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8/4/2014

Water Quality Technical Report – August 2014

Tomoka Farms Road Landfill, Volusia County

Facility SW WACS No. 27540

FDEP Permit Number: 0078767-030-SO-01

Prepared for:

Volusia County Division of Solid Waste Management
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Submitted To:

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1.0 INTRODUCTION

HDR, Inc. prepared this technical water quality monitoring report for the Tomoka Farms Road Landfill (TFRLF) on behalf of Volusia County (County) located in Volusia County, Florida in accordance with Florida Department of Environmental Protection (FDEP) Permit (No. SF64-0078767-030-SO-01) and the Florida Administrative Code (FAC) (Chapter 62-701.510(8)(b)). The Tomoka Farms Landfill is operated under the following FDEP permit numbers:

- The North Class I Landfill cell operates under FDEP permit no. SO64-0078767-030-SO-1, now modification no. 0078767-320-SO-MM.
- The Class III Landfill cell operates under FDEP permit no. SO64-0078767-026.
- The closed South Class I cell is being monitored under closure permit no. SF64-0078767-028.

Specific conditions of the permit (SO64-0078767-030-SO-1) require that a Monitoring Plan Implementation Schedule (MPIS) technical report “be submitted to the FDEP by the Permittee at the time of application for renewal of the Class III permit (SO64-0078767-026 by August 10, 2014. A site map is located as Figure 1 in Appendix A. The following lists the specific data and information included in this report.

The MPIS technical report provides a summary and interpretation of the water level and chemical data from monitoring events performed at the site during routine semiannual compliance monitoring from May 2012 through May 2014 (technical reporting period):

- May 2012
- November 2012
- May 2013
- November 2013
- May 2014

This technical report includes groundwater and surface water monitoring data from 54 groundwater wells and 7 surface water sites listed in Attachment A of the MPIS (Permit No. SO64-0078767-030-SO-1). The semiannual groundwater monitoring included those parameters listed in item 7 of the MPIS and the surface monitoring parameters included those listed in item 12 of the MPIS.

Additionally six compliance monitoring wells in Zone 1-2 (including B45-2 and B64) and Zone 4 (including B1-B, B41-1, B43-1, B45-1) were monitored quarterly for the parameters listed in 40 CFR Part 258 Appendix II from 2012 to 2014, were also included in the report.

These six wells were part of the approved quarterly evaluation monitoring. This technical report is completed in accordance with the requirements provided in the MPIS:

- Tabular displays of any data which shows that a monitoring parameter has been detected, and graphical displays of any leachate key indicator parameters detected (such as pH, specific conductance, TDS, TOC, sulfate, chloride, sodium, and iron);
- Hydrographs for all permitted monitoring wells;
- Trend analyses of any monitoring parameters consistently detected;
- A comparison among shallow, middle, and deep zone wells;
- Comparison between background water quality and water quality in detection and compliance wells;
- Correlation between related parameters such as total dissolved solids and specific conductance;
- Discussion of erratic and/or poorly correlated data;
- An interpretation of the groundwater contour maps, including an evaluation of groundwater flow rates;
- An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions;

2.0 HYDROGEOLOGIC CONDITIONS

Groundwater elevations were measured prior to each of the groundwater sampling events during the technical reporting period. The measurements were recorded on the same day and were in accordance with the requirements in Condition #7 of the (MPIS) and were measured from the top of the PVC casing prior to purging and sampling procedures. Groundwater contour maps for Zone 1-2 (upper surficial aquifer), Zone 4 (lower surficial aquifer), Zone 6 (lower surficial aquifer), and Floridan aquifer at the site for each of the semiannual sampling events performed during the technical reporting period are provided in Appendix A. The groundwater flow is from the southwest towards northeast across the site, which is consistent with historical flow directions. The groundwater and surface water elevations measured throughout the technical reporting period are summarized in the Tables 2 and 3 in Appendix C.

Hydrographs depicting the groundwater elevations within each well for each sampling event over the monitoring period were generated and are presented in Appendix B. The groundwater levels fluctuated slightly over time but were mostly consistent with the historic ranges. The groundwater elevation at B39 was reported several feet below the historic range during the May 2012 sampling event, indicating a possible anomalous water level reading. The groundwater elevations in Zones 1-2 were comparable to elevations in

Zone 4, but groundwater elevations in Zone 6 and the Floridan aquifer were typically lower, indicating downward flow from the upper surficial and deeper surficial zones to the lower elevations in the Floridan aquifer.

The velocity of groundwater in the upper and lower surficial aquifer beneath the site was calculated using a form of Darcy's law¹, $V = k(dh/dl)/\theta$, where:

- V is the average velocity of groundwater (ft/day).
- k is the aquifer horizontal hydraulic conductivity (ft/day)
- dh/dl is the aquifer hydraulic gradient (ft/ft)
- θ is the effective porosity of the aquifer (unit less)

¹Lohman, S. W., "Ground-Water Hydraulics." Geological Survey Professional Paper 708, 1972, pp.10-11.

Groundwater velocities for Zone 1-2, Zone 4, Zone 6, and Floridan aquifer was calculated and provided in Table 4, Appendix C. and are considered representative of groundwater flow. Hydraulic gradients were calculated using the difference between the groundwater elevation of an up-gradient well and a down-gradient well.

For the upper surficial aquifer zone (Zone 1-2), the groundwater gradient was calculated between well B-11 and well B-74 across the North cell, between well B34-2 and B62-2 across the south cell, and between well B35-2 and B42-2 across the Class III Landfill for each sampling event during the technical reporting period.

For Zone 4 surficial aquifer, the groundwater gradient was calculated between well B33-1 and well B-73-1 across the North cell, between well B34-1 and B62-1 across the south cell, and between well B36 and B42-1 across the Class III Landfill for each sampling event during the technical reporting period.

For Zone 6 surficial aquifer, the groundwater gradient was calculated between well B86 and well B-79-6 across the Class III Landfill from May 2013 to May 2014 sampling event during the technical reporting period.

For the Floridan aquifer, the groundwater gradient was calculated between well FA-1B and well FA-2C across the North and South cells, and between well F-MB and F87-F across the Class III Landfill during the technical reporting period. Velocity calculations for well pair F-MB and F87-F were available only for Fall 2013 and Spring 2014, after installation of well F87-F in late 2013.

Hydraulic conductivity values for the surficial aquifer Zones 2 and Zone 4 utilized were obtained from David N. Gomberg, Ph.D., July 16, 2001, Tomoka Landfill: Technical Evaluation of Monitoring Results. The hydraulic conductivity for the Zone 6 surficial aquifer

and Floridan aquifer were based on the US Geological survey results in the David N. Gomberg, Ph.D., May 1992, Tomoka Landfill: Hydrogeologic Summary and Groundwater Monitoring Plan. Finally, the effective porosity of the aquifer material is estimated to be 0.25. A summary of the estimates used and the groundwater velocity calculations performed is shown in the Table 4 in Appendix C. The groundwater velocity across the landfill site is estimated to be an average of 1.93 feet per year (ft/yr), 4.28 ft/yr, 0.08 ft/yr, and 2.3 ft/yr for Zone 1-2, Zone 4, and Zone 6 of the surficial aquifer and Floridan aquifer. The groundwater flow velocity values across the north, south, and Class III Landfill were all lower than 5 ft/yr.

3.0 WATER QUALITY MONITORING PROGRAM

The water quality monitoring program consists of semiannual groundwater and surface water monitoring. The following sections provide a summary of the current monitoring program for each media.

3.1 GROUNDWATER MONITORING PROGRAM

The groundwater compliance monitoring network for the site includes the 54 monitoring wells outlined in Attachment A of the MPIS. The required field and laboratory groundwater monitoring parameters are listed in item 7 of the MPIS. The monitoring well locations are shown on Figure 1 in Appendix A. During spring 2012, B39 and B42-2 were dry and not sampled. Additionally quarterly evaluation monitoring data for six compliance monitoring wells in Zone 1-2 (including B45-2 and B64) and Zone 4 (including B1-B, B41-1, B43-1, B45-1) from February 2012 to February 2014 were also included in this report. The quarterly monitored parameters included those listed in item 7 of the MPIS and those parameters listed in 40 CFR Part 258 Appendix II.

3.2 SURFACE WATER MONITORING PROGRAM

The surface water compliance monitoring network for the site includes the 7 surface water samples outlined in Attachment A of the MPIS. The surface water locations are shown on Figure 1 in Appendix A. The required field and laboratory surface water monitoring parameters are listed in item 12 of the MPIS.

During spring 2012, SW-3 and SW-4 were dry and not sampled. During spring 2013, SW-3 was dry and not sampled. All other surface water samples were collected and analyzed for the permitted field and laboratory parameters.

4.0 WATER QUALITY SUMMARY

Below is a summary of the groundwater and surface water quality during the technical reporting period. The discussion below identifies the regulatory exceedances as well as trends in the analytical data.

4.1 GROUNDWATER QUALITY

Water quality data for the groundwater parameters monitored during this reporting period were evaluated in accordance with Chapter 62-701.510. Selected data tables and graphs are presented to support the evaluation of the adequacy of the water quality monitoring frequency and sampling locations. The data tables and graphs display the data in a manner that differentiates between the upper, lower, and intermediate surficial aquifers and the Floridan aquifer. The tables in Appendix B summarizes water quality detections and exceedances for parameters detected during the technical reporting period. Exceedances are concentrations in excess of primary or secondary drinking water standards (PDWS and SDWS) listed in Chapter 62-550, FAC or the Groundwater Cleanup Target Levels (GCTLs) listed in Chapter 62-777, FAC. Graphs of water quality data and water quality trends for selected parameters detected at the site from 2008 to 2014 monitoring periods are included in Appendix D. The following section discusses exceedances and includes related trends, where appropriate.

4.1.1. Inorganic Exceedances and Trends

General inorganic parameters detected in the groundwater included ammonia-N, chloride, iron, nitrate, sodium, sulfate, and total dissolved solids (TDS). Trace metals detected in the groundwater include antimony, arsenic, beryllium, barium, cadmium, chromium cobalt, copper, lead, mercury, nickel, selenium, silver, vanadium, and zinc. The detected groundwater monitoring results for Zone 1-2, Zone 4 and 6, and Floridan aquifer are provided in Tables 5 to 7 in Appendix C. Only ammonia-N, arsenic, chloride, iron, pH, sodium, sulfate, and TDS were detected in groundwater in excess of applicable PDWS, SDWS, and/or GCTLs for at least one sampling event during the technical reporting period. These exceedances are discussed below. Other inorganic parameters did not exceed their respective regulatory standard and are not further discussed.

Ammonia

Ammonia has been consistently detected above the GCTL of 2.8 milligrams per liter (mg/L) in Zone 1-2 monitoring wells B61R and B62-2R and Zone 4 monitoring wells B1-B and B41-1. Ammonia was also detected at least once from B64 (Spring 2012) in Zone 1-2 and B2, B43-1,

B62-1R, and M05-B in Zone 4. The highest detected ammonia-N concentration in zone 1-2 well was from B62-2R (19.8 mg/L) during May 2012 period and in Zone 4 well was from B41-1 (79.4 mg/L) during February 2013 monitoring event. Ammonia concentrations showed a decreasing trend in Zone 1-2 wells (B61R, B62-2R, and B64) and Zone 4 wells (B1-B, B43-1, and B62-1R). In B41-1, ammonia-N concentration fluctuated over time but showed a decreasing trend recently (Appendix D).

Ammonia has historically exceeded the GCTL at the TFRLF; and Ammonia-N evaluation monitoring for ammonia was conducted from February 2010 to November 2013 in accordance with the October 26, 2009, FDEP letter. Per FDEP Memorandum dated December 3, 2012, addressing the subject "Monitoring and Evaluation of Ammonia in Groundwater at Solid Waste Management Facilities SMW-13.10," the ammonia GCTL is no longer being relied on or enforced. Consequently, ammonia is no longer used by FDEP for regulatory compliance. The ammonia-N evaluation monitoring was terminated in the beginning of 2014 based on the DEP letter dated May 9, 2013.

Arsenic

Arsenic has been detected in B-33-2, B34-2, B39, and B75 above the PDWS during the reporting period. Arsenic was detected above the PDWS of 10 µg/L at Zone 1-2 monitoring well B33-2 and B34-2 (11.4 µg/L and 12.2 µg/L, respectively) during the May 2012 sampling event; in B39 (13.2 µg/L) during May 2014 sampling event; and in B75 in all semiannual events except in November 2012 ranging from 8.4 µg/ to 17.9 µg/L. Arsenic has not been detected above the PDWS in the Zone 4, Zone 6, and Floridan aquifer monitoring wells.

Arsenic concentrations fluctuated over time in B34-2 and B75 during this technical reporting period. Arsenic concentrations at B33-2 showed a decreasing trend (Appendix D).

Chloride

Chloride was detected in both Zone 1-2 and Zone 4 wells including the Zone 4 background well B36 above the SDWS of 250 mg/L. Chloride was detected above the SDWS of 250 mg/L in Zone 1-2 monitoring well B45-2 (265 mg/L) during May 2012 monitoring event and in the Zone 4 monitoring wells B36 (250 mg/L during May 2012), M05-B (475 mg/L during Nov. 2012) and B8-2 (all semiannual events except Nov. 2012 and ranging from 71.6 mg/L to 335 mg/L). Chloride has not been detected above the SDWS in the Zone 6 monitoring well or in Floridan aquifer monitoring wells. Time series plots for chloride (Appendix D) showed that chloride concentrations in most wells showed decreasing trends or were stable. But chloride concentrations fluctuated over time in Zone 4 wells (B8-2 and B36).

Iron

Iron has been consistently detected above the SDWS of 300 µg/L in surficial aquifer (Zone 1-2, Zone 4, and Zone 6) and Floridan aquifer monitoring wells. Iron concentrations appear to



trend down in most compliance wells except B75 of Zone 1-2 and B-2, B8-2, B34-1, B37-1, and B68 of Zone 4 monitoring wells. Iron concentrations have continued to show downward trends during this reporting period. These downwards trends are apparent in compliance and detection wells B11, B33-2, B37-2, B42-2, B44, B45-2, B59-2R, B62-2R, B64, B71, and B73-2 of Zone 1-2, wells B62-1R, B63-1, and MO5-B of Zone 4, and F-MB of the Floridan aquifer.

pH

The pH measurements have consistently remained below the SDWS range of 6.5-8.5 in the majority of Zone 1-2 (except B33-2, B34-2, B66) and Zone 4 surficial monitoring wells (except B62-1R), which is typical in the surficial aquifer in Florida. Groundwater pH in Floridan aquifer wells were within the normal pH range during this technical reporting period.

Additionally, groundwater pH values for several wells were occasionally detected above 6.5 S.U. These wells include B59-2R, B61R, B62-2R, B63-2, B64, B66, B72, and B74 in Zone 1-2 and wells B-5, B8-2, B32, B34-1, B36, B59-1R, B63-1, and B73-1 in Zone 4.

Sodium

Sodium has been consistently detected above the SDWS of 160 mg/L in Zone 4 monitoring wells B37-1, B-45-1, and B62-1R. Zone 4 monitoring well B41-1 has also exceeded the sodium SDWS except during the November 2012 and 2014 monitoring events. Sodium concentrations in B37-1 and B45-1 showed an increasing trend while that of B62-1R showed a decreasing trend. Sodium has not been detected in B33-2 above PDWS during this reporting period. Sodium concentration has indicated a downward trend over the history of monitoring in B33-2. Sodium has not been detected above the SDWS in B8 screened in Zone 6 or in Floridan aquifer monitoring wells.

In a letter dated October 26, 2009, the FDEP indicated that implementation of evaluation monitoring for sodium was not required. Therefore, no additional action is recommended at this time.

Sulfate

Sulfate was detected above the SDWS of 250 mg/L in Zone 1-2 background monitoring well B-34-2 during the November 2013 and May 2014 sampling events. Sulfate has been consistently detected above the SDWS in Zone 4 background monitoring well B-2. Sulfate has not been detected above the SDWS in the Zone 6 surficial well or Floridan aquifer monitoring wells. Because background well B2 is hydraulically up gradient from the landfill, sulfate exceedances may not be due to the landfill. The sulfate concentration in B-2 appears to fluctuate over time and no apparent trends for sulfate are observed in B-2.

TDS

TDS was detected above the SDWS of 500 mg/L in Zone 1-2 monitoring wells B33-2, B34-2, B39, B40-2, B41-2, B43-2, B45-2, B59-2R, B61R, B62-2R, B63-2, B64, B65, and B75 at least once over the reporting period. TDS has been consistently detected in B33-2, B34-2, B59-2R, B61R, B62-2R, and B75 above the SDWS. TDS has been consistently detected above the SDWS in Zone 4 wells B2, B34-1, B36-1, B37-1, B41-1, B42-1, B45-1, and M05-B. TDS was detected at least once above the SDWS in Zone 4 wells B1-B, B32, B68, and B8-2B. In Zone 1-2, TDS concentrations appear to trend upward in background well B34-2; and trend downward in B33-2 and B64. No trends for TDS were apparent in Zone 4 wells. TDS concentrations have not been detected above the SDWS in the Zone 6 well and Floridan aquifers monitoring wells; but TDS concentrations in these wells have shown an increasing trend.

4.1.2 Organic Parameters Exceedances and Trends

Trace levels of volatile organic compounds (VOC) were detected in at least one site well during semiannual compliance monitoring and quarterly evaluation monitoring. These compounds include 1,1-dichloroethane, 1,2-dibromo-3-chloropropane, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dimethylphenol, 2-methylnaphthalene, acetone, benzene, chlorobenzene, cis-1,2-dichloroethene, cyanide, d-N-butyl phthalate, endrin, ethylbenzene, naphthalene, tetrachloroethene, toluene, vinyl chloride, and xylenes. Most of these detections were between the detection limits and the reporting limits and were well below any groundwater standards and will not be further discussed. However, benzene and vinyl chloride were detected above the PDWS in at least one well during the technical reporting period. The detection of benzene and vinyl chloride are further discussed below:

Benzene

Benzene was detected once above the PDWS in B37-2 (3 µg/L) during the November 2012 sampling event; but has not detected above the detection limit since November 2013. Benzene was also detected in B45-2 at trace levels and below the PDWS during this reporting period. Benzene has been consistently detected above the PDWS of 1.0 µg/L in Zone 4 monitoring wells B36, B37-1, and B45-1 during the quarterly evaluation monitoring and semiannual compliance monitoring during the reporting period. Benzene was also detected in B41-1 and B43-1 at or slightly above the PDWS during May 2012 sampling event. Benzene has not been detected in the Floridan aquifer monitoring wells. Benzene evaluation monitoring in the vicinity of the background well B-36 and compliance wells B5 and B37-1 has been on going since 2010 under the Limited Scope Remedial Action Plan (LRAP) Approval Order dated March 19, 2009. The other benzene exceedance at wells B41-1, B43-1, B45-1, and B45-2 have historically exceeded the PDWS at the TFRLF.

Vinyl Chloride

Vinyl chloride was detected above the PDWS of 1 µg/L in Zone 4 monitoring well B37-1 only once during November 2013 sampling event, but it has not been detected above the detection limit in the other sampling events during the reporting period. Zone 4 monitoring well B-5 has periodically exceeded the PDWS throughout the technical reporting period. Vinyl chloride was also detected at least once in B37-2 and B75 in Zone 1-2 and B5 in Zone 4 at trace levels and below the PDWS during the reporting period. Vinyl Chloride has not been detected above the PDWS in the Zone 6 well B8 and all Floridan aquifer monitoring wells. Vinyl chloride in the vicinity of the compliance wells B-5 currently is being remediated under the LRAP.

4.2. SURFACE WATER QUALITY

Water quality data for the surface water parameters monitored during this reporting period were evaluated in accordance with Chapter 62-701.510. The detected surface water monitoring results have been summarized in Table 8 in Appendix C for all parameters detected in the surface waters during the technical reporting period. The detected surface water parameters were compared to the Freshwater Surface Cleanup Target Levels (CTLs) listed in Chapter 62-777, FAC.

Graphs of surface water quality data and water quality trends for selected parameters detected at the site during from 2008 to 2014 are included in Appendix D. Both dissolved oxygen and pH from the field measurements and laboratory parameters iron, lead, mercury, fecal coliform, and unionized ammonia-N were detected at least once above the Class III Standard in the surface water samples during the reporting period. The following section discusses exceedances and includes related trends, where appropriate.

Dissolved Oxygen

The dissolved oxygen (DO) levels in the surface water samples varied from 0.63 mg/L in SW-3 to 10.75 in SW-5. DO was detected below the surface water standard of >5.0 mg/L at least once from all surface water locations except SW-5 from May 2012 to May 2014 sampling events with the lowest DO level of 0.63 mg/L detected in SW-3 during May 2014 monitoring event. Trend analysis (Appendix D) showed that DO varied with time and site, but there is not trend in DO levels over time. Dissolved oxygen is a field measured parameter and subject to variability in field conditions.

pH

The pH measurements in the surface waters have been detected within the surface water standard range of 6.0-8.5 during the technical reporting period except once in SW-12 pH level (8.67 S.U.) was slightly above 8.5 S.U. during May 2012 sampling event. The pH was



measured within the pH range during other sampling events. There were no apparent trends in pH measurements observed during the reporting period. Additionally, pH is a field measured parameter and subject to variability in field conditions.

Unionized Ammonia

Unionized ammonia was detected in SW-5 slightly above the Class III Standard (<0.02 mg/L) during May 2012, May 2013, and Nov. 2013 monitoring events. But two of the detections were between the detection limit and the reporting limit. Unionized ammonia has not been detected above any detection limit from any other surface water sites during the reporting period.

Fecal Coliform

Fecal coliform was detected in SW-3 (240 #/100 ml) and SW-12 (300 #/100 ml) above the monthly average limit but below the every day limit during the reporting period. Fecal coliform was also detected in SW-11 twice (400 and 2200 #/100 ml, respectively) during the reporting period. Fecal coliform has not been detected above any Class III standard from any other surface water samples.

Iron

Iron was detected above the Class III standard in surface water location SW-2 and SW-3 once each and detected in SW-5 and SW-11 more than once during the reporting period. Iron has been consistently detected in SW-5 above the Class III standard over the reporting period. Iron concentrations varied over time; but there is no clear trend over time for the detected iron levels in the surface water.

Lead

Lead was detected in SW-1 (0.66 µg/L) once above the calculated Class III standard (0.33 µg/L) during the May 2012 monitoring period. The lead has not been detected in the subsequent monitoring events indicating that the detection could be due to laboratory error.

Mercury

Mercury was detected in SW-3 (0.0122 µg/L) once slightly above the Class III Standard (0.012 µg/L) during May 2014 monitoring event, but it was not detected above any surface water standard previously. This detection will be verified during the next semiannual sampling event.

5.0 CORRELATION BETWEEN TDS and SC

A simple ratio was calculated to evaluate the correlation between TDS and specific conductance (SC) data. The ratio between TDS and SC may be evaluated using standard water/wastewater analysis methods to assess the accuracy of the laboratory methods. A generally acceptable correlation is a TDS to SC ratio of 0.55 to 0.75². A full range of ratios from 0.54 to 0.96 can be expected. Ratios outside this range may indicate that one or both measurements are suspect.

A summary of the TDS/SC ratios for the technical reporting period is presented in Table 9, Appendix C. Overall, the majority of ratios lied within the expected range. Deviations may be due to analytical error or sampling procedures, but they are most likely due to differences in field sampling techniques and do not affect the quality of the reported analytical data.

² Hem, John D., "Study and Interpretation of Chemical Characteristics of Natural Water." USGS Water Supply Paper 2254, 1992, page 67.

6.0 ADEQUACY OF MONITORING PROGRAM

This section assesses the adequacy of the monitoring program to observe potential effects of the site's operations on groundwater and surface water.

6.1 MONITORING WELLS AND LOCATIONS

The existing monitoring wells were located based on groundwater flow directions. Groundwater is monitored hydraulically up-gradient to determine background conditions and down-gradient to determine potential impacts caused by the landfill. The Tomoka Farms Road Landfill permit specifies the compliance monitoring protocol for groundwater wells and the surface water locations and sampling frequency for the monitoring program. The compliance monitoring protocol specified in the operating permit provides an appropriate surficial and Floridan aquifer groundwater monitoring program for the site at this time. However, it appears that adequate monitoring can be maintained with fewer wells in Zone 1-2 and Zone 4, based on the following justifications:

Parameters of Detections:

In Zone 1-2, only field pH and iron were detected above the SDWS in B38-2, B42-2, B44, B66, B70-2, B71, B72, B73-2, and B74; and only field pH, iron, and TDS were detected above the SDWS in B40-2, B43-2, B59-2R, and B63-2. In Zone 4, only field pH and iron were

detected above the SDW in B38-1, B40-1, B59-1R, B60, B63-1, and B70-1 were detected above the SDWS; and only field pH, iron, and TDS were detected above the SDWS in B68, and B73-1. These results also agree with the historic data since 2008.

Interior Wells and Upper Gradient Wells:

Three wells in Zone 1-2 (B61R, B62-2R, and B66) and one well in Zone 4 (B62-1R) are interior wells with other wells installed and monitored farther down gradient from them. Also currently there are an excessive number of background wells and detection/compliance wells installed up-gradient of the landfill in Zone 1-2 and Zone 4. HDR proposes to remove B33-1, B34-2, B35-2 from Zone 1-2 and B2, B33-1, B35-1, B62-1R, and B8-2 from Zone 4 and change B63-1 and B63-2 from compliance well into background wells.

Therefore, HDR recommends eliminating the following wells from the monitoring program: B33-2, B34-2, B35-2, B38-2, B40-2, B44, B61R, B62-2R, B66, B71 and B73-2 from the Zone 1-2; and B2, B8-2, B32, B33-1, B35-1, B38-1, B40-1, B59-1R, B62-1R, and B68 from Zone 4 of the surficial aquifer.

6.2 FREQUENCY

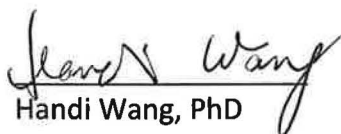
Groundwater and surface water sampling is conducted semiannually at the TFRL. However, the extremely slow groundwater flow velocity across the site and a large data set that shows very little variation in reported values justifies reducing the sampling frequency. A reduction to annual groundwater and surface water sampling is recommended.

6.3 MONITORING PARAMETERS

Current routine groundwater and surface water compliance monitoring parameters include various volatile organic, metals, and inorganic constituents listed in 62-701.510(7) and in accordance with the operating permit. The FDEP Central District is currently conducting workshops to develop criterion to justify reducing parameters at certain landfills. Therefore, no parameter modifications are proposed, pending the development of the FDEP guidelines which are expected before the end of 2014.

7.0 PROFESSIONAL CERTIFICATION

This document has been prepared under my direction in general accordance with Chapter 62-701, Florida Solid Waste Management Facility Regulations. The information contained within this report is to the best of my knowledge and belief, true, accurate, and complete.



Handi Wang, PhD
HDR Engineering, Inc.
Sr. Environmental Scientist



John Catches, PG
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APPENDIX A

GROUNDWATER POTENTIOMETRIC MAPS

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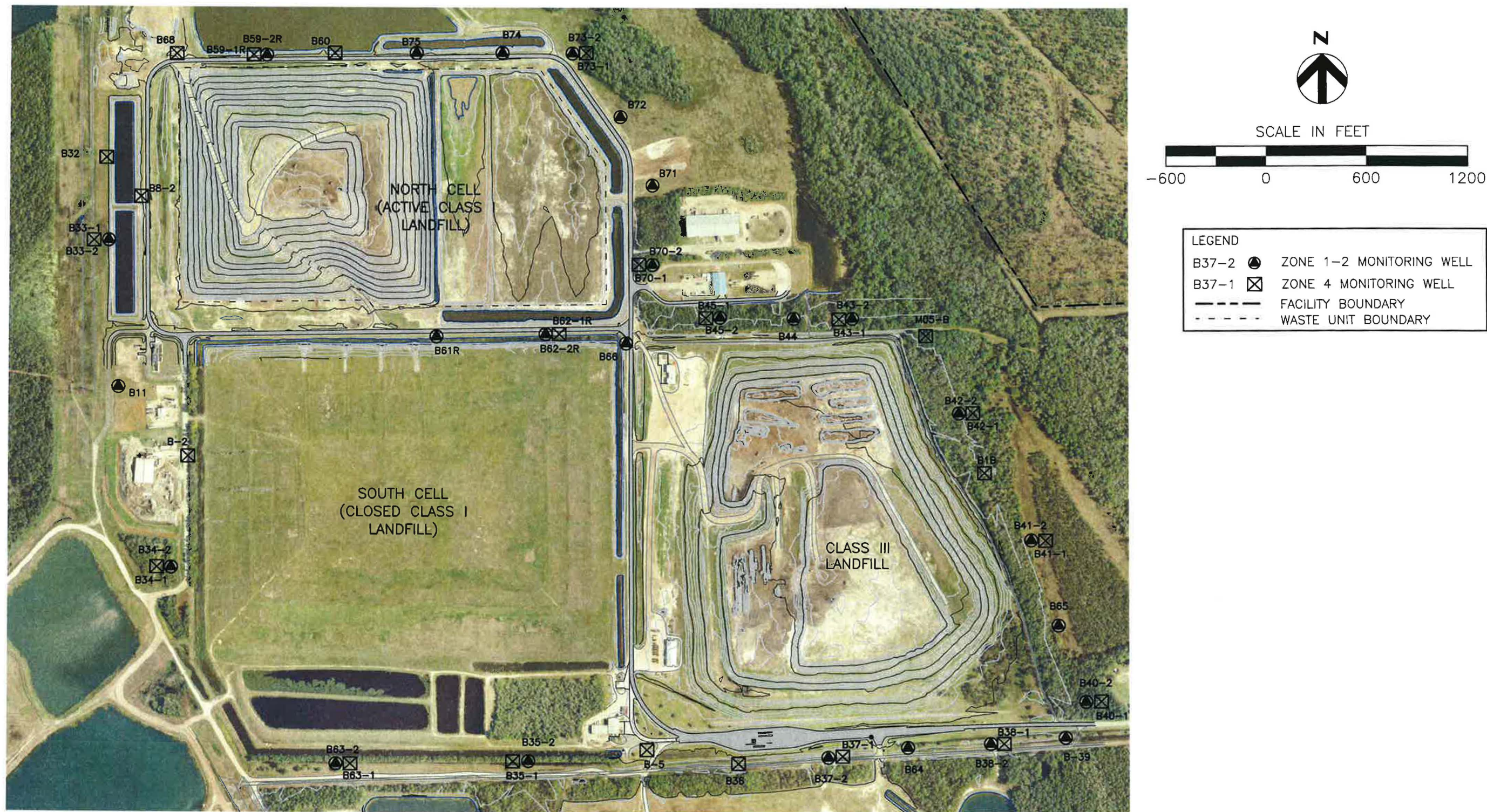
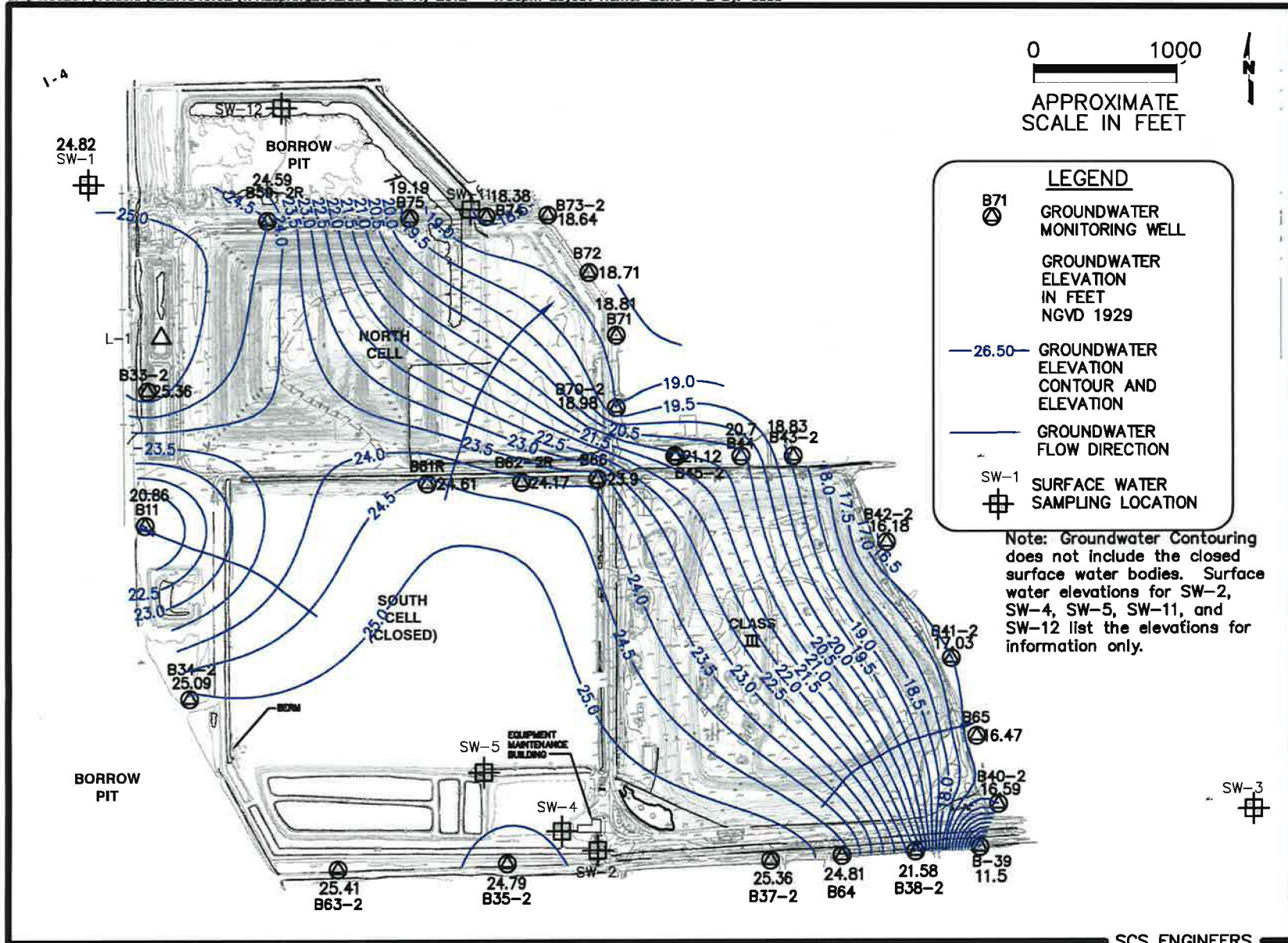


Figure 1

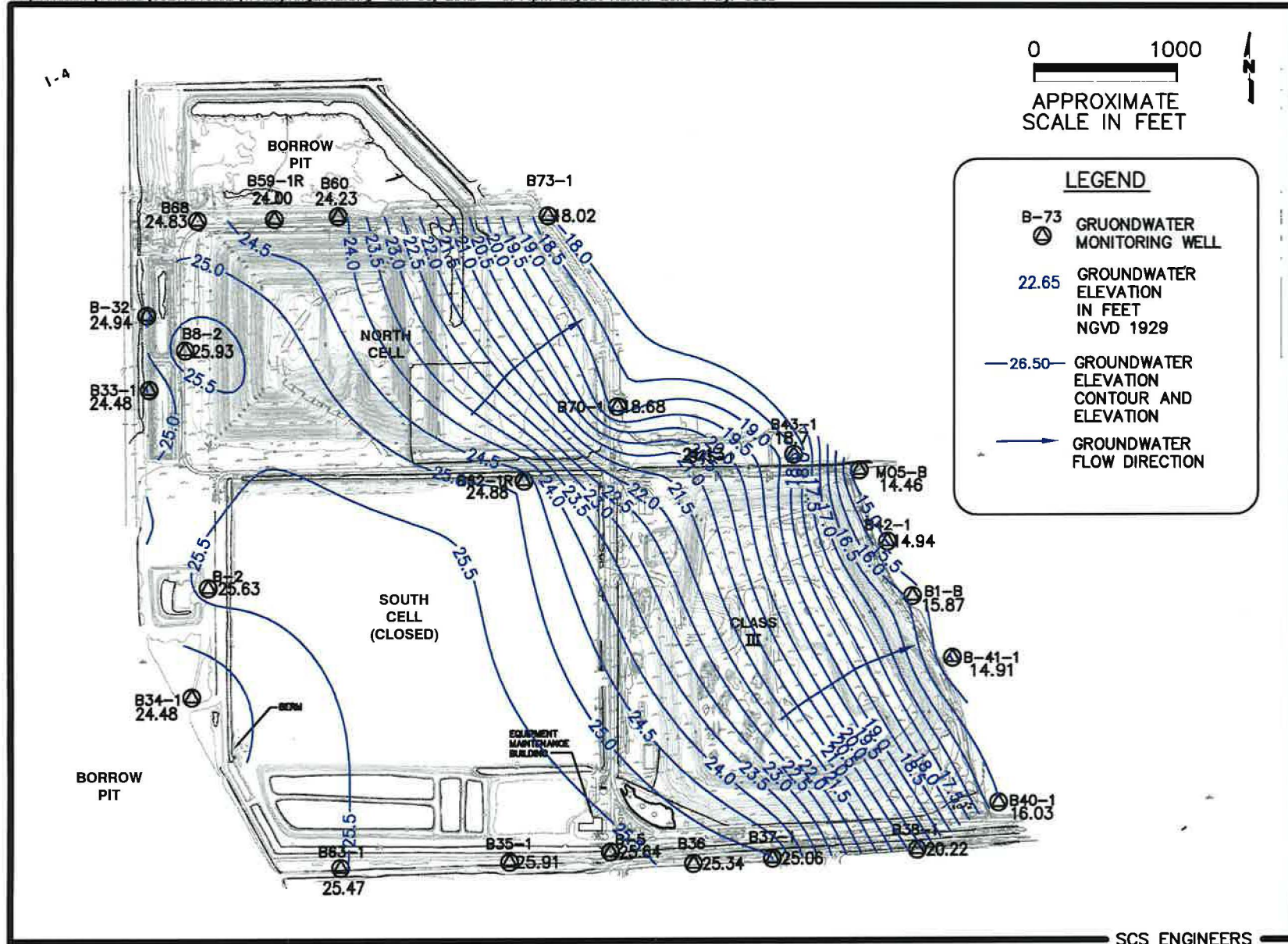
	PROJECT TITLE	PROJECT NUMBER	REFERENCE SHEET
	TOMOKA FARMS ROAD LANDFILL	195292	REFERENCE DOCUMENT
	SHEET TITLE	PROJECT MANAGER	EXHIBIT NUMBER
	SITE MAP	C. LEBRON	FIGURE 1
		DATE	
		01/2013	



SCS ENGINEERS

Figure 2

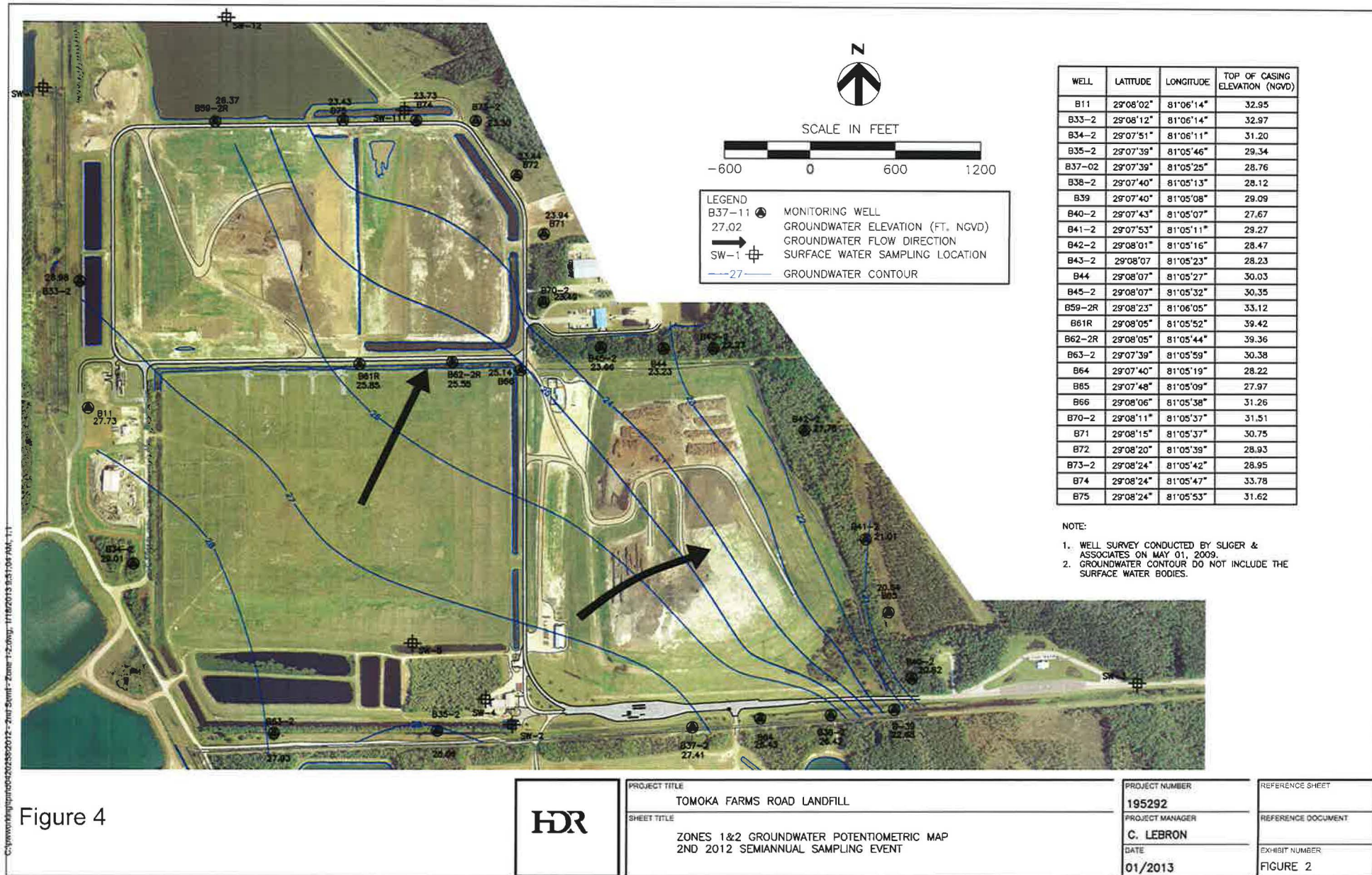
Figure 2. Groundwater Elevation Contour Map, Aquifer Zone 1-2
Tomoka Farms Road Landfill, April 30, 2012



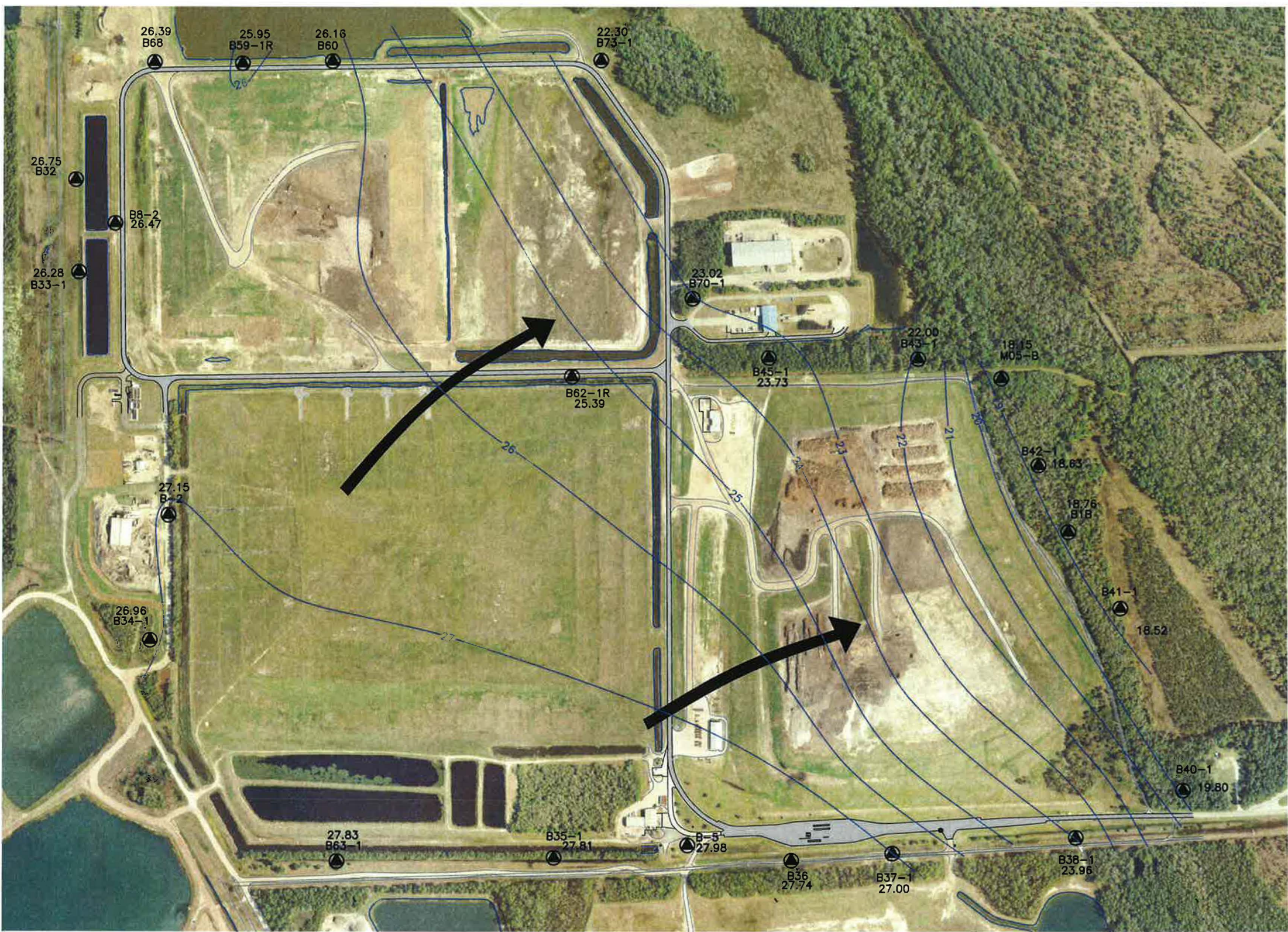
SCS ENGINEERS

Figure 3

Figure 3. Groundwater Elevation Contour Map, Aquifer Zone 4
Tomoka Farms Road Landfill, April 30, 2012



C:\pwworking\tpattd042025082012-2nd Semi-Zone 4.dwg, 1/18/2013 9:48:22 AM, 1:1



N

SCALE IN FEET

-600

0

600

1200

LEGEND

B37-11

MONITORING WELL

27.02

GROUNDWATER ELEVATION (FT. NGVD)

→

GROUNDWATER FLOW DIRECTION

SW-1

SURFACE WATER SAMPLING LOCATION

—27—

GROUNDWATER CONTOUR

WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B1-B	29°07'57"	81°05'14"	28.78
B2	29°07'58"	81°06'09"	34.53
B32	29°08'17"	81°06'14"	30.92
B33-1	29°08'12"	81°06'14"	34.69
B34-1	29°07'51"	81°06'11"	31.19
B35-1	29°07'39"	81°05'46"	29.26
B36	29°07'39"	81°05'31"	29.33
B37-01	29°07'39"	81°05'25"	28.63
B38-1	29°07'40"	81°05'13"	28.24
B40-1	29°07'43"	81°05'07"	27.77
B41-1	29°07'53"	81°05'11"	29.16
B42-1	29°08'01"	81°05'16"	28.30
B43-1	29°08'07"	81°05'23"	28.09
B45-1	29°08'07"	81°05'32"	30.28
B5	29°07'40"	81°05'38"	32.59
B59-1R	29°08'23"	81°06'05"	32.44
B60	29°08'24"	81°05'59"	32.95
B62-1R	29°08'05"	81°05'44"	38.97
B63-1	29°07'39"	81°05'59"	30.03
B68	29°08'23"	81°06'10"	32.98
B70-1	29°08'11"	81°05'37"	31.03
B73-1	29°08'24"	81°05'42"	29.20
B8-2	29°08'14"	81°06'11"	33.37
M05-B	29°08'06"	81°05'18"	29.80

NOTE:
WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES
ON MAY 01, 2009.

Figure 5

HDR

PROJECT TITLE

TOMOKA FARMS ROADS LANDFILL

SHEET TITLE

ZONE 4 GROUNDWATER POTENTIOMETRIC MAP
2ND 2012 SEMIANNUAL SAMPLING EVENT

PROJECT NUMBER

195292

PROJECT MANAGER

C. LEBRON

DATE

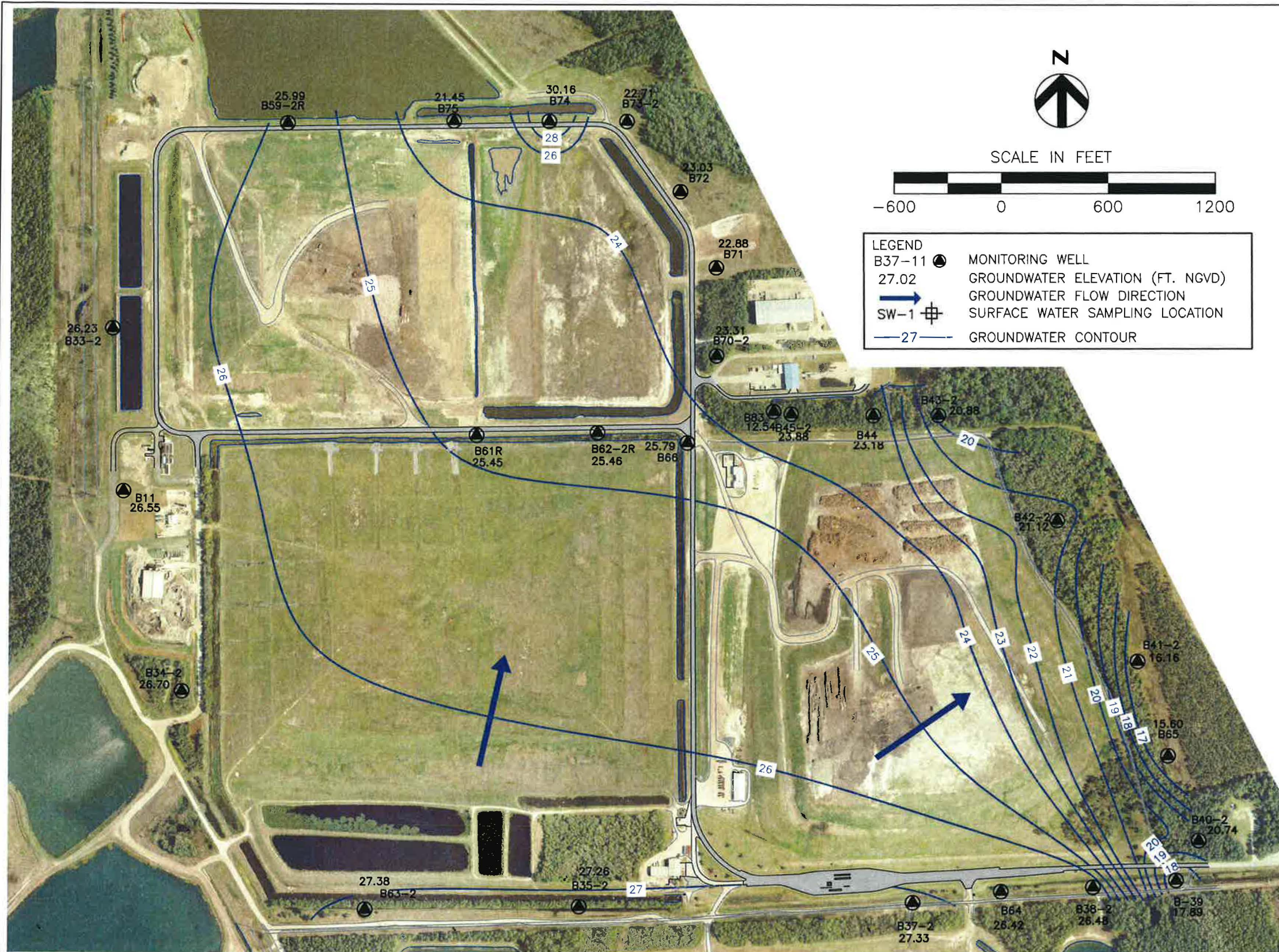
01/2013

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER

FIGURE 3



WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B11	29°08'02"	81°06'14"	32.95
B33-2	29°08'12"	81°06'14"	32.97
B34-2	29°07'51"	81°06'11"	31.20
B35-2	29°07'39"	81°05'46"	29.34
B37-02	29°07'39"	81°05'25"	28.76
B38-2	29°07'40"	81°05'13"	28.12
B39	29°07'40"	81°05'08"	29.09
B40-2	29°07'43"	81°05'07"	27.67
B41-2	29°07'53"	81°05'11"	29.27
B42-2	29°08'01"	81°05'16"	28.47
B43-2	29°08'07"	81°05'23"	28.23
B44	29°08'07"	81°05'27"	30.03
B45-2	29°08'07"	81°05'32"	30.35
B59-2R	29°08'23"	81°06'05"	33.12
B61R	29°08'05"	81°05'52"	39.42
B62-2R	29°08'05"	81°05'44"	39.36
B63-2	29°07'39"	81°05'59"	30.38
B64	29°07'40"	81°05'19"	28.22
B65	29°07'48"	81°05'09"	27.97
B66	29°08'06"	81°05'38"	31.26
B70-2	29°08'11"	81°05'37"	31.51
B71	29°08'15"	81°05'37"	30.75
B72	29°08'20"	81°05'39"	28.93
B73-2	29°08'24"	81°05'42"	28.95
B74	29°08'24"	81°05'47"	33.78
B75	29°08'24"	81°05'53"	31.62
B83	29°08'07"	81°05'32"	30.57

NOTES:

1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
2. GROUNDWATER CONTOURS DO NOT INCLUDE THE SURFACE WATER BODIES.
3. GROUND WATER LEVELS WERE MEASURED ON MAY 6, 2013.

