripped and tested before additional fill placement.

Equipment working on the South Cover included 1 - 14H motor grader with GPS, water master for dust control and 1- 651 scraper transporting material from the RCRA Cell spoils stockpile. A D10 push dozer loaded the scrapers. The fill material placed on the south cover and Pit 3, consisted of silty, sand and gravel soil and was visually classified, SM, per the Unified Soil Classification System.

Subgrade in the center portion of Pit 3 has been cross ripped and tested for compaction over the waste containers. Two 651 scrapers made round trips from the RCRA spoils stockpile to place fill for the first lift on the ripped subgrade of Pit 3.

The first lift of fill placed on the center of Cell P06 on the South Cover had been cross ripped. The area was tested for compaction and moisture content with a nuclear soil density gauge and moisture samples were also obtained. Two compaction tests were performed on the area and exceeded the revised 1 test per acre frequency specification. Compaction tests averaged 79.8% and 3.3% moisture. Samples were also obtained for laboratory moisture contents.

Work was also performed on the West Cover. A D6 dozer worked constructing the 3:1 slopes on the north side of the cell and work was performed on the south end of the cover to conform with the ECN modified cover grading.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 3-651 Scrapers, D6 Dozer, 14H blades & 2-water masters	South Cover, North Cover Pit 3 and West Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving on the North Cover, Pit 3 area and South Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** NA **Attendees:** **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading operations	North Cover, Pit 3 and South Cover.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Silty, sand with gravel soil tested with nuclear soil density gauge.	Current calibration on nuclear gauge.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-030811-DR **Prepared By:** Linda Carvolth **Date:** March 8, 2011
Project No. 10.1161

Weather Conditions: Sunny, with E winds at 0 to 5 mph, temperatures 35° F to 65° F.

Work Summary:

Fill placement and grading continued on the South Cover area. The South Cover work focused on filling and grading over cells T02, T03, T04, P01 and P06. Equipment working on the South Cover included 1 - 14H motor graders with GPS, water master for dust control and 2- 651 scrapers. The scrapers transported material to the south cover from the RCRA Cell spoils stockpile. A D10 push dozer loaded the scrapers.

The fill material placed on the south cover, consisted of silty, sand and gravel soil and was visually classified SM per the Unified Soil Classification System. The fill materials placed to date from the existing cover subgrade and the RCRA cell stockpile has been consistently classified, SM, and 5 proctor test results have varied from 115 pcf to 116.5 pcf at moisture contents from 10.5% to 11.5%.

The first lift of fill placed on the north side of Cell P06, Cell P09, P07 and the south end of Cells T06 to P01 had been cross ripped. The area was tested for compaction and moisture content with a nuclear soil density gauge and moisture samples were also obtained. Four compaction tests were performed on the area and exceeded the revised 1 test per acre frequency specification. Compaction tests averaged 81.8% and 4.8% moisture.

John Miler and myself checked control point locations on the south end of the West Cover where 10088- ECN-01 revised the cover grading.

Progress on the cover areas from daily GPS surveys indicate the TRU Trenches has 500 cy of cut & 500 cy of fill and is 95% complete. The South Cap has 5,400 cy of cut & 32,000 cy of fill and is 43% complete. Pit 3of the North Cover has 2,000 cy of cut & 54,000 cy of fill and is 9% complete. Work on the drainage features has yet to start.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer, 14H blades & water master	South Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and West Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	Linda Carvolth, PE Darrin Anderson, NSTec	Observed earth moving on the South Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** NA **Attendees:** **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading operations	South Cover.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Silty, sand with gravel soil tested with nuclear soil density gauge.	Current calibration on nuclear gauge.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-031011-DR **Prepared By:** Linda Carvolth **Date:** March 10, 2011
Project No. 10.1161

Weather Conditions: Partly Cloudy, with SW winds at 10 to 25 mph, temperatures 40° F to 75° F.

Work Summary:

Fill placement and grading continued on the South and West Cover area. The South Cover work focused on filling and grading over cells P01, P06, P07, T02, T03 and T04. Approximately 50% of the South Cover is complete to date. Equipment working on the South Cover included 1 - 14H motor grader with GPS, water master for dust control, paddle wheel scraper, D6 dozer and 2- 651 scrapers. The scrapers transported material to the south cover from the RCRA Cell spoils stockpile. Work on the West Cover consisted of blading soil to final cover grade. The earthwork for this area will be complete today and scheduled for ripping. Earthwork operations observed today were done in compliance with Project Specifications.

The fill material placed on the south cover, consisted of silty, sand and gravel soil and was visually classified SM per the Unified Soil Classification System. The fill materials placed to date from the existing cover subgrade and the RCRA cell stockpile has been consistently classified, SM, and 5 proctor test results have varied from 115 pcf to 116.5 pcf at moisture contents from 10.5% to 11.5%.

Compaction tests were obtained yesterday with a nuclear soil density gauge on Cells P07 and P06. Moisture samples were run today on the two areas that were tested yesterday for compaction. The two compaction tests that were performed in Cells P07 and P06 exceeded the revised 1 test per acre frequency specification. Compaction tests averaged 78.7% and 4.8% moisture with the nuclear gauge. Moisture samples run per oven dry method, ASTM D2216, averaged 5.9%. These results are in compliance with the Project Specifications.

The fence adjacent to Cell P03 is scheduled to be removed this week-end.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer, 14H blades with GPS & water master	South Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and West Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	Linda Carvolth, PE	Observed earth moving on the South Cover and blading on the West Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** NA **Attendees:** **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading operations	South and West Cover.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
NA	NA.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-031511-DR **Prepared By:** Linda Carvolth **Date:** March 15, 2011
Project No. 10.1161

Weather Conditions: Sunny to Partly Cloudy with NE winds at 0 to 5 mph, temperatures 47° F to 79° F. Humidity at 36%.

Work Summary:

John Miller and myself walked the perimeter of the south half of the North Cover (TRU Trenches) checking grade points against GPS coordinates. In general the grade was within tolerance with some areas of fill required in the NE corner at control points 24 (+1.7') and 25 (+1.0'), and a minor cut at the southeast corner control point 30 (-0.73'). In addition the fingers on the western edge are not quite finished as yet. The 3:1 slopes for this area were complete today.

Fill placement and grading continued on the South Cover and Cell P03 areas. The South Cover work concentrated on filling and grading over cells P06. Approximately 56% of the South Cover is complete to date. Equipment working on the South Cover included 1 - 14H motor grader with GPS, water master for dust control, D6 dozer and 2- 651 scrapers. The scrapers transported material to the south cover from the RCRA Cell spoils stockpile.

The fill material placed on the south cover, consisted of silty, sand and gravel soil and was visually classified SM per the Unified Soil Classification System. The fill materials placed to date from the existing cover subgrade and the RCRA cell stockpile has been consistently classified as SM.

West Cover has been partially ripped and stands approximately 65% complete. Cell P03 has been ripped to near completion on the first lift with approximately 10'-20' left to rip on the western end. Testing will be scheduled for this area when complete.

John Miller, Pat Arnold and myself discussed the Monument Settlement Plates / Brass Caps (via telephone) with respect to J. A. Cesare and Associates handling the fabrication / installation.

A relatively large quantity of waste has been transported to the RWM Complex today and the majority of the earthwork operators have been occupied unloading and placing the waste containers in the active cells.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer, 14H blades with GPS & water master	South Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	Linda Carvolth, PE	Observed earth moving on the South Cover
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)

Meeting 1	Meeting 2
Purpose: Discuss monument settlement plates. **Attendees**: J. Miller, P. Arnold, L. Carvolth **Results:** J. A. Cesare will look into obtaining settlement plates, monuments, final survey and documentation.	NA

CQA Inspections Conducted & Standard Test Methods	Location	Results (see Field and Lab Test Reports)
Observed grading operations	South Cover.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	Quality Documentation Provided
NA	NA

Construction Materials & Test Equipment Used	Equipment Calibrations
NA	NA.

Construction Problems and Actions	Results of Actions Taken (Solutions or Dispositions)
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE
Linda Carvolth	John Durkin

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-031711-DR **Prepared By:** Linda Carvolth **Date:** March 17, 2011
Project No. 10.1161

Weather Conditions: Mostly Cloudy with NW winds 0 to 5 mph, temperatures ranged from 36° F to 67° F. Humidity at 9%.

Work Summary:

Fill placement and grading continued on the North and South Cover today. The South Cover work concentrated on filling and grading over cells P06. Approximately 66% of the South Cover is complete to date. Work on the North Cover consisted of final grading on the southern half (TRU Trenches). This area is considered 98% complete with the 3:1 slopes 80% complete. Equipment working on the South Cover included 1-14H motor grader with GPS, water master for dust control, D6 dozer and 3- 651 scrapers. The scrapers transported material to the south cover from the RCRA Cell spoils stockpile.

Ripping of an intermediate lift (lift #2) on Cell P06 was completed yesterday. A density test was obtained here with a passing result of 83.2%. A moisture test was run in conjunction with this area this morning. The moisture content had a passing result of 7.6%.

Cell P03 intermediate lift #1 was ready for compaction / moisture testing this morning. Darrin with NSTec performed five nuclear density tests. Corresponding moisture testing was taken. Density compaction results ranged from 78.4% to 83.3% and moisture results ranged from 4.9% to 7.1%. All tests taken were in compliance with the project specifications. Darrin's nuclear gauge was recalibrated on Monday, March 14, 2011. This calibration is good for one year.

The fill material placed on the south cover, consisted of silty, sand and gravel soil and was visually classified SM per the Unified Soil Classification System. The fill materials placed to date from the existing cover subgrade and the RCRA cell stockpile has been consistently classified as SM.

A priority for work today and tomorrow will be ripping on the final lift of the West Cover. Work was in progress today on this with a D-10 dozer. The area should be ready for testing early next week.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 3-651 Scrapers, D6 Dozer, 14H blades with GPS & water master	South Cover and south half of North Cover (TRU Trench area)
Surveying Site Grades	NSTec with GPS Equipment	South half of North Cover (TRU Trench area)
CQA Resident Manager **CQA Engineer** **CQA Technicians**	Linda Carvolth, PE	Observed earth moving on the South Cover and final grading on the south half of the North Cover (TRU Trenches) Ripping on the West Cover
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)		
	Meeting 1	**Meeting 2**
Purpose:	NA	NA
Attendees		
Results:		

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading operations	North, South and West Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Nuclear Soil Density Gauge operated by Darrin Anderson	NSTec Nuclear Gauge was recalibrated March 14, 2011 .

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-032211-DR **Prepared By:** John Durkin **Date:** March 22, 2011
Project No. 10.1161

Weather Conditions: Clear to partly overcast, SW winds 10 to 20 mph, temperatures ranged from 36° F to 57° F.

Work Summary:

Fill placement and grading continued on the North and South Covers today. The South Cover work concentrated on filling and grading over cells P06, P09 and the northwest slopes of the cover. Approximately 70% of the South Cover is complete to date. Work on the North Cover TRU Trenches consisted of ripping in the east/west direction following north/south ripping. This area is considered 98% complete with the 3:1 slopes 90% complete.

Equipment working on the South Cover included 2-14H motor graders with GPS, D6 dozer, 2-651 scrapers, 1-paddle wheel scraper and water master for dust control. The 651 scrapers transported material to the south cover from the RCRA Cell spoils stockpile. The paddle wheel scrapper moved soil mainly on the south cover for the north 3:1 slopes.

Fill material was also placed on Cell P03. The first intermediate lift was ripped and tested last week with passing results. 651 Scrapers placed material from the RCRA Cell spoils stockpile on the center portion of Cell P03 and will likely have the 2nd "18" lift placed and ripped by mid day on Thursday.

The fill material placed on Cell P03 and the south cover, consisted of silty sand and gravel soil and was visually classified SM per the Unified Soil Classification System. The fill materials placed to date from the existing cover subgrade and the RCRA cell stockpile has been consistently classified as SM.

The West Cover has been cross ripped a minimum 34-inches in depth with a D10 dozer. A motor grader will rip the surface in the north/south direction to achieve a more consistent surface. Any rocks greater than 9-inches in diameter will be hand picked from the surface before the D6 low ground pressure dozer track walks the surface.

The same procedure is planned for the North Cover TRU Trenches after the D10 dozer finishes the cross ripping in the east/west direction.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer & 2-14H blades with GPS, 2-water masters, 1-loader	South Cover, P03 and TRU trenches of North Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE	Observed earth moving on the South Cover and P03 on North Cover and ripping on the TRU Trenches
Others NA	NA	NA

Meetings Held	(cross reference to meeting notes)	
	Meeting 1	**Meeting 2**
Purpose:	**NA**	NA
Attendees		
Results:		

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and ripping operations	South and North Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
NA	NA

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-032411-DR **Prepared By:** John Durkin **Date:** March 24, 2011
Project No. 10.1161

Weather Conditions: Partly sunny, SW winds 5 to 30 mph, gusts to 40 mph, high temperatures 52° F to 61° F.

Work Summary: Fill placement and grading continued on the North and South Covers and rocks were removed from the surface of the West cover today. The South Cover work consisted of filling and grading over cells P01, P06, and P09 and the 3:1 slopes on the perimeter of the cover. Approximately 72% of the South Cover is complete to date. Work on the North Cover TRU Trenches consisted of ripping in the east/west direction following north/south ripping. This area is considered 98% complete with the 3:1 slopes 90% complete.

Equipment working on the South Cover included 2-14H motor graders with GPS, D6 dozer and 2-651 scrapers, 1-paddle wheel scraper and a water master for dust control. The 651 scrapers transported material to the south cover from the RCRA Cell spoils stockpile. The paddle wheel scrapper moved soil mainly on the south cover for the north 3:1 slopes.

Fill material for the second, 18 inch lift, on Cell P03 of the North Cover was completed. The first intermediate lift was ripped and tested last week with passing results. 651 Scrapers had placed material from the RCRA Cell spoils stockpile on the center portion of Cell P03. After ripping with the D10 dozer, compaction and moisture tests were performed by Darrin Anderson with NSTec. Tests performed with a nuclear density gauge indicated the compaction averaged 78.5% and the moisture averaged 6.9%. The fill material placed on Cell P03 and the south cover, consisted of silty, sand and gravel soil and was visually classified SM per the Unified Soil Classification System

The West Cover has been cross ripped a minimum 34-inches in depth with a D10 dozer. A motor grader will rip the surface in the north/south direction to achieve a more consistent surface. Any rocks greater than 9-inches in diameter were hand picked from the surface, placed in a track mounted Bobcat and transported off the cover.

The same procedure is planned for the North Cover TRU Trenches after the D10 dozer finishes the cross ripping procedure in the east/west direction.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer & 2-14H blades with GPS, 2-water masters, 1-loader	South Cover, P03 of North Cover and West Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE	Observed earth moving on the South Cover and P03 on North Cover, ripping on Cell P03 and rock picking on the West Cover.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** Telephone Meeting **Attendees:** J. Miller, P. Arnold and J. Durkin **Results:** Discussed project schedule and fabrication and construction of the settlement monuments and covers.	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and ripping operations	South, North and West Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Troxler Nuclear Soil Density Gauge	NSTec Gauge was recalibrated March 14, 2011.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-032911-DR **Prepared By:** John Durkin **Date:** March 29, 2011
Project No. 10.1161

Weather Conditions: Partly cloudy, NE winds 5 to 15 mph in afternoon, temperatures 49° F to 70° F.

Work Summary: Fill placement and grading continued on the South Cover and rocks were removed from the surface of the TRU Trench North Cover today. The South Cover work consisted of filling and grading over cells P01 and P06 and the 3:1 slopes on the perimeter of the cover. Approximately 83% of the South Cover is complete to date. Work on the North Cover TRU Trenches consisted of ripping in the east/west direction following north/south ripping with a D10 dozer, 34-inches in depth. A motor grader will then rip the surface 14-inches deep in the east west direction. Earthwork in this area is considered to be complete. Rock picking and track walking with an LGP D6 dozer is not yet completed.

Equipment working on the South Cover included 1-14H motor grader with GPS, D6 dozer, 2-651 scrapers, and a water master for dust control. The 651 scrapers transported material to the south cover from the RCRA Cell spoils stockpile. Most of the material was placed at the south end of cell P06 and the loader and dozer worked to cover the waste containers. This cell is planned to be closed at the end of this week and the waste containers covered next week.

Fill material for the third, 18 inch lift, on Cell P03 of the North Cover was completed. The second intermediate lift was ripped and tested last week with passing results. 651 Scrapers had placed material from the RCRA Cell stockpile on the center and west portions of Cell P03. After ripping with the D10 dozer, compaction and moisture tests were performed on the third lift by Darrin Anderson with NSTec. Tests performed with a nuclear density gauge indicated the compaction averaged 78.5% and the moisture averaged 4.0%. The fill material placed on Cell P03 and the south cover, consisted of silty, sand and gravel soil and was visually/manually classified SM per the Unified Soil Classification System. The RCRA stockpile is almost depleted and the stockpile area will be graded near level.

The West Cover has been cross ripped a minimum 34-inches in depth with a D10 dozer. A motor grader ripped the surface in the north/south direction to achieve a more consistent surface. Any rocks greater than 9-inches in diameter were hand picked and the entire surface was track walked with the LGP dozer. Compaction tests on the finished surface are scheduled for tomorrow.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer & 14H blade with GPS, water master & 1-loader	South Cover, P03 of North Cover and West Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving on the South Cover and P03 on North Cover, and rock picking on the TRU Trenches.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)		
	Meeting 1	**Meeting 2**
Purpose:	NA	NA
Attendees:		
Results:		

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and ripping operations	South, North and West Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Troxler Nuclear Soil Density Gauge	NSTec Gauge was recalibrated March 14, 2011.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
None	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-033011-DR **Prepared By:** John Durkin **Date:** March 30, 2011
Project No. 10.1161

Weather Conditions: Mostly sunny, north winds 10 to 20 mph in afternoon, temperatures 50° F to 75° F.

Work Summary: Fill placement and grading continued on the South Cover and rocks were removed from the surface of the TRU Trench North Cover today. The South Cover work primarily consisted of filling and grading over cells P01 and P06 and the 3:1 slopes on the perimeter of the cover. Approximately 85% of the South Cover is complete to date. Work on the North Cover TRU Trenches consisted of ripping with a D10 dozer, 34-inches in depth. Earthwork in this area is considered to be complete with the exception of rock picking, ripping 14-inches deep with a motor grader in the east west direction and track walking with a LGP D6 dozer.

Equipment working on the South Cover included 1-14H motor grader with GPS, D6 dozer, 2-651 scrapers, and a water master for dust control. The 651 scrapers transported material to the south cover from the RCRA Cell spoils stockpile. Most of the material was placed at the south end of cell P06 and the loader and dozer worked to cover the waste containers. This cell is planned to be closed at the end of this week and the waste containers covered next week.

Fill material for the third, 18 inch lift, on Cell P03 of the North Cover was completed, ripped and tested with passing results. 651 Scrapers placed material from the RCRA Cell stockpile on the west portion of Cell P03. The fill material placed on Cell P03 and the south cover, consisted of silty, sand and gravel soil and was visually/manually classified, SM, per the Unified Soil Classification System.

The West Cover has been cross ripped a minimum 34-inches in depth with a D10 dozer. A motor grader ripped the surface in the north/south direction to achieve a more consistent surface. Any rocks greater than 9-inches in diameter were hand picked and the entire surface was track walked with the LGP dozer. Dave Anderson (NSTec) concluded that the surface of the West Cover is acceptable for placement of soil stabilization chemicals. 7-compaction tests on the finished surface were performed by Darrin Anderson with NSTec. Tests performed with a nuclear density gauge indicated the compaction averaged 89.4% and the moisture averaged 3.5%. Compaction is above the 85% minimum and a meeting to discuss the test results with the design engineer is scheduled tomorrow.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer & 14H blade with GPS, water master & 1-loader	South Cover and P03 of North Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving on the South Cover, P03 on North Cover, rock picking on the TRU Trenches and density of West Cover surface.
Others Surface of Cover for proposed Soil Stabilization Chemicals	Dave Anderson, Pat Arnold, John Miller, J. Durkin	West Cover

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** Discuss soils stabilization of cell covers **Attendees:** D. Anderson, P. Arnold, J. Miller, J. Durkin **Results:** Observed track walked conditions of the West Cover and it was considered acceptable.	**Meeting 2** Telephone meeting with J. Miller and P. Arnold discussing high compaction test results on the West Cover. A telephone conference is scheduled for tomorrow to discuss with the engineer.

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and rock picking operations	South, North and West Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Troxler Nuclear Soil Density Gauge	NSTec Gauge was recalibrated March 14, 2011.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
7of 7 Compaction tests performed on the West Cover finished surface were above the maximum compaction of 85%.	The solution to the high compaction results are under discussion.

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Dave Anderson (NSTec) visiting the 92 acre cover site.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-040411-DR **Prepared By:** John Durkin **Date:** April 4, 2011
Project No. 10.1161

Weather Conditions: Mostly sunny, northeast winds 5 to 15 mph in afternoon, temperatures 50° F to 75° F.

Work Summary: Fill placement and grading continued on the South Cover and rocks were removed from the surface of the TRU Trench North cover today. The South Cover work primarily consisted of filling and grading over cell P06 and the 3:1 slopes on the perimeter of the cover. Approximately 86% of the South Cover is complete to date. Work on the North Cover TRU Trenches consisted of ripping in the east/west direction following north/south ripping with a D10 dozer, 34-inches in depth. A motor grader is ripping 14-inches deep in the east west direction. This cover is considered to be complete with the exception of track walking with a LGP D6 dozer.

Equipment working on the South Cover included 1-14H motor grader with GPS, D6 dozer, 2-651 scrapers, and a water master for dust control. The 651 scrapers transported material to the south cover from the RCRA Cell spoils stockpile. Most of the material was placed at the south end of cell P06 and the loader and dozer worked to cover the waste containers. This cell is closed and the waste containers are being covered with soil.

Fill material for the third, 18 inch lift, on Cell P03 of the North Cover was tested last week with passing results. 651 scrapers placed material from the RCRA Cell stockpile on the west half of Cell P03. The fill material placed on Cell P03 and the south cover, consisted of silty, sand and gravel soil and was visually/manually classified, SM, per the Unified Soil Classification System.

The West Cover has been cross ripped a minimum 34-inches in depth with a D10 dozer. A motor grader ripped the surface in the north/south direction, rocks greater than 9-inches in diameter were hand picked and the entire surface was track walked with the LGP dozer. 7-compaction tests on the finished surface performed last week were greater than the 85% minimum compaction. A meeting to discuss the test results with the design engineer was held and it was decided that additional testing should be performed. Density and moisture tests were performed on the finish surface and 12" below the surface of the track walked West Cover. Tests were also performed on the North Cover TRU Trenches at three locations and types of surface conditions. See Summary of Field Density Tests table, attached.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer, 14H motor grader, water master & 1-loader	South Cover and P03 of North Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving on the South Cover, P03 on North Cover, ripping and density tests of the TRU Trenches & West Cover surfaces.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** As Built Drawing Cad files **Attendees:** P. Arnold, J. Miller, Julie Sorola, J. Durkin **Results:** CAD files will be made available for JS&S surveying to access for their certification surveys and asbuilt drawings.	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and ripping operations	South and North Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Sand cone soil density equipment and nuclear gauge soil density equipment.	Sand calibrated, 3-30-11, in J. A. Cesare laboratory. Nuclear gauge calibrated 3-15-11.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
Compaction of West Cover is above the maximum 85% compaction specification.	The solution to the compaction results after track walking will be discussed in a meeting tomorrow afternoon.

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

None

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

92 Acre Cover, Area 5
Nevada National Security Site
Project No.:10.1161

Summary of Field Density Tests

Test No.	Date	Test Locations	Elevation (ft)	Top Elevation of Test	*Soil Type No.	Max Dry Density (pcf)	Optimum Moisture Content (%)	Nuclear Dry Density (pcf)	Sand Cone Dry Density (pcf)	Nuclear Moisture Content (%)	Oven Dry Moisture Content (%)	Nuclear Gauge Compaction (%)	Sand Cone Compaction (%)
West Cover - Finish Surface													
1	4-Apr-11	Top Lift of West Cover N 767,598 E707,751 (Origional Cap)	3194.5	Surface	11-0021	116.5	11.0	100.6	101.3	3.6	4.0	**86.4**	**87.0**
				12" depth	11-0021	116.5	11.0	99.1	100.1	8.3	8.6	**85.1**	**85.9**
2	4-Apr-11	Top Lift of West Cover N 767,272 E707,659 (Fill Material)	3194.5	Surface	11-0021	116.5	11.0	99.7	NA	2.8	NA	**85.6**	NA
				12" depth	11-0021	116.5	11.0	97.1	NA	3.2	NA	**83.3**	NA
North Cover - TRU Trenches - Finish Surface													
3	4-Apr-11	Cell T03 - West End (Ripped 14", 10-days earlier)	3200.8	Surface	11-0057	115.5	11.0	95.0	NA	3.2	NA	**82.3**	NA
4	4-Apr-11	Cell T01 - West End (Ripped 14", Today)	3202.2	Surface	11-0057	115.5	11.0	95.8	NA	3.9	NA	**82.9**	NA
5	4-Apr-11	Cell T06 - East End (Ripped 14", 10-days earlier & Track walked Today)	3199.9	Surface	11-0058	115.0	11.5	98.7	NA	3.9	NA	**85.8**	NA

*Maximum dry density and optimum moisture contents used were obtained from soil sampled close to the test locations.

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-040611-DR **Prepared By:** John Durkin **Date:** April 6, 2011
Project No. 10.1161

Weather Conditions: Cloudy and overcast, north winds 5 to 15 mph in morning switching to southwest at 10 to 20 mph in afternoon, temperatures 49° F to 69° F.

Work Summary: Fill placement and grading continued on the South Cover, final surveys of control points and slopes on the West Cover and compaction testing of the final intermediate lift on cell P03 of the North Cover was performed today. The South Cover work primarily consisted of filling and grading over cell P06 and the slopes on the surface and perimeter of the cover. The TRU Trenches portion of the north cover is considered to be complete with the exception of final compaction tests and track walking with a LGP D6 dozer.

Equipment working on the South Cover included 1-14H motor grader with GPS, D6 dozer, 2-651 scrapers, and a water master for dust control. The 651 scrapers transported material to the south cover from the new cell 21 excavation. Most of the material was placed at the south end of cell P06. This cell is now closed and the waste containers are completely covered. A dozer and the scrapers worked to fill the low areas of the cell. Approximately 88% of the South Cover is complete to date.

Fill material for the fourth, 18 inch lift, on Cell P03 of the North Cover was ripped with the blade and compaction tests were performed today. The compaction averaged 80.3% with an average moisture content of 4.7%. 651 scrapers placed material from the cell 21 excavation on the west half of Cell P03. The fill material placed on Cell P03 and the south cover, consisted of silty, sand and gravel soil and was visually/manually classified, SM, per the Unified Soil Classification System.

Earthwork on the West Cover has been completed and is ready to be certified. Independent surveyors from JS&S Survey began checking the control point elevations and as built surveys of the slopes. A telephone meeting with the design engineer concluded that compaction of the final lift should be performed before the surface is final track walked. Final density testing of the West Cover may be performed in the fall after the cover is disked and before planting activities begin.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer, 14H motor grader, water master & 1-loader	South Cover and P03 of North Cover
Surveying Site Grades	JS&S Surveying and NSTec with GPS Equipment	JS&S certification of the West Cover and NSTec on the South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed earth moving on the South Cover, density tests of P03 on North Cover, & certifications of the West Cover surfaces.
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Meeting 1 **Purpose:** Final Compaction of Cover Surfaces **Attendees:** P. Arnold, J. Miller, J. Durkin, Jason w/CH2M **Results:** Final Lift of covers will be tested for compaction after ripping and before track walking.	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and surveying operations	North, South and West Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Nuclear gauge soil density equipment.	Nuclear gauge calibrated 3-15-11.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
High compaction of finished covers after track walking.	Compaction tests will be performed after final ripping and prior to track walking.

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

2 - JS&S Surveyors working on site for the day.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-041211-DR **Prepared By:** John Durkin **Date:** April 12, 2011
Project No. 10.1161

Weather Conditions: Scattered clouds, winds 5 to 15 mph out of the south, temperatures 50° F to 75° F.

Work Summary: Grading continued on the South Cover and North Cover Cell P03. The fill material placed on Cell P03 was excavated from new Cell 21 located south of the RCRA cell. The material excavated consisted of silty, sand and gravel soil and was visually/manually classified, SM, per the Unified Soil Classification System. The South Cover work primarily consisted of ripping and rock picking on the top lift of cells T02, T03, T04 and P01. Filling and grading over the southern portion of cell P06 is completed.

The TRU Trenches portion of the north cover is considered to be complete with the exception of final compaction tests and track walking with a LGP D6 dozer. Compaction tests were performed on the TRU trenches of the north cover at a frequency of 1 test per acre as approved in response No. 1 to RFI-11-0031. Twelve in place moisture density tests were performed on the cover that had been cross ripped with a D10 dozer and ripped in the east west direction by a 14H blade. Compaction of the TRU cover averaged 81.5%with an average moisture content of 3.3%.

Equipment working on the South Cover included 1-14H motor grader with GPS, D6 dozer, 2-651 scrapers, and a water master for dust control. Cell P06 is now filled to finish grade. A D10 dozer has crossed ripped the west side of the south cover and blade has ripped in one direction. A bobcat loader equipped with a rock rake and laborers have removed rocks 9 inches and larger from the surface. Rock removal and ripping was being performed on cells P06 and P09. Approximately 90% of the South Cover is complete to date.

Compaction tests were performed on the south cover cells T04, T06, T07 and P02. The compaction averaged 82% with an average moisture content of 3.5%. Compaction tests on cell P02 were above 85% and this cell will be ripped again and retested.

Survey data on the West Cover indicated 10 of 38 control point elevations were higher than the 0.15' tolerance. These areas will be checked and a decision made whether to request the engineer accept the elevations or the areas may be regraded.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1 D10 Dozer, 2-651 Scrapers, D6 Dozer, 14H motor grader, water master & bobcat loader	South Cover and P03 of North Cover
Surveying Site Grades	NSTec with GPS Equipment	West Cover, South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed grading on the South Cover and P03 on North Cover. Density tests on the TRU trenches and South Cover
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)	
Telephone Meeting **Purpose:** Elevations and compaction tests on West Cover **Attendees:** P. Arnold, J. Miller, J. Durkin **Results:** Final compaction tests will be performed on the West Cover this month and a decision made on elevations before soil stabilization is started.	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and surveying operations	North, South and West Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Nuclear gauge soil density equipment.	Nuclear gauge calibrated 3-15-11.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-041411-DR **Prepared By:** John Durkin **Date:** April 14, 2011
Project No. 10.1161

Weather Conditions: Clear, winds 0 to 15 mph out of the south, temperatures 45° F to 65° F.

Work Summary:

Earthwork continued on the South Cover and both North Covers at Cell P03 and TRU Trenches. Fill material was excavated from new Cell 21 located south of the RCRA cell. The material excavated consisted of silty, sand and gravel soil and was visually/manually classified, SM, per the Unified Soil Classification System.

Fill material was placed to fill the former ramp on the west end of cell P03 and to build the south 3:1 slope of the P03 cover. 651 and 631 scrapers were used to transport material from the borrow area. The TRU Trenches portion of the north cover is near completion. Compaction tests performed on the TRU trenches indicated acceptable density and moisture content. A D6 dozer is track walking the surface on the cover.

The South Cover work primarily consisted rock picking on the top lift of cells T02, T03, T04 and P01. A D10 dozer completed cross ripping the entire cover and a 14H blade completed ripping the cover in the east west direction. The surface of cell P02 was additionally ripped by the blade.

Compaction tests were performed on the top lift of the South Cover from cell P02 to the east end of the cover at a frequency of 1 test per acre. In place density tests averaged 82% compaction with average moisture contents of 5%. The south cover is ready to be track walked after rocks 9 inches in diameter and greater are removed. A bobcat loader equipped with a rock rake and 5 laborers worked to remove rocks from the surface primarily in cell P01 and they were working toward the east side of the cover. Approximately 92% of the South Cover is complete to date.

Compaction tests remain to be performed on the surface of the West Cover. Next week the track walked surface is planned to be scarified similar to the scarification process prior to seeding. A D6 dozer with rippers is planned to be used to break up the track walked surface and compaction tests will then be performed.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	D10 Dozer, 651&631 Scrapers, D6 Dozer, 14H motor grader, water master & bobcat loader	South Cover and P03 of North Cover
Surveying Site Grades	NSTec with GPS Equipment	South Cover and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed ripping on the South Cover and earthwork on P03 of North Cover. Performed density tests on the South Cover.
Others Rock Removal	5 Laborers and bobcat loader	Surface of the South Cover

Meetings Held (cross reference to meeting notes)	
Telephone Meeting **Purpose:** Compaction testing on the West Cover **Attendees:** P. Arnold, J. Miller, J. Durkin **Results:** Final compaction tests will be performed on the West Cover next week. The surface will be tested after scarification to loosen the compacted surface.	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and surveying operations	North and South Covers.	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

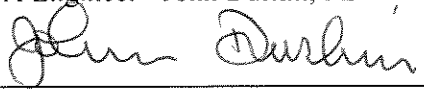
Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Nuclear gauge soil density equipment.	Nuclear gauge calibrated 3-15-11.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-041911-DR **Prepared By:** John Durkin **Date:** April 19, 2011
Project No. 10.1161

Weather Conditions: Mostly sunny, variable winds 0 to 15 mph becoming southwesterly 5 to 15 mph, temperatures 45° F to 77° F.

Work Summary:

Earthwork continued on the North Cover at Cell P03 and TRU Trenches. Fill material was excavated from the new Cell 21 located south of the RCRA cell. Cell 21 is excavated approximately 10 feet in depth with 3:1 side slopes. The material excavated consisted of silty, sand and gravel soil and was visually/manually classified, SM, per the Unified Soil Classification System.

Fill material was placed to fill the former ramp on the west end of cell P03 and to build the south 3:1 slopes of the P03 cover. 2-651 scrapers were used to transport material from the borrow area. The cell P03 cover is at the finish grade elevation and the west end ramp of the cell requires about 15,000 cubic yards of material to bring the area to natural grade. A D6 dozer with GPS worked to build the 3:1 slopes on the perimeter of the P03 cover. The TRU Trenches portion of the north cover is near completion. A D6 dozer needs to finish track walking the surface on the cover.

The South Cover work consisted of rock removal on the top lift. The west 2/3 of the cover is completed and the east 1/3 of the cover remains for rock removal. A track mounted bobcat loader, equipped with a rock rake, and laborers worked to remove rocks from the surface of the cover. The bobcat had a mechanical issue and was out of service over half of the shift. The South Cover is planned for track walking after rock removal is completed.

NSTec surveyors were on site to stake the drainage features for control of runoff water from the covers. The drainage plans and typical sections for drainage swales and channels as well as specifications for materials on the Arizona Crossing were reviewed.

Compaction tests are scheduled to be performed tomorrow on the surface of the West Cover. The track walked surface has been scarified similar to the scarification process prior to seeding. A D6 dozer with rippers was used to break up the track walked surface and compaction tests will then be performed.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1-D10 Dozer, 2-651 Scrapers, D6 Dozer, water master & bobcat loader	P03 of North Cover
Surveying Drainage & Site Grades	NSTec surveyors GPS Equipment	Site drainage features and cell P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE	Observed grading on P03 of North Cover and drainage feature survey stakes.
Others Rock Removal	Laborers and bobcat loader	Surface of the South Cover

Meetings Held (cross reference to meeting notes)		
	Meeting 1	**Meeting 2**
Purpose:	NA	NA
Attendees:		
Results:		

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and surveying operations	North P03 Cover and overall site	Soil Materials were visually classified as Silty Sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
NA	NA

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-042011-DR **Prepared By:** John Durkin **Date:** April 20, 2011
Project No. 10.1161

Weather Conditions: Partly cloudy and windy, south west winds 10 to 25 mph, temperatures 44° F to 76° F.

Work Summary:

Earthwork continued on the North Cover at Cell P03 and TRU Trenches. Fill material was excavated from the new Cell 21 located south of the RCRA cell. Cell 21 is excavated approximately 10 feet deep with 3:1 side slopes. The material excavated consisted of silty, sand and gravel soil and was visually classified, SM, per the Unified Soil Classification System.

Fill material was placed to fill the former ramp on the west end of cell P03 and to build the 3:1 slope on the south side of the P03 cover. 2-651 scrapers were used to transport material from the borrow area and a paddle wheel scraper was used on the south slope. The cell P03 cover is at the finish grade elevation and the west end ramp of the cell requires about 14,000 cubic yards of material to bring the former ramp area to natural grade. A D6 dozer and 14H blade, both with GPS, worked to build the 3:1 slopes on the perimeter of the P03 cover. The TRU Trenches portion of the north cover is near completion. A D6 dozer finished track walking the surface of the cover.

The South Cover requires rock removal on the east 1/3 of the cover. The track mounted bobcat loader, equipped with a rock rake used to remove plus 9" rocks, had a mechanical issue and is out of service. A replacement bobcat is scheduled to be in service by tomorrow. Three laborers worked removing rocks from the South Cover. A D6 dozer began track walking the South Cover working in the north south direction from the west toward the east side of the cover.

Compaction tests were performed today on the finished grade of the West Cover. The track walked surface has been scarified similar to the scarification process expected prior to seeding. A D6 dozer with rippers was used to break up the track walked surface and compaction tests were performed. Compaction tests were performed at a frequency of 1 test per acre with a nuclear soil density gauge at random locations. Thirteen tests were performed resulting in an average compaction of 78.3% with an average moisture content of 4%. Compaction and moisture contents met the project specifications.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Grading Observation	1-D10 Dozer, 2-651 Scrapers, 2-D6 Dozer, 2-14H blades, water master & paddle wheel scraper	P03 of North Cover and track walking the South Cover
Surveying Site Grades	NSTec with GPS Equipment	TRU Trenches and P03 of North Cover
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Observed grading on P03 of North Cover, track walking the South Cover and performed compaction tests on the West Cover.
Others Rock Removal	Laborers	Surface of the South Cover

Meetings Held (cross reference to meeting notes)	
Telephone Meeting 1 **Purpose:** Discuss Arizona Crossing details & drainage V-ditches at toe of 3:1 slopes. **Attendees:** J. Miller, Shannon Wright, J. Durkin **Results:** Arizona Crossing details will be reviewed and V-ditches will be constructed only as needed.	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading and tested compaction using soil density gauge	P03 on North Cover, South and West Covers	Soil Materials were visually classified as silty sand with gravel (SM) per USCS classification.

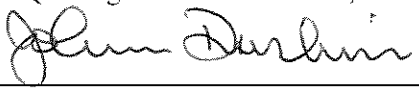
Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
Nuclear gauge soil density equipment.	Nuclear gauge calibrated 3-15-11.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE 

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-042611-DR **Prepared By:** John Durkin **Date:** April 26, 2011
Project No. 10.1161

Weather Conditions: Clear and windy, north winds 10 to 30 mph, temperatures 50° F to 76° F.

Work Summary: The remaining earthwork continued in the ramp area on the west end of cell P03, of the North Cover. Earthwork on the other covers is completed. Track walking remains to be performed on the east end of the south cover and cell P03. Fill material was excavated from the new cell under construction, 21, located south of the RCRA cell and north of P03. Cell 21 is excavated approximately 12 feet deep with 3:1 side slopes. Materials excavated consisted of silty, sand and gravel soil and was visually classified, SM, per the Unified Soil Classification System.

Two 651 scrapers were used to transport material from the borrow area to the west end of cell P03. The west end ramp of the cell requires about 5 feet of fill material to bring the former ramp area to natural grade. The cell P03 cover is at the finish grade elevation and has been cross ripped with a D10 dozer and ripped in the east/west direction with a 14H blade. Compaction tests were performed today on the finished cover surface. Seven in-place density tests were performed and the tests averaged 83.6% compaction with average moisture contents of 2.8%. Compaction and moisture contents met the project specifications and are now completed for the covers.

Rock removal of plus 9 inch rocks was being performed on P03 with a track mounted bobcat loader, equipped with a rock rake and three laborers. Rock removal was near completion. The South Cover required track walking on the east end and was track walked in the east/west direction and completed by the end of the day.

Two surveyors from JS&S Surveying performed third party verification of the control points on the North, South and West covers. They set a GPS transmitter up on the benchmark near the northwest corner of the West Cover. Four points on the West Cover were verified and all the control points on the North and South covers were surveyed to compare with project specifications. As built surveys were also performed on the covers.

Application of the soil stabilization binder product began today on the West Cover by Truk Enterprises. The binder product was mixed with water and applied by spraying from a nozzle on the top of a mixing and application truck and by hose. Dave Anderson with NSTec observed that the binder was applied per the manufacturer specifications.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Observation of grading, surveying and soil binder application	1-D10 Dozer, 2-651 Scrapers, D6 Dozer, water master, bobcat loader & soil stabilization truck	P03 of North Cover, surveying the covers and binder application on the South Cover
Surveying Control points and as built of the Covers	JS&S Surveying	North, South and West Covers
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE Darrin Anderson, NSTec	Performed density and moisture tests on P03 of North Cover, track walking the South Cover and soil stabilization application on West cover.
Others Rock Removal	Laborers	Surface of the North Cover cell P03

Meetings Held (cross reference to meeting notes)	
Telephone Meeting 1 **Purpose:** **Attendees:** NA **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observed grading, soil binder application, tested compaction using soil density gauge and control point verification	P03 on North Cover, South and West Covers	Soil Materials were visually classified as silty sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
Soil Binder product	Certificate of Compliance provided to Dave Anderson
Construction Materials & Test Equipment Used	**Equipment Calibrations**
On site soils & nuclear gauge soil density equipment.	Nuclear gauge calibrated 3-15-11.

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Dave Anderson with NSTec and Truk Enterprises personnel

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-042811-DR **Prepared By:** John Durkin **Date:** April 28, 2011
Project No. 10.1161

Weather Conditions: Mostly sunny with variable winds 5 to 15 mph in the morning, partly cloudy with southwest winds at 20 to 30 mph, temperatures 50° F to 77° F.

Work Summary: Earthwork is completed on the project except for filling the west end of cell P03, in the ramp area of the North Cover. Earthwork on the North, South and West covers is completed including track walking of the finished surfaces and slopes. Fill material placed for cell P03 was excavated from the new Cell 21 located south of the RCRA cell and north of P03. Cell 21 is presently excavated approximately 13 feet deep with 3:1 side slopes. The material excavated consisted of silty, sand and gravel soil and was visually classified, SM, per the Unified Soil Classification System.

Fill material was placed to fill the former ramp on the west end of cell P03. 2-651 scrapers were used to transport material from the borrow area. The west end ramp of the cell requires about 1 to 2 feet of fill material to bring the former ramp area to natural grade. The cell P03 cover is at the finish grade elevation and has been track walked.

Rock removal of plus 9 inch rocks was performed on all of the cover surfaces with laborers and a track mounted bobcat loader, equipped with a rock rake. Rock removal operations and track walking on the South Cover and the other covers has also been completed. Compaction and moisture contents met the project specifications and are now completed. Two D6 dozers with GPS began cutting drainage ditches around the covers and excavation on the Arizona Crossing began.

Surveyors from JS&S Surveying performed third party verification of the control points on the North, South and West covers on 4/26. The surveyors indicated all of the control points verified this week were within the +/- 0.15 foot tolerance. GPS instruments were used. As built surveys were also performed on the covers. The surveyors will be onsite again to finish as building the covers and drainage features in approximately two weeks.

Application of the soil stabilization binder product continued today by Truk Enterprises from Arizona. The binder product was mixed with water and applied by spraying from a nozzle on the top of a mixing and application truck and by hand using hoses. Dave Anderson with NSTec observed that the binder was applied per the manufacturer specifications. The application of soil binder on all three of the covers was completed today. A post job briefing of the soils stabilization work was performed at the end of the day and a summary of the work and certificate of completion is attached.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Observation of grading and soil binder application	1-D10 Dozer, 2-651 Scrapers, 2-D6 Dozer, water master, & soil stabilization truck	P03 ramp of North Cover and soil binder application on the South Cover
Surveying GPS on Dozers	NSTec	North, South and West Covers
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John Durkin, PE	P03 on north cover, drainage construction and soil stabilization application.
Others Soil Stabilization	Truk Enterprizes and Laborers with application truck	Soils Stabilization on the North and West Covers

Meetings Held (cross reference to meeting notes)	
Telephone Meeting 1 **Purpose:** **Attendees:** NA **Results:**	**Meeting 2** NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Grading and soil binder application	North Cover, South and West Covers	Soil Materials were visually classified as silty sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
Soil Binder product	Certificate of Compliance provided to Dave Anderson

Construction Materials & Test Equipment Used	**Equipment Calibrations**
NA	NA

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

Dave Anderson with NSTec and 7-Truk Enterprises personnel applying soil binder product.

