APPENDIX H

SETTLEMENT ANALYSES FOR SCA

GEOSYNTEC CONSULTANTS

COMPUTATION COVER SHEET

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SETTLEMENT ANALYSES FOR SCA

PURPOSE

This package was prepared in support of the design of the Sediment Consolidation Area (SCA) for the Onondaga Lake Bottom Site, which will be constructed on Wastebed 13. The location of the SCA on Wastebed 13 is shown in Figure 1. Specifically, the purpose of this package is:

(i) to calculate foundation settlement of the existing Solvay waste (SOLW) due to liner system and geotextile tube (geo-tube) placement, and to calculate the settlement of the dredge material inside the geo-tubes before cover placement (i.e., capping);

(ii) to calculate additional foundation and dredge material settlement after capping;

(iii) to estimate the post-settlement grades in the east and west sumps to confirm that positive drainage towards the sumps will be maintained during operations, closure, and post-closure; and

(iv) to estimate the post-settlement grades for the liner system and the cover system, and to estimate tensile strains for the liner system. The performance of the liner system and the final cover system is then evaluated to verify that:

a. positive drainage is maintained towards the liquids management collection sumps;

b. positive drainage is maintained on the final cover surface; and

c. maximum tensile strains in the liner geosynthetic components do not exceed the maximum allowable tensile strains.

METHODOLOGY

Consolidation Settlement

Settlements of the SOLW and the dredge material in geo-tubes were calculated using equations for conventional one-dimensional (1-D) consolidation theory used in

geotechnical engineering [Holtz and Kovacs, 1981]. Settlements of the SOLW and dredge material in geo-tubes are caused by the following mechanisms:

- primary compression of the SOLW and the dredge material in geo-tubes due to overburden loading imposed by the SCA perimeter dikes, the liner system, the dredge material, and the final cover system; and
- secondary compression resulting from the plastic realignment of the fabric (i.e., creep) of SOLW and the dredge material in geo-tubes under the sustained loading.

The general forms of the settlement equations are given below:

Primary Settlement

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

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

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

Secondary Settlement

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

Total Settlement

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

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 (assumed 0.5 years in this analysis). The time for completion of primary compression was estimated to range from several months (based on field settlement pilot study) to several years (based on laboratory consolidation tests). For the purpose of this calculation package, the time for completion of primary compression was assumed to be 0.5 years; and

t_2 = time when settlement due to secondary compression is computed (i.e., assuming 4 years to place geo-tubes, 1 year to place cover, and 30 years after closure, the t_2 is assumed to be 35 years for this analysis).

It is noted that the foundation and dredge material settlements were calculated for two time periods, at the time of closure (i.e., after geo-tube placement is complete but before the final cover has been constructed) and 30 years after closure.

During the operating period of 4 years, the foundation settlement was calculated assuming that all phases of geo-tubes were placed at the beginning of operations. The dredge material settlement was calculated assuming that the geo-tubes were placed on a yearly basis for 4 years (i.e., a quarter of the geo-tubes were placed at the beginning of year 1; a quarter of the tubes were placed at the beginning of year 2; etc.). For purposes of this analysis, a 4-year geo-tube placement approach was assumed so that the settlement due to the placement of geo-tubes on top of previously-placed geo-tubes could be incorporated into the calculations. The actual geo-tube phasing will be developed based on many considerations, including operational needs, observations during operations, etc.

For the after capping settlement calculations, the deformed geometry of the liner system, SCA perimeter dike, and the geo-tubes computed from the settlement analyses at closure (i.e., before cover placement) became the initial geometry. The proposed final cover system loading was assumed to be placed at the beginning of year 5. The foundation and dredge material settlement after closure was calculated due to the placement of the proposed final cover. The continued secondary settlement of foundation and dredge material due to the placement of the liner system, dike, and geo-tubes was also incorporated into the settlement evaluation.

Settlement Computation Model

Foundation and cover settlements were calculated using two different models, the surface settlement model (SSM) and the cross-section settlement model (CSM). The SSM produces post-settlement elevation and settlement (i.e., isopach) contour maps for a deformed surface. The CSM produces similar results along a cross section. The main difference between SSM and CSM is that the CSM considers the load-induced stress distribution within the foundation SOLW and the dredge material in geo-tubes while the SSM does not. CSM also models the geometries of the outermost geo-tubes as a series of vertical terraces to mimic the actual shape, while SSM models the outermost geo-tubes as a smooth surface using the composite slopes. The post-settlement contour maps produced using the SSM were used to evaluate: (i) whether positive drainage is maintained towards the east and west sumps; and (ii) whether positive drainage is maintained in the liner system and the final cover system. The post-settlement section figures produced using the CSM were used to evaluate the maximum strain in the geosynthetic components.

Surface Settlement Model (SSM)

Foundation and dredge material settlement based on SSM was calculated using EXCEL® spreadsheets. The details regarding loading and timing for the SSM calculations are provided in subsequent sections. A general summary of the steps used to perform the settlement calculations is presented as follows:

Step 1. Calculation points (approximately 2,300 for this analysis) were selected within the SCA footprint in order to represent the geometries of various surfaces (e.g., low permeability soil layer [LPSL]). For each calculation point, the northing, easting, and the elevation values of various surfaces were selected and stored.

Step 2. For each calculation point, the subsurface profile beneath the liner system (i.e., the SOLW) and the dredge material above the liner system were identified and broken 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 effective vertical stress, the increase in the effective vertical stress, and the final effective vertical stress were calculated at the center of each sub-layer in the SOLW and dredge material in geo-tubes for each of the loadings described in subsequent sections.

Step 4. Using Equations 1 through 4, the settlements for each sub-layer in SOLW were calculated. The total foundation settlement at a calculation point was found by summing the contribution of the settlement from each of the SOLW sub-layers beneath the bottom of the liner system.

Step 5. Post-settlement elevations of each SOLW sub-layer were obtained by subtracting the corresponding foundation settlement from its corresponding pre-settlement elevation.

Step 6. Using Equations 1 through 4, the settlement for each dredge material sub-layer within the geo-tubes was calculated. The total settlement of the geo-tube surface at a calculation point was found by summing the contribution of the total foundation settlement and the settlement from each of the dredge material sub-layers within the geo-tubes.

Step 7. Post-settlement elevations of each surface were obtained by subtracting the settlement from the pre-settlement elevation at each point.

Step 8. Post-settlement elevation or settlement isopach contour maps were created using the post-settlement or elevation data from all calculation points for the surface of concern.

Cross-section Settlement Model (CSM)

Since CSM can consider the Boussinesq stress distribution in the modeling layers, it is more accurate than SSM at modeling post-settlement strain along the liner system. Foundation and dredge material settlements based on CSM were calculated using EXCEL® spreadsheets. The steps for CSM are generally the same or similar to those for SSM and are presented as follows:

Step 1. Similar, but only a series of calculation points were taken from a cross section line. For the two cross-sections analyzed in this package, the number of calculation points ranged between 90 and 100.

Step 2. Same.

Step 3. Similar, except the increase in effective vertical stress was computed separately by considering the stress distribution based on Boussinesq theory.

Step 4. Same.

Step 5. Same.

Step 6. Same.

Step 7. Same.

Step 8. Pre- and post-settlement top of base liner elevations between a pair of adjacent calculation points were used to assess the pre- and post-settlement length of the liner between the two calculation points. The difference in length relative to the initial length between the calculation points was used to assess the calculated incremental strain in the liner system according to the following equation:

$$\varepsilon = \frac{L_0 - L_f}{L_o} \times 100 \text{ (percent)} \quad (5)$$

Where:

ε = strain in the liner system (- indicates tension, + indicates compression);

L_f = final length between calculation points based on post-settlement elevations; and

L_o = initial length between calculation points based on pre-settlement elevations.

The estimated tensile strains were compared to the conservatively recommended allowable tensile strain of 5% [Berg and Bonaparte, 1993] for the liner system geomembrane.

Tensile Strain Adjustment

The post-settlement liner tensile strain was evaluated for two time periods, at closure (before cover placement) and 30 years after closure. The calculated tensile strains at 30 years after closure are based on the liner condition at closure; however, the liner segments may already have been stretched during the operations period. Therefore, the calculated tensile strains at 30 years after closure need to be adjusted to include additional tensile strains during the operations period.

Assuming ε_1 and ε_2 represent the tensile strains calculated for the operations and post-closure periods, respectively.

$$\varepsilon_1 = \frac{L_0 - L_1}{L_o} = 1 - \frac{L_1}{L_o}, \quad \frac{L_1}{L_o} = 1 - \varepsilon_1 \quad (6)$$

$$\varepsilon_2 = \frac{L_1 - L_2}{L_1} = 1 - \frac{L_2}{L_1}, \quad \frac{L_2}{L_1} = 1 - \varepsilon_2 \quad \text{..... (7)}$$

Where:

L_o = initial length between calculation points based on pre-settlement elevations;

L_1 = final length between calculation points based on post-settlement elevations at closure;

L_2 = final length between calculation points based on post-settlement elevations 30 years after closure;

Assuming $\varepsilon_2^{'}$ represent the adjusted post-closure tensile strains.

$$\varepsilon_2^{'} = \frac{L_0 - L_2}{L_o} = 1 - \frac{L_2}{L_o} = 1 - \frac{L_2}{L_1} \times \frac{L_1}{L_o} \quad \text{..... (8)}$$

Substituting Equations 6 and 7 into Equation 8:

$$\begin{aligned} \varepsilon_2^{'} &= 1 - (1 - \varepsilon_2) \times (1 - \varepsilon_1) \\ &= 1 - 1 + \varepsilon_1 + \varepsilon_2 - \varepsilon_1 \varepsilon_2 \\ &= \varepsilon_1 + \varepsilon_2 - \varepsilon_1 \varepsilon_2 \quad \text{..... (9)} \end{aligned}$$

Since ε_1 and ε_2 are typically relatively small numbers (i.e., couple of percent), the term $\varepsilon_1 \varepsilon_2$ is very small and can be removed from Equation 9. Thus, Equation 9 can be simplified as:

$$\varepsilon_2^{'} = \varepsilon_1 + \varepsilon_2 \quad \text{..... (10)}$$

Secondary Settlement Time Ratio

The secondary settlement components of the foundation and dredge material settlements were calculated for two time periods, at closure (before cover placement) and 30 years after closure. For the post-closure period, the calculated secondary settlement represents additional secondary settlement after closure.

Foundation SOLW

For the foundation SOLW, there are two loadings considered in the settlement analyses. The first one is the liner system and dredge material in geo-tubes loading placed at the beginning of the operations period (i.e., beginning of year 1), and the second one is the proposed final cover loading placed at closure (beginning of year 5). For each sub-layer in the foundation SOLW, it is assumed that the secondary settlement during the post-closure period is a continuation of the secondary settlement triggered by the placement of the dredge material in the geo-tubes. In other words, the secondary settlement during the post-closure period was assumed to not restart due to the placement of the proposed final cover.

Therefore, the additional secondary settlement during the post-closure period can be calculated as:

$$S_{post-closure} = \mathrm{C}_{\alpha\varepsilon}\ \mathrm{H} \log\left(\frac{T_3}{T_1}\right) - \mathrm{C}_{\alpha\varepsilon}\ \mathrm{H} \log\left(\frac{T_2}{T_1}\right) \quad \text{..... (11)}$$

Where:

$S_{post\text{-}closure}$ = additional secondary settlement during the post-closure period;
$C_{\alpha\varepsilon}$ = modified secondary compression index;
H = initial thickness of compressible layer;
T_1 = time for completion of primary compression (assumed 0.5 year);
T_2 = time at closure (assumed 4 years); and
T_3 = time 30 years after closure (assumed 35 years).

Equation 11 can be reorganized as:

$$\begin{aligned} S_{post-closure} &= \mathrm{C}_{\alpha\varepsilon}\ \mathrm{H} \left[\log\left(\frac{T_3}{T_1}\right) - \log\left(\frac{T_2}{T_1}\right)\right] \\ &= \mathrm{C}_{\alpha\varepsilon}\ \mathrm{H}\ \left[\log(T_3) - \log(T_1) - \log(T_2) + \log(T_1)\right] \\ &= \mathrm{C}_{\alpha\varepsilon}\ \mathrm{H}\ \left[\log(T_3) - \log(T_2)\right] \\ &= \mathrm{C}_{\alpha\varepsilon}\ \mathrm{H} \log\left(\frac{T_3}{T_2}\right) \quad \text{..... (12)} \end{aligned}$$

Observing Equations 11 and 12, the secondary settlement during the post-closure period can be calculated in one step per Equation 12 instead of in two steps per Equation 11. Comparing Equations 3 and 12, it can be assumed that the equivalent t_2/t_1 ratio in Equation 3 can be expressed as T_3/T_2 (i.e., 35/4=8.75) for secondary settlement of foundation SOLW.

Dredge Material in Geo-tubes

For the settlement of dredge material in geo-tubes, it was assumed that the geo-tubes were placed on a yearly basis for four years (i.e., a quarter of the geo-tubes were placed at the beginning of year 1; a quarter of the tubes were placed at the beginning of year 2; etc.). Per Equation 12, the equivalent time ratios can be calculated as 35/4 (8.75) for year 1 geo-tubes, 34/3 (11.33) for year 2 geo-tubes, 33/2 (16.5) for year 3 geo-tubes, and 32/1 (32) for year 4 geo-tubes.

ANALYSIS CASES

The following cases were analyzed using the SSM:

CASE 1: Settlement analysis for top of LPSL at the end of the operations period (i.e., end of year 4);

CASE 2: Settlement analysis for top of dredge material in geo-tubes at the end of the operations period (i.e., end of year 4);

CASE 3: Settlement analysis for top of LPSL 30 years after closure (i.e., end of year 35);

CASE 4: Settlement analysis for top of final cover 30 years after closure (i.e., end of year 35);

The following cases were analyzed using the CSM:

CASE 5: Settlement analysis for top of LPSL at the end of the operations period (i.e., end of year 4) along two cross sections [Figure 1];

CASE 6: Settlement analysis for top of dredge material in geo-tubes at the end of the operations period (i.e., end of year 4) along two cross sections [Figure 1]; and

CASE 7: Settlement analysis for top of LPSL 30 years after closure (i.e., end of year 35) along two cross sections [Figure 1].

SUBSURFACE STRATIGRAPHY

Detailed information regarding the subsurface stratigraphy was presented in a calculation package titled "*Subsurface Stratigraphy Model of Wastebed 13 for the Design of Sediment Consolidation Area*" (referred to as the Data Package). In summary, the subsurface stratigraphy consists primarily of three types of material: the SOLW, the dike soil, and the foundation soil, as shown schematically in Figure 2. The SOLW was divided into three zones (i.e., Zone 1, Zone 2, and Zone 3, as shown in Figure 2) based on the distinctive characteristics of each zone.

The groundwater table was assumed to be at elevation 375 ft as presented in the Data Package.

MATERIAL PROPERTIES

Detailed information regarding the material properties (i.e., unit weight and/or compressibility parameters) of the SOLW and the Wastebed 13 perimeter dike soil was also presented in the Data Package. The unit weight of the dredge material was estimated to be approximately 86 pcf based on lab results. The compressibility parameters of the dredge material are calculated and presented in Attachment 1 of this package. The unit weights of the soil liner, gravel drainage layer, and the final cover system were assumed to be 120 pcf.

Table 1 summarizes the material properties of the SOLW, soil liner, gravel layer, dredge material, final cover, and SCA perimeter dike soil.

SETTLEMENT CALCULATION SURFACES AND CROSS SECTIONS

Surface Settlement Model (SSM)

The pre-settlement grading plans of various SCA surfaces needed in the SSM (including from bottom to top: bottom of foundation SOLW, bottom of LPSL [i.e., existing grade], top of LPSL, top of gravel, and the potential top of geo-tube year 1, top of geo-tube year 2, top of geo-tube year 3, and top of geo-tube year 4 surfaces) are presented in Figures 3 through 10. The locations of the 2,300+ settlement calculation points are shown in

Figure 11. These calculation points were used to represent modeling surfaces. The pre-settlement proposed final cover grading plan was developed based on the deformed (i.e., settled) shape of the top of geo-tube year 4 surface; therefore, it includes settlement due to liner and geo-tube placement but not final cover placement. The proposed final cover surface was designed to provide positive drainage of surface water with a minimum of 0.5% slope and a thickness of approximately 33 inches on top of the geo-tubes (i.e., 3-inch leveling layer, 24-inch protection soil layer, and 6 inches of topsoil).

Cross-section Settlement Model (CSM)

Two Cross Sections, A and B, were analyzed using the CSM. The locations of Cross Sections A and B are shown in Figure 1.

RESULTS

Surface Settlement Model (SSM)

CASE 1

The settlement isopach and post-settlement elevation maps for the top of LPSL (or bottom of gravel layer) at the end of operations period (i.e., end of year 4) are shown in Figures 12 and 13, respectively. The estimated settlement includes primary and secondary settlement of SOLW that occurred between the beginning of year 1 and the end of year 4. Per Figure 12, within the top deck area, the majority of the settlements are approximately 9 ft to 11 ft with the area above the subsurface berm having settlements ranging from 5 ft to 8 ft. Figure 13 indicates that the gravel layer functions as needed at the end of operations period (i.e., end of year 4) because there is no slope reversal or local ponding and liquid can freely drain towards the two collection sump areas. The spreadsheet output for settlement analysis for 10 representative calculation points (i.e., 1001 through 1010) is presented in Attachment 2. The locations of calculation points 1001 through 1010 are shown in Figure 11.

CASE 2

The settlement isopach and post-settlement elevation maps for the top of geo-tubes at the end of operations period (i.e., end of year 4) are shown in Figures 14 and 15, respectively. The estimated settlement includes primary and secondary settlement of

dredge material in geo-tubes that occurred between the beginning of year 1 and the end of year 4. Per Figure 14, within the top deck area, the majority of the settlements are approximately 9 ft to 14 ft with the area above the subsurface berm having settlements ranging from 5 ft to 9 ft. Figure 15 indicates that positive drainage is generally maintained in the southern part of the top deck area, along the northern edge, and along the area above the subsurface berm. Areas with relatively flat slopes are formed near the general vicinity of the two collection sumps. With the placement of the proposed final cover (Figure 16), the relatively flat slopes on top of the geo-tubes in these areas can be addressed, and a minimum of 0.5% positive slopes can be provided. The spreadsheet output for settlement analysis for 10 representative calculation points (i.e., 1001 through 1010) is presented in Attachment 3.

CASE 3

The settlement isopach and post-settlement elevation maps for the top of LPSL (or bottom of gravel layer) at 30 years after closure (i.e., end of year 35) are shown in Figures 17 and 18, respectively. It should be noted the settlement calculated for this case consists of: (i) the primary settlement of the SOLW due to the placement of the proposed final cover; and (ii) the continued secondary settlement of the SOLW between the beginning of year 5 and the end of year 35 due to the placement of the liner system, SCA perimeter dike, and the geo-tubes that occurred during years 1 through 4. Per Figure 17, within the top deck area, the majority of the settlements are approximately 1 ft to 2 ft with the area above the subsurface berm having settlements ranging from 0.5 ft to 1 ft. Figure 18 indicates that the gravel layer still functions as required at year 35 because there is no slope reversal or local ponding and liquid can freely drain toward the two collection sump areas. The spreadsheet output for settlement analysis for 10 representative calculation points (i.e., 1001 through 1010) is presented in Attachment 4.

CASE 4

The settlement isopach and post-settlement elevation maps for the top of final cover at the end of year 35 are shown in Figures 19 and 20, respectively. It should be noted that the starting point for this case is the deformed surfaces at the end of year 4. The settlement calculated for this case consists of: (i) the primary settlement of the dredge material in geo-tubes due to the placement of the proposed final cover; and (ii) the continued secondary

settlement of the dredge material in geo-tubes due to the placement of the geo-tubes themselves. Per Figure 19, within the top deck area, the majority of the settlements between the end of year 4 and the end of year 35 are approximately 2 ft to 4 ft. Figure 20 indicates that positive drainage is generally maintained throughout the top deck area allowing surface water to flow toward the low points along the edges. Any long term development of local low points can be addressed during maintenance. The spreadsheet output for settlement analysis for 10 representative calculation points (i.e., 1001 through 1010) is presented in Attachment 5.

Cross-section Settlement Model (CSM)

CASE 5

The stress distribution of geo-tube, liner, and SCA perimeter dike loading within the foundation SOLW along Cross Section A is shown in Figure 21. Figure 21 indicates that the load induced stress does not dissipate much in the center portion of the SCA cell because the loading condition remains relatively uniform for a long distance. The stress values do change significantly in the sideslope area and dike area due to changing load conditions within a short distance. The pre- vs. post- foundation settlement profiles at the end of year 4 along Cross Section A are shown in Figure 22 as an overall view and in Figures 23 and 24 as zoom-in view for the left and right berms and sumps, respectively. Three series of calculation results (pre-settlement slope, post-settlement slope, and post-settlement strain) are shown between two adjacent calculation points for the top of LPSL. According to Figure 22, at the end of year 4, the majority of the settlement for the top of LPSL ranged from 8 ft to 10 ft in the top deck area except above the subsurface berm area where the settlement was about 6 ft. This is consistent with the post-settlement analysis results using SSM (see CASE 1). There is generally no post-settlement liner tensile strain (negative value) underneath the top deck area except in a few localized areas with maximum tensile strain on the order of 0.5%. According to Figures 23 and 24, at the end of year 4, the post-settlement liner tensile strain values range from 0.1% to 0.6% in areas directly underneath the sideslope area, and inside the top deck area. The settlements calculated at the toe of the dike are on the order of 1.1 ft and 0.7 ft for the left (west) and right (east) berms, respectively. Also according to Figures 23 and 24, at the end of year 4, the predicted post-settlement slopes along the top of LPSL will remain positive toward the left (west) and right (east) sumps without grade reversal or local ponding. No post-settlement liner tensile strains are observed in either the sump areas or the surrounding

areas.

The stress distribution of geo-tube, liner, and SCA perimeter dike loading within the foundation SOLW along Cross Section B is shown in Figure 25. The characteristics of the stress distribution are similar to that of Cross Section A. The pre- vs. post- foundation settlement profiles at the end of year 4 along Cross Section B are shown in Figure 26 as an overall view and in Figures 27 and 28 as zoom-in view for the left and right berms, respectively. Three series of calculation results (pre-settlement slope, post-settlement slope, and post-settlement strain) are shown between two adjacent calculation points for the top of LPSL. According to Figure 26, at the end of year 4, the majority of the settlement for the top of LPSL ranged from 8 ft to 11 ft in the top deck area. This is consistent with the post-settlement analysis results using SSM (see CASE 1). There is no post-settlement liner tensile strain (negative value) in the top deck areas. According to Figures 27 and 28, at the end of year 4, the post-settlement liner tensile strain values range from 0.1% to 0.4% in the sideslope areas. The settlements calculated at the toe of the dike are on the order of 0.9 ft and 0.1 ft for the left (north) and right (south) berms, respectively. According to Figure 26, at the end of year 4, the post-settlement slopes along the top of LPSL (i.e., flow line) remain positive toward the left (west) sumps without grade reversal or local ponding. No post-settlement liner tensile strains are observed in the left sump area and the surrounding area.

The spreadsheet output for the settlement analysis for 10 representative calculation points (i.e., 26 through 35, Cross Section A) is presented in Attachment 6.

CASE 6

The pre- vs. post-settlement profiles at the end of year 4 along Cross Section A are shown in Figure 29 for various layers of geo-tubes. According to Figure 29, at the end of year 4, the majority of the settlement for the top of the geo-tubes ranged from 11 ft to 12 ft in the top deck area except the area above the subsurface berm where the settlement was about 8 ft. This is consistent with the results using SSM (see CASE 2).

The pre- vs. post-settlement profiles at the end of year 4 along Cross Section B are shown in Figure 30 for various layers of geo-tubes. According to Figure 30, at the end of year 4, the majority of the settlements for the top of geo-tube phase 4 ranged from 9 ft to 14 ft in the top deck area. This is consistent with the results using SSM (see CASE 2).

The spreadsheet output for settlement analysis for 10 representative calculation points

(i.e., 26 through 35, Cross Section A) is presented in Attachment 7.

CASE 7

The stress distribution of the proposed final cover loading within the dredge material in geo-tubes and foundation SOLW along Cross Section A is shown in Figure 31. Similar to the stress distribution due to geo-tube loading, the stress distribution due to final cover also remains relatively uniform in the center portion and highly variable in the cover sideslope and dike areas. The pre- (i.e., at the end of year 4) vs. post- (i.e., at the end of year 35) foundation settlement profiles along Cross Section A are shown in Figure 32 as an overall view and in Figures 33 and 34 as zoom-in views for the left and right berms and sumps, respectively.

Three series of calculation results (pre-settlement slope [i.e., slope at the end of year 4], post-settlement slope, and post-settlement strain) are shown between two adjacent calculation points for the top of LPSL. It should be noted that the starting point for this case is the deformed profiles at the end of year 4. The settlement calculated for this case consists of: (i) the primary settlement of the SOLW due to the placement of the proposed final cover, and (ii) the continued secondary settlement of the SOLW between the beginning of year 5 and the end of year 35 due to the placement of the liner system, SCA perimeter dike, and the geo-tubes that occurred during years 1 through 4. According to Figure 32, at the end of year 35 as compared to the end of year 4, the majority of the settlements for the top of LPSL ranged from 1 ft to 1.5 ft in the top deck area except in the area above the subsurface berm where the settlement was about 0.5 ft. This is consistent with the results using SSM (see CASE 3).

There is generally no post-settlement liner tensile strain (negative value) in the top deck areas except some localized areas with maximum tensile strain on the order of 0.6%. It should be noted that the maximum 0.6% tensile strain is the adjusted strain. It is the sum of the liner tensile strain of 0.5% at approximate distance 1,000 ft at the end of year 4 (Figure 22) and the additional liner tensile strain of 0.1% at the same location at the end of year 35 (Figure 32). According to Figures 23, 24, 33, and 34, at the end of year 35, the post-settlement liner tensile strain values (adjusted) range from 0.1% to 2.2% in areas directly underneath the cover sideslope area. The maximum adjusted 2.2% tensile strain is the sum of the liner tensile strain of 0.1% at approximate distance 1,790 ft at the end of year 4 (Figure 24) and the additional liner tensile strain of 2.1% at the same location at the

end of year 35 (Figure 34). The maximum 2.2% liner tensile strains occurred along the inner side of the dike. Also according to Figures 33 and 34, at the end of year 35, the predicted post-settlement slopes along the top of LPSL will remain positive toward the left (west) and right (east) sumps without grade reversal or local ponding. No post-settlement liner tensile strains are observed in either the sump areas or the surrounding areas.

The stress distribution of the proposed final cover loading within the dredge material in geo-tubes and foundation SOLW along Cross Section B is shown in Figure 35. The characteristics of the stress distribution are similar to that of Cross Section A. The pre- (i.e., at the end of year 4) vs. post- (i.e., at the end of year 35) foundation settlement profiles along Cross Section B are shown in Figure 36 as an overall view and in Figures 37 and 38 as zoom-in view for the left and right berms, respectively. Three series of calculation results (pre-settlement slope, post-settlement slope, and post-settlement strain) are shown between two adjacent calculation points for the top of LPSL. According to Figure 36, at the end of year 35 as compared to the end of year 4, the majority of the settlements for the top of LPSL ranged from 1 ft to 1.5 ft in the top deck area. This is consistent with the results using SSM (see CASE 3). There is no calculated post-settlement liner tensile strain in the top deck areas. According to Figures 27, 28, 37 and 38, at the end of year 35, the post-settlement liner tensile strain values (adjusted) range from 0.1% to 1.0% in areas directly underneath the cover sideslope area. The maximum adjusted 1.0% tensile strain is the sum of the liner compressive strain of 0.9% at approximate distance 210 ft at the end of year 4 (Figure 27) and the additional liner tensile strain of 1.9% at the same location at the end of year 35 (Figure 37). The maximum liner tensile strains occurred along the inner side of the dike. According to Figure 36, at the end of year 35, the post-settlement slopes along the top of LPSL (i.e., flow line) remain positive toward the left (west) sumps without grade reversal or local ponding. No post-settlement liner tensile strains are observed in the left sump area and the surrounding area.

The spreadsheet output for settlement analysis for 10 representative calculation points (i.e., 26 through 35, Cross Section A) is presented in Attachment 8.

SSM and CSM Comparison

As mentioned before, the main difference between the SSM and CSM is that CSM considers the load-induced stress distribution within the foundation SOLW and the dredge material in geo-tubes while the SSM does not. To better illustrate the difference, the post-

settlement top of LPSL calculated without considering stress distribution is shown on Figure 39 along with the analysis results considering the stress distribution for Cross Section A at the end of year 4.

It is noted that under the top deck area (i.e., between distance 300 ft and 600 ft), the post-settlement Top of LPSL with or without stress distribution are almost identical indicating that the load-induced stress dissipate very little in this area. However, these two lines vary in the sideslope area and the perimeter berm area. In the sideslope area (i.e., between distance 160 ft and 260 ft), the post-settlement Top of LPSL line without stress distribution has many near vertical drops at the same location where the loading condition changes significantly, while the Top of LPSL line with stress distribution transitions smoothly regardless of a change in loading condition. At the toe of the gravel layer (i.e., distance 160 ft), the Top of LPSL line without stress distribution predicts less settlement (approximately 1.3 ft) as compared to the Top of LPSL line with stress distribution. This is because the stress condition underneath this location is also affected by the stress distribution from adjacent geo-tube loading. Similarly, at the toe of the perimeter berm (i.e., distance 75 ft), the Top of LPSL line without stress distribution predicts no settlement while the Top of LPSL line with stress distribution predicts 1 ft of settlement.

SSM and CSM results are very similar in the top deck area of the SCA but do differ somewhat in the sideslope and perimeter berm areas, which have more complicated loadings, more potential for liner strain, and represent a relatively small portion of the SCA. Therefore, it is considered appropriate to use SSM to estimate the overall surface settlement for the SCA and to use CSM in the sideslope and perimeter berm areas to estimate liner strain. This is consistent with the approach presented herein.

CONCLUSIONS

The analyses provided herein indicate that

(i) The anticipated foundation settlement during the operations period is 9 ft to 11 ft, and the anticipated settlement of dredge material in the geo-tubes during the operations period is 2.0 ft on average with a maximum of 4.0 ft.

(ii) Relatively small foundation and cover settlements are anticipated during the post-closure period. The additional foundation settlement during the post-closure period is estimated to be 1 ft to 2 ft. The additional cover settlement

(i.e., settlement of dredge material in the geo-tubes) during the post-closure period is estimated to be 1.5 ft on average with a maximum of 3.0 ft.

(iii) The liquid collection layer (i.e., the gravel layer) is anticipated to function properly by allowing liquid to freely flow to the sump areas during the closure and post-closure periods. The settlement calculations predict no slope reversal or local ponding.

(iv) The maximum tensile strain on the liner system, which was calculated to be 2.2% during the closure and post-closure periods, is less than the allowable tensile strain of 5% for liner geomembrane. For the closure and post-closure periods, there was little or no liner tensile strain calculated for the majority of the liner system underneath the top deck area. According to the results, liner tensile strains were typically observed under the sideslope and in the dike areas. The maximum liner tensile strains typically occur on the inner side of dike sideslope areas.

(v) The east and the west sumps are anticipated to function properly by maintaining positive drainage toward both sump areas during the closure and post-closure periods. The settlement calculations predict no slope reversal, local ponding, or tensile liner strain in both sump areas and the surrounding areas.

(vi) The proposed final cover is expected to perform properly during the post-closure period by maintaining positive drainage slopes. Any long term development of local low points can be addressed during maintenance.

REFERENCES

Berg, R.R. and Bonaparte, R., "*Long-Term Allowable Tensile Stresses for Polyethylene Geomembranes*," Geotextiles and Geomembranes, Vol. 12, 1993, pp. 287-306.

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

Tables

Table 1. Summary of Material Properties for Settlement Calculation

Material		Total Unit Weight (γ_i, pcf)	Overconsolidation Ratio (OCR)	Modified Compression Index ($C_{c\varepsilon}$)	Modified Recompression Index ($C_{r\varepsilon}$)	Coefficient of Secondary Compression ($C_{\alpha\varepsilon}$)(1)
SOLW	Zone 1	82	4.5 for D=0~10 ft 2.0 for D=10~20 ft 1.0 for D>20 ft	0.34	0.015	0.13% for $\sigma_v^{'}/\sigma_p^{'} \leq 1.0$ 0.83% for $\sigma_v^{'}/\sigma_p^{'} > 1.0$
	Zone 2			0.46	0.014	0.11% for $\sigma_v^{'}/\sigma_p^{'} \leq 1.0$ 0.91% for $\sigma_v^{'}/\sigma_p^{'} > 1.0$
	Zone 3			0.38	0.021	0.07% for $\sigma_v^{'}/\sigma_p^{'} \leq 1.0$ 0.70% for $\sigma_v^{'}/\sigma_p^{'} > 1.0$
Dike Soil, Soil Liner and Final Cover		120	N/A	N/A	N/A	N/A
Dredge Material		86	1.0	0.291	0.0045	0.08% for $\sigma_v^{'}/\sigma_p^{'} \leq 1.0$ 0.60% for $\sigma_v^{'}/\sigma_p^{'} > 1.0$
Gravel		120	N/A	N/A	N/A	N/A

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

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Figures

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

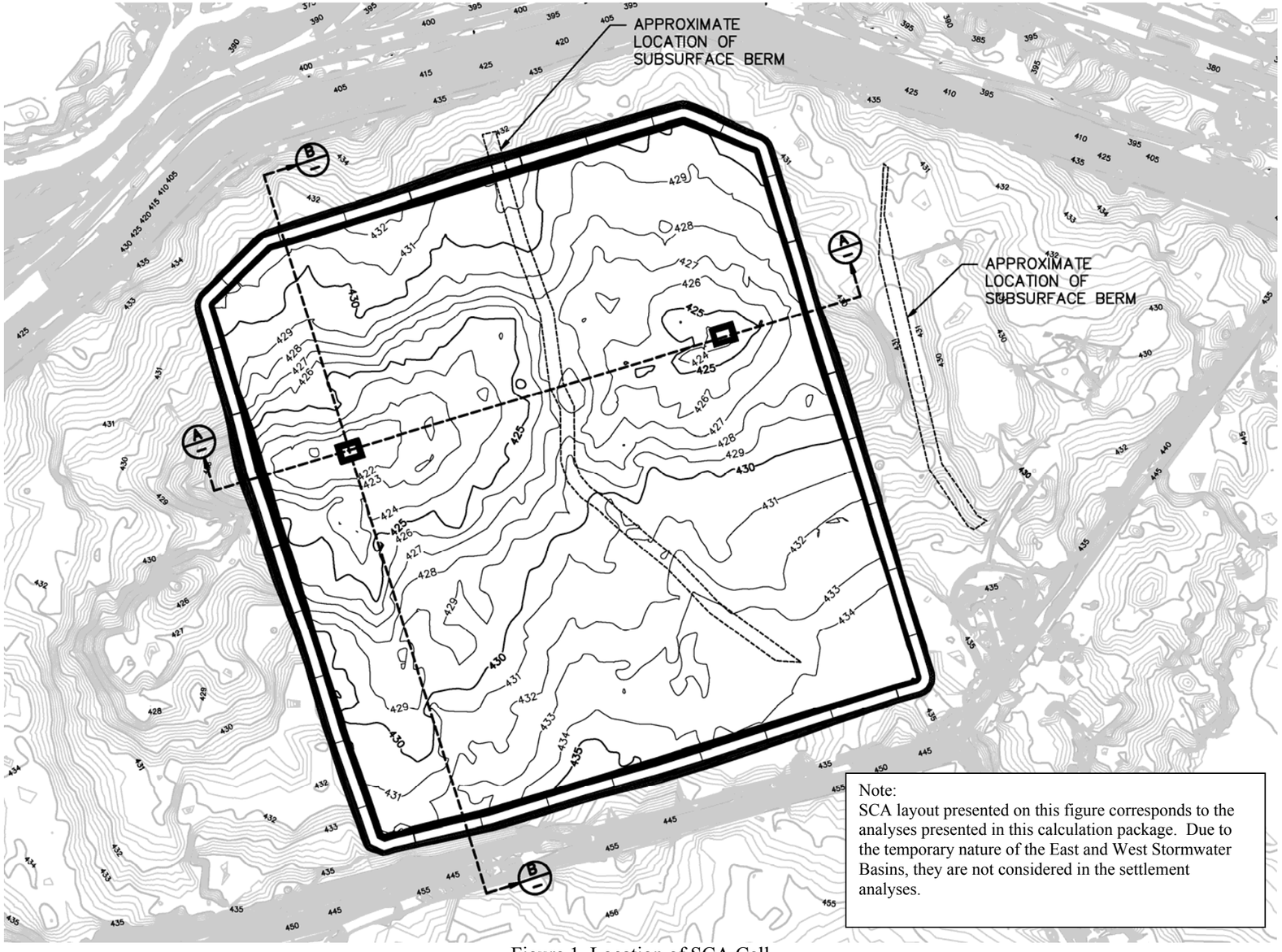


Figure 1. Location of SCA Cell

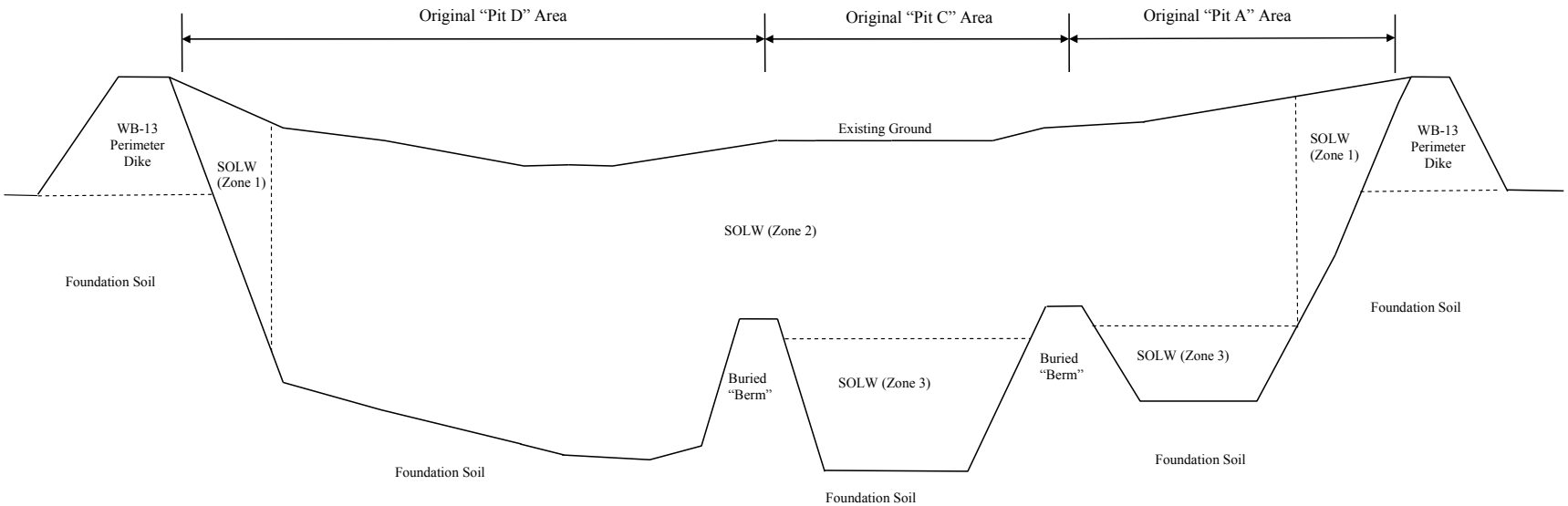
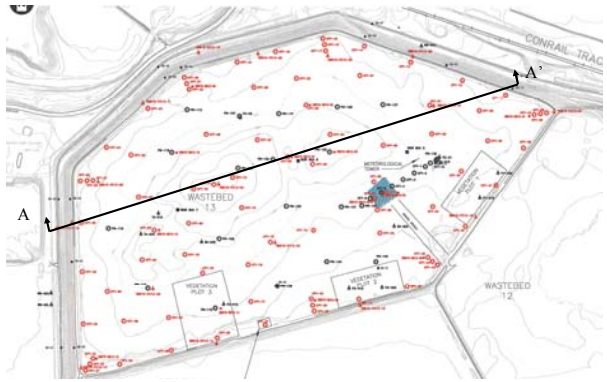


Figure 2. Schematic of Subsurface Profile
[not to scale; for the purpose of showing subsurface stratigraphy only; location of the section is shown below]



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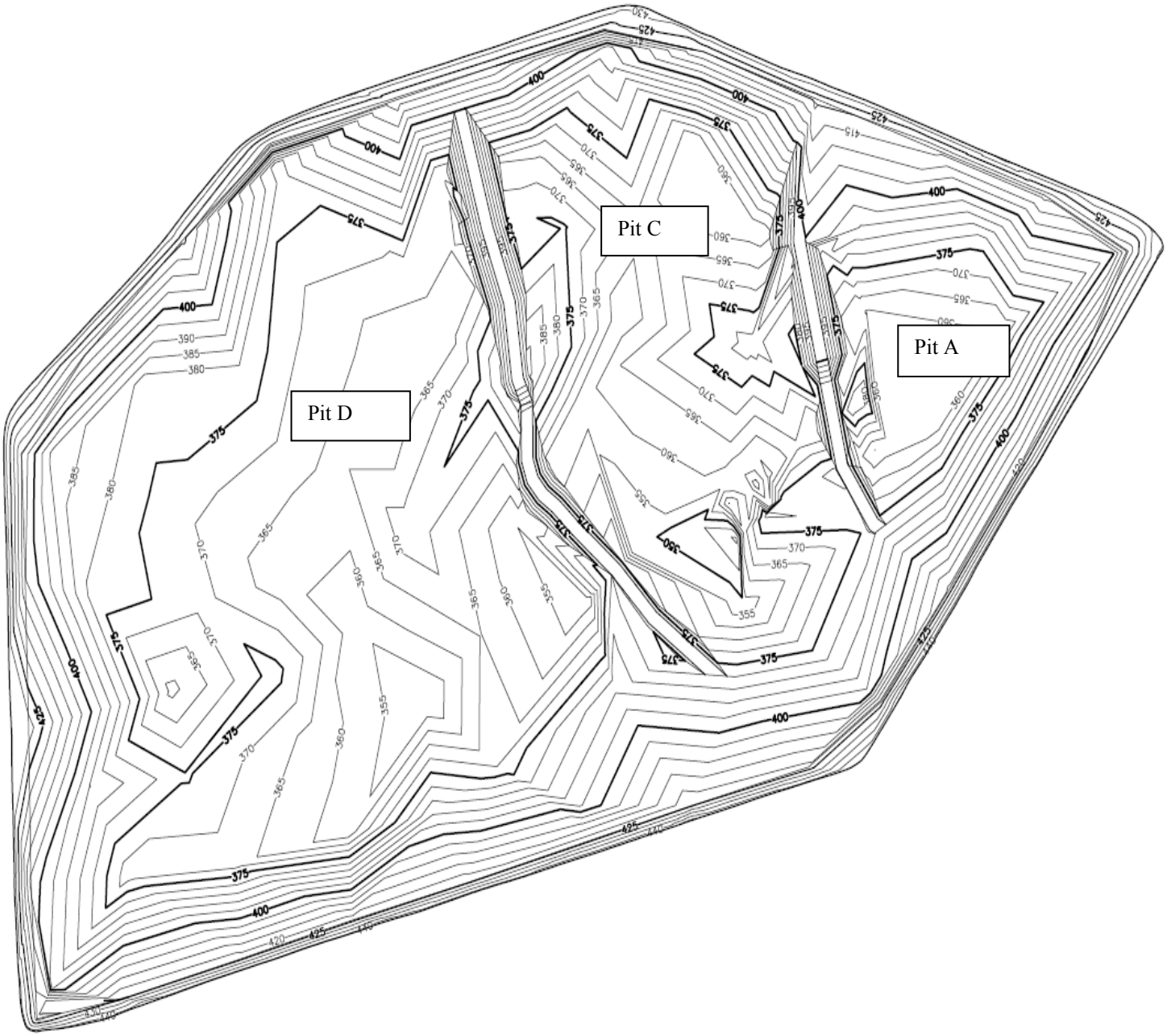

Figure 3. SCA Bottom of Foundation SOLW Grading Plan

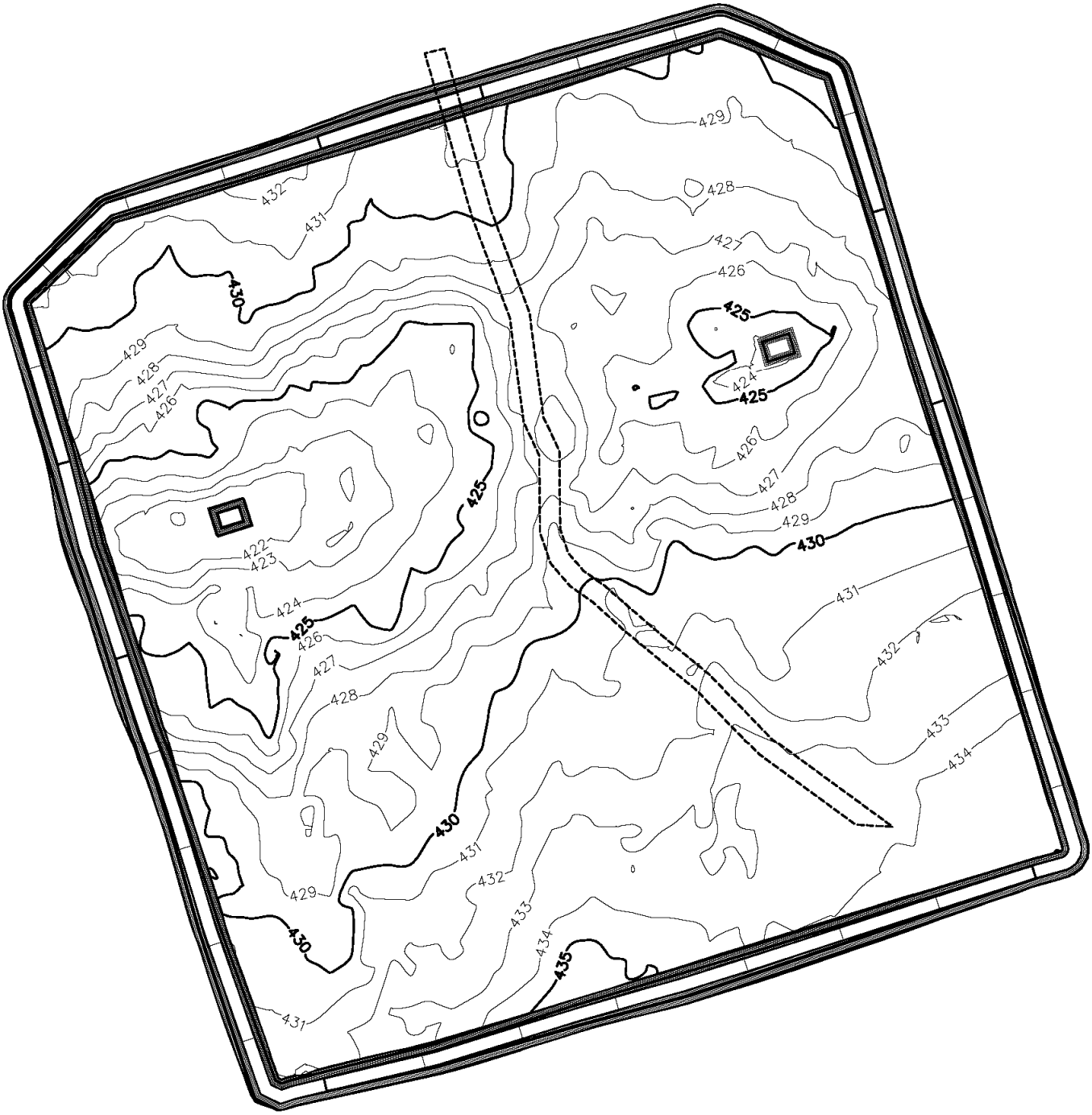

Figure 4. SCA Pre-Settlement Bottom of LPSL Grading Plan (i.e., existing grade)

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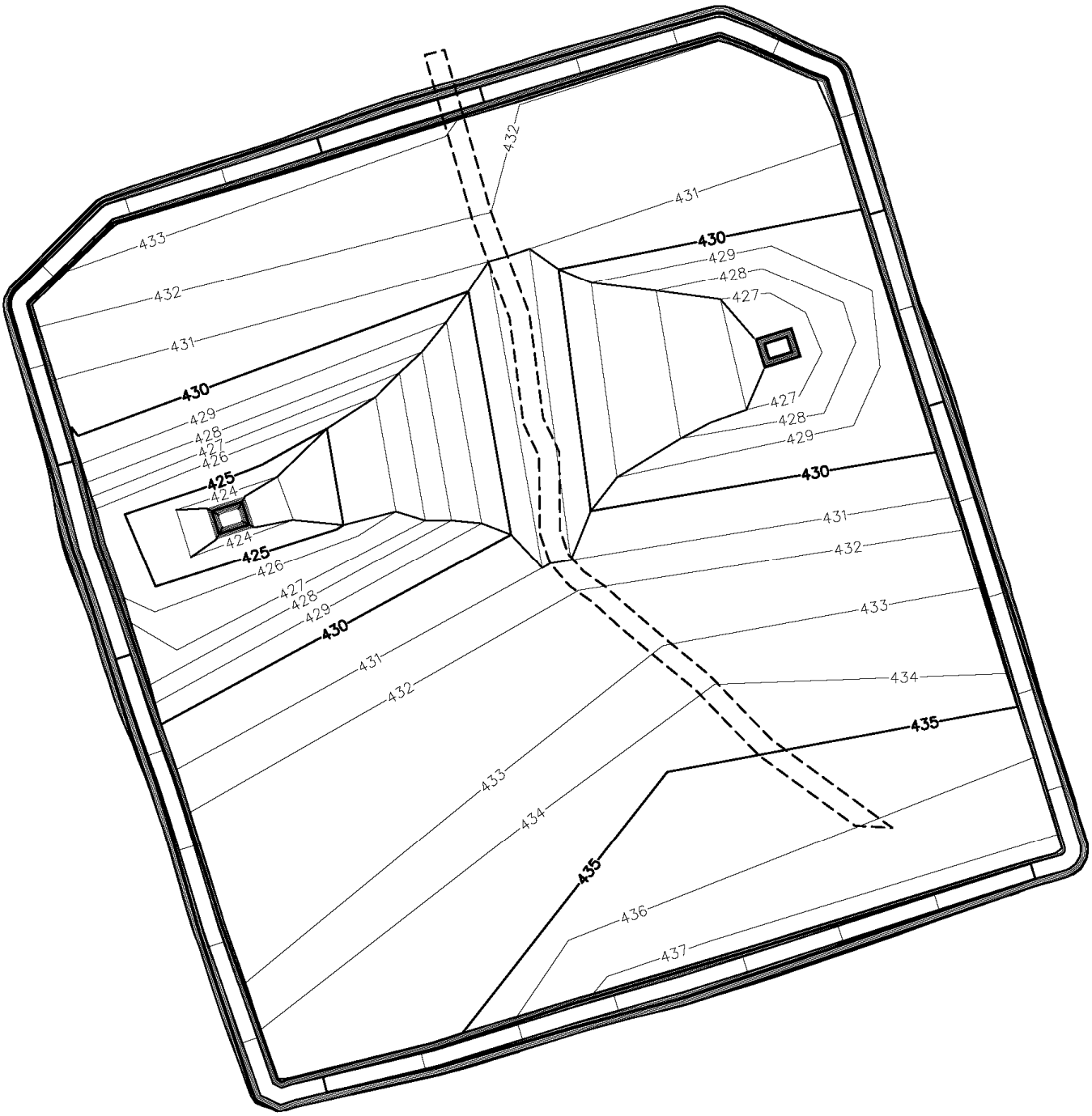

Figure 5. SCA Pre-Settlement Top of LPSL Grading Plan

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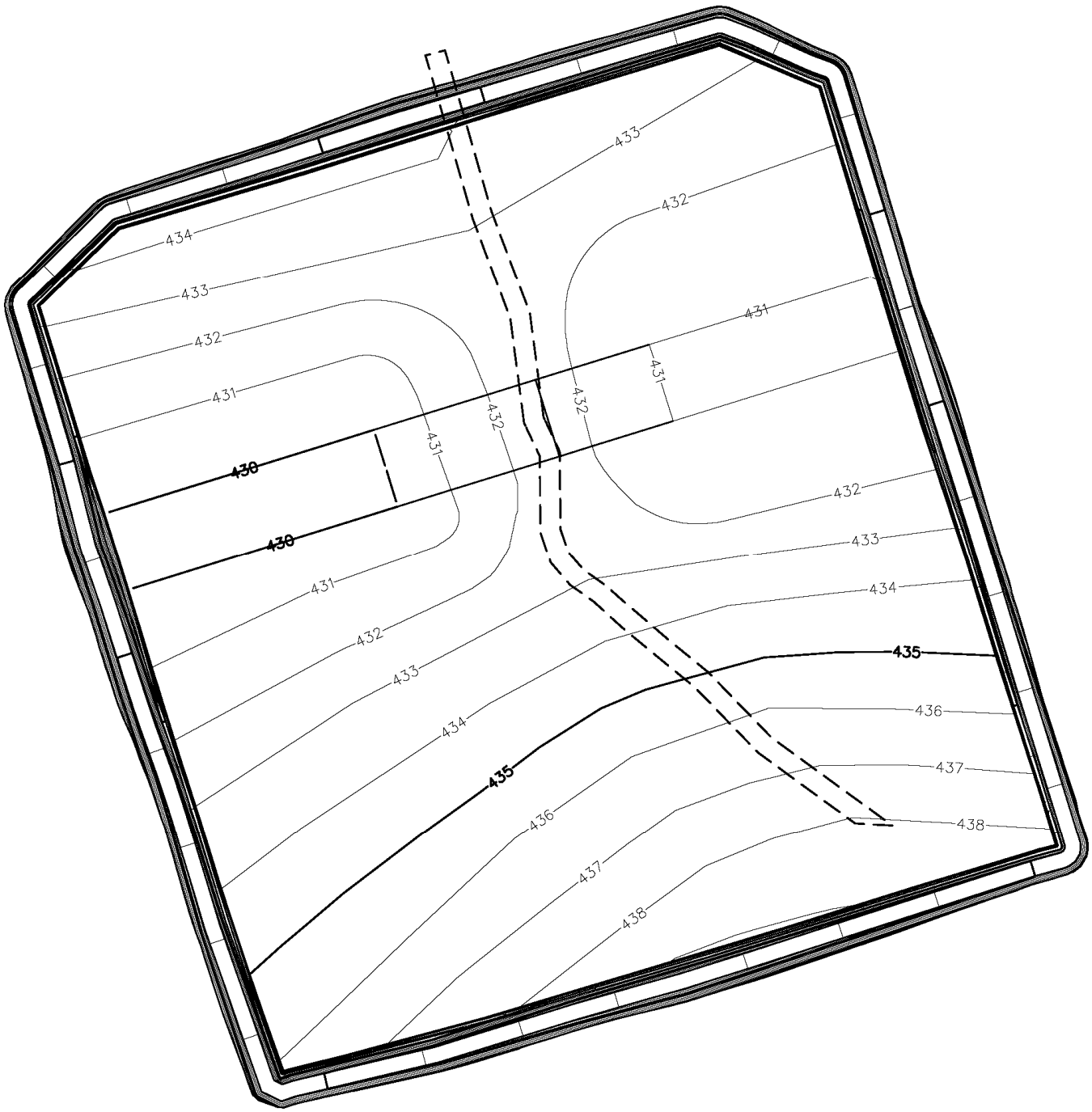

Figure 6. SCA Pre-Settlement Top of Gravel Grading Plan

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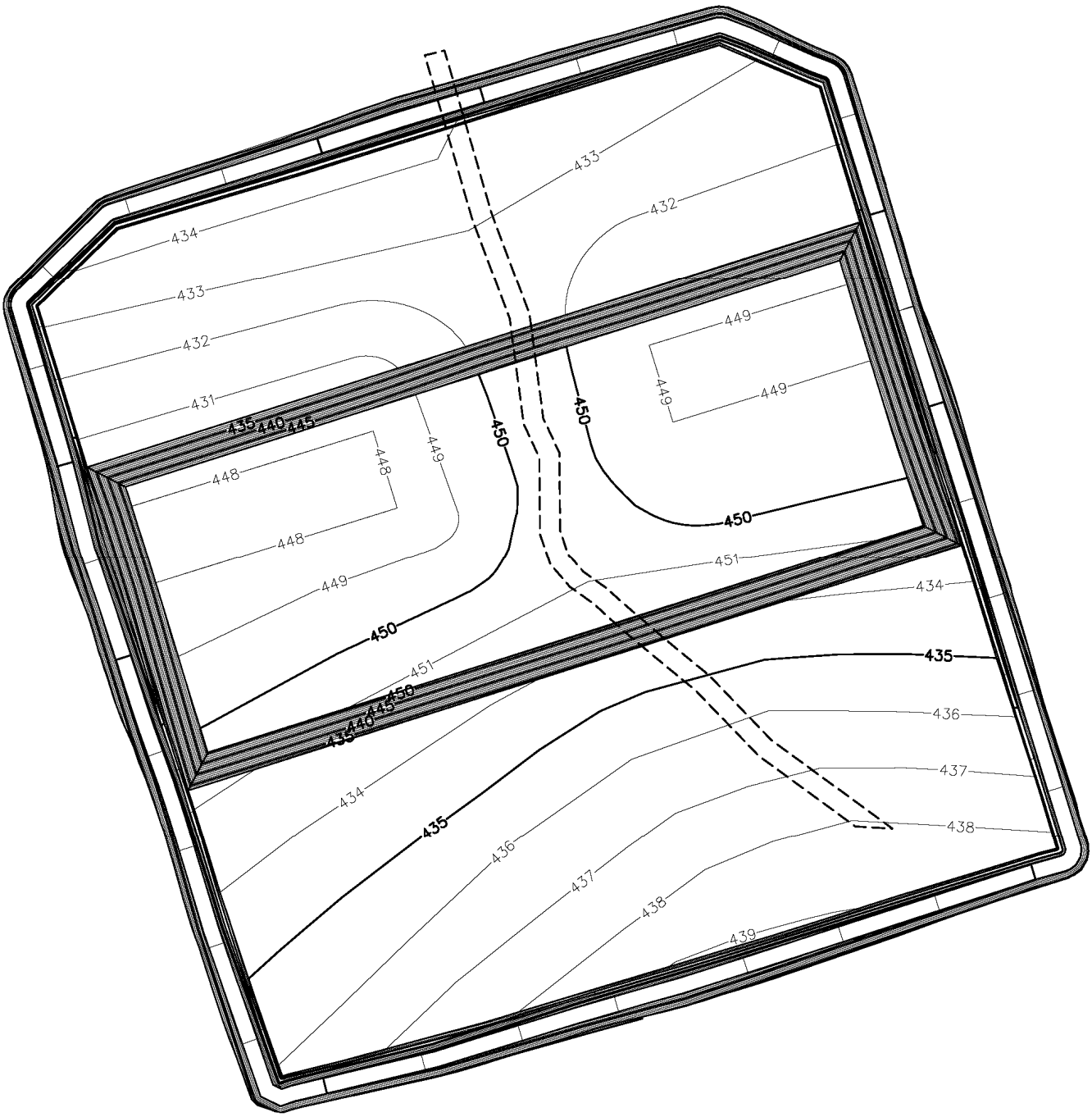

