A-1

Settlement Analyses for SCA Final Cover Design

(Same as submitted and approved as part of the SCA Final Cover Design Report 2015 Construction [Parsons and Beech and Bonaparte 2015], except for two addendums that have been included as updates.)

Beech and Bonaparte
engineering p.c.

an affiliate of Geosyntec Consultants

CALCULATION PACKAGE COVER SHEET

Client: Honeywell **Project:** Onondaga Lake SCA Final Cover Design **Project/Proposal #:** GD5497

TITLE OF COMPUTATIONS **SETTLEMENT ANALYSES FOR SCA FINAL COVER DESIGN**

COMPUTATIONS BY:	Signature	Ray Wu	02/09/15
	Printed Name and Title	Ray Wu, Staff Engineer	DATE
ASSUMPTIONS AND PROCEDURES CHECKED BY:	Signature	Ali Ebrahimi	02/09/15
	Printed Name and Title	Ali Ebrahimi, Ph.D., P.E., Project Engineer	DATE
COMPUTATIONS CHECKED BY:	Signature	Meena Viswanath	02/09/15
	Printed Name and Title	Meena Viswanath, Senior Staff Engineer	DATE
COMPUTATIONS BACKCHECKED BY:	Signature	Ray Wu	02/09/15
	Printed Name and Title	Ray Wu, Staff Engineer	DATE
APPROVED BY:	Signature	J. F. Beech	04/10/15
	Printed Name and Title	Jay Beech, Ph.D., P.E., Principal	DATE

STATE OF NEW YORK · JOHN F. BEECH · No. 066337 · LICENSED PROFESSIONAL ENGINEER

APPROVAL NOTES:

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Written by:	**Ray Wu / Meena Viswanath**	Date:	**02/09/2015**	Reviewed by:	**Ali Ebrahimi / Jay Beech**	Date:	**02/09/2015**
Client:	**Honeywell**	Project:	**Onondaga Lake SCA Final Cover Design**	Project/ Proposal No.:	**GD5497**	Task No.:	**03**

SETTLEMENT ANALYSES FOR SCA FINAL COVER DESIGN

PURPOSE

This package was prepared in support of the final cover design for the Sediment Consolidation Area (SCA) as part of the Onondaga Lake remediation project. The SCA site has been constructed on Wastebed 13 (WB-13) in two phases (i.e., Phase I and Phase II), as shown in Figure 1. Dredged materials from Onondaga Lake have been transported to the SCA for dewatering and containment in geotextile tubes. Geotextile tube filling was completed in early November 2014.

Specifically, the purpose of this package is:

(i) to calculate primary settlement within the existing Solvay Waste (SOLW) underlying the SCA due to construction of the leveling layer to evaluate if positive drainage on the liner system towards the sumps is maintained before placement of the final cover;

(ii) to calculate primary settlement within the underlying SOLW and the dredge material inside the geotextile tubes due to construction of the leveling layer to evaluate regrading fill needed to achieve bottom of final cover design grades;

(iii) to calculate long-term (i.e., 30 years) primary and secondary settlement within the underlying SOLW due to placement of regrading fill and the final cover to estimate the post-settlement grades for the liner system and to evaluate if positive drainage towards the sumps is maintained 30 years after placement of the final cover; and

(iv) to calculate long-term (i.e., 30 years) primary and secondary settlement within the underlying SOLW and the dredge material inside the geotextile tubes due to placement of regrading fill and the final cover to estimate the post-settlement grades for the final cover system and to evaluate if positive drainage on the final cover is maintained 30 years after placement of the final cover.

METHODOLOGY

Consolidation Settlement

Settlement of the underlying SOLW and the dredge material inside the geotextile tubes is caused by:

- primary compression due to imposed loading (i.e., liner system, filling of geotextile tubes, and construction of the leveling layer and final cover system); and
- secondary compression due to sustained loading after primary compression is complete.

Settlement of the underlying SOLW and the dredge material inside the geotextile tubes was calculated using equations for conventional one-dimensional (1-D) consolidation theory used in geotechnical engineering [Holtz and Kovacs, 1981]. Due to the large area of loading, stress dissipation with depth was not considered in this analysis.

The general forms of the equations used for the settlement calculations are as follow:

Primary Settlement

$$S_p = C_{r\varepsilon}\, H \log\left(\frac{\sigma'_{vo} + \Delta\sigma'_v}{\sigma'_{vo}}\right) \quad \text{for } \sigma'_{vo} + \Delta\sigma'_v \le \sigma'_p \quad \text{.....(1)}$$

$$S_p = C_{r\varepsilon}\, H \log\left(\frac{\sigma'_p}{\sigma'_{vo}}\right) + C_{c\varepsilon}\, H \log\left(\frac{\sigma'_{vo} + \Delta\sigma'_v}{\sigma'_p}\right) \quad \text{for } \sigma'_{vo} \le \sigma'_p \text{ and } \sigma'_{vo} + \Delta\sigma'_v > \sigma'_p \quad \text{(2A)}$$

$$S_p = C_{c\varepsilon}\, H \log\left(\frac{\sigma'_{vo} + \Delta\sigma'_v}{\sigma'_{vo}}\right) \quad \text{for } \sigma'_{vo} \ge \sigma'_p \quad \text{.....(2B)}$$

Secondary Settlement

$$S_s = C_{\alpha\varepsilon}\, H \log\left(\frac{t_2}{t_1}\right) \quad \text{.....(3)}$$

Total Settlement

$$S = S_p + S_s \quad \text{.....(4)}$$

Where,

S_p = primary settlement;
S_s = secondary settlement;
S = total settlement;
$C_{c\varepsilon}$ = modified compression index;
$C_{r\varepsilon}$ = modified recompression index;
$C_{\alpha\varepsilon}$ = modified secondary compression index;
H = initial thickness of compressible layer;
σ'_{vo} = initial effective overburden stress;
σ'_p = preconsolidation pressure;
$\Delta\sigma'_v$ = increase in effective stress due to the loadings;
t_1 = time for completion of primary compression.
The time for completion of primary compression was estimated to range from several months (based on the pre-construction field settlement pilot study and measured settlements in the SCA) to several years (based on laboratory consolidation tests). For the purpose of this analysis, the time for completion of primary compression was assumed to be 1.0 year; and
t_2 = time when settlement due to secondary compression is computed (i.e., assuming secondary settlement assessment for 30 years after placement of the final cover).

Geotextile Tube Placement, Settlement Measurement, Calibration of Consolidation Parameters, and Assumptions

Geotextile tube filling started in the summer of 2012 in Phase I of the SCA and was completed in early November 2014. Due to varying slopes of the liner system in the SCA, the first layer of geotextile tubes in Phase I was a leveling layer to create a relatively horizontal surface with the top of the liner system in Phase II. For example, three layers of geotextile tubes in Phase I and two layers of geotextile tubes in Phase II created a relatively horizontal surface in the SCA. The final configuration of geotextile tubes was six layers of geotextile tubes in Phase I and five layers of geotextile tubes in Phase II.

The geometry of the SCA for the settlement calculations presented in this package was determined from a detailed topographic survey of the SCA taken on 7 December 2014. The topographic survey provides information on the configuration of geotextile tubes and delineation of the SCA sumps, berm, and debris management area (DMA).

During the past three years of operation, the settlement in the underlying SOLW was measured using 29 settlement cells (SCs) installed underneath the compacted clay liner. The locations of the SCs are shown in Figure 1. The SCs were monitored regularly. The SCA Geotechnical Monitoring Monthly Report (November 2014), after completion of geotextile tube filling, is appended to this calculation package. The measured settlement at the time of the survey was used to calibrate the SOLW consolidation parameters selected in the original SCA design. The settlement of the underlying SOLW after construction of the leveling layer and final cover system was calculated using the calibrated SOLW consolidation parameters.

To estimate the post-settlement grades of the top of clay liner and the top of final cover, several assumptions were made:

- no settlement occurs between the date of the survey and prior to placement of the leveling layer. This assumption was made to establish the leveling layer based on the detailed survey of the top of geotextile tubes conducted on 7 December 2014;
- the compacted clay liner, gravel layer, leveling fill, and final cover soil are assumed to be incompressible;
- the construction of the leveling layer and final cover system will occur over greater than one year. Therefore, the leveling layer grading was assumed to be constructed in two phases: (i) an initial leveling layer on top of the final layer of geotextile tubes to create a minimum 1% slope, and (ii) an additional leveling layer on top of the post-settlement surface of the initial leveling layer to achieve bottom of final cover design grades. It is assumed that primary settlement due to the initial leveling layer will be allowed to occur prior to the start of final cover system construction;
- the east and west sump areas will be filled at the beginning of construction of the initial leveling layer and then regraded to achieve design grades at the end of construction of the initial leveling layer. The estimated post-settlement elevations of the initial leveling layer shown later in this calculation package only include primary settlement due to regrading of the east and west sump areas; and

- the settlement from the additional leveling layer for regrading and from the 2-ft thick final cover system is calculated as one loading event.

Given these assumptions, the post-settlement elevations and contour maps shall be considered approximate.

Settlement Computation Model

Settlements were calculated using the surface settlement model (SSM) developed in EXCEL® spreadsheets by Beech and Bonaparte. The SSM calculated the underlying SOLW and dredge material settlements and estimated post-settlement elevations for selected calculation points. Post-settlement contour maps were produced using AutoCAD® Civil 3D® and were used to evaluate whether positive drainage is maintained on the clay liner and final cover system. A general summary of the steps used to perform the settlement calculations is:

Step 1. Approximately 900 calculation points were selected within the SCA footprint (i.e., Phases I and II) in order to produce the contour maps for the top of the clay liner and the final cover system. For each calculation point, the northing, easting, and the elevation were used.

Step 2. At each calculation point, the subsurface profile was identified and divided into distinct layers (i.e., sub-layers) of specific thickness and material properties, and the center elevation of each sub-layer was identified.

Step 3. The initial vertical effective stress, the increase in the vertical effective stress, and the final vertical effective stress were calculated at the center of each sub-layer.

Step 4. Using Equations 1 through 4, the settlements for each sub-layer were calculated. The total settlement at each calculation point was calculated by summing the calculated settlement from each sub-layer.

Step 5. Post-settlement elevations at each calculation point were estimated by subtracting the calculated settlement from the pre-settlement elevation.

Step 6. Post-settlement elevation contour maps were created using the estimated post-settlement elevations at the calculation points.

Secondary Settlement

The secondary settlement of the underlying SOLW and the dredge material inside geotextile tubes was calculated 30 years after construction of the final cover, and therefore, the t_2/t_1 ratio was assumed to be 30/1 (30).

ANALYSIS CASES

The following calculation cases were evaluated using the SSM.

CASE 1: Primary settlement of the underlying SOLW was calculated to estimate the post-settlement elevation of the clay liner after the placement of the initial leveling layer;

CASE 2: Primary settlement of the underlying SOLW and dredge material was calculated to estimate the post-settlement elevation of the initial leveling layer after placement;

CASE 3: Primary and secondary settlement of the underlying SOLW were calculated to estimate the post-settlement elevation of the clay liner 30 years after the placement of the final cover; and

CASE 4: Primary and secondary settlement of the underlying SOLW and dredge material were calculated to estimate the post-settlement elevation of the final cover 30 years after placement.

SUBSURFACE STRATIGRAPHY

Detailed information regarding the subsurface stratigraphy was presented in the NYSDEC approved calculation package titled "*Subsurface Stratigraphy Model of Wastebed 13 for the Design of Sediment Consolidation Area*" [Geosyntec, 2011a], referred to herein as the Data Package. In summary, the original subsurface stratigraphy consists primarily of three types of material: SOLW, dike soil, and foundation soil, as shown schematically in Figure 2. The dike soil and foundation soil were considered incompressible in this analysis. The groundwater table was assumed to be at elevation 375 ft, as presented in the Data Package.

MATERIAL PROPERTIES

The unit weights of the SOLW, compacted clay liner, gravel layer, dredge material, leveling fill, and final cover soil used in the settlement analysis are summarized in Table 1. The compression indices, $C_{c\varepsilon}$, of the SOLW presented in the Data Package were replaced with the calibrated $C_{c\varepsilon}$ obtained through back-calculation using the measured settlements at the SCA. The calibrated $C_{c\varepsilon}$ at each calculation point is presented in Figure 3.

The consolidation parameters of the dredge material were presented in the NYSDEC approved calculation package titled "*Settlement Analyses for SCA*" [Geosyntec, 2011b], and are included in Table 1.

SETTLEMENT CALCULATION SURFACES

The pre-settlement elevations of subsurface layers at the SCA were required as inputs to the SSM. These layers include from bottom to top: bottom of SOLW (assuming the layer beneath the underlying SOLW is incompressible), bottom of clay liner, top of clay liner, top of gravel, and the surveyed top of geotextile tubes. These layers are presented in Figures 4 through 8.

The surveyed top of geotextile tubes was used to develop the design grades of the initial leveling layer (Figure 9). The pre-settlement surface of the initial leveling layer was established by creating a minimum 1.0% slope with leveling fill above the top of geotextile tubes.

The pre-settlement surface of the final cover was estimated using the post-settlement elevation of the top of the initial leveling layer overlain by regrading fill (i.e., additional leveling layer) and a 2-ft thick final cover soil layer.

RESULTS

Given the assumptions noted previously, Cases 1 through 4 were evaluated, and those results are summarized in the paragraphs that follow.

CASE 1

The estimated post-settlement elevation contour map for the top of the clay liner after

placement of the initial leveling layer is shown in Figure 10. The estimated settlement calculated for this case consists of the primary settlement of the underlying SOLW due to the placement of the initial leveling layer. Figure 10 illustrates that the positive drainage path on the liner system appears to be maintained.

The spreadsheet output for settlement analysis for ten representative calculation points (i.e., 501 through 510) is presented in Attachment 1.

CASE 2

The estimated post-settlement elevation contour map for the top of the initial leveling layer after placement of the initial leveling layer is shown in Figure 11. The estimated settlement calculated for this case consists of the primary settlement of the underlying SOLW and dredge material in geotextile tubes due to the placement of the initial leveling layer. Figure 11 illustrates that the top of the initial leveling layer appears to maintain positive drainage of surface water towards the two collection sump areas. The estimated elevations shown in Figure 11 were used to establish the initial surface for the additional leveling layer and grading plan of the final cover. The design grading plan of the final cover is shown in Figure 12.

The spreadsheet output for settlement analysis for ten representative calculation points (i.e., 501 through 510) is presented in Attachment 2.

CASE 3

The estimated post-settlement elevation contour map for the top of the clay liner 30 years after placement of the additional leveling layer and final cover is shown in Figure 13. The estimated settlement for this case includes primary and secondary settlement of the underlying SOLW that occurred between placement of the final cover and 30 years afterwards. Figure 13 indicates that, in general, the positive grade of the liner system toward the east and west sumps can be maintained.

The spreadsheet output for settlement analysis for ten representative calculation points (i.e., 501 through 510) is presented in Attachment 3.

CASE 4

The estimated post-settlement elevation contour map for the top of the final cover 30 years after placement of the additional leveling layer and final cover is shown in Figure 14. The estimated settlement calculated for this case consists of: (i) the primary and secondary

Written by:	Ray Wu / Meena Viswanath	Date:	02/09/2015	Reviewed by:	Ali Ebrahimi / Jay Beech	Date:	02/09/2015
Client:	Honeywell	Project:	Onondaga Lake SCA Final Cover Design	Project/ Proposal No.:	GD5497	Task No.:	03

settlement of the underlying SOLW; and (ii) the primary and secondary settlement of the dredge material in geotextile tubes due to the placement of the additional leveling layer and final cover soil layer. Figure 14 indicates that, in general, the positive drainage slope from south to north of the SCA can be maintained.

The spreadsheet output for settlement analysis for ten representative calculation points (i.e., 501 through 510) is presented in Attachment 4.

CONCLUSIONS

The results of analyses presented in this report indicate that:

(i) the liner system is anticipated to maintain proper drainage slopes by allowing liquid to freely flow toward the east and west sumps during placement of the final cover and 30 years afterwards. The calculated settlement does not predict any grade reversal at the top of the liner or local liquid ponding in surrounding areas;

(ii) the east and the west sumps are anticipated to stay as the low points of the top of the liner system during placement of the final cover and 30 years afterwards; and

(iii) the proposed leveling layer and final cover are expected to maintain positive drainage slopes. Any unforeseen long-term development of local low points on the cover system will be addressed during the maintenance period.

As mentioned previously, the post-settlement elevations and contour maps should be considered approximations.

REFERENCES

Holtz, R.D., and Kovacs, W.D. "*An Introduction to Geotechnical Engineering*," Prentice-Hall Inc., Englewood Cliffs, N.J., 1981.

Geosyntec Consultants. "Appendix A: *Subsurface Stratigraphy Model of Wastebed 13 for the Design of Sediment Consolidation Area*," Onondaga Lake Sediment Consolidation Area Final Design, dated April 2011a.

Geosyntec Consultants. "Appendix H: *Settlement Analyses for SCA*," Onondaga Lake Sediment Consolidation Area Final Design, dated April 2011b.

Tables

Table 1. Summary of Material Properties for Settlement Calculation

Material	Total Unit Weight (γ_i, pcf)	Overconsolidation Ratio (OCR)	Compression Index ($C_{c\varepsilon}$)	Recompression Index ($C_{r\varepsilon}$)	Coefficient of Secondary Compression ($C_{\alpha\varepsilon}$)(1)
SOLW	82	1.0	From Figure 3	0.014	0.91%
Leveling Fill and Final Cover Soil	120	N/A	N/A	N/A	N/A
Dredge Material	86	1.0	0.291	0.0045	0.60%
Clay Liner and Gravel	120	N/A	N/A	N/A	N/A

Note: (1) $\sigma_v^{'} = \sigma_{v0}^{'} + \Delta\sigma_v^{'}$ is the final vertical effective stress; $\sigma_p^{'}$ is the pre-consolidation pressure.

Figures

Written by:	**Ray Wu / Meena Viswanath**	Date:	**02/09/2015**	Reviewed by:	**Ali Ebrahimi / Jay Beech**	Date:	**02/09/2015**
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Figure 1. Footprint of SCA Phase I and Phase II and Location of Settlement Cells (SC)
[Cross-Section A-A is shown in Figure 2]

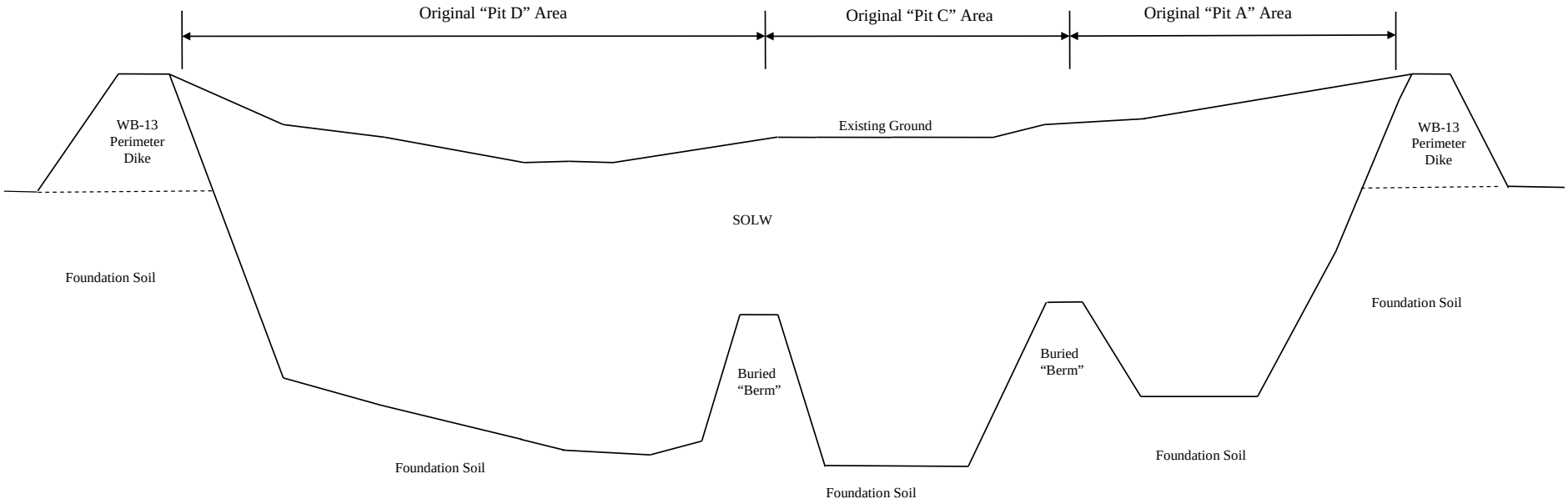

Figure 2. Schematic of the SCA Subsurface Profile (Cross-Section A-A shown in Figure 1)
[not to scale; for the purpose of showing subsurface stratigraphy only; Buried "berm" soil is considered part of the foundation soil]

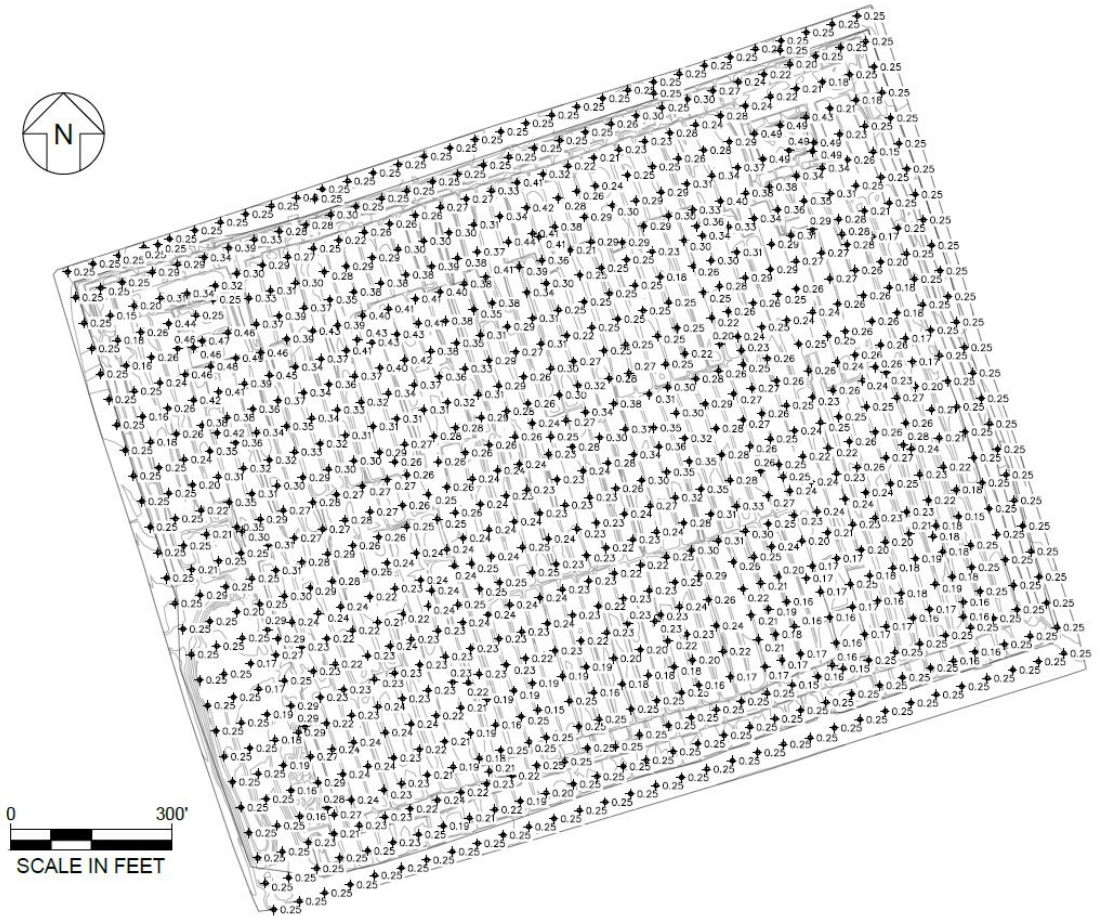

Figure 3. Calibrated C_{ce} of SOLW for each Calculation Point
[Contours are the top of geotextile tubes based on 7 December 2014 survey data; values are SOLW C_{ce}]

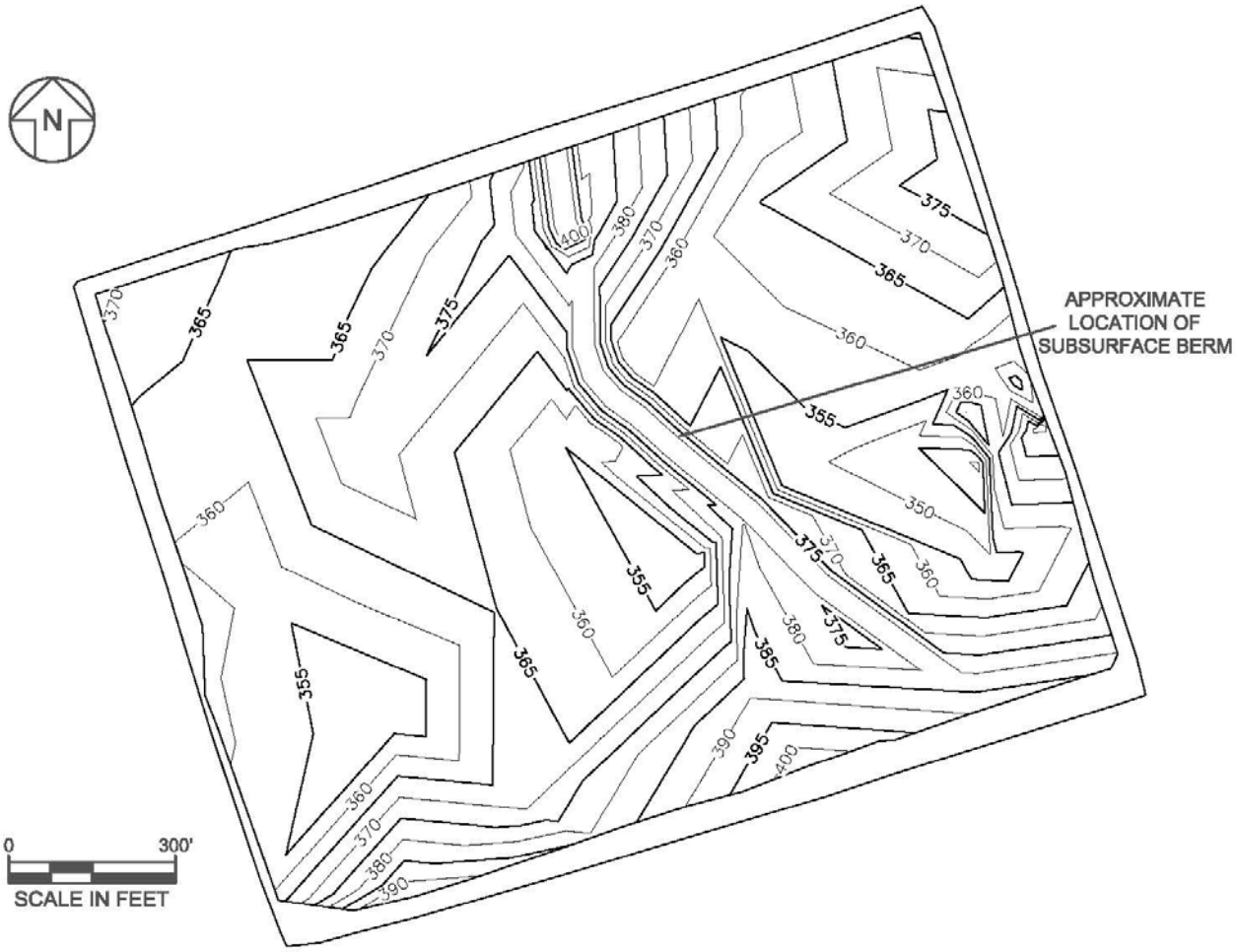

Figure 4. Elevations of the Bottom of SOLW at the SCA (i.e., top of incompressible foundation soil)

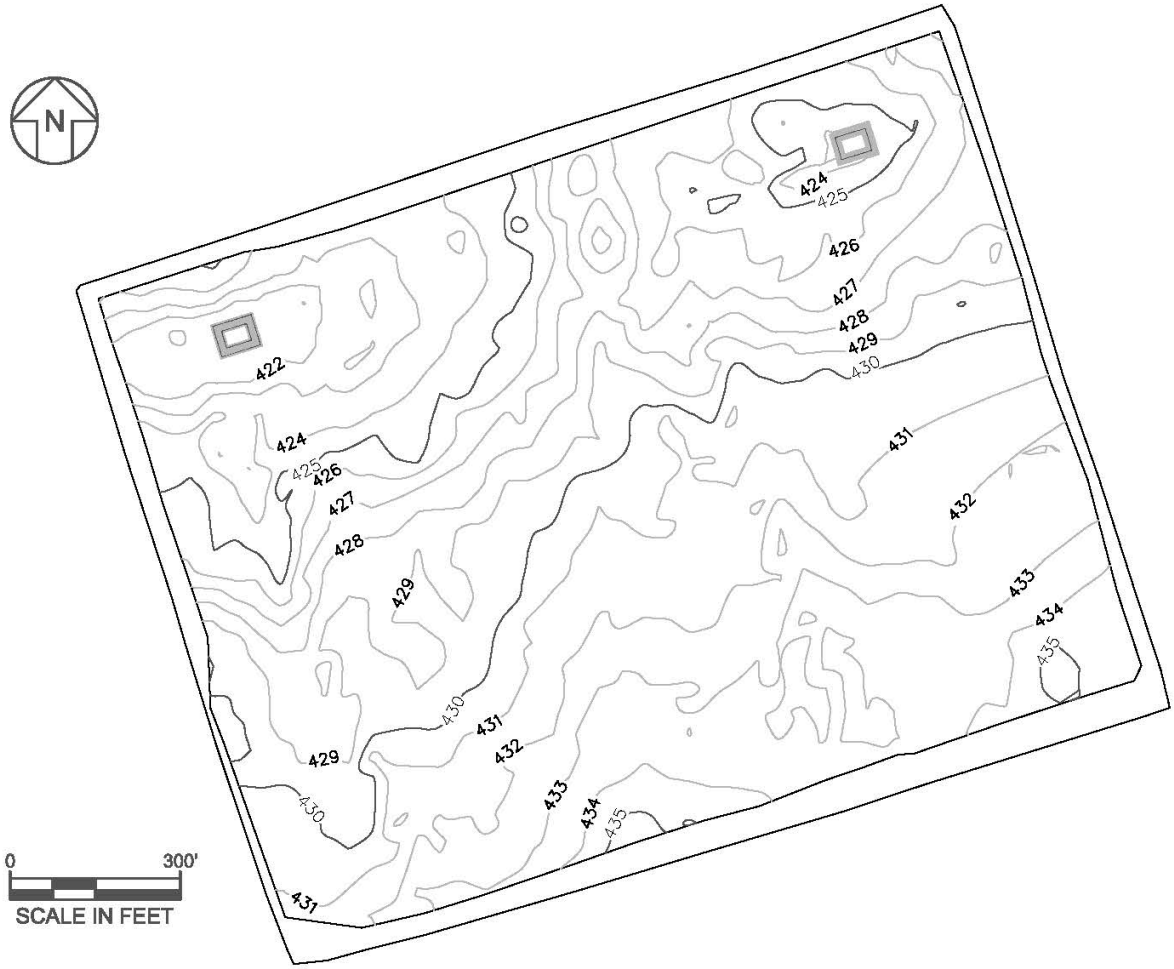

Figure 5. Bottom of Liner System Grading at the SCA (i.e., original grade before placement of liner system)

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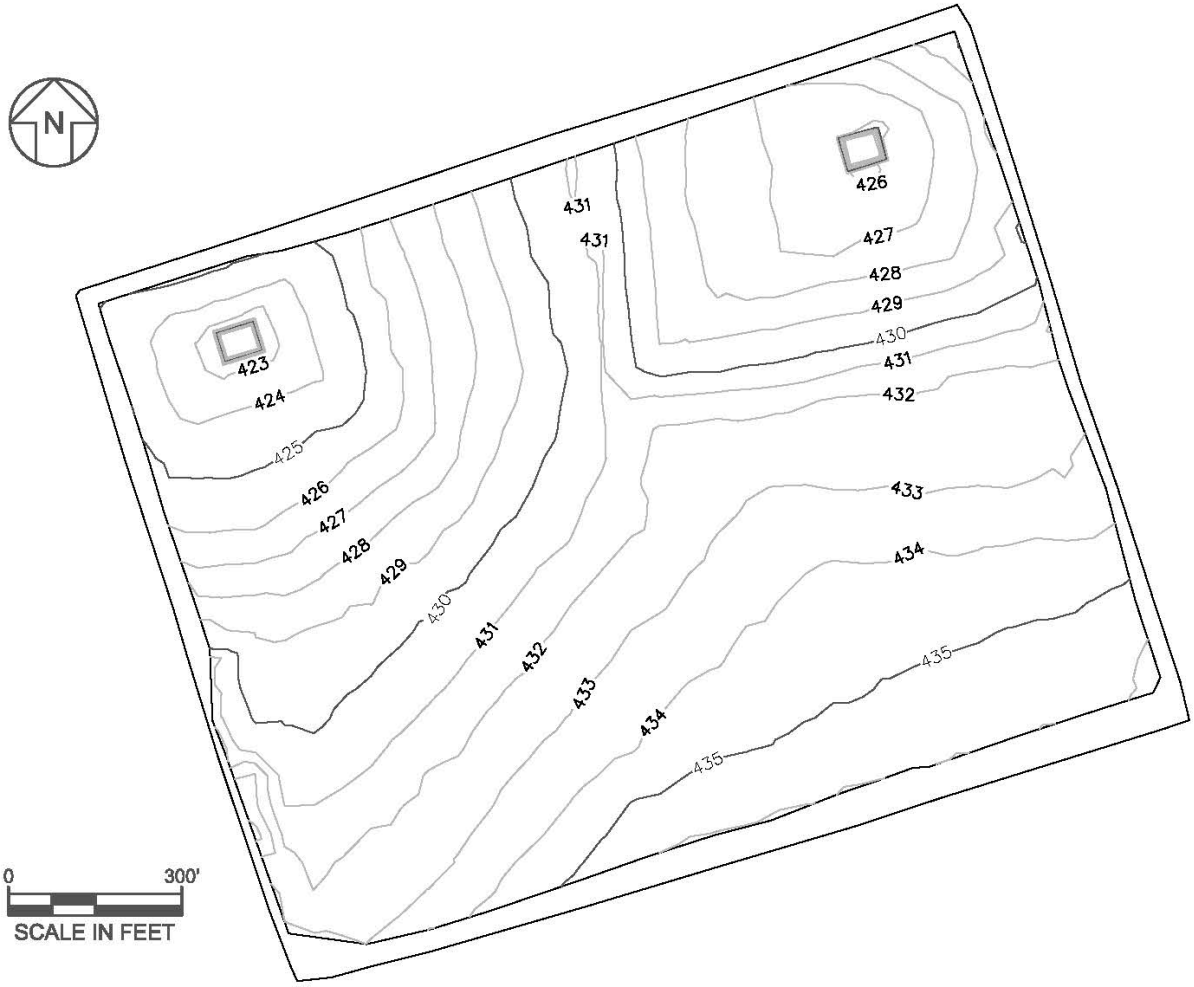

Figure 6. As-Built Elevations of the Top of Clay Liner at the SCA

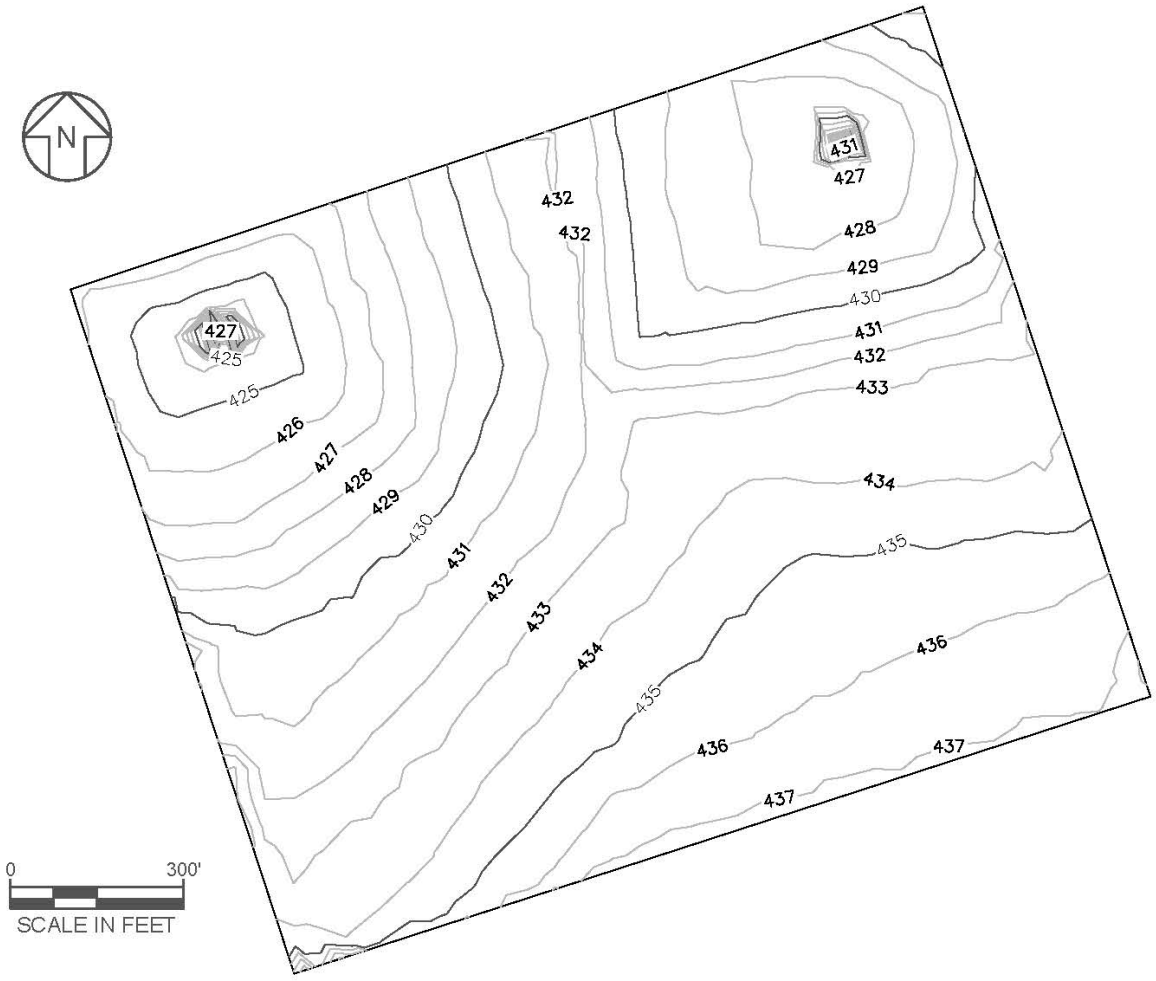

Figure 7. Estimated As-Built Elevations of the Top of Gravel at the SCA

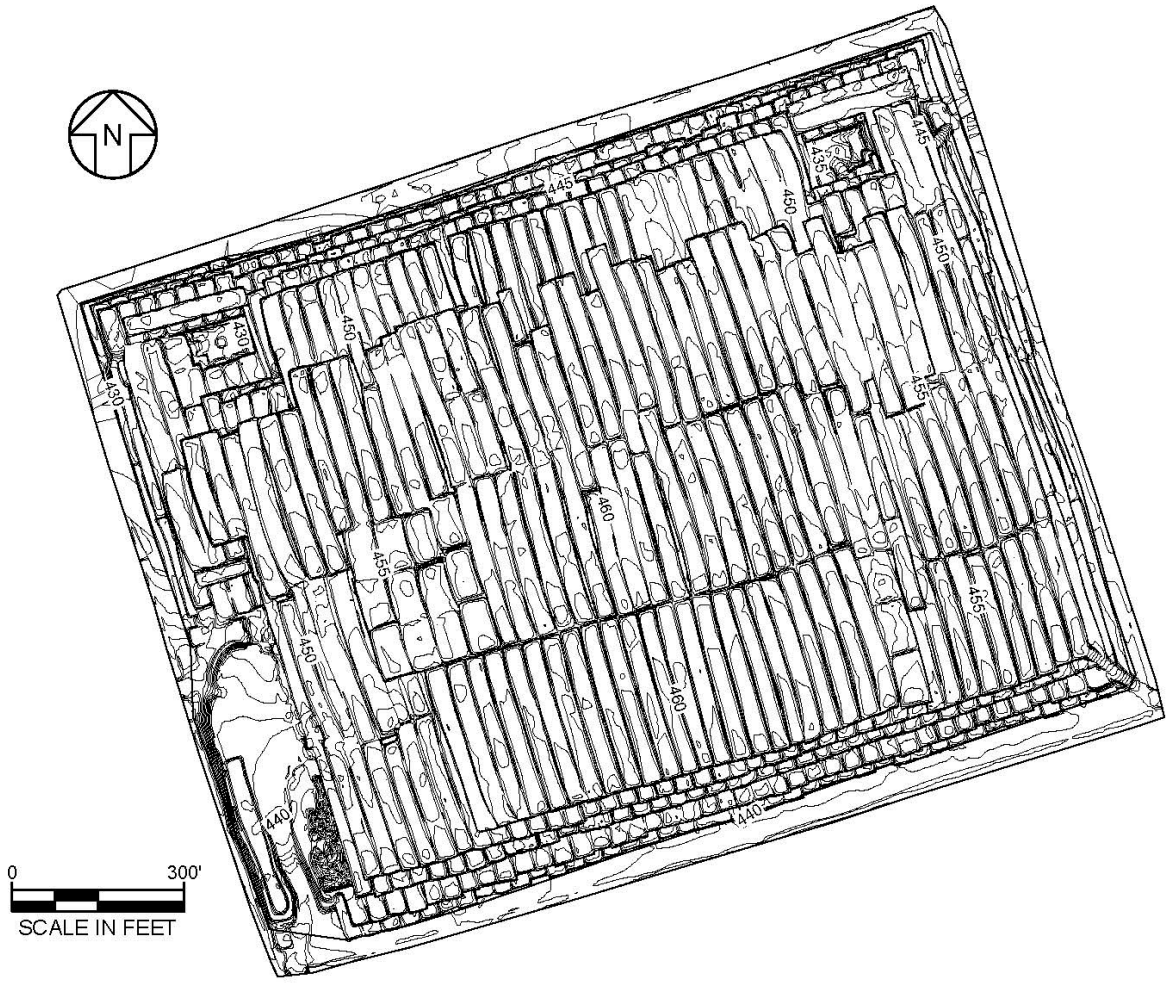

Figure 8. Surveyed Elevations of the Top of Geotextile Tubes

Notes:
1. Contours are based on 7 December 2014 survey data provided by Parsons.
2. These elevations are assumed to be the post-settlement elevations of the top of geotextile tubes (i.e., end of primary consolidation condition), prior to construction of leveling layer.

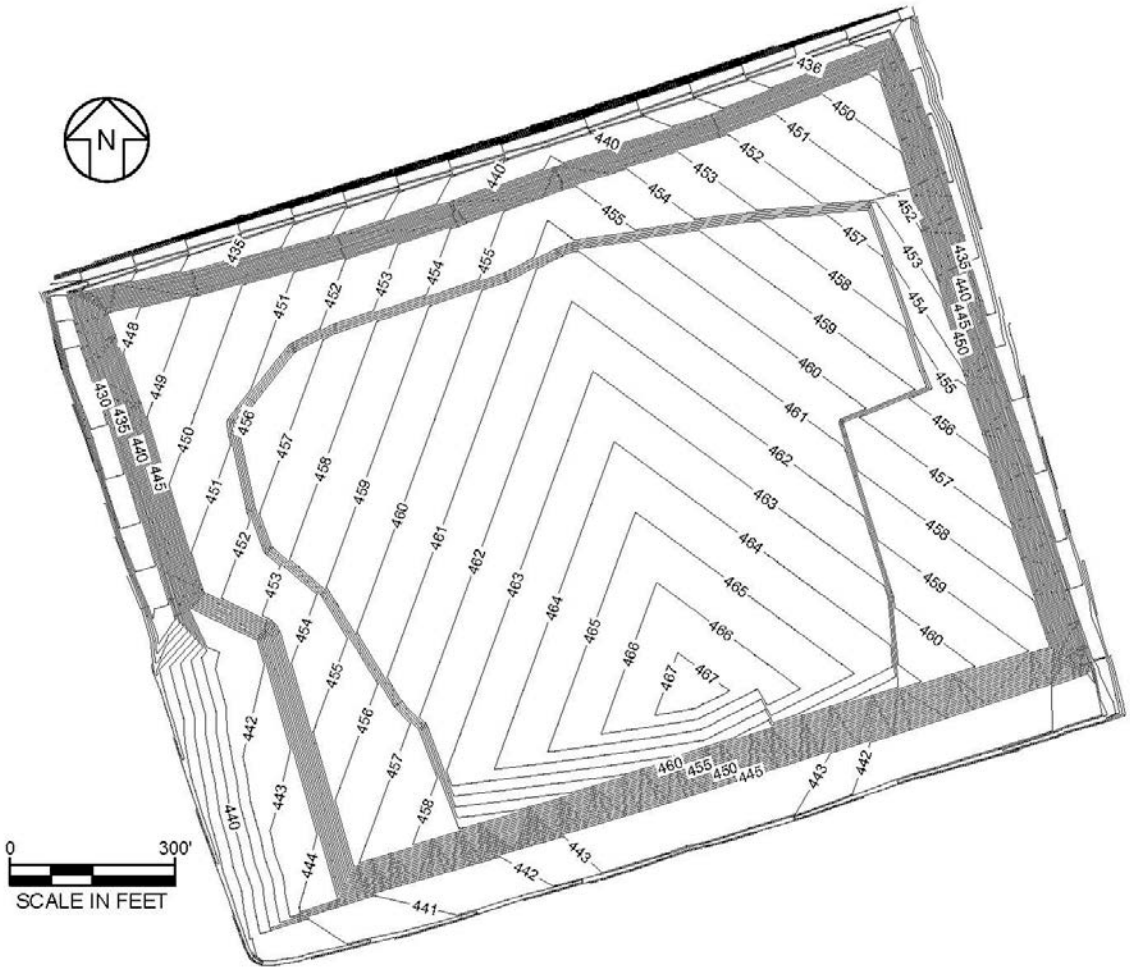

Figure 9. Design Grading Plan for the Initial Leveling Layer

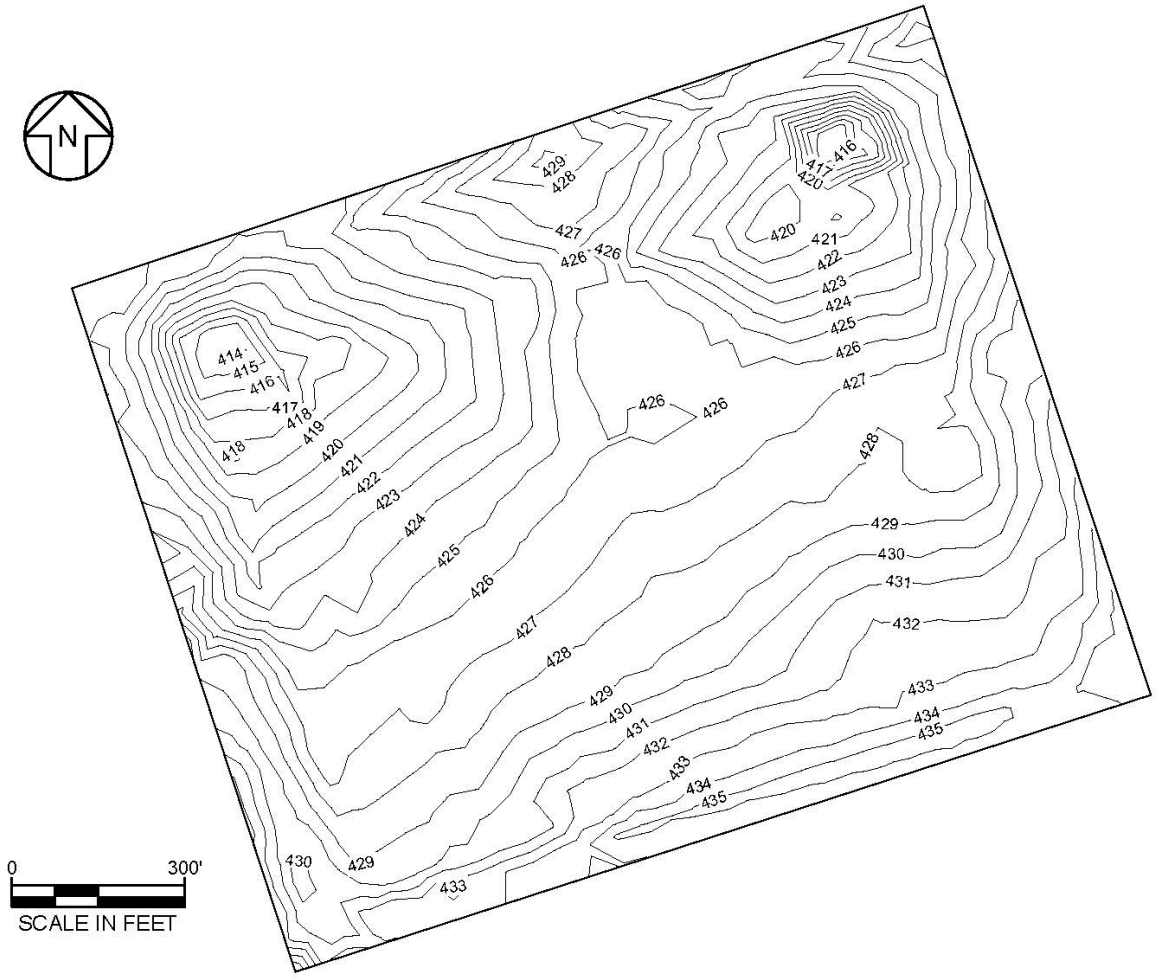

Figure 10. CASE 1: Estimated Post-Settlement Elevations of the Top of the Clay Liner after Placement of the Initial Leveling Layer

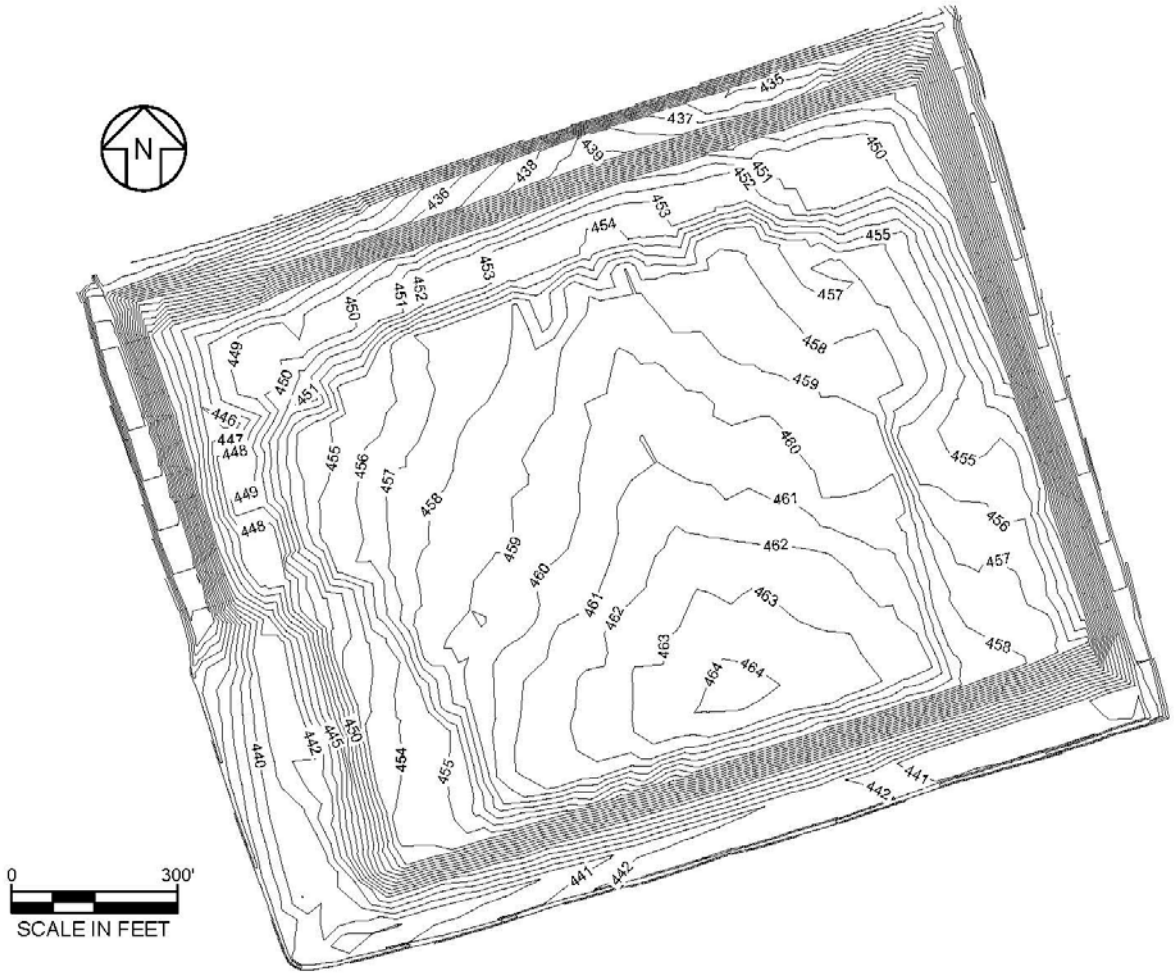

Figure 11. CASE 2: Estimated Post-Settlement Elevations of the Top of Initial Leveling Layer after Placement of the Initial Leveling Layer

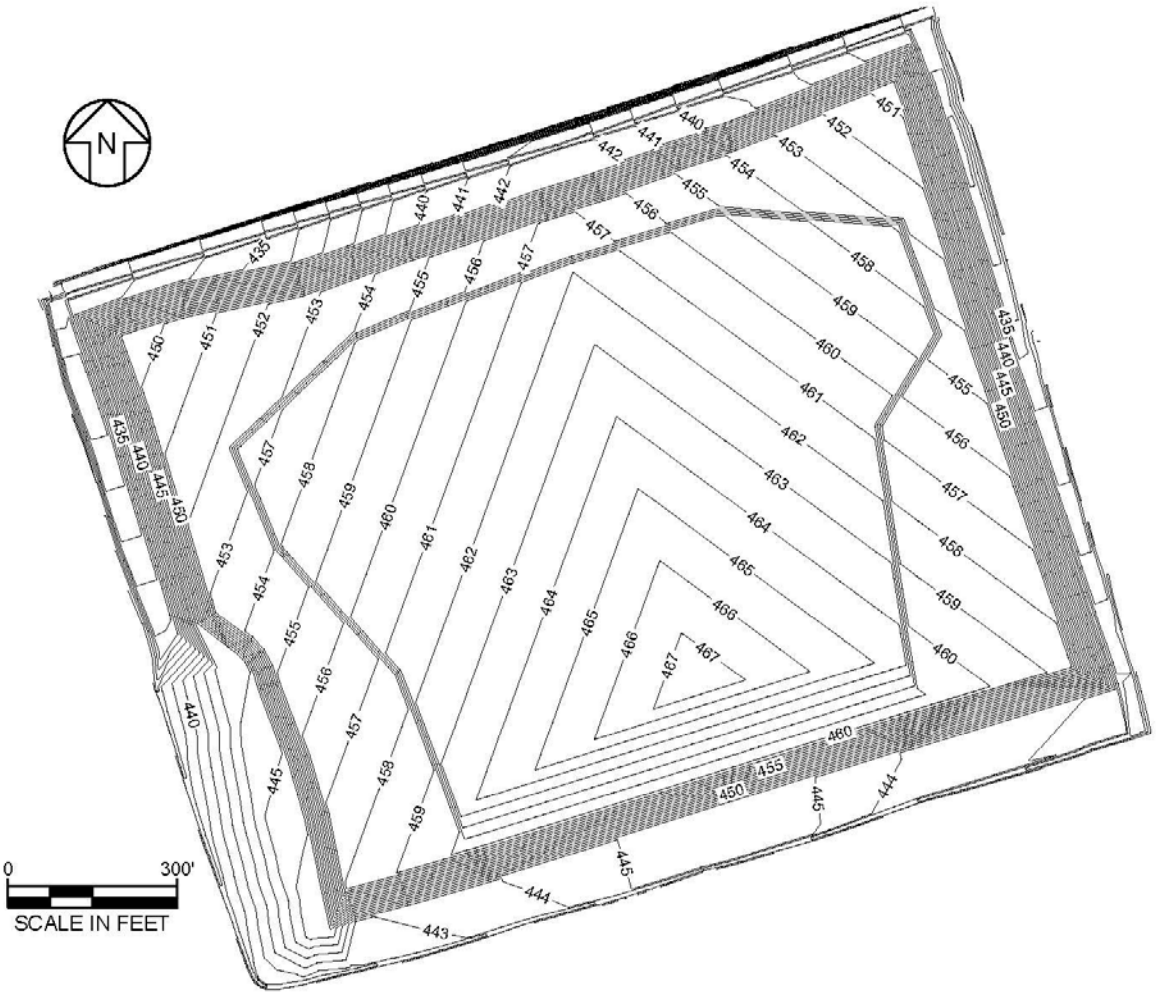

Figure 12. Design Grading Plan for the Final Cover

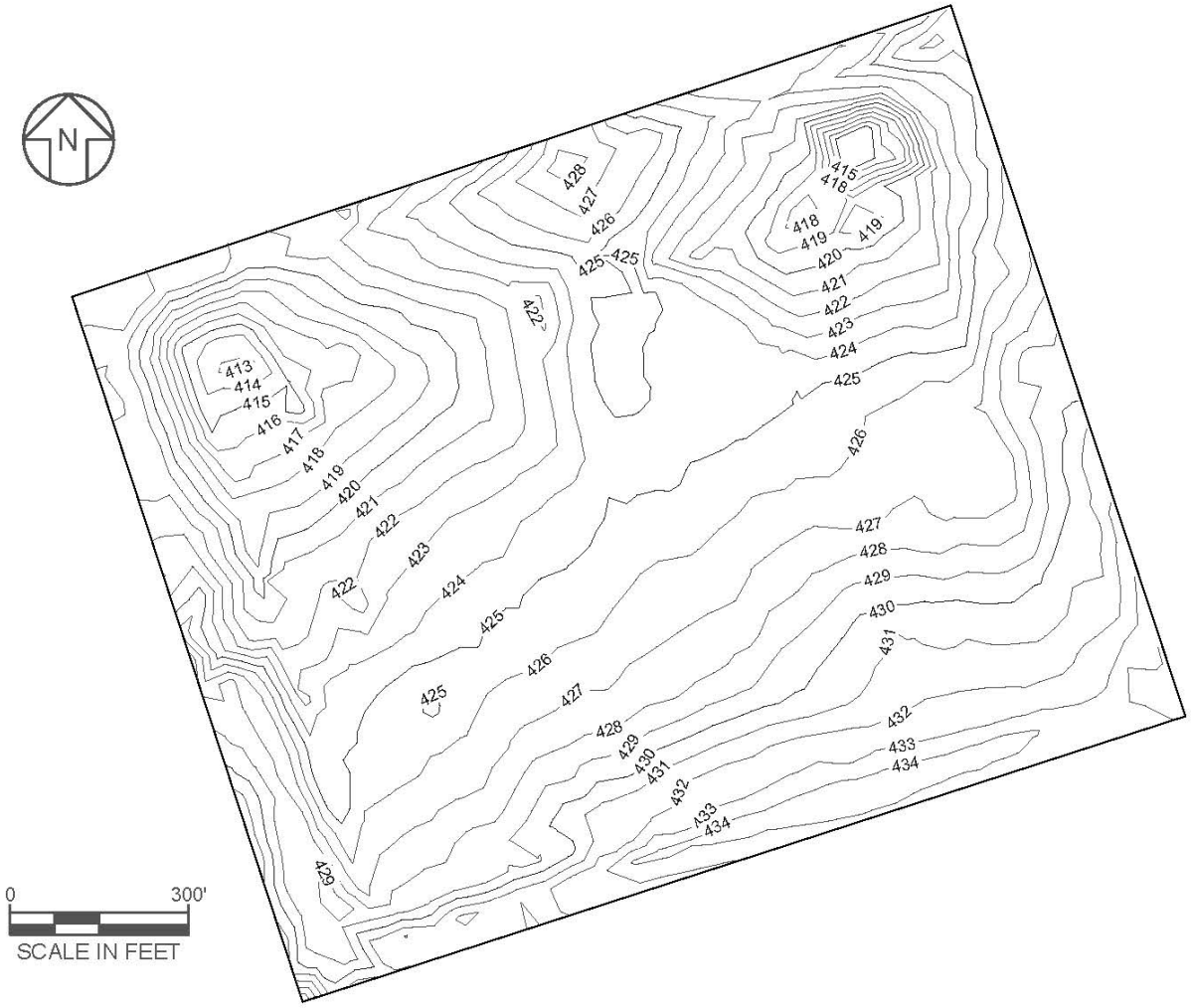

Figure 13. CASE 3: Estimated Post-Settlement Elevations of the Top of Clay Liner - 30 Years after Placement of the Final Cover

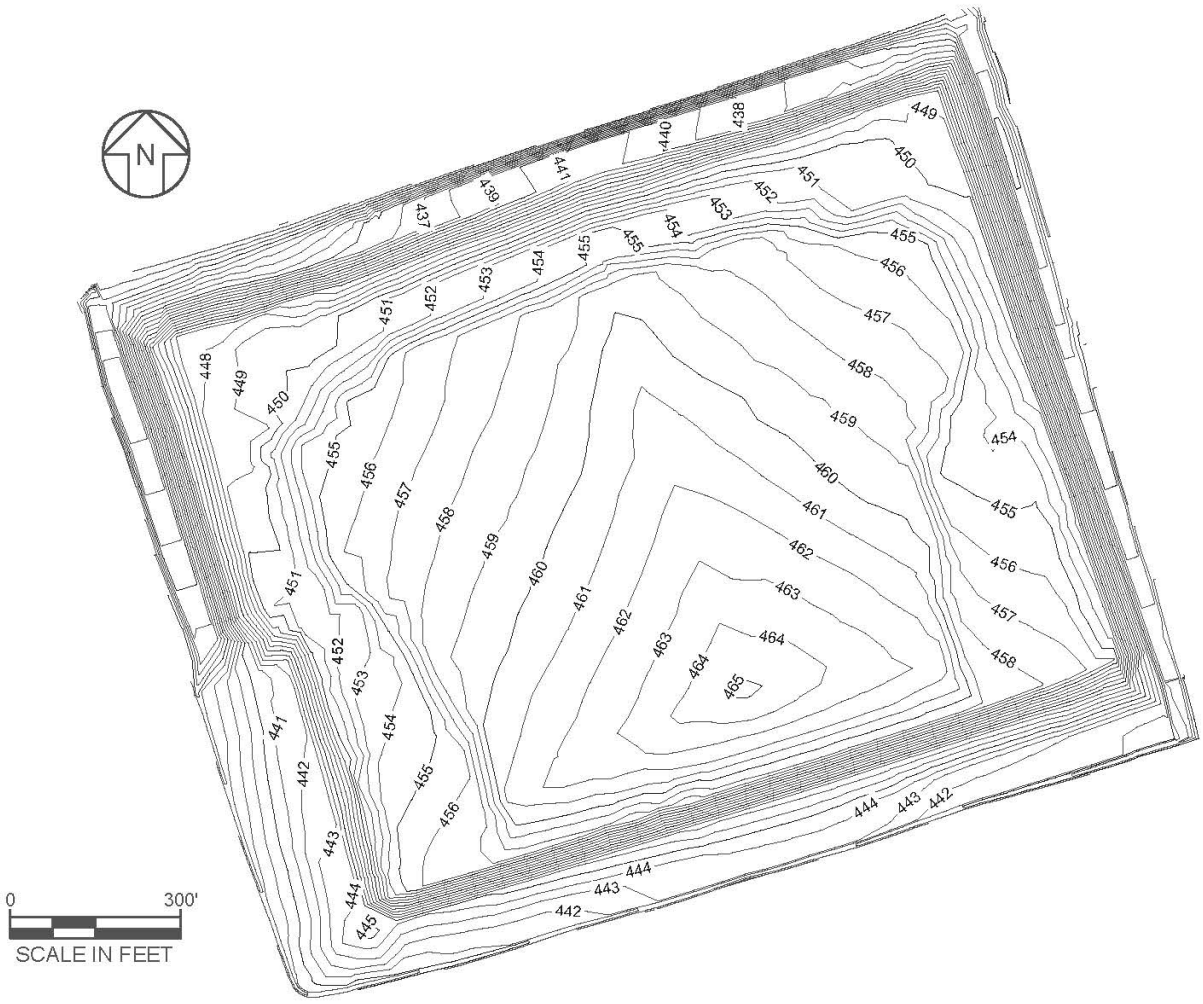

Figure 14. CASE 4: Estimated Post-Settlement Elevations of the Top of Final Cover - 30 Years after Placement of the Final Cover

Attachment 1

CASE 1: Settlement Analysis for the Top of Clay Liner after the Placement of the Initial Leveling Layer
(Points 501 to 510)

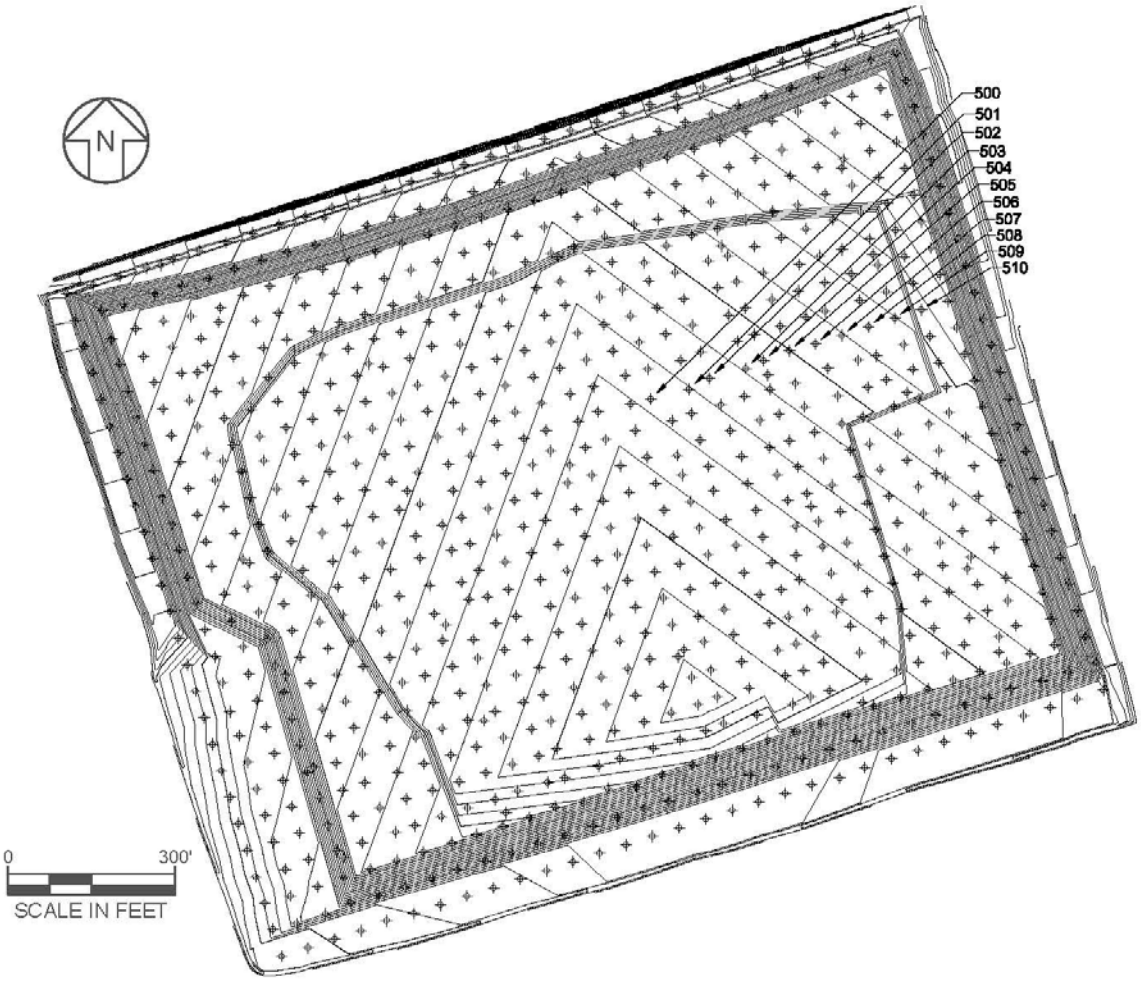

Figure 1-1. Calculation Points used for Settlement Analysis
[Contours are the Design Grading Plan for the Initial Leveling Layer]

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Settlement Prediction Model
Programmer: **Beech and Bonaparte Consultants**
Version Control V 2.00 1.12.2015

Project: **Onondaga Lake SCA Final**
S
Notes:
E
Unit: **ft / psf**
Average Compaction Effort = **1440.00** kPa or psf
Consider Compaction Effort = **N** yes or no

					501	502	503	504	505	506	507	508	509	510
Point #														
Distance (meter or ft)					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELEVATION(M/FT)	Line	1		Top of Leveling Layer	462.05	461.58	460.91	460.53	460.01	459.55	459.04	458.53	458.03	454.34
	Line	2		Top of Dredge	458.56	457.83	457.58	457.61	457.06	457.56	457.91	456.03	454.72	453.01
	Line	3		Top of Gravel	427.71	427.71	427.70	426.99	426.89	426.83	426.71	426.58	426.87	428.30
	Line	4		Top of Clay	426.71	426.71	426.70	425.99	425.89	425.83	425.71	425.58	425.87	427.30
	Line	5		Top of Dike	425.00	425.62	425.29	424.29	423.99	423.91	423.88	424.01	424.45	425.95
	Line	6		Top of Subgrade	425.00	425.62	425.29	424.29	423.99	423.91	423.88	424.01	424.45	425.95
	Line	7			422.37	422.95	422.64	421.69	421.41	421.34	421.31	421.43	421.85	423.27
	Line	8			419.74	420.29	420.00	419.10	418.83	418.77	418.74	418.85	419.25	420.58
	Line	9			417.11	417.63	417.35	416.50	416.25	416.19	416.17	416.27	416.64	417.90
	Line	10			414.48	414.96	414.70	413.91	413.68	413.62	413.59	413.69	414.04	415.22
	Line	11			411.84	412.30	412.06	411.32	411.10	411.04	411.02	411.11	411.44	412.54
	Line	12			409.21	409.63	409.41	408.72	408.52	408.47	408.45	408.53	408.84	409.86
	Line	13			406.58	406.97	406.76	406.13	405.94	405.89	405.87	405.96	406.23	407.18
	Line	14			403.95	404.31	404.12	403.53	403.36	403.32	403.30	403.38	403.63	404.50
	Line	15			401.32	401.64	401.47	400.94	400.78	400.74	400.73	400.80	401.03	401.81
	Line	16			398.69	398.98	398.82	398.35	398.21	398.17	398.16	398.22	398.42	399.13
	Line	17			396.05	396.31	396.18	395.75	395.63	395.60	395.58	395.64	395.82	396.45
	Line	18			393.42	393.65	393.53	393.16	393.05	393.02	393.01	393.06	393.22	393.77
	Line	19			390.79	390.98	390.88	390.56	390.47	390.45	390.44	390.48	390.62	391.09
	Line	20			388.16	388.32	388.23	387.97	387.89	387.87	387.86	387.90	388.01	388.41
	Line	21			385.53	385.66	385.59	385.38	385.31	385.30	385.29	385.32	385.41	385.73
	Line	22			382.90	382.99	382.94	382.78	382.74	382.72	382.72	382.74	382.81	383.04
	Line	23			380.26	380.33	380.29	380.19	380.16	380.15	380.15	380.16	380.21	380.36
	Line	24			377.63	377.66	377.65	377.59	377.58	377.57	377.57	377.58	377.60	377.68
	Line	25		Bottom of SOLW Above GW	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
	Line	26			371.52	369.47	368.52	368.98	369.52	369.93	370.36	370.80	371.26	371.80
	Line	27			368.03	363.93	362.04	362.96	364.04	364.86	365.71	366.60	367.53	368.60
	Line	28		Top of Incompressible Layer	364.55	358.40	355.57	356.94	358.57	359.79	361.07	362.40	363.79	365.40
	Line	29	GND	for sigma_p	429.39	429.54	428.97	428.60	428.27	428.16	428.19	428.44	428.55	428.54
	Line	30	GW		375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
	Line	31	ROCK		364.55	358.40	355.57	356.94	358.57	359.79	361.07	362.40	363.79	365.40
LAYER THICKNESS (M/FT)	Layer No.	From	To	Material										
	1	1	2	Leveling Layer	3.49	3.75	3.33	2.93	2.95	1.99	1.13	2.50	3.31	1.33
	2	2	3	Dredge	30.86	30.12	29.88	30.61	30.17	30.73	31.20	29.45	27.84	24.71
	3	3	4	Gravel	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	4	4	5	Clay	1.70	1.09	1.41	1.71	1.90	1.92	1.82	1.57	1.42	1.35
	5	5	6	Dike	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6	6	7	Above-GW-1	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	7	7	8	Above-GW-2	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	8	8	9	Above-GW-3	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	9	9	10	Above-GW-4	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	10	10	11	Above-GW-5	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	11	11	12	Above-GW-6	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	12	12	13	Above-GW-7	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	13	13	14	Above-GW-8	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	14	14	15	Above-GW-9	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	15	15	16	Above-GW-10	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	16	16	17	Above-GW-11	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	17	17	18	Above-GW-12	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	18	18	19	Above-GW-13	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	19	19	20	Above-GW-14	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	20	20	21	Above-GW-15	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	21	21	22	Above-GW-16	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	22	22	23	Above-GW-17	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	23	23	24	Above-GW-1	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	24	24	25	Above-GW-2	2.63	2.66	2.65	2.59	2.58	2.57	2.57	2.58	2.60	2.68
	25	25	26	Below-GW-18	3.48	5.53	6.48	6.02	5.48	5.07	4.64	4.20	3.74	3.20
	26	26	27	Below-GW-19	3.48	5.53	6.48	6.02	5.48	5.07	4.64	4.20	3.74	3.20
	27	27	28	Below-GW-3	3.48	5.53	6.48	6.02	5.48	5.07	4.64	4.20	3.74	3.20
	28													
	29	29	30	Soil Above GW	54.39	54.54	53.97	53.60	53.27	53.16	53.19	53.44	53.55	53.54
	30	30	31	Soil Below GW	10.45	16.60	19.43	18.06	16.43	15.21	13.93	12.60	11.21	9.60
Thickness Check														
	From Line	To Line		SUM	97.50	103.18	105.35	103.59	101.45	99.75	97.97	96.13	94.23	88.94
	1	28		Thickness =	97.50	103.18	105.35	103.59	101.45	99.75	97.97	96.13	94.23	88.94
				Thickness Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