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-050411-DR **Prepared By:** John Durkin **Date:** May 4, 2011
Project No. 10.1161

Weather Conditions: Mostly sunny with variable winds out of the north east at 10 to 15 mph in the morning, becoming southwesterly at 5 to 15 mph in the afternoon, temperatures 57° F to 83° F.

Work Summary: Earthwork is completed on the project except for finish grading the west end of the cell P03 ramp area of the North Cover, constructing the Arizona Crossing and grading the drainage features around the covers. Earthwork, ripping, rock removal, track walking and soil stabilization was completed on the surface and slopes of the North, South and West covers last week.

Fill material was placed to fill the former ramp on the west end of cell P03 and the area is near the natural grade level. A14H blade with GPS worked to grade the area as well as the drainage swale to the north of this area. A 637 self loading scraper removed soil material from the drainage swale and placed it in low drainage areas. The drainage ditches are approved to be constructed as shown in the typical swale detail with 10:1 slopes converging at the bottom of the swale. The drainage ditch on the north side of the North Cover is completed. A 14H blade is working to construct the drainage ditch between the North and South Covers. Drainage ditches between the West and South Covers are staked and grading is in progress. A drainage swale was cut at the base of the east 3:1 slope of the west cover.

Excavation of the Arizona Crossing is taking place with 2 – D6 dozers cutting the side slopes. The bottom and loose soil from the slopes is being excavated by a 637 scraper. The dozers are using GPS to cut the existing berm to design grades. A layer of Geocomposite material with 60 mil geofabric on both sides and an HDPE geonet material sandwiched in between is planned to be places on the finished grade. The geocomposite will be over lapped and fastened together with zip ties. Six inch cobble material, available on site, will be placed on top of the geocomposite approximately 12 inches in depth. The top of the cobbles will match the drainage channel elevation both up and down stream The sand bedding material and well graded gravel to fill in the voids has been approved to be eliminated.

Survey data of the control points obtained from JS&S Surveying was reviewed and one point was 0.05' above the .15' specified tolerance on the SE corner of the TRU trench cover. Approval has been obtained from the engineer that the elevation is acceptable. The surveyors will likely return to as built the completed project next week.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Observation of grading	2-D6 Dozers, 2-114H blades, water master and 637E scraper	P03 ramp of North Cover, Arizona Crossing and Drainage Ditches
Surveying GPS on Dozers	NSTec	Arizona Crossing and Drainage Ditches
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John J. Durkin, PE	P03 ramp on north cover, drainage ditch and Arizona Crossing construction
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)		
	Telephone Meeting 1	**Meeting 2**
	Purpose:	
	Attendees: NA	NA
	Results:	

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Grading	Drainage areas around the North, South and West Covers	Soil Materials were visually classified as silty sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
On site soils materials, observation only	NA

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-051111-DR **Prepared By:** John Durkin **Date:** May 11, 2011
Project No. 10.1161

Weather Conditions: Partly cloudy skies with variable winds out of the south at 0 to 10 mph, temps 58° F to 80° F.

Work Summary:

Earthwork and soil stabilization is completed on the project for the North, South and West Covers, including the west end of the cell P03 ramp area of the North Cover, as well as constructing the Arizona Crossing and grading the drainage features around the covers. Earthwork, ripping, rock removal, track walking and soil stabilization was completed on the surface and slopes of the North, South and West covers on April 28, 2011.

Fill material was placed to fill the former ramp on the west end of cell P03 and the area is near the natural grade level. A drainage swale was constructed in the center over this area and is tied into the drainage on the north side of cell P03. The drainage ditches were approved to be constructed as shown in the typical swale detail with 10:1 slopes converging at the bottom of the swale. Drainage ditches are also completed between the north and south covers as well as the west and south covers. A drainage swale was cut at the base of the east 3:1 slope of the west cover and drains to the south.

Excavation and placement of geocomposite material and rip rap for the Arizona Crossing was completed this week. A layer of geocomposite material with 60 mil geofabric on both sides and an HDPE geonet material sandwiched in between was placed on the finished grade. The geocomposite was over lapped and fastened together with 8- inch zip ties. Six inch cobble material, available on site, was placed on top of the geocomposite approximately 12 inches in depth. The top of the cobbles matches the drainage channel elevation both up and down stream. The sand bedding material and well graded gravel to fill in the voids was approved to be eliminated.

The third party surveyors from JS&S surveying are scheduled to be on site tomorrow to finish taking as built survey coordinates and elevations of the finished surfaces. The survey data will be incorporated into as built drawings that will be included in the CQA report. After these surveys are performed, this project is planned to not have any activity until the end of October when preparation of the covers and seeding will take place for the evapotranspiration vegetative cover layer.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Earthwork is completed	NA	NA
Surveying NA	NA	NA
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John J. Durkin, PE	Observation of 92-Acre Covers and drainage features
Others NA	NA	NA

Meetings Held	(cross reference to meeting notes)	
	Meeting 1	**Meeting 2**
	Purpose: **Attendees:** NA **Results:**	NA

CQA Inspections Conducted & Standard Test Methods	**Location**	**Results** (see Field and Lab Test Reports)
Observation of drainage	Drainage areas on and around the North, South and West Covers	Soil Materials were visually classified as silty sand with gravel (SM) per USCS classification.

Description of Materials Received on Site	**Quality Documentation Provided**
NA	NA

Construction Materials & Test Equipment Used	**Equipment Calibrations**
NA	NA

Construction Problems and Actions	**Results of Actions Taken (Solutions or Dispositions)**
NA	NA

Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants

NA

Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE

CONSTRUCTION QUALITY ASSURANCE DAILY REPORT
92 ACRE AREA: AREA 5 WASTE MANAGEMENT DIVISION RETIRED MIXED WASTE PITS
Nevada National Security Site, Nevada

Daily Report No.: 92-051211-DR **Prepared By:** John Durkin **Date:** May 12, 2011
Project No. 10.1161

Weather Conditions: Clear to partly cloudy skies with variable winds out of the south at 0 to 10 mph, temperatures 60° F to 85° F.

Work Summary:

The third party surveyors from JS&S surveying were on site at 7:30 am and began setting up after the required sign in and briefings. They are on site to finish taking as built survey coordinates and elevations of the finished surfaces. The survey data will be incorporated into as built drawings that will be included in the CQA report. After these surveys are performed, this project is planned to not have any activity until the end of October when preparation of the covers and seeding will take place for the evapotranspiration vegetative cover layer.

Earthwork and soil stabilization is completed on the project for the North, South and West Covers, including the west end of the cell P03 ramp area of the North Cover, as well as constructing the Arizona Crossing and grading the drainage features around the covers. Earthwork, ripping, rock removal, track walking and soil stabilization was completed on the surface and slopes of the North, South and West covers on April 28, 2011.

Fill material was placed to fill the former ramp on the west end of cell P03 and the area is near the natural grade level. A drainage swale was constructed in the center over this area and is tied into the drainage on the north side of cell P03. The drainage ditches were approved to be constructed as shown in the typical swale detail with 10:1 slopes converging at the bottom of the swale. Drainage ditches are also completed between the north and south covers as well as the west and south covers. A drainage swale was cut at the base of the east 3:1 slope of the west cover and drains to the south.

Excavation and placement of geocomposite material and rip rap for the Arizona Crossing was completed this week. A layer of geocomposite material with 60 mil geofabric on both sides and an HDPE geonet material sandwiched in between was placed on the finished grade. The geocomposite was over lapped and fastened together with 8- inch zip ties. Six inch cobble material, available on site, was placed on top of the geocomposite approximately 12 inches in depth. The top of the cobbles matches the drainage channel elevation both up and down stream. The sand bedding material and well graded gravel to fill in the voids was approved to be eliminated.

Type Inspection	Personnel and Equipment	Location and Work Performed
Earthwork Earthwork is completed	NA	NA
Surveying As built surveys	JS&S Surveying with GPS	92 Acre project area
CQA Resident Manager **CQA Engineer** **CQA Technicians**	John J. Durkin, PE	Observation of as built surveying of 92-Acre Covers and drainage features
Others NA	NA	NA

Meetings Held (cross reference to meeting notes)		
Meeting 1 **Purpose:** **Attendees:** NA **Results:**		**Meeting 2** NA
CQA Inspections Conducted & Standard Test Methods Observation of surveying	**Location** Finish grade on and around the North, South and West Covers	**Results** (see Field and Lab Test Reports) Soil Materials were visually classified as silty sand with gravel (SM) per USCS classification.
Description of Materials Received on Site NA		**Quality Documentation Provided** NA
Construction Materials & Test Equipment Used NA		**Equipment Calibrations** NA
Construction Problems and Actions NA	**Results of Actions Taken (Solutions or Dispositions)** NA	
Other Notes for this Daily Report including: Record of Visitors to the Site and Meeting Participants Visitors included a two party survey crew from JS&S Surveying.		
Signatures: CQA Resident Manager – Linda Carvolth, PE	CQA Engineer - John Durkin, PE John Durkin	

APPENDIX 2

Earthwork

APPENDIX 2-A

CQA Laboratory Summary

and Test Reports

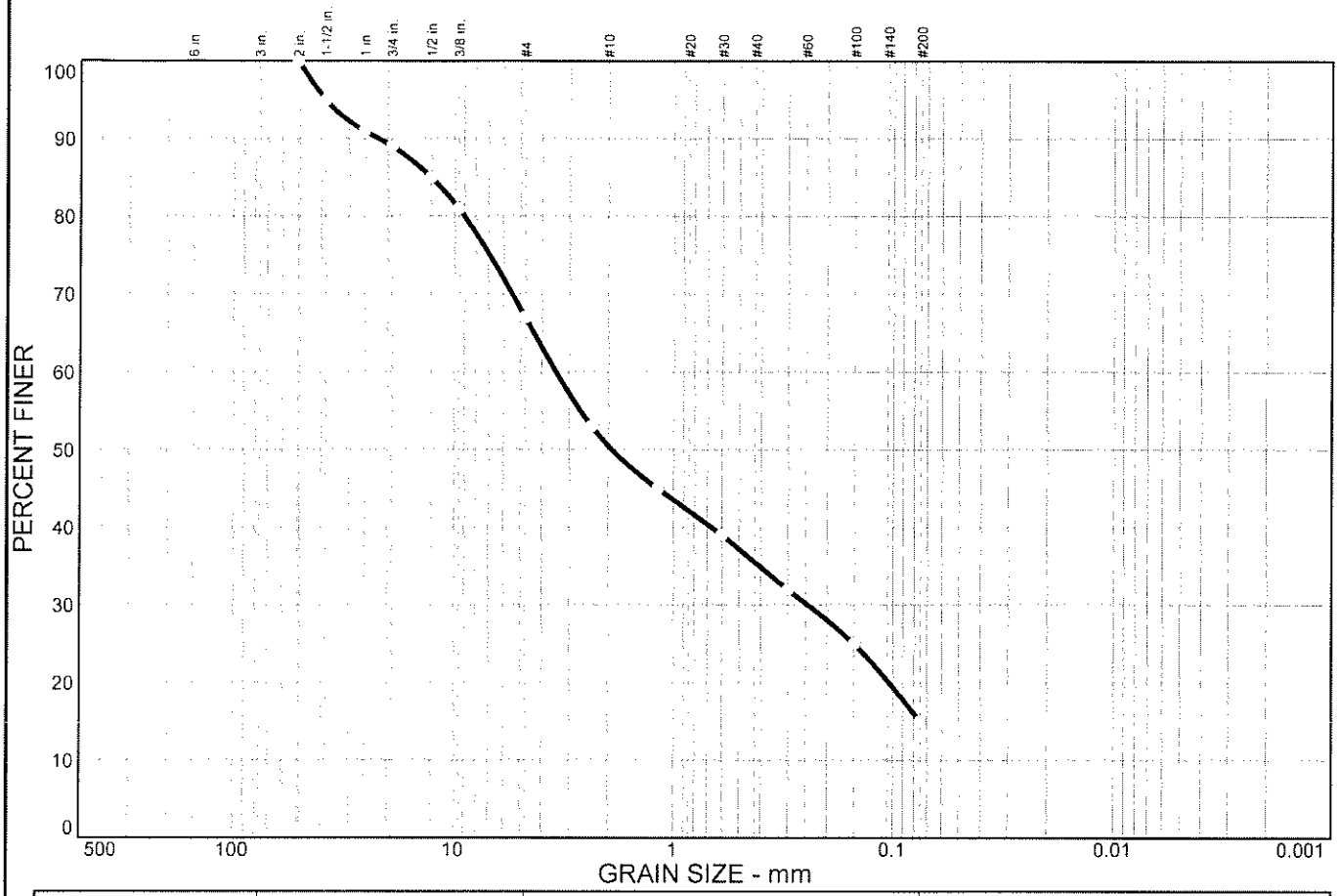
Laboratory Test Summary
92-Acre Cover, Area 5

Nevada National Security Site

Project No. 10.1161

LAB NUMBER	DATE SAMPLED	SAMPLE LOCATION	SOIL DESCRIPTION	MAXIMUM DRY DENSITY (ASTM D698)	OPTIMUM MOISTURE CONTENT	AREA PLACED
11-0021	Jan. 27, 2011	West Cover, Cell P04 (RCRA Stockpile)	Silty SAND with gravel (SM)	116.5 pcf	11.0%	West Cover and Cell P03
11-0022	Jan. 27, 2011	South Cover, Cell T07	Silty SAND with gravel (SM)	116.0 pcf	11.0%	West Cover Cell CW1
11-0057	Feb. 15, 2011	TRU Trenches, West End Cell T01	Silty SAND with gravel (SM)	115.5 pcf	11.0%	TRU Trenches North Cover
11-0058	Feb. 15, 2011	TRU Trenches, East End Cell T02	Silty SAND with gravel (SM)	115.0 pcf	11.5%	TRU Trenches North Cover
11-0059	Feb. 15, 2011	South Cover, West End Cell P06	Silty SAND with gravel (SM)	115.5 pcf	10.5%	South Cover
11-0110	April 11, 2011	West Cover, North End Cell P04	Silty sand with gravel (SM)	115.5 pcf	10.5%	West Cover

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	11	22	16	15	21	15	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2 in.	100		
1-1/2 in.	95		
1 in.	91		
3/4 in.	89		
1/2 in.	85		
3/8 in.	81		
#4	67		
#8	53		
#16	45		
#30	39		
#50	32		
#100	25		
#200	15		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 12.7 D_{60}= 3.44 D_{50}= 1.91
D_{30}= 0.243 D_{15}= 0.0750 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

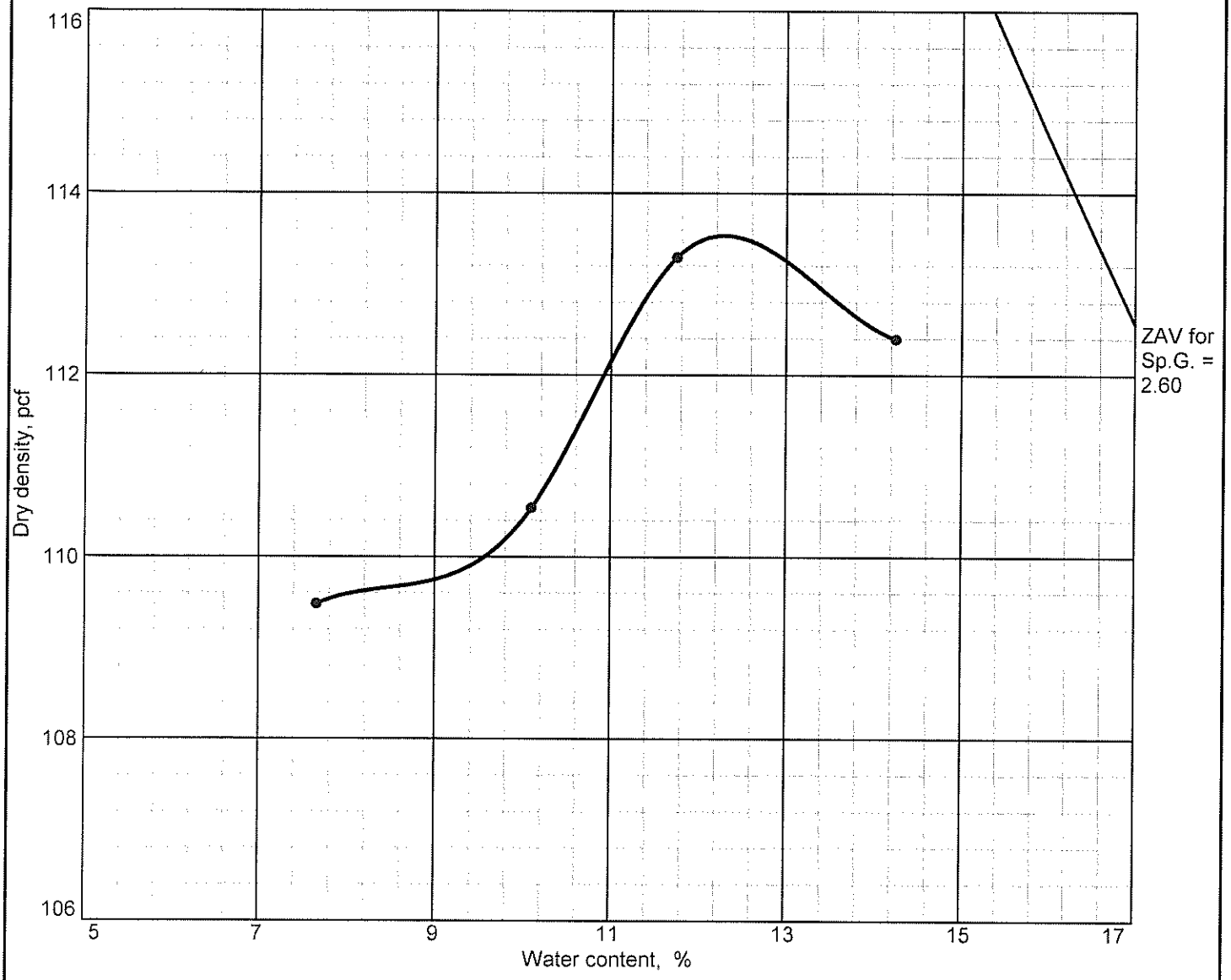
Remarks

Sample No.: 11-0021 **Source of Sample:** On-Site Material **Date:** 01/27/2011
Location: RCRA Cell Spoils Stockpile **Elev./Depth:**

JA CESARE AND ASSOCIATES, INC
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover
Project No: 10.1161 **Figure** 11-0021

COMPACTION TEST REPORT



Test specification: ASTM D 698 Procedure B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM			2.111	NP	NP	19.0	15

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 116.5 pcf	113.5 pcf	Silty sand with gravel
Optimum moisture = 11 %	12.5 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

● **Location:** RCRA Cell Spoils Stockpile

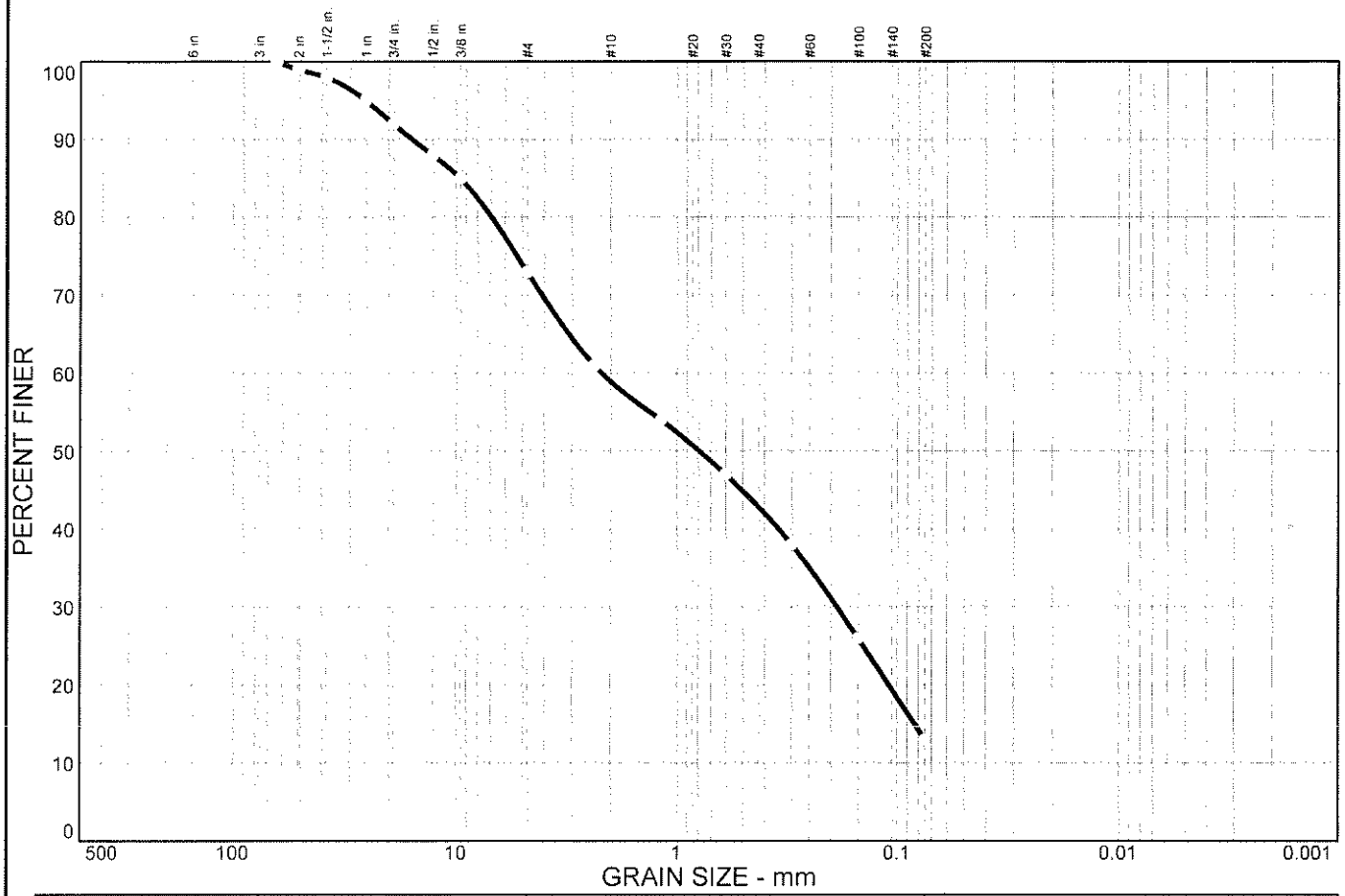
Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0021

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	8	19	14	16	30	13	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2-1/2 in.	100		
2 in.	99		
1-1/2 in.	98		
1 in.	95		
3/4 in.	92		
1/2 in.	88		
3/8 in.	85		
#4	73		
#8	61		
#16	54		
#30	47		
#50	38		
#100	26		
#200	13		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 9.52 D_{60}= 2.18 D_{50}= 0.788
D_{30}= 0.187 D_{15}= 0.0834 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

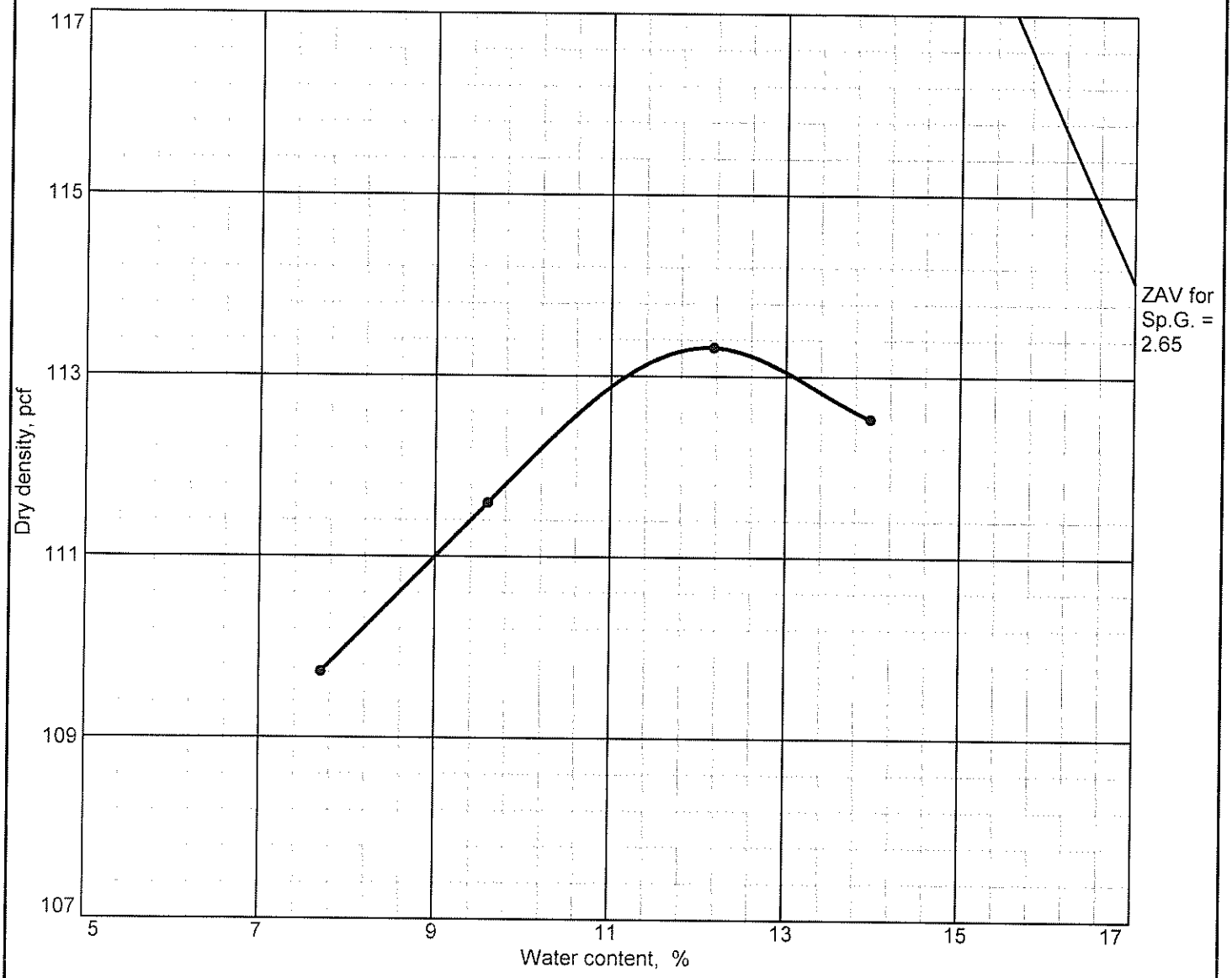
Sample No.: 11-0022 **Source of Sample:** On-Site Material **Date:** 01/27/2011
Location: West Side of Cell T07 **Elev./Depth:**

JA CESARE AND ASSOCIATES, INC
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover

Project No: 10.1161 **Figure** 11-0022

COMPACTION TEST REPORT



Test specification: ASTM D 698 Procedure B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
				2.142	NP	NP	15.0	13

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 116 pcf	113.5 pcf	Silty sand with gravel
Optimum moisture = 11 %	12 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

● **Location:** West Side of Cell T07

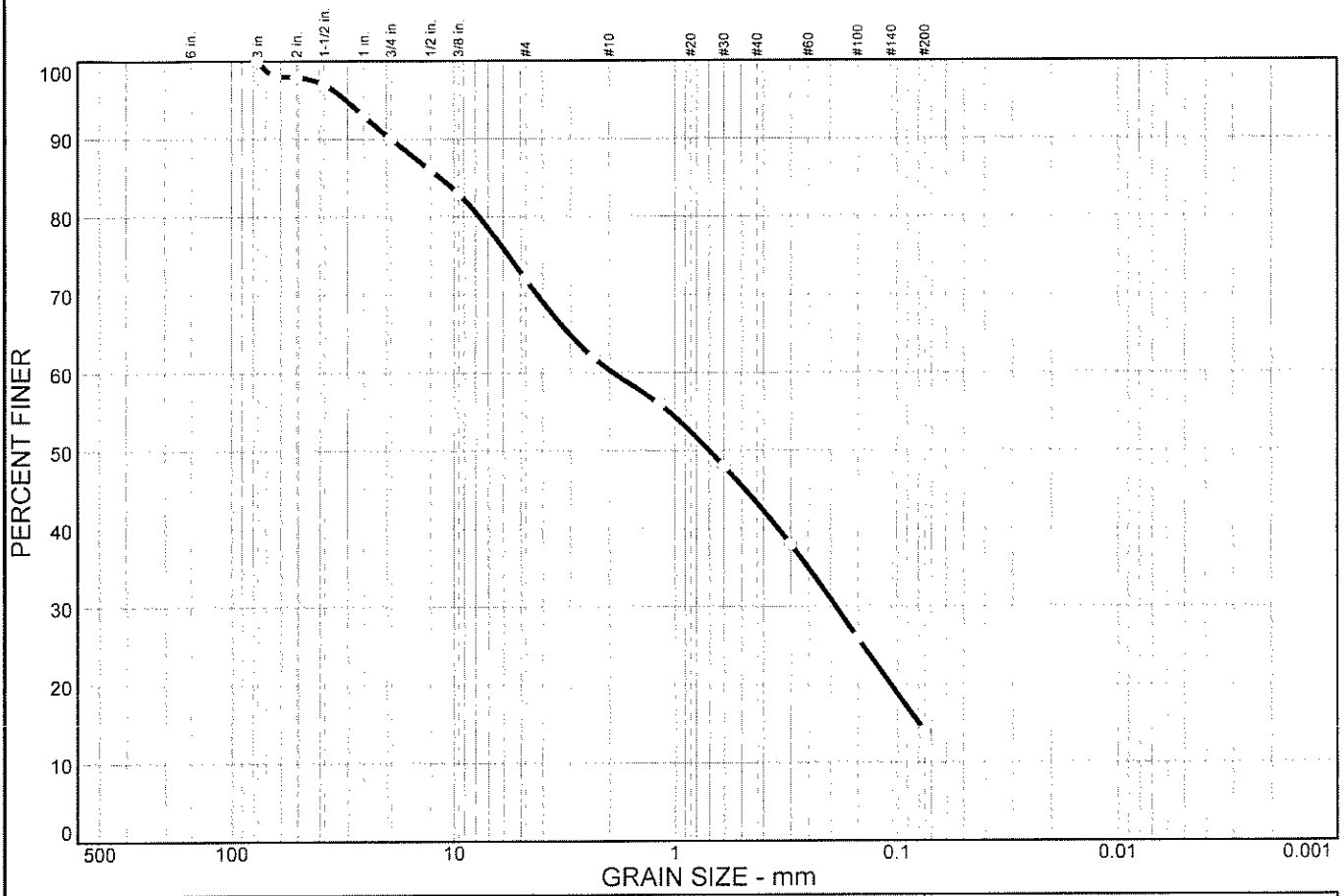
Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0022

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	10	18	12	17	29	14	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3 in.	100		
2-1/2 in.	98		
2 in.	98		
1-1/2 in.	97		
1 in.	93		
3/4 in.	90		
1/2 in.	86		
3/8 in.	83		
#4	72		
#8	62		
#16	56		
#30	48		
#50	38		
#100	26		
#200	14		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 11.5 D_{60}= 1.91 D_{50}= 0.699
D_{30}= 0.188 D_{15}= 0.0795 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

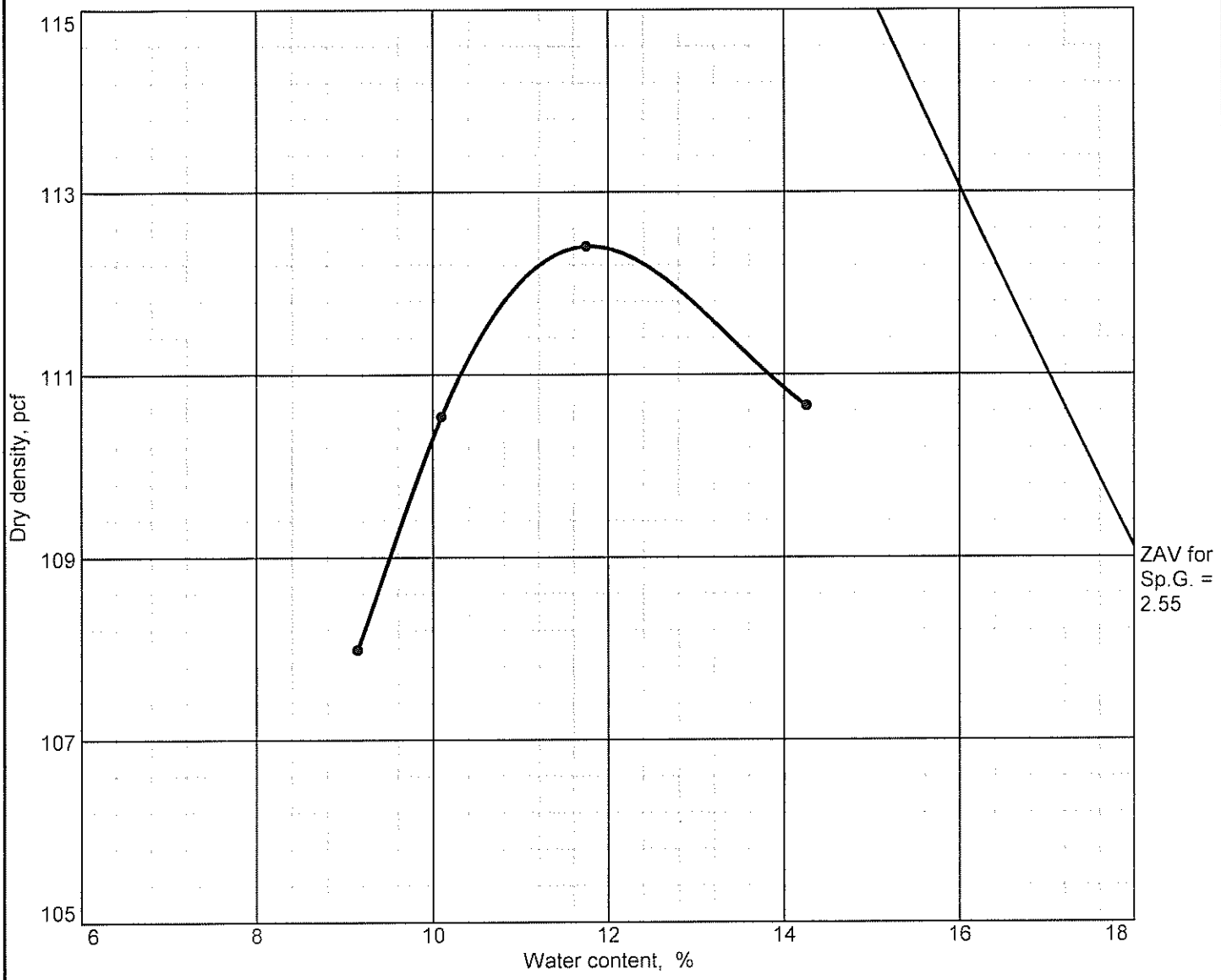
Remarks

Sample No.: 11-0057 **Source of Sample:** On-Site Material **Date:** 02/15/2011
Location: North Cover Cell T01 **Elev./Depth:**

JA CESARE AND ASSOCIATES, INC
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover
Project No: 10.1161 **Figure** 11-0057

COMPACTION TEST REPORT



Test specification: ASTM D 698 Procedure B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM			2.111	NP	NP	17.0	14

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 115.5 pcf	112.5 pcf	Silty sand with gravel
Optimum moisture = 11 %	12 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

● **Location:** North Cover Cell T01

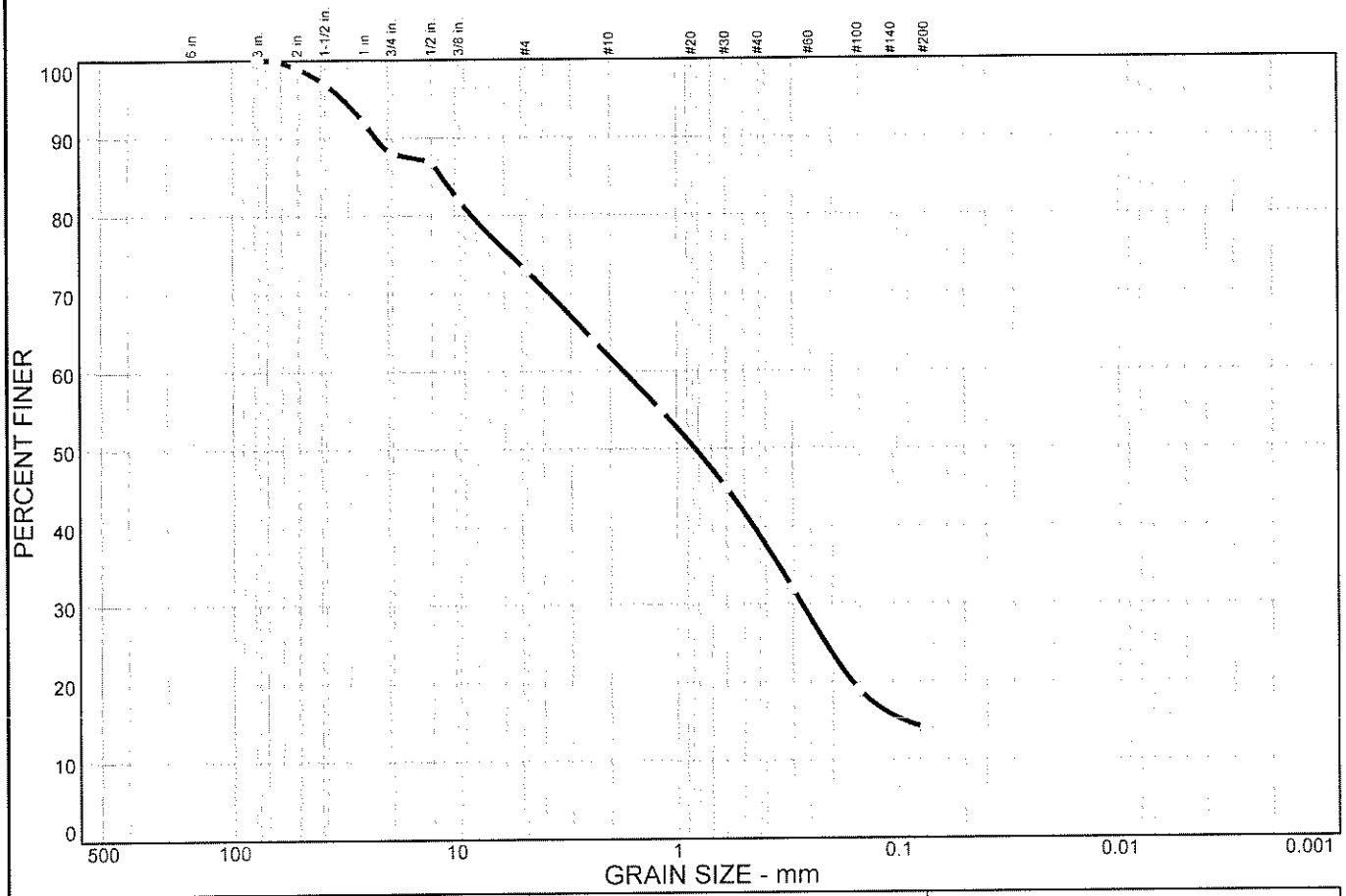
Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0057

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	12	15	11	23	25	14	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3 in.	100		
2-1/2 in.	100		
2 in.	99		
1-1/2 in.	97		
1 in.	92		
3/4 in.	88		
1/2 in.	87		
3/8 in.	82		
#4	73		
#8	64		
#16	55		
#30	45		
#50	32		
#100	19		
#200	14		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 11.4 D_{60}= 1.73 D_{50}= 0.826
D_{30}= 0.273 D_{15}= 0.0937 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

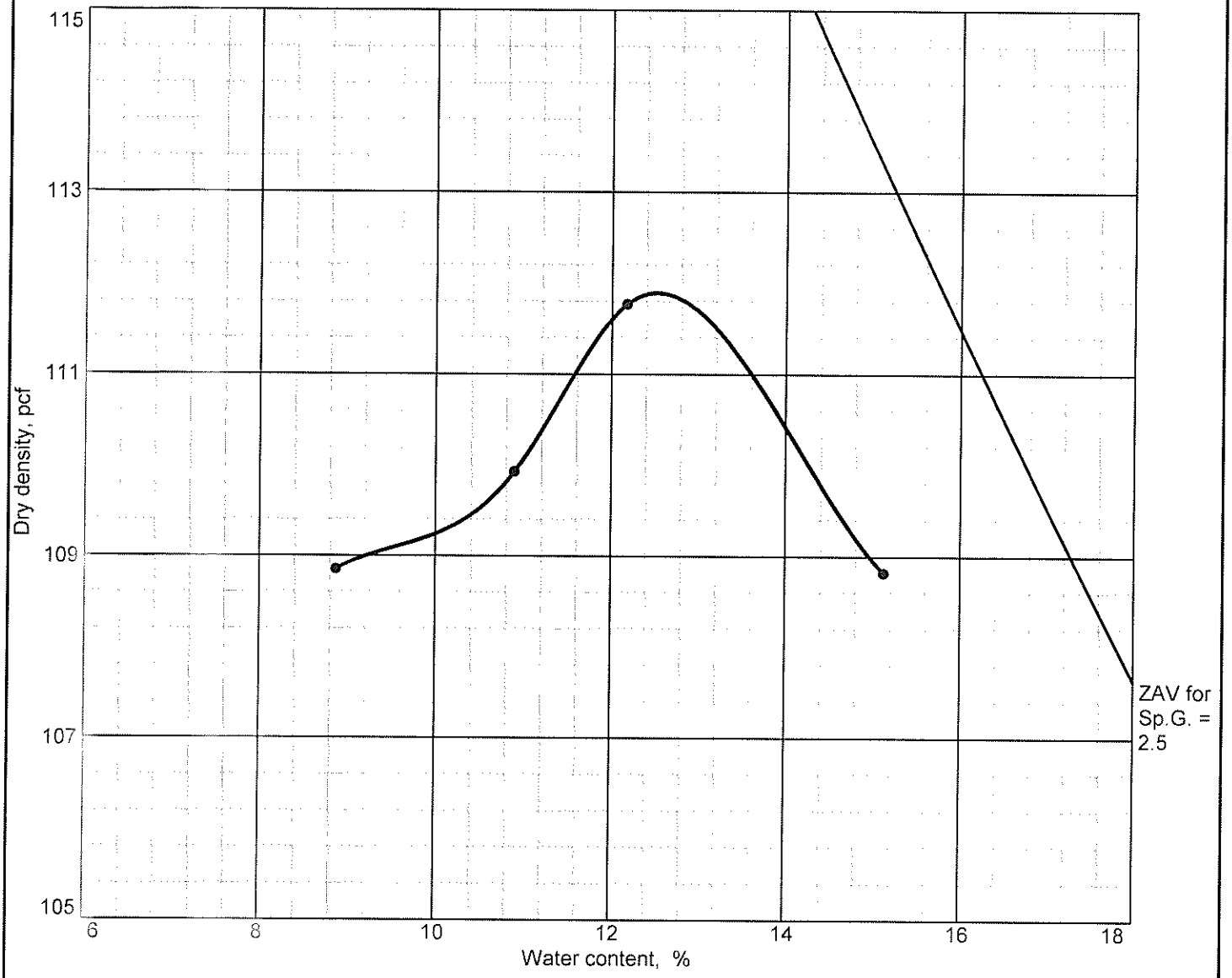
Sample No.: 11-0058 **Source of Sample:** On-Site Material **Date:** 02/15/2011
Location: North Cover Cell T02 **Elev./Depth:**

JA CESARE AND ASSOCIATES INC
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover

Project No: 10.1161 **Figure** 11-0058

COMPACTION TEST REPORT



Test specification: ASTM D 698 Procedure B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM			2.127	NP	NP	18.0	14

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 115 pcf	112 pcf	Silty sand with gravel
Optimum moisture = 11.5 %	12.5 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