Figure 7. SCA Pre-Settlement Potential Top of Geo-tube Year 1 Grading Plan

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009

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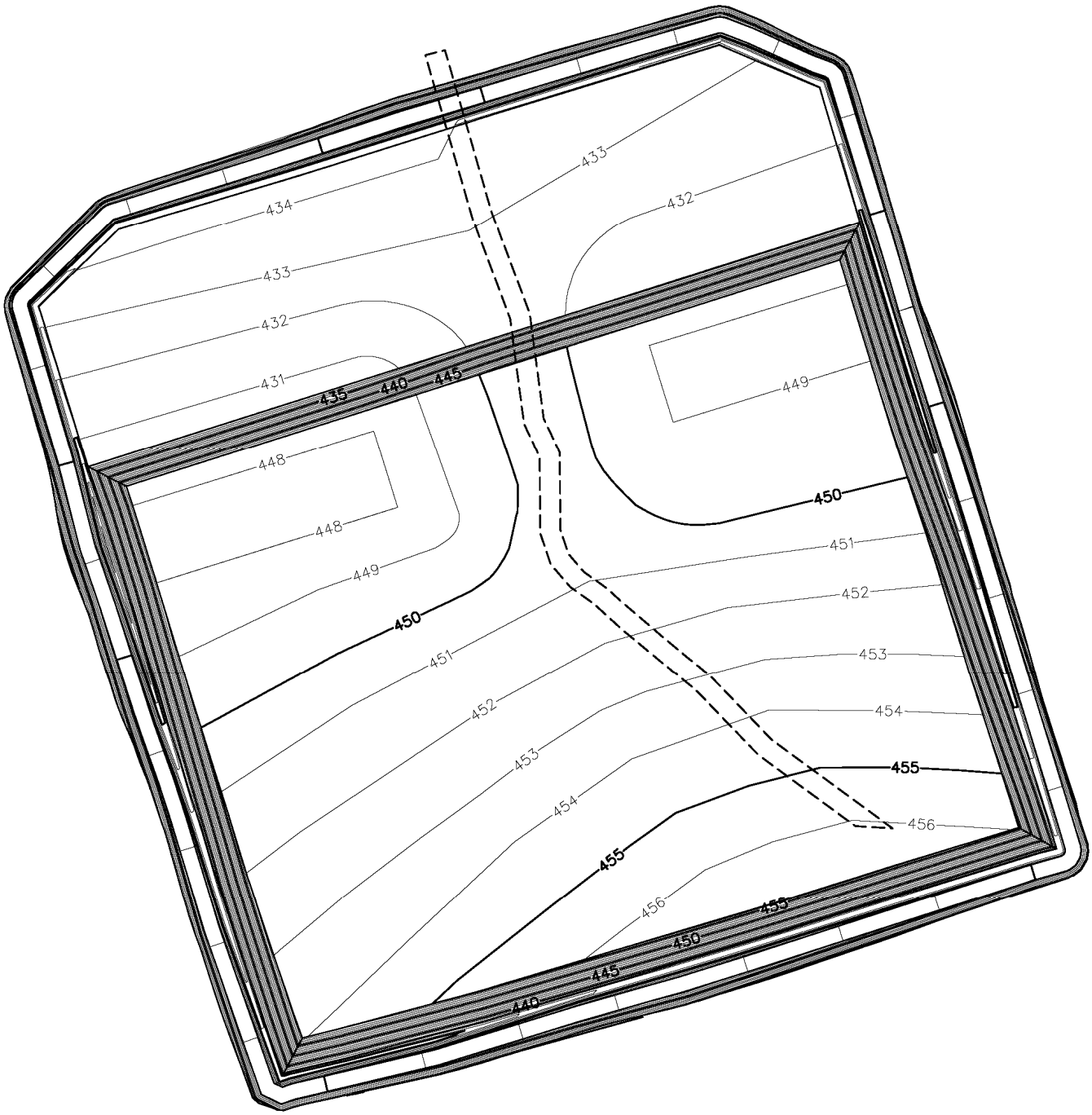

Figure 8. SCA Pre-Settlement Potential Top of Geo-tube Year 2 Grading Plan

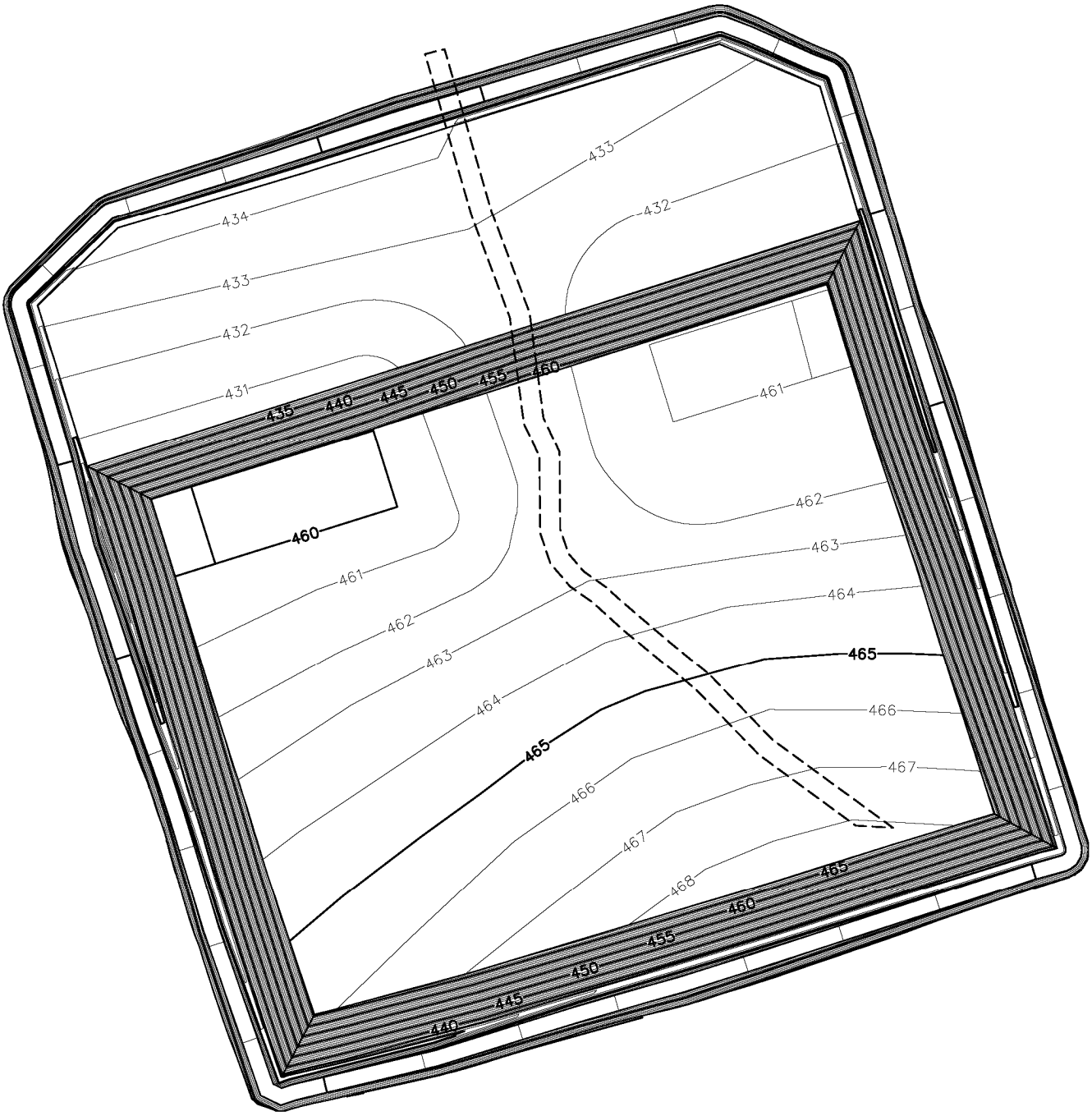

Figure 9. SCA Pre-Settlement Potential Top of Geo-tube Year 3 Grading Plan

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009

Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

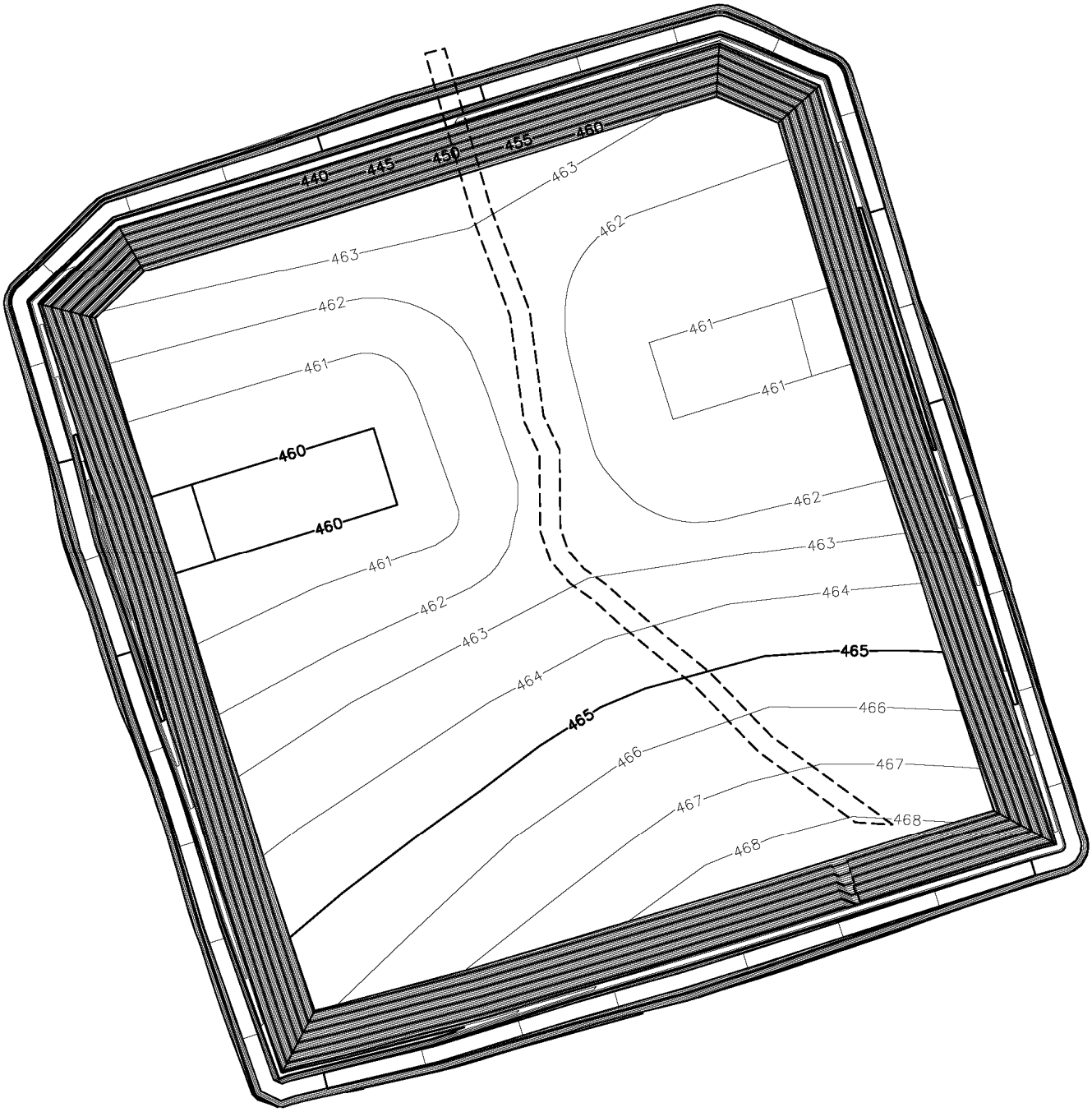

Figure 10. SCA Pre-Settlement Potential Top of Geo-tube Year 4 Grading Plan

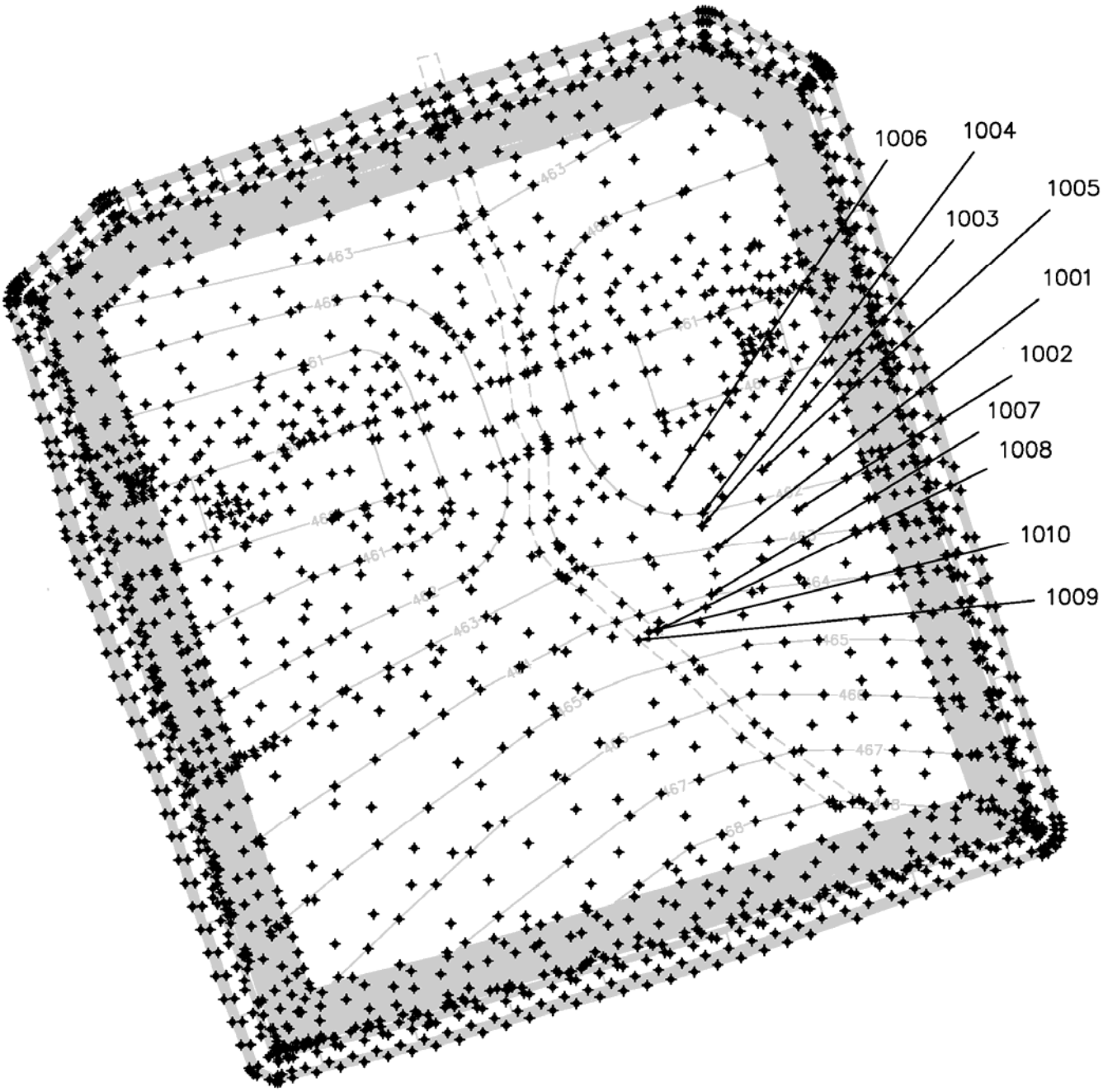

Figure 11. Settlement Calculation Points Shown on Top of Potential Geo-tube Year 4 Grading Plan

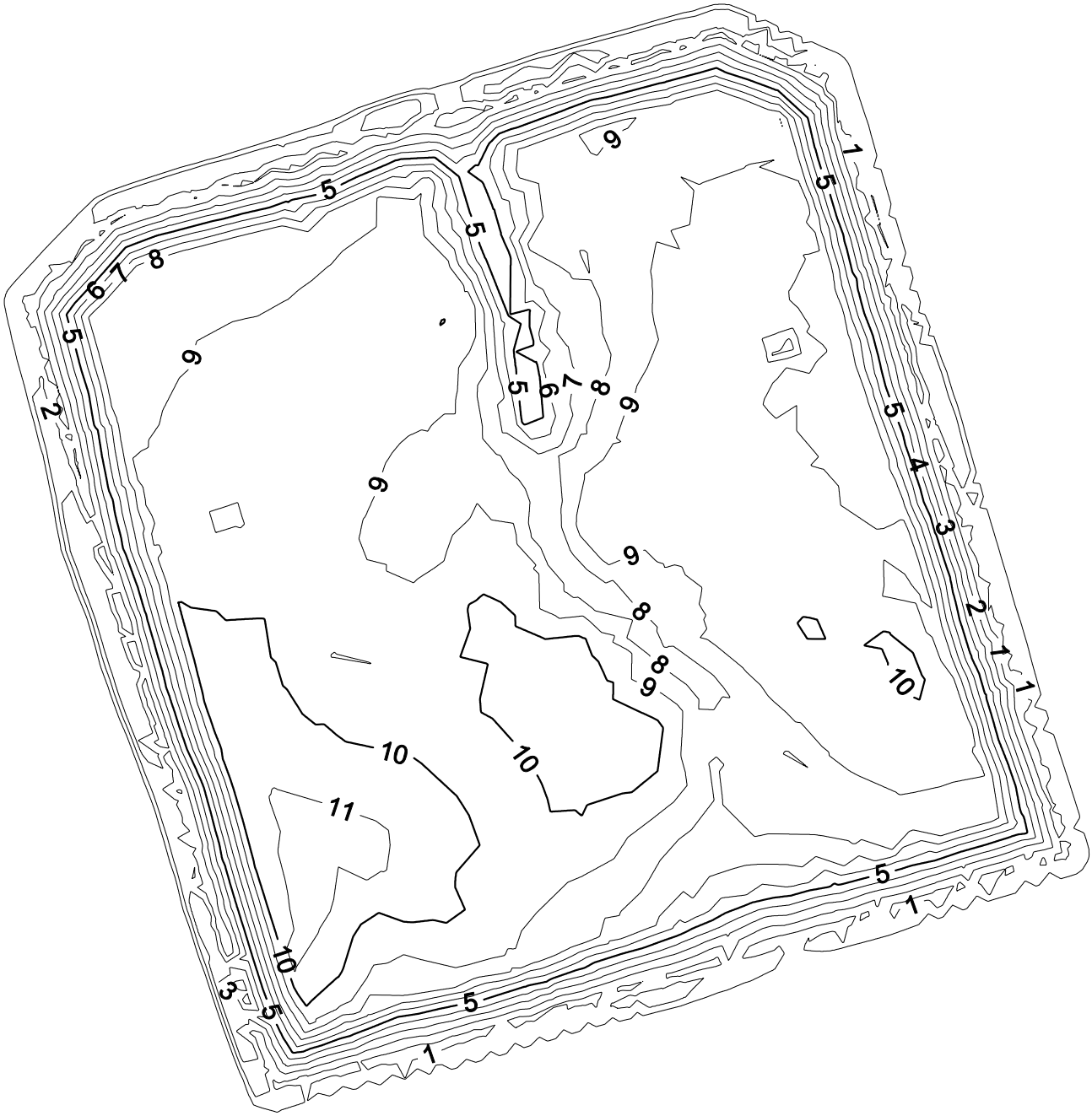

Figure 12. CASE 1: Top of LPSL Settlement from beginning of Year 1 to End of Year 4

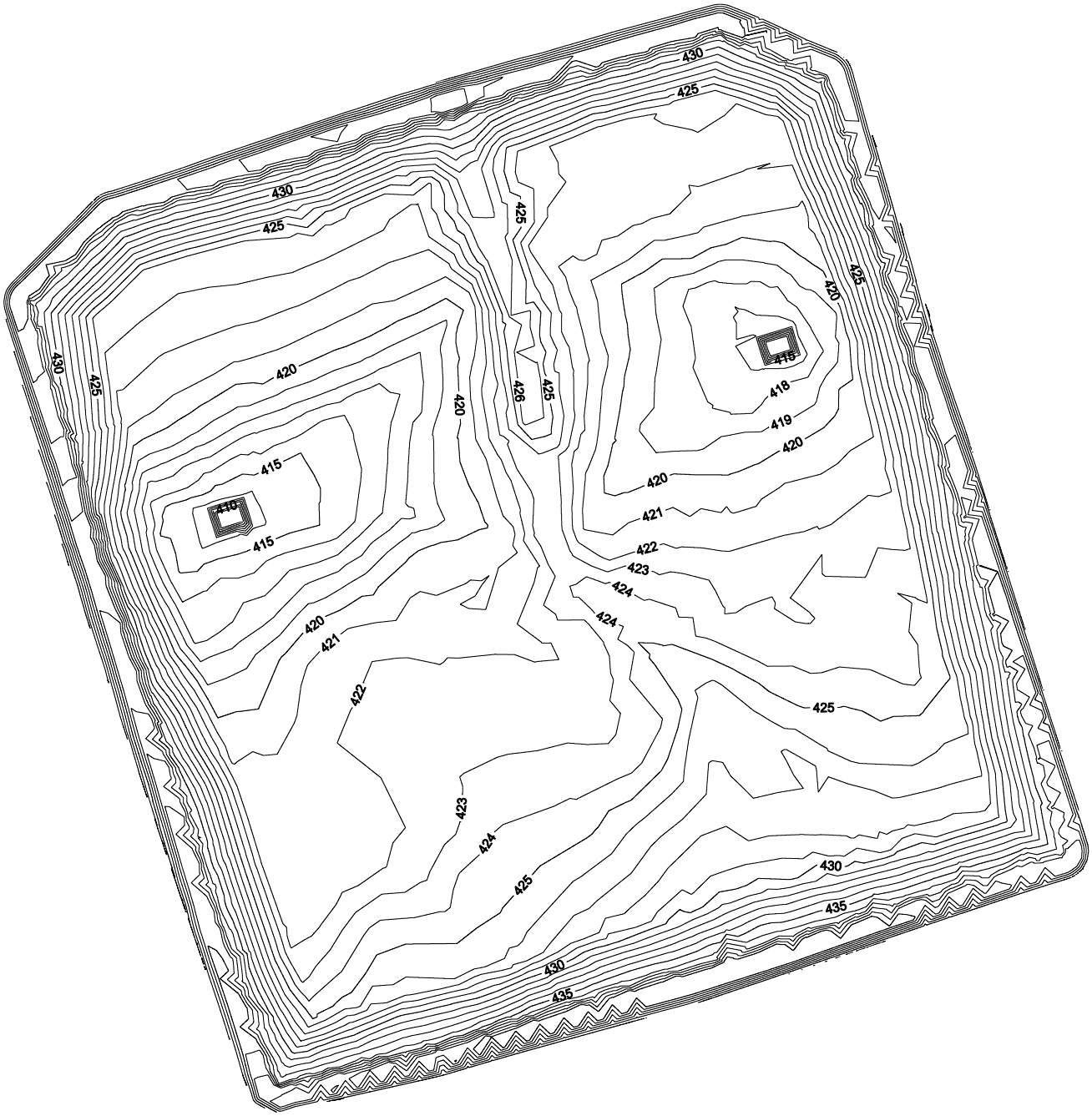

Figure 13. CASE 1: Top of LPSL Post-Settlement Elevation at the End of Year 4

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Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

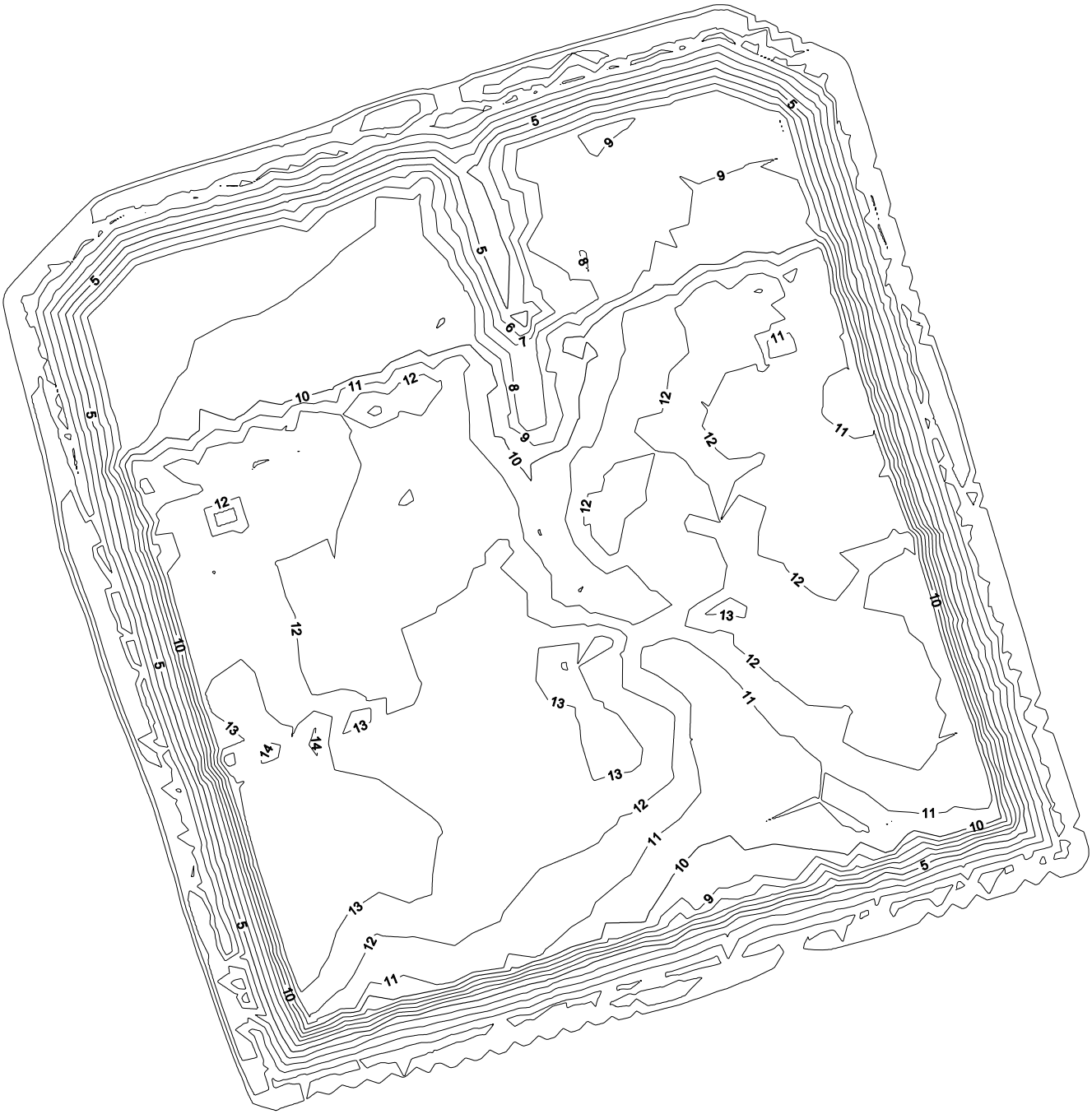


Figure 14. CASE 2: Top of Dredge Material in Geo-tubes Settlement from beginning of Year 1 to End of Year 4

Figure 15. CASE 2: Top of Dredge Material in Geo-tubes Post-Settlement Elevation at the End of Year 4

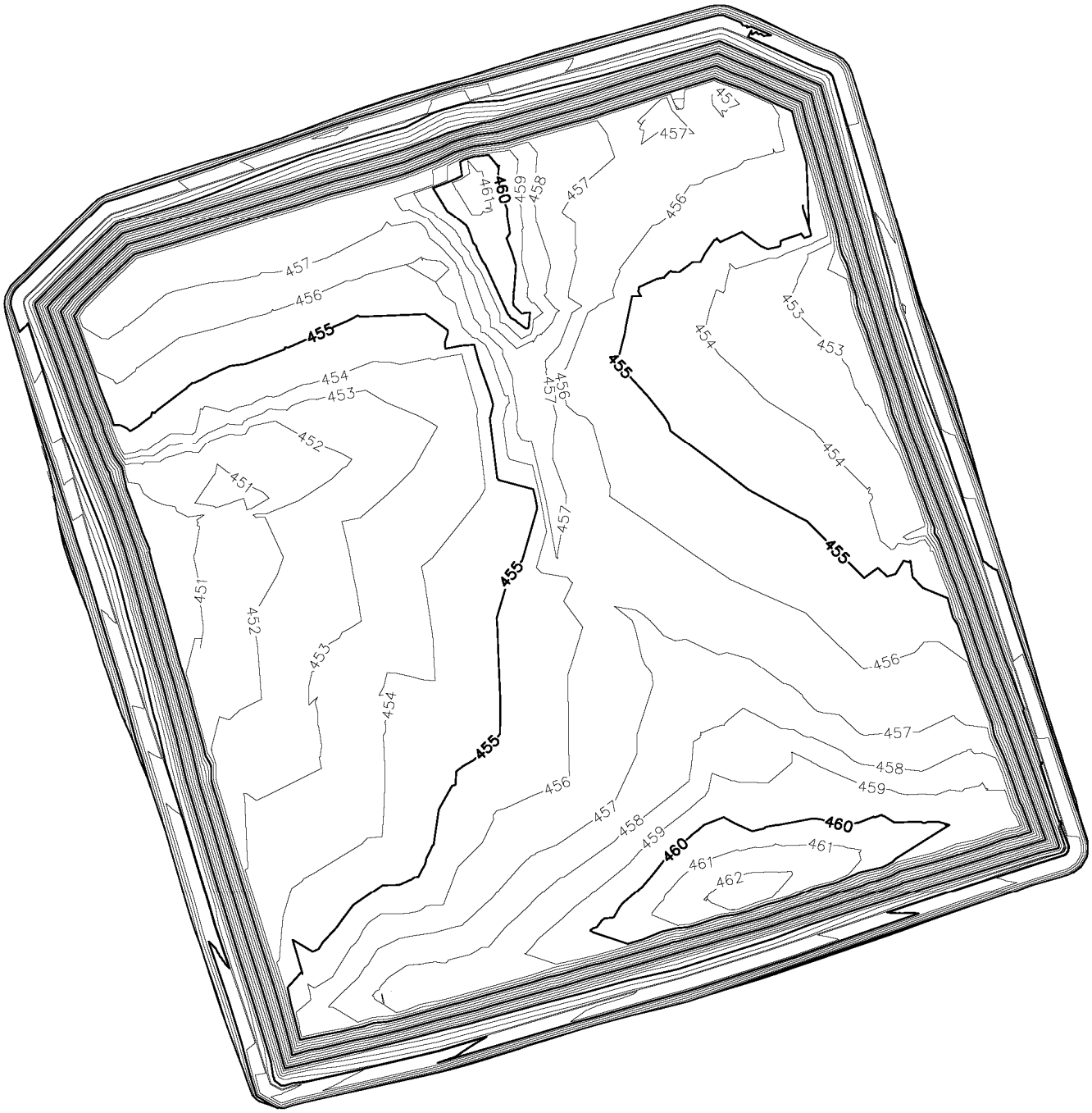


Figure 16. Proposed Pre-settlement Final Cover System Grading Plan at Beginning of Year 5

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009

Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

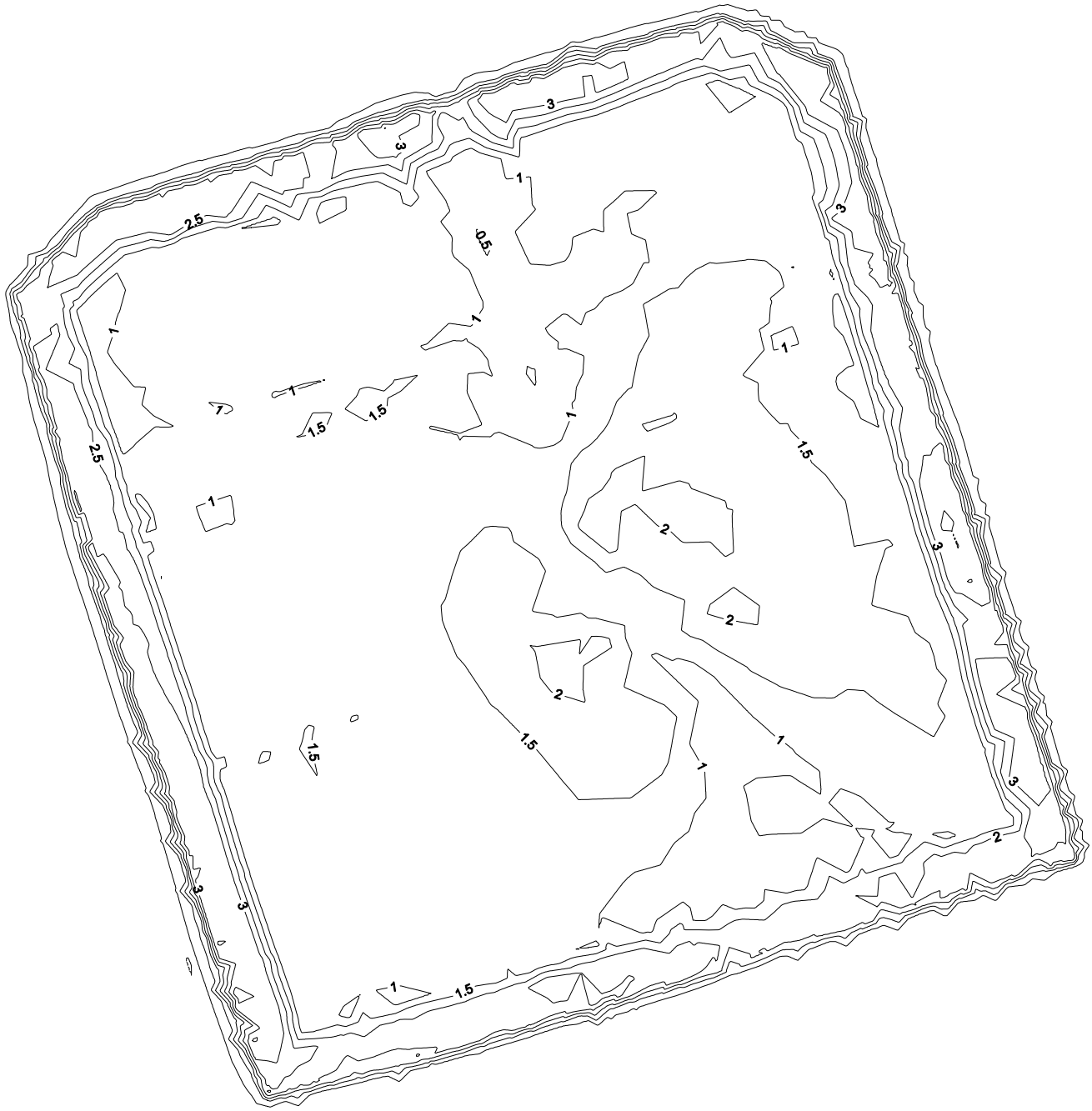


Figure 17. CASE 3: Top of LPSL Settlement from End of Year 4 to End of Year 35

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009

Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

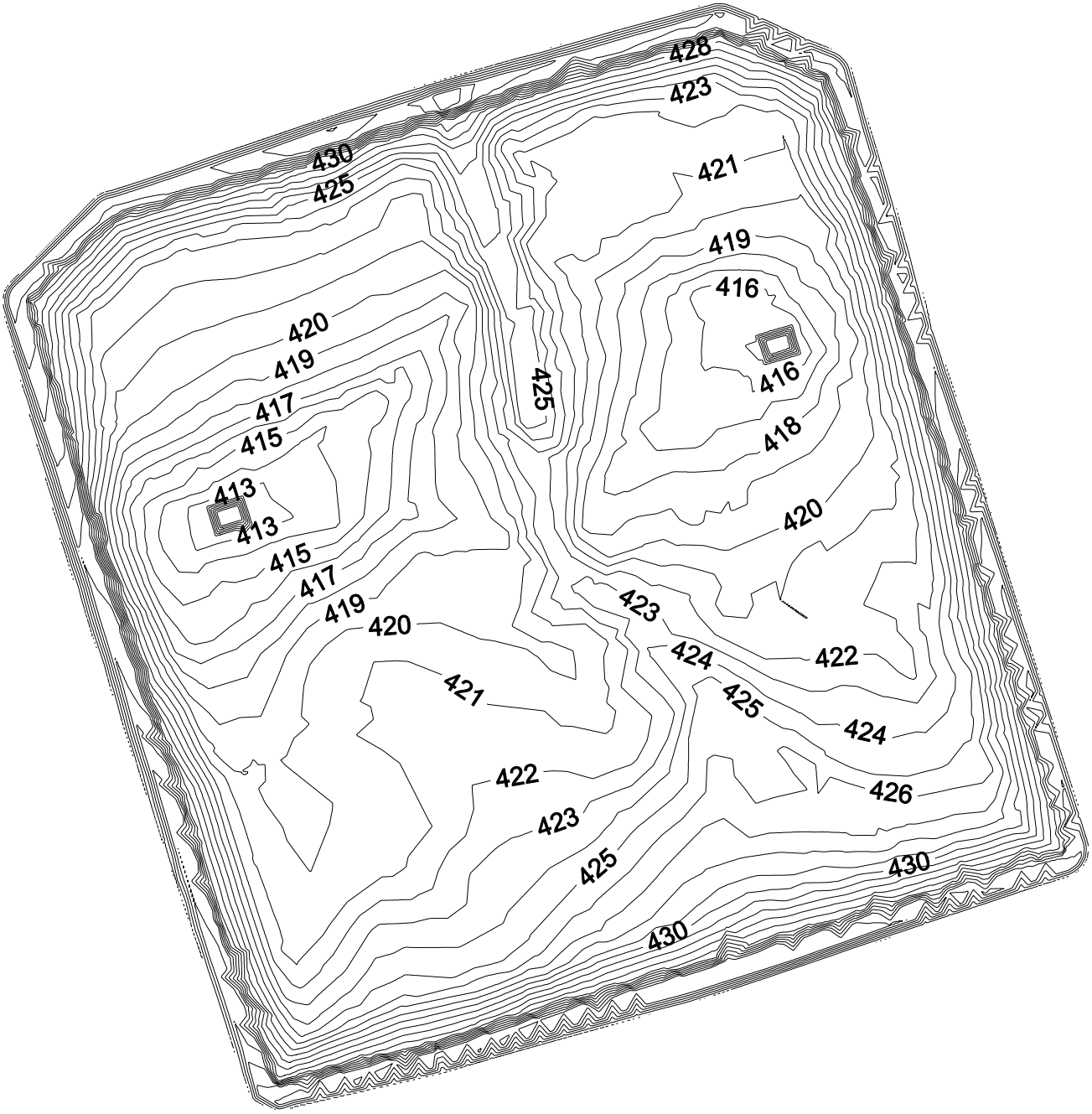


Figure 18. CASE 3: Top of LPSL Post-Settlement Elevations at End of Year 35

Figure 19. CASE 4: Top of Final Cover Settlement from End of Year 4 to End of Year 35

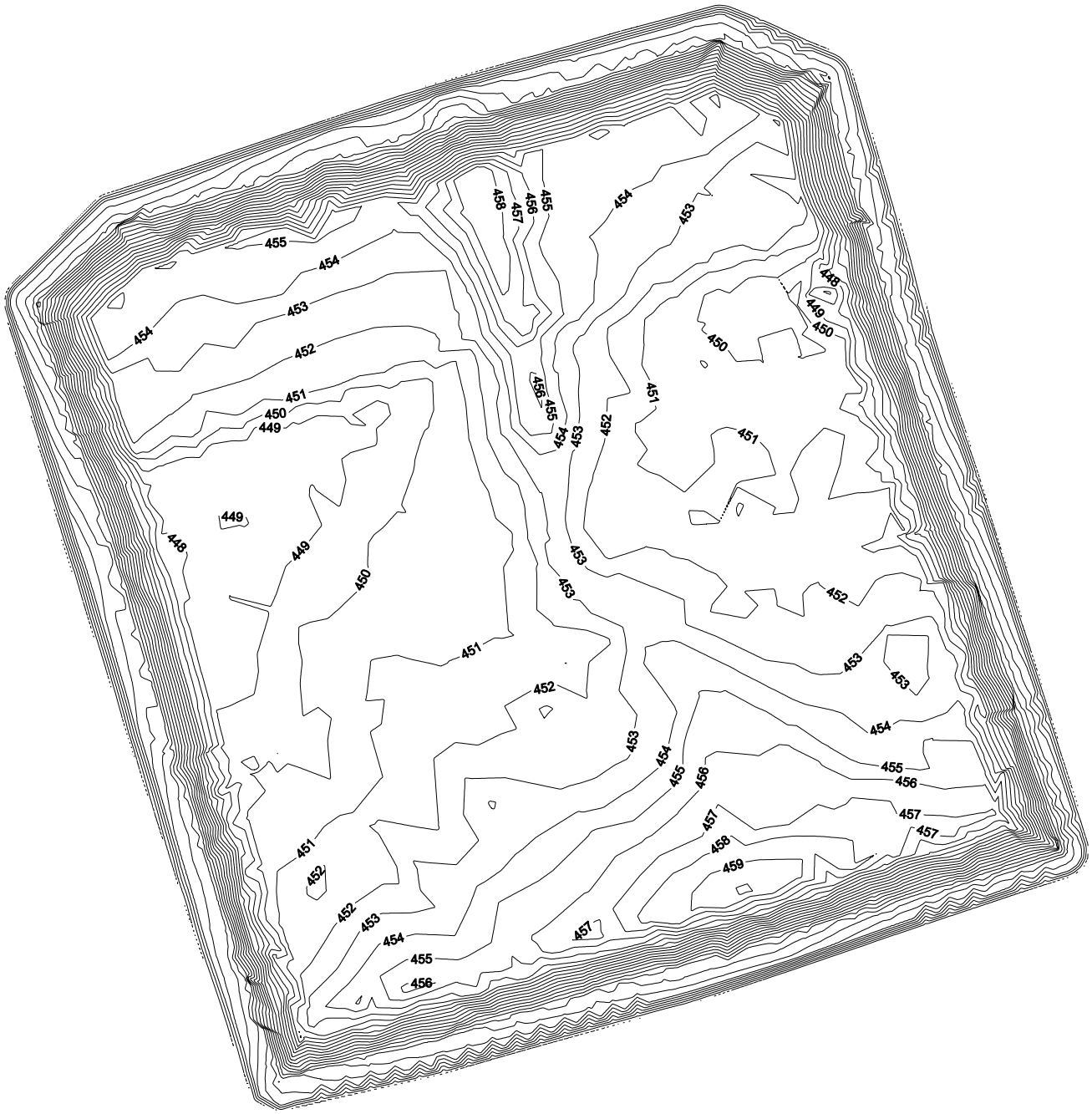


Figure 20. CASE 4: Top of Final Cover Post-Settlement Elevations at End of Year 35

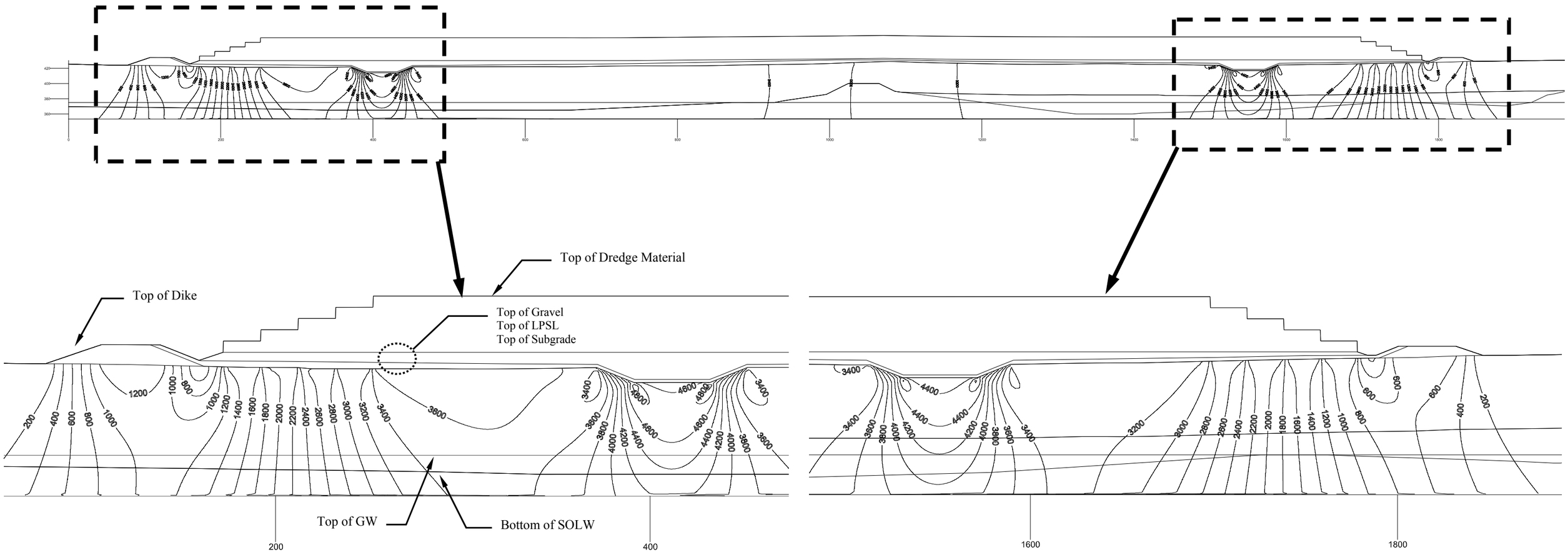
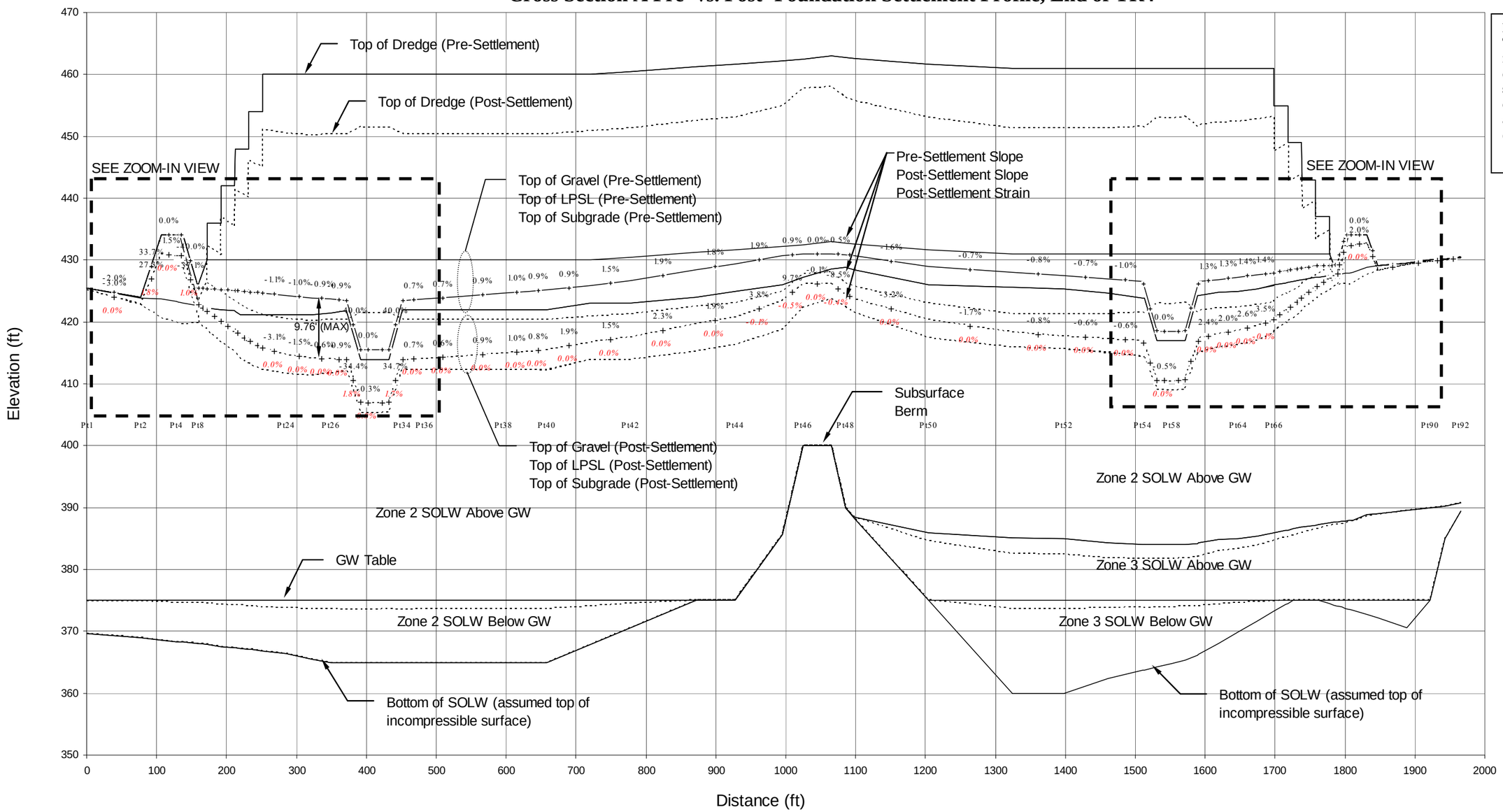


Figure 21. CASE 5: Stress Distribution of Geo-tubes, Liner, and Dike Loading along Cross Section A (units in psf)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR4



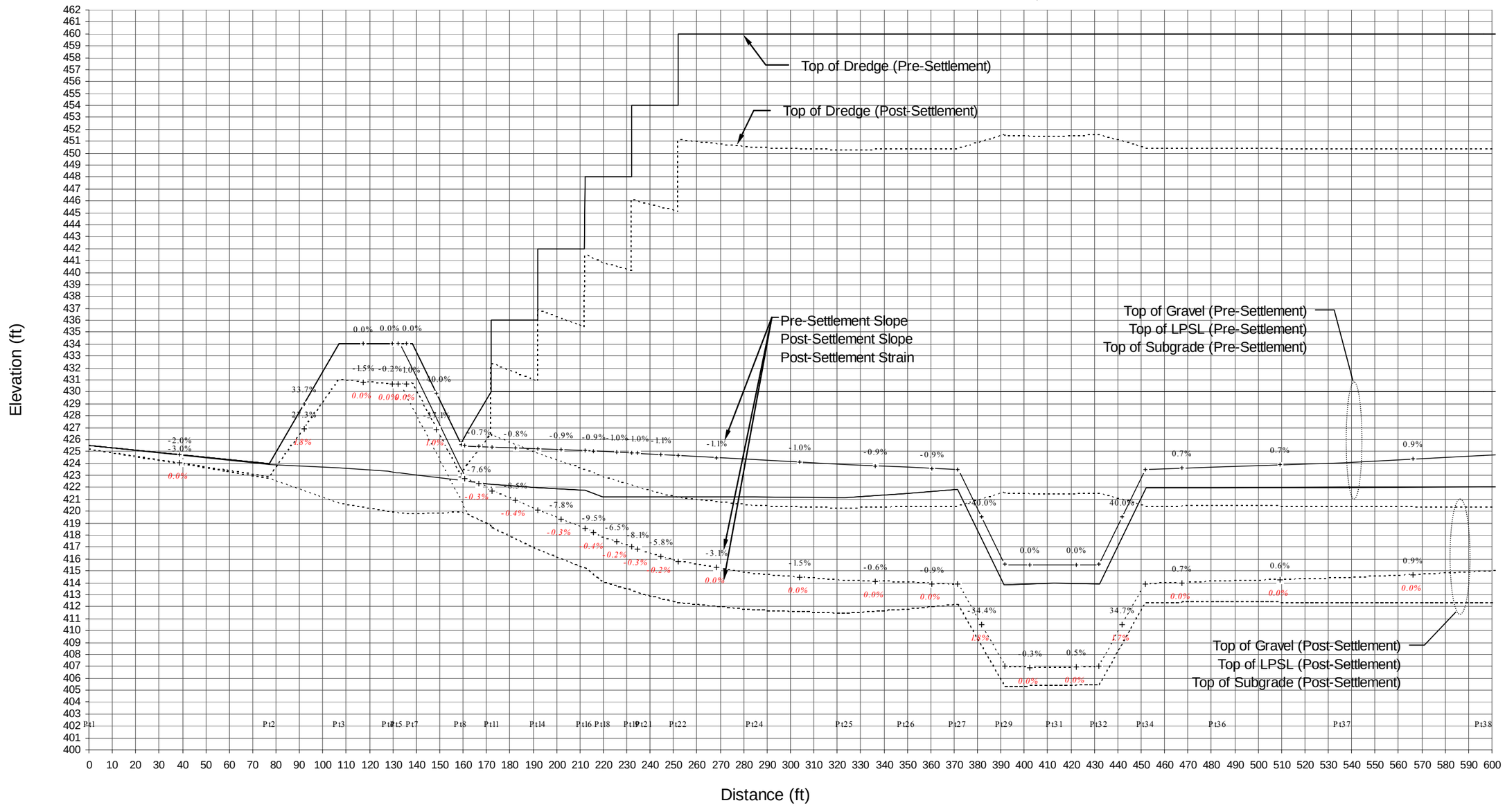
NOTE:
The compressibility of dredge materials in geo-tubes was not considered in the foundation settlement analysis because they are considered as load. Please see Case 6 analysis results for calculated top of dredge post-settlement elevations.

Figure 22. CASE 5: Foundation Settlement Analysis Result for Cross Section A (Overall View)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR4



NOTE:
The compressibility of dredge material in geo-tubes was not considered in the foundation settlement analysis because they are considered as load. Please see Case 6 analysis results for calculated top of dredge post-settlement elevations.