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UNIT WEIGHT	Layer No.	Material										
	1	*Leveling Layer*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	2	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	3	*Gravel*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	4	*Clay*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	5	*Dike*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	6	*Above-GW-1*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	7	*Above-GW-2*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	8	*Above-GW-3*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	9	*Above-GW-4*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	10	*Above-GW-5*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	11	*Above-GW-6*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	12	*Above-GW-7*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	13	*Above-GW-8*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	14	*Above-GW-9*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	15	*Above-GW-10*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	16	*Above-GW-11*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	17	*Above-GW-12*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	18	*Above-GW-13*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	19	*Above-GW-14*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	20	*Above-GW-15*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	21	*Above-GW-16*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	22	*Above-GW-17*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	23	*Above-GW-1*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	24	*Above-GW-2*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	25	*Below-GW-18*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	26	*Below-GW-19*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	27	*Below-GW-3*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	28											
	29	*Soil Above GW*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	30	*Soil below GW*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	Layer No.	***1*** **Leveling Layer**										
		Initial Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
		Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
	Midpoint Elevation, (m / ft)		460.30	459.70	459.25	459.07	458.54	458.56	458.47	457.28	456.37	453.67
	Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
	Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)												
OCR Manual Input Value												
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)												
Modified Primary Compression Index, $C_{c\varepsilon}$												
Modified Recompression Index, $C_{r\varepsilon}$												
Modified Secondary Compression Index, C_α												
ratio of t2 / t1												
Settlements												
Primary Settlement, (m / ft)												
Secondary Settlement (m / ft)												
Total Settlement (m / ft)												
		Elastic or Plastic (E/P)										
		Settlement of Layer 1 (m / ft)										

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

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Layer No. *2* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Midpoint Elevation, (m / ft)		443.13	442.77	442.64	442.30	441.98	442.20	442.31	441.31	440.80	440.65
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)											
Settlement of Layer 2 (m / ft)											
Layer No. *3* **Gravel**											
Initial Stress Reference Layer (top of layer)		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Final Stress Reference Layer (top of layer)		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Midpoint Elevation, (m / ft)		427.21	427.21	427.20	426.49	426.39	426.33	426.21	426.08	426.37	427.80
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)											
Settlement of Layer 3 (m / ft)											
Layer No. *4* **Clay**											
Initial Stress Reference Layer (top of layer)		*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Final Stress Reference Layer (top of layer)		*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Midpoint Elevation, (m / ft)		425.85	426.16	426.00	425.14	424.94	424.87	424.80	424.80	425.16	426.62
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)											
Settlement of Layer 4 (m / ft)											

Layer No. *5* **Dike**											
Initial Stress Reference Layer (top of layer)		*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
Final Stress Reference Layer (top of layer)		*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
Midpoint Elevation, (m / ft)		425.00	425.62	425.29	424.29	423.99	423.91	423.88	424.01	424.45	425.95
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)											
Settlement of Layer 5 (m / ft)											
Layer No. *6* **Above-GW-1**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		423.69	424.29	423.97	422.99	422.70	422.63	422.60	422.72	423.15	424.61
Initial Effective Stress, σ'_i (kPa /psf)		3,085.74	2,950.46	2,967.21	3,063.90	3,048.75	3,098.64	3,127.36	2,946.58	2,791.85	2,516.87
Final Effective Stress, σ'_f (kPa/psf)		3,504.10	3,400.44	3,367.20	3,415.13	3,402.84	3,336.99	3,263.51	3,247.12	3,188.99	2,676.66
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		468	431	410	460	456	453	459	469	443	323
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.036	0.036	0.029	0.029	0.031	0.020	0.011	0.028	0.039	0.013
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.036	0.036	0.029	0.029	0.031	0.020	0.011	0.028	0.039	0.013
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 6 (m / ft)		0.036	0.036	0.029	0.029	0.031	0.020	0.011	0.028	0.039	0.013
Layer No. *7* **Above-GW-2**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		421.06	421.62	421.32	420.40	420.12	420.05	420.03	420.14	420.55	421.93
Initial Effective Stress, σ'_i (kPa /psf)		3,301.55	3,168.92	3,184.25	3,276.61	3,260.18	3,309.74	3,338.34	3,158.11	3,005.27	2,736.75
Final Effective Stress, σ'_f (kPa/psf)		3,719.90	3,618.90	3,584.25	3,627.84	3,614.27	3,548.09	3,474.49	3,458.65	3,402.41	2,896.54
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		684	649	627	672	668	665	670	680	656	543
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.034	0.034	0.027	0.028	0.029	0.019	0.011	0.026	0.036	0.012
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.034	0.034	0.027	0.028	0.029	0.019	0.011	0.026	0.036	0.012
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 7 (m / ft)		0.034	0.034	0.027	0.028	0.029	0.019	0.011	0.026	0.036	0.012

Layer No. *8* **Above-GW-3**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		418.42	418.96	418.67	417.80	417.54	417.48	417.45	417.56	417.94	419.24
Initial Effective Stress, σ'_i (kPa /psf)		3,517.35	3,387.38	3,401.30	3,489.32	3,471.61	3,520.84	3,549.31	3,369.63	3,218.69	2,956.63
Final Effective Stress, σ'_f (kPa/psf)		3,935.71	3,837.35	3,801.30	3,840.55	3,825.70	3,759.20	3,685.47	3,670.17	3,615.83	3,116.42
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		899	868	844	885	879	876	881	892	870	763
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.032	0.032	0.026	0.026	0.027	0.018	0.010	0.025	0.034	0.011
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.032	0.032	0.026	0.026	0.027	0.018	0.010	0.025	0.034	0.011
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 8 (m / ft)		0.032	0.032	0.026	0.026	0.027	0.018	0.010	0.025	0.034	0.011
Layer No. *9* **Above-GW-4**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		415.79	416.29	416.03	415.21	414.97	414.90	414.88	414.98	415.34	416.56
Initial Effective Stress, σ'_i (kPa /psf)		3,733.15	3,605.84	3,618.35	3,702.03	3,683.04	3,731.95	3,760.29	3,581.16	3,432.11	3,176.51
Final Effective Stress, σ'_f (kPa/psf)		4,151.51	4,055.81	4,018.34	4,053.26	4,037.13	3,970.30	3,896.44	3,881.70	3,829.25	3,336.30
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,115	1,086	1,061	1,098	1,091	1,087	1,092	1,103	1,083	983
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.030	0.030	0.024	0.025	0.026	0.017	0.010	0.023	0.032	0.010
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.030	0.030	0.024	0.025	0.026	0.017	0.010	0.023	0.032	0.010
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 9 (m / ft)		0.030	0.030	0.024	0.025	0.026	0.017	0.010	0.023	0.032	0.010
Layer No. *10* **Above-GW-5**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		413.16	413.63	413.38	412.61	412.39	412.33	412.31	412.40	412.74	413.88
Initial Effective Stress, σ'_i (kPa /psf)		3,948.96	3,824.29	3,835.40	3,914.74	3,894.47	3,943.05	3,971.27	3,792.69	3,645.53	3,396.38
Final Effective Stress, σ'_f (kPa/psf)		4,367.32	4,274.27	4,235.39	4,265.97	4,248.56	4,181.40	4,107.42	4,093.23	4,042.67	3,556.18
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,331	1,305	1,278	1,311	1,302	1,298	1,303	1,315	1,297	1,202
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.029	0.028	0.023	0.023	0.024	0.016	0.009	0.022	0.030	0.010
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.029	0.028	0.023	0.023	0.024	0.016	0.009	0.022	0.030	0.010
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 10 (m / ft)		0.029	0.028	0.023	0.023	0.024	0.016	0.009	0.022	0.030	0.010

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *11* **Above-GW-6**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		410.53	410.97	410.73	410.02	409.81	409.75	409.73	409.82	410.14	411.20
Initial Effective Stress, σ'_i (kPa /psf)		4,164.76	4,042.75	4,052.44	4,127.45	4,105.90	4,154.15	4,182.25	4,004.21	3,858.96	3,616.26
Final Effective Stress, σ'_f (kPa/psf)		4,583.12	4,492.73	4,452.44	4,478.68	4,459.98	4,392.51	4,318.40	4,304.75	4,256.10	3,776.06
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,547	1,523	1,495	1,523	1,513	1,509	1,514	1,526	1,510	1,422
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.027	0.027	0.022	0.022	0.023	0.015	0.009	0.021	0.029	0.009
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.027	0.027	0.022	0.022	0.023	0.015	0.009	0.021	0.029	0.009
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 11 (m / ft)		0.027	0.027	0.022	0.022	0.023	0.015	0.009	0.021	0.029	0.009
Layer No. *12* **Above-GW-7**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		407.90	408.30	408.09	407.43	407.23	407.18	407.16	407.24	407.53	408.52
Initial Effective Stress, σ'_i (kPa /psf)		4,380.57	4,261.21	4,269.49	4,340.16	4,317.33	4,365.26	4,393.22	4,215.74	4,072.38	3,836.14
Final Effective Stress, σ'_f (kPa/psf)		4,798.92	4,711.19	4,669.49	4,691.38	4,671.41	4,603.61	4,529.37	4,516.28	4,469.52	3,995.93
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,763	1,742	1,712	1,736	1,725	1,720	1,725	1,738	1,723	1,642
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.026	0.026	0.021	0.021	0.022	0.014	0.008	0.020	0.027	0.009
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.026	0.026	0.021	0.021	0.022	0.014	0.008	0.020	0.027	0.009
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 12 (m / ft)		0.026	0.026	0.021	0.021	0.022	0.014	0.008	0.020	0.027	0.009
Layer No. *13* **Above-GW-8**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		405.27	405.64	405.44	404.83	404.65	404.61	404.59	404.67	404.93	405.84
Initial Effective Stress, σ'_i (kPa /psf)		4,596	4,480	4,487	4,553	4,529	4,576	4,604	4,427	4,286	4,056
Final Effective Stress, σ'_f (kPa/psf)		5,015	4,930	4,887	4,904	4,883	4,815	4,740	4,728	4,683	4,216
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,978	1,960	1,929	1,949	1,936	1,931	1,936	1,949	1,937	1,862
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.025	0.024	0.020	0.020	0.021	0.014	0.008	0.019	0.026	0.008
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.025	0.024	0.020	0.020	0.021	0.014	0.008	0.019	0.026	0.008
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 13 (m / ft)		0.025	0.024	0.020	0.020	0.021	0.014	0.008	0.019	0.026	0.008

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *14* **Above-GW-9**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		402.63	402.97	402.79	402.24	402.07	402.03	402.02	402.09	402.33	403.16
Initial Effective Stress, σ'_i (kPa /psf)		4,812	4,698	4,704	4,766	4,740	4,787	4,815	4,639	4,499	4,276
Final Effective Stress, σ'_f (kPa/psf)		5,231	5,148	5,104	5,117	5,094	5,026	4,951	4,939	4,896	4,436
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,194	2,179	2,146	2,161	2,148	2,142	2,147	2,161	2,150	2,082
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.024	0.023	0.019	0.019	0.020	0.013	0.007	0.018	0.025	0.008
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.024	0.023	0.019	0.019	0.020	0.013	0.007	0.018	0.025	0.008
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 14 (m / ft)		0.024	0.023	0.019	0.019	0.020	0.013	0.007	0.018	0.025	0.008
Layer No. *15* **Above-GW-10**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		400.00	400.31	400.15	399.64	399.49	399.46	399.44	399.51	399.73	400.47
Initial Effective Stress, σ'_i (kPa /psf)		5,028	4,917	4,921	4,978	4,952	4,999	5,026	4,850	4,713	4,496
Final Effective Stress, σ'_f (kPa/psf)		5,446	5,367	5,321	5,330	5,306	5,237	5,162	5,151	5,110	4,656
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,410	2,397	2,363	2,374	2,359	2,353	2,358	2,372	2,364	2,302
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.023	0.022	0.018	0.018	0.019	0.012	0.007	0.018	0.024	0.007
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.023	0.022	0.018	0.018	0.019	0.012	0.007	0.018	0.024	0.007
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 15 (m / ft)		0.023	0.022	0.018	0.018	0.019	0.012	0.007	0.018	0.024	0.007
Layer No. *16* **Above-GW-11**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		397.37	397.65	397.50	397.05	396.92	396.88	396.87	396.93	397.12	397.79
Initial Effective Stress, σ'_i (kPa /psf)		5,244	5,135	5,138	5,191	5,163	5,210	5,237	5,062	4,926	4,716
Final Effective Stress, σ'_f (kPa/psf)		5,662	5,585	5,538	5,542	5,517	5,448	5,373	5,362	5,323	4,875
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,626	2,616	2,580	2,587	2,571	2,565	2,569	2,584	2,577	2,522
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.022	0.021	0.017	0.018	0.019	0.012	0.007	0.017	0.023	0.007
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.022	0.021	0.017	0.018	0.019	0.012	0.007	0.017	0.023	0.007
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 16 (m / ft)		0.022	0.021	0.017	0.018	0.019	0.012	0.007	0.017	0.023	0.007

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *17* **Above-GW-12**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		394.74	394.98	394.85	394.46	394.34	394.31	394.30	394.35	394.52	395.11
Initial Effective Stress, σ'_i (kPa /psf)		5,460	5,353	5,355	5,404	5,374	5,421	5,448	5,273	5,139	4,936
Final Effective Stress, σ'_f (kPa/psf)		5,878	5,803	5,755	5,755	5,729	5,659	5,584	5,574	5,537	5,095
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,842	2,834	2,797	2,800	2,782	2,776	2,780	2,795	2,791	2,742
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.021	0.021	0.017	0.017	0.018	0.012	0.007	0.016	0.022	0.007
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.021	0.021	0.017	0.017	0.018	0.012	0.007	0.016	0.022	0.007
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 17 (m / ft)		0.021	0.021	0.017	0.017	0.018	0.012	0.007	0.016	0.022	0.007
Layer No. *18* **Above-GW-13**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		392.11	392.32	392.20	391.86	391.76	391.73	391.72	391.77	391.92	392.43
Initial Effective Stress, σ'_i (kPa /psf)		5,675	5,572	5,572	5,616	5,586	5,632	5,659	5,485	5,353	5,155
Final Effective Stress, σ'_f (kPa/psf)		6,094	6,022	5,972	5,968	5,940	5,870	5,795	5,785	5,750	5,315
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,057	3,052	3,014	3,012	2,993	2,987	2,991	3,007	3,004	2,961
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.020	0.020	0.016	0.016	0.017	0.011	0.006	0.016	0.021	0.006
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.020	0.020	0.016	0.016	0.017	0.011	0.006	0.016	0.021	0.006
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 18 (m / ft)		0.020	0.020	0.016	0.016	0.017	0.011	0.006	0.016	0.021	0.006
Layer No. *19* **Above-GW-14**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		389.47	389.65	389.56	389.27	389.18	389.16	389.15	389.19	389.31	389.75
Initial Effective Stress, σ'_i (kPa /psf)		5,891	5,790	5,789	5,829	5,797	5,843	5,870	5,696	5,566	5,375
Final Effective Stress, σ'_f (kPa/psf)		6,310	6,240	6,189	6,180	6,151	6,081	6,006	5,997	5,963	5,535
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,273	3,271	3,232	3,225	3,205	3,198	3,202	3,218	3,217	3,181
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.020	0.019	0.015	0.016	0.017	0.011	0.006	0.015	0.020	0.006
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.020	0.019	0.015	0.016	0.017	0.011	0.006	0.015	0.020	0.006
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 19 (m / ft)		0.020	0.019	0.015	0.016	0.017	0.011	0.006	0.015	0.020	0.006

Layer No. *20* **Above-GW-15**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		386.84	386.99	386.91	386.67	386.60	386.58	386.58	386.61	386.71	387.07
Initial Effective Stress, σ'_i (kPa /psf)		6,107	6,009	6,006	6,042	6,009	6,054	6,081	5,908	5,780	5,595
Final Effective Stress, σ'_f (kPa/psf)		6,525	6,459	6,406	6,393	6,363	6,292	6,217	6,208	6,177	5,755
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,489	3,489	3,449	3,438	3,416	3,409	3,413	3,430	3,431	3,401
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.019	0.018	0.015	0.015	0.016	0.010	0.006	0.014	0.020	0.006
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.019	0.018	0.015	0.015	0.016	0.010	0.006	0.014	0.020	0.006
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 20 (m / ft)		0.019	0.018	0.015	0.015	0.016	0.010	0.006	0.014	0.020	0.006
Layer No. *21* **Above-GW-16**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		384.21	384.32	384.26	384.08	384.02	384.01	384.01	384.03	384.11	384.39
Initial Effective Stress, σ'_i (kPa /psf)		6,323	6,227	6,223	6,255	6,220	6,265	6,292	6,119	5,993	5,815
Final Effective Stress, σ'_f (kPa/psf)		6,741	6,677	6,623	6,606	6,574	6,504	6,428	6,420	6,390	5,975
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,705	3,708	3,666	3,650	3,628	3,620	3,624	3,641	3,644	3,621
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.018	0.018	0.014	0.015	0.015	0.010	0.006	0.014	0.019	0.006
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.018	0.018	0.014	0.015	0.015	0.010	0.006	0.014	0.019	0.006
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 21 (m / ft)		0.018	0.018	0.014	0.015	0.015	0.010	0.006	0.014	0.019	0.006
Layer No. *22* **Above-GW-17**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		381.58	381.66	381.62	381.49	381.45	381.44	381.43	381.45	381.51	381.70
Initial Effective Stress, σ'_i (kPa /psf)		6,539	6,446	6,440	6,467	6,432	6,476	6,503	6,331	6,207	6,035
Final Effective Stress, σ'_f (kPa/psf)		6,957	6,896	6,840	6,818	6,786	6,715	6,639	6,632	6,604	6,195
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,921	3,926	3,883	3,863	3,839	3,831	3,834	3,853	3,858	3,841
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.018	0.017	0.014	0.014	0.015	0.010	0.006	0.014	0.018	0.005
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.018	0.017	0.014	0.014	0.015	0.010	0.006	0.014	0.018	0.005
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 22 (m / ft)		0.018	0.017	0.014	0.014	0.015	0.010	0.006	0.014	0.018	0.005

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *23* **Above-GW-1**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		378.95	379.00	378.97	378.89	378.87	378.86	378.86	378.87	378.90	379.02
Initial Effective Stress, σ'_i (kPa /psf)		6,754	6,664	6,657	6,680	6,643	6,687	6,714	6,543	6,420	6,255
Final Effective Stress, σ'_f (kPa/psf)		7,173	7,114	7,057	7,031	6,997	6,926	6,850	6,843	6,817	6,415
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		4,136	4,145	4,100	4,076	4,051	4,042	4,045	4,064	4,071	4,061
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.017	0.017	0.013	0.014	0.015	0.009	0.005	0.013	0.018	0.005
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.017	0.017	0.013	0.014	0.015	0.009	0.005	0.013	0.018	0.005
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 23 (m / ft)		0.017	0.017	0.013	0.014	0.015	0.009	0.005	0.013	0.018	0.005
Layer No. *24* **Above-GW-2**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		376.32	376.33	376.32	376.30	376.29	376.29	376.29	376.29	376.30	376.34
Initial Effective Stress, σ'_i (kPa /psf)		6,970	6,883	6,874	6,893	6,854	6,898	6,925	6,754	6,633	6,475
Final Effective Stress, σ'_f (kPa/psf)		7,389	7,333	7,274	7,244	7,209	7,137	7,061	7,055	7,031	6,634
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		4,352	4,363	4,317	4,289	4,262	4,253	4,256	4,276	4,285	4,281
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.017	0.016	0.013	0.013	0.014	0.009	0.005	0.013	0.017	0.005
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.017	0.016	0.013	0.013	0.014	0.009	0.005	0.013	0.017	0.005
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 24 (m / ft)		0.017	0.016	0.013	0.013	0.014	0.009	0.005	0.013	0.017	0.005
Layer No. *25* **Below-GW-18**											
Initial Stress Reference Layer (top of layer)		2	2	2	2	2	2	2	2	2	2
Final Stress Reference Layer (top of layer)		1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)		373.26	372.23	371.76	371.99	372.26	372.47	372.68	372.90	373.13	373.40
Initial Effective Stress, σ'_i (kPa /psf)		7,112.27	7,046.17	7,046.07	7,058.01	7,013.88	7,053.72	7,075.93	6,900.96	6,776.76	6,615.97
Final Effective Stress, σ'_f (kPa/psf)		7,530.62	7,496.15	7,446.07	7,409.23	7,367.96	7,292.07	7,212.09	7,201.50	7,173.90	6,775.76
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		4,494	4,527	4,489	4,454	4,421	4,409	4,407	4,423	4,428	4,422
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements											
Primary Settlement, (m / ft)		0.022	0.033	0.031	0.030	0.029	0.018	0.009	0.020	0.024	0.006
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.022	0.033	0.031	0.030	0.029	0.018	0.009	0.020	0.024	0.006
Elastic or Plastic (E/P)											
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 25 (m / ft)		0.022	0.033	0.031	0.030	0.029	0.018	0.009	0.020	0.024	0.006

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *26* **Below-GW-19**										
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		369.77	366.70	365.28	365.97	366.78	367.40	368.04	368.70	369.40
Initial Effective Stress, σ'_i (kPa /psf)		7,180.55	7,154.65	7,173.04	7,175.99	7,121.24	7,153.06	7,166.93	6,983.26	6,849.98
Final Effective Stress, σ'_f (kPa/psf)		7,598.91	7,604.63	7,573.04	7,527.21	7,475.32	7,391.41	7,303.08	7,283.80	7,247.12
Elastic Method										
Modulus, E (kPa/psf)=	Strain									
	Settlement (m / ft)									
1-D Consolidation Theory (Plastic Method)										
Consolidation Properties										
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)		4,563	4,635	4,616	4,572	4,529	4,508	4,498	4,505	4,501
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements										
Primary Settlement, (m / ft)		0.021	0.032	0.031	0.030	0.029	0.017	0.009	0.020	0.024
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.021	0.032	0.031	0.030	0.029	0.017	0.009	0.020	0.024
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 26 (m / ft)		0.021	0.032	0.031	0.030	0.029	0.017	0.009	0.020	0.024
Layer No. *27* **Below-GW-3**										
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		366.29	361.16	358.80	359.95	361.31	362.33	363.39	364.50	365.66
Initial Effective Stress, σ'_i (kPa /psf)		7,248.83	7,263.13	7,300.02	7,293.96	7,228.60	7,252.40	7,257.93	7,065.56	6,923.20
Final Effective Stress, σ'_f (kPa/psf)		7,667.19	7,713.10	7,700.01	7,645.19	7,582.68	7,490.75	7,394.08	7,366.10	7,320.34
Elastic Method										
Modulus, E (kPa/psf)=	Strain									
	Settlement (m / ft)									
1-D Consolidation Theory (Plastic Method)										
Consolidation Properties										
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)		4,631	4,744	4,743	4,690	4,636	4,607	4,589	4,588	4,574
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Settlements										
Primary Settlement, (m / ft)		0.021	0.032	0.030	0.030	0.028	0.017	0.009	0.020	0.024
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.021	0.032	0.030	0.030	0.028	0.017	0.009	0.020	0.024
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 27 (m / ft)		0.021	0.032	0.030	0.030	0.028	0.017	0.009	0.020	0.024

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

	Layer No.	Material										
LAYER SETTLEMENT	1	*Leveling Layer*										
	2	*Dredge*										
	3	*Gravel*										
	4	*Clay*										
	5	*Dike*										
	6	*Above-GW-1*	0.036	0.036	0.029	0.029	0.031	0.020	0.011	0.028	0.039	0.013
	7	*Above-GW-2*	0.034	0.034	0.027	0.028	0.029	0.019	0.011	0.026	0.036	0.012
	8	*Above-GW-3*	0.032	0.032	0.026	0.026	0.027	0.018	0.010	0.025	0.034	0.011
	9	*Above-GW-4*	0.030	0.030	0.024	0.025	0.026	0.017	0.010	0.023	0.032	0.010
	10	*Above-GW-5*	0.029	0.028	0.023	0.023	0.024	0.016	0.009	0.022	0.030	0.010
	11	*Above-GW-6*	0.027	0.027	0.022	0.022	0.023	0.015	0.009	0.021	0.029	0.009
	12	*Above-GW-7*	0.026	0.026	0.021	0.021	0.022	0.014	0.008	0.020	0.027	0.009
	13	*Above-GW-8*	0.025	0.024	0.020	0.020	0.021	0.014	0.008	0.019	0.026	0.008
	14	*Above-GW-9*	0.024	0.023	0.019	0.019	0.020	0.013	0.007	0.018	0.025	0.008
	15	*Above-GW-10*	0.023	0.022	0.018	0.018	0.019	0.012	0.007	0.018	0.024	0.007
	16	*Above-GW-11*	0.022	0.021	0.017	0.018	0.019	0.012	0.007	0.017	0.023	0.007
	17	*Above-GW-12*	0.021	0.021	0.017	0.017	0.018	0.012	0.007	0.016	0.022	0.007
	18	*Above-GW-13*	0.020	0.020	0.016	0.016	0.017	0.011	0.006	0.016	0.021	0.006
	19	*Above-GW-14*	0.020	0.019	0.015	0.016	0.017	0.011	0.006	0.015	0.020	0.006
	20	*Above-GW-15*	0.019	0.018	0.015	0.015	0.016	0.010	0.006	0.014	0.020	0.006
	21	*Above-GW-16*	0.018	0.018	0.014	0.015	0.015	0.010	0.006	0.014	0.019	0.006
	22	*Above-GW-17*	0.018	0.017	0.014	0.014	0.015	0.010	0.006	0.014	0.018	0.005
	23	*Above-GW-1*	0.017	0.017	0.013	0.014	0.015	0.009	0.005	0.013	0.018	0.005
	24	*Above-GW-2*	0.017	0.016	0.013	0.013	0.014	0.009	0.005	0.013	0.017	0.005
	25	*Below-GW-18*	0.022	0.033	0.031	0.030	0.029	0.018	0.009	0.020	0.024	0.006
	26	*Below-GW-19*	0.021	0.032	0.031	0.030	0.029	0.017	0.009	0.020	0.024	0.006
	27	*Below-GW-3*	0.021	0.032	0.030	0.030	0.028	0.017	0.009	0.020	0.024	0.006
	28											
	29	*Soil Above GW*										
	30	*Soil Below GW*										
		TOTAL SETTLEMENT	**0.52**	**0.55**	**0.45**	**0.46**	**0.47**	**0.30**	**0.17**	**0.41**	**0.55**	**0.17**
POST-SETTLEMENT ELEVATION(M/FT)	Line	1	461.52	461.03	460.46	460.07	459.54	459.25	458.87	458.12	457.47	454.17
	Line	2	458.04	457.28	457.13	457.15	456.59	457.26	457.74	455.62	454.16	452.84
	Line	3	427.18	427.16	427.25	426.53	426.42	426.53	426.54	426.17	426.32	428.13
	Line	4	426.18	426.16	426.25	425.53	425.42	425.53	425.54	425.17	425.32	427.13
	Line	5	424.48	425.07	424.84	423.83	423.52	423.61	423.71	423.60	423.90	425.78
	Line	6	424.48	425.07	424.84	423.83	423.52	423.61	423.71	423.60	423.90	425.78
	Line	7	421.89	422.44	422.22	421.26	420.97	421.06	421.15	421.05	421.34	423.11
	Line	8	419.29	419.81	419.60	418.70	418.42	418.50	418.59	418.50	418.77	420.44
	Line	9	416.69	417.18	416.98	416.13	415.87	415.94	416.03	415.94	416.20	417.77
	Line	10	414.09	414.55	414.36	413.56	413.31	413.39	413.46	413.38	413.63	415.10
	Line	11	411.48	411.91	411.73	410.99	410.76	410.83	410.90	410.83	411.06	412.43
	Line	12	408.88	409.27	409.11	408.41	408.20	408.27	408.34	408.27	408.48	409.76
	Line	13	406.27	406.64	406.48	405.84	405.65	405.71	405.77	405.71	405.91	407.08
	Line	14	403.67	404.00	403.85	403.27	403.09	403.15	403.21	403.15	403.33	404.41
	Line	15	401.06	401.36	401.23	400.69	400.53	400.59	400.64	400.59	400.75	401.74
	Line	16	398.45	398.71	398.60	398.12	397.97	398.02	398.07	398.03	398.18	399.06
	Line	17	395.84	396.07	395.97	395.54	395.41	395.46	395.51	395.46	395.60	396.39
	Line	18	393.23	393.43	393.34	392.96	392.85	392.90	392.94	392.90	393.01	393.71
	Line	19	390.62	390.78	390.71	390.39	390.29	390.34	390.38	390.33	390.43	391.04
	Line	20	388.01	388.14	388.07	387.81	387.73	387.77	387.81	387.77	387.85	388.36
	Line	21	385.39	385.49	385.44	385.23	385.17	385.21	385.24	385.21	385.27	385.69
	Line	22	382.78	382.85	382.81	382.65	382.60	382.64	382.68	382.64	382.68	383.01
	Line	23	380.17	380.20	380.18	380.07	380.04	380.08	380.11	380.07	380.10	380.33
	Line	24	377.55	377.55	377.54	377.49	377.48	377.51	377.54	377.51	377.51	377.66
	Line	25	374.94	374.90	374.91	374.91	374.91	374.95	374.97	374.94	374.93	374.98
	Line	26	371.47	369.40	368.46	368.92	369.47	369.90	370.34	370.76	371.22	371.79
	Line	27	368.01	363.90	362.01	362.93	364.02	364.85	365.71	366.58	367.50	368.60
	Line	28	364.55	358.40	355.57	356.94	358.57	359.79	361.07	362.40	363.79	365.40
	Line	29										
	Line	30										
	Line	31										

Attachment 2

CASE 2: Settlement Analysis for the Top of Initial Leveling Layer after the Placement of the Initial Leveling Layer
(Points 501 to 510)

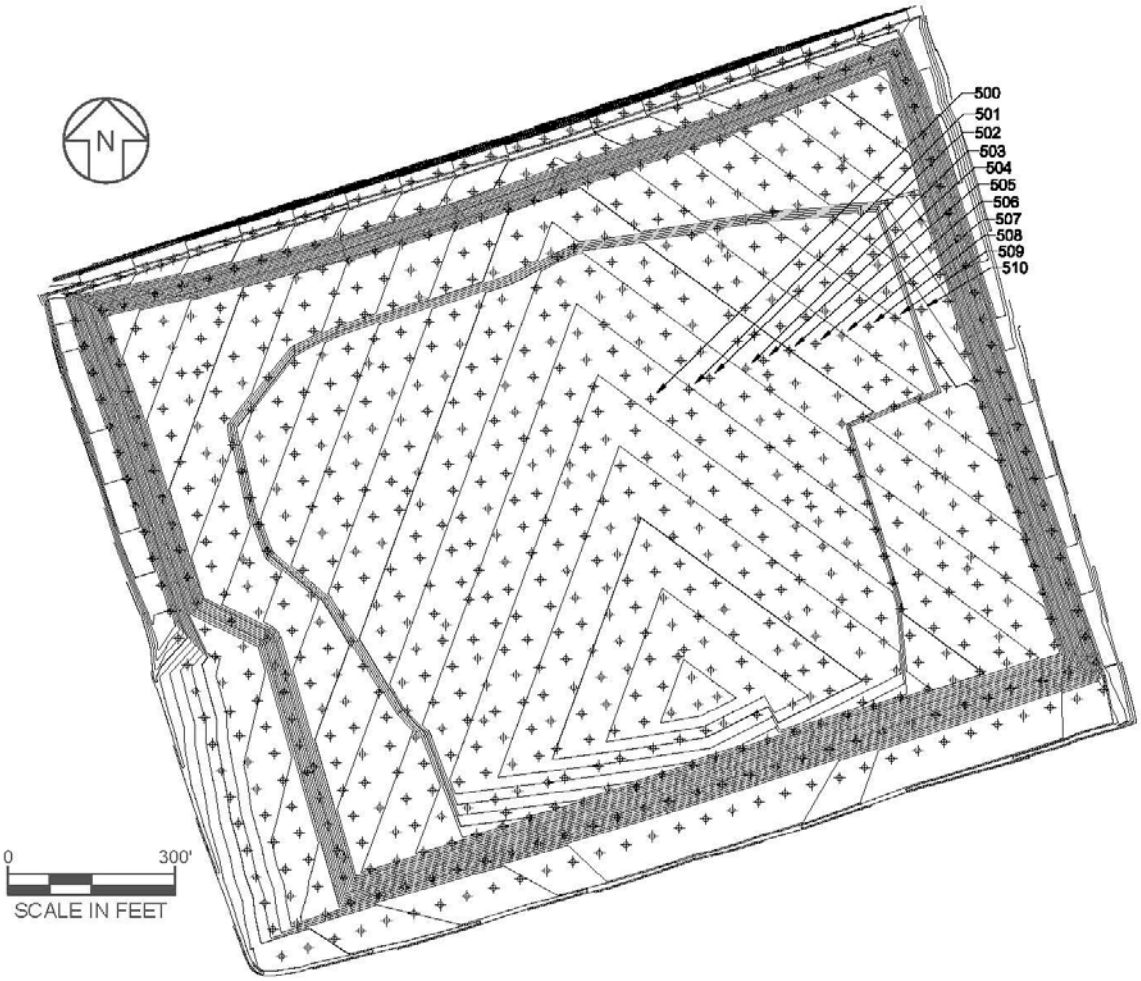

Figure 2-1. Calculation Points used for Settlement Analysis
[Contours are the Design Grading Plan for the Initial Leveling Layer]

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Settlement Prediction Model
Programmer: **Beech and Bonaparte**
Version Control V 2.00 01.28.2015

Project: **Onondaga Lake SCA Final**
S
Notes:
E
Unit: **ft / psf**
Average Compaction Effort = **1440.00** kPa or psf
Consider Compaction Effort = **N** yes or no

Point #				**501**	**502**	**503**	**504**	**505**	**506**	**507**	**508**	**509**	**510**
Distance (meter or ft)				*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
ELEVATION(M/FT)	Line	1	Top of Leveling Layer	*462.05*	*461.58*	*460.91*	*460.53*	*460.01*	*459.55*	*459.04*	*458.53*	*458.03*	*454.34*
	Line	2	Top of Dredge (Final Geotube)	*458.56*	*457.83*	*457.58*	*457.61*	*457.06*	*457.56*	*457.91*	*456.03*	*454.72*	*453.01*
	Line	3		*457.37*	*456.67*	*456.43*	*456.43*	*455.90*	*456.38*	*456.71*	*454.90*	*453.65*	*452.06*
	Line	4		*456.19*	*455.51*	*455.28*	*455.25*	*454.74*	*455.20*	*455.51*	*453.76*	*452.57*	*451.11*
	Line	5		*455.00*	*454.35*	*454.13*	*454.07*	*453.58*	*454.02*	*454.31*	*452.63*	*451.50*	*450.16*
	Line	6		*453.81*	*453.20*	*452.98*	*452.90*	*452.42*	*452.84*	*453.11*	*451.50*	*450.43*	*449.20*
	Line	7		*452.63*	*452.04*	*451.83*	*451.72*	*451.26*	*451.65*	*451.91*	*450.37*	*449.36*	*448.25*
	Line	8		*451.44*	*450.88*	*450.68*	*450.54*	*450.10*	*450.47*	*450.71*	*449.23*	*448.29*	*447.30*
	Line	9		*450.25*	*449.72*	*449.54*	*449.36*	*448.94*	*449.29*	*449.51*	*448.10*	*447.22*	*446.35*
	Line	10		*449.07*	*448.56*	*448.39*	*448.19*	*447.78*	*448.11*	*448.31*	*446.97*	*446.15*	*445.40*
	Line	11		*447.88*	*447.40*	*447.24*	*447.01*	*446.62*	*446.93*	*447.11*	*445.84*	*445.08*	*444.45*
	Line	12		*446.69*	*446.24*	*446.09*	*445.83*	*445.46*	*445.74*	*445.91*	*444.70*	*444.01*	*443.50*
	Line	13		*445.51*	*445.09*	*444.94*	*444.65*	*444.30*	*444.56*	*444.71*	*443.57*	*442.94*	*442.55*
	Line	14		*444.32*	*443.93*	*443.79*	*443.48*	*443.14*	*443.38*	*443.51*	*442.44*	*441.87*	*441.60*
	Line	15		*443.13*	*442.77*	*442.64*	*442.30*	*441.98*	*442.20*	*442.31*	*441.31*	*440.80*	*440.65*
	Line	16		*441.95*	*441.61*	*441.49*	*441.12*	*440.82*	*441.02*	*441.11*	*440.17*	*439.72*	*439.70*
	Line	17		*440.76*	*440.45*	*440.34*	*439.95*	*439.66*	*439.84*	*439.91*	*439.04*	*438.65*	*438.75*
	Line	18		*439.57*	*439.29*	*439.19*	*438.77*	*438.50*	*438.65*	*438.71*	*437.91*	*437.58*	*437.80*
	Line	19		*438.39*	*438.14*	*438.04*	*437.59*	*437.34*	*437.47*	*437.51*	*436.78*	*436.51*	*436.85*
	Line	20		*437.20*	*436.98*	*436.89*	*436.41*	*436.18*	*436.29*	*436.31*	*435.64*	*435.44*	*435.90*
	Line	21		*436.01*	*435.82*	*435.74*	*435.24*	*435.02*	*435.11*	*435.11*	*434.51*	*434.37*	*434.95*
	Line	22		*434.83*	*434.66*	*434.60*	*434.06*	*433.86*	*433.93*	*433.91*	*433.38*	*433.30*	*434.00*
	Line	23		*433.64*	*433.50*	*433.45*	*432.88*	*432.70*	*432.74*	*432.71*	*432.25*	*432.23*	*433.05*
	Line	24		*432.45*	*432.34*	*432.30*	*431.70*	*431.54*	*431.56*	*431.51*	*431.11*	*431.16*	*432.10*
	Line	25		*431.27*	*431.18*	*431.15*	*430.53*	*430.37*	*430.38*	*430.31*	*429.98*	*430.09*	*431.15*
	Line	26		*430.08*	*430.03*	*430.00*	*429.35*	*429.21*	*429.20*	*429.11*	*428.85*	*429.02*	*430.20*
	Line	27		*428.89*	*428.87*	*428.85*	*428.17*	*428.05*	*428.02*	*427.91*	*427.71*	*427.95*	*429.25*
	Line	28	Top of Gravel(Top of Incompre	*427.71*	*427.71*	*427.70*	*426.99*	*426.89*	*426.83*	*426.71*	*426.58*	*426.87*	*428.30*
	Line	29	GND for sigma_p	*429.39*	*429.54*	*428.97*	*428.60*	*428.27*	*428.16*	*428.19*	*428.44*	*428.55*	*428.54*
	Line	30	GW	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*
	Line	31	ROCK	*364.55*	*358.40*	*355.57*	*356.94*	*358.57*	*359.79*	*361.07*	*362.40*	*363.79*	*365.40*
LAYER THICKNESS (M/FT)	Layer No.	From	To Material										
	1	*1*	*2* *Leveling*	*3.49*	*3.75*	*3.33*	*2.93*	*2.95*	*1.99*	*1.13*	*2.50*	*3.31*	*1.33*
	2	*2*	*3* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	3	*3*	*4* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	4	*4*	*5* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	5	*5*	*6* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	6	*6*	*7* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	7	*7*	*8* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	8	*8*	*9* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	9	*9*	*10* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	10	*10*	*11* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	11	*11*	*12* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	12	*12*	*13* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	13	*13*	*14* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	14	*14*	*15* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	15	*15*	*16* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	16	*16*	*17* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	17	*17*	*18* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	18	*18*	*19* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	19	*19*	*20* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	20	*20*	*21* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	21	*21*	*22* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	22	*22*	*23* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	23	*23*	*24* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	24	*24*	*25* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	25	*25*	*26* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	26	*26*	*27* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	27	*27*	*28* *Dredge*	*1.19*	*1.16*	*1.15*	*1.18*	*1.16*	*1.18*	*1.20*	*1.13*	*1.07*	*0.95*
	28												
	29												
	30												
	Thickness Check												
	From Line	To Line	SUM	*34.34*	*33.87*	*33.21*	*33.54*	*33.12*	*32.71*	*32.33*	*31.95*	*31.15*	*26.04*
	1	*28*	Thickness =	*34.34*	*33.87*	*33.21*	*33.54*	*33.12*	*32.71*	*32.33*	*31.95*	*31.15*	*26.04*
			Thickness Check	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

UNIT WEIGHT	Layer No.	Material										
	1	*Leveling*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	2	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	3	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	4	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	5	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	6	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	7	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	8	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	9	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	10	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	11	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	12	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	13	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	14	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	15	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	16	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	17	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	18	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	19	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	20	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	21	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	22	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	23	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	24	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	25	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	26	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	27	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	28											
	29		*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	30	*Soil below GW*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	Layer No.	***1*** **Leveling**										
		Initial Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
		Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
	Midpoint Elevation, (m / ft)		460.30	459.70	459.25	459.07	458.54	458.56	458.47	457.28	456.37	453.67
	Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
	Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)												
OCR Manual Input Value												
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)												
Modified Primary Compression Index, $C_{c\varepsilon}$												
Modified Recompression Index, $C_{r\varepsilon}$												
Modified Secondary Compression Index, C_α												
ratio of t2 / t1												
Settlements												
Primary Settlement, (m / ft)												
Secondary Settlement (m / ft)												
Total Settlement (m / ft)												
		Elastic or Plastic (E/P)										
		Settlement of Layer 1 (m / ft)										

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *2* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		457.97	457.25	457.01	457.02	456.48	456.97	457.31	455.46	454.18	452.53
Initial Effective Stress, σ'_i (kPa /psf)		51.03	49.81	49.42	50.63	49.90	50.82	51.60	48.70	46.05	40.87
Final Effective Stress, σ'_f (kPa/psf)		469.39	499.79	449.41	401.85	403.98	289.18	187.75	349.24	443.19	200.66
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		51	50	49	51	50	51	52	49	46	41
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.333	0.338	0.321	0.309	0.307	0.260	0.196	0.282	0.307	0.191
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.333	0.338	0.321	0.309	0.307	0.260	0.196	0.282	0.307	0.191
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 2 (m / ft)		0.333	0.338	0.321	0.309	0.307	0.260	0.196	0.282	0.307	0.191
Layer No. *3* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		456.78	456.09	455.86	455.84	455.32	455.79	456.11	454.33	453.11	451.58
Initial Effective Stress, σ'_i (kPa /psf)		153.09	149.44	148.25	151.88	149.69	152.46	154.79	146.10	138.14	122.60
Final Effective Stress, σ'_f (kPa/psf)		571.45	599.42	548.24	503.11	503.77	390.81	290.94	446.64	535.28	282.39
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		153	149	148	152	150	152	155	146	138	123
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.198	0.204	0.190	0.178	0.178	0.141	0.096	0.160	0.184	0.100
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.198	0.204	0.190	0.178	0.178	0.141	0.096	0.160	0.184	0.100
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 3 (m / ft)		0.198	0.204	0.190	0.178	0.178	0.141	0.096	0.160	0.184	0.100
Layer No. *4* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		455.59	454.93	454.71	454.66	454.16	454.61	454.91	453.20	452.04	450.63
Initial Effective Stress, σ'_i (kPa /psf)		255.15	249.07	247.08	253.13	249.48	254.10	257.98	243.50	230.23	204.33
Final Effective Stress, σ'_f (kPa/psf)		673.51	699.04	647.07	604.36	603.56	492.45	394.14	544.04	627.37	364.12
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		255	249	247	253	249	254	258	244	230	204
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.146	0.151	0.140	0.130	0.130	0.099	0.064	0.115	0.136	0.069
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.146	0.151	0.140	0.130	0.130	0.099	0.064	0.115	0.136	0.069
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 4 (m / ft)		0.146	0.151	0.140	0.130	0.130	0.099	0.064	0.115	0.136	0.069

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *5* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		454.41	453.77	453.56	453.48	453.00	453.43	453.71	452.06	450.97	449.68
Initial Effective Stress, σ'_i (kPa /psf)		357.22	348.69	345.91	354.39	349.27	355.73	361.18	340.90	322.32	286.06
Final Effective Stress, σ'_f (kPa/psf)		775.57	798.67	745.90	705.61	703.35	594.09	497.33	641.44	719.46	445.85
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		357	349	346	354	349	356	361	341	322	286
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.116	0.121	0.112	0.103	0.103	0.077	0.049	0.091	0.109	0.053
Secondary Settlement (m / ft)		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total Settlement (m / ft)		0.116	0.121	0.112	0.103	0.103	0.077	0.049	0.091	0.109	0.053
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 5 (m / ft)		0.116	0.121	0.112	0.103	0.103	0.077	0.049	0.091	0.109	0.053
Layer No. *6* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		453.22	452.62	452.41	452.31	451.84	452.24	452.51	450.93	449.90	448.73
Initial Effective Stress, σ'_i (kPa /psf)		459.28	448.32	444.74	455.64	449.06	457.37	464.37	438.30	414.41	367.79
Final Effective Stress, σ'_f (kPa/psf)		877.63	898.29	844.73	806.87	803.14	695.73	600.52	738.84	811.55	527.58
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		459	448	445	456	449	457	464	438	414	368
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.097	0.102	0.093	0.085	0.085	0.063	0.039	0.075	0.091	0.043
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.097	0.102	0.093	0.085	0.085	0.063	0.039	0.075	0.091	0.043
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 6 (m / ft)		0.097	0.102	0.093	0.085	0.085	0.063	0.039	0.075	0.091	0.043
Layer No. *7* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		452.03	451.46	451.26	451.13	450.68	451.06	451.31	449.80	448.83	447.78
Initial Effective Stress, σ'_i (kPa /psf)		561.34	547.94	543.57	556.89	548.85	559.01	567.56	535.70	506.50	449.52
Final Effective Stress, σ'_f (kPa/psf)		979.69	997.92	943.57	908.12	902.93	797.37	703.72	836.24	903.64	609.31
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		561	548	544	557	549	559	568	536	507	450
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.084	0.088	0.080	0.073	0.073	0.053	0.033	0.064	0.078	0.037
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.084	0.088	0.080	0.073	0.073	0.053	0.033	0.064	0.078	0.037
Elastic or Plastic (E/P)											
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 7 (m / ft)		0.084	0.088	0.080	0.073	0.073	0.053	0.033	0.064	0.078	0.037

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *8* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		450.85	450.30	450.11	449.95	449.52	449.88	450.11	448.67	447.76	446.83
Initial Effective Stress, σ'_i (kPa /psf)		663.40	647.57	642.40	658.15	648.64	660.65	670.76	633.10	598.59	531.25
Final Effective Stress, σ'_f (kPa/psf)		1,081.76	1,097.55	1,042.40	1,009.38	1,002.72	899.01	806.91	933.64	995.73	691.04
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		663	648	642	658	649	661	671	633	599	531
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.073	0.077	0.070	0.064	0.064	0.046	0.028	0.056	0.069	0.032
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.073	0.077	0.070	0.064	0.064	0.046	0.028	0.056	0.069	0.032
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 8 (m / ft)		0.073	0.077	0.070	0.064	0.064	0.046	0.028	0.056	0.069	0.032
Layer No. *9* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		449.66	449.14	448.96	448.78	448.36	448.70	448.91	447.53	446.68	445.88
Initial Effective Stress, σ'_i (kPa /psf)		765.46	747.20	741.23	759.40	748.43	762.29	773.95	730.50	690.69	612.98
Final Effective Stress, σ'_f (kPa/psf)		1,183.82	1,197.17	1,141.23	1,110.63	1,102.51	1,000.64	910.10	1,031.04	1,087.83	772.77
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		765	747	741	759	748	762	774	731	691	613
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.065	0.069	0.063	0.057	0.057	0.041	0.025	0.049	0.062	0.028
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.065	0.069	0.063	0.057	0.057	0.041	0.025	0.049	0.062	0.028
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 9 (m / ft)		0.065	0.069	0.063	0.057	0.057	0.041	0.025	0.049	0.062	0.028
Layer No. *10* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		448.47	447.98	447.81	447.60	447.20	447.52	447.71	446.40	445.61	444.93
Initial Effective Stress, σ'_i (kPa /psf)		867.52	846.82	840.06	860.65	848.22	863.93	877.14	827.90	782.78	694.71
Final Effective Stress, σ'_f (kPa/psf)		1,285.88	1,296.80	1,240.06	1,211.88	1,202.31	1,102.28	1,013.30	1,128.44	1,179.92	854.50
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		868	847	840	861	848	864	877	828	783	695
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.059	0.062	0.057	0.051	0.051	0.036	0.022	0.044	0.056	0.025
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.059	0.062	0.057	0.051	0.051	0.036	0.022	0.044	0.056	0.025
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 10 (m / ft)		0.059	0.062	0.057	0.051	0.051	0.036	0.022	0.044	0.056	0.025

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No.	*11*	**Dredge**									
Initial Stress Reference Layer (top of layer)			*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)			*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)			447.29	446.82	446.66	446.42	446.04	446.34	446.51	445.27	444.54	443.98
Initial Effective Stress, σ'_i (kPa /psf)			969.58	946.45	938.89	961.91	948.01	965.57	980.34	925.30	874.87	776.44
Final Effective Stress, σ'_f (kPa/psf)			1,387.94	1,396.42	1,338.89	1,313.14	1,302.10	1,203.92	1,116.49	1,225.84	1,272.01	936.23
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)			*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value			*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)			970	946	939	962	948	966	980	925	875	776
Modified Primary Compression Index, $C_{c\varepsilon}$			*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$			*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$			*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1			*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements												
Primary Settlement, (m / ft)			0.054	0.057	0.052	0.046	0.047	0.033	0.020	0.040	0.051	0.023
Secondary Settlement (m / ft)			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)			0.054	0.057	0.052	0.046	0.047	0.033	0.020	0.040	0.051	0.023
Elastic or Plastic (E/P)			P	P	P	P	P	P	P	P	P	P
			1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 11 (m / ft)			0.054	0.057	0.052	0.046	0.047	0.033	0.020	0.040	0.051	0.023
Layer No.	*12*	**Dredge**										
Initial Stress Reference Layer (top of layer)			*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)			*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)			446.10	445.67	445.51	445.24	444.88	445.15	445.31	444.14	443.47	443.03
Initial Effective Stress, σ'_i (kPa /psf)			1,071.65	1,046.07	1,037.72	1,063.16	1,047.80	1,067.20	1,083.53	1,022.70	966.96	858.17
Final Effective Stress, σ'_f (kPa/psf)			1,490.00	1,496.05	1,437.72	1,414.39	1,401.89	1,305.56	1,219.68	1,323.24	1,364.10	1,017.96
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)			*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value			*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)			1,072	1,046	1,038	1,063	1,048	1,067	1,084	1,023	967	858
Modified Primary Compression Index, $C_{c\varepsilon}$			*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$			*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$			*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1			*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements												
Primary Settlement, (m / ft)			0.049	0.052	0.047	0.043	0.043	0.030	0.018	0.037	0.047	0.021
Secondary Settlement (m / ft)			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)			0.049	0.052	0.047	0.043	0.043	0.030	0.018	0.037	0.047	0.021
Elastic or Plastic (E/P)			P	P	P	P	P	P	P	P	P	P
			1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 12 (m / ft)			0.049	0.052	0.047	0.043	0.043	0.030	0.018	0.037	0.047	0.021
Layer No.	*13*	**Dredge**										
Initial Stress Reference Layer (top of layer)			*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)			*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)			444.91	444.51	444.36	444.07	443.72	443.97	444.11	443.00	442.40	442.08
Initial Effective Stress, σ'_i (kPa /psf)			1,174	1,146	1,137	1,164	1,148	1,169	1,187	1,120	1,059	940
Final Effective Stress, σ'_f (kPa/psf)			1,592	1,596	1,537	1,516	1,502	1,407	1,323	1,421	1,456	1,100
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)			*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value			*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)			1,174	1,146	1,137	1,164	1,148	1,169	1,187	1,120	1,059	940
Modified Primary Compression Index, $C_{c\varepsilon}$			*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$			*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$			*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1			*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements												
Primary Settlement, (m / ft)			0.046	0.049	0.044	0.039	0.039	0.028	0.016	0.034	0.043	0.019
Secondary Settlement (m / ft)			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)			0.046	0.049	0.044	0.039	0.039	0.028	0.016	0.034	0.043	0.019
Elastic or Plastic (E/P)			P	P	P	P	P	P	P	P	P	P
			1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 13 (m / ft)			0.046	0.049	0.044	0.039	0.039	0.028	0.016	0.034	0.043	0.019

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *14* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		443.73	443.35	443.21	442.89	442.56	442.79	442.91	441.87	441.33	441.13
Initial Effective Stress, σ'_i (kPa /psf)		1,276	1,245	1,235	1,266	1,247	1,270	1,290	1,218	1,151	1,022
Final Effective Stress, σ'_f (kPa/psf)		1,694	1,695	1,635	1,617	1,601	1,509	1,426	1,518	1,548	1,181
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,276	1,245	1,235	1,266	1,247	1,270	1,290	1,218	1,151	1,022
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.043	0.045	0.041	0.036	0.037	0.026	0.015	0.032	0.040	0.017
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.043	0.045	0.041	0.036	0.037	0.026	0.015	0.032	0.040	0.017
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 14 (m / ft)		0.043	0.045	0.041	0.036	0.037	0.026	0.015	0.032	0.040	0.017
Layer No. *15* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		442.54	442.19	442.07	441.71	441.40	441.61	441.71	440.74	440.26	440.18
Initial Effective Stress, σ'_i (kPa /psf)		1,378	1,345	1,334	1,367	1,347	1,372	1,393	1,315	1,243	1,103
Final Effective Stress, σ'_f (kPa/psf)		1,796	1,795	1,734	1,718	1,701	1,610	1,529	1,615	1,640	1,263
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,378	1,345	1,334	1,367	1,347	1,372	1,393	1,315	1,243	1,103
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.040	0.042	0.038	0.034	0.034	0.024	0.014	0.029	0.038	0.016
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.040	0.042	0.038	0.034	0.034	0.024	0.014	0.029	0.038	0.016
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 15 (m / ft)		0.040	0.042	0.038	0.034	0.034	0.024	0.014	0.029	0.038	0.016
Layer No. *16* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		441.35	441.03	440.92	440.53	440.24	440.43	440.51	439.61	439.19	439.23
Initial Effective Stress, σ'_i (kPa /psf)		1,480	1,445	1,433	1,468	1,447	1,474	1,496	1,412	1,335	1,185
Final Effective Stress, σ'_f (kPa/psf)		1,898	1,895	1,833	1,819	1,801	1,712	1,632	1,713	1,732	1,345
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,480	1,445	1,433	1,468	1,447	1,474	1,496	1,412	1,335	1,185
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.037	0.040	0.036	0.032	0.032	0.022	0.013	0.028	0.035	0.015
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.037	0.040	0.036	0.032	0.032	0.022	0.013	0.028	0.035	0.015
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 16 (m / ft)		0.037	0.040	0.036	0.032	0.032	0.022	0.013	0.028	0.035	0.015

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *17* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		440.17	439.87	439.77	439.36	439.08	439.24	439.31	438.47	438.12	438.28
Initial Effective Stress, σ'_i (kPa /psf)		1,582	1,544	1,532	1,569	1,547	1,575	1,599	1,510	1,427	1,267
Final Effective Stress, σ'_f (kPa/psf)		2,000	1,994	1,932	1,921	1,901	1,814	1,736	1,810	1,825	1,427
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,582	1,544	1,532	1,569	1,547	1,575	1,599	1,510	1,427	1,267
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.035	0.037	0.034	0.030	0.030	0.021	0.012	0.026	0.033	0.014
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.035	0.037	0.034	0.030	0.030	0.021	0.012	0.026	0.033	0.014
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 17 (m / ft)		0.035	0.037	0.034	0.030	0.030	0.021	0.012	0.026	0.033	0.014
Layer No. *18* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		438.98	438.71	438.62	438.18	437.92	438.06	438.11	437.34	437.05	437.33
Initial Effective Stress, σ'_i (kPa /psf)		1,684	1,644	1,631	1,671	1,647	1,677	1,703	1,607	1,520	1,349
Final Effective Stress, σ'_f (kPa/psf)		2,102	2,094	2,031	2,022	2,001	1,915	1,839	1,908	1,917	1,508
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,684	1,644	1,631	1,671	1,647	1,677	1,703	1,607	1,520	1,349
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.033	0.035	0.032	0.028	0.029	0.020	0.012	0.025	0.031	0.013
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.033	0.035	0.032	0.028	0.029	0.020	0.012	0.025	0.031	0.013
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 18 (m / ft)		0.033	0.035	0.032	0.028	0.029	0.020	0.012	0.025	0.031	0.013
Layer No. *19* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		437.79	437.56	437.47	437.00	436.76	436.88	436.91	436.21	435.98	436.37
Initial Effective Stress, σ'_i (kPa /psf)		1,786	1,743	1,730	1,772	1,746	1,779	1,806	1,705	1,612	1,430
Final Effective Stress, σ'_f (kPa/psf)		2,204	2,193	2,130	2,123	2,100	2,017	1,942	2,005	2,009	1,590
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,786	1,743	1,730	1,772	1,746	1,779	1,806	1,705	1,612	1,430
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.032	0.034	0.030	0.027	0.027	0.019	0.011	0.023	0.030	0.013
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.032	0.034	0.030	0.027	0.027	0.019	0.011	0.023	0.030	0.013
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 19 (m / ft)		0.032	0.034	0.030	0.027	0.027	0.019	0.011	0.023	0.030	0.013

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *20* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		436.61	436.40	436.32	435.82	435.60	435.70	435.71	435.08	434.91	435.42
Initial Effective Stress, σ'_i (kPa /psf)		1,888	1,843	1,828	1,873	1,846	1,880	1,909	1,802	1,704	1,512
Final Effective Stress, σ'_f (kPa/psf)		2,306	2,293	2,228	2,224	2,200	2,119	2,045	2,102	2,101	1,672
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,888	1,843	1,828	1,873	1,846	1,880	1,909	1,802	1,704	1,512
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.030	0.032	0.029	0.026	0.026	0.018	0.010	0.022	0.028	0.012
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.030	0.032	0.029	0.026	0.026	0.018	0.010	0.022	0.028	0.012
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 20 (m / ft)		0.030	0.032	0.029	0.026	0.026	0.018	0.010	0.022	0.028	0.012
Layer No. *21* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		435.42	435.24	435.17	434.65	434.44	434.52	434.51	433.94	433.83	434.47
Initial Effective Stress, σ'_i (kPa /psf)		1,990	1,943	1,927	1,974	1,946	1,982	2,012	1,899	1,796	1,594
Final Effective Stress, σ'_f (kPa/psf)		2,409	2,393	2,327	2,326	2,300	2,220	2,148	2,200	2,193	1,754
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,990	1,943	1,927	1,974	1,946	1,982	2,012	1,899	1,796	1,594
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.029	0.031	0.027	0.024	0.025	0.017	0.010	0.021	0.027	0.011
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.029	0.031	0.027	0.024	0.025	0.017	0.010	0.021	0.027	0.011
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 21 (m / ft)		0.029	0.031	0.027	0.024	0.025	0.017	0.010	0.021	0.027	0.011
Layer No. *22* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		434.23	434.08	434.02	433.47	433.28	433.34	433.31	432.81	432.76	433.52
Initial Effective Stress, σ'_i (kPa /psf)		2,092	2,042	2,026	2,076	2,046	2,084	2,115	1,997	1,888	1,675
Final Effective Stress, σ'_f (kPa/psf)		2,511	2,492	2,426	2,427	2,400	2,322	2,252	2,297	2,285	1,835
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,092	2,042	2,026	2,076	2,046	2,084	2,115	1,997	1,888	1,675
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.027	0.029	0.026	0.023	0.023	0.016	0.009	0.020	0.026	0.011
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.027	0.029	0.026	0.023	0.023	0.016	0.009	0.020	0.026	0.011
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 22 (m / ft)		0.027	0.029	0.026	0.023	0.023	0.016	0.009	0.020	0.026	0.011

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *23* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		433.05	432.92	432.87	432.29	432.12	432.15	432.11	431.68	431.69	432.57
Initial Effective Stress, σ'_i (kPa /psf)		2,194	2,142	2,125	2,177	2,146	2,185	2,219	2,094	1,980	1,757
Final Effective Stress, σ'_f (kPa/psf)		2,613	2,592	2,525	2,528	2,500	2,424	2,355	2,395	2,377	1,917
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,194	2,142	2,125	2,177	2,146	2,185	2,219	2,094	1,980	1,757
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.026	0.028	0.025	0.022	0.022	0.015	0.009	0.019	0.025	0.010
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.026	0.028	0.025	0.022	0.022	0.015	0.009	0.019	0.025	0.010
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 23 (m / ft)		0.026	0.028	0.025	0.022	0.022	0.015	0.009	0.019	0.025	0.010
Layer No. *24* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		431.86	431.76	431.72	431.11	430.95	430.97	430.91	430.55	430.62	431.62
Initial Effective Stress, σ'_i (kPa /psf)		2,296	2,242	2,224	2,278	2,245	2,287	2,322	2,192	2,072	1,839
Final Effective Stress, σ'_f (kPa/psf)		2,715	2,692	2,624	2,629	2,599	2,525	2,458	2,492	2,469	1,999
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,296	2,242	2,224	2,278	2,245	2,287	2,322	2,192	2,072	1,839
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.025	0.027	0.024	0.021	0.021	0.015	0.009	0.018	0.024	0.010
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.025	0.027	0.024	0.021	0.021	0.015	0.009	0.018	0.024	0.010
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 24 (m / ft)		0.025	0.027	0.024	0.021	0.021	0.015	0.009	0.018	0.024	0.010
Layer No. *25* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		430.67	430.61	430.57	429.94	429.79	429.79	429.71	429.41	429.55	430.67
Initial Effective Stress, σ'_i (kPa /psf)		2,398.45	2,341.21	2,322.53	2,379.46	2,345.08	2,388.50	2,425.04	2,288.91	2,164.15	1,920.67
Final Effective Stress, σ'_f (kPa/psf)		2,816.80	2,791.19	2,722.52	2,730.68	2,699.17	2,626.86	2,561.20	2,589.45	2,561.29	2,080.46
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,398	2,341	2,323	2,379	2,345	2,389	2,425	2,289	2,164	1,921
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.024	0.026	0.023	0.021	0.021	0.014	0.008	0.018	0.023	0.010
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.024	0.026	0.023	0.021	0.021	0.014	0.008	0.018	0.023	0.010
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 25 (m / ft)		0.024	0.026	0.023	0.021	0.021	0.014	0.008	0.018	0.023	0.010

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *26* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		429.49	429.45	429.42	428.76	428.63	428.61	428.51	428.28	428.48	429.72
Initial Effective Stress, σ'_i (kPa /psf)		2,500.51	2,440.84	2,421.36	2,480.71	2,444.87	2,490.14	2,528.24	2,386.31	2,256.24	2,002.40
Final Effective Stress, σ'_f (kPa/psf)		2,918.86	2,890.81	2,821.35	2,831.94	2,798.96	2,728.50	2,664.39	2,686.85	2,653.38	2,162.20
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,501	2,441	2,421	2,481	2,445	2,490	2,528	2,386	2,256	2,002
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.023	0.025	0.022	0.020	0.020	0.014	0.008	0.017	0.022	0.009
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.023	0.025	0.022	0.020	0.020	0.014	0.008	0.017	0.022	0.009
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 26 (m / ft)		0.023	0.025	0.022	0.020	0.020	0.014	0.008	0.017	0.022	0.009
Layer No. *27* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		428.30	428.29	428.28	427.58	427.47	427.43	427.31	427.15	427.41	428.77
Initial Effective Stress, σ'_i (kPa /psf)		2,602.57	2,540.46	2,520.19	2,581.96	2,544.66	2,591.78	2,631.43	2,483.71	2,348.33	2,084.13
Final Effective Stress, σ'_f (kPa/psf)		3,020.92	2,990.44	2,920.18	2,933.19	2,898.75	2,830.14	2,767.58	2,784.25	2,745.47	2,243.93
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,603	2,540	2,520	2,582	2,545	2,592	2,631	2,484	2,348	2,084
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Settlements											
Primary Settlement, (m / ft)		0.022	0.024	0.021	0.019	0.019	0.013	0.008	0.016	0.021	0.009
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Settlement (m / ft)		0.022	0.024	0.021	0.019	0.019	0.013	0.008	0.016	0.021	0.009
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 27 (m / ft)		0.022	0.024	0.021	0.019	0.019	0.013	0.008	0.016	0.021	0.009

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

LAYER SETTLEMENT

Layer No.	Material										
1	*Leveling*										
2	*Dredge*	0.333	0.338	0.321	0.309	0.307	0.260	0.196	0.282	0.307	0.191
3	*Dredge*	0.198	0.204	0.190	0.178	0.178	0.141	0.096	0.160	0.184	0.100
4	*Dredge*	0.146	0.151	0.140	0.130	0.130	0.099	0.064	0.115	0.136	0.069
5	*Dredge*	0.116	0.121	0.112	0.103	0.103	0.077	0.049	0.091	0.109	0.053
6	*Dredge*	0.097	0.102	0.093	0.085	0.085	0.063	0.039	0.075	0.091	0.043
7	*Dredge*	0.084	0.088	0.080	0.073	0.073	0.053	0.033	0.064	0.078	0.037
8	*Dredge*	0.073	0.077	0.070	0.064	0.064	0.046	0.028	0.056	0.069	0.032
9	*Dredge*	0.065	0.069	0.063	0.057	0.057	0.041	0.025	0.049	0.062	0.028
10	*Dredge*	0.059	0.062	0.057	0.051	0.051	0.036	0.022	0.044	0.056	0.025
11	*Dredge*	0.054	0.057	0.052	0.046	0.047	0.033	0.020	0.040	0.051	0.023
12	*Dredge*	0.049	0.052	0.047	0.043	0.043	0.030	0.018	0.037	0.047	0.021
13	*Dredge*	0.046	0.049	0.044	0.039	0.039	0.028	0.016	0.034	0.043	0.019
14	*Dredge*	0.043	0.045	0.041	0.036	0.037	0.026	0.015	0.032	0.040	0.017
15	*Dredge*	0.040	0.042	0.038	0.034	0.034	0.024	0.014	0.029	0.038	0.016
16	*Dredge*	0.037	0.040	0.036	0.032	0.032	0.022	0.013	0.028	0.035	0.015
17	*Dredge*	0.035	0.037	0.034	0.030	0.030	0.021	0.012	0.026	0.033	0.014
18	*Dredge*	0.033	0.035	0.032	0.028	0.029	0.020	0.012	0.025	0.031	0.013
19	*Dredge*	0.032	0.034	0.030	0.027	0.027	0.019	0.011	0.023	0.030	0.013
20	*Dredge*	0.030	0.032	0.029	0.026	0.026	0.018	0.010	0.022	0.028	0.012
21	*Dredge*	0.029	0.031	0.027	0.024	0.025	0.017	0.010	0.021	0.027	0.011
22	*Dredge*	0.027	0.029	0.026	0.023	0.023	0.016	0.009	0.020	0.026	0.011
23	*Dredge*	0.026	0.028	0.025	0.022	0.022	0.015	0.009	0.019	0.025	0.010
24	*Dredge*	0.025	0.027	0.024	0.021	0.021	0.015	0.009	0.018	0.024	0.010
25	*Dredge*	0.024	0.026	0.023	0.021	0.021	0.014	0.008	0.018	0.023	0.010
26	*Dredge*	0.023	0.025	0.022	0.020	0.020	0.014	0.008	0.017	0.022	0.009
27	*Dredge*	0.022	0.024	0.021	0.019	0.019	0.013	0.008	0.016	0.021	0.009
28	*Additional Foundation Settlement*	0.523	0.546	0.453	0.460	0.475	0.303	0.171	0.412	0.552	0.168
29	*Dredge Settlement*	1.748	1.826	1.678	1.541	1.543	1.161	0.754	1.362	1.634	0.813
30											
	TOTAL SETTLEMENT	**2.27**	**2.37**	**2.13**	**2.00**	**2.02**	**1.46**	**0.93**	**1.77**	**2.19**	**0.98**

POST-SETTLEMENT ELEVATION(M/FT)

Line	1	Top of Leveling Layer	459.78	459.21	458.78	458.53	458.00	458.09	458.12	456.76	455.84	453.36
Line	2	Top of Dredge (Final Geotube)	456.29	455.46	455.45	455.60	455.04	456.10	456.98	454.25	452.53	452.03
Line	3		455.10	454.30	454.30	454.43	453.88	454.92	455.78	453.12	451.46	451.07
Line	4		453.92	453.14	453.15	453.25	452.72	453.74	454.58	451.99	450.39	450.12
Line	5		452.73	451.98	452.00	452.07	451.56	452.55	453.38	450.86	449.32	449.17
Line	6		451.54	450.82	450.85	450.90	450.40	451.37	452.18	449.72	448.25	448.22
Line	7		450.36	449.67	449.70	449.72	449.24	450.19	450.98	448.59	447.18	447.27
Line	8		449.17	448.51	448.55	448.54	448.08	449.01	449.78	447.46	446.10	446.32
Line	9		447.98	447.35	447.40	447.36	446.92	447.83	448.58	446.33	445.03	445.37
Line	10		446.80	446.19	446.25	446.19	445.76	446.64	447.38	445.19	443.96	444.42
Line	11		445.61	445.03	445.11	445.01	444.60	445.46	446.18	444.06	442.89	443.47
Line	12		444.42	443.87	443.96	443.83	443.44	444.28	444.98	442.93	441.82	442.52
Line	13		443.24	442.71	442.81	442.65	442.28	443.10	443.78	441.80	440.75	441.57
Line	14		442.05	441.56	441.66	441.48	441.12	441.92	442.58	440.66	439.68	440.62
Line	15		440.86	440.40	440.51	440.30	439.96	440.74	441.38	439.53	438.61	439.67
Line	16		439.68	439.24	439.36	439.12	438.80	439.55	440.18	438.40	437.54	438.72
Line	17		438.49	438.08	438.21	437.94	437.64	438.37	438.98	437.27	436.47	437.77
Line	18		437.30	436.92	437.06	436.77	436.48	437.19	437.78	436.13	435.40	436.82
Line	19		436.12	435.76	435.91	435.59	435.32	436.01	436.58	435.00	434.33	435.87
Line	20		434.93	434.61	434.76	434.41	434.16	434.83	435.38	433.87	433.25	434.92
Line	21		433.74	433.45	433.61	433.23	433.00	433.64	434.18	432.74	432.18	433.97
Line	22		432.56	432.29	432.46	432.06	431.84	432.46	432.98	431.60	431.11	433.02
Line	23		431.37	431.13	431.32	430.88	430.68	431.28	431.78	430.47	430.04	432.07
Line	24		430.18	429.97	430.17	429.70	429.52	430.10	430.58	429.34	428.97	431.12
Line	25		428.99	428.81	429.02	428.53	428.36	428.92	429.38	428.21	427.90	430.17
Line	26		427.81	427.65	427.87	427.35	427.20	427.74	428.18	427.07	426.83	429.22
Line	27		426.62	426.50	426.72	426.17	426.04	426.55	426.98	425.94	425.76	428.27
Line	28	Top of Gravel(Top of Incompre	425.43	425.34	425.57	424.99	424.88	425.37	425.78	424.81	424.69	427.32
Line	29											
Line	30											
Line	31											

Attachment 3

CASE 3: Settlement Analysis for the Top of Clay Liner
30 Years after Placement of the Final Cover
(Points 501 to 510)

Written by:	**Ray Wu / Meena Viswanath**	Date:	**02/09/2015**	Reviewed by:	**Ali Ebrahimi / Jay Beech**	Date:	**02/09/2015**
Client:	**Honeywell**	Project:	**Onondaga Lake SCA Final Cover Design**	Project/ Proposal No.:	**GD5497**	Task No.:	**03**

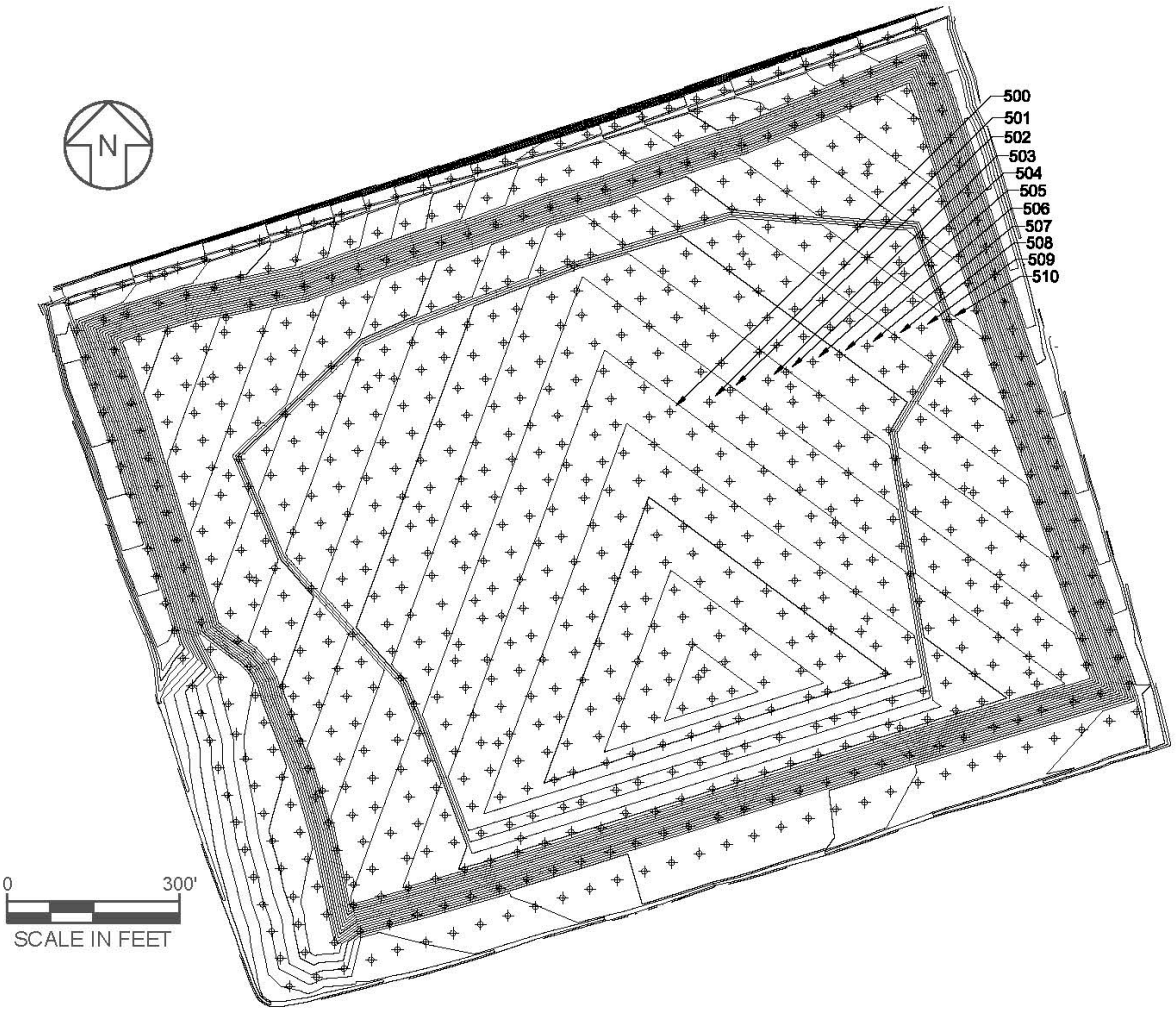

Figure 3-1. Calculation Points used for Settlement Analysis
[Contours are the Design Grading Plan for the Final Cover]

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Settlement Prediction Model
Programmer: **Beech and Bonaparte**
Version Control V 2.00 1.12.2015

Project: **Onondaga Lake SCA Final**
S
Notes:
E
Unit: **ft / psf**
Average Compaction Effort = **1440.00** kPa or psf
Consider Compaction Effort = **N** yes or no