Figure 6

HDR

PROJECT TITLE

TOMOKA FARMS ROAD LANDFILL

SHEET TITLE

ZONES 1 & 2 GROUNDWATER POTENTIOMETRIC MAP
1ST 2013 SEMIANNUAL SAMPLING EVENT

PROJECT NUMBER

195292

PROJECT MANAGER

C. LEBRON

DATE

06/2013

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER

FIGURE 2

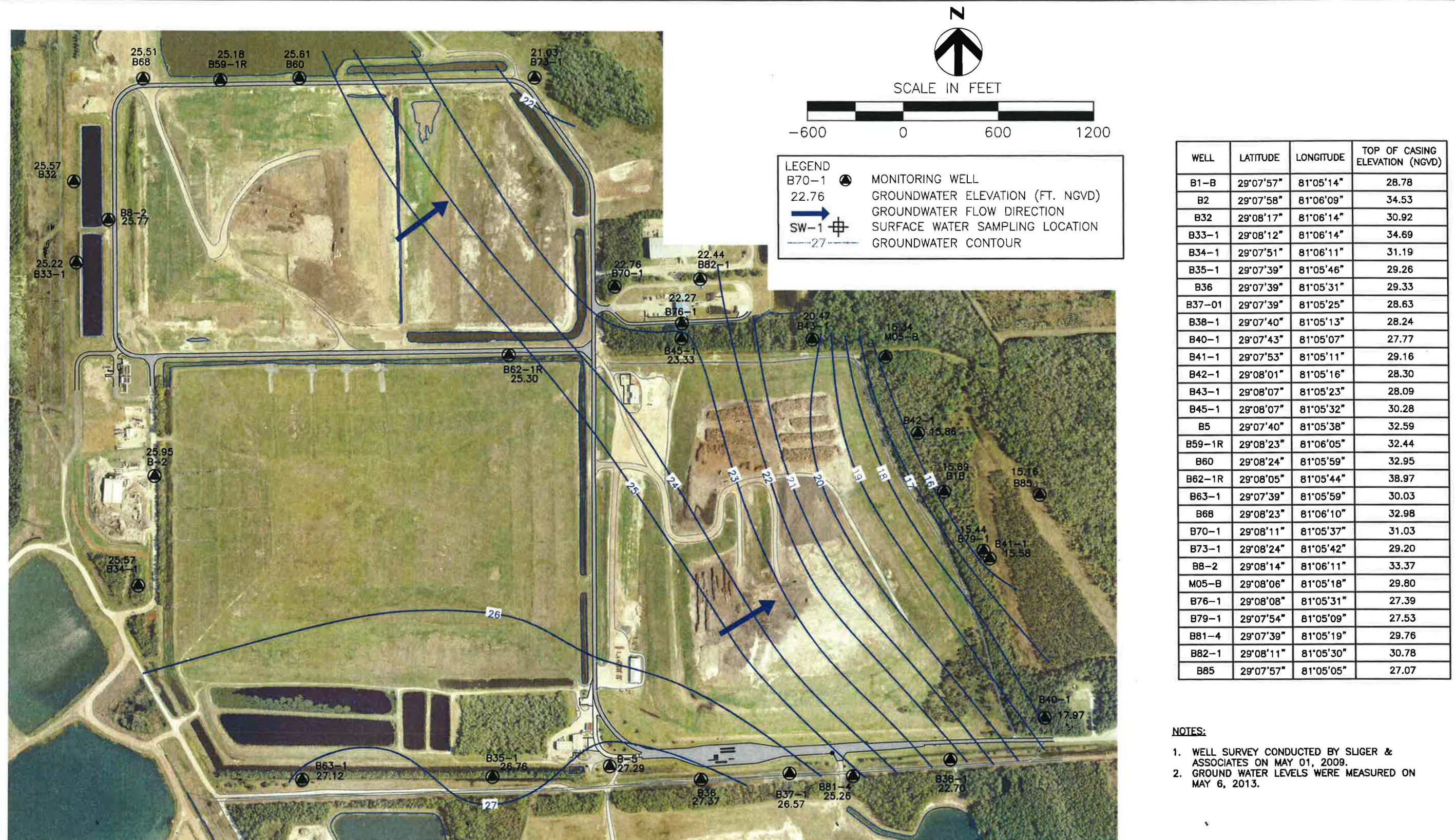


Figure 7

HDR

PROJECT TITLE
TOMOKA FARMS ROAD LANDFILL

SHEET TITLE
ZONE 4 GROUNDWATER POTENTIOMETRIC MAP
1ST 2013 SEMI-ANNUAL SAMPLING EVENT

PROJECT NUMBER
195292

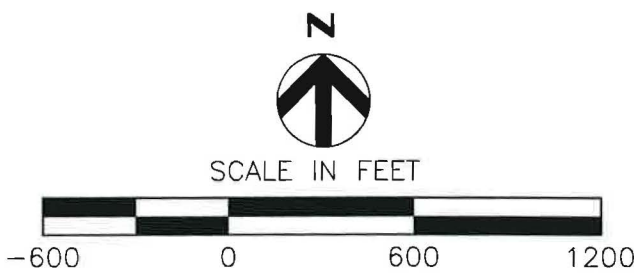
PROJECT MANAGER
C. LEBRON

DATE
06/2013

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER
FIGURE 3



LEGEND	
B76-6	MONITORING WELL
15.94	GROUNDWATER ELEVATION (FT. NGVD)
	GROUNDWATER FLOW DIRECTION
SW-1	SURFACE WATER SAMPLING LOCATION
16	GROUNDWATER CONTOUR

WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B8-1	29°08'14"	81°06'11"	33.53
B76-6	29°08'08"	81°05'31"	27.33
B77	29°08'07"	81°05'32"	31.13
B79-6	29°07'54"	81°05'10"	27.51
B86	29°07'40"	81°05'19"	29.46

- NOTES:
1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
 2. GROUND WATER LEVELS WERE MEASURED ON MAY 6, 2013.

Figure 8

PROJECT TITLE
TOMOKA FARMS ROAD LANDFILL

SHEET TITLE
ZONE 6 GROUNDWATER POTENTIOMETRIC MAP
1ST 2013 SEMIANNUAL SAMPLING EVENT

PROJECT NUMBER
195292

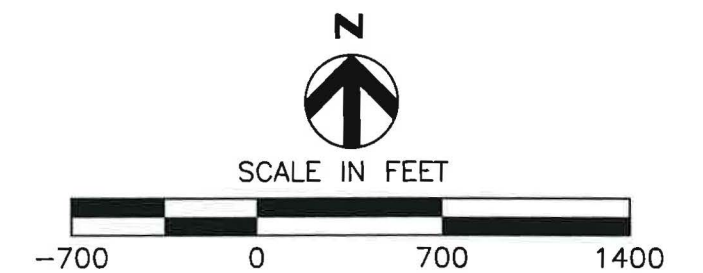
PROJECT MANAGER
C. LEBRON

DATE
06/2013

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER
FIGURE 4



LEGEND	
FA-2C	MONITORING WELL
11.62	GROUNDWATER ELEVATION (FT. NGVD)
	GROUNDWATER FLOW DIRECTION
SW-1	SURFACE WATER SAMPLING LOCATION
15	GROUNDWATER CONTOUR

WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
FA-1B	29°07'51"	81°06'11"	32.22
FA-2C	29°08'31"	81°05'32"	28.10
FM-B	29°07'42"	81°05'36"	33.88

NOTES:

1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
2. GROUND WATER LEVELS WERE MEASURED ON MAY 6, 2013.

Figure 9

HDR

PROJECT TITLE

TOMOKA FARMS ROAD LANDFILL

SHEET TITLE

FLORIDIAN AQUIFER GROUNDWATER POTENTIOMETRIC MAP
1ST 2013 SEMIANNUAL SAMPLING EVENT

PROJECT NUMBER

195292

PROJECT MANAGER

C. LEBRON

DATE

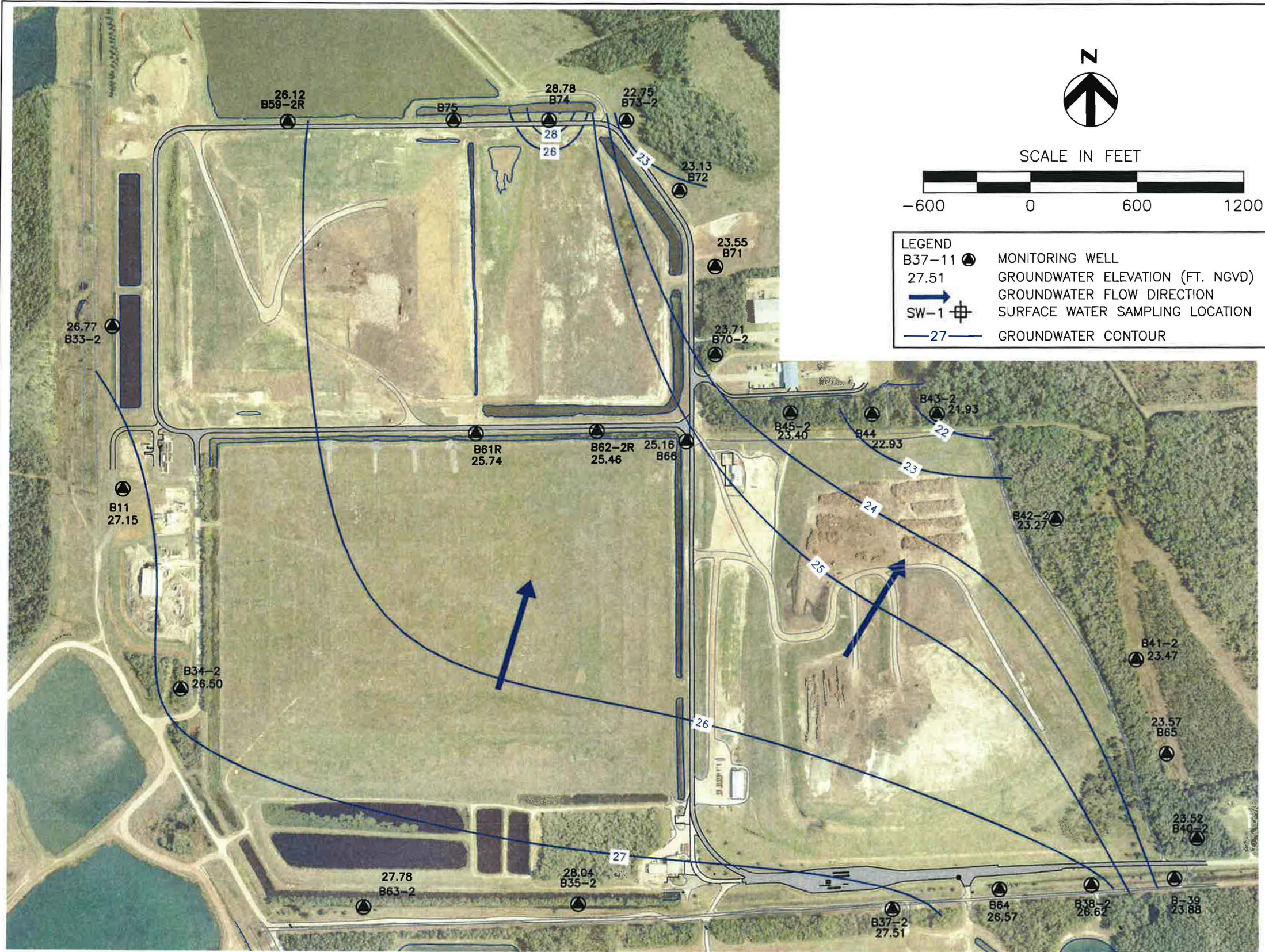
06/2013

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER

FIGURE 5



WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B11	29°08'02"	81°06'14"	32.95
B33-2	29°08'12"	81°06'14"	32.97
B34-2	29°07'51"	81°06'11"	31.20
B35-2	29°07'39"	81°05'46"	29.34
B37-02	29°07'39"	81°05'25"	28.76
B38-2	29°07'40"	81°05'13"	28.12
B39	29°07'40"	81°05'08"	29.09
B40-2	29°07'43"	81°05'07"	27.67
B41-2	29°07'53"	81°05'11"	29.27
B42-2	29°08'01"	81°05'16"	28.47
B43-2	29°08'07	81°05'23"	28.23
B44	29°08'07"	81°05'27"	30.03
B45-2	29°08'07"	81°05'32"	30.35
B59-2R	29°08'23"	81°06'05"	33.12
B61R	29°08'05"	81°05'52"	39.42
B62-2R	29°08'05"	81°05'44"	39.36
B63-2	29°07'39"	81°05'59"	30.38
B64	29°07'40"	81°05'19"	28.22
B65	29°07'48"	81°05'09"	27.97
B66	29°08'06"	81°05'38"	31.26
B70-2	29°08'11"	81°05'37"	31.51
B71	29°08'15"	81°05'37"	30.75
B72	29°08'20"	81°05'39"	28.93
B73-2	29°08'24"	81°05'42"	28.95
B74	29°08'24"	81°05'47"	33.78
B75	29°08'24"	81°05'53"	31.62

NOTES:

1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
2. GROUNDWATER CONTOURS DO NOT INCLUDE THE SURFACE WATER BODIES.
3. GROUND WATER LEVELS WERE MEASURED ON NOVEMBER 4, 2013.

Figure 10

HDR

PROJECT TITLE

TOMOKA FARMS ROAD LANDFILL

SHEET TITLE

ZONES 1 & 2 GROUNDWATER POTENTIOMETRIC MAP
2ND 2013 SEMI-ANNUAL SAMPLING EVENT

PROJECT NUMBER

195292

PROJECT MANAGER

C. LEBRON

DATE

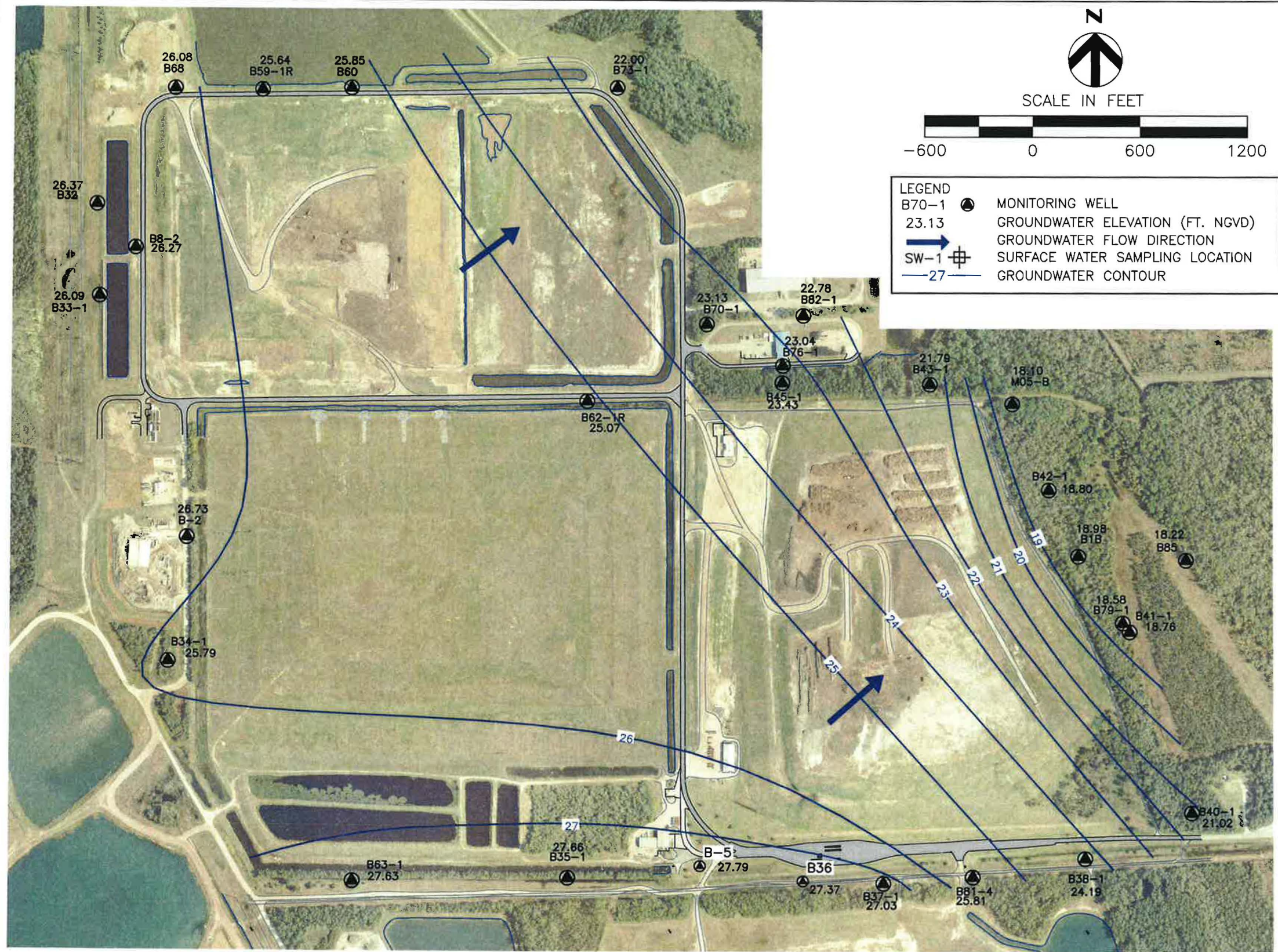
01/2014

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER

FIGURE 2

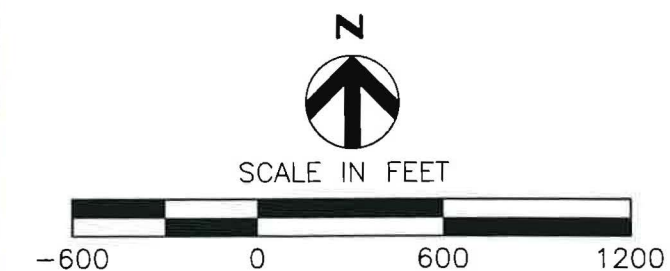


WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B1-B	29°07'57"	81°05'14"	28.78
B2	29°07'58"	81°06'09"	34.53
B32	29°08'17"	81°06'14"	30.92
B33-1	29°08'12"	81°06'14"	34.69
B34-1	29°07'51"	81°06'11"	31.19
B35-1	29°07'39"	81°05'46"	29.26
B36	29°07'39"	81°05'31"	29.33
B37-01	29°07'39"	81°05'25"	28.63
B38-1	29°07'40"	81°05'13"	28.24
B40-1	29°07'43"	81°05'07"	27.77
B41-1	29°07'53"	81°05'11"	29.16
B42-1	29°08'01"	81°05'16"	28.30
B43-1	29°08'07"	81°05'23"	28.09
B45-1	29°08'07"	81°05'32"	30.28
B5	29°07'40"	81°05'38"	32.59
B59-1R	29°08'23"	81°06'05"	32.44
B60	29°08'24"	81°05'59"	32.95
B62-1R	29°08'05"	81°05'44"	38.97
B63-1	29°07'39"	81°05'59"	30.03
B68	29°08'23"	81°06'10"	32.98
B70-1	29°08'11"	81°05'37"	31.03
B73-1	29°08'24"	81°05'42"	29.20
B8-2	29°08'14"	81°06'11"	33.37
M05-B	29°08'06"	81°05'18"	29.80
B76-1	29°08'08"	81°05'31"	27.39
B79-1	29°07'54"	81°05'09"	27.53
B81-4	29°07'39"	81°05'19"	29.76
B82-1	29°08'11"	81°05'30"	30.78
B85	29°07'57"	81°05'05"	27.07

- NOTES:
1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
 2. GROUND WATER LEVELS WERE MEASURED ON NOV. 4, 2013.

Figure 11

	PROJECT TITLE	PROJECT NUMBER	REFERENCE SHEET
	TOMOKA FARMS ROAD LANDFILL	195292	
	SHEET TITLE	PROJECT MANAGER	REFERENCE DOCUMENT
	ZONE 4 GROUNDWATER POTENTIOMETRIC MAP 2ND 2013 SEMIANNUAL SAMPLING EVENT	C. LEBRON	
		DATE	EXHIBIT NUMBER
		01/2014	FIGURE 3



LEGEND	
B76-6	MONITORING WELL
17.98	GROUNDWATER ELEVATION (FT. NGVD)
→	GROUNDWATER FLOW DIRECTION
SW-1	SURFACE WATER SAMPLING LOCATION
16	GROUNDWATER CONTOUR

WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B8-1	29°08'14"	81°06'11"	33.53
B76-6	29°08'08"	81°05'31"	27.33
B77	29°08'07"	81°05'32"	31.13
B79-6	29°07'54"	81°05'10"	27.51
B86	29°07'40"	81°05'19"	29.46
B85-6	29°07'57"	81°05'05"	27.02
B87-6	29°08'15"	81°05'26"	29.37

NOTES:

1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
2. GROUND WATER LEVELS WERE MEASURED ON NOV. 4, 2013.

Figure 12

HDR

PROJECT TITLE
TOMOKA FARMS ROAD LANDFILL

SHEET TITLE
ZONE 6 GROUNDWATER POTENTIOMETRIC MAP
2ND 2013 SEMI-ANNUAL SAMPLING EVENT

PROJECT NUMBER
195292

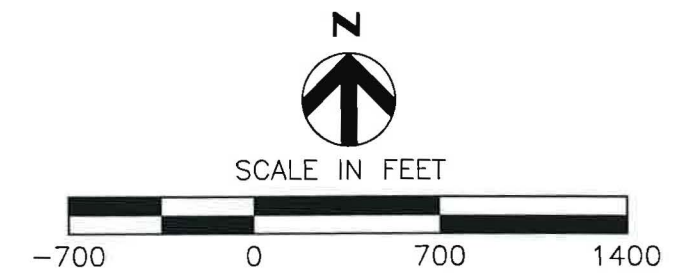
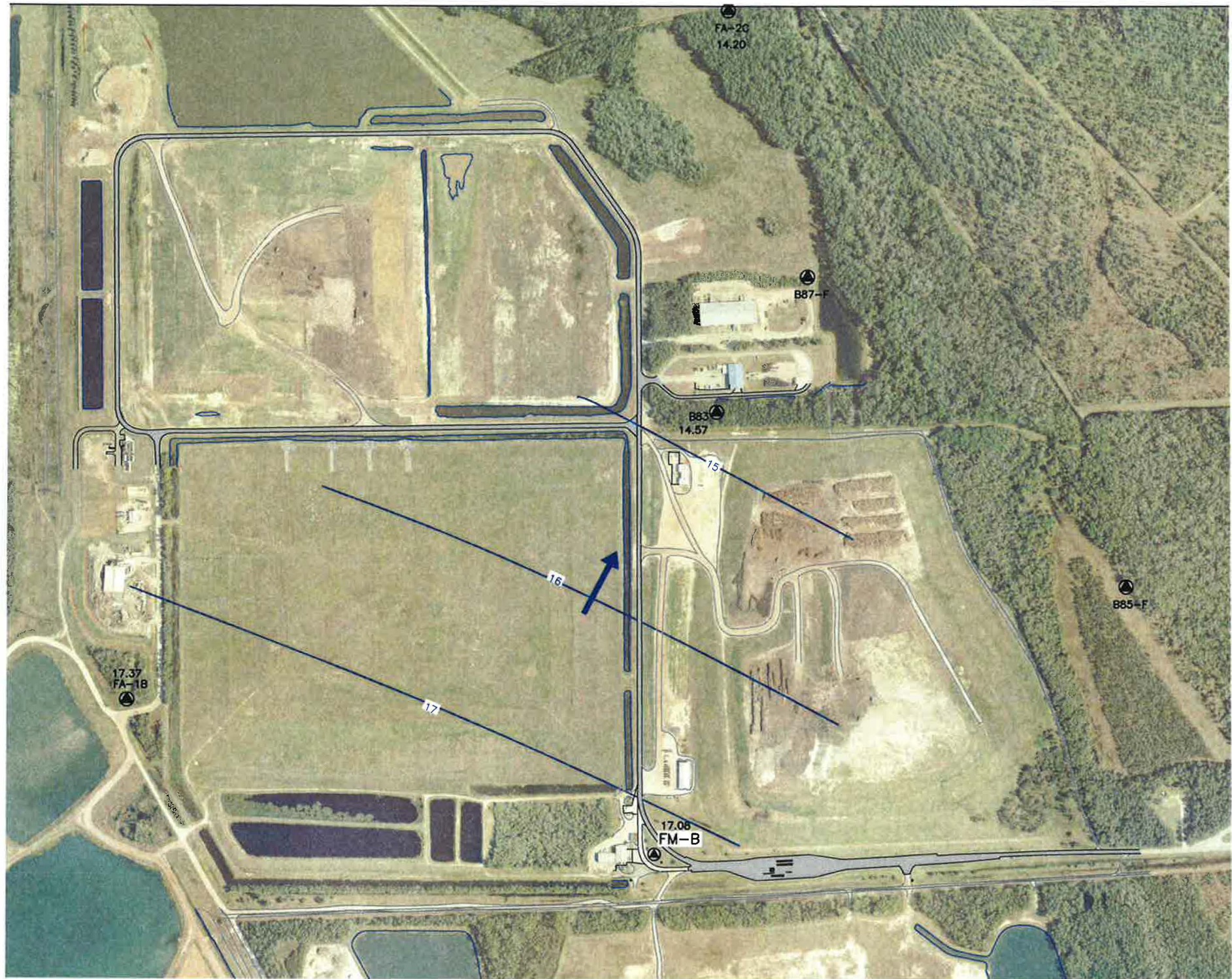
PROJECT MANAGER
C. LEBRON

DATE
01/2014

REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER
FIGURE 4



LEGEND	
FA-2C 14.20	MONITORING WELL
→	GROUNDWATER ELEVATION (FT. NGVD)
SW-1	GROUNDWATER FLOW DIRECTION
15	SURFACE WATER SAMPLING LOCATION
	GROUNDWATER CONTOUR

WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
FA-1B	29°07'51"	81°06'11"	32.22
FA-2C	29°08'31"	81°05'32"	28.10
FM-B	29°07'42"	81°05'36"	33.88
B85-F	29°07'57"	81°05'05"	27.47
B87-F	29°08'15"	81°05'26"	29.25
B83	29°08'07"	81°05'32"	30.57

NOTES:

1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
2. GROUND WATER LEVELS WERE MEASURED ON NOV. 4, 2013.

Figure 13

HDR

PROJECT TITLE

TOMOKA FARMS ROAD LANDFILL

SHEET TITLE

FLORIDAN AQUIFER GROUNDWATER POTENTIOMETRIC MAP
2ND 2013 SEMI-ANNUAL SAMPLING EVENT

PROJECT NUMBER

195292

PROJECT MANAGER

C. LEBRON

DATE

01/2014

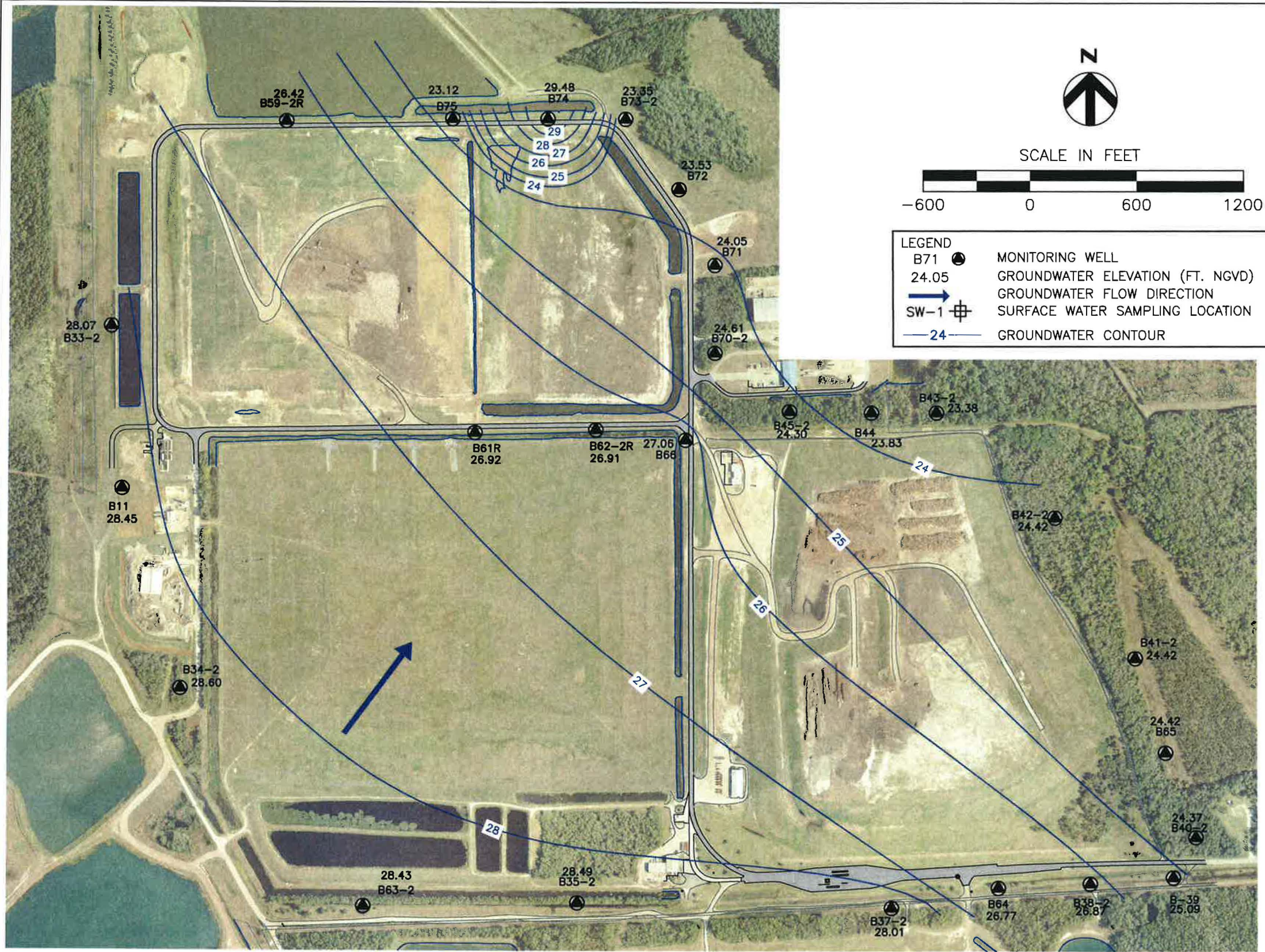
REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER

FIGURE 5

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WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B11	29°08'02"	81°06'14"	32.95
B33-2	29°08'12"	81°06'14"	32.97
B34-2	29°07'51"	81°06'11"	31.20
B35-2	29°07'39"	81°05'46"	29.34
B37-02	29°07'39"	81°05'25"	28.76
B38-2	29°07'40"	81°05'13"	28.12
B39	29°07'40"	81°05'08"	29.09
B40-2	29°07'43"	81°05'07"	27.67
B41-2	29°07'53"	81°05'11"	29.27
B42-2	29°08'01"	81°05'16"	28.47
B43-2	29°08'07"	81°05'23"	28.23
B44	29°08'07"	81°05'27"	30.03
B45-2	29°08'07"	81°05'32"	30.35
B59-2R	29°08'23"	81°06'05"	33.12
B61R	29°08'05"	81°05'52"	39.42
B62-2R	29°08'05"	81°05'44"	39.36
B63-2	29°07'39"	81°05'59"	30.38
B64	29°07'40"	81°05'19"	28.22
B65	29°07'48"	81°05'09"	27.97
B66	29°08'06"	81°05'38"	31.26
B70-2	29°08'11"	81°05'37"	31.51
B71	29°08'15"	81°05'37"	30.75
B72	29°08'20"	81°05'39"	28.93
B73-2	29°08'24"	81°05'42"	28.95
B74	29°08'24"	81°05'47"	33.78
B75	29°08'24"	81°05'53"	31.62

NOTES:

1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
2. GROUNDWATER CONTOURS DO NOT INCLUDE THE SURFACE WATER BODIES.
3. GROUND WATER LEVELS WERE MEASURED ON MAY 16, 2014.

Figure 14

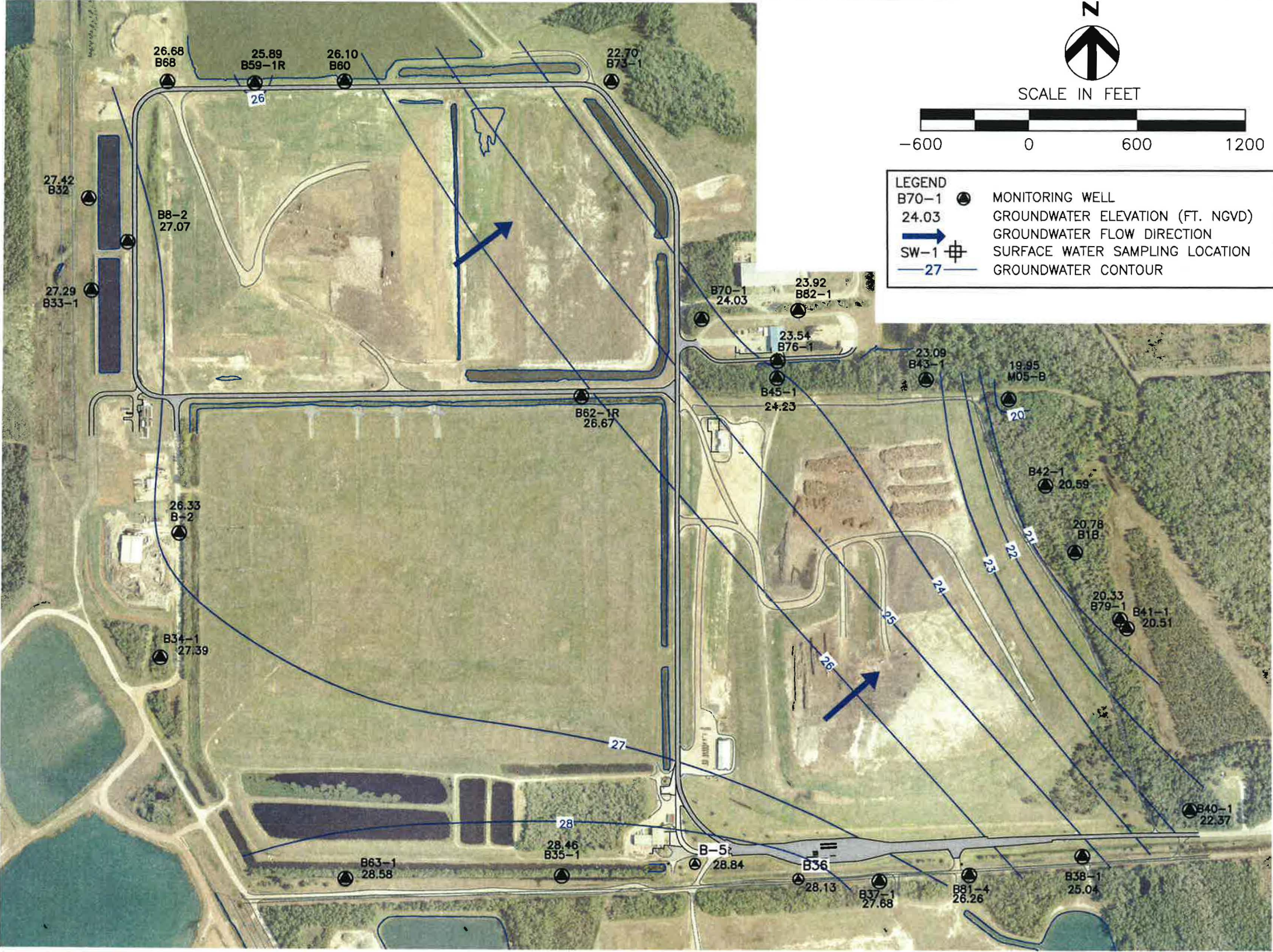
HDR

PROJECT TITLE
TOMOKA FARMS ROAD LANDFILL
SHEET TITLE
ZONES 1 & 2 GROUNDWATER POTENTIOMETRIC MAP
1ST 2014 SEMI-ANNUAL SAMPLING EVENT

PROJECT NUMBER
234399
PROJECT MANAGER
J. CATCHES
DATE
07/2014

REFERENCE SHEET
REFERENCE DOCUMENT
EXHIBIT NUMBER
FIGURE 2

C:\pwworking\tpad\0585898\Figure 3.dwg, 7/11/2014 10:03:18 AM, 1:1



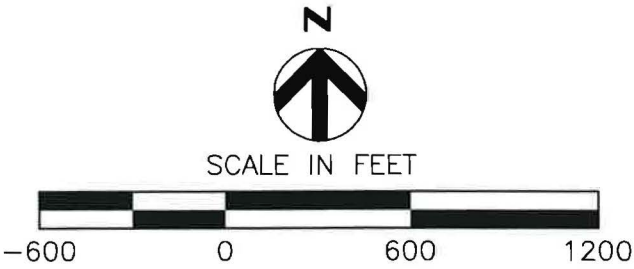
WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B1-B	29°07'57"	81°05'14"	28.78
B2	29°07'58"	81°06'09"	34.53
B32	29°08'17"	81°06'14"	30.92
B33-1	29°08'12"	81°06'14"	34.69
B34-1	29°07'51"	81°06'11"	31.19
B35-1	29°07'39"	81°05'46"	29.26
B36	29°07'39"	81°05'31"	29.33
B37-01	29°07'39"	81°05'25"	28.63
B38-1	29°07'40"	81°05'13"	28.24
B40-1	29°07'43"	81°05'07"	27.77
B41-1	29°07'53"	81°05'11"	29.16
B42-1	29°08'01"	81°05'16"	28.30
B43-1	29°08'07"	81°05'23"	28.09
B45-1	29°08'07"	81°05'32"	30.28
B5	29°07'40"	81°05'38"	32.59
B59-1R	29°08'23"	81°06'05"	32.44
B60	29°08'24"	81°05'59"	32.95
B62-1R	29°08'05"	81°05'44"	38.97
B63-1	29°07'39"	81°05'59"	30.03
B68	29°08'23"	81°06'10"	32.98
B70-1	29°08'11"	81°05'37"	31.03
B73-1	29°08'24"	81°05'42"	29.20
B8-2	29°08'14"	81°06'11"	33.37
M05-B	29°08'06"	81°05'18"	29.80
B76-1	29°08'08"	81°05'31"	27.39
B79-1	29°07'54"	81°05'09"	27.53
B81-4	29°07'39"	81°05'19"	29.76
B82-1	29°08'11"	81°05'30"	30.78

- NOTES:
1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
 2. GROUND WATER LEVELS WERE MEASURED ON MAY 16, 2014.

Figure 15

	PROJECT TITLE	PROJECT NUMBER	REFERENCE SHEET
	TOMOKA FARMS ROAD LANDFILL	234399	
	SHEET TITLE	PROJECT MANAGER	REFERENCE DOCUMENT
	ZONE 4 GROUNDWATER POTENTIOMETRIC MAP 1ST 2014 SEMI-ANNUAL SAMPLING EVENT	J. CATCHES	
		DATE	EXHIBIT NUMBER
		07/2014	FIGURE 3

C:\pwworking\tpad\0585898\Figure 4.dwg, 7/10/2014 3:53:47 PM, 1:1



LEGEND	
B76-6	MONITORING WELL
19.53	GROUNDWATER ELEVATION (FT. NGVD)
→	GROUNDWATER FLOW DIRECTION
SW-1	SURFACE WATER SAMPLING LOCATION
20	GROUNDWATER CONTOUR

WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
B8	29°08'14"	81°06'11"	33.53
B76-6	29°08'08"	81°05'31"	27.33
B77	29°08'07"	81°05'32"	31.13
B79-6	29°07'54"	81°05'10"	27.51
B86	29°07'40"	81°05'19"	29.46
B85-6	29°07'57"	81°05'05"	27.02
B87-6	29°08'15"	81°05'26"	29.37

- NOTES:
1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
 2. GROUND WATER LEVELS WERE MEASURED ON MAY 16, 2014.

Figure 16

PROJECT TITLE
TOMOKA FARMS ROAD LANDFILL

SHEET TITLE
ZONE 6 GROUNDWATER POTENTIOMETRIC MAP
1ST 2014 SEMIANNUAL SAMPLING EVENT

PROJECT NUMBER
234399

PROJECT MANAGER
J. CATCHES

DATE
07/2014

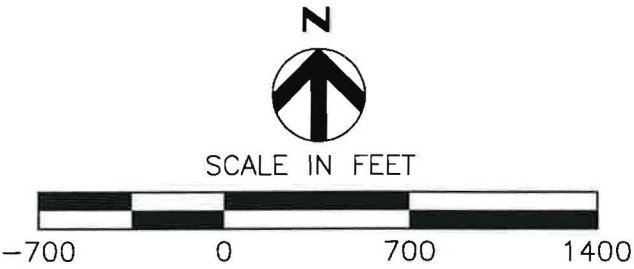
REFERENCE SHEET

REFERENCE DOCUMENT

EXHIBIT NUMBER
FIGURE 4

C:\pwworking\pald\0585898\Figure 5.dwg, 7/10/2014 4:00:18 PM, 1:1

Figure 17



LEGEND	
FA-2C 15.45	MONITORING WELL GROUNDWATER ELEVATION (FT. NGVD)
→	GROUNDWATER FLOW DIRECTION
SW-1	SURFACE WATER SAMPLING LOCATION
15	GROUNDWATER CONTOUR

WELL	LATITUDE	LONGITUDE	TOP OF CASING ELEVATION (NGVD)
FA-1B	29°07'51"	81°06'11"	32.22
FA-2C	29°08'31"	81°05'32"	28.10
F-MB	29°07'42"	81°05'36"	33.88
B85-F	29°07'57"	81°05'05"	27.47
B87-F	29°08'15"	81°05'26"	29.25
B83	29°08'07"	81°05'32"	30.57

- NOTES:
1. WELL SURVEY CONDUCTED BY SLIGER & ASSOCIATES ON MAY 01, 2009.
 2. GROUND WATER LEVELS WERE MEASURED ON MAY 16, 2014.

HDR

PROJECT TITLE	TOMOKA FARMS ROAD LANDFILL
SHEET TITLE	FLORIDAN AQUIFER GROUNDWATER POTENTIOMETRIC MAP 1ST 2014 SEMI-ANNUAL SAMPLING EVENT

PROJECT NUMBER	234399
PROJECT MANAGER	J. CATCHES
DATE	07/2014

REFERENCE SHEET	
REFERENCE DOCUMENT	
EXHIBIT NUMBER	FIGURE 5

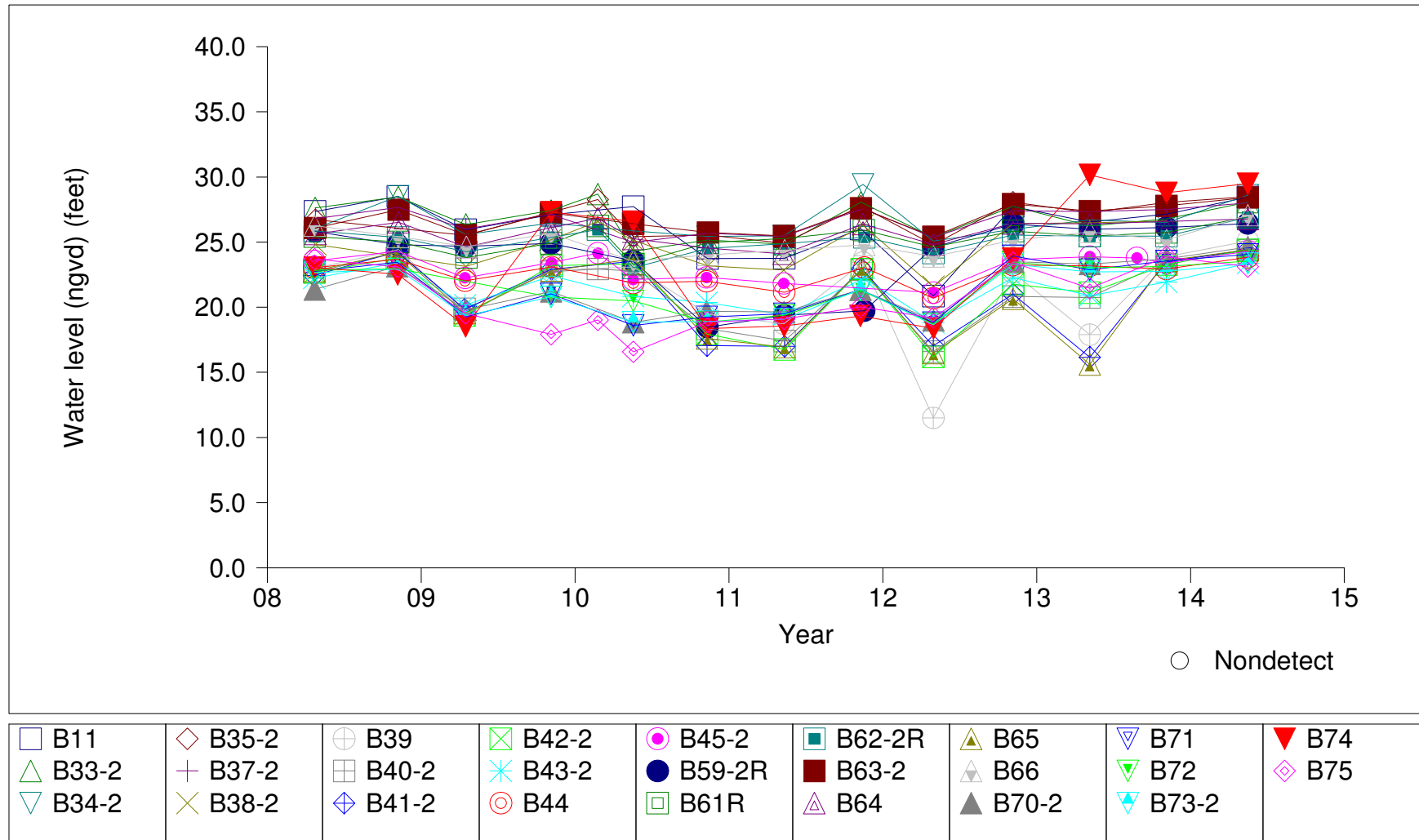


APPENDIX B

HYDROGRAPHS

TOMOKA FARMS ROAD LANDFILL

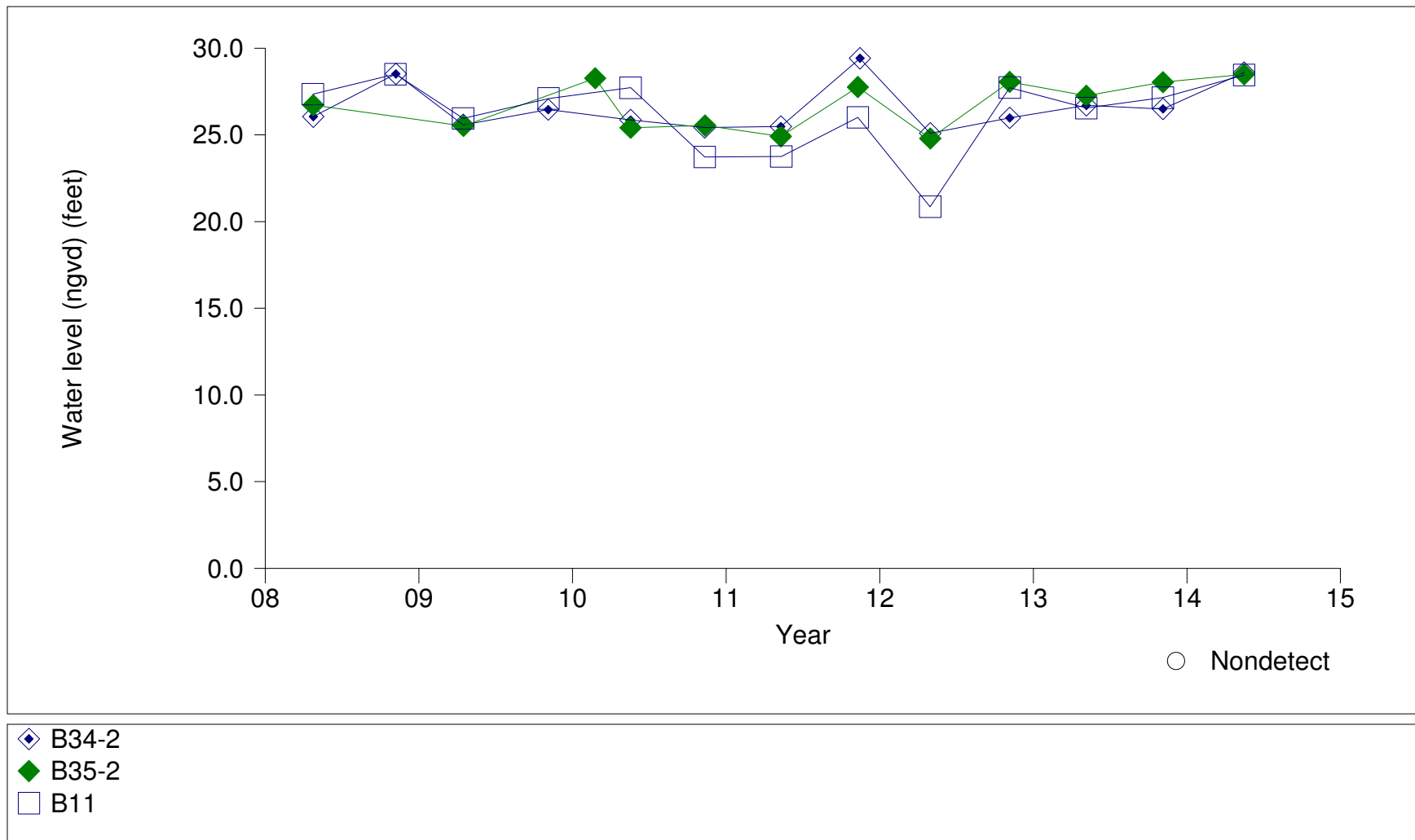
Hydrograph - Zone 1-2



Prepared by: HDR Engineering, Inc.

TOMOKA FARMS ROAD LANDFILL

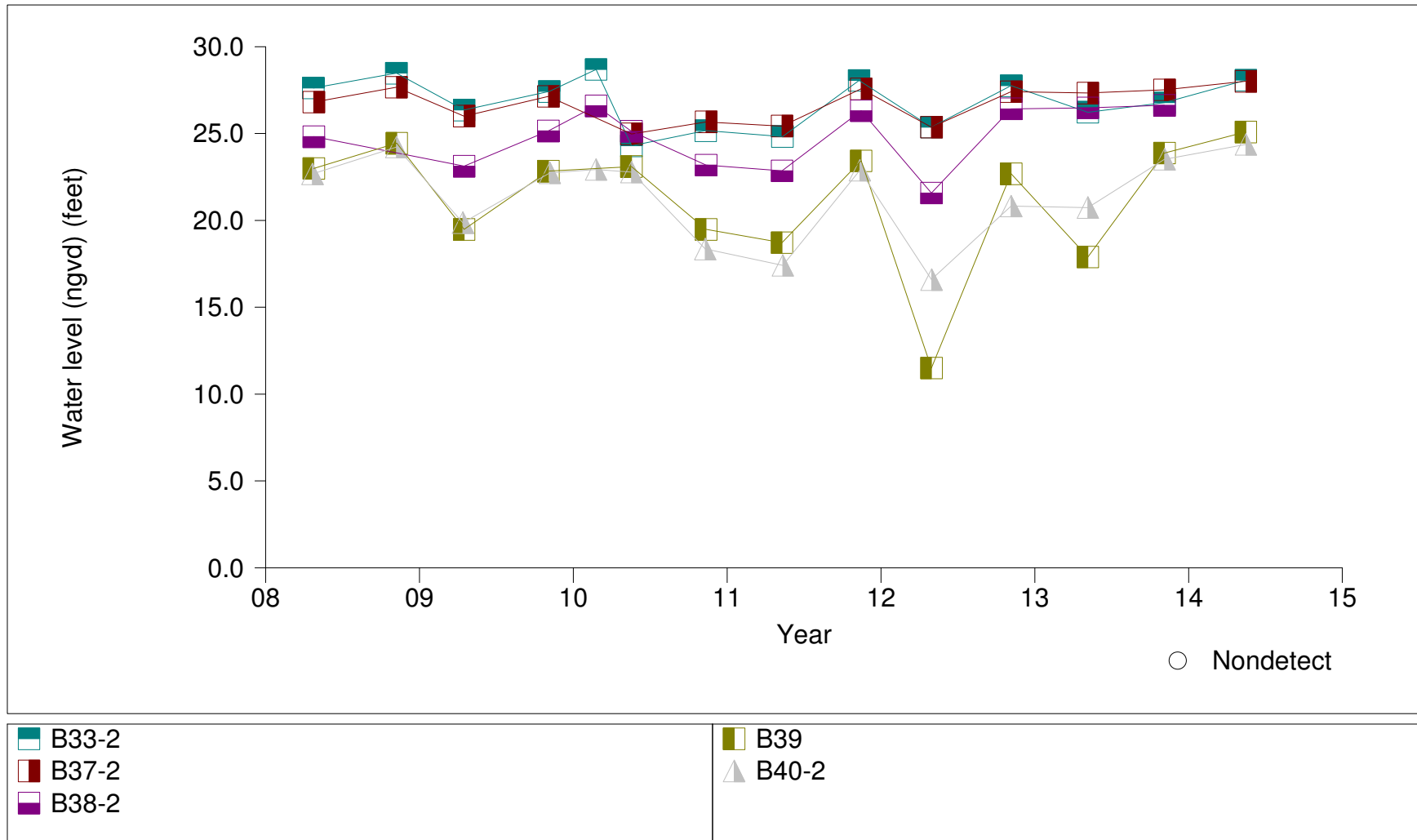
Hydrograph - Zone 1-2 Background Wells



Prepared by: HDR Engineering, Inc.