Figure 23. CASE 5: Foundation Settlement Analysis Result for Cross Section A (Zoom-in View, Left Berm and Sump)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR4

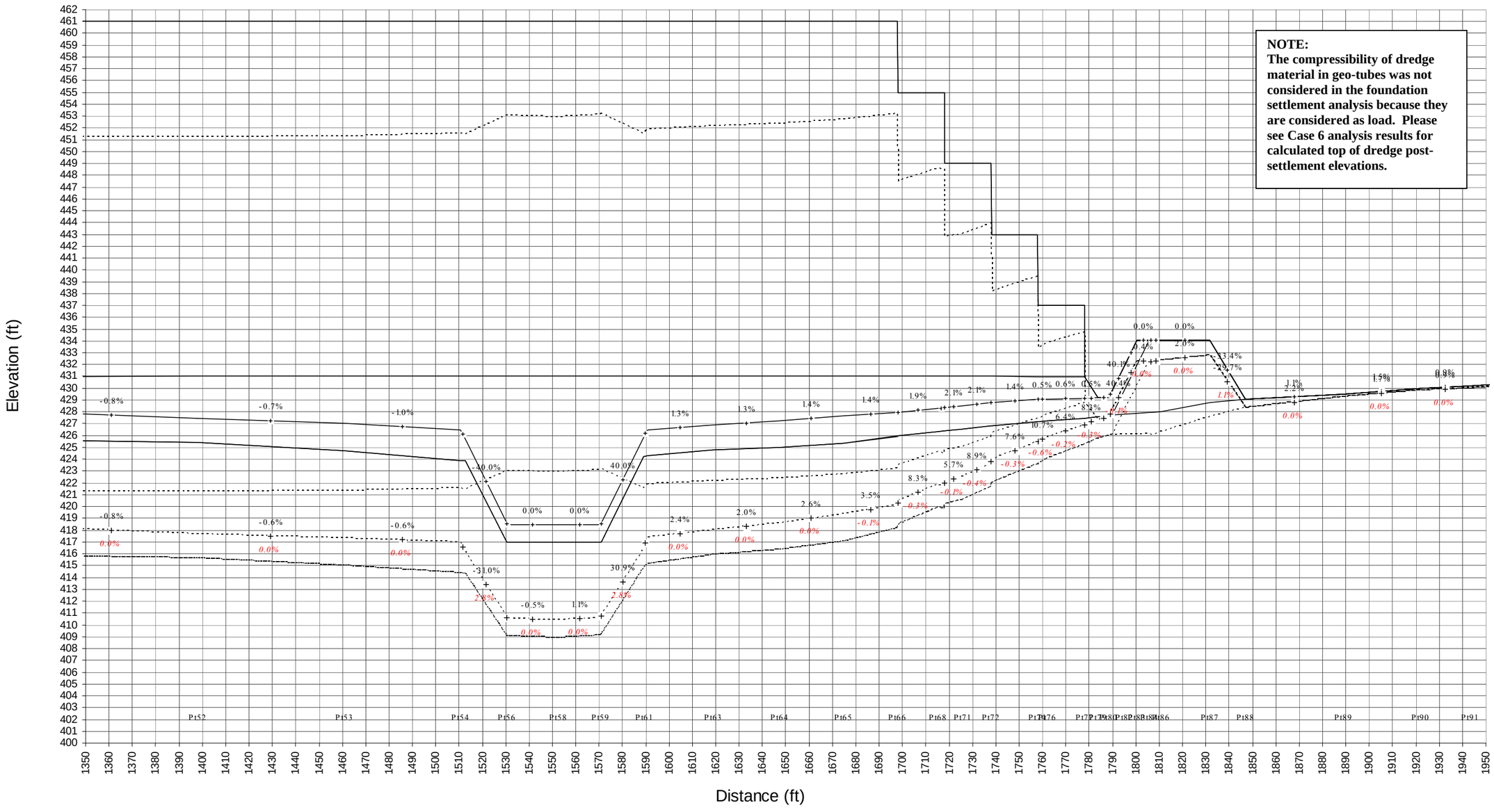


Figure 24. CASE 5: Foundation Settlement Analysis Result for Cross Section A (Zoom-in View, Right Berm and Sump)

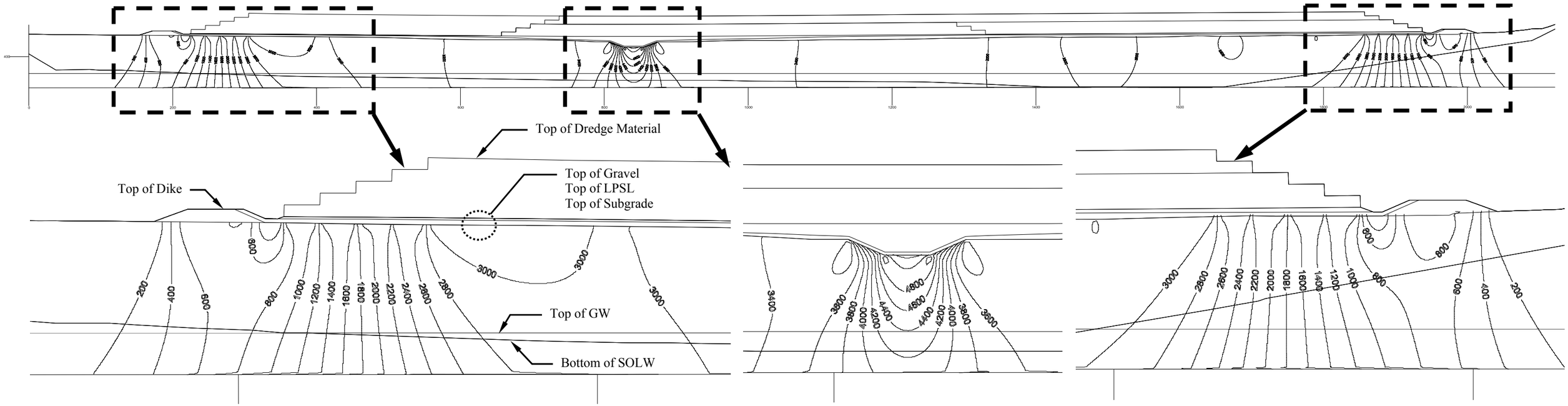
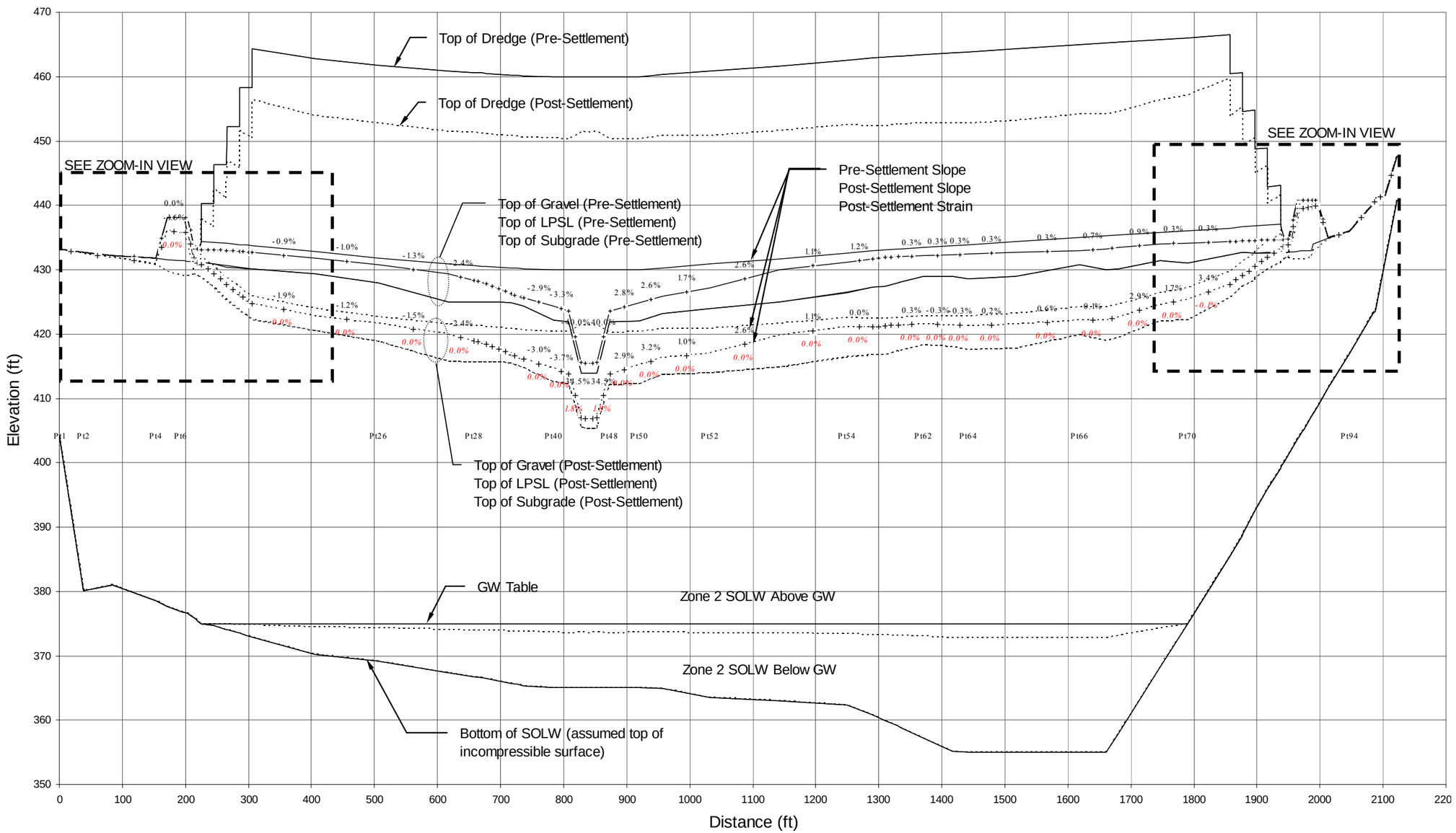


Figure 25. CASE 5: Stress Distribution of Geo-tube, Liner, and Dike Loading along Cross Section B (units in psf)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR4



NOTE:
The compressibility of dredge material in geo-tubes was not considered in the foundation settlement analysis because they are considered as load. Please see Case 6 analysis results for calculated top of dredge post-settlement elevations.

Figure 26. CASE 5: Foundation Settlement Analysis Result for Cross Section B (Overall View)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR4

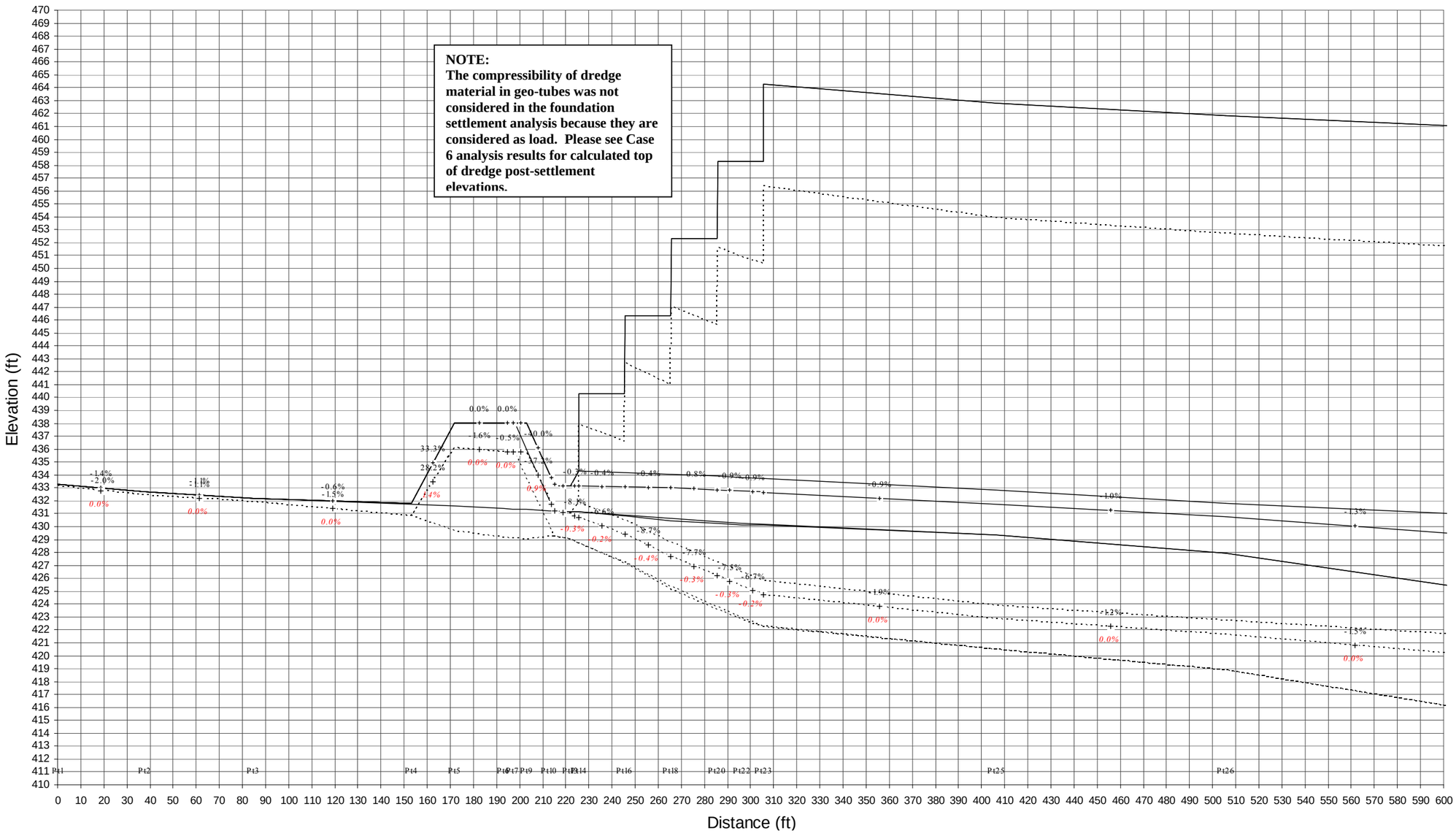


Figure 27. CASE 5: Foundation Settlement Analysis Result for Cross Section B (Zoom-in View, Left Berm)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR4

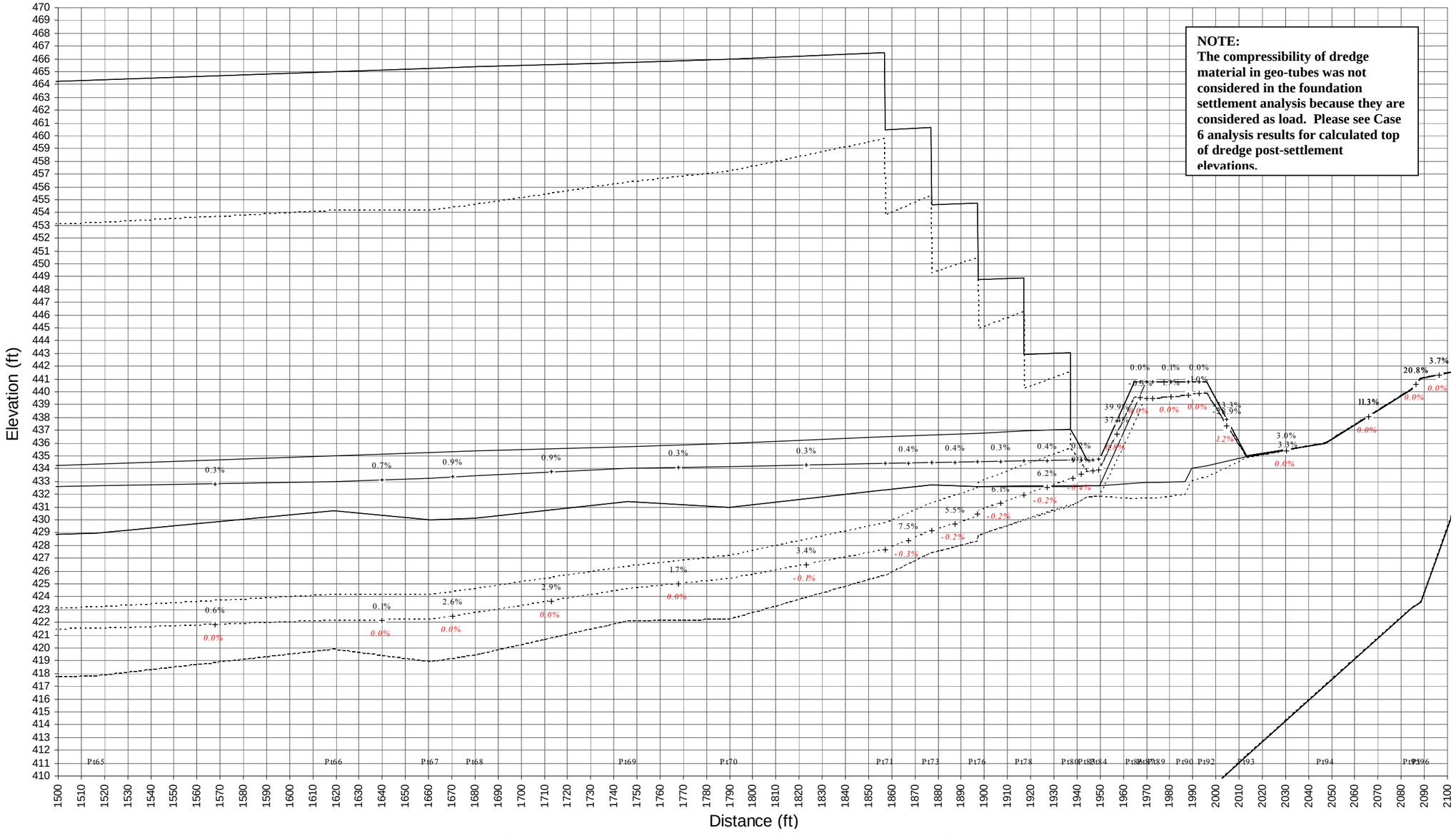


Figure 28. CASE 5: Foundation Settlement Analysis Result for Cross Section B (Zoom-in View, Right Berm)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Cover Settlement Profile, End of YR4

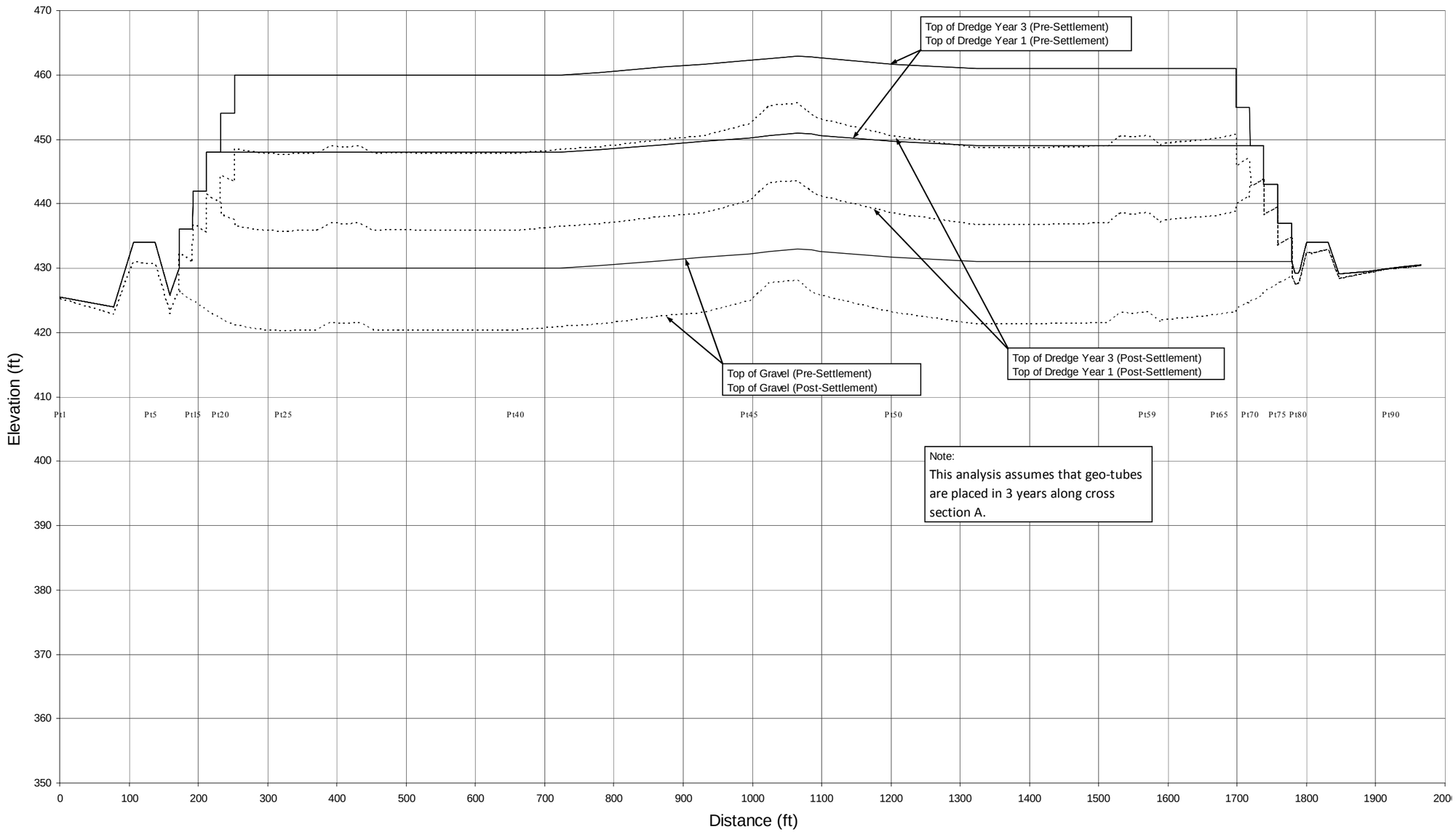


Figure 29. CASE 6: Cover Settlement Analysis Result for Cross Section A

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section B Pre- vs. Post- Cover Settlement Profile, End of YR4

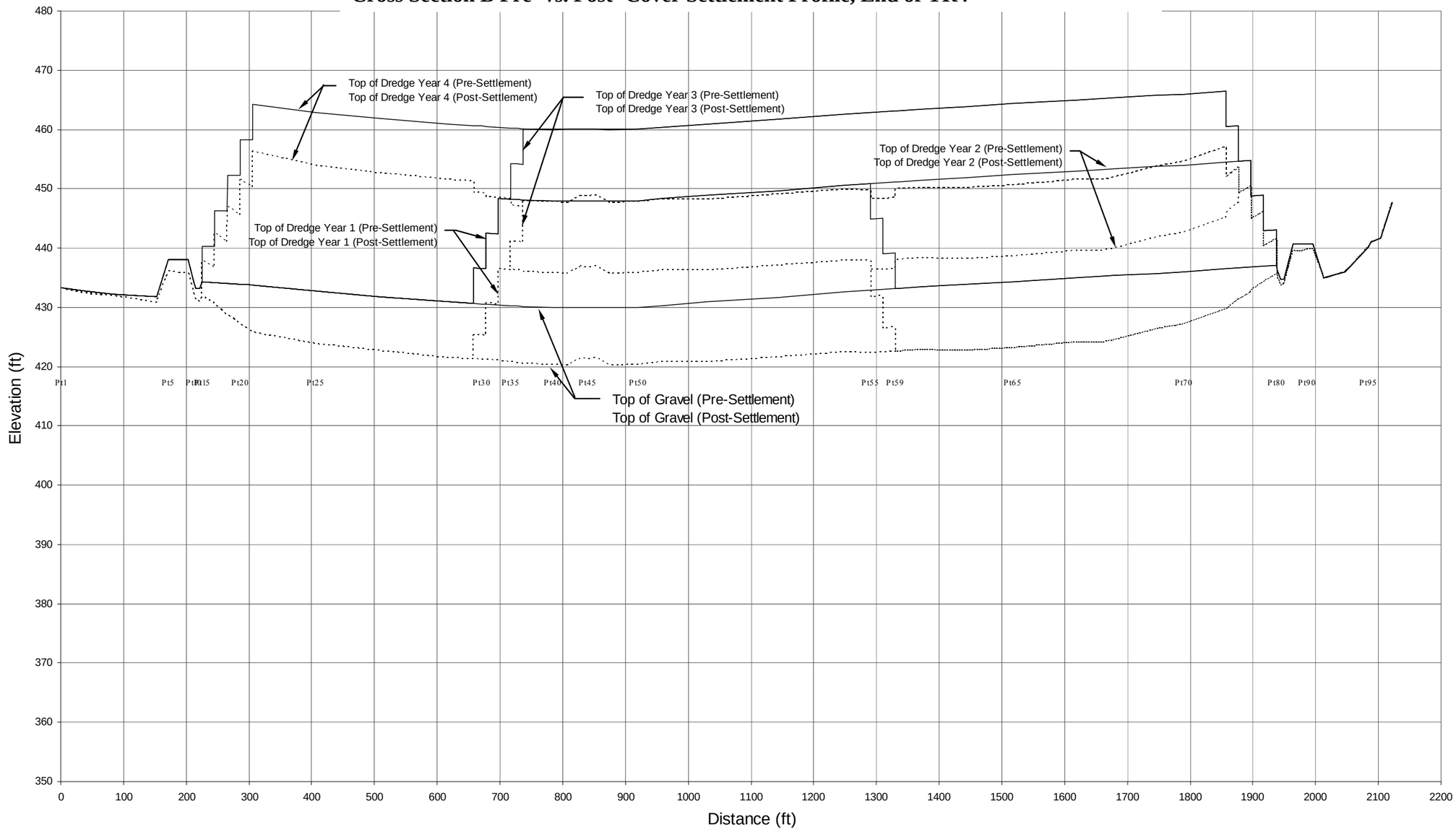


Figure 30. CASE 6: Cover Settlement Analysis Result for Cross Section B

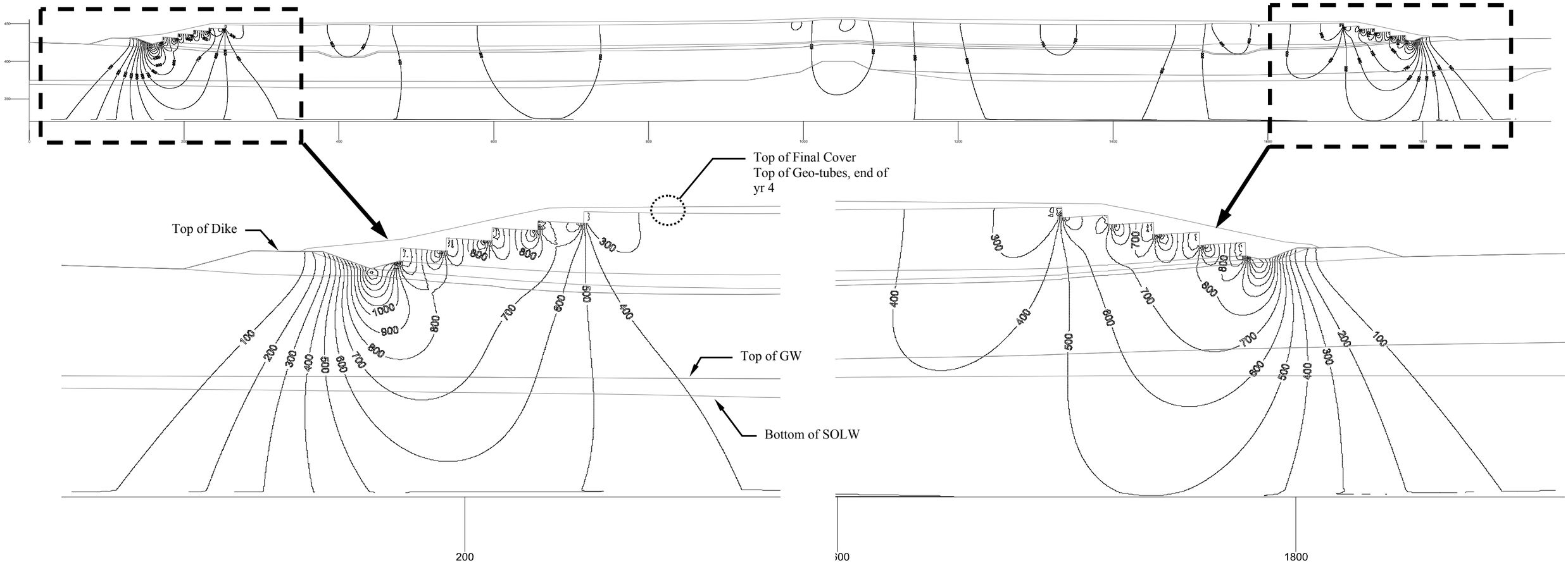


Figure 31. CASE 7: Stress Distribution of Proposed Final Cover Loading along Cross Section A (units in psf)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR35

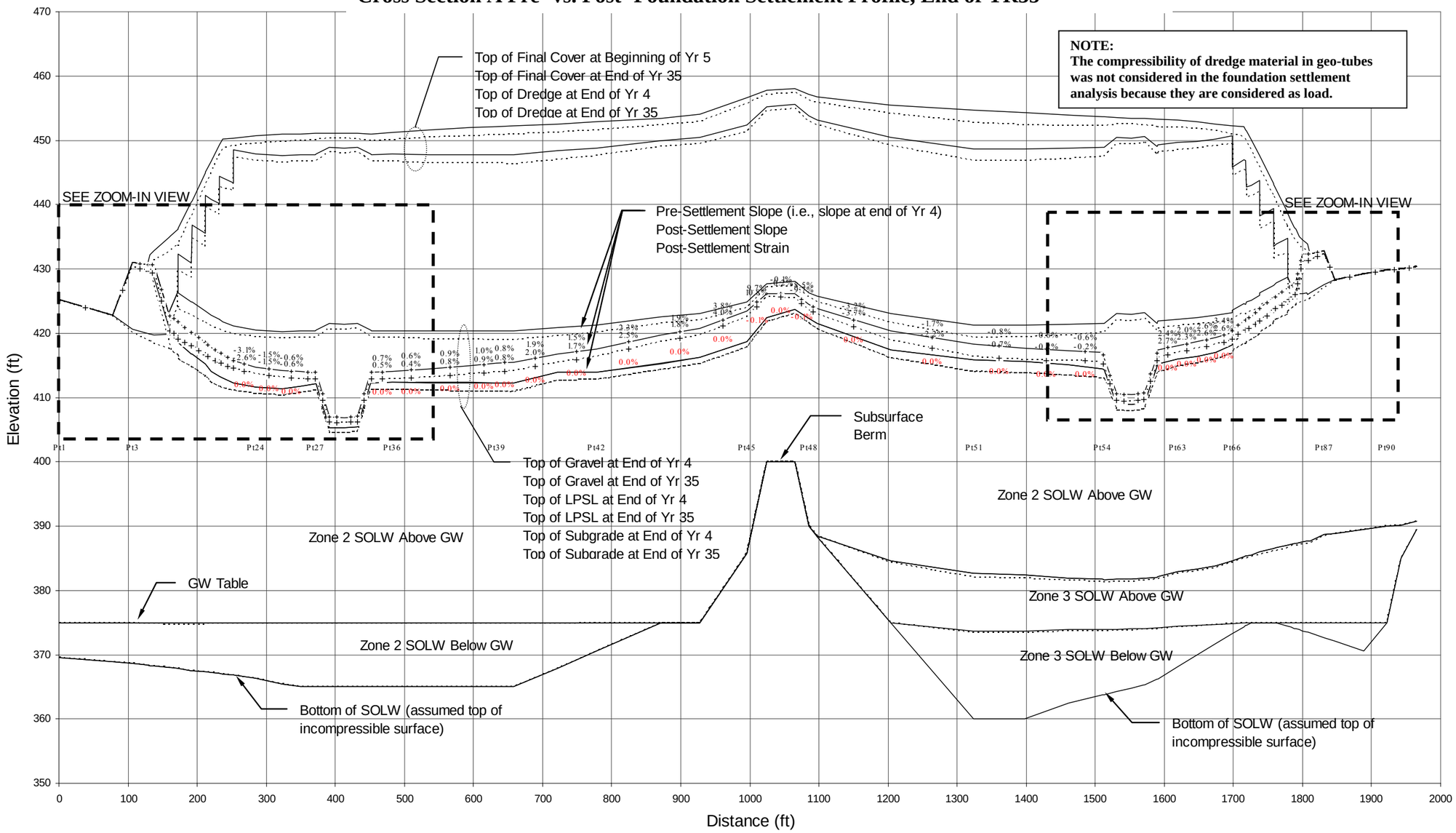


Figure 32. CASE 7: Foundation Settlement Analysis Result for Cross Section A (Overall View)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR35

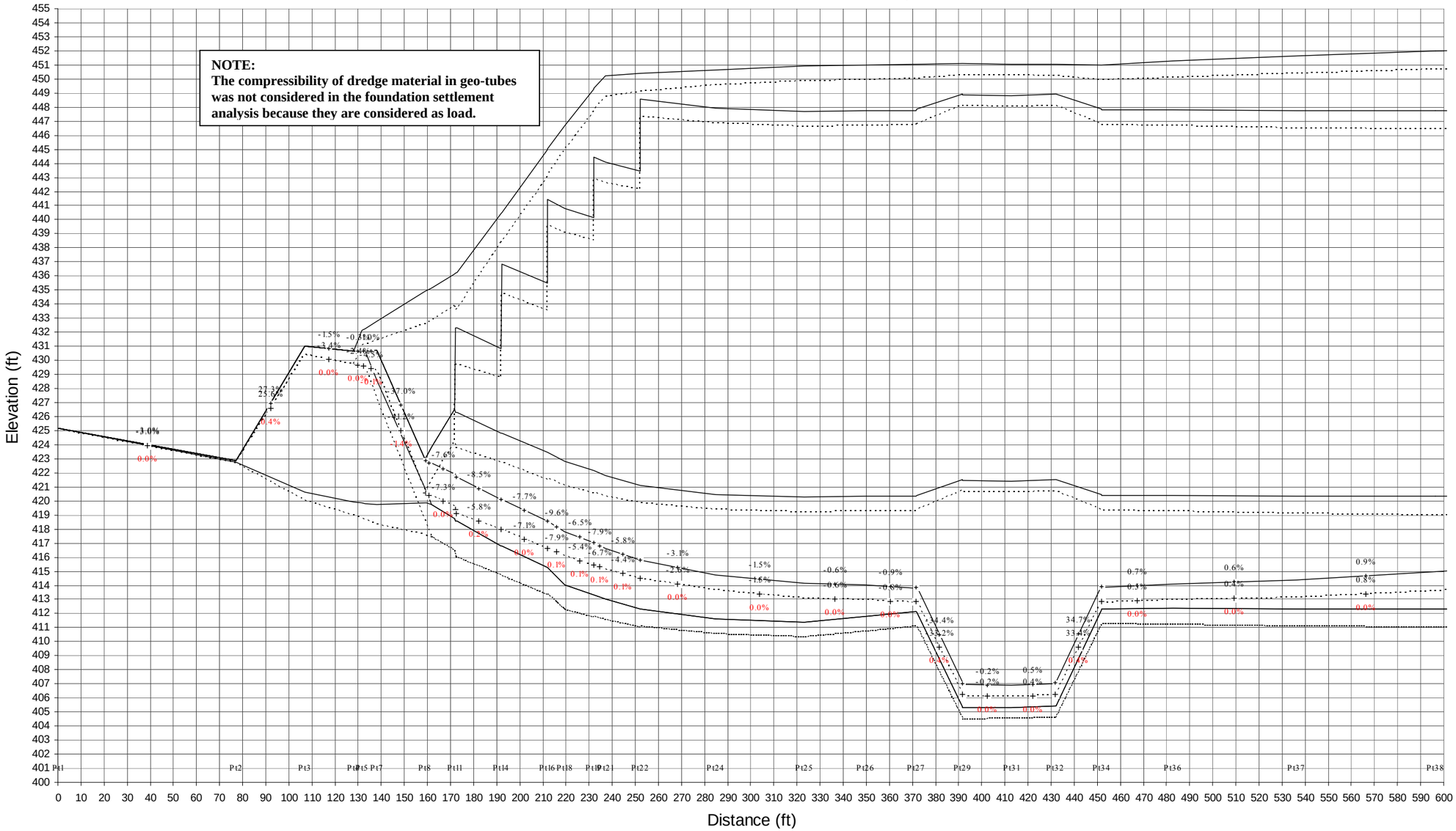


Figure 33. CASE 7: Foundation Settlement Analysis Result for Cross Section A (Left Berm and Sump)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR35

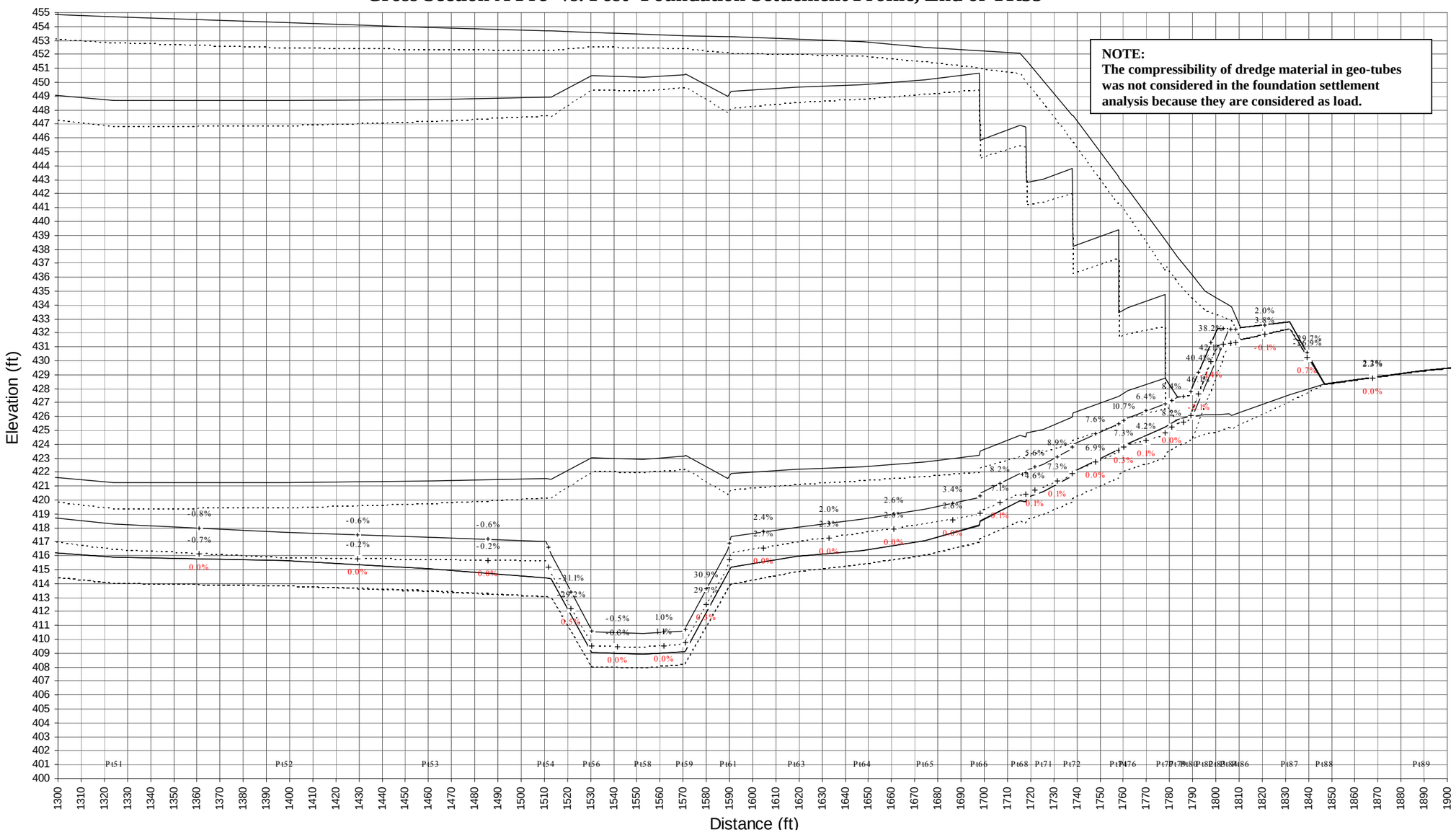


Figure 34. CASE 7: Foundation Settlement Analysis Result for Cross Section A (Right Berm and Sump)

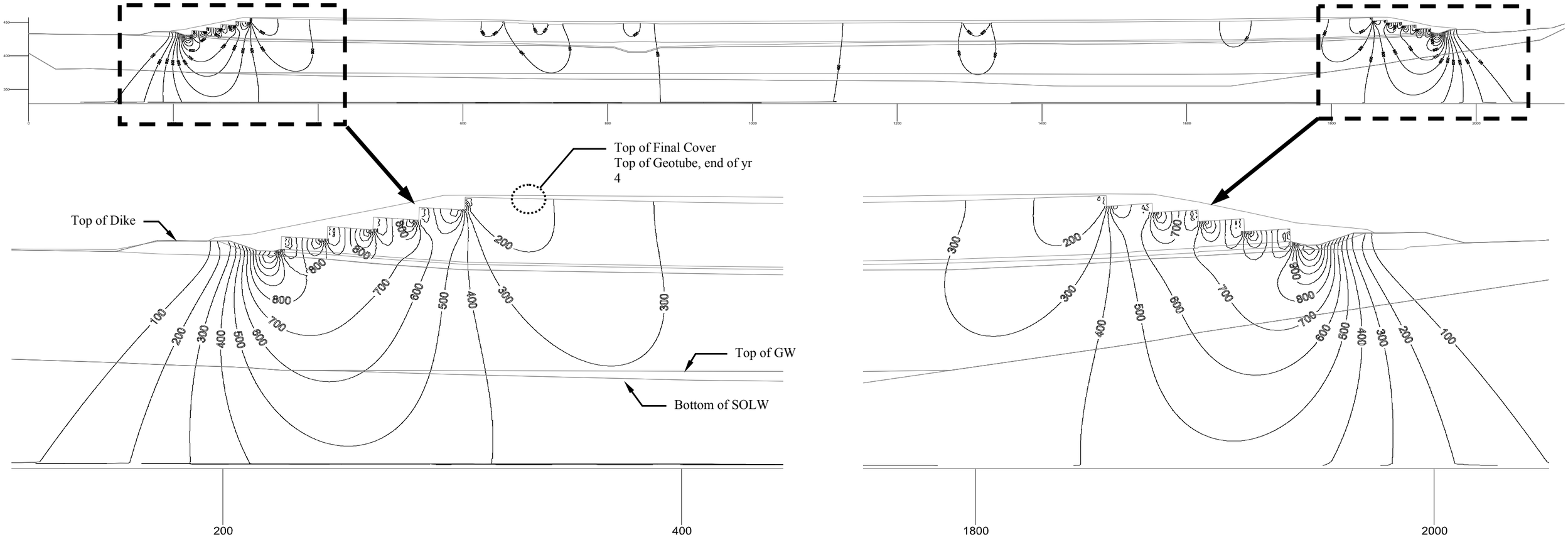


Figure 35. CASE 7: Stress Distribution of Proposed Final Cover Loading along Cross Section B (units in psf)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR35

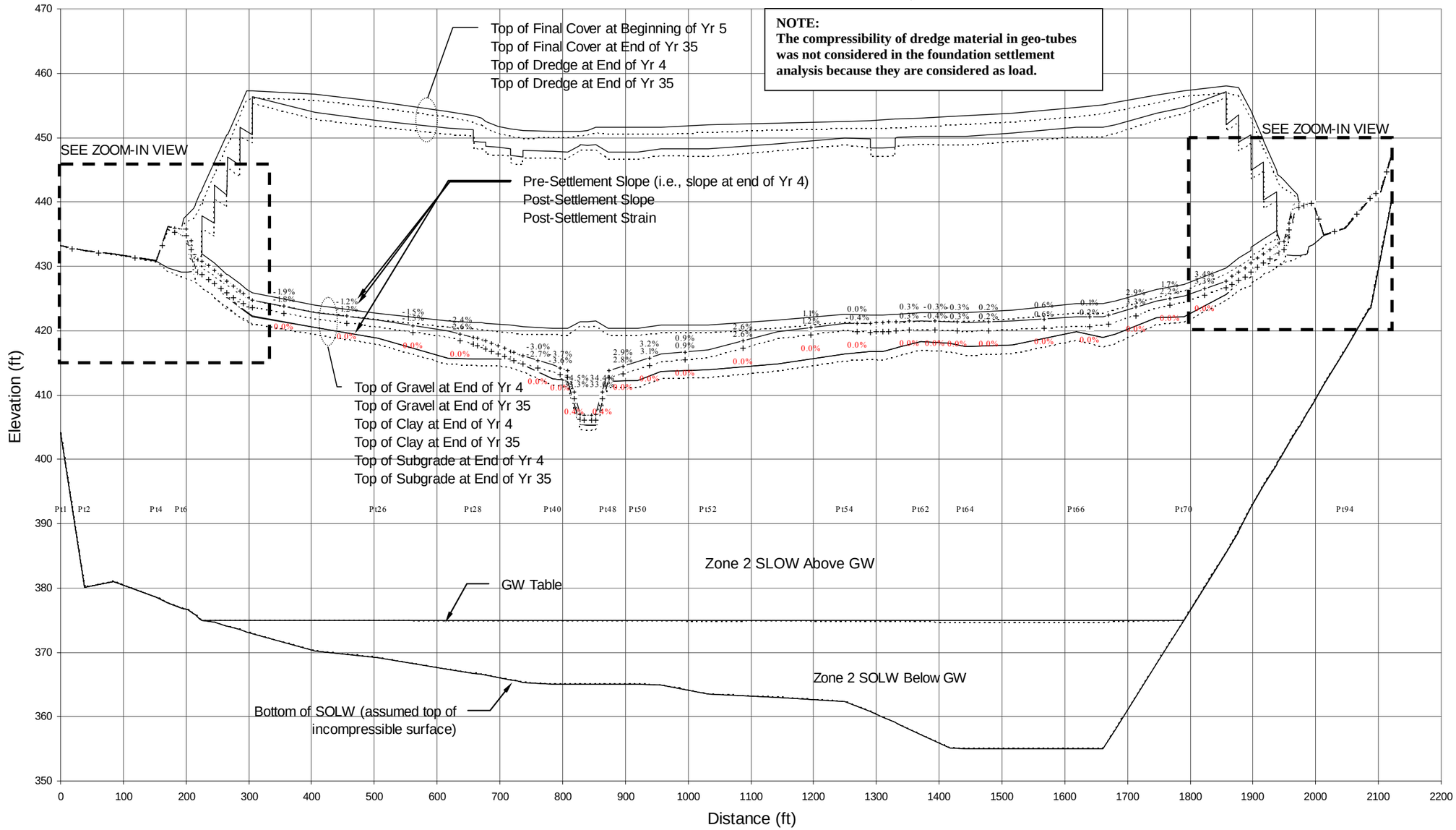


Figure 36. CASE 7: Foundation Settlement Analysis Result for Cross Section B (Overall View)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR35

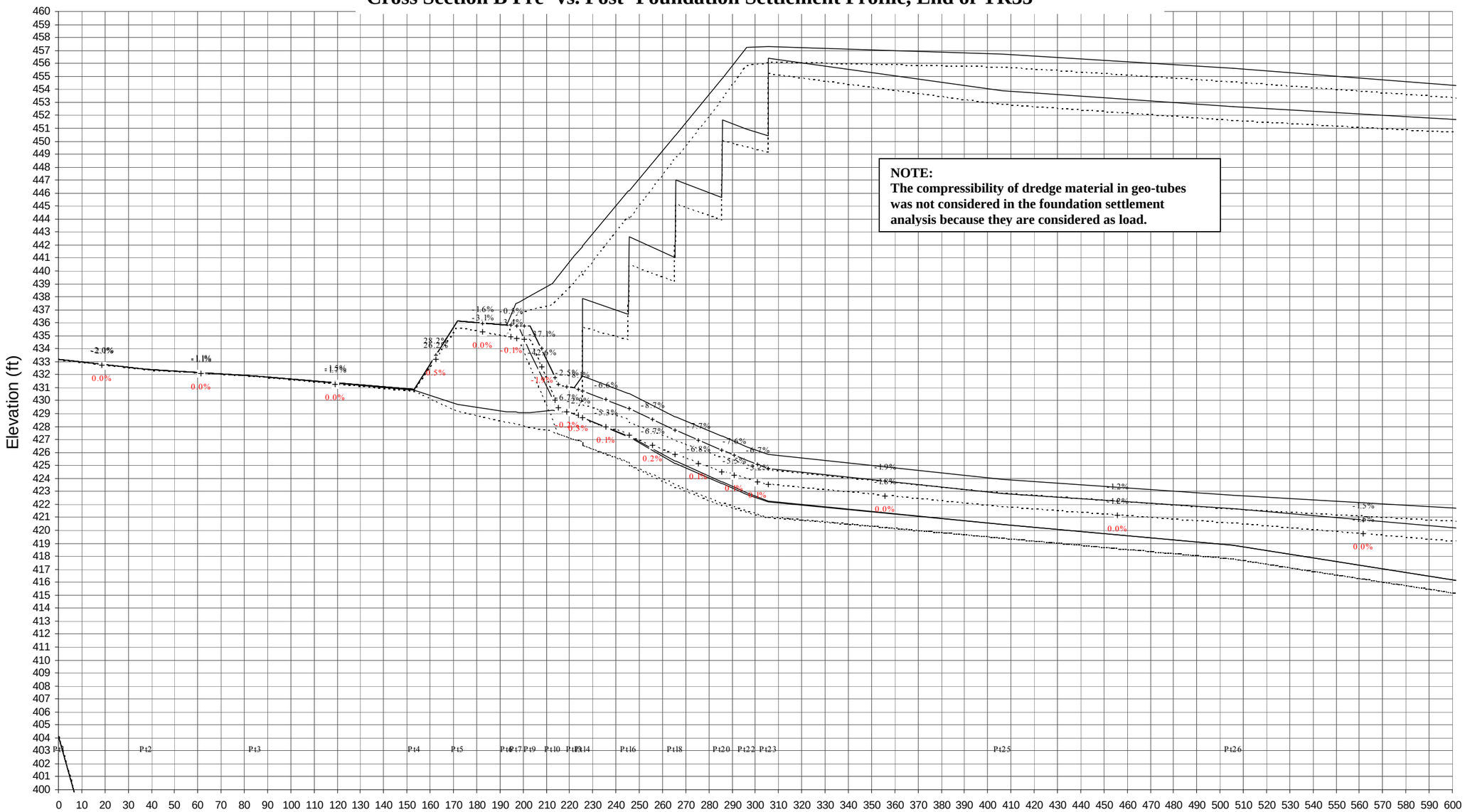


Figure 37. CASE 7: Foundation Settlement Analysis Result for Cross Section B (Left Berm)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR35

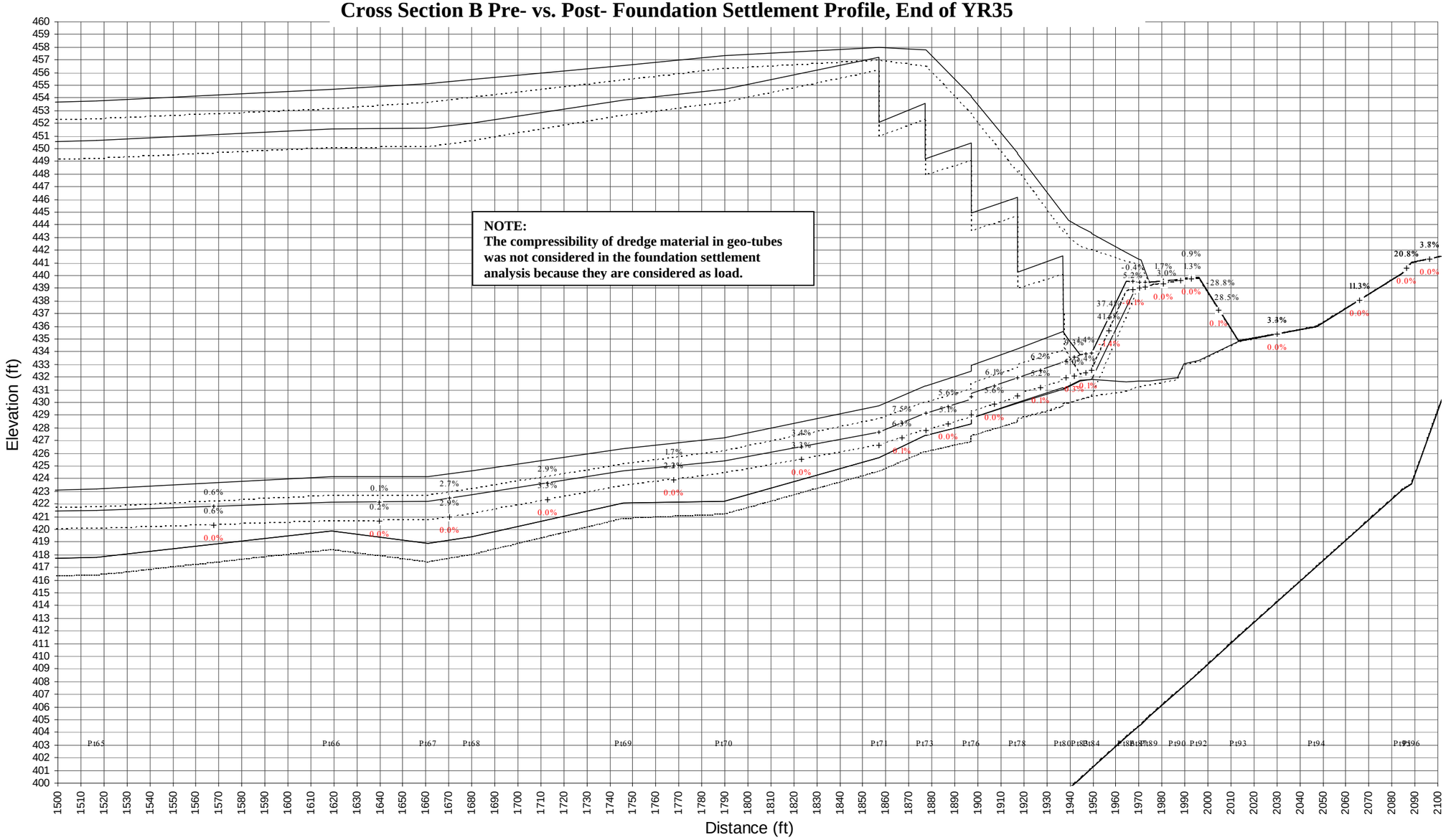


Figure 38. CASE 7: Foundation Settlement Analysis Result for Cross Section B (Right Berm)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR4

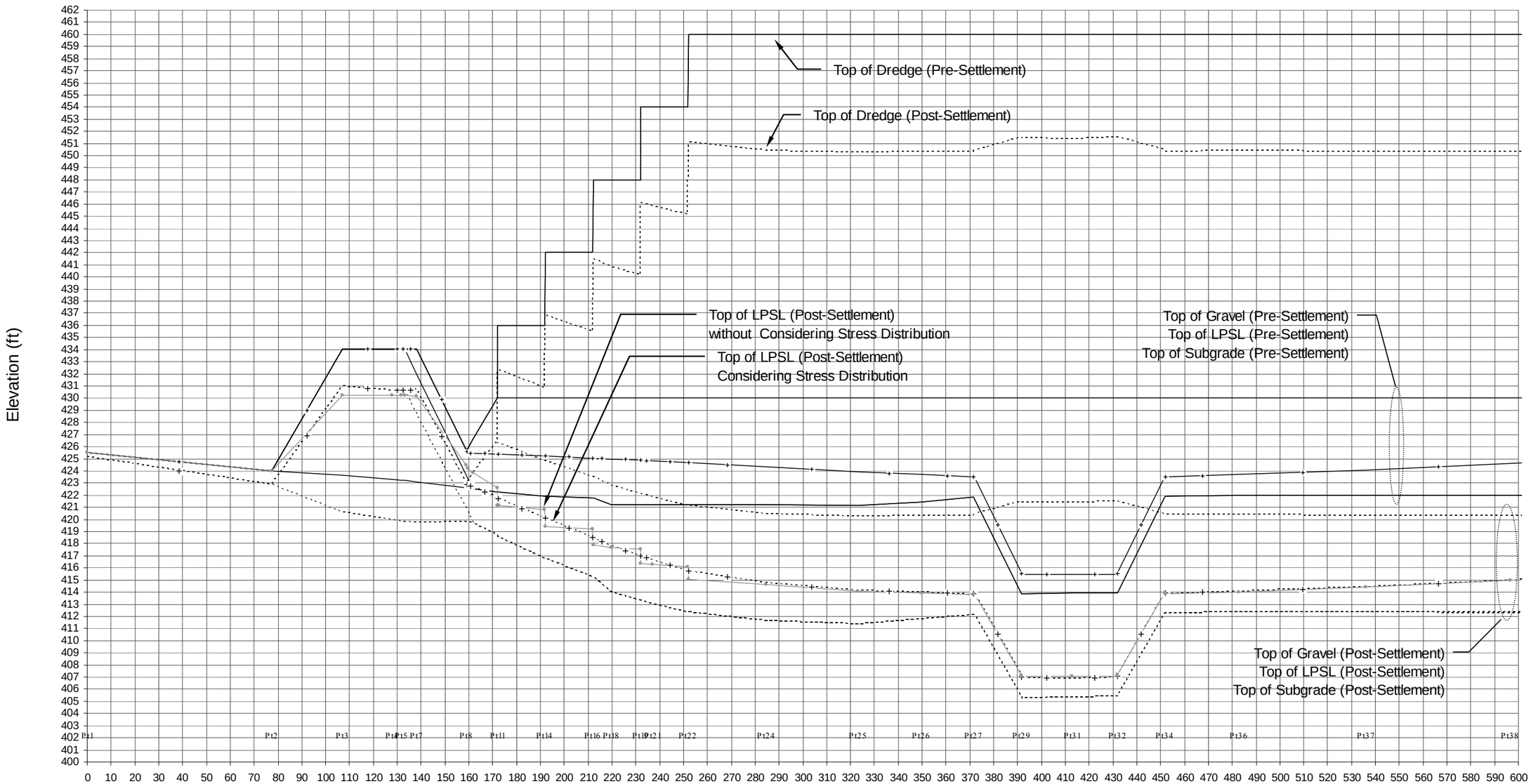


Figure 39. Comparison Between SSM and CSM for Cross Section A

Attachment 1

Calculation of Compressibility Parameters for the Settled Dredge Material

CALCULATION OF COMPRESSIBILITY PARAMETERS FOR DREDGE MATERIAL INSIDE GEO-TUBES

Three parameters were calculated from laboratory test data of samples of dredge material provided to Geosyntec by Parsons: (i) Modified Compression Index ($C_{c\varepsilon}$); (ii) Modified Recompression Index ($C_{r\varepsilon}$); and (iii) Secondary Compression Index ($C_{\alpha\varepsilon}$).

The modified Compression Index ($C_{c\varepsilon}$) and modified Recompression Index ($C_{r\varepsilon}$) were computed using Equations 1-1 and 1-2 below:

$$C_{c\varepsilon} = C_c / (1 + e_0) \quad (1\text{-}1)$$

$$C_{r\varepsilon} = C_r / (1 + e_0) \quad (1\text{-}2)$$

Where:

$C_{c\varepsilon}$ = Modified Compression Index

C_c = Compression Index

$C_{r\varepsilon}$ = Modified Recompression Index

C_r = Recompression Index

e_0 = Initial Void Ratio

Seven samples that are considered representative of the anticipated dredge material were taken from borings within Sediment Management Unit (SMU) 1 and the modified compression and recompression parameters were calculated as shown in the following table.

Location ID	Field Sample ID	Compression Index (Cc)	Recompression Index (Cr)	Initial Void Ratio (e_0)	Modified Compression Index ($C_{c\varepsilon}$)	Modified Recompression Index ($C_{r\varepsilon}$)
OL-STA-10025	OL-0052-13	2.04	0.02	4.53	0.368539	0.003831
OL-STA-10026	OL-0052-19	1.22	0.03	3.17	0.291937	0.006516
OL-STA-10019	OL-0110-30	0.08	0.01	4.24	0.014589	0.002285
OL-STA-10023	OL-0052-06	1.59	0.02	3.38	0.362000	0.005415
OL-STA-10024	OL-0052-07	1.18	0.02	3.08	0.289855	0.004684
OL-STA-10024	OL-0052-09	2.84	0.03	4.93	0.479155	0.005397
OL-STA-10014	OL-0110-08	0.94	0.01	3.05	0.233329	0.003639

Based on the results of the laboratory testing, calculated average values of $C_{c\varepsilon}$=0.291 and $C_{r\varepsilon}$=0.0045 were input into the settlement calculations.

