

**CORRECTIVE ACTION MANAGEMENT UNIT
(CAMU – BMI SOUTH)
FINAL SUB-GRADE AS-BUILT
HENDERSON, NV**

Prepared for:



ENTACT Environmental Services, LLC
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Prepared by:



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Las Vegas, NV 89131
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May 27, 2010



5/27/10

Attn: Erik Gehringer, Project Manager
ENTACT Environmental Services, LLC
699 South Friendswood Drive
Friendswood, TX. 77546

Re: CAMU – BMI South – Final Sub-Grade As-Built

Mr. Gehringer,

This report outlines the results of the Final Sub-Grade As-Built Survey which was accomplished within the BMI South area of the Corrective Action Management Unit (CAMU) project.

The intent of said report is to provide information such as but not limited to, Data, Calculations, Drawings, Tables, Charts, Electronic Files and other required media to satisfy the Submittal Requirements as outlined in Section 01050 of the Project Technical Specifications, Dated May, 2008.

Absolute Boundary & Control Solutions (ABCS) is pleased you have chosen us to complete these services, and assures you that every attempt has been made to prepare same in a fashion meeting or exceeding the Project Specifications. If however after your review you determine that revisions, clarifications or other modifications are needed, please do not hesitate to bring them to our attention.

In closing, thank you again for the opportunity to serve ENTACT. If you have any questions, comments or concerns, please do not hesitate to contact me.

Sincerely,

Craig A. Givant, PLS
President

(702) 953-7452
(702) 839-9750 fax

CERTIFICATION PAGE

CAMU – BMI SOUTH
FINAL SUB-GRADE AS-BUILT REPORT
HENDERSON, NV

I, Craig A. Givant, a Professional Land Surveyor registered in the State of Nevada, certify (as defined by Nevada Revised Statutes 625.403) that:

1. This report and any Land Surveying Practices (N.R.S. 625.040) on which it is based were performed directly by me or under my responsible charge (N.R.S. 625.080) in accordance with the Standards and Practices Governing Land Surveyors in the State of Nevada as defined by any applicable sections of the Nevada Revised Statutes (N.R.S.) or the Nevada Administrative Code (N.A.C.).
2. By affixing my official seal and signature below I am confirming that I am a Registered Land Surveyor in the State of Nevada and thereby satisfy the requirements of Section 01050, Part 1.03, Subpart A or the Project Technical Specifications.

Craig A. Givant, PLS
PLS 14348

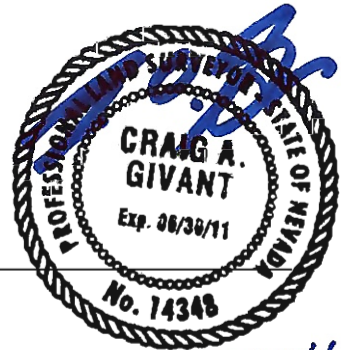


TABLE OF CONTENTS

Field Notes	Page 5
Survey Data	Page 6
Drawings	Page 7
Electronic Files	Page 9

FIELD NOTES

BMI South – Final Sub-Grade As-Built

The surface shown on the attached drawing represents the Final Sub-Grade As-Built conditions within the BMI SOUTH area of the CAMU. The following Data Files were utilized during the field collection activities some of which have been provided pursuant to prior reports prepared by Absolute Boundary & Control Solutions (ABCS). Even if previously provided, they are being re-submitted in conjunction with the herein report for convenience. See the Survey Data section of this report for details regarding the methodology used to adjust the HDPE Liner As-Built data to reflect Sub-Grade as-built conditions.

Survey Data Files used for BMI South Final Sub-Grade As-Built

1. 2009-5-15 (BMI-South-IC Liner ASB)-MC+TG
2. 2010-3-17 (BMI-S Liner ASB Limit-Glonass)-MC
3. 2010-3-17 (BMI-S LINER ASB-R8)-MC
4. 2010-3-27 (BMI-South Remaining SG ASB)-MC+MV

All Survey Data necessary to determine the location and elevation of the above referenced Surface was collected electronically by Absolute Boundary & Control Solutions (ABCS).