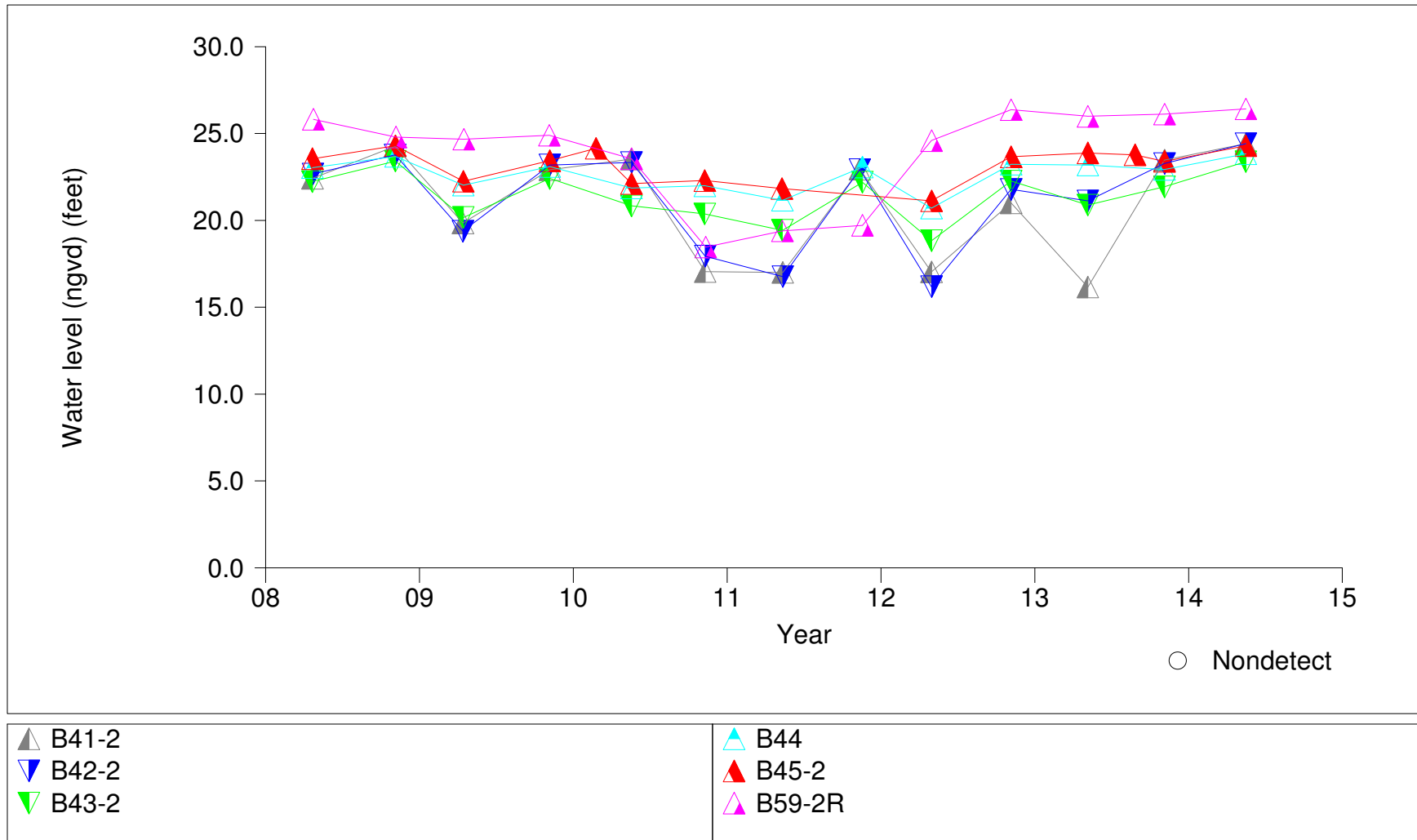
TOMOKA FARMS ROAD LANDFILL

Hydrograph - Zone 1-2



TOMOKA FARMS ROAD LANDFILL

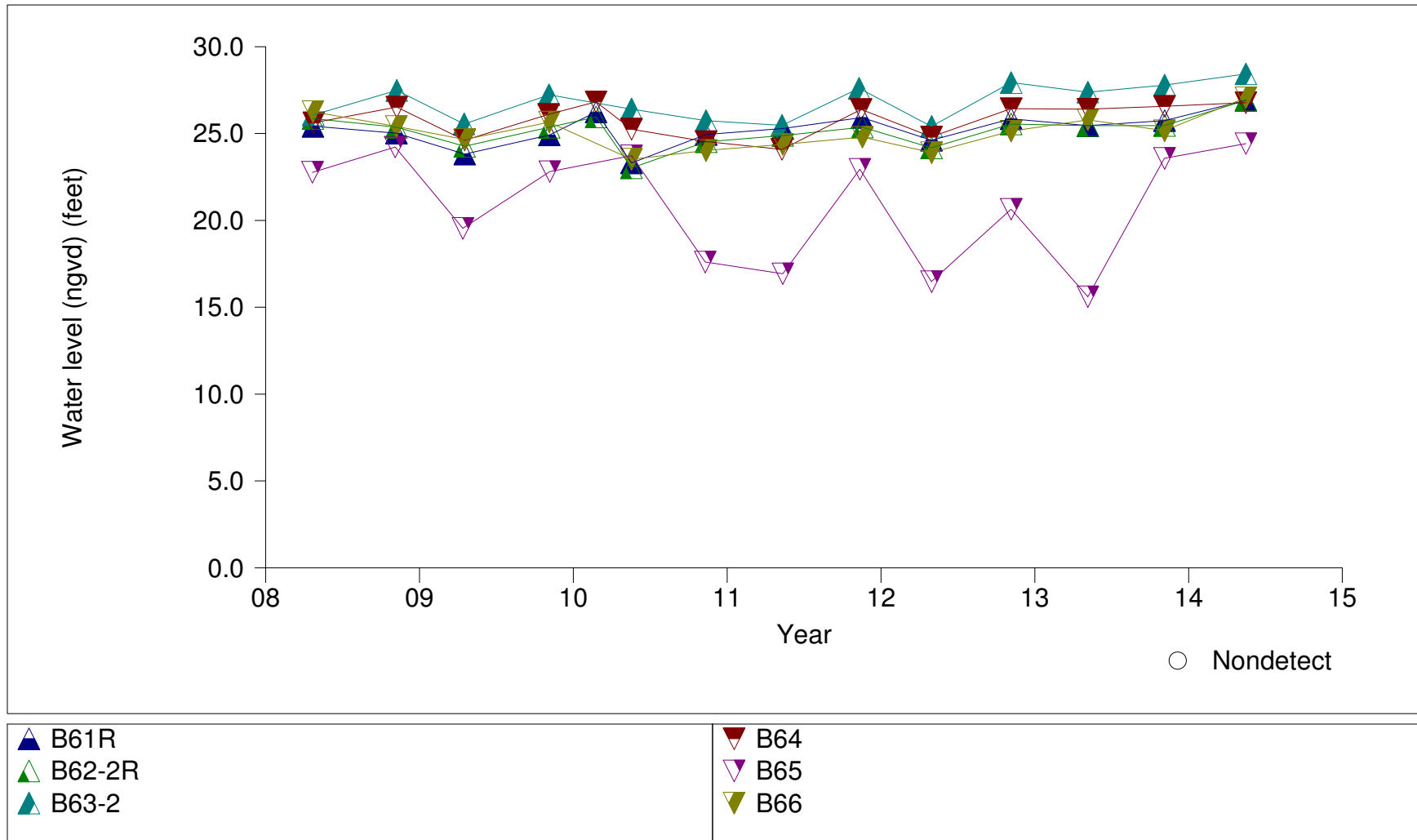
Hydrograph - Zone 1-2



Prepared by: HDR Engineering, Inc.

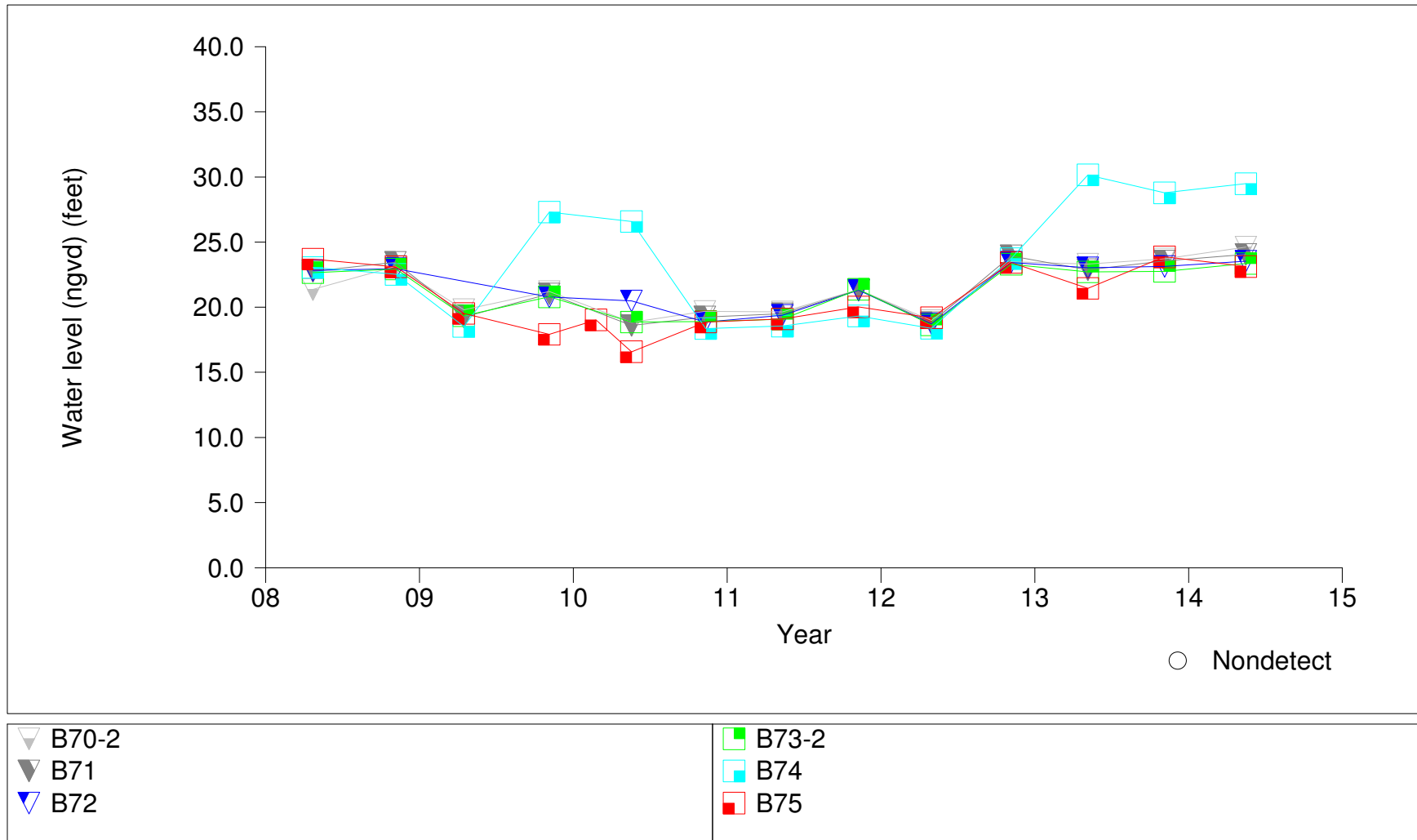
TOMOKA FARMS ROAD LANDFILL

Hydrograph - Zone 1-2



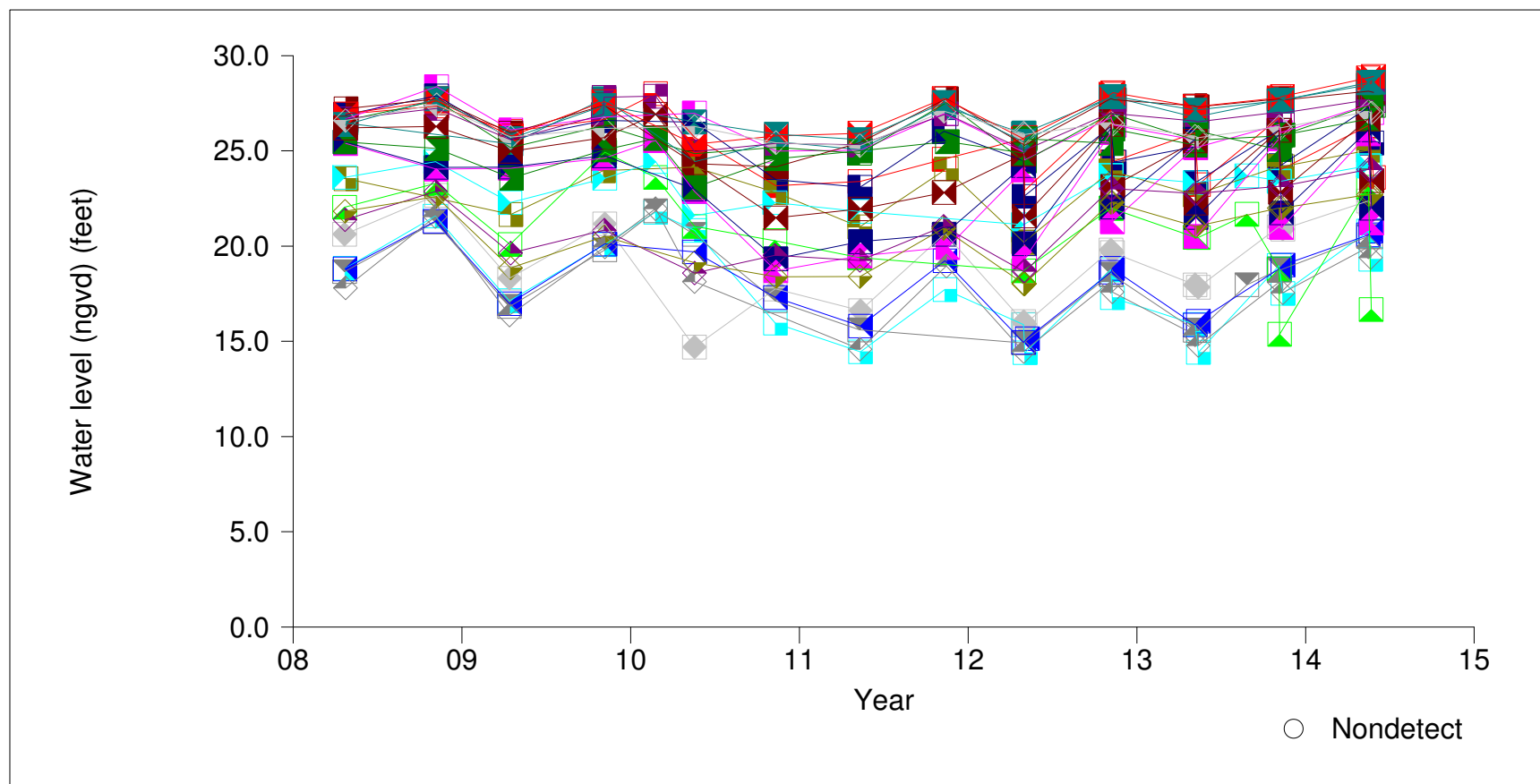
TOMOKA FARMS ROAD LANDFILL

Hydrograph - Zone 1-2



Tomoka Farms Road Landfill

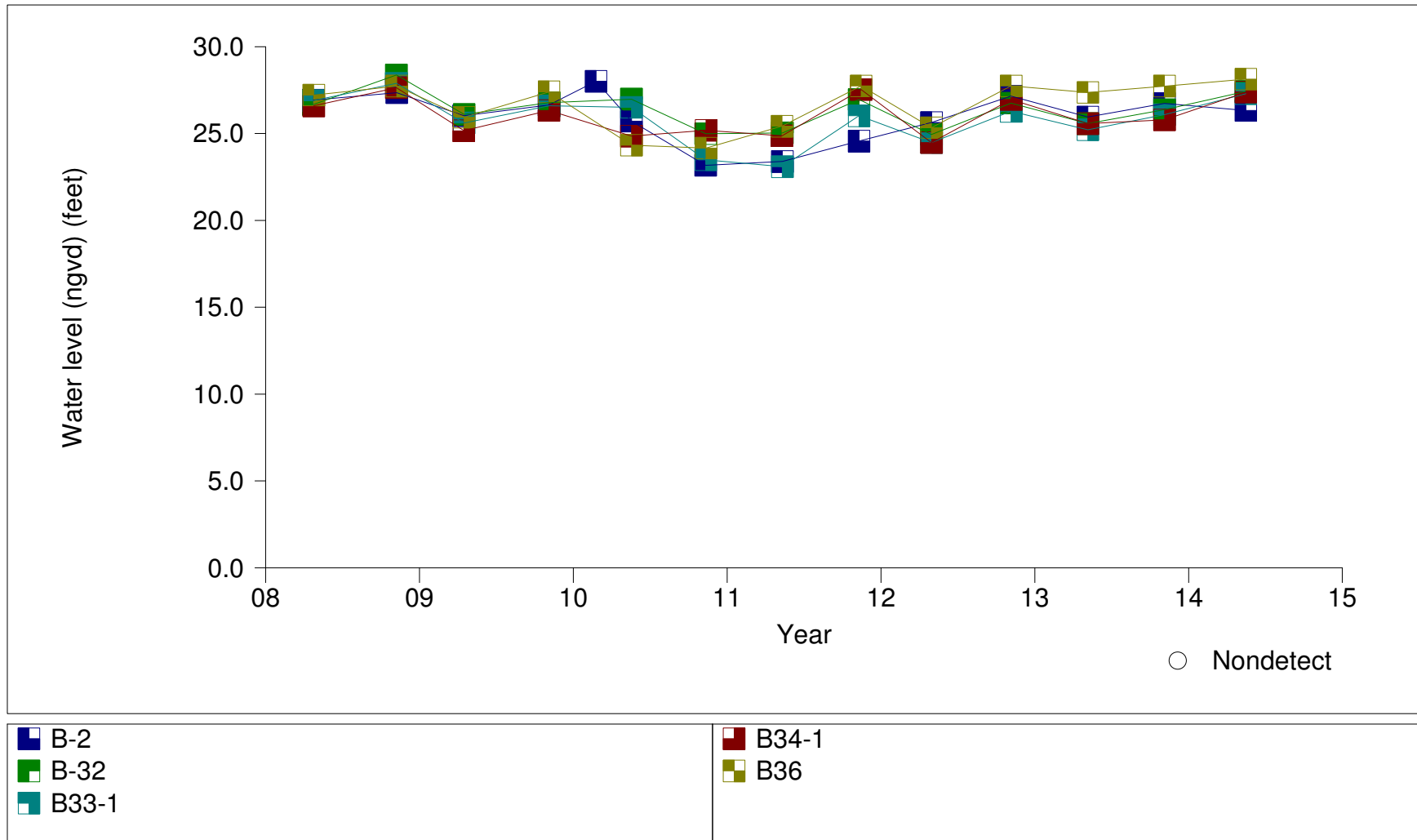
Hydrograph - Zone 4



B1-B	B33-1	B36	B40-1	B43-1	B59-1R	B63-1	B70-1
B-2	B34-1	B37-1	B41-1	B45-1	B60	B68	B73-1
B-32	B35-1	B38-1	B42-1	B-5	B62-1R	B70-1	B8-2

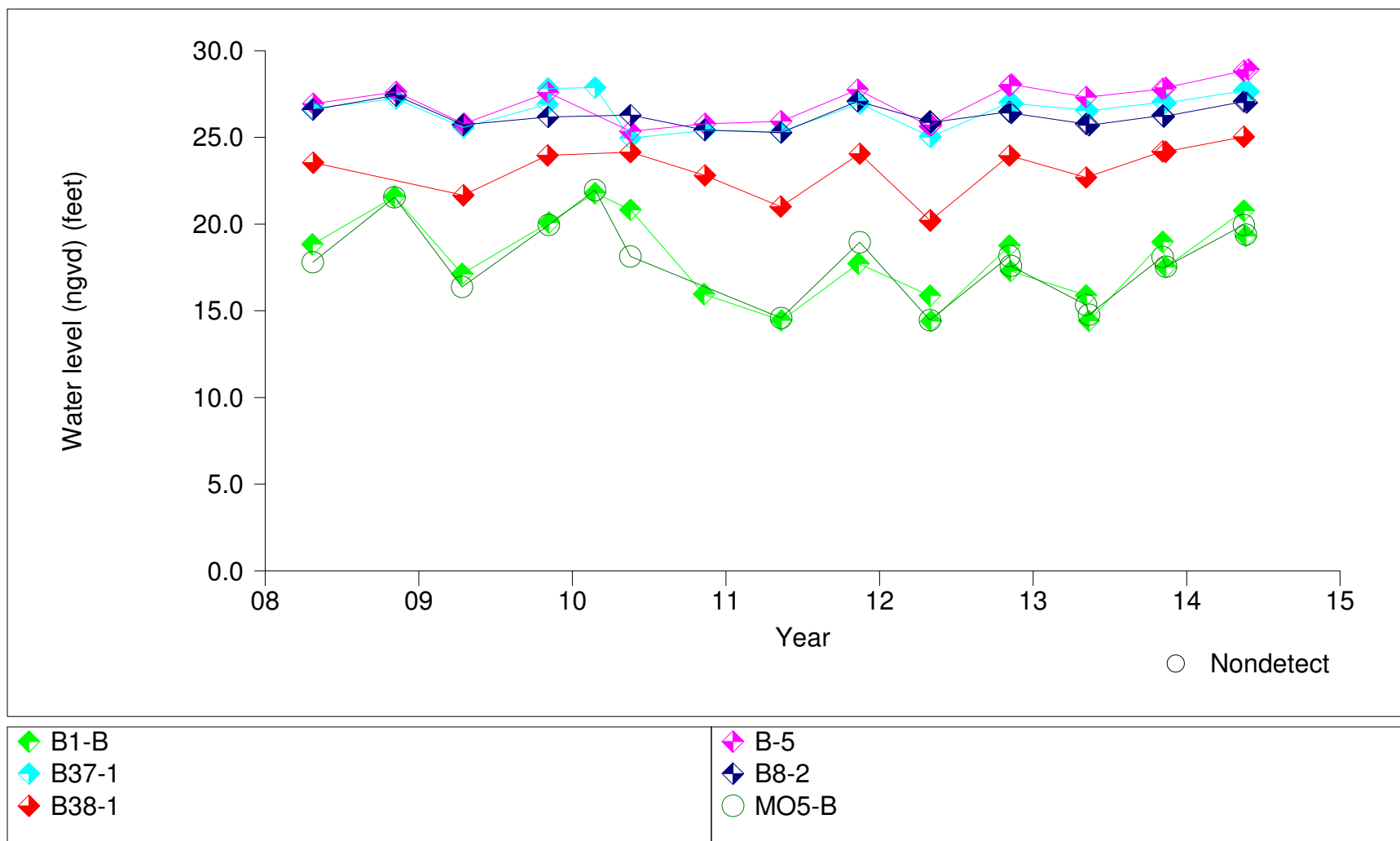
TOMOKA FARMS ROAD LANDFILL

Hydrograph - Zone 4 Background Wells



Tomoka Farms Road Landfill

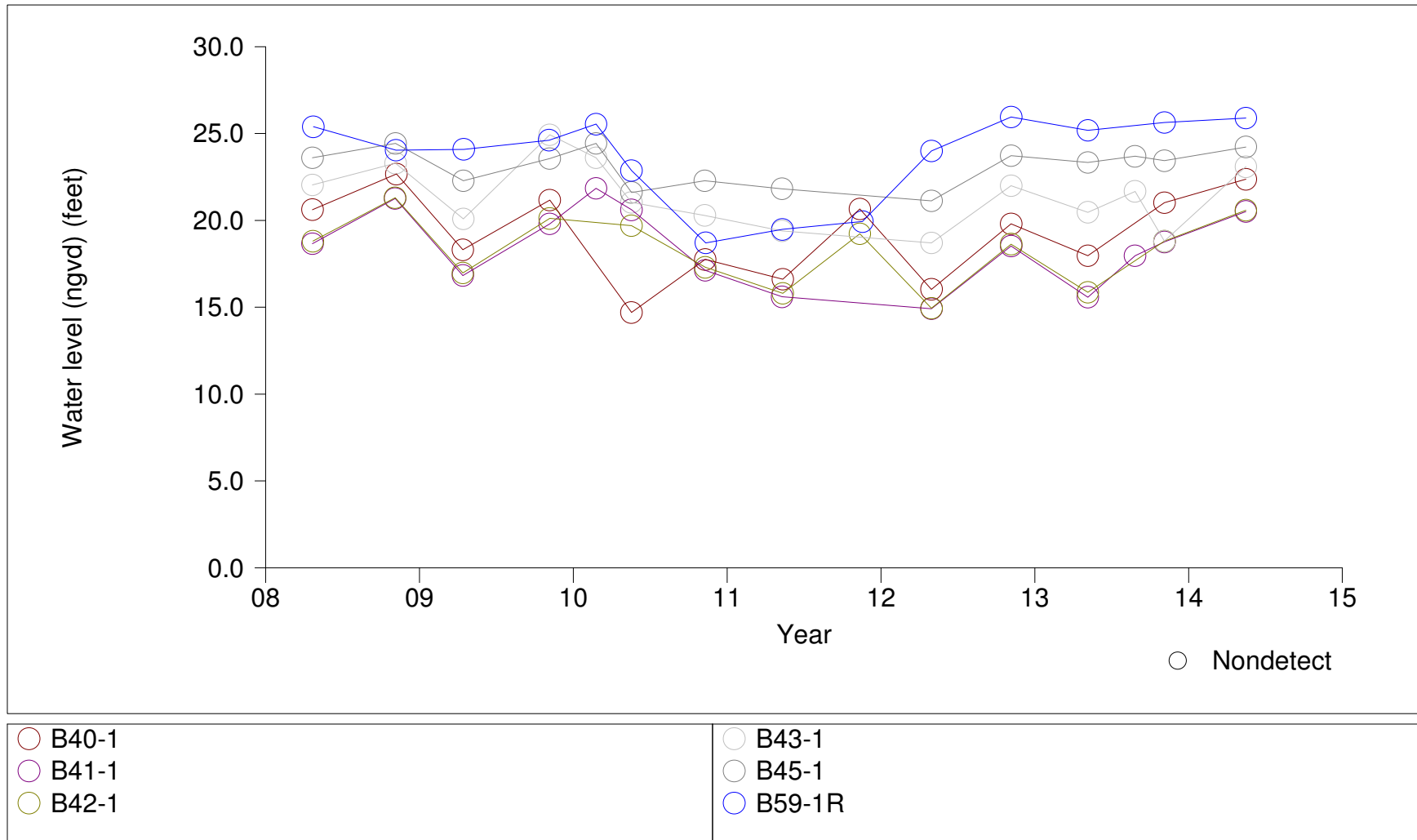
Hydrograph - Zone 4



Prepared by: HDR Engineering, Inc.

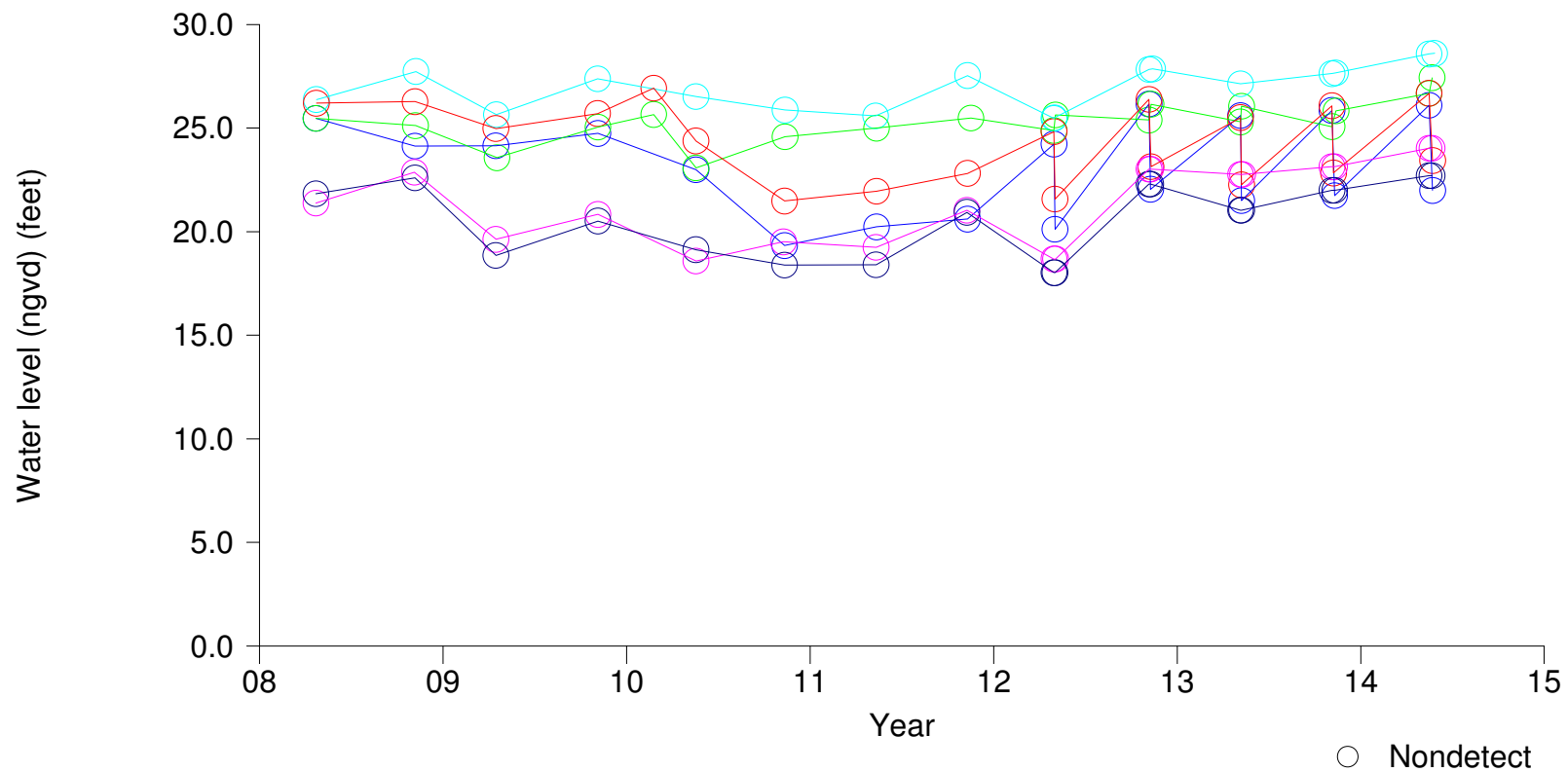
TOMOKA FARMS ROAD LANDFILL

Hydrograph - Zone 4



Tomoka Farms Road Landfill

Hydrograph - Zone 4

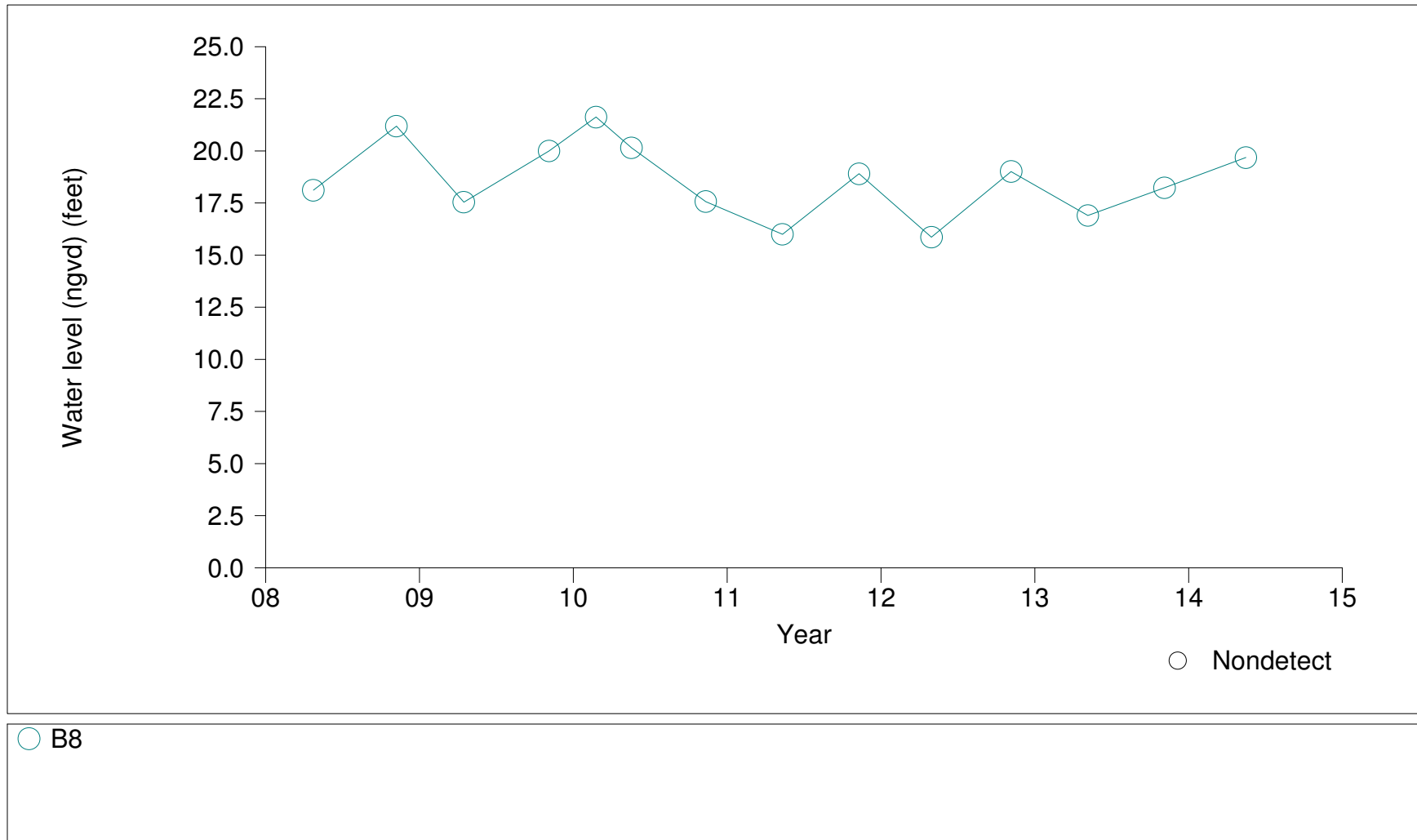


○ B60
○ B62-1R
○ B63-1

○ B68
○ B70-1
○ B73-1

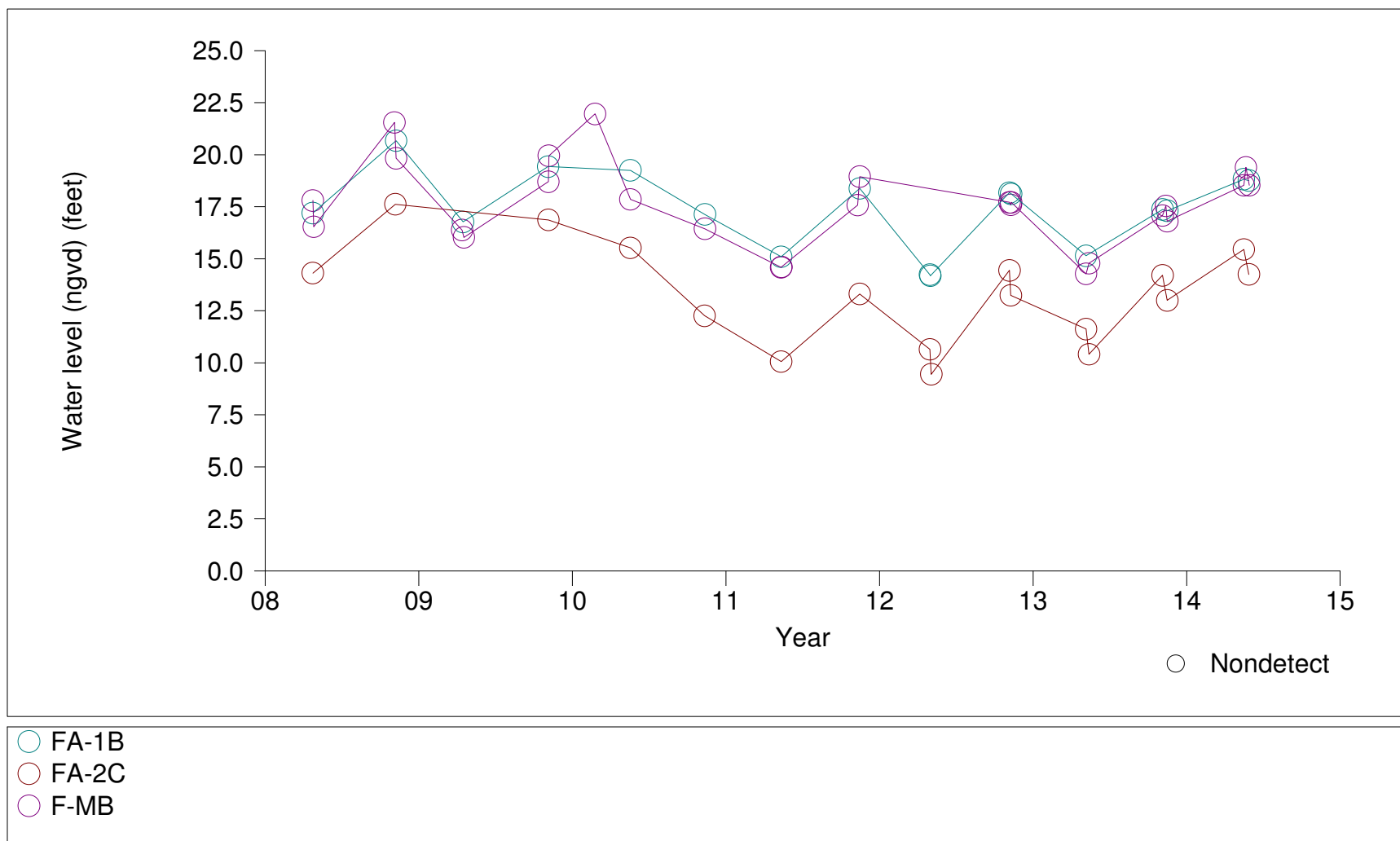
TOMOKA FARMS ROAD LANDFILL

Hydrograph - Zone 6



Tomoka Farms Road Landfill

Hydrograph - Floridan



Prepared by: HDR Engineering, Inc.



APPENDIX C

TABLES

- 1. Groundwater Well Construction Details**
- 2. Groundwater Elevation Data**
- 3. Surface Water Elevation Data**
- 4. Groundwater Flow Velocity Calculation**
- 5. Summary of Detected Groundwater Parameters – Zone 1-2**
- 6. Summary of Detected Groundwater Parameters – Zone 4 & 6**
- 7. Summary of Detected Groundwater Parameters – Floridan Aquifer**
- 8. Summary of Detected Surface Water Parameters**
- 9. Total Dissolved Solids/Specific Conductance (TDS/SC) Ratios**

Appendix C - Table 1
Tomoka Farms Road Landfill Monitoring Well Construction Details

Well ID	Also Known as	Well Type	Latitude	Longitude	Year Constructed	Monitored Zone	Well Diameter (Inches)	Riser Pipe Length (ft)	Ground Surface Elevation * (ft, NGVD)	Casing and Screen Characteristics								
										Casing				Screen				
										Bottom Depth (ft, BTOC)	Bottom Depth (ft, BLS)	TOC Elevation* (ft, NGVD)	Bottom Elevation (ft, NGVD)	Screen Length (ft)	Depth Top (ft, BLS)	Depth Bottom (ft, BLS)	Elevation Top (ft, NGVD)	Elevation Bottom (ft, NGVD)
B11	B-11B, B-11	BG	29°08'02"	-81°06'14"	1989	Zone 1-2	2	1.5	31.5	15.5	14	32.95	17.5	10	4	14	27.5	17.5
B62-2R		CO	29°08'05"	-81°05'44"	2002	Zone 1-2	2	4.1	35.3	22.1	18	39.36	17.3	7	11	18	24.3	17.3
B44	B-44	CO	29°08'07"	-81°05'27"	1994	Zone 1-2	2	1.7	28.3	13.7	12	30.03	16.3	7	5	12	23.3	16.3
B63-2		CO	29°07'39"	-81°05'59"	1994	Zone 1-2	2	2.1	28.3	14.1	12	30.38	16.3	7	5	12	23.3	16.3
B59-2R	B5-9-2	CO	29°08'23"	-81°06'05"	2005	Zone 1-2	2	2.8	30.3	17.8	15	33.12	15.3	10	5	15	25.3	15.3
B-66		CO	29°08'06"	-81°05'38"	1994	Zone 1-2	2	1.1	30.2	16.1	15	31.26	15.2	10	5	15	25.2	15.2
B33-2		BG	29°08'12"	-81°06'14"	1994	Zone 1-2	2	2.9	30.1	17.9	15	32.97	15.1	10	5	15	25.1	15.1
B42-2		CO	29°08'01"	-81°05'16"	1994	Zone 1-2	2	1.8	26.7	13.8	12	28.47	14.7	7	5	12	21.7	14.7
B43-2		CO	29°08'07"	-81°05'23"	1994	Zone 1-2	2	1.6	26.6	13.6	12	28.23	14.6	7	5	12	21.6	14.6
B-64		CO	29°07'40"	-81°05'19"	1994	Zone 1-2	2	1.6	26.6	13.6	12	28.22	14.6	7	5	12	21.6	14.6
B34-2		BG	29°07'51 "	-81°06'11"	1994	Zone 1-2	2	1.8	29.4	16.8	15	31.2	14.4	10	5	15	24.4	14.4
B45-2		CO	29°08'07"	-81°05'32"	1994	Zone 1-2	2	1.8	28.6	16.8	15	30.35	13.6	10	5	15	23.6	13.6
B35-2		BG	29°07'39"	-81°05'46"	1994	Zone 1-2	2	1.7	27.6	16.7	15	29.34	12.6	10	5	15	22.6	12.6
B37-2		CO	29°07'39"	-81°05'25"	1994	Zone 1-2	2	1.4	27.4	16.4	15	28.76	12.4	10	5	15	22.4	12.4
B41-2		CO	29°07'53"	-81°05'11"	1994	Zone 1-2	2	1.9	27.4	16.9	15	29.27	12.4	10	5	15	22.4	12.4
B74		DE	29°08'24"	-81°05'47"	2003	Zone 1-2	2	3.5	30.3	21.5	18	33.78	12.3	15	3	18	27.3	12.3
B75		DE	29°08'24"	-81°05'53"	2003	Zone 1-2	2	1.3	30.3	19.3	18	31.62	12.3	15	3	18	27.3	12.3
B-39		CO	29°07'40"	-81°05'08"	1994	Zone 1-2	2	1.9	27.2	16.9	15	29.09	12.2	10	5	15	22.2	12.2
B38-2		CO	29°07'40"	-81°05'13"	1994	Zone 1-2	2	1.8	26.3	16.8	15	28.12	11.3	10	5	15	21.3	11.3
B-65		CO	29°07'48"	-81°05'09"	1994	Zone 1-2	2	1.9	26.1	16.9	15	27.97	11.1	10	5	15	21.1	11.1
B-61R	B-61	CO	29°08'05"	-81°05'52"	2002	Zone 1-2	2	3.7	35.7	28.7	25	39.42	10.7	10	15	25	20.7	10.7
B40-2		CO	29°07'43"	-81°05'07"	1994	Zone 1-2	2	2.1	25.6	17.1	15	27.67	10.6	10	5	15	20.6	10.6
B70-2		DE	29°08'11"	-81°05'37"	2003	Zone 1-2	2	3	28.5	21	18	31.51	10.5	15	3	18	25.5	10.5
B72		DE	29°08'20"	-81°05'39"	2003	Zone 1-2	2	0.9	28	18.9	18	28.93	10	15	3	18	25	10
B71		DE	29°08'15"	-81°05'37"	2003	Zone 1-2	2	2.9	27.9	20.9	18	30.75	9.9	15	3	18	24.9	9.9
B73-2		DE	29°08'24"	-81°05'42"	2003	Zone 1-2	2	2.5	26.5	20.5	18	28.95	8.5	15	3	18	23.5	8.5
B-5	B5-B, B5	CO	29°07'40"	-81°05'38"	1991	Zone 4	2	1.4	31.2	24.4	23	32.59	8.2	5	18	23	13.2	8.2
B-2	B-2-B	BG	29°07'58"	-81°06'09"	2005	Zone 4	2	2.9	31.6	26.9	24	34.53	7.6	5	19	24	12.6	7.6
B-68		CO	29°08'23"	-81°06'10"	1994	Zone 4	2	2.3	30.7	32.3	30	32.98	0.7	10	20	30	10.7	0.7
B8-2		IM	29°08'14"	-81°06'11"	1994	Zone 4	2	2.8	30.6	32.8	30	33.37	0.6	10	20	30	10.6	0.6
B-60	B60	CO	29°08'24"	-81°05'59"	1994	Zone 4	2	2.5	30.5	32.5	30	32.95	0.5	10	20	30	10.5	0.5
B62-1R		CO	29°08'05"	-81°05'44"	2002	Zone 4	2	3.8	35.2	38.8	35	38.97	0.2	15	20	35	15.2	0.2
B33-1		BG	29°08'12"	-81°06'14"	1991	Zone 4	2	3	31.7	35	32	34.69	-0.3	10	22	32	9.7	-0.3
B43-1		CO	29°08'07"	-81°05'23"	1994	Zone 3-4	2	1.5	26.6	28.5	27	28.09	-0.4	10	17	27	9.6	-0.4
B-32		BG	29°08'17"	-81°06'14"	1994	Zone 4	2	1.3	29.6	31.3	30	30.92	-0.4	10	20	30	9.6	-0.4
B63-1		CO	29°07'39"	-81°05'59"	1994	Zone 4	2	1.6	28.4	30.6	29	30.03	-0.6	10	19	29	9.4	-0.6
B59-1R	B5-9-1	CO	29°08'23"	-81°06'05"	2005	Zone 4	2	2.1	30.3	34.1	32	32.44	-1.7	10	22	32	8.3	-1.7
B40-1		CO	29°07'43"	-81°05'07"	1994	Zone 4	2	2.2	25.6	30.2	28	27.77	-2.4	10	18	28	7.6	-2.4
B34-1		BG	29°07'51"	-81°06'11"	1994	Zone 4	2	1.8	29.4	33.8	32	31.19	-2.6	10	22	32	7.4	-2.6

Appendix C - Table 1
Tomoka Farms Road Landfill Monitoring Well Construction Details

Well ID	Also Known as	Well Type	Latitude	Longitude	Year Constructed	Monitored Zone	Well Diameter (Inches)	Riser Pipe Length (ft)	Ground Surface Elevation * (ft, NGVD)	Casing and Screen Characteristics								
										Casing				Screen				
										Bottom Depth (ft, BTOC)	Bottom Depth (ft, BLS)	TOC Elevation* (ft, NGVD)	Bottom Elevation (ft, NGVD)	Screen Length (ft)	Depth Top (ft, BLS)	Depth Bottom (ft, BLS)	Elevation Top (ft, NGVD)	Elevation Bottom (ft, NGVD)
B42-1		CO	29°08'01"	-81°05'16"	1994	Zone 4	2	1.6	26.7	31.6	30	28.3	-3.3	10	20	30	6.7	-3.3
B35-1		BG	29°07'39"	-81°05'46"	1994	Zone 4	2	1.7	27.6	33.7	32	29.26	-4.4	10	22	32	5.6	-4.4
B36	B-36	BG	29°07'39"	-81°05'31"	1994	Zone 4	2	1.6	27.7	34.6	33	29.33	-5.3	10	23	33	4.7	-5.3
MO5B	MO-5B,MO5	CO	29°08'06"	-81°05'18"	1987	Zone 4	2	3.4	26.4	35.4	32	29.8	-5.6	5	27	32	-0.6	-5.6
B1-B	B-1B	CO	29°07'57"	-81°05'14"	1987	Zone 4	2	1.8	27	34.8	33	28.78	-6	5	28	33	-1	-6
B70-1		CI	29°08'11 "	-81°05'37"	2003	Zone 4	2	2.5	28.5	37.5	35	31.03	-6.5	10	25	35	3.5	-6.5
B45-1		CO	29°08'07"	-81°05'32"	1994	Zone 4	2	2	28.3	37	35	30.28	-6.7	10	25	35	3.3	-6.7
B73-1		CO	29°08'24"	-81°05'42"	2003	Zone 4	2	2.3	26.9	37.3	35	29.2	-8.1	10	25	35	1.9	-8.1
B41-1		CO	29°07'53"	-81°05'11"	1994	Zone 4	2	1.8	27.4	38.8	37	29.16	-9.6	10	27	37	0.4	-9.6
B37-1		CO	29°07'39"	-81°05'25"	1994	Zone 4	2	1.4	27.2	38.4	37	28.63	-9.8	10	27	37	0.2	-9.8
B38-1		CO	29°07'40"	-81°05'13"	1994	Zone 4	2	2	26.2	39	37	28.24	-10.8	10	27	37	-0.8	-10.8
B8	B8-1	IM	29°08'14"	-81°06'11"	1987	Zone 6	2	2.6	30.9	50.6	48	33.53	-17.1	5	43	48	-12.1	-17.1
FA-1B		BG	29°07'51"	-81°06'11"	1987	Floridan	2	3	29.2	95	92	32.22	-62.8	1	91	92	-61.8	-62.8
FA-2C		CO	29°08'31"	-81°05'32"	1991	Floridan	2	2.6	25.5	102.6	100	28.1	-74.5	6	94	100	-68.5	-74.5
F-MB	FM-B	CO	29°07'42"	-81°05'36"	2008	Floridan	2	2.8	31.08	100.8	98	33.88	NA	NA	NA	NA	NA	NA

Note: ft = feet
 NGVD = National Geodetic Vertical Datum
 TOC = Top of Casing
 BTOC = Below Top of Casing
 BLS = Below Land Surface
 *Surfey data taken from Survey performed by Sliger & Associates, Inc., dated October 8, 2013

Appendix C
Table 2 - Groundwater Elevation Data
Tomoka Farms Landfill
Reporting Period Spring 2012 to Spring 2014

Well Number	Aquifer Zone	Top of Casing (feet, NGVD)	Monitoring Date				
			4/30/12	11/5/12	5/6/13	11/4/13	5/16/14
			Groundwater Elevation (ft, NGVD)				
Zone 1 & 2							
B11	1-2	32.95	20.86	27.73	26.55	27.15	28.45
B33-2	1-2	32.97	25.36	26.98	26.23	26.77	28.07
B34-2	1-2	31.20	25.09	29.01	26.70	26.50	28.60
B35-2	1-2	29.34	24.79	28.06	27.26	28.04	28.49
B37-2	1-2	28.76	25.36	27.41	27.33	27.51	28.01
B38-2	1-2	28.12	21.58	26.42	26.48	26.62	26.87
B-39	1-2	29.09	11.50	22.68	17.89	23.88	25.09
B40-2	1-2	27.67	16.59	20.82	20.74	23.52	24.37
B41-2	1-2	29.27	17.03	21.01	16.16	23.47	24.42
B42-2	1-2	28.47	16.18	21.78	21.12	23.27	24.42
B43-2	1-2	28.23	18.83	22.27	20.88	21.93	23.38
B44	1-2	30.03	20.70	23.23	23.18	22.93	23.83
B45-2	1-2	30.35	21.12	23.66	23.88	23.40	24.30
B59-2R	1-2	33.12	24.59	26.37	25.99	26.12	26.42
B61R	1-2	39.42	24.61	25.85	25.45	25.74	26.92
B62-2R	1-2	39.36	24.17	25.55	25.46	25.46	26.91
B63-2	1-2	30.38	25.41	27.93	27.38	27.78	28.43
B64	1-2	28.22	24.81	26.43	26.42	26.57	26.77
B65	1-2	27.97	16.47	20.64	15.60	23.57	24.42
B66	1-2	31.26	23.90	25.14	25.79	25.16	27.06
B70-2	1-2	31.51	18.98	23.49	23.31	23.71	24.61
B71	1-2	30.75	18.81	23.94	22.88	23.55	24.05
B72	1-2	28.93	18.71	23.44	23.03	23.13	23.53
B73-2	1-2	28.95	18.64	23.30	22.71	22.75	23.35
B74	1-2	33.78	18.38	23.73	30.16	28.78	29.48
B75	1-2	31.62	19.19	23.43	21.45	23.87	23.12
Zone 4							
B-1B	4	28.78	15.87	18.76	15.89	18.98	20.78
B-2	4	34.53	25.63	27.15	25.95	26.73	26.33
B-5	4	32.59	25.64	27.98	27.29	27.79	28.84
B8-2	4	33.37	25.93	26.47	25.77	26.27	27.07
B-32	4	30.92	24.94	26.75	25.57	26.37	27.42
B33-1	4	34.69	24.48	26.28	25.22	26.09	27.29
B34-1	4	31.19	24.48	26.96	25.57	25.79	27.39
B35-1	4	29.26	25.91	27.81	26.76	27.66	28.46

Well Number	Aquifer Zone	Top of Casing (feet, NGVD)	Monitoring Date				
			4/30/12	11/5/12	5/6/13	11/4/13	5/16/14
			Groundwater Elevation (ft, NGVD)				
B-36	4	29.33	25.34	27.74	27.37	27.73	28.13
B37-1	4	28.63	25.06	27.00	26.57	27.03	27.68
B38-1	4	28.24	20.22	23.96	22.70	24.19	25.04
B40-1	4	27.77	16.03	19.80	17.97	21.02	22.37
B41-1	4	29.16	14.91	18.52	15.58	18.76	20.51
B42-1	4	28.30	14.94	18.63	15.86	18.80	20.59
B43-1	4	28.09	18.70	22.00	20.47	21.79	23.09
B45-1	4	30.28	21.13	23.73	23.33	23.43	24.23
B59-1R	4	32.44	24.00	25.95	25.18	25.64	25.89
B60	4	32.95	24.23	26.16	25.61	25.85	26.10
B62-1R	4	38.97	24.88	25.39	25.30	25.07	26.67
B63-1	4	30.03	25.47	27.83	27.12	27.63	28.58
B68	4	32.98	24.83	26.39	25.51	26.08	26.68
B70-1	4	31.03	18.68	23.02	22.76	23.13	24.03
B73-1	4	29.20	18.02	22.30	21.03	22.00	22.70
MO5-B	4	29.80	14.46	18.15	15.34	18.10	19.95
B76-1	4	27.39			22.27	23.04	23.54
B79-1	4	27.53			15.44	18.58	20.33
B81-4	4	29.76			25.26	25.81	26.26
B82-1	4	30.78			22.44	22.78	23.93
Zone 6							
B8	6	33.53	15.86	19.01	16.63	18.23	19.68
B76-6	6	27.33			15.94	17.98	19.53
B77	6	31.13			16.23	18.33	19.83
B79-6	6	27.51			15.58	18.71	20.51
B85-6	6	27.02				18.87	19.92
B86	6	29.46			18.19	20.46	22.01
B87-6	6	29.37				17.97	19.17
Floridian Aquifer							
B85-F	FL	27.47				16.72	17.27
B87-F	FL	29.43				15.73	16.73
FA-1B	FL	32.22	14.24	18.18	15.17	17.37	18.82
FA-2C	FL	28.10	10.65	14.44	11.62	14.20	15.45
F-MB	FL	33.88	13.76	17.71	14.79	17.08	18.53

Notes: NGVD = National Geodetic Vertical Datum of 1929
Shade cell indicated that well was not yet installed for the period.

Appendix C
Table 3 - Surface Water Elevation Data
Tomoka Farms Road, Volusia County, Florida
Spring 2012 to Spring 2014

Location	Staff Gage Reference Elevation (ft, NGVD)	Staff Gage Reading (ft-are)	Surface Water Elevation (ft, NGVD)				
			4/30/12	11/5/12	5/6/13	11/4/13	5/16/14
SW-1	24	2.7	24.82	25.89	24.9	25.7	26.7
SW-2	24	5.40	26	28.23	26.78	28.05	29.4
SW-3	21	2.10	Dry	Dry	Dry	Dry	23.1
SW-4	26	3.30	Dry	Dry	26.75	28	29.3
SW-5	24	3.20	24.63	24.68	26.15	24.2	27.2
SW-11	17	5.56	18.5	22.70	19.3	Dry	22.56
SW-12	22	4.30	24.43	26.3	1.64	1.64	1.64

Notes:

NGVD = National Geodetic Vertical Datum of 1929;

Dry = Not Calculated; sampling point was dry at the time of the reading;

ft-are = feet above reference elevation.

Appendix C- Table 4
Groundwater Flow Rate Calculations
MPIS Technical Reporting Period - May 2012 through May 2014

Upper Surficial (Zone 1-2) Aquifer Groundwater Flow Velocity Across the North Cell								
Date	B33-2 GW Elevation (ft, NGVD)	B73-2 GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Apr-12	25.36	18.64	6.72	3120	0.002154	0.88	0.25	0.008
Nov-12	27.75	23.3	4.45	3120	0.001426	0.88	0.25	0.005
May-13	26.23	22.71	3.52	3120	0.001128	0.88	0.25	0.004
Nov-13	26.77	22.75	4.02	3120	0.001288	0.88	0.25	0.005
May-14	28.07	23.35	4.72	3120	0.001513	0.88	0.25	0.005
							Average	0.005
							Average (ft/yr)	1.93

Upper Surficial (Zone 1-2) Aquifer Groundwater Flow Velocity Across the South Cell								
Date	B34-2 GW Elevation (ft, NGVD)	B62-2R GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Apr-12	25.09	24.17	0.92	2150	0.000428	0.88	0.25	0.0015
Nov-12	25.98	25.55	0.43	2150	0.0002	0.88	0.25	0.0007
May-13	26.7	25.46	1.24	2150	0.000577	0.88	0.25	0.0020
Nov-13	26.5	25.46	1.04	2150	0.000484	0.88	0.25	0.0017
May-14	28.6	26.91	1.69	2150	0.000786	0.88	0.25	0.0028
							Average	0.0017
							Average (ft/yr)	0.64

Upper Surficial (Zone 1-2) Aquifer Groundwater Flow Velocity Across the Class III Landfill								
Date	B35-2 GW Elevation (ft, NGVD)	B42-2 GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Apr-12	21.12	16.18	4.94	3500	0.001411	0.88	0.25	0.0050
Nov-12	28.06	21.78	6.28	3500	0.001794	0.88	0.25	0.0063
May-13	27.26	21.12	6.14	3500	0.001754	0.88	0.25	0.0062
Nov-13	28.04	23.27	4.77	3500	0.001363	0.88	0.25	0.0048
May-14	28.49	24.42	4.07	3500	0.001163	0.88	0.25	0.0041
							Average	0.0053
							Average (ft/yr)	1.92

Notes:

Hydraulic conductivities for zones 2 and 4 were obtained from: David N. Gomberg, Ph.D., July 16, 2001,

Tomoka Landfill: Biennial Evaluation of Monitoring Results.