Point #					**501**	**502**	**503**	**504**	**505**	**506**	**507**	**508**	**509**	**510**
Distance (meter or ft)					*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
ELEVATION (M/FT)	Line	1	Top of Final Cover		*462.55*	*462.08*	*461.41*	*461.04*	*460.52*	*460.05*	*459.54*	*459.03*	*458.53*	*455.33*
	Line	2	Top of Leveling Layer		*459.78*	*459.21*	*458.78*	*458.53*	*458.00*	*458.09*	*458.12*	*456.76*	*455.84*	*453.36*
	Line	3	Top of Dredge		*458.04*	*457.28*	*457.13*	*457.15*	*456.59*	*457.26*	*457.74*	*455.62*	*454.16*	*452.84*
	Line	4	Top of Gravel		*427.18*	*427.16*	*427.25*	*426.53*	*426.42*	*426.53*	*426.54*	*426.17*	*426.32*	*428.13*
	Line	5	Top of Clay		*426.18*	*426.16*	*426.25*	*425.53*	*425.42*	*425.53*	*425.54*	*425.17*	*425.32*	*427.13*
	Line	6	Top of Dike		*424.48*	*425.07*	*424.84*	*423.82*	*423.52*	*423.61*	*423.72*	*423.60*	*423.90*	*425.78*
	Line	7	Top of Subgrade		*424.48*	*425.07*	*424.84*	*423.82*	*423.52*	*423.61*	*423.72*	*423.60*	*423.90*	*425.78*
	Line	8			*421.73*	*422.29*	*422.07*	*421.11*	*420.82*	*420.91*	*421.01*	*420.90*	*421.18*	*422.96*
	Line	9			*418.98*	*419.51*	*419.30*	*418.40*	*418.13*	*418.21*	*418.30*	*418.20*	*418.46*	*420.14*
	Line	10			*416.23*	*416.72*	*416.53*	*415.69*	*415.43*	*415.51*	*415.60*	*415.50*	*415.75*	*417.32*
	Line	11			*413.48*	*413.94*	*413.77*	*412.97*	*412.73*	*412.81*	*412.89*	*412.80*	*413.03*	*414.50*
	Line	12			*410.73*	*411.16*	*411.00*	*410.26*	*410.04*	*410.11*	*410.18*	*410.10*	*410.31*	*411.67*
	Line	13			*407.99*	*408.38*	*408.23*	*407.55*	*407.34*	*407.41*	*407.48*	*407.40*	*407.60*	*408.85*
	Line	14			*405.24*	*405.60*	*405.46*	*404.84*	*404.65*	*404.71*	*404.77*	*404.70*	*404.88*	*406.03*
	Line	15			*402.49*	*402.82*	*402.69*	*402.12*	*401.95*	*402.01*	*402.06*	*402.00*	*402.17*	*403.21*
	Line	16			*399.74*	*400.03*	*399.92*	*399.41*	*399.26*	*399.30*	*399.36*	*399.30*	*399.45*	*400.39*
	Line	17			*396.99*	*397.25*	*397.15*	*396.70*	*396.56*	*396.60*	*396.65*	*396.60*	*396.73*	*397.57*
	Line	18			*394.24*	*394.47*	*394.38*	*393.99*	*393.87*	*393.90*	*393.95*	*393.90*	*394.02*	*394.75*
	Line	19			*391.49*	*391.69*	*391.61*	*391.27*	*391.17*	*391.20*	*391.24*	*391.20*	*391.30*	*391.93*
	Line	20			*388.74*	*388.91*	*388.84*	*388.56*	*388.48*	*388.50*	*388.53*	*388.50*	*388.58*	*389.11*
	Line	21			*386.00*	*386.13*	*386.08*	*385.85*	*385.78*	*385.80*	*385.83*	*385.80*	*385.87*	*386.28*
	Line	22			*383.25*	*383.34*	*383.31*	*383.14*	*383.09*	*383.10*	*383.12*	*383.10*	*383.15*	*383.46*
	Line	23			*380.50*	*380.56*	*380.54*	*380.42*	*380.39*	*380.40*	*380.41*	*380.40*	*380.43*	*380.64*
	Line	24			*377.75*	*377.78*	*377.77*	*377.71*	*377.70*	*377.70*	*377.71*	*377.70*	*377.72*	*377.82*
	Line	25	Bottom of SOLW Above GW		*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*
	Line	26			*371.52*	*369.47*	*368.52*	*368.98*	*369.52*	*369.93*	*370.36*	*370.80*	*371.26*	*371.80*
	Line	27			*368.03*	*363.93*	*362.04*	*362.96*	*364.04*	*364.86*	*365.71*	*366.60*	*367.53*	*368.60*
	Line	28	Top of Incompressible Layer		*364.55*	*358.40*	*355.57*	*356.94*	*358.57*	*359.79*	*361.07*	*362.40*	*363.79*	*365.40*
	Line	29	GND	for sigma_p	*429.39*	*429.54*	*428.97*	*428.60*	*428.27*	*428.16*	*428.19*	*428.44*	*428.55*	*428.54*
	Line	30	GW		*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*
	Line	31	ROCK		*364.55*	*358.40*	*355.57*	*356.94*	*358.57*	*359.79*	*361.07*	*362.40*	*363.79*	*365.40*
LAYER THICKNESS (M/FT)	Layer No.	From	To	Material										
	1	*1*	*2*	*Final Cover*	*2.77*	*2.87*	*2.63*	*2.51*	*2.52*	*1.96*	*1.42*	*2.27*	*2.69*	*1.97*
	2	*2*	*3*	*Leveling Layer*	*1.74*	*1.93*	*1.65*	*1.38*	*1.41*	*0.83*	*0.38*	*1.14*	*1.68*	*0.52*
	3	*3*	*4*	*Dredge*	*30.86*	*30.12*	*29.88*	*30.61*	*30.17*	*30.73*	*31.20*	*29.45*	*27.84*	*24.71*
	4	*4*	*5*	*Gravel*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
	5	*5*	*6*	*Clay*	*1.70*	*1.09*	*1.41*	*1.71*	*1.90*	*1.92*	*1.82*	*1.57*	*1.42*	*1.35*
	6	*6*	*7*	*Dike*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	7	*7*	*8*	*Above-GW-1*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	8	*8*	*9*	*Above-GW-2*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	9	*9*	*10*	*Above-GW-3*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	10	*10*	*11*	*Above-GW-4*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	11	*11*	*12*	*Above-GW-5*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	12	*12*	*13*	*Above-GW-6*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	13	*13*	*14*	*Above-GW-7*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	14	*14*	*15*	*Above-GW-8*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	15	*15*	*16*	*Above-GW-9*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	16	*16*	*17*	*Above-GW-10*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	17	*17*	*18*	*Above-GW-11*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	18	*18*	*19*	*Above-GW-12*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	19	*19*	*20*	*Above-GW-13*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	20	*20*	*21*	*Above-GW-14*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	21	*21*	*22*	*Above-GW-15*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	22	*22*	*23*	*Above-GW-16*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	23	*23*	*24*	*Above-GW-17*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	24	*24*	*25*	*Above-GW-18*	*2.75*	*2.78*	*2.77*	*2.71*	*2.70*	*2.70*	*2.71*	*2.70*	*2.72*	*2.82*
	25	*25*	*26*	*Below-GW-1*	*3.48*	*5.53*	*6.48*	*6.02*	*5.48*	*5.07*	*4.64*	*4.20*	*3.74*	*3.20*
	26	*26*	*27*	*Below-GW-2*	*3.48*	*5.53*	*6.48*	*6.02*	*5.48*	*5.07*	*4.64*	*4.20*	*3.74*	*3.20*
	27	*27*	*28*	*Below-GW-3*	*3.48*	*5.53*	*6.48*	*6.02*	*5.48*	*5.07*	*4.64*	*4.20*	*3.74*	*3.20*
	28													
	29	*29*	*30*	Soil Above GW	*54.39*	*54.54*	*53.97*	*53.60*	*53.27*	*53.16*	*53.19*	*53.44*	*53.55*	*53.54*
	30	*30*	*31*	Soil Below GW	*10.45*	*16.60*	*19.43*	*18.06*	*16.43*	*15.21*	*13.93*	*12.60*	*11.21*	*9.60*
	Thickness Check													
	From Line	To Line	SUM		*98.00*	*103.68*	*105.85*	*104.09*	*101.95*	*100.25*	*98.47*	*96.63*	*94.73*	*89.93*
	1	*28*	Thickness =		*98.00*	*103.68*	*105.85*	*104.09*	*101.95*	*100.25*	*98.47*	*96.63*	*94.73*	*89.93*
			Thickness Check		***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***

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UNIT WEIGHT	Layer No.	Material										
	1	*Final Cover*	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
	2	*Leveling Layer*	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
	3	*Dredge*	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0
	4	*Gravel*	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
	5	*Clay*	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
	6	*Dike*	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
	7	*Above-GW-1*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	8	*Above-GW-2*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	9	*Above-GW-3*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	10	*Above-GW-4*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	11	*Above-GW-5*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	12	*Above-GW-6*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	13	*Above-GW-7*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	14	*Above-GW-8*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	15	*Above-GW-9*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	16	*Above-GW-10*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	17	*Above-GW-11*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	18	*Above-GW-12*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	19	*Above-GW-13*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	20	*Above-GW-14*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	21	*Above-GW-15*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	22	*Above-GW-16*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	23	*Above-GW-17*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	24	*Above-GW-18*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	25	*Below-GW-1*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	26	*Below-GW-2*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	27	*Below-GW-3*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	28											
	29	*Soil Above GW*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	30	*Soil below GW*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	Layer No.	***1*** **Final Cover**										
		Initial Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
		Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
	Midpoint Elevation, (m / ft)		461.16	460.64	460.10	459.78	459.26	459.07	458.83	457.90	457.18	454.35
	Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
	Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)												
OCR Manual Input Value												
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)												
Modified Primary Compression Index, C_{cc}												
Modified Recompression Index, C_{rc}												
Modified Secondary Compression Index, C_α												
ratio of t2 / t1												
Settlements												
Primary Settlement, (m / ft)												
Secondary Settlement (m / ft)												
Total Settlement (m / ft)												
		Elastic or Plastic (E/P)										
		Settlement of Layer 1 (m / ft)										

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Layer No. *2* **Leveling Layer**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Midpoint Elevation, (m / ft)		458.91	458.25	457.95	457.84	457.29	457.67	457.93	456.19	455.00	453.10
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)											
Settlement of Layer 2 (m / ft)											
Layer No. *3* **Dredge**											
Initial Stress Reference Layer (top of layer)		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Final Stress Reference Layer (top of layer)		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Midpoint Elevation, (m / ft)		442.61	442.22	442.19	441.84	441.50	441.90	442.14	440.89	440.24	440.48
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)											
Settlement of Layer 3 (m / ft)											
Layer No. *4* **Gravel**											
Initial Stress Reference Layer (top of layer)		*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Final Stress Reference Layer (top of layer)		*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Midpoint Elevation, (m / ft)		426.68	426.66	426.75	426.03	425.92	426.03	426.04	425.67	425.82	427.63
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)											
Settlement of Layer 4 (m / ft)											

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Layer No. *5* **Clay**												
Initial Stress Reference Layer (top of layer)		*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
Final Stress Reference Layer (top of layer)		*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
Midpoint Elevation, (m / ft)		425.33	425.61	425.55	424.68	424.47	424.57	424.63	424.38	424.61	426.46
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)												
OCR Manual Input Value												
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)												
Modified Primary Compression Index, $C_{c\varepsilon}$												
Modified Recompression Index, $C_{r\varepsilon}$												
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$												
ratio of t2 / t1												
Settlements												
Primary Settlement, (m / ft)												
Secondary Settlement (m / ft)												
Total Settlement (m / ft)												
Elastic or Plastic (E/P)												
Settlement of Layer 5 (m / ft)												
Layer No. *6* **Dike**												
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Midpoint Elevation, (m / ft)		424.48	425.07	424.84	423.82	423.52	423.61	423.72	423.60	423.90	425.78
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)												
OCR Manual Input Value												
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)												
Modified Primary Compression Index, $C_{c\varepsilon}$												
Modified Recompression Index, $C_{r\varepsilon}$												
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$												
ratio of t2 / t1												
Settlements												
Primary Settlement, (m / ft)												
Secondary Settlement (m / ft)												
Total Settlement (m / ft)												
Elastic or Plastic (E/P)												
Settlement of Layer 6 (m / ft)												
Layer No. *7* **Above-GW-1**												
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		423.10	423.68	423.46	422.47	422.17	422.26	422.36	422.25	422.54	424.37
Initial Effective Stress, σ'_i (kPa /psf)		3,299.84	3,186.94	3,170.32	3,235.37	3,222.83	3,203.66	3,178.68	3,088.73	2,997.92	2,585.08
Final Effective Stress, σ'_f (kPa/psf)		3,631.88	3,531.11	3,486.45	3,535.99	3,524.72	3,438.41	3,349.14	3,361.46	3,320.15	2,821.56
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)		516	481	452	503	500	484	478	507	493	342
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements												
Primary Settlement, (m / ft)		0.029	0.027	0.023	0.025	0.026	0.020	0.015	0.026	0.031	0.019
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.066	0.065	0.060	0.062	0.062	0.056	0.051	0.062	0.068	0.057
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 7 (m / ft)		0.066	0.065	0.060	0.062	0.062	0.056	0.051	0.062	0.068	0.057

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Layer No. *8* **Above-GW-2**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		420.35	420.90	420.69	419.75	419.47	419.56	419.66	419.55	419.82	421.55
Initial Effective Stress, σ'_i (kPa /psf)		3,525.24	3,415.03	3,397.37	3,457.79	3,443.85	3,425.10	3,400.61	3,310.13	3,220.68	2,816.42
Final Effective Stress, σ'_f (kPa/psf)		3,857.28	3,759.20	3,713.50	3,758.40	3,745.73	3,659.85	3,571.07	3,582.86	3,542.90	3,052.89
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		741	709	679	725	721	705	700	729	716	574
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.027	0.026	0.021	0.024	0.025	0.019	0.014	0.024	0.029	0.018
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.064	0.063	0.059	0.060	0.061	0.055	0.050	0.060	0.066	0.056
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 8 (m / ft)		0.064	0.063	0.059	0.060	0.061	0.055	0.050	0.060	0.066	0.056
Layer No. *9* **Above-GW-3**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		417.61	418.11	417.92	417.04	416.78	416.86	416.95	416.85	417.11	418.73
Initial Effective Stress, σ'_i (kPa /psf)		3,750.64	3,643.12	3,624.42	3,680.20	3,664.87	3,646.54	3,622.54	3,531.53	3,443.43	3,047.75
Final Effective Stress, σ'_f (kPa/psf)		4,082.68	3,987.29	3,940.55	3,980.81	3,966.75	3,881.30	3,793.00	3,804.26	3,765.65	3,284.22
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		967	937	906	948	942	927	922	950	939	805
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.025	0.024	0.020	0.022	0.023	0.018	0.013	0.023	0.027	0.016
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.062	0.061	0.057	0.059	0.059	0.054	0.049	0.059	0.064	0.054
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 9 (m / ft)		0.062	0.061	0.057	0.059	0.059	0.054	0.049	0.059	0.064	0.054
Layer No. *10* **Above-GW-4**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		414.86	415.33	415.15	414.33	414.08	414.16	414.24	414.15	414.39	415.91
Initial Effective Stress, σ'_i (kPa /psf)		3,976.04	3,871.21	3,851.48	3,902.61	3,885.88	3,867.98	3,844.47	3,752.93	3,666.18	3,279.09
Final Effective Stress, σ'_f (kPa/psf)		4,308.08	4,215.38	4,167.61	4,203.22	4,187.77	4,102.74	4,014.93	4,025.66	3,988.41	3,515.56
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,192	1,165	1,133	1,170	1,163	1,148	1,144	1,171	1,161	1,036
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.024	0.023	0.019	0.021	0.022	0.017	0.012	0.021	0.026	0.015
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.061	0.060	0.056	0.057	0.058	0.053	0.049	0.058	0.062	0.053
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 10 (m / ft)		0.061	0.060	0.056	0.057	0.058	0.053	0.049	0.058	0.062	0.053

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *11* **Above-GW-5**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		412.11	412.55	412.38	411.62	411.39	411.46	411.54	411.45	411.67	413.09
Initial Effective Stress, σ'_i (kPa /psf)		4,201.44	4,099.30	4,078.53	4,125.02	4,106.90	4,089.43	4,066.40	3,974.33	3,888.93	3,510.42
Final Effective Stress, σ'_f (kPa/psf)		4,533.48	4,443.47	4,394.66	4,425.63	4,408.79	4,324.18	4,236.86	4,247.06	4,211.16	3,746.89
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,417	1,393	1,360	1,392	1,384	1,369	1,366	1,393	1,384	1,268
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.023	0.021	0.018	0.020	0.021	0.016	0.012	0.020	0.024	0.014
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.060	0.059	0.055	0.056	0.057	0.052	0.048	0.057	0.061	0.052
Elastic or Plastic (E/P)											
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 11 (m / ft)		0.060	0.059	0.055	0.056	0.057	0.052	0.048	0.057	0.061	0.052
Layer No. *12* **Above-GW-6**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		409.36	409.77	409.61	408.90	408.69	408.76	408.83	408.75	408.96	410.26
Initial Effective Stress, σ'_i (kPa /psf)		4,426.84	4,327.39	4,305.58	4,347.43	4,327.92	4,310.87	4,288.33	4,195.73	4,111.69	3,741.75
Final Effective Stress, σ'_f (kPa/psf)		4,758.88	4,671.56	4,621.71	4,648.04	4,629.80	4,545.62	4,458.79	4,468.46	4,433.91	3,978.22
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,643	1,621	1,587	1,615	1,605	1,591	1,588	1,614	1,607	1,499
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.022	0.020	0.017	0.019	0.020	0.015	0.011	0.019	0.023	0.014
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.059	0.058	0.054	0.055	0.056	0.051	0.047	0.055	0.060	0.051
Elastic or Plastic (E/P)											
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 12 (m / ft)		0.059	0.058	0.054	0.055	0.056	0.051	0.047	0.055	0.060	0.051
Layer No. *13* **Above-GW-7**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		406.61	406.99	406.84	406.19	406.00	406.06	406.12	406.05	406.24	407.44
Initial Effective Stress, σ'_i (kPa /psf)		4,652	4,555	4,533	4,570	4,549	4,532	4,510	4,417	4,334	3,973
Final Effective Stress, σ'_f (kPa/psf)		4,984	4,900	4,849	4,870	4,851	4,767	4,681	4,690	4,657	4,210
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,868	1,849	1,814	1,837	1,826	1,812	1,810	1,836	1,830	1,730
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.021	0.019	0.016	0.018	0.019	0.014	0.010	0.018	0.022	0.013
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.058	0.057	0.053	0.054	0.055	0.051	0.047	0.055	0.059	0.051
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 13 (m / ft)		0.058	0.057	0.053	0.054	0.055	0.051	0.047	0.055	0.059	0.051

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *14* **Above-GW-8**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		403.86	404.21	404.07	403.48	403.30	403.36	403.42	403.35	403.52	404.62
Initial Effective Stress, σ'_i (kPa /psf)		4,878	4,784	4,760	4,792	4,770	4,754	4,732	4,639	4,557	4,204
Final Effective Stress, σ'_f (kPa/psf)		5,210	5,128	5,076	5,093	5,072	4,989	4,903	4,911	4,879	4,441
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,094	2,077	2,041	2,060	2,047	2,034	2,032	2,057	2,052	1,962
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.020	0.018	0.015	0.017	0.018	0.014	0.010	0.017	0.021	0.012
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.057	0.056	0.053	0.054	0.054	0.050	0.046	0.054	0.057	0.050
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 14 (m / ft)		0.057	0.056	0.053	0.054	0.054	0.050	0.046	0.054	0.057	0.050
Layer No. *15* **Above-GW-9**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		401.11	401.43	401.30	400.77	400.61	400.65	400.71	400.65	400.81	401.80
Initial Effective Stress, σ'_i (kPa /psf)		5,103	5,012	4,987	5,015	4,991	4,975	4,954	4,860	4,780	4,436
Final Effective Stress, σ'_f (kPa/psf)		5,435	5,356	5,303	5,315	5,293	5,210	5,125	5,133	5,102	4,672
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,319	2,306	2,268	2,282	2,268	2,255	2,254	2,278	2,275	2,193
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.019	0.018	0.015	0.016	0.017	0.013	0.010	0.017	0.020	0.011
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.056	0.055	0.052	0.053	0.053	0.049	0.046	0.053	0.057	0.049
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 15 (m / ft)		0.056	0.055	0.052	0.053	0.053	0.049	0.046	0.053	0.057	0.049
Layer No. *16* **Above-GW-10**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		398.36	398.64	398.54	398.05	397.91	397.95	398.00	397.95	398.09	398.98
Initial Effective Stress, σ'_i (kPa /psf)		5,328	5,240	5,214	5,237	5,212	5,197	5,176	5,081	5,003	4,667
Final Effective Stress, σ'_f (kPa/psf)		5,660	5,584	5,530	5,538	5,514	5,431	5,347	5,354	5,325	4,904
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,544	2,534	2,495	2,504	2,489	2,477	2,476	2,500	2,498	2,424
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.018	0.017	0.014	0.016	0.016	0.012	0.009	0.016	0.019	0.011
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.055	0.054	0.051	0.052	0.053	0.049	0.046	0.052	0.056	0.049
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 16 (m / ft)		0.055	0.054	0.051	0.052	0.053	0.049	0.046	0.052	0.056	0.049

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *17* **Above-GW-11**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		395.62	395.86	395.77	395.34	395.22	395.25	395.30	395.25	395.37	396.16
Initial Effective Stress, σ'_i (kPa /psf)		5,554	5,468	5,441	5,459	5,433	5,418	5,398	5,303	5,225	4,898
Final Effective Stress, σ'_f (kPa/psf)		5,886	5,812	5,757	5,760	5,735	5,653	5,568	5,575	5,548	5,135
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,770	2,762	2,722	2,727	2,710	2,698	2,697	2,721	2,721	2,656
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.017	0.016	0.014	0.015	0.016	0.012	0.009	0.015	0.018	0.010
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.054	0.054	0.051	0.052	0.052	0.048	0.045	0.052	0.055	0.048
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 17 (m / ft)		0.054	0.054	0.051	0.052	0.052	0.048	0.045	0.052	0.055	0.048
Layer No. *18* **Above-GW-12**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		392.87	393.08	393.00	392.63	392.52	392.55	392.59	392.55	392.66	393.34
Initial Effective Stress, σ'_i (kPa /psf)		5,779	5,696	5,668	5,682	5,654	5,640	5,620	5,524	5,448	5,130
Final Effective Stress, σ'_f (kPa/psf)		6,111	6,040	5,984	5,983	5,956	5,874	5,790	5,797	5,770	5,366
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,995	2,990	2,949	2,949	2,931	2,920	2,919	2,943	2,943	2,887
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.017	0.016	0.013	0.015	0.015	0.011	0.008	0.015	0.018	0.010
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.054	0.053	0.050	0.051	0.051	0.048	0.045	0.051	0.054	0.048
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 18 (m / ft)		0.054	0.053	0.050	0.051	0.051	0.048	0.045	0.051	0.054	0.048
Layer No. *19* **Above-GW-13**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		390.12	390.30	390.23	389.92	389.82	389.85	389.89	389.85	389.94	390.52
Initial Effective Stress, σ'_i (kPa /psf)		6,005	5,924	5,895	5,904	5,875	5,861	5,842	5,746	5,671	5,361
Final Effective Stress, σ'_f (kPa/psf)		6,337	6,268	6,211	6,205	6,177	6,096	6,012	6,018	5,993	5,598
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,221	3,218	3,177	3,172	3,152	3,141	3,141	3,164	3,166	3,118
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.016	0.015	0.013	0.014	0.015	0.011	0.008	0.014	0.017	0.010
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.053	0.052	0.050	0.050	0.051	0.047	0.044	0.050	0.053	0.047
Elastic or Plastic (E/P)		p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D	p 1-D
Settlement of Layer 19 (m / ft)		0.053	0.052	0.050	0.050	0.051	0.047	0.044	0.050	0.053	0.047

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *20* **Above-GW-14**												
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		387.37	387.52	387.46	387.21	387.13	387.15	387.18	387.15	387.22	387.70	
Initial Effective Stress, σ'_i (kPa /psf)		6,230	6,152	6,122	6,127	6,096	6,082	6,064	5,967	5,894	5,592	
Final Effective Stress, σ'_f (kPa/psf)		6,562	6,496	6,438	6,427	6,398	6,317	6,234	6,240	6,216	5,829	
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)		3,446	3,446	3,404	3,394	3,373	3,362	3,363	3,385	3,389	3,350	
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*	
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	
Settlements												
Primary Settlement, (m / ft)		0.015	0.014	0.012	0.014	0.014	0.011	0.008	0.014	0.016	0.009	
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038	
Total Settlement (m / ft)		0.052	0.052	0.049	0.050	0.050	0.047	0.044	0.050	0.053	0.047	
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p	
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	
Settlement of Layer 20 (m / ft)		0.052	0.052	0.049	0.050	0.050	0.047	0.044	0.050	0.053	0.047	
Layer No. *21* **Above-GW-15**												
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
Midpoint Elevation, (m / ft)		384.62	384.74	384.69	384.49	384.43	384.45	384.47	384.45	384.51	384.87	
Initial Effective Stress, σ'_i (kPa /psf)		6,455	6,380	6,349	6,349	6,317	6,304	6,286	6,188	6,116	5,824	
Final Effective Stress, σ'_f (kPa/psf)		6,787	6,724	6,665	6,650	6,619	6,539	6,456	6,461	6,439	6,060	
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)		3,671	3,674	3,631	3,616	3,594	3,584	3,585	3,607	3,612	3,581	
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*	
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	
Settlements												
Primary Settlement, (m / ft)		0.015	0.014	0.012	0.013	0.014	0.010	0.008	0.013	0.016	0.009	
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038	
Total Settlement (m / ft)		0.052	0.051	0.049	0.050	0.050	0.047	0.044	0.049	0.052	0.047	
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p	
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	
Settlement of Layer 21 (m / ft)		0.052	0.051	0.049	0.050	0.050	0.047	0.044	0.049	0.052	0.047	
Layer No. *22* **Above-GW-16**												
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
Midpoint Elevation, (m / ft)		381.87	381.95	381.92	381.78	381.74	381.75	381.77	381.75	381.79	382.05	
Initial Effective Stress, σ'_i (kPa /psf)		6,681	6,608	6,576	6,572	6,538	6,525	6,508	6,410	6,339	6,055	
Final Effective Stress, σ'_f (kPa/psf)		7,013	6,952	6,892	6,872	6,840	6,760	6,678	6,682	6,661	6,292	
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)		3,897	3,902	3,858	3,839	3,815	3,805	3,807	3,828	3,834	3,812	
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*	
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	
Settlements												
Primary Settlement, (m / ft)		0.014	0.013	0.011	0.013	0.013	0.010	0.007	0.013	0.015	0.008	
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038	
Total Settlement (m / ft)		0.051	0.051	0.049	0.049	0.049	0.046	0.044	0.049	0.052	0.046	
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p	
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	
Settlement of Layer 22 (m / ft)		0.051	0.051	0.049	0.049	0.049	0.046	0.044	0.049	0.052	0.046	

Layer No. *23* **Above-GW-17**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		379.12	379.17	379.15	379.07	379.04	379.05	379.06	379.05	379.07	379.23
Initial Effective Stress, σ'_i (kPa /psf)		6,906	6,836	6,803	6,794	6,759	6,747	6,730	6,631	6,562	6,286
Final Effective Stress, σ'_f (kPa/psf)		7,238	7,181	7,119	7,095	7,061	6,981	6,900	6,904	6,884	6,523
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		4,122	4,130	4,085	4,061	4,036	4,027	4,029	4,050	4,057	4,044
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.014	0.013	0.011	0.012	0.013	0.010	0.007	0.012	0.015	0.008
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.051	0.050	0.048	0.049	0.049	0.046	0.043	0.049	0.051	0.046
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 23 (m / ft)		0.051	0.050	0.048	0.049	0.049	0.046	0.043	0.049	0.051	0.046
Layer No. *24* **Above-GW-18**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		376.37	376.39	376.38	376.36	376.35	376.35	376.35	376.35	376.36	376.41
Initial Effective Stress, σ'_i (kPa /psf)		7,132	7,064	7,030	7,016	6,980	6,968	6,951	6,853	6,785	6,518
Final Effective Stress, σ'_f (kPa/psf)		7,464	7,409	7,346	7,317	7,282	7,203	7,122	7,125	7,107	6,754
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		4,348	4,358	4,312	4,284	4,257	4,248	4,251	4,271	4,280	4,275
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.014	0.013	0.011	0.012	0.012	0.009	0.007	0.012	0.014	0.008
Secondary Settlement (m / ft)		0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.037	0.038
Total Settlement (m / ft)		0.051	0.050	0.048	0.048	0.049	0.046	0.043	0.048	0.051	0.046
Elastic or Plastic (E/P)		p	p	p	p	p	p	p	p	p	p
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 24 (m / ft)		0.051	0.050	0.048	0.048	0.049	0.046	0.043	0.048	0.051	0.046
Layer No. *25* **Below-GW-1**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		373.26	372.23	371.76	371.99	372.26	372.47	372.68	372.90	373.13	373.40
Initial Effective Stress, σ'_i (kPa /psf)		7,278.48	7,232.77	7,207.24	7,186.56	7,144.32	7,128.57	7,107.95	7,004.37	6,932.71	6,664.77
Final Effective Stress, σ'_f (kPa/psf)		7,610.52	7,576.94	7,523.37	7,487.17	7,446.20	7,363.32	7,278.41	7,277.11	7,254.94	6,901.25
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		4,494	4,527	4,489	4,454	4,421	4,409	4,407	4,423	4,428	4,422
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*
Modified Recompression Index, $C_{r\varepsilon}$		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*
Settlements											
Primary Settlement, (m / ft)		0.017	0.025	0.024	0.026	0.025	0.017	0.011	0.018	0.019	0.009
Secondary Settlement (m / ft)		0.047	0.074	0.087	0.081	0.074	0.068	0.062	0.056	0.050	0.043
Total Settlement (m / ft)		0.064	0.099	0.111	0.107	0.098	0.085	0.074	0.075	0.069	0.052
Elastic or Plastic (E/P)											
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 25 (m / ft)		0.064	0.099	0.111	0.107	0.098	0.085	0.074	0.075	0.069	0.052

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *26* **Below-GW-2**												
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		369.77	366.70	365.28	365.97	366.78	367.40	368.04	368.70	369.40	370.20	
Initial Effective Stress, σ'_i (kPa /psf)		7,346.76	7,341.24	7,334.21	7,304.54	7,251.68	7,227.91	7,198.95	7,086.67	7,005.93	6,727.48	
Final Effective Stress, σ'_f (kPa/psf)		7,678.80	7,685.41	7,650.34	7,605.15	7,553.56	7,462.66	7,369.41	7,359.41	7,328.16	6,963.95	
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)		4,563	4,635	4,616	4,572	4,529	4,508	4,498	4,505	4,501	4,485	
Modified Primary Compression Index, C_{cc}		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*	
Modified Recompression Index, C_{rc}		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	
Settlements												
Primary Settlement, (m / ft)		0.017	0.024	0.024	0.025	0.024	0.017	0.011	0.018	0.019	0.009	
Secondary Settlement (m / ft)		0.047	0.074	0.087	0.081	0.074	0.068	0.062	0.056	0.050	0.043	
Total Settlement (m / ft)		0.064	0.099	0.111	0.106	0.098	0.085	0.074	0.074	0.069	0.052	
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	
Settlement of Layer 26 (m / ft)		0.064	0.099	0.111	0.106	0.098	0.085	0.074	0.074	0.069	0.052	
Layer No. *27* **Below-GW-3**												
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
Midpoint Elevation, (m / ft)		366.29	361.16	358.80	359.95	361.31	362.33	363.39	364.50	365.66	367.00	
Initial Effective Stress, σ'_i (kPa /psf)		7,415.05	7,449.72	7,461.18	7,422.52	7,359.04	7,327.25	7,289.95	7,168.97	7,079.16	6,790.18	
Final Effective Stress, σ'_f (kPa/psf)		7,747.09	7,793.89	7,777.31	7,723.13	7,660.92	7,562.00	7,460.41	7,441.71	7,401.38	7,026.65	
Elastic Method												
Modulus, E (kPa/psf)=	Strain											
	Settlement (m / ft)											
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)		4,631	4,744	4,743	4,690	4,636	4,607	4,589	4,588	4,574	4,547	
Modified Primary Compression Index, C_{cc}		*0.250*	*0.220*	*0.200*	*0.240*	*0.250*	*0.240*	*0.240*	*0.260*	*0.260*	*0.180*	
Modified Recompression Index, C_{rc}		*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	*0.91%*	
ratio of t2 / t1		*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	
Settlements												
Primary Settlement, (m / ft)		0.017	0.024	0.023	0.025	0.024	0.017	0.011	0.018	0.019	0.009	
Secondary Settlement (m / ft)		0.047	0.074	0.087	0.081	0.074	0.068	0.062	0.056	0.050	0.043	
Total Settlement (m / ft)		0.063	0.098	0.110	0.106	0.098	0.085	0.074	0.074	0.069	0.052	
Elastic or Plastic (E/P)		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	
Settlement of Layer 27 (m / ft)		0.063	0.098	0.110	0.106	0.098	0.085	0.074	0.074	0.069	0.052	

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

	Layer No.	Material										
LAYER SETTLEMENT	1	*Final Cover*										
	2	*Leveling Layer*										
	3	*Dredge*										
	4	*Gravel*										
	5	*Clay*										
	6	*Dike*										
	7	*Above-GW-1*	0.066	0.065	0.060	0.062	0.062	0.056	0.051	0.062	0.068	0.057
	8	*Above-GW-2*	0.064	0.063	0.059	0.060	0.061	0.055	0.050	0.060	0.066	0.056
	9	*Above-GW-3*	0.062	0.061	0.057	0.059	0.059	0.054	0.049	0.059	0.064	0.054
	10	*Above-GW-4*	0.061	0.060	0.056	0.057	0.058	0.053	0.049	0.058	0.062	0.053
	11	*Above-GW-5*	0.060	0.059	0.055	0.056	0.057	0.052	0.048	0.057	0.061	0.052
	12	*Above-GW-6*	0.059	0.058	0.054	0.055	0.056	0.051	0.047	0.055	0.060	0.051
	13	*Above-GW-7*	0.058	0.057	0.053	0.054	0.055	0.051	0.047	0.055	0.059	0.051
	14	*Above-GW-8*	0.057	0.056	0.053	0.054	0.054	0.050	0.046	0.054	0.057	0.050
	15	*Above-GW-9*	0.056	0.055	0.052	0.053	0.053	0.049	0.046	0.053	0.057	0.049
	16	*Above-GW-10*	0.055	0.054	0.051	0.052	0.053	0.049	0.046	0.052	0.056	0.049
	17	*Above-GW-11*	0.054	0.054	0.051	0.052	0.052	0.048	0.045	0.052	0.055	0.048
	18	*Above-GW-12*	0.054	0.053	0.050	0.051	0.051	0.048	0.045	0.051	0.054	0.048
	19	*Above-GW-13*	0.053	0.052	0.050	0.050	0.051	0.047	0.044	0.050	0.053	0.047
	20	*Above-GW-14*	0.052	0.052	0.049	0.050	0.050	0.047	0.044	0.050	0.053	0.047
	21	*Above-GW-15*	0.052	0.051	0.049	0.050	0.050	0.047	0.044	0.049	0.052	0.047
	22	*Above-GW-16*	0.051	0.051	0.049	0.049	0.049	0.046	0.044	0.049	0.052	0.046
	23	*Above-GW-17*	0.051	0.050	0.048	0.049	0.049	0.046	0.043	0.049	0.051	0.046
	24	*Above-GW-18*	0.051	0.050	0.048	0.048	0.049	0.046	0.043	0.048	0.051	0.046
	25	*Below-GW-1*	0.064	0.099	0.111	0.107	0.098	0.085	0.074	0.075	0.069	0.052
	26	*Below-GW-2*	0.064	0.099	0.111	0.106	0.098	0.085	0.074	0.074	0.069	0.052
	27	*Below-GW-3*	0.063	0.098	0.110	0.106	0.098	0.085	0.074	0.074	0.069	0.052
	28											
	29	*Soil Above GW*										
	30	*Soil Below GW*										
		TOTAL SETTLEMENT	**1.20**	**1.30**	**1.28**	**1.28**	**1.26**	**1.15**	**1.05**	**1.19**	**1.24**	**1.05**
POST-SETTLEMENT ELEVATION (M/FT)	Line	1	461.34	460.78	460.14	459.75	459.25	458.90	458.49	457.85	457.29	454.28
	Line	2	458.58	457.91	457.50	457.25	456.74	456.94	457.07	455.57	454.60	452.31
	Line	3	456.83	455.99	455.85	455.87	455.32	456.11	456.68	454.43	452.93	451.78
	Line	4	425.98	425.87	425.97	425.25	425.15	425.38	425.48	424.98	425.09	427.08
	Line	5	424.98	424.86	424.97	424.25	424.16	424.38	424.49	423.98	424.08	426.08
	Line	6	423.27	423.77	423.56	422.54	422.25	422.46	422.66	422.41	422.66	424.73
	Line	7	423.27	423.77	423.56	422.54	422.25	422.46	422.66	422.41	422.66	424.73
	Line	8	420.52	420.99	420.79	419.83	419.56	419.76	419.96	419.71	419.94	421.91
	Line	9	417.78	418.21	418.03	417.12	416.86	417.06	417.25	417.01	417.23	419.08
	Line	10	415.03	415.43	415.26	414.40	414.17	414.36	414.54	414.31	414.51	416.26
	Line	11	412.28	412.65	412.49	411.69	411.47	411.66	411.84	411.61	411.79	413.44
	Line	12	409.53	409.86	409.72	408.98	408.77	408.96	409.13	408.91	409.08	410.62
	Line	13	406.78	407.08	406.95	406.27	406.08	406.26	406.42	406.21	406.36	407.80
	Line	14	404.03	404.30	404.18	403.56	403.38	403.56	403.72	403.51	403.64	404.98
	Line	15	401.28	401.52	401.41	400.84	400.69	400.86	401.01	400.81	400.93	402.16
	Line	16	398.53	398.74	398.64	398.13	397.99	398.16	398.30	398.11	398.21	399.34
	Line	17	395.79	395.96	395.87	395.42	395.30	395.45	395.60	395.41	395.49	396.52
	Line	18	393.04	393.17	393.11	392.71	392.60	392.75	392.89	392.71	392.78	393.69
	Line	19	390.29	390.39	390.34	389.99	389.91	390.05	390.19	390.01	390.06	390.87
	Line	20	387.54	387.61	387.57	387.28	387.21	387.35	387.48	387.31	387.35	388.05
	Line	21	384.79	384.83	384.80	384.57	384.52	384.65	384.77	384.61	384.63	385.23
	Line	22	382.04	382.05	382.03	381.86	381.82	381.95	382.07	381.91	381.91	382.41
	Line	23	379.29	379.27	379.26	379.14	379.13	379.25	379.36	379.21	379.20	379.59
	Line	24	376.54	376.48	376.49	376.43	376.43	376.55	376.65	376.51	376.48	376.77
	Line	25	373.80	373.70	373.72	373.72	373.74	373.85	373.95	373.81	373.76	373.95
	Line	26	370.31	368.17	367.24	367.70	368.26	368.78	369.30	369.62	370.03	370.75
	Line	27	366.83	362.63	360.77	361.68	362.78	363.71	364.66	365.42	366.29	367.55
	Line	28	363.34	357.10	354.29	355.66	357.30	358.65	360.02	361.22	362.55	364.35
	Line	29										
	Line	30										
	Line	31										

Attachment 4

CASE 4: Settlement Analysis for Top of Final Cover
30 Years after Placement of the Final Cover
(Points 501 to 510)

Written by:	**Ray Wu / Meena Viswanath**	Date:	**02/09/2015**	Reviewed by:	**Ali Ebrahimi / Jay Beech**	Date:	**02/09/2015**
Client:	**Honeywell**	Project:	**Onondaga Lake SCA Final Cover Design**	Project/ Proposal No.:	**GD5497**	Task No.:	**03**

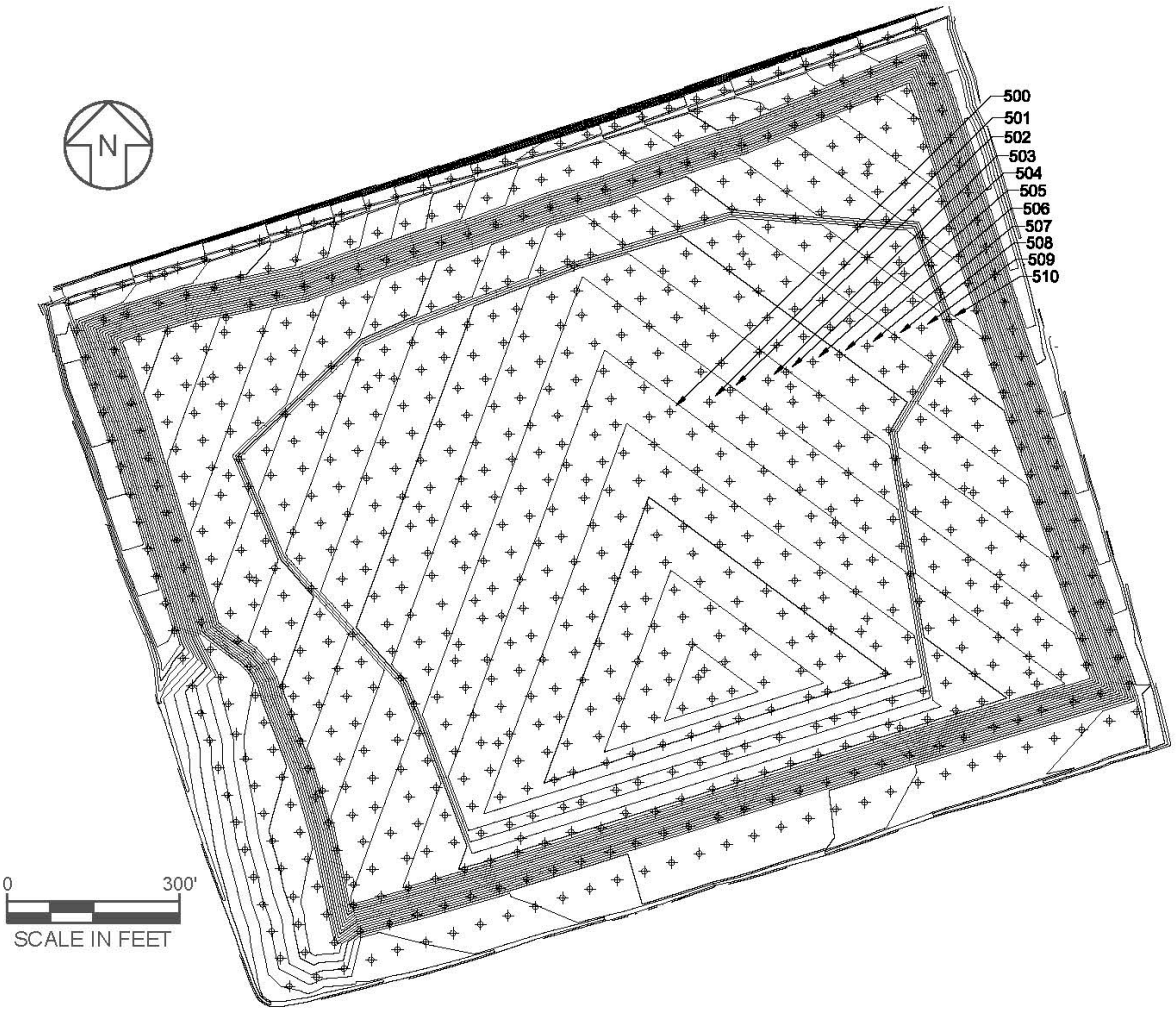

Figure 4-1. Calculation Points used for Settlement Analysis
[Contours are the Design Grading Plan for the Final Cover]

Written by:	**Ray Wu / Meena Viswanath**	Date:	**02/09/2015**	Reviewed by:	**Ali Ebrahimi / Jay Beech**	Date:	**02/09/2015**

Client:	**Honeywell**	Project:	**Onondaga Lake SCA Final Cover Design**	Project/ Proposal No.:	**GD5497**	Task No.:	**03**

Settlement Prediction Model
Programmer: **Beech and Bonaparte**
Version Control V 2.00 1.28.2015

Project: **Onondaga Lake SCA Final**
S
Notes:
E
Unit: **ft / psf**
Average Compaction Effort = **1440.00** kPa or psf
Consider Compaction Effort = **N** yes or no

					501	502	503	504	505	506	507	508	509	510
Point #														
Distance (meter or ft)					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELEVATION (M/FT)	Line	1		Top of Final Cover	462.55	462.08	461.41	461.04	460.52	460.05	459.54	459.03	458.53	455.33
	Line	2		Top of Leveling	459.78	459.21	458.78	458.53	458.00	458.09	458.12	456.76	455.84	453.36
	Line	3		Top of Dredge	458.04	457.28	457.13	457.15	456.59	457.26	457.74	455.62	454.16	452.84
	Line	4			456.80	456.08	455.93	455.92	455.38	456.03	456.49	454.44	453.05	451.85
	Line	5			455.57	454.87	454.74	454.70	454.17	454.80	455.24	453.26	451.94	450.86
	Line	6			454.34	453.67	453.54	453.47	452.97	453.57	453.99	452.08	450.82	449.87
	Line	7			453.10	452.46	452.35	452.25	451.76	452.34	452.74	450.90	449.71	448.88
	Line	8			451.87	451.26	451.15	451.02	450.55	451.11	451.50	449.73	448.60	447.90
	Line	9			450.63	450.05	449.96	449.80	449.35	449.89	450.25	448.55	447.48	446.91
	Line	10			449.40	448.85	448.76	448.57	448.14	448.66	449.00	447.37	446.37	445.92
	Line	11			448.16	447.64	447.56	447.35	446.93	447.43	447.75	446.19	445.25	444.93
	Line	12			446.93	446.44	446.37	446.13	445.73	446.20	446.50	445.02	444.14	443.94
	Line	13			445.70	445.24	445.17	444.90	444.52	444.97	445.26	443.84	443.03	442.95
	Line	14			444.46	444.03	443.98	443.68	443.31	443.74	444.01	442.66	441.91	441.97
	Line	15			443.23	442.83	442.78	442.45	442.11	442.51	442.76	441.48	440.80	440.98
	Line	16			441.99	441.62	441.59	441.23	440.90	441.28	441.51	440.30	439.69	439.99
	Line	17			440.76	440.42	440.39	440.00	439.69	440.05	440.26	439.13	438.57	439.00
	Line	18			439.53	439.21	439.20	438.78	438.49	438.82	439.02	437.95	437.46	438.01
	Line	19			438.29	438.01	438.00	437.55	437.28	437.59	437.77	436.77	436.35	437.02
	Line	20			437.06	436.80	436.81	436.33	436.07	436.36	436.52	435.59	435.23	436.04
	Line	21			435.82	435.60	435.61	435.11	434.87	435.14	435.27	434.41	434.12	435.05
	Line	22			434.59	434.39	434.42	433.88	433.66	433.91	434.02	433.24	433.00	434.06
	Line	23			433.35	433.19	433.22	432.66	432.45	432.68	432.78	432.06	431.89	433.07
	Line	24			432.12	431.98	432.03	431.43	431.25	431.45	431.53	430.88	430.78	432.08
	Line	25			430.89	430.78	430.83	430.21	430.04	430.22	430.28	429.70	429.66	431.09
	Line	26			429.65	429.57	429.64	428.98	428.83	428.99	429.03	428.53	428.55	430.11
	Line	27			428.42	428.37	428.44	427.76	427.63	427.76	427.79	427.35	427.44	429.12
	Line	28		Top of Gravel(Top of Incompres	427.18	427.16	427.25	426.53	426.42	426.53	426.54	426.17	426.32	428.13
	Line	29	GND	for sigma_p	429.39	429.54	428.97	428.60	428.27	428.16	428.19	428.44	428.55	428.54
	Line	30	GW		375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
	Line	31	ROCK		364.55	358.40	355.57	356.94	358.57	359.79	361.07	362.40	363.79	365.40
LAYER THICKNESS (M/FT)	Layer No.	From	To	Material										
	1	1	2	Cover	2.77	2.87	2.63	2.51	2.52	1.96	1.42	2.27	2.69	1.97
	2	2	3	Leveling	1.74	1.93	1.65	1.38	1.41	0.83	0.38	1.14	1.68	0.52
	3	3	4	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	4	4	5	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	5	5	6	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	6	6	7	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	7	7	8	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	8	8	9	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	9	9	10	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	10	10	11	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	11	11	12	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	12	12	13	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	13	13	14	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	14	14	15	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	15	15	16	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	16	16	17	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	17	17	18	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	18	18	19	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	19	19	20	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	20	20	21	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	21	21	22	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	22	22	23	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	23	23	24	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	24	24	25	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	25	25	26	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	26	26	27	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	27	27	28	Dredge	1.23	1.20	1.20	1.22	1.21	1.23	1.25	1.18	1.11	0.99
	28													
	29													
	30													
	Thickness Check													
		From Line	To Line	SUM	35.36	34.91	34.17	34.50	34.10	33.51	33.00	32.86	32.20	27.20
		1	28	Thickness =	35.36	34.91	34.17	34.50	34.10	33.51	33.00	32.86	32.20	27.20
				Thickness Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

UNIT WEIGHT	Layer No.	Material										
	1	*Cover*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	2	*Leveling*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	3	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	4	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	5	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	6	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	7	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	8	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	9	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	10	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	11	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	12	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	13	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	14	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	15	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	16	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	17	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	18	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	19	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	20	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	21	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	22	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	23	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	24	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	25	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	26	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	27	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	28											
	29		*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	30	*Soil below GW*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	Layer No.	***1*** **Cover**										
		Initial Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
		Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
	Midpoint Elevation, (m / ft)		461.16	460.64	460.10	459.78	459.26	459.07	458.83	457.90	457.18	454.35
	Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
	Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)												
OCR Manual Input Value												
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)												
Modified Primary Compression Index, $C_{c\varepsilon}$												
Modified Recompression Index, $C_{r\varepsilon}$												
Modified Secondary Compression Index, C_α												
ratio of t2 / t1												
Settlements												
Primary Settlement, (m / ft)												
Secondary Settlement (m / ft)												
Total Settlement (m / ft)												
		Elastic or Plastic (E/P)										
		Settlement of Layer 1 (m / ft)										

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

UNIT WEIGHT	Layer No.	Material										
	1	*Cover*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	2	*Leveling*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	3	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	4	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	5	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	6	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	7	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	8	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	9	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	10	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	11	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	12	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	13	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	14	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	15	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	16	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	17	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	18	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	19	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	20	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	21	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	22	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	23	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	24	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	25	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	26	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	27	*Dredge*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	28											
	29		*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	30	*Soil below GW*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	Layer No.	***1*** **Cover**										
		Initial Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
		Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
	Midpoint Elevation, (m / ft)		462.57	455.54	461.95	461.54	460.03	460.26	462.72	462.90	460.11	462.79
	Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
	Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method												
Modulus, E (kPa/psf)=		Strain										
		Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)												
Consolidation Properties												
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)												
OCR Manual Input Value												
OCR Computation Input												
Preconsolidation pressure, σ'_p (kPa / psf)												
Modified Primary Compression Index, $C_{c\varepsilon}$												
Modified Recompression Index, $C_{r\varepsilon}$												
Modified Secondary Compression Index, C_α												
ratio of t2 / t1												
Settlements												
Primary Settlement, (m / ft)												
Secondary Settlement (m / ft)												
Total Settlement (m / ft)												
		Elastic or Plastic (E/P)										
		Settlement of Layer 1 (m / ft)										

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Layer No. *2* **Leveling**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Midpoint Elevation, (m / ft)		458.91	458.25	457.95	457.84	457.29	457.67	457.93	456.19	455.00	453.10
Initial Effective Stress, σ'_i (kPa /psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Final Effective Stress, σ'_f (kPa/psf)		Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)											
OCR Manual Input Value											
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)											
Modified Primary Compression Index, $C_{c\varepsilon}$											
Modified Recompression Index, $C_{r\varepsilon}$											
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$											
ratio of t2 / t1											
Settlements											
Primary Settlement, (m / ft)											
Secondary Settlement (m / ft)											
Total Settlement (m / ft)											
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
Settlement of Layer 2 (m / ft)											
Layer No. *3* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		457.42	456.68	456.53	456.53	455.98	456.65	457.11	455.03	453.61	452.34
Initial Effective Stress, σ'_i (kPa /psf)		262.03	283.02	249.86	218.76	221.29	152.46	99.82	187.89	248.99	105.11
Final Effective Stress, σ'_f (kPa/psf)		594.07	627.19	565.99	519.38	523.17	387.21	270.28	460.63	571.21	341.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		262	283	250	219	221	152	100	188	249	105
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.128	0.121	0.124	0.134	0.131	0.145	0.157	0.134	0.117	0.147
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.139	0.132	0.134	0.145	0.142	0.156	0.168	0.144	0.127	0.156
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 3 (m / ft)		0.139	0.132	0.134	0.145	0.142	0.156	0.168	0.144	0.127	0.156
Layer No. *4* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		456.19	455.48	455.33	455.31	454.78	455.42	455.86	453.85	452.49	451.36
Initial Effective Stress, σ'_i (kPa /psf)		368.18	386.63	352.64	324.07	325.07	258.16	207.14	289.19	344.77	190.11
Final Effective Stress, σ'_f (kPa/psf)		700.22	730.80	668.77	624.68	626.96	492.92	377.60	561.92	666.99	426.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		368	387	353	324	325	258	207	289	345	190
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.100	0.097	0.097	0.102	0.100	0.101	0.095	0.099	0.093	0.101
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.111	0.108	0.107	0.113	0.111	0.111	0.106	0.109	0.103	0.110
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 4 (m / ft)		0.111	0.108	0.107	0.113	0.111	0.111	0.106	0.109	0.103	0.110

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Layer No. *5* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		454.95	454.27	454.14	454.08	453.57	454.19	454.62	452.67	451.38	450.37
Initial Effective Stress, σ'_i (kPa /psf)		474.32	490.24	455.43	429.37	428.86	363.86	314.46	390.48	440.54	275.11
Final Effective Stress, σ'_f (kPa/psf)		806.36	834.41	771.56	729.98	730.74	598.62	484.92	663.22	762.76	511.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		474	490	455	429	429	364	314	390	441	275
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.083	0.081	0.080	0.082	0.081	0.077	0.068	0.079	0.077	0.078
Secondary Settlement (m / ft)		0.01094	0.01068	0.01059	0.01085	0.01070	0.01089	0.01106	0.01044	0.00987	0.00876
Total Settlement (m / ft)		0.094	0.092	0.090	0.093	0.092	0.088	0.079	0.089	0.087	0.086
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 5 (m / ft)		0.094	0.092	0.090	0.093	0.092	0.088	0.079	0.089	0.087	0.086
Layer No. *6* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		453.72	453.07	452.94	452.86	452.36	452.96	453.37	451.49	450.27	449.38
Initial Effective Stress, σ'_i (kPa /psf)		580.46	593.85	558.21	534.67	532.64	469.57	421.78	491.78	536.32	360.11
Final Effective Stress, σ'_f (kPa/psf)		912.50	938.02	874.34	835.29	834.52	704.32	592.24	764.52	858.54	596.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		580	594	558	535	533	470	422	492	536	360
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.071	0.070	0.068	0.069	0.069	0.063	0.054	0.066	0.066	0.063
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.082	0.080	0.078	0.080	0.079	0.074	0.065	0.076	0.076	0.072
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 6 (m / ft)		0.082	0.080	0.078	0.080	0.079	0.074	0.065	0.076	0.076	0.072
Layer No. *7* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		452.48	451.86	451.75	451.64	451.16	451.73	452.12	450.32	449.15	448.39
Initial Effective Stress, σ'_i (kPa /psf)		686.61	697.46	661.00	639.98	636.42	575.27	529.10	593.08	632.09	445.11
Final Effective Stress, σ'_f (kPa/psf)		1,018.65	1,041.63	977.12	940.59	938.30	810.03	699.56	865.81	954.32	681.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		687	697	661	640	636	575	529	593	632	445
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.062	0.061	0.059	0.060	0.059	0.053	0.044	0.056	0.058	0.053
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.073	0.072	0.070	0.071	0.070	0.064	0.055	0.067	0.068	0.062
Elastic or Plastic (E/P)											
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 7 (m / ft)		0.073	0.072	0.070	0.071	0.070	0.064	0.055	0.067	0.068	0.062

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Layer No. *8* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.25	450.66	450.55	450.41	449.95	450.50	450.87	449.14	448.04	447.40
Initial Effective Stress, σ'_i (kPa /psf)		792.75	801.07	763.78	745.28	740.20	680.98	636.42	694.37	727.87	530.11
Final Effective Stress, σ'_f (kPa/psf)		1,124.79	1,145.24	1,079.91	1,045.89	1,042.09	915.73	806.88	967.11	1,050.09	766.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		793	801	764	745	740	681	636	694	728	530
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.055	0.054	0.052	0.053	0.052	0.046	0.037	0.049	0.052	0.046
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.066	0.065	0.063	0.063	0.063	0.057	0.049	0.060	0.062	0.055
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 8 (m / ft)		0.066	0.065	0.063	0.063	0.063	0.057	0.049	0.060	0.062	0.055
Layer No. *9* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		450.02	449.45	449.36	449.19	448.74	449.27	449.62	447.96	446.93	446.41
Initial Effective Stress, σ'_i (kPa /psf)		898.89	904.68	866.56	850.58	843.99	786.68	743.75	795.67	823.64	615.11
Final Effective Stress, σ'_f (kPa/psf)		1,230.93	1,248.86	1,182.69	1,151.20	1,145.87	1,021.44	914.21	1,068.41	1,145.87	851.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		899	905	867	851	844	787	744	796	824	615
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.049	0.049	0.047	0.047	0.047	0.041	0.033	0.044	0.047	0.041
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.060	0.060	0.058	0.058	0.057	0.052	0.044	0.054	0.056	0.049
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 9 (m / ft)		0.060	0.060	0.058	0.058	0.057	0.052	0.044	0.054	0.056	0.049
Layer No. *10* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		448.78	448.25	448.16	447.96	447.54	448.04	448.38	446.78	445.81	445.43
Initial Effective Stress, σ'_i (kPa /psf)		1,005.04	1,008.29	969.35	955.89	947.77	892.38	851.07	896.97	919.42	700.11
Final Effective Stress, σ'_f (kPa/psf)		1,337.08	1,352.47	1,285.48	1,256.50	1,249.65	1,127.14	1,021.53	1,169.70	1,241.64	936.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,005	1,008	969	956	948	892	851	897	919	700
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.045	0.045	0.043	0.042	0.042	0.036	0.029	0.040	0.042	0.036
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.056	0.055	0.053	0.053	0.053	0.047	0.040	0.050	0.052	0.045
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 10 (m / ft)		0.056	0.055	0.053	0.053	0.053	0.047	0.040	0.050	0.052	0.045

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *11* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		447.55	447.04	446.97	446.74	446.33	446.81	447.13	445.60	444.70	444.44
Initial Effective Stress, σ'_i (kPa /psf)		1,111.18	1,111.91	1,072.13	1,061.19	1,051.55	998.09	958.39	998.26	1,015.19	785.11
Final Effective Stress, σ'_f (kPa/psf)		1,443.22	1,456.08	1,388.26	1,361.80	1,353.43	1,232.84	1,128.85	1,271.00	1,337.42	1,021.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,111	1,112	1,072	1,061	1,052	998	958	998	1,015	785
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.041	0.041	0.039	0.039	0.039	0.033	0.026	0.036	0.039	0.033
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.052	0.052	0.050	0.049	0.049	0.044	0.037	0.046	0.049	0.042
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 11 (m / ft)		0.052	0.052	0.050	0.049	0.049	0.044	0.037	0.046	0.049	0.042
Layer No. *12* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		446.31	445.84	445.77	445.51	445.12	445.58	445.88	444.43	443.58	443.45
Initial Effective Stress, σ'_i (kPa /psf)		1,217.33	1,215.52	1,174.92	1,166.50	1,155.33	1,103.79	1,065.71	1,099.56	1,110.97	870.11
Final Effective Stress, σ'_f (kPa/psf)		1,549.37	1,559.69	1,491.04	1,467.11	1,457.22	1,338.55	1,236.17	1,372.29	1,433.19	1,106.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,217	1,216	1,175	1,166	1,155	1,104	1,066	1,100	1,111	870
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.038	0.038	0.036	0.036	0.035	0.030	0.023	0.033	0.036	0.030
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.049	0.049	0.047	0.046	0.046	0.041	0.034	0.043	0.046	0.039
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 12 (m / ft)		0.049	0.049	0.047	0.046	0.046	0.041	0.034	0.043	0.046	0.039
Layer No. *13* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		445.08	444.63	444.58	444.29	443.92	444.35	444.63	443.25	442.47	442.46
Initial Effective Stress, σ'_i (kPa /psf)		1,323	1,319	1,278	1,272	1,259	1,209	1,173	1,201	1,207	955
Final Effective Stress, σ'_f (kPa/psf)		1,656	1,663	1,594	1,572	1,561	1,444	1,343	1,474	1,529	1,192
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,323	1,319	1,278	1,272	1,259	1,209	1,173	1,201	1,207	955
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.035	0.035	0.033	0.033	0.033	0.028	0.021	0.031	0.033	0.028
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.046	0.046	0.044	0.044	0.044	0.038	0.032	0.041	0.043	0.036
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 13 (m / ft)		0.046	0.046	0.044	0.044	0.044	0.038	0.032	0.041	0.043	0.036

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *14* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		443.85	443.43	443.38	443.06	442.71	443.13	443.38	442.07	441.36	441.47
Initial Effective Stress, σ'_i (kPa /psf)		1,430	1,423	1,380	1,377	1,363	1,315	1,280	1,302	1,303	1,040
Final Effective Stress, σ'_f (kPa/psf)		1,762	1,767	1,697	1,678	1,665	1,550	1,451	1,575	1,625	1,277
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,430	1,423	1,380	1,377	1,363	1,315	1,280	1,302	1,303	1,040
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.033	0.033	0.031	0.031	0.031	0.026	0.020	0.028	0.031	0.026
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.044	0.044	0.042	0.041	0.041	0.036	0.031	0.039	0.041	0.034
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 14 (m / ft)		0.044	0.044	0.042	0.041	0.041	0.036	0.031	0.039	0.041	0.034
Layer No. *15* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		442.61	442.22	442.19	441.84	441.50	441.90	442.14	440.89	440.24	440.48
Initial Effective Stress, σ'_i (kPa /psf)		1,536	1,526	1,483	1,482	1,467	1,421	1,388	1,403	1,398	1,125
Final Effective Stress, σ'_f (kPa/psf)		1,868	1,871	1,799	1,783	1,769	1,656	1,558	1,676	1,721	1,362
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,536	1,526	1,483	1,482	1,467	1,421	1,388	1,403	1,398	1,125
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.031	0.031	0.029	0.029	0.029	0.024	0.018	0.026	0.029	0.024
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.042	0.042	0.040	0.039	0.039	0.035	0.029	0.037	0.039	0.033
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 15 (m / ft)		0.042	0.042	0.040	0.039	0.039	0.035	0.029	0.037	0.039	0.033
Layer No. *16* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		441.38	441.02	440.99	440.62	440.30	440.67	440.89	439.72	439.13	439.50
Initial Effective Stress, σ'_i (kPa /psf)		1,642	1,630	1,586	1,588	1,570	1,527	1,495	1,505	1,494	1,210
Final Effective Stress, σ'_f (kPa/psf)		1,974	1,974	1,902	1,888	1,872	1,761	1,665	1,777	1,816	1,447
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,642	1,630	1,586	1,588	1,570	1,527	1,495	1,505	1,494	1,210
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.029	0.029	0.027	0.027	0.027	0.022	0.017	0.025	0.028	0.022
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.040	0.040	0.038	0.038	0.038	0.033	0.028	0.035	0.037	0.031
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 16 (m / ft)		0.040	0.040	0.038	0.038	0.038	0.033	0.028	0.035	0.037	0.031

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *17* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		440.14	439.81	439.80	439.39	439.09	439.44	439.64	438.54	438.02	438.51
Initial Effective Stress, σ'_i (kPa /psf)		1,748	1,734	1,689	1,693	1,674	1,632	1,602	1,606	1,590	1,295
Final Effective Stress, σ'_f (kPa/psf)		2,080	2,078	2,005	1,994	1,976	1,867	1,773	1,879	1,912	1,532
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,748	1,734	1,689	1,693	1,674	1,632	1,602	1,606	1,590	1,295
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.027	0.028	0.026	0.025	0.025	0.021	0.016	0.023	0.026	0.021
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.038	0.038	0.037	0.036	0.036	0.032	0.027	0.034	0.036	0.030
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 17 (m / ft)		0.038	0.038	0.037	0.036	0.036	0.032	0.027	0.034	0.036	0.030
Layer No. *18* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		438.91	438.61	438.60	438.17	437.88	438.21	438.39	437.36	436.90	437.52
Initial Effective Stress, σ'_i (kPa /psf)		1,854	1,837	1,792	1,798	1,778	1,738	1,710	1,707	1,686	1,380
Final Effective Stress, σ'_f (kPa/psf)		2,186	2,181	2,108	2,099	2,080	1,973	1,880	1,980	2,008	1,617
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,854	1,837	1,792	1,798	1,778	1,738	1,710	1,707	1,686	1,380
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.026	0.026	0.025	0.024	0.024	0.020	0.015	0.022	0.025	0.020
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.037	0.037	0.035	0.035	0.035	0.031	0.026	0.033	0.035	0.029
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 18 (m / ft)		0.037	0.037	0.035	0.035	0.035	0.031	0.026	0.033	0.035	0.029
Layer No. *19* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		437.67	437.40	437.41	436.94	436.68	436.98	437.14	436.18	435.79	436.53
Initial Effective Stress, σ'_i (kPa /psf)		1,960	1,941	1,894	1,904	1,882	1,844	1,817	1,809	1,781	1,465
Final Effective Stress, σ'_f (kPa/psf)		2,292	2,285	2,211	2,204	2,184	2,078	1,987	2,081	2,104	1,702
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,960	1,941	1,894	1,904	1,882	1,844	1,817	1,809	1,781	1,465
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.024	0.025	0.023	0.023	0.023	0.019	0.014	0.021	0.023	0.019
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.035	0.036	0.034	0.034	0.033	0.030	0.025	0.031	0.033	0.027
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 19 (m / ft)		0.035	0.036	0.034	0.034	0.033	0.030	0.025	0.031	0.033	0.027

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *20* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		436.44	436.20	436.21	435.72	435.47	435.75	435.90	435.00	434.68	435.54
Initial Effective Stress, σ'_i (kPa /psf)		2,066	2,044	1,997	2,009	1,986	1,949	1,924	1,910	1,877	1,550
Final Effective Stress, σ'_f (kPa/psf)		2,399	2,389	2,313	2,310	2,287	2,184	2,095	2,183	2,199	1,787
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,066	2,044	1,997	2,009	1,986	1,949	1,924	1,910	1,877	1,550
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.023	0.024	0.022	0.022	0.022	0.018	0.013	0.020	0.022	0.018
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.034	0.034	0.033	0.032	0.032	0.029	0.024	0.030	0.032	0.027
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 20 (m / ft)		0.034	0.034	0.033	0.032	0.032	0.029	0.024	0.030	0.032	0.027
Layer No. *21* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		435.21	434.99	435.02	434.49	434.26	434.52	434.65	433.83	433.56	434.55
Initial Effective Stress, σ'_i (kPa /psf)		2,173	2,148	2,100	2,114	2,089	2,055	2,032	2,011	1,973	1,635
Final Effective Stress, σ'_f (kPa/psf)		2,505	2,492	2,416	2,415	2,391	2,290	2,202	2,284	2,295	1,872
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,173	2,148	2,100	2,114	2,089	2,055	2,032	2,011	1,973	1,635
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.022	0.023	0.021	0.021	0.021	0.017	0.013	0.019	0.021	0.017
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.033	0.033	0.032	0.031	0.031	0.028	0.024	0.029	0.031	0.026
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 21 (m / ft)		0.033	0.033	0.032	0.031	0.031	0.028	0.024	0.029	0.031	0.026
Layer No. *22* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		433.97	433.79	433.82	433.27	433.06	433.29	433.40	432.65	432.45	433.56
Initial Effective Stress, σ'_i (kPa /psf)		2,279	2,252	2,203	2,220	2,193	2,161	2,139	2,113	2,069	1,720
Final Effective Stress, σ'_f (kPa/psf)		2,611	2,596	2,519	2,520	2,495	2,396	2,309	2,385	2,391	1,957
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,279	2,252	2,203	2,220	2,193	2,161	2,139	2,113	2,069	1,720
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.021	0.022	0.020	0.020	0.020	0.016	0.012	0.018	0.020	0.016
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.032	0.032	0.031	0.031	0.030	0.027	0.023	0.029	0.030	0.025
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 22 (m / ft)		0.032	0.032	0.031	0.031	0.030	0.027	0.023	0.029	0.030	0.025

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *23* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		432.74	432.59	432.63	432.04	431.85	432.06	432.15	431.47	431.33	432.58
Initial Effective Stress, σ'_i (kPa /psf)		2,385	2,355	2,306	2,325	2,297	2,267	2,246	2,214	2,164	1,805
Final Effective Stress, σ'_f (kPa/psf)		2,717	2,699	2,622	2,625	2,599	2,501	2,417	2,487	2,487	2,042
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,385	2,355	2,306	2,325	2,297	2,267	2,246	2,214	2,164	1,805
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.020	0.021	0.019	0.019	0.019	0.015	0.012	0.017	0.020	0.015
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.031	0.031	0.030	0.030	0.030	0.026	0.023	0.028	0.029	0.024
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 23 (m / ft)		0.031	0.031	0.030	0.030	0.030	0.026	0.023	0.028	0.029	0.024
Layer No. *24* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		431.50	431.38	431.43	430.82	430.64	430.83	430.91	430.29	430.22	431.59
Initial Effective Stress, σ'_i (kPa /psf)		2,491	2,459	2,408	2,430	2,401	2,372	2,354	2,315	2,260	1,890
Final Effective Stress, σ'_f (kPa/psf)		2,823	2,803	2,724	2,731	2,703	2,607	2,524	2,588	2,582	2,127
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,491	2,459	2,408	2,430	2,401	2,372	2,354	2,315	2,260	1,890
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.020	0.020	0.019	0.018	0.018	0.015	0.011	0.017	0.019	0.015
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.030	0.031	0.029	0.029	0.029	0.026	0.022	0.027	0.029	0.024
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 24 (m / ft)		0.030	0.031	0.029	0.029	0.029	0.026	0.022	0.027	0.029	0.024
Layer No. *25* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		430.27	430.18	430.23	429.60	429.44	429.60	429.66	429.11	429.11	430.60
Initial Effective Stress, σ'_i (kPa /psf)		2,597.20	2,562.46	2,511.11	2,535.44	2,504.50	2,477.94	2,460.88	2,416.41	2,356.04	1,975.11
Final Effective Stress, σ'_f (kPa/psf)		2,929.24	2,906.63	2,827.24	2,836.05	2,806.39	2,712.70	2,631.34	2,689.15	2,678.27	2,211.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,597	2,562	2,511	2,535	2,505	2,478	2,461	2,416	2,356	1,975
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.019	0.019	0.018	0.017	0.017	0.014	0.011	0.016	0.018	0.014
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.030	0.030	0.029	0.028	0.028	0.025	0.022	0.026	0.028	0.023
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 25 (m / ft)		0.030	0.030	0.029	0.028	0.028	0.025	0.022	0.026	0.028	0.023

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

Layer No. *26* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		429.03	428.97	429.04	428.37	428.23	428.38	428.41	427.94	427.99	429.61
Initial Effective Stress, σ'_i (kPa /psf)		2,703.34	2,666.07	2,613.89	2,640.75	2,608.29	2,583.65	2,568.20	2,517.71	2,451.82	2,060.11
Final Effective Stress, σ'_f (kPa/psf)		3,035.38	3,010.24	2,930.02	2,941.36	2,910.17	2,818.40	2,738.66	2,790.44	2,774.04	2,296.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,703	2,666	2,614	2,641	2,608	2,584	2,568	2,518	2,452	2,060
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.018	0.019	0.017	0.017	0.017	0.014	0.010	0.015	0.017	0.014
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.029	0.029	0.028	0.028	0.027	0.024	0.021	0.026	0.027	0.022
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 26 (m / ft)		0.029	0.029	0.028	0.028	0.027	0.024	0.021	0.026	0.027	0.022
Layer No. *27* **Dredge**											
Initial Stress Reference Layer (top of layer)		*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		427.80	427.77	427.84	427.15	427.02	427.15	427.16	426.76	426.88	428.62
Initial Effective Stress, σ'_i (kPa /psf)		2,809.49	2,769.68	2,716.68	2,746.05	2,712.07	2,689.35	2,675.53	2,619.00	2,547.59	2,145.11
Final Effective Stress, σ'_f (kPa/psf)		3,141.53	3,113.86	3,032.81	3,046.66	3,013.95	2,924.11	2,845.99	2,891.74	2,869.82	2,381.59
Elastic Method											
Modulus, E (kPa/psf)=	Strain										
	Settlement (m / ft)										
1-D Consolidation Theory (Plastic Method)											
Consolidation Properties											
OCR Manual or Auto Input (MW/MS: Manual waste/soil, A:Automatic)		*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*	*MW*
OCR Manual Input Value		*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,809	2,770	2,717	2,746	2,712	2,689	2,676	2,619	2,548	2,145
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*	*0.291*
Modified Recompression Index, $C_{r\varepsilon}$		*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1		*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
Settlements											
Primary Settlement, (m / ft)		0.017	0.018	0.017	0.016	0.016	0.013	0.010	0.015	0.017	0.013
Secondary Settlement (m / ft)		0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.009
Total Settlement (m / ft)		0.028	0.029	0.027	0.027	0.027	0.024	0.021	0.025	0.027	0.022
Elastic or Plastic (E/P)		P	P	P	P	P	P	P	P	P	P
		1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D	1-D
Settlement of Layer 27 (m / ft)		0.028	0.029	0.027	0.027	0.027	0.024	0.021	0.025	0.027	0.022

Written by: **Ray Wu / Meena Viswanath** Date: **02/09/2015** Reviewed by: **Ali Ebrahimi / Jay Beech** Date: **02/09/2015**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Cover Design** Project/ Proposal No.: **GD5497** Task No.: **03**

LAYER SETTLEMENT	Layer No.	Material										
	1	*Cover*										
	2	*Leveling*										
	3	*Dredge*	0.139	0.132	0.134	0.145	0.142	0.156	0.168	0.144	0.127	0.156
	4	*Dredge*	0.111	0.108	0.107	0.113	0.111	0.111	0.106	0.109	0.103	0.110
	5	*Dredge*	0.094	0.092	0.090	0.093	0.092	0.088	0.079	0.089	0.087	0.086
	6	*Dredge*	0.082	0.080	0.078	0.080	0.079	0.074	0.065	0.076	0.076	0.072
	7	*Dredge*	0.073	0.072	0.070	0.071	0.070	0.064	0.055	0.067	0.068	0.062
	8	*Dredge*	0.066	0.065	0.063	0.063	0.063	0.057	0.049	0.060	0.062	0.055
	9	*Dredge*	0.060	0.060	0.058	0.058	0.057	0.052	0.044	0.054	0.056	0.049
	10	*Dredge*	0.056	0.055	0.053	0.053	0.053	0.047	0.040	0.050	0.052	0.045
	11	*Dredge*	0.052	0.052	0.050	0.049	0.049	0.044	0.037	0.046	0.049	0.042
	12	*Dredge*	0.049	0.049	0.047	0.046	0.046	0.041	0.034	0.043	0.046	0.039
	13	*Dredge*	0.046	0.046	0.044	0.044	0.044	0.038	0.032	0.041	0.043	0.036
	14	*Dredge*	0.044	0.044	0.042	0.041	0.041	0.036	0.031	0.039	0.041	0.034
	15	*Dredge*	0.042	0.042	0.040	0.039	0.039	0.035	0.029	0.037	0.039	0.033
	16	*Dredge*	0.040	0.040	0.038	0.038	0.038	0.033	0.028	0.035	0.037	0.031
	17	*Dredge*	0.038	0.038	0.037	0.036	0.036	0.032	0.027	0.034	0.036	0.030
	18	*Dredge*	0.037	0.037	0.035	0.035	0.035	0.031	0.026	0.033	0.035	0.029
	19	*Dredge*	0.035	0.036	0.034	0.034	0.033	0.030	0.025	0.031	0.033	0.027
	20	*Dredge*	0.034	0.034	0.033	0.032	0.032	0.029	0.024	0.030	0.032	0.027
	21	*Dredge*	0.033	0.033	0.032	0.031	0.031	0.028	0.024	0.029	0.031	0.026
	22	*Dredge*	0.032	0.032	0.031	0.031	0.030	0.027	0.023	0.029	0.030	0.025
	23	*Dredge*	0.031	0.031	0.030	0.030	0.030	0.026	0.023	0.028	0.029	0.024
	24	*Dredge*	0.030	0.031	0.029	0.029	0.029	0.026	0.022	0.027	0.029	0.024
	25	*Dredge*	0.030	0.030	0.029	0.028	0.028	0.025	0.022	0.026	0.028	0.023
	26	*Dredge*	0.029	0.029	0.028	0.028	0.027	0.024	0.021	0.026	0.027	0.022
	27	*Dredge*	0.028	0.029	0.027	0.027	0.027	0.024	0.021	0.025	0.027	0.022
	28	*Additional Foundation Settlement*	1.204	1.297	1.277	1.280	1.264	1.149	1.053	1.186	1.237	1.054
	29	*Dredge Settlement*	1.309	1.296	1.258	1.274	1.263	1.177	1.056	1.210	1.224	1.128
	30											
		TOTAL SETTLEMENT	**2.51**	**2.59**	**2.54**	**2.55**	**2.53**	**2.33**	**2.11**	**2.40**	**2.46**	**2.18**
POST-SETTLEMENT ELEVATION(M/FT)	Line	1 Top of Final Cover	460.03	459.48	458.88	458.48	457.99	457.72	457.43	456.64	456.06	453.15
	Line	2 Top of Leveling	457.27	456.62	456.24	455.98	455.47	455.76	456.01	454.36	453.38	451.18
	Line	3 Top of Dredge	455.53	454.69	454.59	454.59	454.06	454.93	455.63	453.22	451.70	450.66
	Line	4	454.29	453.49	453.40	453.37	452.85	453.70	454.38	452.04	450.59	449.67
	Line	5	453.06	452.28	452.20	452.14	451.65	452.48	453.13	450.86	449.48	448.68
	Line	6	451.82	451.08	451.01	450.92	450.44	451.25	451.88	449.69	448.36	447.69
	Line	7	450.59	449.87	449.81	449.69	449.23	450.02	450.63	448.51	447.25	446.70
	Line	8	449.35	448.67	448.62	448.47	448.03	448.79	449.39	447.33	446.13	445.71
	Line	9	448.12	447.46	447.42	447.25	446.82	447.56	448.14	446.15	445.02	444.73
	Line	10	446.89	446.26	446.22	446.02	445.61	446.33	446.89	444.98	443.91	443.74
	Line	11	445.65	445.05	445.03	444.80	444.41	445.10	445.64	443.80	442.79	442.75
	Line	12	444.42	443.85	443.83	443.57	443.20	443.87	444.39	442.62	441.68	441.76
	Line	13	443.18	442.64	442.64	442.35	441.99	442.64	443.15	441.44	440.57	440.77
	Line	14	441.95	441.44	441.44	441.12	440.79	441.41	441.90	440.26	439.45	439.78
	Line	15	440.71	440.23	440.25	439.90	439.58	440.18	440.65	439.09	438.34	438.80
	Line	16	439.48	439.03	439.05	438.67	438.37	438.96	439.40	437.91	437.23	437.81
	Line	17	438.25	437.82	437.86	437.45	437.17	437.73	438.16	436.73	436.11	436.82
	Line	18	437.01	436.62	436.66	436.22	435.96	436.50	436.91	435.55	435.00	435.83
	Line	19	435.78	435.41	435.47	435.00	434.75	435.27	435.66	434.37	433.88	434.84
	Line	20	434.54	434.21	434.27	433.78	433.55	434.04	434.41	433.20	432.77	433.85
	Line	21	433.31	433.00	433.08	432.55	432.34	432.81	433.16	432.02	431.66	432.87
	Line	22	432.08	431.80	431.88	431.33	431.13	431.58	431.92	430.84	430.54	431.88
	Line	23	430.84	430.59	430.69	430.10	429.93	430.35	430.67	429.66	429.43	430.89
	Line	24	429.61	429.39	429.49	428.88	428.72	429.12	429.42	428.49	428.32	429.90
	Line	25	428.37	428.18	428.30	427.65	427.51	427.89	428.17	427.31	427.20	428.91
	Line	26	427.14	426.98	427.10	426.43	426.30	426.66	426.92	426.13	426.09	427.92
	Line	27	425.90	425.78	425.91	425.20	425.10	425.43	425.68	424.95	424.98	426.94
	Line	28 Top of Gravel(Top of Incompre	424.67	424.57	424.71	423.98	423.89	424.21	424.43	423.77	423.86	425.95
	Line	29										
	Line	30										
	Line	31										

Appendix

SCA Geotechnical Monitoring Monthly Summary Report
November 2014

Geosyntec consultants

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144
PH 678.202.9500
FAX 678.202.9501
www.geosyntec.com

Memorandum

Date: 18 December 2014

To: Tom Drachenberg, P.E.
Parsons

From: Meena Viswanath, EIT, Ali Ebrahimi, Ph.D., P.E., Ming Zhu, Ph.D., P.E., and Jay Beech, Ph.D., P.E.
Geosyntec Consultants

Subject: Geotechnical Monitoring Data Summary (with data through November 30, 2014)
Sediment Consolidation Area, Onondaga Lake, Syracuse, NY

This memorandum was prepared by Geosyntec Consultants (Geosyntec) to update the previous Geotechnical Monitoring Data Summary for the Sediment Consolidation Area (SCA) dated 1 December 2014 with data through October 31, 2014 (hereafter referred to as the October 2014 Data Summary). Specifically, this memorandum summarizes the monitoring data collected from the instruments including inclinometers, piezometers, settlement cells, and settlement monuments through November 30, 2014.