● **Location:** North Cover Cell T02

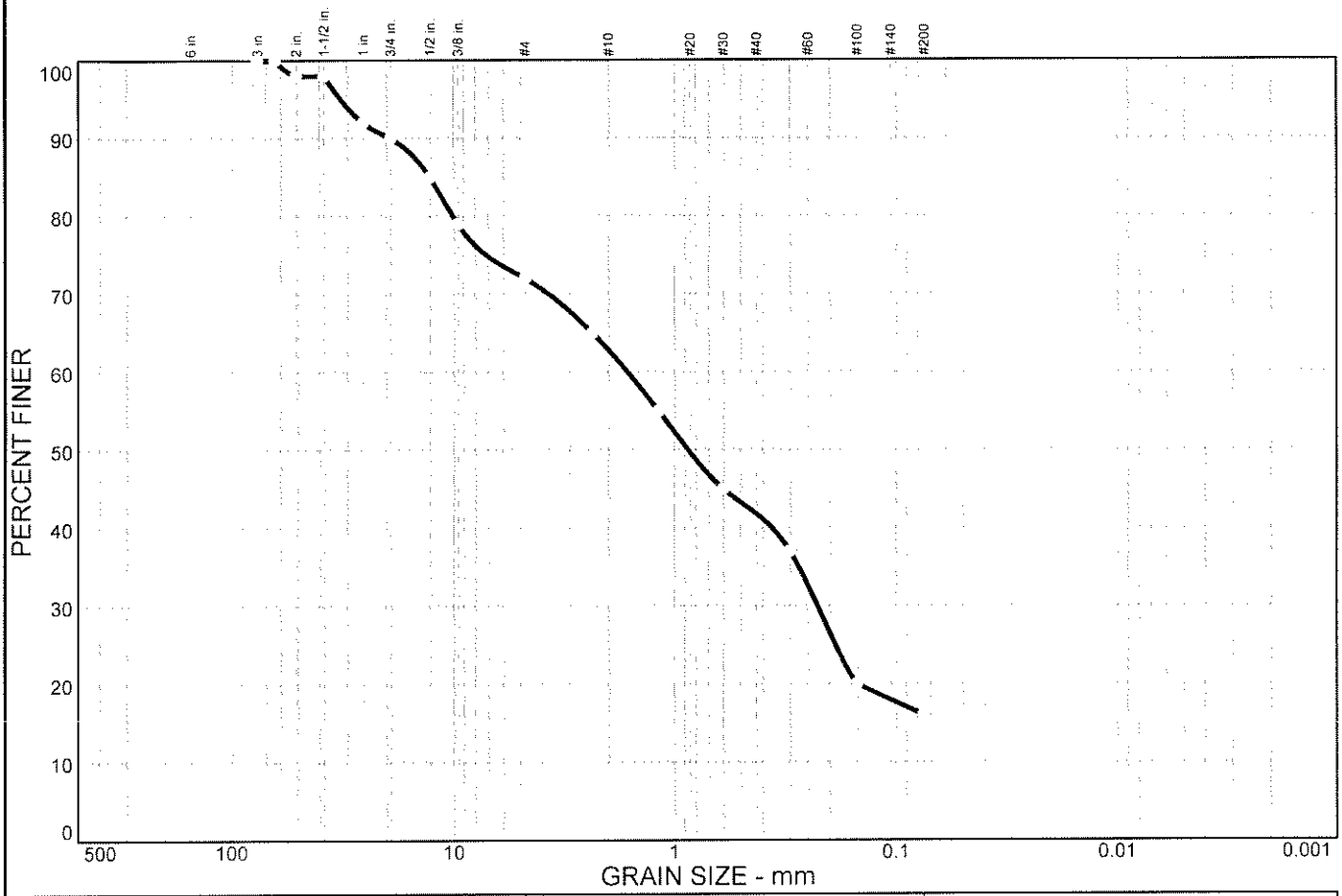
Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0058

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	10	18	9	21	26	16	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3 in.	100		
2-1/2 in.	100		
2 in.	98		
1-1/2 in.	98		
1 in.	92		
3/4 in.	90		
1/2 in.	85		
3/8 in.	79		
#4	72		
#8	65		
#16	55		
#30	45		
#50	37		
#100	20		
#200	16		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 12.7 D_{60}= 1.63 D_{50}= 0.866
D_{30}= 0.226 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

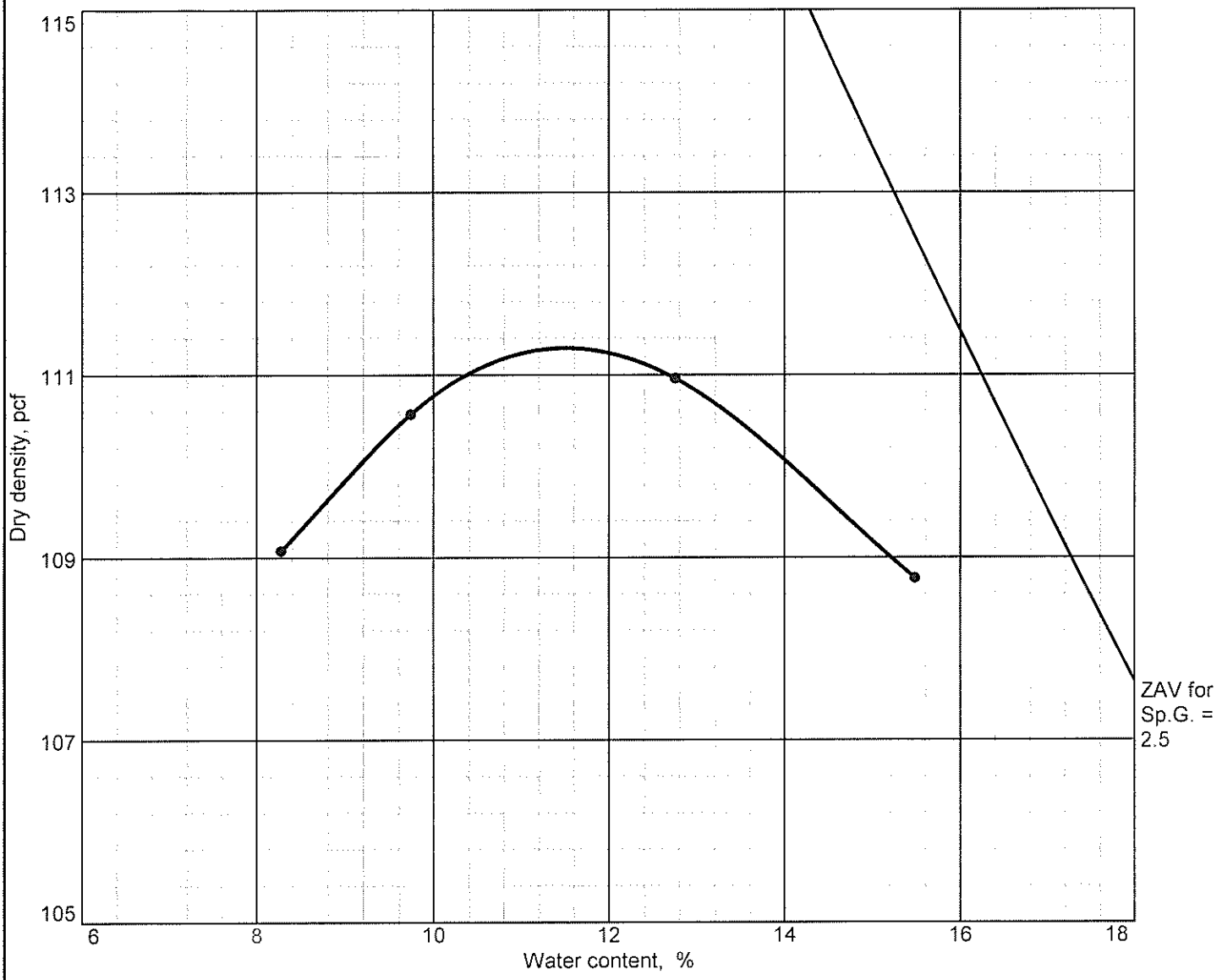
Sample No.: 11-0059 **Source of Sample:** On-Site Material **Date:** 02/15/2011
Location: South Cover Cell P06 **Elev./Depth:**

JA CESARE AND ASSOCIATES, INC
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover

Project No: 10.1161 **Figure** 11-0059

COMPACTION TEST REPORT



Test specification: ASTM D 698 Procedure B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM			2.131	NP	NP	21.0	16

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 115.5 pcf	111.5 pcf	Silty sand with gravel
Optimum moisture = 10.5 %	11.5 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

● **Location:** South Cover Cell P06

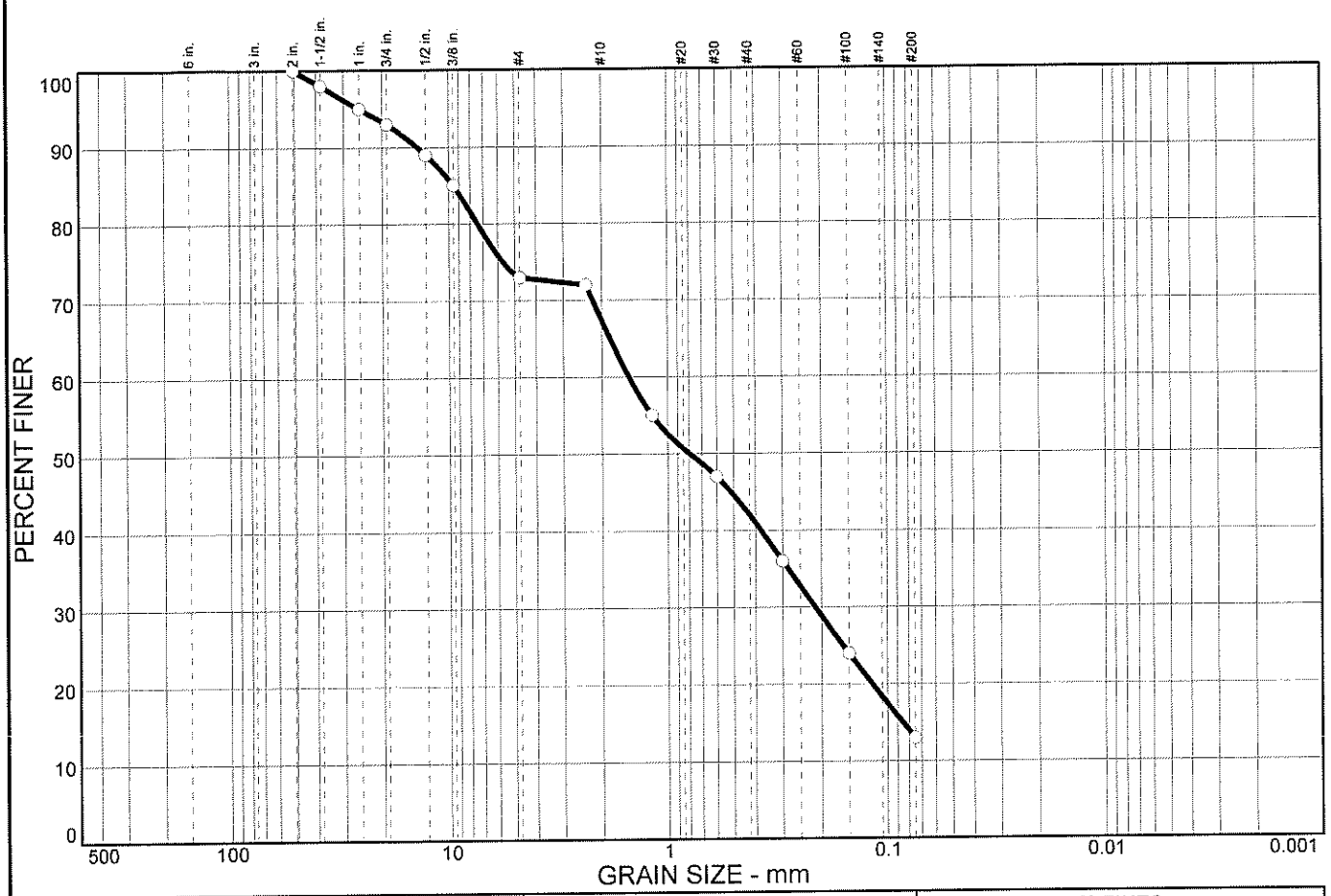
Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0059

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	7	20	6	25	29	13	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.0 in.	100		
1-1/2 in.	98		
1 in.	95		
3/4 in.	93		
1/2 in.	89		
3/8 in.	85		
#4	73		
#8	72		
#16	55		
#30	47		
#50	36		
#100	24		
#200	13		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NV LL= NV PI= NP

Coefficients

D_{85}= 9.52 D_{60}= 1.50 D_{50}= 0.796
D_{30}= 0.213 D_{15}= 0.0853 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

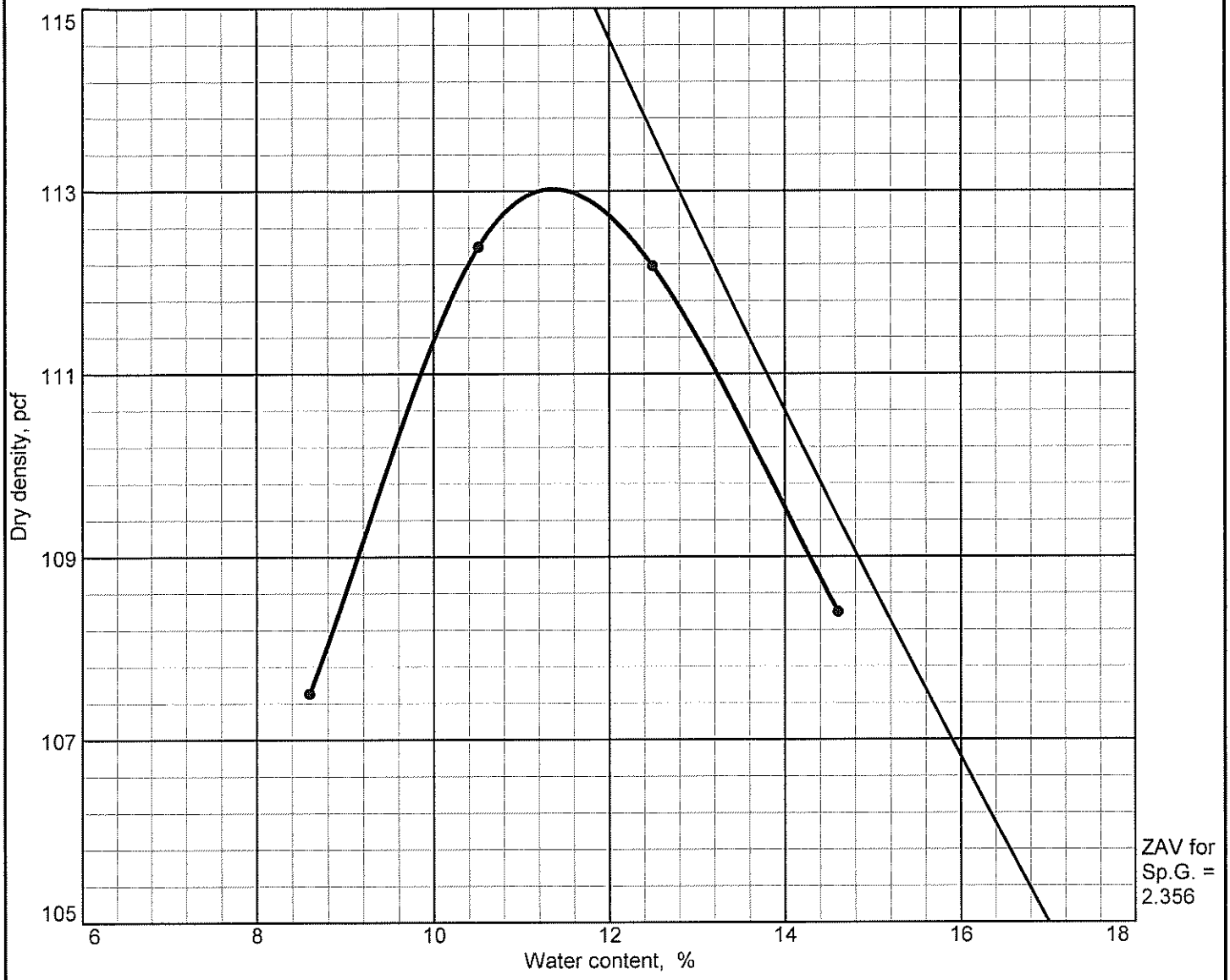
Remarks

Sample No.: 11-0110 **Source of Sample:** On-Site Material **Date:** 4/11/2011
Location: West Cover - Finish Grade **Elev./Depth:**

JA CESARE AND ASSOCIATES, INC.
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover
Project No: 10.1161 **Figure** 11-0110

COMPACTION TEST REPORT



Test specification: ASTM D 698-91 Procedure C Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
	SM				NV	NP	7.0	13

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 115.5 pcf Optimum moisture = 10.5 %	Silty sand with gravel

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

● **Location:** West Cover - Finish Grade

Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0110

APPENDIX 2-B

CQA In-Place Moisture

Density Test Summary

Field Moisture/Density Test Summary
(ASTM D6938)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Field Dry Density (pcf)	Relative Compaction	
									Field (%)	Spec. (%)
North Cover - Cell P03										
P03-SG-D1	3-Mar-11	Subgrade North Cover N 767,858 E 708,828	3201.0	11-0022	116.0	11.0	3.7	93.2	80%	75% - 85%
P03-SG-D2	3-Mar-11	Subgrade North Cover N 767,929 E 708,955	3202.2	11-0022	116.0	11.0	3.7	94.4	81%	75% - 85%
P03-SG-D3	3-Mar-11	Subgrade North Cover N 767,792 E 708,975	3202.9	11-0022	116.0	11.0	3.7	93.3	80%	75% - 85%
P03-SG-D4	3-Mar-11	Subgrade North Cover N 767,855 E 709,092	3203.2	11-0022	116.0	11.0	3.5	97.1	84%	75% - 85%
P03-SG-D5	3-Mar-11	Subgrade North Cover N 767,925 E 709,170	3203.4	11-0022	116.0	11.0	4.6	94.7	82%	75% - 85%
P03-SG-D6	3-Mar-11	Subgrade North Cover N 767,768 E 709,155	3202.8	11-0022	116.0	11.0	3.9	94.6	82%	75% - 85%
P03-L1-D7	17-Mar-11	Lift 1 North Cover N 767,806 E 709,148	3204.2	11-0022	116.0	11.0	3.8	91.0	78%	75% - 85%
P03-L1-D8	17-Mar-11	Lift 1 North Cover N 767,817 E 709,019	3204.2	11-0022	116.0	11.0	3.8	93.7	81%	75% - 85%
P03-L1-D9	17-Mar-11	Lift 1 North Cover N 767,860 E 708,889	3204.0	11-0022	116.0	11.0	3.8	96.7	83%	75% - 85%
P03-L1-D10	17-Mar-11	Lift 1 North Cover N 767,901 E 708,801	3202.7	11-0022	116.0	11.0	4.6	92.0	79%	75% - 85%
P03-L1-D11	17-Mar-11	Lift 1 North Cover N 767,879 E 708,705	3201.7	11-0022	116.0	11.0	3.1	96.7	83%	75% - 85%
P03-L2-D12	24-Mar-11	Lift 2 North Cover N 767,936 E 709,200	3206.3	11-0022	116.0	11.0	7.0	89.6	77%	75% - 85%
P03-L2-D13	24-Mar-11	Lift 2 North Cover N 767,773 E 709,112	3205.2	11-0022	116.0	11.0	7.4	87.0	75%	75% - 85%
P03-L2-D14	24-Mar-11	Lift 2 North Cover N 767,914 E 709,066	3206.0	11-0022	116.0	11.0	5.1	94.6	82%	75% - 85%
P03-L2-D15	24-Mar-11	Lift 2 North Cover N 767,949 E 708,961	3205.8	11-0022	116.0	11.0	6.4	93.2	80%	75% - 85%
P03-L2-D16	24-Mar-11	Lift 2 North Cover N 767,882 E 708,919	3204.3	11-0022	116.0	11.0	7.6	92.7	80%	75% - 85%
P03-L2-D17	24-Mar-11	Lift 2 North Cover N 767,921 E 708,836	3203.1	11-0022	116.0	11.0	7.7	89.1	77%	75% - 85%
P03-L3-D18	29-Mar-11	Lift 3 North Cover N 767,852 E 709,153	3207.3	11-0022	116.0	11.0	4.6	88.2	76%	75% - 85%
P03-L3-D19	29-Mar-11	Lift 3 North Cover N 767,790 E 709,049	3206.3	11-0022	116.0	11.0	4.6	92.6	80%	75% - 85%
P03-L3-D20	29-Mar-11	Lift 3 North Cover N 767,862 E 709,000	3206.2	11-0022	116.0	11.0	3.1	92.6	80%	75% - 85%
P03-L3-D21	29-Mar-11	Lift 3 North Cover N 767,818 E 708,910	3205.5	11-0022	116.0	11.0	3.9	95.2	82%	75% - 85%
P03-L3-D22	29-Mar-11	Lift 3 North Cover N 767,829 E 708,848	3205.2	11-0022	116.0	11.0	4.8	90.1	78%	75% - 85%
P03-L3-D23	29-Mar-11	Lift 3 North Cover N 767,905 E 708,687	3204.5	11-0022	116.0	11.0	3.9	87.5	75%	75% - 85%
P03-L3-D24	29-Mar-11	Lift 3 North Cover N 767,700 E 709,300	3205.0	11-0022	116.0	11.0	5.8	91.6	79%	75% - 85%
P03-L4-D25	6-Apr-11	Lift 2 North Cover N 767,729 E 709,169	3207.1	11-0022	116.0	11.0	3.6	82.8	71%	75% - 85%
P03-L4-D26	6-Apr-11	Lift 4 North Cover N 767,798 E 709,062	3208.1	11-0022	116.0	11.0	4.3	90.4	78%	75% - 85%
P03-L4-D27	6-Apr-11	Lift 4 North Cover N 767,868 E 709,005	3208.1	11-0022	116.0	11.0	5.2	96.1	83%	75% - 85%
P03-L4-D28	6-Apr-11	Lift 4 North Cover N 767,893 E 708,788	3207.2	11-0022	116.0	11.0	5.5	88.7	76%	75% - 85%
P03-L4-D29	6-Apr-11	Lift 4 North Cover N 767,851 E 708,883	3206.7	11-0022	116.0	11.0	4.9	94.0	81%	75% - 85%
P03-L4-D30	6-Apr-11	Lift 4 North Cover N 767,890 E 708,685	3205.9	11-0022	116.0	11.0	4.5	93.2	80%	75% - 85%
P03-FG-D31	26-Apr-11	FG North Cover N 767,924 E 708,695	3206.3	11-0022	116.0	11.0	3.0	97.6	84%	75% - 85%
P03-FG-D32	26-Apr-11	FG North Cover N 767,840 E 708,838	3207.9	11-0022	116.0	11.0	2.9	97.9	84%	75% - 85%

Field Moisture/Density Test Summary
(ASTM D6938)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Field Dry Density (pcf)	Relative Compaction	
									Field (%)	Spec. (%)
P03-FG-D33	26-Apr-11	FG North Cover N 767,880 E 709,020	3209.3	11-0022	116.0	11.0	3.1	98.5	85%	75% - 85%
P03-FG-D34	26-Apr-11	FG North Cover N 767,762 E 709,140	3207.8	11-0022	116.0	11.0	2.1	97.9	84%	75% - 85%
P03-FG-D35	26-Apr-11	FG North Cover N 767,962 E 709,316	3207.6	11-0022	116.0	11.0	2.6	97.1	84%	75% - 85%
P03-FG-D36	26-Apr-11	FG North Cover N 767,863 E 709,305	3206.4	11-0022	116.0	11.0	3.6	93.7	81%	75% - 85%
P03-FG-D37	26-Apr-11	FG North Cover N 767,676 E 709,322	3205.8	11-0022	116.0	11.0	2.5	96.5	83%	75% - 85%
North Cover, TRU Trenches - Cell T01 To Cell T08										
T04-SG-D1	10-Feb-11	Subgrade North Cover N 767,651 E 708,915	3201.6	11-0057	115.5	11.0	4.4	93.1	81%	75% - 85%
T04-SG-D2	10-Feb-11	Subgrade North Cover N 767,692 E 708,823	3201.8	11-0057	115.5	11.0	3.7	89.5	77%	75% - 85%
T04-SG-D3	10-Feb-11	Subgrade North Cover N 767,744 E 708,640	3201.8	11-0057	115.5	11.0	3.9	90.7	79%	75% - 85%
T04-SG-D4	14-Feb-11	Subgrade North Cover N 767,776 E 709,533	3200.1	11-0057	115.5	11.0	6.1	96.8	84%	75% - 85%
T04-SG-D5	14-Feb-11	Subgrade North Cover N 767,732 E 708,676	3200.6	11-0057	115.5	11.0	4.8	94.4	82%	75% - 85%
T04-SG-D6	14-Feb-11	Subgrade North Cover N 767,659 E 708,913	3200.1	11-0057	115.5	11.0	5.3	94.0	81%	75% - 85%
T01-FG-D7	12-Apr-11	FG North Cover N 767,628 E 708,688	3201.8	11-0057	115.5	11.0	2.8	96.6	84%	75% - 85%
T02-FG-D8	12-Apr-11	FG North Cover N 767,512 E 709,074	3201.5	11-0057	115.5	11.0	3.3	97.7	85%	75% - 85%
T03-FG-D9	12-Apr-11	FG North Cover N 767,477 E 708,850	3200.7	11-0057	115.5	11.0	3.1	91.4	79%	75% - 85%
T03-FG-D10	12-Apr-11	FG North Cover N 767,635 E 708,400	3200.5	11-0057	115.5	11.0	3.3	96.2	83%	75% - 85%
T04-FG-D11	12-Apr-11	FG North Cover N 767,825 E 708,366	3200.1	11-0057	115.5	11.0	4.7	97.6	85%	75% - 85%
T04-FG-D12	12-Apr-11	FG North Cover N 767,667 E 708,803	3202.4	11-0057	115.5	11.0	3.3	94.4	82%	75% - 85%
T04-FG-D13	12-Apr-11	FG North Cover N 767,538 E 708,204	3202.6	11-0057	115.5	11.0	2.9	93.3	81%	75% - 85%
T05-FG-D14	12-Apr-11	FG North Cover N 767,402 E 709,182	3200.5	11-0057	115.5	11.0	4.4	91.8	79%	75% - 85%
T06-FG-D15	12-Apr-11	FG North Cover N 767,396 E 709,026	3199.3	11-0057	115.5	11.0	3.3	87.4	76%	75% - 85%
T06-FG-D16	12-Apr-11	FG North Cover N 767,568 E 708,298	3199.4	11-0057	115.5	11.0	2.9	94.9	82%	75% - 85%
T07-FG-D17	12-Apr-11	FG North Cover N 767,470 E 708,582	3199.3	11-0057	115.5	11.0	3.4	97.6	85%	75% - 85%
T08-FG-D18	12-Apr-11	FG North Cover N 767,252 E 709,157	3196.4	11-0057	115.5	11.0	2.5	95.3	83%	75% - 85%
South Cover - Cell P01 To Cell P09										
P01-SG-D1	16-Feb-11	Subgrade South Cover N 767,178 E 708,621	3192.6	11-0022	116.0	11.0	3.5	94.0	81%	75% - 85%
P01-SG-D2	18-Feb-11	Subgrade South Cover N 767,188 E 708,570	3191.9	11-0022	116.0	11.0	4.4	90.2	78%	75% - 85%
P01-SG-D3	18-Feb-11	Subgrade South Cover N 766,202 E 708,496	3192.6	11-0022	116.0	11.0	4.0	93.7	81%	75% - 85%
P01-SG-D4	18-Feb-11	Subgrade South Cover N 767,128 E 708,467	3191.8	11-0022	116.0	11.0	3.8	96.9	84%	75% - 85%
P01-SG-D5	18-Feb-11	Subgrade South Cover N 767,089 E 708,535	3190.6	11-0022	116.0	11.0	4.1	91.2	79%	75% - 85%
P01-SG-D6	16-Feb-11	Subgrade South Cover N 767,126 E 708,615	3192.1	11-0022	116.0	11.0	4.4	95.6	82%	75% - 85%
P01-SG-D7	16-Feb-11	Subgrade South Cover N 767,083 E 708,601	3191.4	11-0022	116.0	11.0	4.4	94.4	81%	75% - 85%
P01-SG-D8	18-Feb-11	Subgrade South Cover N 767,033 E 708,522	3189.4	11-0022	116.0	11.0	3.9	98.8	85%	75% - 85%

Field Moisture/Density Test Summary
(ASTM D6938)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Field Dry Density (pcf)	Relative Compaction	
									Field (%)	Spec. (%)
P01-SG-D9	18-Feb-11	Subgrade South Cover N 767,053 E 708,467	3189.8	11-0022	116.0	11.0	4.3	90.3	78%	75% - 85%
P01-SG-D10	18-Feb-11	Subgrade South Cover N 767,002 E 708,455	3188.9	11-0022	116.0	11.0	3.4	98.8	85%	75% - 85%
P01-SG-D11	18-Feb-11	Subgrade South Cover N 766,976 E 708,514	3188.4	11-0022	116.0	11.0	3.7	92.5	80%	75% - 85%
P01-SG-D12	16-Feb-11	Subgrade South Cover N 766,007 E 708,575	3189.7	11-0022	116.0	11.0	4.0	94.9	82%	75% - 85%
P01-SG-D13	16-Feb-11	Subgrade South Cover N 766,891 E 708,533	3188.4	11-0022	116.0	11.0	4.2	95.7	83%	75% - 85%
P01-SG-D14	16-Feb-11	Subgrade South Cover N 766,942 E 708,485	3187.9	11-0022	116.0	11.0	3.9	95.1	82%	75% - 85%
P01-SG-D15	18-Feb-11	Subgrade South Cover N 766,950 E 708,442	3187.8	11-0022	116.0	11.0	3.8	93.6	81%	75% - 85%
P01-SG-D16	18-Feb-11	Subgrade South Cover N 766,866 E 708,921	3187.3	11-0022	116.0	11.0	3.7	94.5	81%	75% - 85%
P01-SG-D17	16-Feb-11	Subgrade South Cover N 766,814 E 708,421	3186.5	11-0022	116.0	11.0	4.8	98.7	85%	75% - 85%
P01-SG-D18	16-Feb-11	Subgrade South Cover N 766,820 E 708,483	3187.1	11-0022	116.0	11.0	4.4	92.9	80%	75% - 85%
P01-SG-D19	16-Feb-11	Subgrade South Cover N 766,754 E 708,399	3185.4	11-0022	116.0	11.0	3.7	90.4	78%	75% - 85%
P01-SG-D20	16-Feb-11	Subgrade South Cover N 766,724 E 708,477	3186.1	11-0022	116.0	11.0	3.2	99.0	85%	75% - 85%
P01-SG-D21	16-Feb-11	Subgrade South Cover N 766,656 E 708,428	3184.9	11-0022	116.0	11.0	3.9	97.1	84%	75% - 85%
P01-L1-D22	8-Mar-11	Lift 1 South Cover N 766,684 E 708,339	3186.0	11-0021	116.5	11.0	5.9	96.6	83%	75% - 85%
P01-FG-D23	14-Apr-11	Finish Grade S. Cover N 767,783 E 708,620	3194.8	11-0022	116.0	11.0	5.4	91.1	79%	75% - 85%
P01-FG-D24	14-Apr-11	Finish Grade S. Cover N 767,030 E 708,470	3190.7	11-0022	116.0	11.0	2.6	89.6	77%	75% - 85%
P01-FG-D25	14-Apr-11	Finish Grade S. Cover N 766,797 E 708,552	3187.3	11-0022	116.0	11.0	3.6	93.8	81%	75% - 85%
P01-FG-D26	14-Apr-11	Finish Grade S. Cover N 766,662 E 708,371	3185.4	11-0022	116.0	11.0	3.0	97.0	84%	75% - 85%
P02-FG-D1	14-Apr-11	Finish Grade S. Cover N 767,216 E 708,238	3194.6	11-0022	116.0	11.0	2.7	96.8	83%	75% - 85%
P02-FG-D2	14-Apr-11	Finish Grade S. Cover N 766,892 E 708,120	1391.1	11-0022	116.0	11.0	2.5	97.5	84%	75% - 85%
P06-SG-D1	16-Feb-11	Subgrade South Cover N 767,105 E 708,843	3193.2	11-0022	116.0	11.0	5.4	90.4	78%	75% - 85%
P06-SG-D2	16-Feb-11	Subgrade South Cover N 767,040 E 708,834	3191.6	11-0022	116.0	11.0	5.4	99.0	85%	75% - 85%
P06-SG-D3	16-Feb-11	Subgrade South Cover N 766971 E 708,816	3190.1	11-0022	116.0	11.0	2.7	98.9	85%	75% - 85%
P06-SG-D4	16-Feb-11	Subgrade South Cover N 766934 E 708,788	3188.0	11-0022	116.0	11.0	4.0	98.0	84%	75% - 85%
P06-SG-D5	16-Feb-11	Subgrade South Cover N 767,111 E 708,899	3194.4	11-0022	116.0	11.0	5.3	92.0	79%	75% - 85%
P06-SG-D6	16-Feb-11	Subgrade South Cover N 7670211 E 708,888	3191.9	11-0022	116.0	11.0	5.3	93.8	81%	75% - 85%
P06-SG-D7	16-Feb-11	Subgrade South Cover N 767963 E 708,873	3190.9	11-0022	116.0	11.0	4.7	94.7	82%	75% - 85%
P06-SG-D8	16-Feb-11	Subgrade South Cover N 766,924 E 708,874	3191.4	11-0022	116.0	11.0	4.5	90.7	78%	75% - 85%
P06-SG-D9	16-Feb-11	Subgrade South Cover N 766,838 E 708,880	3189.7	11-0022	116.0	11.0	4.3	91.2	79%	75% - 85%
P06-SG-D10	16-Feb-11	Subgrade South Cover N 766,722 E 708,859	3187.0	11-0022	116.0	11.0	4.2	98.1	85%	75% - 85%
P06-SG-D11	16-Feb-11	Subgrade South Cover N 766,632 E 708,847	3186.1	11-0022	116.0	11.0	4.3	94.0	81%	75% - 85%
P06-SG-D12	16-Feb-11	Subgrade South Cover N 766,588 E 708,849	3185.4	11-0022	116.0	11.0	5.1	94.9	82%	75% - 85%
P06-SG-D13	16-Feb-11	Subgrade South Cover N 766,871 E 708,773	3186.9	11-0022	116.0	11.0	5.1	94.9	82%	75% - 85%

Field Moisture/Density Test Summary
(ASTM D6938)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Field Dry Density (pcf)	Relative Compaction	
									Field (%)	Spec. (%)
P06-SG-D14	16-Feb-11	Subgrade South Cover N 766,813 E 708,749	3186.5	11-0022	116.0	11.0	4.2	92.3	80%	75% - 85%
P06-SG-D15	16-Feb-11	Subgrade South Cover N 766,928 E 708,696	3188.0	11-0022	116.0	11.0	4.0	96.9	84%	75% - 85%
P06-SG-D16	16-Feb-11	Subgrade South Cover N 766,844 E 708,693	3186.5	11-0022	116.0	11.0	4.0	97.9	84%	75% - 85%
P06-SG-D17	16-Feb-11	Subgrade South Cover N 766,925 E 708,651	3189.2	11-0022	116.0	11.0	4.4	89.3	77%	75% - 85%
P06-SG-D18	16-Feb-11	Subgrade South Cover N 766,857 E 708,617	3188.0	11-0022	116.0	11.0	3.4	98.7	85%	75% - 85%
P06-SG-D19	16-Feb-11	Subgrade South Cover N 766,769 E 708,572	3186.6	11-0022	116.0	11.0	5.1	92.2	79%	75% - 85%
P06-SG-D20	16-Feb-11	Subgrade South Cover N 766,707 E 708,547	3186.2	11-0022	116.0	11.0	3.1	93.7	81%	75% - 85%
P06-SG-D21	16-Feb-11	Subgrade South Cover N 766,621 E 708,510	3185.5	11-0022	116.0	11.0	4.3	93.2	80%	75% - 85%
P06-L1-D22	7-Mar-11	Lift 1 South Cover N 766,710 E 708,222	3189.0	11-0022	116.0	11.0	3.1	90.8	78%	75% - 85%
P06-L1-D23	7-Mar-11	Lift 1 South Cover N 766,882 E 708,733	3190.0	11-0022	116.0	11.0	3.4	94.2	81%	75% - 85%
P06-L2-D24	9-Mar-11	Lift 2 South Cover N 766,695 E 708,768	3185.5	11-0022	116.0	11.0	4.9	89.5	77%	75% - 85%
P06-L2-D25	16-Mar-11	Lift 2 South Cover N 766,733 E 708,747	3187.7	11-0022	116.0	11.0	4.9	96.5	83%	75% - 85%
P06-FG-D26	14-Apr-11	FG South Cover N 767,126 E 708,756	3194.6	11-0022	116.0	11.0	3.1	92.1	79%	75% - 85%
P06-FG-D27	14-Apr-11	FG South Cover N 766,958 E 708,760	3192.3	11-0022	116.0	11.0	3.6	96.1	83%	75% - 85%
P06-FG-D28	14-Apr-11	FG South Cover N 766,786 E 708,812	3191.6	11-0022	116.0	11.0	3.8	97.2	84%	75% - 85%
P06-FG-D29	14-Apr-11	FG South Cover N 766,685 E 708,628	3187.5	11-0022	116.0	11.0	3.8	92.5	80%	75% - 85%
P06-FG-D30	14-Apr-11	FG South Cover N 766,572 E 708,731	3187.6	11-0022	116.0	11.0	3.3	95.3	82%	75% - 85%
P07-SG-D1	15-Feb-11	Subgrade South Cover N 766,846 E 708,939	3190.6	11-0022	116.0	11.0	5.5	91.0	78%	75% - 85%
P07-SG-D2	15-Feb-11	Subgrade South Cover N 766,765 E 709,914	3188.9	11-0022	116.0	11.0	3.9	90.8	78%	75% - 85%
P07-SG-D3	15-Feb-11	Subgrade South Cover N 766,608 E 708,864	3185.9	11-0022	116.0	11.0	4.4	95.8	83%	75% - 85%
P07-L1-D4	8-Mar-11	Lift 1 South Cover N 766,601 E 708,886	3189.0	11-0021	116.0	11.0	4.0	97.0	84%	75% - 85%
P07-L2-D5	9-Mar-11	Lift 2 South Cover N 766,659 E 708,864	3190.3	11-0021	116.0	11.0	4.8	93.1	80%	75% - 85%
P07-FG-D6	14-Apr-11	FG South Cover N 766,688 E 708,868	3191.8	11-0022	116.0	11.0	3.4	93.8	81%	75% - 85%
P09-SG-D1	14-Feb-11	Subgrade South Cover N 767,025 E 709,296	3194.8	11-0022	116.0	11.0	4.2	95.5	82%	75% - 85%
P09-SG-D2	14-Feb-11	Subgrade South Cover N 766,987 E 709,285	3194.0	11-0022	116.0	11.0	4.5	93.7	81%	75% - 85%
P09-SG-D3	14-Feb-11	Subgrade South Cover N 766,938 E 709,279	3193.3	11-0022	116.0	11.0	6.4	91.2	79%	75% - 85%
P09-SG-D4	14-Feb-11	Subgrade South Cover N 766,836 E 709,223	3191.7	11-0022	116.0	11.0	5.0	91.1	79%	75% - 85%
P09-SG-D5	14-Feb-11	Subgrade South Cover N 766,877 E 709,093	3191.8	11-0022	116.0	11.0	5.7	95.2	82%	75% - 85%
P09-SG-D6	14-Feb-11	Subgrade South Cover N 766,947 E 709,078	3192.1	11-0022	116.0	11.0	5.6	95.5	82%	75% - 85%
P09-SG-D7	14-Feb-11	Subgrade South Cover N 767,011 E 709,127	3193.7	11-0022	116.0	11.0	5.7	90.6	78%	75% - 85%
P09-SG-D8	14-Feb-11	Subgrade South Cover N 767,072 E 709,071	3194.0	11-0022	116.0	11.0	3.8	97.7	84%	75% - 85%
P09-SG-D9	14-Feb-11	Subgrade South Cover N 767,093 E 708,980	3194.0	11-0022	116.0	11.0	4.7	96.7	83%	75% - 85%
P09-SG-D10	15-Feb-11	Subgrade South Cover N 767,019 E 708,999	3192.8	11-0022	116.0	11.0	5.0	94.9	82%	75% - 85%

Field Moisture/Density Test Summary
(ASTM D6938)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Field Dry Density (pcf)	Relative Compaction	
									Field (%)	Spec. (%)
P09-SG-D11	15-Feb-11	Subgrade South Cover N 766,952 E 709,001	3192.0	11-0022	116.0	11.0	4.5	99.1	85%	75% - 85%
P09-SG-D12	15-Feb-11	Subgrade South Cover N 766,908 E 708,950	3191.5	11-0022	116.0	11.0	4.2	96.8	83%	75% - 85%
P09-L1-D13	8-Mar-11	Lift 1 South Cover N 767,061 E 709,086	3196.0	11-0021	116.0	11.0	4.9	90.7	78%	75% - 85%
P09-FG-D14	14-Apr-11	FG South Cover N 766,960 E 708,977	3194.2	11-0022	116.0	11.0	3.3	96.5	83%	75% - 85%
P09-FG-D15	14-Apr-11	FG South Cover N 766,949 E 709,225	3194.8	11-0022	116.0	11.0	4.0	97.9	84%	75% - 85%
South Cover - Cell T02 To Cell T07										
T02-SG-D1	18-Feb-11	Subgrade South Cover N 766,714 E 708,333	3184.0	11-0022	116.0	11.0	2.9	96.0	83%	75% - 85%
T02-SG-D2	18-Feb-11	Subgrade South Cover N 767,072 E 708,396	3184.7	11-0022	116.0	11.0	3.7	94.4	81%	75% - 85%
T02-SG-D3	18-Feb-11	Subgrade South Cover N 766,901 E 708,320	3184.9	11-0022	116.0	11.0	5.3	94.2	81%	75% - 85%
T02-SG-D4	18-Feb-11	Subgrade South Cover N 766,704 E 708,238	3185.2	11-0022	116.0	11.0	4.1	90.5	78%	75% - 85%
T02-FG-D5	14-Apr-11	FG South Cover N 766,882 E 708,328	3187.6	11-0022	116.0	11.0	3.6	95.0	82%	75% - 85%
T03-SG-D1	18-Feb-11	Subgrade South Cover N 767,236 E 708,399	3186.0	11-0022	116.0	11.0	2.8	90.1	78%	75% - 85%
T03-SG-D2	18-Feb-11	Subgrade South Cover N 767,123 E 708,378	3186.5	11-0022	116.0	11.0	4.1	90.3	78%	75% - 85%
T03-SG-D3	18-Feb-11	Subgrade South Cover N 767,041 E 708,298	3186.7	11-0022	116.0	11.0	3.7	96.6	83%	75% - 85%
T03-SG-D4	18-Feb-11	Subgrade South Cover N 766,867 E 708,270	3186.6	11-0022	116.0	11.0	3.5	96.6	83%	75% - 85%
T03-SG-D5	18-Feb-11	Subgrade South Cover N 766,839 E 708,276	3186.7	11-0022	116.0	11.0	2.3	96.2	83%	75% - 85%
T03-SG-D6	18-Feb-11	Subgrade South Cover N 766,736 E 708,272	3185.2	11-0022	116.0	11.0	3.6	95.2	82%	75% - 85%
T03-FG-D7	12-Apr-11	FG South Cover N 767,171 E 708,372	3191.9	11-0022	116.0	11.0	4.2	93.9	81%	75% - 85%
T04-SG-D1	18-Feb-11	Subgrade South Cover N 767,238 E 708,336	3184.8	11-0022	116.0	11.0	4.4	95.8	83%	75% - 85%
T04-SG-D2	18-Feb-11	Subgrade South Cover N 767,152 E 708,300	3185.3	11-0022	116.0	11.0	3.8	91.1	79%	75% - 85%
T04-SG-D3	18-Feb-11	Subgrade South Cover N 766,680 E 708,223	3185.7	11-0022	116.0	11.0	2.8	97.3	84%	75% - 85%
T04-SG-D4	18-Feb-11	Subgrade South Cover N 766,756 E 708,207	3185.0	11-0022	116.0	11.0	4.3	92.1	79%	75% - 85%
T04-L1-D5	8-Mar-11	Lift 1 South Cover N 766,762 E 708,138	3188.5	11-0021	116.5	11.0	4.4	95.1	82%	75% - 85%
T04-FG-D1	12-Apr-11	FG South Cover N 766,992 E 708,249	3189.7	11-0022	116.0	11.0	2.7	95.4	82%	75% - 85%
T06-FG-D3	12-Apr-11	FG South Cover N 767,040 E 708,094	3188.6	11-0022	116.0	11.0	3.9	95.4	82%	75% - 85%
T07-FG-D1	12-Apr-11	FG South Cover N 767,328 E 708,133	3191.8	11-0022	116.0	11.0	3.8	94.9	82%	75% - 85%
T07-FG-D2	12-Apr-11	FG South Cover N 766,862 E 707,960	1386.4	11-0022	116.0	11.0	3.0	97.2	84%	75% - 85%
West Cover - CWI & Cell P04 to Cell P11										
CWI-FG-D1	20-Apr-11	FG South Cover N 767,823 E 707,658	3197.0	11-0022	116.0	11.0	1.9	90.7	78%	75% - 85%
P04-FG-D2	20-Apr-11	FG South Cover N 767,686 E 707,783	3195.1	11-0022	116.0	11.0	2.0	92.9	80%	75% - 85%
P04-FG-D3	20-Apr-11	FG South Cover N 767,512 E 707,636	3193.2	11-0022	116.0	11.0	2.6	95.1	82%	75% - 85%
P04-FG-D4	20-Apr-11	FG South Cover N 767,248 E 707,727	3190.8	11-0022	116.0	11.0	4.7	88.4	76%	75% - 85%
P04-FG-D5	20-Apr-11	FG South Cover N 767,032 E 707,642	3187.3	11-0022	116.0	11.0	4.1	91.1	79%	75% - 85%