Appendix C - Table 4
Groundwater Flow Rate Calculations
MPIS Technical Reporting Period - May 2012 through May 2014
Tomoka Farms Road Landfill

Lower Surficial (Zone 4) Aquifer Groundwater Flow Velocity Across the North Cell								
Date	B33-1 GW Elevation (ft, NGVD)	B73-1 GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Apr-12	24.48	18.02	6.46	3120	0.0021	1.474	0.25	0.012
Nov-12	26.28	22.3	3.98	3120	0.0013	1.474	0.25	0.008
May-13	25.22	21.03	4.19	3120	0.0013	1.474	0.25	0.008
Nov-13	26.09	22	4.09	3120	0.0013	1.474	0.25	0.008
May-14	27.29	22.7	4.59	3120	0.0015	1.474	0.25	0.009
							Average	0.009
							Average (ft/yr)	3.22

Lower Surficial (Zone 4) Aquifer Groundwater Flow Velocity Across the South Cell								
Date	B34-1 GW Elevation (ft, NGVD)	B62-1R GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Apr-12	24.48	24.88	-0.4	2750	-0.0001	1.474	0.25	-0.001
Nov-12	26.96	25.39	1.57	2750	0.0006	1.474	0.25	0.003
May-13	25.57	25.3	0.27	2750	0.0001	1.474	0.25	0.001
Nov-13	25.79	25.07	0.72	2750	0.0003	1.474	0.25	0.002
May-14	27.39	26.67	0.72	2750	0.0003	1.474	0.25	0.002
							Average	0.001
							Average (ft/yr)	0.45

Lower Surficial (Zone 4) Aquifer Groundwater Flow Velocity Across the Class III Landfill								
Date	B35-1 GW Elevation (ft, NGVD)	B42-1 GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Apr-12	25.91	14.94	10.97	3450	0.0032	1.474	0.25	0.019
Nov-12	27.81	18.63	9.18	3450	0.0027	1.474	0.25	0.016
May-13	26.76	15.86	10.9	3450	0.0032	1.474	0.25	0.019
Nov-13	27.66	18.8	8.86	3450	0.0026	1.474	0.25	0.015
May-14	28.46	20.59	7.87	3450	0.0023	1.474	0.25	0.013
							Average	0.016
							Average (ft/yr)	5.96

Notes:

Hydraulic conductivities for zones 2 and 4 are obtained from: David N. Gomberg, Ph.D., July 16, 2001,

Tomoka Landfill: Biennial Evaluation of Monitoring Results.

Appendix C - Table 4
Groundwater Flow Rate Calculations
MPIS Technical Reporting Period - May 2012 through May 2014

Lower Surficial (Zone 6) Aquifer Groundwater Flow Velocity Across the Class III Landfill								
Date	B86 GW Elevation (ft, NGVD)	B79-6 GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
May-13	18.19	15.58	2.61	1643	0.001589	4.82E-02	0.25	0.0003
Nov-13	20.46	18.71	1.75	1643	0.001065	4.82E-02	0.25	0.0002
May-14	22.01	20.51	1.5	1643	0.000913	4.82E-02	0.25	0.0002
							Average	0.0002
							Average (ft/yr)	0.08

Floridan Aquifer Groundwater Flow Velocity Across the North and South Cells								
Date	FA-1B GW Elevation (ft, NGVD)	FA-2C GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Apr-12	14.24	10.65	3.59	5292	0.000678	2.83	0.25	0.0077
Nov-12	18.18	14.44	3.74	5292	0.000707	2.83	0.25	0.0080
May-13	15.17	11.62	3.55	5292	0.000671	2.83	0.25	0.0076
Nov-13	17.37	14.2	3.17	5292	0.000599	2.83	0.25	0.0068
May-14	18.82	15.45	3.37	5292	0.000637	2.83	0.25	0.0072
							Average	0.0075
Floridan Aquifer Groundwater Flow Velocity Across the Class III Landfill								
Date	F-MB GW Elevation (ft, NGVD)	F87-F GW Elevation (ft, NGVD)	Delta H (ft)	Distance (ft)	Gradient (i)	Hydraulic Conductivity (ft/day)	Porosity (n)	Velocity (ft/day)
Nov-13	17.08	15.73	1.35	3465	0.00039	2.83	0.25	0.0044
May-14	18.53	16.73	1.8	3465	0.000519	2.83	0.25	0.0059
							Average	0.0051
							Average (ft/yr)	4.60

Notes:

Hydraulic conductivities for zones 6 and Floridan Aquifer were obtained from: David N. Gornberg, Ph.D., May 1992,

Tomoka Landfill: Hydrogeologic Summary and Groundwater Monitoring Plan.

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B11								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.39	0.94	0.21	0.56	0.25
Field Temperature	-	NE	deg C	26.16	24.88	23.24	25.34	26.59
PH, FIELD	6.5-8.5	SDWS	S.U.	5.03	5.24	4.81	4.74	5.08
Specific Conductance	-	NE	umhos/cm	148	158	158	175	164
Turbidity	-	NE	NTU	0.95	1.08	1.93	0.23	0.5
Ammonia-N	2.8	GCTL	mg/L	0.5		0.51	0.69	0.6
Chloride	250	SDWS	mg/L	11.2	11	11.7	16.9	17.7
Iron	300	SDWS	ug/L	2880	2730	3410	2660	3680
Nitrate-N	10	PDWS	mg/L	0.025 U	0.025 U	0.025 U	0.1	0.043 U
Sodium	160	PDWS	mg/L	5.6	7	6.9	8.9	8.4
Sulfate	250	SDWS	mg/L	16.4	17.8	18.4	22	23.1
Total Dissolved Solids	500	SDWS	mg/L	136	153	123	161	152
Barium	2000	PDWS	ug/L	46.1	47.6	53.3	56.5	60.1
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.52 I
Chromium	100	PDWS	ug/L	3.8 I	2.5 U	3.6 I	3 I	3.3 I
Vanadium	49	GCTL	ug/L	15.6	15.7	16.1	14.2	14.2

Well B33-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	1.38	1.83	1.86	0.45	0.21
Field Temperature	-	NE	deg C	24.9	23.89	23.72	24.41	26.11
PH, FIELD	6.5-8.5	SDWS	S.U.	6.68	6.83	6.45	6.26	6.76
Specific Conductance	-	NE	umhos/cm	1507	1165	958	992	980
Turbidity	-	NE	NTU	50.3	14.6	183	7.07	3.82
Ammonia-N	2.8	GCTL	mg/L	0.28	0.3	0.1	0.28	0.3
Chloride	250	SDWS	mg/L	126	51.5	16.5	46.3	47.1
Iron	300	SDWS	ug/L	5060	2990	6570	3420	5900
Nitrate-N	10	PDWS	mg/L	0.05 U	0.05 U	0.08	0.086 U	0.086 U
Sodium	160	PDWS	mg/L	224	121	118	113	116
Sulfate	250	SDWS	mg/L	33.2	27.9	26.1	33.7	26.4
Total Dissolved Solids	500	SDWS	mg/L	1060	795	918	458	752
Antimony	6	PDWS	ug/L	0.5 U	0.5 U	1.9	0.68 I	0.5 U
Arsenic	10	PDWS	ug/L	11.4	8.1 I	5.1 I	5 U	5.9 I
Barium	2000	PDWS	ug/L	91.8	75.5	83.9	87.4	74.4
Chromium	100	PDWS	ug/L	11.5	4.7 I	23.2	5.2	4.5 I
Copper	1000	SDWS	ug/L	4 I	2.5 U	6.1	2.5 U	2.5 U
Lead	15	PDWS	ug/L	6.1 I	5 U	5 U	5 U	5 U
Nickel	100	PDWS	ug/L	9.4	4 I	9.3	3.6 I	3.4 I
Selenium	50	PDWS	ug/L	7.5 U	7.5 U	11.4 I	7.5 U	7.5 U
Vanadium	49	GCTL	ug/L	17.8	10.2	37	9 I	10.1
Zinc	5000	SDWS	ug/L	10 U	10 U	10.2 I	10 U	10 U
Acetone	6300	GCTL	ug/L	8.7 I	5 U	5 U	10 U	10 U

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B34-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.1	0.34	0.26	0.2	0.31
Field Temperature	-	NE	deg C	22.49	22.04	20.77	23.48	23.6
PH, FIELD	6.5-8.5	SDWS	S.U.	6.98	7	6.69	6.57	6.91
Specific Conductance	-	NE	umhos/cm	1874	1448	1783	1541	2121
Turbidity	-	NE	NTU	3.67	0.9	4.14	1.63	5.91
Ammonia-N	2.8	GCTL	mg/L	1.2	0.62	0.48	0.12	0.16
Chloride	250	SDWS	mg/L	46.2	58.8	64.9	53.4	94.5
Iron	300	SDWS	ug/L	20200	13300	13800	2860	3280
Sodium	160	PDWS	mg/L	30.7	29.9	43.5	75.9	96.7
Sulfate	250	SDWS	mg/L	131	5 U	33.2	370	284
Total Dissolved Solids	500	SDWS	mg/L	1250	876	1160	1280	1680
Arsenic	10	PDWS	ug/L	12.2	5.9 I	7.5 I	5 U	5 U
Barium	2000	PDWS	ug/L	105	58.8	88.9	79.6	109
Copper	1000	SDWS	ug/L	5 I	2.5 U	2.5 U	2.5 U	2.5 U
Lead	15	PDWS	ug/L	7.3 I	5 U	5 U	5 U	5 U
Nickel	100	PDWS	ug/L	7.6	6.2	6.3	6.2	8.9
Silver	100	SDWS	ug/L	2.5 U	2.5 U	2.5 U	3 I	2.5 U
Vanadium	49	GCTL	ug/L	5.8 I	5 U	5 U	5 U	5 U
Acetone	6300	GCTL	ug/L	5 I	5 U	5 U	10 U	10 U
Well B35-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.07	0.56	0.25	0.13	0.03
Field Temperature	-	NE	deg C	22.91	21.23	21.19	23.44	24.53
PH, FIELD	6.5-8.5	SDWS	S.U.	5.58	6.01	5.33	5.85	5.38
Specific Conductance	-	NE	umhos/cm	384	427	440	473	396
Turbidity	-	NE	NTU	1.43	7.05	2.28	2.62	2.45
Ammonia-N	2.8	GCTL	mg/L	1.4	1.9	2.1	1.5	1.1
Chloride	250	SDWS	mg/L	58.3	49.7	74.1	53.4	96.3
Iron	300	SDWS	ug/L	12100	16200	17500	25600	9540
Sodium	160	PDWS	mg/L	38.7	37.9	47.9	40	56.2
Sulfate	250	SDWS	mg/L	2.5 U	2.5 U	2.5 I	2.5 U	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	287	287	319	331	298
Barium	2000	PDWS	ug/L	52	56	64.4	81	64.4
Chromium	100	PDWS	ug/L	5.4	2.5 U	6.7	2.5 U	7.2
Copper	1000	SDWS	ug/L	2.5 U	2.7 I	2.5 U	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	11.7	8.7 I	11.8	5.2 I	12.1

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B37-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.17	0.32	0.19	0.16	0.09
Field Temperature	-	NE	deg C	24.29	22.65	22.51	24.2	25.18
PH, FIELD	6.5-8.5	SDWS	S.U.	6.07	6.56	5.94	6.09	6.57
Specific Conductance	-	NE	umhos/cm	551	491	525	486	398
Turbidity	-	NE	NTU	1.05	16.1	14.4	8.73	1.66
Ammonia-N	2.8	GCTL	mg/L	0.36	0.42	0.31	0.28	0.19
Chloride	250	SDWS	mg/L	50.2	32.5	46.3	28.6	16.2
Iron	300	SDWS	ug/L	10200	8980	12300	10900	6930
Sodium	160	PDWS	mg/L	30.8	19	29	19.5	13.7
Sulfate	250	SDWS	mg/L	2.5 U	2.5 U	5.5	2.5 U	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	319	311	325	350	265
Barium	2000	PDWS	ug/L	31.1	26.9	31	29.4	25.6
Copper	1000	SDWS	ug/L	2.5 U	2.7 I	2.5 U	2.5 U	2.5 U
Acetone	6300	GCTL	ug/L	5 U	5 U	5 U	10 U	21.2
Benzene	1	PDWS	ug/L	0.5 U	3	0.28 I	0.1 U	0.1 U
Chlorobenzene	100	PDWS	ug/L	1.1	0.74 I	0.72 I	0.5 U	0.5 U
Vinyl chloride	1	PDWS	ug/L	0.5 U	0.57 I	0.5 U	0.5 U	0.5 U

Well B38-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.15	0.47	0.26	0.13	0.15
Field Temperature	-	NE	deg C	22.13	20.89	21.02	21.61	23.2
PH, FIELD	6.5-8.5	SDWS	S.U.	5.97	5.99	5.57	5.73	6.01
Specific Conductance	-	NE	umhos/cm	440	497	406	500	470
Turbidity	-	NE	NTU	7.22	2.41	2.66	2.12	1.65
Ammonia-N	2.8	GCTL	mg/L	0.88	1.3	0.44	1.4	0.84
Chloride	250	SDWS	mg/L	37	33.2	61.4	50.9	51.3
Iron	300	SDWS	ug/L	2960	9680	3520	8650	8390
Nitrate-N	10	PDWS	mg/L	0.025 U	0.025 U	0.043 I	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	20.2	22.1	35.8	34.2	38.7
Sulfate	250	SDWS	mg/L	16.8	2.5 U	3 I	2.5 U	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	284	353	301	367	347
Barium	2000	PDWS	ug/L	20.2	29.7	20.5	28.9	24.4
Lead	15	PDWS	ug/L	5 U	5.2 I	5 U	5 U	5 U
Acetone	6300	GCTL	ug/L	5 U	5 U	5 U	10 U	23.6

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B39								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	DRY	0.55	2.45	0.19	0.24
Field Temperature	-	NE	deg C	DRY	23.41	20.2	23.21	23.91
PH, FIELD	6.5-8.5	SDWS	S.U.	DRY	4.62	4.69	4.61	4.92
Specific Conductance	-	NE	umhos/cm	DRY	177	181	192	178
Turbidity	-	NE	NTU	DRY	7.88	8.04	3.73	4.58
Ammonia-N	2.8	GCTL	mg/L	DRY	0.068	0.34	0.3	0.67
Chloride	250	SDWS	mg/L	DRY	29.8	28.6	37.2	32
Iron	300	SDWS	ug/L	DRY	5950	7470	10100	11100
Sodium	160	PDWS	mg/L	DRY	16.4	16.4	19.2	18.9
Sulfate	250	SDWS	mg/L	DRY	5.7	7.7	3 I	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	DRY	191	136	258	247
Arsenic	10	PDWS	ug/L	DRY	5 U	5 U	7.1 I	13.2
Barium	2000	PDWS	ug/L	DRY	30	33.6	31.8	24.3
Chromium	100	PDWS	ug/L	DRY	5.9	3.1 I	7.6	7.7
Copper	1000	SDWS	ug/L	DRY	2.5 U	2.5 U	2.9 I	2.5 U
Nickel	100	PDWS	ug/L	DRY	2.5 U	2.5 U	3.7 I	2.5 U
Vanadium	49	GCTL	ug/L	DRY	21.7	6.9 I	37.6	37.5
Acetone	6300	GCTL	ug/L	DRY	5 U	5 U	10 U	18.2 I
Well B40-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	1.06	0.99	1.34	0.17	0.34
Field Temperature	-	NE	deg C	22.84	21.87	21.56	22.66	21.34
PH, FIELD	6.5-8.5	SDWS	S.U.	5.22	6.02	5.62	5.86	6.06
Specific Conductance	-	NE	umhos/cm	699	570	699	682	661
Turbidity	-	NE	NTU	68.4	9.26	7.82	17.2	4.39
Ammonia-N	2.8	GCTL	mg/L	0.6	0.38	0.049 I	0.68	0.76
Chloride	250	SDWS	mg/L	59.9	32.7	31.8	22.3	24.4
Iron	300	SDWS	ug/L	5500	4150	302	3000	4830
Nitrate-N	10	PDWS	mg/L	0.025 U	0.025 U	2.5	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	47.1	27.1	31.1	21.8	21.6
Sulfate	250	SDWS	mg/L	151	126	178	107	53.6
Total Dissolved Solids	500	SDWS	mg/L	502	420	497	507	478
Antimony	6	PDWS	ug/L	0.5 U	0.5 U	1	0.5 U	0.5 U
Arsenic	10	PDWS	ug/L	5 U	5.3 I	5 U	5 U	5 U
Barium	2000	PDWS	ug/L	50.4	40.4	51.8	38.1	41.2
Chromium	100	PDWS	ug/L	3.2 I	2.5 U	2.6 I	2.7 I	2.5 U
Copper	1000	SDWS	ug/L	2.5 U	2.8 I	2.5 U	2.5 U	2.5 U
Nickel	100	PDWS	ug/L	2.7 I	2.5 U	2.5 U	2.5 U	2.5 U
Selenium	50	PDWS	ug/L	7.5 U	7.5 U	0.91 I	7.5 U	7.5 U
Vanadium	49	GCTL	ug/L	9.8 I	23.8	15	5 U	5 U

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B41-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.59	0.77	1.11	0.3	0.19
Field Temperature	-	NE	deg C	22.96	22.41	23.32	20.82	21
PH, FIELD	6.5-8.5	SDWS	S.U.	6.19	6.54	6.06	6.48	6.7
Specific Conductance	-	NE	umhos/cm	1097	1322	1004	569	508
Turbidity	-	NE	NTU	6.47	1.06	2.27	0.9	0.64
Ammonia-N	2.8	GCTL	mg/L	0.59	0.047 I	0.02 U	0.32	0.34
Chloride	250	SDWS	mg/L	34.4	30.8	30.3	35.2	29.2
Iron	300	SDWS	ug/L	3890	316	1530	889	839
Nitrate-N	10	PDWS	mg/L	0.05 U	0.05 U	3.2	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	33.9	32.7	29.9	23.5	21.9
Sulfate	250	SDWS	mg/L	223	237	122	26.2	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	782	898	646	438	366
Antimony	6	PDWS	ug/L	0.5 U	0.5 U	0.7 I	0.5 U	0.5 U
Barium	2000	PDWS	ug/L	101	111	127	26.4	26.3
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.59 I	0.5 U
Chromium	100	PDWS	ug/L	2.9 I	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	6.3 I	9.8 I	22.7	5 U	5 U
Acetone	6300	GCTL	ug/L	5.6 I	5 U	5 U	10 U	10 U
Well B42-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	DRY	0.56	0.88	0.17	0.31
Field Temperature	-	NE	deg C	DRY	21.92	22.49	22.69	21.58
PH, FIELD	6.5-8.5	SDWS	S.U.	DRY	5.97	5.48	5.88	6.22
Specific Conductance	-	NE	umhos/cm	DRY	544	660	335	281
Turbidity	-	NE	NTU	DRY	6.59	40.9	7.35	7.77
Ammonia-N	2.8	GCTL	mg/L	DRY	0.062	0.04 I	0.13	0.22
Chloride	250	SDWS	mg/L	DRY	35.1	39.1	8.1	5.6
Iron	300	SDWS	ug/L	DRY	214	504	429	2450
Nitrate-N	10	PDWS	mg/L	DRY	0.24	0.29	0.55	0.043 U
Sodium	160	PDWS	mg/L	DRY	32.2	39.5	11.8	6
Sulfate	250	SDWS	mg/L	DRY	105	152	23.8	7.8
Total Dissolved Solids	500	SDWS	mg/L	DRY	391	499	252	198
Antimony	6	PDWS	ug/L	DRY	0.5 U	0.84 I	0.5 U	0.5 U
Barium	2000	PDWS	ug/L	DRY	71	91.1	24.7	18.5
Beryllium	4	PDWS	ug/L	DRY	0.5 U	0.5 U	0.51 I	0.5 U
Chromium	100	PDWS	ug/L	DRY	2.5 U	4.2 I	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	DRY	9.6 I	18.2	5 U	5 U

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Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B43-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.94	0.91	0.72	0.59	0.4
Field Temperature	-	NE	deg C	22.21	21.57	21.75	23.18	23.69
PH, FIELD	6.5-8.5	SDWS	S.U.	6.33	6.34	6.09	5.9	6.14
Specific Conductance	-	NE	umhos/cm	1159	861	820	665	566
Turbidity	-	NE	NTU	5.85	5.86	9.98	3.06	12.7
Ammonia-N	2.8	GCTL	mg/L	0.92	0.28	0.99	0.02 U	0.02 U
Chloride	250	SDWS	mg/L	138	74.3	83.2	94.4	75.4
Iron	300	SDWS	ug/L	24600	11600	40700	1190	706
Nitrate-N	10	PDWS	mg/L	0.05 U	0.05 U	0.05 U	0.043 U	0.44
Sodium	160	PDWS	mg/L	87.2	78.3	112	59	40.4
Sulfate	250	SDWS	mg/L	73.7	51.5	47.9	49.1	30.4
Total Dissolved Solids	500	SDWS	mg/L	676	527	541	474	444
Barium	2000	PDWS	ug/L	78.8	60.2	95.5	30.2	18.3
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.51 I	0.5 U
Chromium	100	PDWS	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.9 I
Vanadium	49	GCTL	ug/L	5 U	5 U	5 U	5 U	5.4 I
Chlorobenzene	100	PDWS	ug/L	0.5 U	0.5 U	0.66 I	0.5 U	0.5 U
Well B44								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.22	1.66	0.68	0.25	0.49
Field Temperature	-	NE	deg C	22.04	21.97	21.71	22.84	21.91
PH, FIELD	6.5-8.5	SDWS	S.U.	5.29	4.74	5.07	5.15	5.41
Specific Conductance	-	NE	umhos/cm	196	145	143	166	171
Turbidity	-	NE	NTU	2.82	8.7	11.1	3.56	3.93
Ammonia-N	2.8	GCTL	mg/L	0.02 U	0.02 U	0.02 U	0.024 I	0.02 U
Chloride	250	SDWS	mg/L	22.5	15	13.4	27.4	33.7
Iron	300	SDWS	ug/L	13700	6940	7520	7260	9220
Sodium	160	PDWS	mg/L	17.1	14.4	13.7	18.1	15.8
Sulfate	250	SDWS	mg/L	19.6	13.4	15.2	9.7	13.2
Total Dissolved Solids	500	SDWS	mg/L	132	103	93	134	132
Barium	2000	PDWS	ug/L	18.5	14.1	15.6	12.3	21.7
Chromium	100	PDWS	ug/L	2.5 U	2.5 U	2.5 U	2.5 I	2.5 U
Copper	1000	SDWS	ug/L	2.5 U	2.5 U	2.5 U	32.3	2.5 U
Vanadium	49	GCTL	ug/L	5 U	5.9 I	5 U	7.4 I	5 U

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Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B59-2R								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.06	0.87	0.36	0.12	0.22
Field Temperature	-	NE	deg C	24.44	22.8	23.3	24.93	26.3
PH, FIELD	6.5-8.5	SDWS	S.U.	6.31	7.22	6.29	6.4	6.7
Specific Conductance	-	NE	umhos/cm	939	863	972	753	751
Turbidity	-	NE	NTU	12.4	14.05	9.41	3.99	8.69
Ammonia-N	2.8	GCTL	mg/L	0.37	0.25	0.45	0.36	0.38
Chloride	250	SDWS	mg/L	28.4	22.5	26.8	21.7	21.9
Iron	300	SDWS	ug/L	11200	1050	9090	5320	6030
Nitrate-N	10	PDWS	mg/L	0.025 U	0.28	0.05 U	0.088	0.043 U
Sodium	160	PDWS	mg/L	45.2	40.9	41.6	39.1	33.4
Sulfate	250	SDWS	mg/L	49.1 J	121 J	87.5	82	55.5
Total Dissolved Solids	500	SDWS	mg/L	575	598	630	583	513
Barium	2000	PDWS	ug/L	79.9	85	85.4	82	81.8
Copper	1000	SDWS	ug/L	2.7 I	2.5 U	2.5 U	2.5 U	2.5 U
Mercury	2	PDWS	ug/L	0.1 U	0.1 U	0.1 U	0.47	0.1 U
Well B61R								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.26	0.96	0.2	0.36	0.56
Field Temperature	-	NE	deg C	24.23	23.9	22.59	24.39	22.82
PH, FIELD	6.5-8.5	SDWS	S.U.	6.52	6.37	6.12	6.23	6.4
Specific Conductance	-	NE	umhos/cm	1138	1004	1200	1039	1048
Turbidity	-	NE	NTU	8.38	9.26	2.58	0.54	0.41
Ammonia-N	2.8	GCTL	mg/L	14	12.1	12.2	12.5	10.8
Chloride	250	SDWS	mg/L	17.8	19.9	22.4	22.1	21.7
Iron	300	SDWS	ug/L	13800	14100	15900	16900	19700
Sodium	160	PDWS	mg/L	27.6	25.1	26.5	28.4	26.5
Total Dissolved Solids	500	SDWS	mg/L	592	557	652	588	663
Barium	2000	PDWS	ug/L	152	142	158	135	152
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.56 I	0.5 U
Copper	1000	SDWS	ug/L	2.5 U	5	2.5 U	2.5 U	2.5 U
Acetone	6300	GCTL	ug/L	7 I	5 U	5 U	10 U	10 U
Chlorobenzene	100	PDWS	ug/L	0.5 U	0.72 I	0.8 I	0.91 I	0.74 I
Xylene (Total)	20	SDWS	ug/L	0.5 U	0.5 U	1.5	0.5 U	0.5 U

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B62-2R								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.09	0.84	0.21	0.26	0.36
Field Temperature	-	NE	deg C	24.71	25.5	22.64	24.19	23.23
PH, FIELD	6.5-8.5	SDWS	S.U.	6.7	6.55	6.39	6.44	6.62
Specific Conductance	-	NE	umhos/cm	1788	1167	1382	1136	961
Turbidity	-	NE	NTU	2.54	2.12	4.3	1.19	9.14
Ammonia-N	2.8	GCTL	mg/L	19.8	11.9	9.9	11.1	5.8
Chloride	250	SDWS	mg/L	68.5	29.1	21	22.9	17.6
Iron	300	SDWS	ug/L	9500	9540	10800	8810	6990
Sodium	160	PDWS	mg/L	84.9	47.4	38.2	34.2	22.4
Sulfate	250	SDWS	mg/L	42.8	38.7	10.4	7.9	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	988	726	812	688	649
Barium	2000	PDWS	ug/L	120	89.3	106	81.6	90
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.54 I	0.5 U
Nickel	100	PDWS	ug/L	5.5	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	5.8 I	5.9 I	5 U	5.3 I	5 U
Acetone	6300	GCTL	ug/L	5 U	8.3 I	5 U	10 U	10 U
Chlorobenzene	100	PDWS	ug/L	0.5 U	1.9	1.2	1.4	0.68 I
Well B63-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.3	0.59	0.26	0.22	0.16
Field Temperature	-	NE	deg C	24.68	22.42	22.8	23.64	24.12
PH, FIELD	6.5-8.5	SDWS	S.U.	6.81	6.84	6.46	6.39	6.59
Specific Conductance	-	NE	umhos/cm	708	1025	691	728	826
Turbidity	-	NE	NTU	1.5	3.89	9.66	11	15.1
Ammonia-N	2.8	GCTL	mg/L	0.037 I	0.02 U	0.02 U	0.034 I	0.054
Chloride	250	SDWS	mg/L	66.2	106	75.2	58.7	57.4
Iron	300	SDWS	ug/L	4950	16700	8640	15000	20400
Sodium	160	PDWS	mg/L	37	72.5	51	40.2	41.3
Sulfate	250	SDWS	mg/L	2.5 U	2.5 U	9.6	2.5 U	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	410	582	383	457	518
Arsenic	10	PDWS	ug/L	5 U	5.7 I	5 U	5 U	5 U
Barium	2000	PDWS	ug/L	58.9	78.2	42.7	50.3	63.6

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Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B65								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.63	0.58	1.03	0.4	0.29
Field Temperature	-	NE	deg C	23.04	22.27	22.18	22.7	20.85
PH, FIELD	6.5-8.5	SDWS	S.U.	5.32	6.04	5.65	5.86	6.13
Specific Conductance	-	NE	umhos/cm	765	551	683	684	514
Turbidity	-	NE	NTU	2.92	4.18	2.72	0.82	1.11
Ammonia-N	2.8	GCTL	mg/L	0.49	0.27	0.43	0.77	0.55
Chloride	250	SDWS	mg/L	51.2	39.9	44.8	33.8	33.8
Iron	300	SDWS	ug/L	3240	738	2640	1170	949
Sodium	160	PDWS	mg/L	35.1	30.1	34.8	29	25.4
Sulfate	250	SDWS	mg/L	190	78.3	130	119	17
Total Dissolved Solids	500	SDWS	mg/L	560	390	484	541	369
Barium	2000	PDWS	ug/L	64.8	44.6	67.4	48.9	38.2
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.54 I	0.5 U
Chromium	100	PDWS	ug/L	2.5 U	4 I	3.1 I	3.3 I	3 I
Copper	1000	SDWS	ug/L	2.5 U	2.5 U	2.5 U	3.2 I	2.5 U
Vanadium	49	GCTL	ug/L	5.2 I	7.5 I	6.2 I	5 U	5 U
1,2-Dichloroethane	5	PDWS	ug/L	0.5 U	0.88 I	0.5 U	0.5 U	0.5 U
Acetone	6300	GCTL	ug/L	5 I	5 U	5 U	10 U	10 U
Well B66								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.34	0.72	2.8	1.34	0.36
Field Temperature	-	NE	deg C	23.49	23.4	21.85	23.75	24.74
PH, FIELD	6.5-8.5	SDWS	S.U.	6.59	7.87	6.45	6.43	6.79
Specific Conductance	-	NE	umhos/cm	806	464	721	471	486
Turbidity	-	NE	NTU	9.74	1.9	1.37	1.11	0.93
Ammonia-N	2.8	GCTL	mg/L	0.02 U	0.02 U	0.02 U	0.024 I	0.11
Chloride	250	SDWS	mg/L	91.2	10.1	88.5 L	17.4	18.6
Iron	300	SDWS	ug/L	501	712	64.9	64.8	187
Nitrate-N	10	PDWS	mg/L	0.27	1.6	1.8	0.74	0.043 U
Sodium	160	PDWS	mg/L	60	10.1	57.2	17.7	20.9
Sulfate	250	SDWS	mg/L	77.5	24.2	38.6	27	8.1
Total Dissolved Solids	500	SDWS	mg/L	469	256	429	302	310
Antimony	6	PDWS	ug/L	0.65 I	0.58 I	0.84 I	0.5 U	0.5 U
Barium	2000	PDWS	ug/L	38.4	27.6	40.7	24.6	39
Vanadium	49	GCTL	ug/L	10.5	13.3	7.9 I	9 I	5.9 I
Acetone	6300	GCTL	ug/L	5 U	5 U	5 U	10 U	15.1 I
Xylene (Total)	20	SDWS	ug/L	0.5 U	0.5 U	1.5	0.5 U	0.5 U

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B70-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.3	0.93	1.02	0.38	0.61
Field Temperature	-	NE	deg C	23.49	21.9	22.78	24.19	24.92
PH, FIELD	6.5-8.5	SDWS	S.U.	5.25	7.03	5.61	5.97	6.24
Specific Conductance	-	NE	umhos/cm	271	493	380	435	484
Turbidity	-	NE	NTU	5.18	8.34	4.27	10.52	7.84
Ammonia-N	2.8	GCTL	mg/L	0.043 I	0.02 U	0.02 U	0.02 U	0.02 U
Chloride	250	SDWS	mg/L	23.8	11	9.4	7.9	22.6
Iron	300	SDWS	ug/L	11200	832	820	1010	3440
Nitrate-N	10	PDWS	mg/L	0.025 U	5.2	2.6	0.41	0.12
Sodium	160	PDWS	mg/L	18.9	8	11.9	8.4	13.2
Sulfate	250	SDWS	mg/L	44.9	25.5	40.5 J	42	48.7
Total Dissolved Solids	500	SDWS	mg/L	165	272	226	302	343
Barium	2000	PDWS	ug/L	35.4	38.3	52.9	44.8	51.3
Copper	1000	SDWS	ug/L	2.5 U	3.5 I	2.5 U	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	5 U	6.4 I	5 U	5.5 I	5 U
Zinc	5000	SDWS	ug/L	10 U	10 U	10 U	10 U	10.7 I
Well B71								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	1.53	1.02	1.7	0.45	0.36
Field Temperature	-	NE	deg C	24.01	25	23.1	24.44	25.68
PH, FIELD	6.5-8.5	SDWS	S.U.	5.48	6.46	5.51	5.58	5.8
Specific Conductance	-	NE	umhos/cm	342	438	260	287	206
Turbidity	-	NE	NTU	1.74	3.22	11.2	1.88	7.14
Ammonia-N	2.8	GCTL	mg/L	0.11	0.02 U	0.02 U	0.02 U	0.028 I
Chloride	250	SDWS	mg/L	7.5	13	10.3	5.8	4.8 I
Iron	300	SDWS	ug/L	19500	121	253	340	280
Nitrate-N	10	PDWS	mg/L	0.025 U	2.3	1.1	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	12.4	8.4	7.6	5.7	4.5
Sulfate	250	SDWS	mg/L	106 J	26.3	36.6	23.4	15.8
Total Dissolved Solids	500	SDWS	mg/L	226	320	194	240	185
Barium	2000	PDWS	ug/L	40.6	22.6	27.3	19.8	13.2
Chromium	100	PDWS	ug/L	3.1 I	2.5 U	2.5 U	2.5 U	2.5 U
Copper	1000	SDWS	ug/L	2.5 U	4.7 I	2.5 U	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	5.3 I	9.3 I	6.2 I	6.2 I	8 I
Zinc	5000	SDWS	ug/L	53.1	20.1	17.7 I	18.2 I	17.5 I

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B72								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.63	0.86	1.99	0.86	2.27
Field Temperature	-	NE	deg C	25.23	25.5	23.69	25.21	26.41
PH, FIELD	6.5-8.5	SDWS	S.U.	5.87	6.55	6.18	6.19	6.63
Specific Conductance	-	NE	umhos/cm	575	669	559	572	517
Turbidity	-	NE	NTU	11.4	4.88	39.1	5.73	4.44
Ammonia-N	2.8	GCTL	mg/L	0.03 I	0.02 U	0.02 U	0.02 U	0.02 U
Chloride	250	SDWS	mg/L	5.8	6.5	11.9	4.1 I	3.8 I
Iron	300	SDWS	ug/L	17000	1560	3290	542	339
Nitrate-N	10	PDWS	mg/L	0.025 U	0.15	0.025 U	0.11	0.043 U
Sodium	160	PDWS	mg/L	10	6.6	7	6.5	4.1
Sulfate	250	SDWS	mg/L	95.9	99.5	68.9	79.9	21.3
Total Dissolved Solids	500	SDWS	mg/L	363	433	358	399	349
Barium	2000	PDWS	ug/L	51.7	48.4	57.2	38.1	31.1
Copper	1000	SDWS	ug/L	4.3 I	2.5 U	2.5 U	2.5 U	2.5 U
Nickel	100	PDWS	ug/L	3.4 I	2.5 U	2.5 U	2.5 U	2.5 U
Zinc	5000	SDWS	ug/L	27	50.2	21.4	66.7	75.7
Acetone	6300	GCTL	ug/L	5 U	13.6	5 U	10 U	10 U
Well B73-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.34	1.03	2	0.42	0.24
Field Temperature	-	NE	deg C	23.99	22.7	23.37	24.66	26.06
PH, FIELD	6.5-8.5	SDWS	S.U.	6.53	6.44	5.84	5.98	6.34
Specific Conductance	-	NE	umhos/cm	327	325	168	253	257
Turbidity	-	NE	NTU	10.5	15.02	34.7	2.32	5.44
Ammonia-N	2.8	GCTL	mg/L	0.02 U	0.032 I	0.02 U	0.02 U	0.038 I
Chloride	250	SDWS	mg/L	6.8	7.8	6.3	2.9 I	7.3
Iron	300	SDWS	ug/L	583	3350	1840	2310	5180
Nitrate-N	10	PDWS	mg/L	0.43	0.13	0.55	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	5.4	5	4.5	4.3	4.3
Sulfate	250	SDWS	mg/L	31.3	10.4	10	4.4 I	6
Total Dissolved Solids	500	SDWS	mg/L	219	224	153	201	179
Arsenic	10	PDWS	ug/L	5 U	8.1 I	5 U	5.5 I	8 I
Barium	2000	PDWS	ug/L	30.9	30.8	22.2	26.7	28.1
Chromium	100	PDWS	ug/L	2.5 U	2.5 U	3.7 I	2.5 U	2.5 U
Cobalt	140	GCTL	ug/L	5 U	5 U	5 U	5 U	5.5 I
Copper	1000	SDWS	ug/L	5.1	2.5 U	2.5 U	2.5 U	2.5 U
Nickel	100	PDWS	ug/L	2.5 U	3.6 I	2.6 I	3.8 I	3.4 I
Vanadium	49	GCTL	ug/L	5 U	5 U	5.2 I	5 U	5 U
Zinc	5000	SDWS	ug/L	10 U	27.8	23.5	21.6	31.7

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B74								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.17	0.77	0.28	0.16	0.18
Field Temperature	-	NE	deg C	24.94	23	22.71	23.52	24.21
PH, FIELD	6.5-8.5	SDWS	S.U.	5.59	6.91	6.54	6.39	6.8
Specific Conductance	-	NE	umhos/cm	289	205	729	664	681
Turbidity	-	NE	NTU	1.72	2.24	5.76	0.13	6.11
Ammonia-N	2.8	GCTL	mg/L	0.12	0.02 U	0.093	0.13	0.077
Chloride	250	SDWS	mg/L	12.7	8.6	27.1	24.9	25.2
Iron	300	SDWS	ug/L	677	350	3650	4120	4740
Nitrate-N	10	PDWS	mg/L	0.025 U	0.36	0.025 U	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	7.2	8.4	48	45.9	43.4
Sulfate	250	SDWS	mg/L	15.2	15.2	10.6	12.7	12
Total Dissolved Solids	500	SDWS	mg/L	217	161	456	437	440
Barium	2000	PDWS	ug/L	11.8	7.6 I	48.4	46.2	49.2
Well B75								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.08	0.83	0.17	0.29	0.27
Field Temperature	-	NE	deg C	24.92	23.8	23.48	24.87	24.46
PH, FIELD	6.5-8.5	SDWS	S.U.	6.26	6.34	6.11	6.05	6.37
Specific Conductance	-	NE	umhos/cm	1389	1059	1341	1163	1250
Turbidity	-	NE	NTU	6.79	20.45	19.3	10.61	7.5
Ammonia-N	2.8	GCTL	mg/L	1.3	1.7	1.3	1.7	1.6
Chloride	250	SDWS	mg/L	82	56.1	65.3	62	64.1
Iron	300	SDWS	ug/L	45800	37600	48200	45600	45400
Sulfate	250	SDWS	mg/L	15.8	5 U	12.2	5 U	8.8 I
Total Dissolved Solids	500	SDWS	mg/L	778	616	832	725	756
Arsenic	10	PDWS	ug/L	17.9	5 U	11.6	8.4 I	12.3
Barium	2000	PDWS	ug/L	108	94	108	107	113
Cadmium	5	PDWS	ug/L	0.84 I	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	PDWS	ug/L	2.5 U	2.5 U	2.8 I	2.5 U	2.5 U
Copper	1000	SDWS	ug/L	6.2	6	2.8 I	2.5 U	2.5 U
Nickel	100	PDWS	ug/L	2.8 I	2.5 U	2.5 U	2.5 U	2.5 U
Sodium	160	PDWS	mg/L	58.5	52	50.3	54.5	53.6
Vanadium	49	GCTL	ug/L	5.9 I	6.4 I	7.4 I	5.4 I	5.7 I
1,1-Dichloroethane	70	GCTL	ug/L	0.56 I	0.5 U	0.5 U	0.5 U	0.5 U
Acetone	6300	GCTL	ug/L	6.5 I	8 I	5 U	10 U	10 U
Benzene	1	PDWS	ug/L	0.83 I	0.1 U	0.1 U	0.1 U	0.1 U
Toluene	40	SDWS	ug/L	0.5 U	0.58 I	0.5 U	0.5 U	0.5 U
Vinylchloride	1	PDWS	ug/L	0.68 I	0.5 U	0.5 U	0.5 U	0.5 U

Appendix C - Table 5
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 1-2 Wells
Tomoka Farms Road Landfill

Well B45-2											
Parameter	Limit	Standard	Unit	Sampling Event							
				May-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14
Dissolved Oxygen	-	NE	mg/L	0.2	0.67	0.28	0.42	0.35	0.26	0.26	0.37
Field Temperature	-	NE	deg C	22.51	21.95	21.32	21.45	25.12	23.39	19.2	21.73
PH, FIELD	6.5-8.5	SDWS	S.U.	5.11	5.68	4.86	5.2	5.49	5.69	5.82	6.22
Specific Conductance	-	NE	umhos/cm	989	654	634	1065	659	1655	1151	555
Turbidity	-	NE	NTU	2.5	7.9	8.64	6.05	6.32	2.39	4.62	4.6
Ammonia-N	2.8	GCTL	mg/L	0.06	0.058	0.032 I	0.02 U	0.028 I	0.02 U	0.02 U	0.02 U
Chloride	250	SDWS	mg/L	265	73.6	146	114	58.9	63	53.8	43.3
Iron	300	SDWS	ug/L	54,000	1,130	11,000	2,670	651	273	536	282
Nitrate-N	10	PDWS	mg/L	0.025 U	28.9	0.25	39.1	37.9	166	112 Q	29.8
Sodium	160	PDWS	mg/L	57.7	36.4	43.5	53.6	35.4	59.3	55.8	32.5
Sulfate	250	SDWS	mg/L	6.7	17.8	NS	26.4	29.6	24.6	39.9	41.2
Total Dissolved Solids	500	SDWS	mg/L	683	420	403	724	534	1,320	1,050	469
Barium	2000	PDWS	ug/L	148	46	95.5	97.8	52.7	101	104	34.5
Beryllium	4	PDWS	ug/L	0.53 I	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	PDWS	ug/L	3.1 I	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Cobalt	140	GCTL	ug/L	5 U	5 U	5 I	5 U	5 U	5 U	5 U	5 U
Copper	1000	SDWS	ug/L	4.6 I	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Nickel	100	PDWS	ug/L	4.6 I	2.5 U	6	2.5 U	2.5 U	2.5 U	2.7 I	2.5 U
Vanadium	49	GCTL	ug/L	14.3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	5000	SDWS	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	22.5	10 U
Acetone	6300	GCTL	ug/L	6.3 I	5 U	5 U	5 U	5 U	10 U	10 U	10 U
Benzene	1	PDWS	ug/L	0.95 I	0.12 I	0.27 I	0.17 I	0.1 U	0.1 U	0.11 I	0.1 U

Well B64											
Parameter	Limit	Standard	Unit	Sampling Event							
				May-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14
Dissolved Oxygen	-	NE	mg/L	0.52	0.48	0.17	0.35	NS	0.19	NS	0.28
Field Temperature	-	NE	deg C	23.29	21.97	19.2	22.22	NS	22.84	NS	23.86
PH, FIELD	6.5-8.5	SDWS	S.U.	6.45	7.03	6.17	6.55	NS	6.59	NS	6.66
Specific Conductance	-	NE	umhos/cm	1060	724	867	582	NS	506	NS	619
Turbidity	-	NE	NTU	12.3	4.68	26.4	9.71	NS	8.59	NS	1.26
Ammonia-N	2.8	GCTL	mg/L	3.9	0.45	0.42	0.17	NS	0.35	NS	0.4
Chloride	250	SDWS	mg/L	47.5	57.6	NS	62.3	NS	62.7	NS	58.5
Iron	300	SDWS	ug/L	38,900	18,600	NS	9,420	NS	16,500	NS	22,300
Sodium	160	PDWS	mg/L	43.9	38.6	NS	42.5	NS	40.8	NS	39.5
Sulfate	250	SDWS	mg/L	29.1	4 I	NS	2.5 U	NS	2.5 U	NS	2.5 U
Total Dissolved Solids	500	SDWS	mg/L	625	490	NS	354	NS	336	NS	419
Arsenic	10	PDWS	ug/L	6.5 I	5 U	NS	5 U	NS	5.4 I	NS	5.9 I
Barium	2000	PDWS	ug/L	162	68	NS	41	NS	37.3	NS	52.7
Acetone	6300	GCTL	ug/L	5 U	5 U	NS	5 U	NS	10 U	NS	31.5
Chlorobenzene	100	PDWS	ug/L	4.5	0.5 U	NS	0.5 U	NS	0.5 U	NS	0.5 U
Toluene	40	SDWS	ug/L	0.5 U	0.5 U	NS	0.5 U	NS	0.5 U	NS	1.7

Notes:

Limit = Maximum threshold limit per regulatory standards;

NE = Not Established;

NS = Not Sampled;

PDWS = Parameter Limit is a Primary Drinking Water Standard (62-550 F.A.C.);

SDWS = Parameter Limit is a Secondary Drinking Water Standard (62-550 F.A.C.);

GCTL = Parameter Limit is a Groundwater Clean-up Target Level (62-777 F.A.C.);

I = The reported value is between the laboratory method detection method and the laboratory practical quantization limit;

J = Estimated value;

Q = Sampled held beyond the accepted holding time;

U = Indicates that the compound was analyzed for but not detected;

V = Indicated that the analyte was detected in both the sample and associated Method Blank;

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 4 & 6 Wells
Tomoka Farms Road Landfill

Well B1-B											
Parameter	Limit	Standard	Unit	Sampling Event							
				May-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14
Dissolved Oxygen	-	NE	mg/L	0.21	0.36	0.33	0.41	NS	0.25	NS	0.35
Field Temperature	-	NE	deg C	23.17	21.88	22.66	22.49	NS	22.77	NS	23.25
PH, FIELD	6.5-8.5	SDWS	S.U.	6.24	6.34	6.29	5.98	NS	6.2	NS	6.39
Specific Conductance	-	NE	umhos/cm	1384	1210	1261	1530	NS	779	NS	779
Turbidity	-	NE	NTU	0.94	0.85	6.76	7.08	NS	1.92	NS	3.2
Ammonia-N	2.8	GCTL	mg/L	13.2	10.4	20.4	12.4	NS	10	NS	6.6
Chloride	250	SDWS	mg/L	85	59.5	NS	94.1	NS	26.5	NS	23.6
Iron	300	SDWS	ug/L	22,000	19,800	NS	24,800	NS	13,400	NS	12,900
Nitrate-N	10	PDWS	mg/L	0.27	0.05 U	NS	0.12 U	NS	0.043 U	NS	0.043 U
Sodium	160	PDWS	mg/L	70.9	63.9	NS	86.6	NS	43.9	NS	35.8
Sulfate	250	SDWS	mg/L	37.7	44.8	NS	24.4 I	NS	76.9	NS	69.2
Total Dissolved Solids	500	SDWS	mg/L	762	616	NS	844	NS	537	NS	493
Barium	2000	PDWS	ug/L	292	233	NS	303	NS	170	NS	143
Copper	1000	SDWS	ug/L	2.7 I	2.9 I	NS	2.5 U	NS	2.5 U	NS	2.5 U
Acetone	6300	GCTL	ug/L	8.7 I	5 U	NS	5 U	NS	10 U	NS	10 U
Chlorobenzene	100	PDWS	ug/L	0.5 U	0.5 U	NS	0.7 I	NS	0.5 U	NS	0.5 U
Well B41-1											
Parameter	Limit	Standard	Unit	Sampling Event							
				May-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14
Dissolved Oxygen	-	NE	mg/L	0.1	0.58	0.28	0.34	0.36	0.71	0.7	0.21
Field Temperature	-	NE	deg C	23.08	22.28	22.53	22.84	23.31	23.09	21.3	22.49
PH, FIELD	6.5-8.5	SDWS	S.U.	6.26	6.25	6.24	6.04	6.15	6.18	6.3	6.28
Specific Conductance	-	NE	umhos/cm	2357	2364	2329	2420	2025	2259	1946	2073
Turbidity	-	NE	NTU	2.54	1.86	2.91	3.75	1.84	2.54	2.75	3.36
Ammonia-N	2.8	GCTL	mg/L	69.6	83.5	79.4	77.8	72	65.9	52.7	55.9
Chloride	250	SDWS	mg/L	175	163	165	170	178	177	141	164
Iron	300	SDWS	ug/L	23,300	22,000	24,800	22,200	25,000	23,600	18,100	20,600
Sodium	160	PDWS	mg/L	166	146	162	163	162	160	145	141
Sulfate	250	SDWS	mg/L	14.2 I	18	NS	7	48	40	97	80
Total Dissolved Solids	500	SDWS	mg/L	1,180	1,140	1,200	1,210	1,230	1,220	1,180	1,210
Antimony	6	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.56 I
Barium	2000	PDWS	ug/L	317	261	285	308	312	309	316	316
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.63 I	0.71 I	0.5 U	0.5 U
Chromium	100	PDWS	ug/L	5.3	3.1 I	5.6	6.4	5.3	5.8	5 I	5.9
Copper	1000	SDWS	ug/L	2.7 I	3.9 I	2.5 U	2.5 U	2.5 U	2.5 U	2.7 I	2.5 U
Nickel	100	PDWS	ug/L	2.8 I	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	10.6	10.4	10.4	9.9 I	10.1	10.6	8.6 I	9.4 I
Zinc	5000	SDWS	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	23.1	10 U
1,4-Dichlorobenzene	75	PDWS	ug/L	0.18 U	0.26 I	0.16 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Methylnaphthalene	28	GCTL	ug/L	0.15 U	0.38 I	0.13 U	NS	NS	NS	NS	NS
Benzene	1	PDWS	ug/L	1.2	0.86 I	1.1	0.13 I	0.99 I	0.47 I	0.53 I	0.36 I
Chlorobenzene	100	PDWS	ug/L	2.4	4.2	4.1	2.1	2.6	4.1	4.5	3.9
Cyanide (CN)	0.2	PDWS	mg/L	0.0014 I	0.0022 I	0.002 U	NS	NS	NS	NS	NS
Endrin	2	SDWS	ug/L	0.0032 I	0.0016 U	0.0016 U	NS	NS	NS	NS	NS
Toluene	40	SDWS	ug/L	0.55 I	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene (Total)	20	SDWS	ug/L	0.5 U	0.5 U	3.7	0.5 U	0.5 U	0.5 U	0.59 I	0.5 U

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 4 & 6 Wells
Tomoka Farms Road Landfill

Well B43-1											
Parameter	Limit	Standard	Unit	Sampling Event							
				May-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14
Dissolved Oxygen	-	NE	mg/L	0.2	0.42	0.16	0.53	0.63	0.33	0.4	0.2
Field Temperature	-	NE	deg C	22.16	22.13	22.33	21.86	23.17	22.92	20.8	24.04
PH, FIELD	6.5-8.5	SDWS	S.U.	6	5.87	5.6	5.73	5.8	5.74	6.02	6.02
Specific Conductance	-	NE	umhos/cm	771	747	750	777	694	733	761	746
Turbidity	-	NE	NTU	0.94	2.06	13.4	1.76	0.37	0.89	4.1	2.57
Ammonia-N	2.8	GCTL	mg/L	3.1 J	3	4	1.8	2	1.6	1.7	1.5
Chloride	250	SDWS	mg/L	66.5	72.1	73.1	77.9 L	83.1 L	90	94.3	89.5
Iron	300	SDWS	ug/L	21,900	21,200	25,100	20,700	23,400	23,000	28,500	25,700
Sodium	160	PDWS	mg/L	86.5	75.9	80.7	83.4	82.5	79.3	79.5	83.6
Sulfate	250	SDWS	mg/L	5.8	17.7	NS	32.8	25.1	31.9	41.5	28.2
Total Dissolved Solids	500	SDWS	mg/L	408	415	429	415	419	431	440	447
Barium	2000	PDWS	ug/L	158	143	168	138	142	146	170	154
Beryllium	4	PDWS	ug/L	0.5 U	0.076 I	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Copper	1000	SDWS	ug/L	2.5 U	4.1 I	2.5 U	2.5 U	2.5 U	2.5 U	4.1 I	2.5 U
Zinc	5000	SDWS	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	22.5	10 U
Benzene	1	PDWS	ug/L	1	0.59 I	0.85 I	0.37 I	0.1 U	0.1 U	0.1 U	0.1 I
Chlorobenzene	100	PDWS	ug/L	4.9	3.4	4.3	2	1.7	1.4	1.2	1.3
Cyanide (CN)	0.2	PDWS	mg/L	0.001 U	0.001 U	0.002 U	NS	NS	NS	NS	NS
Di-N-Butylphthalate	700	GCTL	ug/L	0.19 U	0.17 U	0.22 I	NS	NS	NS	NS	NS
Naphthalene	14	GCTL	ug/L	0.31 I	0.2 I	0.19 U	NS	NS	NS	NS	NS
Well B45-1											
Parameter	Limit	Standard	Unit	Sampling Event							
				May-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14
Dissolved Oxygen	-	NE	mg/L	0.08	0.33	0.09	0.2	0.27	0.5	0.42	0.37
Field Temperature	-	NE	deg C	23.16	21.66	22.47	21.85	22.93	23.12	21.35	21.9
PH, FIELD	6.5-8.5	SDWS	S.U.	5.98	6.05	5.82	5.79	5.9	5.62	6.06	6.07
Specific Conductance	-	NE	umhos/cm	1598	1551	1684	1815	1494	1591	1520	1466
Turbidity	-	NE	NTU	4.32	3.15	14.2	8.2	1.25	0.02	1.86	1.39
Ammonia-N	2.8	GCTL	mg/L	0.043 I	0.02 U	0.034 I	0.021 I	0.046 I	0.047 I	0.037 I	0.065
Chloride	250	SDWS	mg/L	178	169	148	214	169	180	170	200
Iron	300	SDWS	ug/L	46,200	41,200	48,300	47,700	46,600	44,200	45,300	43,400
Sodium	160	PDWS	mg/L	215	182	195	202	216	217	229	232
Total Dissolved Solids	500	SDWS	mg/L	892	1,800	1,010	1,070	958	948	924	970
Arsenic	10	PDWS	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5.3 I	5.8 I
Barium	2000	PDWS	ug/L	151	132	157	135	145	149	156	143
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 I	0.5 U	0.5 U
Copper	1000	SDWS	ug/L	4.2 I	7	2.5 U	2.5 U	2.5 U	2.5 U	4.9 I	4 I
Vanadium	49	GCTL	ug/L	5 U	5 U	5 U	5.8 I	5 U	5 U	5 U	5 U
Zinc	5000	SDWS	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	21.2	10 U
Benzene	1	PDWS	ug/L	13.7	10.3	11.6	10.7	8.9	10.4	11.3	10.5
Chlorobenzene	100	PDWS	ug/L	5.3	5.3	5.5	5.4	5.2	5.7	6	6.1
Chlorobenzilate	0.1	GCTL	ug/L	0.022 U	0.034 I	0.02 U	NS	NS	NS	NS	NS
Cyanide (CN)	0.2	PDWS	mg/L	0.001 U	0.0014 I	0.002 U	NS	NS	NS	NS	NS
Diethyl Phthalate	5600	GCTL	ug/L	0.79 I	0.66 I	0.56 I	NS	NS	NS	NS	NS
Endrin	2	SDWS	ug/L	0.003 I	0.0016 U	0.0016 U	NS	NS	NS	NS	NS
Ethylbenzene	700	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.75 I	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	14	GCTL	ug/L	1.1 I	1.1 I	0.99 I	NS	NS	NS	NS	NS
Toluene	40	SDWS	ug/L	0.74 I	0.5 U	0.5 U	0.61 I	0.5 U	0.5 U	0.5 U	0.5 U
Toluidine, O-	0.1	GCTL	ug/L	0.26 U	0.24 U	0.33 I	NS	NS	NS	NS	NS
Xylene (Total)	20	SDWS	ug/L	3.4	1.4	2.6	4	1.8	2.3	3	2.3