Pertinent parameters required to be input into the software and which were obtained by means of human interaction, were verified as correct by performing field checks. These field checks and their resultant accuracies can be viewed within the Electronic Field Notes (Raw Data). The above referenced Raw Data files were used while acquiring the As-Built information. These files have not been printed for inclusion in this report however a Portable Document File (PDF) of each raw data printout is included electronically on the attached Compact Disk (CD). It should be noted that the contents of these Raw Data files may not pertain solely to the report herein presented and may include additional data from other “tasks” performed on the same day or outdated data which was reacquired at a later date. In all cases the coordinate listing appearing herein was used to generate the reported surface(s).

SURVEY DATA

Field Survey Methods were employed that resulted in the following precisions:

Horizontal Coordinates: $\pm 1.0'$ (One Foot)

Vertical Coordinates: $\pm 0.10'$ (One Tenth of a Foot)

The data sets utilized for this As-Built consisted of approximately 831 survey locations (points) and the printout of same contains 19 pages. A hard copy of this printout is not included hereon; however a portable document file (PDF) titled "Coordinate Printout" is included in the PDF Files directory on the Compact Disk (CD) located in the pocket at the back of this report.

The coordinates depicted on said printout represent the Final Sub-Grade elevations within the BMI South area. Some of these coordinates have been generated based upon various as-built locations and elevations measured during the installation of the HDPE Liner system. These coordinates were previously reported in that certain report prepared by Absolute Boundary & Control Solutions under Task No: 2010.04.15.01.

The elevations of any of these previously provided coordinates were adjusted in order to reflect a Final Sub-Grade condition. Since the original HDPE as-built coordinates were collected at various stages during the liner installation, the following modifications were required to generate the representative "Sub-Grade" elevations:

1. Measurements that were originally acquired on top of the Final Geo-Composite Layer were lowered .0625 feet.
2. Measurements that were originally acquired on top of the Liner layer were lowered 0.0415 feet
3. Measurements that were originally acquired at subgrade prior to any liner installation were not adjusted

In ALL cases the "Sub-Grade Elevations" shown herein have already been revised using the above referenced methodology.

DRAWINGS

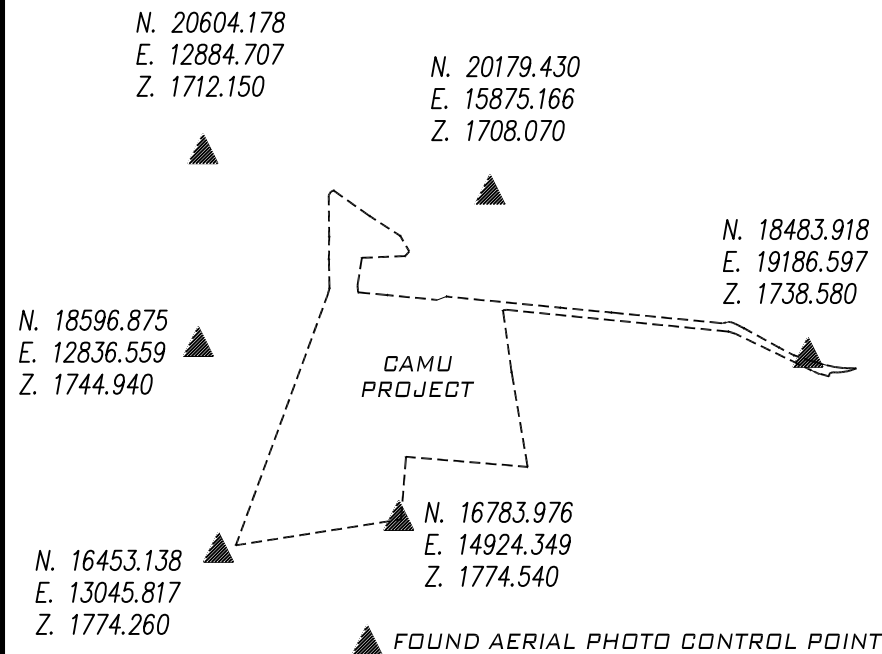
The following Measurement Drawings, Topographic Survey Drawings and/or Cross-Section Drawings are attached.