Results of the monitoring data collected through November 30, 2014 indicate that the inclinometers, piezometers, and settlement cells installed in the SCA are in general functioning as intended. The data collected automatically by the data logger system have been recovered almost 100% for processing, except for occasional system downtimes due to power outages. Evaluation of the measured lateral ground deformation, equivalent water levels, and settlement indicates performance of the SCA during the monitoring period through November 30, 2014 was in general as expected, including: (1) the lateral ground movement measured by the inclinometers appears to be within an acceptable range; (2) the piezometers have shown expected responses to loading from geotextile tubes and precipitation; (3) the measured settlement of the foundation materials appears to be generally within the range of prediction; and (4) except for the localized area between SC-G16 and SC-G27 that is slightly reversed with a drainage slope of -0.47%, there is no indication of grade reversal of the SCA liner based on the settlement measured as of November 30, 2014. The localized grade reversal does not appear to impact the overall drainage of the SCA liner.

MONITORING DATA

The as-built locations of inclinometers, piezometers, settlement cells, and settlement monuments installed in the SCA are shown in Figure 1. The general timeline of geotextile tube filling is presented in Table 1. The site was under winter shutdown conditions from November 19, 2012 through April 8, 2013 and November 22, 2013 through April 7, 2014. Geotextile tube filling was finished early November 2014 and the winter shutdown schedule of geotechnical monitoring started on November 26, 2014.

Inclinometer Data

The inclinometers installed in the SCA include one automated inclinometer (i.e., ShapeAccelArray or SAA) and five manual inclinometers. One of the manual inclinometers (i.e., SI-G1) was abandoned in March 2013. The SAA is connected to an adjacent data logger and monitored automatically at a frequency of one reading per hour. The collected SAA data are transmitted by radio to the central data logger in the instrumentation trailer. The manual inclinometers are read twice a week during active SCA operations and quarterly during winter shutdowns using a portable inclinometer probe and readout unit.

The SAA data collected as of November 30, 2014 are plotted in Figure 2. The manual inclinometer data collected as of November 25, 2014 are plotted in Figures 3 through 7. The following observations are for the inclinometer data. It is noted that the deformation reported below is the resultant of the deformations measured in the two perpendicular directions presented as the A and B axes.

- The deformation at ground surface measured by the automatic inclinometer (i.e., SI-G3-SAA) was about 0.8 inches between September 30, 2011 and November 30, 2014.
- SI-G1 was abandoned on March 14, 2013 in order to allow for the placement of geotextile tubes between Phase I and Phase II. The last reading taken at SI-G1 before it was abandoned showed a deformation at ground surface of about 0.4 inches between May 25, 2012 and November 30, 2012.
- SI-G2R showed a deformation of about 1.7 inches at ground surface between June 4, 2012 and November 25, 2014.
- SI-G3 showed a deformation of about 0.3 inches at ground surface between July 7, 2011 and April 2, 2012 (before extension) and about 1.6 inches between May 11, 2012 and November 25, 2014 (after extension).
- SI-G4 showed a deformation of about 1.1 inches at ground surface between July 7, 2011 and November 25, 2014. The deformation was limited to the top five feet of the ground.

- SI-G5 showed a deformation of about 0.1 inches at ground surface between July 6, 2011 and November 25, 2014. The deformation was limited to the top five feet of the ground.

The data indicate that the inclinometers installed in SCA appear to be functioning as intended. The measured lateral deformation from the inclinometers appears to be within an acceptable range.

Piezometer Data

Piezometers PZ-G1 through PZ-G7 are located in Phases I, II, and III. At each piezometer location, there are three vibrating wire sensors at depths of 15, 30, and 45 ft below the original ground surface (i.e., top of Solvay waste), respectively. Piezometers PZ-G8 and PZ-G9 are located in the northern perimeter dike of WB-13 and each has one vibrating wire sensor at a depth of 50 ft below the ground surface. All the piezometers are monitored automatically at a frequency of one reading per hour. In addition, there are 13 manually monitored piezometers (with a total of 16 vibrating wire sensors and 4 standpipe piezometers) installed previously by Parsons outside the SCA footprint and currently monitored by Geosyntec using a handheld unit.

The piezometer readings for PZ-G1 through PZ-G9 collected between September 1, 2011 and November 30, 2014 were converted to the equivalent water level elevations and are plotted in Figures 8 through 11 with the recorded precipitation. The piezometer data indicate higher water levels at shallow depths and deeper water levels at greater depths, which is generally consistent with earlier readings recorded prior to the SCA construction. The following observations are for the piezometer data:

- PZ-G1 (near the Western Sump), PZ-G2 (near the Eastern Sump), and PZ-G3 (in the middle of Phase I on the southern side) showed clear responses to the loading from the geotextile tubes during active operations in 2012 and 2013, as discussed in previous reports. PZ-G1, PZ-G2, and PZ-G3 showed up to approximately 10 ft of increase in measured water levels between mid-March 2014 and early April 2014, which was likely in response to ponded water and change of the groundwater (or perched water) table as a result of snow melting and precipitation events. The measured water levels of PZ-G1 had generally been dissipating through the end of June 2014, except for a slight rise and fall likely in response to precipitation again between May 18 and 21, 2014.
- Through the end of November 2014, the measured water levels of PZ-G1 and PZ-G2 were generally dissipating. The measured water levels of PZ-G3 continued to dissipate through the end of November 2014, after reaching peaks in mid-October due to loading from the final layer of geotextile tubes.

- PZ-G4 (on the western side of Phase II) and PZ-G5 (on the eastern side of Phase II) showed clear responses to loading from the geotextile tubes placed in Phase II during active operations in 2013, as discussed in previous reports. PZ-G4 and PZ-G5 showed up to approximately 8 ft of increase in measured water levels between mid-March 2014 and early April 2014, which was likely in response to change of the groundwater (or perched water) table as a result of snow melting and precipitation events. The measured water levels of PZ-G4 and PZ-G5 continued to dissipate as of the end of November 2014.
- PZ-G6 through PZ-G9 are not located in the active operation zone and the readings from these piezometers are generally steady, except that PZ-G6 and PZ-G7 showed up to approximately 6 ft of increase in measured water levels between mid-March 2014 and early April 2014, which was likely in response to change of the groundwater (or perched water) table as a result of snow melting and precipitation events. The measured water levels had been generally steady as of the end of November 2014.
- The piezometers previously installed by Parsons outside the SCA footprint are monitored manually by Geosyntec. The readings collected between June 27, 2011 and November 25, 2014 are presented in Attachment A. The readings collected in 2014 (as of November 25) are consistent with the historical readings collected in 2011, 2012, and 2013.

The piezometer data appear to be in general reasonable and the responses of the piezometers under the loading from geotextile tubes are consistent with the operational activities at the site.

Settlement Cell Data

The settlement cells installed in Phases I and II (i.e., SC-G1 through SC-G29) are connected to the central data logger in the instrumentation trailer by cables and are monitored automatically at a frequency of one reading per hour. In addition, four "control" settlement cells (i.e., SC-GT1(1), SC-GT1(2), SC-GT2(1), and SC-GT2(2)) installed outside the SCA footprint are connected to the central data logger by a radio network and are monitored automatically at a frequency of one reading per hour as well. The settlement of the foundation Solvay waste was interpreted from the readings collected from the settlement cells. The results through November 30, 2014 are plotted in Figures 12 and 13. It is noted that:

- The readings from the settlement cells connected to Legs 1 and 2 in Phase I have been corrected for systematic error using readings from the "control" settlement cells (i.e., SC-GT1(2) and SC-GT1(1), respectively) located outside the SCA footprint, which were monitored periodically (i.e., twice a week or daily) through the end of September and hourly since October 4, 2012.

- The readings from the settlement cells connected to Legs 3 and 4 in Phase II were corrected for systematic error using readings from "unaffected" settlement cells (i.e., SC-G22 and SC-G26, respectively) located outside of the active loading area in Phase II, which were monitored hourly, through July 1, 2013, when the active loading area reached SC-G22 and SC-G26. The readings from Leg 3 and Leg 4 are currently corrected for systematic error using readings from the "control" settlement cells (i.e., SC-GT2(1) and SC-GT2(2), respectively) located outside the SCA footprint.
- The readings from all the settlement cells have been corrected for temperature effects as described in previous reports.

The full-scale operations of geotextile tubes started in late July 2012 and as of November 30, 2014, 25 settlement cells have shown clear responses to the geotextile tube loading. The locations of these 25 "affected" settlement cells are circled in Figure 14. The settlement cell data indicate that twelve settlement cells (i.e., SC-G2 through SC-G4, SC-G6 through SC-G9, SC-G11, SC-G12, and SC-G14 through SC-G16) connected to Leg 1 and Leg 2 in Phase I have shown a clear trend of settlement under the loading from the geotextile tubes after July 23, 2012. Loading in Phase II started around April 2013. The settlement cell data indicate that all 13 settlement cells (i.e., SC-G17 through SC-G29) connected to Leg 3 and Leg 4 in Phase II have shown a clear trend of settlement under the loading from the geotextile tubes in Phase II since early May 2013.

To better view the settlement due to the geotextile tubes, the settlement data after July 23, 2012 are re-plotted in Figure 15 for the 25 "affected" settlement cells connected to Legs 1, 2, 3, and 4. It is noted that the data presented in Figure 15 were re-zeroed to the date of July 23, 2012 in order to compare the settlement caused by geotextile tubes. The data indicate that, as of November 30, 2014, settlement cells SC-G3, SC-G4, SC-G6 through SC-G9, SC-G11, SC-G12, and SC-G14 through SC-G16 in Phase I as well as SC-G17 and SC-G20 through SC-G29 in Phase II were re-activated due to geotextile tube filling during 2014 operations. The measured settlement due to loading from geotextile tubes ranges approximately from 1.8 ft to 7.4 ft in Phases I and II.

Figure 16 shows the contours of the as-built top of clay liner and the post-settlement elevations of the top of clay liner at the locations of the settlement cells. The post-settlement elevations were calculated by subtracting the total settlement measured by the settlement cells on November 30, 2014 from the as-built top of clay liner. Figures 17 through 19 show three cross-sections cut across the Eastern Sump and/or Western Sump with the as-built top of clay liner and the post-settlement top of clay liner. The results indicate that the grade between SC-G16 and SC-G27 is slightly reversed with a drainage slope of -0.47%. Compared to the monitoring results provided in the October 2014 Data Summary, the grade reversal between

SC-G16 and SC-G27 has slightly decreased during November 2014. The localized grade reversal does not appear to impact the overall drainage of the SCA liner.

The data indicate that the settlement cells installed in the SCA appear to be generally functioning as intended and are consistent with the geotextile tube filling operational activities at the site. As reported previously, a leakage located inside the SCA footprint was detected on the hydraulic line of Leg 1 after the SCA liner system was constructed. The leakage rate has been monitored by Geosyntec. The records show that the leakage rate has dropped significantly since the SCA operations started in July 2012. The measured leakage rate in Leg 1 ranged between 0 and 0.25 gallons per month during January 2013 through November 2014. In November 2014, no glycol was added to the Leg 1 hydraulic line.

Settlement Monument Data

Sixty (60) settlement monuments (SMs) had been installed above the SCA liner system during the operations of geotextile tubes by Parsons in Phases I and II, as shown in Figure 1. In June 2013, the method of surveying changed from a handheld GPS to an automated motorized total station. This automated total station system (including the total station, two control points, and prisms mounted on each settlement monument) was installed on May 29, 2013. The locations of the total station and control points are shown in Figure 1.

To take a reading, the total station is set up on a portable tripod and a pre-loaded program is activated. The total station then automatically turns to take readings from two control points and the prisms mounted on top of the settlement monuments. These control points are currently set up on portable tripods. The first set of readings surveyed by the total station was reported on June 12, 2013.

The settlement monuments are being surveyed at a frequency of twice a week during regular operations. A total of twenty-eight settlement monuments (twenty in Phase I and eight in Phase II) had been repaired as of November 25, 2014, but had lost over one month of data. The locations of these repaired settlement monuments are labeled as purple in both Figure 1 and Figure 20a. A total of eleven settlement monuments (nine in Phase I and two in Phase II) were non-functional during operations as of November 25, 2014. The locations of these non-functional settlement monuments are labeled as red in both Figure 1 and Figure 20a. Due to the relocation or repair of some of the settlement monuments during the operations, the corresponding baselines were re-established. Parsons is continuing to address the unsurveyable settlement monuments.

Attachment B presents the settlement monument data collected through November 25, 2014. Figure 20a shows the estimated original top of gravel elevation and measured settlement on

November 25, 2014 at each settlement monument location. Figure 20b shows the calculated post-settlement top of gravel elevation and change in measured settlement over the past month at each settlement monument location as of November 25, 2014. The maximum settlement measured by actively monitored settlement monuments in Phase I on November 25, 2014 is approximately 6.1 ft at the location of SM-45 (Phase IA) and 6.2 ft at the location of SM-17 (Phase IB). The maximum settlement measured by actively monitored settlement monuments in Phase II on November 25, 2014 is approximately 3.8 ft at the location of SM-48 (Phase IIA) and 5.3 ft at the location of SM-46 (Phase IIB).

The settlement measured by the settlement monuments appears to be generally consistent with the settlement measured by the settlement cells.

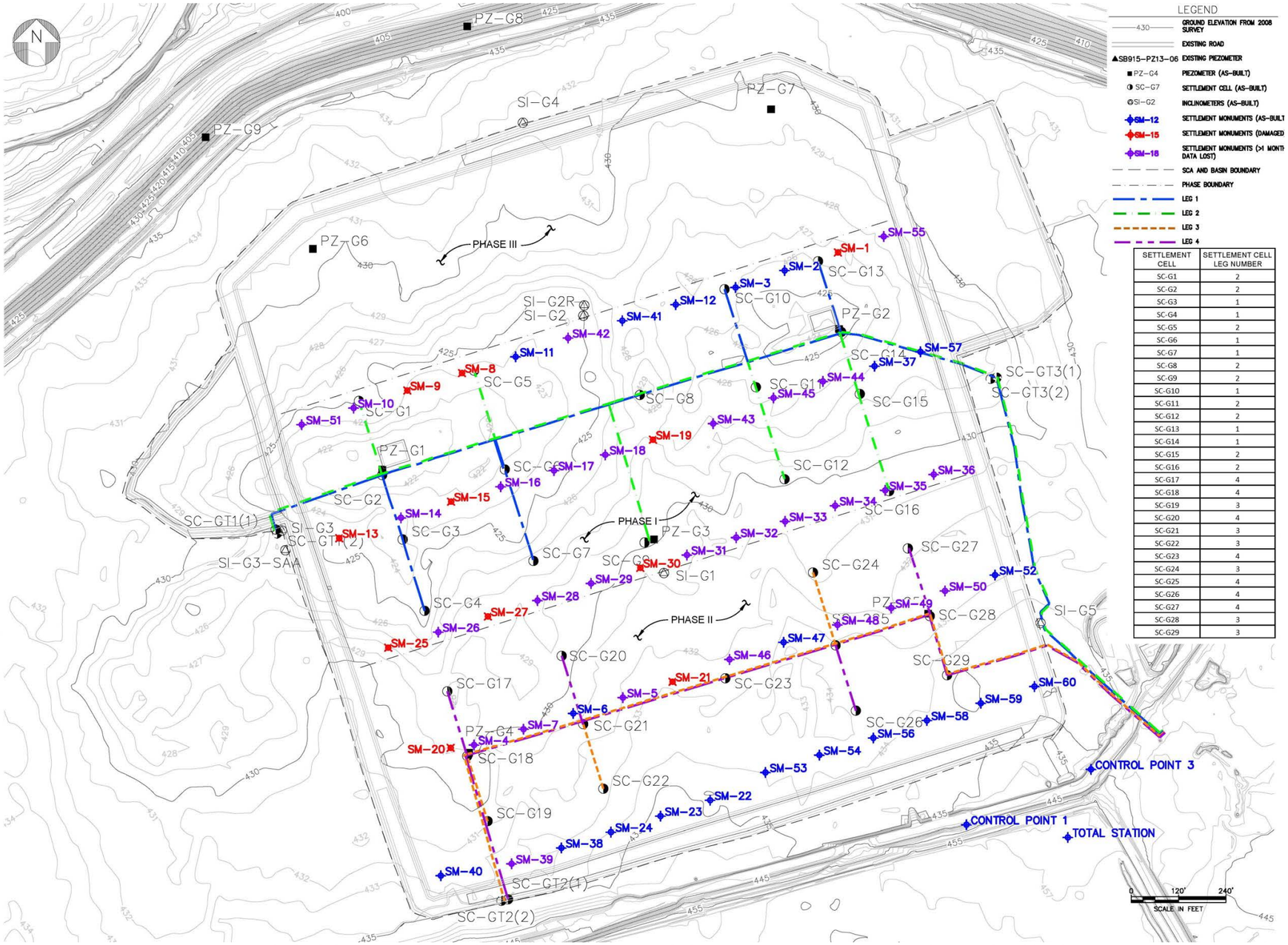
TABLE

Table 1. General Timeline of Geotextile Tube Filling

Year	Date	Sitewide	Phase I	Phase II
2012	July 2012	Operations start	Layer 1 filling starts[1]	---
	October 2012	---	Layer 1 filling ends Layer 2 filling starts	---
	November 2012	Winter shutdown starts	---	---
2013	April 2013	Operations resume	---	Layer 1 filling starts[1]
	June 2013	---	Layer 2 filling ends	---
	July 2013	---	---	Layer 1 filling ends Layer 2 filling starts
	September 2013	---	Layer 3 filling starts	Layer 2 filling ends
	October 2013	---	---	Layer 3 filling starts
	November 2013	Winter shutdown starts	Layer 3 filling ends	---
2014	April 2014	Operations resume	---	Layer 3 filling resumes
	May 2014	---	Layer 4 filling starts	---
	June 2014	---	---	Layer 3 filling ends Layer 4 filling starts
	July 2014	---	Layer 4 filling ends	---
	August 2014	---	Layer 5 filling starts	Layer 4 filling ends
	September 2014	---	Layer 5 filling ends	Layer 6 filling starts
	October 2014	---	Layer 6 filling starts	Layer 6 filling ends
	November 2014	Winter shutdown starts; Geotextile tube filling finished	Layer 6 filling ends	---

Note: Layer 1 is the first layer of geotextile tubes placed in both Phase I and Phase II.

FIGURES



SETTLEMENT CELL	SETTLEMENT CELL LEG NUMBER
SC-G1	2
SC-G2	2
SC-G3	1
SC-G4	1
SC-G5	2
SC-G6	1
SC-G7	1
SC-G8	2
SC-G9	2
SC-G10	1
SC-G11	2
SC-G12	2
SC-G13	1
SC-G14	1
SC-G15	2
SC-G16	2
SC-G17	4
SC-G18	4
SC-G19	3
SC-G20	4
SC-G21	3
SC-G22	3
SC-G23	4
SC-G24	3
SC-G25	4
SC-G26	4
SC-G27	4
SC-G28	3
SC-G29	3

Figure 1. As-built locations of geotechnical instrumentation including settlement monuments as of November 30, 2014

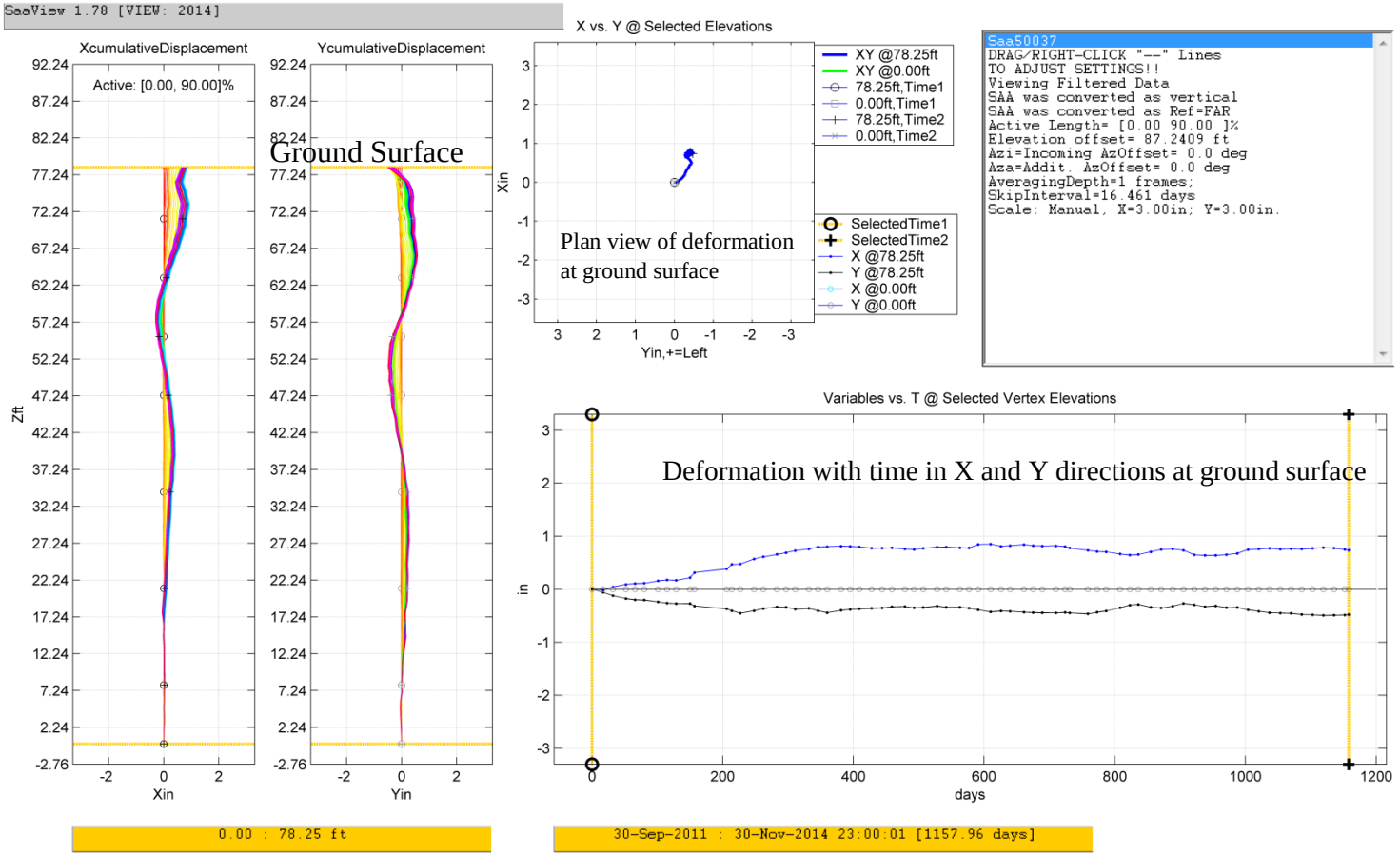


Figure 2. Monitoring data for the automatic inclinometer (SI-G3-SAA)
(Data through November 30, 2014; Initial reading on September 30, 2011)

Note: The SAA has a stick-up of approximately 8 ft above ground. The deformation graph (in the top-middle) shows the deformation at the ground surface, as marked with the yellow line on the left graph. The data gap between September 20 and October 18, 2013 was due to a communication issue associated with the SAA232 interface unit and data cable.

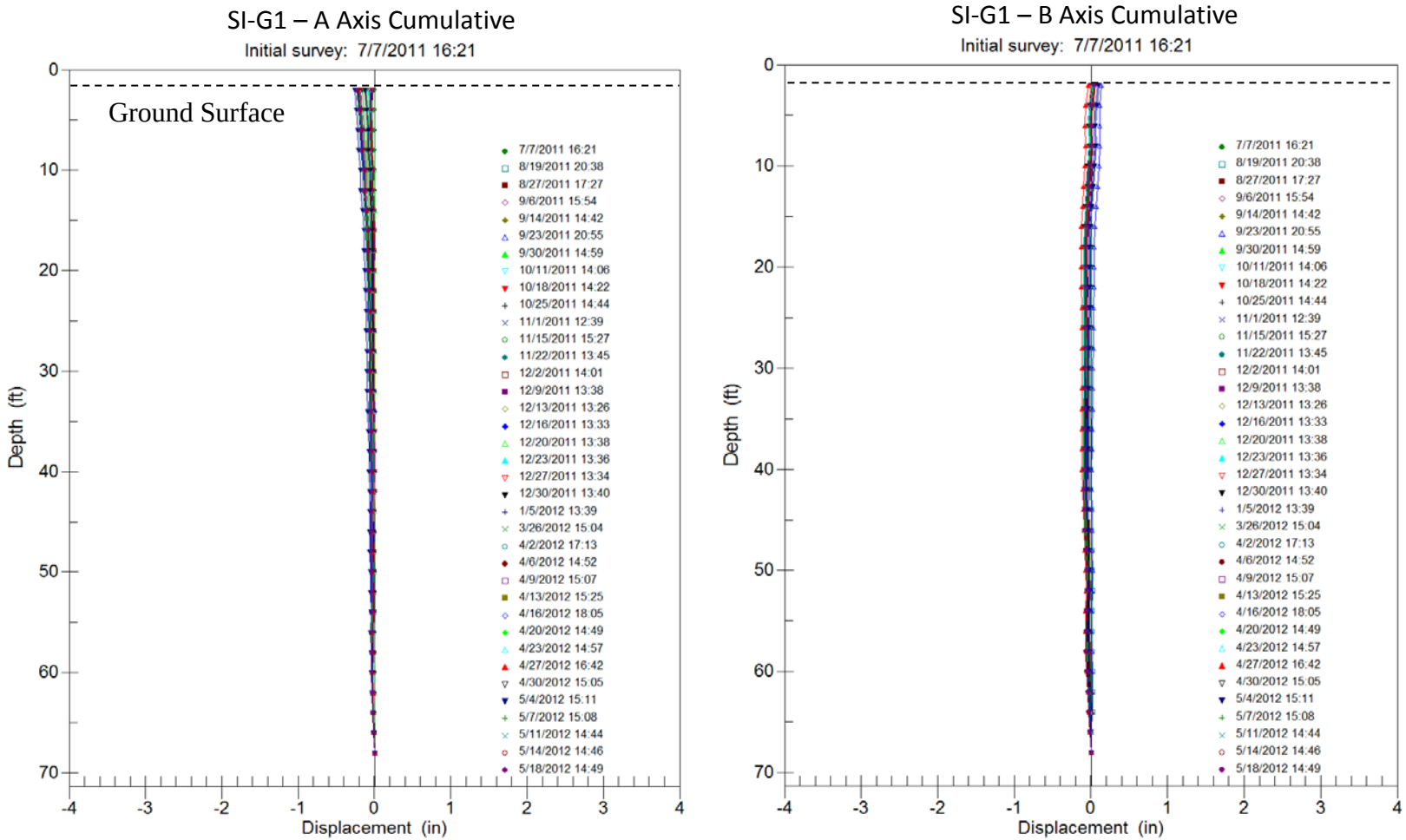


Figure 3a. Readings from manual inclinometer SI-G1 (before extension)
(Data through May 18, 2012; Initial reading on July 07, 2011)

Notes: (1) Inclinometer SI-G1 was extended by approximately 4 ft in the week of May 21, 2012; (2) The inclinometer data were plotted on selected dates between the initial and last readings; (3) The "A" axis is perpendicular to the Phase I and II boundary and positive toward Phase II; (4) SI-G1 was successfully abandoned on March 14, 2013 in order to allow for placement of geotextile tubes between Phase I and Phase II.

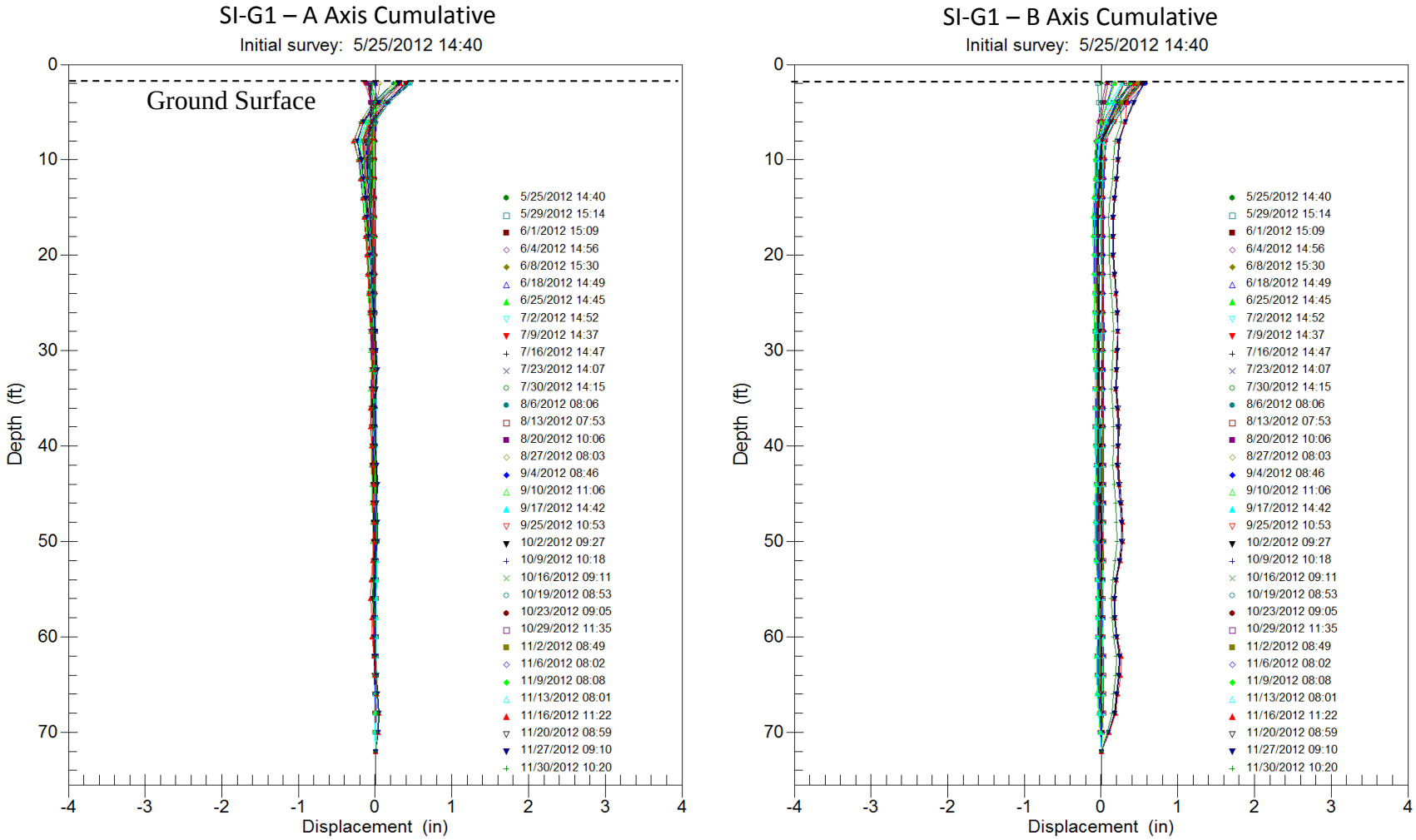


Figure 3b. Readings from manual inclinometer SI-G1 (after extension)

(Data through November 30, 2012; Initial reading on May 25, 2012; Abandoned on March 14, 2013)

Notes: (1) The inclinometer data were plotted on selected dates between the initial and last readings; (2) The "A" axis is perpendicular to the Phase I and II boundary and positive toward Phase II; (3) The readings between 11/20/2012 and 11/30/2012 were taken with a different probe.

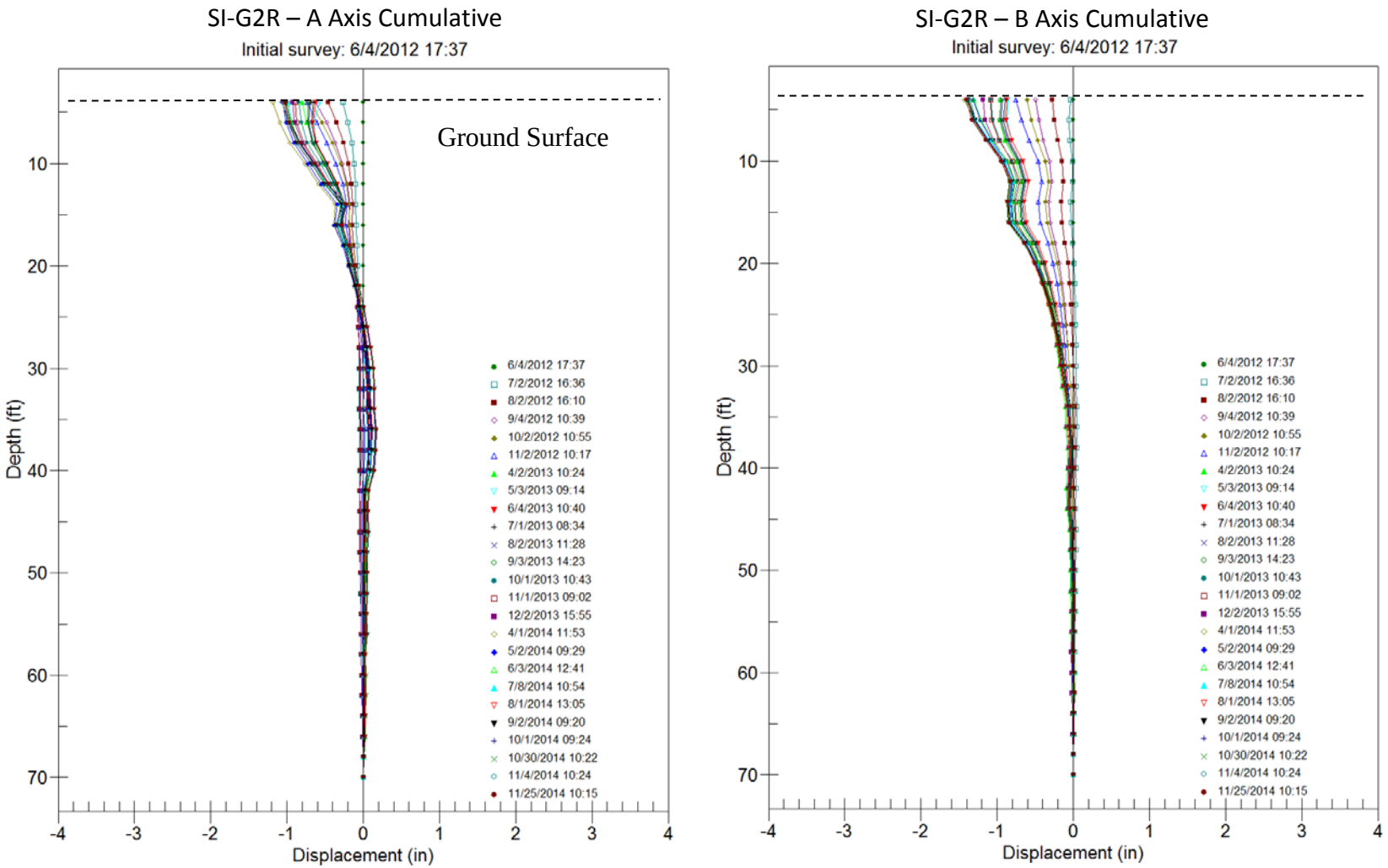


Figure 4. Readings from manual inclinometer SI-G2R (Data through November 25, 2014; Initial reading on June 04, 2012)

Notes: (1) Inclinometer SI-G2R was installed in the week of May 21, 2012 to replace inclinometer SI-G2 that was damaged during the liner construction; (2) The inclinometer data were plotted on selected dates between the initial and last readings; (3) The "A" axis is perpendicular to the Phase I and III boundary and positive toward Phase III.

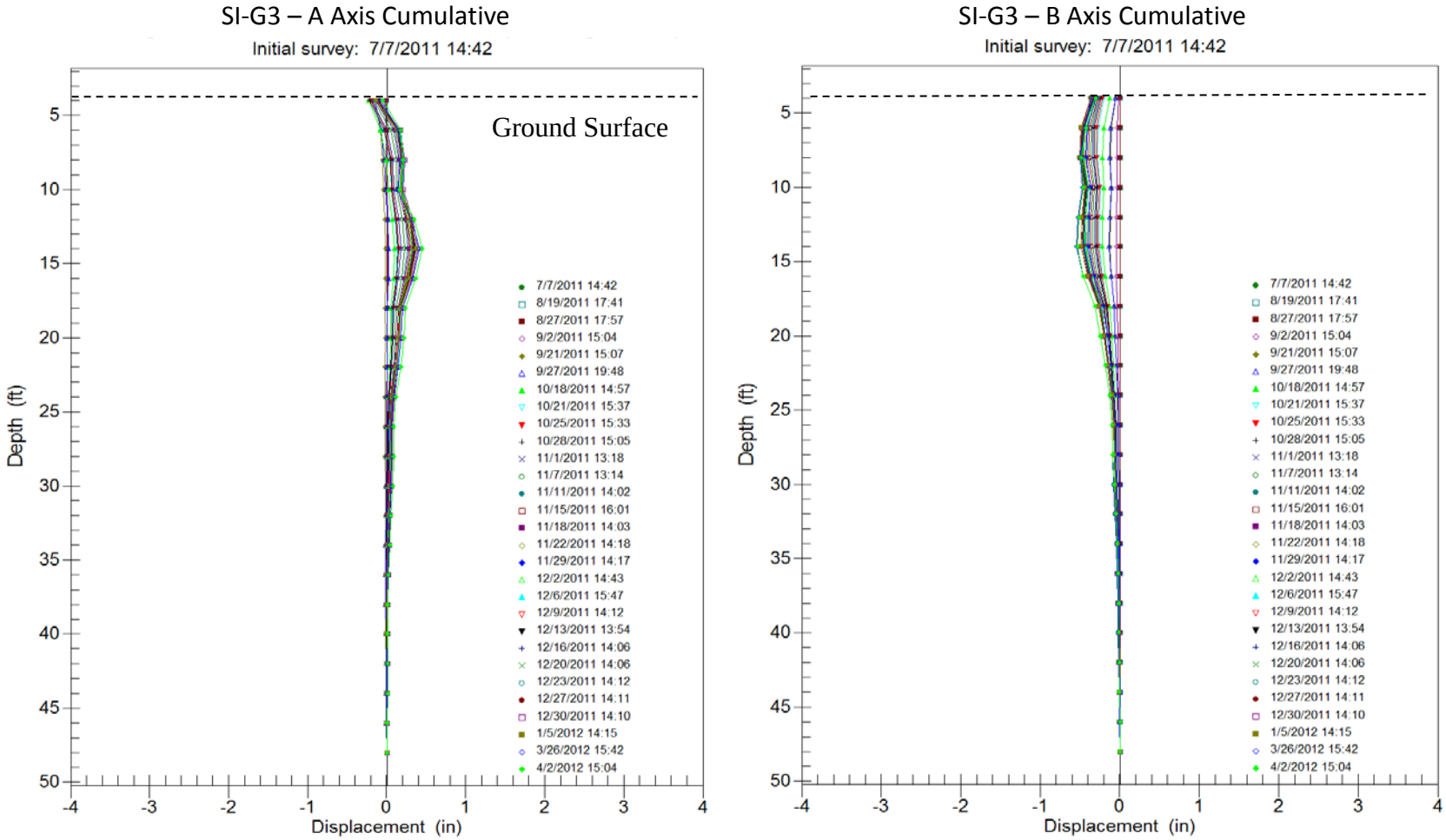


Figure 5a. Readings from manual inclinometer SI-G3 (before extension)
(Data through April 2, 2012; Initial reading on July 7, 2011)

Notes: (1) Inclinometer SI-G3 was extended by approximately 10 ft in the week of April 9, 2012 and backfilled on May 11, 2012; (2) The inclinometer data were plotted on selected dates between the initial and last readings; (3) The "A" axis is perpendicular to the Phase I boundary and positive toward Phase I.

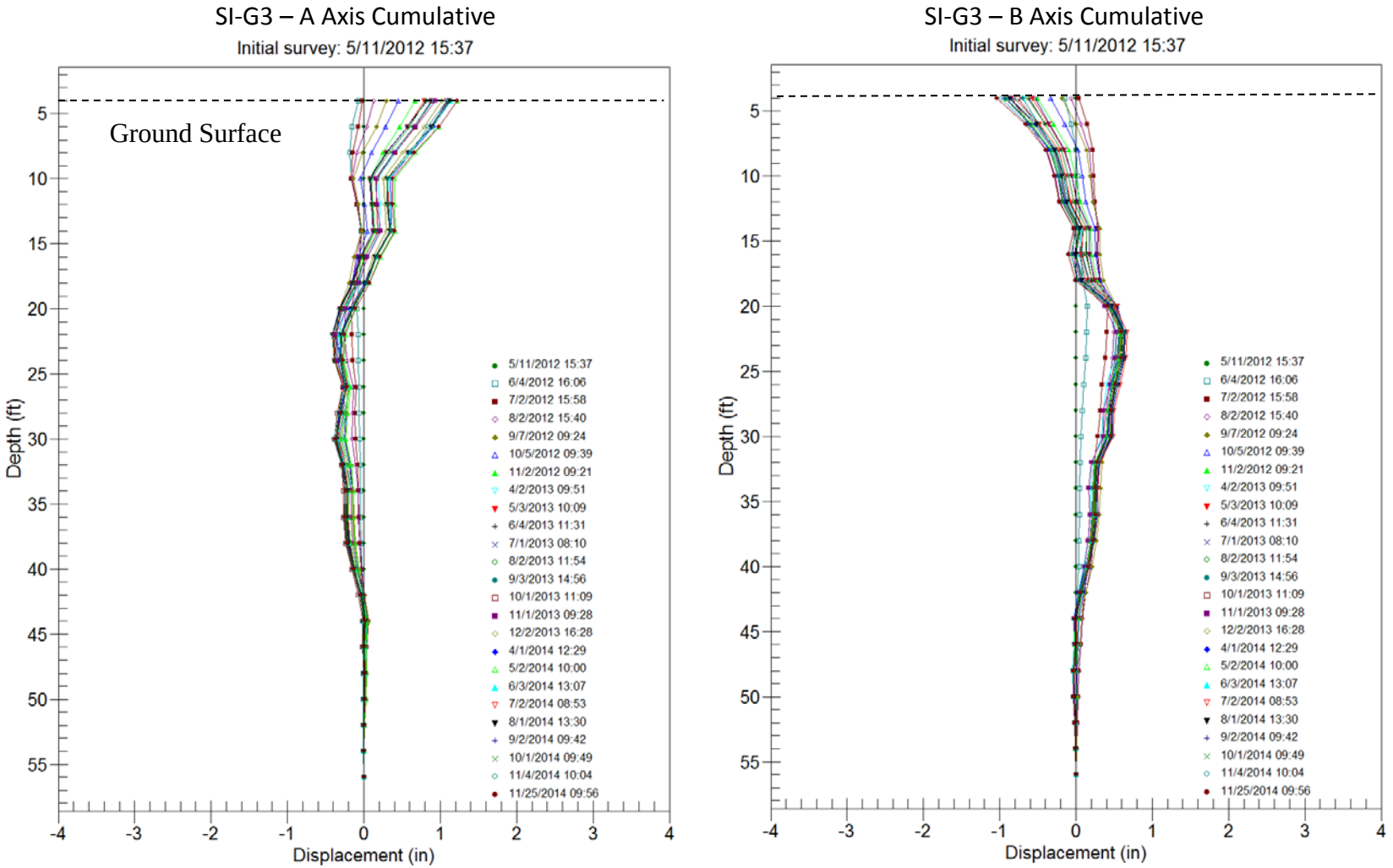


Figure 5b. Readings from manual inclinometer SI-G3 (after extension)
(Data through November 25, 2014; Initial reading on May 11, 2012)

Notes: (1) The inclinometer data were plotted on selected dates between the initial and last readings; (2) The "A" axis is perpendicular to the Phase I boundary and positive toward Phase I.

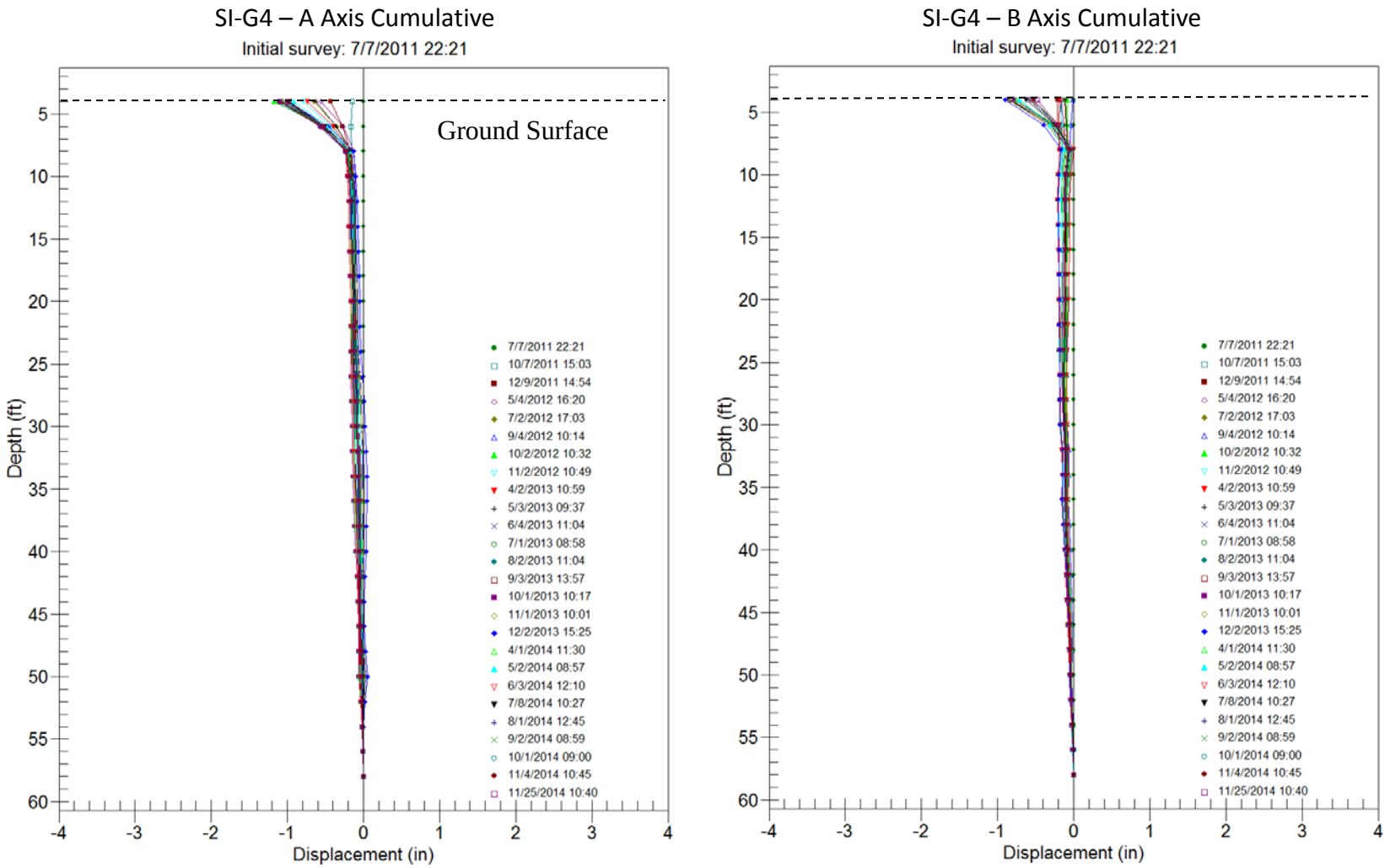


Figure 6. Readings from manual inclinometer SI-G4
(Data through November 25, 2014; Initial reading on July 07, 2011)

Notes: (1) The inclinometer data were plotted on selected dates between the initial and last readings; (2) The "A" axis is perpendicular to the Phase III boundary and positive away from Phase III.

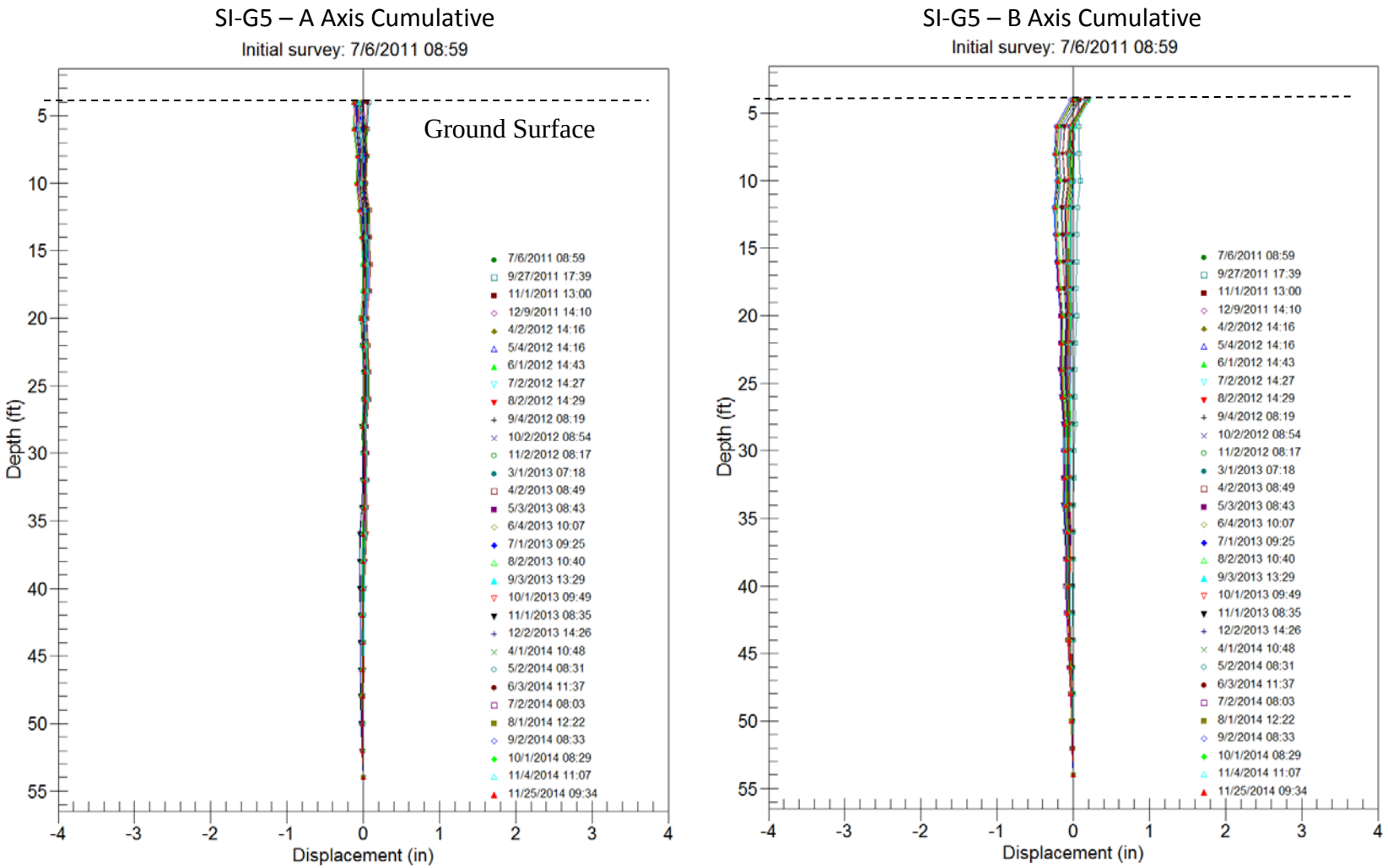


Figure 7. Readings from manual inclinometer SI-G5
(Data through November 25, 2014; Initial reading on July 06, 2011)

Notes: (1) The inclinometer data were plotted on selected dates between the initial and last readings; (2) The "A" axis is perpendicular to the Phase II boundary and positive away from Phase II.

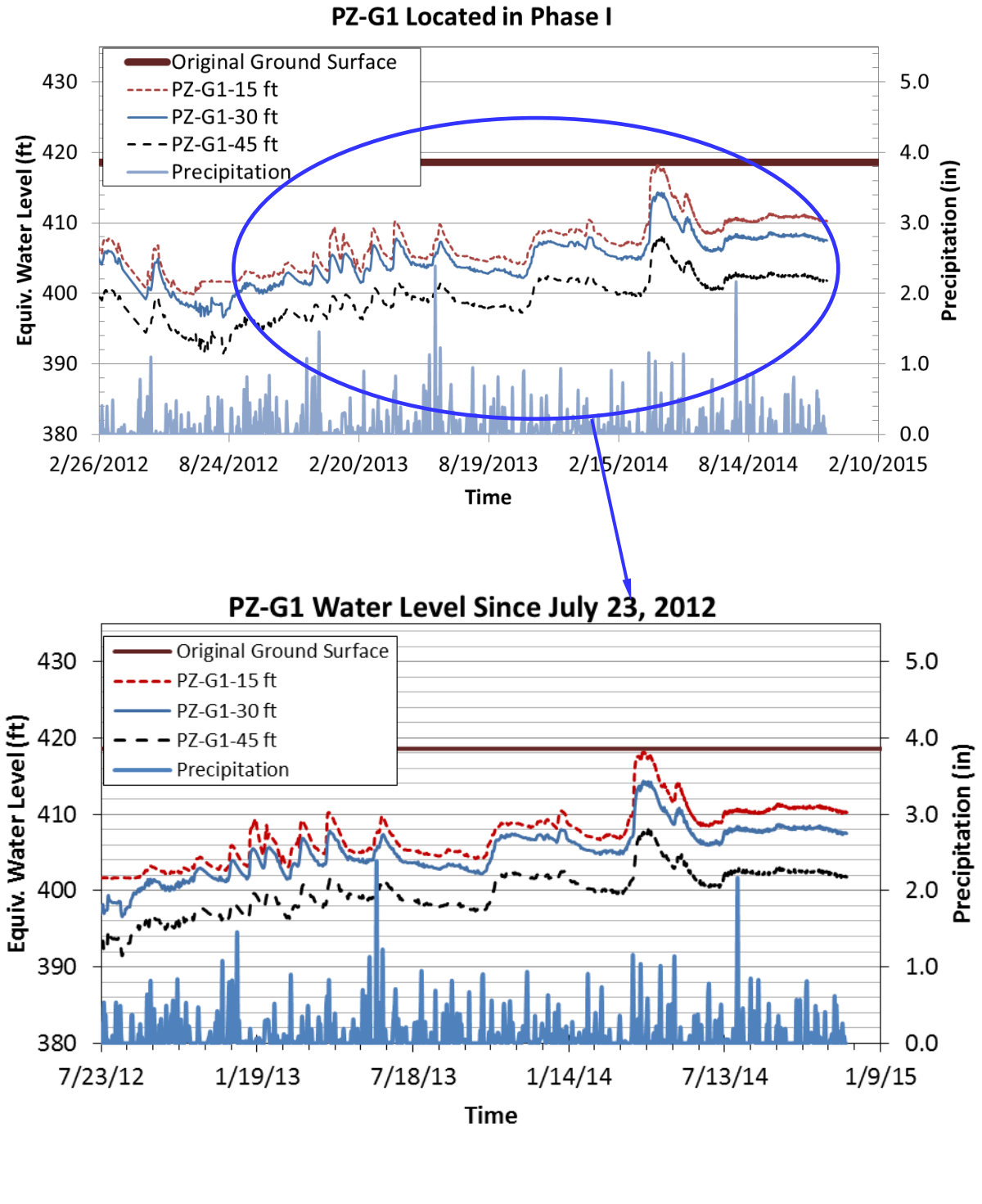


Figure 8a. Piezometer data from PZ-G1 in Phase I
(Data through November 30, 2014; See Table 1 for general timeline of geotextile tube filling)

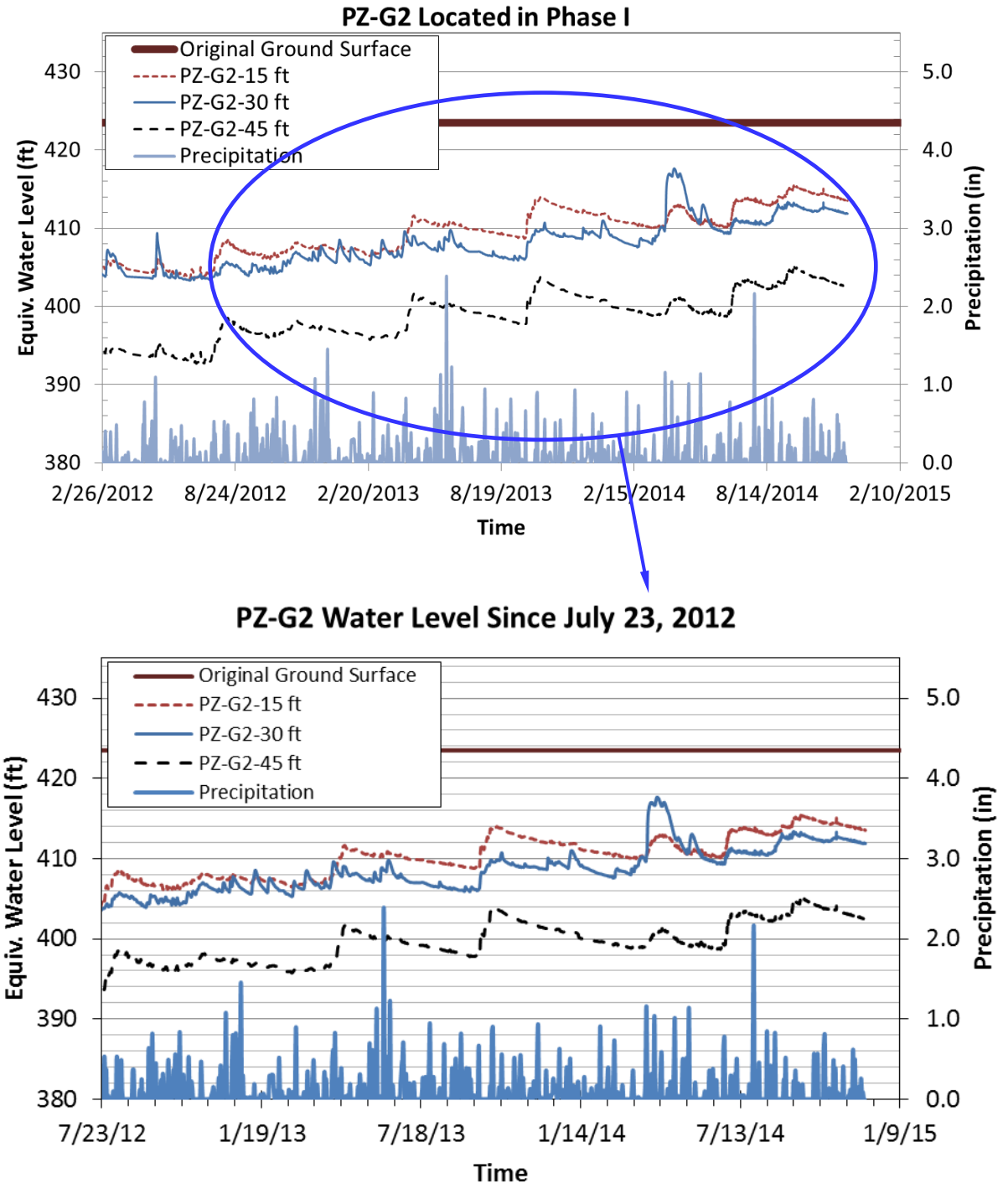


Figure 8b. Piezometer data from PZ-G2 in Phase I
(Data through November 30, 2014; See Table 1 for general timeline of geotextile tube filling)

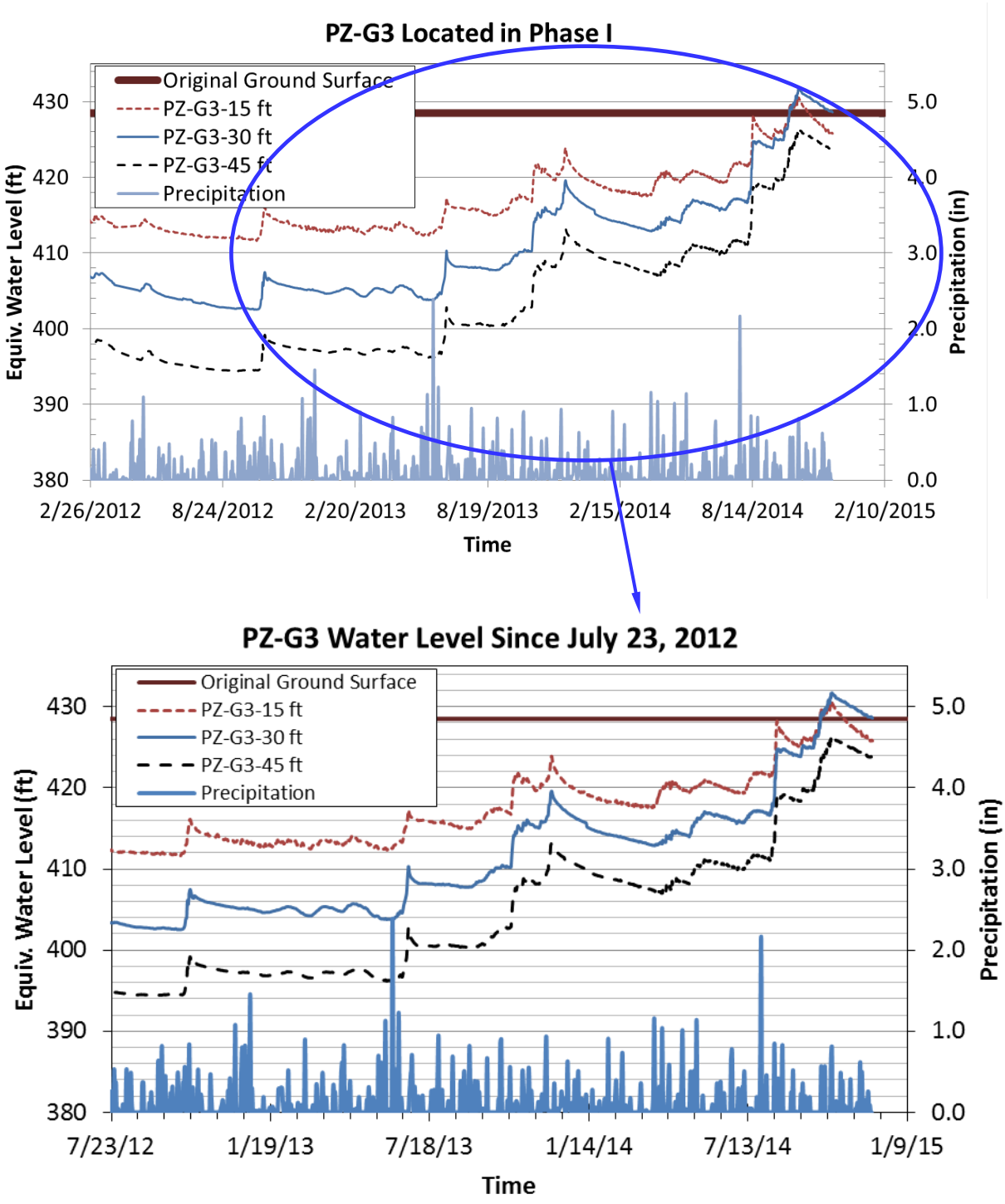


Figure 8c. Piezometer data from PZ-G3 in Phase I
(Data through November 30, 2014; See Table 1 for general timeline of geotextile tube filling)

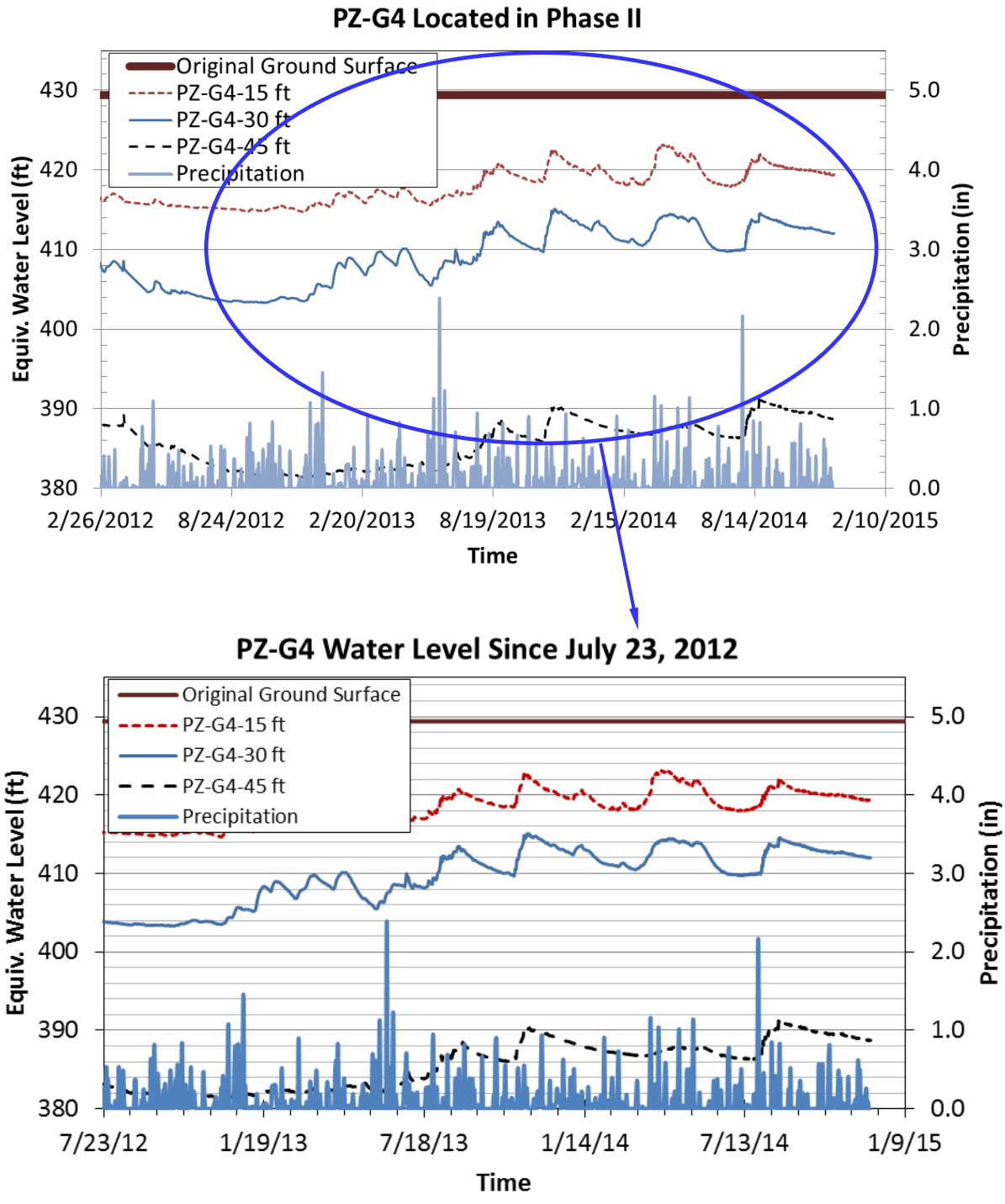


Figure 9a. Piezometer data from PZ-G4 in Phase II
(Data through November 30, 2014; See Table 1 for general timeline of geotextile tube filling)

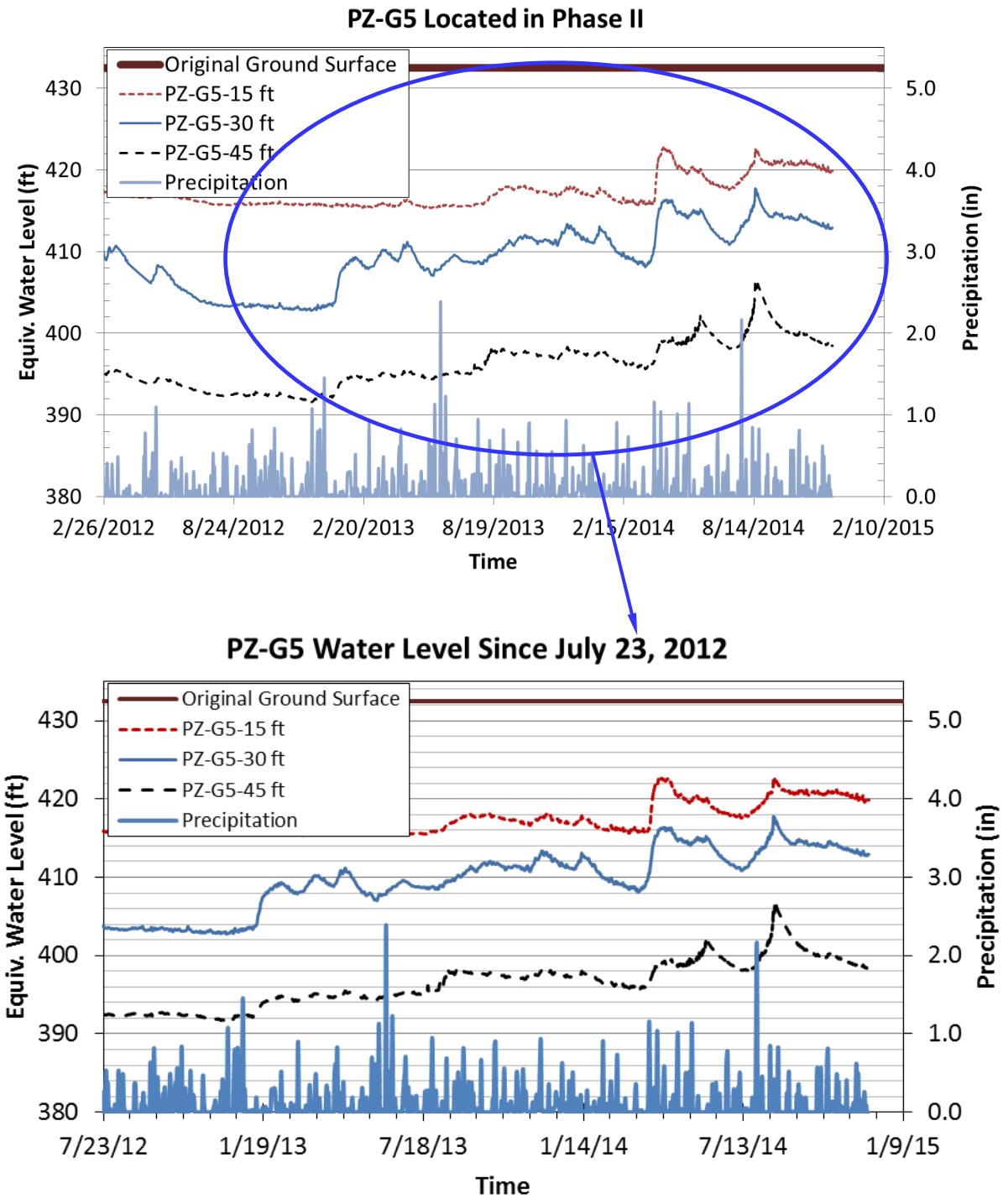
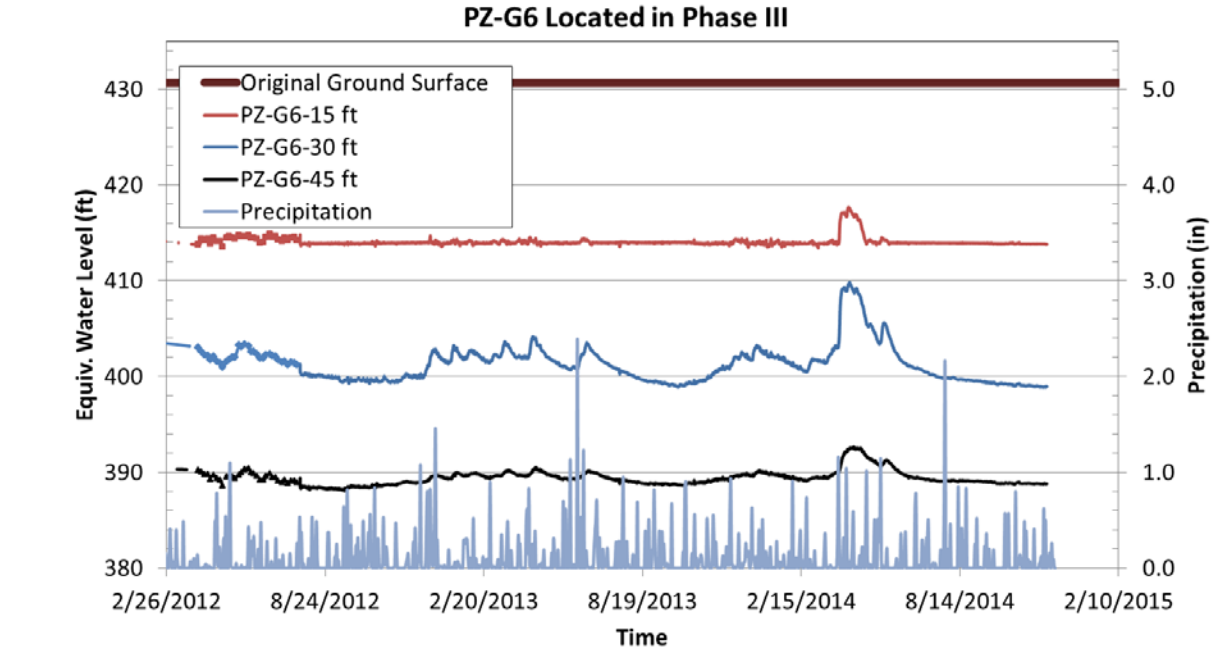


Figure 9b. Piezometer data from PZ-G5 in Phase II
(Data through November 30, 2014; See Table 1 for general timeline of geotextile tube filling)



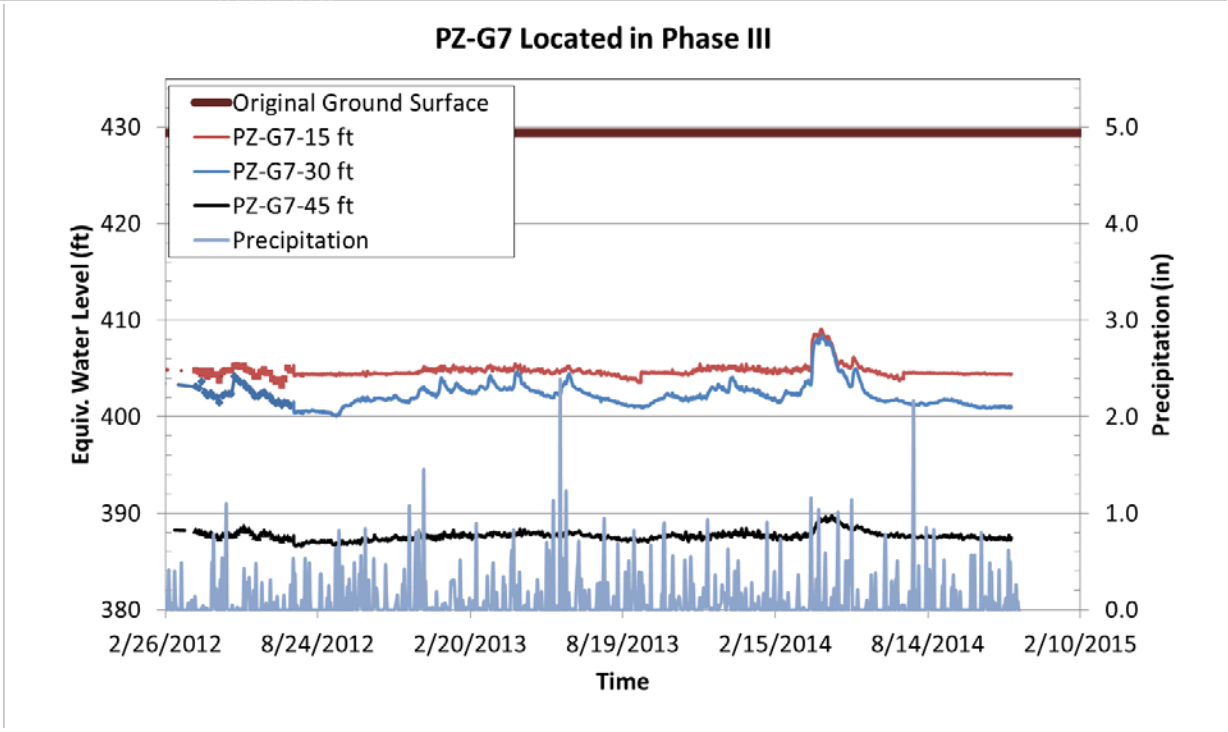


Figure 10. Piezometer data from PZ-G6 and PZ-G7 in Phase III
(Data through November 30, 2014)

Notes: (1) The data were collected manually before July 29, 2012 and automatically thereafter.
(2) No manual monitoring was performed between January 05, 2012 and April 04, 2012, when there was no construction on the site.