Field Moisture/Density Test Summary
(ASTM D6938)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Field Dry Density (pcf)	Relative Compaction	
									Field (%)	Spec. (%)
P04-FG-D6	20-Apr-11	FG South Cover N 766,852 E 707,284	3185.6	11-0022	116.0	11.0	4.4	91.3	79%	75% - 85%
P05-FG-D7	20-Apr-11	FG South Cover N 766,760 E 707,528	3182.4	11-0022	116.0	11.0	5.2	88.7	76%	75% - 85%
P05-FG-D8	20-Apr-11	FG South Cover N 766,973 E 707,460	3185.2	11-0022	116.0	11.0	4.3	90.3	78%	75% - 85%
P05-FG-D9	20-Apr-11	FG South Cover N 767,170 E 707,516	3187.9	11-0022	116.0	11.0	4.5	88.4	76%	75% - 85%
P05-FG-D10	20-Apr-11	FG South Cover N 767,976 E 707,458	3190.8	11-0022	116.0	11.0	5.0	89.6	77%	75% - 85%
P05-FG-D11	20-Apr-11	FG South Cover N 767,642 E 707,553	3192.6	11-0022	116.0	11.0	3.7	92.9	80%	75% - 85%
P011-FG-D12	20-Apr-11	FG South Cover N 767,448 E 707,319	3189.8	11-0022	116.0	11.0	4.6	91.1	79%	75% - 85%
P011-FG-D13	20-Apr-11	FG South Cover N 766,843 E 707,323	3184.0	11-0022	116.0	11.0	4.9	88.8	77%	75% - 85%

APPENDIX 2-C

CQA In-Place Moisture Content

Test Summary

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
North Cover - Cell P03								
P03-SG-M1	3-Mar-11	Subgrade North Cover N 767,858 E 708,828	3201.0	11-0022	116.0	11.0	8.3	Pass
P03-SG-M2	3-Mar-11	Subgrade North Cover N 767,929 E 708,955	3202.2	11-0022	116.0	11.0	8.0	Pass
P03-SG-M3	3-Mar-11	Subgrade North Cover N 767,792 E 708,975	3202.9	11-0022	116.0	11.0	4.7	Pass
P03-SG-M4	3-Mar-11	Subgrade North Cover N 767,855 E 709,092	3203.2	11-0022	116.0	11.0	4.8	Pass
P03-SG-M5	3-Mar-11	Subgrade North Cover N 767,925 E 709,170	3203.4	11-0022	116.0	11.0	5.8	Pass
P03-SG-M6	3-Mar-11	Subgrade North Cover N 767,768 E 709,155	3202.8	11-0022	116.0	11.0	4.8	Pass
P03-L1-M7	17-Mar-11	Lift 1 North Cover N 767,806 E 709,148	3204.2	11-0022	116.0	11.0	4.7	Pass
P03-L1-M8	17-Mar-11	Lift 1 North Cover N 767,817 E 709,019	3204.2	11-0022	116.0	11.0	4.1	Pass
P03-L1-M9	17-Mar-11	Lift 1 North Cover N 767,860 E 708,889	3204.0	11-0022	116.0	11.0	4.5	Pass
P03-L1-M10	17-Mar-11	Lift 1 North Cover N 767,901 E 708,801	3202.7	11-0022	116.0	11.0	5.3	Pass
P03-L1-M11	17-Mar-11	Lift 1 North Cover N 767,879 E 708,705	3201.7	11-0022	116.0	11.0	3.9	Pass
P03-L2-M12	24-Mar-11	Lift 2 North Cover N 767,936 E 709,200	3206.3	11-0022	116.0	11.0	7.1	Pass
P03-L2-M13	24-Mar-11	Lift 2 North Cover N 767,773 E 709,112	3205.2	11-0022	116.0	11.0	7.8	Pass
P03-L2-M14	24-Mar-11	Lift 2 North Cover N 767,914 E 709,066	3206.0	11-0022	116.0	11.0	5.9	Pass
P03-L2-M15	24-Mar-11	Lift 2 North Cover N 767,949 E 708,961	3205.8	11-0022	116.0	11.0	7.1	Pass
P03-L2-M16	24-Mar-11	Lift 2 North Cover N 767,882 E 708,919	3204.3	11-0022	116.0	11.0	6.5	Pass
P03-L2-M17	24-Mar-11	Lift 2 North Cover N 767,921 E 708,836	3203.1	11-0022	116.0	11.0	7.9	Pass
P03-L3-M18	29-Mar-11	Lift 3 North Cover N 767,852 E 709,153	3207.3	11-0022	116.0	11.0	5.3	Pass
P03-L3-M19	29-Mar-11	Lift 3 North Cover N 767,790 E 709,049	3206.3	11-0022	116.0	11.0	5.0	Pass
P03-L3-M20	29-Mar-11	Lift 3 North Cover N 767,862 E 709,000	3206.2	11-0022	116.0	11.0	4.1	Pass
P03-L3-M21	29-Mar-11	Lift 3 North Cover N 767,818 E 708,910	3205.5	11-0022	116.0	11.0	4.6	Pass
P03-L3-M22	29-Mar-11	Lift 3 North Cover N 767,829 E 708,848	3205.2	11-0022	116.0	11.0	5.5	Pass
P03-L3-M23	29-Mar-11	Lift 3 North Cover N 767,905 E 708,687	3204.5	11-0022	116.0	11.0	4.7	Pass

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
P03-L3-M24	29-Mar-11	Lift 3 North Cover N 767,700 E 709,300	3205.0	11-0022	116.0	11.0	6.3	Pass
P03-L4-M25	6-Apr-11	Lift 2 North Cover N 767,729 E 709,169	3207.1	11-0022	116.0	11.0	5.1	Pass
P03-L4-M26	6-Apr-11	Lift 4 North Cover N 767,798 E 709,062	3208.1	11-0022	116.0	11.0	6.0	Pass
P03-L4-M27	6-Apr-11	Lift 4 North Cover N 767,868 E 709,005	3208.1	11-0022	116.0	11.0	6.2	Pass
P03-L4-M28	6-Apr-11	Lift 4 North Cover N 767,893 E 708,788	3207.2	11-0022	116.0	11.0	7.3	Pass
P03-L4-M29	6-Apr-11	Lift 4 North Cover N 767,851 E 708,883	3206.7	11-0022	116.0	11.0	5.2	Pass
P03-L4-M30	6-Apr-11	Lift 4 North Cover N 767,890 E 708,685	3205.9	11-0022	116.0	11.0	6.4	Pass
P03-FG-M31	26-Apr-11	Finish Grade N. Cover N 767,924 E 708,695	3206.3	11-0022	116.0	11.0	5.0	Pass
P03-FG-M32	26-Apr-11	Finish Grade N. Cover N 767,840 E 708,838	3207.9	11-0022	116.0	11.0	4.8	Pass
P03-FG-M33	26-Apr-11	Finish Grade N. Cover N 767,880 E 709,020	3209.3	11-0022	116.0	11.0	5.2	Pass
P03-FG-M34	26-Apr-11	FG North Cover N 767,762 E 709,140	3207.8	11-0022	116.0	11.0	4.6	Pass
P03-FG-M35	26-Apr-11	FG North Cover N 767,962 E 709,316	3207.6	11-0022	116.0	11.0	5.4	Pass
P03-FG-M36	26-Apr-11	FG North Cover N 767,863 E 709,305	3206.4	11-0022	116.0	11.0	4.9	Pass
P03-FG-M37	26-Apr-11	FG North Cover N 767,676 E 709,322	3205.8	11-0022	116.0	11.0	3.8	Pass
North Cover, TRU Trenches - Cell T01 To Cell T08								
T04-SG-M1	10-Feb-11	Subgrade North Cover N 767,651 E 708,915	3201.6	11-0057	115.5	11.0	7.4	Pass
T04-SG-M2	10-Feb-11	Subgrade North Cover N 767,692 E 708,823	3201.8	11-0057	115.5	11.0	6.7	Pass
T04-SG-M3	10-Feb-11	Subgrade North Cover N 767,744 E 708,640	3201.8	11-0057	115.5	11.0	6.9	Pass
T04-SG-M4	14-Feb-11	Subgrade North Cover N 767,776 E 709,533	3200.1	11-0057	115.5	11.0	7.5	Pass
T04-SG-M5	14-Feb-11	Subgrade North Cover N 767,732 E 708,676	3200.6	11-0057	115.5	11.0	5.3	Pass
T04-SG-M6	14-Feb-11	Subgrade North Cover N 767,659 E 708,913	3200.1	11-0057	115.5	11.0	6.2	Pass
T01-FG-M7	12-Apr-11	Finish Grade N. Cover N 767,628 E 708,688	3201.8	11-0057	115.5	11.0	4.1	Pass
T02-FG-M8	12-Apr-11	FG North Cover N 767,512 E 709,074	3201.5	11-0057	115.5	11.0	4.8	Pass
T03-FG-M9	12-Apr-11	FG North Cover N 767,477 E 708,850	3200.7	11-0057	115.5	11.0	5.2	Pass

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
T03-FG-M10	12-Apr-11	FG North Cover N 767,635 E 708,400	3200.5	11-0057	115.5	11.0	6.1	Pass
T04-FG-M11	12-Apr-11	FG North Cover N 767,825 E 708,366	3200.1	11-0057	115.5	11.0	5.0	Pass
T04-FG-M12	12-Apr-11	FG North Cover N 767,667 E 708,803	3202.4	11-0057	115.5	11.0	4.4	Pass
T04-FG-M13	12-Apr-11	FG North Cover N 767,538 E 708,204	3202.6	11-0057	115.5	11.0	3.3	Pass
T05-FG-M14	12-Apr-11	FG North Cover N 767,402 E 709,182	3200.5	11-0057	115.5	11.0	5.3	Pass
T06-FG-M15	12-Apr-11	FG North Cover N 767,396 E 709,026	3199.3	11-0057	115.5	11.0	4.7	Pass
T07-FG-M16	12-Apr-11	FG North Cover N 767,568 E 708,298	3199.4	11-0057	115.5	11.0	3.4	Pass
T07-FG-M17	12-Apr-11	FG North Cover N 767,470 E 708,582	3199.3	11-0057	115.5	11.0	4.9	Pass
T08-FG-M18	12-Apr-11	FG North Cover N 767,252 E 709,157	3196.4	11-0057	115.5	11.0	3.6	Pass
South Cover - Cell P01 To Cell P09								
P01-SG-M1	16-Feb-11	Subgrade South Cover N 767,178 E 708,621	3192.6	11-0022	116.0	11.0	5.9	Pass
P01-SG-M2	18-Feb-11	Subgrade South Cover N 767,188 E 708,570	3191.9	11-0022	116.0	11.0	5.8	Pass
P01-SG-M3	18-Feb-11	Subgrade South Cover N 766,202 E 708,496	3192.6	11-0022	116.0	11.0	5.7	Pass
P01-SG-M4	18-Feb-11	Subgrade South Cover N 767,128 E 708,467	3191.8	11-0022	116.0	11.0	6.8	Pass
P01-SG-M5	18-Feb-11	Subgrade South Cover N 767,089 E 708,535	3190.6	11-0022	116.0	11.0	6.0	Pass
P01-SG-M6	16-Feb-11	Subgrade South Cover N 767,126 E 708,615	3192.1	11-0022	116.0	11.0	6.8	Pass
P01-SG-M7	16-Feb-11	Subgrade South Cover N 767,083 E 708,601	3191.4	11-0022	116.0	11.0	6.1	Pass
P01-SG-M8	18-Feb-11	Subgrade South Cover N 767,033 E 708,522	3189.4	11-0022	116.0	11.0	6.0	Pass
P01-SG-M9	18-Feb-11	Subgrade South Cover N 767,053 E 708,467	3189.8	11-0022	116.0	11.0	5.7	Pass
P01-SG-M10	18-Feb-11	Subgrade South Cover N 767,002 E 708,455	3188.9	11-0022	116.0	11.0	5.3	Pass
P01-SG-M11	18-Feb-11	Subgrade South Cover N 766,976 E 708,514	3188.4	11-0022	116.0	11.0	6.5	Pass
P01-SG-M12	16-Feb-11	Subgrade South Cover N 766,007 E 708,575	3189.7	11-0022	116.0	11.0	5.9	Pass
P01-SG-M13	16-Feb-11	Subgrade South Cover N 766,891 E 708,533	3188.4	11-0022	116.0	11.0	2.6	Pass
P01-SG-M14	16-Feb-11	Subgrade South Cover N 766,942 E 708,485	3187.9	11-0022	116.0	11.0	6.2	Pass

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
P01-SG-M15	18-Feb-11	Subgrade South Cover N 766,950 E 708,442	3187.8	11-0022	116.0	11.0	5.3	Pass
P01-SG-M16	18-Feb-11	Subgrade South Cover N 766,866 E 708,921	3187.3	11-0022	116.0	11.0	6.1	Pass
P01-SG-M17	16-Feb-11	Subgrade South Cover N 766,814 E 708,421	3186.5	11-0022	116.0	11.0	6.8	Pass
P01-SG-M18	16-Feb-11	Subgrade South Cover N 766,820 E 708,483	3187.1	11-0022	116.0	11.0	6.5	Pass
P01-SG-M19	16-Feb-11	Subgrade South Cover N 766,754 E 708,399	3185.4	11-0022	116.0	11.0	3.0	Pass
P01-SG-M20	16-Feb-11	Subgrade South Cover N 766,724 E 708,477	3186.1	11-0022	116.0	11.0	5.7	Pass
P01-SG-M21	16-Feb-11	Subgrade South Cover N 766,656 E 708,428	3184.9	11-0022	116.0	11.0	5.4	Pass
P01-L1-M22	8-Mar-11	Lift 1 South Cover N 766,684 E 708,339	3186.0	11-0021	116.5	11.0	5.9	Pass
P01-FG-M23	14-Apr-11	Finish Grade S. Cover N 767,783 E 708,620	3194.8	11-0022	116.0	11.0	6.5	Pass
P01-FG-M24	14-Apr-11	FG South Cover N 767,030 E 708,470	3190.7	11-0022	116.0	11.0	3.7	Pass
P01-FG-M25	14-Apr-11	FG South Cover N 766,797 E 708,552	3187.3	11-0022	116.0	11.0	4.4	Pass
P01-FG-M26	14-Apr-11	FG South Cover N 766,662 E 708,371	3185.4	11-0022	116.0	11.0	5.3	Pass
P02-FG-M1	14-Apr-11	FG South Cover N 767,216 E 708,238	3194.6	11-0022	116.0	11.0	4.0	Pass
P02-FG-M2	14-Apr-11	FG South Cover N 766,892 E 708,120	1391.1	11-0022	116.0	11.0	3.8	Pass
P06-SG-M1	16-Feb-11	Subgrade South Cover N 767,105 E 708,843	3193.2	11-0022	116.0	11.0	5.9	Pass
P06-SG-M2	16-Feb-11	Subgrade South Cover N 767,040 E 708,834	3191.6	11-0022	116.0	11.0	5.1	Pass
P06-SG-M3	16-Feb-11	Subgrade South Cover N 766971 E 708,816	3190.1	11-0022	116.0	11.0	5.5	Pass
P06-SG-M4	16-Feb-11	Subgrade South Cover N 766934 E 708,788	3188.0	11-0022	116.0	11.0	4.9	Pass
P06-SG-M5	16-Feb-11	Subgrade South Cover N 767,111 E 708,899	3194.4	11-0022	116.0	11.0	4.8	Pass
P06-SG-M6	16-Feb-11	Subgrade South Cover N 7670211 E 708,888	3191.9	11-0022	116.0	11.0	7.9	Pass
P06-SG-M7	16-Feb-11	Subgrade South Cover N 767963 E 708,873	3190.9	11-0022	116.0	11.0	6.5	Pass
P06-SG-M8	16-Feb-11	Subgrade South Cover N 766,924 E 708,874	3191.4	11-0022	116.0	11.0	4.8	Pass
P06-SG-M9	16-Feb-11	Subgrade South Cover N 766,838 E 708,880	3189.7	11-0022	116.0	11.0	5.3	Pass

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
P06-SG-M10	16-Feb-11	Subgrade South Cover N 766,722 E 708,859	3187.0	11-0022	116.0	11.0	5.7	Pass
P06-SG-M11	16-Feb-11	Subgrade South Cover N 766,632 E 708,847	3186.1	11-0022	116.0	11.0	6.0	Pass
P06-SG-M12	16-Feb-11	Subgrade South Cover N 766,588 E 708,849	3185.4	11-0022	116.0	11.0	8.0	Pass
P06-SG-M13	16-Feb-11	Subgrade South Cover N 766,871 E 708,773	3186.9	11-0022	116.0	11.0	3.6	Pass
P06-SG-M14	16-Feb-11	Subgrade South Cover N 766,813 E 708,749	3186.5	11-0022	116.0	11.0	5.6	Pass
P06-SG-M15	16-Feb-11	Subgrade South Cover N 766,928 E 708,696	3188.0	11-0022	116.0	11.0	3.9	Pass
P06-SG-M16	16-Feb-11	Subgrade South Cover N 766,844 E 708,693	3186.5	11-0022	116.0	11.0	5.2	Pass
P06-SG-M17	16-Feb-11	Subgrade South Cover N 766,925 E 708,651	3189.2	11-0022	116.0	11.0	3.3	Pass
P06-SG-M18	16-Feb-11	Subgrade South Cover N 766,857 E 708,617	3188.0	11-0022	116.0	11.0	5.2	Pass
P06-SG-M19	16-Feb-11	Subgrade South Cover N 766,769 E 708,572	3186.6	11-0022	116.0	11.0	4.2	Pass
P06-SG-M20	16-Feb-11	Subgrade South Cover N 766,707 E 708,547	3186.2	11-0022	116.0	11.0	5.5	Pass
P06-SG-M21	16-Feb-11	Subgrade South Cover N 766,621 E 708,510	3185.5	11-0022	116.0	11.0	6.6	Pass
P06-L1-M22	7-Mar-11	Lift 1 South Cover N 766,710 E 708,222	3189.0	11-0022	116.0	11.0	6.2	Pass
P06-L1-M23	7-Mar-11	Lift 1 South Cover N 766,882 E 708,733	3190.0	11-0022	116.0	11.0	6.1	Pass
P06-L2-M24	9-Mar-11	Lift 2 South Cover N 766,695 E 708,768	3185.5	11-0022	116.0	11.0	5.6	Pass
P06-L2-M25	16-Mar-11	Lift 2 South Cover N 766,733 E 708,747	3187.7	11-0022	116.0	11.0	5.5	Pass
P06-FG-M26	14-Apr-11	Finish Grade S. Cover N 767,126 E 708,756	3194.6	11-0022	116.0	11.0	4.6	Pass
P06-FG-M27	14-Apr-11	Finish Grade S. Cover N 766,958 E 708,760	3192.3	11-0022	116.0	11.0	5.2	Pass
P06-FG-M28	14-Apr-11	FG South Cover N 766,786 E 708,812	3191.6	11-0022	116.0	11.0	5.5	Pass
P06-FG-M29	14-Apr-11	FG South Cover N 766,685 E 708,628	3187.5	11-0022	116.0	11.0	4.1	Pass
P06-FG-M30	14-Apr-11	FG South Cover N 766,572 E 708,731	3187.6	11-0022	116.0	11.0	5.3	Pass
P07-SG-M1	15-Feb-11	Subgrade South Cover N 766,846 E 708,939	3190.6	11-0022	116.0	11.0	6.1	Pass
P07-SG-M2	15-Feb-11	Subgrade South Cover N 766,765 E 709,914	3188.9	11-0022	116.0	11.0	5.7	Pass

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
P07-SG-M3	15-Feb-11	Subgrade South Cover N 766,608 E 708,864	3185.9	11-0022	116.0	11.0	5.3	Pass
P07-L1-M4	8-Mar-11	Lift 1 South Cover N 766,601 E 708,886	3189.0	11-0021	116.0	11.0	4.9	Pass
P07-L2-M5	9-Mar-11	Lift 2 South Cover N 766,659 E 708,864	3190.3	11-0021	116.0	11.0	5.7	Pass
P07-FG-M6	14-Apr-11	Finish Grade S. Cover N 766,688 E 708,868	3191.8	11-0022	116.0	11.0	6.0	Pass
P09-SG-M1	14-Feb-11	Subgrade South Cover N 767,025 E 709,296	3194.8	11-0022	116.0	11.0	4.6	Pass
P09-SG-M2	14-Feb-11	Subgrade South Cover N 766,987 E 709,285	3194.0	11-0022	116.0	11.0	5.7	Pass
P09-SG-M3	14-Feb-11	Subgrade South Cover N 766,938 E 709,279	3193.3	11-0022	116.0	11.0	5.8	Pass
P09-SG-M4	14-Feb-11	Subgrade South Cover N 766,836 E 709,223	3191.7	11-0022	116.0	11.0	4.8	Pass
P09-SG-M5	14-Feb-11	Subgrade South Cover N 766,877 E 709,093	3191.8	11-0022	116.0	11.0	5.9	Pass
P09-SG-M6	14-Feb-11	Subgrade South Cover N 766,947 E 709,078	3192.1	11-0022	116.0	11.0	5.6	Pass
P09-SG-M7	14-Feb-11	Subgrade South Cover N 767,011 E 709,127	3193.7	11-0022	116.0	11.0	6.1	Pass
P09-SG-M8	14-Feb-11	Subgrade South Cover N 767,072 E 709,071	3194.0	11-0022	116.0	11.0	4.3	Pass
P09-SG-M9	14-Feb-11	Subgrade South Cover N 767,093 E 708,980	3194.0	11-0022	116.0	11.0	5.2	Pass
P09-SG-M10	15-Feb-11	Subgrade South Cover N 767,019 E 708,999	3192.8	11-0022	116.0	11.0	4.7	Pass
P09-SG-M11	15-Feb-11	Subgrade South Cover N 766,952 E 709,001	3192.0	11-0022	116.0	11.0	5.5	Pass
P09-SG-M12	15-Feb-11	Subgrade South Cover N 766,908 E 708,950	3191.5	11-0022	116.0	11.0	5.1	Pass
P09-L1-M13	8-Mar-11	Lift 1 South Cover N 767,061 E 709,086	3196.0	11-0021	116.0	11.0	5.3	Pass
P09-FG-M14	14-Apr-11	Finish Grade S. Cover N 766,960 E 708,977	3194.2	11-0022	116.0	11.0	4.2	Pass
P09-FG-M15	14-Apr-11	Finish Grade S. Cover N 766,949 E 709,225	3194.8	11-0022	116.0	11.0	6.0	Pass
South Cover - Cell T02 To Cell T07								
T02-SG-M1	18-Feb-11	Subgrade South Cover N 766,714 E 708,333	3184.0	11-0022	116.0	11.0	5.1	Pass
T02-SG-M2	18-Feb-11	Subgrade South Cover N 767,072 E 708,396	3184.7	11-0022	116.0	11.0	4.8	Pass
T02-SG-M3	18-Feb-11	Subgrade South Cover N 766,901 E 708,320	3184.9	11-0022	116.0	11.0	4.2	Pass
T02-SG-M4	18-Feb-11	Subgrade South Cover N 766,704 E 708,238	3185.2	11-0022	116.0	11.0	5.8	Pass
T02-FG-M6	14-Apr-11	Finish Grade S. Cover N 766,882 E 708,328	3187.6	11-0022	116.0	11.0	6.6	Pass

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
T03-SG-M1	18-Feb-11	Subgrade South Cover N 767,236 E 708,399	3186.0	11-0022	116.0	11.0	5.0	Pass
T03-SG-M2	18-Feb-11	Subgrade South Cover N 767,123 E 708,378	3186.5	11-0022	116.0	11.0	6.0	Pass
T03-SG-M3	18-Feb-11	Subgrade South Cover N 767,041 E 708,298	3186.7	11-0022	116.0	11.0	6.6	Pass
T03-SG-M4	18-Feb-11	Subgrade South Cover N 766,867 E 708,270	3186.6	11-0022	116.0	11.0	5.3	Pass
T03-SG-M5	18-Feb-11	Subgrade South Cover N 766,839 E 708,276	3186.7	11-0022	116.0	11.0	5.5	Pass
T03-SG-M6	18-Feb-11	Subgrade South Cover N 766,736 E 708,272	3185.2	11-0022	116.0	11.0	5.8	Pass
T03-FG-M7	12-Apr-11	Finish Grade S. Cover N 767,171 E 708,372	3191.9	11-0022	116.0	11.0	5.9	Pass
T04-SG-M1	18-Feb-11	Subgrade South Cover N 767,238 E 708,336	3184.8	11-0022	116.0	11.0	5.4	Pass
T04-SG-M2	18-Feb-11	Subgrade South Cover N 767,152 E 708,300	3185.3	11-0022	116.0	11.0	4.8	Pass
T04-SG-M3	18-Feb-11	Subgrade South Cover N 766,680 E 708,223	3185.7	11-0022	116.0	11.0	6.1	Pass
T04-SG-M4	18-Feb-11	Subgrade South Cover N 766,756 E 708,207	3185.0	11-0022	116.0	11.0	6.2	Pass
T04-L1-M5	8-Mar-11	Lift 1 South Cover N 766,762 E 708,138	3188.5	11-0021	116.5	11.0	5.3	Pass
T04-FG-M6	12-Apr-11	FG South Cover N 766,992 E 708,249	3189.7	11-0022	116.0	11.0	3.8	Pass
T06-FG-M1	12-Apr-11	FG South Cover N 767,040 E 708,094	3188.6	11-0022	116.0	11.0	5.9	Pass
T07-FG-M1	12-Apr-11	FG South Cover N 767,328 E 708,133	3191.8	11-0022	116.0	11.0	5.3	Pass
T07-FG-M2	12-Apr-11	FG South Cover N 766,862 E 707,960	1386.4	11-0022	116.0	11.0	4.7	Pass
West Cover - CWI & Cell P04 To Cell P11								
CWI-FG-M1	20-Apr-11	Finish Grade S. Cover N 767,823 E 707,658	3197.0	11-0022	116.0	11.0	4.8	Pass
P04-FG-M2	20-Apr-11	Finish Grade S. Cover N 767,686 E 707,783	3195.1	11-0022	116.0	11.0	3.7	Pass
P04-FG-M3	20-Apr-11	Finish Grade S. Cover N 767,512 E 707,636	3193.2	11-0022	116.0	11.0	4.5	Pass
P04-FG-M4	20-Apr-11	Finish Grade S. Cover N 767,248 E 707,727	3190.8	11-0022	116.0	11.0	7.2	Pass
P04-FG-M5	20-Apr-11	Finish Grade S. Cover N 767,032 E 707,642	3187.3	11-0022	116.0	11.0	6.8	Pass
P04-FG-M6	20-Apr-11	Finish Grade S. Cover N 766,852 E 707,284	3185.6	11-0022	116.0	11.0	6.4	Pass
P05-FG-M7	20-Apr-11	Finish Grade S. Cover N 766,760 E 707,528	3182.4	11-0022	116.0	11.0	6.9	Pass
P05-FG-M8	20-Apr-11	Finish Grade S. Cover N 766,973 E 707,460	3185.2	11-0022	116.0	11.0	5.6	Pass
P05-FG-M9	20-Apr-11	Finish Grade S. Cover N 767,170 E 707,516	3187.9	11-0022	116.0	11.0	6.1	Pass

Field Moisture Content Summary
(ASTM D2216)

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
P05-FG-M10	20-Apr-11	Finish Grade S. Cover N 767,976 E 707,458	3190.8	11-0022	116.0	11.0	7.0	Pass
P05-FG-M11	20-Apr-11	Finish Grade S. Cover N 767,642 E 707,553	3192.6	11-0022	116.0	11.0	6.7	Pass
P011-FG-M12	20-Apr-11	Finish Grade S. Cover N 767,448 E 707,319	3189.8	11-0022	116.0	11.0	5.9	Pass
P011-FG-M13	20-Apr-11	Finish Grade S. Cover N 766,843 E 707,323	3184.0	11-0022	116.0	11.0	6.2	Pass

APPENDIX 3

Temporary Erosion and

Sediment Control

APPENDIX 3-A

Soil Stabilization Performance Report,

Certification of Completion and Work Summary

National Security Technologies LLC
Vision • Service • Partnership

Interoffice Memorandum

To: Thomas Williamson

Date: May 3, 2011

From: David C. Anderson
Ecological and Environmental Monitoring

No.: P420-DA-11-0005

Subject: **INTERIM SUBCONTRACTOR PERFORMANCE REPORT 224691-TW-11, SOIL STABILIZATION**

Truk Enterprises completed the work as specified under Item Number 2 in Exhibit B of the Subcontract Schedule of Quantities and Prices, Subcontract Number 126616. Work started on April 25, 2011 and was completed on April 28, 2011. Details of daily work progress are included in the attached Daily Progress Reports. Work occurred between the hours of 7:00 a.m. and 5:30 p.m. Monday through Thursday.

The work completed is acceptable and there were no deficiencies. Soiltac, a chemical soil stabilizer, was applied to 45 acres at a rate of 110 gallons per acre, which is slightly higher than the manufacturer's recommended rate of 106 gallons per acre (see attached Certificate of Compliance). The soil stabilizer was applied using hoses for the interior of the cover cap and a discharge boom (canon) for the peripheral areas (see attached Photographs file).

There were no safety violations or accidents during project performance (see attached Toolbox Safety meeting notes and Post-Job Briefing Minutes). Conditions experienced at the site were as specified. Application of the soil stabilizer could not begin until Tuesday, April 26, 2011, pending the approval of the Work Package. The job hazard analysis submitted by Truk Enterprises on April 25, 2011 had to be revised and incorporate into the work package causing the slight delay. The work package was approved late afternoon on April 25, 2011 and the application of the soil stabilizer began the next morning (April 26, 2011).

If any additional information is required, please contact me at 295-0481.

DCA:sds

cc: Correspondence Control
P. Arnold

Truk Enterprises

Native Vegetation and Erosion Control Specialists

CERTIFICATE OF COMPLETION

According to Erica Cohen, Sales Representative with SoilWorks, LLc, the recommended Soiltac application rate for non-traffic dust control for six (6) months is 106 gallons per acre with a 1:11.5 product to water dilution. Truk exceeded that application rate by 4 gallons per acre. Application was increased from 106 gallons to 110 gallons per acre of Soiltac.

West Cover received 1320 gallons of Soiltac.

South Cover received 1870 gallons of Soiltac.

North Cover received 1320 gallons of Soiltac.

Last Cover 3.5 acres received 440 gallons of Soiltac.

PO Box 1480, Higley AZ 85236
480-988-3011 Phone
480-988-3013 Fax

POST-JOB BRIEFING
SUBCONTRACTOR: TRUK ENTERPRISES
SOIL STABILIZATION at 92-ACRE SITE, AREA 5 RWMC

Time/Date: 4:00 pm, April 28, 2011 **Place: RWMC Bldg 05-7 conference room**

Conducted by STR, D. Anderson

In Attendance:

Safety Representative: D.W. Russell
Operations Manager: M. McCullough
Truk Enterprises Employees, S. Wilding, J. Anderson, J. Hamlin, E. Foskey, D. Clifford, K. Wolven, D. Pratt.
STR: D. Anderson

SUMMARY OF WORK COMPLETED

April 25, 2011

Truk Enterprises' crew on site: completed badging, training, orientation, equipment inspected, soil stabilizer staged, equipment staged, revised and finalized JHA, work package approved

April 26, 2011

Completed application of soil stabilizer on approximately 90% of West Cover
1375 gallons of soil stabilizer applied over approximately 12.5 acres

April 27, 2011

Completed application of soil stabilizer on West Cover
Started application of soil stabilizer on South Cover
1650 gallons of soil stabilizer applied over approximately 15 acres

April 28, 2011

Completed application of soil stabilizer on South Cover
Completed application of soil stabilizer on North Cover
1925 gallons of soil stabilizer applied over approximately 17.5 acres

Totals

4950 gallons of soil stabilizer applied over 45 acres in 3 days at a rate of 110 gallons per acre
1320 gallons of Soiltac applied to West Cover
1870 gallons of Soiltac applied to South Cover
1320 gallons of Soiltac applied to south section of North Cover
440 gallons of Soiltac applied to north section of North Cover (Pit 3)

What went well?

Safety

- No accidents, incidents or issues
- Workers were aware of hazards and cautioned co-workers as work was completed
- Appropriate PPE for job, minor incidences when PPE not used properly
- Traffic issues appropriately mitigated by coordinating work areas with site operations during plan of the day
- Water available during job, usually from escorts, always well hydrated and dehydration not a concern

Support/Logistics

- Well informed during pre-job brief on other activities taking place at the site that day, i.e. the number of loads expected, where 'dirt-work' would be taking place, etc.
- Communication before start-of-work and during work was excellent, facility manager, operations manager, safety representative, engineer, radiological controls and all crafts involved in plan of day meetings were available to all for questions or concerns; all were willing to help where they could

Work

- Well planned out, workers knew what to do, in short period of time each was aware of their specific role
- Saved significant amount of time to be able to pull water from fire hydrant
- Great team work, all worked together to accomplish job
- STR helped facilitate requests for support, leaving crew to complete work

What did not go well?

Safety

- A couple minor issues with PPE, but quickly resolved the first day

Support/Logistics

- Misunderstanding of protocol for escorts the first day, but with 2 escorts, beginning the afternoon of the first day of applying the soil stabilizer no incidents
- A little confusion at times with what was required for access to 92-acre site, i.e. work under RWP, but Radiological Control was contacted and issue quickly resolved. Most issues were resolved the first day, it was suggested that a little more detailed explanation of the protocol for the escorts.
- In was mentioned that there were too many meetings, but upon closer scrutiny of the objectives, length and outcome of the 7:15 meeting and 3:30 meeting, there was a general consensus that the meetings actually expedited the work in the field; conflicts eliminated or needs for the day identified

- A misunderstanding with use of operator for a forklift to move a couple of the Soiltac totes, minor issue and resolved by talking with operator foreman

General comments

- Communication was mentioned several times as an overall plus for the project. Subcontractor was impressed with the level of involvement, i.e. facility managers, operation managers, etc. that were available for questions at any time.
- Second to communication was the team work within the crew and escorts. Each had a specific job and each and all performed well
- Operations manager stated that the team did "good work" and "exceeded expectations", which was echoed by the site engineer "An excellent job was done by … *the* crew."

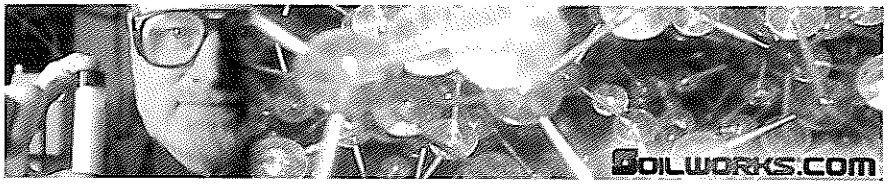
Meeting Adjourned at 4:15 pm

APPENDIX 3-B

Soil Stabilization Product Information

Toll Free: 1-800-545-5420

Soilworks Product Lines



Product Information

Product Description

Soiltac® is a polymer-based emulsion used primarily to stabilize all soils from dust and erosion. It is specifically engineered for ease of use for large commercial projects down to smaller applications. It can be as simple to apply as watering the ground. Furthermore, Soiltac® is designed to work its way down into the soil to maximize the penetration depth. The result is a thicker protective barrier with a more rigid and stable base. Once cured, Soiltac® becomes completely transparent, leaving the natural landscape to appear untouched. Soiltac® results are based on the application rate used. Modest applications can create a light temporary surface crust that is permeable by water and is useful for dust control needs. On the other hand, heavy applications can generate results similar to the qualities of cement. Most importantly, Soiltac® is a truly biodegradable product that is completely environmentally safe to use.

Product Advantages

- Dries Flexible
- Biodegradable
- Simple and Easy to Apply
- Dries Transparent / Clear
- Dries Completely Odorless
- Non-Flammable & Non-Volatile
- Non-Hazardous
- Non-Corrosive & Safe for All Equipment
- Non-Slippery & Safe to Walk and Drive on
- Non-Regulated for Transportation - Land/Ocean/Air
- Ecologically & Environmentally Safe
- Cumulative Effect with Maintenance
- Dyes & Pigments can be Added for Color
- Human, Animal, Marine Life and Vegetation Safe
- Water Resistant - will not break down with water
- Non-Tracking & Non-Transferable - will not be picked up onto vehicles
- Non-Leaching - will not continue to seep into the soil
- Ultraviolet Ray Resistant - will not break down in sunlight
- Non-Dissipating - will not wash away with water once cured
- Alkaline Soil Resistant - will not break down in alkaline soils
- Self Mixes with Water for Diluting - prior to applying to the soil
- PM10 & PM2.5 Compliant - stops hazardous dust particles of 2.5+ microns in size

Soilworks®,LLC
2450 S. Gilbert Rd., Ste 210, Chandler , AZ 85286
T: 800-545-5420 O: 480-545-5454 F: 480-545-5456
www.Soilworks.com Info@Soilworks.com
Specializing in Soil Stabilization and Dust Control

Global Manufacturer of
Soiltac® / gorilla-snot® Durasoil® & dustaway®

MATERIAL SAFETY DATA SHEET

SECTION 1 - MATERIAL IDENTIFICATION

PRODUCT NAME	**SOILTAC®**
	®SOILTAC is a registered trademark of Soilworks, LLC.
MANUFACTURER	Soilworks, LLC. 2450 South Gilbert Road, Suite 210 Chandler, Arizona 85286-1595 USA www.soilworks.com
TELEPHONE NUMBER	800-545-5420
ONLINE INFORMATION	www.Soiltac.com
EMERGENCY TELEPHONE NUMBERS	800-545-5420 (National & International)
REVISION DATE	November 2006 *(supersedes March 2006)*
PHYSICAL FORM	Mobile liquid
COLOR	Milky White (transparent once cured)
ODOR	Mild / Slight (no odor once cured)
C.A.S. CHEMICAL NAME	Mixture
SYNONYMS	Soil stabilizer, soil stabilization agent, soil solidifier, soil amendment, soil additive, soil crusting agent, dust control agent, dust inhibitor, dust palliative, dust suppressant, dust retardant
CHEMICAL FAMILY	Vinyl Copolymer Emulsion
EMPIRICAL FORMULA	Mixture
INTENDED USE	Soil stabilization, soil solidification, fugitive dust control, dust suppression, dust abatement, tackifier, dust abatement, PM_{10} and $PM_{2.5}$ air quality control and erosion control

SECTION 2 - INGREDIENTS

	%	CAS Number	Chemical Name
1.	50-60	Proprietary	Vinyl Copolymer
2.	40-50	7732-18-5	Water

SECTION 3 - HEALTH HAZARDS

ROUTES OF ENTRY

Eye Contact, Skin Contact, Ingestion and Inhalation

SIGNS AND SYMPTOMS OF ACUTE EXPOSURE

Eyes: Direct contact with this material may cause eye irritation including lachrymation (tearing).
Inhalation: Inhalation of vapor or aerosol may cause irritation to the respiratory tract (nose, throat, and lungs).
Skin: Contact may cause skin irritation.
Ingestion: No hazard in normal industrial use.

SIGNS AND SYMPTOMS OF CHRONIC EXPOSURE

Prolonged or repeated contact with skin may cause irritation and dermatitis (inflammation).

CARCINOGENICITY

This material **does not** contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the Occupational Safety and Health Administration (OSHA) as a carcinogen.

SECTION 4 - FIRST AID

EYE CONTACT

Flush eyes with clean water for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT

Remove contaminated clothing and shoes. Wash affected area with soap and water. Get medical attention if irritation develops or persists.

INHALATION

Move patient to fresh air. If breathing has stopped or is labored give assisted respiration (e.g. mouth-to-mouth). Supplemental oxygen may be indicated. Seek medical advice.

INGESTION

Give the victim one or two glasses of water or milk to drink. Get immediate medical attention. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE AND EXPLOSION DATA

FLASH POINT (closed cup)	Not applicable
UPPER EXPLOSION LIMIT (UEL)	Not applicable
LOWER EXPLOSION LIMIT (LEL)	Not applicable
AUTOIGNITION TEMPERATURE	Not applicable
FIRE HAZARD CLASSIFICATION (OSHA/NFPA)	Non-Combustible

EXTINGUISHING MEDIA

Product does not burn. The product will only burn after the water it contains is driven off. For dry polymer use carbon dioxide, foam, dry chemical or water fog to extinguish fire. Aqueous solution **is not flammable.**

FIRE FIGHTING EQUIPMENT

Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use.

FIRE FIGHTING INSTRUCTIONS

Containers of this material may build up pressure if exposed to heat (fire). Use water spray to cool fire-exposed containers.

FIRE AND EXPLOSION HAZARDS

This material **will not burn** unless it is evaporated to dryness. Closed containers may rupture when exposed to extreme heat.

HAZARDOUS COMBUSTION PRODUCTS

When dried polymer burns, water (H_2O), carbon dioxide (CO_2), carbon monoxide (CO) and smoke are produced.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

CONTAINMENT TECHNIQUES (Removal of ignition sources, diking etc)

Stop the leak, if possible. Ventilate the space involved.

CLEAN-UP PROCEDURES

Wear suitable protective equipment. If recovery is not feasible, admix with dry soil, sand or non-reactive absorbent and place in an appropriate chemical waste container. Prevent spilled material from entering sanitary sewers, storm sewers, drainage systems and from entering bodies of water or ditches that lead to waterways. Transfer to containers by suction, preparatory for later disposal. Place in metal containers for recovery or disposal. Flush area with water spray. Wash contaminated property (e.g., automobiles) quickly before the material dries. For large spills, recover spilled material with a vacuum truck.

OTHER EMERGENCY ADVICE

Spilled polymer emulsion is very slippery. Use care to avoid falls. A film will form on drying. Remove saturated clothing and wash contacted skin area with soap and water. Product imparts a milky white color to contaminated waters. Foaming may result. Sewage treatment plants may not be able to remove the white color imparted to the water.

SECTION 7 - HANDLING AND STORAGE

STORAGE

Keep from freezing. Store in a dry area. Keep containers closed when not in use to minimize contact with atmospheric air and prevent inoculation with microorganisms.

HANDLING

Use only in well-ventilated areas. Avoid contact with eyes. Avoid breathing vapors. Avoid prolonged or repeated contact with skin. Wash hands thoroughly after handling and before eating or drinking.

SECTION 8 - PERSONAL PROTECTION / EXPOSURE CONTROLS

EXPOSURE GUIDELINES

There are no Occupational Safety and Health (OSHA) Permissible Exposure Limits (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) or Short Term Exposure Limits (STEL) established for the component(s) of this product.

EYE PROTECTION

Chemical safety glasses.

HAND PROTECTION

Rubber Gloves. The breakthrough time of the selected glove(s) must be greater than the intended use period.

RESPIRATORY PROTECTION

Not required under normal use.

PROTECTIVE CLOTHING

No specific recommendation.

ENGINEERING CONTROLS

Good general ventilation should be sufficient to control airborne levels of irritating vapors.

SECTION 9 - TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	liquid
COLOR	Milky White (transparent once cured)
ODOR	Mild / Slight (no odor once cured)
pH	4.5-6.0
EVAPORATION RATE	< 1 (BuAc=1)
VAPOR DENSITY	> 1 (Air = 1)
BOILING POINT	>100.00°C (>212.00°F)
FREEZING POINT	<0°C (<32°F)
SOLUBILITY IN WATER	Completely (100%) (until cured)
SPECIFIC GRAVITY (Water = 1)	1.05-1.10

SECTION 10 - STABILITY AND REACTIVITY

STABILITY

Stable at ambient temperatures. Coagulation may occur following freezing, thawing or boiling.