1. **BMI South, Final Sub-Grade As-Built, dated 5/27/2010.**

This drawing (Consisting of One (1) Sheet) depicts the as-built information with regard to the Final sub-grade within the BMI South area of the CAMU. It also contains information regarding the control network utilized and other pertinent survey data. Due to the scale at which this drawing was prepared, the intended correlation representation may not be entirely clear. In ALL cases the Survey Data herein provided takes precedence over any graphical representation(s).

PROJECT CONTROL

1" = 2000'



BENCHMARK

CLARK COUNTY BENCHMARK (6C22 2E4), BEING A RIVET AND SQUARE ALUMINUM PLATE IN A CONCRETE CENTERLINE ISLAND, 4' WEST OF THE NOSE IN THE MIDDLE OF SUNSET ROAD, WEST SIDE OF THE INTERSECTION OF BOULDER HIGHWAY AND SUNSET ROAD.

PUBLISHED ELEVATION - 505.816 METERS = 1659.50 FEET
NAVD 1988 DATUM - PUBLISHED (2003)

BASIS OF BEARINGS

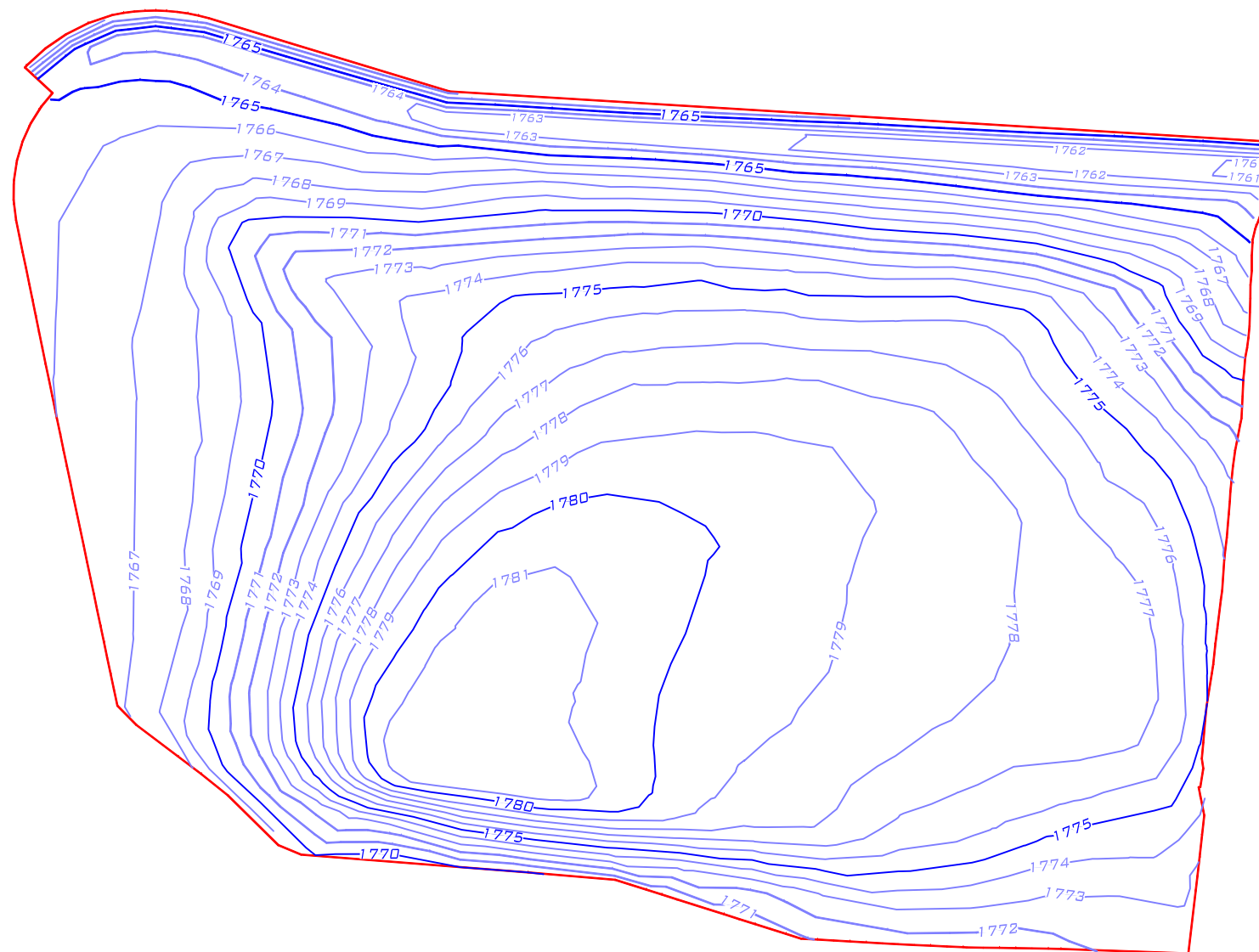
SOUTH 85°36'52" WEST, BEING THE BEARING BETWEEN CLARK COUNTY GIS CONTROL POINTS "CC-GIS 848" AND CC-GIS W51", AS SHOWN ON THE MAP IN FILE 88 OF SURVEYS, PAGE 53, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