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
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Well B2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.12	0.51	0.29	0.31	0.24
Field Temperature	-	NE	deg C	23.14	22.28	21.73	24.01	25.59
PH, FIELD	6.5-8.5	SDWS	S.U.	5.3	5.4	5.28	5.08	5.53
Specific Conductance	-	NE	umhos/cm	1018	834	1059	796	916
Turbidity	-	NE	NTU	5.34	4.82	9.96	0.19	1.44
Ammonia-N	2.8	GCTL	mg/L	3.6	2.7	3.1	3.3	3.3
Chloride	250	SDWS	mg/L	45.7	36	38.6	37.5	36.1
Iron	300	SDWS	ug/L	36,800	31,300	43,300	35,600	38,300
Sodium	160	PDWS	mg/L	31.7	28.8	30.4	31	28.3
Sulfate	250	SDWS	mg/L	454	270	377	330	331
Total Dissolved Solids	500	SDWS	mg/L	731	594	753	670	743
Arsenic	10	PDWS	ug/L	6.3 I	5 U	5 U	5 U	5 U
Barium	2000	PDWS	ug/L	112	102	122	114	110
Beryllium	4	PDWS	ug/L	1.7	1.8	1.7	1.7	1.7
Cadmium	5	PDWS	ug/L	0.76 I	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	PDWS	ug/L	3.9 I	2.5 U	4.7 I	3 I	3.5 I
Copper	1000	SDWS	ug/L	4.4 I	3.8 I	2.5 U	2.5 U	2.5 U
Nickel	100	PDWS	ug/L	7.8	2.5 U	4.5 I	2.5 U	2.5 U
Vanadium	49	GCTL	ug/L	16.6	17.3	17.8	14.7	17.6
Well B-5								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.1	0.46	0.17	0.32	0.25
Field Temperature	-	NE	deg C	23.61	23.25	22.98	24.51	23.34
PH, FIELD	6.5-8.5	SDWS	S.U.	6.59	6.53	6.33	6.36	6.56
Specific Conductance	-	NE	umhos/cm	873	778	755	662	924
Turbidity	-	NE	NTU	0.32	1.88	4.23	1.83	1.35
Ammonia-N	2.8	GCTL	mg/L	0.24	0.25	0.33	0.38	0.31
Chloride	250	SDWS	mg/L	26.4	20.4	17.1	16.2	28.1
Iron	300	SDWS	ug/L	17,900	14,600	15,400	13,600	18,500
Sodium	160	PDWS	mg/L	22.7	22.1	22.7	22.9	34.7
Total Dissolved Solids	500	SDWS	mg/L	492	438	428	424	562
Barium	2000	PDWS	ug/L	92.5	75.9	74.9	70.8	108
Copper	1000	SDWS	ug/L	2.5 U	2.5 U	2.5 U	4.8 I	2.5 U
Vinyl Chloride	#N/A	#N/A	ug/L	0.63 I	0.5 U	0.5 U	0.5 U	0.67 I

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Well B8								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.64	1.84	1.07	0.15	1.12
Field Temperature	-	NE	deg C	25.39	23.2	23.08	24.13	27.14
PH, FIELD	6.5-8.5	SDWS	S.U.	6.16	6.28	6.23	5.92	6.53
Specific Conductance	-	NE	umhos/cm	624	587	721	599	688
Turbidity	-	NE	NTU	0.58	1.37	NS	0.01	0.47
Ammonia-N	2.8	GCTL	mg/L	0.23	0.16	0.21	0.21	0.16
Chloride	250	SDWS	mg/L	64	65.9	68.5	89.7	79.8
Iron	300	SDWS	ug/L	683	883	1,250	1,790	1,910
Sodium	160	PDWS	mg/L	38	35.4	33.9 J	39.2	37.6
Sulfate	250	SDWS	mg/L	12.2	17.9	9.5	11.4	10.5
Total Dissolved Solids	500	SDWS	mg/L	414	392	470	470	483
Barium	2000	PDWS	ug/L	32.2	31.6	32.8	37.5	38.4
Copper	1000	SDWS	ug/L	2.5 U	2.5 U	2.5 U	15.4	2.5 U
Lead	15	PDWS	ug/L	6.1 I	5 U	5 U	5 U	5 U
Bromomethane	9.8	GCTL	ug/L	3.2	0.5 U	0.5 U	0.5 U	0.5 U
Well B8-2								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.16	1.12	0.29	0.33	0.13
Field Temperature	-	NE	deg C	26.11	23.4	22.83	24.84	25.83
PH, FIELD	6.5-8.5	SDWS	S.U.	5.33	6.87	5.14	4.89	5.21
Specific Conductance	-	NE	umhos/cm	1136	474	1305	1046	1300
Turbidity	-	NE	NTU	1.42	6.41	0.6	0.14	5.09
Ammonia-N	2.8	GCTL	mg/L	0.076	0.02 U	0.053	0.094	0.085
Chloride	250	SDWS	mg/L	271	71.6	288	262	335
Iron	300	SDWS	ug/L	30,600	559	36,500	37,000	41,600
Nitrate-N	10	PDWS	mg/L	0.05 U	0.24	0.05 U	0.086 U	0.086 U
Sodium	160	PDWS	mg/L	37.2	17.1	40.4	48.8	55.3
Sulfate	250	SDWS	mg/L	76.8	72.3	56.5	50.3	37
Total Dissolved Solids	500	SDWS	mg/L	784	345	926	942	1,130
Barium	2000	PDWS	ug/L	153	73.2	176	189	226
Cadmium	5	PDWS	ug/L	0.61 I	0.5 U	0.5 U	0.5 U	0.5 U
Copper	1000	SDWS	ug/L	3.3 I	2.5 U	2.5 U	2.5 U	2.5 U
Lead	15	PDWS	ug/L	7.8 I	5 U	5 U	5 U	5 U
Vanadium	49	GCTL	ug/L	5.1 I	5 U	7.4 I	7 I	10.4

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Well B32								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.14	0.75	0.31	0.26	0.2
Field Temperature	-	NE	deg C	22.86	22.71	22.7	24.06	24.41
PH, FIELD	6.5-8.5	SDWS	S.U.	6.69	6.62	6.47	6.2	6.71
Specific Conductance	-	NE	umhos/cm	655	650	736	836	861
Turbidity	-	NE	NTU	3.01	6.26	4.78	3.94	5.92
Ammonia-N	2.8	GCTL	mg/L	0.067	0.055	0.062	0.076	0.058
Chloride	250	SDWS	mg/L	54.8	55.5	60.9	113	98.7
Iron	300	SDWS	ug/L	5,680	5,820	7,050	8,930	8,700
Nitrate-N	10	PDWS	mg/L	0.025 U	0.025 U	0.025 U	0.084	0.043 U
Sodium	160	PDWS	mg/L	31	28.6	32	34.2	32.7
Sulfate	250	SDWS	mg/L	38.4	32.9	42.3	66.1 J	57.3
Total Dissolved Solids	500	SDWS	mg/L	430	394	481	669	624
Barium	2000	PDWS	ug/L	36.1	34.3	41.1	53.2	51.8
Copper	1000	SDWS	ug/L	2.6 I	2.5 U	2.5 U	2.5 U	2.5 U
cis-1,2-Dichloroethene	70	PDWS	ug/L	0.65 I	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	3	SDWS	ug/L	1.4	0.5 U	0.5 U	0.5 U	0.5 U
Well B33-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.11	0.43	0.23	0.24	0.14
Field Temperature	-	NE	deg C	23.29	22.82	23.16	23.65	25.24
PH, FIELD	6.5-8.5	SDWS	S.U.	6.21	6.23	6.04	5.8	6.3
Specific Conductance	-	NE	umhos/cm	506	534	572	521	614
Turbidity	-	NE	NTU	1.72	2.27	3.04	0.3	0.82
Ammonia-N	2.8	GCTL	mg/L	0.2	0.19	0.17	0.23	0.19
Chloride	250	SDWS	mg/L	49.2	51	55.3	68.8	74.6
Iron	300	SDWS	ug/L	8,200	8,840	9,850	9,850	10,800
Sodium	160	PDWS	mg/L	54.9	57.2	61.9	64.5	64.6
Total Dissolved Solids	500	SDWS	mg/L	391	389	417	450	470
Barium	2000	PDWS	ug/L	35.4	36.8	42.6	45.4	50.9
Chromium	100	PDWS	ug/L	3.2 I	2.5 U	2.6 I	2.5 U	2.7 I
Copper	1000	SDWS	ug/L	2.5 U	3 I	2.5 U	2.5 U	2.5 U
Lead	15	PDWS	ug/L	5.1 I	5 U	5 U	5 U	5 U
Vanadium	49	GCTL	ug/L	5 I	5.5 I	5 U	5 U	5 U

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Well B34-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.15	0.67	0.58	0.29	0.25
Field Temperature	-	NE	deg C	22.96	21.91	21.42	22.59	23.12
PH, FIELD	6.5-8.5	SDWS	S.U.	6.51	6.55	6.21	6.11	6.51
Specific Conductance	-	NE	umhos/cm	1066	1132	1127	1009	1154
Turbidity	-	NE	NTU	1.23	2.94	2.25	0.01	1.59
Ammonia-N	2.8	GCTL	mg/L	0.098	0.12	0.13	0.14	0.12
Chloride	250	SDWS	mg/L	64.5 J	59.2	55.2	57.7	53
Iron	300	SDWS	ug/L	22,400	25,200	26,100	30,300	29,800
Nitrate-N	10	PDWS	mg/L	0.025 U	0.05 U	0.026 I	0.086 U	0.086 U
Sodium	160	PDWS	mg/L	44.8	39.9	40.7	44.7	40.4
Sulfate	250	SDWS	mg/L	132	177	138	165	195
Total Dissolved Solids	500	SDWS	mg/L	661	739	740	742	841
Barium	2000	PDWS	ug/L	125	134	127	148	142
Copper	1000	SDWS	ug/L	4.5 I	3 I	2.5 U	2.5 U	2.5 U
Well B35-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.09	0.62	0.27	0.19	0.14
Field Temperature	-	NE	deg C	22.9	21.01	21.84	22.62	24.58
PH, FIELD	6.5-8.5	SDWS	S.U.	5.37	5.51	5.3	5.38	5.67
Specific Conductance	-	NE	umhos/cm	359	337	350	318	333
Turbidity	-	NE	NTU	1.13	0.89	2.74	0.33	2.59
Ammonia-N	2.8	GCTL	mg/L	0.12	0.11	0.12	0.13	0.15
Chloride	250	SDWS	mg/L	82	74.5	72	69.5	70.8
Iron	300	SDWS	ug/L	10,400	9,240	10,600	9,760	10,900
Sodium	160	PDWS	mg/L	23.9	22.8	24.9	24.5	25.6
Total Dissolved Solids	500	SDWS	mg/L	248	229	235	250	246
Barium	2000	PDWS	ug/L	95	89.2	92.8	91.4	94.5

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Well B36								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.08	0.55	0.19	0.21	0.11
Field Temperature	-	NE	deg C	22.99	21.79	21.62	23.1	24.11
PH, FIELD	6.5-8.5	SDWS	S.U.	6.42	6.64	6.16	6.37	6.4
Specific Conductance	-	NE	umhos/cm	1916	1656	1991	947	1763
Turbidity	-	NE	NTU	3.46	1.54	3.63	0.4	1.33
Chloride	250	SDWS	mg/L	250	207	235	157	226
Iron	300	SDWS	ug/L	5,380	4,680	5,960	4,710	5,650
Sodium	160	PDWS	mg/L	116	103	127	105	120
Total Dissolved Solids	500	SDWS	mg/L	1,150	1,010	1,270	678	1,210
Ammonia-N	2.8	GCTL	mg/L	0.16	0.14	0.16	0.17	0.3
Barium	2000	PDWS	ug/L	124	100	137	106	135
Lead	15	PDWS	ug/L	7.1 I	5 U	5 U	5 U	5 U
1,1-Dichloroethane	70	GCTL	ug/L	1.4	1.1	1.1	1.1	1.3
Benzene	1	PDWS	ug/L	1.9	4.1	2.6	2.3	2.5
Chlorobenzene	100	PDWS	ug/L	2.3	1.8	3.2	1.8	2.7
Ethylbenzene	700	PDWS	ug/L	0.5 U	0.5 U	0.64 I	0.5 U	0.5 U
Xylene (Total)	20	SDWS	ug/L	0.95 I	4.6	2.8	1	1
Well B37-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.14	0.33	0.14	0.23	0.11
Field Temperature	-	NE	deg C	23.46	22.31	22.2	24.1	24.34
PH, FIELD	6.5-8.5	SDWS	S.U.	6.34	6.49	6.16	5.98	6.35
Specific Conductance	-	NE	umhos/cm	1999	2574	2360	1701	2438
Turbidity	-	NE	NTU	0.59	7.16	2.67	2.35	3.32
Ammonia-N	2.8	GCTL	mg/L	0.54	0.31	0.51	0.17	0.58
Chloride	250	SDWS	mg/L	2.5 U	167	124	86.1	184
Iron	300	SDWS	ug/L	31,900	38,800	35,000	36,800	39,700
Sodium	160	PDWS	mg/L	218	249	227	174	258
Total Dissolved Solids	500	SDWS	mg/L	1,400	1,530	1,430	1,140	1,560
Barium	2000	PDWS	ug/L	207	239	218	186	257
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.56 I	0.5 U
Copper	1000	SDWS	ug/L	2.5 U	3.8 I	2.5 U	4.4 I	2.5 U
Lead	15	PDWS	ug/L	6.9 I	5 U	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	0.2	GCTL	ug/L	0.0049 U	0.008 I	0.0053 U	0.005 U	0.0051 U
1,2-Dichlorobenzene	600	PDWS	ug/L	0.5 U	0.5 U	0.5 I	0.5 U	0.5 U
1,4-Dichlorobenzene	75	PDWS	ug/L	0.63 I	1	1	0.5 U	0.7 I
Acetone	6300	GCTL	ug/L	5 U	5 U	5.8 I	10 U	16.7 I
Benzene	1	PDWS	ug/L	7.9	9.7	9.5	7.4	11.5
Chlorobenzene	100	PDWS	ug/L	12.1	11.6	13.4	3.5	9.6
cis-1,2-Dichloroethene	70	PDWS	ug/L	0.5 U	0.5 U	0.5 U	1.9	0.5 U
Toluene	40	SDWS	ug/L	0.5 U	0.58 I	0.65 I	0.5 U	0.55 I
Vinyl Chloride	#N/A	#N/A	ug/L	0.5 U	0.5 U	0.5 U	2.4	0.5 U
Xylene (Total)	20	SDWS	ug/L	1.6	6.2	3.2	5.5	3.2

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Well B38-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.21	0.39	1.17	0.22	0.21
Field Temperature	-	NE	deg C	22.38	21.14	20.81	21.88	22.79
PH, FIELD	6.5-8.5	SDWS	S.U.	5.26	5.52	5.18	5.23	5.5
Specific Conductance	-	NE	umhos/cm	310	322	324	310	324
Turbidity	-	NE	NTU	5.53	2.19	1.3	1.41	4.14
Ammonia-N	2.8	GCTL	mg/L	0.051	0.031 I	0.05	0.05 I	0.089
Chloride	250	SDWS	mg/L	54.1 J	54.7	53.2	55.5	58.2
Iron	300	SDWS	ug/L	16,800	20,900	19,800	20,900	23,300
Sodium	160	PDWS	mg/L	23.9	25.2	25.5	25.7	28.3
Sulfate	250	SDWS	mg/L	12.3	16.6	17.9	20	22
Total Dissolved Solids	500	SDWS	mg/L	184	206	196	229	234
Barium	2000	PDWS	ug/L	77.9	91.6	88.5	94.3	104
Mercury	2	PDWS	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	NS
Acetone	6300	GCTL	ug/L	5 U	5 U	5 U	10 U	16.2 I
Well B40-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.69	0.7	0.74	0.34	0.68
Field Temperature	-	NE	deg C	22.63	21.87	21.91	22.66	21.41
PH, FIELD	6.5-8.5	SDWS	S.U.	5.2	5.46	5.13	5.24	5.44
Specific Conductance	-	NE	umhos/cm	545	538	590	583	636
Turbidity	-	NE	NTU	1	0.37	2.88	0.01	0.3
Ammonia-N	2.8	GCTL	mg/L	0.1	0.093	0.095	0.12	0.11
Chloride	250	SDWS	mg/L	71.1	63.6	59.7	56.7	58.7
Iron	300	SDWS	ug/L	13,200	13,900 J	15,200	18,200	20,600
Nitrate-N	10	PDWS	mg/L	0.025 U	0.025 U	0.13	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	47.9	48.5	50.8	50.1	51.3
Sulfate	250	SDWS	mg/L	103	116	123	153	184
Total Dissolved Solids	500	SDWS	mg/L	374	351	392	433	491
Antimony	6	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.52 I	0.5 U
Barium	2000	PDWS	ug/L	123	117	136	149	174
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.5 I	0.5 U
Copper	1000	SDWS	ug/L	2.5 U	3.7 I	2.5 U	2.5 U	2.5 U

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 4 & 6 Wells
Tomoka Farms Road Landfill

Well B42-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.45	0.38	0.48	0.24	0.51
Field Temperature	-	NE	deg C	20.93	21.68	22.08	22.55	22.13
PH, FIELD	6.5-8.5	SDWS	S.U.	4.9	5.73	5.47	5.56	5.73
Specific Conductance	-	NE	umhos/cm	983	950	932	818	839
Turbidity	-	NE	NTU	0.99	0.82	4.56	0.12	2.03
Ammonia-N	2.8	GCTL	mg/L	0.43	0.36	0.36	0.49	0.34
Chloride	250	SDWS	mg/L	101	87.4	79.9	76.2	78.5
Iron	300	SDWS	ug/L	14,300	15,700	14,500	13,600	14,200
Nitrate-N	10	PDWS	mg/L	0.025 U	0.05 U	0.28	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	95.7	98.3	91.7	88.5	93
Sulfate	250	SDWS	mg/L	196	233	216	203	222
Total Dissolved Solids	500	SDWS	mg/L	599	646	644	704	636
Barium	2000	PDWS	ug/L	114	120	119	105	118
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.61 I	0.5 U
Chromium	100	PDWS	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 I
Well B59-1R								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.07	1.28	0.14	0.14	0.21
Field Temperature	-	NE	deg C	24.44	23.8	23.63	24.5	26.03
PH, FIELD	6.5-8.5	SDWS	S.U.	6.63	6.97	6.4	6.4	6.74
Specific Conductance	-	NE	umhos/cm	687	635	719	625	649
Turbidity	-	NE	NTU	5.17	2.37	2.44	0.59	0.28
Ammonia-N	2.8	GCTL	mg/L	0.39	2.4	0.58	0.77	0.74
Chloride	250	SDWS	mg/L	66.3	73.6	67.6	72.5	66.7
Iron	300	SDWS	ug/L	4,890	3,920	4,700	5,750	5,120
Sodium	160	PDWS	mg/L	64.3	54.6	51.9	59.2	56.8
Sulfate	250	SDWS	mg/L	6.4	2.5 U	5.4	4.7 I	4.6 I
Total Dissolved Solids	500	SDWS	mg/L	389	373	430	412	416
Barium	2000	PDWS	ug/L	54.2	64.6	52	59.2	63.7

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 4 & 6 Wells
Tomoka Farms Road Landfill

Well B60								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.12	1.04	0.14	0.15	0.23
Field Temperature	-	NE	deg C	25.08	22.6	24.25	24.71	25.43
PH, FIELD	6.5-8.5	SDWS	S.U.	6.4	7	6.18	6.21	6.57
Specific Conductance	-	NE	umhos/cm	530	535	570	520	548
Turbidity	-	NE	NTU	0.68	4.76	1.78	0.01	0.22
Ammonia-N	2.8	GCTL	mg/L	0.95	0.77	1	1.1	1.2
Chloride	250	SDWS	mg/L	66.4	68.2	64.3	70.2	64.8
Iron	300	SDWS	ug/L	3,950	3,720	4,090	4,530	4,550
Sodium	160	PDWS	mg/L	54.6	51.5	51.3	55.9	53.4
Total Dissolved Solids	500	SDWS	mg/L	307	304	339	340	349
Barium	2000	PDWS	ug/L	62.7	57.9	69.7	72.2	80.1
Chromium	100	PDWS	ug/L	2.5 U	0.57 I	2.5 U	2.5 U	2.5 U
Copper	1000	SDWS	ug/L	4.7 I	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	6300	GCTL	ug/L	5 U	14.3	5 U	10 U	10 U
Well B62-1R								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.05	1.1	0.21	2.25	0.32
Field Temperature	-	NE	deg C	24.2	25.3	23.3	23.58	23.67
PH, FIELD	6.5-8.5	SDWS	S.U.	6.73	7.33	6.55	6.52	6.74
Specific Conductance	-	NE	umhos/cm	2871	641	2597	1805	1930
Turbidity	-	NE	NTU	10.16	15.48	43.2	4.67	2.51
Ammonia-N	2.8	GCTL	mg/L	120	1.3	95.9	8.1	67.3
Chloride	250	SDWS	mg/L	183	64.8	143	92.9	132
Iron	300	SDWS	ug/L	20,900	6,480	16,300	15,500	15,000
Sodium	160	PDWS	mg/L	222	56.8	222	160	189
Sulfate	250	SDWS	mg/L	32.6	9.1	30.8	12.3	12.1
Total Dissolved Solids	500	SDWS	mg/L	1,300	385	1,260	916	1,110
Barium	2000	PDWS	ug/L	519	50.1	411	298	317
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.67 I	0.5 U
Chromium	100	PDWS	ug/L	2.8 I	2.5 U	4.7 I	2.5 U	2.5 U
Copper	1000	SDWS	ug/L	2.7 I	2.5 U	2.5 U	2.5 U	2.5 U
Nickel	100	PDWS	ug/L	6.5	2.5 U	7.1	6.1	5.1
Acetone	6300	GCTL	ug/L	5 U	7.3 I	7.8 I	10 U	10 U
Chlorobenzene	100	PDWS	ug/L	0.6 I	0.5 U	2.9	1.9	2

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 4 & 6 Wells
Tomoka Farms Road Landfill

Well B63-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.1	0.76	0.11	0.28	0.18
Field Temperature	-	NE	deg C	23.16	22.2	22.37	22.72	23.13
PH, FIELD	6.5-8.5	SDWS	S.U.	6.49	6.58	6.28	6.37	6.65
Specific Conductance	-	NE	umhos/cm	553	544	562	510	491
Turbidity	-	NE	NTU	4.01	1.97	1.35	2.28	0.44
Ammonia-N	2.8	GCTL	mg/L	0.1	0.083	0.1	0.1	0.12
Chloride	250	SDWS	mg/L	48.2	44.3	42.1	40.3	32.5
Iron	300	SDWS	ug/L	2,330	2,570	2,490	2,340	2,340
Sodium	160	PDWS	mg/L	53.1	53.8	51.2	51.3	51.3
Total Dissolved Solids	500	SDWS	mg/L	347	330	337	338	335
Barium	2000	PDWS	ug/L	45.4	44.1	43.4	44.9	44.2
Lead	15	PDWS	ug/L	5.2 I	5 U	5 U	5 U	5 U
Well B68								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.09	1.31	0.45	0.21	0.1
Field Temperature	-	NE	deg C	24.81	22.9	23.8	24.8	25.65
PH, FIELD	6.5-8.5	SDWS	S.U.	5.67	6.16	5.61	5.31	5.89
Specific Conductance	-	NE	umhos/cm	741	631	793	657	819
Turbidity	-	NE	NTU	5	15.02	2.4	0.07	0.58
Ammonia-N	2.8	GCTL	mg/L	1.2	0.59	0.79	0.91	0.86
Chloride	250	SDWS	mg/L	41.1	44.1	39.2	45.5	35.8
Iron	300	SDWS	ug/L	21,300	23,700 J	23,700	27,000	27,200
Sodium	160	PDWS	mg/L	24.3	20.6	23.5	27.8	25.8
Sulfate	250	SDWS	mg/L	2.5 U	2.5 U	2.5 U	14.4	41.4
Total Dissolved Solids	500	SDWS	mg/L	481	428	528	434	585
Barium	2000	PDWS	ug/L	106	86.8	108	137	134
Copper	1000	SDWS	ug/L	3.1 I	3.1 I	2.5 U	2.5 U	2.5 U
Acetone	6300	GCTL	ug/L	5 U	6.1 I	5 U	10 U	10 U

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 4 & 6 Wells
Tomoka Farms Road Landfill

Well B70-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.12	1.87	0.28	0.4	0.21
Field Temperature	-	NE	deg C	23.39	23.1	23.22	23.5	24.95
PH, FIELD	6.5-8.5	SDWS	S.U.	5.32	7.17	5.18	5.12	5.57
Specific Conductance	-	NE	umhos/cm	317	265	23.22	296	297
Turbidity	-	NE	NTU	0.12	13.86	0.71	0.4	0.11
Ammonia-N	2.8	GCTL	mg/L	0.038 I	0.02 U	0.078	0.043 I	0.028 I
Chloride	250	SDWS	mg/L	28	27.8	37	34.2	35.1
Iron	300	SDWS	ug/L	6000	4190	6570	7340	6830
Nitrate-N	10	PDWS	mg/L	0.025 U	0.12	0.025 U	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	25.6	28.8	28.3	28.7	28.3
Sulfate	250	SDWS	mg/L	53.6 J	44	49.1	50.8	50.6
Total Dissolved Solids	500	SDWS	mg/L	202	159	216	220	217
Barium	2000	PDWS	ug/L	39.6	27.5	42.4	41.6	42.1
Zinc	5000	SDWS	ug/L	10 U	10 U	10 U	10 U	46
Well B73-1								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.07	1.14	0.37	0.23	0.2
Field Temperature	-	NE	deg C	23.8	22.8	22.98	23.94	25.38
PH, FIELD	6.5-8.5	SDWS	S.U.	6.48	7.02	6.35	6.25	6.64
Specific Conductance	-	NE	umhos/cm	912	411	858	722	730
Turbidity	-	NE	NTU	3.84	10.28	2.07	0.25	0.39
Ammonia-N	2.8	GCTL	mg/L	0.094	0.086	0.088	0.1	0.063
Chloride	250	SDWS	mg/L	58.7	18.6	50.6	55	33.8
Iron	300	SDWS	ug/L	14,300	5,200	15,000	14,700	13,600
Nitrate-N	10	PDWS	mg/L	0.025 U	0.13	0.05 U	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	49.8	31.1	51.4	47.7	41.1
Sulfate	250	SDWS	mg/L	6.2	20.6	7 I	4.6 I	7.1
Total Dissolved Solids	500	SDWS	mg/L	502	279	476	443	382
Barium	2000	PDWS	ug/L	59.4	40.9	59.3	54.5	52.4
Copper	1000	SDWS	ug/L	3.8 I	3.1 I	2.5 U	2.5 U	2.5 U

Appendix C - Table 6
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Zone 4 & 6 Wells
Tomoka Farms Road Landfill

Well MO5-B								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.29	0.44	0.42	0.2	0.21
Field Temperature	-	NE	deg C	22.33	21.06	22.51	23.16	23.55
PH, FIELD	6.5-8.5	SDWS	S.U.	6.24	6.1	5.95	6	6.27
Specific Conductance	-	NE	umhos/cm	1375	1371	1338	1139	1110
Turbidity	-	NE	NTU	2.88	0.56	0.73	0.3	0.76
Ammonia-N	2.8	GCTL	mg/L	5.2	1.5	1.5	1.8	1.7
Chloride	250	SDWS	mg/L	163	475	154	125	108
Iron	300	SDWS	ug/L	10,900	11,600	10,500	9,620	8,650
Nitrate-N	10	PDWS	mg/L	0.17	0.12 U	0.12	0.086 U	0.086 U
Sodium	160	PDWS	mg/L	116	149	146	140	132
Sulfate	250	SDWS	mg/L	19.6	116	42.5	57.1	62.2
Total Dissolved Solids	500	SDWS	mg/L	806	838	832	788	817
Barium	2000	PDWS	ug/L	247	193	182	158	166
Beryllium	4	PDWS	ug/L	0.5 U	0.5 U	0.5 U	0.7 I	0.5 U
Chromium	100	PDWS	ug/L	3.3 I	3.3 I	4.5 I	4.4 I	4.3 I
Zinc	5000	SDWS	ug/L	10 U	10.5 I	10 U	10 U	10 U

Notes:

Limit = Maximum threshold limit per regulatory standards;

NE= Not Established;

NS = Not Sampled;

PDWS = Parameter Limit is a Primary Drinking Water Standard (62-550 F.A.C.);

SDWS = Parameter Limit is a Secondary Drinking Water Standard (62-550 F.A.C.);

GCTL = Parameter Limit is a Groundwater Clean-up Target Level (62-777 F.A.C.);

I = The reported value is between the laboratory method detection method and the laboratory practical quantization limit;

J = Estimated value;

L = Off scale high. Actual value is known to be greater than the value given;

U = Indicates that the compound was analyzed for but not detected;

V = Indicated that the analyte was detected in both the sample and the associated Method Blank.

Appendix C - Table 7
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Floridan Aquifer Wells
Tomoka Farms Road Landfill

Well FA-1B								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.26	0.11	0.14	0.07	0.19
Field Temperature	-	NE	deg C	22.52	21.23	21.62	21.98	23.25
PH, FIELD	6.5-8.5	SDWS	S.U.	8.22	7.13	6.85	6.96	7.11
Specific Conductance	-	NE	umhos/cm	554	581	576	549	535
Turbidity	-	NE	NTU	1.13	0.46	0.26	0.03	0.22
Ammonia-N	2.8	GCTL	mg/L	0.02 U	0.47	0.33	0.33	0.38
Chloride	250	SDWS	mg/L	19.3	13.6	13.6	22.5	13.6
Iron	300	SDWS	ug/L	27.6 I	584	485	217	410
Nitrate-N	10	PDWS	mg/L	2.1	0.025 U	0.2	0.043 U	0.063
Sodium	160	PDWS	mg/L	9.9	10.4	10.1	15.8	10.4
Total Dissolved Solids	500	SDWS	mg/L	336	326	331	406	350
Barium	2000	PDWS	ug/L	111	36.5	30.4	18.2	28.4
Acetone	6300	GCTL	ug/L	5 U	5 U	5 U	10 U	14.7 I

Well FA-2C								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.05	0.14	0.19	0.22	0.22
Field Temperature	-	NE	deg C	22.64	20.77	21.65	21.73	23.29
PH, FIELD	6.5-8.5	SDWS	S.U.	7.49	7.48	7.13	7.14	7.39
Specific Conductance	-	NE	umhos/cm	734	714	732	707	712
Turbidity	-	NE	NTU	1.33	0.39	0.53	0.01	0.02
Ammonia-N	2.8	GCTL	mg/L	0.51	0.5	0.43	0.48	0.44
Chloride	250	SDWS	mg/L	70.7 J	68.4	65.1	73.4	68
Iron	300	SDWS	ug/L	1,550	1,480	1,450	1,240	1,200
Sodium	160	PDWS	mg/L	45.2	47.5	46	44.2	47.1
Total Dissolved Solids	500	SDWS	mg/L	417	397	427	458	449
Barium	2000	PDWS	ug/L	20.1	19.8	19.1	22	22.8
Copper	1000	SDWS	ug/L	2.5 U	2.5 U	2.5 U	3.4 I	2.5 U
Acetone	6300	GCTL	ug/L	7.5 I	5 U	5 U	10 U	10 U

Appendix C - Table 7
Summary of Detected Groundwater Parameters - May 2012 to May 2014
Floridan Aquifer Wells
Tomoka Farms Road Landfill

Well F-MB								
Parameter	Limit	Standard	Unit	Semiannual Sampling Event				
				May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	-	NE	mg/L	0.13	0.38	0.13	0.13	0.23
Field Temperature	-	NE	deg C	23.32	21.89	23.32	23.47	24.5
PH, FIELD	6.5-8.5	SDWS	S.U.	7.36	6.9	7.36	6.79	7.01
Specific Conductance	-	NE	umhos/cm	611	612	611	578	585
Turbidity	-	NE	NTU	24.8	0.87	24.8	16.85	2.32
Ammonia-N	2.8	GCTL	mg/L	0.28	0.26	0.28	0.6	0.3
Chloride	250	SDWS	mg/L	21.3	20.7	21.3	14.3	20.5
Iron	300	SDWS	ug/L	350	398	350	614	210
Nitrate-N	10	PDWS	mg/L	0.025 U	0.025 U	0.031 I	0.043 U	0.043 U
Sodium	160	PDWS	mg/L	17	16	17	9.9	16.4
Total Dissolved Solids	500	SDWS	mg/L	374	350	374	353	367
Barium	2000	PDWS	ug/L	19.9	19.4	19.9	37.9	19.3

Notes:

Limit = Maximum threshold limit per regulatory standards;

NA = Not Available;

NS = Not Sampled;

PDWS = Parameter Limit is a Primary Drinking Water Standard (62-550 F.A.C.);

SDWS = Parameter Limit is a Secondary Drinking Water Standard (62-550 F.A.C.);

GCTL = Parameter Limit is a Groundwater Clean-up Target Level (62-777 F.A.C.);

I = The reported value is between the laboratory method detection method and the laboratory practical quantization limit;

J = Estimated value;

V = Indicated that the analyte was detected in both the sample and associated Method Blank;

U = Indicates that the compound was analyzed for but not detected.

Appendix C - Table 8
Summary of Detected Surface Water Parameters - May 2012 to May 2014
Tomoka Farms Road Landfill

Surface Water Sampling Location SW-1							
Parameter	*Class III Standard	Unit	Semiannual Sampling Event				
			May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	≥ 5	mg/L	6.2	8.55	3.1	5.3	6.39
Field Temperature	No Standard	deg C	27.85	18.68	24.61	22.32	30.65
PH, FIELD	6 - 8.5	S.U.	6.35	8.25	6.47	6.35	6.88
Specific Conductance	1275	umhos/cm	113	101	125	112	114
Turbidity	No Standard	NTU	10.6	6.65	7.23	2.78	0.33
Ammonia-N	No Standard	mg/L	0.18	0.02 U	0.02 U	0.02 U	0.027 I
BOD, 5 day	No Standard	mg/L	2 U	2.6	9	2 U	2 U
Chemical Oxygen Demand	No Standard	mg/L	23.7	54.2	37.5	30.9	41.5
Chlorophyll A	No Standard	ug/L	5.1	33.2	17.8	5.6	5.2
Fecal Coliforms	200	#/100 mL	4	160	1	4	7
Hardness (As CaCO3)	No Standard	mg/L	16.8	14.8	18.2	17.7	18
Iron	1000	ug/L	346	136	397	186	88.6
Nitrate-N	No Standard	mg/L	0.19	0.025 U	0.025 U	0.043 U	0.043 U
Nitrogen, Kjeldahl (Total)	No Standard	mg/L	0.71	0.63	0.8	0.48 I	0.4 I
Phosphorus	No Standard	mg/L	0.05 U	0.05 U	0.056 I	0.055 I	0.05 U
Sodium	No Standard	mg/L	15.4	12.7	14.8	14.2	15.2
Total Dissolved Solids	No Standard	mg/L	83	83	90	88	93
Total Nitrogen	No Standard	mg/L	0.21	0.025 U	0.025 U	0.025 U	0.025 U
Total Organic Carbon	No Standard	mg/L	4.8	8.3	8.4	6.6	4.6
Total Suspended Solids	No Standard	mg/L	5 U	11	6	5 U	5 U
Barium	No Standard	ug/L	10.6	8 I	7.2 I	7.4 I	5 U
Lead	$e^{(1.273[\ln H] - 4.705)}$	ug/L	0.66 I	0.5 U	0.5 U	0.5 U	0.5 U
	Calculated	ug/L	0.33				
Mercury	0.012	ug/L	0.00163	0.00162	0.00303	0.0011	0.000794
Xylene (Total)	No Standard	ug/L	0.5 U	0.5 U	0.5 U	0.54 I	0.5 U

Appendix C - Table 8
Summary of Detected Surface Water Parameters - May 2012 to May 2014
Tomoka Farms Road Landfill

Surface Water Sampling Location SW-2							
Parameter	Standard	Unit	Semiannual Sampling Event				
			May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	≥ 5	mg/L	4.3	6	4.06	5.18	6.06
Field Temperature	No Standard	deg C	26.61	15.93	24.71	19.49	31.5
PH, FIELD	6 - 8.5	S.U.	7.71	7.42	7.28	7.35	7.43
Specific Conductance	1275	umhos/cm	569	498	543	468	438
Turbidity	No Standard	NTU	4.08	1.42	4.5	1.21	1.01
Ammonia-N	No Standard	mg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.026 I
BOD, 5 day	No Standard	mg/L	2 U	2 U	2.8	2 U	2 U
Chemical Oxygen Demand	No Standard	mg/L	57.8	50.5	38.4	48.9	33.5
Chlorophyll A	No Standard	ug/L	70.3	8.2	10.6	9.7	4.9
Fecal Coliforms	200	#/100 mL	36	40	8	23	8
Hardness (As CaCO3)	No Standard	mg/L	196	153	171	156	77
Iron	1000	ug/L	509	290	369	293	1,880
Nitrate-N	No Standard	mg/L	0.025 U	0.025 U	0.099	0.12	0.043 U
Nitrogen, Kjeldahl (Total)	No Standard	mg/L	1	1.2	0.89	0.71	0.7
Phosphorus	No Standard	mg/L	0.076 I	0.05 U	0.062 I	0.07 I	0.05 U
Sodium	No Standard	mg/L	44.2	35.6	36	39	13.2
Total Dissolved Solids	No Standard	mg/L	334	286	309	282	278
Total Nitrogen	No Standard	mg/L	0.012 I	0.043 I	0.04 I	0.077	0.025 U
Total Organic Carbon	No Standard	mg/L	18.6	15.9	13.6	14.5	13.3
Antimony	No Standard	ug/L	0.5 U	0.5 U	0.5 U	0.8 I	0.5 U
Barium	No Standard	ug/L	35.8	33	35.9	32.3	27.9
Cadmium	No Standard	ug/L	0.05 U	0.05 U	0.05 U	0.08 I	0.05 U
Copper	$e^{(0.8545[\ln H]-1.702)}$	ug/L	1.4	0.93 U	0.93 U	3.7	0.93 U
	Calculated	ug/L	16.6			13.6	
Lead	$e^{(1.273[\ln H]-4.705)}$	ug/L	0.5 U	0.5 U	0.5 U	0.89 I	0.5 U
	Calculated	ug/L				5.6	
Mercury	0.012	ug/L	0.0004 I	0.0006	0.00075	0.00058	0.0005 U
Selenium	5	ug/L	0.5 U	0.5 U	0.5 U	0.72 I	0.5 U
Silver	No Standard	ug/L	0.05 U	0.05 U	0.05 U	0.057 I	0.05 U
Thallium	No Standard	ug/L	0.5 U	0.5 U	0.5 U	0.68 I	0.5 U

Appendix C - Table 8
Summary of Detected Surface Water Parameters - May 2012 to May 2014
Tomoka Farms Road Landfill

Surface Water Sampling Location SW-3							
Parameter	Standard	Unit	Semiannual Sampling Event				
			May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	≥ 5	mg/L	DRY	6	DRY	2.3	0.63
Field Temperature	No Standard	deg C	DRY	16.57	DRY	20.55	22.34
PH, FIELD	6 - 8.5	S.U.	DRY	6.99	DRY	6.21	6.38
Specific Conductance	1275	umhos/cm	DRY	332	DRY	176	202
Turbidity	No Standard	NTU	DRY	1	DRY	1.99	41.5
Ammonia-N	No Standard	mg/L	DRY	0.02 U	DRY	0.02 U	0.11
BOD, 5 day	No Standard	mg/L	DRY	2 U	DRY	3.9	30.5
Chemical Oxygen Demand	No Standard	mg/L	DRY	44.2	DRY	99.7	148
Chlorophyll A	No Standard	ug/L	DRY	5.8	DRY	7.6	20.6
Fecal Coliforms	200	#/100 mL	DRY	40	DRY	26	240
Hardness (As CaCO3)	No Standard	mg/L	DRY	120	DRY	61.5	139
Iron	1000	ug/L	DRY	367	DRY	1,000	329
Nitrate-N	No Standard	mg/L	DRY	0.025 U	DRY	0.09	0.043 U
Nitrogen, Kjeldahl (Total)	No Standard	mg/L	DRY	0.77	DRY	1.3	2.5
Phosphorus	No Standard	mg/L	DRY	0.09 I	DRY	0.11	0.24
Sodium	No Standard	mg/L	DRY	16.3	DRY	14.4	38.8
Total Dissolved Solids	No Standard	mg/L	DRY	192	DRY	160	226
Total Organic Carbon	No Standard	mg/L	DRY	12.7	DRY	27.4	40.5
Barium	No Standard	ug/L	DRY	20	DRY	15.7	28.5
Copper	$e^{(0.8545[\ln H]-1.702)}$	ug/L	DRY	0.93 U	DRY	0.93 U	1.5
	Calculated	ug/L					12.4
Lead	$e^{(1.273[\ln H]-4.705)}$	ug/L	DRY	0.5 U	DRY	0.5 U	1.5
	Calculated	ug/L					4.8
Mercury	0.012	ug/L	DRY	0.00128	DRY	0.00473	0.0122
Zinc	No Standard	ug/L	DRY	10 U	DRY	18 I	10 U
Acetone	1700	ug/L	DRY	5 U	DRY	10 U	45.6
Toluene	No Standard	ug/L	DRY	0.5 U	DRY	0.5 U	614

Appendix C - Table 8
Summary of Detected Surface Water Parameters - May 2012 to May 2014
Tomoka Farms Road Landfill

Surface Water Sampling Location SW-4							
Parameter	Standard	Unit	Semiannual Sampling Event				
			May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	≥ 5	mg/L	DRY	4.5	4.35	3.34	3.77
Field Temperature	No Standard	deg C	DRY	17	24.53	19.83	28.69
PH, FIELD	6 - 8.5	S.U.	DRY	7.1	7.15	6.87	7.17
Specific Conductance	1275	umhos/cm	DRY	508	548	517	434
Turbidity	No Standard	NTU	DRY	6.54	7.45	7.53	0.72
Ammonia-N	No Standard	mg/L	DRY	0.027 I	0.02 U	0.02 U	0.04 I
BOD, 5 day	No Standard	mg/L	DRY	2.8	2.5	2.1	2
Chemical Oxygen Demand	No Standard	mg/L	DRY	71.5	45.1	58.3	43.9
Chlorophyll A	No Standard	ug/L	DRY	14.1	11.3	24.7	8.4
Fecal Coliforms	200	#/100 mL	DRY	20 U	40	114	38
Hardness (As CaCO3)	No Standard	mg/L	DRY	143	188	162	135
Iron	1000	ug/L	DRY	315	491	555	276
Nitrogen, Kjeldahl (Total)	No Standard	mg/L	DRY	1.3	0.97	1.1	0.69
Phosphorus	No Standard	mg/L	DRY	0.082 I	0.08 I	0.12	0.05 U
Sodium	No Standard	mg/L	DRY	39.4	39.8	49.5	39.7
Total Dissolved Solids	No Standard	mg/L	DRY	286	318	322	282
Total Nitrogen	No Standard	mg/L	DRY	0.025 U	0.034 I	0.025 U	0.025 U
Total Organic Carbon	No Standard	mg/L	DRY	21.6	13.8	19.6	14
Total Suspended Solids	No Standard	mg/L	DRY	5.5	21.5	8	5 U
Barium	No Standard	ug/L	DRY	23.2	39.4	27.8	28.3
Mercury	0.012	ug/L	DRY	0.00145	0.00247	0.00384	0.000723
Zinc	No Standard	ug/L	DRY	10 U	10 U	10.5 I	10 U

Appendix C - Table 8
Summary of Detected Surface Water Parameters - May 2012 to May 2014
Tomoka Farms Road Landfill

Surface Water Sampling Location SW-5							
Parameter	Standard	Unit	Semiannual Sampling Event				
			May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	≥ 5	mg/L	8.36	7	6.48	5.49	10.75
Field Temperature	No Standard	deg C	28.87	17.18	24.35	20.13	32.36
PH, FIELD	6 - 8.5	S.U.	8.36	7.17	7.76	7.42	8.24
Specific Conductance	1275	umhos/cm	767	823	904	705	415
Turbidity	No Standard	NTU	8.67	8.04	19.6	3.72	4.76
Ammonia-N	No Standard	mg/L	0.21	2.4	1.7	3.2	0.043 I
BOD, 5 day	No Standard	mg/L	2.9	2 U	5.9	2.6	3.4
Chemical Oxygen Demand	No Standard	mg/L	103	81.1	98	86.2	38.1
Chlorophyll A	No Standard	ug/L	24.7	9.2	86.2	16.6	25.5
Fecal Coliforms	200	#/100 mL	10	100	12	14	2
Hardness (As CaCO3)	No Standard	mg/L	133	224	249	214	154
Iron	1000	ug/L	1,400	1,490	1,600	1,630	1,800
Nitrate-N	No Standard	mg/L	0.21	0.72	0.24	0.32	0.043 U
Nitrogen, Kjeldahl (Total)	No Standard	mg/L	2.3	4.3	4	4.6	1.5
Phosphorus	No Standard	mg/L	0.28	0.05 U	0.085 I	0.083 I	0.05 U
Sodium	No Standard	mg/L	103	62.9	86.1	62	31.4
Total Dissolved Solids	No Standard	mg/L	449	471	534	442	295
Total Nitrogen	No Standard	mg/L	0.14	0.88	0.12	0.33	0.025 U
Total Organic Carbon	No Standard	mg/L	32.8	25.7	26.9	25.2	20.8
Total Suspended Solids	No Standard	mg/L	6	5 U	16.5	5 U	7.5
Unionized Ammonia-N	0.02	mg/L	0.03 I	0.02 U	0.05	0.041 I	0.02 U
Barium	No Standard	ug/L	34.1	55.5	75.2	58.4	30.9
Mercury	0.012	ug/L	0.00067	0.00059	0.00078	0.00111	0.000998
Nickel	$e^{(0.846[\ln H]-0.0584)}$	ug/L	2.9 I	2.5 U	2.5 U	2.5 U	2.5 U
	Calculated	ug/L	59.1				
Acetone	1700	ug/L	12.8	5 U	5 U	10 U	14.4 I
Chloroform	No Standard	ug/L	0.5 U	7.9	0.5 U	0.5 U	0.5 U
Toluene	No Standard	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.72 I

Appendix C - Table 8
Summary of Detected Surface Water Parameters - May 2012 to May 2014
Tomoka Farms Road Landfill

Surface Water Sampling Location SW-11							
Parameter	Standard	Unit	Semiannual Sampling Event				
			May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	≥ 5	mg/L	8.57	7.5	4.56	4.85	6
Field Temperature	No Standard	deg C	30.33	17.94	24.02	21.54	29.56
PH, FIELD	6 - 8.5	S.U.	7.85	7.6	7.43	7.05	7.48
Specific Conductance	1275	umhos/cm	629	494	588	347	410
Turbidity	No Standard	NTU	8.14	27.8	NS	1.27	1.69
Ammonia-N	No Standard	mg/L	0.026 I	0.13	0.25	0.02 U	0.03 I
BOD, 5 day	No Standard	mg/L	2 U	5.3	3.1	2 U	2 U
Chemical Oxygen Demand	No Standard	mg/L	96.5	65.8	59.7	41.5	64.4
Chlorophyll A	No Standard	ug/L	5.8	23.6	20.6	20	7.9
Fecal Coliforms	200	#/100 mL	400 Z	2,200	200 Z	146	77
Hardness (As CaCO3)	No Standard	mg/L	150	137	163	135	149
Iron	1000	ug/L	1,160	630	1,280	160	112
Nitrate-N	No Standard	mg/L	0.14	0.058	0.1	0.043 U	0.043 U
Nitrogen, Kjeldahl (Total)	No Standard	mg/L	1.3	1.5	1.5	0.71	0.87
Phosphorus	No Standard	mg/L	0.21	0.089 I	0.11	0.05 U	0.05 U
Sodium	No Standard	mg/L	74.1	34.2	46	17.3	28.5
Total Dissolved Solids	No Standard	mg/L	387	305	385	219	283
Total Nitrogen	No Standard	mg/L	0.014 I	0.1	0.039 I	0.025 U	0.025 U
Total Organic Carbon	No Standard	mg/L	32.9	18.2	17.6	12.7	14.9
Total Suspended Solids	No Standard	mg/L	5 U	18.5	45.5	5 U	5 U
Antimony	No Standard	ug/L	0.5 U	0.85 I	1	0.5 U	0.54 I
Barium	No Standard	ug/L	27.8	31.3	38.1	23.6	22.4
Beryllium	0.13	ug/L	0.05 U	0.062 I	0.11	0.05 U	0.05 U
Lead	$e^{(1.273[\ln H]-4.705)}$	ug/L	0.5 U	0.95 I	1.8	0.5 U	0.5 U
	Calculated	ug/L		4.7	5.9		
Mercury	0.012	ug/L	0.00069	0.00214	0.00457	0.00179	0.00131
Nickel	$e^{(0.846[\ln H]-0.0584)}$	ug/L	2.5 U	2.5 U	3 I	2.5 U	2.5 U
	Calculated	ug/L			70.2		
Selenium	5	ug/L	0.5 U	0.72 I	0.96 I	0.5 U	0.5 U
Vanadium	No Standard	ug/L	5 U	5 U	8.2 I	5 U	5 U
Acetone	1700	ug/L	11	5 U	5 U	10 U	10 U

Appendix C - Table 8
Summary of Detected Surface Water Parameters - May 2012 to May 2014
Tomoka Farms Road Landfill

Surface Water Sampling Location SW-12							
Parameter	Standard	Unit	Semiannual Sampling Event				
			May-12	Nov-12	May-13	Nov-13	May-14
Dissolved Oxygen	≥ 5	mg/L	6.97	8.02	4.43	5.38	7.2
Field Temperature	No Standard	deg C	28.74	18.71	23.53	22.25	38.42
PH, FIELD	6 - 8.5	S.U.	8.67	8.06	7.73	7.81	8.06
Specific Conductance	1275	umhos/cm	648	583	615	532	501
Turbidity	No Standard	NTU	6.27	14.9	32.6	5.46	1.76
Ammonia-N	No Standard	mg/L	0.028 I	0.13	0.085	0.071	0.028 I
Chemical Oxygen Demand	No Standard	mg/L	90.3	63.6	58	53.1	26.8
Chlorophyll A	No Standard	ug/L	12.8	13.6	16.1	6.9	3.4
Fecal Coliforms	200	#/100 mL	6	300	1 U	80	4
Hardness (As CaCO3)	No Standard	mg/L	165	153	162	172	171
Iron	1000	ug/L	59.8	318	822	134	29.3 I
Nitrate-N	No Standard	mg/L	0.14	0.099	0.099	0.17	0.043 U
Nitrogen, Kjeldahl (Total)	No Standard	mg/L	1.5	1.4	1.3	0.95	0.74
Phosphorus	No Standard	mg/L	0.23	0.052 I	0.095 I	0.05 U	0.05 U
Sodium	No Standard	mg/L	62.5	43.8	47.9	41.6	37.8
Total Dissolved Solids	No Standard	mg/L	399	342	397	336	333
Total Nitrogen	No Standard	mg/L	0.028 I	0.13	0.041 I	0.17 J	0.025 U
Total Organic Carbon	No Standard	mg/L	24.1	18.6	16.9	14.8	12.6
Total Suspended Solids	No Standard	mg/L	9	6.5	11.5	7	5 U
Antimony	4300	ug/L	0.98 I	1.1	1.1	0.87 I	0.93 I
Barium	No Standard	ug/L	19.2	28.8	27.7	32.4	17.6
Beryllium	0.13	ug/L	0.05 U	0.05 U	0.079 I	0.05 U	0.05 U
Lead	$e^{(1.273[\ln H]-4.705)}$	ug/L	0.5 U	0.68 I	1.4	0.5 U	0.5 U
	Calculated	ug/L		5.5	5.9		
Mercury	0.012	ug/L	0.00115	0.00142	0.00418	0.00074	0.000646
Nickel	$e^{(0.846[\ln H]-0.0584)}$	ug/L	3.8 I	2.5 U	3 I	2.5 U	2.5 U
	Calculated	ug/L	70.9		69.8		
Selenium	5	ug/L	0.5 U	0.69 I	0.81 I	0.56 I	0.61 I
Vanadium	No Standard	ug/L	7.2 I	5.2 I	7.9 I	5 U	5 U
Acetone	1700	ug/L	5 U	5 U	5 U	10 U	10.4 I
Toluene	No Standard	ug/L	0.5 U	0.5 U	1.5	0.5 U	0.5 U
Xylene (Total)	No Standard	ug/L	0.5 U	0.5 U	0.86 I	0.5 U	0.5 U

Notes:

Results in Bold numbers were above the standard;

* Surface water Class III standards (62-320-530 F.A.C.);

I = The reported value is between the laboratory method detection method and the laboratory practical quantization limit;

J = Estimated value;

U = Indicates that the compound was analyzed for but not detected;

Z = Too many colonies were present. The number value represents the estimated colony count from the highest dilution used in this test.