INCOMPATIBILITY (Materials to Avoid)

No incompatibilities have been identified.

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may form: Acetic acid and Acrolein. Thermal decomposition may produce various hydrocarbons and irritating, acrid vapors.

HAZARDOUS POLYMERIZATION

Will not occur

CONDITIONS TO AVOID

Freezing temperatures (until cured).

SECTION 11 - TOXICOLOGICAL PROPERTIES

ACUTE EYE TOXICITY

No Information is available.

ACUTE ORAL TOXICITY

No Information is available.

ACUTE SKIN TOXICITY

No Information is available.

ACUTE INHALATION TOXICITY

No Information is available.

CHRONIC/CARCINOGENICY

This material **does not** contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the Occupational Safety and Health Administration (OSHA) as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY

Common Name	Species	Test	Result	Concentration
Green Algae	Raphidocelus Subcapitata	96-hr chronic LC50	>1,000	Undiluted
Fathead Minnow	Pimephales Promelas	96-hr acute LC50	>1,208	Undiluted
Rainbow Trout	Oncorhynchus Mykiss	96-hr acute LC50	>1,000	Undiluted

ENVIRONMENTAL FATE

No data is available.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

This material **is not** a RCRA hazardous waste. Disposal of this material is not regulated under RCRA. Consult federal, state and local regulations to ensure that this material and its containers, if discarded, is disposed of in compliance with all regulatory requirements. NOTE: As supplied or diluted, product material (foam included), when splashed on automobiles or other personal property, is difficult to remove if allowed to dry.

RCRA HAZARD CLASS

This material **is not** a RCRA hazardous waste. When discarded in its purchased form, this material would not be regulated as a RCRA Hazardous waste under 40 CFR 261.

SECTION 14 - TRANSPORT INFORMATION

DOT NON-BULK SHIPPING NAME	Refer to Bill of Lading - Not DOT Regulated // Keep From Freezing // Not dangerous goods
DOT BULK SHIPPING NAME	Refer to Bill of Lading.
IMO SHIPPING DATA	Refer to Bill of Lading.
ICAO/IATA SHIPPING DATA	Refer to Bill of Lading - Not IATA Regulated // Keep From Freezing // Not dangerous goods
CFR	Not Regulated // Keep From Freezing // Not dangerous goods
IMDG	Not Regulated // Keep From Freezing // Not dangerous goods
CTC	Not Regulated // Keep From Freezing // Not dangerous goods

SECTION 15 - REGULATORY INFORMATION

TSCA SECTION 8(b) INVENTORY STATUS

All components are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

TSCA SECTION 12(b) EXPORT NOTIFICATION

This material **does not** contain any components that are subject to the U.S. Toxic Substances Control Act (TSCA) Section 12 (b) Export Notification requirements.

OSHA Hazard Communication Standard (29CFR1910.1200) hazard class(es)

This material **is not** classified as hazardous under the criteria of the U.S. Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200

EPA SARA Title III Section 304 CERCLA

Reportable quantities have not been established for any of this material's components

EPA SARA Title III Section 311/312 HAZARD COMMUNICATION STANDARD (HCS)

This material **is not** a hazardous chemical.

EPA SARA Title III Section 313 TOXIC CHEMICAL LIST (TCL)

This product **does not** contain Section 313 Reportable Ingredients.

CANADIAN INVENTORY STATUS

All components of this material are listed on the Canadian Domestic Substances List (DSL)

CANADIAN WHMIS

This material **is not** classified as a controlled product under the Canadian Workplace Hazardous Material Information System.

ADDITIONAL CANADIAN REGULATORY INFORMATION

This product **does not** contain a substance present on the WHMIS Ingredient Disclosure List (IDL) which is at or above the specified concentration limit.

EUROPEAN INVENTORY STATUS (EINECS)

The polymer portion of this product is manufactured from reactants which are listed on EINECS and meets the EINECS definition of an exempt polymer.

AICS (Australia)

Included on inventory

ENCS (Japan)

Included on inventory

ECL (South Korea)

Included on inventory

SEPA (China)

Included on inventory

SECTION 16 – OTHER INFORMATION

HMIS and NFPA Classification

Health	: 1
Flammability	: 0
Reactivity	: 0
Special Hazard	: 0

APPENDIX 4

Seeding

APPENDIX 5

Nevada Division Of Environmental Protection

CADD/CAP Approval

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION
Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Acting Administrator

January 06, 2011

Robert F. Boehlecke
Federal Project Director
Environmental Restoration Project
National Nuclear Security Administration
Nevada Site Office
P. O. Box 98518
Las Vegas, NV 89193-8518

RE: Approval of Corrective Action Decision Document / Corrective Action Plan (CADD/CAP) for Corrective Action Unit (CAU) 111: Area 5 WMD Retired Mixed Waste Pits, Nevada National Security Site, Nevada
Federal Facility Agreement and Consent Order

Dear Mr. Boehlecke,

The Nevada Division of Environmental Protection, Bureau of Federal Facilities (NDEP) staff has received and approved the final CADD/CAP for Corrective Action Unit (CAU) 111: Area 5 WMD Retired Mixed Waste Pits. In addition, all previous comments have been adequately addressed. The CADD/CAP is hereby approved without comments, pursuant to Subpart XII.8.a of the *Federal Facility Agreement and Consent Order* (FFACO).

The CADD/CAP was not found to be Substantially Deficient pursuant to Subpart VIII.3.b of the FFACO and was received in a timely manner. Therefore, this letter serves as the Notice of Completion for this milestone pursuant to Subpart XXV.1 of the FFACO.

NDEP recognizes that as corrective action work proceeds, a change in the scope of remediation activities may be required or justified based on information developed in the course of ongoing work. Propose any changes to the scope of work approved in the CADD/CAP to NDEP as soon as possible.

The CADD states that the agency ultimately responsible for managing the land where the CAU is located (NNSA/NSO for CAU 111) has accepted the proposed action including the need for LURs. Provide certification that the LURs have been entered in the appropriate tracking system in the subsequent Closure Report.

If you have any questions regarding this matter contact me at (702) 486-2850 ext. 231 or Jeff MacDougall at ext. 233.

Sincerely,

T. H. Murphy
Chief
Bureau of Federal Facilities

THM/JJM/JW/KC/TZ: *jjm*

cc: K. J. Cabble, ERP, NNSA/NSO, Las Vegas, NV
E. F. Di Sanza, WMP, NNSA/NSO, Las Vegas, NV
J. T. Fraher, DTRA/CXTS, Kirtland AFB, NM
J. A. Ciucci, NSTec, Las Vegas, NV
A. L. Primrose NSTec, Las Vegas, NV
T. A. Thiele, NSTec, Las Vegas, NV
M. J. Krauss, N-I, Las Vegas, NV
FFACO Group, PSG, NNSA/NSO, Las Vegas, NV

APPENDIX 6

Requests For Information and

Engineering Change Notices

APPENDIX 6-A

Requests For Information

(RFI's)

National Security Technologies LLC
Vision • Service • Partnership

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0025	**WORK PKG#** ENV-11-0007	**DATE:** 2/7/11
PROJECT NUMBER: 10088	**PROJECT NAME:** 92 Acre Closure	
PREPARED BY: John Miller/John Durkin	**PROJ ENG:** Ryan Clifford	**PROJ MGR:** Pat Arnold
SUBJECT: Moisture Content of Subgrade and Fill		**DISCIPLINE:** Civil
REFERENCE DRAWING(S): NA	**REV.:**	**DCN/FCN:**
SPECIFICATION(S): 10088-SPC-G01	**REV.:** 0	**SCN/FCR:**
LOCATION: Area 5 RWMC		

INFORMATION REQUESTED:

Please clarify the Construction Quality Assurance Plan (10088-CQAP-01) requirements for subgrade and fill moisture content.

Construction Specifications (10088-SPC-G01):

1. Section 31 20 00, Earthwork, Part 3.05 MOISTURE CONTROL, B: "The cover material shall be at least 1 percentage point dry of optimum water content..."
2. Section 31 20 00, Part 3.08 COVER FILL-GENERAL, A: "...at moisture content that is no greater than 1 percent dry of optimum moisture content."

These citations appear to require a maximum moisture content of 1% dry of optimum, which we believe to be correct.

In the CQA Plan:

1. SECTION 4 - Material Testing, Tables 4-1 and 4-2: In-Place Moisture criteria in both tables: "Min. 1% dry of optimum"

This citation appears to require a minimum moisture of 1% dry of optimum, which appears inconsistent with the Construction Specification.

REASON FOR RFI:

The moisture content requirement of the subgrade and fill material requires clarification. The Construction Specifications and the Construction Quality Assurance Plan appear to conflict.

We believe the intent of the design engineer is for all moistures to be below -1% of OMC due to the low compaction requirements and the amount of water and processing required to achieve moistures above -1% OMC.

REPLY REQUIRED BY: February 17, 2011

IMPACTS: Construction Quality Assurance officer will be unable to certify construction completion.

Reviewed and determined to be UNCLASSIFIED.
This review does not constitute clearance for public release.
Derivative Classifier G282
(Name/Organization)

APPROVED BY PFE Date 2-9-11 **DATE:** 2-9-11

INFORMATION TO REQUESTOR

TO: John Miller/John Durkin	**FROM:** Shannon Wright
ORG: NSTec	**ORG:** CH2M HILL

REQUESTED INFORMATION:	After further review, the construction specifications are correct. The CQA Plan should be modified to read "Max. 1% dry of optimum."
RESPONSE BY:	**DATE:** 02/17/2011
CLOSED BY PFE:	**DATE:**

National Security Technologies LLC
Vision • Service • Partnership

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0026	**WORK PKG#** ENV-11-0007	**DATE:** 2/8/11
PROJECT NUMBER: 10088	**PROJECT NAME:** 92 Acre Closure	
PREPARED BY: John Miller/Dave Anderson	**PROJ ENG:** Ryan Clifford	**PROJ MGR:** Pat Arnold
SUBJECT: Straw Mulch Requirements		**DISCIPLINE:** Civil
REFERENCE DRAWING(S): NA	**REV.:**	**DCN/FCN:**
SPECIFICATION(S): 10088-SPC-G01	**REV.:** 0	**SCN/FCR:**
LOCATION: Area 5 RWMC		

INFORMATION REQUESTED:	Please revise the Construction Specification (10088-SPG-G01) requirements to remove the bale size requirement for straw mulch. Section 32 93 01, Seeding, Part 2.02, STRAW MULCH, B, second and third sentences should be deleted: "Straw bales should be of uniform size with a minimum of two strands of twine (no wire) to secure each bale. Bales should be between 60 and 110 pounds."
REASON FOR RFI:	The bales size requirement originally supplied by the NSTec subject matter expert has been made obsolete based on procurement responses received to date. Several vendors now use equipment that does not require hand loading of straw bales. The size requirement was driven as a personnel safety requirement. Therefore, the bale size requirement should be deleted from the Construction Specification.
REPLY REQUIRED BY:	February 17, 2011
IMPACTS:	Unnecessary bale size requirement will be imposed which could limit vendors who are otherwise capable of performing the work.
APPROVED BY PFE	**DATE:**

INFORMATION TO REQUESTOR

TO: John Miller/Dave Anderson	**FROM:** Shannon Wright
ORG: NSTec	**ORG:** CH2M HILL

REQUESTED INFORMATION: After review, we concur with the recommendation. Therefore, the second and third sentences of Section 32 93 01, Seeding, Part 2.02, Straw Mulch, B should be deleted.

RESPONSE BY:	Shannon Wright	**DATE:** 02/17/2011
CLOSED BY PFE:		**DATE:**

National Security Technologies LLC
Vision • Service • Partnership

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0030	**WORK PKG#** ENV-11-0007	**DATE:** 2/16/11
PROJECT NUMBER: 10088	**PROJECT NAME:** 92 Acre Closure	
PREPARED BY: John Miller	**PROJ ENG:** Ryan Clifford	**PROJ MGR:** Pat Arnold
SUBJECT: Waste Cover	**DISCIPLINE:** Civil	
REFERENCE DRAWING(S): 10088-C-1004; 10088-C-1005	**REV.:** 0	**DCN/FCN:**
SPECIFICATION(S): NA	**REV.:**	**SCN/FCR:**
LOCATION: Area 5 RWMC		

INFORMATION REQUESTED:

Elevations have been taken on the West Cover of the 92 Acre cap design to determine the cuts and fills required. Per the design, all buried waste must be covered by 2.5m (8.2 ft) of soil. Two areas of potential issues have been identified:

1. Drawing 1088-C-1004 - In the area defined by Grading Control Points 70, 71, 72, and 78, cover is provided over the Idaho fuel (designated as CWI). The design calls for reducing the existing cover (approximately 3-4 feet) by 2-3 feet. Site personnel have used GPR to confirm that the CWI fuel was buried approximately 4 feet below original grade in this area.

   In the table below, the "Elevation" column represents the original grade for the points identified. The Northing and Easting coordinates of Control Points 70, 71, 72, and 78 should remain the same since they were established based on the waste extent, but the elevations needs to be raised as required to ensure 2.5 meters of cover.

Description	Northing	Easting	Elevation
NW Corner	767,865.225	707,439.775	3191.483
	767,863.859	707,498.224	3191.802
	767,862.262	707,549.608	3192.113
	767,859.541	707,649.565	3192.071
	767,856.542	707,749.451	3192.337
NE Corner	767,855.295	707,851.877	3192.539
SE Corner	767,770.006	707,848.961	3191.895
SW Corner	767,773.924	707,425.009	3191.483

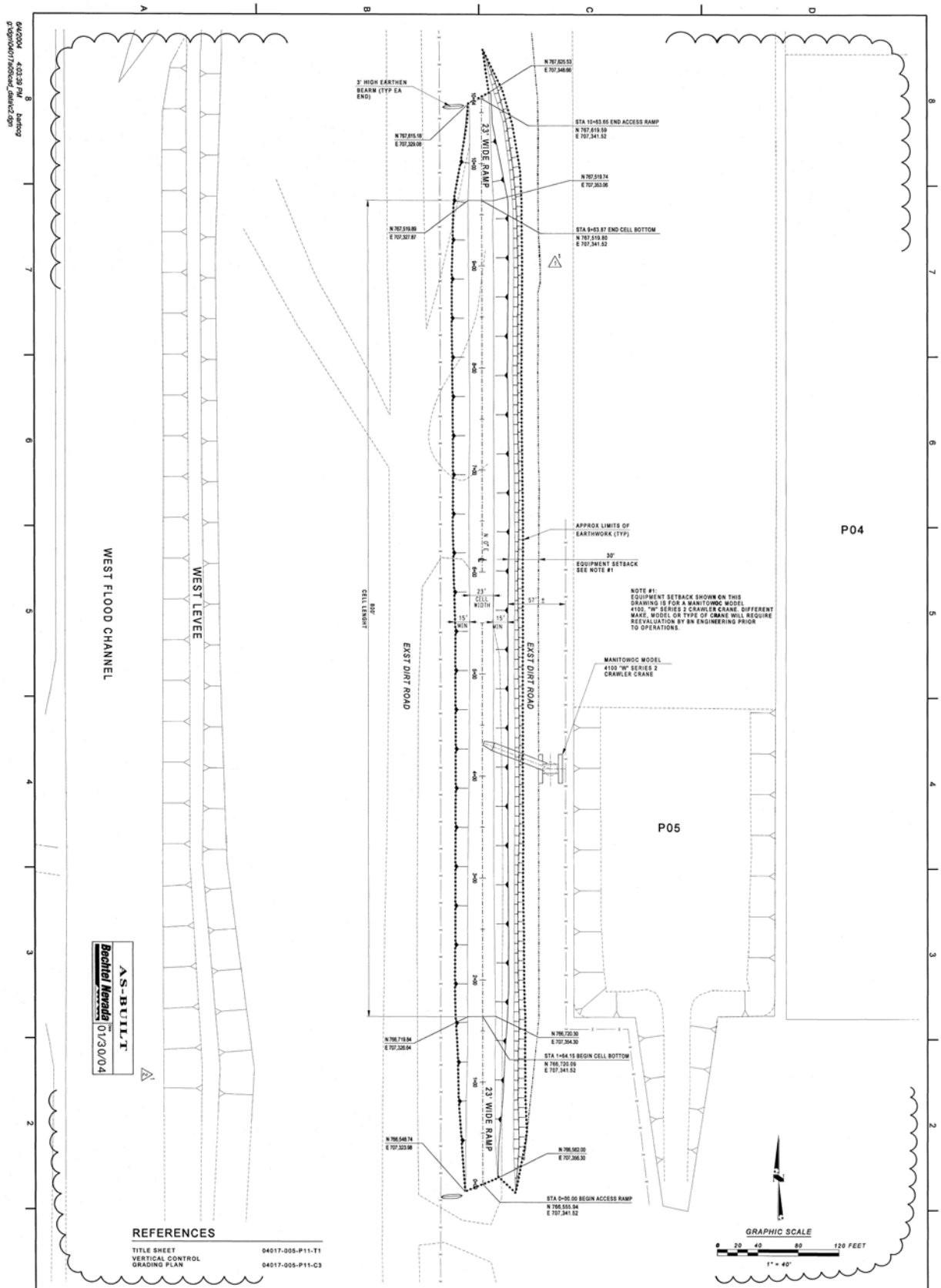
2. Drawing 1088-C-1005 requires the southern 100 ft or so of P11 to be filled where there is presently no cover. At present there is a 20 ft ramp starting at approximately N 766 700. The Underground Radioactive Material (URM) signs indicate that the southern limit of waste in P11 is at approximately N 766 710. Based on the Underground Radioactive Material signs and discussions with the waste specialists, no waste is stored on the access ramps. Site personnel also used GPR to check for the presence of waste in this area and no waste was confirmed.

   The Pit 11 layout drawing will be provided separately and shows

	the as-built location for the pit. Key points are summarized below: • Control point (CP) 85 at the north end of Cell 11 corresponds approximately to the north end of the cell bottom (it should be .68 further north to Northing 767,519.80 plus any adjustment to account for the 3:1 slope at the north edge of the cell. • CP 84 is 19.92' south of the north end of the cell bottom and needs to be moved 20' north to the same Northing value as CP 85. • CP 139 is 4.24' south of the south end of the cell bottom and could remain where it is or be moved slightly north. • CP 142 is 6.53' south of the south end of the cell bottom and could remain where it is or be moved slightly north. • CPs 140 and 141 would be located near the upper end of the south access ramp.
REASON FOR RFI:	To obtain revised design for West Cover the two areas where the design is not consistent with Area 5 knowledge.
REPLY REQUIRED BY:	February 22, 2011
IMPACTS:	Ensure proper coverage of buried waste in the final closure design and eliminate unnecessary cover construction.
APPROVED BY PFE	**DATE:** 2-17-11

INFORMATION TO REQUESTOR

TO: John Miller	**FROM:** Shannon Wright
ORG: NSTec	**ORG:** CH2M HILL
REQUESTED INFORMATION: While the best available information was utilized to determine the depth of waste and the final cover configurations, the institutional knowledge and field verification presented above appears adequate to redefine the location and depth of waste. Therefore, we concur with the suggested changes. Modifications will be presented in the Engineering Change Notice 10088-ECN-01. Also, please be advised that this response supersedes the response presented in the original Request for Information 11-05-001.	
RESPONSE BY:	**DATE:** 02/17/2011
CLOSED BY PFE:	**DATE:**



REFERENCES

TITLE SHEET	04017-005-P11-T1
VERTICAL CONTROL GRADING PLAN	04017-005-P11-C3

NNSA National Nuclear Security Administration Nevada Site Office

Bechtel Nevada P.O. BOX 98521 LAS VEGAS, NV 89193-8521

NEVADA TEST SITE — AREA 5

AREA 5 RADIOACTIVE WASTE MANAGEMENT SITE

DISPOSAL CELL (P11)

HORIZONTAL CONTROL SITE PLAN

APPROVAL BLOCK			
DESIGNED	DATE	ENGINEERING GROUP SUPERVISOR	DATE
LRE	12/15/03	R MC CAMANT	12/15/03
CHECKED	DATE	PROJECT ENGINEER	DATE
LRE	12/15/03	S RAO	12/15/03
DRAWN	DATE	QUALITY/OTHER	DATE
JAS	12/15/03	N/A	
BN PROJECT NUMBER	ENGINEERING NUMBER	ORIGINAL SIGNATURES ON FILE	
04017.005	5CD0P12U		

NO	REVISION DESCRIPTION	DESIGNED	CHECKED	ENGR GROUP SUPERV	PROJ ENGR	USER CHAR
2	INCORPORATED FCR04-5-P11U-006 AND AS-BUILT DRAWINGS 06/04/04	CB	MAB	GBS	JD for RM	RAO
1	REMOVED HOLDS & REVISED CELL DIMS & COORDINATES 12/24/03	DD	JAS	JD for RM	RAO	
0	ISSUED FOR CONSTRUCTION 12/15/03					

ORIGINAL MYLAR SIGNED BY:

SHEET 2 OF 2 — DRAWING NUMBER 04017-005-P11-C2

National Security Technologies LLC
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REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0031	**WORK PKG#** ENV-11-0007	**DATE:** 2/17/11
PROJECT NUMBER: 10088	**PROJECT NAME:** 92 Acre Closure	
PREPARED BY: John Miller	**PROJ ENG:** Ryan Clifford	**PROJ MGR:** Pat Arnold
SUBJECT: Compaction and Testing Requirements		**DISCIPLINE:** Civil
REFERENCE DRAWING(S): NA	**REV.:**	**DCN/FCN:**
SPECIFICATION(S): 10088-SPC-G01	**REV.:** 0	**SCN/FCR:**
LOCATION: Area 5 RWMC		

INFORMATION REQUESTED:

Please revise the Construction Specification (10088-SPG-G01) requirements to allow changes in ripping methodology and testing requirements based on the demonstrated performance of ripping with equipment using shanks on 4.5-foot centers. Also, for each subgrade lift revision is requested to eliminate requirements for removal of rock larger than 9 inches and track walking with low ground pressure dozers to smooth the surface. Discussion of the requested changes is presented below:

1. Density and moisture testing of the ripped subgrade has been performed on a portion of the South Cover. These tests were performed at a frequency of 5 tests per acre. Our observations and test results indicate the subgrade soil materials are very consistent in moisture content and density and easily pass the project specifications. We propose that the design engineer reduce the subgrade testing frequency to a minimum 1 test per acre. For the final cover grade, a minimum of 5 tests per acre is acceptable, but any reduction would be helpful. Attached are CQA engineer reports: 1) S Cover Subgrade Density Tests, 2) S Cover Moisture Tests, and 3) 92 Acre Lab Summary.

2. Results from the CQA engineer of the 100' x 100' test area on the surface of Cell P05 are also attached as "Test Area Density Summary". This area was cross ripped 18" in depth with a dozer using shanks on 4.5-foot centers and tests No. 1 to No. 4 were performed. Part of the area was ripped again in one direction approximately 18" in depth with a blade and tests No. 5 to No. 8 were performed. Tests No. 6 and No. 8 indicate that an extra pass with the blade rippers and additional ripping can loosen the soil below 78% compaction. Therefore, a compaction requirement of 75-85% is proposed to allow for lower compaction from ripping a third pass with a motor grader to provide a better final surface for seeding operations. The cross ripped surface (after being track walked) is still fairly rough without the third pass from the grader.

3. The D10 that we are using for ripping has a 34.5" shank depth. Therefore, we propose that for areas of existing cover that receive less that 16 inches of fill, the final grade could be established prior to ripping the subgrade, but the final cover would be ripped to at least 18 inches into the original cover. For those areas of the existing cover that cannot be ripped to ≥18 inches below original grade upon completion of fill, the original surface will be ripped to ≥18 inches prior to placing each subgrade lift in our conventional manner using heavy equipment. Upon completion of each lift, the surface will be ripped to ≥18 inches before placing the next lift.

4. For each subgrade lift, we request that the requirement to remove cobbles larger than 9 inches and to track walk the surface with low ground pressure dozers to smooth the surface be removed. The final cover surface will be completed per the existing specification for cobble removal and track walking.

REASON FOR RFI:	Construction Specification revision as proposed will provide equivalent final covers while greatly reducing testing and ripping field work and subgrade preparation.
REPLY REQUIRED BY:	February 21, 2011
IMPACTS:	Additional work and testing will result a significant schedule impact. The scheduled work is very tight given a 7 week delay in starting work awaiting formal regulatory approval. The project must be completed in 180 days from November 30, 2010 per RCRA regulations and NSTec performance goals.
APPROVED BY PFE	**DATE:** 2-17-11

INFORMATION TO REQUESTOR

TO: John Miller	**FROM:** Shannon Wright
ORG: NSTec	**ORG:** CH2M HILL

REQUESTED INFORMATION: Numbered responses below regarding requested changes to Specification Section 31 20 00 EARTHWORK correspond to original Information Requested item numbers above. Concurrence with the findings and recommendations above are based on the information provided by the CQA Engineer reports attached to this RFI. CH2M HILL assumes that the construction methods presented above will be utilized in the field and recorded by the CQA Engineer.

1. The request to change the moisture and density testing from 5 tests per acre per lift to 1 test per acre per lift is approved.

2(a). Based on the ripping demonstration and soil compaction testing, we approve the request to change the ripper shank spacing from 3-ft to 4.5-ft. The same sequence of ripping operations used in the test area to uniformly achieve compaction levels below 85 percent relative compaction shall be used for all areas requiring deep ripping.

(response continued below...)

RESPONSE BY:	**DATE:** 3/01/2011
CLOSED BY PFE:	**DATE:**

(response continuation from above...)

2(b). The request to change the allowable in-place density of cover soil material to a range of 75 to 85 percent relative compaction (ASTM D698) is approved.

3. The request to remove the 18-in subgrade ripping requirement in select areas prior to placing any fill is approved as noted in this RFI. Deeper ripping to no less than 18-in below the existing subgrade surface will still be required using the same ripper shank spacing and number of passes that were used in the ripping test area.

4. The request to eliminate requirements for cobble removal and track walking at the completion of subgrade preparation and intermediate lifts is approved. These requirements still apply to final grade preparation.

Not discussed in this RFI but inferred is that the contractor will not use low ground pressure (LGP) equipment for construction of intermediate lifts as required in the specifications. Instead, deep ripping as described in this RFI will be conducted at the completion of each lift for soil compaction control. LGP equipment will still be used for filling and contouring the 3:1 side-slope areas around each cover. Following deep ripping of the cover surface at final grade, equipment access will be limited to LGP equipment. These modifications are approved.

Summary of Field Density Tests

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Field Dry Density (pcf)	Relative Compaction		Remarks
									Field (%)	Spec. (%)	
South Cover Subgrade at Cell P09											
P09-SG-D1	14-Feb-11	Subgrade South Cover N 767,025 E 709,296	3194.8	11-0022	116.0	11.0	4.2	95.5	82%	78% - 85%	Pass
P09-SG-D2	14-Feb-11	Subgrade South Cover N 766,987 E 709,285	3194.0	11-0022	116.0	11.0	4.5	93.7	81%	78% - 85%	Pass
P09-SG-D3	14-Feb-11	Subgrade South Cover N 766,938 E 709,279	3193.3	11-0022	116.0	11.0	6.4	91.2	79%	78% - 85%	Pass
P09-SG-D4	14-Feb-11	Subgrade South Cover N 766,836 E 709,223	3191.7	11-0022	116.0	11.0	5.0	91.1	79%	78% - 85%	Pass
P09-SG-D5	14-Feb-11	Subgrade South Cover N 766,877 E 709,093	3191.8	11-0022	116.0	11.0	5.7	95.2	82%	78% - 85%	Pass
P09-SG-D6	14-Feb-11	Subgrade South Cover N 766,947 E 709,078	3192.1	11-0022	116.0	11.0	5.6	95.5	82%	78% - 85%	Pass
P09-SG-D7	14-Feb-11	Subgrade South Cover N 767,011 E 709,127	3193.7	11-0022	116.0	11.0	5.7	90.6	78%	78% - 85%	Pass
P09-SG-D8	14-Feb-11	Subgrade South Cover N 767,072 E 709,071	3194.0	11-0022	116.0	11.0	3.6	97.7	84%	78% - 85%	Pass
P09-SG-D9	14-Feb-11	Subgrade South Cover N 767,093 E 708,980	3194.0	11-0022	116.0	11.0	4.7	96.7	83%	78% - 85%	Pass
P09-SG-D10	15-Feb-11	Subgrade South Cover N 767,019 E 708,999	3192.8	11-0022	116.0	11.0	5.0	94.9	82%	78% - 85%	Pass
P09-SG-D11	15-Feb-11	Subgrade South Cover N 766,952 E 709,001	3192.0	11-0022	116.0	11.0	4.5	99.1	85%	78% - 85%	Pass
P09-SG-D12	15-Feb-11	Subgrade South Cover N 766,908 E 708,950	3191.5	11-0022	116.0	11.0	4.2	96.8	83%	78% - 85%	Pass
South Cover Subgrade at Cell P07											
P07-SG-D1	15-Feb-11	Subgrade South Cover N 766,846 E 708,939	3190.6	11-0022	116.0	11.0	5.5	91.0	78%	78% - 85%	Pass
P07-SG-D1	15-Feb-11	Subgrade South Cover N 766,765 E 709,914	3188.9	11-0022	116.0	11.0	3.9	90.8	78%	78% - 85%	Pass
P07-SG-D1	15-Feb-11	Subgrade South Cover N 766,608 E 708,864	3185.9	11-0022	116.0	11.0	4.4	95.8	83%	78% - 85%	Pass

Moisture Content Summary

92 ACRE COVER, AREA 5
NEVADA NATIONAL SECURITY SITE
Project No.: 10.1161

Test No.	Date	Test Locations	Elev. (Ft.)	Lab No.	Max. Dry Density (pcf)	Opt. Moist. Content (%)	Field Moist. Content (%)	Spec. <-1% of OMC
P09-SG-M1	14-Feb-11	Subgrade South Cover N 767,025 E 709,296	3194.8	11-0022	116.0	11.0	4.6	Pass
P09-SG-M2	14-Feb-11	Subgrade South Cover N 766,987 E 709,285	3194.0	11-0022	116.0	11.0	5.7	Pass
P09-SG-M3	14-Feb-11	Subgrade South Cover N 766,938 E 709,279	3193.3	11-0022	116.0	11.0	5.8	Pass
P09-SG-M4	14-Feb-11	Subgrade South Cover N 766,836 E 709,223	3191.7	11-0022	116.0	11.0	4.8	Pass
P09-SG-M5	14-Feb-11	Subgrade South Cover N 766,877 E 709,093	3191.8	11-0022	116.0	11.0	5.9	Pass
P09-SG-M6	14-Feb-11	Subgrade South Cover N 766,947 E 709,078	3192.1	11-0022	116.0	11.0	5.6	Pass
P09-SG-M7	14-Feb-11	Subgrade South Cover N 767,011 E 709,127	3193.7	11-0022	116.0	11.0	6.1	Pass
P09-SG-M8	14-Feb-11	Subgrade South Cover N 767,072 E 709,071	3194.0	11-0022	116.0	11.0	4.3	Pass
P09-SG-M9	14-Feb-11	Subgrade South Cover N 767,093 E 708,980	3194.0	11-0022	116.0	11.0	5.2	Pass

Summary of Field Density Tests

92 Acre Cover, Area 5
Nevada National Security Site
Project No.:10.1161

Test No.	Date	Test Locations	Depth of Test	Soil Type No.	Max Dry Density (pcf)	Optimum Moisture Content (%)	Field Dry Density (pcf)	Field Moisture Content (%)	Compaction (%)	Pass/ Fail (78% to 85%)
100' x 100' Test Area, Surface of Cell P05 Cover										
1	9-Feb-11	Surface of Cover Cross Ripped 18" Deep Rippers 4'6" apart	4"	11-0021	116.5	11.0	94.5	4.8	**81.1%**	Pass
			8"	11-0021	116.5	11.0	97.4	5.0	**83.6%**	Pass
			12"	11-0021	116.5	11.0	97.6	4.7	**83.8%**	Pass
2	9-Feb-11	Surface of Cover Cross Ripped 18" Deep Rippers 4'6" apart	4"	11-0021	116.5	11.0	97.6	4.2	**83.8%**	Pass
			8"	11-0021	116.5	11.0	100.4	4.6	**86.2%**	Fail
			12"	11-0021	116.5	11.0	102.3	4.5	**87.8%**	Fail
3	9-Feb-11	Surface of Cover Cross Ripped 18" Deep Rippers 4'6" apart	4"	11-0021	116.5	11.0	91.5	5.6	**78.5%**	Pass
			8"	11-0021	116.5	11.0	95.2	5.1	**81.7%**	Pass
			12"	11-0021	116.5	11.0	97.1	4.9	**83.3%**	Pass
4	9-Feb-11	Surface of Cover Cross Ripped 18" Deep Rippers 4'6" apart	4"	11-0021	116.5	11.0	93.7	4.8	**80.4%**	Pass
			8"	11-0021	116.5	11.0	94.4	4.8	**81.0%**	Pass
			10"	11-0021	116.5	11.0	91.9	4.6	**78.9%**	Pass

92 Acre Cover, Area 5
Nevada National Security Site
Project No.:10.1161

Summary of Field Density Tests

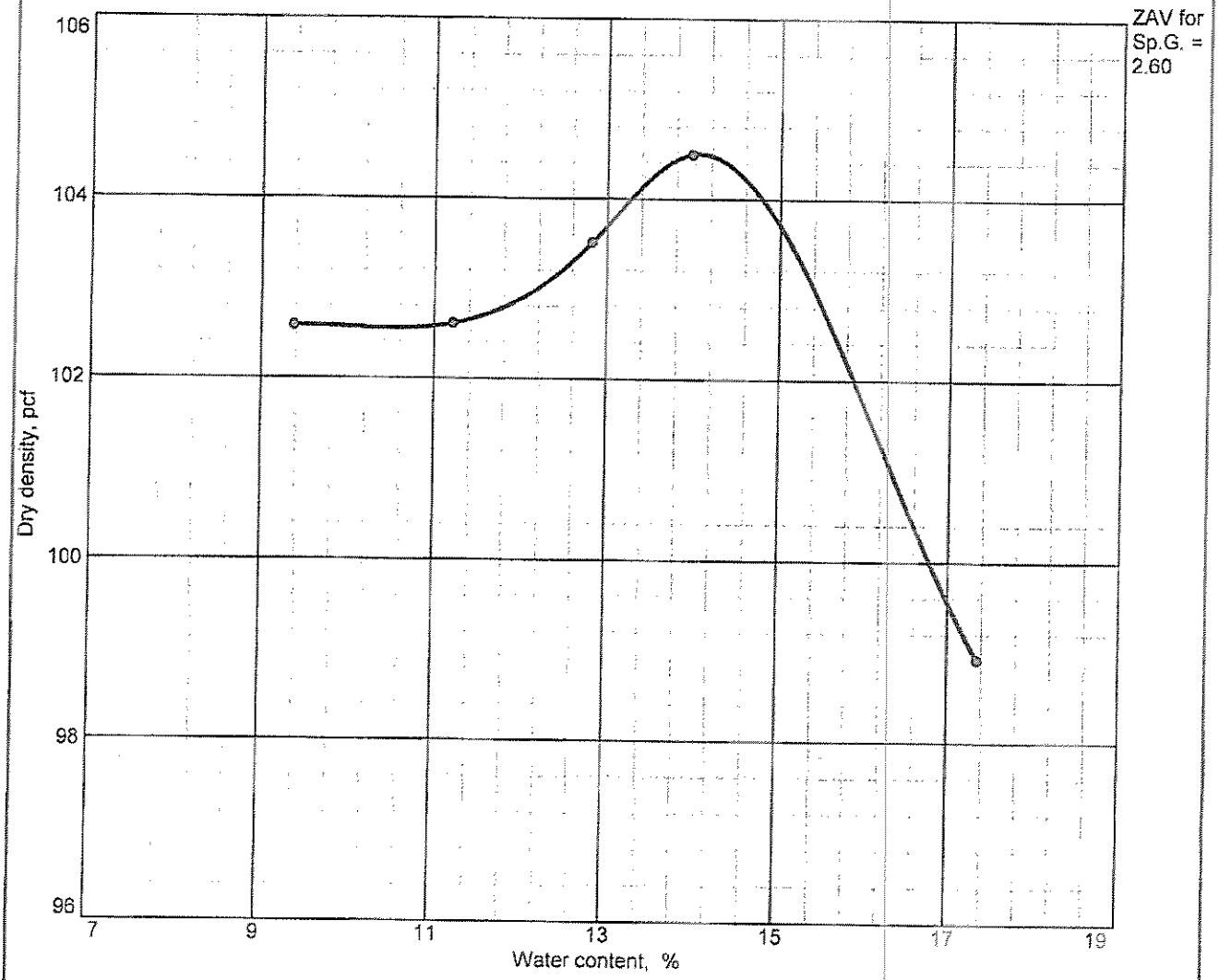
Test No.	Date	Test Locations	Depth of Test	Soil Type No.	Max Dry Density (pcf)	Optimum Moisture Content (%)	Field Dry Density (pcf)	Field Moisture Content (%)	Compaction (%)	Pass/ Fail (78% to 85%)
100' x 100' Test Area, Surface of Cell P05 Cover										
5	9-Feb-11	Surface of Cover Cross Ripped 18" Deep w/ Rippers 4'6" apart Ripped again 18" deep one direction 36" apart	4"	11-0021	116.5	11.0	93.8	4.4	**80.5%**	**Pass**
			8"	11-0021	116.5	11.0	99.4	4.4	**85.3%**	**Pass**
			10"	11-0021	116.5	11.0	101.1	4.4	**86.8%**	Pass
6	9-Feb-11	Surface of Cover Cross Ripped 18" Deep w/ Rippers 4'6" apart Ripped again 18" deep one direction 36" apart	4"	11-0021	116.5	11.0	89.4	5.5	76.7%	**Fail**
			8"	11-0021	116.5	11.0	90.1	5.2	**77.3%**	**Fail**
			10"	11-0021	116.5	11.0	89.7	4.5	**77.0%**	**Fail**
7	9-Feb-11	Surface of Cover Cross Ripped 18" Deep w/ Rippers 4'6" apart Ripped again 18" deep one direction 36" apart	4"	11-0021	116.5	11.0	93.1	4.8	**79.9%**	**Pass**
			8"	11-0021	116.5	11.0	93.5	5.1	**80.3%**	**Pass**
			12"	11-0021	116.5	11.0	93.8	4.7	**80.5%**	**Pass**
8	9-Feb-11	Surface of Cover Cross Ripped 18" Deep w/ Rippers 4'6" apart Ripped again 18" deep one direction 36" apart	4"	11-0021	116.5	11.0	87.5	5.2	**75.1%**	**Fail**
			8"	11-0021	116.5	11.0	88.6	5.3	76.1%	**Fail**
			12"	11-0021	116.5	11.0	91.8	5.1	**78.8%**	**Pass**

Laboratory Test Summary
92-Acre Cover, Area 5

Project No. 10.1161

LAB NUMBER	DATE SAMPLED	SAMPLE LOCATION	SOIL DESCRIPTION	MAXIMUM DRY DENSITY (ASTM D698)	OPTIMUM MOISTURE	AREA PLACED
11-0018	Jan. 26, 2011	Desert Area S. of RWM Complex	Silty SAND (SM)	104.5 pcf	14.0%	Compaction Study Area
11-0021	Jan. 27, 2011	West Cover, Cell P04 (material from RCRA Stockpile)	Silty SAND with gravel (SM)	116.5 pcf	11.0%	West Cover and Cell P03
11-0022	Jan. 27, 2011	South Cover, Cell T07	Silty SAND with gravel (SM)	116.0 pcf	11.0%	Cell CW1

COMPACTION TEST REPORT



Test specification: ASTM D 698-00 Procedure A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 104.5 pcf Optimum moisture = 14 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

Location: Desert Surface S. of RWMC

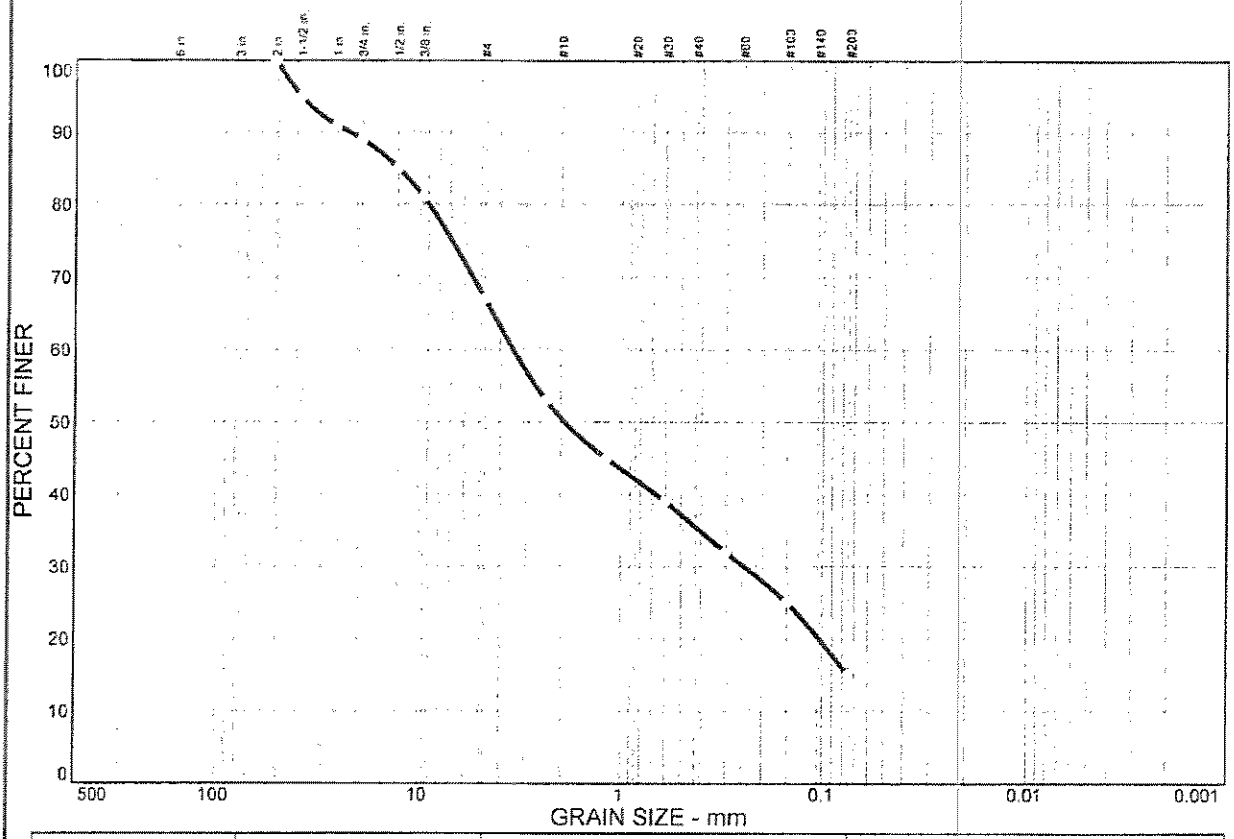
Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0018

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	11	22	16	15	21	15	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2 in.	100		
1-1/2 in.	95		
1 in.	91		
3/4 in.	89		
1/2 in.	85		
3/8 in.	81		
#4	67		
#8	53		
#16	45		
#30	39		
#50	32		
#100	25		
#200	15		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 12.7 D_{60}= 3.44 D_{50}= 1.91
D_{30}= 0.243 D_{15}= 0.0750 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