The modified Secondary Compression Index ($C_{\alpha\varepsilon}$) was calculated based on laboratory consolidation test data provided to Geosyntec by Parsons. These test data included 12 constant load steps for each of seven samples from the SMU 1 area. The percent strain as a function of time on a logarithmic scale for each load step was graphed and the modified secondary compression index found graphically using Equation 1-3 below.

$$C_{\alpha\varepsilon} = \Delta E_x / \Delta \log_{10} t \quad C_{\alpha\varepsilon} = \Delta E_X / \Delta \log_{10} t \tag{1-3}$$

Where:

$C_{\alpha\varepsilon}$ = Modified Secondary Compression Index

ΔE_x = Change in strain

$\Delta \log_{10} t$ = Logarithmic change in time

This was repeated for every load step of the seven samples tested and results were compiled into tables. These $C_{\alpha\varepsilon}$ values were also graphed as a function of stress ratio, as shown in Figure 1-1 and a simplified design curve for $C_{\alpha\varepsilon}$ was created based upon the graphical distribution of values. The recommended secondary compression ratio for design is shown in Equations 1-4 and 1-5 below:

$$C_{\alpha\varepsilon} = 0.08\% \, for \, \frac{\sigma_v'}{P_c'} \le 1.0 \tag{1-4}$$

$$C_{\alpha\varepsilon} = 0.60\% \, for \, \frac{\sigma_v'}{P_c'} > 1.0 \tag{1-5}$$

Where:

σ_v' = Vertical Effective Stress (psf)

P_c' = Preconsolidation Pressure (psf)

This recommended design value envelope is a stair-step function based on the results of the laboratory testing. The design value of $C_{\alpha\varepsilon}$=0.08% for stress ratios smaller than 1.0

is identical to the numerical average of these tests. For stress ratios larger than 1.0, the numerical average is $C_{\alpha\varepsilon}$=0.26%, however, due to the presence of several large laboratory compression index values, the design value has been increased to a recommended design value of $C_{\alpha\varepsilon}$=0.60%. The higher design value will result in larger calculated secondary compression settlements, which is conservative.

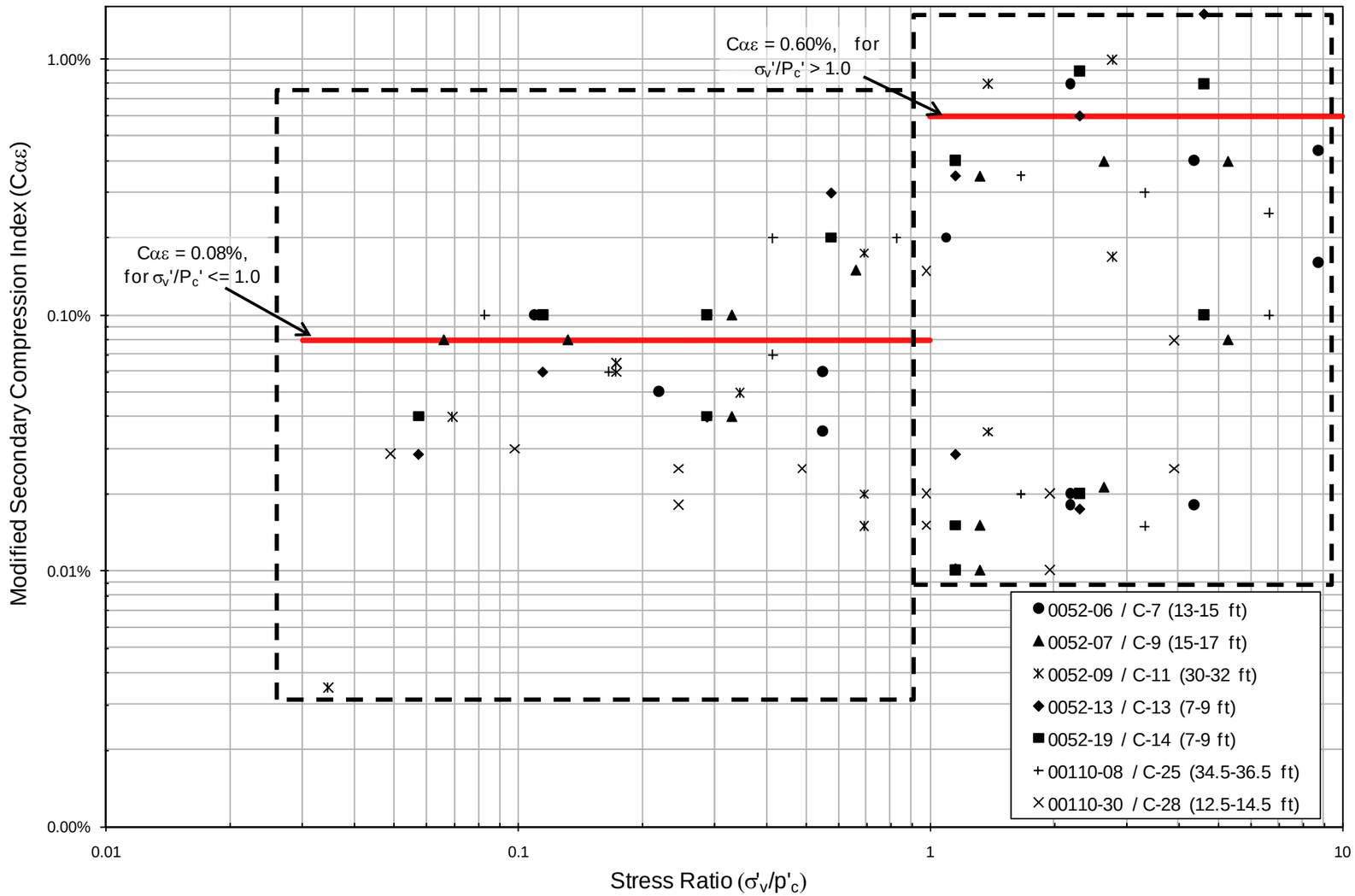


Figure 1-1: Secondary Compression Ratio of SOLW as a Function of Stress Ratio

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

Attachment 2

CASE 1: Settlement Analysis for Top of LPSL at the End of the Operations Period (i.e., End of Year 4)
(Points 1001 to 1010)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Settlement Prediction Model

Programmer: **Yiwen Cao, GeoSyntec Consultants**

Version Control V 1.002 11.14.2007

Project: **Onondaga Lake SCA Final**

Notes:

Unit: **ft / psf**

Average Compaction Effort = **1440.00** kPa or psf

Consider Compaction Effort = **N** yes or no

Point #				**1001**	**1002**	**1003**	**1004**	**1005**	**1006**	**1007**	**1008**	**1009**	**1010**
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 Dredge	*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	2	Top of Dredge	*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	3	Top of Gravel	*433.00*	*432.42*	*432.35*	*432.00*	*431.75*	*431.72*	*434.00*	*434.34*	*434.42*	*434.33*
	Line	4	Top of Clay	*431.77*	*431.00*	*431.00*	*430.72*	*430.00*	*430.00*	*432.60*	*433.00*	*433.00*	*433.00*
	Line	5	Top of Dike	*430.02*	*429.02*	*429.25*	*428.78*	*427.14*	*427.77*	*430.80*	*431.00*	*431.03*	*431.00*
	Line	6	Top of Subgrade	*430.02*	*429.02*	*429.25*	*428.78*	*427.10*	*427.77*	*430.80*	*431.00*	*431.03*	*431.00*
	Line	7		*427.67*	*426.67*	*426.89*	*426.43*	*424.75*	*425.41*	*428.45*	*428.65*	*428.03*	*428.65*
	Line	8		*425.32*	*424.32*	*424.54*	*424.08*	*422.40*	*423.06*	*426.10*	*426.29*	*425.02*	*426.29*
	Line	9		*422.96*	*421.96*	*422.18*	*421.72*	*420.05*	*420.71*	*423.74*	*423.94*	*422.02*	*423.94*
	Line	10		*420.61*	*419.61*	*419.83*	*419.37*	*417.70*	*418.36*	*421.39*	*421.59*	*419.02*	*421.58*
	Line	11		*418.26*	*417.26*	*417.47*	*417.02*	*415.35*	*416.00*	*419.04*	*419.23*	*416.02*	*419.23*
	Line	12		*415.90*	*414.90*	*415.12*	*414.67*	*413.00*	*413.65*	*416.69*	*416.88*	*413.02*	*416.88*
	Line	13		*413.55*	*412.55*	*412.76*	*412.31*	*410.65*	*411.30*	*414.33*	*414.53*	*410.02*	*414.52*
	Line	14		*411.20*	*410.20*	*410.41*	*409.96*	*408.29*	*408.94*	*411.98*	*412.18*	*407.01*	*412.17*
	Line	15		*408.84*	*407.85*	*408.05*	*407.61*	*405.94*	*406.59*	*409.63*	*409.82*	*404.01*	*409.82*
	Line	16		*406.49*	*405.49*	*405.70*	*405.25*	*403.59*	*404.24*	*407.27*	*407.47*	*401.01*	*407.46*
	Line	17		*404.14*	*403.14*	*403.34*	*402.90*	*401.24*	*401.89*	*404.92*	*405.12*	*398.01*	*405.11*
	Line	18		*401.79*	*400.79*	*400.99*	*400.55*	*398.89*	*399.53*	*402.57*	*402.76*	*395.01*	*402.76*
	Line	19		*399.43*	*398.43*	*398.63*	*398.19*	*396.54*	*397.18*	*400.21*	*400.41*	*392.01*	*400.40*
	Line	20		*397.08*	*396.08*	*396.28*	*395.84*	*394.19*	*394.83*	*397.86*	*398.06*	*389.00*	*398.05*
	Line	21		*394.73*	*393.73*	*393.92*	*393.49*	*391.84*	*392.48*	*395.51*	*395.71*	*386.00*	*395.70*
	Line	22		*392.37*	*391.37*	*391.57*	*391.13*	*389.49*	*390.12*	*393.15*	*393.35*	*383.00*	*393.34*
	Line	23	Bottom of Zone2 Above GW	*390.02*	*389.02*	*389.21*	*388.78*	*387.14*	*387.77*	*390.80*	*391.00*	*380.00*	*390.99*
	Line	24		*390.02*	*389.02*	*389.21*	*388.78*	*387.14*	*387.77*	*390.80*	*391.00*	*380.00*	*390.99*
	Line	25	Bottom of Zone 3 Above GW	*390.02*	*389.02*	*389.21*	*388.78*	*387.14*	*387.77*	*390.80*	*391.00*	*380.00*	*390.99*
	Line	26		*382.51*	*382.01*	*382.11*	*381.89*	*381.07*	*381.39*	*382.90*	*385.50*	*380.00*	*385.50*
	Line	27	Bottom of Zone 2 Below GW	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*380.00*	*380.00*	*380.00*
	Line	28	Top of Incompressible Layer	*355.70*	*361.07*	*356.29*	*357.26*	*362.61*	*358.34*	*355.00*	*380.00*	*380.00*	*380.00*
	Line	29	GND for sigma_p	*430.02*	*429.02*	*429.25*	*428.78*	*427.10*	*427.77*	*430.81*	*431.00*	*431.04*	*431.00*
	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	*355.70*	*361.07*	*356.29*	*357.26*	*362.61*	*358.34*	*355.00*	*380.00*	*380.00*	*380.00*
LAYER THICKNESS (M/FT)	Layer No.	From	To / Material										
	1	*1*	*2* / *Null Layer*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	2	*2*	*3* / *Dredge*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
	3	*3*	*4* / *Gravel*	*1.23*	*1.42*	*1.35*	*1.28*	*1.75*	*1.72*	*1.40*	*1.34*	*1.42*	*1.33*
	4	*4*	*5* / *Clay*	*1.74*	*1.98*	*1.75*	*1.94*	*2.86*	*2.23*	*1.79*	*2.00*	*1.97*	*2.00*
	5	*5*	*6* / *Dike*	*0.00*	*0.00*	*0.01*	*0.00*	*0.04*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	6	*6*	*7* / *Zone2-Above-GW-1*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	7	*7*	*8* / *Zone2-Above-GW-2*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	8	*8*	*9* / *Zone2-Above-GW-3*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	9	*9*	*10* / *Zone2-Above-GW-4*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	10	*10*	*11* / *Zone2-Above-GW-5*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	11	*11*	*12* / *Zone2-Above-GW-6*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	12	*12*	*13* / *Zone2-Above-GW-7*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	13	*13*	*14* / *Zone2-Above-GW-8*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	14	*14*	*15* / *Zone2-Above-GW-9*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	15	*15*	*16* / *Zone2-Above-GW-10*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	16	*16*	*17* / *Zone2-Above-GW-11*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	17	*17*	*18* / *Zone2-Above-GW-12*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	18	*18*	*19* / *Zone2-Above-GW-13*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	19	*19*	*20* / *Zone2-Above-GW-14*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	20	*20*	*21* / *Zone2-Above-GW-15*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	21	*21*	*22* / *Zone2-Above-GW-16*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	22	*22*	*23* / *Zone2-Above-GW-17*	*2.35*	*2.35*	*2.36*	*2.35*	*2.35*	*2.35*	*2.35*	*2.35*	*3.00*	*2.35*
	23	*23*	*24* / *Zone3-Above-GW-1*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	24	*24*	*25* / *Zone3-Above-GW-2*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	25	*25*	*26* / *Zone2-Below-GW-18*	*7.51*	*7.01*	*7.10*	*6.89*	*6.07*	*6.38*	*7.90*	*5.50*	*0.00*	*5.50*
	26	*26*	*27* / *Zone2-Below-GW-19*	*7.51*	*7.01*	*7.11*	*6.89*	*6.07*	*6.38*	*7.90*	*5.50*	*0.00*	*5.50*
	27	*27*	*28* / *Zone3-Below-GW-3*	*19.30*	*13.93*	*18.71*	*17.74*	*12.39*	*16.66*	*20.00*	*0.00*	*0.00*	*0.00*
	28												
	29	*29*	*30* / Soil Above GW	*55.02*	*54.02*	*54.25*	*53.78*	*52.10*	*52.77*	*55.81*	*56.00*	*56.04*	*56.00*
	30	*30*	*31* / Soil Below GW	*19.30*	*13.93*	*18.71*	*17.74*	*12.39*	*16.66*	*20.00*	*-5.00*	*-5.00*	*-5.00*
	Thickness Check												
		From Line	To Line / SUM	*107.30*	*101.35*	*106.06*	*104.74*	*99.14*	*103.38*	*109.00*	*84.34*	*84.42*	*84.33*
		1	*28* / Thickness =	*107.30*	*101.35*	*106.06*	*104.74*	*99.14*	*103.38*	*109.00*	*84.34*	*84.42*	*84.33*
			Thickness Check	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
UNIT WEIGHT	1	*Null Layer*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	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	*Zone2-Above-GW-1*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	7	*Zone2-Above-GW-2*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	8	*Zone2-Above-GW-3*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	9	*Zone2-Above-GW-4*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	10	*Zone2-Above-GW-5*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	11	*Zone2-Above-GW-6*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	12	*Zone2-Above-GW-7*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	13	*Zone2-Above-GW-8*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	14	*Zone2-Above-GW-9*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	15	*Zone2-Above-GW-10*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	16	*Zone2-Above-GW-11*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	17	*Zone2-Above-GW-12*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	18	*Zone2-Above-GW-13*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	19	*Zone2-Above-GW-14*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	20	*Zone2-Above-GW-15*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	21	*Zone2-Above-GW-16*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	22	*Zone2-Above-GW-17*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	23	*Zone3-Above-GW-1*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	24	*Zone3-Above-GW-2*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	25	*Zone2-Below-GW-18*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	26	*Zone2-Below-GW-19*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	27	*Zone3-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*** **Null 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)	463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
		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 **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)	448.00	447.42	447.35	447.00	446.75	446.72	449.00	449.34	449.42	449.33
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)	432.38	431.71	431.67	431.36	430.88	430.86	433.30	433.67	433.71	433.66
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)	430.89	430.01	430.13	429.75	428.57	428.88	431.70	432.00	432.01	432.00
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 **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)	430.02	429.02	429.25	428.78	427.12	427.77	430.80	431.00	431.03	431.00
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 **Zone2-Above-GW-1**										
Initial Stress Reference Layer (top of layer)	6	6	6	6	6	6	6	6	6	6
Final Stress Reference Layer (top of layer)	1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)	428.85	427.85	428.07	427.61	425.92	426.59	429.63	429.82	429.53	429.82
Initial Effective Stress, σ'_i (kPa /psf)	96.48	96.48	96.56	96.48	96.37	96.46	96.48	96.47	123.07	96.49
Final Effective Stress, σ'_f (kPa/psf)	3,033.81	3,084.28	3,048.57	3,062.36	3,234.78	3,151.01	3,059.94	3,077.83	3,109.71	3,075.94
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	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	434	434	435	434	434	434	437	435	557	435
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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	8	8	8	8	8	8	8	8	8	8
Settlements										
Primary Settlement, (m / ft)	0.935	0.943	0.938	0.940	0.965	0.953	0.936	0.941	1.059	0.942
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)	0.955	0.963	0.957	0.959	0.984	0.973	0.955	0.961	1.084	0.961
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)	0.955	0.963	0.957	0.959	0.984	0.973	0.955	0.961	1.084	0.961
Layer No. 7 **Zone2-Above-GW-2**										
Initial Stress Reference Layer (top of layer)	6	6	6	6	6	6	6	6	6	6
Final Stress Reference Layer (top of layer)	1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)	426.49	425.49	425.71	425.25	423.57	424.24	427.27	427.47	426.53	427.47
Initial Effective Stress, σ'_i (kPa /psf)	289.43	289.44	289.67	289.44	289.11	289.38	289.44	289.40	369.20	289.48
Final Effective Stress, σ'_f (kPa/psf)	3,226.76	3,277.24	3,241.68	3,255.33	3,427.52	3,343.93	3,252.90	3,270.76	3,355.85	3,268.92
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	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	1,302	1,302	1,304	1,302	1,301	1,302	1,306	1,303	1,664	1,303
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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	8	8	8	8	8	8	8	8	8	8
Settlements										
Primary Settlement, (m / ft)	0.448	0.455	0.450	0.452	0.476	0.465	0.451	0.454	0.448	0.454
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)	0.467	0.475	0.470	0.471	0.496	0.484	0.470	0.473	0.473	0.473
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)	0.467	0.475	0.470	0.471	0.496	0.484	0.470	0.473	0.473	0.473

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Layer No.	*8*	**Zone2-Above-GW-3**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		424.14	423.14	423.36	422.90	421.22	421.88	424.92	425.12	423.52	425.12
Initial Effective Stress, σ'_i (kPa /psf)		482.38	482.40	482.78	482.40	481.85	482.30	482.41	482.33	615.34	482.46
Final Effective Stress, σ'_f (kPa/psf)		3,419.72	3,470.20	3,434.79	3,448.29	3,620.26	3,536.85	3,445.87	3,463.69	3,601.99	3,461.90
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		*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,171	2,171	2,173	2,171	2,168	2,170	2,174	2,171	2,772	2,172
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.235	0.242	0.237	0.239	0.262	0.251	0.238	0.241	0.185	0.241
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.255	0.261	0.256	0.258	0.282	0.270	0.257	0.260	0.209	0.260
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)		0.255	0.261	0.256	0.258	0.282	0.270	0.257	0.260	0.209	0.260
Layer No.	*9*	**Zone2-Above-GW-4**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		421.79	420.79	421.00	420.55	418.87	419.53	422.57	422.76	420.52	422.76
Initial Effective Stress, σ'_i (kPa /psf)		675.33	675.36	675.90	675.37	674.60	675.22	675.37	675.26	861.48	675.44
Final Effective Stress, σ'_f (kPa/psf)		3,612.67	3,663.16	3,627.91	3,641.25	3,813.00	3,729.78	3,638.83	3,656.62	3,848.12	3,654.89
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		*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*4.5*	*2.0*	*4.5*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,039	3,039	3,042	3,039	3,036	3,039	3,042	3,039	1,724	3,040
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.103	0.109	0.104	0.106	0.129	0.118	0.106	0.108	0.494	0.108
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.122	0.129	0.124	0.126	0.148	0.137	0.125	0.128	0.519	0.127
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)		0.122	0.129	0.124	0.126	0.148	0.137	0.125	0.128	0.519	0.127
Layer No.	*10*	**Zone2-Above-GW-5**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		419.43	418.43	418.65	418.19	416.52	417.18	420.22	420.41	417.52	420.41
Initial Effective Stress, σ'_i (kPa /psf)		868.28	868.32	869.01	868.33	867.34	868.14	868.33	868.19	1,107.61	868.43
Final Effective Stress, σ'_f (kPa/psf)		3,805.62	3,856.12	3,821.02	3,834.21	4,005.74	3,922.70	3,831.79	3,849.55	4,094.26	3,847.87
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		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,737	1,737	1,738	1,737	1,735	1,736	1,738	1,737	2,217	1,737
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.379	0.385	0.381	0.382	0.403	0.393	0.382	0.384	0.381	0.384
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.398	0.404	0.400	0.402	0.422	0.412	0.401	0.403	0.405	0.403
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)		0.398	0.404	0.400	0.402	0.422	0.412	0.401	0.403	0.405	0.403

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*11*	**Zone2-Above-GW-6**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		417.08	416.08	416.29	415.84	414.17	414.83	417.86	418.06	414.52	418.05
Initial Effective Stress, σ'_i (kPa /psf)		1,061.23	1,061.28	1,062.12	1,061.29	1,060.08	1,061.07	1,061.30	1,061.12	1,353.75	1,061.41
Final Effective Stress, σ'_f (kPa/psf)		3,998.57	4,049.08	4,014.13	4,027.17	4,198.49	4,115.62	4,024.76	4,042.48	4,340.39	4,040.85
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)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,122	2,123	2,124	2,123	2,120	2,122	2,124	2,123	2,709	2,123
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.308	0.314	0.309	0.311	0.331	0.321	0.310	0.313	0.295	0.313
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.327	0.333	0.329	0.330	0.350	0.341	0.330	0.332	0.320	0.332
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)		0.327	0.333	0.329	0.330	0.350	0.341	0.330	0.332	0.320	0.332
Layer No.	*12*	**Zone2-Above-GW-7**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		414.73	413.73	413.94	413.49	411.82	412.47	415.51	415.70	411.52	415.70
Initial Effective Stress, σ'_i (kPa /psf)		1,254.19	1,254.24	1,255.23	1,254.25	1,252.82	1,253.99	1,254.26	1,254.05	1,599.89	1,254.39
Final Effective Stress, σ'_f (kPa/psf)		4,191.52	4,242.04	4,207.25	4,220.14	4,391.23	4,308.54	4,217.72	4,235.42	4,586.53	4,233.84
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		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,508	2,508	2,510	2,509	2,506	2,508	2,510	2,508	3,201	2,509
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.251	0.257	0.253	0.254	0.273	0.264	0.254	0.256	0.228	0.256
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.271	0.276	0.272	0.274	0.293	0.284	0.273	0.275	0.253	0.275
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)		0.271	0.276	0.272	0.274	0.293	0.284	0.273	0.275	0.253	0.275
Layer No.	*13*	**Zone2-Above-GW-8**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		412.37	411.38	411.58	411.14	409.47	410.12	413.16	413.35	408.52	413.35
Initial Effective Stress, σ'_i (kPa /psf)		1,447	1,447	1,448	1,447	1,446	1,447	1,447	1,447	1,846	1,447
Final Effective Stress, σ'_f (kPa/psf)		4,384	4,435	4,400	4,413	4,584	4,501	4,411	4,428	4,833	4,427
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)		*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*	*MS*
OCR Manual Input Value		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*1.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,894	2,894	2,897	2,894	2,891	2,894	2,896	2,894	1,847	2,895
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.205	0.211	0.207	0.208	0.226	0.218	0.208	0.210	0.577	0.210
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.224	0.230	0.226	0.228	0.246	0.237	0.227	0.229	0.602	0.229
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)		0.224	0.230	0.226	0.228	0.246	0.237	0.227	0.229	0.602	0.229

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *14* **Zone2-Above-GW-9**											
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		410.02	409.02	409.23	408.78	407.12	407.77	410.80	411.00	405.51	410.99
Initial Effective Stress, σ'_i (kPa /psf)		1,640	1,640	1,641	1,640	1,638	1,640	1,640	1,640	2,092	1,640
Final Effective Stress, σ'_f (kPa/psf)		4,577	4,628	4,593	4,606	4,777	4,694	4,604	4,621	5,079	4,620
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*	*2.0*	*2.0*	*1.0*	*1.0*	*1.0*	*1.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,640	1,640	1,641	1,640	3,277	3,280	1,641	1,640	2,093	1,640
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.482	0.488	0.484	0.485	0.187	0.178	0.485	0.487	0.532	0.487
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.502	0.507	0.503	0.505	0.206	0.198	0.504	0.506	0.556	0.506
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)		0.502	0.507	0.503	0.505	0.206	0.198	0.504	0.506	0.556	0.506
Layer No. *15* **Zone2-Above-GW-10**											
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		407.67	406.67	406.87	406.43	404.77	405.42	408.45	408.65	402.51	408.64
Initial Effective Stress, σ'_i (kPa /psf)		1,833	1,833	1,835	1,833	1,831	1,833	1,833	1,833	2,338	1,833
Final Effective Stress, σ'_f (kPa/psf)		4,770	4,821	4,787	4,799	4,969	4,887	4,797	4,814	5,325	4,813
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)		1,833	1,833	1,835	1,833	1,831	1,833	1,834	1,833	2,339	1,833
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.450	0.455	0.451	0.452	0.469	0.461	0.452	0.454	0.493	0.454
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.469	0.474	0.471	0.472	0.488	0.480	0.471	0.473	0.518	0.473
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)		0.469	0.474	0.471	0.472	0.488	0.480	0.471	0.473	0.518	0.473
Layer No. *16* **Zone2-Above-GW-11**											
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		405.31	404.32	404.52	404.08	402.42	403.06	406.10	406.29	399.51	406.29
Initial Effective Stress, σ'_i (kPa /psf)		2,026	2,026	2,028	2,026	2,024	2,026	2,026	2,026	2,584	2,026
Final Effective Stress, σ'_f (kPa/psf)		4,963	5,014	4,980	4,992	5,162	5,080	4,990	5,007	5,571	5,006
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)		2,026	2,026	2,028	2,026	2,024	2,026	2,027	2,026	2,585	2,026
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.421	0.426	0.423	0.424	0.440	0.432	0.424	0.425	0.460	0.425
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.441	0.445	0.442	0.443	0.459	0.451	0.443	0.445	0.485	0.445
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)		0.441	0.445	0.442	0.443	0.459	0.451	0.443	0.445	0.485	0.445

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *17* **Zone2-Above-GW-12**											
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		402.96	401.96	402.16	401.72	400.07	400.71	403.74	403.94	396.51	403.93
Initial Effective Stress, σ'_i (kPa /psf)		2,219	2,219	2,221	2,219	2,217	2,219	2,219	2,219	2,831	2,219
Final Effective Stress, σ'_f (kPa/psf)		5,156	5,207	5,173	5,185	5,355	5,273	5,183	5,200	5,817	5,199
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)		2,219	2,219	2,221	2,219	2,217	2,219	2,220	2,219	2,831	2,219
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.396	0.401	0.398	0.399	0.414	0.407	0.399	0.400	0.432	0.400
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.416	0.420	0.417	0.418	0.434	0.426	0.418	0.420	0.456	0.420
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)		0.416	0.420	0.417	0.418	0.434	0.426	0.418	0.420	0.456	0.420
Layer No. *18* **Zone2-Above-GW-13**											
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		400.61	399.61	399.81	399.37	397.72	398.36	401.39	401.59	393.51	401.58
Initial Effective Stress, σ'_i (kPa /psf)		2,412	2,412	2,414	2,412	2,409	2,412	2,412	2,412	3,077	2,412
Final Effective Stress, σ'_f (kPa/psf)		5,349	5,400	5,366	5,378	5,548	5,466	5,375	5,393	6,063	5,392
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)		2,412	2,412	2,414	2,412	2,409	2,412	2,413	2,412	3,077	2,412
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.374	0.379	0.376	0.377	0.392	0.385	0.377	0.378	0.407	0.378
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.394	0.398	0.395	0.396	0.411	0.404	0.396	0.398	0.431	0.397
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)		0.394	0.398	0.395	0.396	0.411	0.404	0.396	0.398	0.431	0.397
Layer No. *19* **Zone2-Above-GW-14**											
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		398.26	397.26	397.45	397.02	395.37	396.00	399.04	399.23	390.51	399.23
Initial Effective Stress, σ'_i (kPa /psf)		2,605	2,605	2,607	2,605	2,602	2,604	2,605	2,605	3,323	2,605
Final Effective Stress, σ'_f (kPa/psf)		5,542	5,593	5,559	5,571	5,740	5,659	5,568	5,586	6,309	5,585
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)		2,605	2,605	2,607	2,605	2,602	2,604	2,606	2,605	3,324	2,605
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.355	0.359	0.356	0.357	0.372	0.365	0.357	0.359	0.384	0.358
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.374	0.379	0.376	0.377	0.391	0.384	0.376	0.378	0.409	0.378
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)		0.374	0.379	0.376	0.377	0.391	0.384	0.376	0.378	0.409	0.378

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*20*	**Zone2-Above-GW-15**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		395.90	394.90	395.10	394.66	393.02	393.65	396.68	396.88	387.50	396.87
Initial Effective Stress, σ'_i (kPa /psf)		2,798	2,798	2,800	2,798	2,795	2,797	2,798	2,798	3,569	2,798
Final Effective Stress, σ'_f (kPa/psf)		5,735	5,786	5,752	5,764	5,933	5,852	5,761	5,779	6,556	5,778
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)		2,798	2,798	2,800	2,798	2,795	2,797	2,799	2,798	3,570	2,798
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.337	0.342	0.339	0.340	0.354	0.347	0.339	0.341	0.365	0.341
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.357	0.361	0.358	0.359	0.373	0.366	0.359	0.360	0.389	0.360
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)		0.357	0.361	0.358	0.359	0.373	0.366	0.359	0.360	0.389	0.360
Layer No.	*21*	**Zone2-Above-GW-16**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		393.55	392.55	392.74	392.31	390.67	391.30	394.33	394.53	384.50	394.52
Initial Effective Stress, σ'_i (kPa /psf)		2,991	2,991	2,993	2,991	2,987	2,990	2,991	2,990	3,815	2,991
Final Effective Stress, σ'_f (kPa/psf)		5,928	5,979	5,945	5,957	6,126	6,045	5,954	5,972	6,802	5,971
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)		2,991	2,991	2,993	2,991	2,987	2,990	2,992	2,991	3,816	2,991
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.322	0.326	0.323	0.324	0.337	0.331	0.324	0.325	0.347	0.325
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.341	0.345	0.342	0.343	0.357	0.350	0.343	0.344	0.371	0.344
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)		0.341	0.345	0.342	0.343	0.357	0.350	0.343	0.344	0.371	0.344
Layer No.	*22*	**Zone2-Above-GW-17**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		391.20	390.20	390.39	389.96	388.32	388.95	391.98	392.18	381.50	392.17
Initial Effective Stress, σ'_i (kPa /psf)		3,184	3,184	3,186	3,184	3,180	3,183	3,184	3,183	4,061	3,184
Final Effective Stress, σ'_f (kPa/psf)		6,121	6,172	6,138	6,150	6,319	6,238	6,147	6,165	7,048	6,164
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)		3,184	3,184	3,186	3,184	3,180	3,183	3,185	3,184	4,062	3,184
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.307	0.311	0.308	0.309	0.322	0.316	0.309	0.311	0.330	0.311
Secondary Settlement (m / ft)		0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.025	0.019
Total Settlement (m / ft)		0.327	0.330	0.328	0.329	0.342	0.336	0.329	0.330	0.355	0.330
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)		0.327	0.330	0.328	0.329	0.342	0.336	0.329	0.330	0.355	0.330

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*23*	**Zone3-Above-GW-1**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		390.02	389.02	389.21	388.78	387.14	387.77	390.80	391.00	380.00	390.99
Initial Effective Stress, σ'_i (kPa /psf)		3,280	3,280	3,283	3,280	3,277	3,280	3,280	3,280	4,184	3,281
Final Effective Stress, σ'_f (kPa/psf)		6,218	6,268	6,235	6,246	6,415	6,334	6,244	6,261	7,171	6,260
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)		3,280	3,280	3,283	3,280	3,277	3,280	3,281	3,280	4,185	3,281
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$		*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*24*	**Zone3-Above-GW-2**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		390.02	389.02	389.21	388.78	387.14	387.77	390.80	391.00	380.00	390.99
Initial Effective Stress, σ'_i (kPa /psf)		3,280	3,280	3,283	3,280	3,277	3,280	3,280	3,280	4,184	3,281
Final Effective Stress, σ'_f (kPa/psf)		6,218	6,268	6,235	6,246	6,415	6,334	6,244	6,261	7,171	6,260
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)		3,280	3,280	3,283	3,280	3,277	3,280	3,281	3,280	4,185	3,281
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$		*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*25*	**Zone2-Below-GW-18**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		386.27	385.52	385.66	385.34	384.11	384.58	386.85	388.25	380.00	388.24
Initial Effective Stress, σ'_i (kPa /psf)		3,353.78	3,349.03	3,352.55	3,347.87	3,336.09	3,342.23	3,357.79	3,333.73	4,184.32	3,334.57
Final Effective Stress, σ'_f (kPa/psf)		6,291.11	6,336.82	6,304.56	6,313.76	6,474.50	6,396.78	6,321.25	6,315.09	7,170.96	6,314.02
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)		3,588	3,568	3,574	3,563	3,525	3,541	3,605	3,506	4,185	3,506
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.846	0.807	0.808	0.790	0.739	0.756	0.890	0.648	0.000	0.647
Secondary Settlement (m / ft)		0.062	0.058	0.058	0.057	0.050	0.052	0.065	0.045	0.000	0.045
Total Settlement (m / ft)		0.907	0.865	0.867	0.847	0.789	0.809	0.955	0.694	0.000	0.693
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)		0.907	0.865	0.867	0.847	0.789	0.809	0.955	0.694	0.000	0.693

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No.	*26*	**Zone2-Below-GW-19**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		378.76	378.51	378.55	378.45	378.04	378.19	378.95	382.75	380.00	382.75
Initial Effective Stress, σ'_i (kPa /psf)		3,500.97	3,486.42	3,491.81	3,482.92	3,455.06	3,467.37	3,512.63	3,441.53	4,184.32	3,442.27
Final Effective Stress, σ'_f (kPa/psf)		6,438.31	6,474.22	6,443.82	6,448.80	6,593.47	6,521.93	6,476.09	6,422.89	7,170.96	6,421.72
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)		4,204	4,143	4,157	4,128	4,023	4,065	4,253	3,957	4,185	3,957
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.648	0.633	0.630	0.621	0.605	0.609	0.673	0.537	0.000	0.536
Secondary Settlement (m / ft)		0.062	0.058	0.058	0.057	0.050	0.052	0.065	0.045	0.000	0.045
Total Settlement (m / ft)		0.710	0.690	0.688	0.678	0.655	0.662	0.738	0.582	0.000	0.581
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)		0.710	0.690	0.688	0.678	0.655	0.662	0.738	0.582	0.000	0.581
Layer No.	*27*	**Zone3-Below-GW-3**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		365.35	368.04	365.65	366.13	368.81	366.67	365.00	380.00	380.00	380.00
Initial Effective Stress, σ'_i (kPa /psf)		3,763.71	3,691.63	3,744.79	3,724.29	3,635.97	3,693.22	3,786.05	3,495.43	4,184.32	3,496.13
Final Effective Stress, σ'_f (kPa/psf)		6,701.05	6,679.43	6,696.81	6,690.18	6,774.38	6,747.77	6,749.51	6,476.79	7,170.96	6,475.57
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)		4,701	4,566	4,631	4,584	4,394	4,490	4,773	4,182	4,185	4,182
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$		*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		1.168	0.901	1.175	1.140	0.907	1.150	1.186	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.122	0.088	0.118	0.112	0.078	0.105	0.126	0.000	0.000	0.000
Total Settlement (m / ft)		1.290	0.989	1.293	1.253	0.985	1.255	1.313	0.000	0.000	0.000
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)		1.290	0.989	1.293	1.253	0.985	1.255	1.313	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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	Layer No.	Material										
LAYER SETTLEMENT	1	*Null Layer*										
	2	*Dredge*										
	3	*Gravel*										
	4	*Clay*										
	5	*Dike*										
	6	*Zone2-Above-GW-1*	0.955	0.963	0.957	0.959	0.984	0.973	0.955	0.961	1.084	0.961
	7	*Zone2-Above-GW-2*	0.467	0.475	0.470	0.471	0.496	0.484	0.470	0.473	0.473	0.473
	8	*Zone2-Above-GW-3*	0.255	0.261	0.256	0.258	0.282	0.270	0.257	0.260	0.209	0.260
	9	*Zone2-Above-GW-4*	0.122	0.129	0.124	0.126	0.148	0.137	0.125	0.128	0.519	0.127
	10	*Zone2-Above-GW-5*	0.398	0.404	0.400	0.402	0.422	0.412	0.401	0.403	0.405	0.403
	11	*Zone2-Above-GW-6*	0.327	0.333	0.329	0.330	0.350	0.341	0.330	0.332	0.320	0.332
	12	*Zone2-Above-GW-7*	0.271	0.276	0.272	0.274	0.293	0.284	0.273	0.275	0.253	0.275
	13	*Zone2-Above-GW-8*	0.224	0.230	0.226	0.228	0.246	0.237	0.227	0.229	0.602	0.229
	14	*Zone2-Above-GW-9*	0.502	0.507	0.503	0.505	0.206	0.198	0.504	0.506	0.556	0.506
	15	*Zone2-Above-GW-10*	0.469	0.474	0.471	0.472	0.488	0.480	0.471	0.473	0.518	0.473
	16	*Zone2-Above-GW-11*	0.441	0.445	0.442	0.443	0.459	0.451	0.443	0.445	0.485	0.445
	17	*Zone2-Above-GW-12*	0.416	0.420	0.417	0.418	0.434	0.426	0.418	0.420	0.456	0.420
	18	*Zone2-Above-GW-13*	0.394	0.398	0.395	0.396	0.411	0.404	0.396	0.398	0.431	0.397
	19	*Zone2-Above-GW-14*	0.374	0.379	0.376	0.377	0.391	0.384	0.376	0.378	0.409	0.378
	20	*Zone2-Above-GW-15*	0.357	0.361	0.358	0.359	0.373	0.366	0.359	0.360	0.389	0.360
	21	*Zone2-Above-GW-16*	0.341	0.345	0.342	0.343	0.357	0.350	0.343	0.344	0.371	0.344
	22	*Zone2-Above-GW-17*	0.327	0.330	0.328	0.329	0.342	0.336	0.329	0.330	0.355	0.330
	23	*Zone3-Above-GW-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	24	*Zone3-Above-GW-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	25	*Zone2-Below-GW-18*	0.907	0.865	0.867	0.847	0.789	0.809	0.955	0.694	0.000	0.693
	26	*Zone2-Below-GW-19*	0.710	0.690	0.688	0.678	0.655	0.662	0.738	0.582	0.000	0.581
	27	*Zone3-Below-GW-3*	1.290	0.989	1.293	1.253	0.985	1.255	1.313	0.000	0.000	0.000
	28											
	29	*Soil Above GW*										
	30	*Soil Below GW*										
		TOTAL SETTLEMENT	**9.55**	**9.27**	**9.51**	**9.47**	**9.11**	**9.26**	**9.68**	**7.99**	**7.84**	**7.99**
POST-SETTLEMENT ELEVATION(M/FT)	Line	1	453.45	453.15	452.83	452.53	452.64	452.46	454.32	456.35	456.58	456.34
	Line	2	453.45	453.15	452.83	452.53	452.64	452.46	454.32	456.35	456.58	456.34
	Line	3	423.45	423.15	422.83	422.53	422.64	422.46	424.32	426.35	426.58	426.34
	Line	4	422.22	421.73	421.49	421.25	420.89	420.74	422.92	425.01	425.16	425.01
	Line	5	420.48	419.75	419.74	419.32	418.03	418.51	421.12	423.01	423.19	423.01
	Line	6	420.48	419.75	419.73	419.32	417.99	418.51	421.12	423.01	423.19	423.01
	Line	7	419.08	418.36	418.33	417.92	416.62	417.13	419.72	421.61	421.27	421.62
	Line	8	417.19	416.48	416.45	416.04	414.77	415.26	417.84	419.73	418.75	419.74
	Line	9	415.09	414.39	414.35	413.95	412.70	413.18	415.74	417.64	415.95	417.64
	Line	10	412.86	412.16	412.12	411.72	410.50	410.96	413.52	415.42	413.47	415.42
	Line	11	410.91	410.22	410.16	409.77	408.57	409.02	411.56	413.47	410.87	413.47
	Line	12	408.88	408.19	408.14	407.74	406.57	407.01	409.54	411.45	408.19	411.45
	Line	13	406.80	406.12	406.05	405.67	404.51	404.94	407.46	409.37	405.44	409.37
	Line	14	404.67	403.99	403.93	403.54	402.41	402.82	405.33	407.25	403.04	407.24
	Line	15	402.82	402.15	402.07	401.69	400.26	400.67	403.49	405.40	400.60	405.40
	Line	16	400.94	400.27	400.19	399.81	398.40	398.80	401.60	403.52	398.11	403.52
	Line	17	399.02	398.36	398.28	397.90	396.51	396.89	399.69	401.61	395.60	401.61
	Line	18	397.09	396.43	396.34	395.96	394.59	394.97	397.76	399.68	393.05	399.67
	Line	19	395.13	394.47	394.38	394.01	392.65	393.02	395.80	397.72	390.48	397.72
	Line	20	393.15	392.50	392.40	392.03	390.69	391.05	393.82	395.75	387.89	395.74
	Line	21	391.15	390.51	390.40	390.04	388.71	389.06	391.83	393.76	385.28	393.75
	Line	22	389.14	388.50	388.39	388.03	386.72	387.06	389.82	391.75	382.65	391.74
	Line	23	387.11	386.48	386.36	386.00	384.71	385.04	387.79	389.72	380.00	389.72
	Line	24	387.11	386.48	386.36	386.00	384.71	385.04	387.79	389.72	380.00	389.72
	Line	25	387.11	386.48	386.36	386.00	384.71	385.04	387.79	389.72	380.00	389.72
	Line	26	380.51	380.33	380.12	379.96	379.43	379.47	380.85	384.92	380.00	384.91
	Line	27	373.71	374.01	373.71	373.75	374.01	373.75	373.69	380.00	380.00	380.00
	Line	28	355.70	361.07	356.29	357.26	362.61	358.34	355.00	380.00	380.00	380.00
	Line	29										
	Line	30										
	Line	31										

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

Attachment 3

CASE 2: Settlement Analysis for Top of Dredge Material in Geo-tubes at the End of the Operations Period (i.e., End of Year 4)
(Points 1001 to 1010)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Settlement Prediction Model

Programmer: **Yiwen Cao, GeoSyntec Consultants**

Version Control V 1.002 11.14.2007

Project: **Onondaga Lake SCA Final**

Notes:

Unit: **ft / psf**

Average Compaction Effort = **1440.00** kPa or psf

Consider Compaction Effort = **N** yes or no

Point #				**1001**	**1002**	**1003**	**1004**	**1005**	**1006**	**1007**	**1008**	**1009**	**1010**
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 Year 4 Dredge	*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	2	Top of Year 4 Dredge	*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	3		*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	4		*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	5		*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	6		*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	7		*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	8	Top of Year 3 Dredge	*463.00*	*462.42*	*462.35*	*462.00*	*461.75*	*461.72*	*464.00*	*464.34*	*464.42*	*464.33*
	Line	9		*461.29*	*460.71*	*460.63*	*460.29*	*460.04*	*460.01*	*462.29*	*462.63*	*462.70*	*462.61*
	Line	10		*459.57*	*458.99*	*458.92*	*458.57*	*458.32*	*458.29*	*460.57*	*460.91*	*460.99*	*460.90*
	Line	11		*457.86*	*457.28*	*457.20*	*456.86*	*456.61*	*456.58*	*458.86*	*459.20*	*459.27*	*459.18*
	Line	12		*456.14*	*455.57*	*455.49*	*455.14*	*454.89*	*454.86*	*457.14*	*457.49*	*457.56*	*457.47*
	Line	13		*454.43*	*453.85*	*453.77*	*453.43*	*453.18*	*453.15*	*455.43*	*455.77*	*455.85*	*455.76*
	Line	14		*452.71*	*452.14*	*452.06*	*451.71*	*451.47*	*451.43*	*453.71*	*454.06*	*454.13*	*454.04*
	Line	15	Top of Year 2 Dredge	*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*452.00*	*452.34*	*452.42*	*452.33*
	Line	16		*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*450.34*	*449.77*	*449.85*	*449.76*
	Line	17		*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*448.68*	*447.20*	*447.27*	*447.18*
	Line	18		*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*447.03*	*444.63*	*444.70*	*444.61*
	Line	19		*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*445.37*	*442.06*	*442.13*	*442.04*
	Line	20		*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*443.71*	*439.49*	*439.56*	*439.47*
	Line	21		*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*442.05*	*436.91*	*436.99*	*436.90*
	Line	22	Top of Year 1 Dredge	*451.00*	*450.42*	*450.35*	*450.00*	*449.75*	*449.72*	*440.39*	*434.34*	*434.42*	*434.33*
	Line	23		*448.00*	*447.42*	*447.35*	*447.00*	*446.75*	*446.72*	*439.33*	*434.34*	*434.42*	*434.33*
	Line	24		*445.00*	*444.42*	*444.35*	*444.00*	*443.75*	*443.72*	*438.26*	*434.34*	*434.42*	*434.33*
	Line	25		*442.00*	*441.42*	*441.35*	*441.00*	*440.75*	*440.72*	*437.20*	*434.34*	*434.42*	*434.33*
	Line	26		*439.00*	*438.42*	*438.35*	*438.00*	*437.75*	*437.72*	*436.13*	*434.34*	*434.42*	*434.33*
	Line	27		*436.00*	*435.42*	*435.35*	*435.00*	*434.75*	*434.72*	*435.07*	*434.34*	*434.42*	*434.33*
	Line	28	Top of Gravel(Top of Incompressil	*433.00*	*432.42*	*432.35*	*432.00*	*431.75*	*431.72*	*434.00*	*434.34*	*434.42*	*434.33*
	Line	29	GND for sigma_p	*430.02*	*429.02*	*429.25*	*428.78*	*427.10*	*427.77*	*430.81*	*431.00*	*431.04*	*431.00*
	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	*355.70*	*361.07*	*356.29*	*357.26*	*362.61*	*358.34*	*355.00*	*380.00*	*380.00*	*380.00*
LAYER THICKNESS (M/FT)	Layer No.	From	To / Material										
	1	*1*	*2* / *Null Layer*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	2	*2*	*3* / *YR4-1*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	3	*3*	*4* / *YR4-2*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	4	*4*	*5* / *YR4-3*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	5	*5*	*6* / *YR4-4*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	6	*6*	*7* / *YR4-5*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	7	*7*	*8* / *YR4-6*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	8	*8*	*9* / *YR3-1*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	9	*9*	*10* / *YR3-2*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	10	*10*	*11* / *YR3-3*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	11	*11*	*12* / *YR3-4*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	12	*12*	*13* / *YR3-5*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	13	*13*	*14* / *YR3-6*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	14	*14*	*15* / *YR3-7*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	15	*15*	*16* / *YR2-1*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.66*	*2.57*	*2.57*	*2.57*
	16	*16*	*17* / *YR2-2*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.66*	*2.57*	*2.57*	*2.57*
	17	*17*	*18* / *YR2-3*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.66*	*2.57*	*2.57*	*2.57*
	18	*18*	*19* / *YR2-4*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.66*	*2.57*	*2.57*	*2.57*
	19	*19*	*20* / *YR2-5*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.66*	*2.57*	*2.57*	*2.57*
	20	*20*	*21* / *YR2-6*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.66*	*2.57*	*2.57*	*2.57*
	21	*21*	*22* / *YR2-7*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.66*	*2.57*	*2.57*	*2.57*
	22	*22*	*23* / *YR1-1*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*1.07*	*0.00*	*0.00*	*0.00*
	23	*23*	*24* / *YR1-2*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*1.07*	*0.00*	*0.00*	*0.00*
	24	*24*	*25* / *YR1-3*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*1.07*	*0.00*	*0.00*	*0.00*
	25	*25*	*26* / *YR1-4*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*1.07*	*0.00*	*0.00*	*0.00*
	26	*26*	*27* / *YR1-5*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*1.07*	*0.00*	*0.00*	*0.00*
	27	*27*	*28* / *YR1-6*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*1.07*	*0.00*	*0.00*	*0.00*
	28												
	29												
	30												
	Thickness Check												
	From Line	To Line	SUM	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
	1	*28*	Thickness =	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*	*30.00*
			Thickness Check	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
UNIT WEIGHT	1	*Null Layer*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
	2	*YR4-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	3	*YR4-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	4	*YR4-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	5	*YR4-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	6	*YR4-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	7	*YR4-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	8	*YR3-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	9	*YR3-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	10	*YR3-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	11	*YR3-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	12	*YR3-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	13	*YR3-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	14	*YR3-7*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	15	*YR2-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	16	*YR2-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	17	*YR2-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	18	*YR2-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	19	*YR2-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	20	*YR2-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	21	*YR2-7*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	22	*YR1-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	23	*YR1-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	24	*YR1-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	25	*YR1-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	26	*YR1-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	27	*YR1-6*	*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*** **Null 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)	463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
		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: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*2*	**YR4-1**									
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)	463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
Initial Effective Stress, σ'_i (kPa /psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*3*	**YR4-2**									
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)	463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
Initial Effective Stress, σ'_i (kPa /psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*4*	**YR4-3**									
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)	463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
Initial Effective Stress, σ'_i (kPa /psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Layer No.	5	YR4-4									
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)		463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
Initial Effective Stress, σ'_i (kPa /psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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)		0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$		0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1		2	2	2	2	2	2	2	2	2	2
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	6	YR4-5									
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)		463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
Initial Effective Stress, σ'_i (kPa /psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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)		0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$		0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1		2	2	2	2	2	2	2	2	2	2
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	7	YR4-6									
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)		463.00	462.42	462.35	462.00	461.75	461.72	464.00	464.34	464.42	464.33
Initial Effective Stress, σ'_i (kPa /psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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)		0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$		0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1		2	2	2	2	2	2	2	2	2	2
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Layer No.	*8*	**YR3-1**									
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	462.14	461.57	461.49	461.14	460.89	460.86	463.14	463.49	463.56	463.47
Initial Effective Stress, σ'_i (kPa /psf)	73.71	73.71	73.71	73.71	73.71	73.71	73.71	73.71	73.71	73.71
Final Effective Stress, σ'_f (kPa/psf)	73.71	73.71	73.71	73.71	73.71	73.71	73.71	73.71	73.71	73.71
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)	74	74	74	74	74	74	74	74	74	74
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
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)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Layer No.	*9*	**YR3-2**									
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	460.43	459.85	459.77	459.43	459.18	459.15	461.43	461.77	461.85	461.76
Initial Effective Stress, σ'_i (kPa /psf)	221.14	221.14	221.14	221.14	221.14	221.14	221.14	221.14	221.14	221.14
Final Effective Stress, σ'_f (kPa/psf)	221.14	221.14	221.14	221.14	221.14	221.14	221.14	221.14	221.14	221.14
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)	221	221	221	221	221	221	221	221	221	221
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
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)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Layer No.	*10*	**YR3-3**									
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	458.71	458.14	458.06	457.71	457.47	457.43	459.71	460.06	460.13	460.04
Initial Effective Stress, σ'_i (kPa /psf)	368.57	368.57	368.57	368.57	368.57	368.57	368.57	368.57	368.57	368.57
Final Effective Stress, σ'_f (kPa/psf)	368.57	368.57	368.57	368.57	368.57	368.57	368.57	368.57	368.57	368.57
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)	369	369	369	369	369	369	369	369	369	369
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
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)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*11*	**YR3-4**									
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	457.00	456.42	456.35	456.00	455.75	455.72	458.00	458.34	458.42	458.33
Initial Effective Stress, σ'_i (kPa /psf)	516.00	516.00	516.00	516.00	516.00	516.00	516.00	516.00	516.00	516.00
Final Effective Stress, σ'_f (kPa/psf)	516.00	516.00	516.00	516.00	516.00	516.00	516.00	516.00	516.00	516.00
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)	516	516	516	516	516	516	516	516	516	516
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
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)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Layer No.	*12*	**YR3-5**									
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	455.29	454.71	454.63	454.29	454.04	454.01	456.29	456.63	456.70	456.61
Initial Effective Stress, σ'_i (kPa /psf)	663.43	663.43	663.43	663.43	663.43	663.43	663.43	663.43	663.43	663.43
Final Effective Stress, σ'_f (kPa/psf)	663.43	663.43	663.43	663.43	663.43	663.43	663.43	663.43	663.43	663.43
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	663	663	663	663	663	663	663	663	663
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
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)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Layer No.	*13*	**YR3-6**									
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	453.57	452.99	452.92	452.57	452.32	452.29	454.57	454.91	454.99	454.90
Initial Effective Stress, σ'_i (kPa /psf)	811	811	811	811	811	811	811	811	811	811
Final Effective Stress, σ'_f (kPa/psf)	811	811	811	811	811	811	811	811	811	811
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)	811	811	811	811	811	811	811	811	811	811
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, $C_{\alpha\varepsilon}$	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Settlement (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
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)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*14*	YR3-7									
Initial Stress Reference Layer (top of layer)		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.86	451.28	451.20	450.86	450.61	450.58	452.86	453.20	453.27	453.18
Initial Effective Stress, σ'_i (kPa /psf)		958	958	958	958	958	958	958	958	958	958
Final Effective Stress, σ'_f (kPa/psf)		958	958	958	958	958	958	958	958	958	958
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)		958	958	958	958	958	958	958	958	958	958
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, $C_{\alpha\varepsilon}$		*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*	*0.08%*
ratio of t2 / t1		*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Settlement (m / ft)		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
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)		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Layer No.	*15*	YR2-1									
Initial Stress Reference Layer (top of layer)		*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.00	450.42	450.35	450.00	449.75	449.72	451.17	451.06	451.13	451.04
Initial Effective Stress, σ'_i (kPa /psf)		0	0	0	0	0	0	71	111	111	111
Final Effective Stress, σ'_f (kPa/psf)		1,032	1,032	1,032	1,032	1,032	1,032	1,103	1,143	1,143	1,143
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)		0	0	0	0	0	0	71	111	111	111
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		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.575	0.760	0.760	0.760
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.012	0.012	0.012
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.582	0.772	0.772	0.772
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.582	0.772	0.772	0.772
Layer No.	*16*	YR2-2									
Initial Stress Reference Layer (top of layer)		*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.00	450.42	450.35	450.00	449.75	449.72	449.51	448.49	448.56	448.47
Initial Effective Stress, σ'_i (kPa /psf)		0	0	0	0	0	0	214	332	332	332
Final Effective Stress, σ'_f (kPa/psf)		1,032	1,032	1,032	1,032	1,032	1,032	1,246	1,364	1,364	1,364
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)		0	0	0	0	0	0	214	332	332	332
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		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.370	0.460	0.460	0.460
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.012	0.012	0.012
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.377	0.472	0.472	0.472
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.377	0.472	0.472	0.472

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *17* **YR2-3**											
Initial Stress Reference Layer (top of layer)		*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.00	450.42	450.35	450.00	449.75	449.72	447.85	445.91	445.99	445.90
Initial Effective Stress, σ'_i (kPa /psf)		0	0	0	0	0	0	356	553	553	553
Final Effective Stress, σ'_f (kPa/psf)		1,032	1,032	1,032	1,032	1,032	1,032	1,388	1,585	1,585	1,585
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)		0	0	0	0	0	0	356	553	553	553
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		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.285	0.343	0.343	0.343
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.012	0.012	0.012
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.293	0.355	0.355	0.355
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.293	0.355	0.355	0.355
Layer No. *18* **YR2-4**											
Initial Stress Reference Layer (top of layer)		*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.00	450.42	450.35	450.00	449.75	449.72	446.20	443.34	443.42	443.33
Initial Effective Stress, σ'_i (kPa /psf)		0	0	0	0	0	0	499	774	774	774
Final Effective Stress, σ'_f (kPa/psf)		1,032	1,032	1,032	1,032	1,032	1,032	1,531	1,806	1,806	1,806
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)		0	0	0	0	0	0	499	774	774	774
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		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.235	0.276	0.276	0.276
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.012	0.012	0.012
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.243	0.288	0.288	0.288
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.243	0.288	0.288	0.288
Layer No. *19* **YR2-5**											
Initial Stress Reference Layer (top of layer)		*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.00	450.42	450.35	450.00	449.75	449.72	444.54	440.77	440.85	440.76
Initial Effective Stress, σ'_i (kPa /psf)		0	0	0	0	0	0	642	995	995	995
Final Effective Stress, σ'_f (kPa/psf)		1,032	1,032	1,032	1,032	1,032	1,032	1,674	2,027	2,027	2,027
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)		0	0	0	0	0	0	642	995	995	995
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		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.201	0.231	0.231	0.231
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.012	0.012	0.012
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.209	0.243	0.243	0.243
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.209	0.243	0.243	0.243