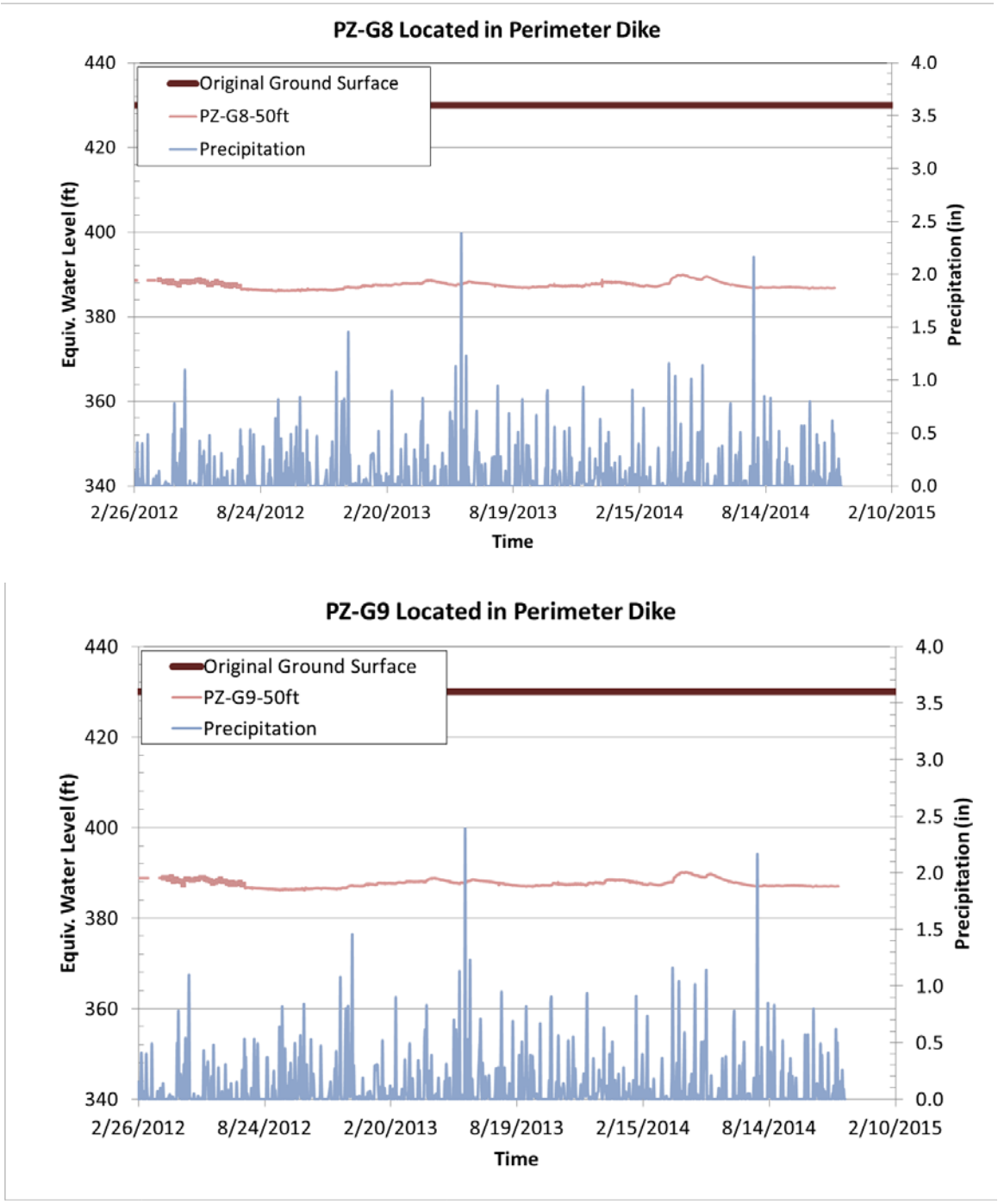


Figure 11. Piezometer data from PZ-G8 and PZ-G9 in Northern Perimeter Dike of WB-13 (Data through November 30, 2014)

Notes: (1) The data were collected manually before July 29, 2012 and automatically thereafter.
(2) No manual monitoring was performed between January 05, 2012 and April 06, 2012, when there was no construction on the site.

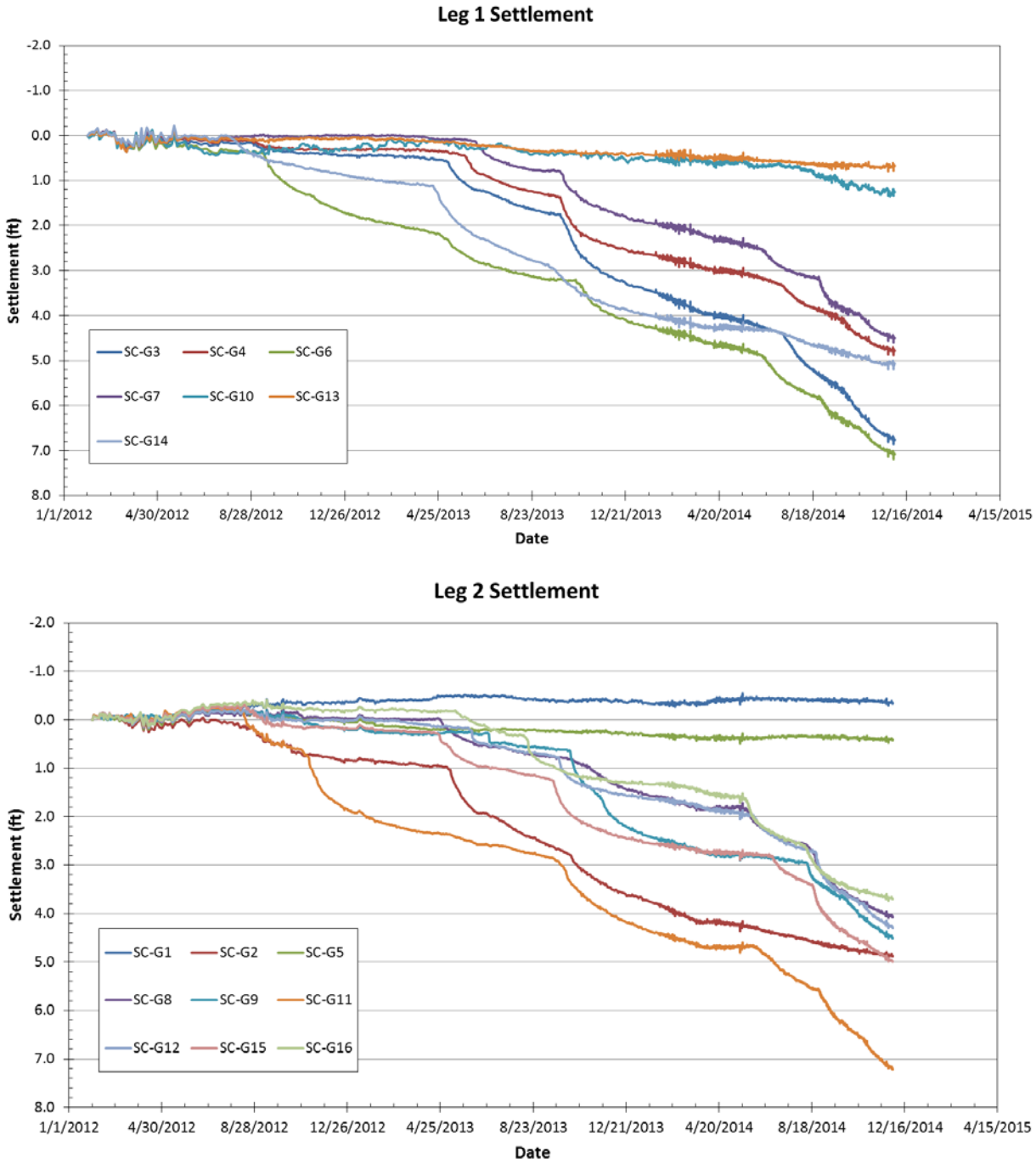
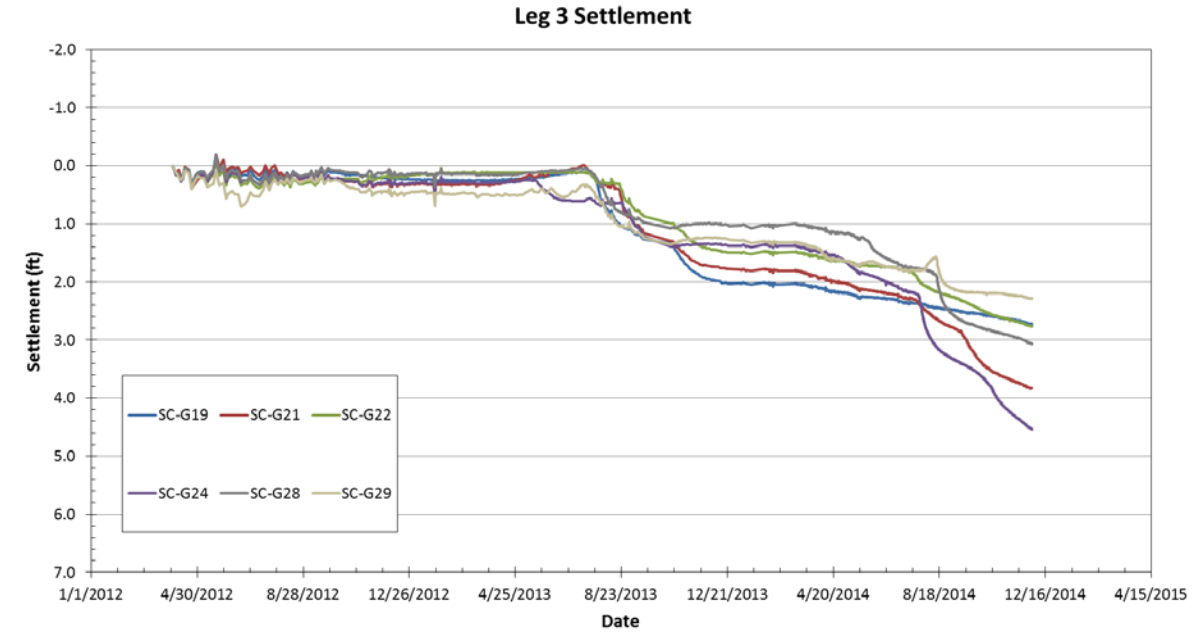


Figure 12. Settlement cell data in Phase I

(Data between January 31, 2012 and November 30, 2014 for Legs 1 and 2)

Notes: (1) The data from Legs 1 and 2 were corrected using the "control" settlement cells as described in the text; (2) The settlement cell data were corrected for temperature impact as described in the Data Summary Memorandum dated September 12, 2012.



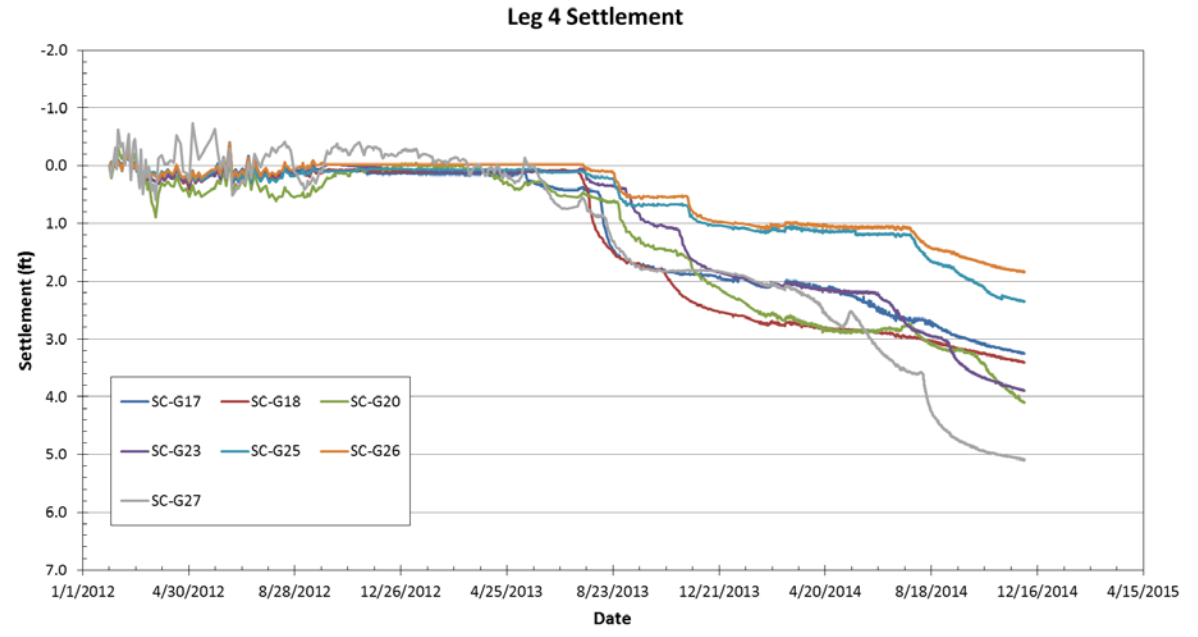


Figure 13. Settlement cell data in Phase II
(Data between January 1, 2012 and November 30, 2014 for Leg 3;
Data between April 2, 2012 and November 30, 2014 for Leg 4)

Notes: (1) The data from Legs 3 and 4 were corrected using "unaffected" settlement cells through July 1, 2013; (2) The data from Leg 3 and Leg 4 were corrected using a "control" settlement cell thereafter; (3) The settlement cell data were corrected for temperature impact as described in the Data Summary Memorandum dated September 12, 2012; (4) The data gap in Leg 3 between September 19 and October 15, 2013 was due to air bubbles in the hydraulic line.

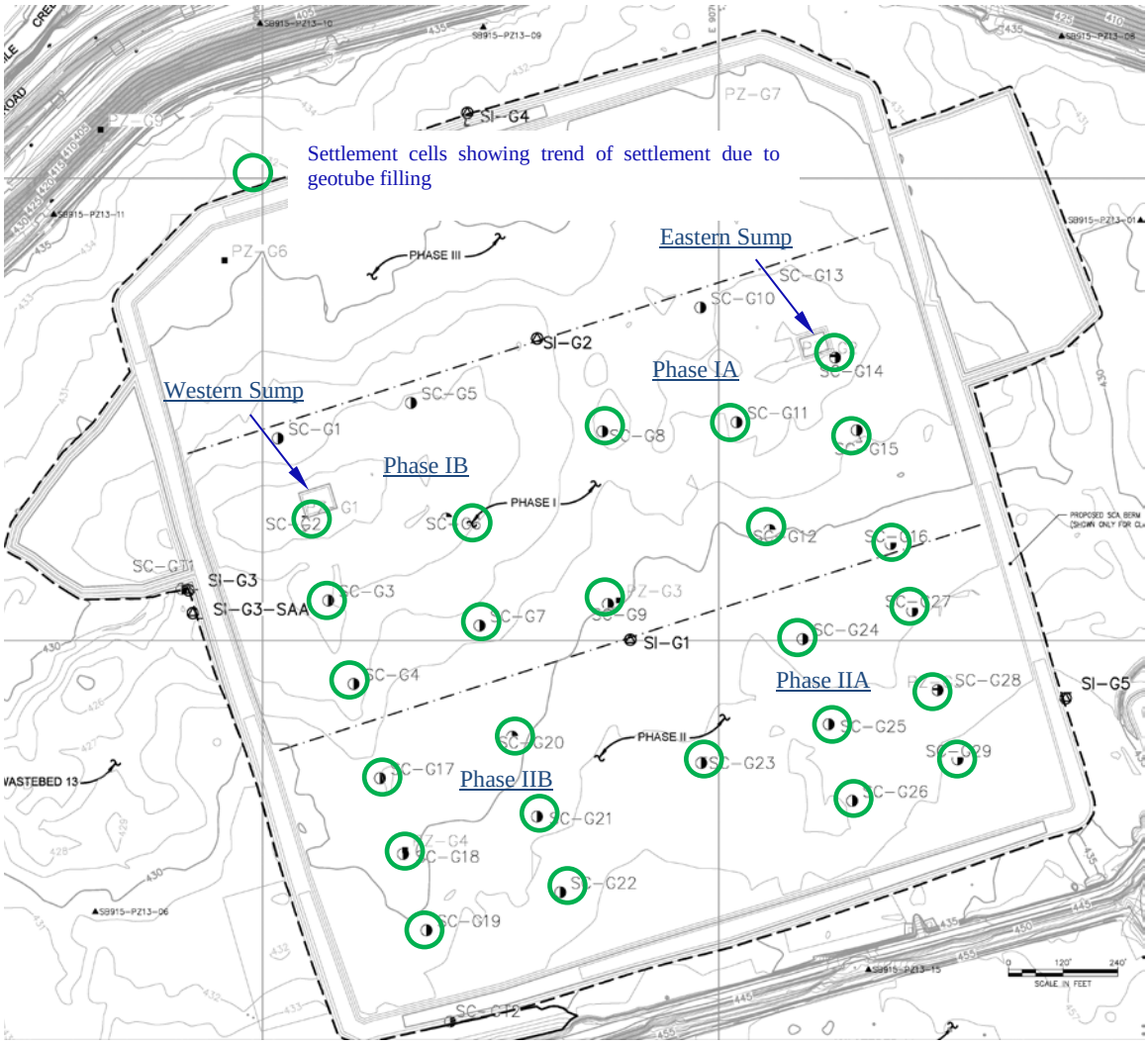


Figure 14. Locations of settlement cells affected by loading from geotextile tubes (as of November 30, 2014)

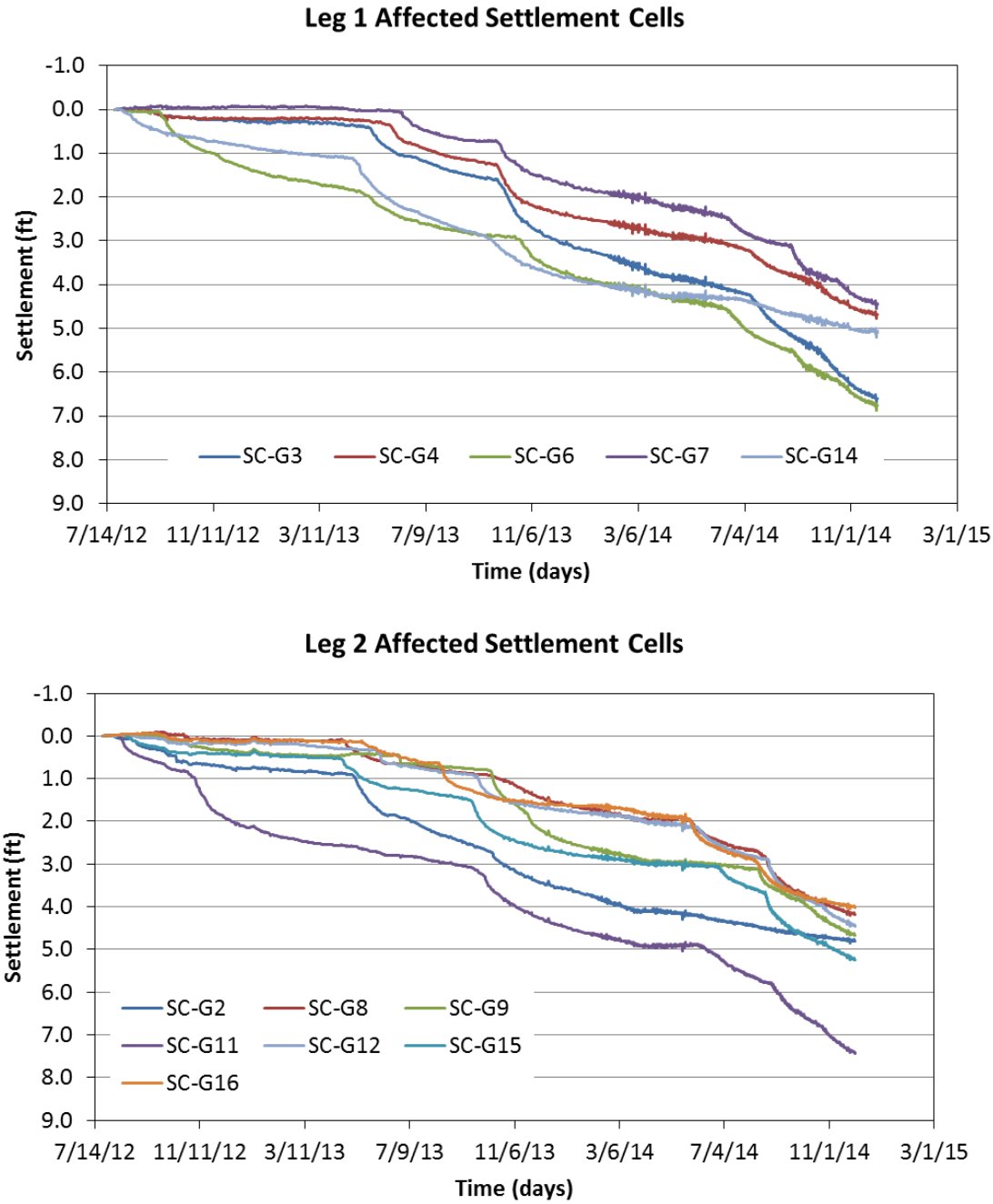


Figure 15a. Measured settlement due to geotextile tubes in Phase I
(Data between July 23, 2012 and November 30, 2014)

Notes: (1) Leg 1 readings were corrected by the periodic readings (i.e., twice a week or daily) from the "control" settlement cell SC-GT1(2) until the end of September and the hourly readings since October 4, 2012; (2) Leg 2 readings were corrected using the "unaffected" settlement cell SC-G9 until October 4, 2012 and using the "control" settlement cell SC-GT1(1) thereafter.

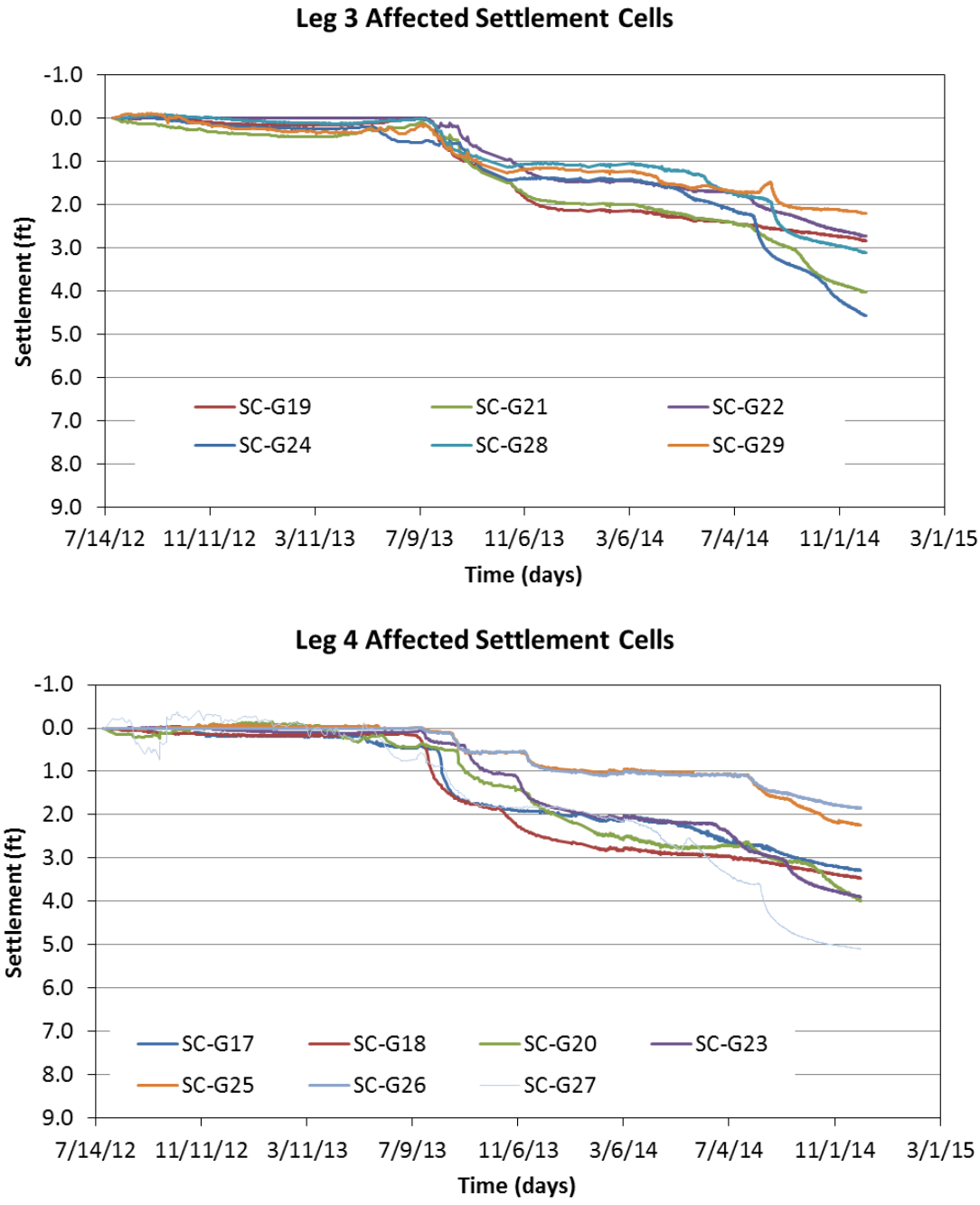


Figure 15b. Measured settlement due to geotextile tubes in Phase II
(Data between July 23, 2012 and November 30, 2014)

Notes: (1) Leg 3 readings were corrected using the "unaffected" settlement cell SC-G22 through July 1, 2013 and using the "control" settlement cell after October 16, 2013; (2) Leg 4 readings were corrected using the "unaffected" settlement cell SC-G26 through July 1, 2013 and using the "control" settlement cell thereafter; (3) The data gap in Leg 3 between September 19 and October 15, 2013 was due to air bubbles in the hydraulic line.

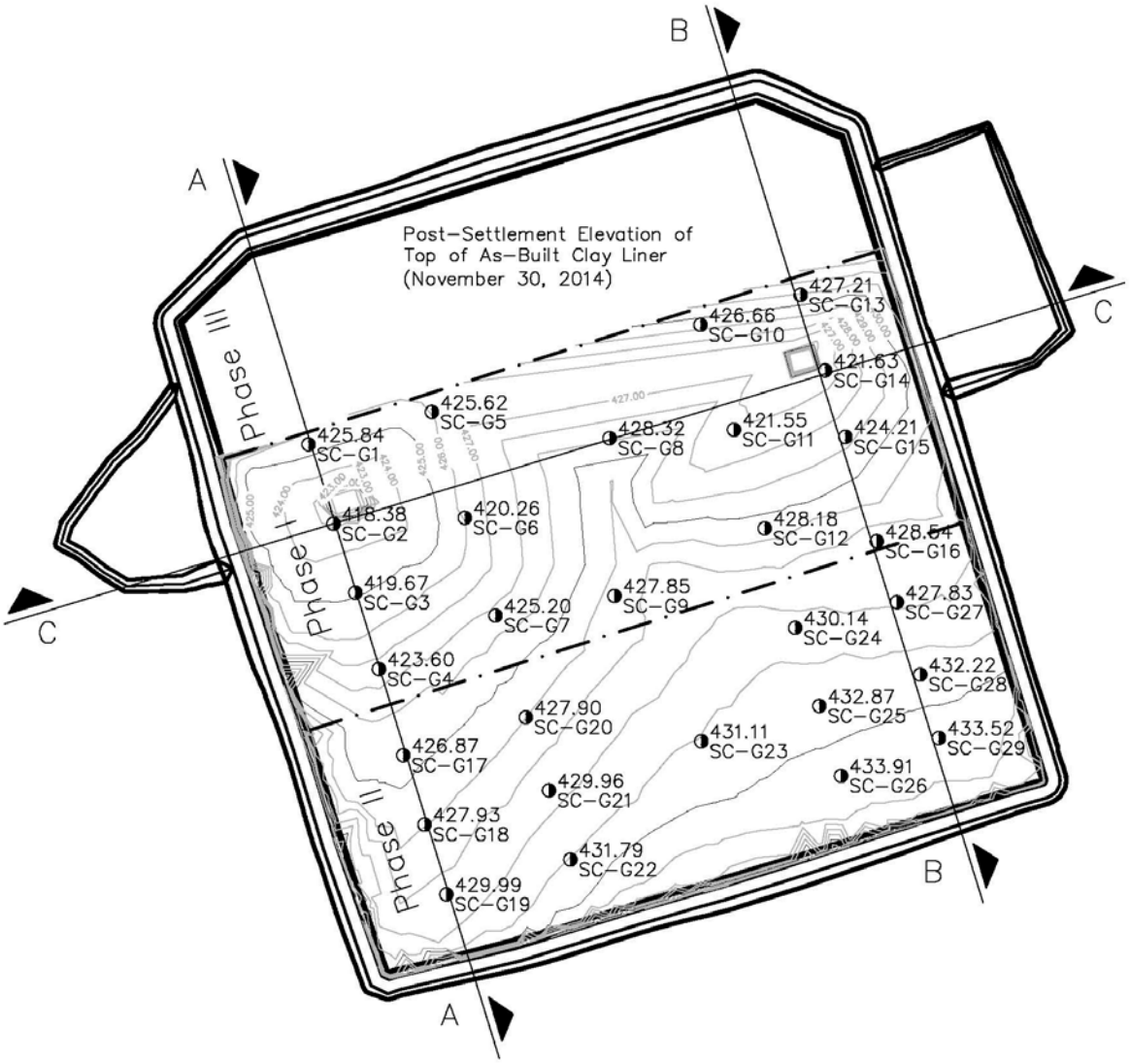


Figure 16. Contours of as-built top of clay liner and post-settlement elevations of top of as-built clay liner at the locations of settlement cells (on November 30, 2014)

Notes:

1. The post-settlement elevations of the top of as-built clay liner at the locations of the settlement cells were calculated based on the as-built top of clay liner and measured settlement on November 30, 2014.
2. The as-built top of clay liner in Phase I was surveyed by Parsons on November 17, 2011 and provided to Geosyntec by Parsons.
3. The as-built top of clay liner in Phase II was surveyed by Parsons on June 21, 2012 and provided to Geosyntec by Parsons.

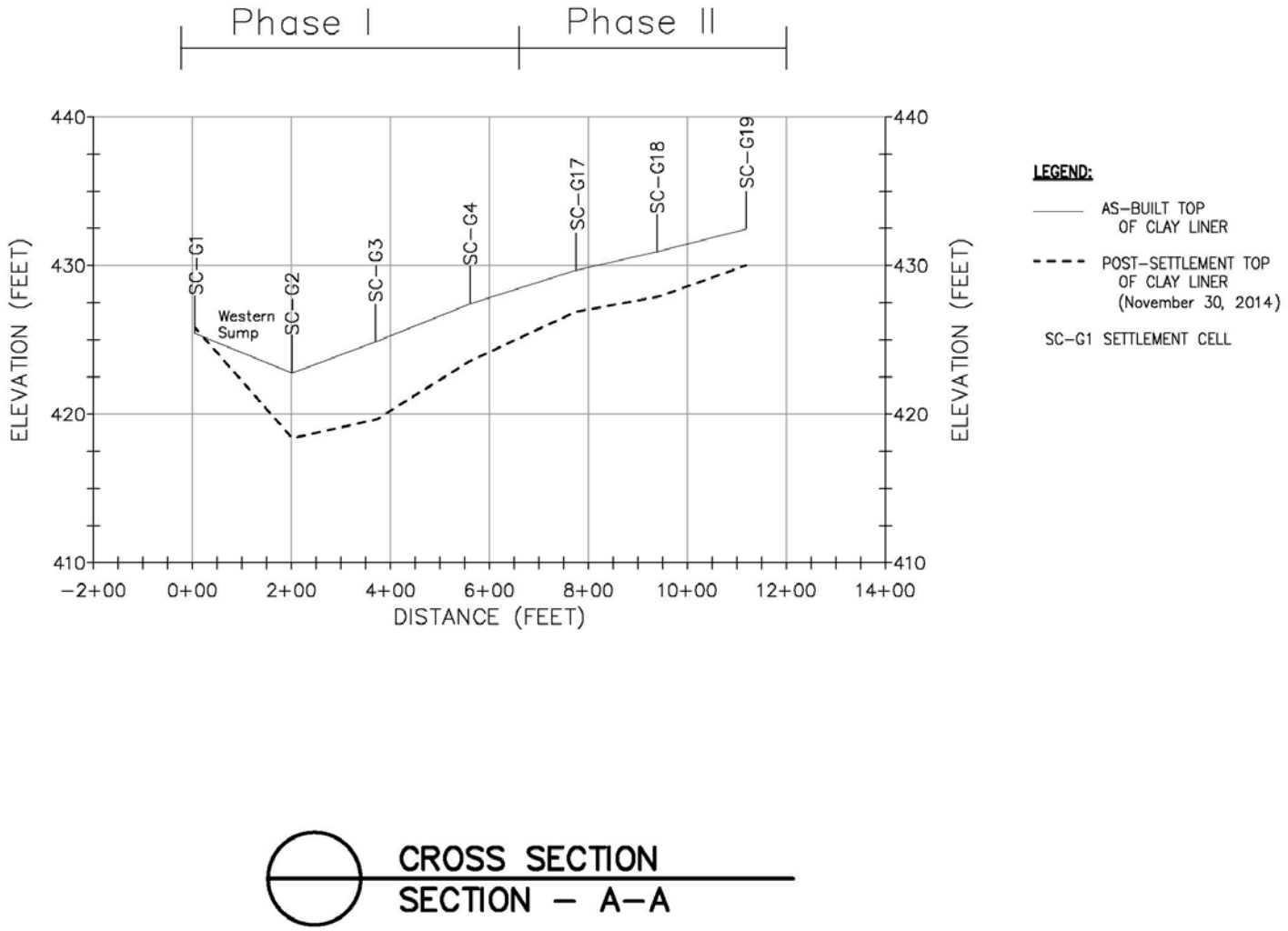


Figure 17. Cross-section A-A showing the as-built and post-settlement top of clay liner (on November 30, 2014)

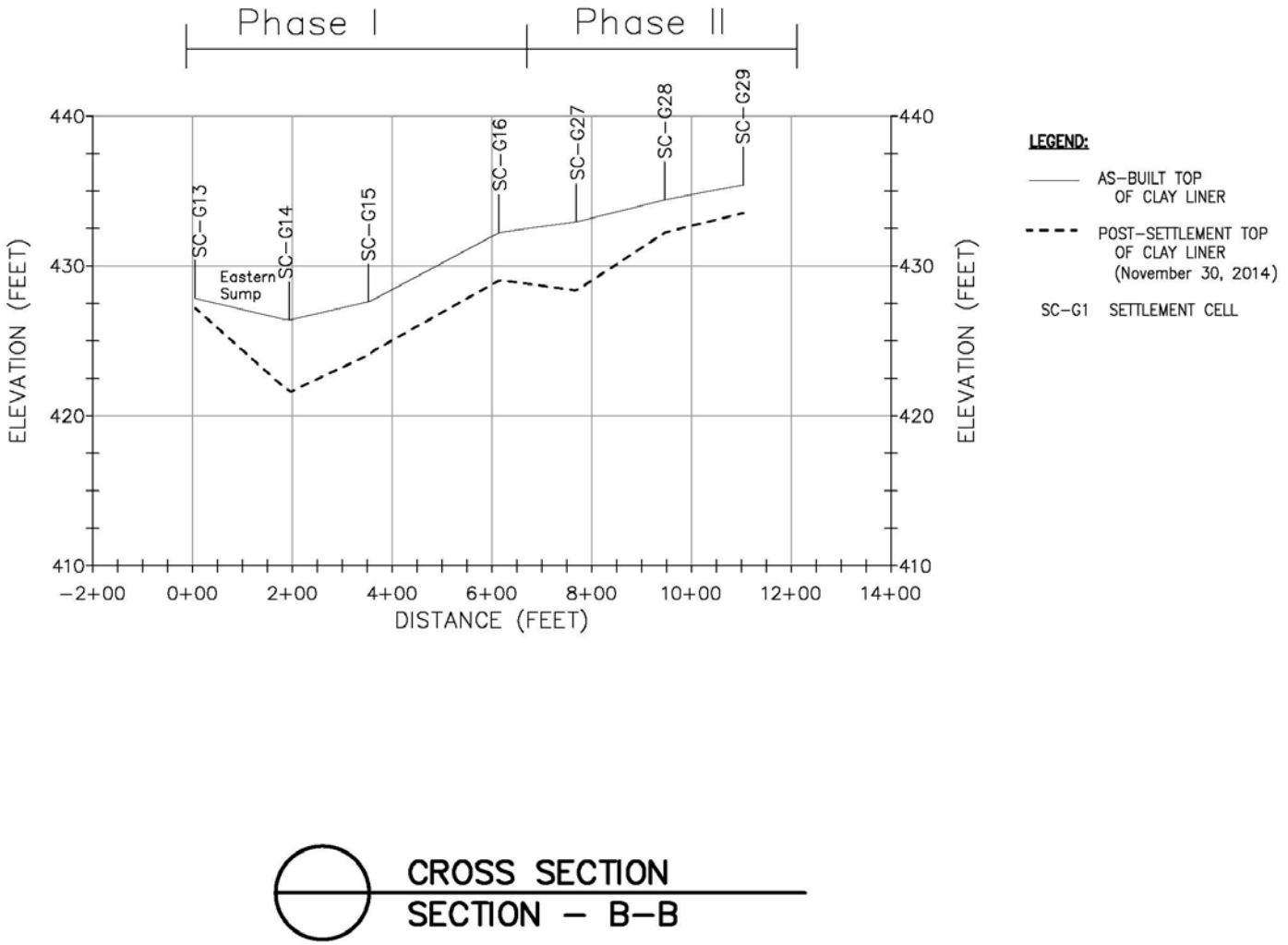


Figure 18. Cross-section B-B showing the as-built and post-settlement top of clay liner (on November 30, 2014)

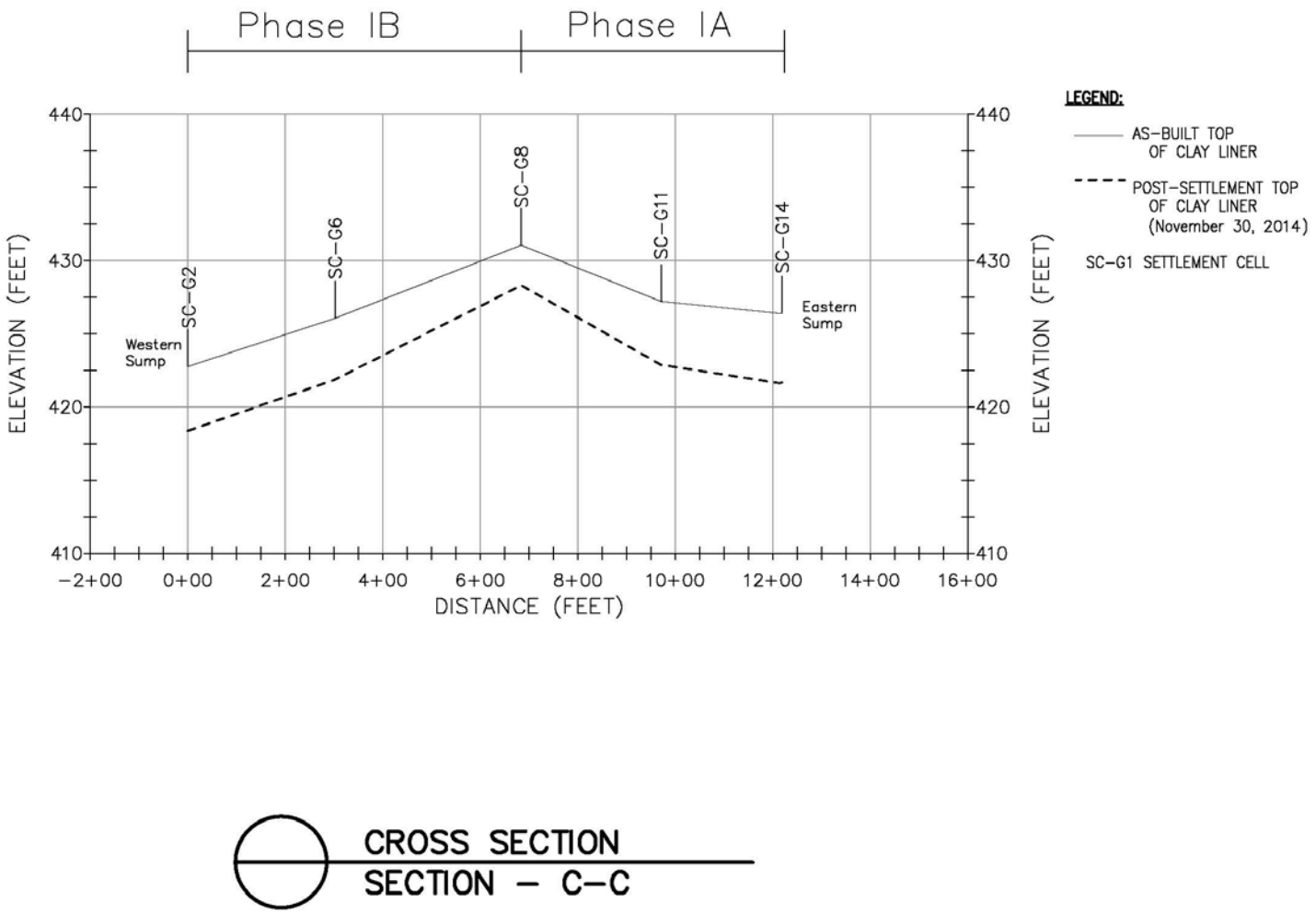


Figure 19. Cross-section C-C showing the as-built and post-settlement top of clay liner (on November 30, 2014)

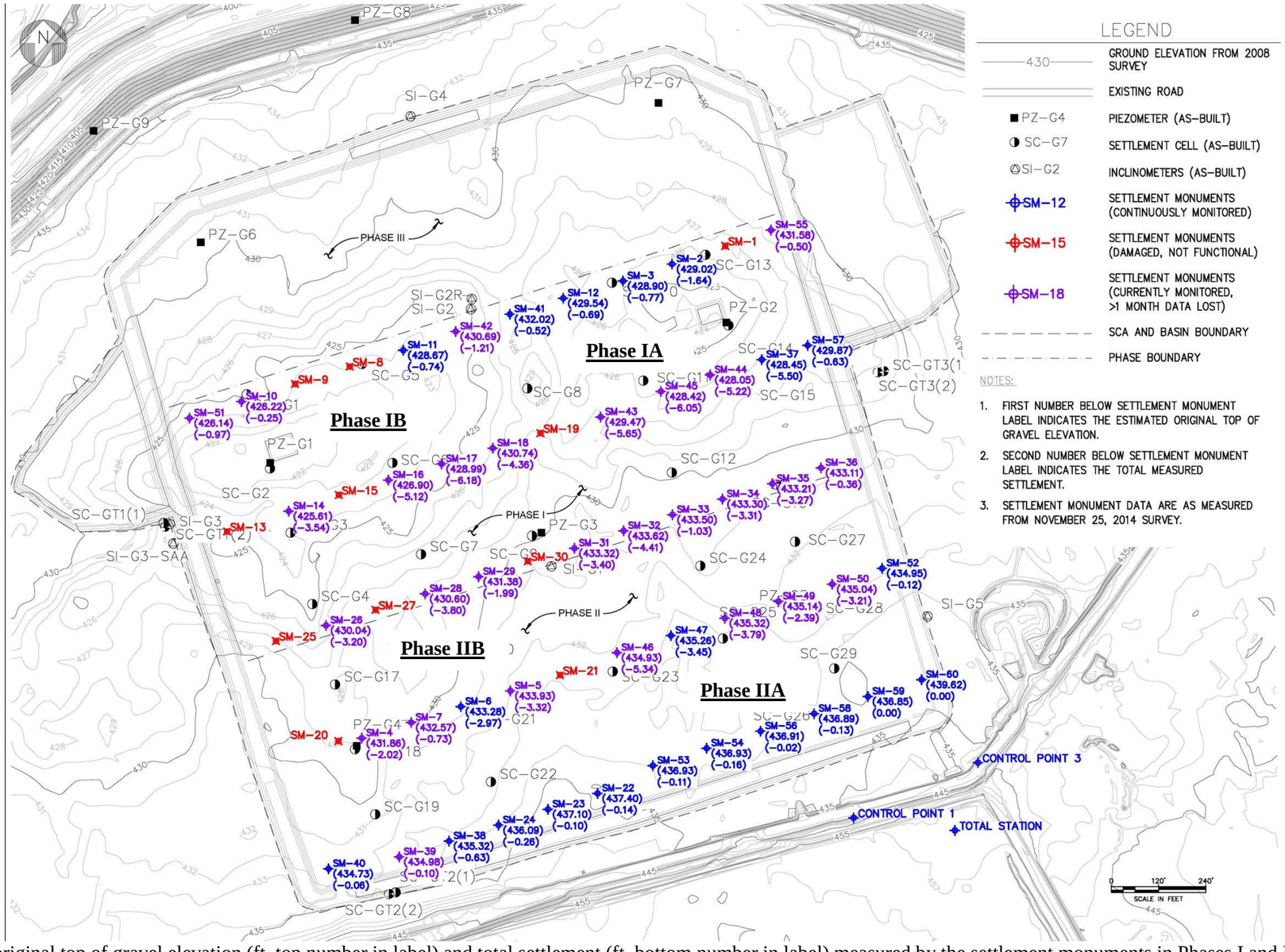


Figure 20a. Estimated original top of gravel elevation (ft, top number in label) and total settlement (ft, bottom number in label) measured by the settlement monuments in Phases I and II (as of November 25, 2014)

Notes: (1) Settlement in feet is shown in parentheses for each settlement monument; (2) the negative value stands for settlement and the positive value stands for heave; (3) SM-1, SM-8, SM-9, SM-13, SM-15, SM-19, SM-20, SM-21, SM-25, SM-27, and SM-30 are non-functional and were not monitored as of November 25, 2014; (4) SM-4, SM-5, SM-7, SM-10, SM-14, SM-16, SM-17, SM-18, SM-26, SM-28, SM-29, SM-31, SM-32, SM-33, SM-34, SM-35, SM-36, SM-39, SM-42, SM-43, SM-44, SM-45, SM-46, SM-48, SM-49, SM-50, SM-51, and SM-55 were damaged during operations and lost over one month of data, but have been repaired and are currently monitored.

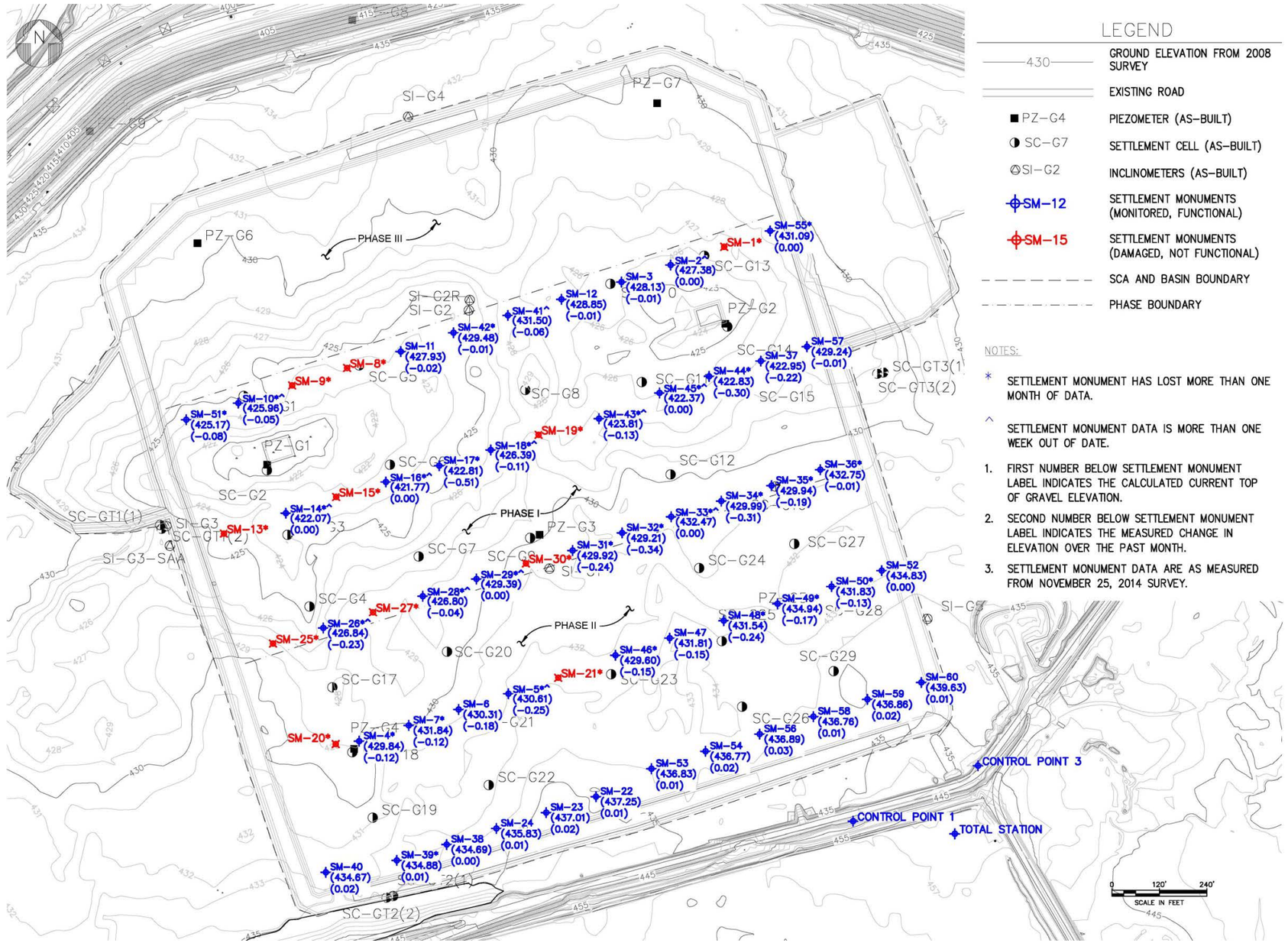


Figure 20b. Calculated post-settlement top of gravel elevations (ft, top number in label) and change in measured settlement over the past month (ft per month, bottom number in label) by the settlement monuments in Phases I and II (as of November 25, 2014)

Attachment A

Data collected from manual piezometers installed outside the SCA footprint (installed by Parsons and monitored by Geosyntec)

Piezometer Name	PZ Tip Elevation (ft)	PZ Depth (ft bgs)	Equivalent Water Elevation (ft)																				
			6/27/11	9/20/11	10/20/11	12/7/11	4/2/12	5/14/12	6/4/12	6/8/12	6/25/12	7/2/12	7/13/12	7/26/12	8/9/12	8/16/12	8/31/12	9/13/12	9/28/12	10/12/12	10/29/12	11/13/12	11/16/12	11/30/12
SB915-PZ13-01S	411.39	19.5	418.2	410.3	409.8	410.8	409.6	411.3			405.2				409.8				410.0	410.1	409.2	410.2	410.3	410.3
SB915-PZ13-01D	391.39	39.5	398.4	389.7	389.1	390.2	390.0	390.0			388.3				387.2				386.9	387.7	387.1	388.1	388.1	388.3
SB915-PZ13-01N	367.39	63.5	364.5	370.6	370.5	371.5	371.3	371.4			370.1				369.5				369.4	369.6	368.8	369.9	370.0	369.8
SB915-PZ13-05S	418.14	14.8	416.1	415.6	414.8	415.6	415.2				415.0				410.3				415.2	415.2	414.9	415.5	415.5	415.4
SB915-PZ13-05I	397.94	35	402.8	397.0	396.3	397.1	396.7	396.8			396.4				396.3				396.2	396.2	396.1	396.0	396.1	396.1
SB915-PZ13-05N	376.94	56	379.3	374.4	373.2	374.2	374.2	374.1			373.6				378.1				373.1	372.9	372.2	372.8	372.9	372.7
SB915-PZ13-06S	410.5	19.5	416.7	409.2	411.2	413.2	411.2	413.1	409.3	409.3	408.8	409.1	409.2	408.7	408.9	408.9	408.9	409.3	409.1	N/A[2]	N/A[2]	N/A[2]	N/A[2]	409.5
SB915-PZ13-06I	395.5	34.5	419.8	394.0	398.0	405.1	400.5	405.3	393.0	393.1	393.1	393.2	393.3	393.2	393.3	393.4	393.5	394.0	393.7	N/A[2]	N/A[2]	N/A[2]	N/A[2]	394.1
SB915-PZ13-06D	380.5	49.5	391.4	392.8	396.2	403.3	399.3	403.8	392.4	391.6	389.5	389.0	387.8	386.1	385.1	384.7	384.1	384.1	383.6	N/A[2]	N/A[2]	N/A[2]	N/A[2]	383.8
SB915-PZ13-06N	366	64	380.5	373.7	373.6	374.9	374.7	374.7	373.7	373.8	373.1	373.2	373.2	372.4	372.5	372.5	372.3	372.6	372.3	N/A[2]	N/A[2]	N/A[2]	N/A[2]	372.8
SB915-PZ13-07	384.23	54	386.1	385.5	384.8	386.7	385.5	385.7			385.3				384.9				384.9				385.0	
SB915-PZ13-08 (Standpipe)	391.35	40	< BH depth[1]	356.4	< BH depth[1]	< BH depth[1]	< BH depth[1]	< BH depth[1]			< BH depth[1]				< BH depth[1]				< BH depth[1]				< BH depth[1]	
SB915-PZ13-09	395.98	36.5	394.8	395.0	394.1	394.9	394.7	394.9			394.4				394.2				395.0				395.4	
SB915-PZ13-10 (Standpipe)	365.45	32	334.5	337.9	338.8	339.1	339.2	339.2			337.9				< BH depth				N/A[3]	N/A[3]	339.1	337.2	337.1	336.9
SB915-PZ13-11	391.44	41	390.2	390.4	389.5	390.4	390.2	390.4			390.0				390.1				390.3				390.6	
SB915-PZ13-12 (Standpipe)	406.51	32.7	< BH depth[1]	< BH depth[1]	< BH depth[1]	< BH depth[1]	< BH depth[1]	< BH depth[1]			< BH depth[1]				< BH depth[1]				< BH depth[1]				< BH depth[1]	
SB915-PZ13-13	404.26	30	407.5	405.6	405.1	411.5	406.0	406.0			404.6				404.2				404.2				404.5	
SB915-PZ13-14	413.67	30	429.6	425.9	427.3	430.9	427.7	427.5	425.4	425.1	423.4	423.2	422.4	421.2	420.7	420.3	419.7	419.5	418.8				420.5	421.0
SB915-PZ13-15	416.56	30	424.4	420.3	420.9	424.0	421.7	421.0			418.9				417.1				416.5				417.4	
SB915-PZ13-16 (Standpipe)	411.08	30	407.9	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken

Notes:

[1]. “<BH depth” indicates that the water level is below the bottom of borehole (for standpipe piezometers).

[2]. Piezometers SB915-PZ13-06S/I/D/N were temporarily inaccessible due to overgrown weeds from 10/12/2012 to 11/16/2012 and on 7/16/2013.

[3]. Piezometer SB915-PZ13-10 was temporarily inaccessible because the well cover was locked from 9/28/2012 to 10/12/2012.

Piezometer Name	PZ Tip Elevation (ft)	PZ Depth (ft bgs)	Equivalent Water Elevation (ft)																	
			4/2/13	4/16/13	5/3/13	5/17/13	6/4/13	6/21/13	7/3/13	7/16/13	8/16/13	9/3/13	9/20/13	10/8/13	10/25/13	11/15/13	12/5/13	4/1/14	4/18/14	5/2/14	5/20/14
SB915-PZ13-01S	411.39	19.5	410.5	412.6	410.2	409.2	409.9	410.8	409.7	409.6	409.8	409.4	409.6	409.9	409.7	409.6	410.1	416.2	415.8	411.6	412.1
SB915-PZ13-01D	391.39	39.5	390.6	391.1	391.1	389.9	389.1	390.8	390.3	389.5	388.3	387.5	387.3	387.5	387.4	387.5	388.5	392.1	396.7	394.2	393.4
SB915-PZ13-01N	367.39	63.5	371.1	371.9	371.8	371.1	370.8	371.7	371.3	371.2	370.3	369.8	369.9	371.0	370.5	370.5	370.3	372.3	373.6	372.0	372.7
SB915-PZ13-05S	418.14	14.8	410.7	415.2	415.0	414.5	414.5	414.9	414.6	414.7	414.4	413.9	414.2	414.2	414.1	414.3	414.1	414.6	416.0	414.4	414.7
SB915-PZ13-05I	397.94	35	396.6	397.2	397.2	396.4	396.3	397.4	396.6	396.4	396.2	396.2	396.2	396.2	392.8	396.2	396.2	397.5	400.9	399.2	399.1
SB915-PZ13-05N	376.94	56	378.0	374.2	374.6	373.9	373.6	374.0	373.9	373.9	373.6	373.0	373.2	373.2	387.5	372.8	372.6	374.4	376.2	373.9	< PZ Depth
SB915-PZ13-06S	410.5	19.5	413.1	414.7	412.7	409.9	411.9	412.9	411.5	N/A[2]	409.1	408.7	408.8	409.5	396.8	411.7	411.8	419.1	418.8	415.3	415.3
SB915-PZ13-06I	395.5	34.5	404.8	407.4	403.4	397.3	400.8	404.8	400.3	N/A[2]	393.4	393.0	393.3	393.5	404.6	395.0	400.1	411.0	411.6	407.8	408.3
SB915-PZ13-06D	380.5	49.5	403.8	406.3	383.0	396.7	400.1	403.9	399.7	N/A[2]	390.3	388.5	386.9	386.1	388.5	393.2	399.2	409.7	410.6	406.8	407.5
SB915-PZ13-06N	366	64	374.3	375.3	375.3	374.4	374.0	375.0	374.6	N/A[2]	373.3	372.7	373.0	373.7		373.6	373.5	375.7	377.7	375.8	376.8
SB915-PZ13-07	384.23	54	386.1		386.8		386.3		386.5			385.7		385.5		385.4	385.5	386.3		386.2	
SB915-PZ13-08 (Standpipe)	391.35	40	< BH depth[1]		< BH depth[1]		< BH depth[1]	391.4	< BH depth[1]	391.4		< BH depth[1]		< BH depth[1]		< BH depth[1]	< BH depth[1]	< BH depth		< BH depth	
SB915-PZ13-09	395.98	36.5	394.8		395.1		394.9		394.9			394.5		395.1		394.6	394.5	394.8		394.3	
SB915-PZ13-10 (Standpipe)	365.45	32	338.7	339.8	339.4	338.8	338.6	339.3	339.1	338.8	337.7	338.2	337.9	338.3	338.1	338.1	338.0	338.7	341.0	340.5	340.5
SB915-PZ13-11	391.44	41	390.1		390.5		390.2		390.2			389.8		391.1		390.1		390.1		389.6	
SB915-PZ13-12 (Standpipe)	406.51	32.7	< BH depth[1]		< BH depth[1]		< BH depth[1]	406.5	< BH depth[1]	406.5		< BH depth[1]		< BH depth[1]		< BH depth[1]		< BH depth		< BH depth	
SB915-PZ13-13	404.26	30	407.4		407.1		405.7		406.4			404.4		404.4		404.4		410.0		408.4	
SB915-PZ13-14	413.67	30	430.6	432.4	430.3	427.3	426.7	430.7	429.3	427.7	424.3	422.2	421.3	420.7	421.2	423.5	426.6	434.0	434.5	433.2	433.0
SB915-PZ13-15	416.56	30	424.5		424.3		420.8		422.9			418.0		417.1		418.2		428.4		427.9	
SB915-PZ13-16 (Standpipe)	411.08	30	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken

Piezometer Name	PZ Tip Elevation (ft)	PZ Depth (ft bgs)	Equivalent Water Elevation (ft)																		
			6/3/14	6/20/14	7/15/14	7/29/14	8/7/14	8/15/14	9/5/14	9/19/14	10/4/14	10/21/14	11/4/14	11/25/14							
SB915-PZ13-01S	411.39	19.5	409.0	409.4	409.0	409.2	409.3	409.2	409.3	409.7	409.0	409.1	409.3	409.1							
SB915-PZ13-01D	391.39	39.5	391.1	389.3	387.9	387.6	387.5	387.2	387.1	387.3	386.3	385.9	385.9	386.0							
SB915-PZ13-01N	367.39	63.5	371.4	370.7	369.5	370.2	369.8	369.6	369.8	370.2	369.5	369.5	369.6	369.5							
SB915-PZ13-05S	418.14	14.8	413.9	413.8	413.4	413.3	413.5	413.4	413.6	413.7	413.5	413.4	413.5	413.1							
SB915-PZ13-05I	397.94	35	398.4	396.4	395.9	395.9	395.9	396.0	396.0	396.0	395.9	395.7	395.9	395.9							
SB915-PZ13-05N	376.94	56	374.6	375.1	374.9	373.5	374.7	374.6	374.5	362.7	374.2	373.8	373.8	373.6							
SB915-PZ13-06S	410.5	19.5	411.5	409.3	408.5	408.7	408.8	408.7	408.8	409.2	408.5	408.7	408.8	408.6							
SB915-PZ13-06I	395.5	34.5	402.6	395.3	392.9	393.0	393.0	393.0	393.3	393.6	393.0	393.0	393.2	393.0							
SB915-PZ13-06D	380.5	49.5	402.1	395.0	389.8	388.4	387.6	386.6	385.3	385.0	383.9	383.5	383.6	383.4							
SB915-PZ13-06N	366	64	375.3	374.2	372.8	372.6	373.0	372.7	372.9	373.4	372.7	372.6	372.8	372.7							
SB915-PZ13-07	384.23	54	386.7		386.1		386.0		385.8		385.4		385.3								
SB915-PZ13-08 (Standpipe)	391.35	40	< BH depth		< BH depth		< BH depth		< BH depth		< BH depth		< BH depth								
SB915-PZ13-09	395.98	36.5	394.3		394.2		394.6		394.6		394.3		394.6								
SB915-PZ13-10 (Standpipe)	365.45	32	339.6	338.6	337.9	339.0	336.7	337.7	338.5	336.7	337.7	336.6	337.6	337.9							
SB915-PZ13-11	391.44	41	389.7		389.6		389.9		389.9		389.6		389.9								
SB915-PZ13-12 (Standpipe)	406.51	32.7	< BH depth		< BH depth		< BH depth		< BH depth		< BH depth		< BH depth								
SB915-PZ13-13	404.26	30	406.2		404.4		404.5		404.1		403.7		404.0								
SB915-PZ13-14	413.67	30	429.5	426.6	423.5	422.4	422.0	421.4	420.7	420.2	422.6	417.7	418.1	417.9							
SB915-PZ13-15	416.56	30	423.5		418.8		418.2		417.1				416.0								
SB915-PZ13-16 (Standpipe)	411.08	30	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken	Broken							

Attachment B

Data collected from settlement monuments installed in Phase I and Phase II (installed and maintained by Parsons)

	SM-1			SM-2			SM-3			SM-4			SM-5			SM-6		
	Phase IA, Northeast			Phase IA, Northeast			Phase IA, North			Phase IIB, West			Phase IIB, East			Phase IIB, Center		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012							1120725.93	906987.30	428.15									
8/9/2012							-1.61	-1.15	-0.02									
8/13/2012																		
8/15/2012	1120814.27	907245.62	429.72	1120768.28	907111.23	428.12	1.41	-1.25	-0.05									
8/23/2012	-0.24	0.35	-0.03	-0.08	-1.64	-0.06	-0.97	-1.59	-0.01									
8/28/2012	-0.50	1.26	-0.16	-0.28	0.30	-0.06	-0.70	-1.58	-0.22									
9/1/2012	-0.58	0.75	-0.01	0.25	-0.14	-0.01	-1.39	-0.93	-0.04									
9/5/2012	-0.63	0.84	-0.07	-0.08	0.20	-0.06	-0.92	-0.64	-0.10									
9/12/2012	-0.33	1.39	-0.03	-0.38	0.40	-0.05	-1.37	0.17	-0.08									
9/15/2012	-0.89	1.84	-0.11	0.82	-0.38	-0.03	-0.48	-2.04	-0.03									
9/21/2012	-0.79	1.14	-0.11	-0.26	-0.18	-0.03	-1.15	0.38	-0.02									
9/25/2012	-1.28	1.60	-0.06	-0.55	0.65	-0.13	-1.48	0.31	-0.12									
9/28/2012	-0.88	0.73	-0.13	-0.21	0.23	-0.11	-1.04	-0.31	-0.22									
10/3/2012	-1.09	1.59	-0.09	1.02	0.33	-0.05	-0.54	-2.02	-0.11									
10/9/2012	-1.19	1.56	-0.06	-0.68	0.77	-0.12	-1.39	0.30	0.02									
10/13/2012	-0.89	1.30	-0.16	0.02	-0.69	-0.14				1119566.09	906324.82	431.98	1119685.93	906701.96	433.96	1119646.09	906576.13	433.26
10/16/2012	-0.95	1.44	-0.10	-0.57	0.64	-0.14	-1.38	0.18	-0.13									
10/19/2012	-0.87	1.42	0.03															
10/24/2012	-0.87	1.00	-0.06	-0.71	0.47	-0.07	-1.35	0.27	-0.07									
10/27/2012	-1.05	1.46	-0.10	-0.80	0.68	-0.32	-1.44	0.36	-0.14									
10/29/2012	-0.95	1.57	0.04	-0.86	0.77	0.04	-1.37	-0.10	-0.07									
11/3/2012	-0.83	1.34	-0.17	-1.10	0.80	-0.22	-1.37	0.15	-0.15									
11/9/2012	-0.95	1.54	-0.09	0.16	-0.66	-0.13												
11/13/2012	-1.61	2.13	0.00	-0.86	1.13	-0.24	-1.43	0.05	-0.16									
11/16/2012	-0.62	1.09	-0.04	-1.03	0.74	-0.17	-1.51	0.27	-0.18									
11/21/2012	-0.96	1.55	-0.06	-0.98	0.75	-0.21	-1.51	0.27	-0.19	2.96	-1.42	0.00						
12/1/2012	-0.81	1.24	-0.01	-0.86	0.41	-0.30	-1.28	0.36	-0.16	3.03	-1.42	-0.02						
12/6/2012	-1.33	1.60	-0.11	-1.10	0.90	-0.21	-1.45	0.05	-0.13	3.07	-1.41	0.06						
12/8/2012	-1.35	1.63	-0.14	-0.99	0.62	-0.33	-1.94	0.62	0.11	2.90	-1.48	0.10						
12/13/2012	-1.76	1.21	-0.16	-1.26	0.93	-0.34	-1.44	0.20	-0.24	2.98	-1.41	0.14						
12/21/2012	-1.28	1.63	-0.10							2.96	-1.46	0.06						
1/25/2013	-1.34	1.62	-0.06	-1.33	0.94	-0.24	-1.71	0.41	-0.15	3.24	-1.34	0.07						
2/15/2013	-0.89	0.70	-0.18							3.03	-2.32	-0.01						
2/28/2013				-1.36	1.16	-0.38	-1.82	0.53	-0.30									
4/4/2013	-0.87	1.19	-0.26	-1.28	0.19	-0.34	-2.15	-0.54	-0.27	2.79	-1.74	0.07	2.80	0.32	0.06	2.73	-1.39	0.19
4/12/2013	-2.50	1.41	-0.16	0.87	0.30	-0.30	-1.40	-0.94	-0.27	2.35	-2.45	0.04	2.57	0.77	0.06	2.03	-0.74	0.05
4/23/2013	-1.30	0.70	-0.18	-1.22	0.06	-0.32	-1.40	0.18	-0.29									
4/26/2013	-1.62	0.65	-0.33	-1.49	0.02	-0.46	-2.23	-0.46	-0.39									
5/28/2013	-1.35	0.70	-0.41	0.93	1.03	-0.45	-0.66	1.27	-0.39									
5/31/2013	-1.47	1.81	-0.26	-0.82	0.05	-0.67	-1.66	0.30	-0.47									
6/12/2013	1120813.05	907246.94	445.10	1120766.07	907111.84	443.77	1120724.02	906986.83	443.51	1119567.86	906289.39	442.01	1119696.48	906700.70	444.32	0.00	0.00	0.05
6/14/2013	0.00	-0.05	-0.27	0.01	-0.02	-0.95	0.03	0.01	-0.49	0.09	-0.02	0.00	0.03	-0.02	0.06	0.07	-0.01	0.04
6/21/2013	0.00	-0.10	-0.24				0.00	-0.07	-0.48	-0.01	-0.04	-0.01	-0.02	-0.04	0.08	0.00	-0.03	0.01
6/25/2013	-0.01	-0.11	-0.27	-0.02	-0.10	-1.17	-0.02	-0.08	-0.39	-0.02	-0.09	0.00	-0.04	-0.04	0.06	-0.02	-0.03	0.05
6/28/2013	-0.04	-0.19	-0.25	-0.05	-0.19	-1.17	-0.08	-0.17	-0.49	-0.13	-0.08	0.00	-0.11	-0.05	0.05	-0.11	-0.03	0.05
7/1/2013	-0.04	-0.12	-0.24	-0.04	-0.15	-1.15				0.01	-0.03	0.00	-0.13	-0.07	0.06			
7/3/2013	-0.07	-0.26	-0.27	-0.07	-0.25	-1.18	-0.10	-0.19	-0.51	BROKEN	BROKEN	BROKEN	-0.16	-0.09	0.06			
7/9/2013	-0.07	-0.23	-0.26	-0.06	-0.21	-1.17	-0.10	-0.15	-0.49				0.55	-0.48	0.06	1119646.07	906545.41	443.38
7/12/2013	-0.03	-0.14	-0.27	-0.03	-0.14	-1.17	-0.05	-0.08	-0.50				1119687.42	906674.41	444.23	0.07	0.03	0.04
7/16/2013	-0.02	-0.07	-0.29	-0.01	-0.09	-1.20	-0.06	-0.06	-0.52				0.07	-0.02	0.00	0.17	0.05	-0.08
7/19/2013	-0.04	-0.11	-0.29	-0.03	-0.09	-1.20	-0.05	-0.04	-0.54				0.04	-0.03	-0.07	0.11	0.03	-0.13
7/23/2013	-0.08	-0.21	-0.28	-0.06	-0.16	-1.20	-0.11	-0.12	-0.52				0.00	-0.01	-0.11	0.12	0.04	-0.18
7/25/2013	-0.04	-0.19	-0.27	-0.05	-0.19	-1.16	-0.10	-0.14	-0.52				0.03	0.00	-0.12	0.04	0.03	-0.20

Note: This table presents the initial surveyed Northing, Easting, and Elevation at each settlement monument and any re-established baselines (gray cells). The changes in Northing and Easting were calculated with respect to the most recent baseline. The measured settlement was calculated with respect to the most recent baseline, added to any measured settlement before the most recent baseline. All measurements are reported in feet.