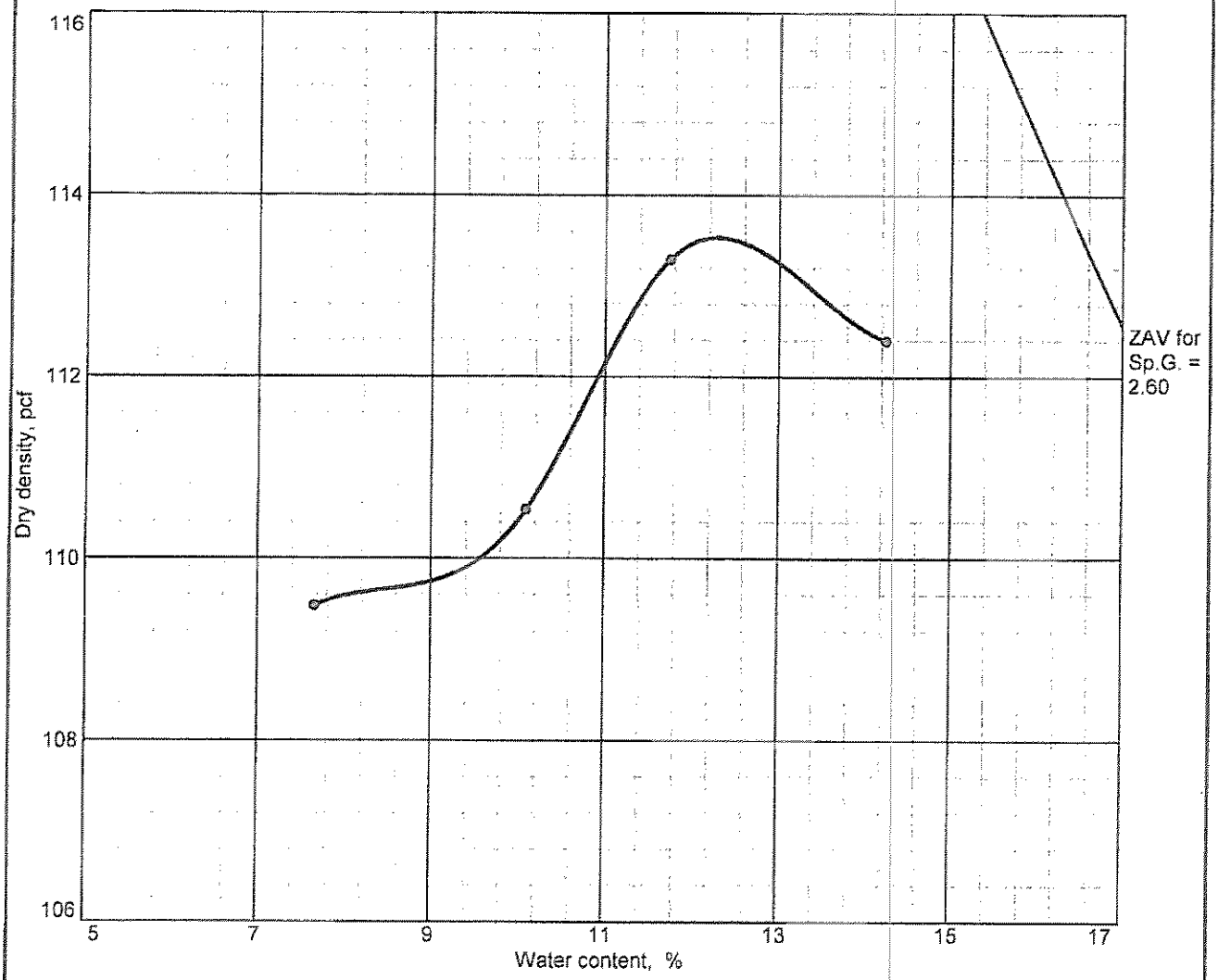
Remarks

Sample No.: 11-0021 **Source of Sample:** On-Site Material **Date:** 01/27/2011
Location: RCRA Cell Spoils Stockpile **Elev./Depth:**

J.A. CESARE AND ASSOCIATES, INC.
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover
Project No: 10.1161 **Figure** 11-0021

COMPACTION TEST REPORT



Test specification: ASTM D 698 Procedure B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	SM			2.111	NP	NP	19.0	15

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 116.5 pcf	113.5 pcf	Silty sand with gravel
Optimum moisture = 11 %	12.5 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

Location: RCRA Cell Spoils Stockpile

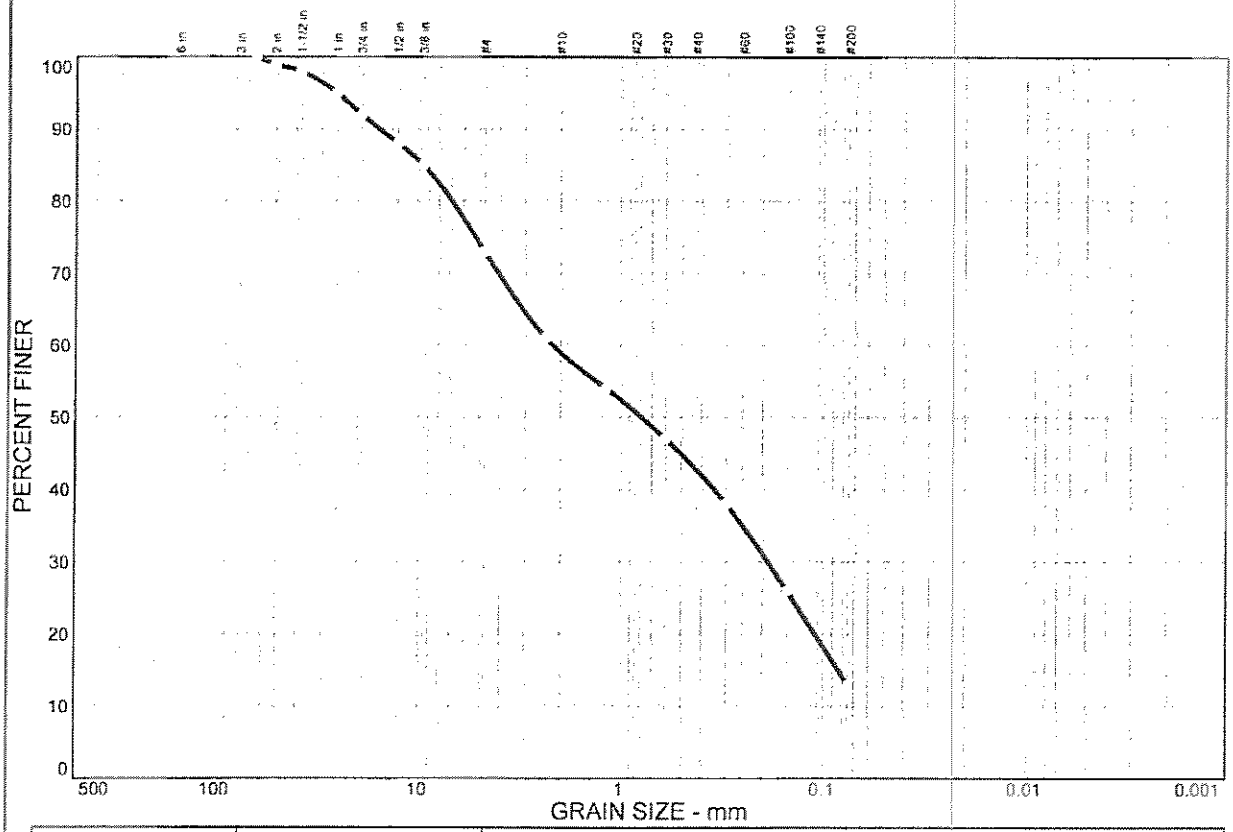
Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0021

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	8	19	14	16	30	13	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2-1/2 in.	100		
2 in.	99		
1-1/2 in.	98		
1 in.	95		
3/4 in.	92		
1/2 in.	88		
3/8 in.	85		
#4	73		
#8	61		
#16	54		
#30	47		
#50	38		
#100	26		
#200	13		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 9.52 D_{60}= 2.18 D_{50}= 0.788
D_{30}= 0.187 D_{15}= 0.0834 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

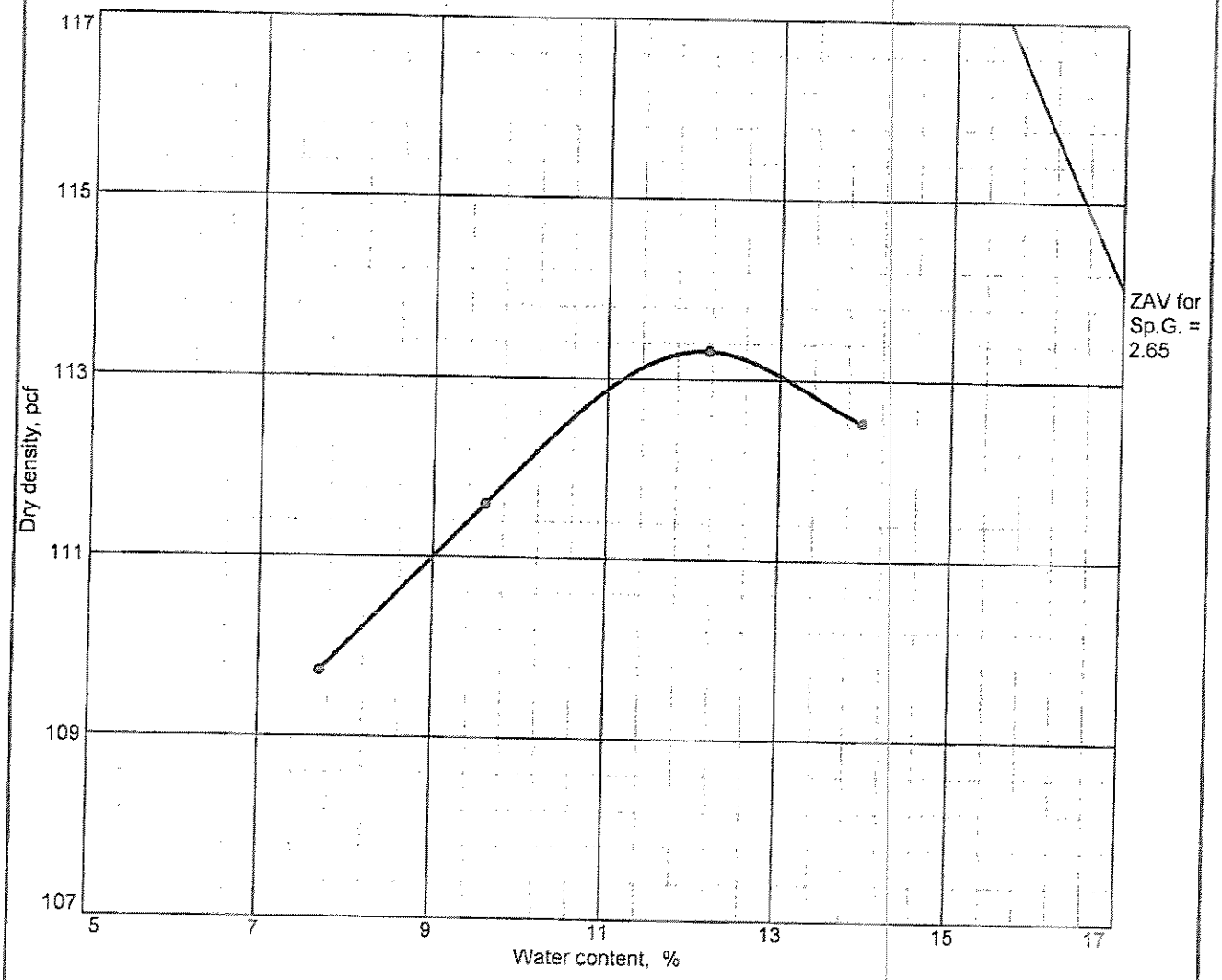
Remarks

Sample No.: 11-0022 **Source of Sample:** On-Site Material **Date:** 01/27/2011
Location: West Side of Cell T07 **Elev./Depth:**

J.A. CESARE AND ASSOCIATES, INC.
Geotechnical Engineering Consultants

Client: Delphi Groupe
Project: 92 Acre Cover
Project No: 10.1161 **Figure** 11-0022

COMPACTION TEST REPORT



Test specification: ASTM D 698 Procedure B Standard
Oversize correction applied to final results

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
				2.142	NP	NP	15.0	13

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 116 pcf	113.5 pcf	Silty sand with gravel
Optimum moisture = 11 %	12 %	

Project No. 10.1161 **Client:** Delphi Groupe
Project: 92 Acre Cover

Location: West Side of Cell T07

Remarks:

COMPACTION TEST REPORT

JOSEPH A. CESARE AND ASSOCIATES, INC.

Figure 11-0022

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REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0039	**WORK PKG#** ENV-11-0007	**DATE:** 3-1-11
PROJECT NUMBER: 10088	**PROJECT NAME:** 92 Acre Closure	
PREPARED BY: Dave Anderson	**PROJ ENG:** Ryan Clifford	**PROJ MGR:** Pat Arnold
SUBJECT: TRAFFIC CONTROL on final cover surface		**DISCIPLINE:**
REFERENCE DRAWING(S): NA	**REV.:**	**DCN/FCN:**
SPECIFICATION(S): 10088-SPC-G01	**REV.:** 0	**SCN/FCR:**
LOCATION: Area 5 RWMC		

INFORMATION REQUESTED:

Please revise the Construction Specification 10088-SPG-G01, Section No. Division 32, 32 93 01, SEEDING, Part 1, GENERAL, Section 1.09 TRAFFIC CONTROL to allow other than low ground pressure (LGP) vehicles on the final cover surface to complete revegetation tasks such as site preparation, seeding, straw mulching and crimping.

The proposed revision of Section 1.09 TRAFFIC CONTROL as discussed with the CH2M Hill subject matter expert is as follows:

> Agriculture equipment will be allowed on the closure cover for preparing the site, drill seeding, the application of the straw mulch and crimping the straw mulch. Low ground pressure (5 PSI) agriculture equipment is preferred for all tasks. A low ground pressure tractor will be used to prepare the site, drill seed and crimp the straw mulch. Examples of agriculture equipment that may not qualify as low ground pressure equipment but would be acceptable for application of the straw mulch are tractor (agriculture)-drawn tub grinders or flat bed trucks with a trailing or attached straw blower. The maximum truck load will be 4 tons of straw. The distance between travel routes for both the tub grinder and flat bed truck will be maximized while still maintaining a uniform mulch application rate of 4,000 lbs/acre uniformly. Agriculture equipment and foot traffic across the barrier surface shall be minimized and shall not be allowed following heavy rain events to prevent rutting and compaction of cover soils.

REASON FOR RFI:

Revision of Section 1.09 TRAFFIC CONTROL as suggested will allow standard revegetation equipment, used to apply mulches, access to the cover surface. A straw mulch will be applied that will protect the cover surface from wind and water erosion and enhance the establishment of vegetation on the cover.

REPLY REQUIRED BY: March 22, 2011

IMPACTS:

Failure to revise Section 1.09 TRAFFIC CONTROL and therefore not allow standard revegetation equipment on the cover surface, would result in failure to stabilize the cover surface with a straw mulch unless the straw mulch was applied using more less effective but more labor intensive methods, which would add significant costs to the project, but more importantly comprise the effectiveness of the straw mulch in controlling erosion and enhancement plant establishment.

APPROVED BY PFE  **DATE:** 3-1-11

INFORMATION TO REQUESTOR

TO:	**FROM:**

ORG: NSTec	ORG: CH2M HILL
REQUESTED INFORMATION:	The suggested revision to Section 32 93 01 SEEDING, Part 1.09 TRAFFIC CONTROL, is approved. Part 1.09 TRAFFIC CONTROL should be revised as suggested to allow standard revegetation equipment on the final cover surface for the purpose of straw mulch application.
RESPONSE BY:	DATE: 3/07/2011
CLOSED BY PFE:	DATE:

National Security Technologies LLC

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0079	WORK PKG# ENV-11-0007	DATE: 4/7/11
PROJECT NUMBER: 10088	PROJECT NAME: 92 Acre Closure	
PREPARED BY: John Miller	PROJ ENG: Ryan Clifford	PROJ MGR: Pat Arnold
SUBJECT: Existing Road Drainage	DISCIPLINE: Civil	
REFERENCE DRAWING(S): 10088-C-1007, -1008	REV.: 0	DCN/FCN:
SPECIFICATION(S):	REV.:	SCN/FCR:
LOCATION: Area 5 RWMC		

INFORMATION REQUESTED:

1. The current design identifies a swale on both the east and west side of the existing road through the middle of the 92 Acre Project (just east of the West Cover). The design of the swale on the west side of the road calls for a minimum 6" depth, while the swale on the east side of the road calls for a minimum 12" depth. The design also requires daylighting of both swales at the narrowest point of the road.

   Using the existing grade elevation of the road and the design elevation of the swales will yield a west swale depth of 12-18" and an east swale depth of 4-6". In addition, the location of the east swale is not the lowest east-west point on the existing road and the design swale would restrict traffic patterns on the road.

   Because the design includes daylighting of both swales at the lower end of the roadway, because the east swale lies in the middle of what has been the existing roadway, and because the actual depth of the swale makes it of minimum value, we request the following changes to the design:
   - Eliminate the southern portion of the east swale.
   - Change the drainage angle point for the "Cell 3 Area Drainage" to N767695, E707997. The actual elevation at this point is 3192.1.
   - Change the drainage angle point for the gap between the North Cover and the South Cover to N767469, E707960. The actual elevation at this point is 3189.4.
   - Run the east swale through these points and daylight the east swale at N767277, E707933.

2. Variations exist between the elevation of the existing grade in the field and the grade used in the design. Because of this, in some areas, the depth of the drainages will be less that indicated in the design. We request concurrence with our intention to establish the design elevation at the bottom of the drainage using the design slope, but we will not add fill in any area to increase the depth of that drainage.

3. On Drawing 10088-C-5002, Detail F, a typical 2:1 swale is shown. However, the 2:1 shown in the detail is 2 vertical to 1 horizontal instead of the other way around. Please correct.

REASON FOR RFI:

The design location of the east swale would restrict traffic patterns on the road and would be ineffective in providing drainage on the road. The proposed east swale would remove the swale from the center of the existing roadway, more closely follow the current side of the roadway, and follow an existing swale in that vicinity.

Note: The current drainage on the roadway is sheet flow and no problems have been noted. The west swale is be deeper than anticipated by the design and would easily accommodate additional drainage if required in the event of a design basis rainfall.

REPLY REQUIRED BY:	4-14-11
IMPACTS:	Although the amount of work to construct the swale in the design location is small, the presence of the swale would cause an impact to traffic patterns and would be ineffective because of the existing grades.
APPROVED BY PFE	DATE: 4-7-11

INFORMATION TO REQUESTOR

TO: John Miller	FROM: Shannon Wright
ORG: NSTec	ORG: CH2M HILL

REQUESTED INFORMATION: Numbered responses below regarding requested changes to drainage design correspond to original Information Requested item numbers above.

1. The request to revise drainage swales is approved and should be made to accommodate existing roadway and traffic patterns.
2. It is understood that there are variations between actual existing field grades and existing modeled grades used for design. The request to establish drainage swale elevations in the field based on design slopes noted in the drawings is approved. An as-built survey is requested to verify constructed drainage features.
3. The request to correct the erroneously labeled 1:2 slope in Section F, drawing 10088-C-5002, is approved and should be corrected to show 1 vertical to 2 horizontal (i.e. 2:1).

RESPONSE BY:	DATE: 4/22/2011
CLOSED BY PFE:	DATE:

National Security Technologies LLC
Vision • Service • Partnership

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0086	**WORK PKG#** ENV-11-0007	**DATE:** 4/12/11
PROJECT NUMBER: 10088	**PROJECT NAME:** 92 Acre Closure	
PREPARED BY: John Miller	**PROJ ENG:** Ryan Clifford	**PROJ MGR:** Pat Arnold
SUBJECT: CQA Plan Compaction and Testing Requirements		**DISCIPLINE:** Civil
REFERENCE DRAWING(S): NA	**REV.:**	**DCN/FCN:**
SPECIFICATION(S): 10088-SPC-G01	**REV.:** 0	**SCN/FCR:**
LOCATION: Area 5 RWMC		
INFORMATION REQUESTED:	Please revise the CQA Plan (10088-CQAP-01) to be in agreement with approved revisions to Construction Specification (10088-SPG-G01) requirements. A revision to the Construction Specification was approved with engineering change notice (10088-ECN-04) to allow changes in recommended soil testing frequency, In-Place Moisture, and In-Place Moisture/Density criteria. CQA Plan Tables 4-1 and 4-2 require revision to a recommended frequency of 1 test per acre and 75% to 85% of max. dry density.	
REASON FOR RFI:	A revision is necessary to align the CQA Plan with the Construction Specification as revised with 10088-ECN-04 and approved RFI-11-0031.	
REPLY REQUIRED BY:	April 14, 2011	
IMPACTS:	CQA Plan and Construction Specification will differ.	
APPROVED BY PFE		**DATE:** 4-13-11

INFORMATION TO REQUESTOR

TO: John Miller		**FROM:** Shannon Wright	
ORG: NSTec		**ORG:** CH2M HILL	
REQUESTED INFORMATION:	The suggested revision to CQA Plan Tables 4-1 and 4-2 is approved and should be revised to reflect changes approved by Engineering Change Notice 10088-ECN-04.		
RESPONSE BY:		**DATE:** 4/21/2011	
CLOSED BY PFE:		**DATE:**	

National Security Technologies LLC
Vision • Service • Partnership

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0093	**WORK PKG#** ENV-11-0007	**DATE:** 4/21/11
PROJECT NUMBER: 10088	**PROJECT NAME:** 92 Acre Closure	
PREPARED BY: John Miller	**PROJ ENG:** Ryan Clifford	**PROJ MGR:** Pat Arnold
SUBJECT: Grade tolerances		**DISCIPLINE:** Civil
REFERENCE DRAWING(S): NA	**REV.:**	**DCN/FCN:**
SPECIFICATION(S): 10088-SPC-G01	**REV.:** 0	**SCN/FCR:**
LOCATION: Area 5 RWMC		

INFORMATION REQUESTED:	Please revise the Construction Specification (10088-SPG-G01), Section 31 20 00, Part 3.01, E Tolerances to "within a tolerance of -0.15 foot to +0.4 foot".
REASON FOR RFI:	A tolerance of ±0.15 foot is difficult to achieve following the required ripping and track walking of the cover surface. The final grades of the covers are generally within ±0.05' prior to ripping and track walking. After ripping and track walking the surface looks good, but some of the control points are higher than the 0.15' allowed as ripping expands the surface. Therefore, modifying the tolerance to +0.4 foot is appropriate. Understanding that it is critical to maintain >8.2 feet of cover, maintaining the specification at -0.15' will ensure the required 8.2 feet of cover.
REPLY REQUIRED BY:	April 25, 2011
IMPACTS:	Rework of the cover surfaces would be required with no additional benefit.
APPROVED BY PFE	**DATE:** 4-21-11

INFORMATION TO REQUESTOR

TO:	**FROM:**
ORG:	**ORG:**
REQUESTED INFORMATION:	
RESPONSE BY:	**DATE:**
CLOSED BY PFE:	**DATE:**

Reviewed and determined to be UNCLASSIFIED
This review does not constitute clearance for public release
Derivative Classifier: _____ G282
(Name/Organization)
Date: 4-21-11

National Security Technologies LLC

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0093	WORK PKG# ENV-11-0007	DATE: 4/21/11
PROJECT NUMBER: 10088	PROJECT NAME: 92 Acre Closure	
PREPARED BY: John Miller	PROJ ENG: Ryan Clifford	PROJ MGR: Pat Arnold
SUBJECT: Grade tolerances		DISCIPLINE: Civil
REFERENCE DRAWING(S): NA	REV.:	DCN/FCN:
SPECIFICATION(S): 10088-SPC-G01	REV.: 0	SCN/FCR:
LOCATION: Area 5 RWMC		
INFORMATION REQUESTED:	Please revise the Construction Specification (10088-SPG-G01), Section 31 20 00, Part 3.01, E Tolerances to "within a tolerance of -0.15 foot to +0.4 foot".	
REASON FOR RFI:	A tolerance of ±0.15 foot is difficult to achieve following the required ripping and track walking of the cover surface. The final grades of the covers are generally within ±0.05' prior to ripping and track walking. After ripping and track walking the surface looks good, but some of the control points are higher than the 0.15' allowed as ripping expands the surface. Therefore, modifying the tolerance to +0.4 foot is appropriate. Understanding that it is critical to maintain >8.2 feet of cover, maintaining the specification at -0.15' will ensure the required 8.2 feet of cover.	
REPLY REQUIRED BY:	April 25, 2011	
IMPACTS:	Rework of the cover surfaces would be required with no additional benefit.	
APPROVED BY PFE		DATE: 4-21-11

INFORMATION TO REQUESTOR

TO:	John Miller	FROM:	Shannon Wright
ORG:	NSTec	ORG:	CH2M HILL

REQUESTED INFORMATION:

Specification will be modified to reflect that tolerances of up to +0.4 feet may be acceptable following review and approval of the Engineer.

RESPONSE BY:	DATE:	4/22/2011
CLOSED BY PFE:	DATE:	

4-21-11

National Security Technologies LLC

REQUEST FOR INFORMATION (RFI)

RFI NUMBER: RFI-11-0094	WORK PKG# ENV-11-0007	DATE: 4/21/11
PROJECT NUMBER: 10088	PROJECT NAME: 92 Acre Closure	
PREPARED BY: John Miller	PROJ ENG: Ryan Clifford	PROJ MGR: Pat Arnold
SUBJECT: Arizona Crossing		DISCIPLINE: Civil
REFERENCE DRAWING(S): 10088-C-5001	REV.: 0	DCN/FCN:
SPECIFICATION(S): 10088-SPC-G01	REV.: 0	SCN/FCR:
LOCATION: Area 5 RWMC		
INFORMATION REQUESTED:	Per discussion with Shannon Wright regarding construction of the Arizona crossing, please revise the Construction Specification (10088-SPG-G01), Section 31 20 00, Part 2.03 to delete requirement for "A 6-inch layer of fine aggregate..." Also on Drawing 1088-C-5001, Section C, please delete the note requiring well graded gravel to fill voids in Arizona crossing cobble material.	
REASON FOR RFI:	Per discussion, the sand and gravel materials are not required for the Arizona crossing.	
REPLY REQUIRED BY:	April 28, 2011	
IMPACTS:	Additional materials and labor would be required.	
APPROVED BY PFE		DATE: 4-25-11

INFORMATION TO REQUESTOR

TO: John Miller	FROM: Shannon Wright
ORG: NSTec	ORG: CH2M HILL
REQUESTED INFORMATION: Specification and drawing will be modified as suggested.	
RESPONSE BY:	DATE: 4/25/2011
CLOSED BY PFE:	DATE:

Reviewed and determined to be UNCLASSIFIED

4-25-11

APPENDIX 6-B

Engineering Change Notice

(ECN's)

ENGINEERING CHANGE NOTICE — TYPE 2
Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 02/17/11	Page 1 of 2
ECN Number: 10088-ECN-01	ECP Number:	Documented on ECN Log: Yes Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 2/18/11	

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: See attached continuation page.	Documents Attached: Revised grading and control points.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0030	Derivative Classifier: (Print, Sign and Date) UNCLASSIFIED T.J. ENGER 2/18/11
Affected Document Type / Number Design Drawings. See attached continuation sheet for specific sheets.	

Section 3: APPROVALS

Preparer: Shannon Wright Shannon A. Wright Date: 02/17/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 02/17/11
Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 2/18/11
Cognizant System Engineer: (Print and Sign) JERRY FRETER	Date: 2/22/11
Design Authority: (Print and Sign) JERRY FRETER	Date: 2/22/11

Section 4: CLOSEOUT

Construction Verified Complete

Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document

Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 02/17/11	Page 2 of 2

Drawing No. 10088-C-1004: Modified cover grading over CWI trenches and northerly portion of P11 per updated information from the field (attached).

Drawing No. 10088-C-1005: Modified cover grading over southerly portion of P11 per updated information from the field (attached).

Drawing No. 10088-C-1006: Updated and deleted control points affected by changes to drawings stated above (attached).

Drawings affected but not included:

Drawing No. 10088-C-1001: Limits of waste must be modified at project completion to reflect changes.

Drawing No. 10088-C-1002: Limits of waste must be modified at project completion to reflect changes.

Drawing No. 10088-C-1003: Limits of waste must be modified at project completion to reflect changes.

Drawing No. 10088-C-1007: Limits of waste and revised grading must be modified at project completion to reflect changes.

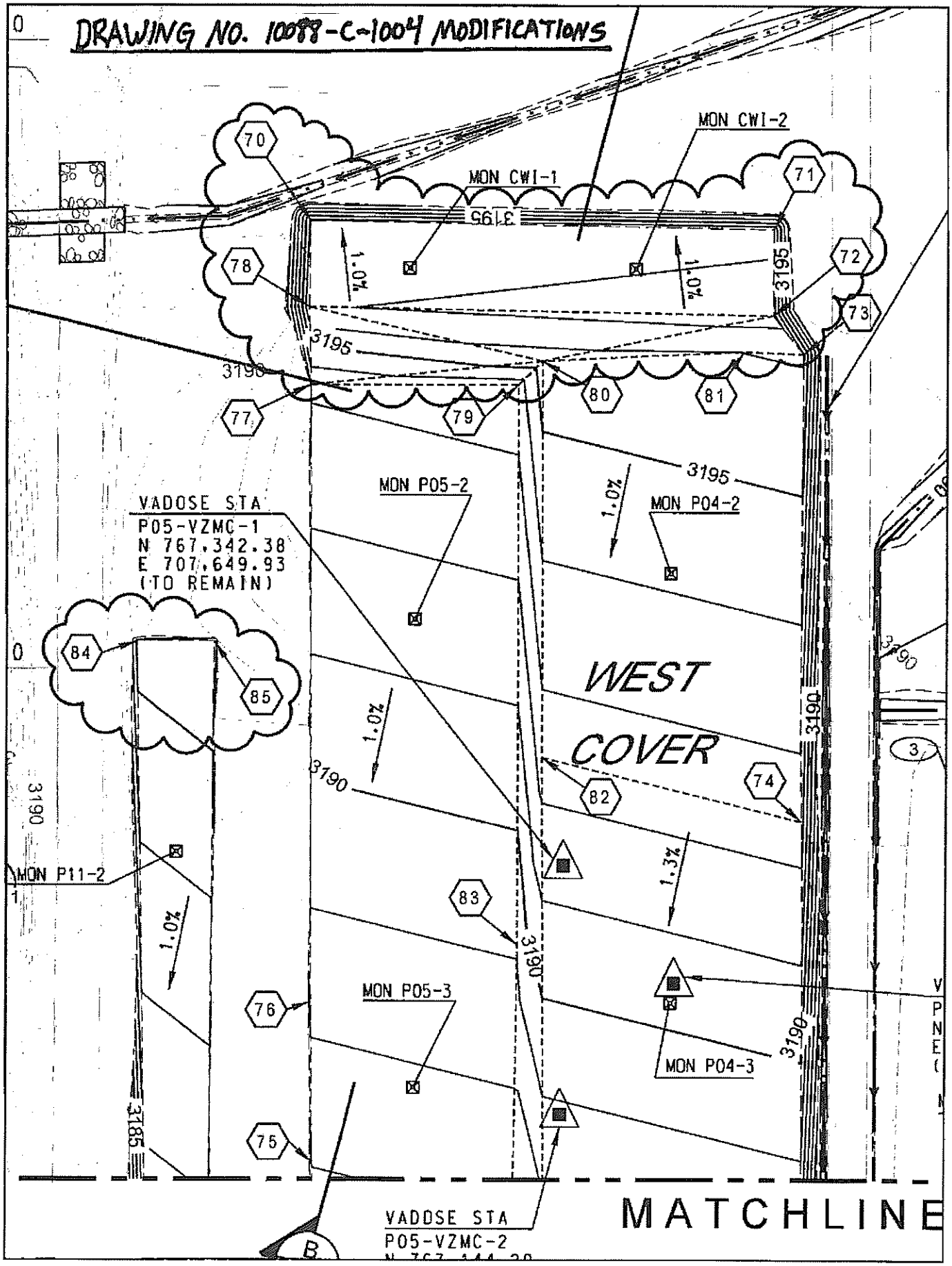
Drawing No. 10088-C-1008: Limits of waste and revised grading must be modified at project completion to reflect changes.

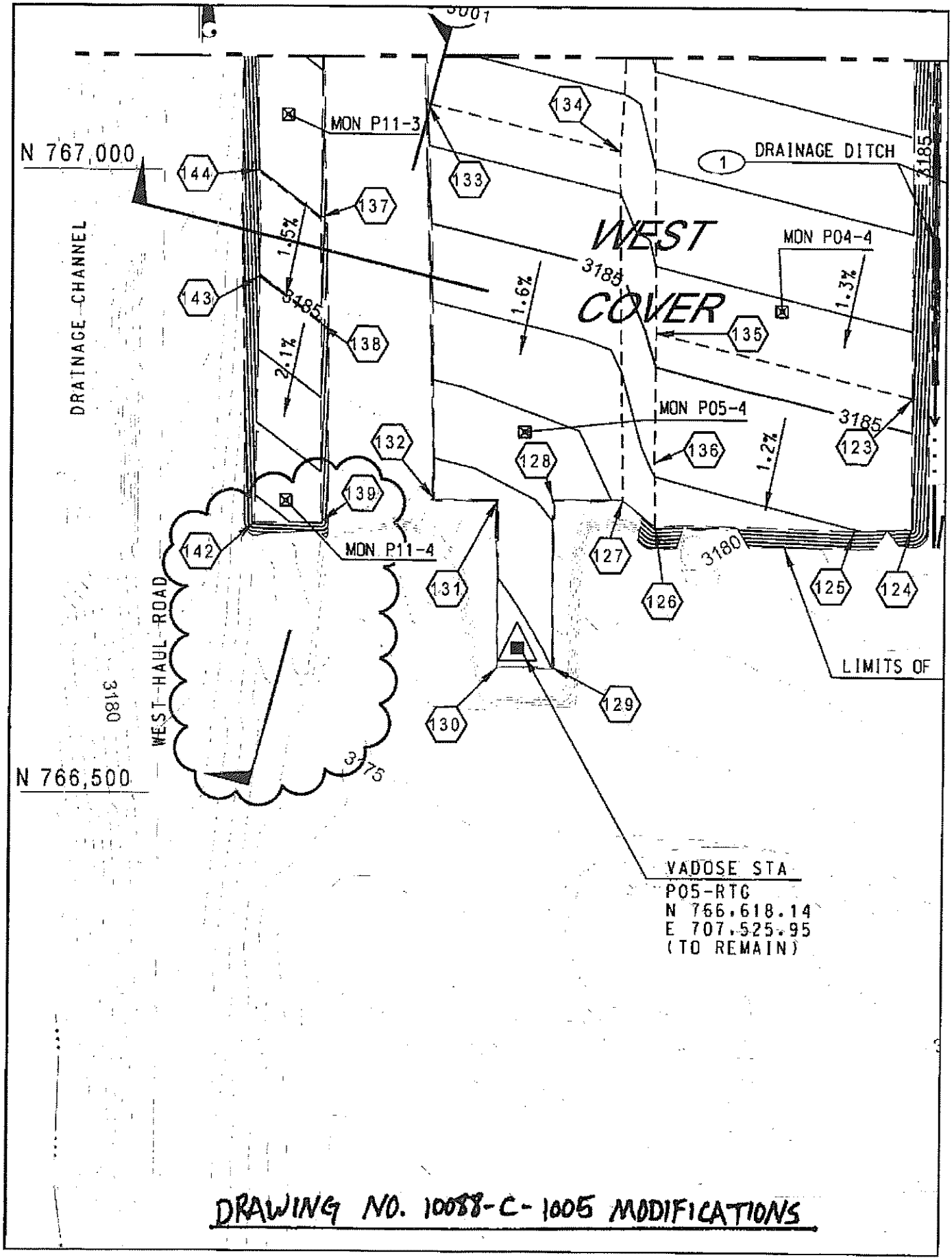
Drawing No. 10088-C-1009: Limits of waste, revised grading, and limits of revegetation must be modified at completion to reflect changes.

Drawing No. 10088-C-3001: Section B must be modified to reflect changes in grade and limit/depth of waste.

Attachments:

- Drawing No. 10088-C-1004 modifications
- Drawing No. 10088-C-1005 modifications
- Drawing No. 10088-C-1006 modifications - A
- Drawing No. 10088-C-1006 modifications - B
- Request for Information RFI-11-0030 (revision to original RFI 11-05-001) including reply Information to Requestor
- Request for Information (RFI) 11-05-001 (original RFI dated 1/6/11) including reply Information to Requestor


DRAWING NO. 10088-C-1004 MODIFICATIONS
MON CWI-2
MON CWI-1
70
71
72
73
78
77
79
80
81
3195
3190
1.0%
MON P05-2
MON P04-2
VADOSE STA
P05-VZMC-1
N 767,342.38
E 707,649.93
(TO REMAIN)
84
85
WEST
COVER
82
74
83
MON P11-2
MON P05-3
MON P04-3
76
75
3185
1.3%
VADOSE STA
P05-VZMC-2
MATCHLINE



DRAWING NO. 10088-C-1005 MODIFICATIONS

63	767,297.42	708,121.96	3192.52	TOP OF SLOPE, BRKLN
64	767,359.58	708,145.73	3193.18	BREAKLINE
65	767,374.87	708,113.25	3195.24	TOP OF SLOPE, BRKLN
66	767,410.83	708,079.42	3194.08	TOP OF SLOPE
67	767,210.97	708,202.25	3191.87	BREAKLINE
68	767,184.78	708,308.72	3191.87	BREAKLINE
69	767,142.34	708,481.24	3191.87	BREAKLINE
70	767,856.52	707,448.42	3196.27	TOP OF SLOPE
71	767,850.08	707,817.13	3196.77	TOP OF SLOPE
72	767,781.74	707,816.53	3197.45	TOP OF SLOPE, BRKLN
73	767,751.21	707,840.77	3196.10	TOP OF SLOPE, BRKLN
74	767,378.03	707,840.19	3192.47	TOP OF SLOPE, BRKLN
75	767,106.08	707,450.52	3187.04	TOP OF SLOPE
76	767,233.62	707,449.23	3188.28	TOP OF SLOPE
77	767,726.48	707,448.85	3193.15	TOP OF SLOPE, BRKLN
78	767,788.19	707,447.23	3196.95	TOP OF SLOPE, BRKLN
79	767,726.50	707,613.07	3193.56	BREAKLINE
80	767,745.50	707,632.06	3195.55	BREAKLINE
81	767,753.03	707,793.71	3196.01	BREAKLINE
82	767,429.20	707,632.18	3192.47	BREAKLINE
83	767,279.09	707,613.24	3189.11	BREAKLINE
84	767,521.80	707,310.38	3190.32	TOP OF SLOPE
85	767,521.80	707,372.03	3190.70	TOP OF SLOPE

DRAWING NO. 10088-C-1006 MODIFICATIONS - A

GRADING CONTROL POINTS				
NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
128	766,737.27	707,553.47	3182.15	TOP OF SLOPE
129	766,602.82	707,553.47	3181.01	TOP OF SLOPE
130	766,602.82	707,510.05	3180.23	TOP OF SLOPE
131	766,737.27	707,510.05	3181.68	TOP OF SLOPE
132	766,737.27	707,458.73	3181.47	TOP OF SLOPE
133	767,054.18	707,452.34	3186.54	TOP OF SLOPE, BRKLN
134	767,016.27	707,606.43	3186.54	BREAKLINE
135	766,871.25	707,635.69	3185.31	BREAKLINE
136	766,767.17	707634.80	3184.12	BREAKLINE
137	766,962.31	707,367.36	3186.00	TOP OF SLOPE, BRKLN
138	766,878.92	707,367.39	3185.00	TOP OF SLOPE, BRKLN
139	766,718.09	707,368.03	3182.32	TOP OF SLOPE
~~140~~	~~766,579.19~~	~~708,974.09~~	~~3179.48~~	~~TOP OF SLOPE~~
~~141~~	~~766,579.19~~	~~707,322.06~~	~~3179.48~~	~~TOP OF SLOPE~~
142	766,718.09	707,315.24	3181.64	TOP OF SLOPE
143	766,916.54	707,318.64	3185.00	TOP OF SLOPE, BRKLN
144	767,000.10	707,318.35	3186.00	TOP OF SLOPE, BRKLN

DRAWING NO. 10088-C-1006 MODIFICATIONS - B

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 03/01/11	Page 1 of 2
ECN Number: 10088-ECN-02	ECP Number:	Documented on ECN Log: Yes Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford		Date: 3/3/11

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Modification to Construction Quality Assurance Plan (~~10088~~ CQAP-01) requirements for subgrade and fill moisture content. 10088 EC 3/3/11	Documents Attached: Revision to Section 4 of the CQA Plan.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0025	Derivative Classifier: (Print, Sign and Date) S. KAUN EN12 UNCLASSIFIED 3/7/11
Affected Document Type / Number Construction Quality Assurance Plan/10088-CQAP-01	

Section 3: APPROVALS

Preparer: Shannon Wright Shannon Wright Date: 03/01/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 03/01/11
Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 3/3/11
Cognizant System Engineer: (Print and Sign)	Date:
Design Authority: (Print and Sign)	Date:

Section 4: CLOSEOUT

Construction Verified Complete

Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document

Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 03/01/11	Page 2 of 2

Attachments:

- Revised Table 4-1 Existing Soil Material – Subgrade Testing; Construction Quality Assurance Plan page 21
- Revised Table 4-2 Select Native Fill Material – ET Cover Testing; Construction Quality Assurance Plan page 22
- Request for Information RFI-11-0025 including reply Information to Requestor

SECTION 4

Material Testing

A testing program will be implemented to verify that all components of the ET cover are constructed in accordance with the drawings, specifications, the CADD/CAP, and regulatory requirements. Testing shall be performed by qualified CQA Technicians, with test results being obtained and reviewed by the CQA Engineer. General test procedures and proposed CQA testing frequencies are shown in Tables 4-1 and 4-2 below. Test results will be documented and reported in accordance with requirements described in Section 5, Recordkeeping and Reporting.

4.1 Earthen Material Testing

Approved testing personnel/firm are to perform earthen materials testing with results provided to the CQA Engineer for approval. Monitoring personnel will perform the following duties and tests for earthen materials:

- Subgrade:
  - Verify that the moisture/density characteristics have been determined for the different subgrade soil types.
  - Determine the relative compaction of subgrade materials.
  - Require that the operator recompact areas where field density test results indicate that specification requirements have not been met, and then retest the area for relative compaction.
  - Select random testing locations over subgrade surfaces.
  - Coordinate with a soils laboratory to have appropriate laboratory tests performed. Testing will be performed in accordance with the testing methods listed in the specifications.

TABLE 4-1
Existing Soil Material—Subgrade Testing
Construction Quality Assurance Plan for 92-Acre Area Evapotranspiration Cover, Nevada National Security Site, Nevada

Test	Method	Recommended Frequency	Proposed Criteria
Moisture/Density Characteristics	ASTM D698	Once per source or change in material type	NA
In-Place Moisture	ASTM D2216	5 per acre	Max. ~~Min.~~ 1% dry of optimum*
In-Place Moisture/Density	ASTM D1556, D6938	5 per acre	78% to 85% of max. dry density*

*per ASTM D698
Note:
NA = not applicable

- ET Cover—Native Fill Material:
  - Verify that borrow materials are from approved sources.
  - Verify that subgrade testing has been performed prior to ET cover material placement.
  - Verify that the moisture/density characteristics have been determined for the different borrow source materials.
  - Determine the relative compaction of ET cover.
  - Obtain samples and perform testing for soil classification, moisture content, particle size, and permeability. Obtain at least two shelby tube samples from each sample location—one for testing and one for archive.
  - Require operator to moisture condition and recompact areas where field moisture and density test results indicate that specification requirements have not been met, and then retest the areas for moisture content and relative compaction.
  - Select random testing locations for each lift of material placed.
  - Coordinate with a soils laboratory to have appropriate laboratory tests performed. Testing will be performed in accordance with testing methods listed in the specifications.

TABLE 4-2
Select Native Fill Material—ET Cover Testing
Construction Quality Assurance Plan for 92-Acre Area Evapotranspiration Cover, Nevada National Security Site, Nevada

Test	Method	Recommended Frequency	Proposed Criteria
Soil Classification	ASTM D2488	Once per source or change in material type	Per specifications
Moisture/Density Characteristics	ASTM D698	Once per source or change in material type	NA
In-Place Moisture	ASTM D2216	5 per acre	Max.: Min. 1% dry of optimum*
In-Place Moisture/Density	ASTM D1556, D6938	5 per acre per lift	78% to 85% of max. dry density*

*per ASTM D698
Note:
NA = not applicable

4.2 As-built Surveying

The surveyor will perform as-built surveying on the completed ET cover surface to confirm that the minimum lines and grades have been achieved in accordance with the design. At a minimum, survey points shall correspond with the survey coordinates shown on the drawings. Additional survey points may be required to demonstrate that design grades have been met. The as-built survey will provide the basis for as-built drawings to be included in the CQA report. The operator will be responsible for all construction surveying and staking.