Table 9 - APPENDIX C
Total Dissolved Solids/Specific Conductance (TDS/SC) Ratio

Well ID	Monitoring Period				
	12-May	Nov-12	May-13	Nov-13	May-14
	TDS/SC Ratio (mg.cm/L.µmhos)				
Zone 1-2					
B11	0.92	0.97	0.78	0.92	0.93
B33-2	0.70	0.68	0.96	0.46	0.77
B34-2	0.67	0.60	0.65	0.83	0.79
B35-2	0.75	0.67	0.73	0.70	0.75
B37-2	0.58	0.63	0.62	0.72	0.67
B38-2	0.65	0.71	0.74	0.73	0.74
B39	Dry	1.08	0.75	1.34	1.39
B40-2	0.72	0.74	0.71	0.74	0.72
B41-2	0.71	0.68	0.64	0.77	0.72
B42-2	Dry	0.72	0.76	0.75	0.70
B43-2	0.58	0.61	0.66	0.71	0.78
B44	0.67	0.71	0.65	0.81	0.77
B45-2	0.69	0.64	0.68	0.80	0.85
B59-2R	0.61	0.69	0.65	0.77	0.68
B61R	0.52	0.55	0.54	0.57	0.63
B62-2R	0.55	0.62	0.59	0.61	0.68
B63-2	0.58	0.57	0.55	0.63	0.63
B64	0.59	0.68	0.61	0.66	0.68
B65	0.73	0.71	0.71	0.79	0.72
B66	0.58	0.55	0.60	0.64	0.64
B70-2	0.61	0.55	0.59	0.69	0.71
B71	0.66	0.73	0.75	0.84	0.90
B72	0.63	0.65	0.64	0.70	0.68
B73-2	0.67	0.69	0.91	0.79	0.70
B74	0.75	0.79	0.63	0.66	0.65
B75	0.56	0.58	0.62	0.62	0.60

Table 9 - APPENDIX C
Total Dissolved Solids/Specific Conductance (TDS/SC) Ratio

Well ID	Monitoring Period				
	12-May	Nov-12	May-13	Nov-13	May-14
	TDS/SC Ratio (mg.cm/L.µmhos)				
Zone 4 & 6					
B1-B	0.55	0.51	0.55	0.69	0.63
B-2	0.72	0.71	0.71	0.84	0.81
B-32	0.66	0.61	0.65	0.80	0.72
B33-1	0.77	0.73	0.73	0.86	0.77
B34-1	0.62	0.65	0.66	0.74	0.73
B35-1	0.69	0.68	0.67	0.79	0.74
B36	0.60	0.61	0.64	0.72	0.69
B37-1	0.70	0.59	0.61	0.67	0.64
B38-1	0.59	0.64	0.60	0.74	0.72
B40-1	0.69	0.65	0.66	0.74	0.77
B41-1	0.50	0.48	0.50	0.54	0.58
B42-1	0.61	0.68	0.69	0.86	0.76
B43-1	0.53	0.56	0.53	0.59	0.60
B45-1	0.56	1.16	0.59	0.60	0.66
B-5	0.56	0.56	0.57	0.64	0.61
B59-1R	0.57	0.59	0.60	0.66	0.64
B60	0.58	0.57	0.59	0.65	0.64
B62-1R	0.45	0.60	0.49	0.51	0.58
B63-1	0.63	0.61	0.60	0.66	0.68
B68	0.65	0.68	0.67	0.66	0.71
B70-1	0.64	0.60	9.30	0.74	0.73
B73-1	0.55	0.68	0.55	0.61	0.52
B8-2	0.69	0.73	0.71	0.90	0.87
MO5-B	0.59	0.61	0.62	0.69	0.74
B8	0.66	0.67	0.65	0.78	0.70
Floridan Aquifer					
FA-1B	0.61	0.56	0.57	0.74	0.65
FA-2C	0.57	0.56	0.58	0.65	0.63
F-MB	0.61	0.57	0.60	0.61	0.63

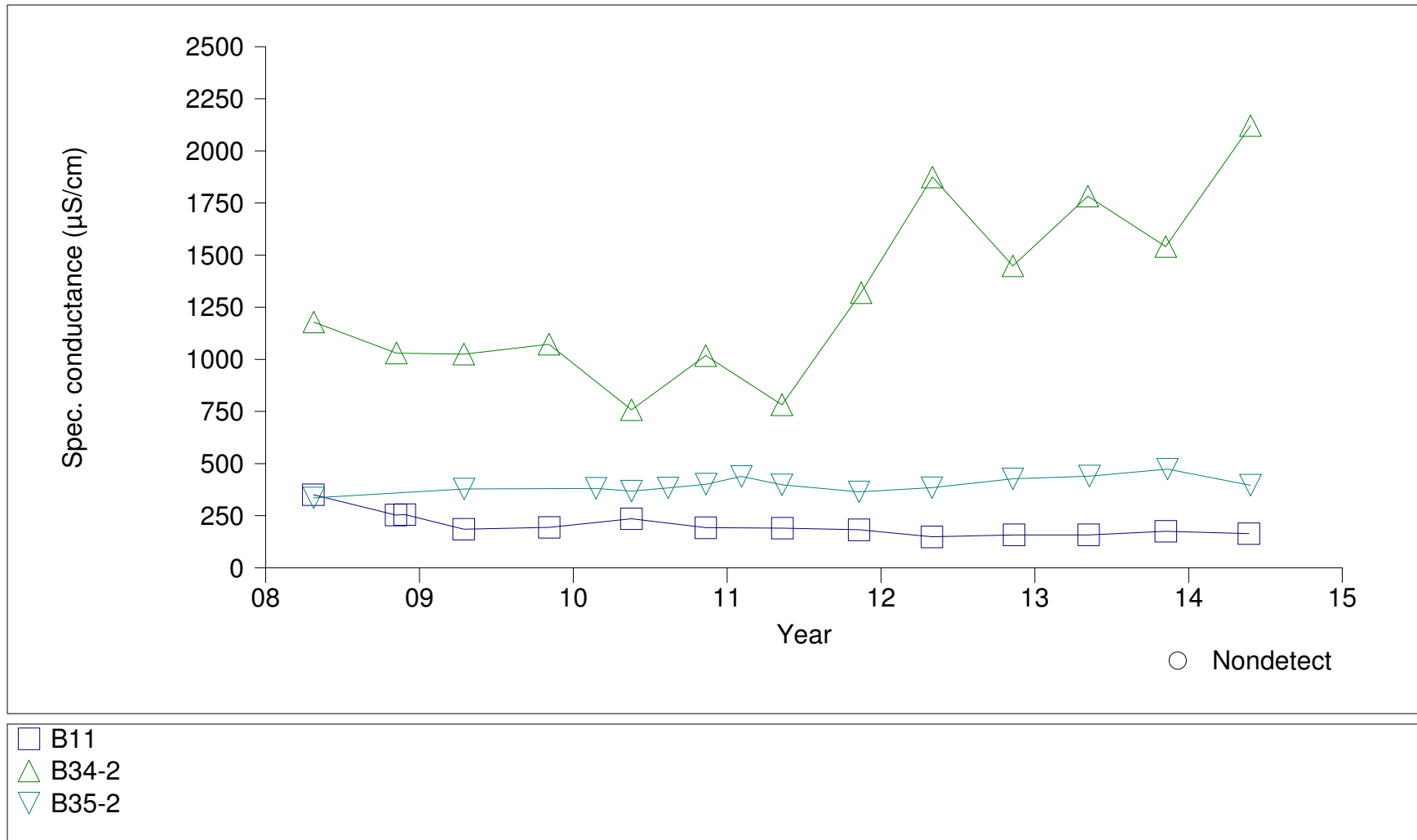


APPENDIX D

TIME SERIES GRAPHS

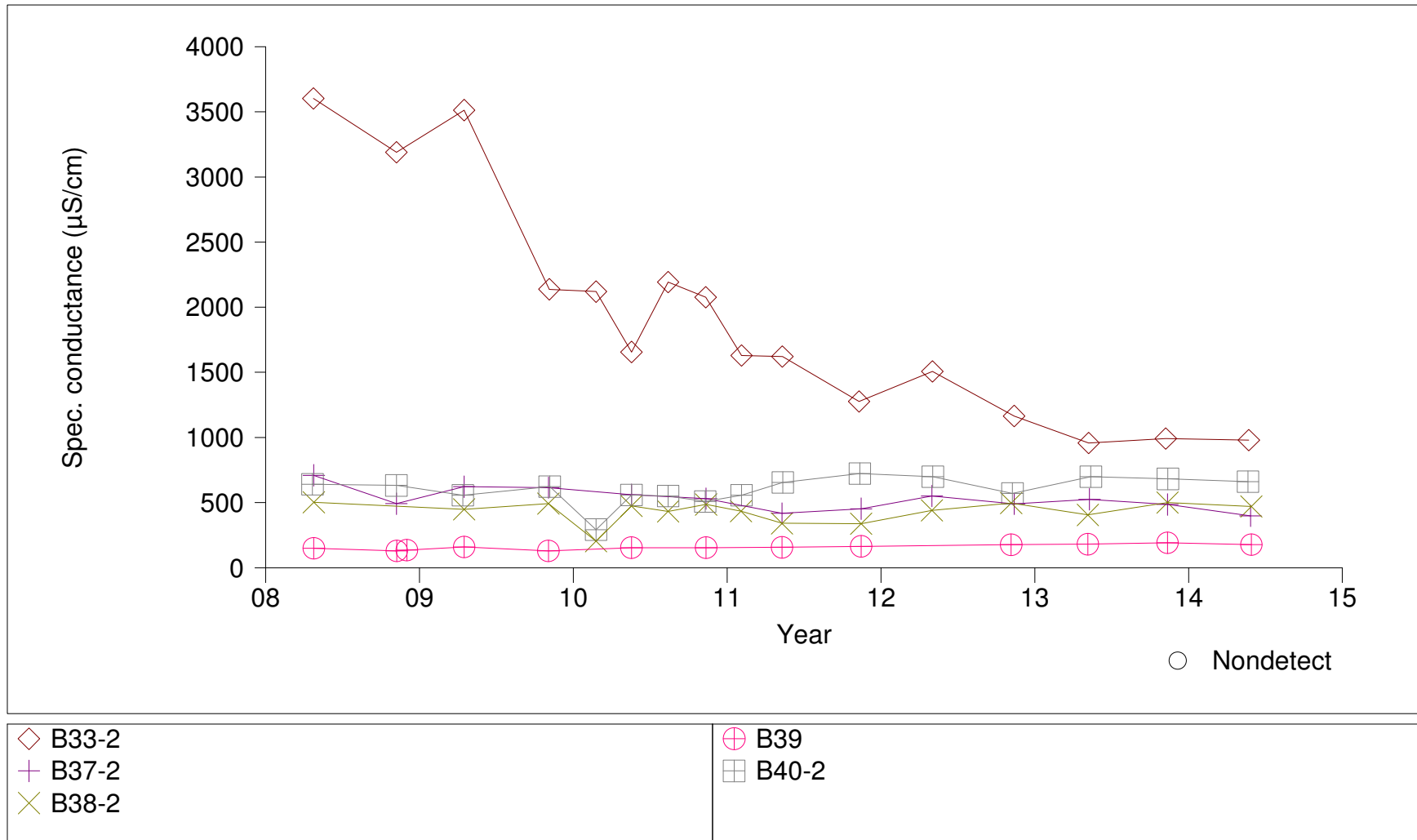
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 1-2 Background Wells



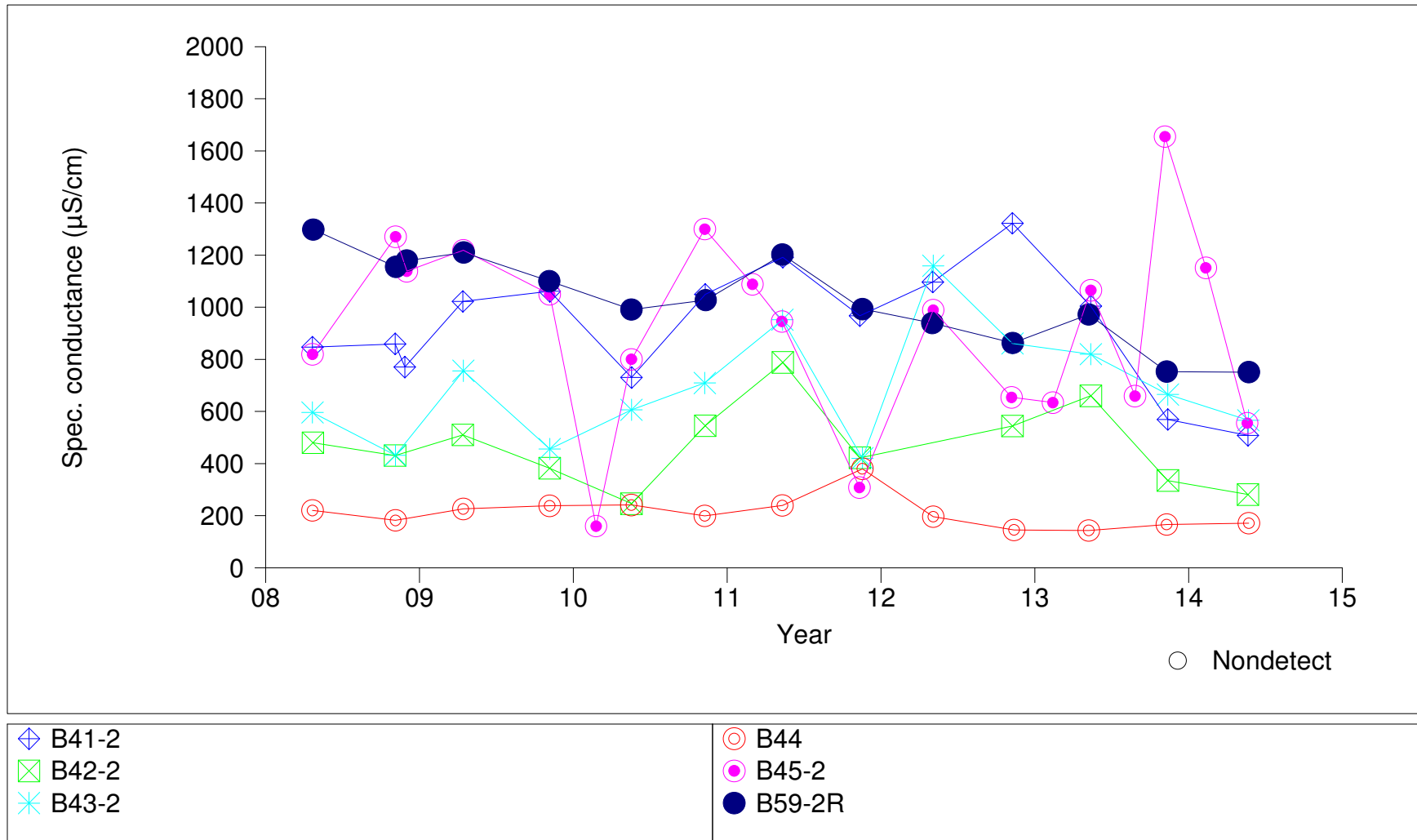
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 1-2



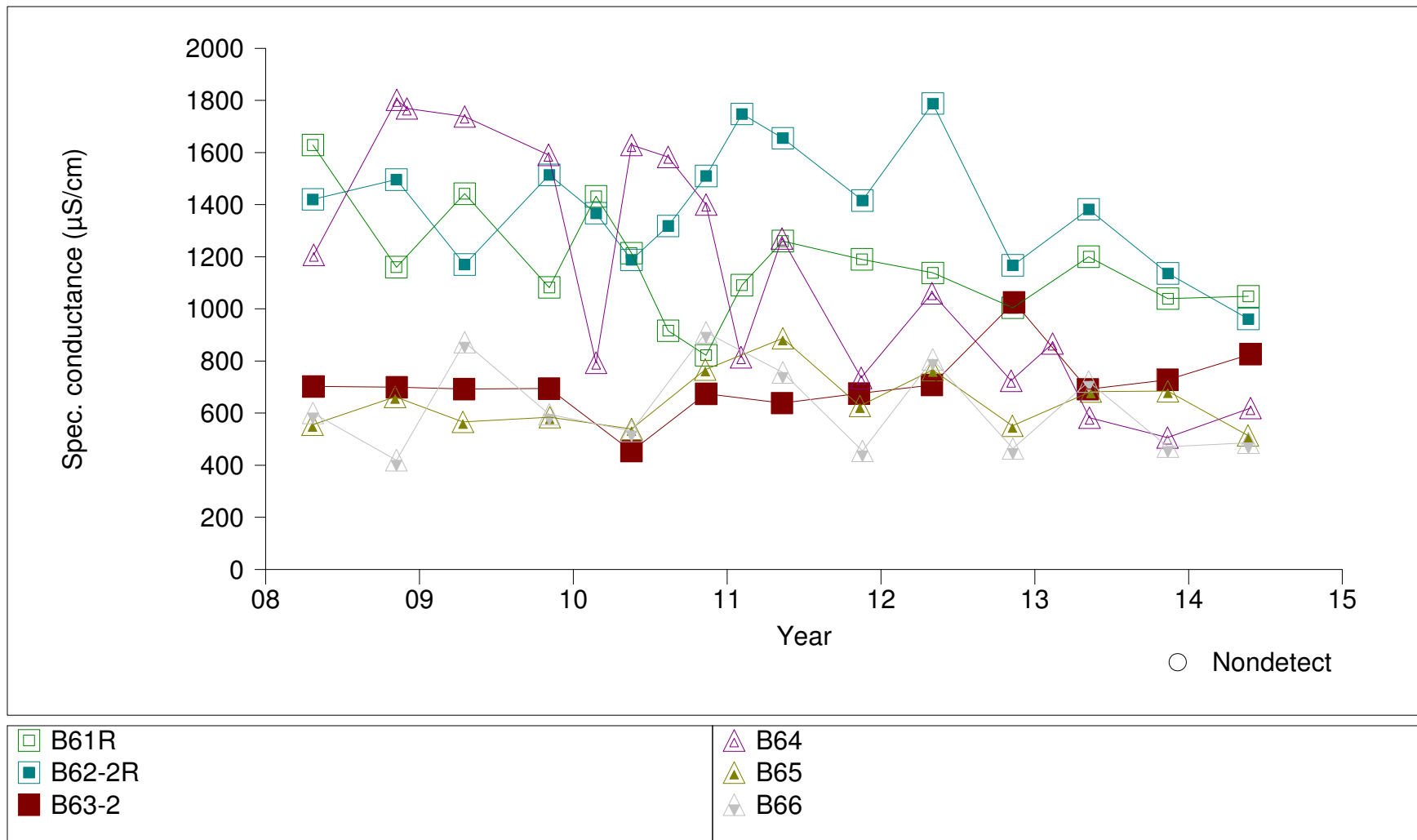
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 1-2



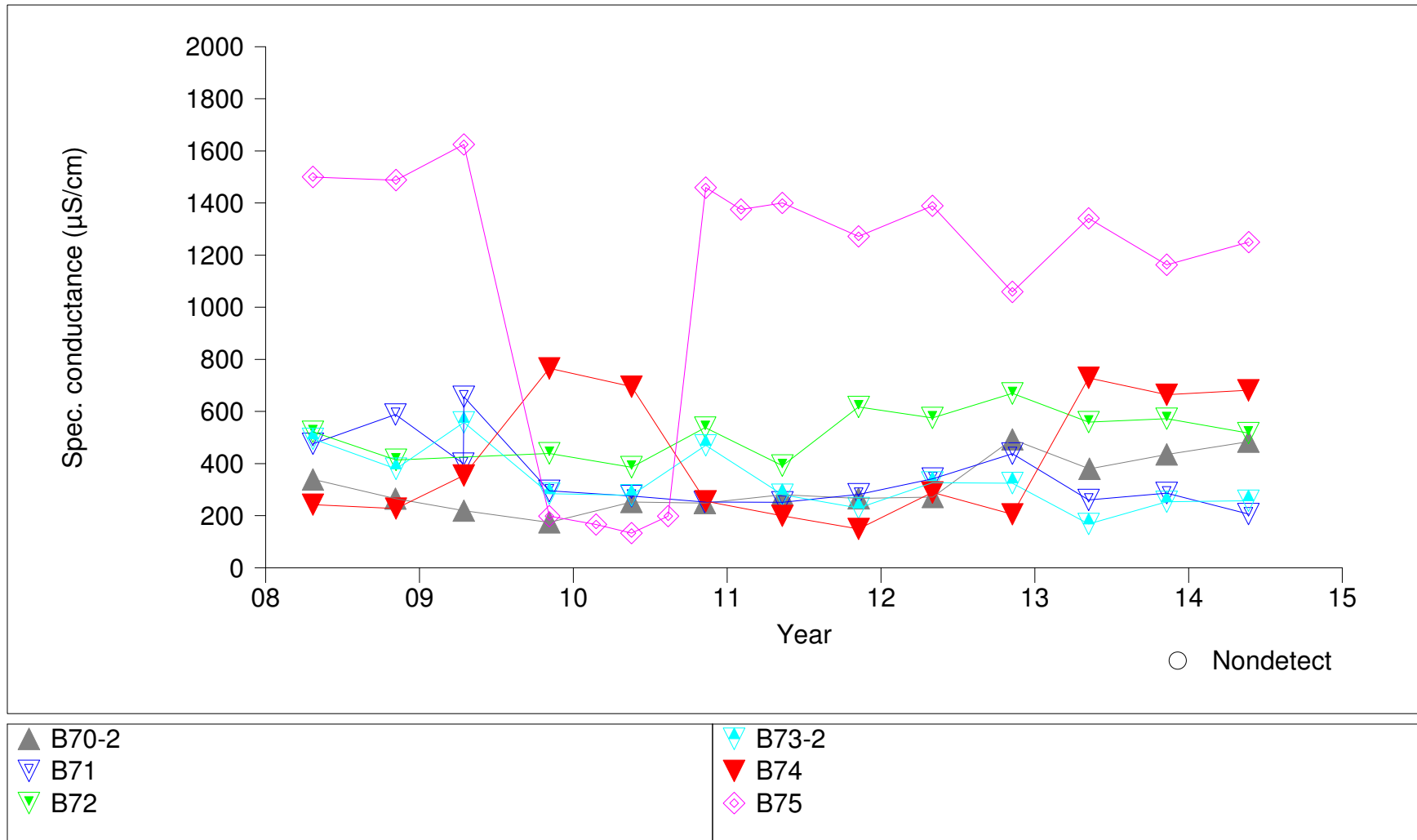
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 1-2



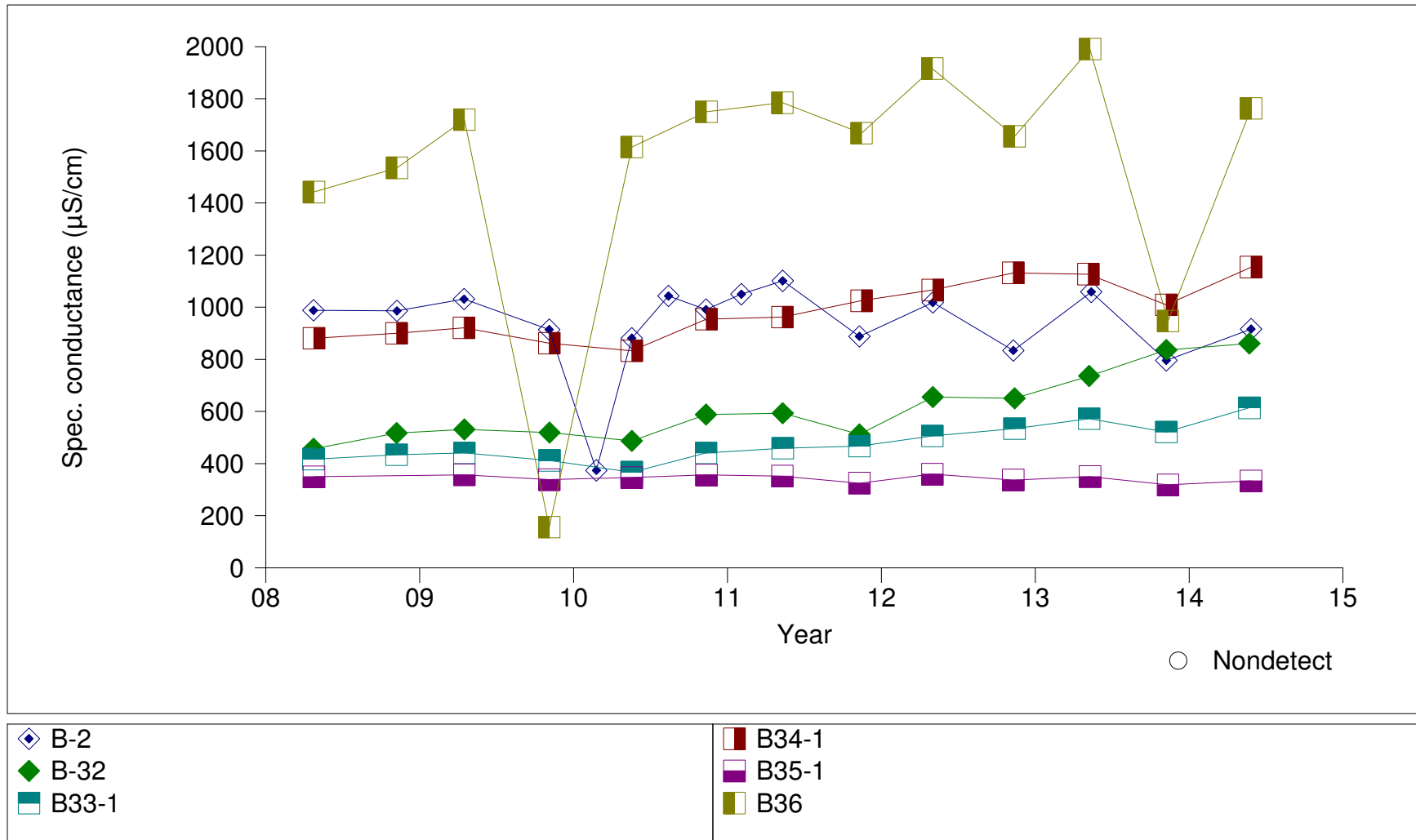
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 1-2



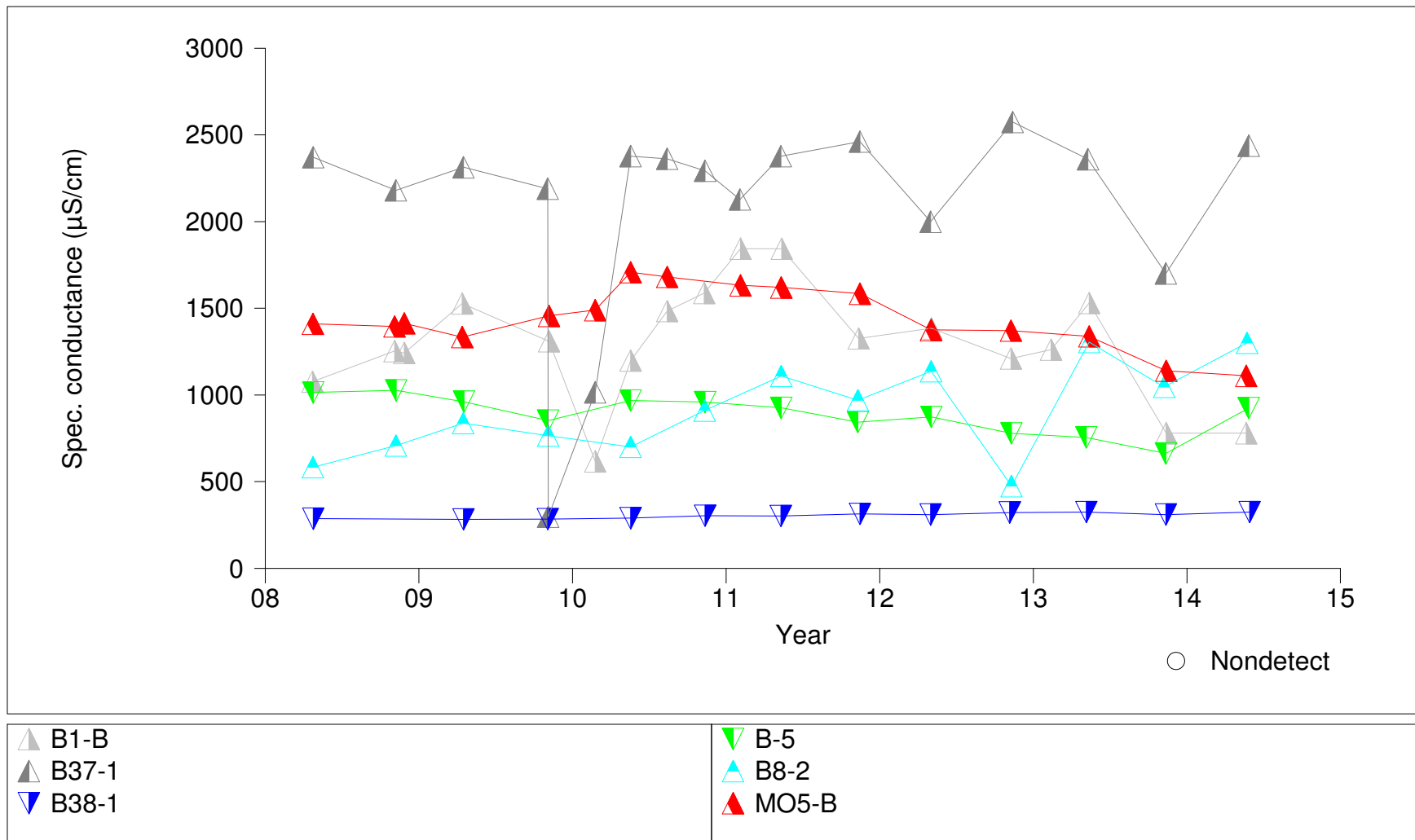
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 4



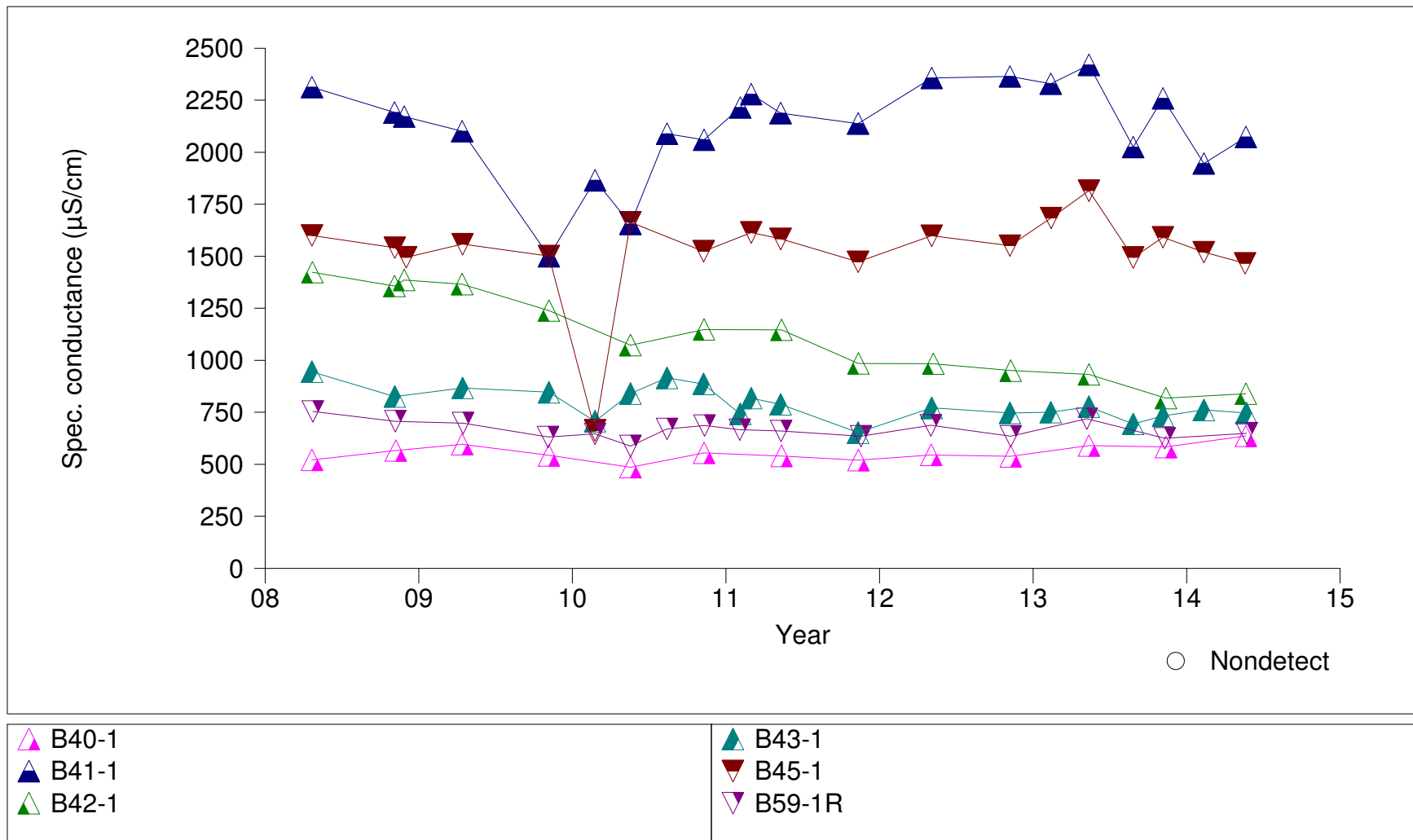
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 4



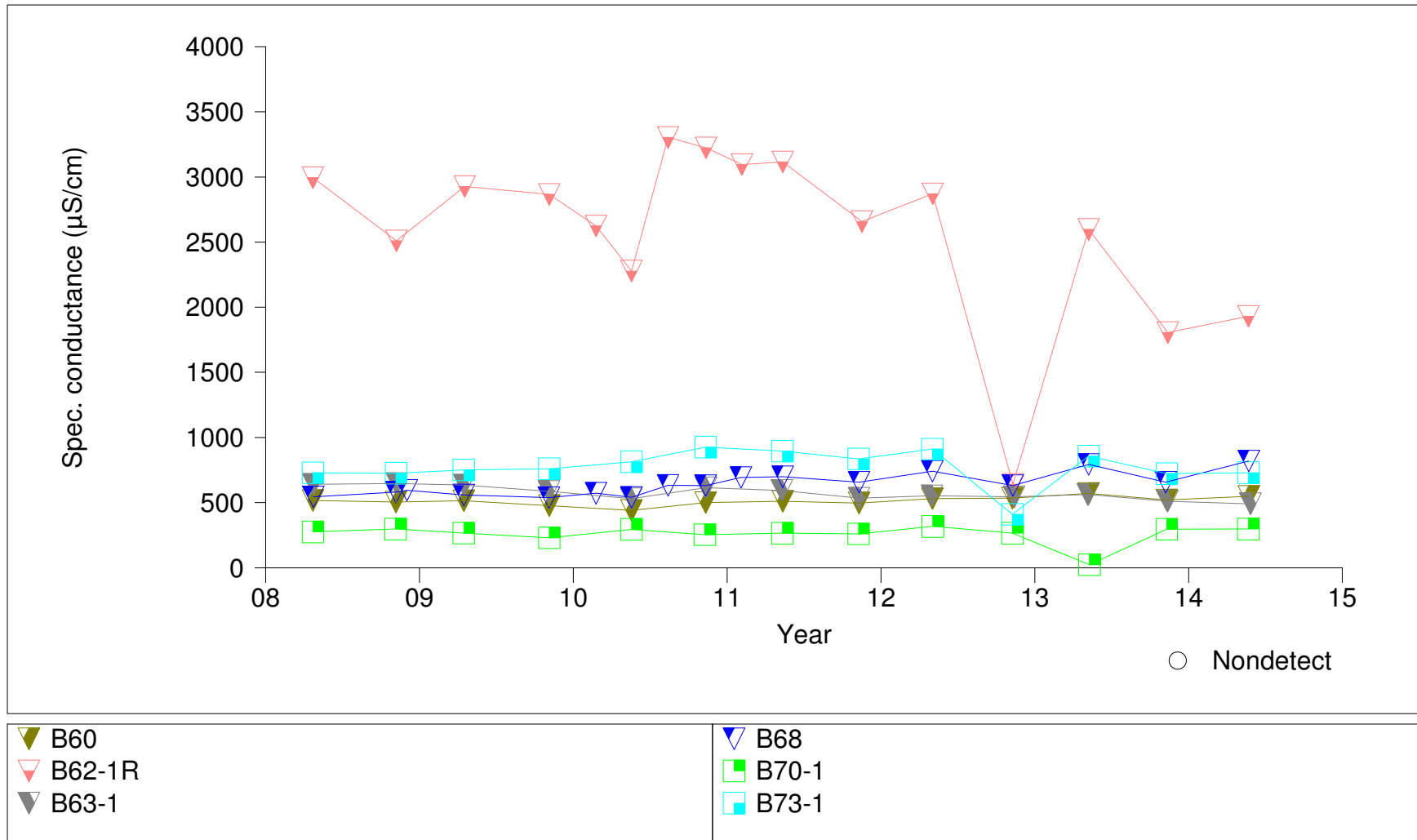
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 4



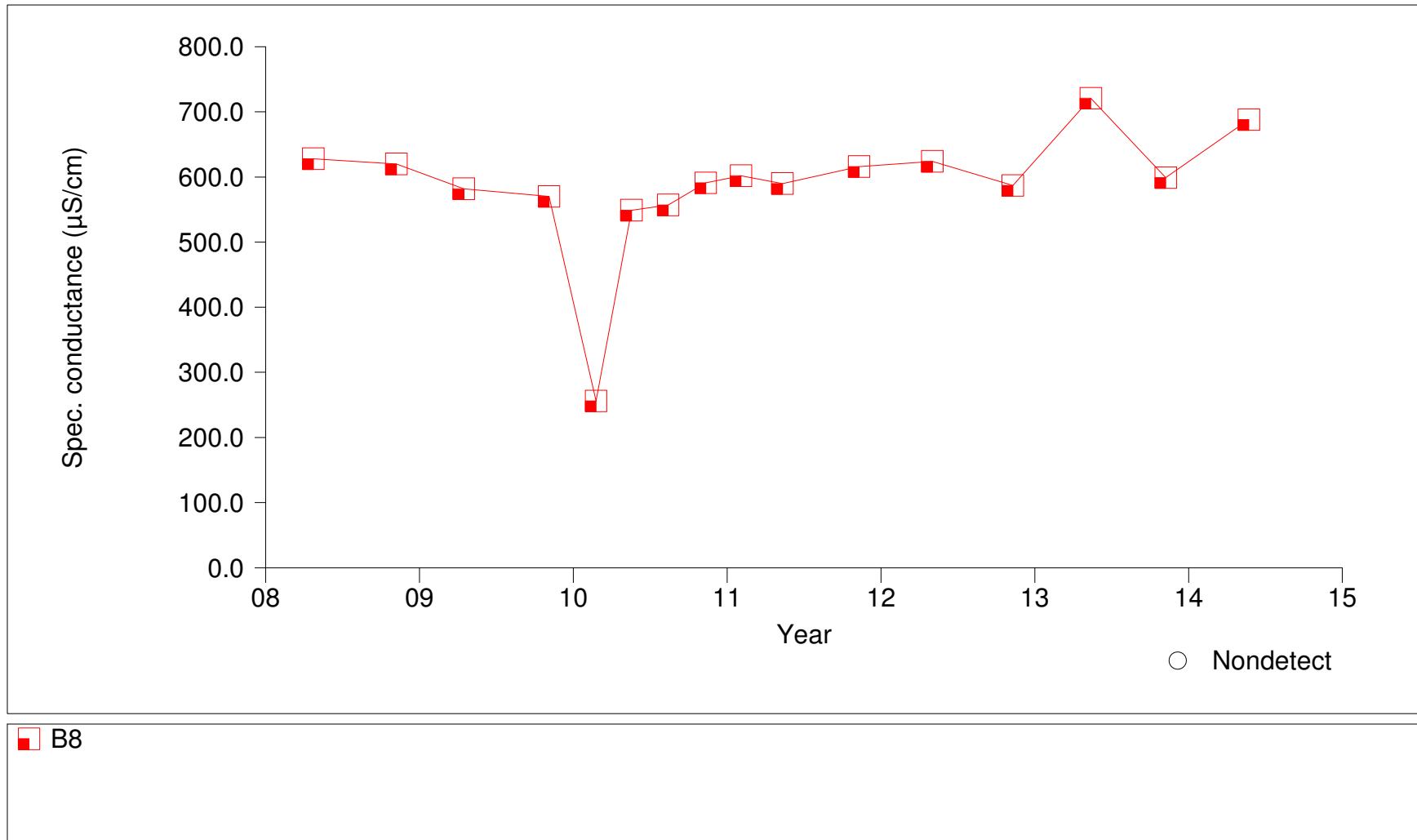
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 4



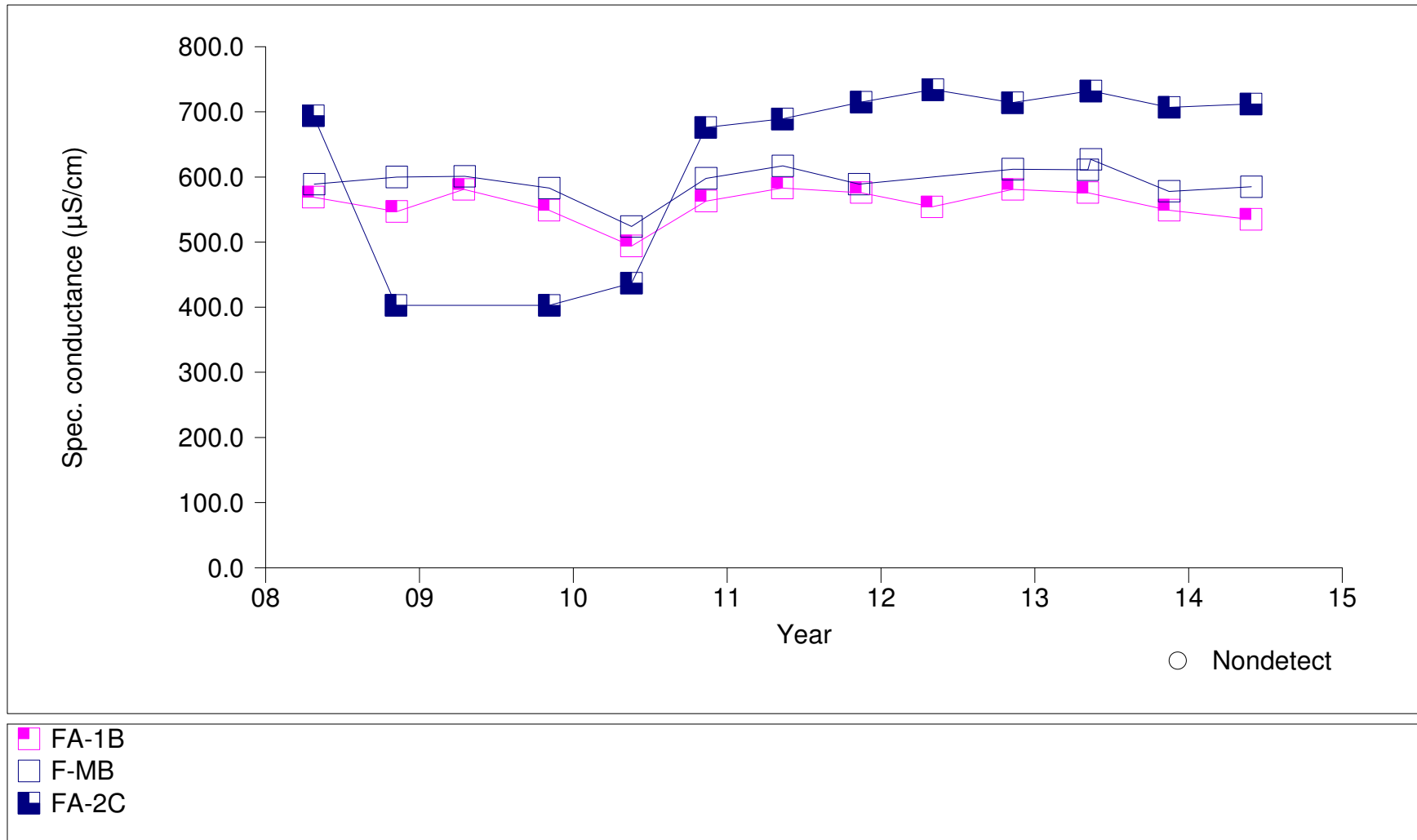
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Specific Conductance, Zone 6



TOMOKA FARMS ROAD LANDFILL

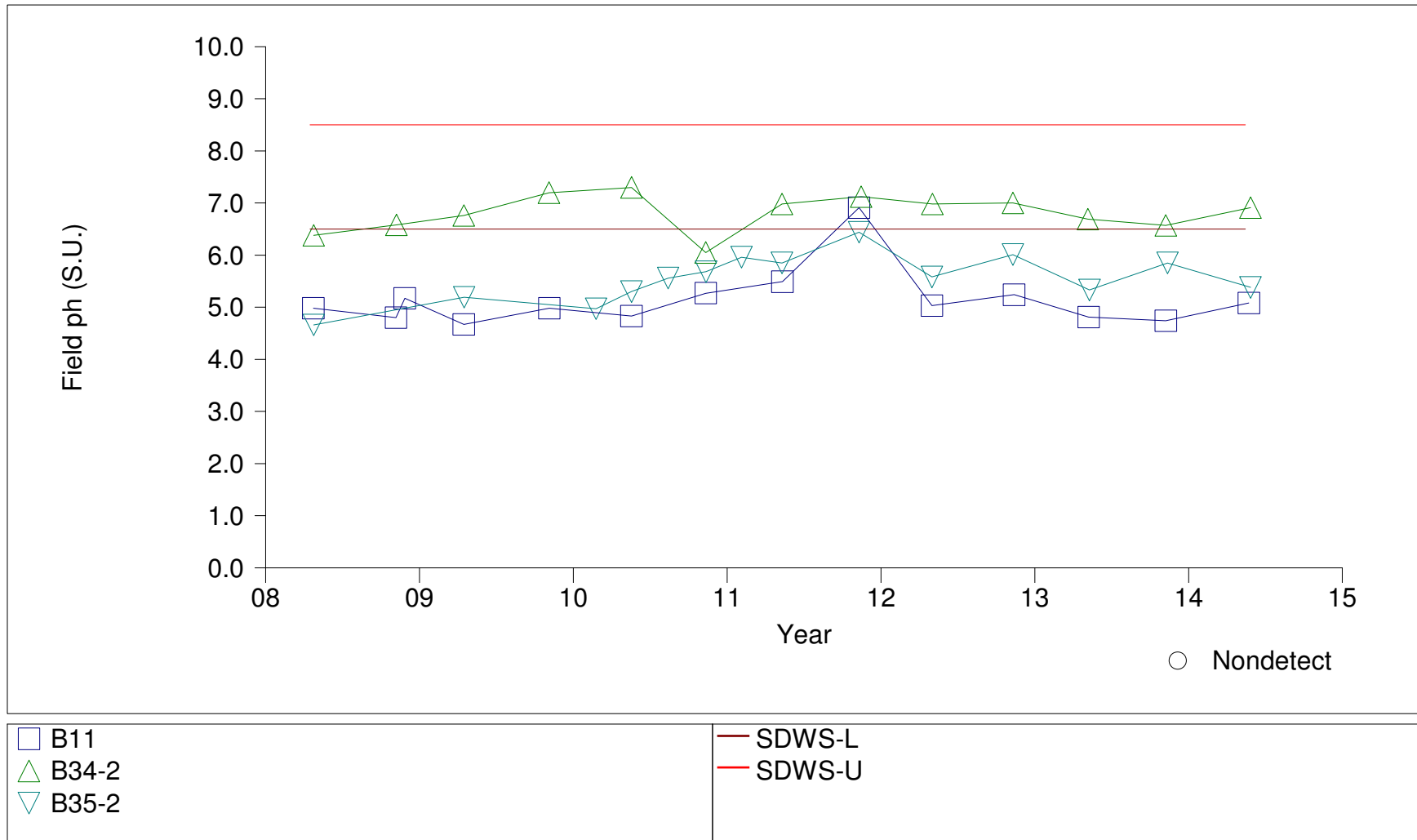
Time Series Plot for Specific Conductance, Floridan Aquifer



Prepared by: HDR Engineering, Inc.

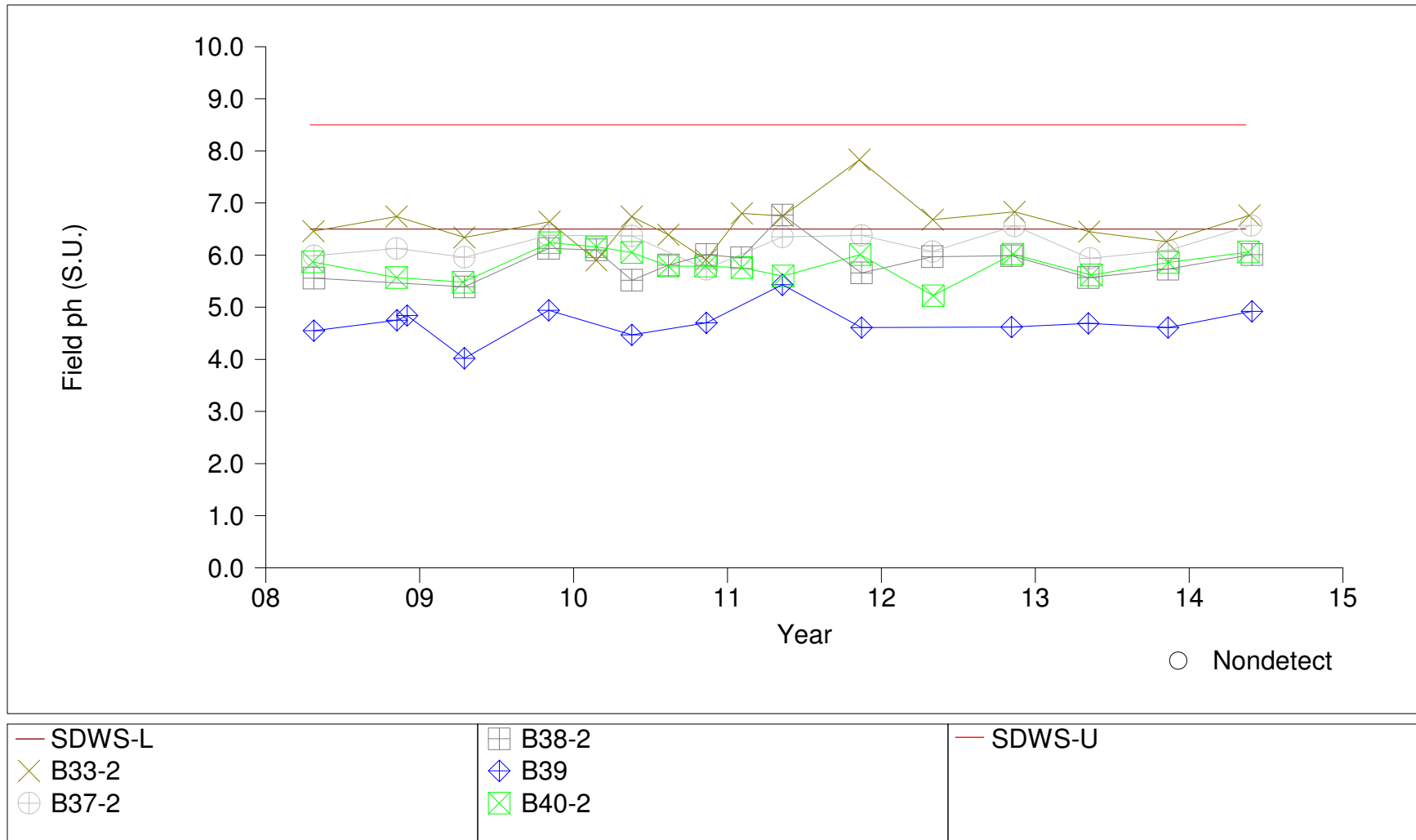
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Zone 1-2 Background Wells



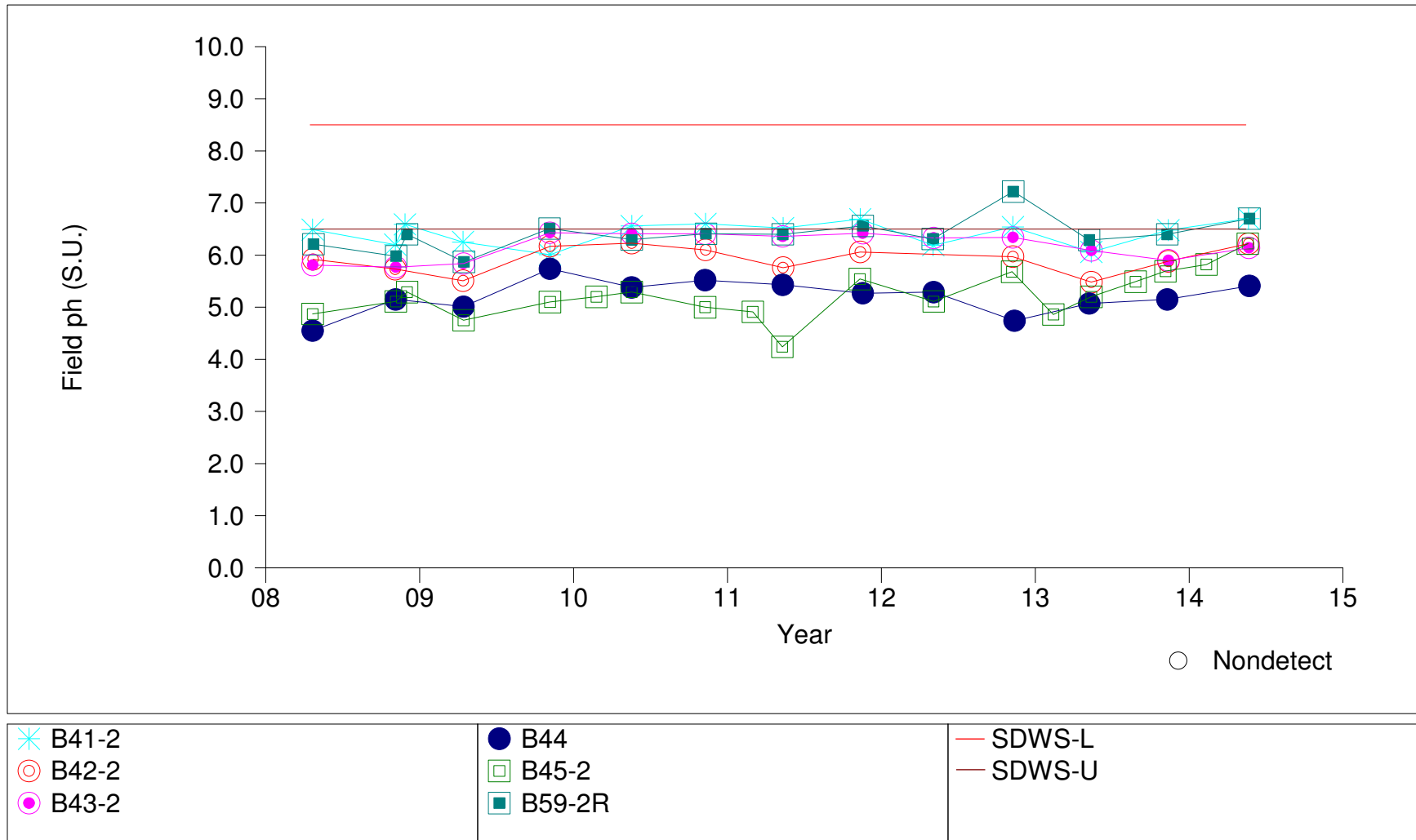
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Time Series Plot for Field pH, Zone 1-2