	SM-1			SM-2			SM-3			SM-4			SM-5			SM-6		
	Phase IA, Northeast			Phase IA, Northeast			Phase IA, North			Phase IIB, West			Phase IIB, East			Phase IIB, Center		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/30/2013	-0.07	-0.22	-0.28	-0.05	-0.17	-1.19	-0.09	-0.10	-0.53				0.02	-0.01	-0.17	0.05	0.03	-0.23
8/2/2013	-0.09	-0.27	-0.30	-0.10	-0.25	-1.21	-0.17	-0.21	-0.53				-0.06	-0.07	-0.19	-0.03	0.02	-0.25
8/6/2013	-0.06	-0.14	-0.30	-0.06	-0.13	-1.20	-0.12	-0.09	-0.54				0.01	-0.05	-0.22	0.06	0.04	-0.28
8/9/2013	-0.04	-0.07	-0.28	-0.03	-0.06	-1.20	-0.08	-0.02	-0.54				0.06	-0.03	-0.21	0.11	0.06	-0.28
8/13/2013	-0.09	-0.20	-0.29	-0.10	-0.18	-1.21	-0.15	-0.10	-0.55				-0.03	-0.05	-0.24	0.01	0.02	-0.15
8/16/2013	-0.05	-0.09	-0.33	-0.05	-0.07	-1.24	-0.10	-0.02	-0.59				0.00	-0.17	-0.07	0.13	0.01	-0.18
8/19/2013	-0.09	-0.21	-0.32	-0.09	-0.20	-1.25	-0.15	-0.12	-0.57				-0.03	-0.19	-0.05	0.04	0.02	-0.24
8/22/2013	-0.08	-0.19	-0.31	-0.08	-0.17	-1.23	-0.16	-0.12	-0.56				-0.03	-0.17	-0.05	-0.07	-0.03	-0.29
8/27/2013	-0.09	-0.20	-0.31	-0.09	-0.15	-1.24	-0.17	-0.10	-0.58				-0.12	-0.18	-0.09	-0.92	-0.07	-0.53
8/30/2013	-0.06	-0.12	-0.32	-0.06	-0.10	-1.26	-0.13	-0.04	-0.58				-0.14	-0.19	-0.17	-1.10	-0.16	-0.66
9/3/2013	-0.08	-0.15	-0.33	-0.09	-0.12	-1.26	-0.17	-0.07	-0.60				-0.20	-0.21	-0.24	-1.10	-0.17	-0.74
9/6/2013	-0.08	-0.20	-0.31	-0.07	-0.15	-1.25	-0.15	-0.06	-0.60				-0.17	-0.19	-0.29	-1.05	-0.19	-0.77
9/10/2013	-0.11	-0.22	-0.32	-0.11	-0.18	-1.26	-0.20	-0.10	-0.62				-0.16	-0.23	-0.43	-1.12	-0.19	-0.82
9/11/2013	-0.10	-0.18	-0.31	-0.06	-0.14	-1.24	-0.17	-0.03	-0.57									
9/12/2013	-0.12	-0.23	-0.31	-0.68	0.26	-1.24	-0.20	-0.23	-0.57									
9/13/2013	-0.13	-0.21	-0.32	-0.64	0.33	-1.26	-0.17	-0.14	-0.59				-0.04	-0.21	-0.47	-0.99	-0.16	-0.83
9/17/2013	-0.09	-0.19	-0.33	-0.48	0.29	-1.25	-0.23	-0.21	-0.68				0.00	-0.21	-0.51	-0.90	-0.15	-0.88
9/20/2013	-0.04	-0.06	-0.33	-0.28	0.36	-1.25							-0.04	-0.22	-0.55	-0.84	-0.14	-0.90
9/24/2013	-0.76	-2.17	-0.33	-1.15	-1.60	-1.24							-0.72	-0.41	-0.58	-1.77	-0.33	-0.92
9/27/2013	0.04	0.11	-0.33	-0.05	0.63	-1.25	0.03	0.25	-0.57				-0.08	-0.22	-0.60	-0.76	-0.14	-0.92
10/1/2013	-0.11	-0.23	-0.33	-0.11	0.33	-1.24	-0.22	-0.14	-0.60				-0.03	-0.21	-0.60	-0.91	-0.17	-0.93
10/4/2013	0.02	0.16	-0.32	0.07	0.70	-1.23							0.27	-0.15	-0.62	-0.56	-0.09	-0.94
10/8/2013	-0.03	-0.04	-0.32	0.00	0.52	-1.23	-0.13	0.04	-0.59				0.11	-0.20	-0.62	-0.77	-0.14	-0.94
10/11/2013	-0.18	-0.38	-0.31	-0.18	0.19	-1.22	-0.32	-0.26	-0.57				-0.12	-0.26	-0.63	-1.08	-0.20	-0.95
10/15/2013	-0.10	-0.22	-0.32	-0.08	0.34	-1.24	-0.22	-0.13	-0.60	FIXED	FIXED	FIXED	0.04	-0.21	-0.69	-0.97	-0.17	-1.02
10/18/2013				0.55	-0.49	-1.24	-0.42	0.44	-0.60	-1.35	0.71	-0.57	-0.59	-2.18	-0.69	-1.70	-0.56	-1.02
10/22/2013				0.44	-0.63	-1.23	-0.54	0.29	-0.60	-1.44	0.77	-0.65	-0.52	-3.32	-0.83			
10/25/2013				0.51	-0.49	-1.24	-0.43	0.45	-0.61	-1.27	0.81	-0.73	-0.47	-2.99	-0.80			
10/29/2013				0.64	-0.26	-1.24	-0.29	0.65	-0.60	-1.41	0.10	-0.94	-0.05	-2.78	-0.80			
11/5/2013	-0.71	1.46	-0.32	0.50	-0.54	-1.25	-0.42	0.41	-0.62				0.00	-4.93	-1.49			
11/8/2013	-0.75	1.43	-0.33	0.46	-0.56	-1.27	-0.50	0.34	-0.62	-1.62	0.10	-1.06	-0.09	-4.90	-1.56			
11/12/2013	-0.84	1.36	-0.39	0.37	-0.61	-1.33	-0.55	0.34	-0.68	-1.78	-0.16	-1.05	-0.16	-4.89	-1.47	1119642.27	906534.27	458.88
11/15/2013	-0.84	1.31	-0.32	0.37	-0.64	-1.27	-0.55	0.32	-0.62				-0.06	-4.91	-1.68	-0.06	-0.04	-1.01
11/19/2013	-0.86	1.30	-0.31	0.33	-0.64	-1.26	-0.62	0.28	-0.60	-1.69	-0.09	-1.09	-0.07	-4.91	-1.70	-0.08	-0.06	-1.02
11/22/2013	-0.84	1.41	-0.33	0.37	-0.51	-1.28				-1.57	-0.05	-1.09	0.04	-4.87	-1.76	0.06	-0.06	-1.09
11/26/2013	-0.84	1.39	-0.33	0.35	-0.53	-1.27	-0.56	0.41	-0.62	-1.64	-0.03	-1.10	0.03	-4.86	-1.78	0.03	-0.12	-1.13
12/2/2013	-0.80	1.51	-0.33	0.39	-0.41	-1.29	-0.50	0.52	-0.63	-1.52	0.00	-1.14	0.14	-4.84	-1.83	0.12	-0.19	-1.21
12/5/2013	-0.85	1.42	-0.33	0.37	-0.50	-1.27	-0.56	0.41	-0.63	-1.63	0.08	-1.14	0.04	-4.85	-1.84	0.00	-0.22	-1.24
1/20/2014	-0.89	1.36	-0.34	0.19	-0.37	-1.33												
1/30/2014	-0.81	1.31	-0.35	0.38	-0.47	-1.34	-0.62	0.48	-0.68	-1.57	0.13	-1.39	0.05	-4.99	-2.13	0.02	-0.50	-1.64
2/28/2014				0.14	-0.39	-1.36	-0.84	0.48	-0.69	-1.68	0.11	-1.51	-0.04	-5.00	-2.24	-0.10	-0.57	-1.80
4/1/2014				0.07	-0.30	-1.37	-0.82	0.55	-0.67	-1.54	0.21	-1.62				-0.07	-0.62	-1.98
4/4/2014				0.06	-0.42	-1.35	-0.79	0.47	-0.65									
4/5/2014				0.08	-0.32	-1.37	-0.82	0.51	-0.70	-1.76	0.26	-1.65				-0.15	-0.64	-1.97
4/8/2014				0.10	-0.34	-1.33	-0.85	0.50	-0.64	-1.60	0.31	-1.59				-0.12	-0.63	-1.96
4/11/2014				0.04	-0.34	-1.33	-0.86	0.50	-0.64	-1.56	0.36	-1.60				-0.13	-0.64	-1.97
4/14/2014	-2.16	2.03	-0.40	0.15	-0.31	-1.36	-0.73	0.50	-0.66	-1.53	0.38	-1.65	-0.15	-5.06	-2.39	-0.08	-0.64	-2.01
4/18/2014	-1.24	1.75	-0.41	0.07	-0.33	-1.39	-0.76	0.51	-0.68	-1.51	0.38	-1.67	-0.10	-5.06	-2.42	-0.13	-0.64	-2.00
4/22/2014	-1.28	1.71	-0.39	0.03	-0.38	-1.35	-0.83	0.49	-0.66				-0.16	-5.07	-2.38			
4/25/2014	-1.27	1.77	-0.41	0.03	-0.34	-1.38	-0.82	0.54	-0.69				-0.12	-5.06	-2.47			
4/29/2014	-1.18	1.70	-0.41	0.08	-0.47	-1.38	-0.79	0.48	-0.68	-1.44	0.39	-1.65	-0.13	-5.07	-2.40	-0.19	-0.66	-2.06
5/2/2014				0.08	-0.27	-1.42	-0.77	0.58	-0.75	-1.50	0.39	-1.66	-0.09	-5.05	-2.45	-0.12	-0.64	-2.07
5/7/2014	-2.88	2.48	-0.48	0.06	-0.32	-1.40	-0.82	0.52	-0.79	-1.55	0.37	-1.66	-0.13	-5.08	-2.42	-0.13	-0.65	-2.03
5/9/2014	-2.46	1.70	-0.50	0.03	-0.38	-1.43	-0.81	0.52	-0.73	-1.53	0.38	-1.70	-0.12	-5.07	-2.44	-0.10	-0.65	-2.06
5/13/2014	-2.46	1.67	-0.47	0.05	-0.35	-1.39	-0.81	0.52	-0.72	-1.50	0.38	-1.66	-0.10	-5.07	-2.43	-0.11	-0.66	-2.04
5/17/2014				0.03	-0.39	-1.44	-0.78	0.60	-0.74	-1.49	0.40	-1.68	-0.07	-5.03	-2.43	-0.04	-0.63	-2.06

	SM-1			SM-2			SM-3			SM-4			SM-5			SM-6		
	Phase IA, Northeast			Phase IA, Northeast			Phase IA, North			Phase IIB, West			Phase IIB, East			Phase IIB, Center		
	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.
5/20/2014							-0.72	0.68	-0.62	-1.40	0.39	-1.68	-0.03	-5.06	-2.43	-0.04	-0.65	-2.06
5/23/2014				0.08	-0.22	-1.41	-0.77	0.69	-0.71				-0.05	-5.04	-2.43	0.00	-0.63	-2.06
5/27/2014				-0.59	-1.46	-1.41	-1.57	-0.54	-0.72	-1.66	0.38	-1.69	-0.24	-5.10	-2.34	-0.24	-0.69	-2.07
5/30/2014				0.11	-0.24	-1.39	-0.74	0.66	-0.68	-1.40	0.40	-1.66	0.00	-5.04	-2.37	-0.01	-0.66	-2.07
6/4/2014	-3.06	0.95	-0.52	0.03	-0.35	-1.45	-0.84	0.55	-0.75	-1.51	0.40	-1.71	-0.16	-5.06	-2.54	-0.17	-0.69	-2.09
6/6/2014	-3.05	0.96	-0.54	0.05	-0.32	-1.46	-0.81	0.58	-0.72	-1.49	0.40	-1.73	-0.11	-5.06	-2.47	-0.10	-0.69	-2.11
6/10/2014	-3.04	0.96	-0.51	0.05	-0.36	-1.43	-0.82	0.55	-0.75				-0.14	-5.08	-2.45	-0.13	-0.72	-2.09
6/17/2014				0.76	0.15	-1.49	-0.77	0.65	-0.78	-1.42	0.40	-1.75				-0.04	-0.70	-2.13
6/20/2014				0.48	0.10	-1.55	3.66	-1.56	-0.74	-1.54	0.37	-1.80	-0.12	-5.11	-2.55	-0.13	-0.72	-2.18
6/23/2014				0.55	0.19	-1.50	3.72	-1.48	-0.67	-1.50	0.38	-1.75	-0.04	-5.08	-2.49	-0.06	-0.71	-2.14
6/27/2014				0.54	0.17	-1.50	3.69	-1.53	-0.67	-1.46	0.37	-1.78	-0.10	-5.08	-2.57	-0.06	-0.73	-2.12
7/8/2014				0.56	0.23	-1.52	3.71	-1.49	-0.67	-1.45	0.37	-1.78	1119688.78	906672.94	465.97			
7/11/2014				0.51	0.12	-1.51				-1.53	0.37	-1.80	-0.30	-0.52	-2.56			
7/15/2014				0.50	0.15	-1.52				-1.54	0.37	-1.81	-0.51	-0.46	-2.60			
7/18/2014	1120814.01	907247.81	455.10	0.48	0.07	-1.49	3.61	-1.65	-0.67				-0.47	-0.47	-2.63	1119646.18	906541.65	458.55
7/22/2014	0.06	0.25	-0.51	0.54	0.22	-1.52	3.70	-1.48	-0.70				-0.50	-0.46	-2.68	0.07	0.00	-2.16
7/25/2014	0.08	0.31	-0.54	0.58	0.26	-1.55	3.73	-1.44	-0.69				-0.46	-0.47	-2.73	0.08	-0.01	-2.19
7/29/2014	0.09	0.36	-0.55	0.58	0.28	-1.56							-0.47	-0.53	-2.79	0.11	-0.01	-2.23
8/1/2014	0.08	0.36	-0.53	0.59	0.32	-1.53	3.76	-1.36	-0.70				-0.42	-0.51	-2.81	0.18	0.04	-2.13
8/5/2014	-0.02	0.13	-0.54	0.47	0.10	-1.56							-0.56	-0.56	-2.87	0.03	0.00	-2.27
8/10/2014	0.05	0.34	-0.60										-0.51	-0.53	-2.84			
8/12/2014	0.01	0.23	-0.53	0.52	0.17	-1.55	3.64	-1.51	-0.68	-1.56	0.08	-1.79	-0.58	-0.56	-2.99	0.19	-0.05	-2.27
8/15/2014	0.00	0.24	-0.55	0.49	0.17	-1.56				-1.46	0.09	-1.81	-0.57	-0.56	-2.95	0.24	-0.05	-2.30
8/19/2014	0.07	0.41	-0.59	0.57	0.33	-1.67	3.73	-1.36	-0.87	-1.41	0.12	-1.83	-0.49	-0.53	-2.97	0.28	-0.03	-2.33
8/22/2014				0.43	0.07	-1.63	3.78	-2.30	-0.71	-1.47	0.10	-1.83	-0.60	-0.58	-2.99	0.19	-0.08	-2.34
8/26/2014				0.48	0.16	-1.67	3.87	-2.33	-0.73	-1.40	0.15	-1.87	-0.51	-0.55	-3.03	0.27	-0.06	-2.40
8/29/2014							3.57	-2.14	-0.71	-1.47	0.14	-1.87	-0.60	-0.58	-3.03			
9/2/2014				0.43	0.03	-1.67	3.64	-2.22	-0.73	-1.55	0.16	-1.90	-0.66	-0.60	-3.06			
9/5/2014				0.52	0.26	-1.64	3.81	-2.26	-0.72	-1.40	0.20	-1.90	0.04	-0.97	-3.07			
9/9/2014				0.43	0.03	-1.56	3.57	-2.14	-0.71	-1.56	0.18	-1.90						
9/12/2014				0.52	0.19	-1.66	3.64	-2.19	-0.73									
9/16/2014							3.78	-2.26	-0.72									
9/19/2014				0.61	0.34	-1.71	3.44	-2.04	-0.73							1119645.50	906534.21	467.00
9/23/2014				0.62	0.43	-1.61	3.65	-2.11	-0.74							0.01	-0.09	-2.48
9/26/2014				0.60	0.33	-1.63	3.63	-2.18	-0.73							-0.03	-0.06	-2.53
9/29/2014				0.45	0.09	-1.63	3.50	-2.02	-0.72							-0.13	-0.11	-2.59
10/3/2014				0.56	0.25	-1.64	3.69	-2.20	-0.73							-0.04	-0.06	-2.63
10/7/2014				0.51	0.10	-1.66	3.64	-2.10	-0.75							-0.13	-0.06	-2.68
10/10/2014				0.42	-0.04	-1.60	3.61	-2.15	-0.68							-0.17	-0.07	-2.71
10/14/2014				0.52	0.08	-1.64	3.76	-2.18	-0.72							-0.15	-0.03	-2.74
10/17/2014				0.48	0.17	-1.62	3.56	-2.11	-0.70							-0.08	-0.01	-2.75
10/21/2014				0.53	0.30	-1.60	3.77	-2.23	-0.76							0.00	0.02	-2.76
10/24/2014				0.57	0.35	-1.64	5.44	-3.13	-0.76	1119564.21	906318.28	464.21				-0.01	0.04	-2.78
10/28/2014							5.47	-3.17	-0.71							0.01	0.03	-2.80
10/30/2014							5.28	-3.05	-0.76	0.03	0.00	-1.90				0.00	0.02	-2.81
11/4/2014							5.25	-3.04	-0.75	-0.08	-0.01	-1.94				-0.09	0.00	-2.86
11/7/2014							5.31	-3.08	-0.76	-0.02	0.09	-1.96	1119676.99	906675.85	471.01	-0.04	0.01	-2.89
11/11/2014							5.47	-3.13	-0.76	-0.23	0.06	-1.99	-0.14	0.01	-3.15	-0.21	-0.04	-2.91
11/14/2014							5.26	-3.06	-0.77	-0.15	0.07	-1.99	-0.09	0.02	-3.19	-0.14	-0.04	-2.93
11/18/2014							5.26	-3.06	-0.77	-0.15	0.07	-1.99	-0.09	0.02	-3.19	-0.14	-0.04	-2.93
11/21/2014							5.26	-3.04	-0.78	0.01	0.03	-2.00	-0.03	-0.17	-3.25	-0.04	-0.04	-2.97
11/25/2014							5.29	-3.05	-0.77	-0.02	0.09	-2.02	0.17	0.08	-3.32	0.01	-0.01	-2.97

	SM-7			SM-8			SM-9			SM-10			SM-11			SM-12		
	Phase IIB, West			Phase IB, Northeast			Phase IB, North			Phase IB, Northwest			Phase IB, Northeast			Phase IA, Northwest		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																1120679.12	906835.80	429.48
8/13/2012																		
8/15/2012																0.04	0.12	-0.01
8/23/2012				1120509.81	906290.17	426.08	1120463.73	906154.40	425.87	1120420.12	906017.30	426.06	1120549.82	906428.00	428.28	3.00	-0.11	0.01
8/28/2012				-2.39	4.74	0.11	-0.54	2.50	-0.07	-0.54	2.39	-0.08	-0.32	0.83	-0.13	2.61	-0.12	-0.07
9/1/2012				-2.97	3.86	0.11	-0.42	2.34	-0.07	-0.68	2.33	-0.04	-0.44	1.73	-0.04	2.25	-0.52	0.02
9/5/2012				-2.07	3.89	0.19	-0.81	2.53	-0.08	-0.83	2.84	0.04	-0.25	1.83	-0.03	2.09	-0.32	-0.09
9/12/2012				-2.00	4.36	0.21	-0.83	2.25	0.01	-0.84	2.18	0.03	-0.75	1.89	-0.04	1.96	0.35	0.03
9/15/2012				-1.01	2.52	0.23	0.48	0.61	0.02	2.04	0.97	-0.05	-0.69	1.76	-0.07	2.08	0.04	-0.03
9/21/2012				-2.09	4.43	0.18	-1.24	2.19	-0.08	-1.11	2.74	0.04	1.21	0.49	-0.19	1.75	0.47	0.00
9/25/2012				-2.20	4.57	0.22	-0.10	1.12	0.07	-0.79	2.38	0.02	-0.81	2.04	-0.09	1.48	0.33	0.03
9/28/2012													-0.28	1.50	-0.09	1.97	0.30	-0.08
10/3/2012				-1.60	3.86	0.15	1.01	1.54	0.04	-0.89	2.08	0.11	-0.32	1.90	-0.09	1.66	0.59	-0.06
10/9/2012				-2.33	3.68	0.13	-0.22	1.29	0.07	-1.08	2.13	-0.02	-0.39	1.90	-0.10	2.11	-0.06	-0.13
10/13/2012	1119605.93	906450.28	432.64	-1.78	3.94	0.14	-0.01	1.12	-0.05	-0.92	2.12	-0.10	-0.98	2.05	-0.37	2.08	-0.11	-0.24
10/16/2012				-1.95	4.21	0.18	-0.09	1.18	-0.02	-1.15	2.14	0.02	-1.01	1.90	-0.03	2.05	0.10	-0.09
10/19/2012				-1.86	4.14	0.20	0.06	1.15	0.01	-0.94	1.99	0.03	-0.80	1.77	-0.20	1.93	-0.36	-0.15
10/24/2012				-1.97	3.98	0.20	-0.16	1.11	0.02	-0.85	2.16	0.07	-0.89	1.84	0.03	1.95	0.21	0.01
10/27/2012				-2.13	4.26	0.13	-0.12	1.25	-0.04	-1.06	2.43	-0.17	-0.91	2.12	0.01	1.90	0.28	-0.23
10/29/2012				-1.98	3.98	0.18	-0.99	2.42	0.42	-0.90	2.12	0.02	-0.93	1.98	-0.08	1.78	0.34	-0.01
11/3/2012				-1.81	4.19	0.17	-0.90	2.17	-0.07	-1.02	2.42	-0.03	-0.92	1.92	-0.25	1.99	0.22	-0.13
11/9/2012				-2.02	4.05	0.13	-1.01	2.28	-0.06	-1.29	2.52	-0.03	-0.91	1.92	-0.18	2.08	-0.10	-0.09
11/13/2012				-2.44	4.31	0.15	-0.94	2.17	0.00	-1.26	2.48	-0.01	-1.33	2.27	-0.21	1.76	0.35	-0.07
11/16/2012				-1.84	3.91	0.20	-0.51	1.63	-0.23	-1.46	2.61	-0.05	-1.02	2.18	0.00	1.73	0.35	-0.22
11/21/2012	2.64	-2.30	-0.09	-1.70	3.99	-0.03	-0.91	2.24	0.03	-1.20	2.50	0.01	-1.03	2.26	-0.24	2.08	0.50	-0.21
12/1/2012	2.50	-2.59	0.11	-2.07	4.49	0.17	-0.90	2.32	0.01	-0.61	2.26	0.08	-0.88	1.77	-0.29	1.68	0.65	-0.13
12/6/2012	2.49	-2.55	-0.02	-2.38	4.64	0.14	-1.17	2.29	0.02	-0.69	3.47	-0.21	-1.03	2.21	-0.21	1.71	0.37	0.00
12/8/2012	2.58	-2.42	-0.04	-2.47	4.49	0.18	-0.98	2.75	-0.06	-1.19	2.64	0.04	-1.24	2.28	-0.23	1.87	0.28	-0.08
12/13/2012	2.66	-2.42	0.02	-2.44	4.41	0.18	-1.01	2.21	-0.01	-1.36	2.59	0.05	-1.33	2.28	-0.27	1.31	0.39	-0.09
12/21/2012	2.42	-2.65	0.04	-2.69	4.31	0.10	-1.10	2.27	0.05	-0.95	2.30	-0.04	-1.74	2.33	-0.16	1.91	-0.60	-0.06
1/25/2013	2.49	-2.59	-0.06	-1.82	4.37	0.13	-1.09	2.32	0.08	-1.17	2.61	0.09	-1.36	2.33	-0.19	1.66	0.40	-0.06
2/15/2013	2.34	-2.68	-0.05										-1.62	2.34	-0.38	1.59	-0.62	-0.14
2/28/2013							-0.92	2.66	-0.09	-1.25	2.56	-0.01						
4/4/2013	1.57	-2.00	0.02	-2.59	4.20	0.16	-0.82	1.44	-0.02	-1.44	1.80	0.03	-1.12	1.77	-0.42	2.00	-0.25	-0.21
4/12/2013	-6.22	-31.55	-0.17	-2.67	5.08	0.02	-2.08	3.35	-0.01	-0.35	2.03	0.03	-2.30	0.65	-0.30	2.17	-1.71	-0.14
4/23/2013				-2.46	4.30	0.04	-0.75	1.27	0.02	-0.82	2.19	0.02	-1.24	1.62	-0.28	1.61	0.41	-0.07
4/26/2013				-2.61	4.17	-0.06	-1.18	1.27	-0.11	-1.15	1.67	0.05	-1.85	1.31	-0.41			
5/28/2013				-2.57	4.31	-0.08	-0.84	1.21	-0.17	-0.29	2.11	-0.06	-2.29	1.03	-0.40	1.89	-1.37	-0.24
5/31/2013				-2.27	3.98	-0.24	0.15	2.16	-0.31				-2.43	1.25	-0.65	0.76	0.09	-0.49
6/12/2013	1119609.32	906425.02	442.69	BROKEN	BROKEN	BROKEN	1120462.83	906157.05	441.90	1120417.57	906018.31	441.56	1120547.33	906430.12	443.41	1120680.60	906835.84	444.92
6/14/2013	0.10	-0.01	-0.17				-0.01	-0.05	-0.82	-0.03	-0.06	-0.09	0.03	-0.01	-0.59	0.06	0.03	-0.47
6/21/2013	0.01	-0.03	-0.14				-0.03	-0.07	-0.86	-0.09	-0.11	-0.09	0.00	-0.05	-0.57	-0.02	-0.07	-0.46
6/25/2013	BROKEN	BROKEN	BROKEN				-0.03	-0.06	-0.80	-0.07	-0.08	-0.08	-0.04	-0.08	-0.65	-0.02	-0.09	-0.48
6/28/2013							-0.17	-0.13	-0.80	-0.20	-0.15	-0.08	-0.15	-0.16	-0.64	-0.09	-0.17	-0.47
7/1/2013																-0.06	-0.09	-0.46
7/3/2013							-0.16	-0.15	-0.82	-0.25	-0.19	-0.11	-0.11	-0.14	-0.67	-0.07	-0.14	-0.50
7/9/2013							-0.20	-0.15	-0.82	-0.25	-0.17	-0.09	-0.13	-0.13	-0.65	-0.07	-0.12	-0.48
7/12/2013							-0.07	-0.07	-0.83	-0.13	-0.11	-0.10	-0.04	-0.05	-0.65	-0.02	-0.05	-0.49
7/16/2013							0.02	-0.01	-0.84	-0.01	-0.04	-0.11	0.00	-0.01	-0.68	-0.01	-0.03	-0.50
7/19/2013				FIXED	FIXED	FIXED	-0.03	-0.03	-0.83	-0.09	-0.08	-0.11	0.00	-0.01	-0.69	0.01	0.00	-0.51
7/23/2013				-1.51	-0.14	-0.27	-0.20	-0.15	-0.83	-0.26	-0.17	-0.11	-0.17	-0.15	-0.67	-0.06	-0.08	-0.49
7/25/2013				-1.48	-0.14	-0.27	-0.14	-0.12	-0.83	-0.16	-0.13	-0.08	-0.14	-0.13	-0.68	-0.07	-0.12	-0.50

	SM-7			SM-8			SM-9			SM-10			SM-11			SM-12		
	Phase IIB, West			Phase IB, Northeast			Phase IB, North			Phase IB, Northwest			Phase IB, Northeast			Phase IA, Northwest		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/30/2013				-1.52	-0.17	-0.27	-0.20	-0.16	-0.81	-0.22	-0.18	-0.10	-0.16	-0.15	-0.68	-0.05	-0.09	-0.51
8/2/2013				-1.52	-0.16	-0.28	-0.19	-0.15	-0.83	-0.22	-0.17	-0.13	-0.17	-0.15	-0.70	-0.12	-0.17	-0.52
8/6/2013				-1.41	-0.08	-0.28	-0.06	-0.05	-0.83	-0.10	-0.09	-0.12	-0.09	-0.06	-0.69	-0.06	-0.07	-0.52
8/9/2013				-1.35	-0.02	-0.27	0.00	0.00	-0.83	-0.04	-0.05	-0.09	-0.03	0.01	-0.68	-0.02	-0.01	-0.50
8/13/2013				-1.50	-0.12	-0.28	-0.16	-0.10	-0.84	-0.21	-0.13	-0.11	-0.13	-0.07	-0.69	-0.08	-0.08	-0.51
8/16/2013				-1.36	-0.02	-0.34	0.01	0.02	-0.88	-0.03	-0.03	-0.16	-0.05	0.00	-0.73	-0.02	-0.01	-0.56
8/19/2013				-1.42	-0.08	-0.28	-0.02	-0.02	-0.86	-0.07	-0.07	-0.14	-0.06	-0.03	-0.72	-0.06	-0.09	-0.54
8/22/2013				-1.44	-0.09	-0.30	-0.04	-0.03	-0.86	-0.10	-0.09	-0.13	-0.12	-0.07	-0.70	-0.08	-0.10	-0.53
8/27/2013				-1.46	-0.10	-0.30	-0.12	-0.08	-0.84	-0.18	-0.13	-0.12	-0.12	-0.06	-0.72	-0.08	-0.08	-0.53
8/30/2013				-1.39	-0.05	-0.32	-0.05	-0.04	-0.86	-0.07	-0.07	-0.12	-0.11	-0.05	-0.73	-0.05	-0.06	-0.54
9/3/2013				-1.43	-0.07	-0.33	-0.10	-0.05	-0.86	-0.14	-0.09	-0.15	-0.11	-0.04	-0.74	-0.07	-0.07	-0.55
9/6/2013				-1.47	-0.13	-0.34	-0.14	-0.11	-0.87	-0.18	-0.15	-0.14	-0.13	-0.09	-0.73	-0.03	-0.05	-0.58
9/10/2013				-1.58	-0.17	-0.34	-0.17	-0.10	-0.88	-0.20	-0.12	-0.17	-0.22	-0.13	-0.75	-0.12	-0.12	-0.55
9/11/2013				-1.49	-0.09	-0.30	-0.15	-0.07	-0.84	-0.21	-0.13	-0.06	-0.14	-0.04	-0.71	-0.08	-0.04	-0.52
9/12/2013				-1.94	-0.13	-0.30	-0.22	-0.09	-0.84	-0.01	-0.09	-0.06	0.01	0.12	-0.47	-0.16	0.24	-0.52
9/13/2013				-1.90	-0.10	-0.31	-0.18	-0.06	-0.85	0.05	-0.05	-0.08	0.03	0.15	-0.49	-0.12	0.32	-0.53
9/17/2013				-1.82	-0.05	-0.34	-0.09	-0.03	-0.89	0.12	-0.03	-0.14	0.13	0.21	-0.54	-0.07	0.36	-0.55
9/20/2013				-1.74	0.03	-0.35	0.00	0.04	-0.89	0.21	0.05	-0.14	0.17	0.26	-0.51	0.01	0.47	-0.58
9/24/2013				-2.86	-0.81	-0.37	-1.18	-0.74	-0.91	-1.05	-0.69	-0.12	-0.83	-0.60	-0.53	-0.70	-0.54	-0.55
9/27/2013				-1.63	0.13	-0.37	0.21	0.18	-0.90	0.42	0.14	-0.13	0.31	0.38	-0.51	0.10	0.58	-0.56
10/1/2013							-0.15	-0.03	-0.88	0.06	-0.06	-0.11	0.02	0.15	-0.51	-0.12	0.33	-0.55
10/4/2013							0.20	0.23	-0.88	0.43	0.19	-0.12	0.34	0.46	-0.53	0.10	0.67	-0.54
10/8/2013							0.08	0.15	-0.84	0.31	0.11	-0.08	0.21	0.33	-0.50	-0.01	0.48	-0.52
10/11/2013							-0.26	-0.08	-0.84	-0.11	-0.09	-0.08	-0.06	0.12	-0.50	-0.22	0.22	-0.51
10/15/2013				-1.19	3.50	-0.30	-0.15	-0.01	-0.86	0.07	-0.06	-0.10	0.01	0.15	-0.53	-0.13	0.30	-0.53
10/18/2013				-0.44	2.88	-0.30	-0.65	-1.19	-0.86	-0.29	0.18	-0.10	-0.32	0.18	-0.52	-0.34	0.63	-0.53
10/22/2013							-0.86	-1.32	-0.86	-0.50	0.07	-0.09	-0.50	0.07	-0.52	-0.45	0.53	-0.51
10/25/2013							-0.75	-1.25	-0.87	-0.33	0.15	-0.10	-0.41	0.14	-0.53	-0.34	0.68	-0.52
10/29/2013							-0.53	-1.13	-0.83	-0.11	0.23	-0.09	-0.12	0.37	-0.52	-0.15	0.90	-0.54
11/5/2013				-3.06	-0.67	-0.45	-0.78	-1.36	-0.87	-0.36	0.08	-0.11	-0.43	0.07	-0.54	-0.35	0.61	-0.54
11/8/2013				-3.10	-0.69	-0.45	-0.84	-1.36	-0.88	-0.41	0.08	-0.12				-0.41	0.56	-0.54
11/12/2013				-3.16	-0.66	-0.53	-0.93	-1.35	-0.92	-0.48	0.08	-0.17	-0.51	0.10	-0.63	-0.47	0.56	-0.60
11/15/2013				-3.22	-0.69	-0.45	-0.97	-1.37	-0.87	-0.57	0.04	-0.11				-0.48	0.54	-0.53
11/19/2013				-3.22	-0.69	-0.43	-0.97	-1.48	-0.89	-0.56	0.05	-0.10	-0.57	0.06	-0.52	-0.51	0.53	-0.52
11/22/2013				-3.18	-0.67	-0.44	-0.91	-1.46	-0.86	-0.47	0.10	-0.09	-0.53	0.10	-0.55	-0.43	0.64	-0.54
11/26/2013				-3.21	-0.69	-0.42	-0.94	-1.49	-0.84	-0.48	0.09	-0.07	-0.56	0.08	-0.53	-0.45	0.61	-0.53
12/2/2013				-3.09	-0.57	-0.43	-0.79	-1.42	-0.85	-0.29	0.18	-0.09	-0.53	0.12	-0.54	-0.37	0.71	-0.52
12/5/2013				-3.14	-0.60	-0.43	-0.96	-1.50	-0.85	-0.40	0.12	-0.07	-0.54	0.13	-0.54	-0.46	0.60	-0.52
1/20/2014													-0.62	0.14	-0.57	-0.49	0.63	-0.51
1/30/2014				-3.21	-0.63	-0.50	-0.89	-1.49	-0.93	-0.22	0.18	-0.16	-0.52	0.14	-0.61	-0.44	0.62	-0.52
2/28/2014				-3.24	-0.48	-0.51	-0.92	-1.41	-0.90	-0.39	0.20	-0.13	-0.65	0.14	-0.60	-0.66	0.60	-0.51
4/1/2014				-3.46	-0.73	-0.52	-1.19	-1.58	-0.91	-0.40	0.14	-0.11	-0.63	0.18	-0.61	-0.67	0.57	-0.51
4/4/2014																		
4/5/2014				-3.47	-0.74	-0.51	-1.19	-1.53	-0.88	-0.41	0.12	-0.10	-0.70	0.12	-0.60	-0.56	0.60	-0.53
4/8/2014				-3.47	-0.76	-0.45	-1.17	-1.53	-0.82	-0.41	0.14	-0.04	-0.68	0.16	-0.56	-0.56	0.58	-0.51
4/11/2014				-3.50	-0.78	-0.47	-1.21	-1.57	-0.83	-0.44	0.11	-0.08	-0.68	0.15	-0.58	-0.57	0.58	-0.50
4/14/2014				-3.56	-0.83	-0.48	-0.43	-0.55	-0.80	-0.48	0.06	-0.06	-0.72	0.09	-0.59	-0.47	0.60	-0.53
4/18/2014				-3.52	-0.81	-0.53	-0.50	-0.63	-0.86	-0.47	0.05	-0.13	-0.70	0.12	-0.63	-0.51	0.65	-0.55
4/22/2014				-3.55	-0.80	-0.46				-0.50	0.06	-0.04	-0.69	0.14	-0.57	-0.56	0.60	-0.51
4/25/2014				-3.49	-0.76	-0.52	-0.41	-0.46	-0.88	-0.38	0.13	-0.09				-0.54	0.64	-0.53
4/29/2014				-3.49	-0.81	-0.51	-0.41	-0.64	-0.85	-0.39	0.04	-0.09				-0.55	0.57	-0.54
5/2/2014				-3.52	-0.75	-0.56	-0.41	-0.45	-0.91	-0.40	0.14	-0.14	-0.68	0.17	-0.67	-0.54	0.65	-0.57
5/7/2014				-3.53	-0.80	-0.55	-0.44	-0.49	-0.94	-0.43	0.10	-0.16	-0.61	0.18	-0.67	-0.57	0.57	-0.55
5/9/2014				-3.56	-0.83	-0.56	-0.50	-0.56	-0.91	-0.48	0.06	-0.15	-0.66	0.14	-0.66	-0.53	0.62	-0.58
5/13/2014				-3.64	-0.88	-0.55	-0.53	-0.56	-0.88	-0.53	0.02	-0.15	-0.75	0.07	-0.64	-0.55	0.60	-0.56
5/17/2014				-3.57	-0.79	-0.58				-0.46	0.11	-0.17	-0.68	0.18	-0.66	-0.52	0.67	-0.58

	SM-7			SM-8			SM-9			SM-10			SM-11			SM-12		
	Phase IIB, West			Phase IB, Northeast			Phase IB, North			Phase IB, Northwest			Phase IB, Northeast			Phase IA, Northwest		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014				-3.45	-0.78	-0.53				-0.36	0.09	-0.17	-0.56	0.20	-0.67	-0.46	0.69	-0.56
5/23/2014				-3.43	-0.70	-0.54				-0.33	0.18	-0.12	-0.57	0.27	-0.64	-0.48	0.76	-0.55
5/27/2014				-3.52	-0.79	-0.59				-0.41	0.11	-0.15	-0.66	0.17	-0.66	-0.55	0.63	-0.58
5/30/2014				-3.48	-0.80	-0.55				-0.34	0.12	-0.10	-0.60	0.18	-0.63	-0.45	0.73	-0.55
6/4/2014				-3.59	-0.82	-0.58	-1.51	-0.37	-0.92	-0.47	0.09	-0.17	-0.68	0.16	-0.69	-0.57	0.61	-0.60
6/6/2014							-1.52	-0.40	-0.95	-0.48	0.07	-0.20	-0.68	0.14	-0.71	-0.54	0.63	-0.61
6/10/2014							-1.48	-0.39	-0.88	-0.40	0.09	-0.15	-0.64	0.16	-0.66	-0.55	0.59	-0.58
6/17/2014				-3.60	-0.85	-0.62	-1.50	-0.41	-0.95	-0.40	0.11	-0.22	-0.69	0.17	-0.72	-0.51	0.67	-0.63
6/20/2014							-1.64	-0.50	-0.99	-0.56	0.00	-0.25	-0.76	0.06	-0.76	-0.58	0.54	-0.65
6/23/2014				-3.70	-0.92	-0.59	-1.45	-0.37	-0.97	-0.46	0.07	-0.22	-0.69	0.12	-0.79	-0.51	0.63	-0.60
6/27/2014				-3.67	-0.90	-0.64	-1.61	-0.49	-0.94	-0.55	-0.01	-0.21	-0.75	0.07	-0.71	-0.59	0.52	-0.58
7/8/2014				-3.63	-0.84	-0.65	-1.49	-0.40	-0.93	-0.41	0.08	-0.19	-0.67	0.15	-0.69	-0.51	0.64	-0.60
7/11/2014							-1.63	-0.50	-0.96	-0.53	-0.01	-0.26	-0.80	0.04	-0.71	-0.60	0.53	-0.62
7/15/2014				-3.75	-0.88	-0.56							-0.75	0.12	-0.71	-0.62	0.55	-0.61
7/18/2014													-0.82	0.01	-0.67	-0.48	0.68	-0.63
7/22/2014													-0.64	0.19	-0.73	-0.51	0.67	-0.62
7/25/2014																-0.49	0.68	-0.65
7/29/2014																-0.50	0.68	-0.64
8/1/2014																		
8/5/2014																		
8/10/2014																		
8/12/2014	1119607.91	906423.64	461.73													-0.62	0.54	-0.62
8/15/2014	-0.08	0.03	-0.20													-0.59	0.62	-0.66
8/19/2014	-0.04	0.05	-0.25										1120549.33	906428.38	453.34	-0.56	0.82	-0.67
8/22/2014	-0.11	0.01	-0.28										0.29	-0.23	-0.68	-0.44	0.68	-0.64
8/26/2014	-0.04	0.03	-0.36										0.43	-0.30	-0.71	-0.33	0.63	-0.66
8/29/2014										0.35	-0.18	-0.26	-0.24	0.01	-0.69	-0.73	0.84	-0.66
9/2/2014										0.57	-0.33	-0.27	-0.09	-0.10	-0.71	-0.64	0.76	-0.66
9/5/2014										1.08	-0.49	-0.26	0.29	-0.22	-0.72	-0.41	0.70	-0.65
9/9/2014													-0.25	0.00	-0.71	-0.74	0.83	-0.64
9/12/2014										0.58	-0.31	-0.26	-0.07	-0.11	-0.71	-0.64	0.77	-0.67
9/16/2014										1.03	-0.47	-0.23	0.24	-0.23	-0.69	-0.46	0.68	-0.66
9/19/2014	-0.58	-0.10	-0.46							-0.19	0.03	-0.28	-0.62	0.14	-0.70	-0.92	0.95	-0.66
9/23/2014	-0.63	-0.09	-0.46										-0.08	-0.04	-0.73	-0.63	0.84	-0.67
9/26/2014	-0.73	-0.11	-0.49										-0.14	-0.09	-0.70	-0.67	0.78	-0.66
9/29/2014	-0.83	-0.13	-0.51										-0.47	0.11	-0.70	-0.86	0.95	-0.66
10/3/2014	-0.76	-0.12	-0.53							0.63	-0.32	-0.26	-0.02	-0.14	-0.71	-0.59	0.75	-0.67
10/7/2014	-0.89	-0.14	-0.54							0.52	-0.21	-0.29	-0.10	-0.06	-0.74	-0.66	0.84	-0.68
10/10/2014	-0.92	-0.13	-0.57							0.40	-0.21	-0.21	-0.18	-0.07	-0.66	-0.70	0.81	-0.61
10/14/2014	-0.91	-0.14	-0.59							0.79	-0.31	-0.21	0.12	-0.14	-0.69	-0.52	0.77	-0.65
10/17/2014	-0.84	-0.12	-0.58							0.37	-0.19	-0.20	-0.22	-0.04	-0.67	-0.75	0.84	-0.62
10/21/2014	-0.84	-0.12	-0.58										0.23	-0.24	-0.72	-0.47	0.70	-0.68
10/24/2014	-0.80	-0.10	-0.61							1120424.16	906015.72	451.52	4.16	-1.85	-0.72	1.79	-0.40	-0.68
10/28/2014	-0.80	-0.10	-0.61							0.25	-0.11	-0.20	4.34	-1.95	-0.68	1.87	-0.45	-0.64
10/30/2014	-0.77	-0.10	-0.62							-0.38	0.13	-0.25	3.89	-1.75	-0.73	1.60	-0.32	-0.69
11/4/2014	-0.88	-0.12	-0.66										3.80	-1.72	-0.72	1.55	-0.30	-0.68
11/7/2014	-0.81	-0.11	-0.67										3.99	-1.80	-0.73	1.65	-0.35	-0.68
11/11/2014	-1.00	-0.14	-0.69							0.14	-0.07	-0.26	4.27	-1.90	-0.74	1.84	-0.42	-0.68
11/14/2014	-0.94	-0.13	-0.71										3.90	-1.78	-0.75	1.59	-0.32	-0.70
11/18/2014	-0.94	-0.13	-0.71										3.90	-1.78	-0.75	1.56	-0.30	-0.70
11/21/2014	-0.81	-0.11	-0.73							-0.47	0.14	-0.27	3.67	-1.71	-0.73	1.29	-0.23	-0.65
11/25/2014	-0.79	-0.12	-0.73							-0.30	0.08	-0.25	3.94	-1.76	-0.74	1.62	-0.30	-0.69

	SM-13			SM-14			SM-15			SM-16			SM-17			SM-18		
	Phase IB, West			Phase IB, West			Phase IB, Center			Phase IB, East			Phase IB, East			Phase I high point, Center		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																		
8/13/2012																		
8/15/2012																		
8/23/2012																		
8/28/2012																		
9/1/2012				1120137.52	906140.92	430.51												
9/5/2012	1120088.74	905983.00	425.86	0.60	-0.38	-0.10												
9/12/2012	0.88	-0.14	-0.10	3.34	-1.04	-0.62	1120180.52	906266.99	429.71									
9/15/2012	0.61	0.05	0.01	3.27	-1.11	-0.68	0.30	0.07	-0.15									
9/21/2012	0.80	0.36	-0.03	2.89	-1.37	-0.55	1.08	-0.13	-0.45	1120219.45	906392.75	430.92				1120292.52	906655.97	429.95
9/25/2012	0.59	0.32	0.04	3.33	-1.42	-0.52	1.14	-0.16	-0.40	-0.21	-0.29	0.07				0.17	-0.10	-0.04
9/28/2012	0.74	0.22	0.02	3.42	-1.04	-0.56	1.15	-0.19	-0.69	-0.01	-0.09	-0.03				0.34	-0.03	-0.10
10/3/2012	0.53	0.22	-0.10	3.46	-1.18	-0.58	1.42	-0.02	-0.55	0.07	-0.29	-0.38				0.08	-0.05	-0.07
10/9/2012	0.54	0.29	-0.14	3.13	-0.99	-0.83	1.14	0.18	-0.88	0.05	-0.06	-0.49				-0.03	0.10	-0.14
10/13/2012	0.58	0.27	-0.10	2.95	-1.15	-0.62	1.12	-0.07	-0.74	0.20	-0.03	-0.31	1120260.30	906527.52	432.38	5.14	3.22	0.05
10/16/2012	0.66	0.34	-0.06	3.33	-1.23	-0.66	0.89	-0.07	-0.70	0.28	-0.07	-0.54	0.40	-0.14	-0.20	5.26	2.39	-0.03
10/19/2012	0.74	0.21	-0.15	3.25	-1.33	-0.65	1.10	0.09	-0.79	0.21	-0.03	-0.61	0.30	-0.07	-0.39	7.84	1.55	-0.57
10/24/2012	0.78	0.28	-0.16	3.50	-1.15	-0.97	1.18	-0.48	-1.01	0.18	-0.40	-0.74	0.48	-0.27	-0.57	8.08	1.27	-0.85
10/27/2012	0.78	0.30	-0.17	3.46	-1.25	-0.93	1.43	-0.20	-1.05	0.34	-0.38	-0.82	0.47	-0.21	-0.59	8.04	1.48	-0.78
10/29/2012	0.95	0.23	-0.18	2.92	-1.25	-0.86				0.41	-0.49	-0.86	0.41	-0.28	-0.62	8.01	1.59	-0.79
11/3/2012	0.77	0.26	-0.13	3.43	-1.32	-0.88	1.54	0.03	-1.14	0.86	-0.18	-0.96	0.69	-0.19	-0.83	8.26	1.73	-0.87
11/9/2012	0.77	0.29	-0.21	3.03	-1.14	-0.95	1.27	0.54	-1.08	-0.41	-0.02	-0.82	0.44	-0.18	-0.65	9.56	1.54	-1.23
11/13/2012	0.95	0.36	-0.15	3.31	-1.31	-1.05				-0.51	0.21	-0.94	-0.17	-0.16	-0.65	BROKEN	BROKEN	BROKEN
11/16/2012	0.69	0.14	0.04	2.94	-0.83	-0.77	0.53	-0.64	-1.48	0.06	0.73	-1.02	0.14	-0.13	-0.68			
11/21/2012	0.59	0.16	-0.15	3.04	-0.80	-1.01	1.21	-1.00	-1.59	-0.01	0.60	-1.08	0.14	0.05	-0.74			
12/1/2012	0.75	0.24	-0.18	2.79	-0.82	-0.99	0.71	-0.80	-1.72	0.24	0.34	-1.27	0.46	-0.19	-0.79			
12/6/2012	0.70	0.19	-0.19	3.09	-0.76	-1.02	1.06	-0.52	-1.79	0.07	0.49	-1.22	-0.06	-0.21	-0.85			
12/8/2012	0.76	0.36	-0.22	2.95	-0.94	-0.95	0.66	-0.63	-1.82	-0.22	0.34	-1.29	-0.06	0.36	-0.79			
12/13/2012	0.65	0.15	-0.22	3.00	-0.68	-1.01	0.85	-0.58	-1.87	0.13	0.27	-1.32	-0.23	0.42	-0.80			
12/21/2012	0.76	0.27	-0.32	2.86	-1.24	-1.06	0.81	-0.60	-1.97	0.14	0.06	-1.41	-0.30	0.07	-0.85			
1/25/2013	0.68	0.41	-0.18	3.26	-0.79	-1.19	1.06	-0.67	-2.17	0.22	0.18	-1.61	0.18	0.32	-1.06			
2/15/2013	0.82	0.33	-0.27	2.74	-1.21	-1.02	0.81	-0.53	-2.32	0.01	0.41	-1.77	-0.19	0.11	-1.20			
2/28/2013																		
4/4/2013	0.37	-0.28	-0.27	3.62	0.34	-0.92												
4/12/2013	0.42	-0.24	-0.19	0.54	-0.67	-0.44	0.91	0.39	-1.97	0.05	0.04	-1.89	0.37	-0.09	-1.25			
4/23/2013	0.19	-0.03	-0.25	3.75	-0.15	-0.93	0.57	-0.45	-2.52	0.14	0.08	-1.86	0.24	-0.06	-1.24			
4/26/2013	0.73	-0.37	-0.46	2.96	0.42	-1.03	5.81	-2.97	-2.14	0.09	0.56	-1.98	-0.59	-0.42	-1.40			
5/28/2013	0.45	-0.32	-0.42	3.74	1.03	-1.76	1.40	-1.29	-1.97	-0.59	0.58	-2.19	-1.16	-2.28	-1.49			
5/31/2013	0.02	-0.21		3.80	1.07	-1.82	1.45	-1.04	-2.49	-0.11	1.07	-2.09						
6/12/2013	1120087.95	905977.72	445.55	BROKEN	BROKEN	BROKEN	1120183.24	906266.30	447.15	1120220.14	906393.86	449.37	1120259.32	906523.29	450.12			
6/14/2013	0.08	0.04	0.02				0.07	-0.01	-2.48	0.06	0.01	-2.60	0.05	0.00	-1.51			
6/21/2013	-0.02	0.01	0.03				0.01	-0.04	-2.48	0.01	-0.04	-2.62	0.02	-0.04	-1.57			
6/25/2013	0.08	0.08	0.03				0.07	-0.04	-3.03	0.04	-0.03	-2.63	0.02	-0.04	-1.57			
6/28/2013	-0.06	0.05	0.02				-0.05	-0.09	-3.05	-0.06	-0.07	-2.65	-0.08	-0.11	-1.59			
7/1/2013										0.01	-0.05	-2.64						
7/3/2013	-0.08	0.04	0.00				-0.06	-0.15	-3.08	-0.07	-0.11	-2.68	-0.06	-0.13	-1.61			
7/9/2013	-0.06	0.09	0.00				-0.03	-0.14	-3.10	-0.09	-0.10	-2.69	-0.05	-0.13	-1.64			
7/12/2013	0.04	0.13	0.00				0.08	-0.10	-3.13	0.04	-0.06	-2.69	0.05	-0.07	-1.65			
7/16/2013	0.16	0.19	-0.01				0.19	-0.06	-3.14	0.12	-0.02	-2.72	0.12	-0.02	-1.67			
7/19/2013	0.09	0.18	-0.02				0.12	-0.09	-3.16	0.08	-0.07	-2.73	0.11	-0.03	-1.69			
7/23/2013	-0.02	0.13	-0.04				-0.01	-0.16	-3.18	-0.05	-0.15	-2.74	-0.04	-0.14	-1.70			
7/25/2013	0.06	0.17	-0.02				0.08	-0.12	-3.21	0.04	-0.13	-2.74	0.04	-0.11	-1.71			

	SM-13			SM-14			SM-15			SM-16			SM-17			SM-18		
	Phase IB, West			Phase IB, West			Phase IB, Center			Phase IB, East			Phase IB, East			Phase I high point, Center		
	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.
7/30/2013	0.01	0.15	-0.03	FIXED	FIXED	FIXED	0.01	-0.18	-3.22	-0.01	-0.16	-2.76	-0.02	-0.15	-1.73			
8/2/2013	-0.04	0.13	-0.06	1120146.21	906142.82	441.81	0.01	-0.19	-3.25	-0.01	-0.17	-2.79	-0.01	-0.15	-1.76			
8/6/2013	0.09	0.21	-0.08	0.14	0.07	-1.86	0.13	-0.12	-3.26	0.09	-0.10	-2.81	0.10	-0.07	-1.78			
8/9/2013	0.17	0.24	-0.04	0.18	0.11	-1.86	0.19	-0.07	-3.26	0.16	-0.06	-2.80	0.14	-0.04	-1.78			
8/13/2013	0.00	0.18	-0.04	0.03	0.06	-1.89	0.02	-0.16	-3.28	0.02	-0.13	-2.81	0.03	-0.11	-1.80			
8/16/2013	0.17	0.26	-0.11	0.20	0.12	-1.93	0.20	-0.05	-3.32	0.19	-0.04	-2.86	0.15	-0.04	-1.83			
8/19/2013	0.13	0.23	-0.07	0.16	0.09	-1.93	0.16	-0.10	-3.32	0.15	-0.09	-2.85	0.14	-0.08	-1.84			
8/22/2013	0.15	0.25	-0.06	0.19	0.10	-1.94	0.14	-0.11	-3.33	0.12	-0.10	-2.85	0.14	-0.07	-1.85			
8/27/2013	0.03	0.20	-0.05	0.09	0.07	-1.96	0.07	-0.17	-3.35	0.08	-0.12	-2.87	0.07	-0.10	-1.86			
8/30/2013	0.15	0.25	-0.08	0.20	0.11	-1.98	0.17	-0.12	-3.35	0.14	-0.10	-2.89	0.13	-0.06	-1.87			
9/3/2013	0.08	0.22	-0.08	0.13	0.09	-2.00	0.13	-0.16	-3.39	0.12	-0.11	-2.89	0.12	-0.07	-1.89			
9/6/2013	0.06	0.20	-0.05	0.11	0.04	-2.02	0.09	-0.19	-3.37	0.07	-0.17	-2.89	0.08	-0.12	-1.88			
9/10/2013	0.07	0.24	-0.09	0.10	0.08	-2.05	0.10	-0.18	-3.42	0.08	-0.14	-2.92	0.05	-0.13	-1.89			
9/11/2013	-0.05	0.20	-0.04	0.00	0.03	-2.03	-0.01	-0.24	-3.38	-0.03	-0.20	-2.87	-0.01	-0.17	-1.87			
9/12/2013	0.13	0.26	-0.03	0.18	0.11	-2.01	0.17	-0.14	-3.38	0.15	-0.09	-2.89	0.14	-0.07	-1.88			
9/13/2013	0.24	0.30	-0.07	2.80	0.65	-2.03	0.72	0.00	-3.38	0.32	0.16	-2.89	-0.08	-0.88	-1.88			
9/17/2013	0.28	0.32	-0.12	BROKEN	BROKEN	BROKEN	0.81	0.01	-3.42	0.39	0.18	-2.93	0.01	-0.85	-1.91			
9/20/2013	0.43	0.39	-0.13				0.94	0.03	-3.45	0.52	0.26	-2.95	0.09	-0.82	-1.92			
9/24/2013	-0.91	-0.13	-0.13				0.12	-0.68	-3.48	-0.47	-0.35	-2.97	-0.30	-1.85	-1.98			
9/27/2013	0.56	0.44	-0.12				2.19	-0.37	-3.58	0.71	0.35	-2.96	0.77	-1.10	-1.99			
10/1/2013	0.27	0.33	-0.11				2.42	-0.81	-3.68	0.41	0.19	-2.97	0.51	-1.30	-1.99			
10/4/2013	0.68	0.50	-0.10				2.76	-0.65	-3.71	0.70	0.39	-2.98	0.75	-1.09	-2.00			
10/8/2013	0.48	0.40	-0.08				2.55	-0.66	-3.70	0.54	0.34	-2.98	0.94	-1.42	-2.04			
10/11/2013	0.04	0.18	-0.10				-1.39	0.12	-3.47	0.24	0.16	-3.00	0.68	-1.59	-2.05			
10/15/2013	0.26	0.39	-0.08				-1.37	-0.28	-3.55	0.35	0.24	-3.04	0.76	-1.53	-2.09			
10/18/2013	BROKEN	BROKEN	BROKEN				-1.82	-0.88	-3.71	0.67	-0.54	-3.04	-1.51	-0.40	-2.05			
10/22/2013							-1.99	-1.35	-3.81	0.53	-0.63	-3.10	-1.50	-0.56	-2.09			
10/25/2013							-2.02	-1.46	-3.90	0.63	-0.57	-3.15	-1.41	-0.54	-2.14			
10/29/2013							BROKEN	BROKEN	BROKEN	0.84	-0.52	-3.27	-1.25	-0.42	-2.19			
11/5/2013										0.75	-0.68	-3.39	-0.90	-0.80	-2.34			
11/8/2013										0.75	-0.68	-3.45	-0.86	-0.87	-2.41			
11/12/2013										0.67	-0.67	-3.54	-1.04	-0.92	-2.56			
11/15/2013										0.64	-0.69	-3.50	-0.88	-1.03	-2.49			
11/19/2013										0.76	-0.65	-3.52	-0.79	-1.03	-2.53			
11/22/2013										0.77	-0.66	-3.57	-0.74	-1.00	-2.58			
11/26/2013										0.76	-0.67	-3.58	-0.94	-1.05	-2.61			
12/2/2013										0.87	-0.59	-3.63	-0.85	-0.97	-2.67			
12/5/2013	FIXED	FIXED	FIXED							0.78	-0.62	-3.65	-0.88	-1.00	-2.69			
1/20/2014	0.23	0.77	-0.16							0.80	-0.71	-3.92	-0.88	-1.15	-3.02			
1/30/2014	0.35	0.74	-0.44							0.93	-0.71	-4.02	-0.92	-1.22	-3.14			
2/28/2014	0.17	0.72	-0.42							0.84	-0.77	-4.13	-0.85	-1.41	-3.28			
4/1/2014	0.32	0.90	-0.45							0.93	-0.78	-4.29	-0.60	-1.39	-3.43			
4/4/2014																		
4/5/2014	0.33	1.00	-0.34							0.90	-0.80	-4.28	-0.59	-1.34	-3.40			
4/8/2014	0.34	1.07	-0.25							0.91	-0.79	-4.26	-0.56	-1.34	-3.38	6.77	-2.14	-1.62
4/11/2014	0.38	1.15	-0.30	3.19	-1.42	-3.27				0.89	-0.79	-4.28	-0.49	-1.35	-3.39	6.91	-2.09	-1.62
4/14/2014	0.44	1.19	-0.35	3.22	-1.42	-3.30				0.91	-0.81	-4.32	-0.51	-1.35	-3.43	6.96	-2.02	-1.65
4/18/2014	0.45	1.19	-0.49	3.13	-1.45	-3.35				0.87	-0.80	-4.36	-0.51	-1.34	-3.46	6.91	-2.10	-1.66
4/22/2014	0.35	1.13	-0.22	3.20	-1.41	-3.26				0.84	-0.79	-4.28	-0.55	-1.35	-3.40	6.95	-2.00	-1.63
4/25/2014	0.44	1.15	-0.35	3.20	-1.41	-3.31				0.92	-0.75	-4.34	-0.50	-1.31	-3.45	6.94	-2.05	-1.67
4/29/2014	0.42	1.13	-0.40	3.21	-1.43	-3.31				0.92	-0.78	-4.34	-0.50	-1.36	-3.45	7.02	-2.16	-1.67
5/2/2014	0.47	1.15	-0.43	3.22	-1.39	-3.36				0.91	-0.75	-4.38	-0.52	-1.31	-3.50	6.98	-1.98	-1.71
5/7/2014	0.44	1.14	-0.72	3.21	-1.37	-3.41				0.93	-0.76	-4.40	-0.51	-1.38	-3.50	6.92	-2.08	-1.71
5/9/2014	0.39	1.13	-0.57	3.12	-1.40	-3.39				0.86	-0.80	-4.41	-0.54	-1.39	-3.51	6.96	-2.04	-1.72
5/13/2014				3.12	-1.41	-3.39				0.82	-0.82	-4.39	-0.52	-1.37	-3.48	6.64	-2.95	-1.89
5/17/2014				3.18	-1.38	-3.44				0.88	-0.77	-4.42				6.69	-2.90	-2.03

	SM-13			SM-14			SM-15			SM-16			SM-17			SM-18		
	Phase IB, West			Phase IB, West			Phase IB, Center			Phase IB, East			Phase IB, East			Phase I high point, Center		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014				3.27	-1.37	-3.41				0.94	-0.75	-4.44				6.77	-2.85	-2.07
5/23/2014	0.52	1.20	-0.39	3.29	-1.33	-3.38				1.90	-1.21	-4.47				6.78	-2.81	-2.11
5/27/2014	0.39	1.15	-0.49	3.18	-1.39	-3.42				3.26	-1.96	-4.72	-0.57	-0.83	-3.43	6.71	-2.89	-2.22
5/30/2014	0.56	1.20	-0.55	3.14	-1.42	-3.49				4.86	-2.69	-5.08	-0.72	-2.46	-3.86	6.76	-2.86	-2.25
6/4/2014				3.15	-1.41	-3.45				4.91	-2.70	-5.20	-0.99	-3.04	-4.13	6.67	-2.91	-2.36
6/6/2014				3.18	-1.40	-3.49				5.04	-2.62	-5.22	-1.00	-3.07	-4.21	6.71	-2.83	-2.40
6/10/2014				3.19	-1.43	-3.43										6.73	-2.87	-2.42
6/17/2014				3.26	-1.38	-3.54										6.76	-2.73	-2.61
6/20/2014																6.68	-2.80	-2.68
6/23/2014																6.72	-2.77	-2.68
6/27/2014																6.81	-2.90	-2.75
7/8/2014																6.79	-2.79	-2.88
7/11/2014																		
7/15/2014																		
7/18/2014																6.50	-2.90	-2.95
7/22/2014																6.71	-2.71	-3.02
7/25/2014																6.71	-2.72	-3.05
7/29/2014																6.76	-2.72	-3.10
8/1/2014																6.73	-2.74	-3.09
8/5/2014																6.58	-2.89	-3.13
8/10/2014										1120222.54	906388.95	460.28	1120261.09	906524.15	465.04	6.67	-2.94	-3.20
8/12/2014	1120088.71	905980.48	455.82							-0.08	-0.06	-5.07	-0.02	-0.07	-4.28	6.63	-2.98	-3.19
8/15/2014	0.02	0.04	-0.67							-0.04	-0.01	-5.12	-0.02	-0.11	-4.24	6.62	-3.00	-3.38
8/19/2014	0.09	0.08	-0.81										0.16	0.01	-4.32	6.68	-2.90	-3.54
8/22/2014	-0.12	-0.03	-0.70										0.06	-0.13	-4.39	6.60	-3.00	-3.63
8/26/2014	0.09	0.05	-0.74										1.37	-0.21	-4.66	6.60	-2.97	-3.75
8/29/2014													1.35	-0.18	-4.69	6.57	-3.03	-3.80
9/2/2014													1.21	-0.22	-4.82	6.50	-3.05	-3.88
9/5/2014													1.43	-0.05	-4.84	6.68	-2.90	-3.93
9/9/2014													1.32	-0.15	-4.91	6.57	-2.99	-3.97
9/12/2014													1.47	-0.05	-5.10			
9/16/2014													1.40	-0.10	-4.99	6.67	-2.89	-4.07
9/19/2014													1120263.52	906524.61	469.33	1120299.07	906652.94	472.40
9/23/2014													-0.04	0.02	-5.01	0.07	0.01	-4.10
9/26/2014													-0.13	-0.06	-5.03	-0.03	-0.06	-4.16
9/29/2014													-0.29	-0.16	-5.07	-0.99	0.16	-4.19
10/3/2014													0.59	-1.02	-5.16	-1.01	0.26	-4.24
10/7/2014													0.37	-1.08	-5.20	-1.06	0.11	-4.31
10/10/2014													0.32	-1.12	-5.22	-1.06	0.08	-4.36
10/14/2014													0.30	-1.13	-5.25			
10/17/2014													-0.11	-4.48	-5.35			
10/21/2014													0.57	-3.58	-5.48			
10/24/2014													0.94	-3.33	-5.67			
10/28/2014													0.91	-3.42	-5.76			
10/30/2014													0.94	-3.42	-5.80			
11/4/2014													0.81	-3.55	-5.89			
11/7/2014													0.87	-3.52	-5.95			
11/11/2014													0.72	-3.66	-6.02			
11/14/2014													0.85	-3.58	-6.07			
11/18/2014													0.85	-3.58	-6.07			
11/21/2014													0.88	-3.58	-6.15			
11/25/2014													0.93	-3.56	-6.18			

	SM-19			SM-20			SM-21			SM-22			SM-23			SM-24		
	Phase IA, West			Phase IIB, West			Phase II high point, Center			Phase II high point, South			Phase IIB, Southeast			Phase IIB, South		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																		
8/13/2012																		
8/15/2012																		
8/23/2012																		
8/28/2012																		
9/1/2012																		
9/5/2012																		
9/12/2012																		
9/15/2012																		
9/21/2012																		
9/25/2012																		
9/28/2012																		
10/3/2012																		
10/9/2012																		
10/13/2012							1119726.15	906827.96	434.39	1119426.00	906923.19	437.29	1119385.81	906797.38	436.84	1119345.67	906671.72	436.00
10/16/2012																		
10/19/2012																		
10/24/2012	1120338.77	906778.29	434.47															
10/27/2012																		
10/29/2012	-0.40	-0.25	-0.02															
11/3/2012	-0.62	0.60	0.16															
11/9/2012	-0.54	0.43	0.05															
11/13/2012	BROKEN	BROKEN	BROKEN															
11/16/2012																		
11/21/2012																		
12/1/2012																		
12/6/2012																		
12/8/2012																		
12/13/2012																		
12/21/2012																		
1/25/2013																		
2/15/2013																		
2/28/2013																		
4/4/2013							2.40	-2.65	0.17									
4/12/2013							1.78	-1.78	0.21									
4/23/2013																		
4/26/2013																		
5/28/2013																		
5/31/2013																		
6/12/2013				1119558.72	906265.54	442.22	1119739.17	906835.98	444.91	1119453.06	906927.40	447.54	1119410.30	906791.12	447.17	1119366.69	906654.16	446.03
6/14/2013				0.05	-0.02	0.00	0.02	-0.03	0.21	0.06	-0.02	0.00	0.07	-0.02	0.00	0.07	-0.02	0.00
6/21/2013				0.06	0.02	0.02	-0.03	-0.10	0.19									
6/25/2013				0.25	0.09	-0.03	0.00	-0.06	0.21									
6/28/2013				0.07	0.05	-0.05	-0.05	-0.06	0.20									
7/1/2013				BROKEN	BROKEN	BROKEN	0.00	-0.05	0.21									
7/3/2013							-0.14	-0.14	0.21									
7/9/2013							-0.67	-0.49	0.24	1119441.80	906949.42	447.82	1119406.68	906815.33	447.37	1119388.19	906740.47	446.89
7/12/2013							-0.61	-0.47	0.24	0.06	0.00	0.00	0.06	-0.01	0.00	0.00	0.00	0.00
7/16/2013							BROKEN	BROKEN	BROKEN	-0.13	-0.42	-0.04	0.00	0.00	0.00	0.01	-0.05	-0.01
7/19/2013										-0.17	-0.44	-0.05	0.03	0.00	0.00	0.03	-0.05	-0.03
7/23/2013										-0.34	-0.50	-0.04	-0.04	-0.01	0.00	-0.08	-0.07	-0.03
7/25/2013										-0.26	-0.61	-0.03	0.06	0.17	0.00	-0.04	-0.05	-0.04

	SM-19			SM-20			SM-21			SM-22			SM-23			SM-24		
	Phase IA, West			Phase IIB, West			Phase II high point, Center			Phase II high point, South			Phase IIB, Southeast			Phase IIB, South		
	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.
7/30/2013										-0.18	-0.60	-0.04	0.08	0.16	-0.01	-0.02	-0.08	-0.04
8/2/2013										-0.21	-0.62	-0.05	0.05	0.15	-0.01	-0.04	-0.07	-0.05
8/6/2013										-0.16	-0.62	-0.05	0.10	0.15	-0.02	0.02	-0.07	-0.06
8/9/2013										-0.12	-0.62	-0.05	0.14	0.16	0.00	0.07	-0.07	-0.05
8/13/2013										-0.17	-0.61	-0.06	0.10	0.16	-0.02	0.01	-0.06	-0.06
8/16/2013										-0.12	-0.61	-0.08	0.12	0.16	-0.05	0.06	-0.06	-0.09
8/19/2013										-0.15	-0.63	-0.06	0.12	0.15	-0.04	0.02	-0.07	-0.08
8/22/2013										-0.15	-0.63	-0.06	0.11	0.14	-0.03	0.03	-0.08	-0.07
8/27/2013										-0.14	-0.62	-0.07	0.13	0.15	-0.03	0.03	-0.09	-0.08
8/30/2013										-0.05	-0.42	-0.07	0.14	0.15	-0.05	0.06	-0.09	-0.10
9/3/2013										-0.05	-0.40	-0.06	0.13	0.15	-0.04	0.08	-0.09	-0.09
9/6/2013										-0.02	-0.41	-0.05	0.17	0.14	-0.03	0.11	-0.11	-0.10
9/10/2013										-0.08	-0.40	-0.06	0.10	0.15	-0.04	0.03	-0.10	-0.11
9/11/2013																		
9/12/2013																		
9/13/2013										-0.01	-0.40	-0.06	0.19	0.15	-0.03	0.13	-0.10	-0.10
9/17/2013										0.09	-0.39	-0.07	0.31	0.14	-0.04	0.30	-0.10	-0.13
9/20/2013										0.07	-0.38	-0.07	0.28	0.14	-0.06	0.23	-0.10	-0.13
9/24/2013										-0.53	-0.41	-0.06	-0.40	0.13	-0.05	-0.51	-0.08	-0.13
9/27/2013										0.10	-0.39	-0.07	0.32	0.13	-0.05	0.28	-0.11	-0.14
10/1/2013										0.00	-0.39	-0.07	0.21	0.12	-0.05	0.16	-0.11	-0.13
10/4/2013										0.10	-0.44	-0.06	0.34	0.13	-0.05	0.30	-0.11	-0.14
10/8/2013										0.09	-0.45	-0.05	0.34	0.12	-0.03	0.31	-0.12	-0.11
10/11/2013										-0.05	-0.46	-0.04	0.19	0.12	-0.02	0.14	-0.11	-0.11
10/15/2013										-0.01	-0.46	-0.06	0.23	0.12	-0.04	0.18	-0.12	-0.13
10/18/2013										0.06	-0.43	-0.06	0.28	0.13	-0.03	0.25	-0.11	-0.13
10/22/2013										0.01	-0.42	-0.06	0.21	0.13	-0.03	0.16	-0.10	-0.13
10/25/2013										0.10	-0.42	-0.07	0.29	0.12	-0.04	0.25	-0.11	-0.14
10/29/2013										0.19	-0.42	-0.07	0.36	0.12	-0.04	0.32	-0.11	-0.13
11/5/2013										0.10	-0.43	-0.08	0.25	0.11	-0.05	0.19	-0.11	-0.14
11/8/2013										0.09	-0.44	-0.08	0.23	0.10	-0.06	0.18	-0.12	-0.15
11/12/2013										0.10	-0.40	-0.14	0.24	0.14	-0.12	0.19	-0.09	-0.21
11/15/2013										0.08	-0.41	-0.08	0.21	0.13	-0.05	0.16	-0.09	-0.15
11/19/2013										0.07	-0.41	-0.06	0.20	0.13	-0.03	0.15	-0.09	-0.12
11/22/2013										0.14	-0.41	-0.09	0.26	0.13	-0.06	0.21	-0.09	-0.16
11/26/2013										0.11	-0.40	-0.08	0.22	0.13	-0.05	0.18	-0.09	-0.15
12/2/2013										0.19	-0.40	-0.10	0.31	0.13	-0.06	0.22	-0.09	-0.15
12/5/2013										0.11	-0.39	-0.09	0.24	0.14	-0.05	0.20	-0.08	-0.15
1/20/2014										0.22	-0.39	-0.09	0.32	0.13	-0.06	0.27	-0.07	-0.17
1/30/2014										0.22	-0.43	-0.09	0.29	0.10	-0.07	0.23	-0.12	-0.19
2/28/2014										0.21	-0.43	-0.11	0.29	0.13	-0.09	0.26	-0.10	-0.21
4/1/2014										0.21	-0.75	-0.13	0.36	0.13	-0.11	0.33	-0.09	-0.24
4/4/2014													0.33	0.11	-0.08			
4/5/2014													0.28	0.12	-0.10	0.24	-0.09	-0.23
4/8/2014													0.31	0.12	-0.08	0.28	-0.09	-0.20
4/11/2014	-3.04	-3.00	-1.58										0.30	0.11	-0.08	0.27	-0.10	-0.21
4/14/2014	-3.05	-3.02	-1.61							0.23	-0.76	-0.15	0.31	0.11	-0.14	0.29	-0.09	-0.27
4/18/2014	-3.02	-2.99	-1.63							0.18	-0.09	-0.14	0.33	0.11	-0.14	0.28	-0.10	-0.27
4/22/2014	-3.04	-3.01	-1.59							0.16	-0.08	-0.12	0.31	0.11	-0.08	0.27	-0.09	-0.22
4/25/2014	-3.01	-2.96	-1.62							0.18	-0.07	-0.13	0.35	0.11	-0.11	0.32	-0.09	-0.24
4/29/2014	-3.03	-3.02	-1.61							0.15	-0.08	-0.13	0.32	0.11	-0.10	0.28	-0.10	-0.23
5/2/2014	-3.04	-3.01	-1.65							0.16	-0.07	-0.15	0.31	0.11	-0.12	0.28	-0.09	-0.25
5/7/2014										0.15	-0.08	-0.14	0.33	0.10	-0.11	0.29	-0.10	-0.25
5/9/2014										0.18	-0.07	-0.15	0.33	0.11	-0.13	0.30	-0.09	-0.26
5/13/2014										0.17	-0.08	-0.13	0.32	0.10	-0.10	0.28	-0.10	-0.23
5/17/2014										0.18	-0.06	-0.14	0.35	0.12	-0.11	0.31	-0.08	-0.25