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 03/01/11	Page 1 of 2

ECN Number: 10088-ECN-03	ECP Number:	Documented on ECN Log: Yes Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford Date: 3/6/11

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Modification to Specification Section 32 93 01, Seeding, regarding bale size requirement for straw mulch.	Documents Attached: Revision to Section 32 93 01, Seeding.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0026	Derivative Classifier: (Print, Sign and Date) GREGORY N. STRAWN 1 ENV 3/7/11 UNCLASSIFIED
Affected Document Type / Number Construction Specifications/10088-SPC-G01	

Section 3: APPROVALS

Preparer: Shannon Wright Shannon Wright Date: 03/01/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 03/01/11
Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 3/6/11
Cognizant System Engineer: (Print and Sign) JERRY FRETER	Date: 3/8/11
Design Authority: (Print and Sign) JERRY FRETER	Date: 3/8/11

Section 4: CLOSEOUT

Construction Verified Complete Superintendent/Field Engineer: (Print and Sign)	Date:
ECN Incorporated into Design Document Project Engineer: (Print and Sign)	Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 03/01/11	Page 2 of 2

Attachments:

- Revised Construction Specification (1008-SPG-G01) Section 32 93 01, Part 2.02.
- Request for Information RFI-11-0026 including reply Information to Requestor

5. Rejection. When seeds furnished under this specification fail to meet the requirements within tolerance, as provided by the Nevada State Seed Law, the lot shall be rejected or subjected to fiscal adjustment.
6. Re-Cleaning. Seeds shall be thoroughly re-cleaned and of uniformly good quality and appearance throughout each lot.
7. Preparation for Delivery. Seeds shall be packed in clean, sound containers of uniform weight. Seed shall be labeled as required by Law.

2.02 STRAW MULCH

A. Mulch shall be certified weed-free straw free of weed seed, sticks, roots, trash, and other foreign material.

B. Straw mulch will have an average stem length of 12", with a minimum length of 8". ~~Straw bales should be of uniform size with a minimum of two strands of twine (no wire) to secure each bale. Bales should be between 60 and 110 pounds~~. Several bales will be checked by the Engineer and NSTec Scientists prior to delivery to determine if the straw meets the above specifications. Several bales will also be checked upon delivery to determine if the above specifications have been met. If specifications are not met, the straw will not be accepted and/or will be returned to the vendor at vendor's cost.

C. Straw mulch shall be spread on the surface at a rate of 2 tons per acre.

PART 3 EXECUTION

3.01 FINAL SURFACE PREPARATION

A. Prior to seeding, grade areas to smooth, even surface with loose, uniformly fine texture.

1. Disc soils to a minimum penetration depth of 3 inches in two crossing directions. Remove any rocks that impede this minimum depth of penetration.
2. One pass of a harrow for final surface preparation prior to seeding. The direction of the final harrow pass shall be conducted on contour (perpendicular to barrier slope) to aid in controlling runoff and erosion.

B. The surface shall be finished to not more than 0.15 foot above or below the established grade or approved cross section.

C. Restore prepared areas to specified condition if eroded or otherwise disturbed after preparation and before planting.

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 03/04/11	Page 1 of 2
ECN Number: 10088-ECN-04	ECP Number:	Documented on ECN Log:		
		Project Engineer: (Print and Sign) Ryan Clifford	Date: 3/6/11	

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Modification to Specification Section 31 20 00, Earthwork, regarding ripping methodology, testing frequency, and subgrade lift requirements.	Documents Attached: Revision to Section 31 20 00, Earthwork.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0031	Derivative Classifier: (Print, Sign and Date) Gregory D. Strawn ENG Unclassified 3/1/11
Affected Document Type / Number Construction Specifications/10088-SPC-G01	

Section 3: APPROVALS

Preparer: Shannon Wright Date: 03/04/11	Checker: Janet Goodrich, Engineer of Record Date: 03/04/11
Project Engineer: (Print and Sign) Ryan Clifford	Date: 3/6/11
Cognizant System Engineer: (Print and Sign) Jerry Frueter	Date: 3/8/11
Design Authority: (Print and Sign) Jerry Frueter	Date: 3/8/11

Section 4: CLOSEOUT

Construction Verified Complete

Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document

Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 03/04/11	Page 2 of 2

Attachments:

- Revised Construction Specification (1008-SPG-G01) Section 31 20 00, Earthwork, Part 3.04, 3.06, 3.07, and 3.08
- Request for Information RFI-11-0031 including reply Information to Requestor

C. Rocks shall be placed to provide a minimum of voids. The rock and gravel may be placed by dumping, and may be spread in layers by suitable equipment.

3.04 COMPACTION

A. Compact all materials designated to be compacted by mechanical means. Flooding or jetting will not be permitted. If compaction tests indicate that compaction or moisture content is not as specified; material placement shall be terminated and corrective action shall be taken prior to continued placement.

B. In-place density of cover material following compaction shall be no less than 75 ~~78~~ percent and no greater than 85 percent relative compaction as determined by ASTM D698 and no greater than 103 pounds per cubic foot dry density as determined by ASTM D6938 or ASTM D1556.

3.05 MOISTURE CONTROL

A. Maintain moisture content uniform throughout the lift. Insofar as practicable, add water to the material at the site of excavation if the material is too dry. Supplement, if required, by sprinkling the fill.

B. Cover material shall be at least 1 percentage point dry of optimum water content per ASTM D698 prior to placement on the cover area.

C. Dry material by blading, discing, harrowing, or other methods, to hasten the drying process if necessary to meet moisture limits.

3.06 QUALITY CONTROL

A. A test as referred to in this Section is defined as one field density and one moisture test.

B. A minimum of five tests per acre per lift or top of cover for areas where existing cover soils will remain. Testing frequency may be decreased following submittal of methods and test results recorded by the CQA Engineer, and upon approval of the Engineer.

C. ~~Provide visual/manual classification of soils per acre per lift, or for every~~ change in material type, whichever is greater.

3.07 PREPARATION OF SUBGRADE

A. Deep rip soils over trenches with shanks on 3-foot centers using a minimum of two crossing passes to a minimum 18-inch depth.

~~B. Remove cobbles larger than 9 inches that are brought to the surface by the ripping operations.~~

Shank spacing may be allowed up to 4.5-foot centers following submittal of methods and test results recorded by the CQA Engineer, and upon approval of the Engineer. For areas of subgrade receiving less than 18 inches of fill to establish final cover grades, fill may be placed prior to ripping of the subgrade provided the ripper shanks used can, at a minimum, rip to at least 18 inches below the original ground surface.

~~C. Track walk surfaces with low ground pressure dozers to smooth surface.~~

B. ~~D.~~ Test soils within the upper 12 inches of the subgrade to ensure compliance with the compaction requirements and correct density as required by compaction or ripping.

3.08 COVER FILL–GENERAL

A. Place each layer in an uncompacted lift no greater than 18-inches loose thickness ~~and track with small wide-tracked bulldozer (equivalent to a Caterpillar D6M-LGP)~~. Maximum compaction shall be 85 percent relative compaction at moisture content that is no greater than 1 percent dry of optimum moisture content. Use ripping, tilling, or other method approved by the Engineer to break up any compaction greater than 85 percent relative compaction. Track final surfaces with a small wide-tracked bulldozer (equivalent to a Caterpillar D6M-LGP).

B. Rubber-tired vehicles shall not be driven on final surfaces. Specific haul roads for rubber-tired vehicles may be constructed provided they are ripped, tilled, and loosened as specified herein at completion of haul.

C. Minimize construction equipment travel over soil cover material following placement and compaction.

D. For Existing Cover Soils to Remain: prepare in accordance with Section 3.07 Preparation of Subgrade.

END OF SECTION

E. Remove cobbles larger than 9 inches from the final surfaces that are brought to the surface following ripping operations.

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 03/02/11	Page 1 of 2
ECN Number: 10088-ECN-05	ECP Number:	Documented on ECN Log: Yes Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford		Date: 3/6/11

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Revised grading and control points.	Documents Attached: See attached continuation page.

Section 2: DOCUMENT DESCRIPTION

RFI Number: Not Applicable	Derivative Classifier: (Print, Sign and Date) GREGORY W. STRAWN, EN12 3/7/11 Unclassified
Affected Document Type / Number Design Drawings. See attached continuation sheet for specific sheets.	

Section 3: APPROVALS

Preparer: Shannon Wright Shannon Wright Date: 03/02/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 03/02/11
Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 3/6/11
Cognizant System Engineer: (Print and Sign) JERRY FRETER	Date: 3/8/11
Design Authority: (Print and Sign) JERRY FRETER	Date: 3/8/11

Section 4: CLOSEOUT

Construction Verified Complete
Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document
Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 03/02/11	Page 2 of 2

Drawing No. 10088-C-1004: Modified cover grading over westerly portion of P03 per updated information from the field (attached).

Drawing No. 10088-C-1006: Updated control points affected by changes to drawing stated above (attached).

Drawing No. 10088-C-1007: Modified swale grading resulting from modified P03 cover grading per updated information from the field (attached).

Drawings affected but not included:

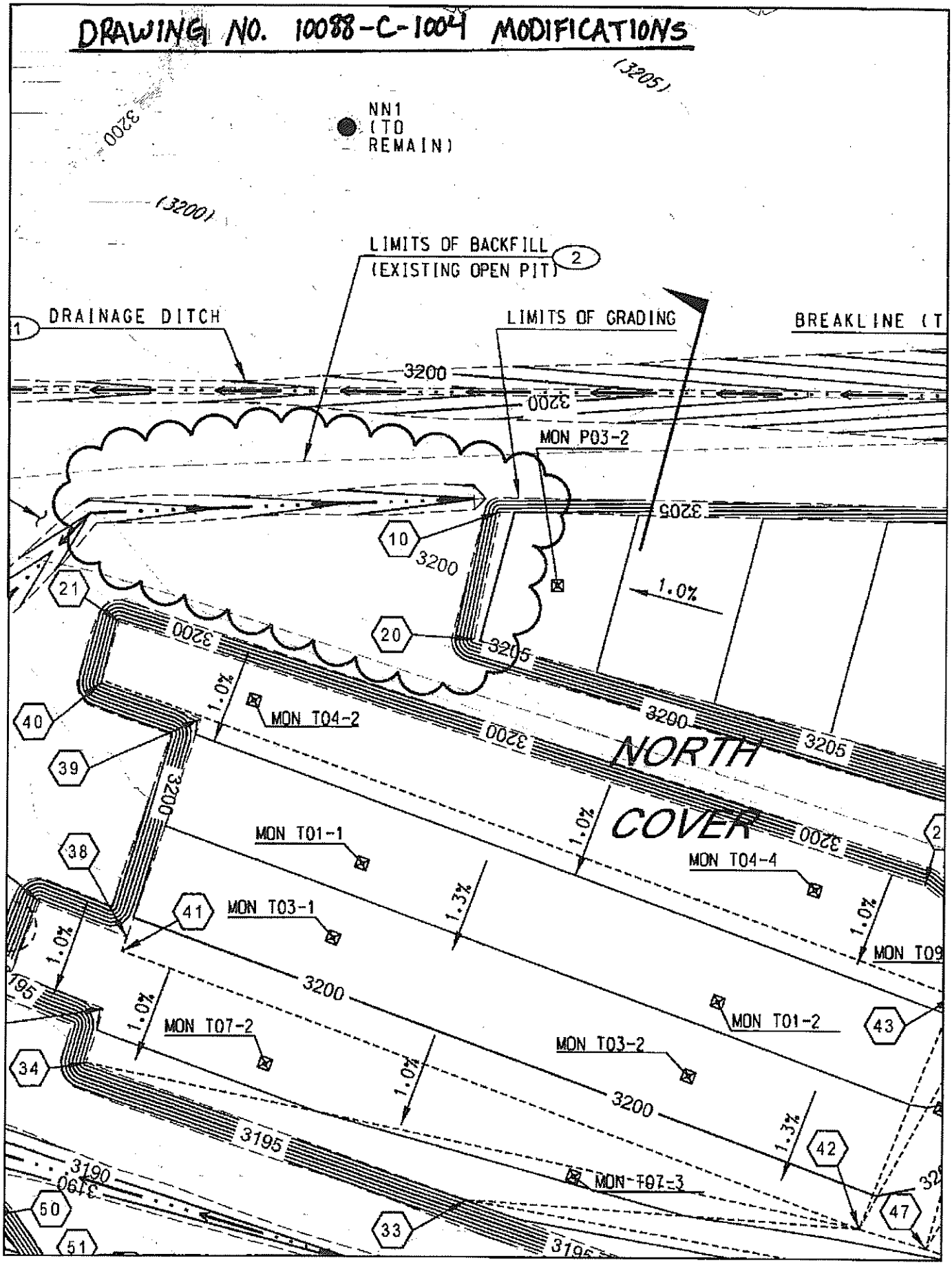
Drawing No. 10088-C-1001: Limits of waste must be modified at project completion to reflect changes.

Drawing No. 10088-C-1002: Limits of waste must be modified at project completion to reflect changes.

Drawing No. 10088-C-1009: Limits of waste, revised grading, and limits of revegetation must be modified at completion to reflect changes.

Attachments:

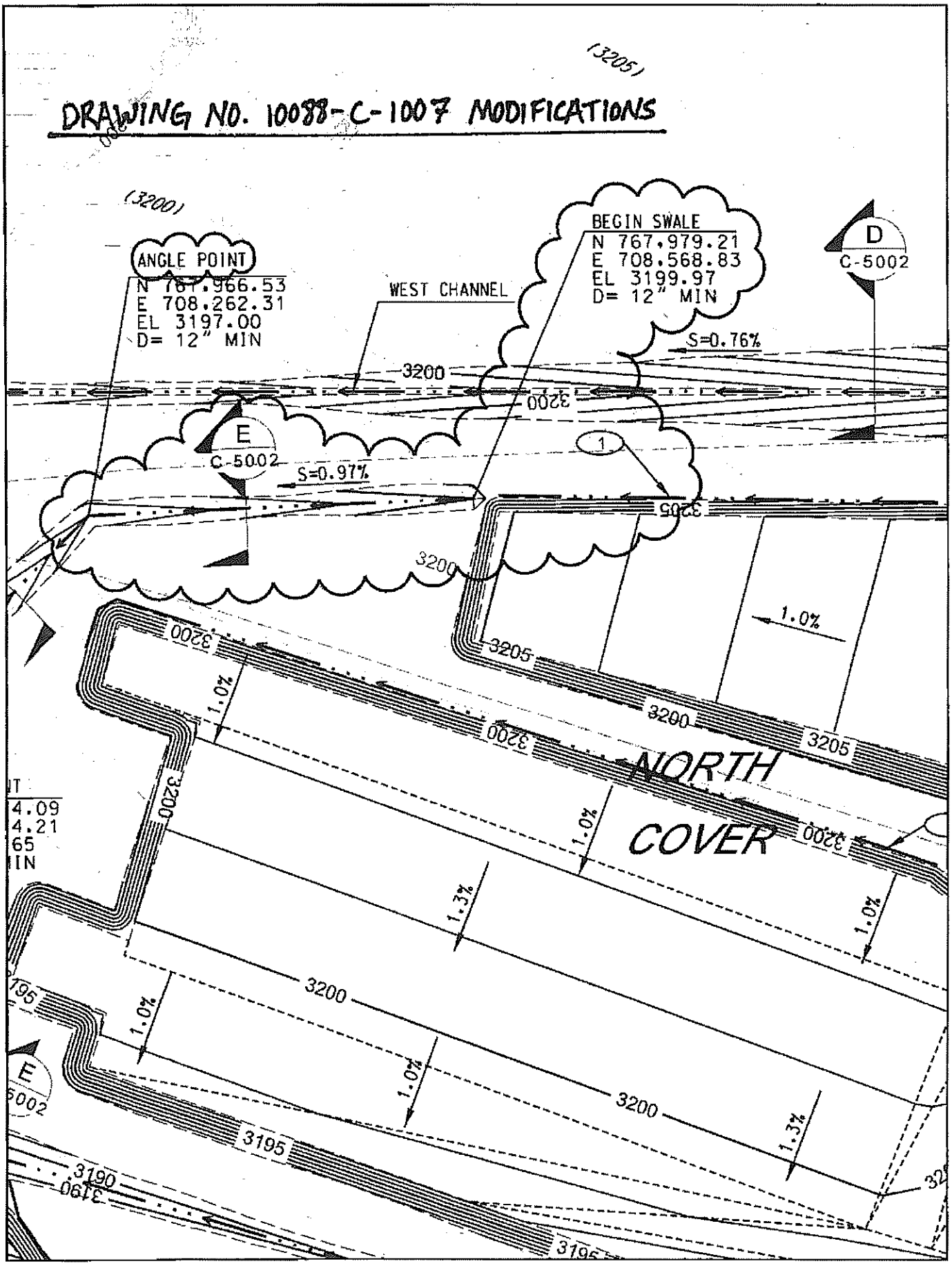
- Drawing No. 10088-C-1004 modifications
- Drawing No. 10088-C-1006 modifications
- Drawing No. 10088-C-1007 modifications
- Email from Pat Arnold, NSTec to Shannon Wright, CH2M HILL sent on 2/09/2011 referencing request for modifications to P03 cover grading based on updated field information from John Miller.
- Email from John Miller, NSTec to Pat Arnold, NSTec sent on 2/08/2011 containing updated field information for P03 westerly limits of waste.


DRAWING NO. 10088-C-1004 MODIFICATIONS
NN1
(TO
REMAIN)
(3205)
3200
(3200)
LIMITS OF BACKFILL
(EXISTING OPEN PIT)
2
1
DRAINAGE DITCH
LIMITS OF GRADING
BREAKLINE (T
3200
3200
MON P03-2
3205
10
3200
21
1.0%
20
3205
3200
1.0%
MON T04-2
40
3200
3200
NORTH
3205
39
3200
COVER
1.0%
MON T01-1
3200
2
38
MON T04-4
41
MON T03-1
1.3%
1.0%
1.0%
MON T09
195
3200
1.0%
MON T01-2
43
MON T07-2
MON T03-2
34
1.0%
3200
1.3%
42
3195
MON T07-3
3190
3190
50
47
33
51
3195

DRAWING NO. 10088-C-1006 MODIFICATIONS

GRADING CONTROL POINTS				
NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
10	767,968.77	708,589.62	3204.88	TOP OF SLOPE
11	767,960.63	709,044.72	3209.46	TOP OF SLOPE, BRKLN
12	767,958.65	709,155.55	3208.38	TOP OF SLOPE
13	768,003.17	709,310.12	3207.00	TOP OF SLOPE
14	768,005.75	709,406.09	3206.71	TOP OF SLOPE
15	767,574.60	709,387.24	3205.17	TOP OF SLOPE
16	767,602.75	709,285.54	3206.23	TOP OF SLOPE
17	767,622.07	709,240.44	3206.71	TOP OF SLOPE
18	767,705.10	709,186.75	3207.44	TOP OF SLOPE
19	767,756.30	708,991.28	3209.46	TOP OF SLOPE, BRKLN
20	767,866.89	708,569.06	3204.95	TOP OF SLOPE
21	767,879.75	708,286.59	3202.67	TOP OF SLOPE
22	767,671.95	708,931.09	3202.93	TOP OF SLOPE
23	767,636.95	708,974.09	3202.75	TOP OF SLOPE
24	767,571.86	709,188.07	3202.94	TOP OF SLOPE
25	767,558.67	709,207.23	3202.85	TOP OF SLOPE
26	767,505.79	709,362.65	3202.97	TOP OF SLOPE
27	767,425.90	709,362.74	3201.77	TOP OF SLOPE
28	767,272.86	709,310.94	3199.20	TOP OF SLOPE, BRKLN
29	767,250.34	709,302.24	3197.21	TOP OF SLOPE, BRKLN
30	767,167.87	709,275.01	3194.00	TOP OF SLOPE

DRAWING NO. 10088-C-1007 MODIFICATIONS



Alesci, Richard/SAC

From: Wright, Shannon/SAC
Sent: Wednesday, February 09, 2011 4:26 PM
To: Alesci, Richard/SAC
Subject: FW: NNSS - RFI 11-05-001 92-acre waste coverage
Attachments: Cell 3 Waste coverage

Follow Up Flag: Follow up
Flag Status: Flagged

FYI

From: Arnold, Pat [mailto:ArnoldP@nv.doe.gov]
Sent: Wednesday, February 09, 2011 4:21 PM
To: Wright, Shannon/SAC
Cc: Miller, John C; Goodrich, Janet/SAC; Costa, Richard; Sorola, Julie; Yucel, Vefa; Clifford, Ryan
Subject: RE: NNSS - RFI 11-05-001 92-acre waste coverage

Shannon,

Thanks for the update. I also discussed this with Julie and it seems the path is for you to initiate the ECN as discussed below and return the revised drawings to me. I will forward to Ryan Clifford as the Project Engineer to provide site distribution.

Also, we have another change that Julie indicated could follow the same path without the need for an RFI. Backfilling of the closed RCRA disposal unit- Pit 3 is proceeding well. We have determined that approximately 300 feet of the west end and ramp area does not contain waste. Therefore, the Pit 3 cover (northernmost north cover) can be shortened by that amount. John Miller's email describing the waste location and coordinates of the westernmost extent of waste is attached. Please proceed with an ECN similar to the one for the west cover.

Feel free to call or respond with questions or to discuss. Thank you.

Best Regards,
Pat Arnold
Environmental Management
National Security Technologies LLC
Contractor to US Department of Energy
702-295-2261
702-525-3428 (M)
702-295-1313 (Fax)

From: Shannon.Wright@CH2M.com [mailto:Shannon.Wright@CH2M.com]
Sent: Wednesday, February 09, 2011 3:36 PM
To: Arnold, Pat
Cc: Miller, John C; Janet.Goodrich@CH2M.com; Costa, Richard; Sorola, Julie; Yucel, Vefa
Subject: NNSS - RFI 11-05-001 92-acre waste coverage

Pat,

We are in the process of modifying the drawings based on the feedback we received from NSTec, changes which will be ready tomorrow.

I spoke with Julie Sorola regarding the change process, and it would appear that the Engineering Change Notice (ECN) process is likely the best approach (and quickest) rather than making "official" changes to the drawings, which would then lead to having to get new signatures from all parties, as well as changing multiple sheets that are only affected by the change in waste limit.

In other words, the ECN process will focus on specific modifications to grading coordinates and elevations, items directly affecting construction, without having to make minor changes to multiple drawings.

I did notice that per the Engineering Division Design Manual (EDDM), the ECN process is controlled by the Project Engineer. However, it is not clear who that is. After further discussions with Julie, we concluded that it would likely be acceptable for us to start the process, fill out the ECN (Type 1 from the EDDM), and submit along with the changes.

Please let me know if you have any questions or comments.

Shannon Wright, P.E.
Civil Engineer
CH2M HILL, Inc.
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Ph: (916) 286-0417
Cell: (916) 335-5248
Fax: (916) 614-3538
swright@ch2m.com

Alesci, Richard/SAC

From: Miller, John C [MillerJC@nv.doe.gov]
Sent: Tuesday, February 08, 2011 10:01 AM
To: Arnold, Pat
Cc: Yucel, Vefa; McCullough, Michael; Wagner, Ricky; 'John Durkin'; lcarvolth@jacesare.com; Costa, Richard; Carvolth, Linda
Subject: Cell 3 Waste coverage

Pat, I took GPS coordinates of the western end of the waste in Cell 3. I determined the location by taking the coordinates of the soil surface of the face of the cover approximately 8.5 feet below the existing grade elevation. This ensures at least 2.5 meters of coverage, even if the waste is right below the surface at that location.

The furthest west that the waste could be is East of a line going through the points:

Northing 767,824.24
Easting 708,562.50

And

Northing 767,949.36
Easting 708,587.74.

If we use a line going through these points as the breakline for the 3:1 sloped western end of the cap and just return the rest of Cell 3 to match the existing grade, we will have ensured that all waste is covered by at least 2.5 meters of dirt and will have saved about ½ acre of cap and at least 4,000 CY of cap material. (seems like it should be more, but that is what I calculate)

John C Miller
EM Project Support
National Security Technologies LLC (NSTec)
702-295-5646 (NTS)
702-241-0141 (Cell)

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 03/07/11	Page 1 of 2

ECN Number: 10088-ECN-06	ECP Number:	Documented on ECN Log: Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 4/5/11

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Modification to Specification Section 32 93 01 SEEDING, allowing standard revegetation equipment on the final cover surface for the purpose of straw mulch application.	Documents Attached: Revision to Section 32 93 01 SEEDING, Part 1.09 TRAFFIC CONTROL.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0039	Derivative Classifier: (Print, Sign and Date)
Affected Document Type / Number Construction Specifications/10088-SPC-G01	DC Reviewed by V K Sahni, NS Tech Eng 04/05/11 "UNCLASSIFIED"

Section 3: APPROVALS

Preparer: Shannon Wright Shannon Wright Date: 03/07/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 03/07/11

Project Engineer: (Print and Sign) Date:
Ryan Clifford Ryan Clifford 4/5/11

Cognizant System Engineer: (Print and Sign) Date:
JERRY FRETER 4/5/11

Design Authority: (Print and Sign) Date:
JERRY FRETER 4/5/11

Section 4: CLOSEOUT

Construction Verified Complete
Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document
Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 03/07/11	Page 2 of 2

Attachments:

- Revised Construction Specification (1008-SPG-G01) Section 32 93 01 SEEDING, Part 1.09 TRAFFIC CONTROL
- Request for Information RFI-11-0039 including reply Information to Requestor

B. Analysis and Standards: Package standard products with manufacturer's certified analysis.

C. All seed purchased will have been tested for purity and viability by a certified seed laboratory within 12 months of the date that the order is placed. Proof of certification (i.e. name of seed lab, test date, and test results) will be provided on the seed tag.

D. All seed should be collected preferably from central Nevada. Seed from regions other than central Nevada may or may not be accepted. If the vendor has no seed available from central Nevada for certain species, they must consult with and obtain written approval from the Engineer and NSTec scientists before the seed is shipped or the seed may be returned to vendor at vendor's cost.

E. A tag listing the following information will be provided for each species:

1. Common name
2. Seed origin, including county, state, and elevation when possible (must identify state at a minimum)
3. Pure seed (%)
4. Other crop (%)
5. Inert matter (%)
6. Weed seed (%)
7. Noxious weed seed
8. Germination (%) TZ-tetrazolium or Fill/Cut Test
9. Seedmix number. This number must be linked to each individual seedlot from which the mix was made in order to trace any species in the mix back to its seedlot.
10. Net weight (bulk and PLS)
11. Hard seed (%)
12. Date tested
13. Name and address of seed company
14. Variety, if applicable

F. Seed shall not contain prohibited noxious weed seed. Wet, moldy, otherwise damaged seed, or seed without verification of test by a certified seed laboratory shall not be accepted.

1.09 TRAFFIC CONTROL

~~A. The only vehicle allowed to be driven across the final cover surface will be the low ground pressure tractor used to drill seed and spread and crimp straw while performing those operations. Tractor and foot traffic across the barrier surface shall be minimized and shall not be allowed following heavy rain events to prevent rutting and compaction of cover soils.~~

See attached for revised Part 1.09 TRAFFIC CONTROL text.

Agriculture equipment will be allowed on the closure cover for preparing the site, drill seeding, the application of the straw mulch and crimping the straw mulch. Low ground pressure (5 PSI) agriculture equipment is preferred for all tasks. A low ground pressure tractor will be used to prepare the site, drill seed and crimp the straw mulch. Examples of agriculture equipment that may not qualify as low ground pressure equipment but would be acceptable for application of the straw mulch are tractor (agriculture)-drawn tub grinders or flat bed trucks with a trailing or attached straw blower. The maximum truck load will be 4 tons of straw. The distance between travel routes for both the tub grinder and flat bed truck will be maximized while still maintaining a uniform mulch application rate of 4,000 lbs/acre uniformly. Agriculture equipment and foot traffic across the barrier surface shall be minimized and shall not be allowed following heavy rain events to prevent rutting and compaction of cover soils.

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 04/05/11	Page 1 of 2
ECN Number: 10088-ECN-07	ECP Number:	Documented on ECN Log: YES Project Engineer: (Print and Sign) Ryan Clifford *Ryan Clifford*		Date: 5/5/11

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Revised grading and control points.	Documents Attached: See attached continuation page.

Section 2: DOCUMENT DESCRIPTION

RFI Number: Not Applicable	Derivative Classifier (Print, Sign and Date) DC Reviewed by VK Sahni, Notified By 05/04/11 (Unclassified)
Affected Document Type / Number Design Drawings. See attached continuation sheet for specific sheets.	

Section 3: APPROVALS

Preparer: Shannon Wright *Shannon Wright* Date: 04/05/11	Checker: Janet Goodrich, Engineer of Record Date: 04/05/11

Project Engineer: (Print and Sign) Date:
Ryan Clifford *Ryan Clifford* 5/7/11

Cognizant System Engineer: (Print and Sign) Date:
Jerry D. Freer *Jerry D. Freer* 5/5/11

Design Authority: (Print and Sign) Date:
Jerry D. Freer *Jerry D. Freer* 5/5/11

Section 4: CLOSEOUT

Construction Verified Complete
Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document
Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 04/05/11	Page 2 of 2

Drawing No. 10088-C-1005: Modified cover grading over southwest portion of West Cover P05 per updated information from the field (attached).

Drawing No. 10088-C-1006: Updated control points affected by changes to drawing stated above (attached).

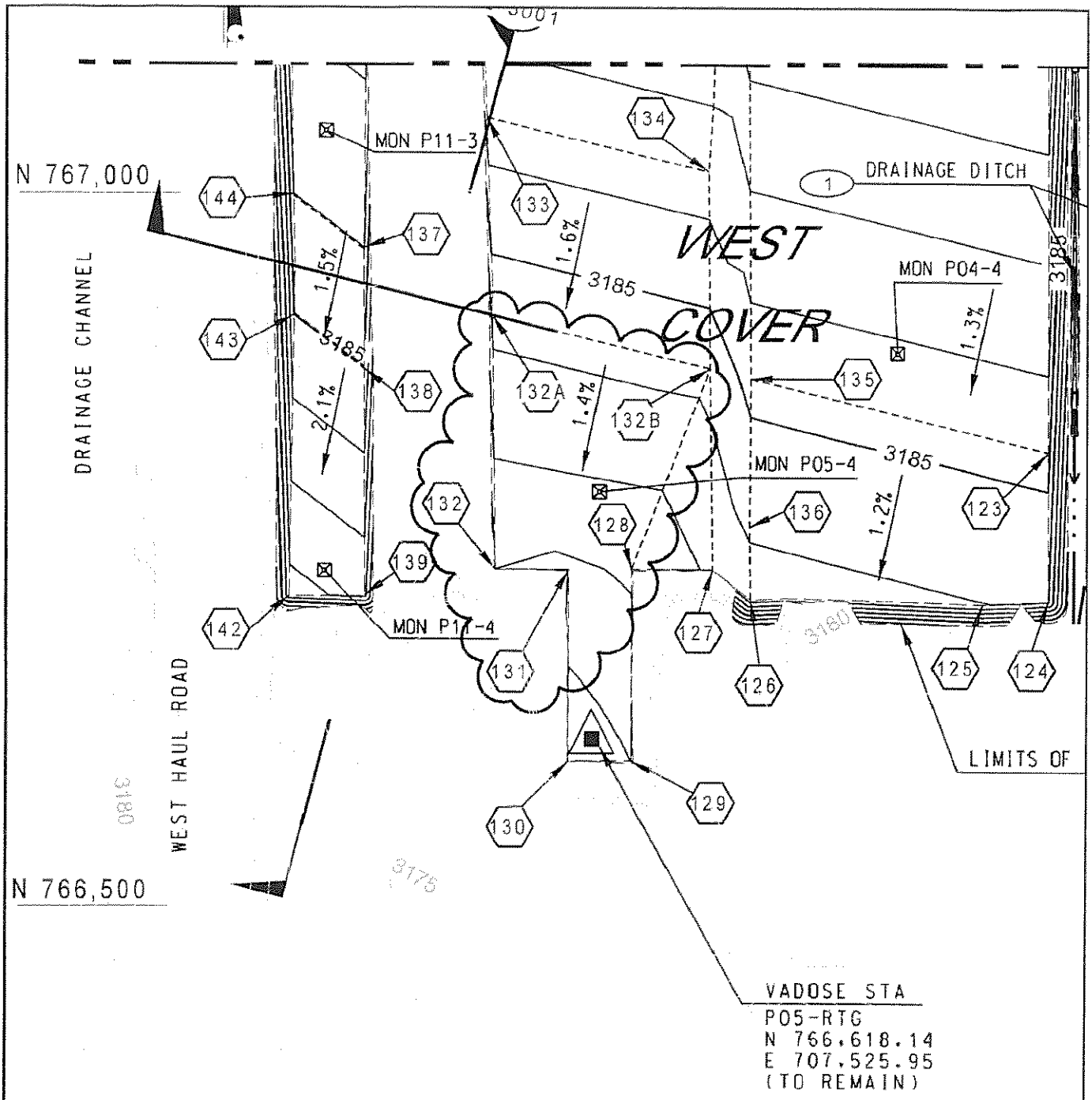
Drawings affected but not included:

Drawing No. 10088-C-1008: Revised grading must be modified at project completion to reflect changes.

Drawing No. 10088-C-1009: Revised grading must be modified at project completion to reflect changes.

Attachments:

- Drawing No. 10088-C-1005 modifications
- Drawing No. 10088-C-1006 modifications
- Email from Pat Arnold, NSTec to Janet Goodrich, CH2M HILL sent on 3/31/2011 requesting modifications to cover grading control points 131 and 132 based on updated field information from John Miller.



DRAWING NO. 10088-C-1005 MODIFICATIONS

DRAWING NO. 10088-C-1006 MODIFICATIONS

GRADING CONTROL POINTS

NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
128	766,737.27	707,553.47	3182.15	TOP OF SLOPE, BRKLN
129	766,602.82	707,553.47	3181.01	TOP OF SLOPE
130	766,602.82	707,510.05	3180.23	TOP OF SLOPE
131	766,737.27	707,510.05	3181.80	TOP OF SLOPE
132	766,737.27	707,458.73	3182.00	TOP OF SLOPE
132A	766,915.32	707,456.56	3184.31	TOP OF SLOPE, BRKLN
132B	766,878.20	707,607.44	3184.31	BREAKLINE
133	767,054.18	707,452.34	3186.54	TOP OF SLOPE, BRKLN
134	767,016.27	707,606.43	3186.54	BREAKLINE
135	766,871.25	707,635.69	3185.31	BREAKLINE
136	766,767.17	707634.80	3184.12	BREAKLINE
137	766,962.31	707,367.36	3186.00	TOP OF SLOPE, BRKLN
138	766,878.92	707,367.39	3185.00	TOP OF SLOPE, BRKLN
139	766,718.09	707,368.03	3182.32	TOP OF SLOPE
~~140~~	~~766,579.19~~	~~708,974.09~~	~~3179.48~~	~~TOP OF SLOPE~~
~~141~~	~~766,579.19~~	~~707,322.06~~	~~3179.48~~	~~TOP OF SLOPE~~
142	766,718.09	707,315.24	3181.64	TOP OF SLOPE
143	766,916.54	707,318.64	3185.00	TOP OF SLOPE, BRKLN
144	767,000.10	707,318.35	3186.00	TOP OF SLOPE, BRKLN

From: Arnold, Pat [mailto:ArnoldP@nv.doe.gov]
Sent: Thursday, March 31, 2011 4:13 PM
To: Goodrich, Janet/SAC
Cc: Miller, John C; Sorola, Julie; Clifford, Ryan
Subject: RE: Elevations for Control Points 131 and 132

Janet,

Please proceed with a design change for the west cover to bring control points 131 and 132 to the existing grade as shown below. Our process does not require a formal RFI to initiate an ECN. I have copied our engineering department so they are aware of the pending change.

Thanks for your continued support.

Best Regards,
Pat Arnold
Environmental Management
National Security Technologies LLC
Contractor to US Department of Energy
702-295-2261
702-525-3428 (M)
702-295-1313 (Fax)

From: Janet.Goodrich@CH2M.com [mailto:Janet.Goodrich@CH2M.com]
Sent: Thursday, March 31, 2011 3:59 PM
To: Miller, John C; Arnold, Pat
Subject: RE: Elevations for Control Points 131 and 132

Pat, did you want to submit this in a formal format as a design change request?
Janet

From: Miller, John C [mailto:MillerJC@nv.doe.gov]
Sent: Thursday, March 31, 2011 3:56 PM
To: Arnold, Pat
Cc: Goodrich, Janet/SAC; 'John Durkin'; Hudson, David; Yucel, Vefa; Anderson, Dave
Subject: Elevations for Control Points 131 and 132

At present, CP 131 is at El 3181.8 and CP 132 is at El 3282.0. I hope this helps.

John C Miller
EM Project Support
National Security Technologies LLC (NSTec)
Contractor to U.S. Department of Energy
702-295-5646 (NTS)
702-241-0141 (Cell)

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 04/21/11	Page 1 of 2

ECN Number: 10088-ECN-08	ECP Number:	Documented on ECN Log: YES Project Engineer: (Print and Sign) Ryan Clifford Ry Clifford Date: 5/5/11

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Modification to CQA Plan material testing tables 4-1 and 4-2	Documents Attached: Revisions to CQA Plan Section 4.1, Tables 4-1 and 4-2.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0086	Derivative Classifier: (Print, Sign and Date) DC Reviewed by VK Sahni, NSTec Eng 05/04/11 (Unclassified)
Affected Document Type / Number CQA Plan/10088-CQAP-01	

Section 3: APPROVALS

Preparer: Shannon Wright Shannon Wright Date: 04/21/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 04/21/11

Project Engineer: (Print and Sign) Ryan Clifford Ry Clifford Date: 5/5/11

Cognizant System Engineer: (Print and Sign) Jerry D. Frazer Date: 5/5/11

Design Authority: (Print and Sign) Jerry D. Frazer Date: 5/5/11

Section 4: CLOSEOUT

Construction Verified Complete
Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document
Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 04/21/11	Page 2 of 2

Attachments:

- Revised CQA Plan (10088-CQAP-01) Section 4.1, Earthen Material Testing, Table 4-1 and Table 4-2
- Request for Information RFI-11-0086 including reply Information to Requestor

SECTION 4

Material Testing

A testing program will be implemented to verify that all components of the ET cover are constructed in accordance with the drawings, specifications, the CADD/CAP, and regulatory requirements. Testing shall be performed by qualified CQA Technicians, with test results being obtained and reviewed by the CQA Engineer. General test procedures and proposed CQA testing frequencies are shown in Tables 4-1 and 4-2 below. Test results will be documented and reported in accordance with requirements described in Section 5, Recordkeeping and Reporting.

4.1 Earthen Material Testing

Approved testing personnel/firm are to perform earthen materials testing with results provided to the CQA Engineer for approval. Monitoring personnel will perform the following duties and tests for earthen materials:

- Subgrade:
  - Verify that the moisture/density characteristics have been determined for the different subgrade soil types.
  - Determine the relative compaction of subgrade materials.
  - Require that the operator recompact areas where field density test results indicate that specification requirements have not been met, and then retest the area for relative compaction.
  - Select random testing locations over subgrade surfaces.
  - Coordinate with a soils laboratory to have appropriate laboratory tests performed. Testing will be performed in accordance with the testing methods listed in the specifications.

TABLE 4-1
Existing Soil Material—Subgrade Testing
Construction Quality Assurance Plan for 92-Acre Area Evapotranspiration Cover, Nevada National Security Site, Nevada

Test	Method	Recommended Frequency	Proposed Criteria
Moisture/Density Characteristics	ASTM D698	Once per source or change in material type	NA
In-Place Moisture	ASTM D2216	5 per acre[1]	Min. 1% dry of optimum*
In-Place Moisture/Density	ASTM D1556, D6938	5 per acre[1]	75% ~~78%~~ to 85% of max. dry density*

*per ASTM D698, [1] Testing frequency may be decreased following submittal of methods and test results recorded by the CQA Engineer, and upon approval of the Engineer.
Note:
NA = not applicable

- ET Cover—Native Fill Material:
  - Verify that borrow materials are from approved sources.
  - Verify that subgrade testing has been performed prior to ET cover material placement.
  - Verify that the moisture/density characteristics have been determined for the different borrow source materials.
  - Determine the relative compaction of ET cover.
  - Obtain samples and perform testing for soil classification, moisture content, particle size, and permeability. Obtain at least two shelby tube samples from each sample location—one for testing and one for archive.
  - Require operator to moisture condition and recompact areas where field moisture and density test results indicate that specification requirements have not been met, and then retest the areas for moisture content and relative compaction.
  - Select random testing locations for each lift of material placed.
  - Coordinate with a soils laboratory to have appropriate laboratory tests performed. Testing will be performed in accordance with testing methods listed in the specifications.

TABLE 4-2
Select Native Fill Material—ET Cover Testing
Construction Quality Assurance Plan for 92-Acre Area Evapotranspiration Cover, Nevada National Security Site, Nevada

Test	Method	Recommended Frequency	Proposed Criteria
Soil Classification	ASTM D2488	Once per source or change in material type	Per specifications
Moisture/Density Characteristics	ASTM D698	Once per source or change in material type	NA
In-Place Moisture	ASTM D2216	5 per acre[1]	~~Min. 1%~~ dry of optimum*
In-Place Moisture/Density	ASTM D1556, D6938	5 per acre per lift[1]	75% ~~78%~~ to 95% of max. dry density*

*per ASTM D698, [1] Testing frequency may be decreased following submittal of methods and test results recorded by the CQA Engineer, and upon approval of the Engineer.
Note:
NA = not applicable

4.2 As-built Surveying

The surveyor will perform as-built surveying on the completed ET cover surface to confirm that the minimum lines and grades have been achieved in accordance with the design. At a minimum, survey points shall correspond with the survey coordinates shown on the drawings. Additional survey points may be required to demonstrate that design grades have been met. The as-built survey will provide the basis for as-built drawings to be included in the CQA report. The operator will be responsible for all construction surveying and staking.

ENGINEERING CHANGE NOTICE — TYPE 2
Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 04/25/11	Page 1 of 2
ECN Number: 10088-ECN-09	ECP Number:	Documented on ECN Log: YES Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 5/5/11	

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Revised drainage swales grading and control.	Documents Attached: See attached continuation page.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0079	Derivative Classifier: (Print, Sign and Date) DC Reviewed by VK Sahni, NSTec Eng 05/04/11 (Unclassified)
Affected Document Type / Number Design Drawings. See attached continuation sheet for specific sheets.	

Section 3: APPROVALS

Preparer: Shannon Wright Shannon Wright Date: 04/25/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 04/25/11
Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 5/5/11
Cognizant System Engineer: (Print and Sign) JERRY D. FRETER	Date: 5/5/11
Design Authority: (Print and Sign) JERRY D. FRETER	Date: 5/5/11

Section 4: CLOSEOUT

Construction Verified Complete
Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document
Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 04/25/11	Page 2 of 2

Drawing No. 10088-C-1007: Modified drainage swales grading per RFI-11-0079 updated information from the field (attached).

Drawing No. 10088-C-1008: Modified drainage swale grading per RFI-11-0079 updated information from the field (attached).

Drawing No. 10088-C-5002: Corrected west and east swale sideslope annotation and added clarification annotation for east swale per modified grading indicated above (attached).

Drawings affected but not included:

Drawing No. 10088-C-1004: Revised swale grading must be modified at project completion to reflect changes.

Drawing No. 10088-C-1005: Revised swale grading must be modified at project completion to reflect changes.