COORDINATE SYSTEM

THE COORDINATE SYSTEM AND ASSOCIATED BEARING ROTATION INFORMATION WAS ESTABLISHED AND PROVIDED BY PBS&J.

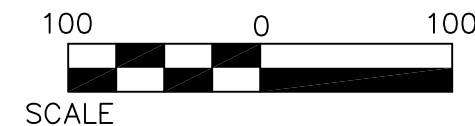
LINE LEGEND

MAJOR CONTOUR
MINOR CONTOUR
BMI SOUTH DESIGN
LINER LIMIT



SURFACE DETAILS

THE SURFACE SHOWN WAS GENERATED BASED UPON AS-BUILT DATA COLLECTED BY ABSOLUTE BOUNDARY & CONTROL SOLUTIONS. DEPICTED IS THE FINAL BMI SOUTH PRE-LINER SUB-GRADE AS-BUILT CONDITIONS



CORRECTIVE ACTION MANAGEMENT UNIT - (CAMU)			ABSOLUTE BOUNDARY & CONTROL SOLUTIONS		Date:	May 27, 2010
NO.	REVISION	DATE	<div><div></div><div>ABSOLUTE</div></div>		Drawn:	C. Givant
△					Checked:	C. Givant
△					Task:	2010.03.29.01-B
△					Sheet No. 1 of 1	
△						
FIELD SURVEY DATE: 5/16/2009, 3/12/2010, 3/16/2010 & 3/27/2010 FIELD CREW: C.G., M.C., M.V.			PROJECT # 2008.06.23.01			
			<div><div></div><div>ABSOLUTE</div></div>			
			6440 SKY POINT DRIVE SUITE 140 - PMB 321 LAS VEGAS, NV. 89131 (702) 953-7452 (702) 987-5943 FAX WWW.AB-CS.COM			

ELECTRONIC FILES

The Compact Disk (CD) included in the pocket at the end of this report contains the following Directories and Files:

PDF Files (.pdf)

1. Report - (BMI South - Final SubGrade As-Built)
2. (Field Notes) - 2009-5-15 (BMI-South-IC Liner ASB)
3. (Field Notes) - 2010-3-17 (BMI-S Liner ASB Limit-Glonass)
4. (Field Notes) - 2010-3-17 (BMI-S LINER ASB-R8)
5. (Field Notes) - 2010-3-27 (BMI-South Remaining SG ASB)
6. Coordinate Printout

CAD Files (.dwg)

1. 2010-05-27 (BMI South Final SG) - 2007
2. 2010-05-27 (BMI South Final SG)

Coordinate Files (.csv)

The following files are Comma Separated Value Files in the following format:

Point Name,Northing,Easting,Elevation,Description

1. 2010-03-29 (BMI South SubGrade)

Raw Data Files (.dc)

The following files are Trimble Data Collector (.DC) files that contain the Raw Field Data.

1. 2009-5-15 (BMI-South-IC Liner ASB)-MC+TG
2. 2010-3-17 (BMI-S Liner ASB Limit-Glonass)-MC
3. 2010-3-17 (BMI-S LINER ASB-R8)-MC
4. 2010-3-27 (BMI-South Remaining SG ASB)-MC+MV