	SM-19			SM-20			SM-21			SM-22			SM-23			SM-24		
	Phase IA, West			Phase IIB, West			Phase II high point, Center			Phase II high point, South			Phase IIB, Southeast			Phase IIB, South		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014										0.22	-0.08	-0.13	0.38	0.10	-0.11	0.35	-0.10	-0.24
5/23/2014										0.22	-0.07	-0.14	0.40	0.12	-0.11	0.37	-0.09	-0.24
5/27/2014										0.13	-0.08	-0.13	0.30	0.11	-0.11	0.26	-0.09	-0.25
5/30/2014										0.22	-0.08	-0.13	0.38	0.10	-0.11	0.35	-0.10	-0.23
6/4/2014										0.15	-0.07	-0.15	0.31	0.11	-0.12	0.28	-0.10	-0.25
6/6/2014										0.27	-0.36	-0.15	0.34	0.11	-0.13	0.30	-0.09	-0.27
6/10/2014										0.26	-0.38	-0.13	0.32	0.09	-0.11	0.29	-0.12	-0.24
6/17/2014										0.27	-0.39	-0.16	0.34	0.10	-0.13	0.31	-0.10	-0.26
6/20/2014										0.20	-0.40	-0.20	0.27	0.09	-0.17	0.23	-0.11	-0.31
6/23/2014										0.25	-0.40	-0.15	0.33	0.10	-0.11	0.31	-0.10	-0.26
6/27/2014										0.27	-0.40	-0.13	0.35	0.09	-0.11	0.32	-0.11	-0.26
7/8/2014										0.25	-0.41	-0.14	0.34	0.09	-0.11	0.31	-0.12	-0.25
7/11/2014										0.19	-0.40	-0.15	0.27	0.10	-0.13	0.25	-0.11	-0.25
7/15/2014										0.17	-0.39	-0.16	0.27	0.10	-0.12	0.24	-0.10	-0.26
7/18/2014										0.25	-0.40	-0.16	0.35	0.09	-0.14	0.32	-0.11	-0.27
7/22/2014										0.25	-0.39	-0.16	0.36	0.10	-0.12	0.33	-0.10	-0.26
7/25/2014										0.24	-0.39	-0.16	0.34	0.09	-0.12	0.31	-0.11	-0.26
7/29/2014										0.28	-0.40	-0.15	0.40	0.08	-0.12	0.38	-0.13	-0.26
8/1/2014										0.28	-0.39	-0.14	0.40	0.09	-0.11	0.36	-0.11	-0.24
8/5/2014										0.21	-0.39	-0.15	0.32	0.09	-0.11	0.26	-0.11	-0.25
8/10/2014										0.23	-0.39	-0.18	0.34	0.10	-0.12	0.29	-0.11	-0.27
8/12/2014										0.17	-0.39	-0.16	0.27	0.09	-0.12	0.23	-0.11	-0.26
8/15/2014										0.22	-0.39	-0.17	0.34	0.09	-0.13	0.28	-0.11	-0.28
8/19/2014										0.24	-0.38	-0.16	0.35	0.10	-0.13	0.31	-0.10	-0.27
8/22/2014										0.21	-0.40	-0.16	0.33	0.08	-0.12	0.28	-0.12	-0.25
8/26/2014										0.24	-0.39	-0.17	0.35	0.09	-0.13	0.31	-0.11	-0.25
8/29/2014										0.20	-0.40	-0.16	0.31	0.08	-0.13	0.26	-0.13	-0.28
9/2/2014										0.16	-0.40	-0.16	0.25	0.08	-0.13	0.20	-0.12	-0.28
9/5/2014										0.24	-0.39	-0.17	0.34	0.09	-0.10	0.32	-0.12	-0.27
9/9/2014										0.15	-0.40	-0.15	0.25	0.08	-0.11	0.22	-0.12	-0.26
9/12/2014										0.25	-0.39	-0.15	0.37	0.08	-0.11	0.34	-0.12	-0.26
9/16/2014										0.21	-0.39	-0.14	0.31	0.08	-0.11	0.27	-0.12	-0.25
9/19/2014										0.36	-0.39	-0.16	0.47	0.08	-0.13	0.45	-0.13	-0.27
9/23/2014										0.33	-0.39	-0.14	0.46	0.08	-0.11	0.44	-0.13	-0.26
9/26/2014										0.29	-0.39	-0.16	0.40	0.08	-0.13	0.37	-0.12	-0.27
9/29/2014										0.23	-0.40	-0.17	0.34	0.07	-0.13	0.29	-0.13	-0.28
10/3/2014										0.28	-0.39	-0.17	0.40	0.08	-0.13	0.36	-0.12	-0.28
10/7/2014										0.21	-0.40	-0.16	0.30	0.07	-0.13	0.26	-0.13	-0.28
10/10/2014										0.21	-0.40	-0.18	0.31	0.06	-0.14	0.27	-0.13	-0.29
10/14/2014										0.20	-0.40	-0.17	0.28	0.07	-0.13	0.24	-0.13	-0.29
10/17/2014										0.26	-0.39	-0.16	0.37	0.06	-0.12	0.34	-0.13	-0.27
10/21/2014										0.30	-0.39	-0.15	0.42	0.07	-0.10	0.38	-0.13	-0.26
10/24/2014										0.29	-0.39	-0.15	0.40	0.07	-0.11	0.37	-0.13	-0.27
10/28/2014										0.29	-0.39	-0.15	0.39	0.06	-0.11	0.36	-0.13	-0.26
10/30/2014										0.29	-0.39	-0.14	0.40	0.07	-0.10	0.35	-0.13	-0.25
11/4/2014										0.37	-0.37	-0.16	0.34	0.07	-0.12	0.31	-0.13	-0.27
11/7/2014										0.42	-0.37	-0.16	0.39	0.06	-0.12	0.37	-0.13	-0.28
11/11/2014										0.32	-0.39	-0.17	0.27	0.06	-0.13	0.24	-0.14	-0.29
11/14/2014										0.36	-0.38	-0.16	0.32	0.06	-0.11	0.31	-0.14	-0.27
11/18/2014										0.36	-0.38	-0.16	0.32	0.06	-0.11	0.31	-0.14	-0.27
11/21/2014										0.43	-0.37	-0.14	0.42	0.05	-0.10	0.38	-0.14	-0.26
11/25/2014										0.42	-0.37	-0.14	0.37	0.05	-0.10	0.35	-0.14	-0.26

	SM-25			SM-26			SM-27			SM-28			SM-29			SM-30		
	Phase IB, Southwest			Phase IB, Southwest			Phase IB, South			Phase IB, Southeast			Phase IB, Southeast			Phase I high point, South		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																		
8/13/2012																		
8/15/2012																		
8/23/2012																		
8/28/2012	1119812.87	906108.66	429.99	1119852.81	906233.40	429.28	1119892.27	906359.45	429.93	1119932.93	906485.47	430.46				1120013.84	906737.97	432.10
9/1/2012	-0.79	0.52	0.04	-0.89	1.49	-0.01	-0.22	1.14	-0.01	-1.48	1.30	0.05				0.21	-0.15	-0.01
9/5/2012	-1.07	-1.00	-0.18	-0.69	1.25	0.01	-0.30	0.69	0.00	-0.12	0.52	-0.03				-0.20	0.06	-0.08
9/12/2012	-0.22	-1.40	-0.13	-0.74	0.84	-0.02	-0.24	0.52	0.01	-0.55	0.20	-0.07				-0.35	0.13	0.04
9/15/2012				-0.75	0.19	-0.01	-0.12	1.05	-0.04	-0.55	0.42	-0.07				-0.52	0.22	-0.10
9/21/2012	-0.31	-1.06	-0.17	-0.87	0.83	-0.05	-0.39	0.55	-0.10	-0.91	0.44	-0.10	1119975.59	906621.57	431.45	-0.24	0.00	-0.11
9/25/2012	0.13	-0.86	-0.10	-0.64	1.46	0.04	-0.85	0.45	-0.01	-0.83	0.53	0.00	0.03	-0.22	-0.11	-1.23	-0.19	-0.05
9/28/2012	-0.17	-0.92	-0.07	-1.01	1.10	0.02	-0.76	0.67	0.09	-1.05	0.59	-0.04	-0.09	-0.06	-0.04	-1.06	-1.14	0.06
10/3/2012				-0.33	1.28	-0.03	-0.33	-0.29	-0.11	-0.98	0.28	0.02	0.09	-0.09	-0.10	0.10	-0.10	0.06
10/9/2012	-0.48	-1.22	-0.03	-0.86	0.87	-0.08	-0.86	0.41	-0.03	-0.80	0.18	-0.14	-0.29	-0.08	-0.07	-1.12	0.03	-0.04
10/13/2012	-0.22	-1.36	-0.17	-0.67	0.80	-0.09	-0.72	0.48	-0.09	-0.85	0.08	-0.09	-0.56	-0.43	-0.13	0.88	8.28	0.02
10/16/2012	-0.25	-1.12	-0.15	-0.72	0.81	-0.08	-0.70	0.57	0.10	-0.81	0.19	-0.09	-0.24	-0.28	-0.08	0.89	8.29	0.09
10/19/2012	-0.31	-1.22	-0.08	-0.89	0.79	-0.04	-0.66	0.57	-0.02	-0.86	0.06	-0.08	-0.19	-0.19	-0.11	0.76	8.51	0.10
10/24/2012	-0.13	-1.43	-0.19	-0.79	0.80	-0.15	-0.68	0.46	-0.01	-0.98	0.06	-0.04	-0.23	-0.22	-0.13	0.50	8.21	0.03
10/27/2012	-0.33	-1.35	-0.11	-0.89	0.77	-0.02	-0.74	0.49	0.06	-0.96	0.13	-0.01	-0.14	-0.27	-0.11	0.96	8.34	0.10
10/29/2012	-0.05	-1.23	-0.18	-0.56	0.84	-0.16	-0.57	0.63	-0.03	-0.85	0.03	-0.03	-0.04	-0.26	-0.18	0.82	8.20	0.01
11/3/2012	-0.02	-1.33	-0.05	-0.55	0.95	-0.04	-0.53	0.62	0.05	-1.24	0.17	-0.01	-0.15	-0.10	-0.16	0.90	8.26	0.10
11/9/2012	-0.43	-1.08	-0.07	-0.74	0.77	-0.08	-0.84	0.44	-0.01	-0.86	0.00	-0.09	-0.39	0.22	-0.20	0.84	8.21	-0.01
11/13/2012	-0.32	-1.58	-0.17	-0.72	0.28	0.03	-0.81	0.88	-0.04	-0.95	0.10	-0.10	-0.49	-0.40	-0.19	0.78	8.13	-0.11
11/16/2012	-0.45	-2.36	-0.20	-0.85	0.50	-0.17	-0.87	-0.28	-0.07	-0.99	-0.13	-0.20	-0.29	-0.31	-0.12	0.75	8.12	-0.02
11/21/2012	-0.31	-1.50	-0.18	-0.62	0.08	-0.03	-0.66	-0.34	0.04	-0.75	0.27	-0.04	-0.33	-0.21	-0.15	0.73	8.13	0.00
12/1/2012	-0.24	-1.59	0.00	-0.49	0.08	-0.13	0.05	0.58	0.00	-0.96	0.01	0.01	-0.34	-0.31	-0.14	0.78	8.13	-0.06
12/6/2012	-0.52	-1.10	-0.04	-0.97	0.27	-0.17	-0.28	-0.29	-0.05	-0.75	0.10	-0.22	-0.30	-0.22	-0.19	0.90	8.18	-0.21
12/8/2012	-0.33	-1.76	-0.10	-0.93	0.19	-0.09	-0.24	-0.30	-0.09	-1.04	0.02	-0.03	-0.40	-0.34	-0.14	0.78	8.09	-0.02
12/13/2012	-0.22	-1.55	-0.04	-0.88	1.52	-0.10	-0.26	-0.33	-0.01	-0.90	0.20	0.02	-0.39	-0.35	-0.12	0.75	8.31	0.02
12/21/2012	-0.29	-1.60	-0.08	-0.58	0.14	-0.38	-0.09	-0.24	-0.18	-0.90	-0.06	-0.13	-0.25	-0.31	-0.19	0.47	8.37	0.03
1/25/2013	-0.58	-1.59	-0.09	0.26	1.64	-0.31	0.04	0.06	-0.05	-1.54	-0.17	-0.08	-0.64	-0.09	-0.08	0.25	8.19	-0.11
2/15/2013	-0.47	-1.16	-0.15	-0.65	0.90	-0.21	0.04	0.15	-0.14	-1.15	0.22	-0.14	-0.40	-0.08	-0.27	0.05	8.24	-0.16
2/28/2013																		
4/4/2013				-0.41	1.00	0.12	-0.58	-0.34	-0.09	-1.37	-0.77	-0.12	0.05	-1.48	0.01	0.22	7.02	-0.12
4/12/2013	-1.36	-1.03	-0.06	-1.08	0.11	-0.12	0.01	-0.23	-0.01	-1.77	-0.45	-0.10	0.34	-1.50	-0.17	0.75	9.51	-0.08
4/23/2013	-0.36	-1.41	-0.13	-0.79	0.34	-0.21	-1.83	0.77	-0.40	-1.03	0.91	0.48	-0.34	0.28	-0.14	0.08	6.30	-0.21
4/26/2013	-0.22	-0.29	-0.29	-0.90	0.21	-0.42	-0.26	-0.35	-0.19	-0.89	1.52	-0.03	-0.18	-2.09	-0.22	0.04	7.30	-0.49
5/28/2013							BROKEN	BROKEN	BROKEN	-0.69	-1.24	-0.05	-0.23	-1.86	-0.49	0.01	7.53	-0.39
5/31/2013													-0.04	-1.70	-1.14	-0.13	7.24	-0.37
6/12/2013				1119852.52	906233.85	444.46				1119923.96	906486.45	443.32	1119981.77	906623.09	445.31	1120015.45	906745.61	447.47
6/14/2013	1119812.86	906106.69	445.34	0.11	0.00	-0.45				0.16	-0.16	0.03	0.21	-1.63	-1.08	0.01	0.00	-0.36
6/21/2013	-0.14	-0.04	-0.29	0.00	-0.08	-0.45							0.14	-1.77	-1.04	-0.05	-0.04	-0.38
6/25/2013	0.03	0.02	-0.29	0.09	-0.06	-0.46							0.22	-1.79	-1.20	BROKEN	BROKEN	BROKEN
6/28/2013	-0.09	-0.01	-0.30	-0.03	-0.08	-0.47							0.14	-1.80	-1.23			
7/1/2013				0.02	-0.08	-0.46							0.20	-1.77	-1.25			
7/3/2013	-0.07	-0.02	-0.31	-0.01	-0.12	-0.49							0.16	-1.83	-1.29			
7/9/2013	-0.04	0.00	-0.33	0.01	-0.11	-0.50							0.17	-1.79	-1.33			
7/12/2013	0.05	0.02	-0.32	0.10	-0.10	-0.50							0.26	-1.79	-1.34			
7/16/2013	0.12	0.04	-0.36	0.16	-0.09	-0.53							0.34	-1.77	-1.37			
7/19/2013	0.12	0.05	-0.35	0.16	-0.09	-0.53							0.31	-1.77	-1.40			
7/23/2013	0.03	0.02	-0.36	0.08	-0.12	-0.53							0.24	-1.81	-1.40			
7/25/2013	0.06	0.03	-0.36	0.12	-0.12	-0.53							0.28	-1.85	-1.38			

	SM-25			SM-26			SM-27			SM-28			SM-29			SM-30		
	Phase IB, Southwest			Phase IB, Southwest			Phase IB, South			Phase IB, Southeast			Phase IB, Southeast			Phase I high point, South		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/30/2013	0.07	0.02	-0.37	0.10	-0.14	-0.54							0.23	-1.88	-1.41			
8/2/2013	-0.03	0.00	-0.39	0.17	-0.20	-0.57							0.23	-1.87	-1.43			
8/6/2013	0.10	0.03	-0.40	0.20	-0.15	-0.58							0.34	-1.78	-1.46			
8/9/2013	0.17	0.06	-0.39	0.26	-0.13	-0.58							0.36	-1.75	-1.45			
8/13/2013	0.03	0.03	-0.40	1.99	-0.50	-0.63							BROKEN	BROKEN	BROKEN			
8/16/2013	0.16	0.07	-0.46	2.12	-0.66	-0.74												
8/19/2013	0.13	0.04	-0.41	2.67	-0.93	-0.87												
8/22/2013	0.13	0.05	-0.41	2.58	-0.91	-0.89												
8/27/2013	0.08	0.03	-0.43	2.48	-0.91	-0.94				BROKEN	BROKEN	BROKEN						
8/30/2013	0.32	0.10	-0.44	2.54	-0.87	-0.98												
9/3/2013	0.11	0.05	-0.44	2.44	-0.89	-0.99												
9/6/2013				2.45	-0.89	-0.98												
9/10/2013	0.10	0.05	-0.46	2.41	-0.88	-1.04												
9/11/2013	0.02	0.04	-0.44	2.31	-0.90	-1.03												
9/12/2013	0.23	-0.07	-0.44	2.43	-0.87	-1.03							FIXED	FIXED	FIXED			
9/13/2013	0.36	-0.04	-0.45	2.54	-0.84	-1.04							4.28	-2.46	-1.45			
9/17/2013	0.45	-0.02	-0.49	2.56	-0.83	-1.08												
9/20/2013	0.54	0.02	-0.49	2.64	-0.79	-1.12												
9/24/2013	-0.71	-0.30	-0.50	1.51	-1.14	-1.14							BROKEN	BROKEN	BROKEN			
9/27/2013	0.64	0.04	-0.50	2.73	-0.80	-1.15												
10/1/2013	0.40	-0.02	-0.50	2.01	-0.81	-1.18												
10/4/2013	0.79	0.08	-0.49	2.47	-0.70	-1.23												
10/8/2013	0.56	0.02	-0.49	2.20	-0.76	-1.26												
10/11/2013	0.28	-0.06	-0.48	1.53	-0.85	-1.25												
10/15/2013	0.49	-0.02	-0.51	1.67	-0.86	-1.33				FIXED	FIXED	FIXED				FIXED	FIXED	FIXED
10/18/2013	0.59	0.01	-0.53	2.74	-1.24	-1.33				0.12	-0.70	-1.01				-1.54	2.27	-0.25
10/22/2013	0.51	0.02	-0.54	2.70	-1.27	-1.36				0.00	-0.72	-1.04				-1.62	2.23	-0.29
10/25/2013	0.74	0.06	-0.56	2.52	-1.16	-1.36				0.15	-0.67	-1.05				-1.48	2.21	-0.33
10/29/2013	0.80	0.07	-0.58	2.38	-1.17	-1.36				0.18	-0.66	-1.07				-1.36	2.29	-0.37
11/5/2013	0.72	0.05	-0.55	2.43	-1.24	-1.43				0.14	-0.74	-1.10				-1.49	2.19	-0.43
11/8/2013	0.65	0.02	-0.59	2.36	-1.27	-1.46				0.11	-0.76	-1.13				-1.48	2.17	-0.47
11/12/2013	0.60	0.05	-0.69	2.31	-1.26	-1.56				0.03	-0.77	-1.22				-1.43	2.26	-0.64
11/15/2013	0.56	0.05	-0.58	2.28	-1.30	-1.49				-0.02	-0.82	-1.14				-0.94	3.85	-0.74
11/19/2013	0.55	0.04	-0.59	2.29	-1.30	-1.48				-2.16	-6.83	-2.18						
11/22/2013	0.75	0.10	-0.58	2.50	-1.27	-1.52				-2.17	-7.31	-2.52						
11/26/2013	0.72	0.10	-0.56	2.47	-1.27	-1.53				-2.14	-7.33	-2.59				3.12	12.46	-1.01
12/2/2013	0.88	0.14	-0.47	2.63	-1.25	-1.56				-2.00	-7.23	-2.65						
12/5/2013	0.72	0.12	-0.55	2.50	-1.28	-1.57				-2.07	-7.20	-2.66						
1/20/2014	0.87	0.24	-0.62	2.64	-1.35	-1.74				-2.05	-7.19	-2.95						
1/30/2014	0.94	0.24	-0.69	2.64	-1.36	-1.77				-1.99	-7.24	-3.03						
2/28/2014	0.87	0.24	-0.77	2.51	-1.40	-1.89												
4/1/2014	0.99	0.29	-0.79	2.73	-1.35	-2.02												
4/4/2014																		
4/5/2014	0.87	0.25	-0.76	2.69	-1.37	-2.00												
4/8/2014	0.89	0.26	-0.72	2.70	-1.35	-1.98												
4/11/2014	0.88	0.24	-0.77	2.69	-1.37	-1.99												
4/14/2014	0.94	0.25	-0.77	2.76	-1.35	-2.02												
4/18/2014	0.93	0.26	-0.83	2.76	-1.37	-2.06				-2.18	-7.36	-3.41						
4/22/2014	0.88	0.22	-0.74	2.67	-1.41	-1.96												
4/25/2014	0.95	0.25	-0.79	2.74	-1.41	-2.03				-2.25	-7.38	-3.41						
4/29/2014	0.93	0.22	-0.79	2.57	-2.17	-2.07				-2.18	-7.33	-3.41						
5/2/2014	1.00	0.24	-0.83	0.81	-6.56	-2.86				-2.07	-7.28	-3.42						
5/7/2014	1.03	0.24	-0.84							-2.10	-7.33	-3.47						
5/9/2014	1.03	0.24	-0.85							-2.15	-7.32	-3.46						
5/13/2014	1.04	0.23	-0.80							-2.16	-7.31	-3.45						
5/17/2014	1.06	0.25	-0.86							-2.12	-7.28	-3.46						

	SM-25			SM-26			SM-27			SM-28			SM-29			SM-30		
	Phase IB, Southwest			Phase IB, Southwest			Phase IB, South			Phase IB, Southeast			Phase IB, Southeast			Phase I high point, South		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014	1.11	0.23	-0.84							-2.06	-7.28	-3.47						
5/23/2014	1.12	0.26	-0.80							-2.05	-7.24	-3.47						
5/27/2014	0.95	0.21	-0.85							-2.14	-7.28	-3.48						
5/30/2014	1.16	0.23	-0.82							-2.04	-7.24	-3.46						
6/4/2014										-2.17	-7.28	-3.51						
6/6/2014										-2.15	-7.27	-3.52						
6/10/2014										-2.14	-7.31	-3.51						
6/17/2014										-2.09	-7.26	-3.55						
6/20/2014																		
6/23/2014																		
6/27/2014																		
7/8/2014										1119921.14	906477.77	460.00						
7/11/2014										-0.10	0.01	-3.56						
7/15/2014																		
7/18/2014																		
7/22/2014																		
7/25/2014																		
7/29/2014										1.36	-0.29	-3.74	1119982.51	906621.50	460.55			
8/1/2014										1.50	-0.29	-3.76	-0.15	-0.05	-1.47			
8/5/2014										1.48	-0.38	-3.80	-0.18	-0.07	-1.47			
8/10/2014				1119853.34	906232.50	461.20							0.00	-0.22	-1.49			
8/12/2014				-0.14	-0.06	-2.82							-0.08	-0.24	-1.50			
8/15/2014				-0.04	-0.03	-2.86							-0.04	-0.19	-1.53			
8/19/2014				-0.02	-0.01	-2.92							0.05	-0.12	-1.56			
8/22/2014				-0.23	0.01	-2.97							-0.05	-0.27	-1.60			
8/26/2014				-0.14	0.13	-3.06							0.11	-0.15	-1.68			
8/29/2014													0.02	-0.26	-1.72			
9/2/2014				-0.42	0.09	-3.20							-0.07	-0.32	-1.80			
9/5/2014													0.18	-0.18	-1.82			
9/9/2014													0.05	-0.28	-1.83			
9/12/2014													-0.04	-1.24	-1.99			
9/16/2014																		
9/19/2014																		
9/23/2014																		
9/26/2014																		
9/29/2014																		
10/3/2014																		
10/7/2014																		
10/10/2014																		
10/14/2014																		
10/17/2014																		
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10/30/2014																		
11/4/2014																		
11/7/2014																		
11/11/2014																		
11/14/2014																		
11/18/2014																		
11/21/2014																		
11/25/2014																		

	SM-31			SM-32			SM-33			SM-34			SM-35			SM-36		
	Phase IA, Southwest			Phase IA, Southwest			Phase IA, South			Phase IA, South			Phase IA, Southeast			Phase IA, Southeast		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																		
8/13/2012																		
8/15/2012																		
8/23/2012																		
8/28/2012	1120052.96	906863.60	433.27	1120091.66	906989.80	433.80	1120131.38	907113.86	433.56	1120171.92	907239.67	433.29	1120211.33	907366.06	433.21	1120252.47	907489.14	433.27
9/1/2012	-0.18	-0.37	0.04	-1.24	-0.24	-0.01	1.00	-0.10	-0.07	0.31	-0.17	0.05	0.25	0.87	0.01	-1.07	0.63	0.09
9/5/2012	-0.17	-0.33	-0.05	-0.79	-0.46	0.02	0.93	-0.17	-0.05	-0.17	0.47	0.04	0.06	0.69	-0.01	-0.84	0.45	0.00
9/12/2012	-0.60	-0.23	0.01	-0.93	-0.23	0.03	0.85	-0.53	-0.16	-0.30	0.14	0.15	-0.61	0.61	0.04	-0.88	0.28	0.10
9/15/2012	-0.51	-0.16	0.08	-0.86	-0.23	0.01	0.84	0.01	-0.12	-0.22	0.24	0.08	-0.22	0.93	0.00	-0.78	0.61	0.09
9/21/2012	-0.25	-0.12	-0.10	-1.00	-0.41	-0.07	0.93	-0.47	-0.20	-0.21	0.17	-0.06	-0.36	0.79	-0.16	-1.19	0.55	-0.08
9/25/2012	-0.77	-0.19	-0.06	-0.90	-0.37	-0.01	0.69	-0.56	-0.06	-0.41	0.44	0.03	-0.75	0.83	-0.03	-1.29	0.85	0.06
9/28/2012	-0.72	0.19	-0.08	-0.80	-0.46	-0.10	0.57	-0.64	-0.12	-0.57	0.42	0.01	-0.63	0.97	-0.04	-0.54	0.39	0.10
10/3/2012	-0.77	-0.08	-0.11	-0.53	-0.44	-0.04	0.66	-0.12	-0.08	-0.58	0.27	-0.05	-0.58	0.54	0.01	-0.48	0.11	0.14
10/9/2012	-0.59	-0.20	0.03	-0.39	-0.46	-0.04	0.55	-0.56	-0.11	-0.66	0.30	0.07	-0.82	0.84	-0.03	-1.30	0.64	0.00
10/13/2012	-1.15	-0.29	-0.06	-0.36	-0.52	-0.09	0.72	-0.33	-0.04	-0.63	0.24	-0.03	-0.70	0.62	-0.06	-1.67	0.69	0.04
10/16/2012	-0.61	-0.19	-0.08	-0.38	-0.41	-0.05	0.89	-0.68	-0.15	-0.49	0.25	0.03	-0.83	0.76	-0.06	-1.51	0.59	0.00
10/19/2012	-0.71	-0.17	0.00	-0.41	-0.44	-0.03	1.02	-0.54	-0.08	-0.53	0.26	0.01	-0.94	0.79	-0.02	-1.34	0.56	0.06
10/24/2012	-5.23	0.65	0.00	-0.43	-0.36	0.03	0.59	-0.75	-0.15	-0.57	0.26	0.12	-0.96	0.74	-0.01	-1.03	0.46	-0.02
10/27/2012	-5.50	0.71	-0.07	-0.47	-0.53	-0.05	0.64	-0.73	-0.12	-0.32	0.22	-0.06	-0.79	0.66	-0.24	-1.63	0.86	0.09
10/29/2012	-5.17	0.74	-0.03	-0.32	-0.49	-0.09	0.90	-0.66	-0.17	-0.31	0.17	0.06	-1.07	-0.29	-0.09	-1.37	0.58	0.05
11/3/2012	-5.20	0.73	0.10	-0.45	-0.48	0.01	0.67	-0.75	0.01	-0.08	-0.10	0.00	-0.74	0.61	-0.07	-1.36	0.52	0.06
11/9/2012	-4.97	0.72	-0.07	-0.71	-0.06	0.04	0.65	-0.83	-0.15	-0.71	0.20	-0.04	-0.89	0.70	-0.05	-1.34	0.50	0.03
11/13/2012	-5.22	0.64	-0.11	-0.53	-0.44	0.00	0.69	-0.89	-0.28	-0.42	0.23	0.07	-0.64	0.74	0.05	-1.86	0.74	0.30
11/16/2012	-4.99	0.80	0.13	-0.44	-0.42	0.10	0.63	-0.85	-0.15	-0.61	0.22	0.03	-0.76	0.69	-0.06	-1.37	0.49	0.09
11/21/2012	-5.33	0.63	-0.06	-0.58	-0.49	-0.03	1.06	-0.67	-0.10	-0.50	0.21	0.01	-0.62	0.58	-0.11	-1.88	0.32	-0.04
12/1/2012	-5.89	0.12	-0.04	-0.61	-0.41	0.03	0.82	-0.69	-0.10	-0.60	0.26	-0.07	-0.99	0.77	-0.05	-1.61	0.47	0.12
12/6/2012	-5.48	0.80	-0.07	-0.59	-0.51	-0.07	0.57	-0.91	-0.19	-0.51	0.28	-0.01	-0.91	0.78	-0.01	-1.66	0.47	0.07
12/8/2012	-5.54	0.94	-0.01	-0.42	-0.43	-0.02	0.75	-0.69	-0.12	-0.61	0.24	-0.03	-1.21	0.80	0.02	-1.65	0.48	0.07
12/13/2012	-5.46	0.59	-0.02	-0.60	-0.63	-0.09	0.52	-0.97	-0.06	-0.67	0.22	-0.03	-0.98	0.75	-0.11	-1.63	0.45	0.15
12/21/2012	-5.48	0.18	0.05	-0.56	-0.47	0.00	0.57	-0.89	-0.16	-0.83	0.14	-0.05	-0.80	0.68	-0.17	-1.58	0.49	0.18
1/25/2013	-5.36	0.39	-0.06	-0.66	-0.53	-0.09	0.50	-0.47	-0.13	-0.76	0.24	0.07	-0.74	0.68	-0.10	-1.44	0.67	0.13
2/15/2013	-5.76	0.52	-0.16	-0.63	-0.46	-0.12	0.35	-0.67	-0.21	-0.60	0.33	-0.10	-0.56	0.66	-0.10	-1.45	0.67	-0.01
2/28/2013																		
4/4/2013	-5.34	-0.71	-0.14	-0.37	-1.56	0.13	-0.38	-0.62	-0.13	-1.30	-0.31	0.03	1.29	-1.53	-0.06	-2.51	0.66	-0.02
4/12/2013																		
4/23/2013	-5.89	-0.87	0.05	-0.45	0.20	-0.04	1.39	-0.31	-0.13	-0.73	0.01	-0.18	-0.80	0.05	0.04	-0.89	0.89	0.14
4/26/2013	-5.75	-0.84	-0.22	0.37	0.18	-0.13	1.01	-2.51	-0.29	5.93	0.29	-0.22	6.56	-2.95	-0.26	5.90	-0.83	-0.26
5/28/2013	-5.45	-1.14	-0.25	BROKEN	BROKEN	BROKEN	BROKEN	BROKEN	BROKEN	4.00	-0.56	-0.48	7.07	-1.77	-0.50	BROKEN	BROKEN	BROKEN
5/31/2013										5.62	-1.51	-0.68						
6/12/2013																		
6/14/2013	1120048.48	906863.87	448.71							1120177.70	907238.47	448.52	0.00	0.00	-0.50			
6/21/2013	BROKEN	BROKEN	BROKEN							-0.06	-0.05	-0.70	-0.02	-0.07	-0.51			
6/25/2013										-0.04	-0.05	-0.73	0.00	-0.08	-0.57			
6/28/2013										-0.06	-0.09	-0.74	-0.02	-0.12	-0.57			
7/1/2013										-0.06	-0.06	-0.74	-0.02	-0.08	-0.57			
7/3/2013										-0.07	-0.12	-0.75	-0.04	-0.18	-0.59			
7/9/2013										-0.06	-0.09	-0.76	-0.03	-0.15	-0.60			
7/12/2013										-0.03	-0.06	-0.77	-0.01	-0.12	-0.60			
7/16/2013										-0.04	-0.05	-0.79	0.00	-0.10	-0.63			
7/19/2013										-0.03	-0.04	-0.80	0.01	-0.11	-0.63			
7/23/2013										-0.05	-0.07	-0.81	-0.01	-0.13	-0.64			
7/25/2013										-0.07	-0.12	-0.79	0.01	-0.15	-0.63	FIXED	FIXED	FIXED

	SM-31			SM-32			SM-33			SM-34			SM-35			SM-36		
	Phase IA, Southwest			Phase IA, Southwest			Phase IA, South			Phase IA, South			Phase IA, Southeast			Phase IA, Southeast		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/30/2013										-0.04	-0.08	-0.81	-0.01	-0.14	-0.66	1120282.82	907545.20	443.68
8/2/2013										-0.10	-0.16	-0.82	-0.04	-0.19	-0.66	-0.02	0.02	-0.26
8/6/2013										-0.05	-0.07	-0.84	0.00	-0.12	-0.68	-0.01	0.09	-0.27
8/9/2013										-0.04	-0.04	-0.83	0.11	-0.17	-0.69	0.00	0.15	-0.26
8/13/2013										-0.06	-0.08	-0.85	0.96	-0.63	-0.80	-0.05	0.09	-0.28
8/16/2013										0.26	-0.04	-0.89	0.99	-0.55	-0.95	0.30	1.40	-0.28
8/19/2013										0.33	-0.15	-0.91	1.05	-0.74	-1.01	0.29	1.32	-0.27
8/22/2013										0.26	-0.16	-1.02	1.07	-0.73	-1.04	0.29	1.35	-0.27
8/27/2013										0.19	-0.13	-1.13	1.07	-0.77	-1.10	0.28	1.34	-0.27
8/30/2013										0.16	-0.08	-1.15	1.07	-0.72	-1.12	0.30	1.39	-0.27
9/3/2013										0.13	0.05	-1.19	1.04	-0.74	-1.14	0.28	1.37	-0.27
9/6/2013										0.08	0.04	-1.22	1.03	-0.76	-1.13	0.29	1.33	-0.25
9/10/2013										0.03	-0.01	-1.27	0.99	-0.77	-1.16	0.28	1.35	-0.27
9/11/2013										0.04	0.04	-1.31	0.97	-0.80	-1.17	0.27	1.32	-0.27
9/12/2013										0.38	0.12	-1.31	1.68	-0.93	-1.17	0.39	1.71	-0.27
9/13/2013										0.41	0.07	-1.32	1.71	-0.90	-1.17	0.41	1.77	-0.27
9/17/2013										0.44	0.13	-1.40	1.66	-0.86	-1.23	0.44	1.81	-0.28
9/20/2013										0.46	0.21	-1.44	1.61	-0.75	-1.28	0.49	1.88	-0.28
9/24/2013										0.05	-0.41	-1.46	1.07	-2.00	-1.34	0.26	0.63	-0.27
9/27/2013										0.51	0.27	-1.48	1.70	-0.67	-1.37	0.57	2.05	-0.29
10/1/2013										0.40	0.13	-1.50	1.61	-0.86	-1.41	0.48	1.87	-0.27
10/4/2013										0.53	0.32	-1.51	1.70	-0.67	-1.42	0.52	2.09	-0.27
10/8/2013										0.47	0.20	-1.53	1.69	-0.74	-1.45	0.52	2.00	-0.26
10/11/2013										0.36	0.03	-1.54	1.60	-0.95	-1.46	0.47	1.79	-0.26
10/15/2013	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED				0.41	0.09	-1.56	1.66	-0.86	-1.49	0.52	1.88	-0.27
10/18/2013	7.14	22.50	-0.16	11.39	29.73	-0.09				0.43	0.12	-1.57	1.67	-0.84	-1.50	0.75	2.06	-0.28
10/22/2013										0.37	0.05	-1.58	1.63	-0.92	-1.52	0.51	1.83	-0.27
10/25/2013										0.44	0.13	-1.60	1.68	-0.84	-1.54	0.55	1.90	-0.27
10/29/2013	7.32	22.54	-0.16	10.89	29.92	-0.09				0.53	0.25	-1.61	1.75	-0.71	-1.55	0.59	2.05	-0.26
11/5/2013	7.19	22.39	-0.21	10.75	29.74	-0.12				0.43	0.11	-1.64	1.69	-0.86	-1.59	0.61	1.90	-0.28
11/8/2013	7.18	22.37	-0.24	10.75	29.69	-0.16				0.41	0.06	-1.66	1.69	-0.90	-1.60	0.64	1.91	-0.29
11/12/2013	7.17	22.37	-0.31	10.82	29.87	-0.23				0.37	0.11	-1.72	1.64	-0.92	-1.66	0.50	1.82	-0.34
11/15/2013	7.13	22.35	-0.25	10.79	29.83	-0.18				0.35	0.05	-1.67	1.62	-0.97	-1.62	0.66	1.89	-0.28
11/19/2013	7.21	22.33	-0.33	10.97	29.97	-0.28				0.63	0.46	-1.69	1.62	-0.97	-1.61	0.51	1.84	-0.26
11/22/2013	7.08	20.64	-0.73	10.99	29.95	-0.36				0.69	0.53	-1.73				0.42	1.78	-0.29
11/26/2013	7.08	20.58	-0.85	10.95	29.89	-0.38				0.68	0.52	-1.72	1.65	-0.90	-1.66	0.49	1.83	-0.28
12/2/2013	7.17	20.70	-0.95	11.00	29.91	-0.45				0.74	0.59	-1.75	1.70	-0.83	-1.68	0.51	1.91	-0.29
12/5/2013	7.11	20.71	-0.98	10.92	29.84	-0.47				0.68	0.51	-1.75	1.66	-0.90	-1.68	0.55	1.89	-0.29
1/20/2014	7.12	20.91	-1.26	10.89	29.69	-0.67				0.71	0.52	-1.84	1.66	-0.91	-1.77	0.54	1.91	-0.29
1/30/2014	7.17	20.86	-1.31	10.96	29.70	-0.70				0.76	0.52	-1.86	1.70	-0.94	-1.79	0.65	1.80	-0.28
2/28/2014	7.09	20.82	-1.43	10.88	29.65	-0.82				0.71	0.49	-1.92	1.65	-0.97	-1.85	0.56	1.83	-0.29
4/1/2014	7.14	20.93	-1.55	10.96	29.65	-0.92				0.73	0.58	-2.00	1.67	-0.94	-1.94	0.66	2.05	-0.33
4/4/2014	7.14	20.92	-1.52	10.95	29.62	-0.91				0.71	0.51	-1.99				0.70	2.07	-0.32
4/5/2014	7.12	20.90	-1.54	10.92	29.59	-0.93				0.70	0.49	-2.00	1.66	-0.97	-1.94	0.71	2.03	-0.38
4/8/2014	7.11	20.92	-1.53	10.92	29.61	-0.91				0.68	0.46	-1.99	1.64	-1.00	-1.93	0.74	2.07	-0.32
4/11/2014	7.12	20.92	-1.54	10.92	29.60	-0.91				0.68	0.46	-1.98	1.64	-1.00	-1.92	0.71	2.05	-0.31
4/14/2014	7.12	20.92	-1.57	10.94	29.65	-0.95				0.86	0.57	-2.03	1.67	-0.97	-1.96	0.76	2.05	-0.35
4/18/2014	7.13	20.92	-1.58	10.95	29.67	-0.95				0.90	0.61	-2.04	1.68	-0.97	-1.95	0.73	2.04	-0.33
4/22/2014	7.16	20.90	-1.57	10.99	29.71	-0.94				0.92	0.70	-2.03	1.64	-1.01	-1.94	0.72	2.03	-0.32
4/25/2014	7.14	20.90	-1.58	10.97	29.71	-0.96				1.06	0.77	-2.06	1.69	-1.04	-1.96	0.72	2.08	-0.33
4/29/2014	7.11	20.78	-1.59	10.96	29.67	-0.96							1.77	-0.79	-1.95	0.74	2.06	-0.32
5/2/2014	7.10	20.75	-1.63	10.95	29.67	-1.00							2.00	-0.62	-2.00	0.74	2.09	-0.35
5/7/2014	7.11	20.77	-1.63	10.97	29.65	-1.01										0.74	2.08	-0.35
5/9/2014	7.08	20.76	-1.65	10.99	29.68	-1.03										0.72	2.03	-0.35
5/13/2014	7.05	20.75	-1.63	10.93	29.62	-1.02										0.72	2.02	-0.33
5/17/2014	7.08	20.78	-1.64	10.97	29.70	-1.05										0.75	2.08	-0.35

	SM-31			SM-32			SM-33			SM-34			SM-35			SM-36		
	Phase IA, Southwest			Phase IA, Southwest			Phase IA, South			Phase IA, South			Phase IA, Southeast			Phase IA, Southeast		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014	7.14	20.81	-1.65	11.03	29.72	-1.06										0.75	2.12	-0.34
5/23/2014	7.15	20.84	-1.66	11.02	29.76	-1.07										0.72	2.14	-0.34
5/27/2014	7.11	20.81	-1.66	10.98	29.70	-1.09										0.73	2.10	-0.34
5/30/2014	7.15	20.83	-1.65	11.03	29.74	-1.08										0.74	2.10	-0.33
6/4/2014	7.09	20.80	-1.68	10.95	29.68	-1.11										0.72	2.07	-0.35
6/6/2014	7.10	20.81	-1.68	10.97	29.70	-1.12										0.73	2.06	-0.35
6/10/2014	7.12	20.79	-1.68	10.99	29.69	-1.03										0.74	2.07	-0.33
6/17/2014	7.12	20.81	-1.70	10.98	29.70	-1.16										0.73	2.08	-0.35
6/20/2014	7.04	20.73	-1.75	10.92	29.65	-1.21										0.72	2.01	-0.39
6/23/2014	7.10	20.78	-1.70	10.97	29.70	-1.16										0.74	2.06	-0.34
6/27/2014	7.13	20.34	-1.77	10.78	29.85	-1.20										0.73	2.04	-0.33
7/8/2014	7.15	20.34	-1.81	10.78	29.87	-1.25										0.73	2.05	-0.34
7/11/2014	7.07	20.29	-1.84	10.72	29.82	-1.27										0.73	2.01	-0.34
7/15/2014	7.09	20.30	-1.87	10.69	29.83	-1.30										0.75	2.06	-0.36
7/18/2014	7.11	20.34	-1.92	11.96	29.85	-1.31	1120139.41	907107.32	458.84	1120177.47	907238.39	458.11	1120219.11	907362.05	462.76	0.75	2.06	-0.35
7/22/2014	7.08	20.37	-1.97	13.61	29.99	-1.54	0.00	0.02	-0.33	0.02	0.04	-2.08	0.06	-0.01	-2.03	0.76	2.10	-0.35
7/25/2014	7.08	20.36	-2.00	14.00	30.05	-1.70	-0.01	0.00	-0.35	0.02	0.04	-2.10	-0.12	-0.45	-2.04	0.76	2.10	-0.35
7/29/2014	7.09	20.39	-2.05	14.39	30.15	-1.90	-0.06	-0.06	-0.47	0.09	-0.01	-2.15				0.78	2.15	-0.35
8/1/2014	7.05	20.39	-2.06	14.37	30.19	-1.94	-0.09	-0.01	-0.51				-0.11	-0.57	-2.04	0.77	2.13	-0.33
8/5/2014	6.91	20.35	-2.09	14.27	30.14	-2.00	-0.21	-0.10	-0.59	0.12	-0.06	-2.21				0.73	2.00	-0.35
8/10/2014	6.97	20.01	-2.12	15.12	30.40	-2.16	-0.11	-0.20	-0.65	0.18	-0.17	-2.32	0.82	-1.01	-2.20	0.77	2.12	-0.37
8/12/2014	6.87	19.93	-2.14	15.03	30.34	-2.19	-0.17	-0.26	-0.67	0.21	-0.21	-2.32	0.84	-1.11	-2.25	0.75	2.06	-0.36
8/15/2014	6.93	19.97	-2.25	15.05	30.39	-2.22	-0.17	-0.25	-0.71	0.17	-0.18	-2.36	0.91	-1.15	-2.33	0.75	2.08	-0.37
8/19/2014	6.96	20.02	-2.19				-0.16	-0.18	-0.73	0.22	-0.13	-2.38				0.78	2.17	-0.34
8/22/2014	6.92	19.93	-2.22				-0.21	-0.25	-0.75	0.18	-0.22	-2.41				0.75	2.03	-0.35
8/26/2014	6.97	19.92	-2.29				-0.10	-0.27	-0.84	0.29	-0.17	-2.48	0.99	-1.24	-2.62	0.76	2.07	-0.36
8/29/2014	6.97	19.88	-2.31	14.35	30.66	-2.36	-0.05	-0.33	-0.89	0.33	-0.24	-2.52				0.76	2.00	-0.35
9/2/2014	6.91	19.83	-2.35				-0.05	-0.38	-0.94	0.33	-0.28	-2.58				0.74	1.96	-0.36
9/5/2014	7.08	19.97	-2.37	14.32	30.73	-2.48	0.03	-0.31	-0.98	0.39	-0.20	-2.60	1.03	-1.21	-2.74	0.76	2.13	-0.35
9/9/2014	7.00	19.89	-2.39	14.34	30.63	-2.56	-0.01	-0.42	-1.01	0.35	-0.30	-2.62	0.98	-1.32	-2.78	0.74	2.00	-0.35
9/12/2014	1120057.42	906887.71	466.79	14.20	30.78	-2.55	0.09	-0.31	-1.03	0.41	-0.22	-2.64	1.02	-1.23	-2.81	0.77	2.10	-0.35
9/16/2014	-0.25	-0.40	-2.53	14.34	30.90	-2.64				0.39	-0.23	-2.66	0.99	-1.27	-2.83	0.74	2.05	-0.34
9/19/2014	0.06	-0.41	-2.63	1120107.08	907022.64	466.47				0.61	-0.07	-2.70	1.10	-1.10	-2.88	0.82	2.18	-0.37
9/23/2014	0.23	-0.45	-2.71							0.61	-0.09	-2.71	1.08	-1.08	-2.89	0.81	2.23	-0.34
9/26/2014	0.26	-0.43	-2.80							0.63	-0.14	-2.75	1.07	-1.11	-2.93	0.81	2.16	-0.36
9/29/2014	0.16	-0.62	-2.86	0.39	0.79	-3.39				0.55	-0.30	-2.77	0.98	-1.30	-2.96	0.76	2.01	-0.37
10/3/2014	0.27	-0.49	-2.93	0.46	0.80	-3.54				0.67	-0.21	-2.79	1.04	-1.16	-2.98	0.81	2.14	-0.36
10/7/2014	0.17	-0.57	-2.99	0.44	0.87	-3.72				0.65	-0.33	-2.82	1.00	-1.26	-3.00	0.79	2.02	-0.35
10/10/2014	0.13	-0.60	-3.04	0.41	0.79	-3.79				0.61	-0.38	-2.85	0.96	-1.34	-3.04	0.75	1.92	-0.38
10/14/2014	0.17	-0.59	-3.08	0.49	0.94	-3.91				0.69	-0.33	-2.86	1.01	-1.28	-3.05	0.81	1.96	-0.36
10/17/2014	0.28	-0.52	-3.09	0.56	1.03	-3.96				0.81	-0.28	-2.89	1.02	-1.24	-3.05	0.76	2.06	-0.36
10/21/2014	0.33	-0.51	-3.12	0.61	1.11	-4.02				0.50	0.44	-2.92	1.05	-1.15	-3.05	0.77	2.14	-0.35
10/24/2014	0.32	-0.52	-3.16	0.61	1.12	-4.06				0.35	0.58	-3.00	1.06	-1.13	-3.08	0.81	2.17	-0.35
10/28/2014	0.28	-0.57	-3.17	0.60	1.09	-4.11				0.27	0.60	-3.05	1.04	-1.14	-3.09	0.77	2.09	-0.35
10/30/2014	0.31	-0.54	-3.18	0.64	1.14	-4.12				0.28	0.61	-3.07	1.02	-1.15	-3.09	0.76	2.10	-0.34
11/4/2014	0.31	-0.56	-3.25	0.59	1.10	-4.20				0.26	0.49	-3.14	1.03	-1.27	-3.15	0.75	2.01	-0.36
11/7/2014	0.38	-0.51	-3.28							0.29	0.52	-3.17	1.04	-1.24	-3.17	0.71	2.04	-0.36
11/11/2014	0.30	-0.59	-3.33	0.55	1.06	-4.29				0.23	0.38	-3.22	0.99	-1.37	-3.21			
11/14/2014	0.42	-0.51	-3.35	0.63	1.13	-4.32				0.29	0.44	-3.24	0.99	-1.29	-3.22			
11/18/2014	0.42	-0.51	-3.35	0.63	1.13	-4.32				0.29	0.44	-3.24	0.99	-1.29	-3.22			
11/21/2014	0.48	-0.47	-3.39	0.69	1.18	-4.36				0.34	0.49	-3.28	1.02	-1.27	-3.24			
11/25/2014	0.52	-0.46	-3.40	0.70	1.20	-4.41				0.36	0.49	-3.31	1.04	-1.23	-3.27			

	SM-37			SM-38			SM-39			SM-40			SM-41			SM-42		
	Phase IA, East			Phase IIB, Southwest			Phase IIB, Southwest			Phase IIB, West			Phase IA, Northwest			Phase I high point, North		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																		
8/13/2012																		
8/15/2012																		
8/23/2012	1120525.44	907339.62	428.11													1120597.47	906563.48	430.04
8/28/2012	0.23	0.16	-0.10													-0.56	-0.46	-0.09
9/1/2012	0.04	0.41	0.05													-0.54	-0.22	-0.08
9/5/2012	0.38	-0.02	-0.17													-0.36	-1.01	-0.06
9/12/2012	-0.01	0.46	-0.09										1120640.20	906700.40	431.70	-0.76	-0.14	0.01
9/15/2012	0.08	0.33	-0.09										0.31	-0.12	-0.02	-0.41	-0.75	-0.13
9/21/2012	-0.26	0.30	-0.07										0.32	-0.07	0.03	-0.79	-0.15	0.00
9/25/2012	-0.19	0.44	-0.04										0.08	-0.06	0.01	-0.69	-0.13	0.02
9/28/2012	-0.27	0.27	-0.07										0.63	-0.55	-0.02	-0.61	-0.62	-0.06
10/3/2012	-0.16	0.38	-0.09										0.28	-0.37	0.07	-0.90	-0.23	-0.09
10/9/2012	-0.12	0.37	-0.20										0.02	-0.27	0.02	-0.85	-0.43	-0.11
10/13/2012	-0.01	-0.05	-0.24	1119305.78	906546.11	435.29	1119265.74	906420.08	434.96				-0.20	-0.06	0.01	-0.68	-0.75	-0.33
10/16/2012	0.17	-0.08	-0.19										0.05	-0.22	-0.06	-0.96	-0.27	-0.04
10/19/2012	-0.03	0.10	-0.26										0.14	-0.24	-0.10	-0.83	-0.30	-0.17
10/24/2012	-0.15	0.30	-0.20										0.17	0.23	0.03	-0.61	-0.73	-0.18
10/27/2012	-0.22	0.21	-0.22										0.17	0.26	-0.25	-0.97	-0.26	-0.19
10/29/2012	-0.20	0.35	-0.20										0.22	0.26	0.04	-0.89	-0.31	-0.09
11/3/2012	-0.09	0.26	-0.20										-0.11	0.39	-0.11	-0.94	-0.34	-0.20
11/9/2012	-0.21	0.31	-0.17										0.27	0.39	-0.02	-0.84	-0.39	-0.20
11/13/2012	-0.29	0.15	-0.20										-0.18	0.35	-0.14	-1.39	-0.22	-0.13
11/16/2012	-0.09	0.31	-0.09										0.11	0.39	-0.18	-0.99	-0.27	-0.20
11/21/2012	-0.15	0.21	-0.29										0.01	0.42	-0.09	-0.85	-0.36	-0.15
12/1/2012	-0.11	0.30	-0.25										0.25	0.98	-0.16	-0.93	-0.25	-0.24
12/6/2012	-0.20	0.28	-0.25													-1.29	-0.28	-0.21
12/8/2012	-0.13	-0.10	-0.29										-0.20	0.47	-0.09	-1.15	-0.14	-0.04
12/13/2012	-0.19	0.41	-0.22										-0.46	0.52	-0.10	-1.34	-0.23	-0.22
12/21/2012	-0.21	0.22	-0.30										-0.05	0.39	-0.10	-0.88	-0.26	0.01
1/25/2013	-0.25	0.31	-0.35										-0.19	0.47	-0.12	-0.93	-0.21	-0.19
2/15/2013	-0.96	0.48	-0.57										0.00	0.60	-0.14	-1.24	0.06	-0.31
2/28/2013																		
4/4/2013													0.27	-0.15	-0.24	-0.84	-0.58	-0.49
4/12/2013													-0.04	-1.32	-0.18	-0.34	-0.49	-0.38
4/23/2013	-0.18	-0.13	-0.74										0.87	-0.26	-0.13	-0.89	-0.47	-0.49
4/26/2013	-0.53	0.04	-0.93										-0.15	-0.57	-0.19	-1.42	-1.14	-0.48
5/28/2013	-0.56	0.12	-1.50										-0.26	-1.61	-0.28	-0.38	-0.09	-0.41
5/31/2013	0.01	1.24	-1.78										-0.26	-1.61	-0.28	0.00	0.01	-0.71
6/12/2013	1120526.41	907339.22	447.35	1119323.33	906518.06	445.42	1119279.93	906381.83	444.61				1120639.56	906700.39	447.08	1120596.08	906562.71	445.16
6/14/2013	0.02	0.00	-1.78	0.05	-0.02	-0.02	0.06	-0.03	0.00	1119235.50	906240.60	448.24	0.08	0.05	-0.28	0.07	0.02	-0.71
6/21/2013										-0.02	-0.01	0.00	0.03	-0.03	-0.29	0.04	-0.01	-0.72
6/25/2013							0.00	0.00	0.00	0.01	0.01	0.02	-0.02	-0.09	-0.28	-0.03	-0.09	-0.70
6/28/2013							-0.10	0.07	-0.02	-0.06	0.04	0.01	-0.10	-0.16	-0.27	-0.12	-0.16	-0.70
7/1/2013													-0.05	-0.10	-0.26			
7/3/2013										-0.02	-0.05	0.00	-0.05	-0.13	-0.28	-0.07	-0.12	-0.71
7/9/2013				1119340.46	906564.99	445.69				-0.02	-0.04	0.01	-0.05	-0.11	-0.28	-0.08	-0.11	-0.72
7/12/2013	-0.31	-0.30	-1.91	0.08	0.01	-0.02	1119259.29	906335.74	445.36	0.09	-0.05	0.01	0.01	-0.05	-0.28	-0.01	-0.04	-0.72
7/16/2013	-0.29	-0.22	-1.95	0.03	0.08	-0.08	0.06	0.03	-0.04	0.14	-0.07	0.00	0.03	-0.02	-0.29	0.02	-0.01	-0.73
7/19/2013	-0.32	-0.26	-1.96				0.06	0.03	-0.05	0.05	-0.05	0.01	0.04	0.00	-0.30	0.02	0.00	-0.76
7/23/2013	-0.34	-0.34	-1.98	-0.11	0.10	-0.10	-0.06	0.05	-0.04	-0.05	-0.04	0.00	-0.07	-0.12	-0.30	-0.13	-0.14	-0.74
7/25/2013	-0.31	-0.32	-1.97	-0.07	0.14	-0.10	-0.02	0.05	-0.06	0.02	-0.05	0.01	-0.07	-0.16	-0.30	-0.12	-0.15	-0.75

	SM-37			SM-38			SM-39			SM-40			SM-41			SM-42		
	Phase IA, East			Phase IIB, Southwest			Phase IIB, Southwest			Phase IIB, West			Phase IA, Northwest			Phase I high point, North		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/30/2013	-0.32	-0.35	-2.00	-0.02	0.17	-0.10	-0.02	0.05	-0.04	0.00	-0.05	0.02	-0.05	-0.12	-0.30	-0.10	-0.13	-0.75
8/2/2013	-0.34	-0.39	-2.02	-0.03	0.17	-0.11	-0.05	0.06	-0.05	0.00	-0.05	0.02	-0.09	-0.18	-0.31	-0.14	-0.16	-0.77
8/6/2013	-0.30	-0.29	-2.05	0.02	0.13	-0.12	0.04	0.05	-0.05	0.07	-0.06	0.01	-0.03	-0.09	-0.30	-0.07	-0.07	-0.77
8/9/2013	-0.29	-0.26	-2.05	0.08	0.11	-0.12	0.13	0.05	-0.04	0.16	-0.06	0.01	0.01	-0.03	-0.30	-0.01	0.00	-0.76
8/13/2013	-0.34	-0.32	-2.07	0.02	0.13	-0.15	0.00	0.07	-0.05	0.01	-0.03	0.00	-0.05	-0.09	-0.31	-0.10	-0.07	-0.77
8/16/2013	-0.31	-0.22	-2.10	0.08	0.12	-0.20	0.08	0.06	-0.10	0.09	-0.05	-0.04	0.00	-0.04	-0.35	-0.03	-0.01	-0.82
8/19/2013	-0.34	-0.33	-2.11	0.05	0.04	-0.21	0.00	0.06	-0.06	0.01	-0.06	-0.01	-0.02	-0.09	-0.34	-0.06	-0.06	-0.79
8/22/2013	-0.31	-0.30	-2.11	0.07	0.03	-0.21	0.02	0.07	-0.05	0.05	-0.06	0.00	-0.06	-0.13	-0.32	-0.09	-0.09	-0.79
8/27/2013	-0.31	-0.33	-2.13	0.12	0.04	-0.25	0.03	0.07	-0.07	0.05	-0.05	-0.01	-0.04	-0.10	-0.33	-0.09	-0.07	-0.80
8/30/2013	-0.27	-0.24	-2.16	0.16	0.05	-0.28	0.09	0.06	-0.07	0.10	-0.06	-0.01	-0.02	-0.09	-0.34	-0.08	-0.06	-0.82
9/3/2013	-0.29	-0.29	-2.18	0.20	0.09	-0.28	0.07	0.07	-0.07	0.09	-0.06	-0.01	-0.03	-0.09	-0.34	-0.08	-0.05	-0.82
9/6/2013	-0.28	-0.32	-2.17	0.23	0.08	-0.28				0.11	-0.07	-0.02	-0.02	-0.11	-0.33	-0.08	-0.09	-0.82
9/10/2013	-0.31	-0.34	-2.19	0.14	0.09	-0.30				0.01	-0.04	-0.01	-0.11	-0.18	-0.34	-0.18	-0.14	-0.83
9/11/2013	-0.33	-0.36	-2.19										-0.04	-0.09	-0.31	-0.11	-0.05	-0.81
9/12/2013	-0.30	-0.25	-2.18										-0.19	-0.29	-0.31	-0.13	-0.18	-0.81
9/13/2013	-0.08	-0.55	-2.18	0.25	0.09	-0.29				0.13	-0.05	0.01	-0.16	-0.25	-0.33	-0.10	-0.16	-0.83
9/17/2013	-0.09	-0.55	-2.22	0.44	0.08	-0.32				0.36	-0.08	-0.02	-0.08	-0.19	-0.35	0.01	-0.08	-0.86
9/20/2013	-0.01	-0.60	-2.26	0.36	0.09	-0.34				0.22	-0.07	-0.04	-0.04	-0.09	-0.37	0.03	-0.04	-0.86
9/24/2013	-0.73	-2.20	-2.31	-0.49	0.14	-0.34				-0.86	0.10	-0.03	-0.85	-1.06	-0.37	-0.87	-0.95	-0.89
9/27/2013	-0.17	-0.31	-2.47	0.41	0.08	-0.34				0.32	-0.07	-0.02	0.07	0.03	-0.35	0.15	0.07	-0.88
10/1/2013	-0.03	-0.66	-2.60	0.28	0.09	-0.35				0.13	-0.07	-0.01	-0.20	-0.21	-0.36	-0.11	-0.16	-0.86
10/4/2013	0.12	-0.33	-2.69	0.44	0.08	-0.36				0.29	-0.03	0.00	0.07	0.14	-0.36	0.20	0.17	-0.86
10/8/2013	0.08	-0.49	-2.77	0.46	0.07	-0.32				0.36	-0.04	0.02	-0.58	0.00	-0.31	0.06	0.02	-0.83
10/11/2013	-0.01	-0.77	-2.81	0.25	0.09	-0.34				0.08	0.02	0.04	-0.79	-0.22	-0.30	-0.16	-0.20	-0.84
10/15/2013	0.05	-0.67	-2.88	0.30	0.09	-0.37				0.17	0.00	0.01	-0.74	-0.17	-0.33	-0.10	-0.17	-0.86
10/18/2013	0.07	-0.61	-2.92	0.36	0.04	-0.37	2.03	-0.07	-0.03	0.24	0.00	0.02	1.73	4.23	-0.33	-0.50	-0.01	-0.86
10/22/2013	0.00	-0.69	-2.96	0.27	0.08	-0.36	1.93	-0.06	-0.03	0.10	0.04	0.02	1.56	4.06	-0.33	-0.67	-0.14	-0.84
10/25/2013	0.04	-0.60	-3.00	0.38	0.07	-0.37	2.00	-0.05	-0.04	0.19	0.02	0.02	1.60	4.12	-0.33	-0.55	-0.04	-0.86
10/29/2013	0.11	-0.42	-3.05	0.46	0.07	-0.37	2.09	-0.06	-0.04	0.30	0.01	0.00	1.82	4.35	-0.33	-0.27	0.20	-0.85
11/5/2013	0.05	-0.63	-3.12	0.33	0.07	-0.38	1.91	-0.04	-0.05	0.10	0.03	0.00	1.51	4.06	-0.35	-0.54	-0.14	-0.86
11/8/2013	0.04	-0.67	-3.15	0.32	0.05	-0.39	1.90	0.30	-0.02	0.10	0.01	0.00	1.45	4.04	-0.36	-0.60	-0.16	-0.88
11/12/2013	0.00	-0.70	-3.24	0.33	0.08	-0.46	1.90	0.34	-0.10	0.10	0.06	-0.08	1.42	4.08	-0.42	-0.63	-0.10	-0.94
11/15/2013	0.00	-0.73	-3.20	0.31	0.09	-0.40	1.87	0.34	-0.03	0.07	0.06	0.01	1.39	4.04	-0.34	-0.65	-0.13	-0.86
11/19/2013	-0.01	-0.74	-3.21	0.30	0.08	-0.37	1.85	0.34	0.01	0.05	0.05	0.04	1.37	4.03	-0.33	-0.67	-0.12	-0.85
11/22/2013	0.00	-0.67	-3.26	0.37	0.09	-0.41	1.92	0.34	-0.02	0.12	0.04	0.01	1.43	4.10	-0.36			
11/26/2013	0.03	-0.67	-3.27	0.33	0.09	-0.40	1.89	0.34	0.00	0.06	0.03	0.03	1.40	4.07	-0.34	-0.66	-0.10	-0.86
12/2/2013	0.07	-0.56	-3.32	0.44	0.04	-0.42	2.00	0.33	0.00	0.07	0.14	0.01	1.49	4.18	-0.34	-0.56	-0.02	-0.86
12/5/2013	0.05	-0.66	-3.33	0.38	0.10	-0.40	1.91	0.36	0.02	-0.01	0.18	0.04	1.38	4.08	-0.34	-0.66	-0.13	-0.87
1/20/2014	0.03	-0.68	-3.54	0.44	0.08	-0.45				-0.02	0.20	0.02	1.39	4.08	-0.36			
1/30/2014	0.00	-0.69	-3.57	0.37	-0.01	-0.47	1.86	0.30	-0.02	-0.15	0.15	0.01	1.45	4.10	-0.37			
2/28/2014	0.05	-0.73	-3.68	0.41	0.01	-0.52				-0.03	0.18	0.00	1.31	4.00	-0.39			
4/1/2014	0.03	-0.75	-3.79	0.49	0.05	-0.54	2.00	0.34	-0.05	0.03	0.23	-0.02	1.38	4.10	-0.38			
4/4/2014							1.98	0.33	-0.01	0.45	0.19	0.02						
4/5/2014	0.04	-0.79	-3.82	0.41	0.12	-0.57	1.87	0.35	-0.08	-0.14	0.24	-0.04	1.32	4.02	-0.41			
4/8/2014	0.03	-0.78	-3.78	0.47	0.14	-0.50	1.96	0.35	0.01	-0.05	0.25	0.04	1.34	3.98	-0.35			
4/11/2014	0.04	-0.77	-3.77	0.49	0.12	-0.51	1.96	0.33	-0.02	-0.06	0.23	0.01	1.31	3.98	-0.35			
4/14/2014	0.07	-0.78	-3.82	0.50	0.12	-0.58	1.91	0.34	-0.06	-0.06	0.23	-0.06	1.33	3.95	-0.39	-1.59	-1.43	-0.93
4/18/2014	0.06	-0.77	-3.81	0.48	0.11	-0.56	1.93	0.33	-0.10	-0.09	0.25	-0.10	1.37	4.02	-0.42	-1.56	-1.40	-0.98
4/22/2014	0.04	-0.81	-3.79	0.48	0.12	-0.51	1.95	0.34	-0.01	-0.09	0.26	0.03	1.33	4.00	-0.36	-1.60	-1.40	-0.94
4/25/2014	0.05	-0.76	-3.81	0.54	0.11	-0.54	2.01	0.33	-0.05	-0.01	0.25	-0.02	1.35	4.04	-0.39	-1.56	-1.34	-0.96
4/29/2014	0.07	-0.78	-3.82	0.50	0.11	-0.54	1.97	0.33	-0.05	-0.10	0.26	-0.02	1.35	3.97	-0.38	-1.56	-1.42	-0.98
5/2/2014	0.08	-0.73	-3.85	0.49	0.12	-0.56	1.96	0.34	-0.06	-0.08	0.27	-0.04	1.33	4.03	-0.42	-1.61	-1.36	-1.01
5/7/2014	0.08	-0.77	-3.83	0.51	0.08	-0.56	1.97	0.33	-0.07	-0.05	0.23	-0.04	1.30	3.97	-0.41	-1.60	-1.41	-1.02
5/9/2014	0.06	-0.81	-3.87	0.51	0.12	-0.57	1.98	0.33	-0.07	-0.06	0.24	-0.03	1.32	3.99	-0.41	-1.59	-1.40	-1.02
5/13/2014	0.07	-0.79	-3.84	0.50	0.11	-0.54	1.93	0.33	-0.05	-0.11	0.23	-0.02	1.28	3.95	-0.39	-1.63	-1.43	-0.99
5/17/2014	0.08	-0.75	-3.86	0.52	0.13	-0.59	1.99	0.33	-0.08	-0.09	0.26	-0.05	1.33	4.05	-0.45			

	SM-37			SM-38			SM-39			SM-40			SM-41			SM-42		
	Phase IA, East			Phase IIB, Southwest			Phase IIB, Southwest			Phase IIB, West			Phase IA, Northwest			Phase I high point, North		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014	0.11	-0.68	-3.86	0.56	0.11	-0.55				0.00	0.22	-0.02	1.39	4.06	-0.41			
5/23/2014	0.09	-0.69	-3.85	0.60	0.11	-0.55	2.09	0.31	-0.05	0.05	0.23	-0.02	1.38	4.14	-0.40			
5/27/2014	0.08	-0.74	-3.87	0.47	0.12	-0.56				-0.10	0.24	-0.04	1.31	4.02	-0.43			
5/30/2014	0.11	-0.69	-3.86	0.56	0.11	-0.55				0.00	0.22	-0.02	1.41	4.09	-0.39			
6/4/2014	0.06	-0.81	-3.88	0.50	0.12	-0.57				-0.08	0.24	-0.05	1.28	4.00	-0.43	-1.85	-2.74	-1.07
6/6/2014	0.08	-0.79	-3.91	0.51	0.12	-0.59	1.98	0.32	-0.11	-0.09	0.24	-0.08	1.31	4.01	-0.45	-1.83	-2.77	-1.08
6/10/2014	0.08	-0.82	-3.88	0.51	0.09	-0.56	1.98	0.29	-0.03	-0.08	0.21	-0.02	1.31	4.00	-0.41	-1.82	-2.78	-1.05
6/17/2014	0.10	-0.76	-3.91	0.52	0.11	-0.62	2.03	0.31	-0.10	-0.06	0.24	-0.05	1.33	4.03	-0.44	-1.84	-2.79	-1.12
6/20/2014	0.07	-0.85	-3.96	0.45	0.11	-0.63	1.92	0.31	-0.13				1.24	3.90	-0.50	-1.92	-2.90	-1.13
6/23/2014	0.42	0.02	-3.89	0.51	0.11	-0.60	2.00	0.31	-0.11	-0.06	0.24	-0.08	1.32	4.00	-0.43	-1.85	-2.81	-1.07
6/27/2014				0.53	0.10	-0.59	2.04	0.30	-0.08				1.33	4.00	-0.45	-1.82	-2.79	-1.09
7/8/2014				0.52	0.09	-0.58	2.00	0.30	-0.08	-0.07	0.23	-0.04	1.33	4.01	-0.44	-1.83	-2.79	-1.08
7/11/2014				0.43	0.10	-0.60				-0.18	0.25	-0.06	1.24	3.91	-0.44	-1.94	-2.91	-1.07
7/15/2014				0.45	0.11	-0.60				-0.13	0.25	-0.07	1.22	3.93	-0.45	-1.92	-2.85	-1.11
7/18/2014				0.52	0.08	-0.64	2.03	0.29	-0.15	-0.05	0.23	-0.06	1.34	4.02	-0.46	-1.80	-2.77	-1.08
7/22/2014				0.54	0.09	-0.60	1.92	0.31	-0.06	-0.07	0.24	-0.06	1.36	4.05	-0.46	-1.80	-2.75	-1.10
7/25/2014				0.54	0.09	-0.60	2.05	0.29	-0.10				1.36	4.05	-0.47	-1.78	-2.75	-1.14
7/29/2014	1120528.57	907344.57	459.48	0.61	0.07	-0.61	2.14	0.28	-0.12				1.36	4.06	-0.50	-1.77	-2.72	-1.24
8/1/2014	0.04	0.10	-3.91	0.58	0.09	-0.58	2.09	0.30	-0.07	0.01	0.22	-0.03	1.39	4.09	-0.48			
8/5/2014	-0.09	-0.11	-3.96	0.48	0.10	-0.60				-0.11	0.23	-0.05	1.25	3.93	-0.47			
8/10/2014				0.51	0.11	-0.61				-0.09	0.24	-0.06	1.29	4.02	-0.55			
8/12/2014	-0.03	-0.03	-4.03	0.44	0.11	-0.60	1.94	0.31	-0.09	-0.16	0.25	-0.05	1.24	3.91	-0.44			
8/15/2014	-0.08	-0.05	-4.07	0.51	0.11	-0.62	2.00	0.30	-0.11	-0.09	0.24	-0.07	1.27	3.99	-0.48			
8/19/2014	2.60	-1.20	-4.16	0.54	0.12	-0.63	2.05	0.30	-0.12	0.02	0.24	-0.07	1.72	3.71	-0.49	-1.79	-2.72	-1.23
8/22/2014	2.52	-1.30	-4.26	0.50	0.10	-0.61	1.99	0.29	-0.11	-0.10	0.24	-0.07	1.84	3.59	-0.47	-1.16	-3.75	-1.13
8/26/2014	2.47	-1.19	-4.38	0.54	0.10	-0.63	2.04	0.29	-0.13	-0.05	0.25	-0.08	1.95	3.55	-0.49	-1.04	-3.80	-1.16
8/29/2014	2.29	-1.28	-4.40	0.48	0.09	-0.62	1.96	0.29	-0.13	-0.13	0.23	-0.06	1.46	3.78	-0.48	-1.63	-3.52	-1.16
9/2/2014	2.22	-1.30	-4.47	0.41	0.10	-0.64	1.87	0.31	-0.14	-0.22	0.25	-0.10	1.56	3.70	-0.50	-1.51	-3.62	-1.17
9/5/2014	2.27	-1.13	-4.51	0.54	0.10	-0.62	2.03	0.29	-0.12				1.83	3.61	-0.49	-1.18	-3.72	-1.16
9/9/2014	2.20	-1.29	-4.58	0.43	0.09	-0.63	1.91	0.30	-0.13	-0.21	0.25	-0.08	1.45	3.78	-0.47	-1.66	-3.52	-1.16
9/12/2014	2.24	-1.17	-4.65	0.57	0.09	-0.61	2.02	0.29	-0.11	-0.02	0.24	-0.07	1.57	3.71	-0.49	-1.50	-3.60	-1.17
9/16/2014	2.22	-1.25	-4.71	0.50	0.09	-0.61	2.12	0.30	-0.11	-0.09	0.26	-0.06	1.80	3.61	-0.49	-1.23	-3.71	-1.16
9/19/2014	2.28	-0.92	-4.82	0.67	0.07	-0.64	2.17	0.27	-0.15	0.09	0.21	-0.09	1.21	3.91	-0.49	-1.96	-3.37	-1.17
9/23/2014	2.30	-0.87	-4.87	0.69	0.07	-0.61	2.20	0.27	-0.11	0.14	0.20	-0.07	1.57	3.78	-0.50	-1.52	-3.53	-1.18
9/26/2014	2.31	-0.92	-4.95	0.60	0.09	-0.63				0.01	0.23	-0.09	1.52	3.72	-0.49	-1.57	-3.59	-1.17
9/29/2014	2.23	-1.20	-5.00	0.53	0.08	-0.63				-0.09	0.24	-0.09	1.31	3.90	-0.48	-1.85	-3.40	-1.17
10/3/2014	2.29	-1.04	-5.06	0.61	0.09	-0.65	2.08	0.29	-0.15	0.01	0.25	-0.12	1.61	3.67	-0.50	-1.46	-3.65	-1.18
10/7/2014	2.26	-1.18	-5.12	0.48	0.07	-0.66	1.89	0.30	-0.15	-0.12	0.24	-0.12	1.56	3.77	-0.51	-1.55	-3.54	-1.19
10/10/2014	2.22	-1.31	-5.16	0.50	0.08	-0.65	1.96	0.29	-0.12	-0.13	0.25	-0.09	1.51	3.74	-0.44	-1.61	-3.56	-1.13
10/14/2014	2.26	-1.26	-5.20	0.44	0.08	-0.67	1.99	0.30	-0.18	-0.23	0.27	-0.13	1.74	3.71	-0.47	-1.32	-3.61	-1.16
10/17/2014	2.27	-1.17	-5.21	0.56	0.07	-0.62				-0.06	0.25	-0.06	1.46	3.78	-0.45	-1.65	-3.53	-1.14
10/21/2014	2.31	-1.06	-5.24	0.64	0.07	-0.62	2.16	0.29	-0.15	0.03	0.24	-0.06	1.80	3.61	-0.51	-1.24	-3.71	-1.19
10/24/2014	2.33	-1.04	-5.28	0.61	0.07	-0.63	2.10	0.29	-0.11	0.01	0.25	-0.08				2.14	-5.14	-1.20
10/28/2014	2.32	-1.09	-5.30	0.58	0.07	-0.63	2.04	0.29	-0.10	-0.06	0.25	-0.06				2.28	-5.22	-1.15
10/30/2014	2.31	-1.09	-5.31	0.59	0.07	-0.62	2.05	0.29	-0.10	-0.08	0.25	-0.05				1.89	-5.04	-1.19
11/4/2014	2.28	-1.22	-5.36	0.52	0.08	-0.63	1.96	0.30	-0.11	-0.15	0.26	-0.08				1.81	-5.02	-1.19
11/7/2014	2.29	-1.17	-5.38							-0.04	0.25	-0.07				1.99	-5.09	-1.19
11/11/2014	2.24	-1.31	-5.42	0.46	0.08	-0.65	1.90	0.30	-0.14	-0.19	0.26	-0.10				2.22	-5.18	-1.20
11/14/2014	2.27	-1.21	-5.43	0.54	0.08	-0.64	2.00	0.30	-0.12	-0.11	0.25	-0.07				1.86	-5.05	-1.21
11/18/2014	2.27	-1.21	-5.43	0.54	0.08	-0.64	2.00	0.30	-0.12	-0.11	0.25	-0.07				1.86	-5.05	-1.21
11/21/2014	2.29	-1.19	-5.47	0.60	0.05	-0.63	2.08	0.29	-0.10	-0.03	0.22	-0.06	4.44	2.44	-0.52	1.86	-5.01	-1.21
11/25/2014	2.31	-1.12	-5.50	0.59	0.08	-0.63	2.05	0.29	-0.10	-0.06	0.24	-0.06	4.43	2.43	-0.52	1.94	-5.07	-1.21