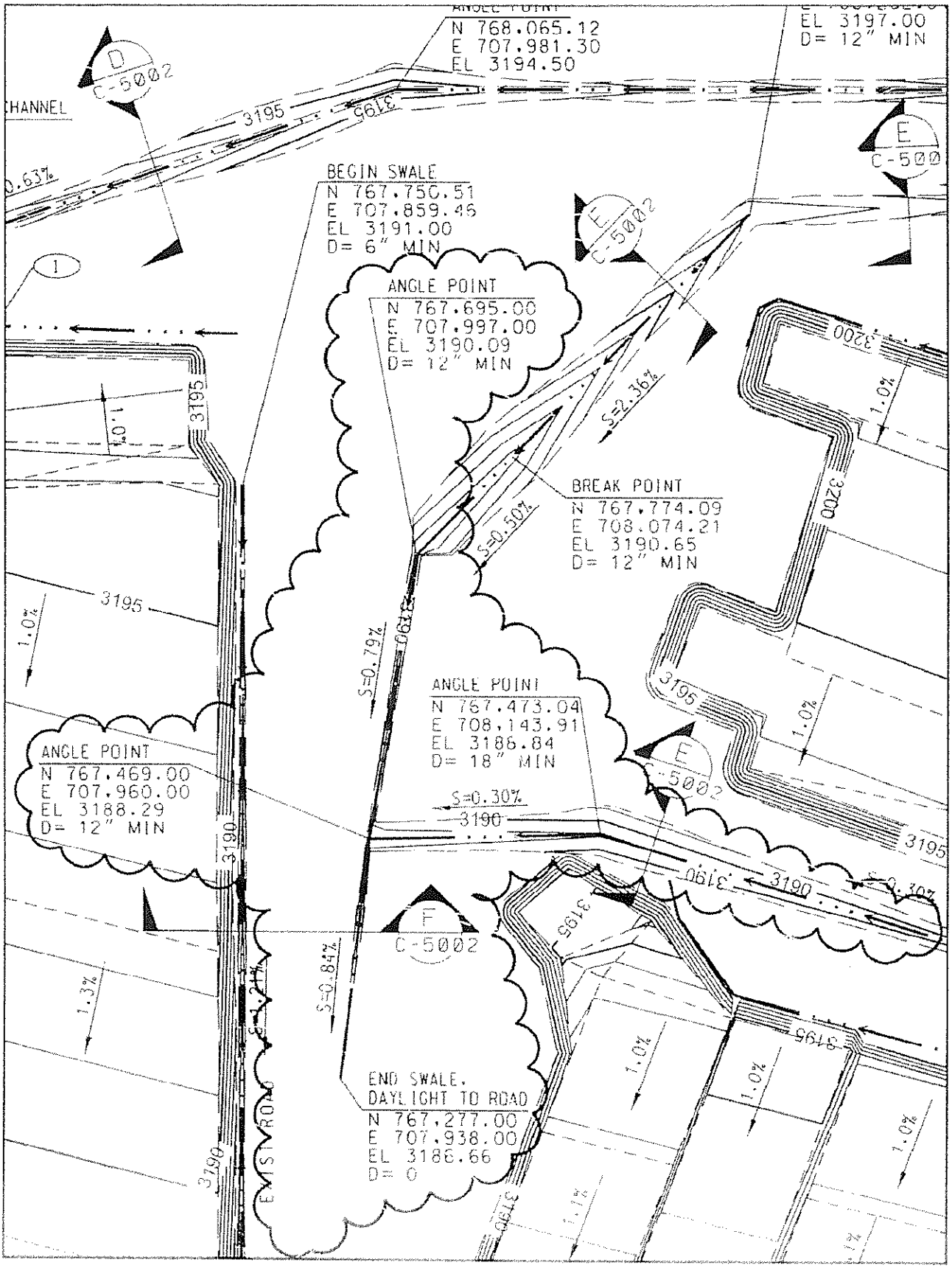
Drawing No. 10088-C-1009: Revised swale grading must be modified at project completion to reflect changes.

Drawing No. 10088-C-3001, Section A: Revised swale grading/location must be modified at project completion to reflect changes.

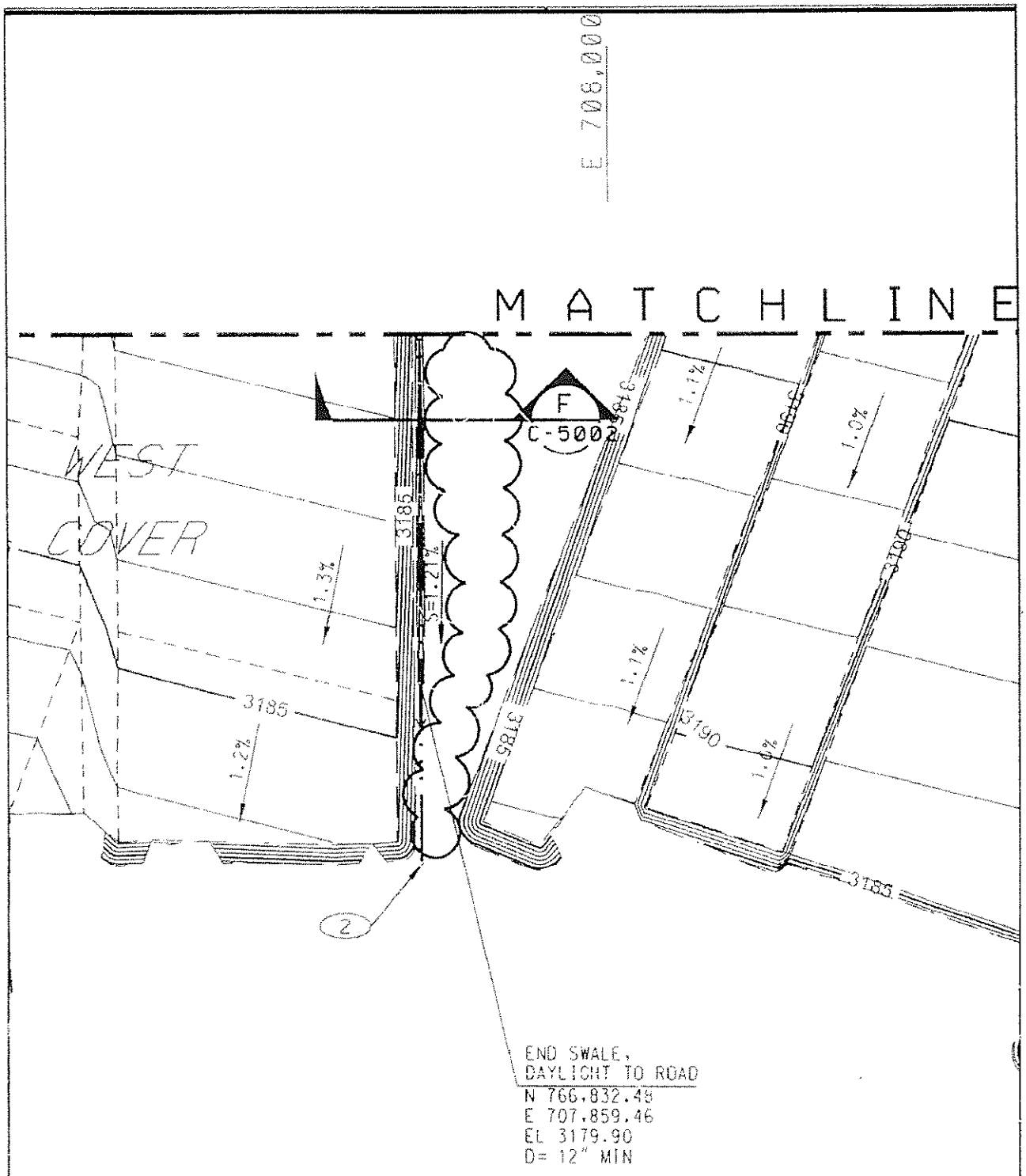
Drawing No. 10088-C-3002, Sections A & B: Revised swales grading/locations must be modified at project completion to reflect changes.

Attachments:

- Drawing No. 10088-C-1007 modifications
- Drawing No. 10088-C-1008 modifications
- Drawing No. 10088-C-5002 modifications
- Request for Information RFI-11-0079 including reply Information to Requestor



DRAWING NO. 10088-C-1007 MODIFICATIONS



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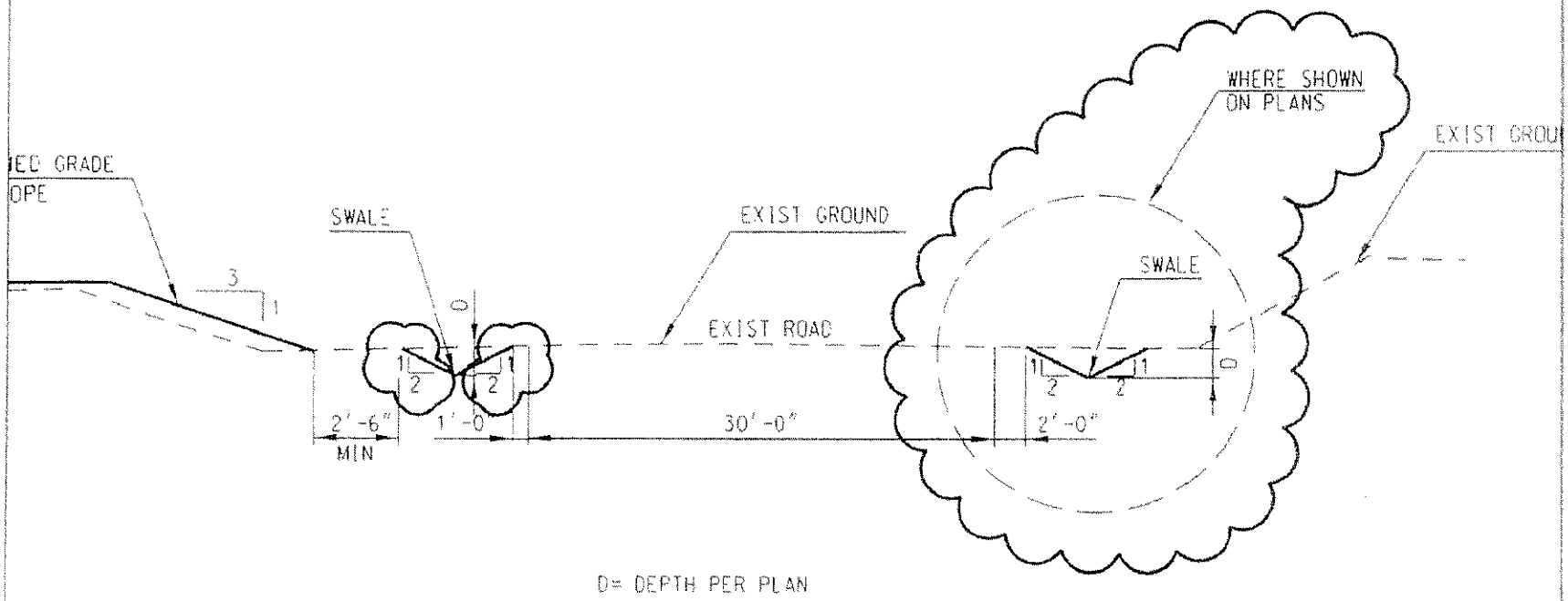


D= DEPTH PER PLAN

TYPICAL 2:1 SWALE

SCALE: NONE

F

C-1007 & C-1008

DRAWING NO. 10088-C-5002 MODIFICATIONS

ENGINEERING CHANGE NOTICE — TYPE 2

Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 04/25/11	Page 1 of 2
ECN Number: 10088-ECN-10	ECP Number:	Documented on ECN Log: YES Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 5/10/11	

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Modification to Specification Section 31 20 00 Earthwork, revising final grade tolerances.	Documents Attached: Revision to Section 31 20 00 Earthwork, Part 3.01, E Tolerances.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0093	Derivative Classifier: (Print, Sign and Date)
Affected Document Type / Number Construction Specifications/10088-SPC-G01	Richard Morton RM ENGR 10-May-2011

Section 3: APPROVALS

Preparer: Shannon Wright Shannon A. Wright Date: 04/25/11	Checker: Janet Goodrich, Engineer of Record Janet Goodrich Date: 04/25/11
Project Engineer: (Print and Sign) Ryan Clifford Ryan Clifford	Date: 5/10/11
Cognizant System Engineer: (Print and Sign) JERRY FRETER	Date: 5/10/11
Design Authority: (Print and Sign) JERRY FRETER	Date: 5/10/11

Section 4: CLOSEOUT

Construction Verified Complete
Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document
Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 04/25/11	Page 2 of 2

Attachments:

- Revised Construction Specification (1008-SPC-G01) Section 31 20 00 Earthwork, Part 3.01, E Tolerances
- Request for Information RFI-11-0093 including reply Information to Requestor

B. Keep fill placement surfaces free of water, debris, and foreign material during placement and compaction of fill materials.

C. Provide and operate equipment adequate to keep the bottom of excavations free of water. Remove all water during the placing of fill and at such other times as required for efficient and safe execution of the Work.

D. Place and spread fill materials in lifts of uniform thickness, in a manner that avoids segregation, and compact each lift to specified compaction prior to placing succeeding lifts. Slope lifts to conform to final grades or as necessary to keep placement surfaces drained of water.

E. Tolerances:

1. Final Lines and Grades: The final grading for all landfill areas and drainage features shall be free of depressions that can hold water unless designed to do so; within a tolerance of 0.15 foot unless dimensions or grades are shown or specified otherwise.
2. Grade to establish and maintain slopes and drainage as shown. Reverse slopes are not permitted.

Tolerances of up to +0.40 foot may be allowed following submittal of as-built survey data obtained by the Surveyor, and upon review and approval of the Engineer.

3.02 SURVEYING

A. At the completion of the final cover fill placement and final surface preparation and prior to placement of seeding, survey surface of graded area within the Work limits for approval by the CQA Engineer.

3.03 RIP RAP PLACEMENT

A. Geotextile:

1. Geotextile shall be placed prior to placing rip rap.
2. The surface upon which the geotextile is placed shall be free of loose or extraneous material and sharp objects that may damage the fabric during installation.
3. Geotextile shall be placed in conformance with the manufacturer's recommendations and as directed by the Engineer. Geotextile shall be placed loosely upon or against surface to receive geotextile so that the fabric conforms to the surface without damage when cover materials are placed.
4. Geotextile shall be joined either with overlapped joints or stitched seams. If overlapped, overlap shall be at least 24 inches.
5. Geotextile shall be anchored around the perimeter by a minimum 6-inch wide by 6-inch deep anchor trench.

B. Rock shall not be allowed to drop over 3 feet onto geotextile.

ENGINEERING CHANGE NOTICE — TYPE 2
Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088		Building:	Date: 04/29/11	Page 1 of 2
ECN Number: 10088-ECN-11	ECP Number:	Documented on ECN Log: Yes Project Engineer: (Print and Sign) Ryan Clifford *Ryan Clifford*		Date: 5/17/11

Attach a separate sheet of paper that provides the following, if necessary:

Change Description: Modification to Specification Section 31 20 00 Earthwork and Drawing 10088-C-5001 to delete note requiring placement of gravel.	Documents Attached: See attached continuation page.

Section 2: DOCUMENT DESCRIPTION

RFI Number: RFI-11-0094	Derivative Classifier: (Print, Sign and Date) DC Reviewed by V K Sahni 05/17/2011 "Unclassified"
Affected Document Type / Number Construction Specifications/10088-SPC-G01; Design Drawings, Drawing No. 10088-C-5001	

Section 3: APPROVALS

Preparer: Shannon Wright *Shannon A. Wright* Date: 04/29/11	Checker: Janet Goodrich, Engineer of Record *Janet Goodrich* Date: 04/29/11
Project Engineer: (Print and Sign) Ryan Clifford *Ryan Clifford*	Date: 5/17/11
Cognizant System Engineer: (Print and Sign) JERRY D. FRETER *J. Freter*	Date: 5/23/11
Design Authority: (Print and Sign) JERRY D. FRETER *J. Freter*	Date: 5/23/11

Section 4: CLOSEOUT

Construction Verified Complete
Superintendent/Field Engineer: (Print and Sign) Date:

ECN Incorporated into Design Document
Project Engineer: (Print and Sign) Date:

ENGINEERING CHANGE NOTICE — TYPE 2 (Continued)

Configuration Controlled Nuclear Facility Designs

Section 1: DOCUMENT IDENTIFICATION

Project Number: 10088	Building:	Date: 04/29/11	Page 2 of 2

Revision to Section 31 20 00, Earthwork.

Drawing No. 10088-C-5001: Eliminated requirement for placement of well-graded gravel to fill in voids.

Attachments:

- Revised Construction Specification (10088-SPG-G01) Section 31 20 00, Earthwork, Part 2.03.
- Drawing No. 10088-C-5001 modifications.
- Request for Information RFI-11-0094 including reply Information to Requestor

2.02 SELECT NATIVE FILL MATERIAL FOR FINAL COVER

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D2487, Soil Classification Groups GM, GC, SW, SP, SC, SM, ML, and MH, or a combination of these groups; free of rock or gravel larger than 9 in. in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter. Some cobble may require removal at the discretion of the Engineer.

C. Unsatisfactory Soils: Soil Classification Groups GW, GP, CL, OL, CH, OH, and PT according to ASTM D2487, or a combination of these groups.

2.03 MATERIAL FOR RIP RAP

~~A. Gravel:~~

~~1. Well-graded rounded or subrounded rock.~~
~~2. Uniformly graded from course to fine.~~
~~3. Free from excessive dirt and other organic material.~~
~~4. Maximum 2-inch particle size.~~

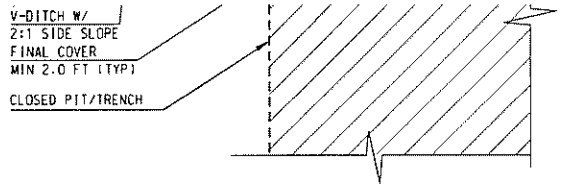
B. Rock: Cobble sufficiently durable to ensure permanence in the structure and the environment which it is to be used. Rock shall be free from cracks, seams, and other defects that would increase the risk of deterioration from natural causes. The size of the rock shall be such that no individual rock exceeds a weight of 150 pounds and that no more than 10 percent of the mixture, by weight, consists of rock weighing 2 pounds or less each. The inclusion of more than trace 1 percent quantities of dirt, sand, clay and rock fines will not be permitted.

C. Geotextile: Geotextile shall be 6 ounce per square yard non-woven polypropylene, stable fiber, needlepunched. ~~The use of geotextile in place of granular bedding will be restricted to slopes no steeper than 2.5H:1V. A 6-inch layer of fine aggregate per Uniform Standard Specifications for Public Works Construction Off-Site Improvements Section 706.03.03 to be placed on top of the geotextile to act as a cushion when placing the rock.~~ Tears in the fabric greatly reduce its effectiveness so that direct dumping of rock on the geotextile is not allowed and due care must be exercised during construction.

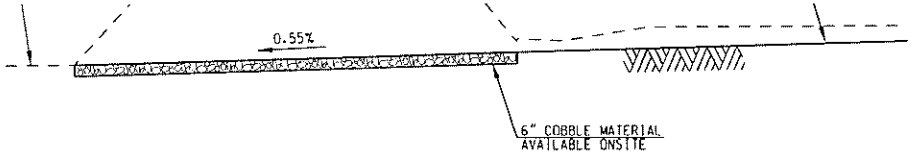
PART 3 EXECUTION

3.01 GENERAL

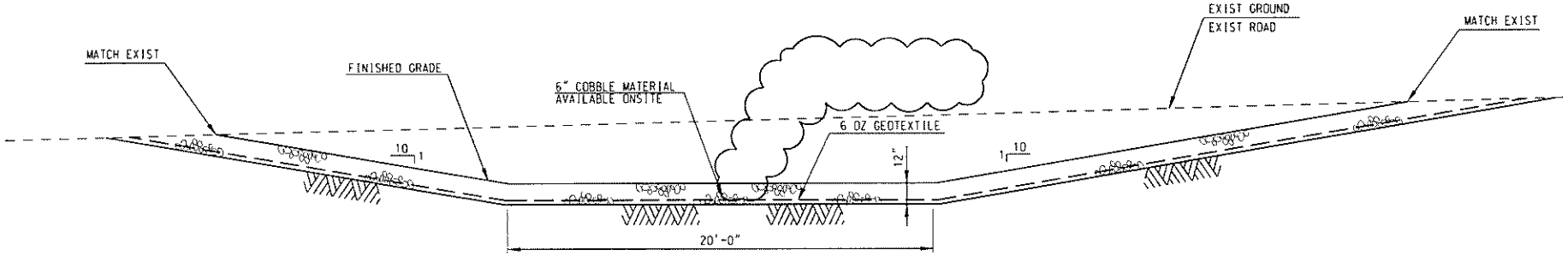
A. Perform grading and fill to the lines, grades and dimensions shown on the Drawings and as needed to accomplish Work.



SECTION A C-1004 & C-1005



ARIZONA CROSSING B C-1007
SCALE: NONE



ARIZONA CROSSING C C-1007
SCALE: NONE

DRAWING NO. 10088-C-5001 MODIFICATIONS

APPENDIX 7

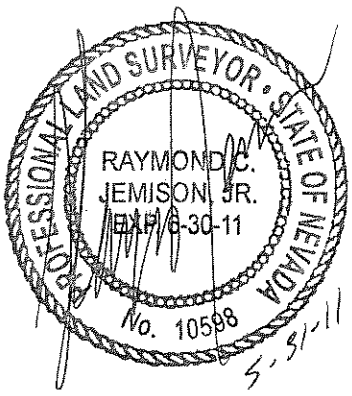
Grading Control Points

And

As Built Drawings

APPENDIX 7-A

Grading Control Points

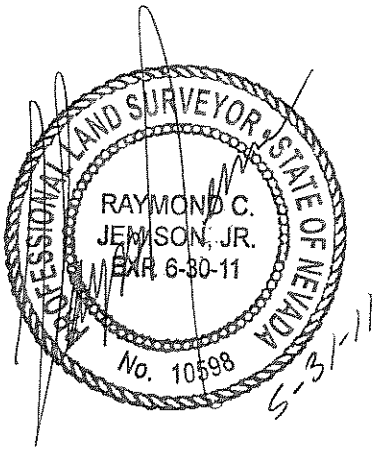


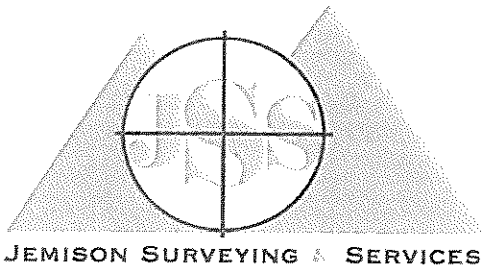
JEMISON SURVEYING & SERVICES

GRADING CONTROL POINTS
AREA 5 - 92 ACRE SITE
SOUTH COVER

PLAN					EXISTING 4/26/2011		ELEVATION
PLAN #	NORTHING	EASTING	ELEVATION	DESCRIPTION	STORE #	ELEVATION	(EXIST. - PLAN)
49	767445.31	708118.89	3194.37	TOP-SLOPE	30183	3194.47	+ 0.10
50	767403.97	708184.00	3196.21	TOP-SLOPE-GB	30182	3196.18	- 0.03
51	767327.21	708248.18	3193.11	TOP-SLOPE-GB	30181	3193.14	+ 0.03
52	767326.12	708251.72	3195.63	TOP-SLOPE-GB	30180	3195.67	+ 0.04
53	767301.93	708341.51	3195.61	TOP-SLOPE-GB	30179	3195.58	- 0.03
54	767298.97	708350.55	3193.08	TOP-SLOPE-GB	30178	3193.17	+ 0.09
55	767251.91	708514.72	3193.02	TOP-SLOPE-GB	30177	3193.00	- 0.02
56	767249.99	708520.57	3194.22	TOP-SLOPE-GB	30176	3194.19	- 0.03
57	767197.00	708732.44	3194.22	TOP-SLOPE-GB	30175	3194.32	+ 0.10
58	767192.09	708769.12	3195.12	TOP-SLOPE-GB	30174	3195.11	- 0.01
59	767189.93	708785.30	3195.52	TOP-SLOPE-GB	30173	3195.53	+ 0.01
60	767163.41	708886.68	3195.52	TOP-SLOPE-GB	30172	3195.61	+ 0.09
61	767124.50	708951.08	3197.57	TOP-SLOPE-GB	30171	3197.58	+ 0.01
62	767236.45	708098.65	3191.87	TOP-SLOPE-GB	30188	3191.94	+ 0.07
63	767297.42	708121.96	3192.52	TOP-SLOPE-GB	30187	3192.44	- 0.08
64	767359.58	708145.73	3193.18	GB	30186	3193.27	+ 0.09
65	767374.87	708113.25	3195.24	TOP-SLOPE-GB	30185	3195.12	- 0.12
66	767410.83	708079.42	3194.08	TOP-SLOPE	30184	3194.17	+ 0.09
67	767210.97	708202.25	3191.87	GB	30189	3191.92	+ 0.05
68	767184.78	708308.72	3191.87	GB	30190	3191.98	+ 0.11
69	767142.34	708481.24	3191.87	GB	30191	3191.88	+ 0.01
90	767018.64	709355.70	3197.41	TOP-SLOPE	30197	3197.47	+ 0.06
91	766932.11	709335.99	3194.60	TOP-SLOPE-GB	30198	3194.66	+ 0.06
92	766809.58	709308.08	3193.36	TOP-SLOPE	30199	3193.32	- 0.04
93	766887.72	708965.07	3193.30	TOP-SLOPE-GB	30196	3193.32	+ 0.01
94	766830.26	708952.01	3190.55	TOP-SLOPE-GB	30200	3190.65	+ 0.09
95	766772.80	708938.94	3194.01	TOP-SLOPE-GB	30201	3193.93	- 0.08
96	766694.71	708921.18	3192.09	TOP-SLOPE-GB	30202	3192.14	+ 0.05
97	766504.26	708861.36	3188.51	TOP-SLOPE	30204	3188.41	- 0.10
98	766510.38	708833.76	3188.49	TOP-SLOPE-GB	30205	3188.39	- 0.10
99	766543.18	708716.62	3187.70	TOP-SLOPE-GB	30206	3187.71	+ 0.01
100	766511.25	708606.62	3185.42	TOP-SLOPE-GB	30207	3185.49	+ 0.07
101	766469.33	708593.32	3184.99	TOP-SLOPE	30210	3185.03	+ 0.04
102	766560.67	708316.24	3185.21	TOP-SLOPE	30211	3185.17	- 0.05
103	766633.02	708348.38	3186.00	TOP-SLOPE-GB	30212	3186.06	+ 0.06
104	766707.01	708133.33	3186.18	TOP-SLOPE-GB	30213	3186.19	+ 0.01
105	766709.01	708126.31	3189.36	TOP-SLOPE-GB	30214	3189.33	- 0.03
106	766742.04	708026.22	3189.44	TOP-SLOPE-GB	30215	3189.39	- 0.05
107	766745.05	708018.21	3186.28	TOP-SLOPE-GB	30216	3186.35	+ 0.06
108	766757.59	707981.58	3186.32	TOP-SLOPE	30217	3186.34	+ 0.02
109	766713.50	707947.52	3185.75	TOP-SLOPE	30218	3185.80	+ 0.05
110	766730.81	707905.29	3185.82	TOP-SLOPE	30219	3185.93	+ 0.11
111	766559.88	708556.02	3185.77	GB	30209	3185.78	+ 0.01
112	766570.77	708632.25	3187.70	GB	30208	3187.62	- 0.08
113	766913.87	708714.24	3191.23	GB	30220	3191.29	+ 0.06
114	767060.97	708752.17	3194.20	GB	30192	3194.25	+ 0.05
115	767037.16	708848.98	3194.20	GB	30193	3194.29	+ 0.09
116	767033.00	708925.71	3194.60	GB	30194	3194.62	+ 0.02
117	766906.71	708890.69	3193.29	GB	30195	3193.19	- 0.10
118	766887.05	708604.42	3191.23	GB	30221	3191.34	+ 0.11
119	766783.66	708896.43	3194.02	GB	30222	3194.01	- 0.01
120	766708.89	708872.43	3192.14	GB	30223	3192.12	- 0.02
121	766573.12	708847.26	3190.02	GB	30224	3190.03	+ 0.01
122	766565.13	708879.62	3190.02	TOP-SLOPE-GB	30203	3189.94	- 0.08

PLAN COORDINATES AND ELEVATIONS REFLECT CHANGES MADE ON 02/17/11, 03/02/11 AND 04/05/11.



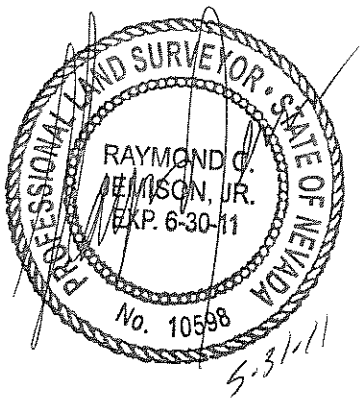


GRADING CONTROL POINTS
AREA 5 - 92 ACRE SITE
NORTH COVER

PLAN					EXISTING 4/26/2011		ELEVATION
PLAN #	NORTHING	EASTING	ELEVATION	DESCRIPTION	STORE #	ELEVATION	(EXIST. - PLAN)
10	767968.77	708589.62	3204.88	TOP-SLOPE	30225	3204.77	- 0.11
11	767960.63	709044.72	3209.46	TOP-SLOPE-GB	30235	3209.52	+ 0.06
12	767958.65	709155.55	3208.38	TOP-SLOPE	30234	3208.37	- 0.01
13	768003.17	709310.12	3207.00	TOP-SLOPE	30233	3207.03	+ 0.03
14	768005.75	709406.09	3206.71	TOP-SLOPE	30232	3206.76	+ 0.05
15	767574.60	709387.24	3205.17	TOP-SLOPE	30231	3205.21	+ 0.04
16	767602.75	709285.54	3206.23	TOP-SLOPE	30230	3206.28	+ 0.05
17	767622.07	709240.44	3206.71	TOP-SLOPE	30229	3206.60	- 0.11
18	767705.10	709186.75	3207.44	TOP-SLOPE	30228	3207.50	+ 0.06
19	767756.30	708991.28	3209.46	TOP-SLOPE-GB	30227	3209.50	+ 0.04
20	767866.89	708569.06	3204.95	TOP-SLOPE	30226	3204.88	- 0.07
21	767879.75	708286.59	3202.67	TOP-SLOPE	30144	3202.53	- 0.14
22	767671.95	708931.09	3202.93	TOP-SLOPE	30163	3202.91	- 0.02
23	767636.95	708974.09	3202.75	TOP-SLOPE	30162	3202.73	- 0.02
24	767571.86	709188.07	3202.94	TOP-SLOPE	30161	3202.93	- 0.01
25	767558.67	709207.23	3202.85	TOP-SLOPE	30160	3202.76	- 0.09
26	767505.79	709362.65	3202.97	TOP-SLOPE	30159	3202.98	+ 0.01
27	767425.90	709362.74	3201.77	TOP-SLOPE	30158	3201.68	- 0.09
28	767273.34	709311.07	3199.20	TOP-SLOPE-GB	30157	3199.08	- 0.12
29	767250.34	709302.24	3197.21	TOP-SLOPE-GB	30156	3197.29	+ 0.08
30	767167.87	709275.01	3194.00	TOP-SLOPE	30155	3194.20	+ 0.20
31	767164.27	709254.08	3194.00	TOP-SLOPE	30154	3193.97	- 0.03
32	767193.41	709166.71	3195.00	TOP-SLOPE	30153	3195.13	+ 0.13
33	767418.23	708565.46	3198.22	TOP-SLOPE-GB	30152	3198.12	- 0.10
34	767526.50	708261.93	3198.74	TOP-SLOPE-GB	30151	3198.80	+ 0.06
35	767569.38	708275.81	3199.17	TOP-SLOPE	30150	3199.11	- 0.06
36	767598.89	708201.02	3199.17	TOP-SLOPE	30149	3199.17	+ 0.00
37	767654.92	708223.12	3199.79	TOP-SLOPE	30148	3199.71	- 0.08
38	767626.80	708294.40	3199.79	TOP-SLOPE-GB	30147	3199.83	+ 0.04
39	767802.21	708351.20	3202.17	TOP-SLOPE	30146	3202.12	- 0.05
40	767830.96	708272.51	3202.20	TOP-SLOPE-GB	30145	3202.11	- 0.09
41	767615.41	708290.71	3199.64	GB	30370	3199.75	+ 0.11
42	767397.00	708880.29	3199.62	GB	30164	3199.64	+ 0.02
43	767583.69	708955.16	3202.20	GB	30165	3202.28	+ 0.08
44	767594.42	709003.28	3202.20	GB	30166	3202.35	+ 0.15
45	767598.06	708991.96	3202.46	GB	30167	3202.40	- 0.06
46	767413.09	708952.12	3199.20	GB	30168	3199.33	+ 0.13
47	767381.65	708934.12	3199.20	GB	30169	3199.24	+ 0.04
48	767324.15	709095.31	3198.22	GB	30170	3198.23	+ 0.01

PLAN COORDINATES AND ELEVATIONS REFLECT CHANGES MADE ON 02/17/11, 03/02/11 AND 04/05/11.

JEMISON SURVEYING & SERVICES



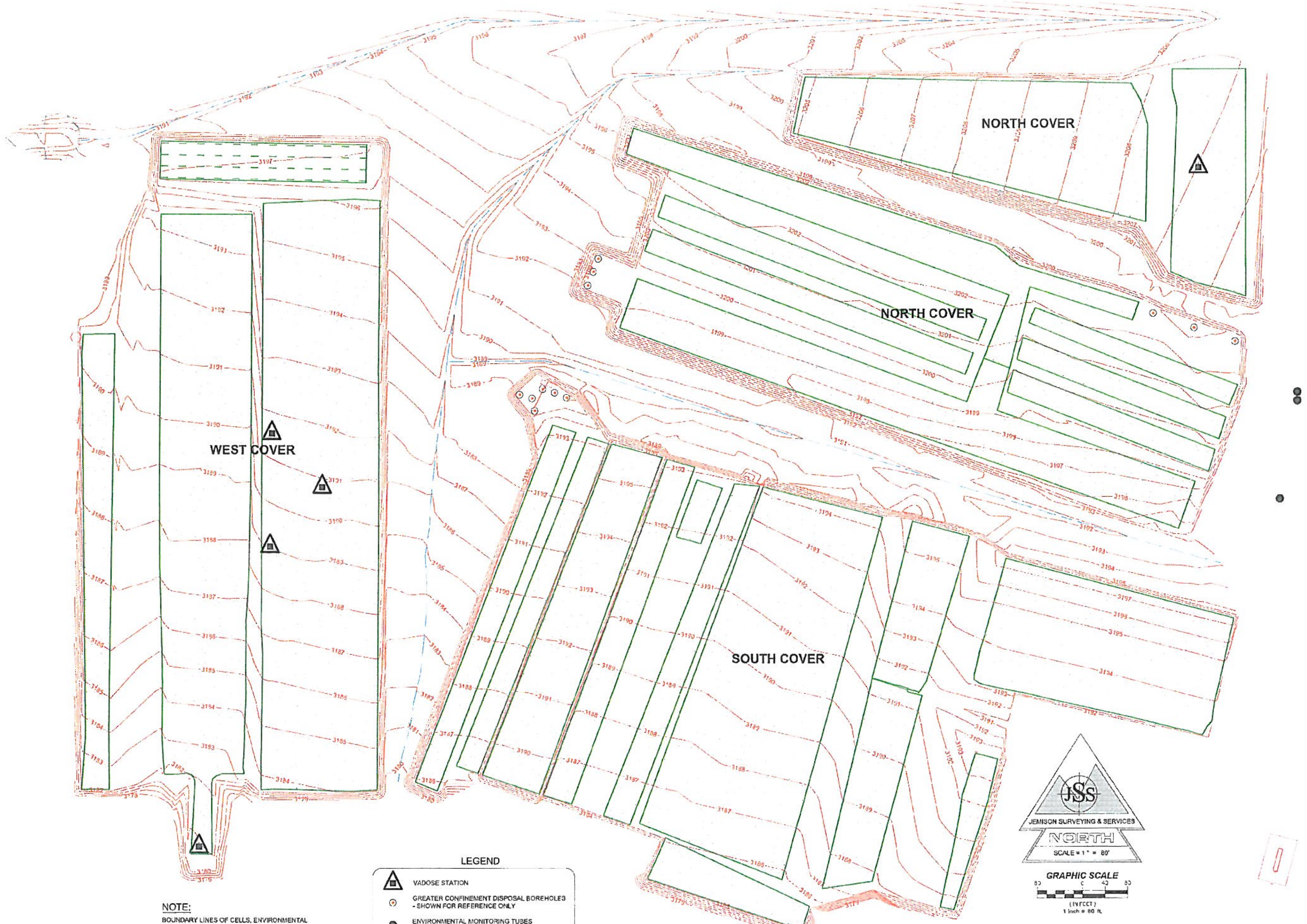
GRADING CONTROL POINTS
AREA 5 - 92 ACRE SITE
WEST COVER

PLAN					EXISTING 4/6/2011		ELEVATION
PLAN #	NORTHING	EASTING	ELEVATION	DESCRIPTION	STORE #	ELEVATION	(EXIST. - PLAN)
70	767,856.52	707,448.42	3,196.27	TOP-SLOPE	30071	3196.32	+ 0.05
71	767,850.08	707,817.13	3,196.77	TOP-SLOPE	30077	3196.87	+ 0.10
72	767,781.74	707,816.53	3,197.45	TOP-SLOPE-GB	30076	3197.50	+ 0.05
73	767,751.21	707,840.77	3,196.10	TOP-SLOPE-GB	30079	3196.13	+ 0.03
74	767,378.03	707,840.19	3,192.47	TOP-SLOPE-GB	30080	3192.49	+ 0.02
75	767,106.08	707,450.52	3,187.04	TOP-SLOPE	20019	3187.18	+ 0.14
76	767,233.62	707,449.23	3,188.28	TOP-SLOPE	20020	3188.42	+ 0.14
77	767,726.48	707,448.85	3,193.15	TOP-SLOPE-GB	30073	3193.26	+ 0.11
78	767,788.19	707,447.23	3,196.95	TOP-SLOPE-GB	30136	3197.13	+ 0.18
79	767,726.50	707,613.07	3,193.56	GB	30074	3193.72	+ 0.16
80	767,745.50	707,632.06	3,195.55	GB	30075	3195.64	+ 0.09
81	767,753.03	707,793.71	3,196.01	GB	30078	3196.16	+ 0.15
82	767,429.20	707,632.18	3,192.47	GB	30081	3192.55	+ 0.08
83	767,279.09	707,613.24	3,189.11	GB	30082	3189.22	+ 0.11
84	767,521.80	707,310.38	3,190.32	TOP-SLOPE	30090	3190.51	+ 0.19
85	767,521.80	707,372.03	3,190.70	TOP-SLOPE	30089	3190.88	+ 0.18
123	766,820.64	707,841.46	3,185.31	TOP-SLOPE-GB	20000	3185.35	+ 0.04
124	766,715.87	707,841.57	3,184.13	TOP-SLOPE	30369	3184.05	- 0.08
125	766,713.30	707,795.96	3,183.98	TOP-SLOPE	20001	3184.06	+ 0.08
126	766,715.84	707,635.61	3,183.55	TOP-SLOPE-GB	20002	3183.69	+ 0.14
127	766,737.27	707,609.56	3,183.16	TOP-SLOPE-GB	20003	3183.32	+ 0.16
128	766,737.27	707,553.47	3,182.15	TOP-SLOPE-GB	20004	3182.30	+ 0.14
129	766,602.82	707,553.47	3,181.01	TOP-SLOPE	20005	3181.03	+ 0.02
130	766,602.82	707,510.05	3,180.23	TOP-SLOPE	20006	3180.53	+ 0.30
131	766,737.27	707,510.05	3,181.80	TOP-SLOPE	30140	3181.87	+ 0.07
132	766,737.27	707,458.73	3,182.00	TOP-SLOPE	30141	3181.87	- 0.13
132A	766,915.32	707,456.56	3,184.31	TOP-SLOPE-GB	30142	3184.26	- 0.05
132B	766,879.20	707,607.44	3,184.31	GB	30143	3184.33	+ 0.02
133	767,054.18	707,452.34	3,186.54	TOP-SLOPE-GB	20009	3186.54	- 0.00
134	767,016.27	707,606.43	3,186.54	GB	20010	3186.64	+ 0.10
135	766,871.25	707,635.69	3,185.31	GB	20011	3185.47	+ 0.16
136	766,767.17	707,634.80	3,184.12	GB	20012	3184.26	+ 0.14
137	766,962.31	707,367.36	3,186.00	TOP-SLOPE-GB	20017	3186.01	+ 0.01
138	766,878.92	707,367.39	3,185.00	TOP-SLOPE-GB	20016	3185.01	+ 0.01
139	766,718.09	707,368.03	3,182.32	TOP-SLOPE	20013	3182.30	- 0.02
~~440~~	OMITTED			~~TOP-SLOPE~~	NOT SHOT		-
~~441~~	OMITTED			~~TOP-SLOPE~~	NOT SHOT		-
142	766,718.09	707,315.24	3,181.64	TOP-SLOPE	20014	3181.86	+ 0.22
143	766,916.54	707,318.64	3,185.00	TOP-SLOPE-GB	20015	3185.11	+ 0.11
144	767,000.10	707,318.35	3,186.00	TOP-SLOPE-GB	20018	3186.14	+ 0.14

PLAN COORDINATES AND ELEVATIONS REFLECT CHANGES MADE ON 02/17/11, 03/02/11 AND 04/05/11.

APPENDIX 7-B

As- Built Drawings



NOTE:

BOUNDARY LINES OF CELLS, ENVIRONMENTAL MONITORING TUBES AND GREATER CONFINEMENT DISPOSAL BOREHOLES ARE SHOWN FOR GENERAL LOCATION ONLY. THESE FEATURES WERE NOT ASBUILT AT THE TIME OF THIS SURVEY.

LEGEND

- VADOSE STATION
- GREATER CONFINEMENT DISPOSAL BOREHOLES - SHOWN FOR REFERENCE ONLY
- ENVIRONMENTAL MONITORING TUBES - SHOWN FOR REFERENCE ONLY
- APPROXIMATE BOUNDARY LINES OF CELLS - SHOWN FOR REFERENCE ONLY

SCALE (H):	1" = 80'
SCALE (V):	
DRAWN BY:	RPS
CHECKED BY:	
SEC. , T. , S., R. E.	

PROFESSIONAL LAND SURVEYOR RAYMOND D. JEMISON JR. EXP. 6-30-11 No. 10598 STATE OF NEVADA

DATE: 6-1-11

JEMISON SURVEYING & SERVICES
2690 CRIMSON CANYON DRIVE
LAS VEGAS, NEVADA, 89128
702-360-4838 f. 702-360-4839

JEMISON SURVEYING & SERVICES

JOB TITLE

NEVADA NATIONAL SECURITY SITE 92 ACRE GRADING & DRAINAGE ASBUILT TOPOGRAPHICAL SURVEY

SITE SURVEY COMPLETED ON: MAY 12, 2011

DATE 05-25-2011

JOB NO. 437-110401

SHEET 1 OF 1

APPENDIX 8

CQA Personnel Engineering Licenses

State of Nevada

State Board of Registered Professional Engineers and Land Surveyors

This is to certify that

John J. Durkin, Jr.

having given satisfactory evidence of the necessary qualifications, as required by the Act of the Legislature of June 1, 1919, and amendments thereto, has been duly registered and is hereby authorized to practice as a

Professional Engineer
Civil

In the State of Nevada. **In Testimony Whereof,** Witness the signatures of the Members and Secretary of the Board under the Seal of the Board.

Attest:

Certificate No. 9708

Effective as of the 1st day

of February 19 92

DIRECTOR

CHAIRMAN

STATE OF NEVADA

Board of Professional Engineers and Land Surveyors

THIS IS TO CERTIFY THAT THE PERSON NAMED BELOW IS LICENSED TO PRACTICE IN THE STATE OF NEVADA.

LICENSEE'S SIGNATURE ON BACK

John J. Durkin Jr.
J.A. CESARE & ASSOCIATES, INC.
106 Cassia Way
Henderson, NV 89014

LIC. NO.	DISCIPLINE	EXPIRATION DATE
009708	CE	12/31/12

THE UNIVERSITY OF NEVADA
RENO

has conferred upon

LINDA DIANE CARVOLTH

the degree of

BACHELOR OF SCIENCE IN GEOLOGICAL ENGINEERING

With all the rights and privileges thereunto appertaining.
In witness thereof this diploma duly signed has been issued and the Seal of the University affixed.

APPROVED BY THE BOARD OF REGENTS UPON RECOMMENDATION OF THE FACULTY

ON THE SEVENTEENTH DAY OF MAY IN 1997.

Dean of Mines

President of the University

Chancellor of the University and Community College System of Nevada

Chairman of the Board of Regents

STATE OF NEVADA

Board of Professional Engineers and Land Surveyors

THIS IS TO CERTIFY THAT THE PERSON NAMED BELOW IS LICENSED TO PRACTICE IN THE STATE OF NEVADA.

LICENSEE'S SIGNATURE ON BACK

Linda D. Carvolth
J.A. CESARE & ASSOCIATES, INC.
106 Cassia Way
Henderson, NV 89014

LIC. NO.	DISCIPLINE	EXPIRATION DATE
018255	CE	12/31/12

APPENDIX 9

Construction Photographs

Photo 1. South Cover, ripped sub grade

Photo 2. North Cover, TRU Trenches during grading

Photo 3: South Cover, Pit No. 6, Placement of cover soil

Photo 4: Track walking cover with low ground pressure D6 Dozer

Photo 5: South Cover, truck applied soil stabilization product

Photo 6: South Cover, hose applied soil stabilization product