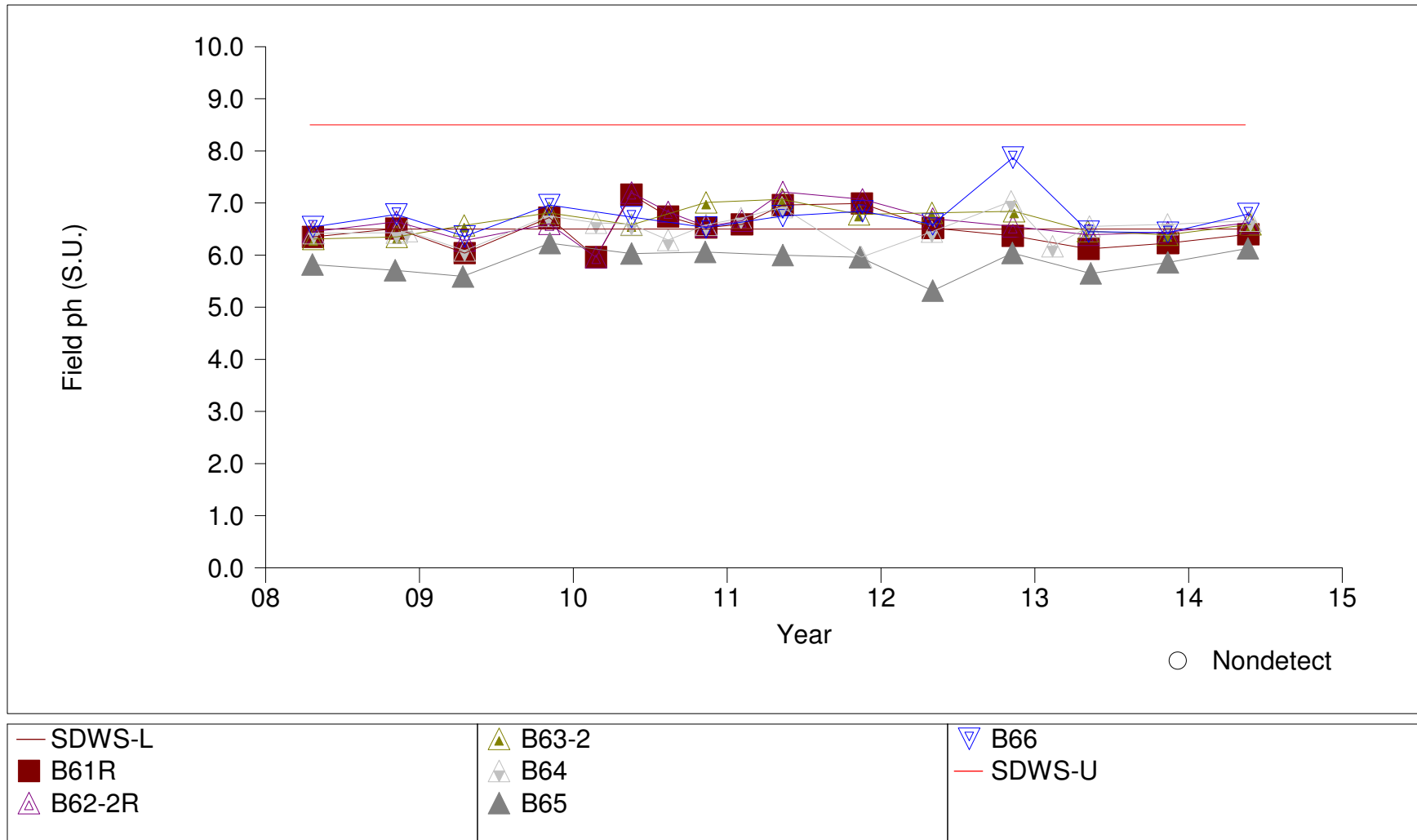
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Zone 1-2



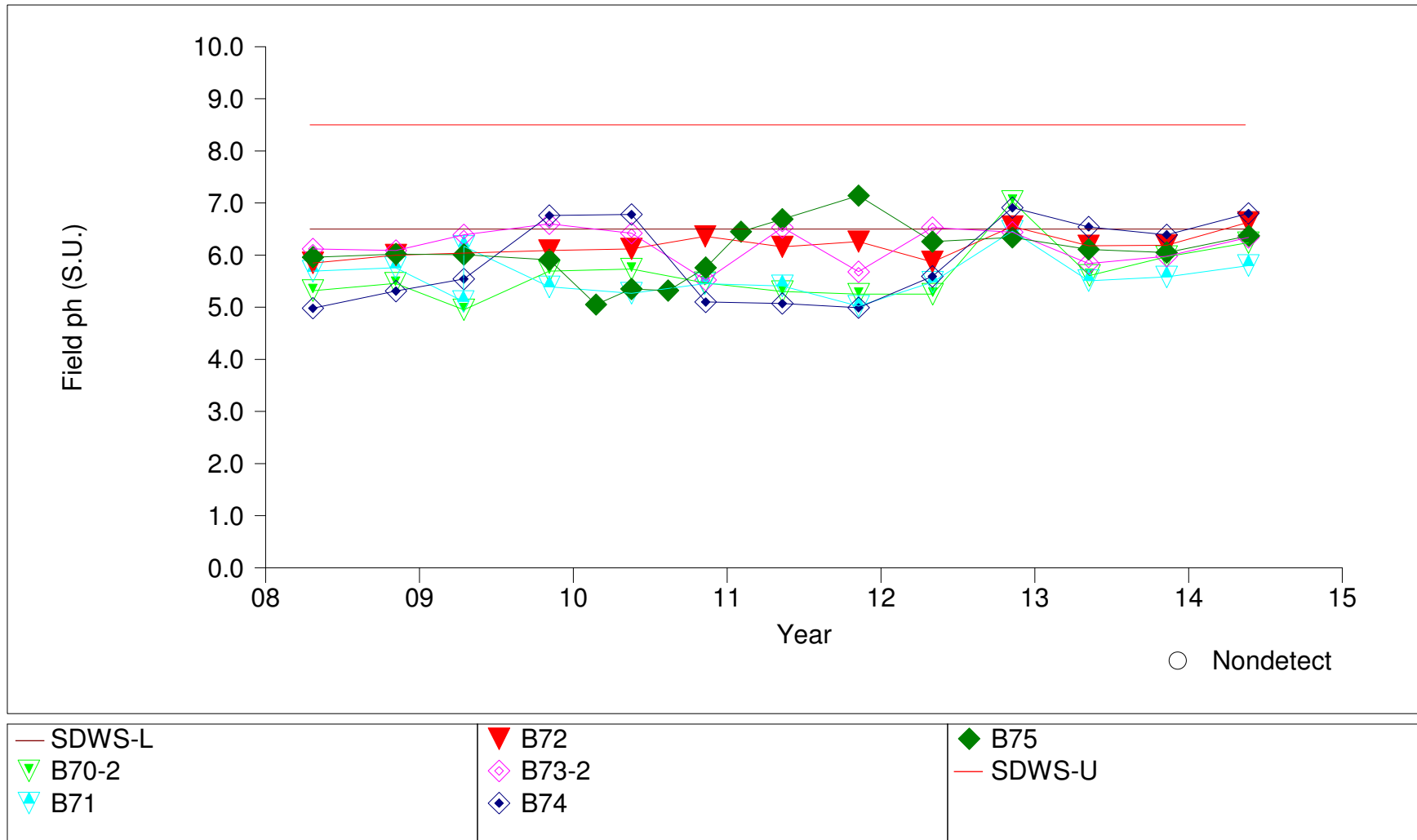
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Zone 1-2



TOMOKA FARMS ROAD LANDFILL

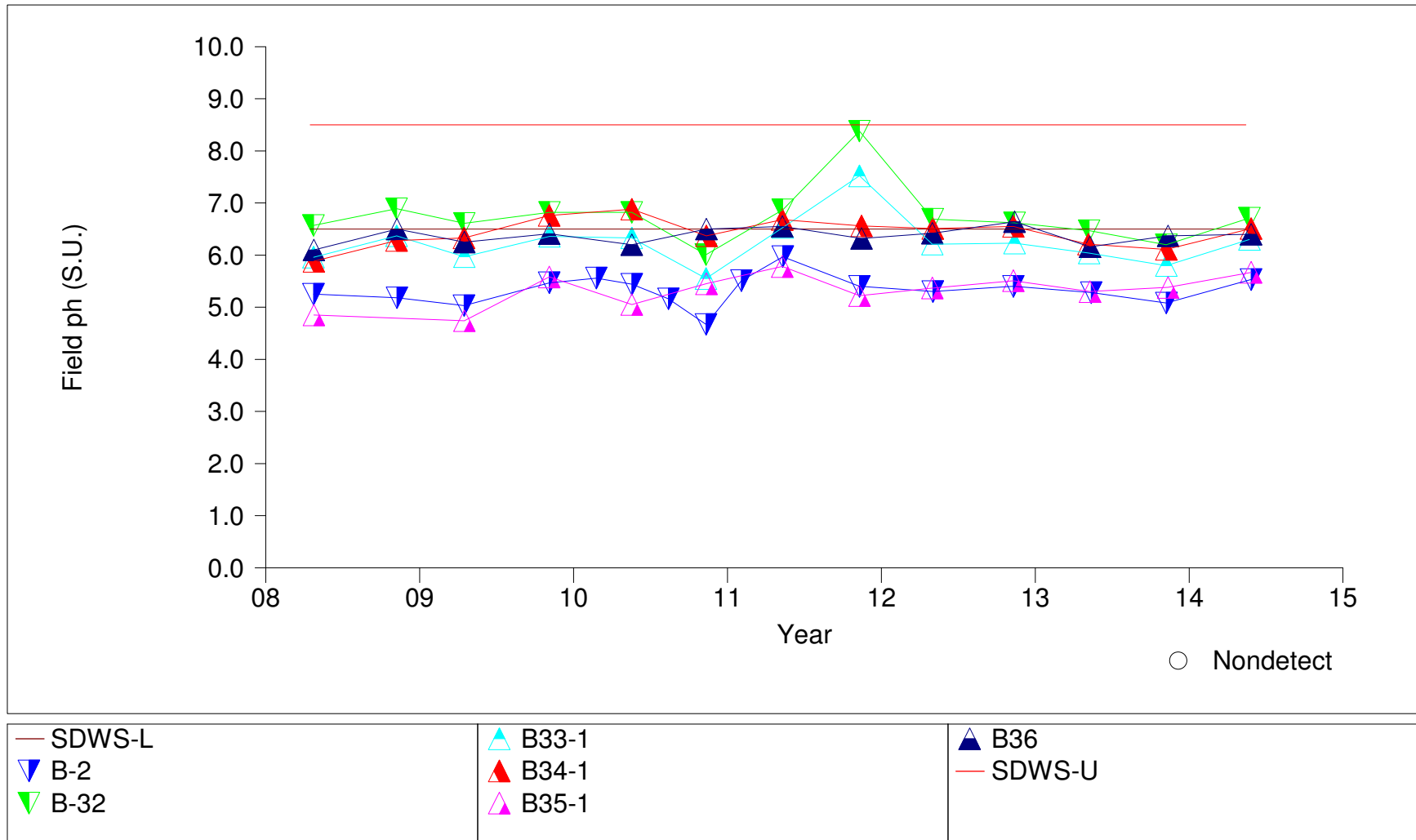
Time Series Plot for Field pH, Zone 1-2



Prepared by: HDR Engineering, Inc.

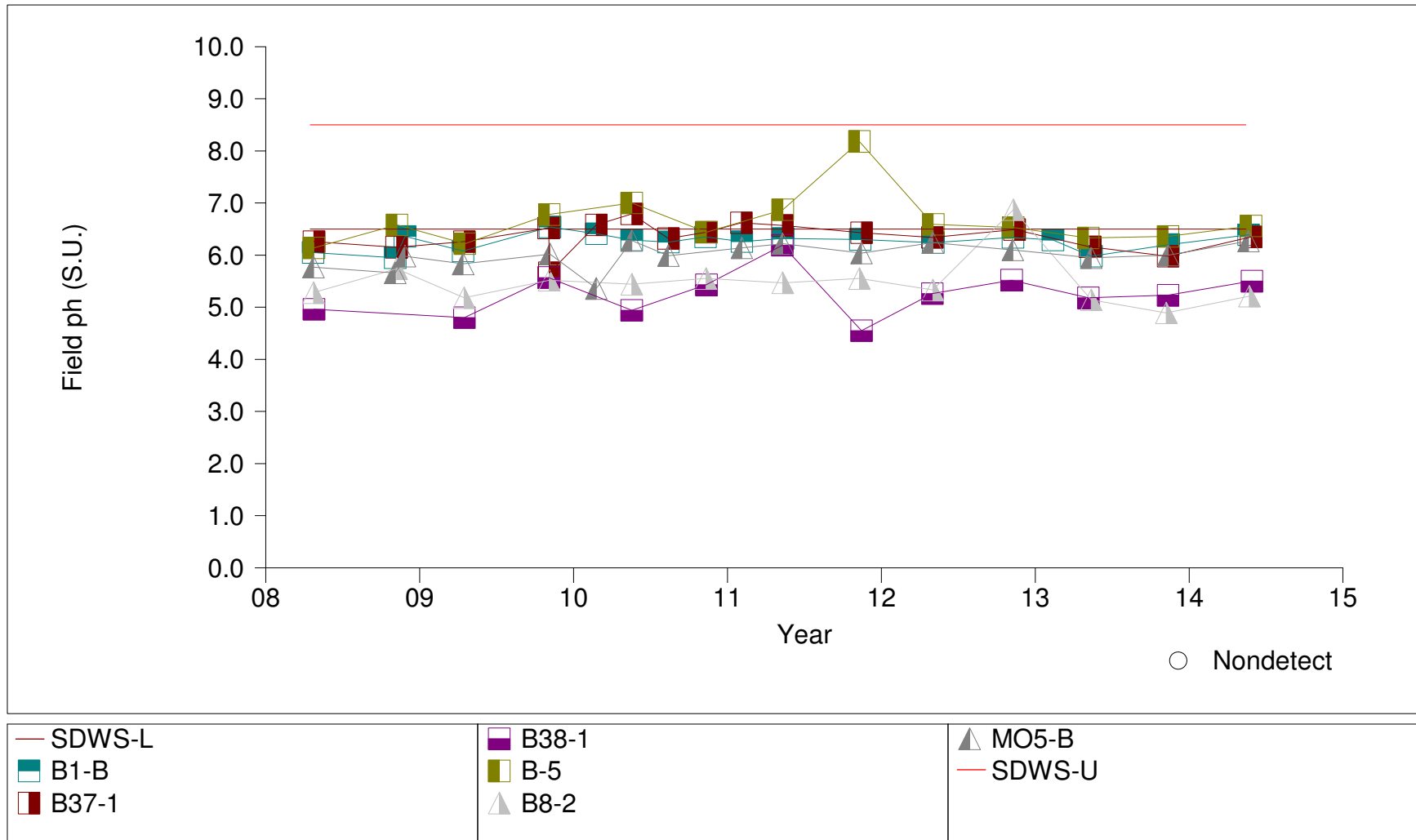
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Zone 4



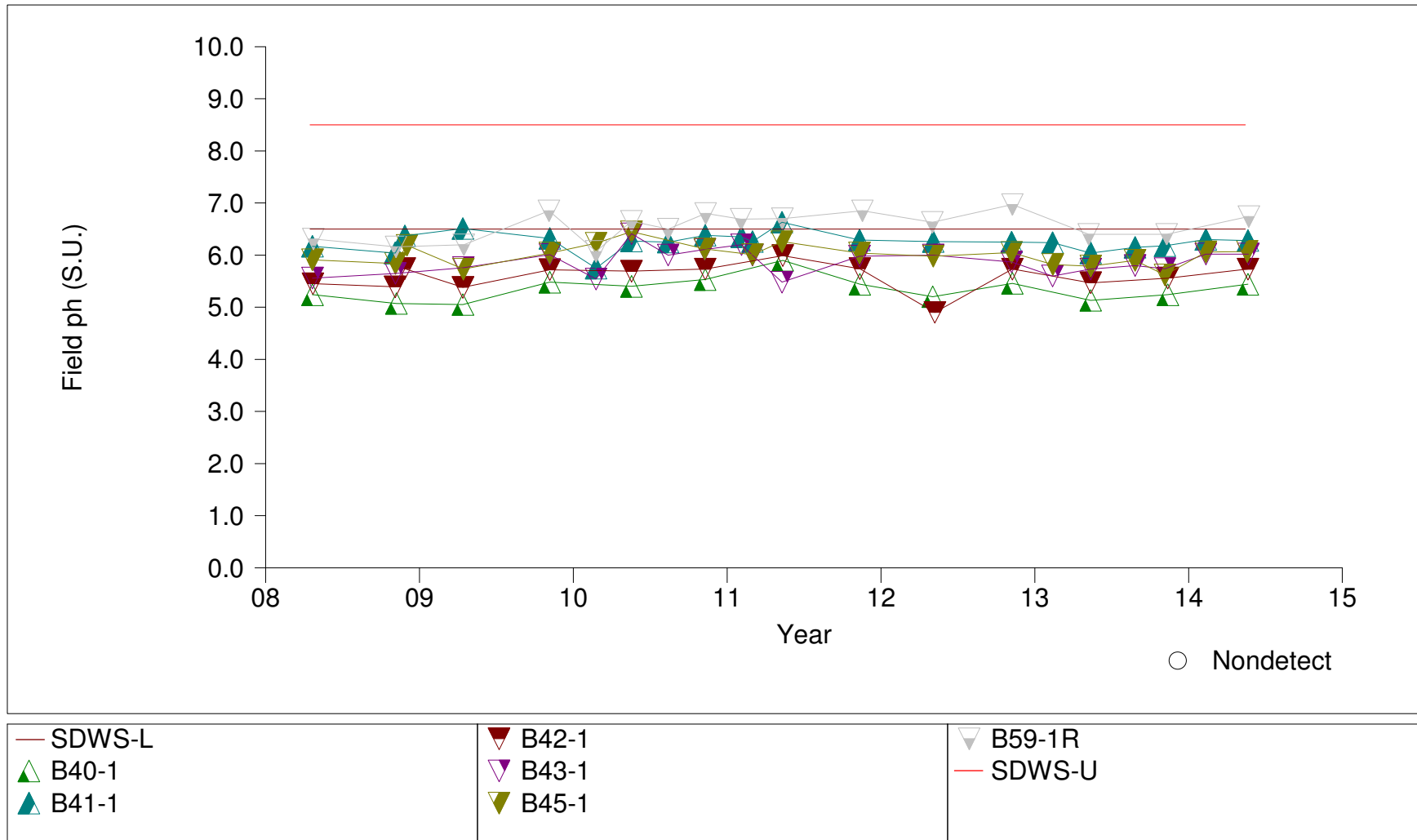
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Zone 4



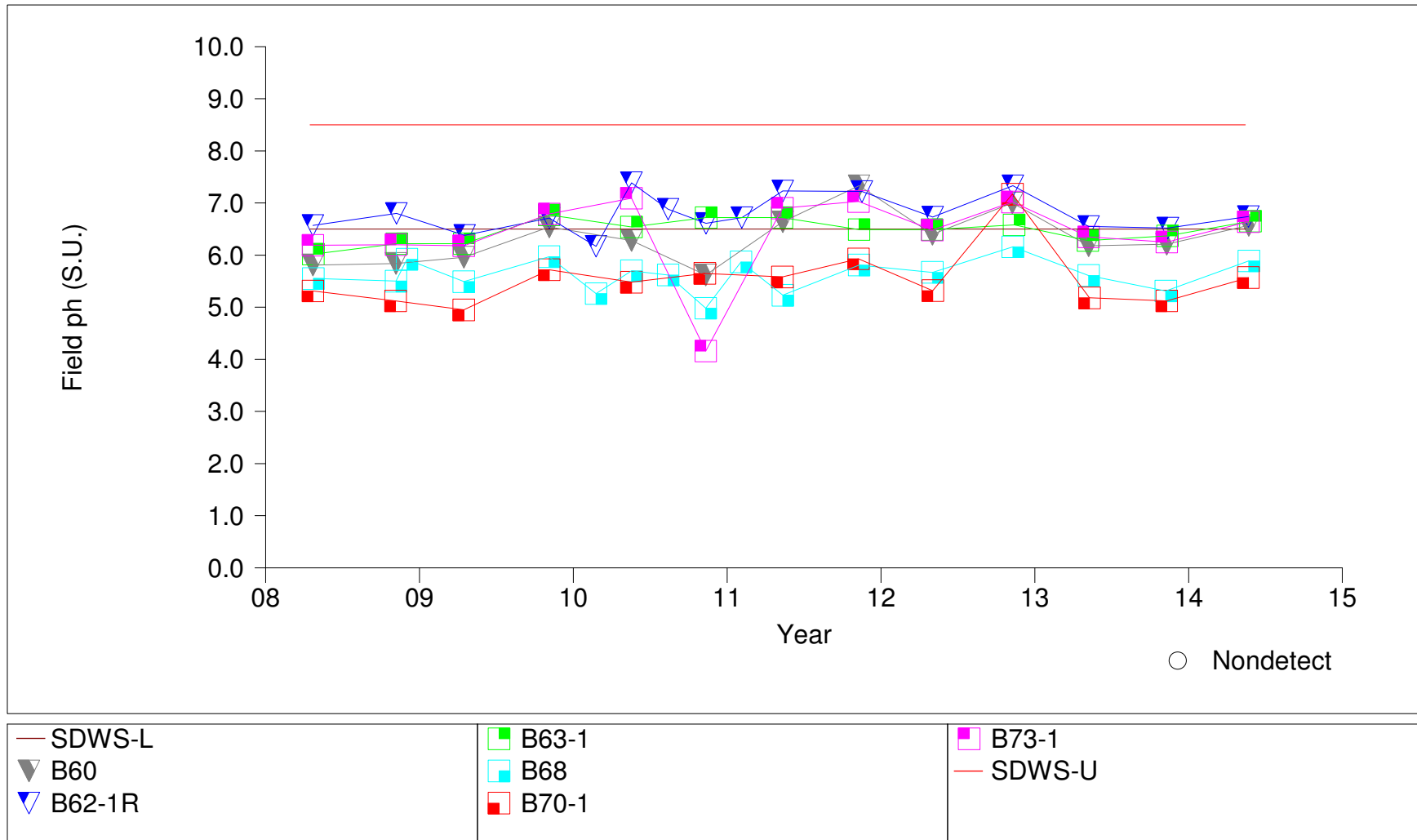
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Zone 4



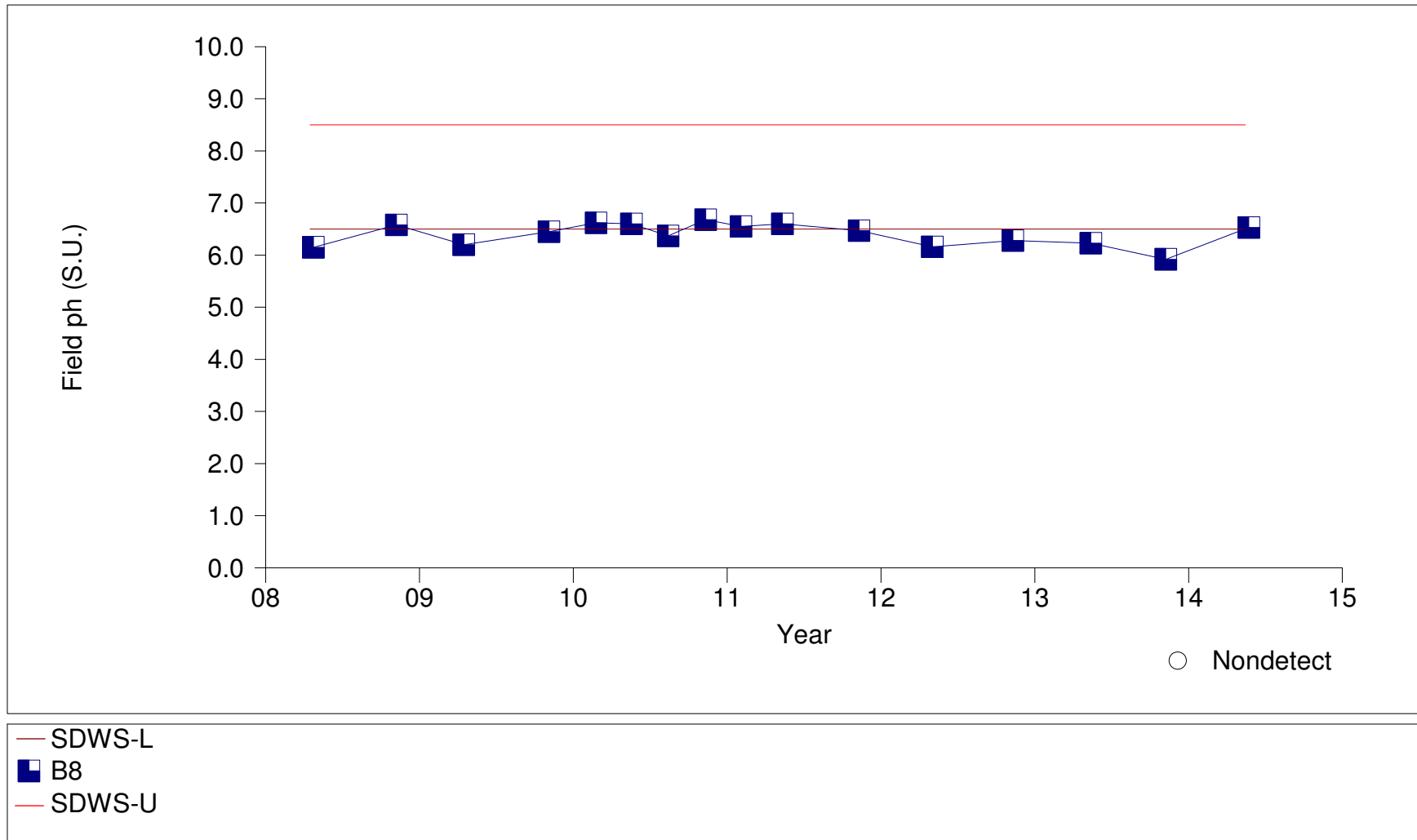
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Zone 4



TOMOKA FARMS ROAD LANDFILL

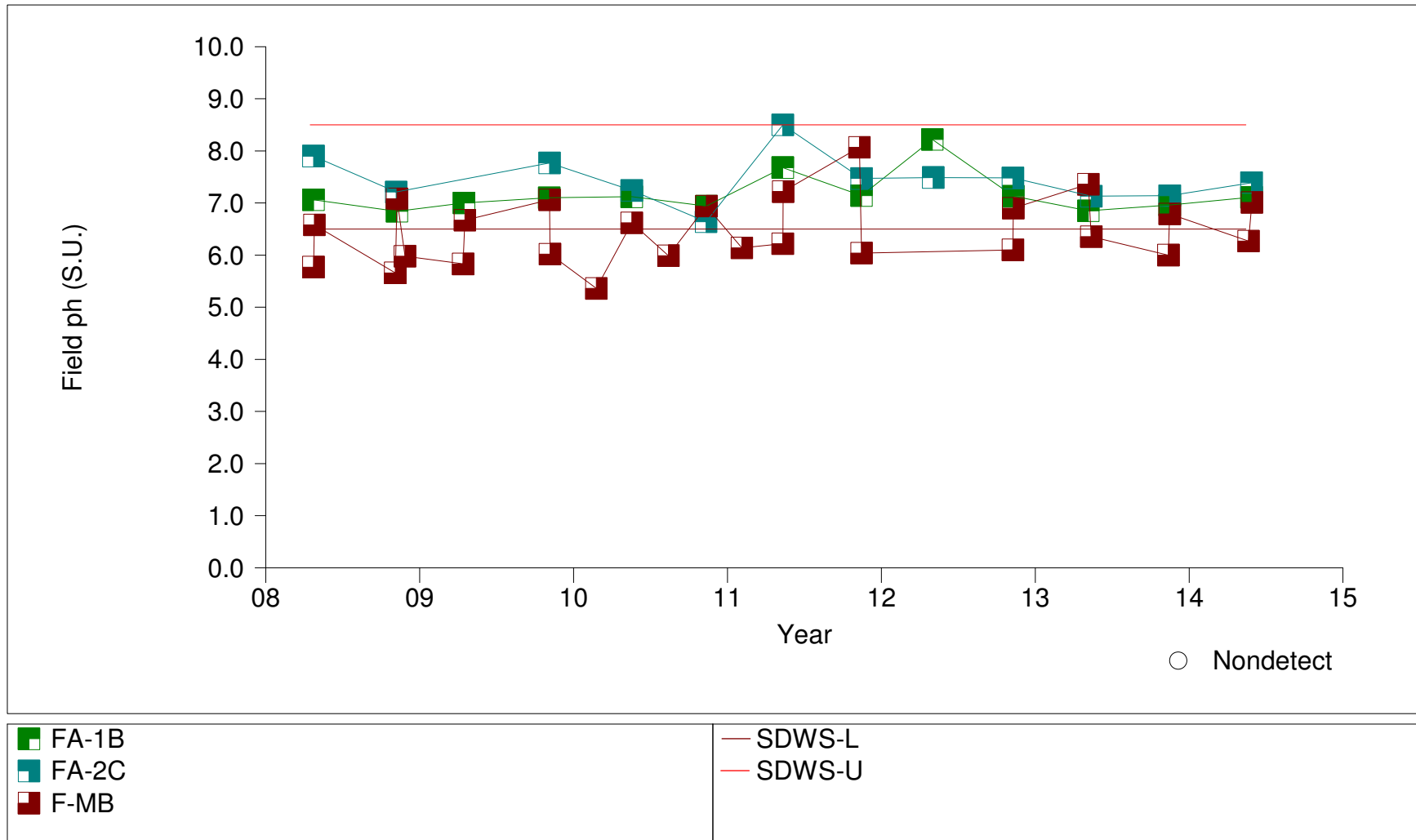
Time Series Plot for Field pH, Zone 6



Prepared by: HDR Engineering, Inc.

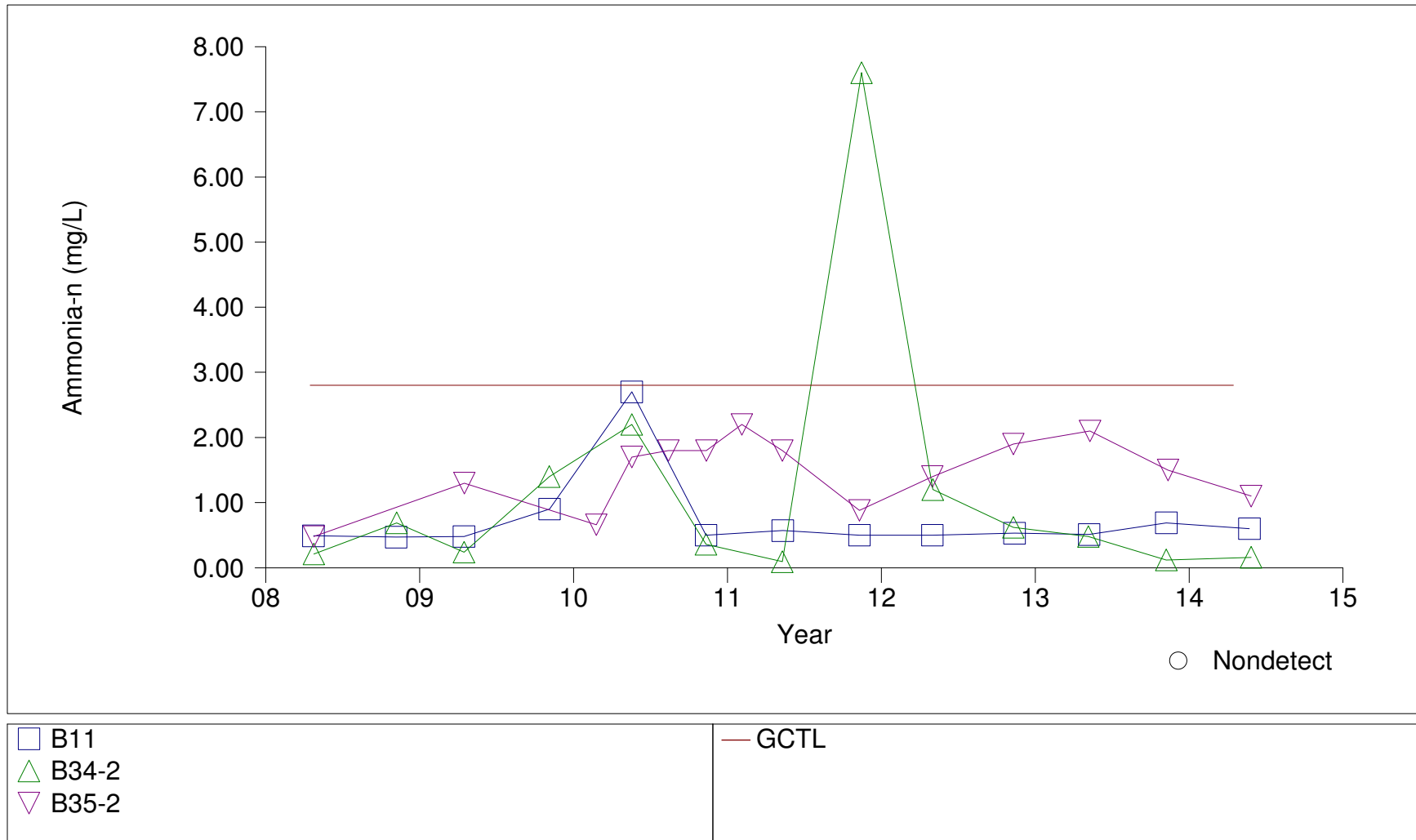
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Field pH, Floridan Aquifer



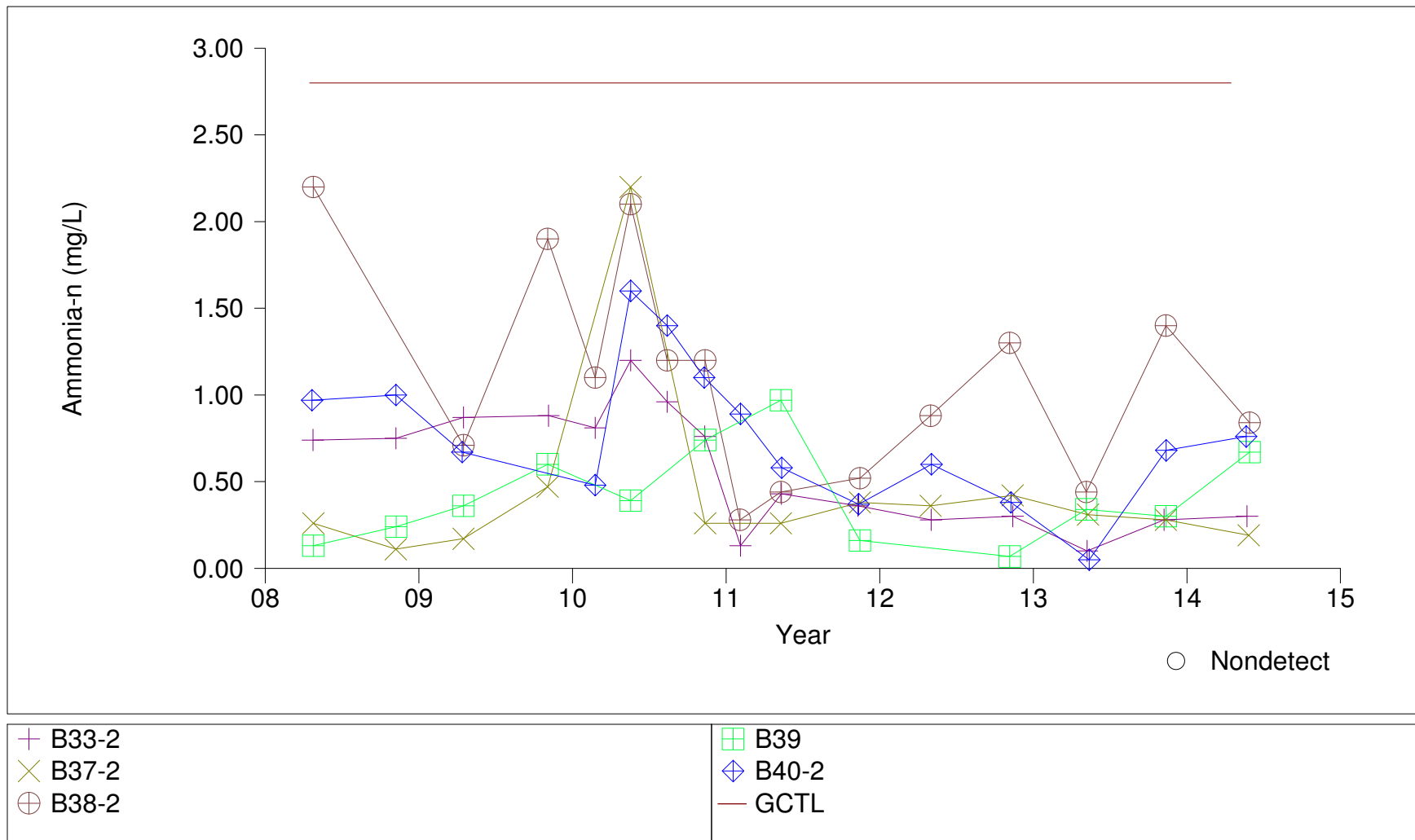
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Ammonia-N, Zone 1-2 Background Wells



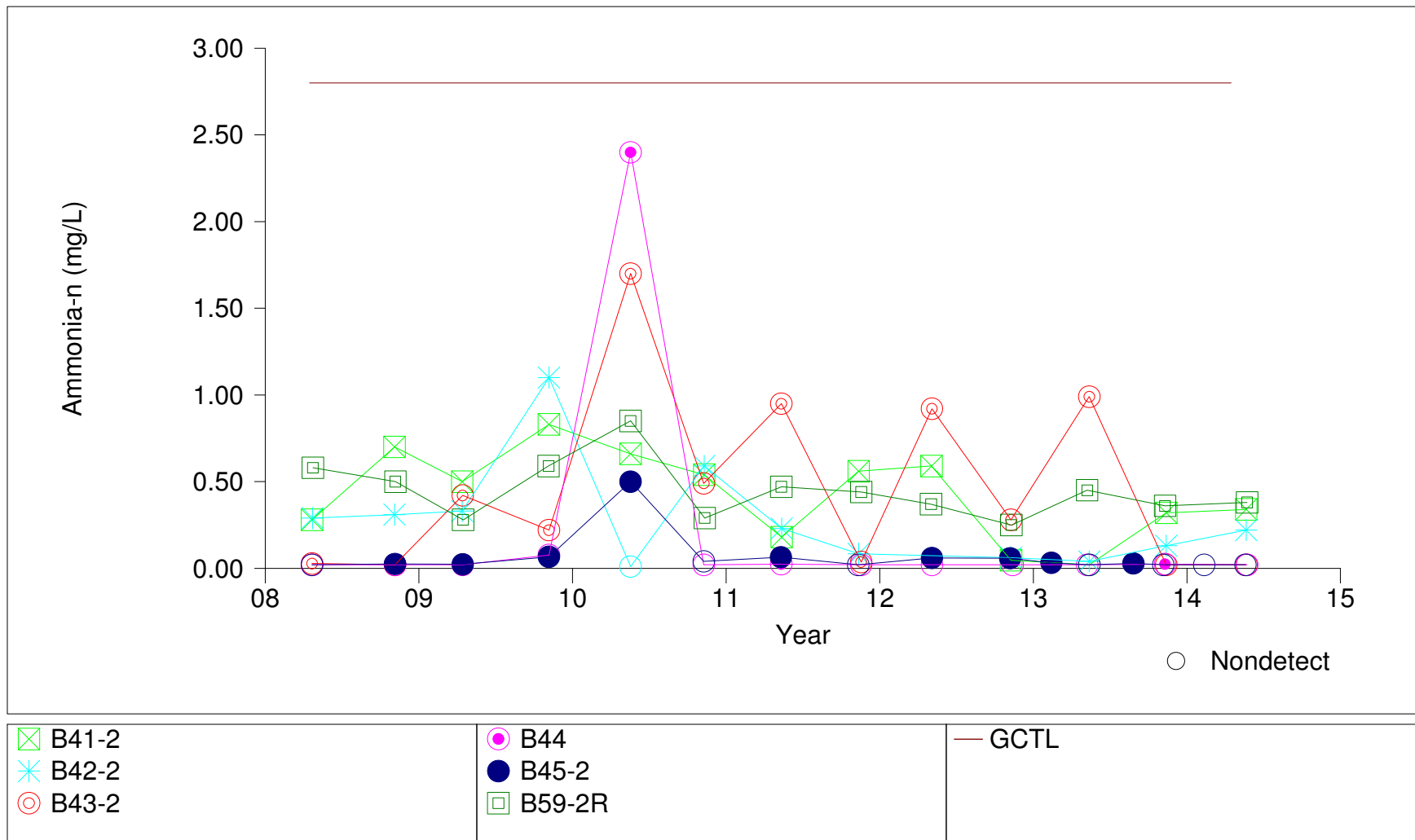
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Ammonia-N, Zone 1-2



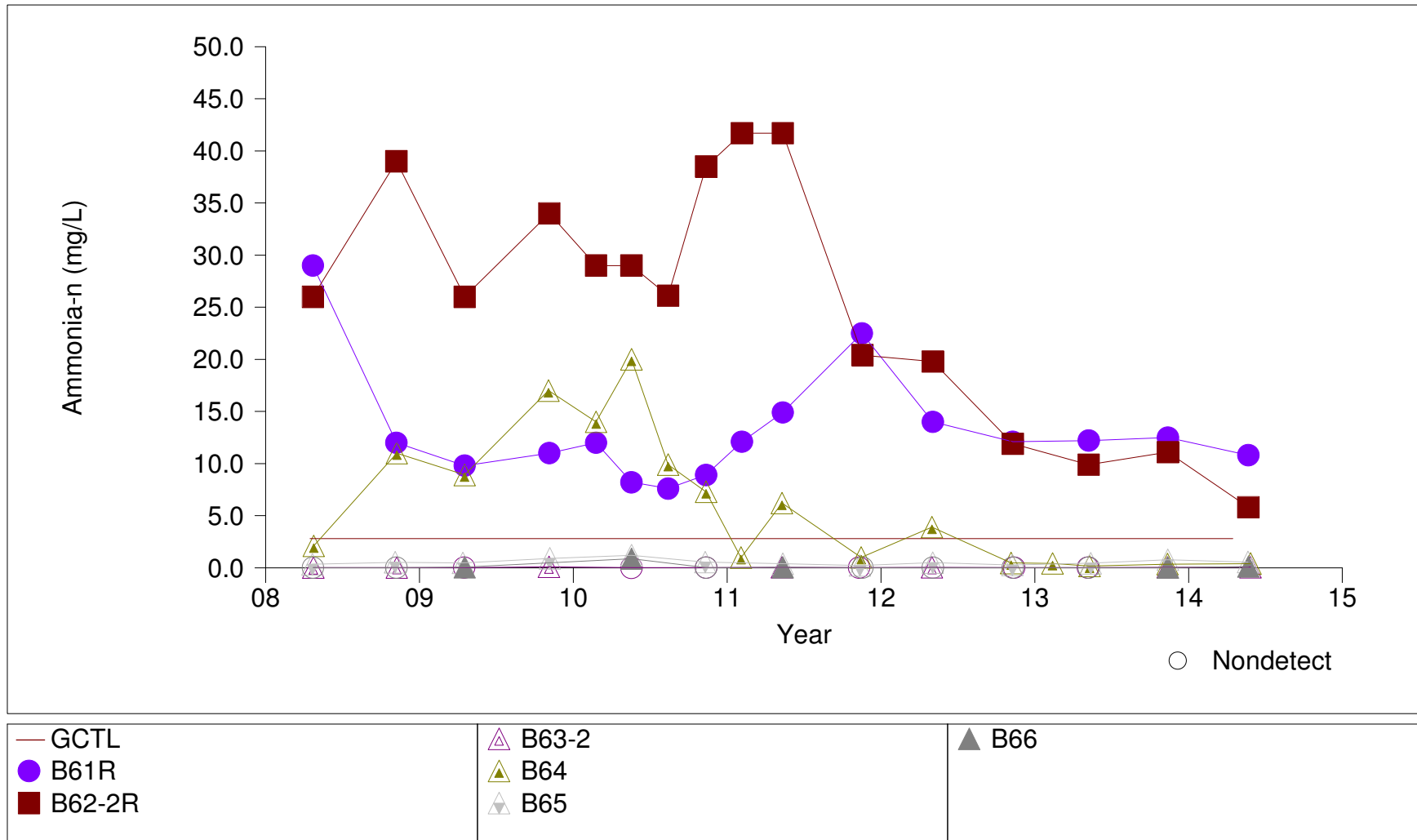
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Ammonia-N, Zone 1-2



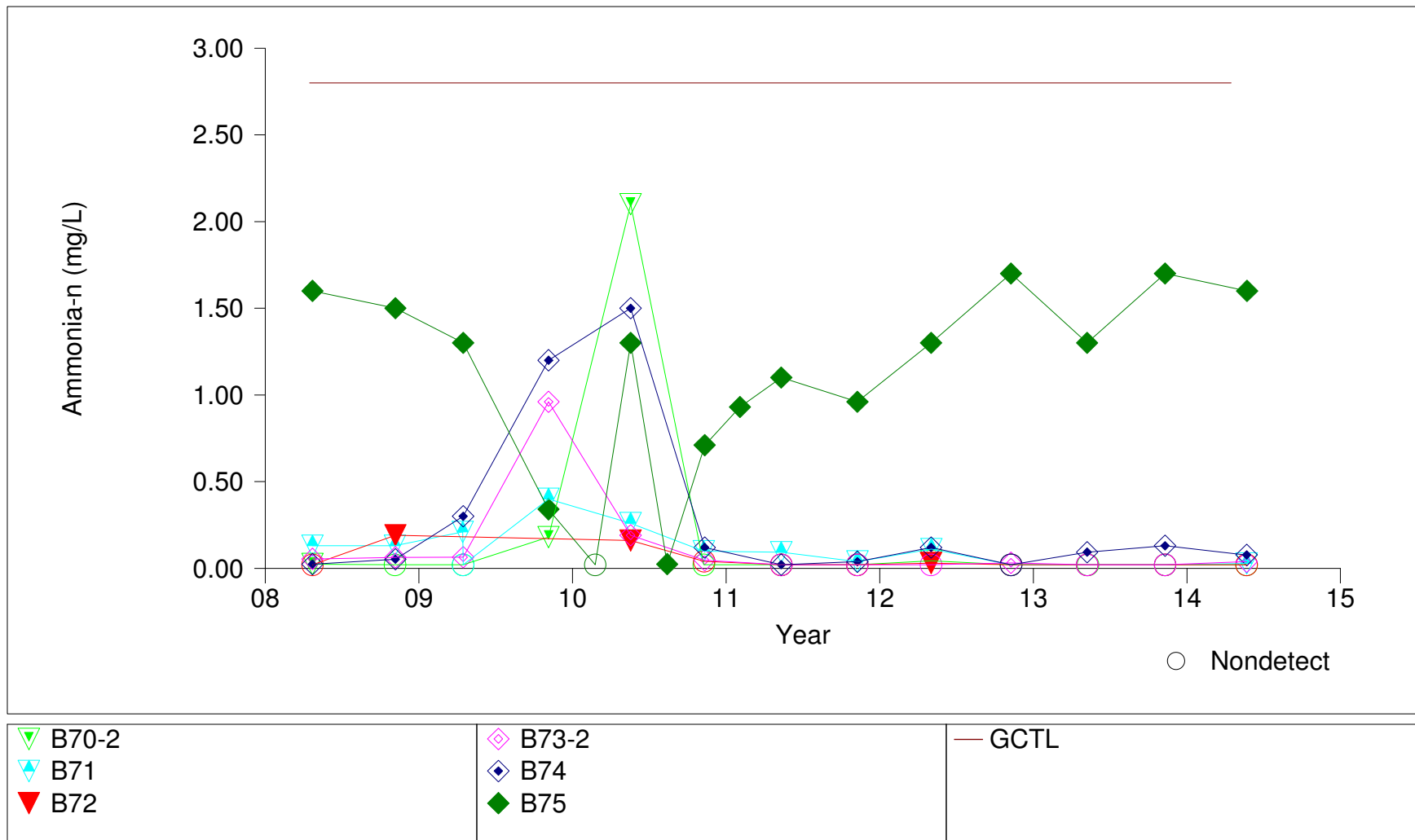
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Time Series Plot for Ammonia-N, Zone 1-2



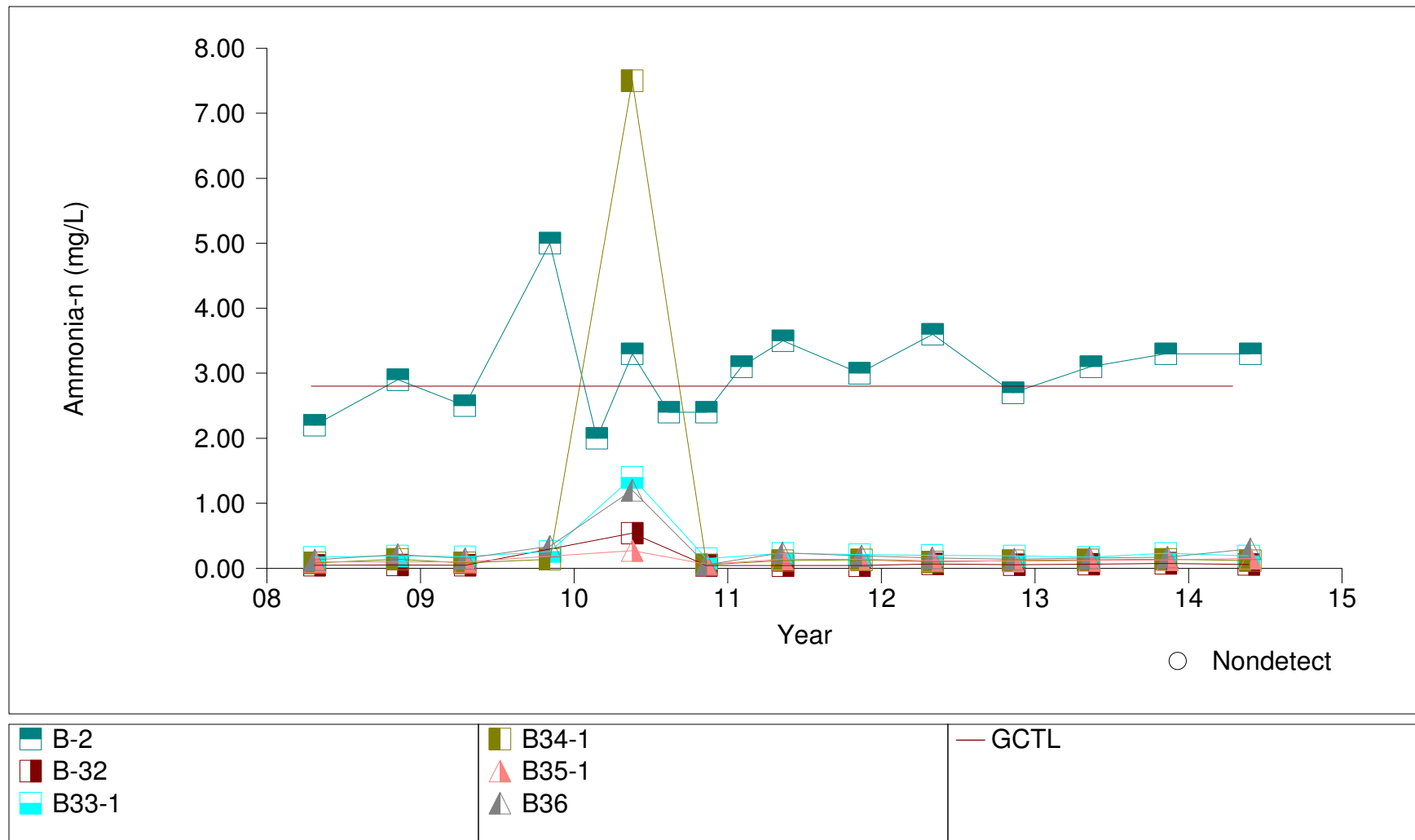
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Time Series Plot for Ammonia-N, Zone 1-2



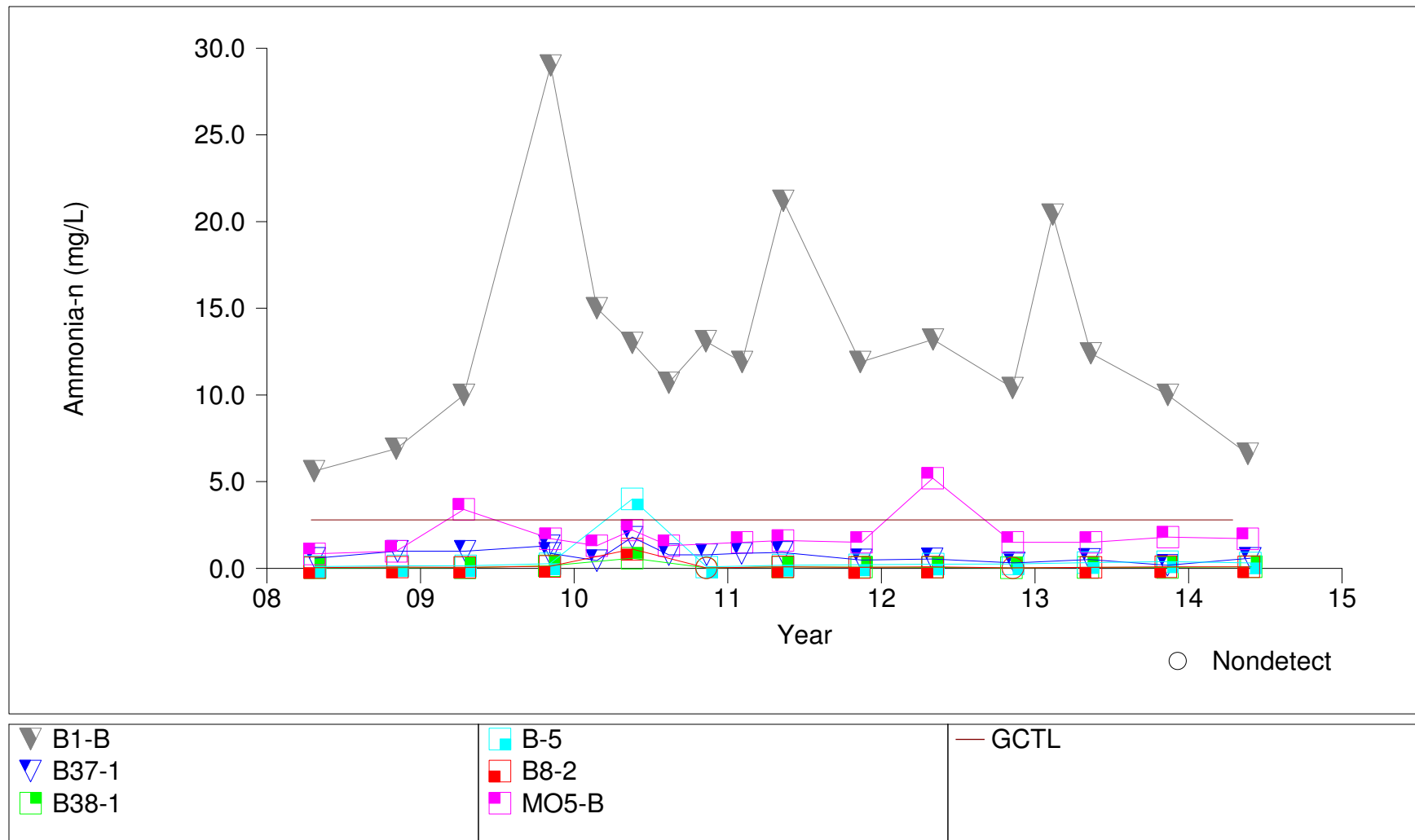
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Ammonia-N, Zone 4 Background Wells