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No.	*20*	**YR2-6**									
Initial Stress Reference Layer (top of layer)		*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.00	450.42	450.35	450.00	449.75	449.72	442.88	438.20	438.27	438.18
Initial Effective Stress, σ'_i (kPa /psf)		0	0	0	0	0	0	784	1,216	1,216	1,216
Final Effective Stress, σ'_f (kPa/psf)		1,032	1,032	1,032	1,032	1,032	1,032	1,816	2,248	2,248	2,248
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)		0	0	0	0	0	0	784	1,216	1,216	1,216
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		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.176	0.200	0.200	0.200
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.012	0.012	0.012
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.184	0.212	0.212	0.212
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.184	0.212	0.212	0.212
Layer No.	*21*	**YR2-7**									
Initial Stress Reference Layer (top of layer)		*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		451.00	450.42	450.35	450.00	449.75	449.72	441.22	435.63	435.70	435.61
Initial Effective Stress, σ'_i (kPa /psf)		0	0	0	0	0	0	927	1,437	1,437	1,437
Final Effective Stress, σ'_f (kPa/psf)		1,032	1,032	1,032	1,032	1,032	1,032	1,959	2,469	2,469	2,469
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)		0	0	0	0	0	0	927	1,437	1,437	1,437
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		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.157	0.176	0.176	0.176
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.012	0.012	0.012
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.165	0.188	0.188	0.188
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.165	0.188	0.188	0.188
Layer No.	*22*	**YR1-1**									
Initial Stress Reference Layer (top of layer)		*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		449.50	448.92	448.85	448.50	448.25	448.22	439.86	434.34	434.42	434.33
Initial Effective Stress, σ'_i (kPa /psf)		129	129	129	129	129	129	46	0	0	0
Final Effective Stress, σ'_f (kPa/psf)		1,161	1,161	1,161	1,161	1,161	1,161	2,076	2,580	2,580	2,580
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)		129	129	129	129	129	129	46	0	0	0
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.834	0.834	0.834	0.834	0.834	0.834	0.514	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.016	0.016	0.016	0.016	0.016	0.016	0.006	0.000	0.000	0.000
Total Settlement (m / ft)		0.850	0.850	0.850	0.850	0.850	0.850	0.520	0.000	0.000	0.000
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)		0.850	0.850	0.850	0.850	0.850	0.850	0.520	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*23*	**YR1-2**									
Initial Stress Reference Layer (top of layer)	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	446.50	445.92	445.85	445.50	445.25	445.22	438.80	434.34	434.42	434.33
Initial Effective Stress, σ'_i (kPa /psf)	387	387	387	387	387	387	137	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,419	1,419	1,419	1,419	1,419	1,419	2,168	2,580	2,580	2,580
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)	387	387	387	387	387	387	137	0	0	0
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.493	0.493	0.493	0.493	0.493	0.493	0.372	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.016	0.016	0.016	0.016	0.016	0.016	0.006	0.000	0.000	0.000
Total Settlement (m / ft)	0.509	0.509	0.509	0.509	0.509	0.509	0.378	0.000	0.000	0.000
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)	0.509	0.509	0.509	0.509	0.509	0.509	0.378	0.000	0.000	0.000
Layer No.	*24*	**YR1-3**									
Initial Stress Reference Layer (top of layer)	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	443.50	442.92	442.85	442.50	442.25	442.22	437.73	434.34	434.42	434.33
Initial Effective Stress, σ'_i (kPa /psf)	645	645	645	645	645	645	229	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,677	1,677	1,677	1,677	1,677	1,677	2,259	2,580	2,580	2,580
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)	645	645	645	645	645	645	229	0	0	0
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.363	0.363	0.363	0.363	0.363	0.363	0.309	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.016	0.016	0.016	0.016	0.016	0.016	0.006	0.000	0.000	0.000
Total Settlement (m / ft)	0.379	0.379	0.379	0.379	0.379	0.379	0.314	0.000	0.000	0.000
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)	0.379	0.379	0.379	0.379	0.379	0.379	0.314	0.000	0.000	0.000
Layer No.	*25*	**YR1-4**									
Initial Stress Reference Layer (top of layer)	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	440.50	439.92	439.85	439.50	439.25	439.22	436.66	434.34	434.42	434.33
Initial Effective Stress, σ'_i (kPa /psf)	903.00	903.00	903.00	903.00	903.00	903.00	320.75	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)	1,935.00	1,935.00	1,935.00	1,935.00	1,935.00	1,935.00	2,350.90	2,580.00	2,580.00	2,580.00
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)	903	903	903	903	903	903	321	0	0	0
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.289	0.289	0.289	0.289	0.289	0.289	0.269	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.016	0.016	0.016	0.016	0.016	0.016	0.006	0.000	0.000	0.000
Total Settlement (m / ft)	0.306	0.306	0.306	0.306	0.306	0.306	0.274	0.000	0.000	0.000
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)	0.306	0.306	0.306	0.306	0.306	0.306	0.274	0.000	0.000	0.000

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Layer No.	*26*	**YR1-5**									
Initial Stress Reference Layer (top of layer)		*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		437.50	436.92	436.85	436.50	436.25	436.22	435.60	434.34	434.42	434.33
Initial Effective Stress, σ'_i (kPa /psf)		1,161.00	1,161.00	1,161.00	1,161.00	1,161.00	1,161.00	412.39	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		2,193.00	2,193.00	2,193.00	2,193.00	2,193.00	2,193.00	2,442.54	2,580.00	2,580.00	2,580.00
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)		1,161	1,161	1,161	1,161	1,161	1,161	412	0	0	0
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.241	0.241	0.241	0.241	0.241	0.241	0.240	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.016	0.016	0.016	0.016	0.016	0.016	0.006	0.000	0.000	0.000
Total Settlement (m / ft)		0.258	0.258	0.258	0.258	0.258	0.258	0.246	0.000	0.000	0.000
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)		0.258	0.258	0.258	0.258	0.258	0.258	0.246	0.000	0.000	0.000
Layer No.	*27*	**YR1-6**									
Initial Stress Reference Layer (top of layer)		*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		434.50	433.92	433.85	433.50	433.25	433.22	434.53	434.34	434.42	434.33
Initial Effective Stress, σ'_i (kPa /psf)		1,419.00	1,419.00	1,419.00	1,419.00	1,419.00	1,419.00	504.03	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		2,451.00	2,451.00	2,451.00	2,451.00	2,451.00	2,451.00	2,534.18	2,580.00	2,580.00	2,580.00
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)		1,419	1,419	1,419	1,419	1,419	1,419	504	0	0	0
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.207	0.207	0.207	0.207	0.207	0.207	0.218	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.016	0.016	0.016	0.016	0.016	0.016	0.006	0.000	0.000	0.000
Total Settlement (m / ft)		0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.000	0.000	0.000
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)		0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.000	0.000	0.000

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	Layer No.	Material										
LAYER SETTLEMENT	1	*Null Layer*										
	2	*YR4-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	3	*YR4-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	4	*YR4-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5	*YR4-4*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	6	*YR4-5*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	7	*YR4-6*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8	*YR3-1*	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	9	*YR3-2*	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	10	*YR3-3*	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	11	*YR3-4*	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	12	*YR3-5*	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	13	*YR3-6*	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	14	*YR3-7*	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	15	*YR2-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.582	0.772	0.772	0.772
	16	*YR2-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.377	0.472	0.472	0.472
	17	*YR2-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.293	0.355	0.355	0.355
	18	*YR2-4*	0.000	0.000	0.000	0.000	0.000	0.000	0.243	0.288	0.288	0.288
	19	*YR2-5*	0.000	0.000	0.000	0.000	0.000	0.000	0.209	0.243	0.243	0.243
	20	*YR2-6*	0.000	0.000	0.000	0.000	0.000	0.000	0.184	0.212	0.212	0.212
	21	*YR2-7*	0.000	0.000	0.000	0.000	0.000	0.000	0.165	0.188	0.188	0.188
	22	*YR1-1*	0.850	0.850	0.850	0.850	0.850	0.850	0.520	0.000	0.000	0.000
	23	*YR1-2*	0.509	0.509	0.509	0.509	0.509	0.509	0.378	0.000	0.000	0.000
	24	*YR1-3*	0.379	0.379	0.379	0.379	0.379	0.379	0.314	0.000	0.000	0.000
	25	*YR1-4*	0.306	0.306	0.306	0.306	0.306	0.306	0.274	0.000	0.000	0.000
	26	*YR1-5*	0.258	0.258	0.258	0.258	0.258	0.258	0.246	0.000	0.000	0.000
	27	*YR1-6*	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.000	0.000	0.000
	28	*Additional Foundation Settlement*	9.545	9.274	9.514	9.468	9.109	9.259	9.683	7.992	7.836	7.988
	29											
	30											
		TOTAL SETTLEMENT	**12.08**	**11.81**	**12.05**	**12.00**	**11.64**	**11.79**	**13.70**	**10.53**	**10.37**	**10.52**
POST-SETTLEMENT ELEVATION(M/FT)	Line	1 Top of Year 4 Dredge	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	2 Top of Year 4 Dredge	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	3	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	4	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	5	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	6	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	7	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	8 Top of Year 3 Dredge	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
	Line	9	449.21	448.90	448.59	448.29	448.40	448.22	448.59	452.10	452.33	452.09
	Line	10	447.50	447.19	446.87	446.57	446.69	446.50	446.88	450.39	450.62	450.38
	Line	11	445.78	445.48	445.16	444.86	444.97	444.79	445.16	448.67	448.91	448.66
	Line	12	444.07	443.76	443.45	443.15	443.26	443.08	443.45	446.96	447.19	446.95
	Line	13	442.36	442.05	441.73	441.43	441.54	441.36	441.74	445.25	445.48	445.24
	Line	14	440.64	440.34	440.02	439.72	439.83	439.65	440.02	443.53	443.76	443.52
	Line	15 Top of Year 2 Dredge	438.93	438.62	438.31	438.01	438.12	437.94	438.31	441.82	442.05	441.81
	Line	16	438.93	438.62	438.31	438.01	438.12	437.94	437.23	440.02	440.25	440.01
	Line	17	438.93	438.62	438.31	438.01	438.12	437.94	435.95	437.92	438.15	437.91
	Line	18	438.93	438.62	438.31	438.01	438.12	437.94	434.59	435.71	435.94	435.69
	Line	19	438.93	438.62	438.31	438.01	438.12	437.94	433.17	433.42	433.65	433.41
	Line	20	438.93	438.62	438.31	438.01	438.12	437.94	431.72	431.09	431.32	431.08
	Line	21	438.93	438.62	438.31	438.01	438.12	437.94	430.25	428.73	428.96	428.72
	Line	22 Top of Year 1 Dredge	438.93	438.62	438.31	438.01	438.12	437.94	428.76	426.35	426.58	426.34
	Line	23	436.78	436.47	436.16	435.86	435.97	435.79	428.21	426.35	426.58	426.34
	Line	24	434.29	433.98	433.67	433.37	433.48	433.30	427.52	426.35	426.58	426.34
	Line	25	431.67	431.36	431.04	430.75	430.86	430.67	426.77	426.35	426.58	426.34
	Line	26	428.97	428.67	428.35	428.05	428.16	427.98	425.98	426.35	426.58	426.34
	Line	27	426.23	425.92	425.61	425.31	425.42	425.24	425.16	426.35	426.58	426.34
	Line	28 Top of Gravel(Top of Incompressil	423.45	423.15	422.83	422.53	422.64	422.46	424.32	426.35	426.58	426.34
	Line	29										
	Line	30										
	Line	31										

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

Attachment 4

CASE 3: Settlement Analysis for Top of LPSL 30 Years after Closure (i.e., End of Year 35) (Points 1001 to 1010)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Settlement Prediction Model

Programmer: **Yiwen Cao, GeoSyntec Consultants**

Version Control V 1.002 11.14.2007

Project: **Onondaga Lake SCA Final**

Notes:

Unit: **ft / psf**

Average Compaction Effort = **1440.00** kPa or psf

Consider Compaction Effort = **N** yes or no

Point #				**1001**	**1002**	**1003**	**1004**	**1005**	**1006**	**1007**	**1008**	**1009**	**1010**
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	*455.76*	*454.88*	*455.64*	*455.51*	*454.68*	*455.50*	*456.35*	*457.00*	*457.01*	*457.01*
	Line	2	Top of Dredge	*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	3	Top of Gravel	*423.45*	*423.15*	*422.83*	*422.53*	*422.64*	*422.46*	*424.32*	*426.35*	*426.58*	*426.34*
	Line	4	Top of Clay	*422.22*	*421.73*	*421.49*	*421.25*	*420.89*	*420.74*	*422.92*	*425.01*	*425.16*	*425.01*
	Line	5	Top of Dike	*420.48*	*419.75*	*419.74*	*419.32*	*418.03*	*418.51*	*421.12*	*423.01*	*423.19*	*423.01*
	Line	6	Top of Subgrade	*420.48*	*419.75*	*419.73*	*419.32*	*417.99*	*418.51*	*421.12*	*423.01*	*423.19*	*423.01*
	Line	7		*418.52*	*417.79*	*417.77*	*417.36*	*416.03*	*416.54*	*419.16*	*421.05*	*420.65*	*421.05*
	Line	8		*416.55*	*415.84*	*415.80*	*415.40*	*414.07*	*414.57*	*417.20*	*419.09*	*418.11*	*419.09*
	Line	9		*414.59*	*413.88*	*413.84*	*413.44*	*412.12*	*412.60*	*415.24*	*417.14*	*415.57*	*417.14*
	Line	10		*412.63*	*411.92*	*411.88*	*411.48*	*410.16*	*410.63*	*413.28*	*415.18*	*413.03*	*415.18*
	Line	11		*410.67*	*409.96*	*409.92*	*409.52*	*408.20*	*408.67*	*411.32*	*413.22*	*410.49*	*413.22*
	Line	12		*408.70*	*408.01*	*407.95*	*407.56*	*406.24*	*406.70*	*409.36*	*411.26*	*407.95*	*411.26*
	Line	13		*406.74*	*406.05*	*405.99*	*405.60*	*404.29*	*404.73*	*407.40*	*409.30*	*405.41*	*409.30*
	Line	14		*404.78*	*404.09*	*404.03*	*403.64*	*402.33*	*402.76*	*405.44*	*407.34*	*402.87*	*407.34*
	Line	15		*402.81*	*402.14*	*402.06*	*401.68*	*400.37*	*400.79*	*403.47*	*405.39*	*400.32*	*405.39*
	Line	16		*400.85*	*400.18*	*400.10*	*399.72*	*398.41*	*398.82*	*401.51*	*403.43*	*397.78*	*403.43*
	Line	17		*398.89*	*398.22*	*398.14*	*397.76*	*396.46*	*396.85*	*399.55*	*401.47*	*395.24*	*401.47*
	Line	18		*396.92*	*396.27*	*396.17*	*395.80*	*394.50*	*394.88*	*397.59*	*399.51*	*392.70*	*399.51*
	Line	19		*394.96*	*394.31*	*394.21*	*393.84*	*392.54*	*392.92*	*395.63*	*397.55*	*390.16*	*397.55*
	Line	20		*393.00*	*392.35*	*392.25*	*391.88*	*390.58*	*390.95*	*393.67*	*395.59*	*387.62*	*395.59*
	Line	21		*391.04*	*390.39*	*390.29*	*389.92*	*388.63*	*388.98*	*391.71*	*393.64*	*385.08*	*393.64*
	Line	22		*389.07*	*388.44*	*388.32*	*387.96*	*386.67*	*387.01*	*389.75*	*391.68*	*382.54*	*391.68*
	Line	23	Bottom of Zone2 Above GW	*387.11*	*386.48*	*386.36*	*386.00*	*384.71*	*385.04*	*387.79*	*389.72*	*380.00*	*389.72*
	Line	24		*387.11*	*386.48*	*386.36*	*386.00*	*384.71*	*385.04*	*387.79*	*389.72*	*380.00*	*389.72*
	Line	25	Bottom of Zone 3 Above GW	*387.11*	*386.48*	*386.36*	*386.00*	*384.71*	*385.04*	*387.79*	*389.72*	*380.00*	*389.72*
	Line	26		*380.41*	*380.25*	*380.04*	*379.88*	*379.36*	*379.40*	*380.74*	*384.86*	*380.00*	*384.86*
	Line	27	Bottom of Zone 2 Below GW	*373.71*	*374.01*	*373.71*	*373.75*	*374.01*	*373.75*	*373.69*	*380.00*	*380.00*	*380.00*
	Line	28	Top of Incompressible Layer	*355.70*	*361.07*	*356.29*	*357.26*	*362.61*	*358.34*	*355.00*	*380.00*	*380.00*	*380.00*
	Line	29	GND for sigma_p	*430.02*	*429.02*	*429.25*	*428.78*	*427.10*	*427.77*	*430.81*	*431.00*	*431.04*	*431.00*
	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	*355.70*	*361.07*	*356.29*	*357.26*	*362.61*	*358.34*	*355.00*	*380.00*	*380.00*	*380.00*
LAYER THICKNESS (M/FT)	Layer No.	From	To / Material										
	1	*1*	*2* / *Cover*	*4.84*	*4.26*	*5.34*	*5.51*	*4.57*	*5.57*	*6.05*	*3.18*	*2.96*	*3.21*
	2	*2*	*3* / *Dredge*	*27.47*	*27.47*	*27.47*	*27.47*	*27.47*	*27.47*	*25.98*	*27.47*	*27.47*	*27.46*
	3	*3*	*4* / *Gravel*	*1.23*	*1.42*	*1.34*	*1.28*	*1.75*	*1.72*	*1.40*	*1.34*	*1.42*	*1.33*
	4	*4*	*5* / *Clay*	*1.74*	*1.98*	*1.75*	*1.93*	*2.86*	*2.23*	*1.80*	*2.00*	*1.97*	*2.00*
	5	*5*	*6* / *Dike*	*0.00*	*0.00*	*0.01*	*0.00*	*0.04*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	6	*6*	*7* / *Zone2-Above-GW-1*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	7	*7*	*8* / *Zone2-Above-GW-2*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	8	*8*	*9* / *Zone2-Above-GW-3*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	9	*9*	*10* / *Zone2-Above-GW-4*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	10	*10*	*11* / *Zone2-Above-GW-5*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	11	*11*	*12* / *Zone2-Above-GW-6*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	12	*12*	*13* / *Zone2-Above-GW-7*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	13	*13*	*14* / *Zone2-Above-GW-8*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	14	*14*	*15* / *Zone2-Above-GW-9*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	15	*15*	*16* / *Zone2-Above-GW-10*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	16	*16*	*17* / *Zone2-Above-GW-11*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	17	*17*	*18* / *Zone2-Above-GW-12*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	18	*18*	*19* / *Zone2-Above-GW-13*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	19	*19*	*20* / *Zone2-Above-GW-14*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	20	*20*	*21* / *Zone2-Above-GW-15*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	21	*21*	*22* / *Zone2-Above-GW-16*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	22	*22*	*23* / *Zone2-Above-GW-17*	*1.96*	*1.96*	*1.96*	*1.96*	*1.96*	*1.97*	*1.96*	*1.96*	*2.54*	*1.96*
	23	*23*	*24* / *Zone3-Above-GW-1*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	24	*24*	*25* / *Zone3-Above-GW-2*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	25	*25*	*26* / *Zone2-Below-GW-18*	*6.70*	*6.24*	*6.33*	*6.13*	*5.35*	*5.65*	*7.05*	*4.86*	*0.00*	*4.86*
	26	*26*	*27* / *Zone2-Below-GW-19*	*6.70*	*6.24*	*6.32*	*6.13*	*5.35*	*5.64*	*7.05*	*4.86*	*0.00*	*4.86*
	27	*27*	*28* / *Zone3-Below-GW-3*	*18.01*	*12.94*	*17.42*	*16.49*	*11.40*	*15.41*	*18.69*	*0.00*	*0.00*	*0.00*
	28												
	29	*29*	*30* / Soil Above GW	*55.02*	*54.02*	*54.25*	*53.78*	*52.10*	*52.77*	*55.81*	*56.00*	*56.04*	*56.00*
	30	*30*	*31* / Soil Below GW	*19.30*	*13.93*	*18.71*	*17.74*	*12.39*	*16.66*	*20.00*	*-5.00*	*-5.00*	*-5.00*
	Thickness Check												
		From Line	To Line / SUM	*100.06*	*93.81*	*99.35*	*98.25*	*92.07*	*97.16*	*101.35*	*77.00*	*77.01*	*77.01*
		1	*28* / Thickness =	*100.06*	*93.81*	*99.35*	*98.25*	*92.07*	*97.16*	*101.35*	*77.00*	*77.01*	*77.01*
			Thickness Check	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

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	*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	*Zone2-Above-GW-1*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	7	*Zone2-Above-GW-2*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	8	*Zone2-Above-GW-3*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	9	*Zone2-Above-GW-4*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	10	*Zone2-Above-GW-5*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	11	*Zone2-Above-GW-6*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	12	*Zone2-Above-GW-7*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	13	*Zone2-Above-GW-8*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	14	*Zone2-Above-GW-9*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	15	*Zone2-Above-GW-10*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	16	*Zone2-Above-GW-11*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	17	*Zone2-Above-GW-12*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	18	*Zone2-Above-GW-13*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	19	*Zone2-Above-GW-14*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	20	*Zone2-Above-GW-15*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	21	*Zone2-Above-GW-16*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	22	*Zone2-Above-GW-17*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	23	*Zone3-Above-GW-1*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	24	*Zone3-Above-GW-2*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	25	*Zone2-Below-GW-18*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	26	*Zone2-Below-GW-19*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	27	*Zone3-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*** **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)		453.34	452.75	452.97	452.76	452.40	452.72	453.33	455.41	455.53	455.41
	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 **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)	437.19	436.89	436.57	436.27	436.38	436.20	437.31	440.09	440.32	440.07
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)	422.84	422.44	422.16	421.89	421.77	421.60	423.62	425.68	425.87	425.68
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)	421.35	420.74	420.62	420.29	419.46	419.63	422.02	424.01	424.18	424.01
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 **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)	420.48	419.75	419.74	419.32	418.01	418.51	421.12	423.01	423.19	423.01
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 **Zone2-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)	419.50	418.77	418.75	418.34	417.01	417.53	420.14	422.03	421.92	422.03
Initial Effective Stress, σ'_i (kPa /psf)	2,799.30	2,850.66	2,814.90	2,827.98	3,000.68	2,917.14	2,698.66	2,843.51	2,873.38	2,841.45
Final Effective Stress, σ'_f (kPa/psf)	3,380.10	3,361.86	3,455.70	3,489.18	3,549.08	3,585.54	3,424.66	3,225.11	3,228.58	3,226.65
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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.5	4.5	4.5
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	1,726	1,681	1,722	1,713	1,654	1,679	1,750	3,310	3,364	3,310
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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%	0.11%	0.11%	0.11%
ratio of t2 / t1	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75
Settlements										
Primary Settlement, (m / ft)	0.074	0.064	0.080	0.082	0.066	0.081	0.093	0.001	0.002	0.002
Secondary Settlement (m / ft)	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.002	0.003	0.002
Total Settlement (m / ft)	0.091	0.081	0.097	0.099	0.082	0.098	0.110	0.004	0.004	0.004
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)	0.091	0.081	0.097	0.099	0.082	0.098	0.110	0.004	0.004	0.004
Layer No. 7 **Zone2-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)	417.54	416.81	416.79	416.38	415.05	415.56	418.18	420.07	419.38	420.07
Initial Effective Stress, σ'_i (kPa /psf)	2,960.26	3,011.14	2,975.86	2,988.70	3,161.21	3,078.59	2,859.43	3,004.08	3,081.71	3,002.02
Final Effective Stress, σ'_f (kPa/psf)	3,541.06	3,522.34	3,616.66	3,649.90	3,709.61	3,746.99	3,585.43	3,385.68	3,436.91	3,387.22
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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	2,048	2,002	2,043	2,034	1,975	2,002	2,072	1,792	1,912	1,792
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75
Settlements										
Primary Settlement, (m / ft)	0.070	0.061	0.076	0.078	0.063	0.077	0.089	0.047	0.055	0.047
Secondary Settlement (m / ft)	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)	0.087	0.078	0.093	0.095	0.079	0.094	0.105	0.064	0.077	0.064
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)	0.087	0.078	0.093	0.095	0.079	0.094	0.105	0.064	0.077	0.064

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Layer No.	*8*	**Zone2-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)		415.57	414.86	414.82	414.42	413.10	413.59	416.22	418.11	416.84	418.11
Initial Effective Stress, σ'_i (kPa /psf)		3,121.22	3,171.62	3,136.82	3,149.42	3,321.74	3,240.03	3,020.20	3,164.66	3,290.04	3,162.60
Final Effective Stress, σ'_f (kPa/psf)		3,702.02	3,682.82	3,777.62	3,810.62	3,870.14	3,908.43	3,746.20	3,546.26	3,645.24	3,547.80
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		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,370	2,323	2,365	2,356	2,296	2,325	2,394	2,113	2,328	2,113
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.067	0.058	0.073	0.075	0.060	0.074	0.084	0.045	0.052	0.045
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.084	0.075	0.090	0.091	0.077	0.091	0.101	0.061	0.074	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 8 (m / ft)		0.084	0.075	0.090	0.091	0.077	0.091	0.101	0.061	0.074	0.062
Layer No.	*9*	**Zone2-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)		413.61	412.90	412.86	412.46	411.14	411.62	414.26	416.16	414.30	416.16
Initial Effective Stress, σ'_i (kPa /psf)		3,282.18	3,332.10	3,297.78	3,310.14	3,482.26	3,401.47	3,180.97	3,325.23	3,498.37	3,323.17
Final Effective Stress, σ'_f (kPa/psf)		3,862.98	3,843.30	3,938.58	3,971.34	4,030.66	4,069.87	3,906.97	3,706.83	3,853.57	3,708.37
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		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,692	2,644	2,687	2,677	2,617	2,648	2,715	2,434	2,745	2,434
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.064	0.056	0.070	0.071	0.057	0.071	0.081	0.043	0.049	0.043
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.081	0.073	0.086	0.088	0.074	0.087	0.097	0.059	0.071	0.060
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)		0.081	0.073	0.086	0.088	0.074	0.087	0.097	0.059	0.071	0.060
Layer No.	*10*	**Zone2-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)		411.65	410.94	410.90	410.50	409.18	409.65	412.30	414.20	411.76	414.20
Initial Effective Stress, σ'_i (kPa /psf)		3,443.15	3,492.57	3,458.75	3,470.86	3,642.79	3,562.92	3,341.74	3,485.81	3,706.70	3,483.75
Final Effective Stress, σ'_f (kPa/psf)		4,023.95	4,003.77	4,099.55	4,132.06	4,191.19	4,231.32	4,067.74	3,867.41	4,061.90	3,868.95
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		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,014	2,965	3,009	2,999	2,939	2,971	3,037	2,756	3,162	2,756
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.061	0.053	0.067	0.068	0.055	0.068	0.077	0.041	0.046	0.041
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.078	0.070	0.083	0.085	0.072	0.085	0.094	0.057	0.068	0.058
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)		0.078	0.070	0.083	0.085	0.072	0.085	0.094	0.057	0.068	0.058

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Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*11*	**Zone2-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)		409.68	408.99	408.93	408.54	407.22	407.68	410.34	412.24	409.22	412.24
Initial Effective Stress, σ'_i (kPa /psf)		3,604.11	3,653.05	3,619.71	3,631.58	3,803.32	3,724.36	3,502.51	3,646.38	3,915.03	3,644.32
Final Effective Stress, σ'_f (kPa/psf)		4,184.91	4,164.25	4,260.51	4,292.78	4,351.72	4,392.76	4,228.51	4,027.98	4,270.23	4,029.52
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*	*2.0*	*1.0*	*1.0*	*2.0*	*1.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		1,668	1,643	1,666	1,660	3,260	1,647	1,679	3,077	1,789	3,077
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.059	0.051	0.064	0.065	0.053	0.065	0.074	0.039	0.044	0.039
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.075	0.068	0.081	0.082	0.069	0.082	0.091	0.056	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 11 (m / ft)		0.075	0.068	0.081	0.082	0.069	0.082	0.091	0.056	0.066	0.056
Layer No.	*12*	**Zone2-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)		407.72	407.03	406.97	406.58	405.27	405.71	408.38	410.28	406.68	410.28
Initial Effective Stress, σ'_i (kPa /psf)		3,765.07	3,813.53	3,780.67	3,792.30	3,963.85	3,885.80	3,663.27	3,806.96	4,123.35	3,804.90
Final Effective Stress, σ'_f (kPa/psf)		4,345.87	4,324.73	4,421.47	4,453.50	4,512.25	4,554.20	4,389.27	4,188.56	4,478.55	4,190.10
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)		1,829	1,804	1,827	1,821	1,790	1,808	1,840	1,699	1,998	1,699
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.056	0.049	0.061	0.063	0.051	0.062	0.071	0.037	0.042	0.038
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.073	0.066	0.078	0.080	0.067	0.079	0.088	0.054	0.064	0.055
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)		0.073	0.066	0.078	0.080	0.067	0.079	0.088	0.054	0.064	0.055
Layer No.	*13*	**Zone2-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)		405.76	405.07	405.01	404.62	403.31	403.74	406.42	408.32	404.14	408.32
Initial Effective Stress, σ'_i (kPa /psf)		3,926	3,974	3,942	3,953	4,124	4,047	3,824	3,968	4,332	3,965
Final Effective Stress, σ'_f (kPa/psf)		4,507	4,485	4,582	4,614	4,673	4,716	4,550	4,349	4,687	4,351
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)		1,990	1,964	1,987	1,981	1,951	1,970	2,001	1,859	2,206	1,859
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.054	0.047	0.059	0.061	0.049	0.060	0.068	0.036	0.040	0.036
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.071	0.064	0.076	0.077	0.066	0.077	0.085	0.053	0.062	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 13 (m / ft)		0.071	0.064	0.076	0.077	0.066	0.077	0.085	0.053	0.062	0.053

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No.	*14*	**Zone2-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)		403.80	403.12	403.05	402.66	401.35	401.78	404.46	406.37	401.60	406.37
Initial Effective Stress, σ'_i (kPa /psf)		4,087	4,134	4,103	4,114	4,285	4,209	3,985	4,128	4,540	4,126
Final Effective Stress, σ'_f (kPa/psf)		4,668	4,646	4,743	4,775	4,833	4,877	4,711	4,510	4,895	4,511
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)		2,151	2,125	2,148	2,142	2,111	2,131	2,161	2,020	2,414	2,020
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.052	0.046	0.057	0.058	0.047	0.058	0.066	0.035	0.038	0.035
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.069	0.062	0.074	0.075	0.064	0.075	0.082	0.051	0.060	0.052
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)		0.069	0.062	0.074	0.075	0.064	0.075	0.082	0.051	0.060	0.052
Layer No.	*15*	**Zone2-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)		401.83	401.16	401.08	400.70	399.39	399.81	402.49	404.41	399.05	404.41
Initial Effective Stress, σ'_i (kPa /psf)		4,248	4,295	4,264	4,274	4,445	4,370	4,146	4,289	4,748	4,287
Final Effective Stress, σ'_f (kPa/psf)		4,829	4,806	4,904	4,936	4,994	5,039	4,872	4,670	5,104	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)		2,312	2,285	2,309	2,303	2,272	2,293	2,322	2,181	2,623	2,181
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.050	0.044	0.055	0.056	0.045	0.056	0.063	0.033	0.037	0.034
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.067	0.061	0.072	0.073	0.062	0.073	0.080	0.050	0.058	0.050
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)		0.067	0.061	0.072	0.073	0.062	0.073	0.080	0.050	0.058	0.050
Layer No.	*16*	**Zone2-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)		399.87	399.20	399.12	398.74	397.43	397.84	400.53	402.45	396.51	402.45
Initial Effective Stress, σ'_i (kPa /psf)		4,409	4,455	4,425	4,435	4,606	4,532	4,306	4,449	4,957	4,447
Final Effective Stress, σ'_f (kPa/psf)		4,990	4,967	5,065	5,096	5,154	5,200	5,032	4,831	5,312	4,832
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)		2,473	2,445	2,470	2,464	2,432	2,454	2,483	2,341	2,831	2,341
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.049	0.042	0.053	0.054	0.044	0.054	0.061	0.032	0.035	0.032
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.065	0.059	0.070	0.071	0.061	0.071	0.078	0.049	0.057	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 16 (m / ft)		0.065	0.059	0.070	0.071	0.061	0.071	0.078	0.049	0.057	0.049

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No.	*17*	**Zone2-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)		397.91	397.24	397.16	396.78	395.48	395.87	398.57	400.49	393.97	400.49
Initial Effective Stress, σ'_i (kPa /psf)		4,570	4,616	4,585	4,596	4,766	4,693	4,467	4,610	5,165	4,608
Final Effective Stress, σ'_f (kPa/psf)		5,151	5,127	5,226	5,257	5,315	5,361	5,193	4,991	5,520	4,993
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)		2,634	2,606	2,631	2,624	2,593	2,616	2,644	2,502	3,039	2,502
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.047	0.041	0.051	0.053	0.043	0.052	0.059	0.031	0.034	0.031
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.064	0.058	0.068	0.069	0.059	0.069	0.076	0.048	0.056	0.048
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)		0.064	0.058	0.068	0.069	0.059	0.069	0.076	0.048	0.056	0.048
Layer No.	*18*	**Zone2-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)		395.94	395.29	395.19	394.82	393.52	393.90	396.61	398.53	391.43	398.53
Initial Effective Stress, σ'_i (kPa /psf)		4,731	4,776	4,746	4,757	4,927	4,854	4,628	4,770	5,373	4,768
Final Effective Stress, σ'_f (kPa/psf)		5,312	5,288	5,387	5,418	5,475	5,523	5,354	5,152	5,729	5,154
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)		2,794	2,766	2,792	2,785	2,753	2,777	2,804	2,662	3,248	2,662
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.045	0.040	0.050	0.051	0.041	0.051	0.057	0.030	0.032	0.030
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.062	0.057	0.066	0.068	0.058	0.068	0.074	0.047	0.054	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 18 (m / ft)		0.062	0.057	0.066	0.068	0.058	0.068	0.074	0.047	0.054	0.047
Layer No.	*19*	**Zone2-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)		393.98	393.33	393.23	392.86	391.56	391.93	394.65	396.57	388.89	396.57
Initial Effective Stress, σ'_i (kPa /psf)		4,892	4,937	4,907	4,917	5,088	5,016	4,789	4,931	5,582	4,929
Final Effective Stress, σ'_f (kPa/psf)		5,473	5,448	5,548	5,579	5,636	5,684	5,515	5,313	5,937	5,314
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)		2,955	2,927	2,953	2,946	2,914	2,938	2,965	2,823	3,456	2,823
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.044	0.039	0.048	0.049	0.040	0.049	0.055	0.029	0.031	0.029
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.061	0.055	0.065	0.066	0.057	0.066	0.072	0.046	0.053	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 19 (m / ft)		0.061	0.055	0.065	0.066	0.057	0.066	0.072	0.046	0.053	0.046

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*20*	**Zone2-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)		392.02	391.37	391.27	390.90	389.60	389.96	392.69	394.62	386.35	394.62
Initial Effective Stress, σ'_i (kPa /psf)		5,053	5,097	5,068	5,078	5,248	5,177	4,949	5,092	5,790	5,090
Final Effective Stress, σ'_f (kPa/psf)		5,634	5,609	5,709	5,739	5,796	5,846	5,675	5,473	6,145	5,475
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)		3,116	3,087	3,114	3,107	3,075	3,100	3,126	2,984	3,664	2,984
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.043	0.037	0.047	0.048	0.039	0.048	0.054	0.028	0.030	0.029
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.059	0.054	0.064	0.065	0.056	0.065	0.070	0.045	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 20 (m / ft)		0.059	0.054	0.064	0.065	0.056	0.065	0.070	0.045	0.052	0.045
Layer No.	*21*	**Zone2-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)		390.05	389.42	389.30	388.94	387.65	387.99	390.73	392.66	383.81	392.66
Initial Effective Stress, σ'_i (kPa /psf)		5,214	5,258	5,229	5,239	5,409	5,339	5,110	5,252	5,998	5,250
Final Effective Stress, σ'_f (kPa/psf)		5,795	5,769	5,870	5,900	5,957	6,007	5,836	5,634	6,354	5,635
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)		3,277	3,248	3,275	3,267	3,235	3,261	3,287	3,144	3,873	3,144
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.041	0.036	0.045	0.047	0.038	0.046	0.052	0.027	0.029	0.028
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.058	0.053	0.062	0.063	0.055	0.063	0.069	0.044	0.051	0.044
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)		0.058	0.053	0.062	0.063	0.055	0.063	0.069	0.044	0.051	0.044
Layer No.	*22*	**Zone2-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)		388.09	387.46	387.34	386.98	385.69	386.02	388.77	390.70	381.27	390.70
Initial Effective Stress, σ'_i (kPa /psf)		5,375	5,418	5,390	5,399	5,569	5,500	5,271	5,413	6,207	5,411
Final Effective Stress, σ'_f (kPa/psf)		5,955	5,930	6,031	6,061	6,118	6,169	5,997	5,794	6,562	5,796
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)		3,438	3,408	3,436	3,428	3,396	3,423	3,448	3,305	4,081	3,305
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.040	0.035	0.044	0.045	0.037	0.045	0.051	0.027	0.028	0.027
Secondary Settlement (m / ft)		0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.022	0.017
Total Settlement (m / ft)		0.057	0.052	0.061	0.062	0.054	0.062	0.067	0.043	0.050	0.044
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)		0.057	0.052	0.061	0.062	0.054	0.062	0.067	0.043	0.050	0.044

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*23*	**Zone3-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)		387.11	386.48	386.36	386.00	384.71	385.04	387.79	389.72	380.00	389.72
Initial Effective Stress, σ'_i (kPa /psf)		5,455	5,499	5,471	5,480	5,649	5,581	5,351	5,493	6,311	5,491
Final Effective Stress, σ'_f (kPa/psf)		6,036	6,010	6,112	6,141	6,198	6,249	6,077	5,875	6,666	5,876
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)		3,519	3,489	3,517	3,508	3,476	3,504	3,528	3,385	4,185	3,385
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$		*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*24*	**Zone3-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)		387.11	386.48	386.36	386.00	384.71	385.04	387.79	389.72	380.00	389.72
Initial Effective Stress, σ'_i (kPa /psf)		5,455	5,499	5,471	5,480	5,649	5,581	5,351	5,493	6,311	5,491
Final Effective Stress, σ'_f (kPa/psf)		6,036	6,010	6,112	6,141	6,198	6,249	6,077	5,875	6,666	5,876
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)		3,519	3,489	3,517	3,508	3,476	3,504	3,528	3,385	4,185	3,385
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$		*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*25*	**Zone2-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)		383.76	383.36	383.20	382.94	382.04	382.22	384.27	387.29	380.00	387.29
Initial Effective Stress, σ'_i (kPa /psf)		5,520.82	5,559.66	5,532.75	5,539.89	5,701.81	5,636.28	5,420.43	5,540.63	6,310.80	5,538.57
Final Effective Stress, σ'_f (kPa/psf)		6,101.62	6,070.86	6,173.54	6,201.09	6,250.21	6,304.68	6,146.43	5,922.23	6,666.00	5,923.77
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)		*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)		3,794	3,744	3,776	3,759	3,695	3,735	3,817	3,584	4,185	3,584
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.134	0.110	0.138	0.138	0.098	0.126	0.177	0.065	0.000	0.065
Secondary Settlement (m / ft)		0.057	0.053	0.054	0.053	0.046	0.048	0.060	0.042	0.000	0.042
Total Settlement (m / ft)		0.191	0.163	0.193	0.190	0.144	0.175	0.237	0.106	0.000	0.107
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)		0.191	0.163	0.193	0.190	0.144	0.175	0.237	0.106	0.000	0.107

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*26*	**Zone2-Below-GW-19**									
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)		377.06	377.13	376.87	376.81	376.69	376.57	377.22	382.43	380.00	382.43
Initial Effective Stress, σ'_i (kPa /psf)		5,652.14	5,681.87	5,656.72	5,659.94	5,806.67	5,746.92	5,558.61	5,635.88	6,310.80	5,633.82
Final Effective Stress, σ'_f (kPa/psf)		6,232.94	6,193.07	6,297.51	6,321.14	6,355.07	6,415.32	6,284.61	6,017.48	6,666.00	6,019.02
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)		4,343	4,256	4,295	4,262	4,134	4,198	4,395	3,983	4,185	3,983
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.131	0.107	0.136	0.135	0.096	0.124	0.173	0.064	0.000	0.064
Secondary Settlement (m / ft)		0.057	0.053	0.054	0.053	0.046	0.048	0.060	0.042	0.000	0.042
Total Settlement (m / ft)		0.188	0.161	0.190	0.188	0.142	0.172	0.233	0.105	0.000	0.106
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)		0.188	0.161	0.190	0.188	0.142	0.172	0.233	0.105	0.000	0.106
Layer No.	*27*	**Zone3-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)		364.71	367.54	365.00	365.51	368.31	366.05	364.35	380.00	380.00	380.00
Initial Effective Stress, σ'_i (kPa /psf)		5,894.30	5,869.78	5,889.42	5,881.56	5,970.82	5,953.26	5,810.86	5,683.51	6,310.80	5,681.45
Final Effective Stress, σ'_f (kPa/psf)		6,475.10	6,380.98	6,530.22	6,542.76	6,519.22	6,621.66	6,536.86	6,065.11	6,666.00	6,066.65
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)		4,714	4,576	4,644	4,596	4,403	4,502	4,786	4,182	4,185	4,182
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$		*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$		*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.279	0.178	0.297	0.290	0.165	0.271	0.363	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.119	0.085	0.115	0.109	0.075	0.102	0.123	0.000	0.000	0.000
Total Settlement (m / ft)		0.398	0.264	0.412	0.399	0.240	0.372	0.486	0.000	0.000	0.000
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)		0.398	0.264	0.412	0.399	0.240	0.372	0.486	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
LAYER SETTLEMENT	1	*Cover*										
	2	*Dredge*										
	3	*Gravel*										
	4	*Clay*										
	5	*Dike*										
	6	*Zone2-Above-GW-1*	0.091	0.081	0.097	0.099	0.082	0.098	0.110	0.004	0.004	0.004
	7	*Zone2-Above-GW-2*	0.087	0.078	0.093	0.095	0.079	0.094	0.105	0.064	0.077	0.064
	8	*Zone2-Above-GW-3*	0.084	0.075	0.090	0.091	0.077	0.091	0.101	0.061	0.074	0.062
	9	*Zone2-Above-GW-4*	0.081	0.073	0.086	0.088	0.074	0.087	0.097	0.059	0.071	0.060
	10	*Zone2-Above-GW-5*	0.078	0.070	0.083	0.085	0.072	0.085	0.094	0.057	0.068	0.058
	11	*Zone2-Above-GW-6*	0.075	0.068	0.081	0.082	0.069	0.082	0.091	0.056	0.066	0.056
	12	*Zone2-Above-GW-7*	0.073	0.066	0.078	0.080	0.067	0.079	0.088	0.054	0.064	0.055
	13	*Zone2-Above-GW-8*	0.071	0.064	0.076	0.077	0.066	0.077	0.085	0.053	0.062	0.053
	14	*Zone2-Above-GW-9*	0.069	0.062	0.074	0.075	0.064	0.075	0.082	0.051	0.060	0.052
	15	*Zone2-Above-GW-10*	0.067	0.061	0.072	0.073	0.062	0.073	0.080	0.050	0.058	0.050
	16	*Zone2-Above-GW-11*	0.065	0.059	0.070	0.071	0.061	0.071	0.078	0.049	0.057	0.049
	17	*Zone2-Above-GW-12*	0.064	0.058	0.068	0.069	0.059	0.069	0.076	0.048	0.056	0.048
	18	*Zone2-Above-GW-13*	0.062	0.057	0.066	0.068	0.058	0.068	0.074	0.047	0.054	0.047
	19	*Zone2-Above-GW-14*	0.061	0.055	0.065	0.066	0.057	0.066	0.072	0.046	0.053	0.046
	20	*Zone2-Above-GW-15*	0.059	0.054	0.064	0.065	0.056	0.065	0.070	0.045	0.052	0.045
	21	*Zone2-Above-GW-16*	0.058	0.053	0.062	0.063	0.055	0.063	0.069	0.044	0.051	0.044
	22	*Zone2-Above-GW-17*	0.057	0.052	0.061	0.062	0.054	0.062	0.067	0.043	0.050	0.044
	23	*Zone3-Above-GW-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	24	*Zone3-Above-GW-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	25	*Zone2-Below-GW-18*	0.191	0.163	0.193	0.190	0.144	0.175	0.237	0.106	0.000	0.107
	26	*Zone2-Below-GW-19*	0.188	0.161	0.190	0.188	0.142	0.172	0.233	0.105	0.000	0.106
	27	*Zone3-Below-GW-3*	0.398	0.264	0.412	0.399	0.240	0.372	0.486	0.000	0.000	0.000
	28											
	29	*Soil Above GW*										
	30	*Soil Below GW*										
		TOTAL SETTLEMENT	**1.98**	**1.67**	**2.08**	**2.09**	**1.64**	**2.02**	**2.40**	**1.04**	**0.98**	**1.05**
POST-SETTLEMENT ELEVATION(M/FT)	Line	1	453.78	453.21	453.56	453.42	453.04	453.48	453.95	455.96	456.03	455.96
	Line	2	448.94	448.95	448.22	447.91	448.47	447.91	447.90	452.78	453.07	452.75
	Line	3	421.47	421.48	420.75	420.44	421.00	420.44	421.92	425.31	425.60	425.29
	Line	4	420.24	420.06	419.41	419.16	419.25	418.72	420.52	423.97	424.18	423.96
	Line	5	418.50	418.08	417.66	417.23	416.39	416.49	418.72	421.97	422.21	421.96
	Line	6	418.50	418.08	417.65	417.23	416.35	416.49	418.72	421.97	422.21	421.96
	Line	7	416.63	416.20	415.78	415.37	414.48	414.62	416.87	420.01	419.68	420.01
	Line	8	414.75	414.32	413.91	413.51	412.60	412.74	415.02	418.12	417.21	418.11
	Line	9	412.87	412.44	412.04	411.64	410.72	410.86	413.16	416.22	414.75	416.21
	Line	10	410.99	410.55	410.16	409.77	408.83	408.98	411.29	414.32	412.28	414.32
	Line	11	409.11	408.67	408.28	407.89	406.95	407.10	409.43	412.42	409.80	412.42
	Line	12	407.22	406.78	406.40	406.01	405.06	405.21	407.56	410.52	407.33	410.51
	Line	13	405.33	404.89	404.52	404.13	403.17	403.32	405.69	408.61	404.85	408.61
	Line	14	403.44	402.99	402.63	402.25	401.28	401.43	403.81	406.71	402.37	406.70
	Line	15	401.54	401.10	400.74	400.37	399.38	399.53	401.93	404.80	399.89	404.80
	Line	16	399.65	399.20	398.85	398.48	397.49	397.64	400.05	402.89	397.41	402.89
	Line	17	397.75	397.31	396.96	396.59	395.59	395.74	398.17	400.98	394.93	400.98
	Line	18	395.85	395.41	395.06	394.70	393.69	393.84	396.28	399.07	392.44	399.07
	Line	19	393.95	393.51	393.17	392.81	391.79	391.94	394.40	397.16	389.96	397.16
	Line	20	392.05	391.60	391.27	390.91	389.89	390.04	392.51	395.25	387.47	395.25
	Line	21	390.14	389.70	389.37	389.02	387.99	388.13	390.62	393.34	384.98	393.34
	Line	22	388.24	387.80	387.47	387.12	386.09	386.23	388.73	391.42	382.49	391.42
	Line	23	386.33	385.89	385.57	385.22	384.18	384.32	386.83	389.51	380.00	389.51
	Line	24	386.33	385.89	385.57	385.22	384.18	384.32	386.83	389.51	380.00	389.51
	Line	25	386.33	385.89	385.57	385.22	384.18	384.32	386.83	389.51	380.00	389.51
	Line	26	379.82	379.82	379.43	379.29	378.98	378.85	380.02	384.75	380.00	384.75
	Line	27	373.31	373.75	373.30	373.35	373.77	373.38	373.20	380.00	380.00	380.00
	Line	28	355.70	361.07	356.29	357.26	362.61	358.34	355.00	380.00	380.00	380.00
	Line	29										
	Line	30										
	Line	31										

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

Attachment 5

CASE 4: Settlement Analysis for Top of Final Cover 30 Years after Closure (i.e., End of Year 35)
(Points 1001 to 1010)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Settlement Prediction Model

Programmer: **Yiwen Cao, GeoSyntec Consultants**

Version Control V 1.002 11.14.2007

Project: **Onondaga Lake SCA Final**

Notes:

Unit: **ft / psf**

Average Compaction Effort = **1440.00** kPa or psf

Consider Compaction Effort = **N** yes or no

Point #					**1001**	**1002**	**1003**	**1004**	**1005**	**1006**	**1007**	**1008**	**1009**	**1010**
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		*455.76*	*454.88*	*455.64*	*455.51*	*454.68*	*455.50*	*456.35*	*457.00*	*457.01*	*457.01*
	Line	2	Top of Year 4 Dredge		*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	3			*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	4			*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	5			*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	6			*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	7			*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	8	Top of Year 3 Dredge		*450.92*	*450.62*	*450.30*	*450.00*	*450.11*	*449.93*	*450.30*	*453.82*	*454.05*	*453.80*
	Line	9			*449.21*	*448.91*	*448.59*	*448.29*	*448.40*	*448.22*	*448.59*	*452.11*	*452.34*	*452.09*
	Line	10			*447.49*	*447.19*	*446.87*	*446.57*	*446.68*	*446.50*	*446.87*	*450.39*	*450.62*	*450.37*
	Line	11			*445.78*	*445.48*	*445.16*	*444.86*	*444.97*	*444.79*	*445.16*	*448.68*	*448.91*	*448.66*
	Line	12			*444.07*	*443.76*	*443.45*	*443.15*	*443.26*	*443.08*	*443.45*	*446.96*	*447.19*	*446.95*
	Line	13			*442.36*	*442.05*	*441.74*	*441.44*	*441.55*	*441.37*	*441.74*	*445.25*	*445.48*	*445.24*
	Line	14			*440.64*	*440.33*	*440.02*	*439.72*	*439.83*	*439.65*	*440.02*	*443.53*	*443.76*	*443.52*
	Line	15	Top of Year 2 Dredge		*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*438.31*	*441.82*	*442.05*	*441.81*
	Line	16			*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*436.95*	*439.61*	*439.84*	*439.60*
	Line	17			*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*435.58*	*437.40*	*437.63*	*437.39*
	Line	18			*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*434.22*	*435.19*	*435.42*	*435.18*
	Line	19			*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*432.85*	*432.98*	*433.21*	*432.97*
	Line	20			*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*431.49*	*430.77*	*431.00*	*430.76*
	Line	21			*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*430.12*	*428.56*	*428.79*	*428.55*
	Line	22	Top of Year 1 Dredge		*438.93*	*438.62*	*438.31*	*438.01*	*438.12*	*437.94*	*428.76*	*426.35*	*426.58*	*426.34*
	Line	23			*436.35*	*436.04*	*435.73*	*435.43*	*435.54*	*435.36*	*428.02*	*426.35*	*426.58*	*426.34*
	Line	24			*433.77*	*433.46*	*433.15*	*432.85*	*432.96*	*432.78*	*427.28*	*426.35*	*426.58*	*426.34*
	Line	25			*431.19*	*430.89*	*430.57*	*430.27*	*430.38*	*430.20*	*426.54*	*426.35*	*426.58*	*426.34*
	Line	26			*428.61*	*428.31*	*427.99*	*427.69*	*427.80*	*427.62*	*425.80*	*426.35*	*426.58*	*426.34*
	Line	27			*426.03*	*425.73*	*425.41*	*425.11*	*425.22*	*425.04*	*425.06*	*426.35*	*426.58*	*426.34*
	Line	28	Top of Gravel(Top of Incompressil		*423.45*	*423.15*	*422.83*	*422.53*	*422.64*	*422.46*	*424.32*	*426.35*	*426.58*	*426.34*
	Line	29	GND	for sigma_p	*430.02*	*429.02*	*429.25*	*428.78*	*427.10*	*427.77*	*430.81*	*431.00*	*431.04*	*431.00*
	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		*355.70*	*361.07*	*356.29*	*357.26*	*362.61*	*358.34*	*355.00*	*380.00*	*380.00*	*380.00*
LAYER THICKNESS (M/FT)	Layer No.	From	To	Material										
	1	*1*	*2*	*Cover*	*4.84*	*4.26*	*5.34*	*5.51*	*4.57*	*5.57*	*6.05*	*3.18*	*2.96*	*3.21*
	2	*2*	*3*	*YR4-1*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	3	*3*	*4*	*YR4-2*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	4	*4*	*5*	*YR4-3*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	5	*5*	*6*	*YR4-4*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	6	*6*	*7*	*YR4-5*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	7	*7*	*8*	*YR4-6*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	8	*8*	*9*	*YR3-1*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	9	*9*	*10*	*YR3-2*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	10	*10*	*11*	*YR3-3*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	11	*11*	*12*	*YR3-4*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	12	*12*	*13*	*YR3-5*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	13	*13*	*14*	*YR3-6*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	14	*14*	*15*	*YR3-7*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*	*1.71*
	15	*15*	*16*	*YR2-1*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.36*	*2.21*	*2.21*	*2.21*
	16	*16*	*17*	*YR2-2*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.36*	*2.21*	*2.21*	*2.21*
	17	*17*	*18*	*YR2-3*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.36*	*2.21*	*2.21*	*2.21*
	18	*18*	*19*	*YR2-4*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.36*	*2.21*	*2.21*	*2.21*
	19	*19*	*20*	*YR2-5*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.36*	*2.21*	*2.21*	*2.21*
	20	*20*	*21*	*YR2-6*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.36*	*2.21*	*2.21*	*2.21*
	21	*21*	*22*	*YR2-7*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.36*	*2.21*	*2.21*	*2.21*
	22	*22*	*23*	*YR1-1*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*0.74*	*0.00*	*0.00*	*0.00*
	23	*23*	*24*	*YR1-2*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*0.74*	*0.00*	*0.00*	*0.00*
	24	*24*	*25*	*YR1-3*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*0.74*	*0.00*	*0.00*	*0.00*
	25	*25*	*26*	*YR1-4*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*0.74*	*0.00*	*0.00*	*0.00*
	26	*26*	*27*	*YR1-5*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*0.74*	*0.00*	*0.00*	*0.00*
	27	*27*	*28*	*YR1-6*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*2.58*	*0.74*	*0.00*	*0.00*	*0.00*
	28													
	29													
	30													
	Thickness Check													
		From Line	To Line	SUM	*32.31*	*31.73*	*32.81*	*32.98*	*32.04*	*33.04*	*32.03*	*30.65*	*30.43*	*30.67*
		1	*28*	Thickness =	*32.31*	*31.73*	*32.81*	*32.98*	*32.04*	*33.04*	*32.03*	*30.65*	*30.43*	*30.67*
				Thickness Check	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
UNIT WEIGHT	1	*Cover*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*	*120.0*
	2	*YR4-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	3	*YR4-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	4	*YR4-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	5	*YR4-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	6	*YR4-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	7	*YR4-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	8	*YR3-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	9	*YR3-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	10	*YR3-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	11	*YR3-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	12	*YR3-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	13	*YR3-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	14	*YR3-7*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	15	*YR2-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	16	*YR2-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	17	*YR2-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	18	*YR2-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	19	*YR2-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	20	*YR2-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	21	*YR2-7*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	22	*YR1-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	23	*YR1-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	24	*YR1-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	25	*YR1-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	26	*YR1-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	27	*YR1-6*	*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)	453.34	452.75	452.97	452.76	452.40	452.72	453.33	455.41	455.53	455.40
		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: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*2*	**YR4-1**									
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)	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
Initial Effective Stress, σ'_i (kPa /psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)	581.16	510.95	641.24	661.33	548.72	668.65	726.31	381.94	355.20	384.83
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)	0	0	0	0	0	0	0	0	0	0
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	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*3*	**YR4-2**									
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)	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
Initial Effective Stress, σ'_i (kPa /psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)	581.16	510.95	641.24	661.33	548.72	668.65	726.31	381.94	355.20	384.83
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)	0	0	0	0	0	0	0	0	0	0
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	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	*4*	**YR4-3**									
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)	450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
Initial Effective Stress, σ'_i (kPa /psf)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)	581.16	510.95	641.24	661.33	548.72	668.65	726.31	381.94	355.20	384.83
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)	0	0	0	0	0	0	0	0	0	0
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	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*	*32.00*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	5 YR4-4										
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)		450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
Initial Effective Stress, σ'_i (kPa /psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		581.16	510.95	641.24	661.33	548.72	668.65	726.31	381.94	355.20	384.83
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)		0	0	0	0	0	0	0	0	0	0
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		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	6 YR4-5										
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)		450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
Initial Effective Stress, σ'_i (kPa /psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		581.16	510.95	641.24	661.33	548.72	668.65	726.31	381.94	355.20	384.83
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)		0	0	0	0	0	0	0	0	0	0
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		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No.	7 YR4-6										
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)		450.92	450.62	450.30	450.00	450.11	449.93	450.30	453.82	454.05	453.80
Initial Effective Stress, σ'_i (kPa /psf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Effective Stress, σ'_f (kPa/psf)		581.16	510.95	641.24	661.33	548.72	668.65	726.31	381.94	355.20	384.83
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)		0	0	0	0	0	0	0	0	0	0
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		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*8*	**YR3-1**									
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)			450.06	449.76	449.44	449.14	449.25	449.07	449.44	452.96	453.19	452.94
Initial Effective Stress, σ'_i (kPa /psf)			73.65	73.71	73.65	73.65	73.65	73.65	73.65	73.71	73.71	73.65
Final Effective Stress, σ'_f (kPa/psf)			654.81	584.66	714.90	734.98	622.38	742.30	799.96	455.65	428.91	458.48
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)			74	74	74	74	74	74	74	74	74	74
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			*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*
Settlements												
Primary Settlement, (m / ft)			0.474	0.449	0.493	0.499	0.463	0.501	0.517	0.395	0.382	0.396
Secondary Settlement (m / ft)			0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Total Settlement (m / ft)			0.486	0.462	0.505	0.511	0.475	0.513	0.529	0.408	0.395	0.409
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)			0.486	0.462	0.505	0.511	0.475	0.513	0.529	0.408	0.395	0.409
Layer No.	*9*	**YR3-2**										
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)			448.35	448.05	447.73	447.43	447.54	447.36	447.73	451.25	451.48	451.23
Initial Effective Stress, σ'_i (kPa /psf)			220.96	221.14	220.96	220.96	220.96	220.96	220.96	221.14	221.14	220.96
Final Effective Stress, σ'_f (kPa/psf)			802.12	732.09	862.20	882.29	769.68	889.61	947.27	603.08	576.34	605.79
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)			221	221	221	221	221	221	221	221	221	221
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			*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*
Settlements												
Primary Settlement, (m / ft)			0.279	0.260	0.295	0.300	0.270	0.302	0.315	0.218	0.208	0.219
Secondary Settlement (m / ft)			0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Total Settlement (m / ft)			0.292	0.272	0.308	0.313	0.283	0.314	0.328	0.230	0.220	0.231
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)			0.292	0.272	0.308	0.313	0.283	0.314	0.328	0.230	0.220	0.231
Layer No.	*10*	**YR3-3**										
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)			446.64	446.33	446.02	445.72	445.83	445.65	446.02	449.53	449.76	449.52
Initial Effective Stress, σ'_i (kPa /psf)			368.26	368.57	368.26	368.26	368.26	368.26	368.26	368.57	368.57	368.26
Final Effective Stress, σ'_f (kPa/psf)			949.42	879.52	1,009.51	1,029.60	916.99	1,036.92	1,094.58	750.51	723.77	753.09
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	369	368	368	368	368	368	369	369	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			*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*
Settlements												
Primary Settlement, (m / ft)			0.205	0.189	0.219	0.223	0.198	0.224	0.236	0.154	0.146	0.155
Secondary Settlement (m / ft)			0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Total Settlement (m / ft)			0.218	0.201	0.231	0.235	0.210	0.237	0.249	0.167	0.159	0.168
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)			0.218	0.201	0.231	0.235	0.210	0.237	0.249	0.167	0.159	0.168