	SM-43			SM-44			SM-45			SM-46			SM-47			SM-48		
	Phase IA, West			Phase IA, East			Phase IA, Center			Phase IIA, West			Phase IIA, West			Phase IIA, Center		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																		
8/13/2012																		
8/15/2012				1120486.08	907209.80	427.72												
8/23/2012	1120379.40	906930.40	428.74	0.38	-0.61	-0.26	1120444.39	907083.95	428.06									
8/28/2012	0.20	0.20	-0.02	0.41	-0.64	-0.26	0.27	-0.07	-0.54									
9/1/2012	0.32	0.43	-0.07	0.47	-0.43	-0.28	0.22	0.40	-0.65									
9/5/2012	0.72	0.40	-0.21	0.67	-0.67	-0.42	0.31	0.36	-0.82									
9/12/2012	1.60	-3.02		0.23	-0.26	-0.40	0.12	0.14	-0.76									
9/15/2012	0.60	-0.10	-0.23	0.59	-0.88	-0.38	0.25	-0.32	-0.83									
9/21/2012	0.20	0.40	-0.15	0.17	-0.38	-0.39	0.06	0.24	-0.75									
9/25/2012	0.03	0.35	-0.01	0.17	-0.38	-0.34	0.07	0.22	-0.75									
9/28/2012	0.18	0.38	-0.17	0.15	-0.41	-0.32	0.02	0.33	-0.73									
10/3/2012	0.48	-0.15	-0.23	0.05	-0.29	-0.35	-0.10	0.20	-0.73									
10/9/2012	0.24	-0.06	-0.34	0.14	-0.36	-0.48	0.09	0.20	-0.85									
10/13/2012	0.16	0.42	-0.12	0.38	-0.77	-0.41	0.27	-0.11	-0.86									
10/16/2012	0.11	0.29	-0.02	0.37	-0.62	-0.43	0.13	-0.12	-0.86									
10/19/2012	0.14	0.33	-0.29	0.51	-0.89	-0.63	0.40	-0.07	-0.95									
10/24/2012	0.33	-0.22	-0.44	0.18	-0.43	-0.54	0.32	-0.27	-1.03									
10/27/2012																		
10/29/2012	0.29	0.33	-0.28	0.43	-0.41	-0.78												
11/3/2012	0.89	1.25	-0.50	0.36	-0.38	-0.80												
11/9/2012	1.51	3.34	-1.14	-0.52	-0.19	-0.97	-0.19	-3.12	-1.95									
11/13/2012	2.06	3.34	-1.49	-0.47	-2.32	-1.30	-0.64	-1.76	-2.06									
11/16/2012	3.24	3.29	-1.75				-0.75	-2.18	-1.90									
11/21/2012	2.81	3.42	-1.85				-0.45	-1.66	-1.96									
12/1/2012	2.98	3.12	-1.81				-0.22	-1.45	-2.11									
12/6/2012	2.94	3.33	-1.91	0.33	-0.82	-1.59	-0.19	-1.63	-2.15									
12/8/2012	2.55	2.97	-1.86	0.46	-0.59	-1.61	-0.32	-1.44	-2.18									
12/13/2012	3.24	3.57	-2.01	0.44	-0.37	-1.67	-0.33	-1.52	-2.25									
12/21/2012	2.74	2.88	-1.94	0.23	-0.67	-1.75	-0.12	-1.83	-2.33									
1/25/2013	3.60	3.61	-2.37	0.80	-0.82	-1.98	-0.25	-1.69	-2.59									
2/15/2013	2.77	2.91	-3.00	0.15	-0.69	-2.06	-0.11	-1.29	-2.78									
2/28/2013																		
4/4/2013				0.12	-0.55	-2.23												
4/12/2013	2.15	3.86	-2.59	-0.07	-0.51	-2.21	-0.36	-1.47	-2.92									
4/23/2013	2.05	2.96	-2.55	-0.28	-0.67	-2.20	0.19	-1.73	-2.95									
4/26/2013	2.09	3.10	-2.66	0.04	-0.66	-2.23	-0.34	-1.36	-3.01									
5/28/2013	BROKEN	BROKEN	BROKEN	-0.58	-3.22	-2.69	-0.84	-1.23	-3.30									
5/31/2013							-0.54	-0.84	-3.39									
6/12/2013				1120487.37	907208.91	445.98				1119782.89	906972.40	445.56	1119826.21	907109.31	445.90	1119870.33	907245.93	445.93
6/14/2013				0.05	0.03	-2.69	1120444.02	907082.42	445.50	-0.11	1.18	0.02	-0.01	-0.03	-0.01	0.01	-0.01	0.00
6/21/2013				0.04	-0.04	-2.68	-0.04	-0.07	-3.39				0.00	-0.03	-0.02	0.03	-0.01	0.01
6/25/2013				0.05	-0.05	-2.71	-0.06	-0.10	-3.42	-0.11	1.28	0.00	0.00	-0.02	-0.02	0.02	-0.04	0.00
6/28/2013				0.02	-0.13	-2.71	-0.15	-0.19	-3.43	-0.17	1.26	-0.01	-0.03	-0.04	-0.03	-0.09	-0.05	-0.01
7/1/2013				0.05	-0.08	-2.71	-0.13	-0.15	-3.43	-0.16	1.27	0.00	0.06	-0.03	-0.02	-0.08	-0.03	-0.01
7/3/2013							-0.14	-0.20	-3.45	-0.20	1.23	-0.01	0.08	-0.05	-0.03	-0.07	-0.05	-0.01
7/9/2013							-0.13	-0.18	-3.46	-0.20	1.24	-0.01	0.07	-0.04	-0.03	0.40	0.16	-0.02
7/12/2013				0.09	-0.09	-2.74	-0.09	-0.14	-3.47	-0.14	1.26	-0.01	0.12	-0.01	-0.03	-1.38	-4.27	-0.02
7/16/2013				0.13	-0.03	-2.77	-0.07	-0.10	-3.50	1119786.94	906983.72	445.59	0.14	-0.02	-0.05			
7/19/2013				0.14	-0.14	-2.78	-0.07	-0.11	-3.51	0.06	0.21	-0.06	0.21	0.15	-0.14			
7/23/2013				0.11	-0.20	-2.79	-0.11	-0.18	-3.52	1.43	2.55	-0.58	0.13	0.10	-0.16	-1.41	-4.45	-0.12
7/25/2013				0.14	-0.21	-2.77	-0.10	-0.20	-3.50	1.45	2.58	-0.60	0.17	0.12	-0.17	-1.40	-4.45	-0.12

	SM-43			SM-44			SM-45			SM-46			SM-47			SM-48		
	Phase IA, West			Phase IA, East			Phase IA, Center			Phase IIA, West			Phase IIA, West			Phase IIA, Center		
	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.
7/30/2013				0.13	-0.20	-2.80	-0.09	-0.19	-3.54	1.41	2.54	-0.64	0.14	0.06	-0.19			
8/2/2013				0.09	-0.28	-2.81	-0.15	-0.26	-3.55	1.38	2.48	-0.65	0.12	0.04	-0.21			
8/6/2013				0.14	-0.18	-2.82	-0.10	-0.19	-3.56	1.43	2.50	-0.67	0.15	0.04	-0.23	-1.40	-4.42	-0.15
8/9/2013				0.14	-0.11	-2.82	-0.07	-0.15	-3.56	1.46	2.53	-0.67	0.18	0.06	-0.22	-1.36	-4.38	-0.15
8/13/2013				0.11	-0.20	-2.84	-0.11	-0.21	-3.59	1.38	2.51	-0.71	0.12	0.03	-0.24	-1.39	-4.67	0.04
8/16/2013				0.17	-0.14	-2.87	-0.08	-0.15	-3.62	2.33	3.79	-0.75	0.36	0.01	-0.06	-1.31	-4.62	0.02
8/19/2013				0.10	-0.21	-2.87	-0.11	-0.23	-3.63	2.32	3.78	-0.74	0.34	-0.02	-0.05	-1.29	-4.55	0.02
8/22/2013				0.11	-0.19	-2.87	-0.11	-0.23	-3.62	2.31	3.78	-0.75	0.32	-0.06	-0.06	-1.54	-4.48	0.01
8/27/2013				0.10	-0.22	-2.89	-0.07	-0.23	-3.64	2.27	3.76	-0.77	0.33	-0.07	-0.06			
8/30/2013				0.17	-0.19	-2.91	0.05	-0.04	-3.67	2.25	3.85	-0.77	2.36	-0.93	-0.40	-5.30	-3.32	-0.82
9/3/2013				0.13	-0.19	-2.92	-0.06	-0.20	-3.68	2.24	3.86	-0.80	2.29	-0.86	-0.46	-5.34	-3.33	-0.91
9/6/2013				0.12	-0.21	-2.90	-0.03	-0.19	-3.66	2.29	3.81	-0.80	2.13	-0.82	-0.47	-5.36	-3.32	-0.93
9/10/2013				0.10	-0.25	-2.94	-0.10	-0.26	-3.70	2.25	3.87	-0.86	2.11	-0.80	-0.54	-5.52	-3.24	-1.03
9/11/2013				0.08	-0.27	-2.92	-0.10	-0.28	-3.70									
9/12/2013				0.15	-0.19	-2.92	-0.04	-0.18	-3.69									
9/13/2013				0.71	-0.33	-2.92	-0.20	-0.22	-3.69	2.36	3.89	-0.89				-5.44	-3.20	-1.03
9/17/2013				-0.20	-0.53	-2.93	BROKEN	BROKEN	BROKEN	2.16	4.02	-0.99				-5.39	-3.19	-1.06
9/20/2013				0.03	-0.26	-2.99				1.65	4.27	-1.05	2.14	-0.73	-0.66	-5.38	-3.18	-1.07
9/24/2013				-0.49	-1.83	-3.05				1.52	4.20	-1.15	1.67	-1.06	-0.68			
9/27/2013				-0.11	-0.06	-3.06				1.57	4.32	-1.20	2.21	-0.70	-0.71			
10/1/2013				-0.02	-0.36	-3.11				1.53	4.19	-1.26	2.08	-0.80	-0.72			
10/4/2013				0.13	-0.09	-3.15				1.72	4.29	-1.29	2.23	-0.70	-0.73			
10/8/2013				0.03	-0.18	-3.15				1.62	4.26	-1.31	2.18	-0.75	-0.74			
10/11/2013				-0.10	-0.43	-3.16				1.45	4.18	-1.33	2.05	-0.84	-0.75	-5.45	-3.24	-1.12
10/15/2013				0.00	-0.32	-3.21				1.52	4.20	-1.37	2.08	-0.82	-0.77	-5.43	-3.23	-1.14
10/18/2013				0.00	-0.28	-3.22							2.12	-0.79	-0.77	-5.41	-3.20	-1.14
10/22/2013				-0.04	-0.36	-3.24							2.06	-0.81	-0.79			
10/25/2013				0.07	-0.25	-3.27							2.10	-0.79	-0.79			
10/29/2013				0.15	-0.08	-3.28				0.89	2.05	-1.37	2.18	-0.74	-0.80	-8.54	-2.59	-1.14
11/5/2013				0.08	-0.28	-3.32				0.39	0.36	-1.47	2.12	-0.57	-0.84	-8.75	-2.53	-1.20
11/8/2013				0.12	-0.33	-3.35				1.55	3.71	-1.88				-8.77	-2.70	-1.22
11/12/2013				0.02	-0.36	-3.43							5.48	2.72	-0.84			
11/15/2013				0.06	-0.41	-3.39							5.57	2.62	-0.93			
11/19/2013				0.05	-0.40	-3.38				1119790.34	906995.66	460.99	5.78	3.29	-1.23	-10.18	-3.20	-2.11
11/22/2013										0.09	0.21	-2.10	5.93	3.47	-1.42			
11/26/2013				0.08	-0.30	-3.44				0.15	0.33	-2.29	6.01	3.56	-1.51	-10.36	-3.08	-2.36
12/2/2013				0.13	-0.21	-3.47				0.27	0.49	-2.54	6.15	3.66	-1.62			
12/5/2013				0.08	-0.30	-3.47				0.23	0.52	-2.60	6.12	3.66	-1.65	-10.48	-3.02	-2.50
1/20/2014				0.03	-0.30	-3.63				0.48	1.07	-3.68	6.31	3.77	-1.94			
1/30/2014				0.00	-0.33	-3.67				0.60	1.08	-3.81	6.41	3.80	-2.00			
2/28/2014				0.03	-0.40	-3.76				0.63	1.24	-4.20	6.44	3.91	-2.13			
4/1/2014				0.15	-0.32	-3.87				1119792.80	906996.31	458.46	6.50	3.94	-2.23			
4/4/2014				0.16	-0.35	-3.86							6.49	3.93	-2.21			
4/5/2014				0.16	-0.36	-3.92							6.49	3.92	-2.22			
4/8/2014				0.15	-0.38	-3.86							6.48	3.93	-2.21			
4/11/2014	1.64	-2.11	-3.98	0.16	-0.37	-3.86												
4/14/2014	1.65	-2.12	-4.02	0.23	-0.33	-3.90	-0.66	0.29	-3.69									
4/18/2014	1.68	-2.08	-4.04	0.24	-0.33	-3.91	-0.74	-0.02	-3.69									
4/22/2014	1.66	-2.09	-4.00	0.21	-0.38	-3.88	-1.50	0.31	-3.67									
4/25/2014	1.67	-2.07	-4.03	0.22	-0.33	-3.90	-1.25	0.50	-3.69									
4/29/2014	1.66	-2.11	-4.03	0.24	-0.34	-3.90	-0.48	0.15	-3.70									
5/2/2014	1.65	-2.08	-4.07				1.74	-0.21	-3.89				6.47	3.77	-2.21			
5/7/2014	1.66	-2.09	-4.08				1.54	-0.18	-3.88									
5/9/2014	1.70	-2.03	-4.10															
5/13/2014	1.75	-1.90	-4.12															
5/17/2014	2.11	-0.94	-4.32				1.35	-0.11	-3.90				6.42	3.67	-2.18			

	SM-43			SM-44			SM-45			SM-46			SM-47			SM-48		
	Phase IA, West			Phase IA, East			Phase IA, Center			Phase IIA, West			Phase IIA, West			Phase IIA, Center		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014	2.21	-0.92	-4.37										6.47	3.69	-2.18			
5/23/2014	2.20	-0.79	-4.47				1.29	-0.02	-3.87				6.47	3.72	-2.19			
5/27/2014	2.11	-0.89	-4.58				1.33	-0.17	-3.90				6.45	3.70	-2.20			
5/30/2014	2.19	-0.83	-4.60				1.53	-0.08	-3.89				6.49	3.72	-2.20			
6/4/2014	2.08	-1.02	-4.68				1.33	-0.19	-3.93				6.45	3.70	-2.23			
6/6/2014	2.11	-1.00	-4.74				1.44	-0.12	-3.95				6.46	3.71	-2.24			
6/10/2014	2.11	-1.01	-4.78				1.45	-0.19	-3.95				6.48	3.70	-2.22			
6/17/2014	2.12	-0.99	-4.92										6.48	3.72	-2.25			
6/20/2014	2.06	-1.07	-4.99				1.92	1.29	-4.33				6.43	3.68	-2.29			
6/23/2014	2.12	-0.99	-4.97				2.26	2.05	-4.49				6.48	3.72	-2.26			
6/27/2014							2.38	2.54	-4.69				6.48	3.70	-2.24			
7/8/2014							1120446.47	907085.48	454.63	1119789.93	906992.86	460.42						
7/11/2014							-0.05	0.17	-4.87	-0.08	-0.03	-4.24						
7/15/2014							-0.04	0.14	-4.87									
7/18/2014	1120381.70	906929.91	463.87				0.02	0.20	-4.92	-0.15	-0.10	-4.33	1119825.99	907109.59	461.82	1119870.64	907245.56	463.46
7/22/2014	0.11	0.14	-4.98				0.04	0.22	-4.94	-0.06	-0.05	-4.47	-0.30	0.15	-2.29	0.03	-0.08	-2.51
7/25/2014	0.14	0.18	-5.06				0.02	0.16	-5.00	-0.03	-0.06	-4.52	-0.32	0.20	-2.36	0.24	-0.04	-2.53
7/29/2014				1120487.65	907207.17	457.06	0.05	0.17	-5.05	-0.01	-0.07	-4.58	-0.82	0.41	-2.49	0.24	-0.06	-2.61
8/1/2014	0.12	0.18	-5.10	0.01	0.06	-3.92				-0.08	-0.09	-4.57	-0.83	0.42	-2.52	0.26	-0.06	-2.69
8/5/2014				-0.07	-0.11	-3.95				-0.11	-0.11	-4.63	-0.88	0.38	-2.57	0.25	-0.08	-2.78
8/10/2014				-0.03	-0.03	-3.99										0.29	-0.06	-2.87
8/12/2014	0.17	0.34	-5.24	-0.06	-0.09	-4.01	0.92	1.09	-5.13	-0.32	-0.30	-4.63	-1.38	0.45	-2.60	0.27	-0.08	-2.91
8/15/2014	0.20	0.41	-5.29	-0.03	-0.05	-4.05	0.95	1.14	-5.17	-0.28	-0.28	-4.65	-1.34	0.48	-2.62			
8/19/2014	0.33	0.32	-5.29	-0.05	0.05	-4.11	1.00	1.27	-5.22	-0.24	-0.24	-4.66	-1.31	0.52	-2.63	0.36	0.00	-2.98
8/22/2014	0.28	0.24	-5.30	-0.17	-0.08	-4.13	0.94	1.11	-5.23	-0.32	-0.32	-4.67	-1.36	0.46	-2.64	0.35	-0.04	-3.01
8/26/2014				-0.22	0.06	-4.24	1.03	1.23	-5.33	-0.27	-0.27	-4.71	-1.35	0.49	-2.67	0.35	-0.02	-3.05
8/29/2014				-0.27	-0.05	-4.27	1.00	1.22	-5.40							0.36	-0.04	-3.06
9/2/2014				-0.30	-0.06	-4.37	0.97	1.18	-5.52							0.33	-0.05	-3.09
9/5/2014				-0.23	0.08	-4.40	1.01	1.27	-5.55				-1.34	0.49	-2.71	0.40	0.02	-3.10
9/9/2014				-0.30	-0.07	-4.45	0.90	1.10	-5.64				-0.97	2.26	-2.84			
9/12/2014							1120448.26	907087.80	463.60									
9/16/2014				-0.24	0.03	-4.49	-0.02	-0.07	-5.69	-0.97	-1.76	-4.82						
9/19/2014	1120389.59	906926.43	460.84	-0.09	0.25	-4.56	0.15	0.08	-5.75	-0.84	-1.69	-4.88	1119827.14	907118.40	469.47	1119871.48	907249.07	467.74
9/23/2014	-0.06	-0.03	-5.35	-0.09	0.27	-4.60	0.15	0.09	-5.75	-0.84	-1.73	-4.92	-0.04	0.06	-2.89	-0.01	0.03	-3.12
9/26/2014	-0.07	-0.09	-5.45	-0.10	0.24	-4.66	0.13	0.01	-5.86	-0.86	-1.75	-4.98	-0.05	0.18	-3.02	-0.02	0.02	-3.17
9/29/2014	-0.14	-0.25	-5.48	-0.21	0.00	-4.70	0.02	-0.18	-5.90	-0.98	-1.82	-5.02	-0.10	0.25	-3.14	-0.10	-0.08	-3.19
10/3/2014	-0.04	-0.12	-5.52	-0.12	0.16	-4.74	0.11	-0.08	-5.94	-0.89	-1.78	-5.05	-0.05	0.30	-3.17	-0.04	0.00	-3.22
10/7/2014	-0.12	-0.27	-5.60	-0.18	0.03	-4.78	0.05	-0.23	-5.98	-0.97	-1.84	-5.08	-0.12	0.22	-3.20	-0.03	0.01	-3.26
10/10/2014	-0.10	-0.32	-5.65	-0.23	-0.07	-4.82	-0.01	-0.31	-6.02	-1.05	-1.85	-5.13	-0.14	0.27	-3.28	-0.05	-0.01	-3.31
10/14/2014				-0.17	0.01	-4.85	0.06	-0.24	-6.05	-1.01	-1.87	-5.14	-0.13	0.26	-3.30	0.01	0.00	-3.34
10/17/2014				-0.16	0.07	-4.86				-0.96	-1.84	-5.16				0.04	0.07	-3.42
10/21/2014				-0.10	0.18	-4.88				-0.89	-1.79	-5.17				0.10	0.17	-3.49
10/24/2014				-0.08	0.20	-4.91				-0.90	-1.78	-5.19				0.11	0.13	-3.54
10/28/2014				-0.09	0.17	-4.95				-0.92	-1.81	-5.21				0.11	0.13	-3.59
10/30/2014				-0.10	0.17	-4.96				-0.92	-1.80	-5.21				0.13	0.15	-3.60
11/4/2014				-0.17	0.04	-5.03				-1.00	-1.83	-5.25				0.10	0.12	-3.67
11/7/2014				-0.16	0.09	-5.04				-0.96	-1.81	-5.27	-0.07	0.28	-3.42	0.14	0.16	-3.70
11/11/2014				-0.26	-0.08	-5.11				-1.06	-1.86	-5.29	-0.16	0.20	-3.43	0.07	0.09	-3.73
11/14/2014				-0.21	0.01	-5.12				-0.98	-1.81	-5.30	-0.09	0.23	-3.43	0.13	0.14	-3.74
11/18/2014				-0.21	0.01	-5.12				-0.98	-1.81	-5.30	-0.09	0.23	-3.43	0.13	0.14	-3.74
11/21/2014				-0.20	0.05	-5.17				-0.96	-1.80	-5.32	-0.08	0.24	-3.45	0.17	0.16	-3.76
11/25/2014				-0.18	0.11	-5.22				-0.90	-1.77	-5.34	-0.07	0.23	-3.45	0.17	0.17	-3.79

	SM-49			SM-50			SM-51			SM-52			SM-53			SM-54		
	Phase IIA, Center			Phase IIA, East			Phase IB, Northwest			Phase IIA, East			Phase IIA, Southwest			Phase IIA, Southwest		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012																		
8/13/2012																		
8/15/2012																		
8/23/2012							1120377.41	905886.48	426.08									
8/28/2012							-0.01	1.18	-0.05									
9/1/2012							-0.13	1.45	-0.01									
9/5/2012							-0.07	1.02	0.03									
9/12/2012							-0.76	1.34	-0.02									
9/15/2012							1.24	0.41	-0.02									
9/21/2012							-0.78	1.54	-0.11									
9/25/2012							-0.63	1.29	0.01									
9/28/2012																		
10/3/2012							0.31	0.26	0.05									
10/9/2012							-0.71	0.73	-0.02									
10/13/2012							-0.97	1.42	-0.01									
10/16/2012							-0.70	1.25	-0.06									
10/19/2012							-1.22	1.38	-0.03									
10/24/2012							-0.62	0.76	-0.02									
10/27/2012							-0.46	1.65	-0.04									
10/29/2012							-0.75	1.29	-0.03									
11/3/2012							-0.81	1.33	-0.10									
11/9/2012							-0.90	1.56	-0.10									
11/13/2012							-0.88	1.36	-0.05									
11/16/2012							-0.87	1.40	-0.10									
11/21/2012							-0.77	1.35	-0.03									
12/1/2012							-0.77	1.31	-0.07									
12/6/2012							-1.07	1.37	-0.04									
12/8/2012							-0.95	1.48	-0.05									
12/13/2012							-1.12	1.44	-0.06									
12/21/2012							-1.02	1.44	-0.06									
1/25/2013							-0.63	0.96	0.05									
2/15/2013																		
2/28/2013							-0.82	1.41	-0.07									
4/4/2013							-1.10	0.46	-0.05									
4/12/2013							-0.46	0.15	0.01									
4/23/2013							-0.70	0.43	-0.02									
4/26/2013							-0.77	0.07	-0.07									
5/28/2013							-0.61	0.22	-0.19									
5/31/2013							-1.51	1.83	-0.24									
6/12/2013	1119912.94	907381.90	445.60	1119956.36	907518.32	445.65	1120374.82	905888.22	442.04	1119996.65	907645.17	445.33	1119496.43	907063.31	447.50	1119540.49	907199.96	447.48
6/14/2013	0.01	-0.01	0.02	-0.01	-0.04	0.00	0.00	0.00	-0.24	0.00	-0.02	0.01	0.01	-0.02	0.00	-0.01	-0.03	0.00
6/21/2013	0.02	-0.02	0.02	0.01	-0.04	-0.01	0.03	-0.04	-0.20	0.01	-0.03	0.01						
6/25/2013	0.01	-0.03	0.00	0.02	-0.03	0.00	-0.01	-0.05	-0.72	0.03	-0.02	0.00						
6/28/2013	-0.01	-0.06	0.00	0.00	-0.04	-0.01	-0.17	-0.12	-0.72	0.00	-0.06	0.00						
7/1/2013										-0.02	-0.04	0.00						
7/3/2013							-0.22	-0.17	-0.72	-0.01	-0.09	0.00						
7/9/2013	1119903.81	907373.58	445.58	1119933.93	907434.31	445.60	-0.23	-0.15	-0.72	1.72	-0.10	-0.04	1119480.42	907088.54	447.72	1119517.82	907219.75	447.81
7/12/2013	0.02	0.01	0.00	0.02	0.05	-0.01	-0.08	-0.08	-0.73	1.73	-0.06	-0.04	0.03	0.00	0.01	0.03	0.00	0.01
7/16/2013	-0.18	-1.19	-0.13	0.01	0.07	-0.10	0.03	-0.02	-0.76	1.72	-0.03	-0.05	0.59	-0.40	-0.02	-0.16	-0.06	-0.06
7/19/2013	-0.21	-1.24	-0.18	0.01	0.08	-0.13	-0.07	-0.07	-0.75	2.25	2.41	0.00	0.61	-0.40	-0.02	-0.19	-0.08	-0.07
7/23/2013	-0.21	-1.17	-0.19	0.00	0.05	-0.15	-0.22	-0.14	-0.74	2.24	2.35	0.00	0.57	-0.41	-0.02	-0.22	-0.09	-0.07
7/25/2013	-0.28	-1.30	-0.20	0.01	0.06	-0.14	-0.12	-0.11	-0.75	2.27	2.36	0.01	0.52	-0.40	-0.02	-0.12	-0.19	-0.06

	SM-49			SM-50			SM-51			SM-52			SM-53			SM-54		
	Phase IIA, Center			Phase IIA, East			Phase IB, Northwest			Phase IIA, East			Phase IIA, Southwest			Phase IIA, Southwest		
	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.
7/30/2013	BROKEN	BROKEN	BROKEN	0.01	0.05	-0.17	-0.20	-0.14	-0.74	2.25	2.34	0.00	0.54	-0.40	-0.02	-0.13	-0.17	-0.07
8/2/2013				0.00	0.03	-0.19	-0.22	-0.15	-0.76	2.25	2.33	0.00	0.50	-0.41	-0.03	-0.17	-0.19	-0.07
8/6/2013							-0.06	-0.06	-0.76	2.25	2.37	-0.01	0.54	-0.41	-0.03	-0.13	-0.18	-0.08
8/9/2013							0.00	-0.01	-0.73	2.25	2.39	0.00	0.58	-0.40	-0.03	-0.11	-0.17	-0.08
8/13/2013				-0.11	0.01	-0.21				2.25	2.46	-0.02	0.53	-0.39	-0.03	-0.15	-0.17	-0.08
8/16/2013				-0.47	-0.15	-0.33				2.21	2.81	-0.02	0.57	-0.39	-0.05	-0.11	-0.17	-0.09
8/19/2013				-0.39	-0.17	-0.41				2.20	2.76	-0.01	0.56	-0.41	-0.04	-0.12	-0.18	-0.09
8/22/2013				-0.52	-0.22	-0.49				2.20	2.77	-0.01	0.55	-0.41	-0.04	-0.12	-0.18	-0.09
8/27/2013				-0.50	-0.23	-0.59	-0.14	-0.08	-0.77	2.20	2.77	-0.01	0.55	-0.40	-0.04	-0.13	-0.18	-0.09
8/30/2013				-0.47	-0.20	-0.62	-0.02	-0.02	-0.77	2.21	2.80	-0.01	0.57	-0.40	-0.04	-0.10	-0.18	-0.09
9/3/2013				-0.45	-0.22	-0.65	-0.10	-0.06	-0.78	2.20	2.80	-0.02	0.56	-0.40	-0.04	-0.13	-0.18	-0.09
9/6/2013				-0.43	-0.21	-0.65	-0.15	-0.11	-0.77	2.21	2.77	0.00	0.59	-0.40	-0.02	-0.10	-0.17	-0.07
9/10/2013				-0.46	-0.24	-0.68	-0.15	-0.07	-0.81	2.20	2.75	-0.01	0.54	-0.40	-0.04	-0.13	-0.17	-0.08
9/11/2013							-0.20	-0.08	-0.72									
9/12/2013							-0.19	0.02	-0.72									
9/13/2013				-0.40	-0.17	-0.69	-0.17	0.05	-0.78	2.21	2.82	-0.01	0.60	-0.39	-0.03	-0.07	-0.15	-0.09
9/17/2013				-0.39	-0.15	-0.72				2.22	2.86	-0.02	0.66	-0.39	-0.05	-0.05	-0.16	-0.10
9/20/2013				-0.36	-0.11	-0.73	0.10	0.19	-0.80	2.23	2.88	-0.02	0.67	-0.38	-0.04	-0.01	-0.15	-0.09
9/24/2013				-0.80	-0.91	-0.73	-1.32	-0.54	-0.83	2.11	1.99	0.00	0.18	-0.44	-0.04	-0.41	-0.24	-0.09
9/27/2013				-0.32	-0.06	-0.75	0.31	0.31	-0.84	2.25	2.96	-0.02	0.70	-0.38	-0.05	0.02	-0.15	-0.10
10/1/2013				-0.39	-0.18	-0.75	-0.08	0.12	-0.80	2.21	2.82	-0.01	0.64	-0.35	-0.03	-0.11	-0.32	-0.10
10/4/2013				-0.31	-0.04	-0.76	0.33	0.35	-0.81	2.24	2.99	-0.01	0.84	-0.32	-0.03	0.04	-0.27	-0.09
10/8/2013				-0.35	-0.11	-0.75	0.18	0.26	-0.78	2.23	2.91	0.00	0.73	-0.34	-0.02	-0.05	-0.30	-0.08
10/11/2013				-0.42	-0.23	-0.76	-0.22	0.05	-0.76	2.20	2.78	0.00	0.61	-0.35	-0.01	-0.16	-0.32	-0.08
10/15/2013				-0.38	-0.18	-0.77	-0.07	0.11	-0.81	2.23	2.82	0.00	0.65	-0.36	-0.02	-0.11	-0.32	-0.09
10/18/2013				-0.38	-0.16	-0.78	0.03	0.45	-0.81	2.23	2.86	0.00	0.39	-3.25	0.00	-0.09	-0.31	-0.08
10/22/2013							-0.20	0.36	-0.80	2.20	2.80	0.00	0.34	-3.25	-0.01	-0.13	-0.32	-0.09
10/25/2013							-0.04	0.44	-0.81	2.22	2.84	0.00	0.41	-3.25	-0.01	-0.06	-0.31	-0.08
10/29/2013							0.10	0.48	-0.80	2.25	2.96	0.00	0.45	-3.24	0.01	-0.05	-0.31	-0.08
11/5/2013							-0.10	0.37	-0.81	2.24	2.90	-0.01	0.38	-3.28	-0.02	-0.08	-0.32	-0.09
11/8/2013							-0.21	0.35	-0.83	2.24	2.90	-0.03	0.36	-3.29	-0.03	-0.09	-0.35	-0.10
11/12/2013							-0.44	0.28	-0.72	2.20	2.90	-0.06	0.36	-3.25	-0.07	-0.11	-0.32	-0.14
11/15/2013							-0.35	0.31	-0.81	2.20	2.89	-0.01	0.33	-3.26	-0.02	-0.13	-0.33	-0.09
11/19/2013				-0.63	-0.42	-0.78	-0.35	0.32	-0.82	2.21	2.93	0.00	0.32	-3.26	0.01	-0.13	-0.33	-0.07
11/22/2013				-0.60	-0.42	-0.79	-0.25	0.38	-0.80	2.21	2.93	-0.03	0.40	-3.26	-0.03	-0.06	-0.33	-0.11
11/26/2013				-0.62	-0.42	-0.79	-0.26	0.35	-0.78	2.21	2.95	-0.03	0.38	-3.26	-0.02	-0.08	-0.32	-0.10
12/2/2013				-0.60	-0.39	-0.81	-0.16	0.47	-0.77	2.23	3.00	-0.04	0.45	-3.26	-0.04	-0.02	-0.33	-0.11
12/5/2013				-0.62	-0.45	-0.81	-0.20	0.41	-0.76	2.22	2.98	-0.03	0.38	-3.25	-0.03	-0.07	-0.33	-0.11
1/20/2014				-0.63	-0.44	-0.86				2.17	2.96	-0.04	0.42	-3.25	-0.04	-0.04	-0.34	-0.11
1/30/2014				-0.58	-0.48	-0.88	-0.13	0.41	-0.86	2.21	2.81	0.00	0.47	-3.29	-0.04	0.00	-0.38	-0.11
2/28/2014				-0.64	-0.49	-0.91	-0.08	0.40	-0.84	2.18	2.85	-0.01	0.41	-3.29	-0.06	-0.02	-0.38	-0.11
4/1/2014							-0.38	0.32	-0.84	2.23	2.99	-0.07	0.50	-3.28	-0.08	-0.01	-0.35	-0.11
4/4/2014										2.27	3.09	-0.09	0.46	-3.28	-0.08			
4/5/2014							-0.46	0.26	-0.81	2.27	3.09	-0.09	0.42	-3.27	-0.09	-0.06	-0.38	-0.12
4/8/2014							-0.37	0.31	-0.74	2.27	3.07	-0.08	0.42	-3.27	-0.07	-0.07	-0.39	-0.12
4/11/2014							-0.38	0.29	-0.76	2.26	3.09	-0.08	0.41	-3.28	-0.07	-0.08	-0.37	-0.13
4/14/2014				-0.67	-0.46	-1.00	-0.37	0.28	-0.77	2.28	3.07	-0.11	0.46	-3.27	-0.11	-0.02	-0.36	-0.17
4/18/2014				-0.60	-0.47	-0.99	-0.33	0.29	-0.83	2.28	3.09	-0.10	0.45	-3.28	-0.10	-0.05	-0.36	-0.16
4/22/2014				-0.61	-0.43	-0.99	-0.45	0.25	-0.74	2.27	3.08	-0.09	0.42	-3.27	-0.09	-0.07	-0.37	-0.15
4/25/2014				-0.62	-0.35	-1.00	-0.35	0.29	-0.81	2.26	3.11	-0.10	0.44	-3.27	-0.10	-0.06	-0.36	-0.16
4/29/2014				-0.53	-0.19	-0.99	-0.34	0.24	-0.80	2.29	3.09	-0.09	0.43	-3.28	-0.09	-0.06	-0.37	-0.15
5/2/2014				-0.38	0.23	-1.02				2.28	3.11	-0.11	0.44	-3.27	-0.11	-0.04	-0.36	-0.17
5/7/2014				0.08	1.21	-1.06	-0.33	0.30	-0.88	2.29	3.11	-0.10	0.43	-3.28	-0.11	-0.06	-0.37	-0.16
5/9/2014				0.22	1.49	-1.09				2.28	3.09	-0.11	0.45	-3.27	-0.12	-0.05	-0.36	-0.17
5/13/2014				0.26	1.65	-1.12	-0.46	0.23	-0.85	2.28	3.08	-0.10	0.45	-3.28	-0.10	-0.04	-0.37	-0.16
5/17/2014				0.32	1.81	-1.18				2.29	3.13	-0.11	0.46	-3.26	-0.10	-0.04	-0.34	-0.16

	SM-49			SM-50			SM-51			SM-52			SM-53			SM-54		
	Phase IIA, Center			Phase IIA, East			Phase IB, Northwest			Phase IIA, East			Phase IIA, Southwest			Phase IIA, Southwest		
	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.	Northing	Easting	Elev.
5/20/2014				0.32	1.70	-1.17	-0.34	0.30	-0.89	2.29	3.14	-0.10	0.48	-3.28	-0.10	-0.02	-0.36	-0.16
5/23/2014				0.34	1.91	-1.22	-0.92	0.54	-0.83	2.27	3.16	-0.11	0.48	-3.26	-0.10	-0.03	-0.35	-0.16
5/27/2014				0.36	1.93	-1.28	-1.01	0.47	-0.87	2.28	3.14	-0.10	0.42	-3.28	-0.10	-0.07	-0.36	-0.17
5/30/2014				0.37	1.92	-1.32	-0.87	0.47	-0.84	2.29	3.14	-0.10	0.49	-3.27	-0.10	-0.01	-0.35	-0.17
6/4/2014				0.45	2.13	-1.47	-1.02	0.45	-0.88	2.27	3.10	-0.11	0.42	-3.28	-0.11	-0.08	-0.36	-0.18
6/6/2014				0.47	2.15	-1.52	-1.02	0.42	-0.91	2.27	3.10	-0.11	0.46	-3.27	-0.12	-0.05	-0.36	-0.18
6/10/2014				0.45	2.11	-1.56	-0.96	0.43	-0.85	2.28	3.11	-0.11	0.43	-3.29	-0.10	-0.06	-0.37	-0.17
6/17/2014				0.45	2.11	-1.64	-0.95	0.46	-0.92	2.28	3.11	-0.11	0.48	-3.27	-0.11	-0.02	-0.36	-0.18
6/20/2014				0.42	2.05	-1.71	-1.09	0.36	-0.96	2.27	3.07	-0.16	0.42	-3.29	-0.16	-0.07	-0.37	-0.22
6/23/2014				0.44	2.07	-1.68	-0.97	0.43	-0.90	2.29	3.11	-0.11	0.46	-3.28	-0.11	-0.03	-0.36	-0.17
6/27/2014				0.43	2.06	-1.71	-1.06	0.41	-0.88	2.29	3.10	-0.10	0.46	-3.29	-0.10	-0.03	-0.37	-0.15
7/8/2014				0.43	2.03	-1.79	-1.19	0.69	-0.89	2.29	3.09	-0.11	0.48	-3.29	-0.11	-0.02	-0.37	-0.17
7/11/2014				0.39	2.00	-1.81	-1.36	0.54	-0.97	2.26	3.05	-0.11	0.43	-3.28	-0.11	-0.07	-0.37	-0.17
7/15/2014				0.39	1.99	-1.84				2.28	3.09	-0.12	0.41	-3.28	-0.12	-0.07	-0.37	-0.18
7/18/2014				0.37	1.95	-1.84				2.26	3.01	-0.12	0.44	-3.29	-0.11	-0.02	-0.37	-0.17
7/22/2014				0.41	2.03	-1.86				2.28	3.12	-0.11	0.47	-3.28	-0.11	-0.03	-0.36	-0.17
7/25/2014				0.42	2.03	-1.86				2.28	3.11	-0.11	0.48	-3.29	-0.11	-0.02	-0.36	-0.17
7/29/2014				0.48	2.12	-1.91				2.30	3.14	-0.12	0.50	-3.30	-0.12	-0.01	-0.38	-0.17
8/1/2014				0.40	2.11	-1.92				2.28	3.07	-0.12	0.47	-3.29	-0.11	-0.03	-0.37	-0.17
8/5/2014				0.35	1.96	-1.95				2.27	3.04	-0.12	0.45	-3.29	-0.11	-0.05	-0.37	-0.17
8/10/2014				0.39	1.89	-2.11				2.28	3.09	-0.12	0.46	-3.28	-0.12	-0.04	-0.36	-0.18
8/12/2014				0.36	1.82	-2.17				2.28	3.07	-0.13	0.43	-3.29	-0.13	-0.06	-0.37	-0.18
8/15/2014				0.37	1.82	-2.27				2.28	3.09	-0.13	0.47	-3.29	-0.13	-0.03	-0.37	-0.19
8/19/2014							-1.30	0.78	-1.20	2.29	3.15	-0.11	0.48	-3.28	-0.11	-0.02	-0.35	-0.17
8/22/2014				0.34	1.84	-2.52	-0.04	-0.41	-0.93	2.27	3.06	-0.15	0.45	-3.30	-0.12	-0.06	-0.38	-0.17
8/26/2014				0.38	1.93	-2.63	0.20	-0.49	-0.99	2.28	3.08	-0.13	0.49	-3.29	-0.13	-0.02	-0.36	-0.18
8/29/2014				0.37	1.89	-2.67	-0.82	-0.11	-0.96	2.29	3.04	-0.12	0.45	-3.30	-0.11	-0.06	-0.38	-0.17
9/2/2014				0.38	1.93	-2.74	-0.60	-0.25	-0.98	2.27	3.01	-0.12	0.42	-3.30	-0.12	-0.09	-0.39	-0.18
9/5/2014				0.42	2.01	-2.77	0.00	-0.42	-0.96	2.28	3.11	-0.12	0.49	-3.28	-0.12	-0.01	-0.36	-0.17
9/9/2014				0.39	1.94	-2.82	-0.89	-0.09	-0.97	2.27	3.02	-0.12	0.41	-3.30	-0.11	-0.08	-0.39	-0.17
9/12/2014				1119934.56	907436.83	462.97	-0.60	-0.22	-0.95	2.28	3.10	-0.11	0.48	-3.29	-0.11	-0.03	-0.37	-0.17
9/16/2014				-0.02	-0.03	-2.85	-0.10	-0.43	-0.95	2.27	3.07	-0.11	0.45	-3.29	-0.10	-0.05	-0.37	-0.16
9/19/2014				0.08	0.11	-2.89	-1.46	0.11	-1.01	2.31	3.15	-0.13	0.58	-3.29	-0.13	0.05	-0.36	-0.18
9/23/2014				0.07	0.11	-2.91	-0.60	-0.18	-0.97	2.30	3.17	-0.11	0.56	-3.29	-0.10	0.04	-0.36	-0.16
9/26/2014				0.07	0.10	-2.94	-0.70	-0.19	-0.95	2.30	3.13	-0.13	0.53	-3.29	-0.12	0.02	-0.37	-0.18
9/29/2014				0.01	-0.01	-2.97	-1.16	0.05	-0.94	2.28	3.03	-0.14	0.47	-3.30	-0.13	-0.04	-0.38	-0.19
10/3/2014				0.06	0.07	-2.99	-0.56	-0.26	-0.96	2.30	3.11	-0.13	0.51	-3.29	-0.12	-0.01	-0.36	-0.18
10/7/2014				0.02	0.00	-3.06	-0.58	-0.20	-0.99	2.29	3.02	-0.12	0.45	-3.31	-0.12	-0.05	-0.38	-0.18
10/10/2014				-0.01	-0.05	-3.05	-0.74	-0.20	-0.93	2.27	2.96	-0.15	0.45	-3.31	-0.14	-0.07	-0.39	-0.21
10/14/2014				0.04	-0.01	-3.05	-0.28	-0.33	-0.93	2.29	2.98	-0.13	0.46	-3.31	-0.13	-0.05	-0.38	-0.19
10/17/2014				0.02	0.01	-3.06	-0.72	-0.21	-0.89	2.28	3.05	-0.14	0.49	-3.30	-0.13	-0.03	-0.38	-0.19
10/21/2014	1119903.43	907402.71	467.37	0.05	0.06	-3.07				2.28	3.10	-0.12	0.53	-3.29	-0.11	0.01	-0.36	-0.17
10/24/2014	0.01	0.00	-2.22	0.03	0.02	-3.08				2.29	3.12	-0.12	0.53	-3.30	-0.11	0.00	-0.37	-0.18
10/28/2014	0.00	-0.01	-2.25	0.00	-0.02	-3.09				2.28	3.05	-0.12	0.54	-3.30	-0.12	0.01	-0.37	-0.18
10/30/2014	0.00	-0.01	-2.27	0.00	-0.02	-3.11	5.66	-2.69	-1.00	2.28	3.07	-0.11	0.54	-3.30	-0.10	0.01	-0.37	-0.16
11/4/2014	-0.03	-0.06	-2.33	-0.01	-0.05	-3.14	5.47	-2.62	-0.98	2.27	3.00	-0.13	0.49	-3.30	-0.12	-0.03	-0.36	-0.18
11/7/2014	-0.01	-0.03	-2.32	0.00	-0.04	-3.15	5.74	-2.72	-0.97	2.26	3.03	-0.14	0.54	-3.30	-0.13	0.03	-0.37	-0.18
11/11/2014	-0.07	-0.14	-2.40	-0.04	-0.11	-3.20	6.21	-2.89	-0.98	2.27	2.96	-0.14	0.44	-3.32	-0.13	-0.05	-0.39	-0.18
11/14/2014	-0.04	-0.07	-2.36	-0.05	-0.12	-3.18				2.28	3.01	-0.13	0.48	-3.31	-0.12	-0.01	-0.38	-0.18
11/18/2014	-0.04	-0.07	-2.36	-0.05	-0.12	-3.18				2.28	3.01	-0.13	0.48	-3.31	-0.12	-0.01	-0.38	-0.18
11/21/2014	0.02	-0.07	-2.33	-0.08	-0.09	-3.19	5.53	-2.65	-0.98	2.27	3.00	-0.11	0.54	-3.29	-0.09	0.01	-0.36	-0.15
11/25/2014	0.02	-0.03	-2.39	-0.04	-0.09	-3.21	5.73	-2.71	-0.97	2.29	3.05	-0.12	0.54	-3.30	-0.11	0.04	-0.37	-0.16

	SM-55			SM-56			SM-57			SM-58			SM-59			SM-60		
	Phase IA, Northeast			Phase IIA, South			Phase IIA, Southwest			Phase IIA, South			Phase IIA, East			Phase IIA, East		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/18/2012																		
7/24/2012																		
7/27/2012																		
7/30/2012																		
8/9/2012							1120559.62	907453.90	429.90									
8/13/2012							0.30	0.10	0.17									
8/15/2012	1120852.24	907363.63	430.56				-0.31	0.17	0.13									
8/23/2012	2.18	-0.30	-0.09				1.04	3.25	0.12									
8/28/2012	1.03	0.73	-0.12				1.62	3.67	0.04									
9/1/2012	1.46	0.57	-0.10				1.82	2.78	0.08									
9/5/2012	1.91	-0.03	-0.14				2.19	3.68	0.00									
9/12/2012	1.28	-0.25	-0.12				1.97	2.43	0.05									
9/15/2012	1.50	-0.10	-0.02				1.87	2.24	0.00									
9/21/2012	1.38	-0.23	-0.11				1.94	2.35	0.12									
9/25/2012	0.99	0.00	-0.17				1.92	2.37	0.09									
9/28/2012	1.87	-0.75	-0.06				2.24	2.36	0.03									
10/3/2012	1.08	-0.29	-0.19				1.91	2.06	0.06									
10/9/2012	1.48	-0.28	0.02				1.90	2.26	0.00									
10/13/2012	1.71	-0.39	-0.09				1.89	2.23	-0.07									
10/16/2012	1.28	-0.22	0.06				1.81	2.30	0.14									
10/19/2012	1.08	-0.25	0.01				1.89	2.29	-0.03									
10/24/2012	1.07	-0.18	-0.05				1.70	2.64	0.25									
10/27/2012	0.90	-0.43	-0.06				1.82	2.21	0.02									
10/29/2012	1.71	-0.44	-0.05				1.93	2.44	0.11									
11/3/2012	1.22	-0.23	-0.11				1.95	2.31	0.01									
11/9/2012	-1.25	1.56	-0.12				1.91	2.33	0.02									
11/13/2012	0.83	-0.40	-0.05				1.85	2.16	-0.04									
11/16/2012	1.62	-0.31	-0.15				1.96	2.17	0.06									
11/21/2012	1.06	-0.25	-0.08				1.87	2.40	-0.03									
12/1/2012	1.02	-0.31	-0.08				1.88	2.44	-0.01									
12/6/2012	0.77	-0.20	-0.04				1.60	3.04	0.00									
12/8/2012	1.04	-0.28	-0.14				1.47	2.84	-0.05									
12/13/2012	0.87	-0.48	-0.08				1.32	3.25	0.02									
12/21/2012	0.92	-0.37	-0.03				1.68	3.35	-0.02									
1/25/2013	0.86	-0.43	-0.12				1.25	2.80	-0.04									
2/15/2013	0.53	-0.46	-0.15				1.33	3.27	-0.10									
2/28/2013																		
4/4/2013	1.03	-0.27	-0.18															
4/12/2013	-0.24	-0.16	-0.10															
4/23/2013	1.17	-0.12	-0.14															
4/26/2013	0.55	-0.52	-0.21				0.73	2.89	-0.08									
5/28/2013	-0.29	-0.85	-0.31				1.33	3.18	-0.40									
5/31/2013	0.19	-0.66	-0.29				0.44	2.59	-0.33									
6/12/2013										1119628.17	907472.64	447.46				1119714.18	907745.20	446.95
6/14/2013	1120853.15	907362.93	446.07	1119583.91	907336.85	447.43	1120561.03	907456.05	445.40	0.01	-0.02	-0.09	1119671.77	907609.07	447.30	0.00	-0.01	0.01
6/21/2013	0.00	-0.08	-0.25				0.00	-0.05	-0.31							0.01	-0.02	0.00
6/25/2013	0.01	-0.03	-0.30				0.01	-0.05	-0.35							0.03	0.00	0.00
6/28/2013	-0.01	-0.13	-0.30				-0.02	-0.14	-0.34							0.03	-0.02	0.00
7/1/2013	-0.01	-0.05	-0.29				-0.02	-0.07	-0.33							0.00	-0.01	0.00
7/3/2013	-0.03	-0.19	-0.31				-0.03	-0.18	-0.35							0.02	-0.03	0.00
7/9/2013	-0.03	-0.17	-0.30	1119562.16	907365.47	447.66	-0.04	-0.19	-0.34	1119604.60	907495.33	447.48	1119650.03	907631.51	447.50	0.02	-0.01	0.00
7/12/2013	0.00	-0.06	-0.30	0.08	0.12	0.00	-0.01	-0.09	-0.35	0.02	0.04	-0.09	0.01	0.00	0.01	0.02	0.01	0.01
7/16/2013	0.01	0.01	-0.32	0.07	0.22	-0.02	0.00	-0.04	-0.35	0.02	0.05	-0.10	-0.10	-0.01	0.00	0.01	0.01	0.00
7/19/2013	0.00	-0.03	-0.33	0.13	0.20	-0.02	-0.01	-0.08	-0.36	0.02	0.04	-0.10	-0.09	-0.01	0.00	0.02	0.01	0.00
7/23/2013	-0.03	-0.15	-0.32	0.13	0.17	-0.03	-0.04	-0.20	-0.37	-0.01	0.01	-0.10				0.02	-0.03	0.00
7/25/2013	0.00	-0.12	-0.30	0.14	0.20	-0.02	-0.01	-0.18	-0.35	-0.13	-0.04	-0.08				0.04	-0.03	0.01

	SM-55			SM-56			SM-57			SM-58			SM-59			SM-60		
	Phase IA, Northeast			Phase IIA, South			Phase IIA, Southwest			Phase IIA, South			Phase IIA, East			Phase IIA, East		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
7/30/2013	-0.02	-0.17	-0.32	0.04	0.39	0.00	-0.03	-0.22	-0.37	-0.18	0.00	-0.09				0.03	-0.02	0.01
8/2/2013	-0.03	-0.18	-0.31	0.02	0.38	-0.01	-0.04	-0.24	-0.38	-0.18	-0.02	-0.10	-5.35	-2.89	0.01	0.02	-0.04	0.01
8/6/2013	-0.01	-0.07	-0.32	0.05	0.39	-0.02	-0.03	-0.16	-0.38	-0.17	0.00	-0.10	-5.31	-2.83	0.00	0.02	-0.02	0.00
8/9/2013	0.01	0.02	-0.31	0.07	0.40	-0.01	-0.02	-0.10	-0.37	-0.16	0.01	-0.10	-5.30	-2.80	0.00	0.02	0.01	0.01
8/13/2013	-0.01	-0.11	-0.32	0.02	0.39	-0.02	-0.05	-0.21	-0.38	-0.18	0.00	-0.11	-5.30	-2.79	0.00	0.02	-0.01	0.00
8/16/2013	0.01	-0.02	-0.36	0.10	0.39	-0.03	-0.03	-0.14	-0.41	-0.16	0.01	-0.12	-5.28	-2.78	-0.01	0.03	-0.01	-0.01
8/19/2013	-0.01	-0.14	-0.33	0.11	0.38	-0.03	-0.04	-0.25	-0.40	-0.16	-0.01	-0.11	-5.28	-2.80	-0.01	0.03	-0.03	0.00
8/22/2013	0.00	-0.09	-0.33	0.11	0.38	-0.03	-0.04	-0.22	-0.40	-0.17	-0.01	-0.11	-5.28	-2.79	-0.01	0.03	-0.02	0.00
8/27/2013	-0.01	-0.13	-0.33	0.11	0.36	-0.03	-0.05	-0.24	-0.40	-0.17	-0.01	-0.12	-5.27	-2.79	-0.02	0.03	-0.02	-0.01
8/30/2013	0.02	-0.02	-0.34	0.16	0.37	-0.03	-0.03	-0.18	-0.41	-0.16	-0.01	-0.12	-5.25	-2.77	-0.01	0.03	-0.01	-0.01
9/3/2013	0.01	-0.06	-0.34	0.13	0.38	-0.03	-0.04	-0.21	-0.41	-0.16	-0.01	-0.12	-5.25	-2.78	-0.01	0.03	-0.01	0.00
9/6/2013	0.68	0.05	-0.39	0.13	0.37	-0.01	-0.04	-0.27	-0.40	-0.16	-0.02	-0.10	-5.25	-2.78	0.01	0.04	-0.02	0.02
9/10/2013	0.67	0.02	-0.41	0.12	0.40	-0.03	-0.06	-0.29	-0.41	-0.18	-0.02	-0.11	-5.26	-2.78	0.00	0.03	-0.04	0.01
9/11/2013	0.68	0.06	-0.37				-0.07	-0.31	-0.40									
9/12/2013	0.75	0.28	-0.37				-0.14	-0.34	-0.40									
9/13/2013	0.79	0.31	-0.38	0.17	0.41	-0.03	-0.12	-0.26	-0.41	-0.15	0.00	-0.11	-5.24	-2.75	0.00	0.03	0.00	0.01
9/17/2013	0.83	0.33	-0.39	0.18	0.40	-0.04	-0.09	-0.22	-0.41	-0.13	0.01	-0.12	-4.94	-1.55	0.01	0.03	0.01	0.00
9/20/2013	0.86	0.44	-0.40	0.21	0.42	-0.03	-0.07	-0.16	-0.42	-0.12	0.02	-0.11	-4.93	-1.52	0.01	0.04	0.03	0.00
9/24/2013	0.32	-1.72	-0.38	-0.07	0.29	-0.02	-0.47	-1.88	-0.41	-0.30	-0.13	-0.10	-5.07	-1.90	0.03	0.06	-0.45	0.02
9/27/2013	0.93	0.61	-0.40	0.26	0.42	-0.03	-0.02	-0.01	-0.42	-0.09	0.04	-0.12	-4.91	-1.50	0.01	0.04	0.07	0.00
10/1/2013	0.82	0.26	-0.38	0.18	0.35	-0.03	-0.11	-0.28	-0.40	-0.06	-0.10	-0.11	-5.01	-1.78	0.00	0.03	0.00	0.01
10/4/2013	0.92	0.62	-0.38	0.23	0.41	-0.02	-0.04	0.02	-0.41	0.01	-0.04	-0.11	-4.98	-1.72	0.00	0.03	0.10	0.01
10/8/2013	0.90	0.45	-0.38	0.19	0.39	-0.01	-0.06	-0.11	-0.39	-0.02	-0.07	-0.10	-4.99	-1.74	0.01	0.03	0.05	0.02
10/11/2013	0.79	0.10	-0.36	0.12	0.34	-0.01	-0.15	-0.39	-0.40	-0.07	-0.10	-0.10	-5.02	-1.80	0.01	0.03	-0.02	0.02
10/15/2013	0.87	0.25	-0.38	0.16	0.35	-0.02	-0.08	-0.28	-0.40	-0.05	-0.10	-0.10	-5.00	-1.78	0.01	0.04	-0.01	0.02
10/18/2013	1.37	0.98	-0.38	0.18	0.37	-0.01	-0.09	-0.25	-0.40	-0.03	-0.08	-0.10	-4.99	-1.77	0.01	0.04	0.01	0.02
10/22/2013	1.30	0.86	-0.38	0.14	0.36	-0.02	-0.14	-0.38	-0.41	-0.08	-0.07	-0.10	-5.01	-1.79	0.01	0.03	-0.02	0.02
10/25/2013	1.34	0.97	-0.39	0.18	0.37	-0.01	-0.11	-0.29	-0.41	-0.06	-0.06	-0.09	-4.99	-1.77	0.01	0.03	0.00	0.02
10/29/2013	1.44	1.26	-0.38	0.20	0.38	-0.01	-0.03	-0.09	-0.41	-0.01	-0.02	-0.09	-4.97	-1.72	0.02	0.04	0.06	0.03
11/5/2013	1.36	0.95	-0.39	0.17	0.36	-0.02	-0.11	-0.36	-0.43	-0.07	-0.07	-0.10	-5.00	-1.77	0.01	0.03	-0.03	0.02
11/8/2013	1.31	0.92	-0.40	0.17	0.34	-0.03	-0.13	-0.38	-0.43	-0.07	-0.08	-0.11	-5.00	-1.78	0.00	0.03	-0.09	0.01
11/12/2013	1.24	0.86	-0.47	0.14	0.36	-0.06	-0.19	-0.43	-0.48	-0.08	-0.06	-0.14	-5.03	-1.79	-0.02	-0.05	-0.19	0.00
11/15/2013	1.24	0.82	-0.39	0.12	0.36	-0.02	-0.20	-0.49	-0.42	-0.10	-0.08	-0.10	-5.04	-1.80	0.01	-0.01	-0.06	0.02
11/19/2013	1.22	0.82	-0.37	0.12	0.37	0.00	-0.21	-0.47	-0.41	-0.09	-0.07	-0.08	-5.03	-1.80	0.03	-0.03	-0.13	0.05
11/22/2013	1.23	0.89	-0.41	0.16	0.37	-0.04				-0.08	-0.08	-0.12	-5.02	-1.79	-0.01	-0.02	-0.12	0.01
11/26/2013	1.22	0.87	-0.39	0.14	0.39	-0.03	-0.19	-0.44	-0.44	-0.10	-0.07	-0.11	-5.02	-1.78	0.00	-0.07	-0.23	0.03
12/2/2013	1.26	1.01	-0.40	0.18	0.39	-0.04	-0.17	-0.34	-0.44	-0.06	-0.06	-0.12	-5.00	-1.76	-0.01	-0.04	-0.15	0.01
12/5/2013	1.24	0.93	-0.40	0.15	0.40	-0.04	-0.19	-0.41	-0.44	-0.09	-0.06	-0.11	-5.02	-1.77	-0.01	-0.03	-0.10	0.01
1/20/2014				0.14	0.38	-0.02	-0.26	-0.57	-0.48	-0.07	-0.05	-0.10	-5.05	-1.78	0.01	-0.08	-0.25	0.03
1/30/2014				0.19	0.35	-0.01	-0.19	-0.64	-0.48	-0.02	-0.07	-0.09	-5.01	-1.81	0.02	0.05	-0.12	0.05
2/28/2014				0.16	0.36	-0.01	-0.21	-0.56	-0.50	-0.07	-0.07	-0.08	-5.06	-1.81	0.02	0.00	0.00	0.00
4/1/2014				0.16	0.35	-0.01	-0.23	-0.56	-0.52	0.12	0.07	-0.09	-5.05	-1.79	0.01	-0.02	-0.02	-0.01
4/4/2014				0.15	0.34	-0.01				0.13	0.07	-0.09	-5.05	-1.80	0.02	-0.01	-0.05	0.00
4/5/2014				0.15	0.35	-0.02	-0.24	-0.61	-0.52	0.13	0.07	-0.10	-5.04	-1.80	0.00	-0.01	-0.07	-0.01
4/8/2014				0.14	0.35	-0.02	-0.26	-0.63	-0.50	0.12	0.07	-0.10	-5.04	-1.80	0.00	-0.01	-0.05	0.00
4/11/2014				0.13	0.33	-0.03	-0.27	-0.63	-0.49	0.12	0.05	-0.10	-5.05	-1.80	0.01	-0.01	-0.04	0.01
4/14/2014	1.51	0.18	-0.37	0.17	0.35	-0.06	-0.24	-0.65	-0.53	0.14	0.05	-0.14	-5.03	-1.78	-0.02	0.00	-0.03	-0.02
4/18/2014	1.50	0.24	-0.40	0.14	0.33	-0.05	-0.25	-0.64	-0.53	0.13	0.04	-0.13	-5.03	-1.79	-0.01	0.00	-0.04	-0.01
4/22/2014	1.48	0.22	-0.38	0.13	0.33	-0.05	-0.27	-0.66	-0.51	0.12	0.04	-0.13	-5.04	-1.80	-0.01	0.00	-0.03	-0.01
4/25/2014	1.48	0.28	-0.40	0.15	0.35	-0.06	-0.27	-0.60	-0.53	0.13	0.05	-0.13	-5.05	-1.79	-0.02	-0.02	-0.03	-0.01
4/29/2014	1.53	0.26	-0.39	0.16	0.34	-0.05	-0.25	-0.63	-0.52	0.14	0.04	-0.13	-5.03	-1.80	-0.01	0.00	-0.03	-0.01
5/2/2014	1.51	0.34	-0.43	0.18	0.35	-0.07	-0.25	-0.59	-0.55	0.13	0.04	-0.14	-5.03	-1.79	-0.03	0.00	-0.03	-0.02
5/7/2014	1.54	0.35	-0.41	-0.26	0.62	-0.05	-0.24	-0.61	-0.54	0.14	0.03	-0.13	-5.03	-1.80	-0.01	0.01	-0.03	-0.01
5/9/2014	1.51	0.27	-0.43	-0.28	0.62	-0.06	-0.26	-0.66	-0.57	0.13	0.04	-0.14	-5.03	-1.80	-0.03	0.01	-0.03	-0.02
5/13/2014	1.51	0.27	-0.41	-0.29	0.61	-0.04	-0.26	-0.67	-0.54	0.12	0.02	-0.13	-5.03	-1.80	-0.01	0.01	-0.04	-0.01
5/17/2014				-0.28	0.64	-0.04	-0.25	-0.62	-0.56	0.13	0.05	-0.13	-5.03	-1.77	-0.01	0.01	0.00	-0.01

	SM-55			SM-56			SM-57			SM-58			SM-59			SM-60		
	Phase IA, Northeast			Phase IIA, South			Phase IIA, Southwest			Phase IIA, South			Phase IIA, East			Phase IIA, East		
	Northing	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**	**Northing**	**Easting**	**Elev.**
5/20/2014				-0.26	0.63	-0.04	-0.23	-0.56	-0.55	0.15	0.04	-0.13	-5.02	-1.77	-0.01	0.01	0.00	-0.01
5/23/2014				-0.17	0.78	-0.04	-0.26	-0.54	-0.54	0.25	0.05	-0.14	-5.04	-1.77	-0.02	-0.02	0.02	-0.01
5/27/2014				-0.19	0.76	-0.04	-0.25	-0.59	-0.54	0.25	0.03	-0.14	-5.04	-1.79	-0.02	-0.01	0.00	-0.01
5/30/2014				-0.16	0.77	-0.05	-0.24	-0.58	-0.53	0.26	0.04	-0.14	-5.01	-1.77	-0.02	0.00	0.00	-0.01
6/4/2014	1.40	0.02	-0.41	-0.19	0.76	-0.06	-0.27	-0.65	-0.56	0.24	0.03	-0.15	-5.04	-1.80	-0.03	-0.01	-0.01	-0.02
6/6/2014	1.41	0.01	-0.43	-0.17	0.76	-0.06	-0.26	-0.65	-0.57	0.25	0.03	-0.15	-5.03	-1.79	-0.03	0.00	-0.01	-0.02
6/10/2014	1.44	0.03	-0.40	-0.17	0.75	-0.05	-0.25	-0.65	-0.55	0.25	0.02	-0.14	-5.03	-1.80	-0.02	0.00	-0.01	-0.01
6/17/2014	1.46	0.05	-0.43	-0.16	0.76	-0.06	-0.25	-0.64	-0.56	0.25	0.02	-0.14	-5.02	-1.79	-0.03	0.00	-0.02	-0.02
6/20/2014	1.43	-0.08	-0.47	-0.19	0.74	-0.10	-0.27	-0.72	-0.62	0.23	0.00	-0.19	-5.03	-1.81	-0.07	0.00	-0.04	-0.06
6/23/2014	1.47	0.03	-0.41	-0.16	0.75	-0.05	-0.24	-0.64	-0.55	0.25	0.01	-0.14	-5.02	-1.79	-0.02	0.01	-0.02	-0.01
6/27/2014	1.46	-0.01	-0.42	-0.17	0.75	-0.04	-0.25	-0.68	-0.57	0.25	0.01	-0.13	-5.02	-1.80	-0.01	0.01	-0.02	0.00
7/8/2014	1.45	0.01	-0.42	-0.15	0.75	-0.05	-0.26	-0.67	-0.57	0.26	0.01	-0.14	-5.01	-1.80	-0.02	0.01	-0.01	-0.01
7/11/2014	1.41	-0.09	-0.41	-0.19	0.74	-0.05	-0.29	-0.76	-0.56	0.22	0.00	-0.14	-5.04	-1.81	-0.02	-0.01	-0.05	-0.01
7/15/2014	1.42	0.00	-0.44	-0.17	0.75	-0.06	-0.28	-0.71	-0.57	0.24	0.01	-0.15	-5.03	-1.81	-0.03	0.00	-0.03	-0.02
7/18/2014	1.38	-0.24	-0.42	-0.17	0.75	-0.05	-0.32	-0.88	-0.57	0.25	0.01	-0.13	-5.03	-1.81	-0.02	0.00	-0.03	-0.01
7/22/2014	1.45	0.06	-0.44	-0.16	0.75	-0.05	-0.27	-0.67	-0.58	0.25	0.03	-0.13	-5.03	-1.79	-0.02	0.00	0.00	-0.01
7/25/2014	1.47	0.07	-0.43	-0.14	0.76	-0.05	-0.26	-0.66	-0.57	0.26	0.02	-0.14	-5.02	-1.79	-0.02	0.00	-0.02	-0.01
7/29/2014	1.49	0.17	-0.46	-0.12	0.75	-0.05	-0.24	-0.61	-0.60	0.28	0.02	-0.14	-5.01	-1.80	-0.02	0.01	-0.01	-0.01
8/1/2014	1.44	-0.02	-0.45	-0.16	0.75	-0.05	-0.28	-0.75	-0.59	0.24	0.01	-0.14	-5.03	-1.80	-0.02	0.00	-0.03	-0.01
8/5/2014	1.40	-0.10	-0.43	-0.18	0.74	-0.05	-0.31	-0.81	-0.59	0.24	0.00	-0.14	-5.04	-1.82	-0.02	0.00	-0.05	-0.01
8/10/2014	1.44	0.02	-0.42	-0.16	0.75	-0.07	-0.29	-0.75	-0.58	0.24	0.01	-0.15	-5.03	-1.80	-0.03	0.00	-0.03	-0.02
8/12/2014	1.40	-0.03	-0.44	-0.17	0.74	-0.07	-0.29	-0.76	-0.59	0.23	0.00	-0.15	-5.03	-1.81	-0.03	0.00	-0.04	-0.02
8/15/2014	1.43	0.05	-0.45	-0.15	0.75	-0.07	-0.30	-0.74	-0.60	0.24	0.01	-0.15	-5.02	-1.80	-0.03	0.00	-0.03	-0.03
8/19/2014	1.48	0.18	-0.44	-0.13	0.77	-0.06	-0.26	-0.63	-0.60	0.25	0.04	-0.14	-5.02	-1.77	-0.02	0.00	0.00	-0.01
8/22/2014	1.34	-2.92	-0.46	-0.17	0.73	-0.06	-0.30	-0.80	-0.58	0.24	-0.01	-0.14	-5.04	-1.83	-0.02	0.00	-0.04	-0.02
8/26/2014	1.38	-2.94	-0.48	-0.14	0.76	-0.06	-0.28	-0.75	-0.61	0.24	0.00	-0.15	-5.03	-1.80	-0.03	0.00	-0.03	-0.02
8/29/2014	1.34	-2.83	-0.47	-0.18	0.73	-0.05	-0.28	-0.85	-0.59	0.24	-0.01	-0.14	-5.03	-1.83	-0.02	0.01	-0.04	-0.01
9/2/2014	1.34	-2.89	-0.47	-0.20	0.72	-0.06	-0.31	-0.90	-0.60	0.22	-0.02	-0.15	-5.04	-1.83	-0.02	0.00	-0.07	-0.02
9/5/2014	1.37	-2.90	-0.46	-0.13	0.76	-0.05	-0.27	-0.70	-0.61	0.25	0.01	-0.14	-5.02	-1.80	-0.02	0.00	-0.02	-0.01
9/9/2014	1.35	-2.85	-0.45	-0.18	0.73	-0.05	-0.31	-0.87	-0.59	0.23	-0.01	-0.14	-5.03	-1.84	-0.02	0.00	-0.06	-0.01
9/12/2014	1.40	-2.89	-0.48	-0.14	0.75	-0.05	-0.27	-0.72	-0.58	0.27	0.01	-0.13	-5.02	-1.81	-0.01	0.00	-0.02	0.00
9/16/2014	1.42	-2.94	-0.46	-0.16	0.74	-0.04	-0.31	-0.80	-0.59	0.25	0.01	-0.13	-5.03	-1.82	-0.01	0.00	-0.03	0.00
9/19/2014	1.41	-2.83	-0.47	-0.08	0.76	-0.06	-0.22	-0.62	-0.61	0.32	0.04	-0.15	-4.99	-1.77	-0.03	0.02	0.01	-0.02
9/23/2014	1.41	-2.84	-0.48	-0.09	0.77	-0.04	-0.23	-0.58	-0.59	0.29	0.04	-0.13	-5.00	-1.77	-0.01	0.00	0.02	0.00
9/26/2014	1.41	-2.91	-0.47	-0.09	0.76	-0.06	-0.24	-0.66	-0.62	0.28	0.02	-0.15	-4.99	-1.78	-0.03	0.01	-0.01	-0.02
9/29/2014	1.42	-2.80	-0.46	-0.16	0.73	-0.07	-0.31	-0.87	-0.62	0.25	0.00	-0.15	-5.03	-1.84	-0.04	0.00	-0.05	-0.03
10/3/2014	1.45	-2.93	-0.47	-0.11	0.75	-0.06	-0.25	-0.71	-0.61	0.28	0.02	-0.14	-5.01	-1.79	-0.02	0.01	0.00	-0.02
10/7/2014	1.42	-2.83	-0.49	-0.15	0.73	-0.06	-0.28	-0.87	-0.62	0.25	-0.01	-0.14	-5.02	-1.83	-0.02	0.01	-0.06	-0.01
10/10/2014	1.43	-2.88	-0.42	-0.18	0.72	-0.09	-0.34	-0.99	-0.63	0.23	-0.02	-0.17	-5.04	-1.86	-0.05	0.00	-0.08	-0.04
10/14/2014	1.48	-2.87	-0.45	-0.17	0.72	-0.06	-0.29	-0.96	-0.62	0.24	-0.02	-0.15	-5.01	-1.83	-0.03	0.02	-0.07	-0.02
10/17/2014	1.38	-2.85	-0.44	-0.15	0.73	-0.07	-0.32	-0.83	-0.62	0.26	0.00	-0.16	-5.02	-1.82	-0.04	0.00	-0.03	-0.02
10/21/2014	1.39	-2.91	-0.49	-0.11	0.75	-0.05	-0.29	-0.72	-0.61	0.27	0.02	-0.14	-5.02	-1.79	-0.02	0.00	-0.01	0.00
10/24/2014	1.53	-3.30	-0.49	-0.11	0.75	-0.05	-0.27	-0.69	-0.62	0.28	0.02	-0.14	-5.01	-1.79	-0.02	0.00	0.00	-0.01
10/28/2014	1.50	-3.32	-0.45	-0.12	0.74	-0.06	-0.31	-0.79	-0.61	0.26	0.01	-0.14	-5.01	-1.79	-0.02	0.00	-0.03	-0.01
10/30/2014	1.46	-3.25	-0.50	-0.13	0.74	-0.04	-0.31	-0.78	-0.60	0.27	0.02	-0.13	-5.01	-1.79	-0.01	0.00	-0.01	0.01
11/4/2014	1.43	-3.19	-0.49	-0.18	0.64	-0.04	-0.34	-0.91	-0.62	0.23	0.02	-0.14	-5.06	-1.79	-0.02	0.00	-0.05	-0.02
11/7/2014	1.42	-3.22	-0.49	-0.17	0.69	-0.04	-0.33	-0.85	-0.64	0.21	0.03	-0.15	-4.98	-1.79	-0.02	-0.01	-0.04	-0.02
11/11/2014	1.48	-3.25	-0.49	-0.22	0.66	-0.04	-0.33	-1.00	-0.63	0.17	0.00	-0.15	-5.00	-1.82	-0.02	0.00	-0.07	-0.02
11/14/2014	1.42	-3.22	-0.51	-0.18	0.68	-0.03	-0.31	-0.89	-0.63	0.20	0.02	-0.14	-4.98	-1.80	-0.01	-0.02	-0.07	-0.01
11/18/2014	1.42	-3.22	-0.51	-0.18	0.68	-0.03	-0.31	-0.89	-0.63	0.20	0.02	-0.14	-4.98	-1.80	-0.01	-0.02	-0.07	-0.01
11/21/2014	1.44	-3.21	-0.51	-0.18	0.71	-0.02	-0.32	-0.88	-0.63	0.21	0.04	-0.12	-4.98	-1.77	0.01	-0.01	-0.07	0.02
11/25/2014	1.42	-3.20	-0.50	-0.14	0.68	-0.02	-0.29	-0.80	-0.63	0.21	0.03	-0.13	-4.97	-1.77	0.00	0.00	-0.04	0.00