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*11*	**YR3-4**									
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)		444.93	444.62	444.31	444.01	444.12	443.94	444.31	447.82	448.05	447.81
Initial Effective Stress, σ'_i (kPa /psf)		515.57	516.00	515.57	515.57	515.57	515.57	515.57	516.00	516.00	515.57
Final Effective Stress, σ'_f (kPa/psf)		1,096.73	1,026.95	1,156.81	1,176.90	1,064.29	1,184.22	1,241.88	897.94	871.20	900.40
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)		516	516	516	516	516	516	516	516	516	516
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		*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*
Settlements											
Primary Settlement, (m / ft)		0.164	0.149	0.175	0.179	0.157	0.180	0.191	0.120	0.114	0.121
Secondary Settlement (m / ft)		0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Total Settlement (m / ft)		0.176	0.162	0.188	0.191	0.170	0.193	0.203	0.133	0.126	0.133
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)		0.176	0.162	0.188	0.191	0.170	0.193	0.203	0.133	0.126	0.133
Layer No.	*12*	**YR3-5**									
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)		443.21	442.91	442.59	442.29	442.40	442.22	442.59	446.11	446.34	446.09
Initial Effective Stress, σ'_i (kPa /psf)		662.88	663.43	662.88	662.88	662.88	662.88	662.88	663.43	663.43	662.88
Final Effective Stress, σ'_f (kPa/psf)		1,244.04	1,174.38	1,304.12	1,324.21	1,211.60	1,331.53	1,389.19	1,045.36	1,018.63	1,047.70
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	663	663	663	663	663	663	663	663	663
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		*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*
Settlements											
Primary Settlement, (m / ft)		0.136	0.124	0.147	0.150	0.131	0.151	0.160	0.099	0.093	0.099
Secondary Settlement (m / ft)		0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Total Settlement (m / ft)		0.149	0.136	0.159	0.162	0.143	0.164	0.173	0.111	0.106	0.112
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)		0.149	0.136	0.159	0.162	0.143	0.164	0.173	0.111	0.106	0.112
Layer No.	*13*	**YR3-6**									
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)		441.50	441.19	440.88	440.58	440.69	440.51	440.88	444.39	444.62	444.38
Initial Effective Stress, σ'_i (kPa /psf)		810	811	810	810	810	810	810	811	811	810
Final Effective Stress, σ'_f (kPa/psf)		1,391	1,322	1,451	1,472	1,359	1,479	1,536	1,193	1,166	1,195
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)		*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)		810	811	810	810	810	810	810	811	811	810
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		*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*
Settlements											
Primary Settlement, (m / ft)		0.117	0.106	0.126	0.129	0.112	0.130	0.139	0.084	0.079	0.084
Secondary Settlement (m / ft)		0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Total Settlement (m / ft)		0.130	0.119	0.139	0.142	0.125	0.143	0.151	0.096	0.091	0.097
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)		0.130	0.119	0.139	0.142	0.125	0.143	0.151	0.096	0.091	0.097

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*14*	**YR3-7**									
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)		439.79	439.48	439.17	438.87	438.98	438.80	439.17	442.68	442.91	442.67
Initial Effective Stress, σ'_i (kPa /psf)		957	958	957	957	957	957	957	958	958	957
Final Effective Stress, σ'_f (kPa/psf)		1,539	1,469	1,599	1,619	1,506	1,626	1,684	1,340	1,313	1,342
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)		957	958	957	957	957	957	957	958	958	957
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		*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*	*16.50*
Settlements											
Primary Settlement, (m / ft)		0.103	0.093	0.111	0.114	0.098	0.115	0.122	0.073	0.068	0.073
Secondary Settlement (m / ft)		0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Total Settlement (m / ft)		0.115	0.105	0.124	0.126	0.111	0.127	0.135	0.085	0.081	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 14 (m / ft)		0.115	0.105	0.124	0.126	0.111	0.127	0.135	0.085	0.081	0.086
Layer No.	*15*	**YR2-1**									
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)		438.93	438.62	438.31	438.01	438.12	437.94	437.63	440.72	440.95	440.71
Initial Effective Stress, σ'_i (kPa /psf)		1,031	1,032	1,031	1,031	1,031	1,031	1,090	1,127	1,127	1,126
Final Effective Stress, σ'_f (kPa/psf)		1,612	1,543	1,672	1,692	1,580	1,700	1,816	1,509	1,482	1,511
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)		1,031	1,032	1,031	1,031	1,031	1,031	1,090	1,127	1,127	1,126
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		*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.088	0.082	0.077	0.082
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.014	0.014	0.014
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.097	0.096	0.091	0.096
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)		0.000	0.000	0.000	0.000	0.000	0.000	0.097	0.096	0.091	0.096
Layer No.	*16*	**YR2-2**									
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)		438.93	438.62	438.31	438.01	438.12	437.94	436.26	438.51	438.74	438.50
Initial Effective Stress, σ'_i (kPa /psf)		1,031	1,032	1,031	1,031	1,031	1,031	1,207	1,317	1,317	1,316
Final Effective Stress, σ'_f (kPa/psf)		1,612	1,543	1,672	1,692	1,580	1,700	1,933	1,699	1,672	1,701
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)		1,031	1,032	1,031	1,031	1,031	1,031	1,207	1,317	1,317	1,316
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		*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*
Settlements											
Primary Settlement, (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.081	0.071	0.067	0.072
Secondary Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.014	0.014	0.014
Total Settlement (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.085	0.081	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 16 (m / ft)		0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.085	0.081	0.086

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No. *17* **YR2-3**											
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)	438.93	438.62	438.31	438.01	438.12	437.94	434.90	436.30	436.53	436.29
Initial Effective Stress, σ'_i (kPa /psf)	1,031	1,032	1,031	1,031	1,031	1,031	1,324	1,507	1,507	1,506
Final Effective Stress, σ'_f (kPa/psf)	1,612	1,543	1,672	1,692	1,580	1,700	2,051	1,889	1,862	1,891
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)	1,031	1,032	1,031	1,031	1,031	1,031	1,324	1,507	1,507	1,506
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	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.063	0.059	0.064
Secondary Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.014	0.014	0.014
Total Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.084	0.077	0.073	0.078
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.084	0.077	0.073	0.078
Layer No. *18* **YR2-4**										
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)	438.93	438.62	438.31	438.01	438.12	437.94	433.54	434.09	434.32	434.08
Initial Effective Stress, σ'_i (kPa /psf)	1,031	1,032	1,031	1,031	1,031	1,031	1,442	1,697	1,697	1,696
Final Effective Stress, σ'_f (kPa/psf)	1,612	1,543	1,672	1,692	1,580	1,700	2,168	2,079	2,052	2,081
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)	1,031	1,032	1,031	1,031	1,031	1,031	1,442	1,697	1,697	1,696
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	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.057	0.053	0.057
Secondary Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.014	0.014	0.014
Total Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.079	0.071	0.067	0.071
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.079	0.071	0.067	0.071
Layer No. *19* **YR2-5**										
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)	438.93	438.62	438.31	438.01	438.12	437.94	432.17	431.88	432.11	431.87
Initial Effective Stress, σ'_i (kPa /psf)	1,031	1,032	1,031	1,031	1,031	1,031	1,559	1,887	1,887	1,886
Final Effective Stress, σ'_f (kPa/psf)	1,612	1,543	1,672	1,692	1,580	1,700	2,285	2,269	2,242	2,271
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)	1,031	1,032	1,031	1,031	1,031	1,031	1,559	1,887	1,887	1,886
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	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.066	0.052	0.048	0.052
Secondary Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.014	0.014	0.014
Total Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.066	0.062	0.066
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.066	0.062	0.066

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*20*	**YR2-6**									
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)	438.93	438.62	438.31	438.01	438.12	437.94	430.81	429.67	429.90	429.66
Initial Effective Stress, σ'_i (kPa /psf)	1,031	1,032	1,031	1,031	1,031	1,031	1,676	2,077	2,077	2,076
Final Effective Stress, σ'_f (kPa/psf)	1,612	1,543	1,672	1,692	1,580	1,700	2,403	2,459	2,433	2,461
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)	1,031	1,032	1,031	1,031	1,031	1,031	1,676	2,077	2,077	2,076
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	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.047	0.044	0.048
Secondary Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.014	0.014	0.014
Total Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.071	0.061	0.058	0.062
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.071	0.061	0.058	0.062
Layer No.	*21*	**YR2-7**									
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)	438.93	438.62	438.31	438.01	438.12	437.94	429.44	427.46	427.69	427.45
Initial Effective Stress, σ'_i (kPa /psf)	1,031	1,032	1,031	1,031	1,031	1,031	1,794	2,267	2,267	2,267
Final Effective Stress, σ'_f (kPa/psf)	1,612	1,543	1,672	1,692	1,580	1,700	2,520	2,649	2,623	2,651
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)	1,031	1,032	1,031	1,031	1,031	1,031	1,794	2,267	2,267	2,267
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	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*	*11.33*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.059	0.044	0.041	0.044
Secondary Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.014	0.014	0.014
Total Settlement (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.058	0.055	0.058
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.058	0.055	0.058
Layer No.	*22*	**YR1-1**									
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)	437.64	437.33	437.02	436.72	436.83	436.65	428.39	426.35	426.58	426.34
Initial Effective Stress, σ'_i (kPa /psf)	1,142	1,143	1,142	1,142	1,142	1,142	1,884	2,362	2,362	2,362
Final Effective Stress, σ'_f (kPa/psf)	1,723	1,654	1,783	1,803	1,691	1,811	2,611	2,744	2,718	2,746
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)	1,142	1,143	1,142	1,142	1,142	1,142	1,884	2,362	2,362	2,362
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.134	0.121	0.145	0.149	0.128	0.150	0.031	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.015	0.015	0.015	0.015	0.015	0.015	0.004	0.000	0.000	0.000
Total Settlement (m / ft)	0.149	0.135	0.160	0.164	0.143	0.165	0.035	0.000	0.000	0.000
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)	0.149	0.135	0.160	0.164	0.143	0.165	0.035	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No. *23* **YR1-2**											
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)		435.06	434.75	434.44	434.14	434.25	434.07	427.65	426.35	426.58	426.34
Initial Effective Stress, σ'_i (kPa /psf)		1,364	1,365	1,364	1,364	1,364	1,364	1,948	2,362	2,362	2,362
Final Effective Stress, σ'_f (kPa/psf)		1,945	1,876	2,005	2,025	1,913	2,033	2,674	2,744	2,718	2,746
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)		1,364	1,365	1,364	1,364	1,364	1,364	1,948	2,362	2,362	2,362
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.116	0.104	0.126	0.129	0.110	0.130	0.030	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.015	0.015	0.015	0.015	0.015	0.015	0.004	0.000	0.000	0.000
Total Settlement (m / ft)		0.130	0.118	0.140	0.144	0.125	0.145	0.034	0.000	0.000	0.000
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)		0.130	0.118	0.140	0.144	0.125	0.145	0.034	0.000	0.000	0.000
Layer No. *24* **YR1-3**											
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)		432.48	432.17	431.86	431.56	431.67	431.49	426.91	426.35	426.58	426.34
Initial Effective Stress, σ'_i (kPa /psf)		1,586	1,586	1,586	1,586	1,586	1,586	2,012	2,362	2,362	2,362
Final Effective Stress, σ'_f (kPa/psf)		2,167	2,097	2,227	2,247	2,135	2,254	2,738	2,744	2,718	2,746
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)		1,586	1,586	1,586	1,586	1,586	1,586	2,012	2,362	2,362	2,362
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.102	0.091	0.111	0.114	0.097	0.115	0.029	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.015	0.015	0.015	0.015	0.015	0.015	0.004	0.000	0.000	0.000
Total Settlement (m / ft)		0.117	0.106	0.125	0.128	0.112	0.129	0.033	0.000	0.000	0.000
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)		0.117	0.106	0.125	0.128	0.112	0.129	0.033	0.000	0.000	0.000
Layer No. *25* **YR1-4**											
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)		429.90	429.60	429.28	428.98	429.09	428.91	426.17	426.35	426.58	426.34
Initial Effective Stress, σ'_i (kPa /psf)		1,807.72	1,808.08	1,807.72	1,807.72	1,807.72	1,807.72	2,075.18	2,362.42	2,362.42	2,361.56
Final Effective Stress, σ'_f (kPa/psf)		2,388.88	2,319.03	2,448.96	2,469.05	2,356.44	2,476.37	2,801.49	2,744.36	2,717.62	2,746.39
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)		1,808	1,808	1,808	1,808	1,808	1,808	2,075	2,362	2,362	2,362
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.091	0.081	0.099	0.102	0.087	0.103	0.028	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.015	0.015	0.015	0.015	0.015	0.015	0.004	0.000	0.000	0.000
Total Settlement (m / ft)		0.106	0.096	0.114	0.116	0.101	0.117	0.032	0.000	0.000	0.000
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)		0.106	0.096	0.114	0.116	0.101	0.117	0.032	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*26*	**YR1-5**									
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)		427.32	427.02	426.70	426.40	426.51	426.33	425.43	426.35	426.58	426.34
Initial Effective Stress, σ'_i (kPa /psf)		2,029.60	2,029.81	2,029.60	2,029.60	2,029.60	2,029.60	2,138.82	2,362.42	2,362.42	2,361.56
Final Effective Stress, σ'_f (kPa/psf)		2,610.76	2,540.76	2,670.84	2,690.93	2,578.32	2,698.25	2,865.13	2,744.36	2,717.62	2,746.39
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)		2,030	2,030	2,030	2,030	2,030	2,030	2,139	2,362	2,362	2,362
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.082	0.073	0.090	0.092	0.078	0.093	0.027	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.015	0.015	0.015	0.015	0.015	0.015	0.004	0.000	0.000	0.000
Total Settlement (m / ft)		0.097	0.088	0.104	0.107	0.093	0.108	0.032	0.000	0.000	0.000
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)		0.097	0.088	0.104	0.107	0.093	0.108	0.032	0.000	0.000	0.000
Layer No.	*27*	**YR1-6**									
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)		424.74	424.44	424.12	423.82	423.93	423.75	424.69	426.35	426.58	426.34
Initial Effective Stress, σ'_i (kPa /psf)		2,251.48	2,251.55	2,251.48	2,251.48	2,251.48	2,251.48	2,202.46	2,362.42	2,362.42	2,361.56
Final Effective Stress, σ'_f (kPa/psf)		2,832.64	2,762.50	2,892.72	2,912.81	2,800.20	2,920.13	2,928.77	2,744.36	2,717.62	2,746.39
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)		2,251	2,252	2,251	2,251	2,251	2,251	2,202	2,362	2,362	2,362
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		*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements											
Primary Settlement, (m / ft)		0.075	0.067	0.082	0.084	0.071	0.085	0.027	0.000	0.000	0.000
Secondary Settlement (m / ft)		0.015	0.015	0.015	0.015	0.015	0.015	0.004	0.000	0.000	0.000
Total Settlement (m / ft)		0.090	0.081	0.096	0.099	0.086	0.099	0.031	0.000	0.000	0.000
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)		0.090	0.081	0.096	0.099	0.086	0.099	0.031	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
LAYER SETTLEMENT	1	*Cover*										
	2	*YR4-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	3	*YR4-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	4	*YR4-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5	*YR4-4*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	6	*YR4-5*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	7	*YR4-6*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8	*YR3-1*	0.486	0.462	0.505	0.511	0.475	0.513	0.529	0.408	0.395	0.409
	9	*YR3-2*	0.292	0.272	0.308	0.313	0.283	0.314	0.328	0.230	0.220	0.231
	10	*YR3-3*	0.218	0.201	0.231	0.235	0.210	0.237	0.249	0.167	0.159	0.168
	11	*YR3-4*	0.176	0.162	0.188	0.191	0.170	0.193	0.203	0.133	0.126	0.133
	12	*YR3-5*	0.149	0.136	0.159	0.162	0.143	0.164	0.173	0.111	0.106	0.112
	13	*YR3-6*	0.130	0.119	0.139	0.142	0.125	0.143	0.151	0.096	0.091	0.097
	14	*YR3-7*	0.115	0.105	0.124	0.126	0.111	0.127	0.135	0.085	0.081	0.086
	15	*YR2-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.097	0.096	0.091	0.096
	16	*YR2-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.085	0.081	0.086
	17	*YR2-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.084	0.077	0.073	0.078
	18	*YR2-4*	0.000	0.000	0.000	0.000	0.000	0.000	0.079	0.071	0.067	0.071
	19	*YR2-5*	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.066	0.062	0.066
	20	*YR2-6*	0.000	0.000	0.000	0.000	0.000	0.000	0.071	0.061	0.058	0.062
	21	*YR2-7*	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.058	0.055	0.058
	22	*YR1-1*	0.149	0.135	0.160	0.164	0.143	0.165	0.035	0.000	0.000	0.000
	23	*YR1-2*	0.130	0.118	0.140	0.144	0.125	0.145	0.034	0.000	0.000	0.000
	24	*YR1-3*	0.117	0.106	0.125	0.128	0.112	0.129	0.033	0.000	0.000	0.000
	25	*YR1-4*	0.106	0.096	0.114	0.116	0.101	0.117	0.032	0.000	0.000	0.000
	26	*YR1-5*	0.097	0.088	0.104	0.107	0.093	0.108	0.032	0.000	0.000	0.000
	27	*YR1-6*	0.090	0.081	0.096	0.099	0.086	0.099	0.031	0.000	0.000	0.000
	28	*Additional Foundation Settlement*	1.980	1.674	2.081	2.088	1.638	2.024	2.397	1.043	0.977	1.050
	29											
	30											
		TOTAL SETTLEMENT	**4.23**	**3.75**	**4.47**	**4.53**	**3.81**	**4.48**	**4.92**	**2.79**	**2.64**	**2.80**
POST-SETTLEMENT ELEVATION(M/FT)	Line	1 Top of Final Cover	451.53	451.12	451.17	450.98	450.87	451.02	451.43	454.22	454.37	454.21
	Line	2 Top of Year 4 Dredge	446.69	446.87	445.83	445.47	446.30	445.45	445.38	451.03	451.41	451.00
	Line	3	446.69	446.87	445.83	445.47	446.30	445.45	445.38	451.03	451.41	451.00
	Line	4	446.69	446.87	445.83	445.47	446.30	445.45	445.38	451.03	451.41	451.00
	Line	5	446.69	446.87	445.83	445.47	446.30	445.45	445.38	451.03	451.41	451.00
	Line	6	446.69	446.87	445.83	445.47	446.30	445.45	445.38	451.03	451.41	451.00
	Line	7	446.69	446.87	445.83	445.47	446.30	445.45	445.38	451.03	451.41	451.00
	Line	8 Top of Year 3 Dredge	446.69	446.87	445.83	445.47	446.30	445.45	445.38	451.03	451.41	451.00
	Line	9	445.46	445.61	444.62	444.27	445.06	444.25	444.19	449.73	450.09	449.70
	Line	10	444.04	444.17	443.21	442.87	443.63	442.85	442.81	448.24	448.59	448.21
	Line	11	442.54	442.66	441.73	441.39	442.13	441.38	441.34	446.70	447.04	446.67
	Line	12	441.01	441.10	440.21	439.87	440.58	439.86	439.83	445.11	445.45	445.09
	Line	13	439.44	439.53	438.65	438.32	439.01	438.31	438.29	443.51	443.84	443.49
	Line	14	437.86	437.93	437.08	436.75	437.43	436.74	436.73	441.89	442.22	441.87
	Line	15 Top of Year 2 Dredge	436.26	436.32	435.49	435.16	435.82	435.15	435.15	440.26	440.59	440.24
	Line	16	436.26	436.32	435.49	435.16	435.82	435.15	433.89	438.15	438.47	438.13
	Line	17	436.26	436.32	435.49	435.16	435.82	435.15	432.61	436.02	436.34	436.01
	Line	18	436.26	436.32	435.49	435.16	435.82	435.15	431.33	433.89	434.20	433.87
	Line	19	436.26	436.32	435.49	435.16	435.82	435.15	430.05	431.75	432.06	431.73
	Line	20	436.26	436.32	435.49	435.16	435.82	435.15	428.76	429.61	429.91	429.59
	Line	21	436.26	436.32	435.49	435.16	435.82	435.15	427.46	427.46	427.76	427.44
	Line	22 Top of Year 1 Dredge	436.26	436.32	435.49	435.16	435.82	435.15	426.17	425.31	425.60	425.29
	Line	23	433.83	433.88	433.07	432.75	433.39	432.74	425.46	425.31	425.60	425.29
	Line	24	431.38	431.42	430.63	430.31	430.93	430.30	424.76	425.31	425.60	425.29
	Line	25	428.92	428.95	428.17	427.86	428.46	427.85	424.05	425.31	425.60	425.29
	Line	26	426.44	426.46	425.71	425.40	425.98	425.39	423.34	425.31	425.60	425.29
	Line	27	423.96	423.97	423.23	422.92	423.50	422.92	422.63	425.31	425.60	425.29
	Line	28 Top of Gravel(Top of Incompressil	421.47	421.48	420.75	420.44	421.00	420.44	421.92	425.31	425.60	425.29
	Line	29										
	Line	30										
	Line	31										

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

Attachment 6

CASE 5: Settlement Analysis For Top of LPSL at the End of the Operations Period (i.e., End of Year 4)
(Cross Section A, Points 26 to 35)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Settlement Prediction Model

Programmer: **Yiwen Cao, GeoSyntec Consultants**

Version Control V 1.002 11.14.2007

Project: **Onondaga Lake SCA Final**

Notes:

Unit: **ft / psf**

Average Compaction Effort = **1440.00** kPa or psf

Consider Compaction Effort = **N** yes or no

					26	27	28	29	30	31	32	33	34	35
Point #					26	27	28	29	30	31	32	33	34	35
Distance (meter or ft)					349.52	371.48	371.77	391.48	391.77	412.70	431.77	432.06	451.77	452.06
ELEVATION (M/FT)	Line	1	Top of Dredge		460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line	2	Top of Dredge		460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line	3	Top of Gravel		430.01	430.01	430.01	430.01	430.01	430.01	430.01	430.01	430.01	430.01
	Line	4	Top of Clay		423.69	423.50	423.50	415.62	415.50	415.50	415.50	415.62	423.50	423.50
	Line	5	Top of Dike		421.45	421.82	421.70	413.85	413.85	413.94	413.93	413.93	421.82	421.93
	Line	6	Top of Subgrade		421.45	421.82	421.70	413.85	413.85	413.94	413.93	413.93	421.82	421.93
	Line	7			418.72	419.07	418.95	411.56	411.56	411.65	411.64	411.64	419.07	419.17
	Line	8			415.99	416.31	416.21	409.28	409.28	409.36	409.35	409.35	416.31	416.41
	Line	9			413.25	413.56	413.46	406.99	406.99	407.07	407.06	407.06	413.56	413.65
	Line	10			410.52	410.80	410.71	404.71	404.71	404.78	404.77	404.77	410.80	410.89
	Line	11			407.79	408.05	407.96	402.42	402.42	402.49	402.48	402.48	408.05	408.13
	Line	12			405.06	405.30	405.22	400.14	400.14	400.20	400.19	400.19	405.30	405.37
	Line	13			402.32	402.54	402.47	397.85	397.85	397.91	397.90	397.90	402.54	402.61
	Line	14			399.59	399.79	399.72	395.57	395.57	395.62	395.61	395.61	399.79	399.85
	Line	15			396.86	397.03	396.98	393.28	393.28	393.32	393.32	393.32	397.03	397.08
	Line	16			394.13	394.28	394.23	391.00	391.00	391.03	391.03	391.03	394.28	394.32
	Line	17			391.39	391.52	391.48	388.71	388.71	388.74	388.74	388.74	391.52	391.56
	Line	18			388.66	388.77	388.74	386.43	386.43	386.45	386.45	386.45	388.77	388.80
	Line	19			385.93	386.02	385.99	384.14	384.14	384.16	384.16	384.16	386.02	386.04
	Line	20			383.20	383.26	383.24	381.86	381.86	381.87	381.87	381.87	383.26	383.28
	Line	21			380.46	380.51	380.49	379.57	379.57	379.58	379.58	379.58	380.51	380.52
	Line	22			377.73	377.75	377.75	377.29	377.29	377.29	377.29	377.29	377.75	377.76
	Line	23	Bottom of Zone2 Above GW		375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
	Line	24			375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
	Line	25	Bottom of Zone 3 Above GW		375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
	Line	26			370.00	370.00	370.00	370.00	370.00	370.00	370.00	370.00	370.00	370.00
	Line	27	Bottom of Zone 2 Below GW		365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
	Line	28	Top of Incompressible Layer		365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
	Line	29	GND	for sigma_p	421.51	421.84	421.84	421.86	421.86	421.91	421.96	421.96	422.00	422.00
	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		365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
LAYER THICKNESS (M/FT)	Layer No.	From	To	Material										
	1	1	2	Null Layer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	2	3	Dredge	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
	3	3	4	Gravel	6.32	6.51	6.51	14.39	14.51	14.51	14.51	14.39	6.51	6.51
	4	4	5	Clay	2.24	1.68	1.80	1.77	1.65	1.56	1.57	1.69	1.68	1.57
	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	Zone2-Above-GW-1	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	7	7	8	Zone2-Above-GW-2	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	8	8	9	Zone2-Above-GW-3	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	9	9	10	Zone2-Above-GW-4	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	10	10	11	Zone2-Above-GW-5	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	11	11	12	Zone2-Above-GW-6	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	12	12	13	Zone2-Above-GW-7	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	13	13	14	Zone2-Above-GW-8	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	14	14	15	Zone2-Above-GW-9	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	15	15	16	Zone2-Above-GW-10	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	16	16	17	Zone2-Above-GW-11	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	17	17	18	Zone2-Above-GW-12	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	18	18	19	Zone2-Above-GW-13	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	19	19	20	Zone2-Above-GW-14	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	20	20	21	Zone2-Above-GW-15	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	21	21	22	Zone2-Above-GW-16	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	22	22	23	Zone2-Above-GW-17	2.73	2.75	2.75	2.29	2.29	2.29	2.29	2.29	2.75	2.76
	23	23	24	Zone3-Above-GW-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24	24	25	Zone3-Above-GW-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25	25	26	Zone2-Below-GW-18	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	26	26	27	Zone2-Below-GW-19	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	27	27	28	Zone3-Below-GW-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	28													
	29	29	30	Soil Above GW	46.51	46.84	46.84	46.86	46.86	46.91	46.96	46.96	47.00	47.00
	30	30	31	Soil Below GW	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
	Thickness Check													
		From Line	To Line	SUM	95.01	95.01	95.01	95.01	95.01	95.01	95.01	95.01	95.01	95.01
		1	28	Thickness =	95.01	95.01	95.01	95.01	95.01	95.01	95.01	95.01	95.01	95.01
				Thickness Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
UNIT WEIGHT	1	*Null Layer*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	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	*Zone2-Above-GW-1*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	7	*Zone2-Above-GW-2*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	8	*Zone2-Above-GW-3*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	9	*Zone2-Above-GW-4*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	10	*Zone2-Above-GW-5*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	11	*Zone2-Above-GW-6*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	12	*Zone2-Above-GW-7*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	13	*Zone2-Above-GW-8*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	14	*Zone2-Above-GW-9*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	15	*Zone2-Above-GW-10*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	16	*Zone2-Above-GW-11*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	17	*Zone2-Above-GW-12*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	18	*Zone2-Above-GW-13*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	19	*Zone2-Above-GW-14*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	20	*Zone2-Above-GW-15*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	21	*Zone2-Above-GW-16*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	22	*Zone2-Above-GW-17*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	23	*Zone3-Above-GW-1*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	24	*Zone3-Above-GW-2*	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
	25	*Zone2-Below-GW-18*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	26	*Zone2-Below-GW-19*	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	27	*Zone3-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*** **Null 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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
		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* **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)	445.01	445.01	445.01	445.01	445.01	445.01	445.01	445.01	445.01	445.01
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)	426.85	426.76	426.76	422.82	422.76	422.76	422.76	422.82	426.76	426.76
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)	422.57	422.66	422.60	414.74	414.68	414.72	414.72	414.78	422.66	422.72
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 **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)	421.45	421.82	421.70	413.85	413.85	413.94	413.93	413.93	421.82	421.93
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 **Zone2-Above-GW-1**										
Initial Stress Reference Layer (top of layer)	6	6	6	6	6	6	6	6	6	6
Final Stress Reference Layer (top of layer)	1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)	420.08	420.44	420.33	412.71	412.71	412.79	412.79	412.79	420.44	420.55
Initial Effective Stress, σ'_i (kPa /psf)	112	113	113	94	94	94	94	94	113	113
Final Effective Stress, σ'_f (kPa/psf)	3,723	3,437	3,437	5,157	5,285	4,633	5,256	5,256	3,424	3,435
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	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	527	514	557	3,378	3,379	3,364	3,384	3,384	575	535
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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	8	8	8	8	8	8	8	8	8	8
Settlements										
Primary Settlement, (m / ft)	1.093	1.071	1.025	0.243	0.254	0.196	0.251	0.251	1.009	1.052
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	1.115	1.093	1.048	0.262	0.273	0.215	0.270	0.270	1.032	1.074
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)	1.115	1.093	1.048	0.262	0.273	0.215	0.270	0.270	1.032	1.074
Layer No. 7 **Zone2-Above-GW-2**										
Initial Stress Reference Layer (top of layer)	6	6	6	6	6	6	6	6	6	6
Final Stress Reference Layer (top of layer)	1	1	1	1	1	1	1	1	1	1
Midpoint Elevation, (m / ft)	417.35	417.69	417.58	410.42	410.42	410.50	410.50	410.50	417.69	417.79
Initial Effective Stress, σ'_i (kPa /psf)	336	339	338	281	281	282	282	282	339	340
Final Effective Stress, σ'_f (kPa/psf)	3,940	3,638	3,691	5,381	5,381	4,844	5,352	5,352	3,660	3,661
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	4.5	4.5	4.5	2.0	2.0	2.0	2.0	2.0	4.5	4.5
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	1,536	1,530	1,571	1,876	1,876	1,871	1,880	1,880	1,591	1,554
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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	8	8	8	8	8	8	8	8	8	8
Settlements										
Primary Settlement, (m / ft)	0.540	0.502	0.495	0.507	0.507	0.462	0.505	0.505	0.484	0.498
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.562	0.524	0.517	0.526	0.526	0.481	0.524	0.524	0.507	0.521
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)	0.562	0.524	0.517	0.526	0.526	0.481	0.524	0.524	0.507	0.521

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Layer No.	*8*	**Zone2-Above-GW-3**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		414.62	414.93	414.83	408.14	408.14	408.21	408.21	408.21	414.93	415.03
Initial Effective Stress, σ'_i (kPa /psf)		560	565	563	468	468	470	469	469	565	566
Final Effective Stress, σ'_f (kPa/psf)		4,157	3,860	3,859	5,307	5,473	5,061	5,361	5,361	3,883	3,885
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		*4.5*	*4.5*	*4.5*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*4.5*	*4.5*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,544	2,547	2,584	2,251	2,251	2,247	2,255	2,255	2,607	2,572
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.293	0.254	0.245	0.413	0.427	0.393	0.418	0.418	0.245	0.253
Secondary Settlement (m / ft)		0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)		0.316	0.277	0.268	0.432	0.446	0.412	0.437	0.437	0.267	0.275
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)		0.316	0.277	0.268	0.432	0.446	0.412	0.437	0.437	0.267	0.275
Layer No.	*9*	**Zone2-Above-GW-4**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		411.89	412.18	412.09	405.85	405.85	405.92	405.92	405.92	412.18	412.27
Initial Effective Stress, σ'_i (kPa /psf)		784	790	788	656	656	657	657	657	790	792
Final Effective Stress, σ'_f (kPa/psf)		4,362	4,109	4,107	5,424	5,502	5,309	5,476	5,476	4,130	4,102
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		*4.5*	*4.5*	*4.5*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*4.5*	*4.5*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		3,552	3,563	3,598	2,626	2,626	2,622	2,631	2,631	3,623	3,591
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.137	0.104	0.098	0.350	0.357	0.342	0.355	0.355	0.098	0.099
Secondary Settlement (m / ft)		0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)		0.160	0.126	0.121	0.369	0.376	0.361	0.374	0.373	0.120	0.121
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)		0.160	0.126	0.121	0.369	0.376	0.361	0.374	0.373	0.120	0.121
Layer No.	*10*	**Zone2-Above-GW-5**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		409.15	409.43	409.34	403.57	403.57	403.63	403.63	403.63	409.43	409.51
Initial Effective Stress, σ'_i (kPa /psf)		1,008	1,016	1,014	843	843	845	845	845	1,016	1,019
Final Effective Stress, σ'_f (kPa/psf)		4,564	4,371	4,385	5,625	5,625	5,523	5,600	5,600	4,372	4,374
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		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
OCR Computation Input											
Preconsolidation pressure, σ'_p (kPa / psf)		2,027	2,035	2,050	3,001	3,001	2,998	3,006	3,006	2,062	2,049
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.455	0.432	0.429	0.305	0.304	0.297	0.302	0.302	0.425	0.430
Secondary Settlement (m / ft)		0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)		0.477	0.455	0.452	0.323	0.323	0.316	0.321	0.321	0.448	0.453
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)		0.477	0.455	0.452	0.323	0.323	0.316	0.321	0.321	0.448	0.453

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *11* **Zone2-Above-GW-6**											
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	406.42	406.67	406.59	401.28	401.28	401.34	401.34	401.34	406.67	406.75
Initial Effective Stress, σ'_i (kPa /psf)	1,232	1,242	1,239	1,031	1,031	1,033	1,033	1,033	1,242	1,245
Final Effective Stress, σ'_f (kPa/psf)	4,778	4,621	4,618	5,638	5,708	5,750	5,685	5,685	4,643	4,646
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	*2.0*	*2.0*	*2.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*2.0*	*2.0*
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	2,475	2,487	2,500	1,688	1,688	1,687	1,691	1,691	2,514	2,502
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.371	0.353	0.348	0.558	0.563	0.568	0.562	0.562	0.349	0.353
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.393	0.375	0.371	0.576	0.582	0.587	0.580	0.580	0.372	0.376
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)	0.393	0.375	0.371	0.576	0.582	0.587	0.580	0.580	0.372	0.376
Layer No. *12* **Zone2-Above-GW-7**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	403.69	403.92	403.84	399.00	399.00	399.05	399.05	399.05	403.92	403.99
Initial Effective Stress, σ'_i (kPa /psf)	1,456	1,468	1,464	1,218	1,218	1,221	1,221	1,221	1,468	1,471
Final Effective Stress, σ'_f (kPa/psf)	4,986	4,904	4,900	5,852	5,852	5,950	5,831	5,831	4,927	4,888
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	*2.0*	*2.0*	*2.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*2.0*	*2.0*
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	2,923	2,939	2,951	1,875	1,875	1,875	1,879	1,879	2,965	2,954
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.303	0.293	0.290	0.526	0.526	0.534	0.524	0.524	0.291	0.289
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.326	0.316	0.313	0.544	0.544	0.553	0.543	0.543	0.314	0.312
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)	0.326	0.316	0.313	0.544	0.544	0.553	0.543	0.543	0.314	0.312
Layer No. *13* **Zone2-Above-GW-8**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	400.96	401.16	401.10	396.71	396.71	396.76	396.76	396.76	401.16	401.23
Initial Effective Stress, σ'_i (kPa /psf)	1,680	1,694	1,689	1,405	1,405	1,409	1,408	1,408	1,694	1,698
Final Effective Stress, σ'_f (kPa/psf)	5,201	5,193	5,188	5,907	6,001	6,143	5,948	5,948	5,184	5,174
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)	1,686	1,695	1,701	2,063	2,063	2,062	2,066	2,067	1,709	1,704
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.615	0.616	0.612	0.486	0.493	0.505	0.489	0.489	0.611	0.613
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.638	0.639	0.635	0.504	0.512	0.524	0.508	0.508	0.633	0.635
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)	0.638	0.639	0.635	0.504	0.512	0.524	0.508	0.508	0.633	0.635

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No. *14* **Zone2-Above-GW-9**											
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	398.23	398.41	398.35	394.43	394.43	394.47	394.47	394.47	398.41	398.47
Initial Effective Stress, σ'_i (kPa /psf)	1,904	1,920	1,915	1,593	1,593	1,597	1,596	1,596	1,920	1,924
Final Effective Stress, σ'_f (kPa/psf)	5,423	5,450	5,494	6,066	6,124	6,326	6,106	6,106	5,473	5,477
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)	1,910	1,921	1,926	2,250	2,250	2,250	2,254	2,254	1,934	1,930
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.570	0.574	0.575	0.458	0.462	0.478	0.461	0.461	0.572	0.575
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.592	0.596	0.598	0.476	0.481	0.497	0.479	0.479	0.595	0.598
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)	0.592	0.596	0.598	0.476	0.481	0.497	0.479	0.479	0.595	0.598
Layer No. *15* **Zone2-Above-GW-10**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	395.49	395.66	395.60	392.14	392.14	392.18	392.18	392.18	395.66	395.70
Initial Effective Stress, σ'_i (kPa /psf)	2,129	2,145	2,140	1,780	1,780	1,784	1,784	1,784	2,145	2,150
Final Effective Stress, σ'_f (kPa/psf)	5,648	5,736	5,731	6,284	6,284	6,505	6,267	6,267	5,758	5,715
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)	2,134	2,147	2,151	2,437	2,437	2,438	2,442	2,442	2,160	2,156
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.531	0.541	0.538	0.437	0.437	0.453	0.436	0.435	0.539	0.538
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.554	0.563	0.560	0.456	0.456	0.472	0.454	0.454	0.562	0.560
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)	0.554	0.563	0.560	0.456	0.456	0.472	0.454	0.454	0.562	0.560
Layer No. *16* **Zone2-Above-GW-11**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	392.76	392.90	392.86	389.85	389.85	389.89	389.89	389.89	392.90	392.94
Initial Effective Stress, σ'_i (kPa /psf)	2,353	2,371	2,365	1,968	1,968	1,972	1,972	1,972	2,371	2,377
Final Effective Stress, σ'_f (kPa/psf)	5,879	6,017	6,011	6,373	6,423	6,665	6,407	6,407	6,036	5,994
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)	2,358	2,373	2,376	2,625	2,625	2,626	2,630	2,630	2,386	2,383
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.499	0.512	0.509	0.409	0.413	0.430	0.411	0.411	0.511	0.509
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.521	0.535	0.532	0.428	0.431	0.449	0.430	0.430	0.533	0.532
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)	0.521	0.535	0.532	0.428	0.431	0.449	0.430	0.430	0.533	0.532

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *17* **Zone2-Above-GW-12**											
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	390.03	390.15	390.11	387.57	387.57	387.60	387.60	387.60	390.15	390.18
Initial Effective Stress, σ'_i (kPa /psf)	2,577	2,597	2,590	2,155	2,155	2,160	2,159	2,159	2,597	2,603
Final Effective Stress, σ'_f (kPa/psf)	6,108	6,267	6,308	6,588	6,588	6,835	6,574	6,574	6,285	6,291
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)	2,582	2,598	2,602	2,812	2,812	2,814	2,818	2,818	2,612	2,609
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.470	0.484	0.486	0.392	0.392	0.410	0.391	0.391	0.483	0.485
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.492	0.507	0.509	0.411	0.411	0.429	0.410	0.410	0.506	0.508
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)	0.492	0.507	0.509	0.411	0.411	0.429	0.410	0.410	0.506	0.508
Layer No. *18* **Zone2-Above-GW-13**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	387.30	387.39	387.36	385.28	385.28	385.31	385.31	385.31	387.39	387.42
Initial Effective Stress, σ'_i (kPa /psf)	2,801	2,823	2,816	2,342	2,342	2,348	2,347	2,347	2,823	2,830
Final Effective Stress, σ'_f (kPa/psf)	6,344	6,537	6,530	6,694	6,755	7,003	6,724	6,724	6,553	6,560
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)	2,806	2,824	2,827	2,999	3,000	3,002	3,005	3,005	2,838	2,835
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.445	0.462	0.460	0.370	0.374	0.391	0.372	0.372	0.461	0.463
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.468	0.484	0.482	0.389	0.393	0.410	0.391	0.391	0.483	0.485
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)	0.468	0.484	0.482	0.389	0.393	0.410	0.391	0.391	0.483	0.485
Layer No. *19* **Zone2-Above-GW-14**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	384.56	384.64	384.61	383.00	383.00	383.02	383.02	383.02	384.64	384.66
Initial Effective Stress, σ'_i (kPa /psf)	3,025	3,049	3,041	2,530	2,530	2,536	2,535	2,535	3,049	3,056
Final Effective Stress, σ'_f (kPa/psf)	6,582	6,800	6,793	6,865	6,906	7,147	6,894	6,894	6,814	6,779
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)	3,030	3,050	3,052	3,187	3,187	3,189	3,193	3,193	3,064	3,062
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.424	0.441	0.439	0.354	0.356	0.372	0.355	0.355	0.440	0.438
Secondary Settlement (m / ft)	0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)	0.446	0.464	0.462	0.372	0.375	0.391	0.374	0.374	0.463	0.461
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)	0.446	0.464	0.462	0.372	0.375	0.391	0.374	0.374	0.463	0.461

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*20*	**Zone2-Above-GW-15**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		381.83	381.89	381.87	380.71	380.71	380.73	380.73	380.73	381.89	381.90
Initial Effective Stress, σ'_i (kPa /psf)		3,249	3,275	3,266	2,717	2,717	2,724	2,723	2,723	3,275	3,282
Final Effective Stress, σ'_f (kPa/psf)		6,814	7,042	7,074	7,076	7,076	7,312	7,065	7,065	7,055	7,062
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)		3,254	3,276	3,277	3,374	3,374	3,377	3,381	3,381	3,289	3,288
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.403	0.421	0.422	0.341	0.341	0.356	0.340	0.340	0.420	0.422
Secondary Settlement (m / ft)		0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)		0.426	0.444	0.445	0.360	0.360	0.375	0.359	0.359	0.443	0.444
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)		0.426	0.444	0.445	0.360	0.360	0.375	0.359	0.359	0.443	0.444
Layer No.	*21*	**Zone2-Above-GW-16**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		379.10	379.13	379.12	378.43	378.43	378.44	378.44	378.44	379.13	379.14
Initial Effective Stress, σ'_i (kPa /psf)		3,473	3,500	3,492	2,905	2,905	2,911	2,911	2,911	3,500	3,509
Final Effective Stress, σ'_f (kPa/psf)		7,054	7,296	7,287	7,196	7,230	7,453	7,221	7,221	7,307	7,315
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)		3,478	3,502	3,503	3,562	3,562	3,565	3,569	3,569	3,515	3,514
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.386	0.404	0.402	0.324	0.326	0.340	0.325	0.325	0.403	0.404
Secondary Settlement (m / ft)		0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)		0.408	0.427	0.425	0.343	0.345	0.359	0.344	0.344	0.425	0.427
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)		0.408	0.427	0.425	0.343	0.345	0.359	0.344	0.344	0.425	0.427
Layer No.	*22*	**Zone2-Above-GW-17**									
Initial Stress Reference Layer (top of layer)		*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		376.37	376.38	376.37	376.14	376.14	376.15	376.15	376.15	376.38	376.38
Initial Effective Stress, σ'_i (kPa /psf)		3,697	3,726	3,717	3,092	3,092	3,099	3,098	3,098	3,726	3,735
Final Effective Stress, σ'_f (kPa/psf)		7,293	7,544	7,535	7,402	7,402	7,617	7,394	7,394	7,553	7,527
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)		3,702	3,728	3,728	3,749	3,749	3,753	3,757	3,757	3,741	3,741
Modified Primary Compression Index, $C_{c\varepsilon}$		*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.370	0.388	0.386	0.313	0.313	0.327	0.312	0.312	0.387	0.386
Secondary Settlement (m / ft)		0.022	0.023	0.023	0.019	0.019	0.019	0.019	0.019	0.023	0.023
Total Settlement (m / ft)		0.393	0.411	0.409	0.332	0.332	0.345	0.331	0.331	0.409	0.408
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)		0.393	0.411	0.409	0.332	0.332	0.345	0.331	0.331	0.409	0.408

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *23* **Zone3-Above-GW-1**											
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
Initial Effective Stress, σ'_i (kPa /psf)	3,809	3,839	3,829	3,186	3,186	3,193	3,192	3,192	3,839	3,848
Final Effective Stress, σ'_f (kPa/psf)	7,405	7,667	7,682	7,450	7,480	7,687	7,473	7,473	7,666	7,651
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)	3,814	3,841	3,841	3,843	3,843	3,847	3,850	3,850	3,854	3,854
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *24* **Zone3-Above-GW-2**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
Initial Effective Stress, σ'_i (kPa /psf)	3,809	3,839	3,829	3,186	3,186	3,193	3,192	3,192	3,839	3,848
Final Effective Stress, σ'_f (kPa/psf)	7,405	7,667	7,682	7,450	7,480	7,687	7,473	7,473	7,666	7,651
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)	3,814	3,841	3,841	3,843	3,843	3,847	3,850	3,850	3,854	3,854
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *25* **Zone2-Below-GW-18**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	372.50	372.50	372.50	372.50	372.50	372.50	372.50	372.50	372.50	372.50
Initial Effective Stress, σ'_i (kPa /psf)	3,858	3,888	3,878	3,235	3,235	3,242	3,241	3,241	3,888	3,897
Final Effective Stress, σ'_f (kPa/psf)	7,469	7,724	7,714	7,514	7,514	7,713	7,508	7,508	7,732	7,741
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)	3,863	3,890	3,890	3,892	3,892	3,896	3,899	3,899	3,903	3,903
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.659	0.685	0.684	0.663	0.663	0.688	0.660	0.660	0.683	0.684
Secondary Settlement (m / ft)	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Total Settlement (m / ft)	0.700	0.726	0.725	0.704	0.704	0.729	0.701	0.701	0.724	0.725
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)	0.700	0.726	0.725	0.704	0.704	0.729	0.701	0.701	0.724	0.725

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *26* **Zone2-Below-GW-19**											
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	367.50	367.50	367.50	367.50	367.50	367.50	367.50	367.50	367.50	367.50
Initial Effective Stress, σ'_i (kPa /psf)	3,956	3,986	3,976	3,333	3,333	3,340	3,339	3,339	3,986	3,995
Final Effective Stress, σ'_f (kPa/psf)	7,587	7,841	7,831	7,570	7,570	7,743	7,565	7,565	7,848	7,857
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)	3,961	3,988	3,988	3,990	3,990	3,994	3,997	3,997	4,001	4,001
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.649	0.675	0.674	0.645	0.645	0.667	0.643	0.643	0.673	0.674
Secondary Settlement (m / ft)	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Total Settlement (m / ft)	0.690	0.716	0.715	0.686	0.686	0.708	0.684	0.684	0.714	0.715
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)	0.690	0.716	0.715	0.686	0.686	0.708	0.684	0.684	0.714	0.715
Layer No. *27* **Zone3-Below-GW-3**										
Initial Stress Reference Layer (top of layer)	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
Initial Effective Stress, σ'_i (kPa /psf)	4,005	4,035	4,025	3,382	3,382	3,389	3,388	3,388	4,035	4,044
Final Effective Stress, σ'_f (kPa/psf)	7,642	7,898	7,888	7,570	7,592	7,750	7,589	7,589	7,906	7,889
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)	4,010	4,037	4,037	4,039	4,039	4,043	4,046	4,046	4,050	4,050
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
LAYER SETTLEMENT	1	*Null Layer*										
	2	*Dredge*										
	3	*Gravel*										
	4	*Clay*										
	5	*Dike*										
	6	*Zone2-Above-GW-1*	1.115	1.093	1.048	0.262	0.273	0.215	0.270	0.270	1.032	1.074
	7	*Zone2-Above-GW-2*	0.562	0.524	0.517	0.526	0.526	0.481	0.524	0.524	0.507	0.521
	8	*Zone2-Above-GW-3*	0.316	0.277	0.268	0.432	0.446	0.412	0.437	0.437	0.267	0.275
	9	*Zone2-Above-GW-4*	0.160	0.126	0.121	0.369	0.376	0.361	0.374	0.373	0.120	0.121
	10	*Zone2-Above-GW-5*	0.477	0.455	0.452	0.323	0.323	0.316	0.321	0.321	0.448	0.453
	11	*Zone2-Above-GW-6*	0.393	0.375	0.371	0.576	0.582	0.587	0.580	0.580	0.372	0.376
	12	*Zone2-Above-GW-7*	0.326	0.316	0.313	0.544	0.544	0.553	0.543	0.543	0.314	0.312
	13	*Zone2-Above-GW-8*	0.638	0.639	0.635	0.504	0.512	0.524	0.508	0.508	0.633	0.635
	14	*Zone2-Above-GW-9*	0.592	0.596	0.598	0.476	0.481	0.497	0.479	0.479	0.595	0.598
	15	*Zone2-Above-GW-10*	0.554	0.563	0.560	0.456	0.456	0.472	0.454	0.454	0.562	0.560
	16	*Zone2-Above-GW-11*	0.521	0.535	0.532	0.428	0.431	0.449	0.430	0.430	0.533	0.532
	17	*Zone2-Above-GW-12*	0.492	0.507	0.509	0.411	0.411	0.429	0.410	0.410	0.506	0.508
	18	*Zone2-Above-GW-13*	0.468	0.484	0.482	0.389	0.393	0.410	0.391	0.391	0.483	0.485
	19	*Zone2-Above-GW-14*	0.446	0.464	0.462	0.372	0.375	0.391	0.374	0.374	0.463	0.461
	20	*Zone2-Above-GW-15*	0.426	0.444	0.445	0.360	0.360	0.375	0.359	0.359	0.443	0.444
	21	*Zone2-Above-GW-16*	0.408	0.427	0.425	0.343	0.345	0.359	0.344	0.344	0.425	0.427
	22	*Zone2-Above-GW-17*	0.393	0.411	0.409	0.332	0.332	0.345	0.331	0.331	0.409	0.408
	23	*Zone3-Above-GW-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	24	*Zone3-Above-GW-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	25	*Zone2-Below-GW-18*	0.700	0.726	0.725	0.704	0.704	0.729	0.701	0.701	0.724	0.725
	26	*Zone2-Below-GW-19*	0.690	0.716	0.715	0.686	0.686	0.708	0.684	0.684	0.714	0.715
	27	*Zone3-Below-GW-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	28											
	29	*Soil Above GW*										
	30	*Soil Below GW*										
		TOTAL SETTLEMENT	**9.68**	**9.68**	**9.59**	**8.49**	**8.56**	**8.61**	**8.51**	**8.51**	**9.55**	**9.63**

POST-SETTLEMENT ELEVATION (M/FT)	Line	1	Top of Dredge	450.33	450.33	450.42	451.52	451.45	451.40	451.50	451.50	450.46	450.38
	Line	2	Top of Dredge	450.33	450.33	450.42	451.52	451.45	451.40	451.50	451.50	450.46	450.38
	Line	3	Top of Gravel	420.33	420.33	420.42	421.52	421.45	421.40	421.50	421.50	420.46	420.38
	Line	4	Top of Clay	414.01	413.82	413.91	407.13	406.94	406.89	406.99	407.11	413.95	413.87
	Line	5	Top of Dike	411.77	412.14	412.11	405.36	405.29	405.33	405.42	405.42	412.27	412.30
	Line	6	Top of Subgrade	411.77	412.14	412.11	405.36	405.29	405.33	405.42	405.42	412.27	412.30
	Line	7		410.16	410.48	410.42	403.33	403.28	403.25	403.40	403.40	410.55	410.61
	Line	8		407.99	408.25	408.19	401.57	401.52	401.44	401.63	401.63	408.30	408.37
	Line	9		405.57	405.77	405.71	399.72	399.68	399.56	399.78	399.78	405.81	405.89
	Line	10		403.00	403.15	403.08	397.80	397.77	397.63	397.86	397.86	403.18	403.25
	Line	11		400.74	400.85	400.78	395.84	395.81	395.66	395.89	395.89	400.87	400.94
	Line	12		398.40	398.47	398.41	394.13	394.11	393.96	394.18	394.18	398.49	398.55
	Line	13		396.00	396.03	395.97	392.39	392.37	392.22	392.43	392.43	396.05	396.11
	Line	14		393.90	393.91	393.86	390.61	390.59	390.45	390.65	390.65	393.93	393.98
	Line	15		391.76	391.76	391.71	388.80	388.79	388.66	388.84	388.84	391.77	391.82
	Line	16		389.58	389.57	389.53	386.97	386.96	386.84	387.01	387.01	389.58	389.62
	Line	17		387.37	387.35	387.31	385.11	385.11	385.00	385.15	385.15	387.36	387.39
	Line	18		385.13	385.10	385.07	383.24	383.23	383.14	383.27	383.27	385.11	385.14
	Line	19		382.87	382.83	382.81	381.34	381.34	381.25	381.37	381.37	382.84	382.86
	Line	20		380.58	380.54	380.52	379.43	379.43	379.36	379.45	379.45	380.55	380.56
	Line	21		378.27	378.23	378.22	377.51	377.50	377.44	377.52	377.52	378.24	378.25
	Line	22		375.95	375.90	375.90	375.56	375.56	375.51	375.57	375.57	375.91	375.91
	Line	23	Bottom of Zone2 Above GW	373.61	373.56	373.56	373.61	373.61	373.56	373.62	373.62	373.56	373.56
	Line	24		373.61	373.56	373.56	373.61	373.61	373.56	373.62	373.62	373.56	373.56
	Line	25	Bottom of Zone 3 Above GW	373.61	373.56	373.56	373.61	373.61	373.56	373.62	373.62	373.56	373.56
	Line	26		369.31	369.28	369.28	369.31	369.31	369.29	369.32	369.32	369.29	369.28
	Line	27	Bottom of Zone 2 Below GW	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
	Line	28	Top of Incompressible Layer	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
	Line	29	GND										
	Line	30	GW										
	Line	31	ROCK										

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

Attachment 7

CASE 6: Settlement Analysis for Top of Dredge Material in Geo-tubes at the End of the Operations Period (i.e., End of Year 4)
(Cross Section A, Points 26 to 35)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Settlement Prediction Model

Programmer: **Yiwen Cao, GeoSyntec Consultants**

Version Control V 1.002 11.14.2007

Project: **Onondaga Lake SCA Final**

Notes:

Unit: **ft / psf**

Average Compaction Effort = **1440.00** kPa or psf

Consider Compaction Effort = **N** yes or no

	Point #			26	27	28	29	30	31	32	33	34	35
	Distance (meter or ft)			349.52	371.48	371.77	391.48	391.77	412.70	431.77	432.06	451.77	452.06
ELEVATION (M/FT)	Line 1		Top of Year 4 Dredge	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 2		Top of Year 4 Dredge	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 3			460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 4			460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 5			460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 6			460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 7			460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 8		Top of Year 3 Dredge	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
	Line 9			458.29	458.29	458.29	458.29	458.29	458.29	458.29	458.29	458.29	458.29
	Line 10			456.58	456.58	456.58	456.58	456.58	456.58	456.58	456.58	456.58	456.58
	Line 11			454.86	454.86	454.86	454.86	454.86	454.86	454.86	454.86	454.86	454.86
	Line 12			453.15	453.15	453.15	453.15	453.15	453.15	453.15	453.15	453.15	453.15
	Line 13			451.43	451.43	451.43	451.43	451.43	451.43	451.43	451.43	451.43	451.43
	Line 14			449.72	449.72	449.72	449.72	449.72	449.72	449.72	449.72	449.72	449.72
	Line 15		Top of Year 2 Dredge	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 16			448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 17			448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 18			448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 19			448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 20			448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 21			448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 22		Top of Year 1 Dredge	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
	Line 23			445.01	445.01	445.01	445.00	445.00	445.00	445.00	445.00	445.00	445.00
	Line 24			442.01	442.01	442.01	442.01	442.01	442.01	442.01	442.01	442.01	442.01
	Line 25			439.01	439.01	439.01	439.01	439.01	439.01	439.01	439.01	439.01	439.01
	Line 26			436.01	436.01	436.01	436.01	436.01	436.01	436.01	436.01	436.01	436.01
	Line 27			433.01	433.01	433.01	433.01	433.01	433.01	433.01	433.01	433.01	433.01
	Line 28		Top of Gravel(Top of Incompressib	430.01	430.01	430.01	430.01	430.01	430.01	430.01	430.01	430.01	430.01
	Line 29		GND for sigma_p	421.51	421.84	421.84	421.86	421.86	421.91	421.96	421.96	422.00	422.00
	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	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
LAYER THICKNESS (M/FT)	Layer No.	From	To / Material										
	1	1	2 / Null Layer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	2	3 / YR4-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	3	4 / YR4-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	4	5 / YR4-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5	5	6 / YR4-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6	6	7 / YR4-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	7	7	8 / YR4-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8	8	9 / YR3-1	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
	9	9	10 / YR3-2	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
	10	10	11 / YR3-3	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
	11	11	12 / YR3-4	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
	12	12	13 / YR3-5	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
	13	13	14 / YR3-6	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
	14	14	15 / YR3-7	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
	15	15	16 / YR2-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	16	16	17 / YR2-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	17	17	18 / YR2-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	18	18	19 / YR2-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	19	19	20 / YR2-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	20	20	21 / YR2-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	21	21	22 / YR2-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	22	22	23 / YR1-1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	23	23	24 / YR1-2	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	24	24	25 / YR1-3	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	25	25	26 / YR1-4	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	26	26	27 / YR1-5	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	27	27	28 / YR1-6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	28												
	29												
	30												
	Thickness Check												
		From Line	To Line / SUM	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
		1	28 / Thickness =	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
			Thickness Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
UNIT WEIGHT	1	*Null Layer*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
	2	*YR4-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	3	*YR4-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	4	*YR4-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	5	*YR4-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	6	*YR4-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	7	*YR4-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	8	*YR3-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	9	*YR3-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	10	*YR3-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	11	*YR3-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	12	*YR3-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	13	*YR3-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	14	*YR3-7*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	15	*YR2-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	16	*YR2-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	17	*YR2-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	18	*YR2-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	19	*YR2-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	20	*YR2-6*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	21	*YR2-7*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	22	*YR1-1*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	23	*YR1-2*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	24	*YR1-3*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	25	*YR1-4*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	26	*YR1-5*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
	27	*YR1-6*	*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*** **Null 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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
		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: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. 2 YR4-1											
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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
Initial Effective Stress, σ'_i (kPa /psf)	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03
Final Effective Stress, σ'_f (kPa/psf)	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1	2	2	2	2	2	2	2	2	2	2
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. 3 YR4-2										
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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
Initial Effective Stress, σ'_i (kPa /psf)	0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.09	0.10	0.10
Final Effective Stress, σ'_f (kPa/psf)	0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.09	0.10	0.10
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1	2	2	2	2	2	2	2	2	2	2
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. 4 YR4-3										
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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
Initial Effective Stress, σ'_i (kPa /psf)	0.09	0.10	0.10	0.12	0.12	0.13	0.15	0.15	0.16	0.16
Final Effective Stress, σ'_f (kPa/psf)	0.09	0.10	0.10	0.12	0.12	0.13	0.15	0.15	0.16	0.16
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1	2	2	2	2	2	2	2	2	2	2
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No. 5 YR4-4											
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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
Initial Effective Stress, σ'_i (kPa /psf)	0.12	0.14	0.14	0.16	0.16	0.18	0.20	0.20	0.22	0.22
Final Effective Stress, σ'_f (kPa/psf)	0.12	0.14	0.14	0.16	0.16	0.18	0.20	0.20	0.22	0.22
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)	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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1	2	2	2	2	2	2	2	2	2	2
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. 6 YR4-5										
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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
Initial Effective Stress, σ'_i (kPa /psf)	0.16	0.18	0.19	0.21	0.21	0.24	0.26	0.26	0.29	0.29
Final Effective Stress, σ'_f (kPa/psf)	0.16	0.18	0.19	0.21	0.21	0.24	0.26	0.26	0.29	0.29
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1	2	2	2	2	2	2	2	2	2	2
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. 7 YR4-6										
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)	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01	460.01
Initial Effective Stress, σ'_i (kPa /psf)	0.19	0.23	0.23	0.26	0.26	0.29	0.32	0.32	0.35	0.35
Final Effective Stress, σ'_f (kPa/psf)	0.19	0.23	0.23	0.26	0.26	0.29	0.32	0.32	0.35	0.35
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{\alpha\varepsilon}$	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
ratio of t2 / t1	2	2	2	2	2	2	2	2	2	2
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Layer No. *8* **YR3-1**											
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	459.15	459.15	459.15	459.15	459.15	459.15	459.15	459.15	459.15	459.15
Initial Effective Stress, σ'_i (kPa /psf)	73.73	73.73	73.73	73.73	73.73	73.73	73.73	73.73	73.73	73.73
Final Effective Stress, σ'_f (kPa/psf)	73.94	73.98	73.98	74.01	74.01	74.05	74.08	74.08	74.11	74.11
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)	74	74	74	74	74	74	74	74	74	74
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	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Secondary Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Total Settlement (m / ft)	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
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)	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Layer No. *9* **YR3-2**										
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	457.44	457.44	457.44	457.43	457.43	457.43	457.43	457.43	457.43	457.43
Initial Effective Stress, σ'_i (kPa /psf)	221.20	221.20	221.20	221.20	221.20	221.19	221.19	221.19	221.19	221.19
Final Effective Stress, σ'_f (kPa/psf)	221.41	221.45	221.45	221.48	221.48	221.51	221.54	221.54	221.57	221.57
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)	221	221	221	221	221	221	221	221	221	221
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	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Total Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007
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)	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007
Layer No. *10* **YR3-3**										
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	455.72	455.72	455.72	455.72	455.72	455.72	455.72	455.72	455.72	455.72
Initial Effective Stress, σ'_i (kPa /psf)	368.67	368.67	368.67	368.66	368.66	368.66	368.65	368.65	368.65	368.65
Final Effective Stress, σ'_f (kPa/psf)	368.88	368.91	368.91	368.94	368.94	368.97	369.00	369.00	369.03	369.03
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)	369	369	369	369	369	369	369	369	369	369
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	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Total Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
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)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *11* **YR3-4**											
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	454.01	454.01	454.01	454.01	454.01	454.00	454.00	454.00	454.00	454.00
Initial Effective Stress, σ'_i (kPa /psf)	516.14	516.13	516.13	516.13	516.13	516.12	516.11	516.11	516.10	516.10
Final Effective Stress, σ'_f (kPa/psf)	516.35	516.38	516.38	516.41	516.41	516.43	516.46	516.46	516.49	516.49
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)	516	516	516	516	516	516	516	516	516	516
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	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Total Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
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)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Layer No. *12* **YR3-5**										
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	452.29	452.29	452.29	452.29	452.29	452.29	452.29	452.29	452.29	452.29
Initial Effective Stress, σ'_i (kPa /psf)	663.61	663.60	663.60	663.59	663.59	663.58	663.57	663.57	663.56	663.56
Final Effective Stress, σ'_f (kPa/psf)	663.82	663.85	663.85	663.87	663.87	663.90	663.92	663.92	663.94	663.94
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)	664	664	664	664	664	664	664	664	664	664
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	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Total Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
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)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Layer No. *13* **YR3-6**										
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	450.58	450.58	450.58	450.58	450.58	450.58	450.58	450.58	450.58	450.58
Initial Effective Stress, σ'_i (kPa /psf)	811	811	811	811	811	811	811	811	811	811
Final Effective Stress, σ'_f (kPa/psf)	811	811	811	811	811	811	811	811	811	811
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)	811	811	811	811	811	811	811	811	811	811
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	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Total Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
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)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006

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Layer No. *14* **YR3-7**											
Initial Stress Reference Layer (top of layer)	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.86	448.86	448.86	448.86	448.86	448.86	448.86	448.86	448.86	448.86
Initial Effective Stress, σ'_i (kPa /psf)	959	959	959	959	959	959	958	958	958	958
Final Effective Stress, σ'_f (kPa/psf)	959	959	959	959	959	959	959	959	959	959
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)	959	959	959	959	959	959	958	958	958	958
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	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Secondary Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Total Settlement (m / ft)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
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)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Layer No. *15* **YR2-1**										
Initial Stress Reference Layer (top of layer)	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
Initial Effective Stress, σ'_i (kPa /psf)	0	0	0	0	0	0	0	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,032	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033
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)	0	0	0	0	0	0	0	0	0	0
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, $C_{r\varepsilon}$	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*	*0.014*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*	*0.60%*
ratio of t2 / t1	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *16* **YR2-2**										
Initial Stress Reference Layer (top of layer)	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
Initial Effective Stress, σ'_i (kPa /psf)	0	0	0	0	0	0	0	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,032	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033
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)	0	0	0	0	0	0	0	0	0	0
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	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No. *17* **YR2-3**											
Initial Stress Reference Layer (top of layer)	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
Initial Effective Stress, σ'_i (kPa /psf)	0	0	0	0	0	0	0	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,032	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033
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)	0	0	0	0	0	0	0	0	0	0
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	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *18* **YR2-4**										
Initial Stress Reference Layer (top of layer)	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
Initial Effective Stress, σ'_i (kPa /psf)	0	0	0	0	0	0	0	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,032	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033
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)	0	0	0	0	0	0	0	0	0	0
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	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *19* **YR2-5**										
Initial Stress Reference Layer (top of layer)	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
Initial Effective Stress, σ'_i (kPa /psf)	0	0	0	0	0	0	0	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,032	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033
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)	0	0	0	0	0	0	0	0	0	0
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	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *20* **YR2-6**											
Initial Stress Reference Layer (top of layer)	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
Initial Effective Stress, σ'_i (kPa /psf)	0	0	0	0	0	0	0	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,032	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033
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)	0	0	0	0	0	0	0	0	0	0
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	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *21* **YR2-7**										
Initial Stress Reference Layer (top of layer)	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
Initial Effective Stress, σ'_i (kPa /psf)	0	0	0	0	0	0	0	0	0	0
Final Effective Stress, σ'_f (kPa/psf)	1,032	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033	1,033
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)	0	0	0	0	0	0	0	0	0	0
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	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*	*6*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *22* **YR1-1**										
Initial Stress Reference Layer (top of layer)	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	446.50	446.50	446.50	446.50	446.50	446.50	446.50	446.50	446.50	446.50
Initial Effective Stress, σ'_i (kPa /psf)	129	129	129	129	129	129	129	129	129	129
Final Effective Stress, σ'_f (kPa/psf)	1,161	1,161	1,161	1,161	1,161	1,162	1,162	1,162	1,162	1,162
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)	129	129	129	129	129	129	129	129	129	129
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.834	0.834	0.834	0.834	0.834	0.834	0.834	0.834	0.834	0.834
Secondary Settlement (m / ft)	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Total Settlement (m / ft)	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850
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)	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *23* **YR1-2**											
Initial Stress Reference Layer (top of layer)	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	443.51	443.51	443.51	443.51	443.51	443.51	443.51	443.51	443.50	443.50
Initial Effective Stress, σ'_i (kPa /psf)	387	387	387	387	387	387	387	387	387	387
Final Effective Stress, σ'_f (kPa/psf)	1,419	1,419	1,419	1,419	1,419	1,419	1,419	1,419	1,419	1,419
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)	387	387	387	387	387	387	387	387	387	387
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.493	0.493	0.493	0.493	0.493	0.493	0.493	0.493	0.493	0.493
Secondary Settlement (m / ft)	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Total Settlement (m / ft)	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510
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)	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510
Layer No. *24* **YR1-3**										
Initial Stress Reference Layer (top of layer)	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	440.51	440.51	440.51	440.51	440.51	440.51	440.51	440.51	440.51	440.51
Initial Effective Stress, σ'_i (kPa /psf)	645	645	645	645	645	645	645	645	645	645
Final Effective Stress, σ'_f (kPa/psf)	1,677	1,677	1,677	1,677	1,677	1,677	1,677	1,677	1,677	1,677
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)	645	645	645	645	645	645	645	645	645	645
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.363	0.363	0.363	0.363	0.363	0.363	0.363	0.363	0.363	0.363
Secondary Settlement (m / ft)	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Total Settlement (m / ft)	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379
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)	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379
Layer No. *25* **YR1-4**										
Initial Stress Reference Layer (top of layer)	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)	437.51	437.51	437.51	437.51	437.51	437.51	437.51	437.51	437.51	437.51
Initial Effective Stress, σ'_i (kPa /psf)	902.71	902.70	902.70	902.69	902.69	902.68	902.67	902.67	902.66	902.66
Final Effective Stress, σ'_f (kPa/psf)	1,935.21	1,935.21	1,935.21	1,935.22	1,935.22	1,935.23	1,935.24	1,935.24	1,935.25	1,935.25
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)	*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)	903	903	903	903	903	903	903	903	903	903
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	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements										
Primary Settlement, (m / ft)	0.289	0.289	0.289	0.289	0.289	0.289	0.289	0.289	0.289	0.289
Secondary Settlement (m / ft)	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Total Settlement (m / ft)	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306
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)	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *26* **YR1-5**											
Initial Stress Reference Layer (top of layer)		*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		434.51	434.51	434.51	434.51	434.51	434.51	434.51	434.51	434.51	434.51
Initial Effective Stress, σ'_i (kPa /psf)		1,160.63	1,160.61	1,160.61	1,160.60	1,160.60	1,160.59	1,160.57	1,160.57	1,160.56	1,160.56
Final Effective Stress, σ'_f (kPa/psf)		2,193.12	2,193.13	2,193.13	2,193.13	2,193.13	2,193.14	2,193.14	2,193.14	2,193.15	2,193.15
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)		1,161	1,161	1,161	1,161	1,161	1,161	1,161	1,161	1,161	1,161
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241
Secondary Settlement (m / ft)		0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Total Settlement (m / ft)		0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258
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)		0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258
Layer No. *27* **YR1-6**											
Initial Stress Reference Layer (top of layer)		*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Final Stress Reference Layer (top of layer)		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Midpoint Elevation, (m / ft)		431.51	431.51	431.51	431.51	431.51	431.51	431.51	431.51	431.51	431.51
Initial Effective Stress, σ'_i (kPa /psf)		1,418.55	1,418.53	1,418.53	1,418.51	1,418.51	1,418.49	1,418.48	1,418.48	1,418.46	1,418.46
Final Effective Stress, σ'_f (kPa/psf)		2,451.04	2,451.04	2,451.04	2,451.04	2,451.04	2,451.05	2,451.05	2,451.05	2,451.05	2,451.05
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)		1,419	1,419	1,419	1,419	1,419	1,418	1,418	1,418	1,418	1,418
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		*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Settlements											
Primary Settlement, (m / ft)		0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208
Secondary Settlement (m / ft)		0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Total Settlement (m / ft)		0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224
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)		0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
LAYER SETTLEMENT	1	*Null Layer*										
	2	*YR4-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	3	*YR4-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	4	*YR4-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5	*YR4-4*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	6	*YR4-5*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	7	*YR4-6*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8	*YR3-1*	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
	9	*YR3-2*	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007
	10	*YR3-3*	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	11	*YR3-4*	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	12	*YR3-5*	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	13	*YR3-6*	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	14	*YR3-7*	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	15	*YR2-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	16	*YR2-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	17	*YR2-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	18	*YR2-4*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	19	*YR2-5*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	20	*YR2-6*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	21	*YR2-7*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	22	*YR1-1*	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850
	23	*YR1-2*	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510	0.510
	24	*YR1-3*	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.379
	25	*YR1-4*	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306	0.306
	26	*YR1-5*	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258
	27	*YR1-6*	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224	0.224
	28	*Additional Foundation Settlement*	9.676	9.679	9.585	8.494	8.556	8.613	8.515	8.515	9.551	9.632
	29											
	30											
		TOTAL SETTLEMENT	**12.25**	**12.25**	**12.16**	**11.07**	**11.13**	**11.18**	**11.09**	**11.09**	**12.12**	**12.20**
POST-SETTLEMENT ELEVATION (M/FT)	Line	1 Top of Year 4 Dredge	447.76	447.76	447.85	448.94	448.88	448.83	448.92	448.92	447.89	447.81
	Line	2 Top of Year 4 Dredge	447.76	447.76	447.85	448.94	448.88	448.83	448.92	448.92	447.89	447.81
	Line	3	447.76	447.76	447.85	448.94	448.88	448.83	448.92	448.92	447.89	447.81
	Line	4	447.76	447.76	447.85	448.94	448.88	448.82	448.92	448.92	447.89	447.80
	Line	5	447.76	447.76	447.85	448.94	448.88	448.82	448.92	448.92	447.89	447.80
	Line	6	447.76	447.76	447.85	448.94	448.88	448.82	448.92	448.92	447.88	447.80
	Line	7	447.76	447.76	447.85	448.94	448.88	448.82	448.92	448.92	447.88	447.80
	Line	8 Top of Year 3 Dredge	447.76	447.76	447.85	448.94	448.88	448.82	448.92	448.92	447.88	447.80
	Line	9	446.05	446.05	446.14	447.23	447.17	447.11	447.21	447.21	446.18	446.09
	Line	10	444.34	444.34	444.43	445.53	445.46	445.41	445.50	445.50	444.47	444.39
	Line	11	442.64	442.63	442.73	443.82	443.76	443.70	443.80	443.80	442.76	442.68
	Line	12	440.93	440.92	441.02	442.11	442.05	441.99	442.09	442.09	441.05	440.97
	Line	13	439.22	439.22	439.31	440.40	440.34	440.28	440.38	440.38	439.34	439.26
	Line	14	437.51	437.51	437.60	438.69	438.63	438.57	438.67	438.67	437.63	437.55
	Line	15 Top of Year 2 Dredge	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	16	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	17	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	18	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	19	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	20	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	21	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	22 Top of Year 1 Dredge	435.80	435.80	435.89	436.98	436.92	436.86	436.96	436.96	435.93	435.84
	Line	23	433.65	433.65	433.74	434.83	434.77	434.72	434.81	434.81	433.78	433.70
	Line	24	431.16	431.16	431.25	432.35	432.28	432.23	432.32	432.32	431.29	431.21
	Line	25	428.54	428.54	428.63	429.73	429.66	429.61	429.70	429.70	428.67	428.59
	Line	26	425.85	425.85	425.94	427.03	426.97	426.91	427.01	427.01	425.97	425.89
	Line	27	423.11	423.11	423.20	424.29	424.23	424.17	424.27	424.27	423.23	423.15
	Line	28 Top of Gravel(Top of Incompressib	420.33	420.33	420.42	421.52	421.45	421.40	421.50	421.50	420.46	420.38
	Line	29										
	Line	30										
	Line	31										

Written by:	Yiwen Cao	Date:	12/17/2009	Reviewed by:	R. Kulasingam/Jay Beech	Date:	12/17/2009
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	04

Attachment 8

CASE 7: Settlement Analysis for Top of LPSL 30 Years after Closure (i.e., End of Year 35) (Cross Section A, Points 26 to 35)

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Settlement Prediction Model

Programmer: **Yiwen Cao, GeoSyntec Consultants**

Version Control V 1.002 11.14.2007

Project: **Onondaga Lake SCA Final**

Notes:

Unit: **ft / psf**

Average Compaction Effort = **1440.00** kPa or psf

Consider Compaction Effort = **N** yes or no

Point #					**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Distance (meter or ft)					*349.52*	*371.48*	*371.77*	*391.48*	*391.77*	*412.70*	*431.77*	*432.06*	*451.77*	*452.06*
ELEVATION (M/FT)	Line	1	Top of Final Cover		*451.00*	*451.06*	*451.06*	*451.10*	*451.10*	*451.06*	*451.03*	*451.03*	*451.01*	*451.01*
	Line	2	Top of Dredge		*447.76*	*447.76*	*447.85*	*448.94*	*448.88*	*448.83*	*448.92*	*448.92*	*447.89*	*447.81*
	Line	3	Top of Gravel		*420.33*	*420.33*	*420.42*	*421.52*	*421.45*	*421.40*	*421.50*	*421.50*	*420.46*	*420.38*
	Line	4	Top of Clay		*414.01*	*413.82*	*413.91*	*407.13*	*406.94*	*406.89*	*406.99*	*407.11*	*413.95*	*413.87*
	Line	5	Top of Dike		*411.77*	*412.14*	*412.11*	*405.36*	*405.29*	*405.33*	*405.42*	*405.42*	*412.27*	*412.30*
	Line	6	Top of Subgrade		*411.77*	*412.14*	*412.11*	*405.36*	*405.29*	*405.33*	*405.42*	*405.42*	*412.27*	*412.30*
	Line	7			*409.61*	*409.96*	*409.93*	*403.57*	*403.51*	*403.55*	*403.63*	*403.63*	*410.08*	*410.11*
	Line	8			*407.44*	*407.77*	*407.74*	*401.79*	*401.73*	*401.76*	*401.84*	*401.84*	*407.89*	*407.91*
	Line	9			*405.28*	*405.59*	*405.56*	*400.00*	*399.94*	*399.98*	*400.05*	*400.05*	*405.69*	*405.72*
	Line	10			*403.12*	*403.40*	*403.38*	*398.22*	*398.16*	*398.19*	*398.26*	*398.26*	*403.50*	*403.52*
	Line	11			*400.96*	*401.22*	*401.20*	*396.43*	*396.38*	*396.41*	*396.47*	*396.47*	*401.31*	*401.33*
	Line	12			*398.79*	*399.03*	*399.01*	*394.64*	*394.60*	*394.63*	*394.68*	*394.68*	*399.12*	*399.14*
	Line	13			*396.63*	*396.85*	*396.83*	*392.86*	*392.82*	*392.84*	*392.89*	*392.89*	*396.92*	*396.94*
	Line	14			*394.47*	*394.66*	*394.65*	*391.07*	*391.04*	*391.06*	*391.10*	*391.10*	*394.73*	*394.75*
	Line	15			*392.30*	*392.48*	*392.46*	*389.29*	*389.25*	*389.27*	*389.32*	*389.32*	*392.54*	*392.55*
	Line	16			*390.14*	*390.29*	*390.28*	*387.50*	*387.47*	*387.49*	*387.53*	*387.53*	*390.35*	*390.36*
	Line	17			*387.98*	*388.11*	*388.10*	*385.72*	*385.69*	*385.70*	*385.74*	*385.74*	*388.15*	*388.16*
	Line	18			*385.81*	*385.92*	*385.91*	*383.93*	*383.91*	*383.92*	*383.95*	*383.95*	*385.96*	*385.97*
	Line	19			*383.65*	*383.74*	*383.73*	*382.14*	*382.13*	*382.14*	*382.16*	*382.16*	*383.77*	*383.78*
	Line	20			*381.49*	*381.55*	*381.55*	*380.36*	*380.35*	*380.35*	*380.37*	*380.37*	*381.58*	*381.58*
	Line	21			*379.33*	*379.37*	*379.37*	*378.57*	*378.56*	*378.57*	*378.58*	*378.58*	*379.38*	*379.39*
	Line	22			*377.16*	*377.18*	*377.18*	*376.79*	*376.78*	*376.78*	*376.79*	*376.79*	*377.19*	*377.19*
	Line	23	Bottom of Zone2 Above GW		*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*
	Line	24			*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*
	Line	25	Bottom of Zone 3 Above GW		*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*	*375.00*
	Line	26			*370.00*	*370.00*	*370.00*	*370.00*	*370.00*	*370.00*	*370.00*	*370.00*	*370.00*	*370.00*
	Line	27	Bottom of Zone 2 Below GW		*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*
	Line	28	Top of Incompressible Layer		*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*
	Line	29	GND	for sigma_p	*421.51*	*421.84*	*421.84*	*421.86*	*421.86*	*421.91*	*421.96*	*421.96*	*422.00*	*422.00*
	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		*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*	*365.00*
LAYER THICKNESS (M/FT)	Layer No.	From	To	Material										
	1	*1*	*2*	*Cover*	*3.24*	*3.30*	*3.21*	*2.16*	*2.22*	*2.23*	*2.11*	*2.11*	*3.12*	*3.20*
	2	*2*	*3*	*Dredge*	*27.43*	*27.43*	*27.43*	*27.42*	*27.43*	*27.43*	*27.42*	*27.42*	*27.43*	*27.43*
	3	*3*	*4*	*Gravel*	*6.32*	*6.51*	*6.51*	*14.39*	*14.51*	*14.51*	*14.51*	*14.39*	*6.51*	*6.51*
	4	*4*	*5*	*Clay*	*2.24*	*1.68*	*1.80*	*1.77*	*1.65*	*1.56*	*1.57*	*1.69*	*1.68*	*1.57*
	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*	*Zone2-Above-GW-1*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	7	*7*	*8*	*Zone2-Above-GW-2*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	8	*8*	*9*	*Zone2-Above-GW-3*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	9	*9*	*10*	*Zone2-Above-GW-4*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	10	*10*	*11*	*Zone2-Above-GW-5*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	11	*11*	*12*	*Zone2-Above-GW-6*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	12	*12*	*13*	*Zone2-Above-GW-7*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	13	*13*	*14*	*Zone2-Above-GW-8*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	14	*14*	*15*	*Zone2-Above-GW-9*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	15	*15*	*16*	*Zone2-Above-GW-10*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	16	*16*	*17*	*Zone2-Above-GW-11*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	17	*17*	*18*	*Zone2-Above-GW-12*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	18	*18*	*19*	*Zone2-Above-GW-13*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	19	*19*	*20*	*Zone2-Above-GW-14*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	20	*20*	*21*	*Zone2-Above-GW-15*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	21	*21*	*22*	*Zone2-Above-GW-16*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	22	*22*	*23*	*Zone2-Above-GW-17*	*2.16*	*2.18*	*2.18*	*1.79*	*1.78*	*1.78*	*1.79*	*1.79*	*2.19*	*2.19*
	23	*23*	*24*	*Zone3-Above-GW-1*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	24	*24*	*25*	*Zone3-Above-GW-2*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	25	*25*	*26*	*Zone2-Below-GW-18*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*
	26	*26*	*27*	*Zone2-Below-GW-19*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*
	27	*27*	*28*	*Zone3-Below-GW-3*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	28													
	29	*29*	*30*	Soil Above GW	*46.51*	*46.84*	*46.84*	*46.86*	*46.86*	*46.91*	*46.96*	*46.96*	*47.00*	*47.00*
	30	*30*	*31*	Soil Below GW	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*
	Thickness Check													
		From Line	To Line	SUM	*86.00*	*86.06*	*86.06*	*86.10*	*86.10*	*86.06*	*86.03*	*86.03*	*86.01*	*86.01*
		1	*28*	Thickness =	*86.00*	*86.06*	*86.06*	*86.10*	*86.10*	*86.06*	*86.03*	*86.03*	*86.01*	*86.01*
				Thickness Check	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***	***OK***

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
UNIT WEIGHT	1	*Cover*	*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	*Zone2-Above-GW-1*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	7	*Zone2-Above-GW-2*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	8	*Zone2-Above-GW-3*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	9	*Zone2-Above-GW-4*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	10	*Zone2-Above-GW-5*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	11	*Zone2-Above-GW-6*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	12	*Zone2-Above-GW-7*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	13	*Zone2-Above-GW-8*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	14	*Zone2-Above-GW-9*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	15	*Zone2-Above-GW-10*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	16	*Zone2-Above-GW-11*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	17	*Zone2-Above-GW-12*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	18	*Zone2-Above-GW-13*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	19	*Zone2-Above-GW-14*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	20	*Zone2-Above-GW-15*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	21	*Zone2-Above-GW-16*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	22	*Zone2-Above-GW-17*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	23	*Zone3-Above-GW-1*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	24	*Zone3-Above-GW-2*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*	*82.0*
	25	*Zone2-Below-GW-18*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	26	*Zone2-Below-GW-19*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*	*19.6*
	27	*Zone3-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*** **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)	449.38	449.41	449.46	450.02	449.99	449.95	449.98	449.98	449.45	449.41
		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: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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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)	434.05	434.05	434.14	435.23	435.17	435.12	435.21	435.21	434.18	434.10
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* **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)	417.17	417.08	417.17	414.33	414.20	414.15	414.25	414.31	417.21	417.13
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)	412.89	412.98	413.01	406.25	406.12	406.11	406.21	406.27	413.11	413.09
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)										

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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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)	411.77	412.14	412.11	405.36	405.29	405.33	405.42	405.42	412.27	412.30
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 **Zone2-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)	410.69	411.05	411.02	404.47	404.40	404.44	404.53	404.53	411.17	411.20
Initial Effective Stress, σ'_i (kPa /psf)	3,475	3,431	3,446	4,371	4,371	4,361	4,361	4,361	3,432	3,419
Final Effective Stress, σ'_f (kPa/psf)	3,848	3,778	3,792	4,686	4,687	4,663	4,678	4,678	3,783	3,770
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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	1,775	1,769	1,774	2,853	2,864	2,866	2,859	2,859	1,775	1,771
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75
Settlements										
Primary Settlement, (m / ft)	0.044	0.042	0.042	0.025	0.025	0.024	0.025	0.025	0.043	0.043
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.063	0.061	0.061	0.040	0.040	0.039	0.040	0.040	0.062	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 6 (m / ft)	0.063	0.061	0.061	0.040	0.040	0.039	0.040	0.040	0.062	0.062
Layer No. 7 **Zone2-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)	408.53	408.86	408.84	402.68	402.62	402.65	402.74	402.74	408.98	409.01
Initial Effective Stress, σ'_i (kPa /psf)	3,652	3,610	3,625	4,517	4,517	4,507	4,508	4,508	3,611	3,598
Final Effective Stress, σ'_f (kPa/psf)	4,024	3,957	3,971	4,834	4,834	4,809	4,825	4,825	3,963	3,950
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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	2,130	2,128	2,132	3,146	3,156	3,158	3,152	3,152	2,135	2,131
Modified Primary Compression Index, $C_{c\varepsilon}$	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
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	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75
Settlements										
Primary Settlement, (m / ft)	0.042	0.040	0.040	0.024	0.024	0.023	0.024	0.024	0.041	0.041
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.060	0.059	0.058	0.040	0.039	0.038	0.040	0.040	0.060	0.060
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)	0.060	0.059	0.058	0.040	0.039	0.038	0.040	0.040	0.060	0.060

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *8* **Zone2-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)	406.36	406.68	406.65	400.90	400.84	400.87	400.95	400.95	406.79	406.81
Initial Effective Stress, σ'_i (kPa /psf)	3,830	3,790	3,804	4,663	4,663	4,653	4,655	4,655	3,791	3,778
Final Effective Stress, σ'_f (kPa/psf)	4,200	4,138	4,149	4,980	4,980	4,958	4,973	4,973	4,143	4,130
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	*2.0*	*2.0*	*2.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*2.0*	*2.0*
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	2,485	2,486	2,490	1,719	1,724	1,725	1,723	1,723	2,495	2,490
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.040	0.038	0.038	0.023	0.023	0.023	0.024	0.024	0.039	0.039
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.058	0.057	0.057	0.039	0.039	0.038	0.039	0.039	0.058	0.058
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)	0.058	0.057	0.057	0.039	0.039	0.038	0.039	0.039	0.058	0.058
Layer No. *9* **Zone2-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)	404.20	404.49	404.47	399.11	399.05	399.09	399.16	399.16	404.60	404.62
Initial Effective Stress, σ'_i (kPa /psf)	4,007	3,969	3,983	4,810	4,810	4,799	4,801	4,801	3,971	3,958
Final Effective Stress, σ'_f (kPa/psf)	4,376	4,317	4,328	5,128	5,128	5,107	5,122	5,122	4,323	4,311
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	*2.0*	*2.0*	*2.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*2.0*	*2.0*
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	2,839	2,844	2,848	1,866	1,870	1,872	1,870	1,870	2,854	2,850
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.038	0.037	0.036	0.023	0.023	0.022	0.023	0.023	0.037	0.037
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.057	0.055	0.055	0.038	0.038	0.037	0.038	0.038	0.056	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 9 (m / ft)	0.057	0.055	0.055	0.038	0.038	0.037	0.038	0.038	0.056	0.056
Layer No. *10* **Zone2-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)	402.04	402.31	402.29	397.32	397.27	397.30	397.37	397.37	402.40	402.43
Initial Effective Stress, σ'_i (kPa /psf)	4,184	4,148	4,162	4,956	4,956	4,946	4,948	4,948	4,151	4,138
Final Effective Stress, σ'_f (kPa/psf)	4,553	4,496	4,507	5,276	5,276	5,255	5,271	5,271	4,504	4,491
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	*2.0*	*2.0*	*2.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*2.0*	*2.0*
OCR Computation Input										
Preconsolidation pressure, σ'_p (kPa / psf)	3,194	3,202	3,206	2,012	2,017	2,018	2,016	2,016	3,214	3,210
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.036	0.035	0.035	0.022	0.022	0.022	0.023	0.023	0.036	0.036
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.055	0.054	0.053	0.038	0.038	0.037	0.038	0.038	0.055	0.055
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)	0.055	0.054	0.053	0.038	0.038	0.037	0.038	0.038	0.055	0.055

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

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Layer No. *11* **Zone2-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)	399.87	400.12	400.10	395.54	395.49	395.52	395.58	395.58	400.21	400.23
Initial Effective Stress, σ'_i (kPa /psf)	4,362	4,327	4,341	5,103	5,102	5,092	5,095	5,095	4,331	4,318
Final Effective Stress, σ'_f (kPa/psf)	4,729	4,674	4,685	5,424	5,423	5,404	5,419	5,419	4,684	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)	1,774	1,780	1,782	2,159	2,163	2,164	2,163	2,163	1,787	1,785
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.035	0.034	0.033	0.022	0.022	0.021	0.022	0.022	0.034	0.034
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.054	0.052	0.052	0.037	0.037	0.036	0.037	0.037	0.053	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 11 (m / ft)	0.054	0.052	0.052	0.037	0.037	0.036	0.037	0.037	0.053	0.053
Layer No. *12* **Zone2-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)	397.71	397.94	397.92	393.75	393.71	393.73	393.79	393.79	398.02	398.04
Initial Effective Stress, σ'_i (kPa /psf)	4,539	4,506	4,520	5,249	5,248	5,238	5,241	5,241	4,510	4,498
Final Effective Stress, σ'_f (kPa/psf)	4,906	4,853	4,864	5,572	5,571	5,552	5,568	5,568	4,864	4,856
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)	1,952	1,960	1,961	2,305	2,309	2,311	2,310	2,310	1,966	1,965
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.034	0.032	0.032	0.021	0.021	0.021	0.022	0.022	0.033	0.034
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.052	0.051	0.051	0.037	0.037	0.036	0.037	0.037	0.052	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 12 (m / ft)	0.052	0.051	0.051	0.037	0.037	0.036	0.037	0.037	0.052	0.052
Layer No. *13* **Zone2-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)	395.55	395.75	395.74	391.97	391.93	391.95	392.00	392.00	395.83	395.84
Initial Effective Stress, σ'_i (kPa /psf)	4,716	4,685	4,699	5,396	5,394	5,385	5,388	5,388	4,690	4,678
Final Effective Stress, σ'_f (kPa/psf)	5,082	5,032	5,043	5,720	5,718	5,701	5,716	5,716	5,045	5,036
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)	2,129	2,139	2,140	2,452	2,455	2,457	2,456	2,457	2,146	2,145
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.032	0.031	0.031	0.021	0.021	0.020	0.021	0.021	0.032	0.032
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.051	0.050	0.050	0.036	0.036	0.036	0.036	0.036	0.051	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)	0.051	0.050	0.050	0.036	0.036	0.036	0.036	0.036	0.051	0.051

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *14* **Zone2-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)	393.39	393.57	393.56	390.18	390.15	390.17	390.21	390.21	393.64	393.65
Initial Effective Stress, σ'_i (kPa /psf)	4,894	4,865	4,878	5,542	5,540	5,531	5,535	5,535	4,870	4,858
Final Effective Stress, σ'_f (kPa/psf)	5,258	5,209	5,222	5,868	5,866	5,849	5,865	5,865	5,226	5,214
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)	2,307	2,318	2,319	2,598	2,601	2,603	2,603	2,603	2,326	2,325
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.031	0.030	0.030	0.020	0.020	0.020	0.021	0.021	0.031	0.031
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.050	0.049	0.048	0.036	0.036	0.035	0.036	0.036	0.050	0.050
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)	0.050	0.049	0.048	0.036	0.036	0.035	0.036	0.036	0.050	0.050
Layer No. *15* **Zone2-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)	391.22	391.39	391.37	388.39	388.36	388.38	388.42	388.42	391.44	391.46
Initial Effective Stress, σ'_i (kPa /psf)	5,071	5,044	5,057	5,689	5,686	5,677	5,682	5,682	5,050	5,038
Final Effective Stress, σ'_f (kPa/psf)	5,435	5,389	5,402	6,016	6,013	5,998	6,013	6,013	5,406	5,394
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)	2,484	2,497	2,498	2,744	2,747	2,750	2,750	2,750	2,506	2,505
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.030	0.029	0.029	0.020	0.020	0.020	0.020	0.020	0.030	0.030
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.049	0.048	0.047	0.035	0.035	0.035	0.036	0.036	0.049	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 15 (m / ft)	0.049	0.048	0.047	0.035	0.035	0.035	0.036	0.036	0.049	0.049
Layer No. *16* **Zone2-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)	389.06	389.20	389.19	386.61	386.58	386.60	386.63	386.63	389.25	389.26
Initial Effective Stress, σ'_i (kPa /psf)	5,248	5,223	5,236	5,835	5,832	5,824	5,828	5,828	5,229	5,218
Final Effective Stress, σ'_f (kPa/psf)	5,612	5,568	5,581	6,164	6,161	6,146	6,162	6,162	5,587	5,575
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)	2,661	2,676	2,677	2,891	2,893	2,896	2,897	2,897	2,685	2,685
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.029	0.028	0.028	0.020	0.020	0.019	0.020	0.020	0.029	0.029
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.048	0.047	0.047	0.035	0.035	0.034	0.035	0.035	0.048	0.048
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)	0.048	0.047	0.047	0.035	0.035	0.034	0.035	0.035	0.048	0.048

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *17* **Zone2-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)	386.90	387.02	387.01	384.82	384.80	384.81	384.84	384.84	387.06	387.07
Initial Effective Stress, σ'_i (kPa /psf)	5,426	5,402	5,415	5,981	5,978	5,970	5,975	5,975	5,409	5,398
Final Effective Stress, σ'_f (kPa/psf)	5,789	5,749	5,760	6,311	6,308	6,294	6,310	6,310	5,767	5,756
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)	2,839	2,855	2,856	3,037	3,039	3,042	3,043	3,043	2,865	2,864
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.028	0.027	0.027	0.019	0.019	0.019	0.019	0.019	0.028	0.028
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.047	0.046	0.046	0.034	0.034	0.034	0.035	0.035	0.047	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 17 (m / ft)	0.047	0.046	0.046	0.034	0.034	0.034	0.035	0.035	0.047	0.047
Layer No. *18* **Zone2-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)	384.73	384.83	384.82	383.04	383.02	383.03	383.05	383.05	384.87	384.87
Initial Effective Stress, σ'_i (kPa /psf)	5,603	5,581	5,594	6,128	6,124	6,116	6,122	6,122	5,589	5,578
Final Effective Stress, σ'_f (kPa/psf)	5,967	5,929	5,939	6,459	6,456	6,440	6,458	6,458	5,948	5,936
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)	3,016	3,034	3,035	3,184	3,185	3,188	3,190	3,190	3,045	3,044
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.027	0.026	0.026	0.019	0.019	0.018	0.019	0.019	0.027	0.027
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.046	0.045	0.045	0.034	0.034	0.034	0.034	0.034	0.046	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 18 (m / ft)	0.046	0.045	0.045	0.034	0.034	0.034	0.034	0.034	0.046	0.046
Layer No. *19* **Zone2-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)	382.57	382.65	382.64	381.25	381.24	381.24	381.26	381.26	382.67	382.68
Initial Effective Stress, σ'_i (kPa /psf)	5,781	5,760	5,773	6,274	6,271	6,262	6,269	6,269	5,769	5,757
Final Effective Stress, σ'_f (kPa/psf)	6,144	6,108	6,119	6,606	6,602	6,588	6,605	6,605	6,128	6,117
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)	3,193	3,214	3,214	3,330	3,331	3,335	3,337	3,337	3,225	3,224
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.026	0.026	0.025	0.018	0.018	0.018	0.019	0.019	0.026	0.027
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.045	0.044	0.044	0.034	0.034	0.033	0.034	0.034	0.045	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 19 (m / ft)	0.045	0.044	0.044	0.034	0.034	0.033	0.034	0.034	0.045	0.045

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No.	*20*	**Zone2-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)	380.41	380.46	380.46	379.46	379.45	379.46	379.47	379.47	380.48	380.49
Initial Effective Stress, σ'_i (kPa /psf)	5,958	5,939	5,952	6,421	6,417	6,409	6,415	6,415	5,948	5,937
Final Effective Stress, σ'_f (kPa/psf)	6,321	6,288	6,298	6,753	6,749	6,737	6,753	6,753	6,309	6,300
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)	3,371	3,393	3,393	3,477	3,478	3,481	3,484	3,484	3,405	3,404
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.026	0.025	0.025	0.018	0.018	0.018	0.018	0.018	0.026	0.026
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.044	0.044	0.043	0.033	0.033	0.033	0.034	0.034	0.045	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 20 (m / ft)	0.044	0.044	0.043	0.033	0.033	0.033	0.034	0.034	0.045	0.045
Layer No.	*21*	**Zone2-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)	378.24	378.28	378.27	377.68	377.67	377.68	377.68	377.68	378.29	378.29
Initial Effective Stress, σ'_i (kPa /psf)	6,135	6,119	6,131	6,567	6,563	6,555	6,562	6,562	6,128	6,117
Final Effective Stress, σ'_f (kPa/psf)	6,498	6,467	6,478	6,901	6,897	6,885	6,902	6,902	6,489	6,481
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)	3,548	3,572	3,572	3,623	3,624	3,627	3,630	3,630	3,584	3,584
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.025	0.024	0.024	0.018	0.018	0.017	0.018	0.018	0.025	0.025
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.043	0.043	0.043	0.033	0.033	0.033	0.033	0.033	0.044	0.044
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)	0.043	0.043	0.043	0.033	0.033	0.033	0.033	0.033	0.044	0.044
Layer No.	*22*	**Zone2-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)	376.08	376.09	376.09	375.89	375.89	375.89	375.89	375.89	376.10	376.10
Initial Effective Stress, σ'_i (kPa /psf)	6,313	6,298	6,310	6,714	6,709	6,701	6,709	6,709	6,308	6,297
Final Effective Stress, σ'_f (kPa/psf)	6,676	6,647	6,658	7,049	7,044	7,033	7,050	7,050	6,671	6,660
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)	3,725	3,751	3,751	3,770	3,770	3,774	3,777	3,777	3,764	3,764
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.024	0.024	0.023	0.017	0.017	0.017	0.018	0.018	0.024	0.025
Secondary Settlement (m / ft)	0.019	0.019	0.019	0.015	0.015	0.015	0.015	0.015	0.019	0.019
Total Settlement (m / ft)	0.043	0.042	0.042	0.033	0.033	0.032	0.033	0.033	0.043	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 22 (m / ft)	0.043	0.042	0.042	0.033	0.033	0.032	0.033	0.033	0.043	0.043

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *23* **Zone3-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)	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
Initial Effective Stress, σ'_i (kPa /psf)	6,401	6,387	6,399	6,787	6,782	6,774	6,782	6,782	6,398	6,387
Final Effective Stress, σ'_f (kPa/psf)	6,765	6,737	6,747	7,123	7,118	7,108	7,125	7,125	6,760	6,750
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)	3,814	3,841	3,841	3,843	3,843	3,847	3,850	3,850	3,854	3,854
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *24* **Zone3-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)	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
Initial Effective Stress, σ'_i (kPa /psf)	6,401	6,387	6,399	6,787	6,782	6,774	6,782	6,782	6,398	6,387
Final Effective Stress, σ'_f (kPa/psf)	6,765	6,737	6,747	7,123	7,118	7,108	7,125	7,125	6,760	6,750
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)	3,814	3,841	3,841	3,843	3,843	3,847	3,850	3,850	3,854	3,854
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Layer No. *25* **Zone2-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)	372.50	372.50	372.50	372.50	372.50	372.50	372.50	372.50	372.50	372.50
Initial Effective Stress, σ'_i (kPa /psf)	6,450	6,436	6,448	6,836	6,831	6,823	6,831	6,831	6,447	6,436
Final Effective Stress, σ'_f (kPa/psf)	6,814	6,786	6,797	7,174	7,169	7,158	7,175	7,175	6,810	6,802
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)	3,863	3,890	3,890	3,892	3,892	3,896	3,899	3,899	3,903	3,903
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.055	0.053	0.053	0.048	0.048	0.048	0.049	0.049	0.055	0.055
Secondary Settlement (m / ft)	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043
Total Settlement (m / ft)	0.098	0.096	0.095	0.091	0.091	0.091	0.092	0.092	0.098	0.098
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)	0.098	0.096	0.095	0.091	0.091	0.091	0.092	0.092	0.098	0.098

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

Layer No. *26* **Zone2-Below-GW-19**											
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)	367.50	367.50	367.50	367.50	367.50	367.50	367.50	367.50	367.50	367.50
Initial Effective Stress, σ'_i (kPa /psf)	6,548	6,534	6,546	6,934	6,929	6,921	6,929	6,929	6,545	6,534
Final Effective Stress, σ'_f (kPa/psf)	6,913	6,886	6,897	7,274	7,269	7,259	7,276	7,276	6,911	6,900
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)	3,961	3,988	3,988	3,990	3,990	3,994	3,997	3,997	4,001	4,001
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*	*0.460*
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	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.054	0.052	0.052	0.048	0.048	0.048	0.049	0.049	0.054	0.054
Secondary Settlement (m / ft)	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043
Total Settlement (m / ft)	0.097	0.095	0.095	0.091	0.091	0.090	0.092	0.092	0.097	0.097
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)	0.097	0.095	0.095	0.091	0.091	0.090	0.092	0.092	0.097	0.097
Layer No. *27* **Zone3-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)	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
Initial Effective Stress, σ'_i (kPa /psf)	6,597	6,583	6,595	6,983	6,978	6,970	6,978	6,978	6,594	6,583
Final Effective Stress, σ'_f (kPa/psf)	6,962	6,936	6,947	7,326	7,321	7,311	7,328	7,328	6,961	6,950
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)	4,010	4,037	4,037	4,039	4,039	4,043	4,046	4,046	4,050	4,050
Modified Primary Compression Index, $C_{c\varepsilon}$	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*	*0.380*
Modified Recompression Index, $C_{r\varepsilon}$	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*	*0.021*
Modified Secondary Compression Index, $C_{\alpha\varepsilon}$	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*	*0.70%*
ratio of t2 / t1	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*	*8.75*
Settlements										
Primary Settlement, (m / ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Written by: **Yiwen Cao** Date: **12/17/2009** Reviewed by: **R. Kulasingam/Jay Beech** Date: **12/17/2009**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **04**

	Layer No.	Material										
LAYER SETTLEMENT	1	*Cover*										
	2	*Dredge*										
	3	*Gravel*										
	4	*Clay*										
	5	*Dike*										
	6	*Zone2-Above-GW-1*	0.063	0.061	0.061	0.040	0.040	0.039	0.040	0.040	0.062	0.062
	7	*Zone2-Above-GW-2*	0.060	0.059	0.058	0.040	0.039	0.038	0.040	0.040	0.060	0.060
	8	*Zone2-Above-GW-3*	0.058	0.057	0.057	0.039	0.039	0.038	0.039	0.039	0.058	0.058
	9	*Zone2-Above-GW-4*	0.057	0.055	0.055	0.038	0.038	0.037	0.038	0.038	0.056	0.056
	10	*Zone2-Above-GW-5*	0.055	0.054	0.053	0.038	0.038	0.037	0.038	0.038	0.055	0.055
	11	*Zone2-Above-GW-6*	0.054	0.052	0.052	0.037	0.037	0.036	0.037	0.037	0.053	0.053
	12	*Zone2-Above-GW-7*	0.052	0.051	0.051	0.037	0.037	0.036	0.037	0.037	0.052	0.052
	13	*Zone2-Above-GW-8*	0.051	0.050	0.050	0.036	0.036	0.036	0.036	0.036	0.051	0.051
	14	*Zone2-Above-GW-9*	0.050	0.049	0.048	0.036	0.036	0.035	0.036	0.036	0.050	0.050
	15	*Zone2-Above-GW-10*	0.049	0.048	0.047	0.035	0.035	0.035	0.036	0.036	0.049	0.049
	16	*Zone2-Above-GW-11*	0.048	0.047	0.047	0.035	0.035	0.034	0.035	0.035	0.048	0.048
	17	*Zone2-Above-GW-12*	0.047	0.046	0.046	0.034	0.034	0.034	0.035	0.035	0.047	0.047
	18	*Zone2-Above-GW-13*	0.046	0.045	0.045	0.034	0.034	0.034	0.034	0.034	0.046	0.046
	19	*Zone2-Above-GW-14*	0.045	0.044	0.044	0.034	0.034	0.033	0.034	0.034	0.045	0.045
	20	*Zone2-Above-GW-15*	0.044	0.044	0.043	0.033	0.033	0.033	0.034	0.034	0.045	0.045
	21	*Zone2-Above-GW-16*	0.043	0.043	0.043	0.033	0.033	0.033	0.033	0.033	0.044	0.044
	22	*Zone2-Above-GW-17*	0.043	0.042	0.042	0.033	0.033	0.032	0.033	0.033	0.043	0.043
	23	*Zone3-Above-GW-1*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	24	*Zone3-Above-GW-2*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	25	*Zone2-Below-GW-18*	0.098	0.096	0.095	0.091	0.091	0.091	0.092	0.092	0.098	0.098
	26	*Zone2-Below-GW-19*	0.097	0.095	0.095	0.091	0.091	0.090	0.092	0.092	0.097	0.097
	27	*Zone3-Below-GW-3*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	28											
	29	*Soil Above GW*										
	30	*Soil Below GW*										
		TOTAL SETTLEMENT	**1.06**	**1.04**	**1.03**	**0.79**	**0.79**	**0.78**	**0.80**	**0.80**	**1.06**	**1.06**
POST-SETTLEMENT ELEVATION (M/FT)	Line	1	Top of Final Cover	449.94	450.02	450.03	450.31	450.31	450.28	450.23	450.23	449.95	449.95
	Line	2	Top of Dredge	446.70	446.72	446.82	448.15	448.09	448.05	448.12	448.12	446.83	446.75
	Line	3	Top of Gravel	419.27	419.29	419.39	420.73	420.66	420.62	420.70	420.70	419.40	419.32
	Line	4	Top of Clay	412.95	412.78	412.88	406.34	406.15	406.11	406.19	406.31	412.89	412.81
	Line	5	Top of Dike	410.71	411.10	411.08	404.57	404.50	404.55	404.62	404.62	411.21	411.24
	Line	6	Top of Subgrade	410.71	411.10	411.08	404.57	404.50	404.55	404.62	404.62	411.21	411.24
	Line	7		408.61	408.98	408.96	402.82	402.76	402.80	402.87	402.87	409.08	409.11
	Line	8		406.51	406.85	406.83	401.07	401.01	401.06	401.12	401.12	406.95	406.97
	Line	9		404.41	404.73	404.70	399.33	399.27	399.31	399.37	399.37	404.82	404.84
	Line	10		402.30	402.60	402.58	397.58	397.53	397.56	397.62	397.62	402.68	402.70
	Line	11		400.19	400.47	400.45	395.83	395.78	395.82	395.87	395.87	400.54	400.56
	Line	12		398.08	398.33	398.32	394.08	394.04	394.07	394.12	394.12	398.40	398.42
	Line	13		395.97	396.20	396.18	392.33	392.29	392.32	392.36	392.36	396.26	396.28
	Line	14		393.86	394.06	394.05	390.58	390.55	390.57	390.61	390.61	394.12	394.13
	Line	15		391.75	391.93	391.92	388.83	388.80	388.82	388.86	388.86	391.98	391.99
	Line	16		389.63	389.79	389.78	387.08	387.05	387.07	387.10	387.10	389.83	389.84
	Line	17		387.52	387.65	387.64	385.33	385.31	385.32	385.35	385.35	387.69	387.70
	Line	18		385.40	385.51	385.51	383.58	383.56	383.57	383.59	383.59	385.54	385.55
	Line	19		383.28	383.37	383.37	381.83	381.81	381.82	381.84	381.84	383.40	383.40
	Line	20		381.16	381.23	381.23	380.08	380.06	380.07	380.08	380.08	381.25	381.25
	Line	21		379.05	379.09	379.09	378.32	378.32	378.32	378.33	378.33	379.10	379.11
	Line	22		376.93	376.95	376.95	376.57	376.57	376.57	376.57	376.57	376.95	376.96
	Line	23	Bottom of Zone2 Above GW	374.81	374.81	374.81	374.82	374.82	374.82	374.82	374.82	374.81	374.80
	Line	24		374.81	374.81	374.81	374.82	374.82	374.82	374.82	374.82	374.81	374.80
	Line	25	Bottom of Zone 3 Above GW	374.81	374.81	374.81	374.82	374.82	374.82	374.82	374.82	374.81	374.80
	Line	26		369.90	369.90	369.90	369.91	369.91	369.91	369.91	369.91	369.90	369.90
	Line	27	Bottom of Zone 2 Below GW	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
	Line	28	Top of Incompressible Layer	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
	Line	29	GND										
	Line	30	GW										
	Line	31	ROCK										

Addendum to Appendix H

GEOSYNTEC CONSULTANTS

COMPUTATION COVER SHEET

Client: Honeywell **Project:** Onondaga Lake SCA Design **Project/Proposal #:** GJ4299 **Task #:** 23

TITLE OF COMPUTATIONS **ADDENDUM TO APPENDIX H: "SETTLEMENT ANALYSES FOR SCA"**

COMPUTATIONS BY:
Signature: Joseph M Sura — DATE: 4/19/2011
Printed Name and Title: Joseph Sura, Senior Staff Engineer

ASSUMPTIONS AND PROCEDURES CHECKED BY:
(Peer Reviewer)
Signature: R. Kulasingam — DATE: 4/19/2011
Printed Name and Title: R. Kulasingam, Senior Engineer

COMPUTATIONS CHECKED BY:
Signature: for — DATE: 4/19/2011
Printed Name and Title: Fan Zhu, Senior Staff Engineer

COMPUTATIONS BACKCHECKED BY:
(Originator)
Signature: Joseph M Sura — DATE: 4/19/2011
Printed Name and Title: Joseph Sura, Senior Staff Engineer

APPROVED BY:
(PM or Designate)
Signature: — DATE: 20 APR 2011
Printed Name and Title: Jay Beech, Principal

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

APPROVAL NOTES:

REVISIONS (Number and initial all revisions)

NO.	SHEET	DATE	BY	CHECKED BY	APPROVAL

Written by:	Joseph Sura	Date:	6/21/2010	Reviewed by:	R. Kulasingam/Jay Beech	Date:	6/22/2010
Client:	Honeywell	Project:	Onondaga Lake SCA Final Design	Project/ Proposal No.:	GJ4299	Task No.:	23

ADDENDUM TO APPENDIX H: "SETTLEMENT ANALYSES FOR SCA"

PURPOSE

The purpose of this addendum is to present the results of additional settlement analyses performed for the Sediment Consolidation Area (SCA). The proposed sump depth was shortened from 8 ft to 5 ft after the analyses presented in the package titled "Appendix H: Settlement Analyses for SCA" of the SCA Final Design (hereafter referred to as the "Settlement Package") were completed. The settlement analysis results for the grading plan with the revised sumps are presented in this addendum.

The settlement analyses presented in this addendum use the same methodology, subsurface stratigraphy and material properties as described in the Settlement Package, with the exception of the minor grading change for the sumps. Discussions of the geotextile tube (geo-tube) loading, final cover grading plan and analysis cases were presented in the Settlement Package. The above-mentioned information is not repeated in this addendum.

The analyses presented in this addendum use the Cross-Section Settlement Model (CSM) discussed in the Settlement Package. It is noted that because the minor grading change in the sump covers a relatively small area compared to the full SCA footprint of approximately 70 acres, the Surface Settlement Model (SSM) is not expected to change noticeably. Therefore, analysis Cases 1 through 4 from the Settlement Package have not been updated as part of this addendum. It is also noted that analysis Case 6 only considers settlement within the dredged material and therefore is not expected to be affected by the sump revisions and is not included in this addendum. Analysis Cases 5 and 7 are presented in this addendum for the 5-ft deep sump. Figure 1 shows the location of the selected Cross Sections (A and B).

ANALYSIS RESULTS

Case 5

The pre- vs. post- foundation settlement profiles at the end of year 4 along Cross Section A are shown in Figure 2 as an overall view and in Figures 3 and 4 as zoom-in view for the left and right berms and sumps, respectively. According to Figure 2, at the end of year 4, the majority of the settlement for the top of LPSL ranged from 8 ft to 10 ft in the top deck area except above the subsurface berm area where the settlement was about 6 ft. There is generally no post-settlement liner tensile strain (negative value) underneath the top deck area except in a few localized areas

with maximum tensile strain on the order of 0.5%. According to Figures 3 and 4, at the end of year 4, the post-settlement liner tensile strain values range from 0.1% to 0.6% in areas directly underneath the sideslope area, and inside the top deck area. The settlements calculated at the toe of the dike are on the order of 1.1 ft and 0.7 ft for the left (west) and right (east) berms, respectively. Also according to Figures 3 and 4, at the end of year 4, the predicted post-settlement slopes along the top of LPSL will remain positive toward the left (west) and right (east) sumps without grade reversal or local ponding. No post-settlement liner tensile strains (negative values) are observed in either the sump areas or the surrounding areas. It is noted that the calculated results are similar to the calculated results from the Settlement Package with the previous sump grading, as expected.

The pre- vs. post- foundation settlement profiles at the end of year 4 along Cross Section B are shown in Figure 5 as an overall view and in Figures 6 and 7 as zoom-in view for the left and right berms, respectively. According to Figure 5, at the end of year 4, the majority of the settlement for the top of LPSL ranged from 8 ft to 11 ft in the top deck area. There is generally no post-settlement liner tensile strain (negative value) in the top deck areas. According to Figures 6 and 7, at the end of year 4, the post-settlement liner tensile strain values range from 0.1% to 0.4% in the sideslope areas. The settlements calculated at the toe of the dike are on the order of 0.9 ft and 0.1 ft for the left (north) and right (south) berms, respectively. According to Figure 5, at the end of year 4, the post-settlement slopes along the top of LPSL (i.e., flow line) remain positive toward the left (west) sump without grade reversal or local ponding. No post-settlement liner tensile strains (negative values) are observed in the left sump area and the surrounding area. It is noted that the calculated results are similar to the calculated results from the Settlement Package with the previous sump grading, as expected.

Case 7

The pre- (i.e., at the end of year 4) vs. post- (i.e., at the end of year 35) foundation settlement profiles along Cross Section A are shown in Figure 8 as an overall view and in Figures 9 and 10 as zoom-in views for the left and right berms and sumps, respectively. According to Figure 8, at the end of year 35 as compared to the end of year 4, the majority of the settlements for the top of LPSL ranged from 1 ft to 1.5 ft in the top deck area except in the area above the subsurface berm where the settlement was about 0.5 ft. According to Figures 3, 4, 9, and 10, at the end of year 35, the post-settlement liner tensile strain values (adjusted) range from 0.1% to 2.2% in areas directly underneath the cover sideslope area. The maximum adjusted 2.2% tensile strain is the sum of the liner tensile strain of 0.1% at approximate distance 1,790 ft at the end of year 4 (Figure 4) and the additional liner tensile strain of 2.1% at the same location

at the end of year 35 (Figure 10). The maximum 2.2% liner tensile strains occurred along the inner side of the dike. According to Figure 8, at the end of year 35, the predicted post-settlement slopes along the top of LPSL will remain positive toward the left (west) and right (east) sumps without grade reversal or local ponding. No post-settlement liner tensile strains (negative values) are observed in either the sump areas or the surrounding areas. It is noted that the calculated results are similar to the calculated results from the Settlement Package with the previous sump grading, as expected.

The pre- (i.e., at the end of year 4) vs. post- (i.e., at the end of year 35) foundation settlement profiles along Cross Section B are shown in Figure 11 as an overall view and in Figures 12 and 13 as zoom-in view for the left and right berms, respectively. According to Figure 11, at the end of year 35 as compared to the end of year 4, the majority of the settlements for the top of LPSL ranged from 1 ft to 1.5 ft in the top deck area. According to Figures 6, 7, 12 and 13, at the end of year 35, the post-settlement liner tensile strain values (adjusted) range from 0.1% to 1.0% in areas directly underneath the cover sideslope area. The maximum adjusted 1.0% tensile strain is the sum of the liner compressive strain of 0.9% at approximate distance 210 ft at the end of year 4 (Figure 6) and the additional liner tensile strain of 1.9% at the same location at the end of year 35 (Figure 12). The maximum liner tensile strains occurred along the inner side of the dike. According to Figure 11, at the end of year 35, the post-settlement slopes along the top of LPSL (i.e., flow line) remain positive toward the left (west) sumps without grade reversal or local ponding. No post-settlement liner tensile strains (negative values) are observed in the left sump area and the surrounding area. It is noted that the calculated results are similar to the calculated results from the Settlement Package with the previous sump grading, as expected.

Comparison with Settlement Package

As mentioned before, the difference between the analyses presented herein and the analyses presented in the Settlement Package is the shallower sump. Therefore, it is expected that the calculated settlements would not change significantly in areas away from the sumps. Figure 14 shows a comparison of the calculated post-settlement grading along Cross Section A at the end of year 35 from the analyses in the Settlement Package and the analyses presented herein. It is noted that near the sump, the shallower sump results in a noticeable change in the post-settlement elevations, however, this effect disappears in locations away from the sump.

CONCLUSIONS

The analyses provided herein indicate that the revisions to the sump result in anticipated foundation and cover settlements similar to those previously presented in the Settlement Package. The conclusions presented in the Settlement Package, which were made based on analysis results from both the SSM and CSM are not changed due to the minor grade revisions in the sump. As previously discussed in the Settlement Package, the sumps are anticipated to function properly by maintaining positive drainage during closure and post-closure periods.

Figures

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

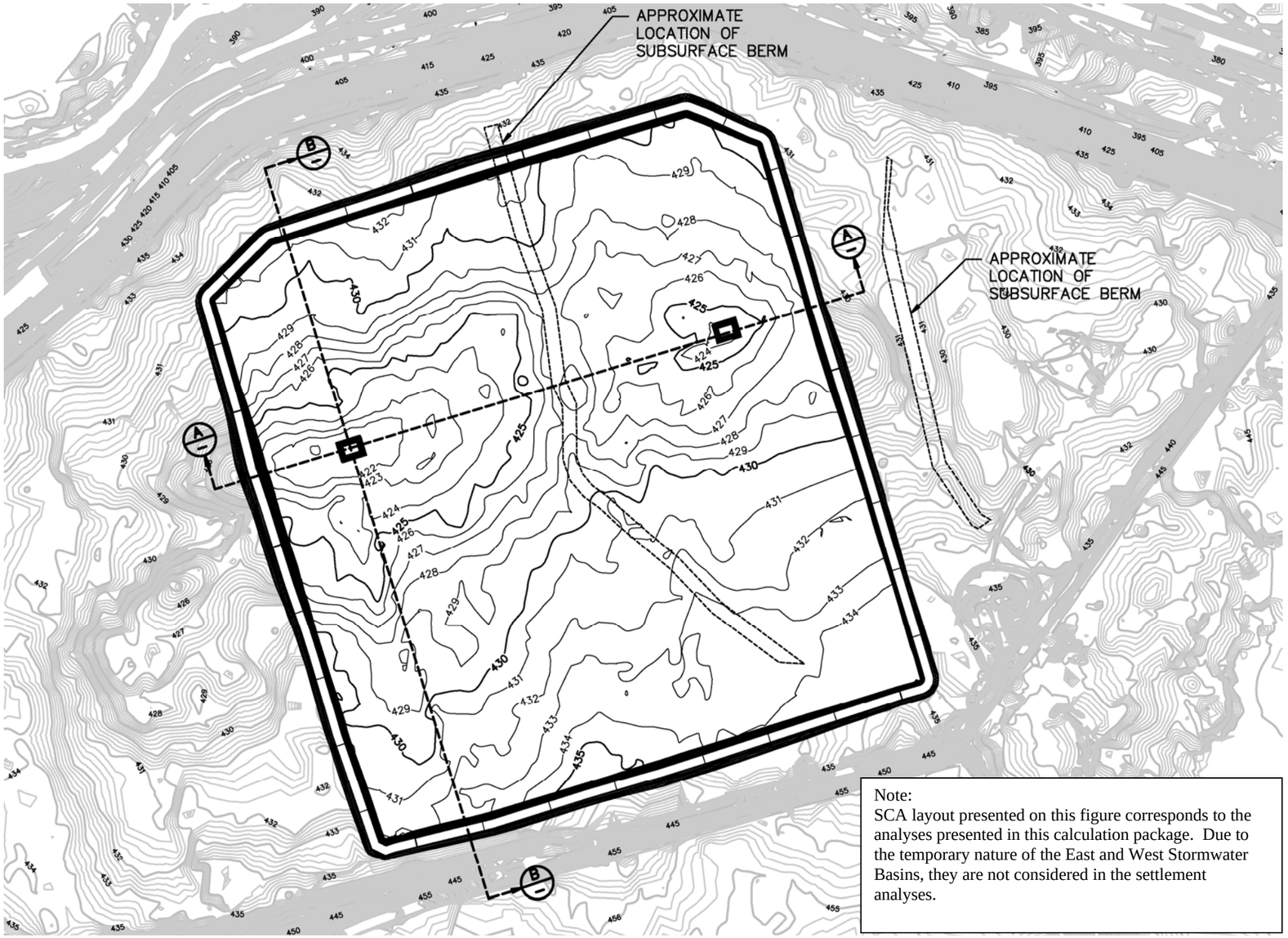


Figure 1. Location of SCA Cell

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR4

NOTE:
The compressibility of dredge materials in geo-tubes was not considered in the foundation settlement analysis because they are considered as load. Please see Case 6 of the Settlement Package for calculated top of dredge post-settlement elevations.

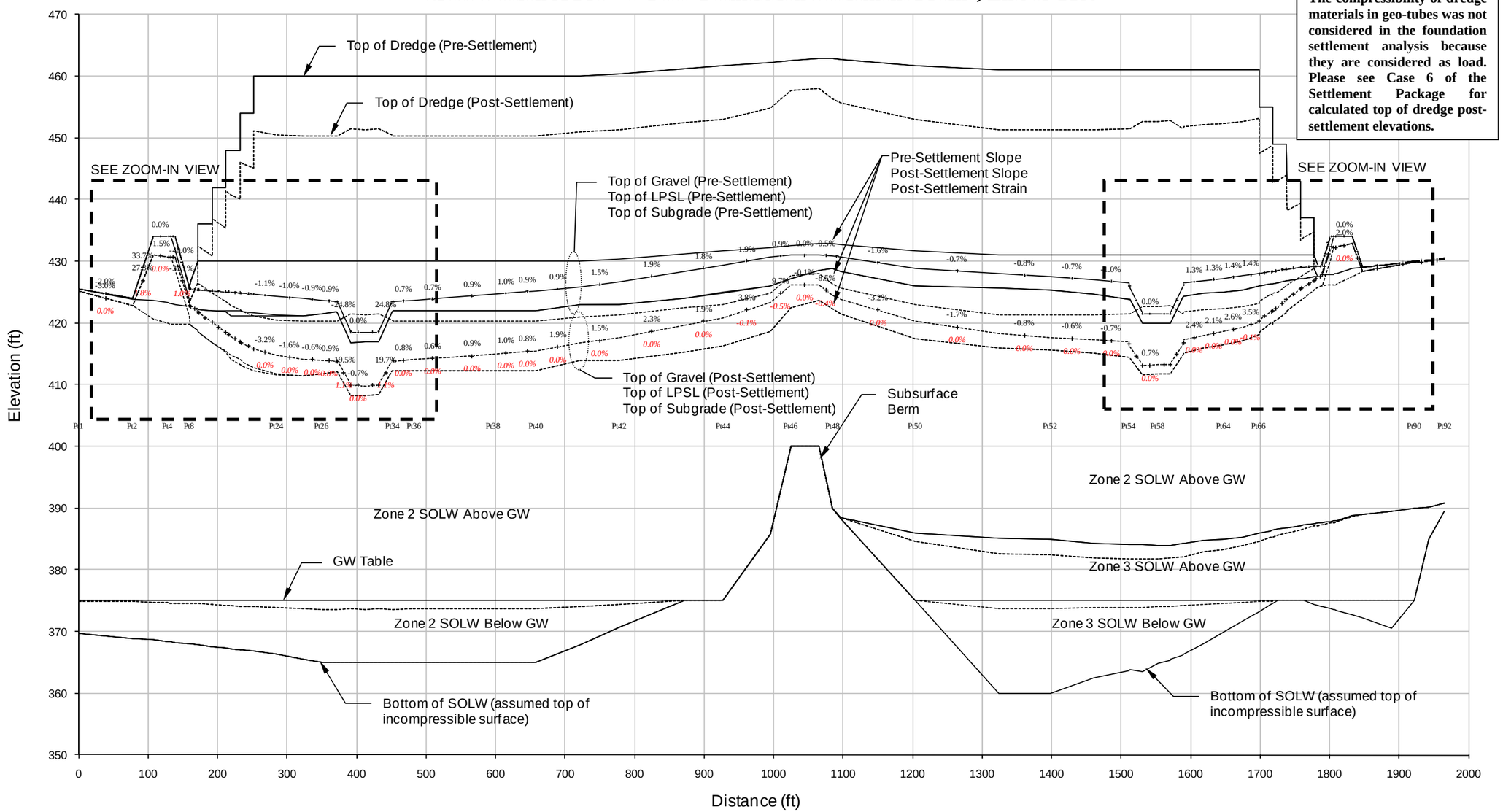


Figure 2. CASE 5: Foundation Settlement Analysis Result for Cross Section A (Overall View)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR4

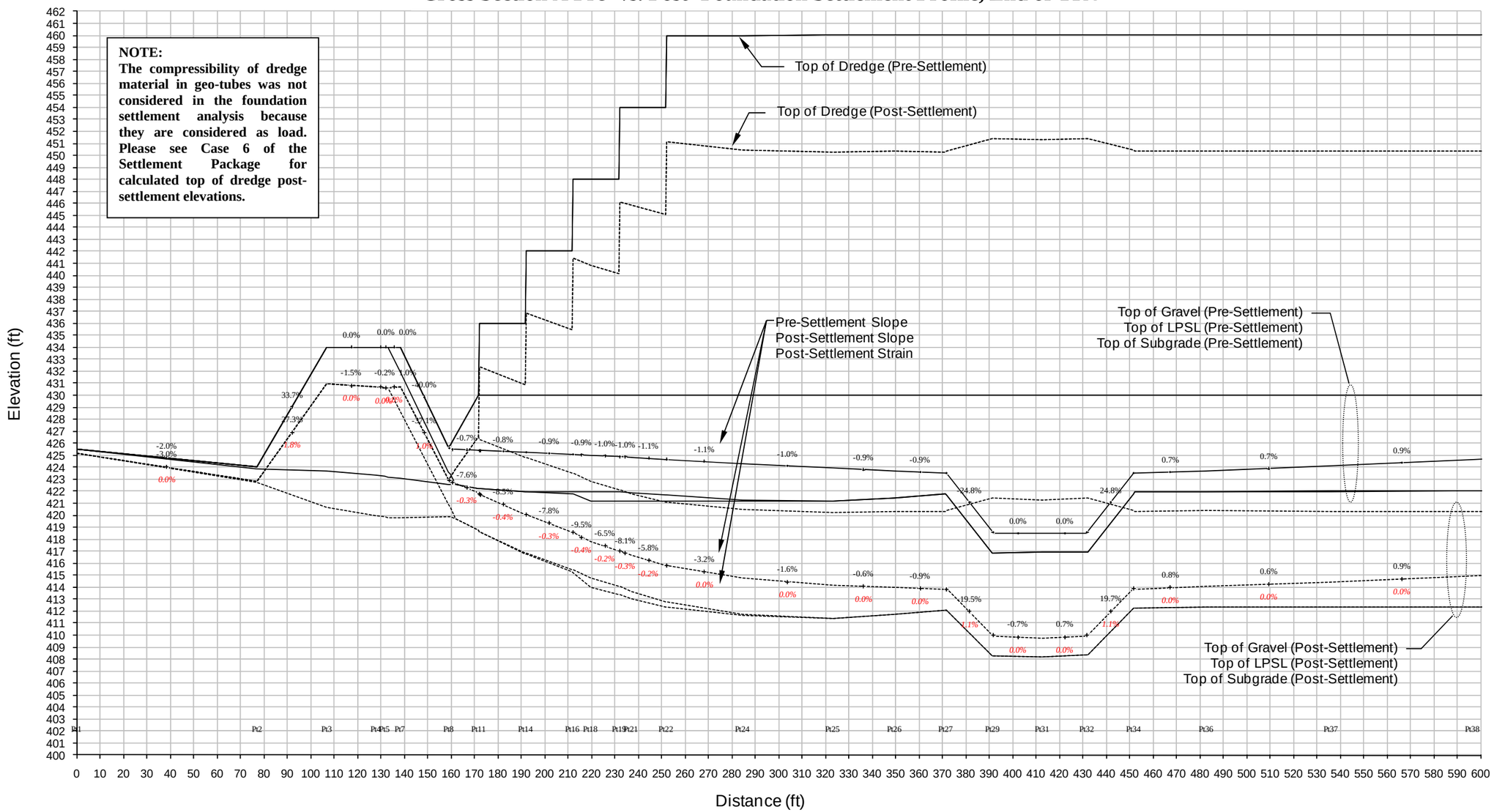


Figure 3. CASE 5: Foundation Settlement Analysis Result for Cross Section A (Zoom-in View, Left Berm and Sump)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR4

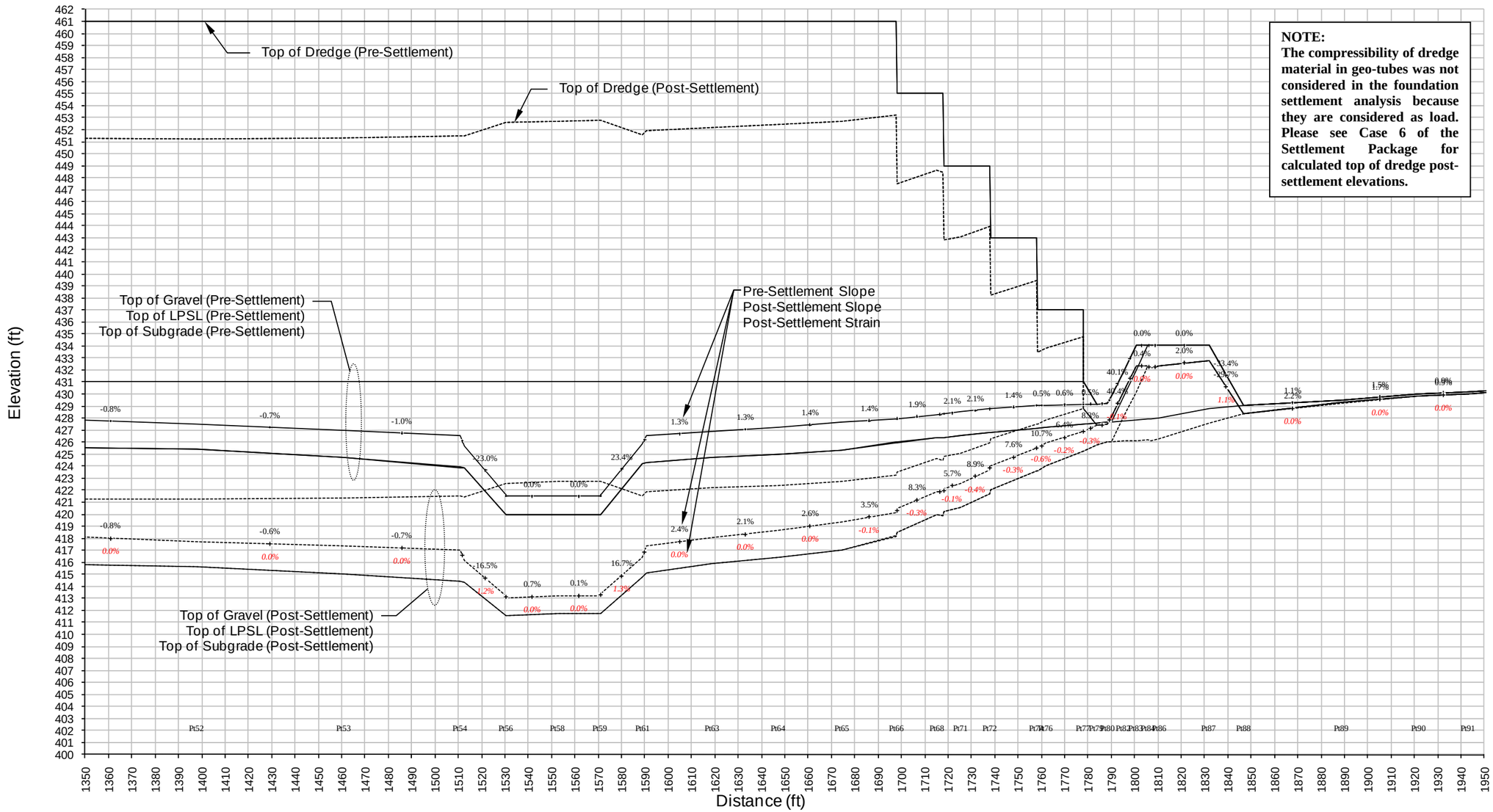


Figure 4. CASE 5: Foundation Settlement Analysis Result for Cross Section A (Zoom-in View, Right Berm and Sump)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR4

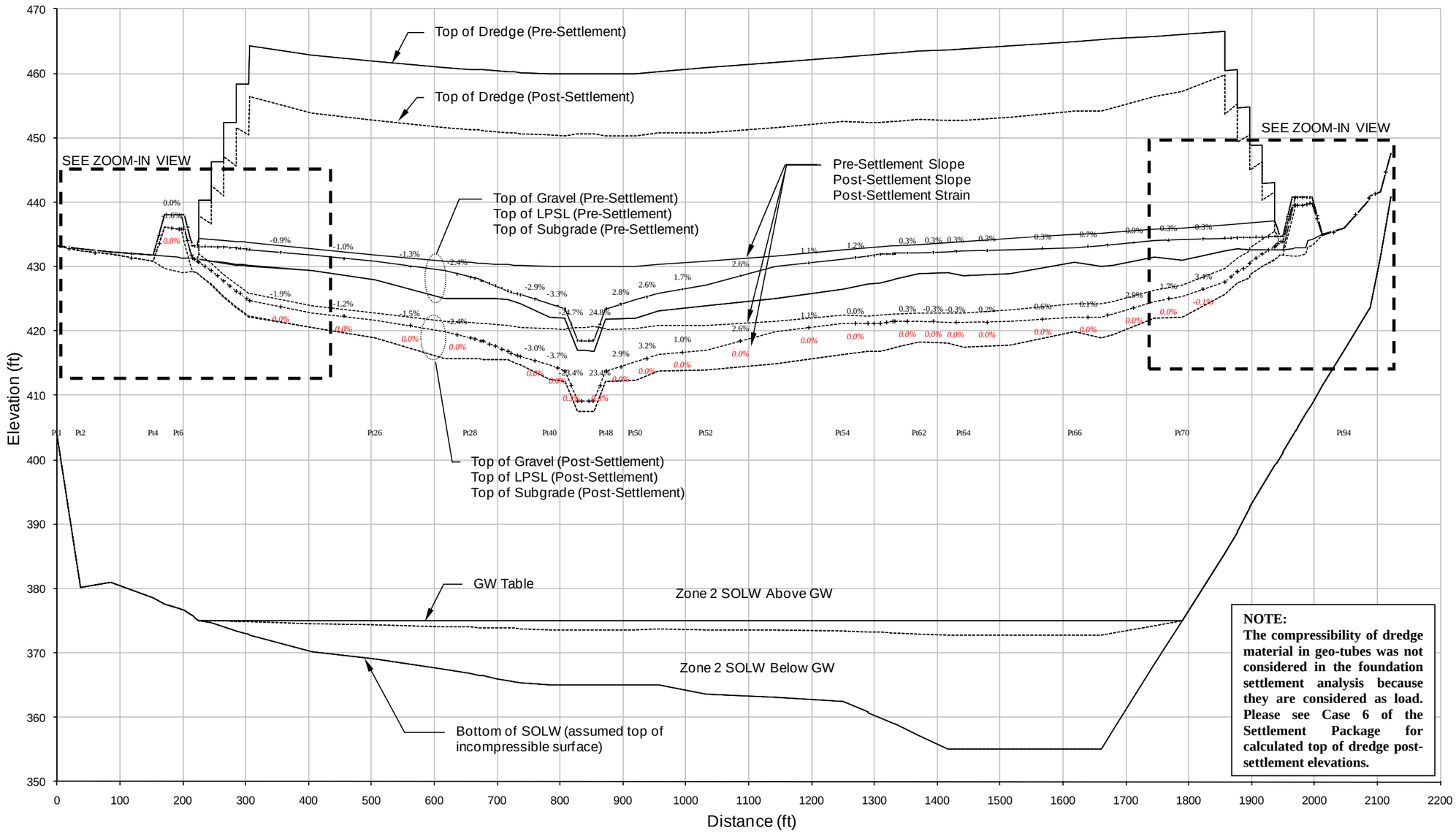


Figure 5. CASE 5: Foundation Settlement Analysis Result for Cross Section B (Overall View)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR4

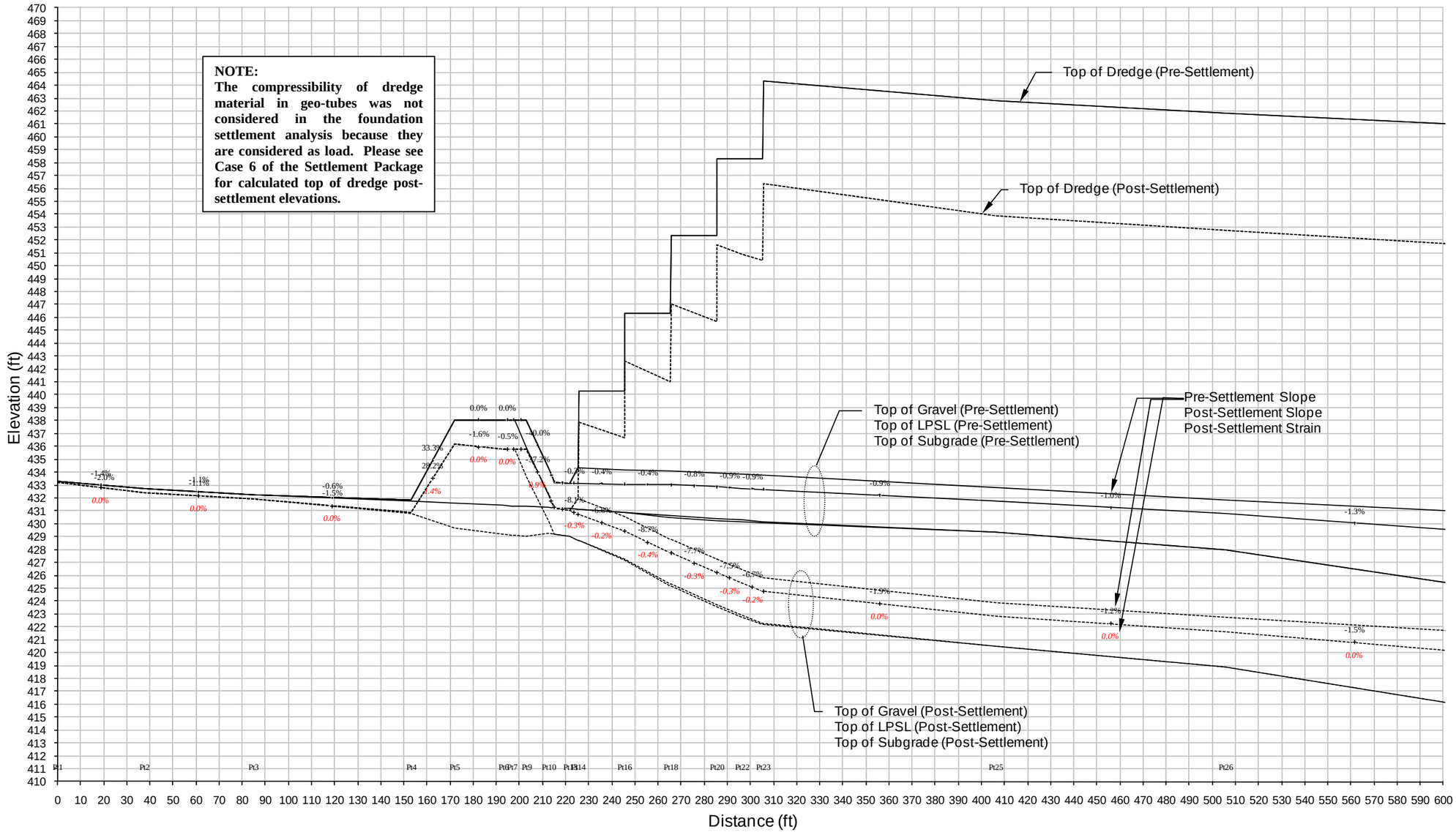
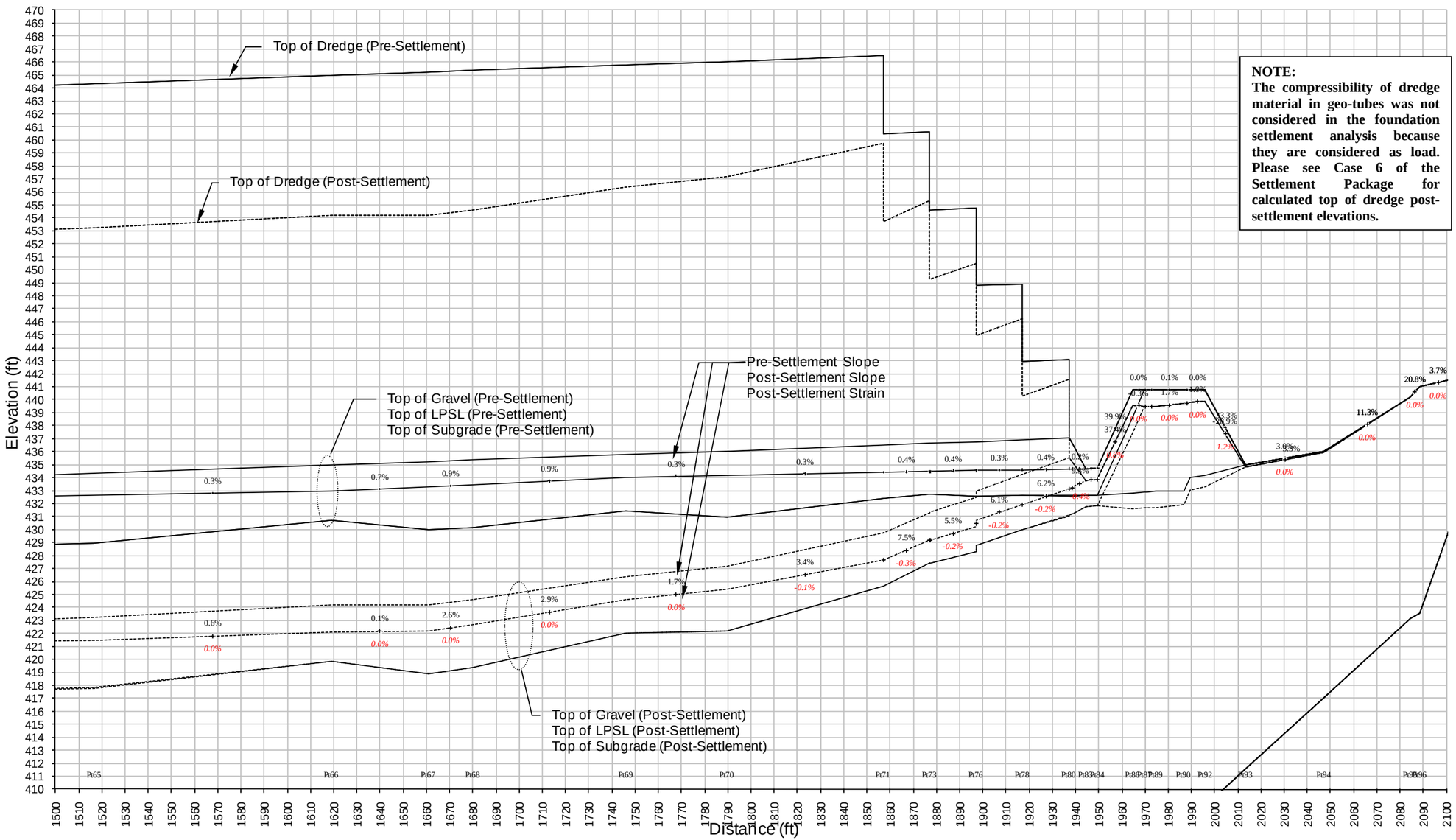


Figure 6. CASE 5: Foundation Settlement Analysis Result for Cross Section B (Zoom-in View, Left Berm)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR4



NOTE:
The compressibility of dredge material in geo-tubes was not considered in the foundation settlement analysis because they are considered as load. Please see Case 6 of the Settlement Package for calculated top of dredge post-settlement elevations.

Figure 7. CASE 5: Foundation Settlement Analysis Result for Cross Section B (Zoom-in View, Right Berm)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR35

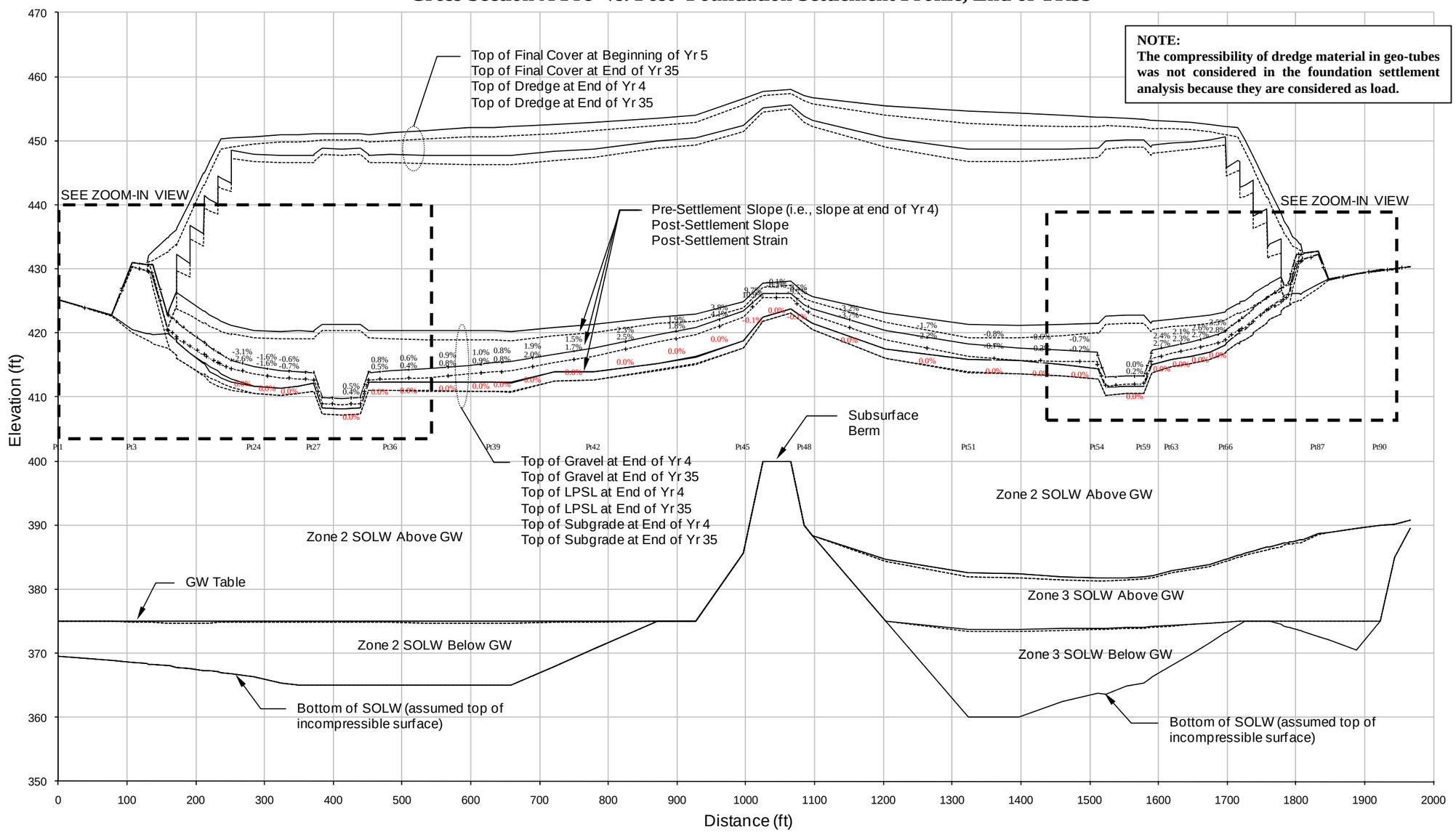


Figure 8. CASE 7: Foundation Settlement Analysis Result for Cross Section A (Overall View)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR35

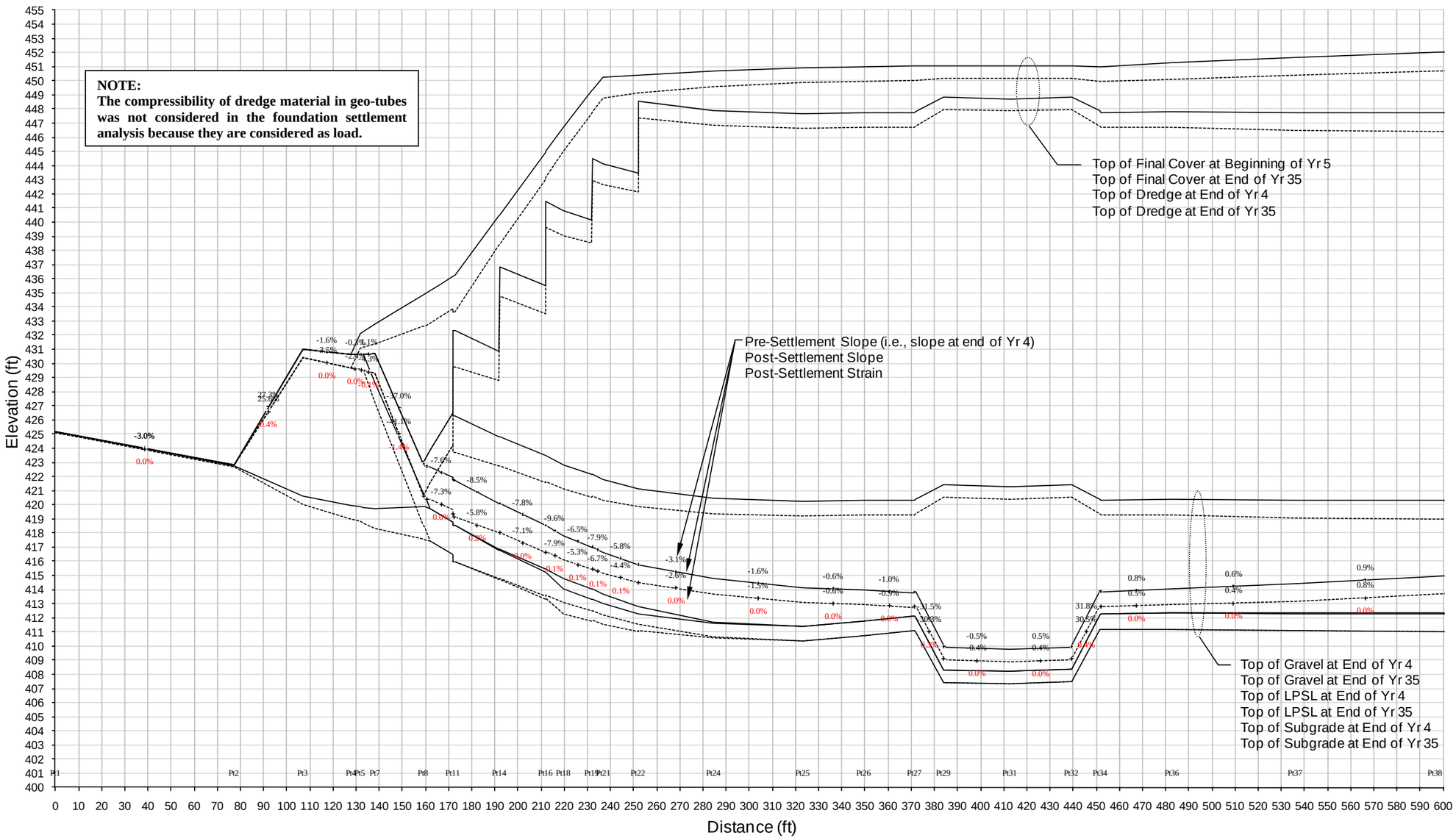


Figure 9. CASE 7: Foundation Settlement Analysis Result for Cross Section A (Left Berm and Sump)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section A Pre- vs. Post- Foundation Settlement Profile, End of YR35

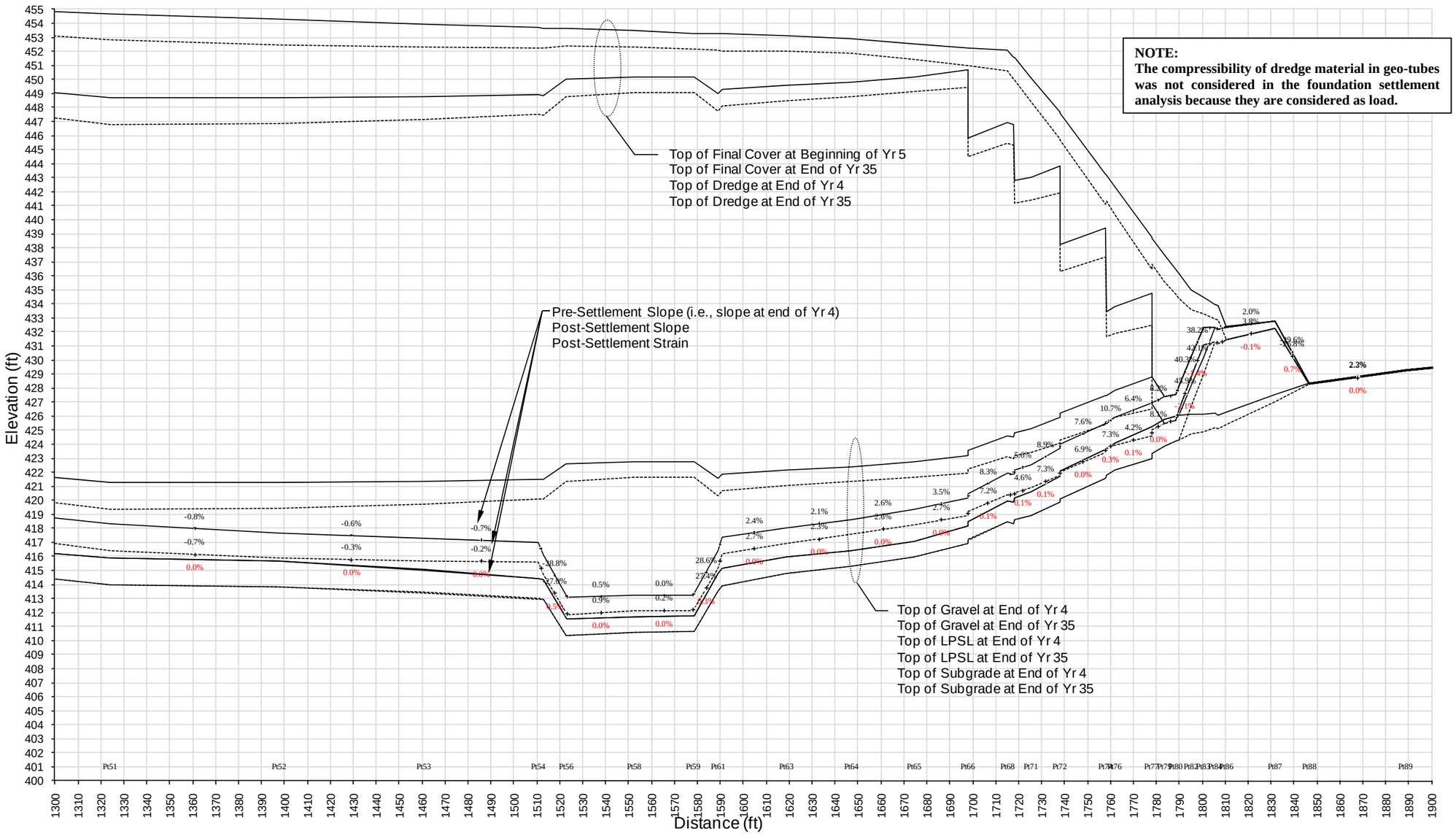


Figure 10. CASE 7: Foundation Settlement Analysis Result for Cross Section A (Right Berm and Sump)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR35

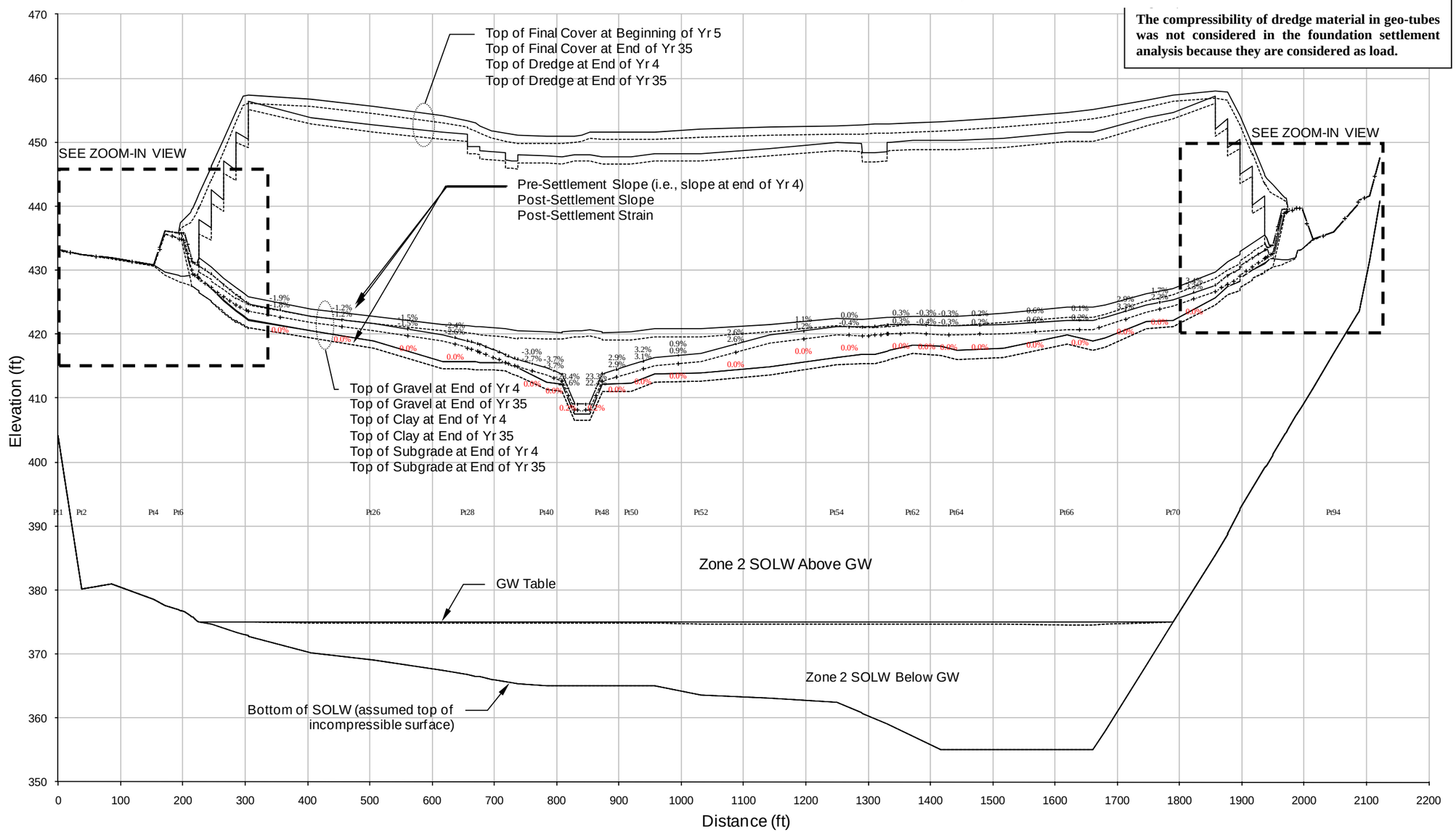


Figure 11. CASE 7: Foundation Settlement Analysis Result for Cross Section B (Overall View)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR35

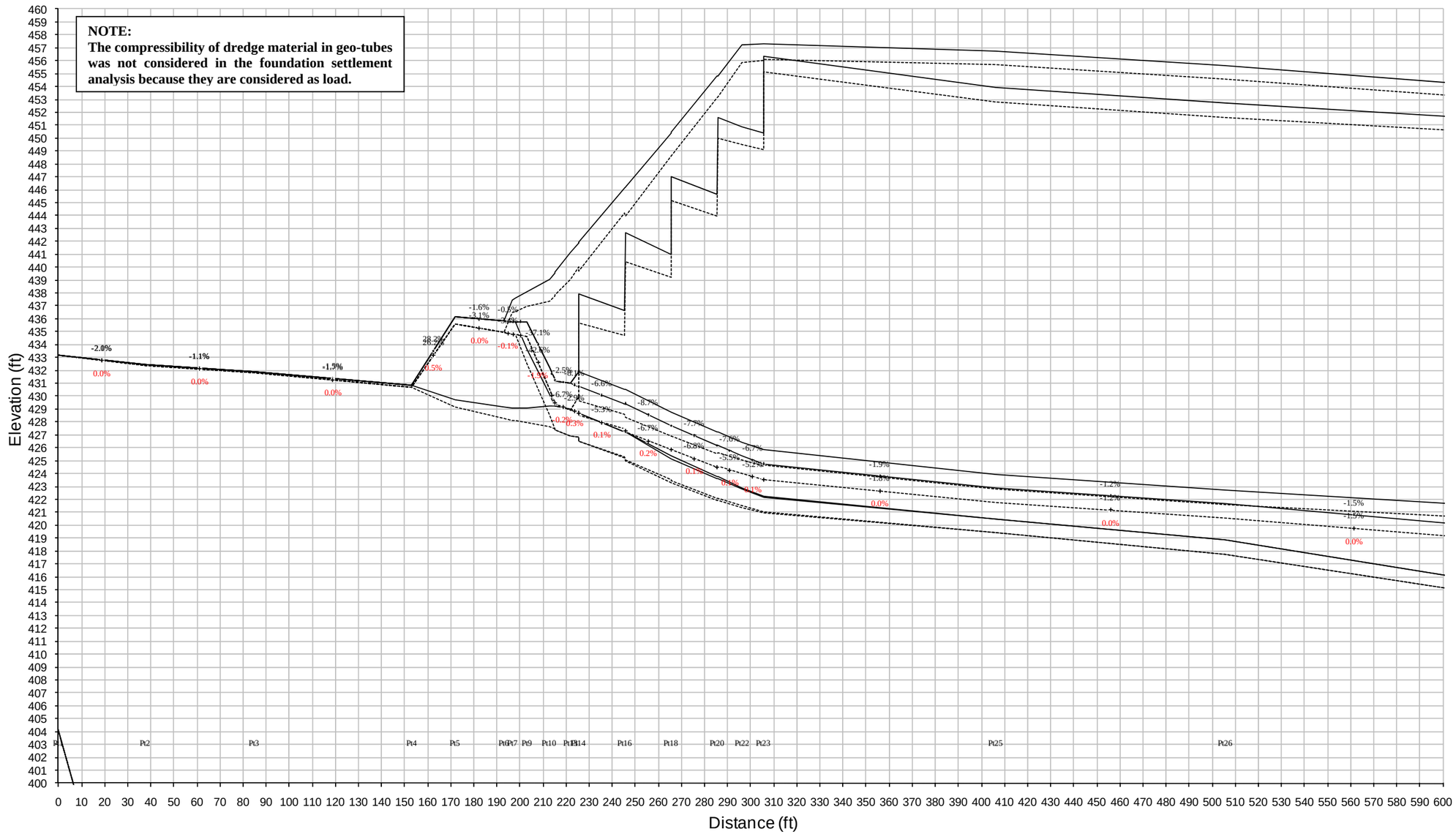


Figure 12. CASE 7: Foundation Settlement Analysis Result for Cross Section B (Left Berm)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Cross Section B Pre- vs. Post- Foundation Settlement Profile, End of YR35

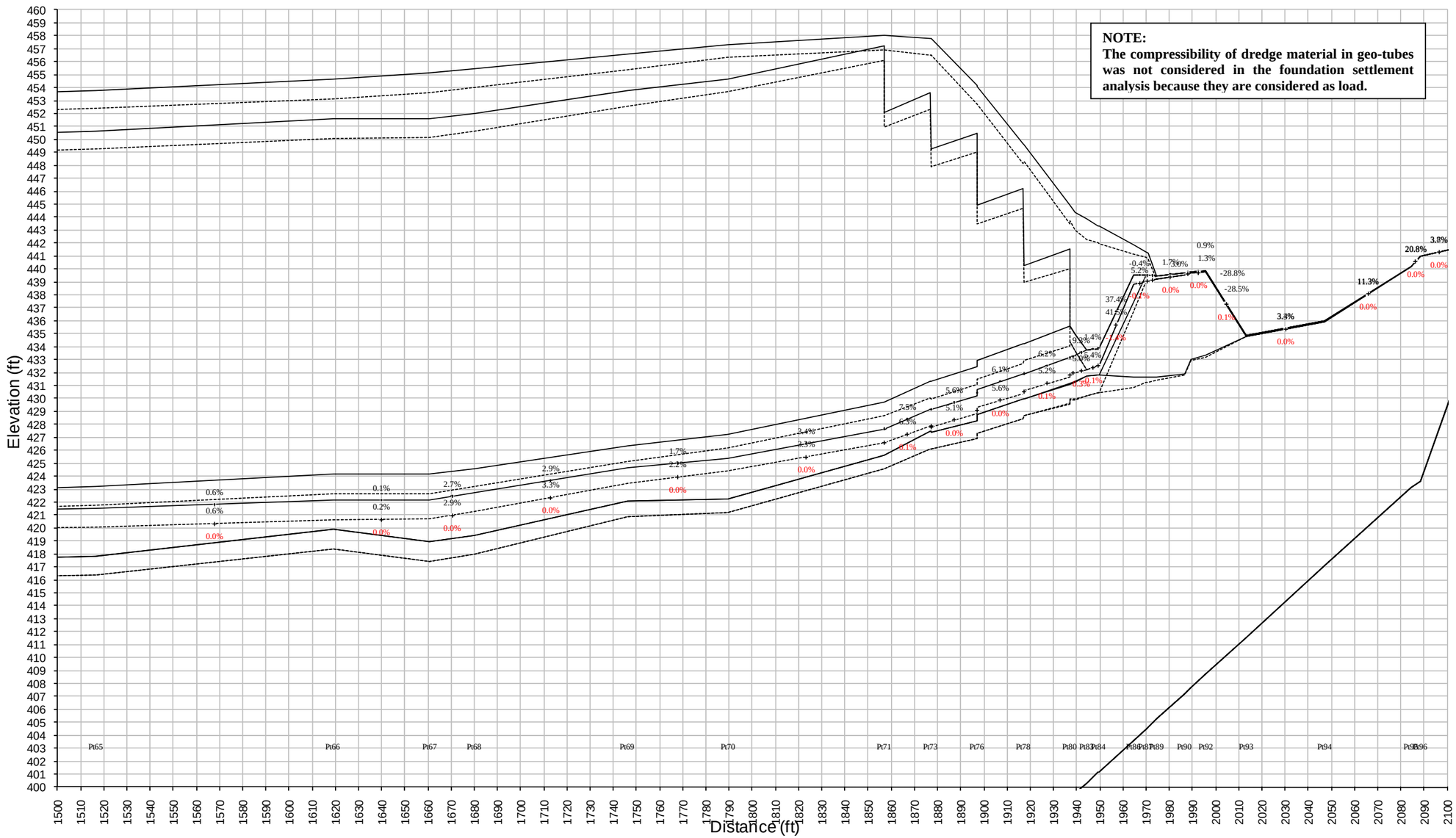


Figure 13. CASE 7: Foundation Settlement Analysis Result for Cross Section B (Right Berm)

Written by: **Joseph Sura** Date: **6/21/2010** Reviewed by: **R. Kulasingam/Jay Beech** Date: **6/22/2010**

Client: **Honeywell** Project: **Onondaga Lake SCA Final Design** Project/ Proposal No.: **GJ4299** Task No.: **23**

Comparison of Post-Settlement Grading for Cross-Section A

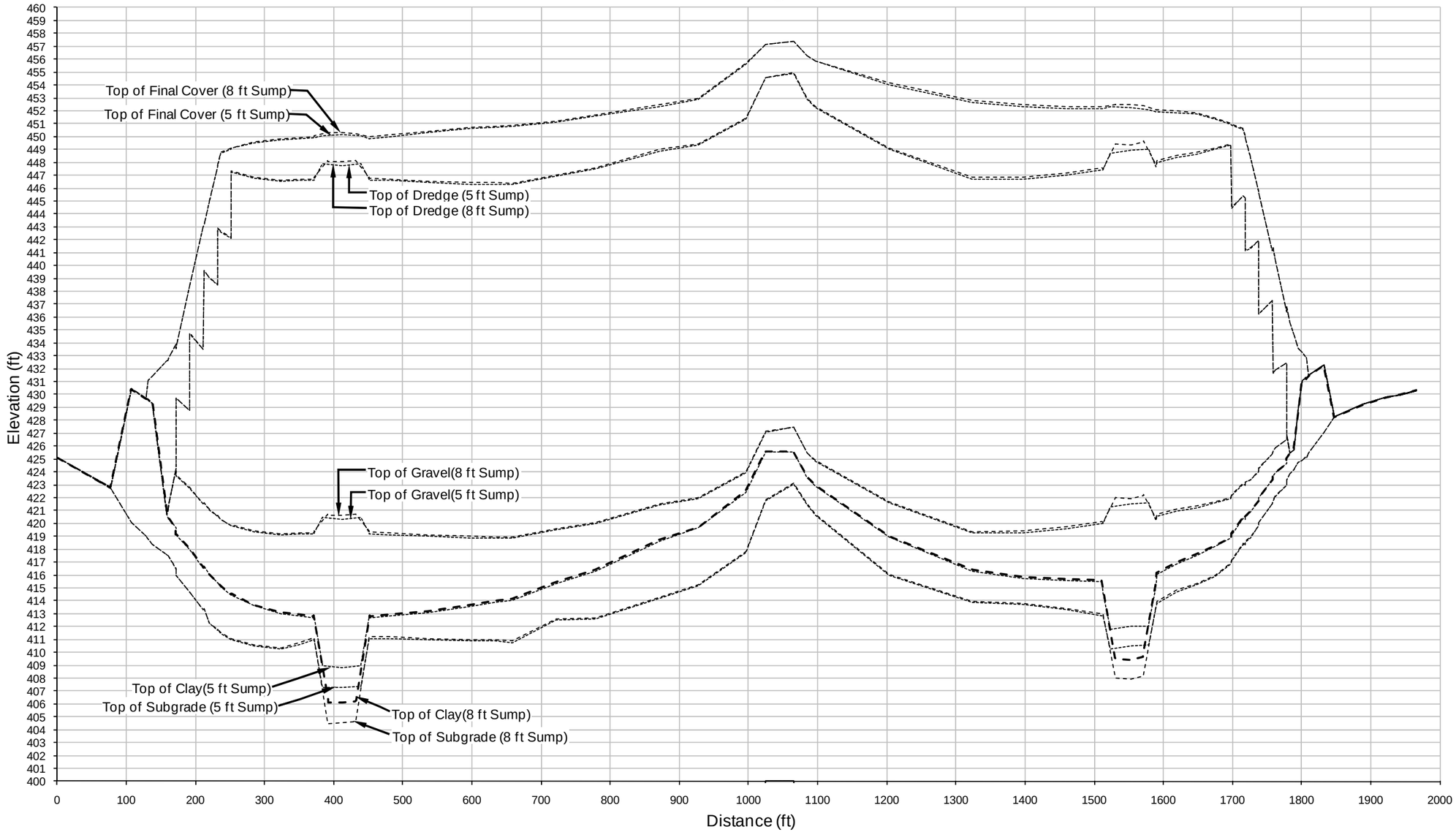


Figure 14. Comparison Between CSM (revised sumps) and CSM (previous sumps) for Cross Section A
Note: Grading shown in this figure is post-settlement