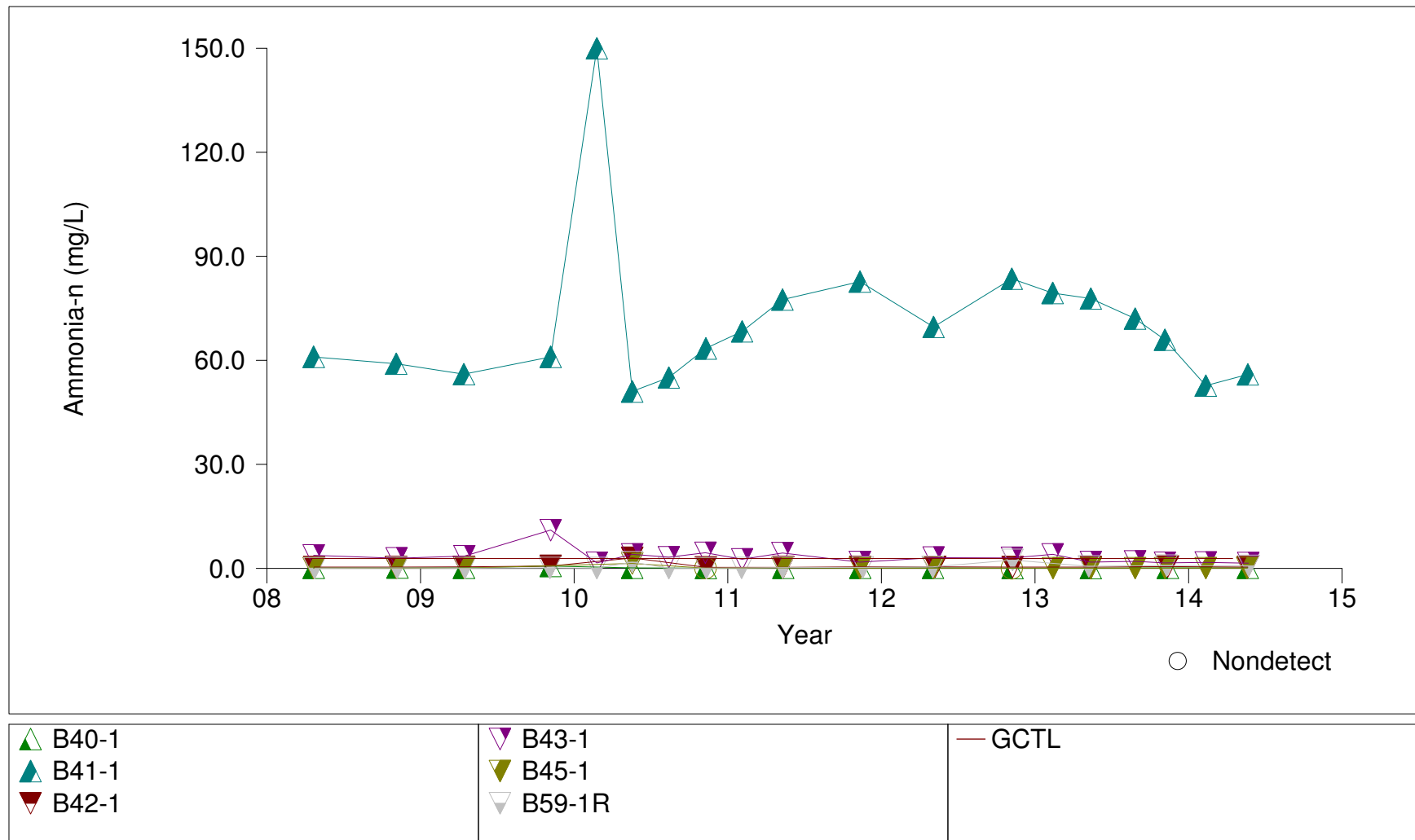
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Ammonia-N, Zone 4



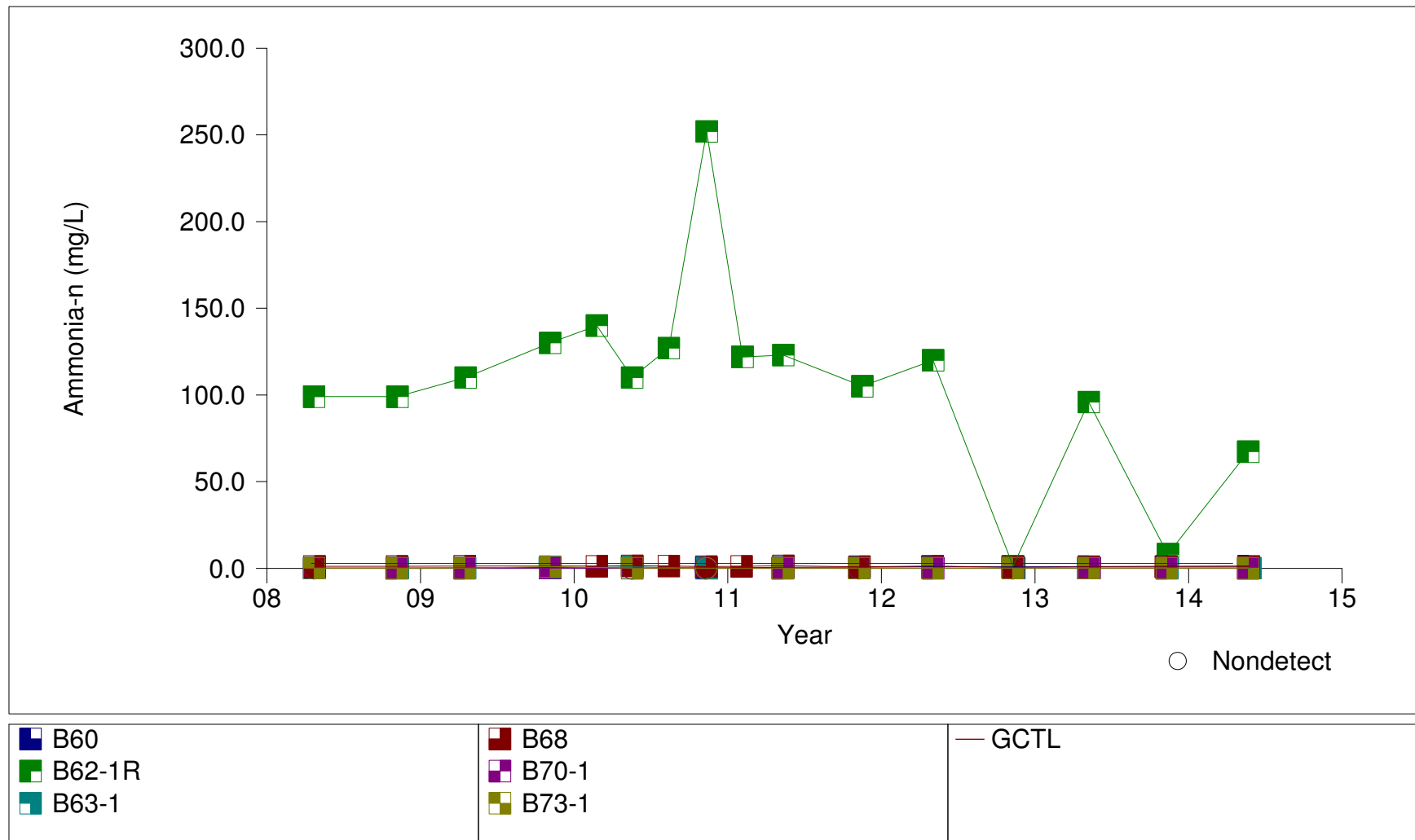
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Time Series Plot for Ammonia-N, Zone 4



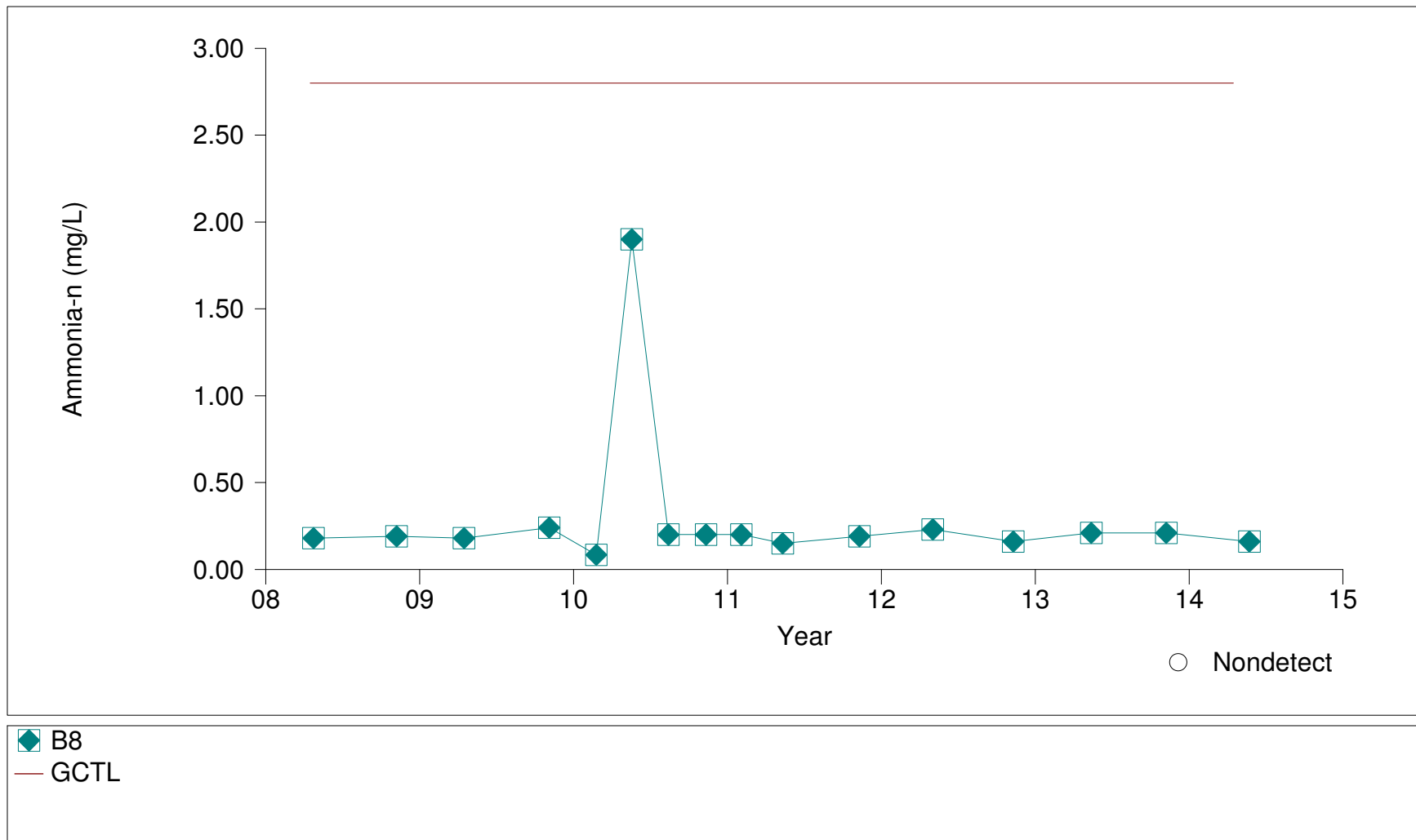
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Time Series Plot for Ammonia-N, Zone 4



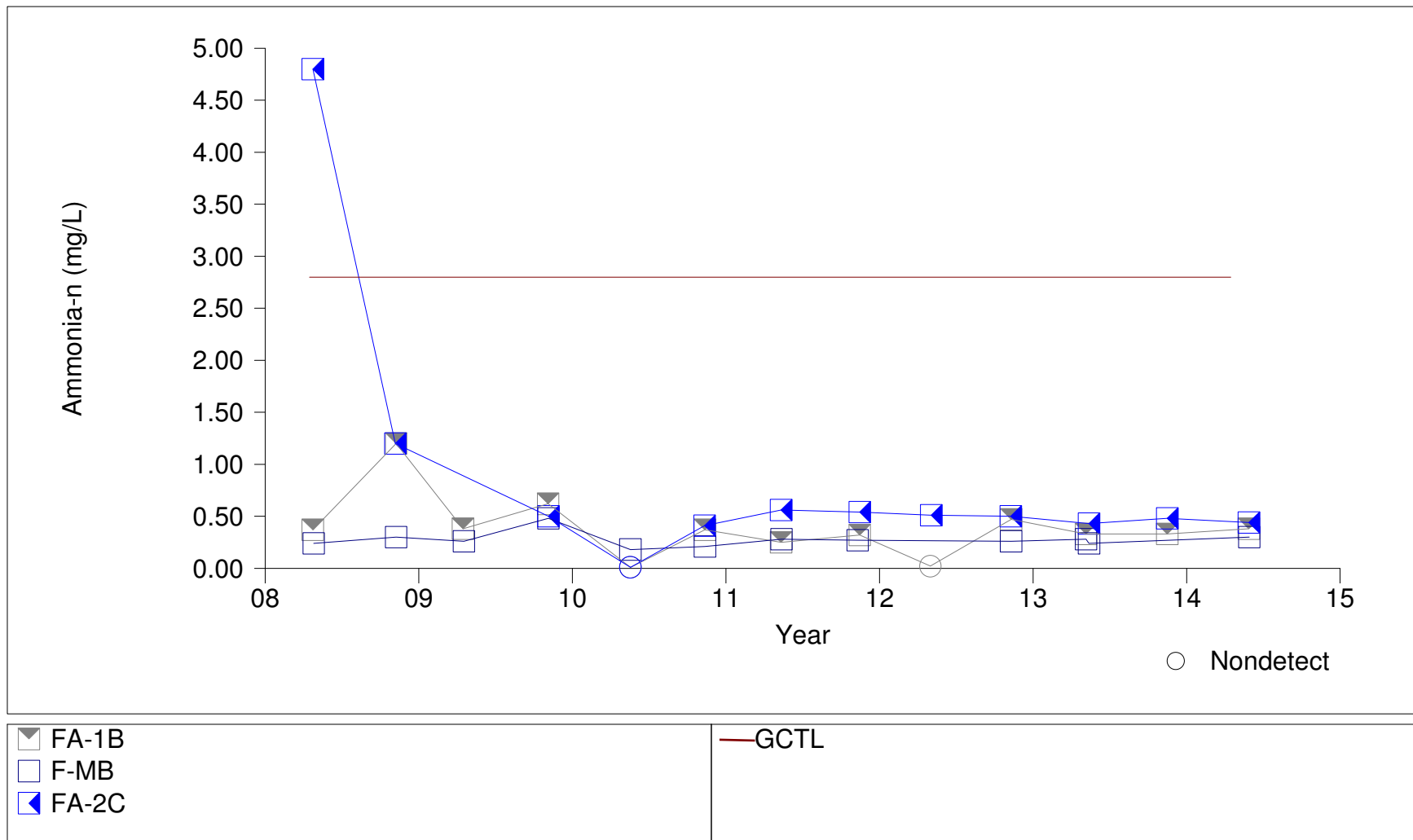
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Ammonia-N, Zone 6



TOMOKA FARMS ROAD LANDFILL

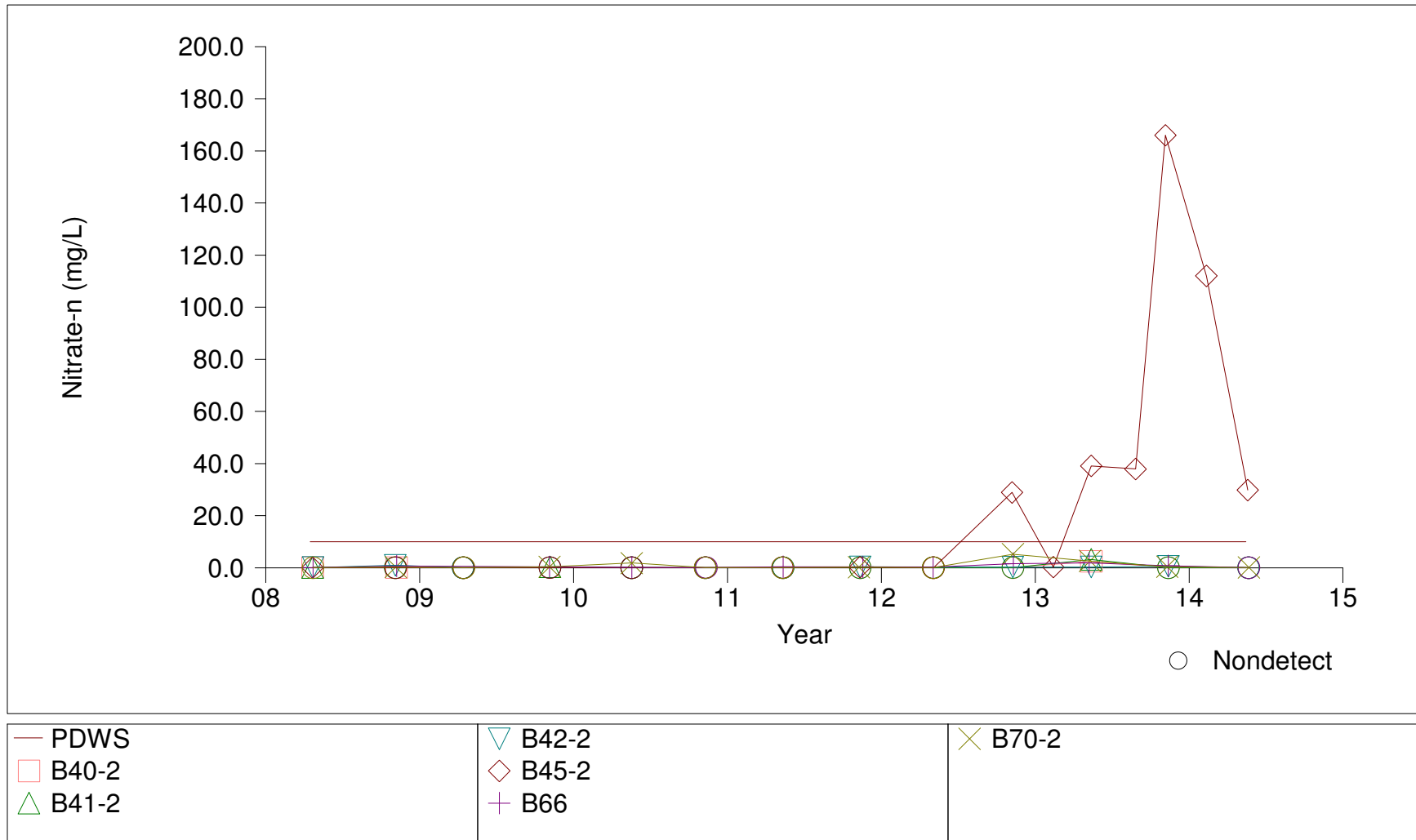
Time Series Plot for Ammonia-N, Floridan Aquifer



Prepared by: HDR Engineering, Inc.

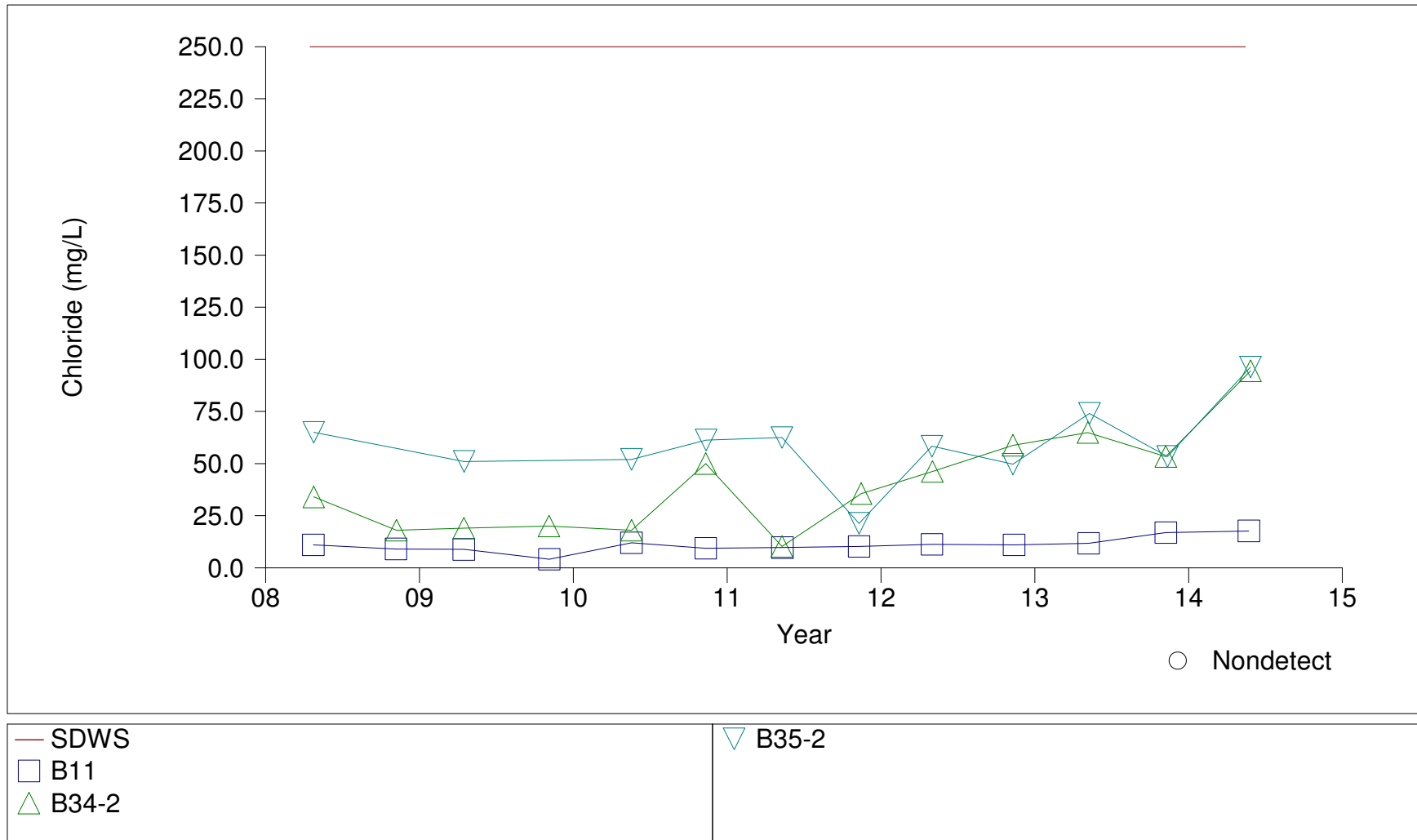
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Nitrate-N, Zone 1-2



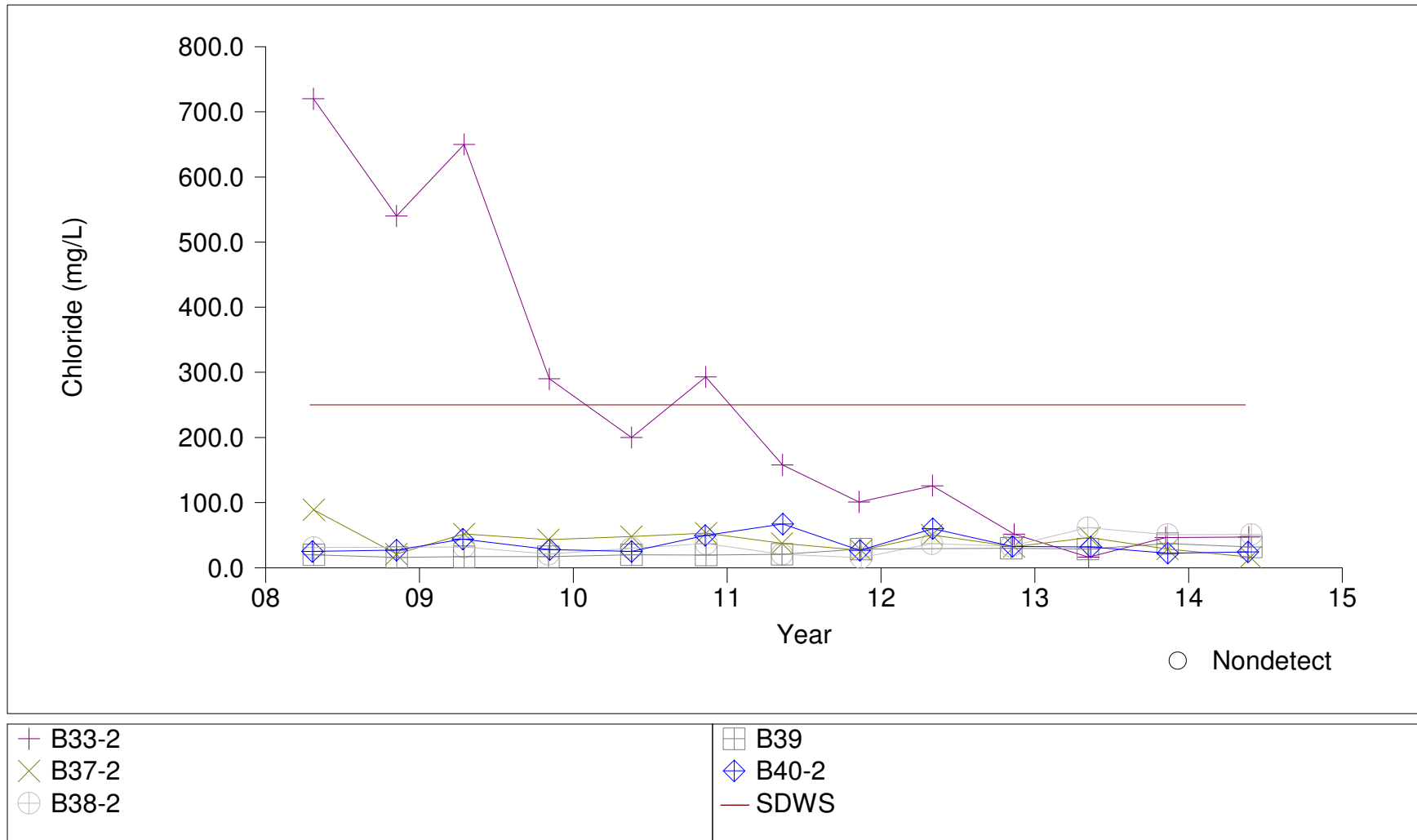
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Chloride, Zone 1-2 Background Wells



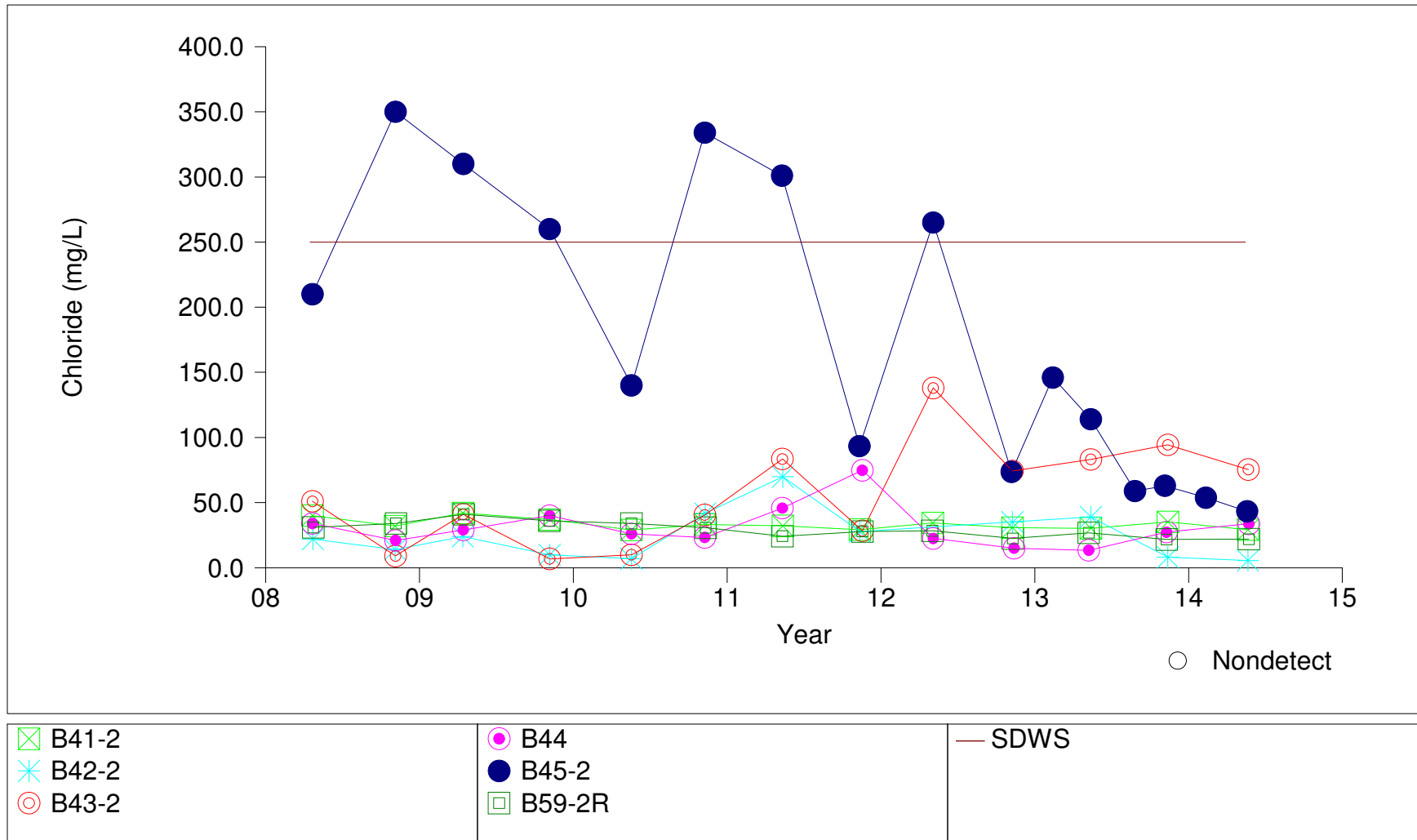
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Time Series Plot for Chloride, Zone 1-2



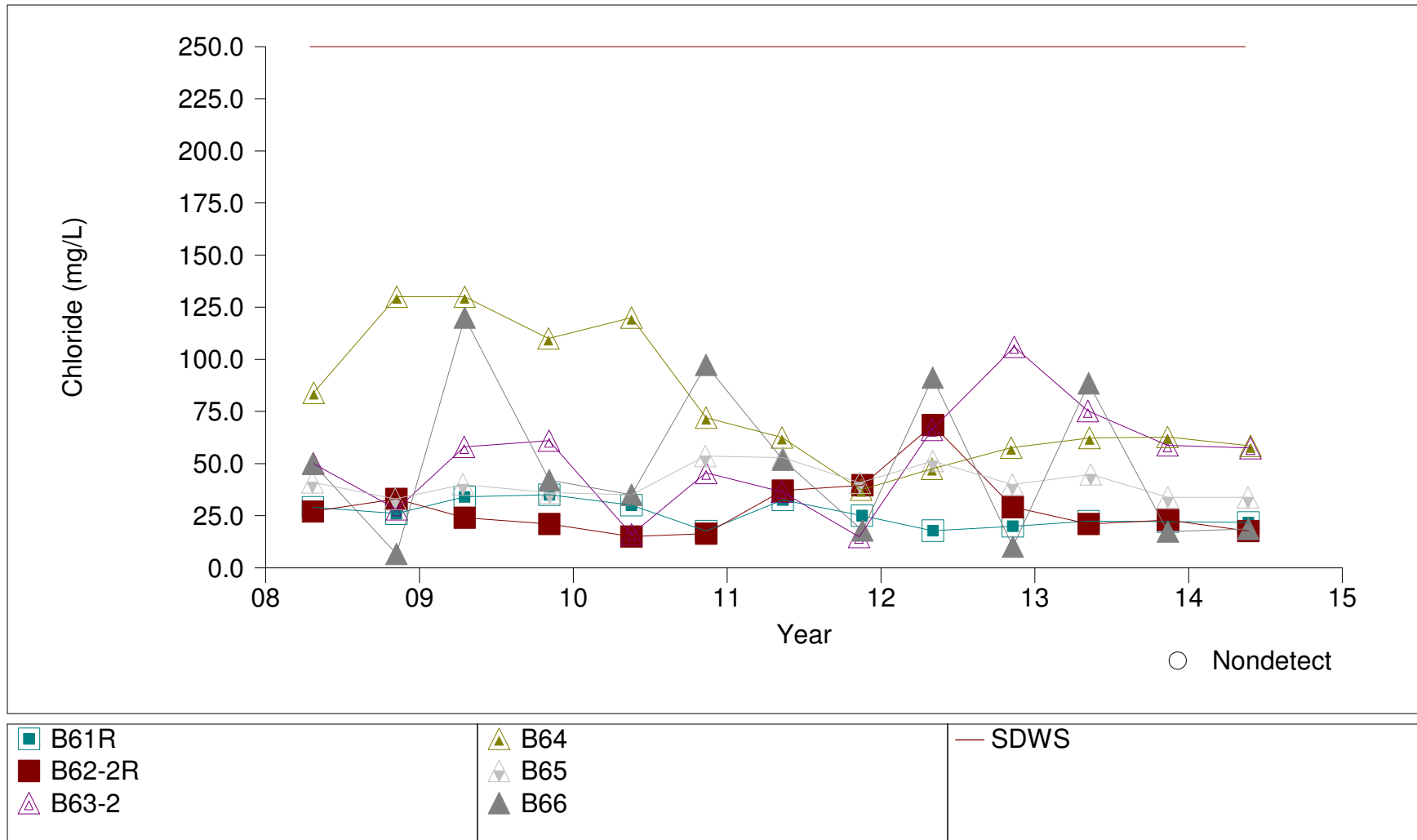
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Time Series Plot for Chloride, Zone 1-2



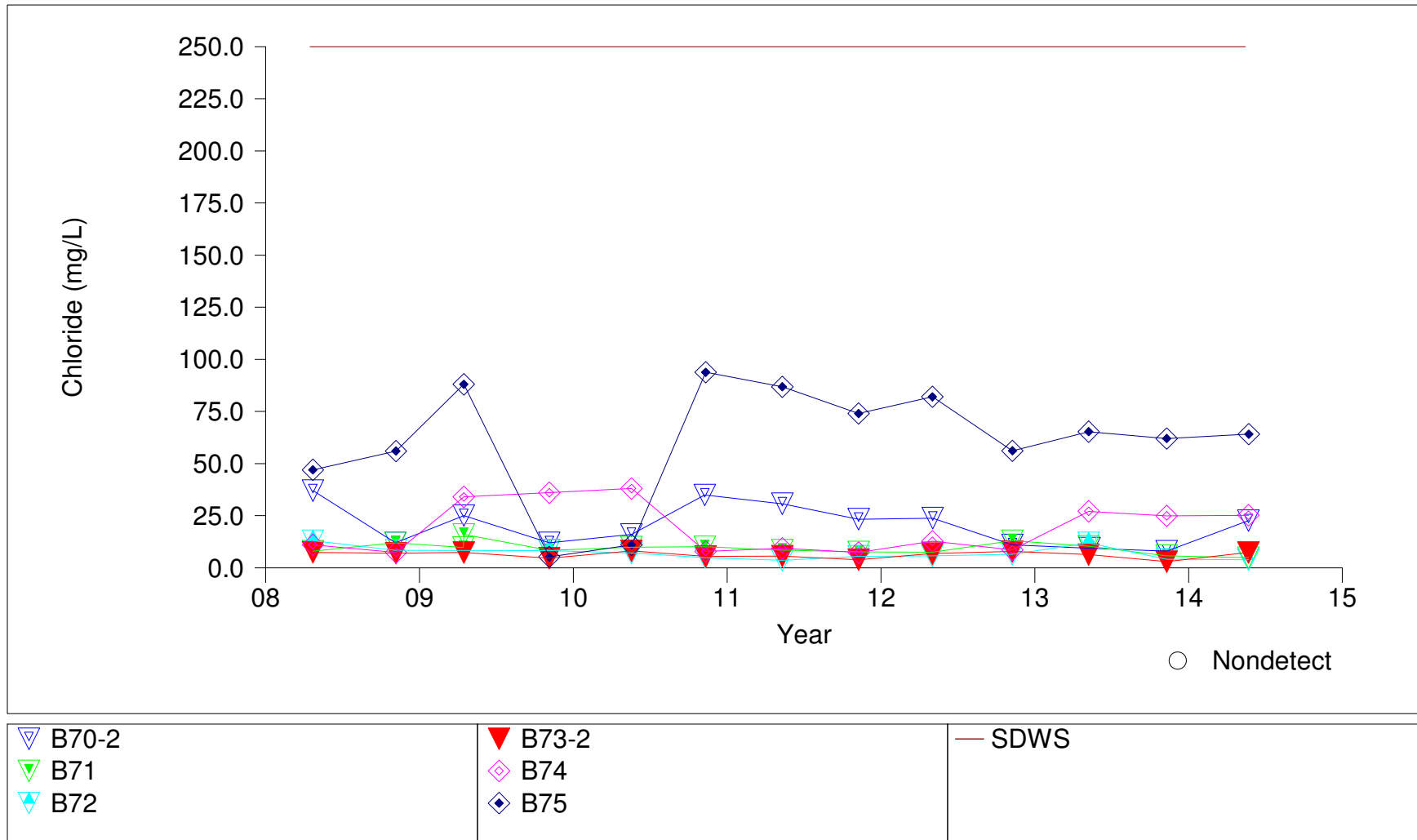
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Time Series Plot for Chloride, Zone 1-2



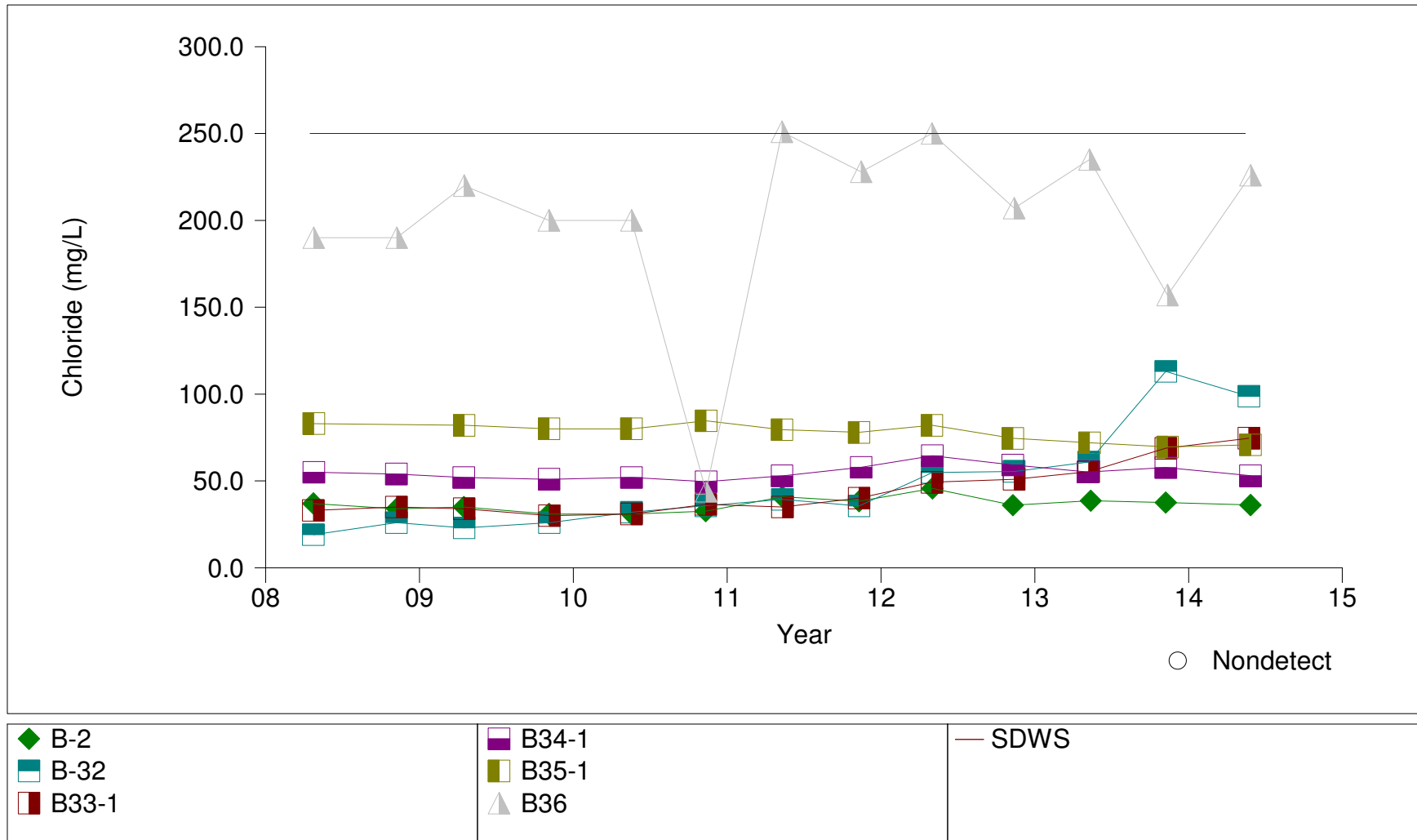
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Time Series Plot for Chloride, Zone 1-2



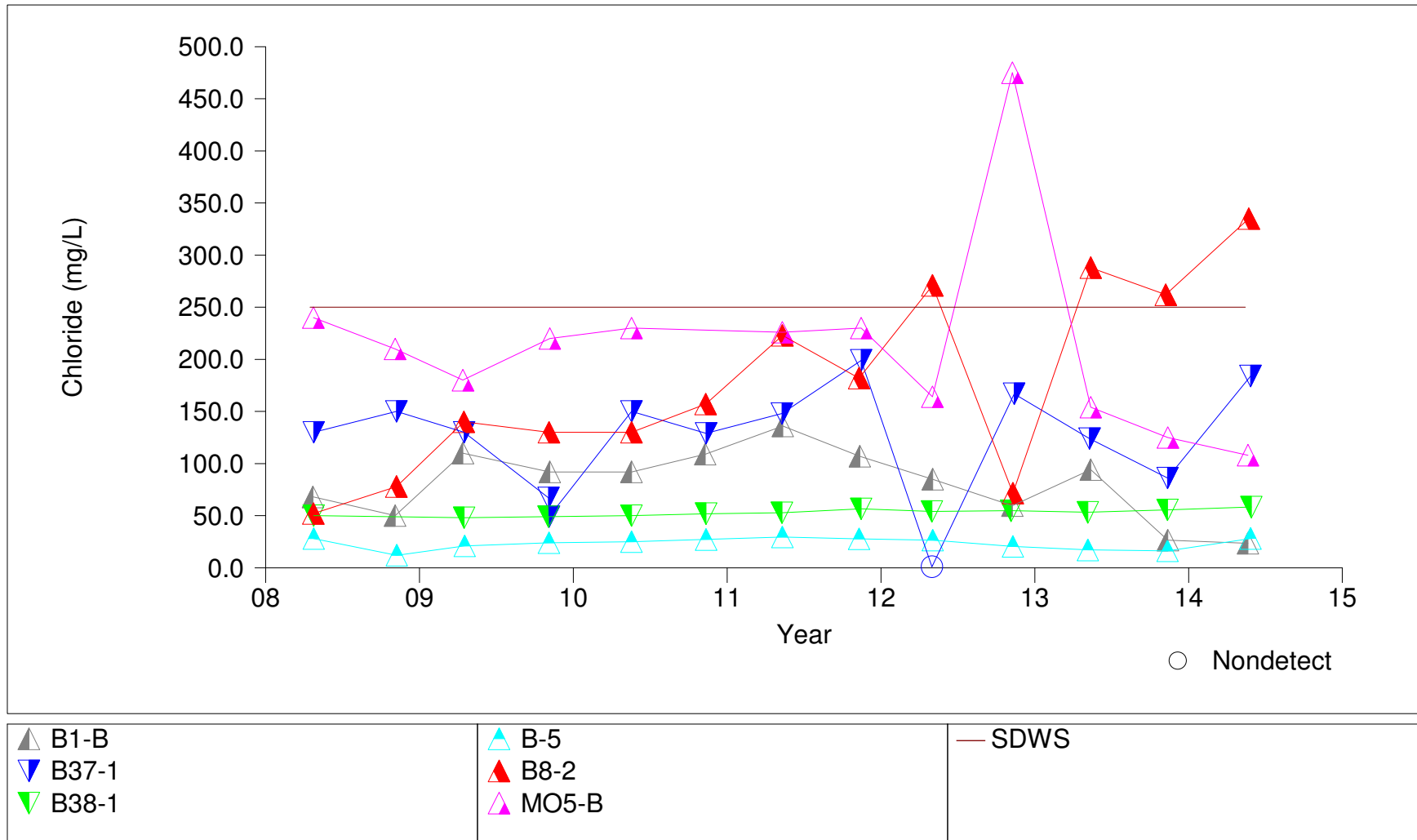
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Chloride, Zone 4 Background Wells



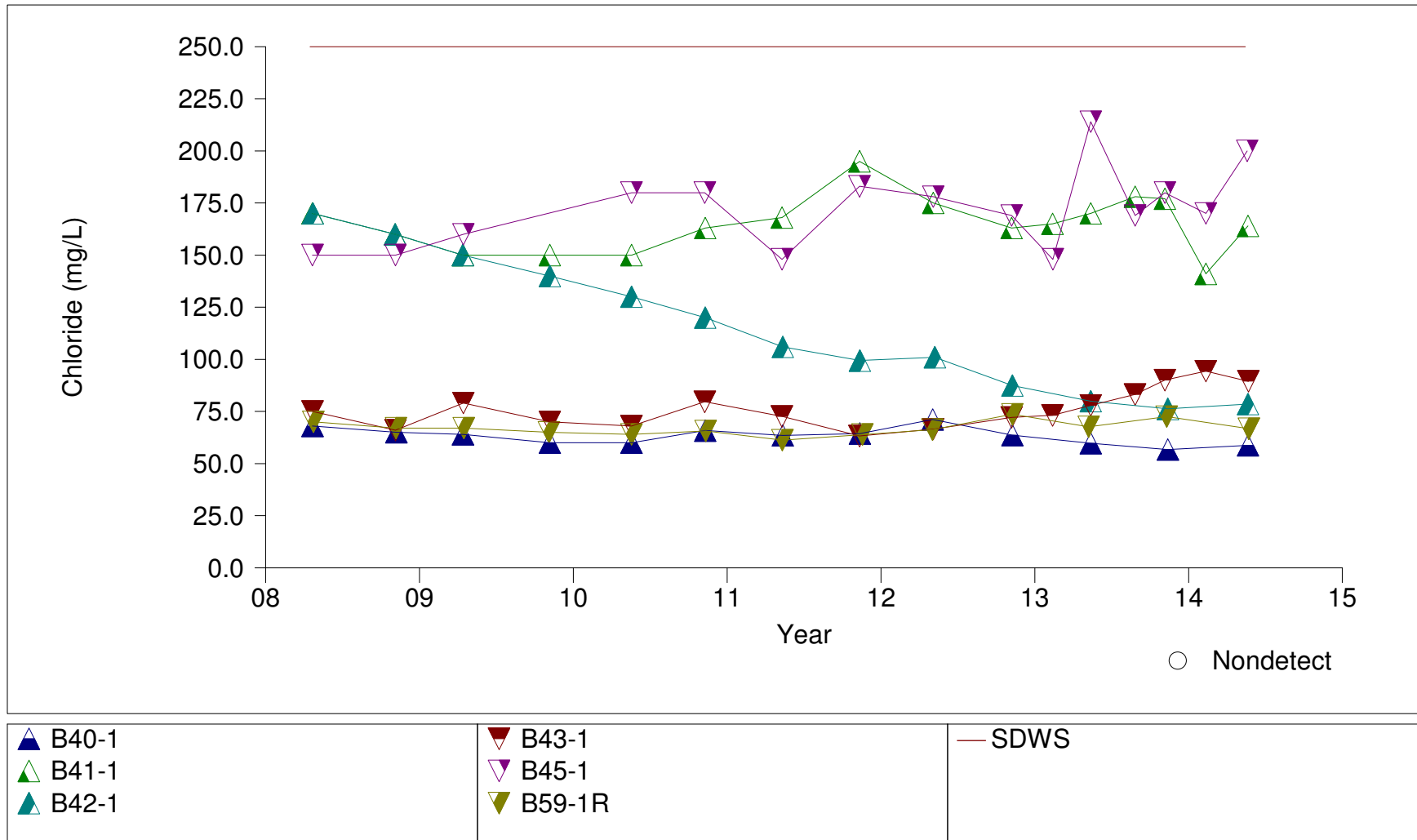
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Time Series Plot for Chloride, Zone 4



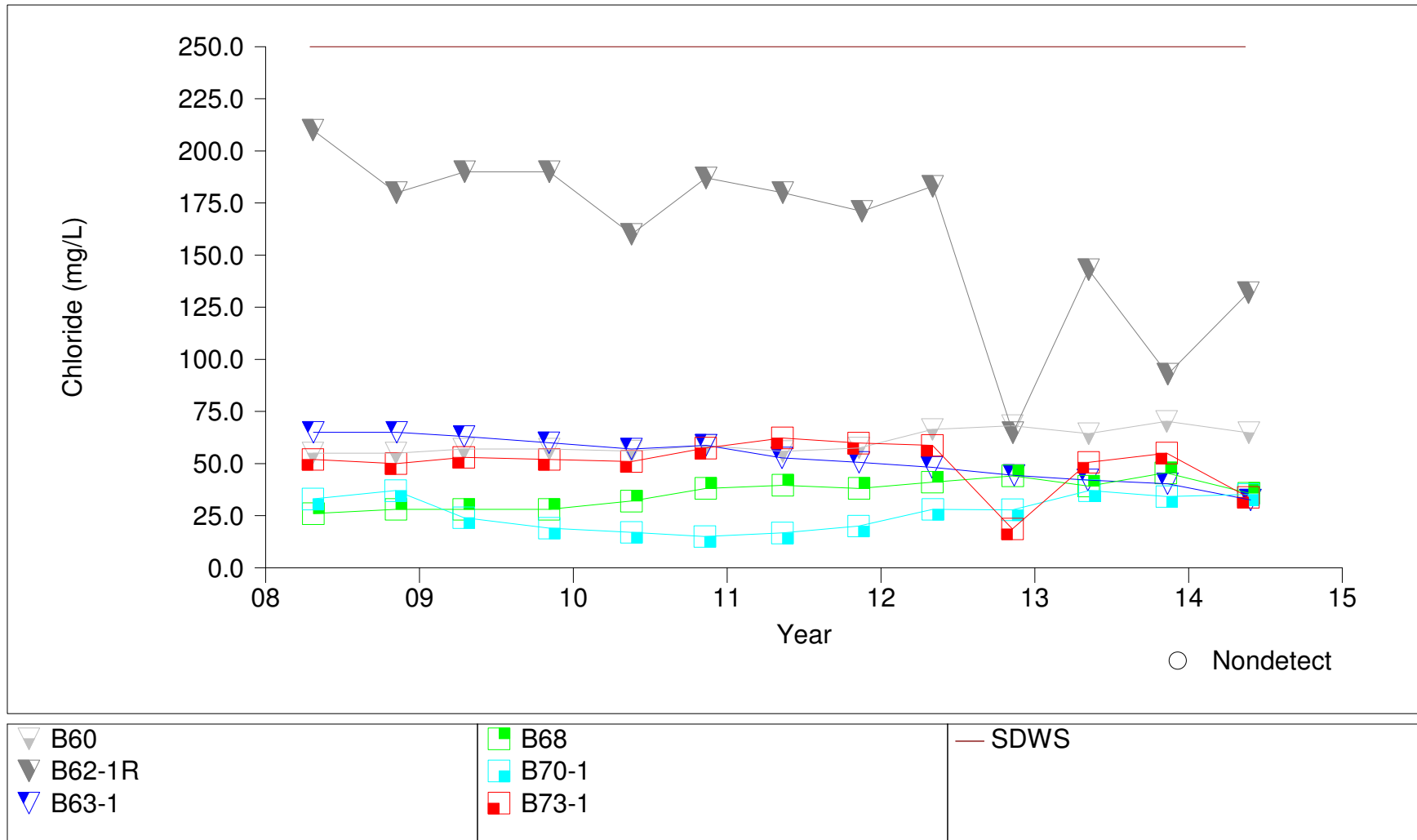
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Time Series Plot for Chloride, Zone 4



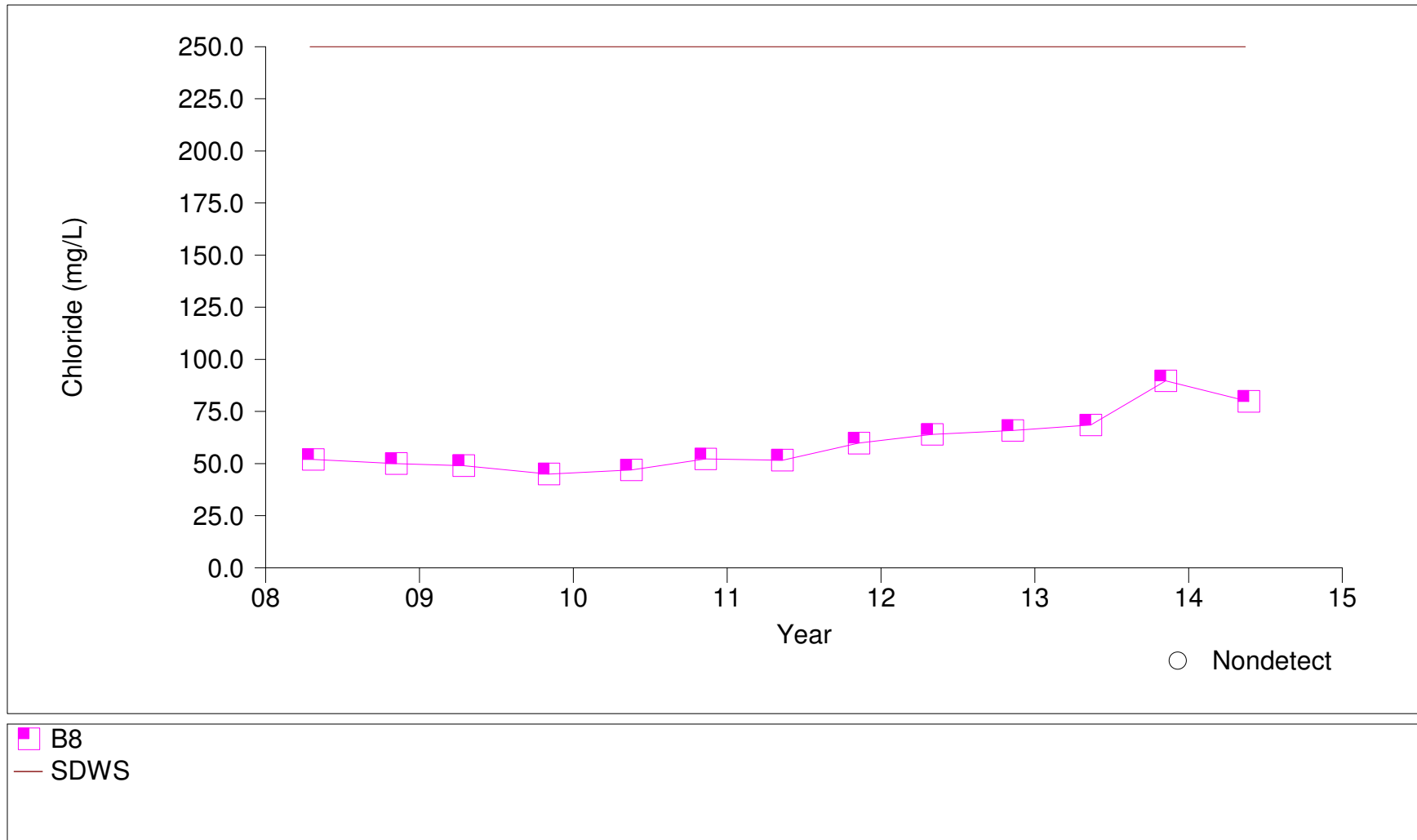
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Chloride, Zone 4



TOMOKA FARMS ROAD LANDFILL

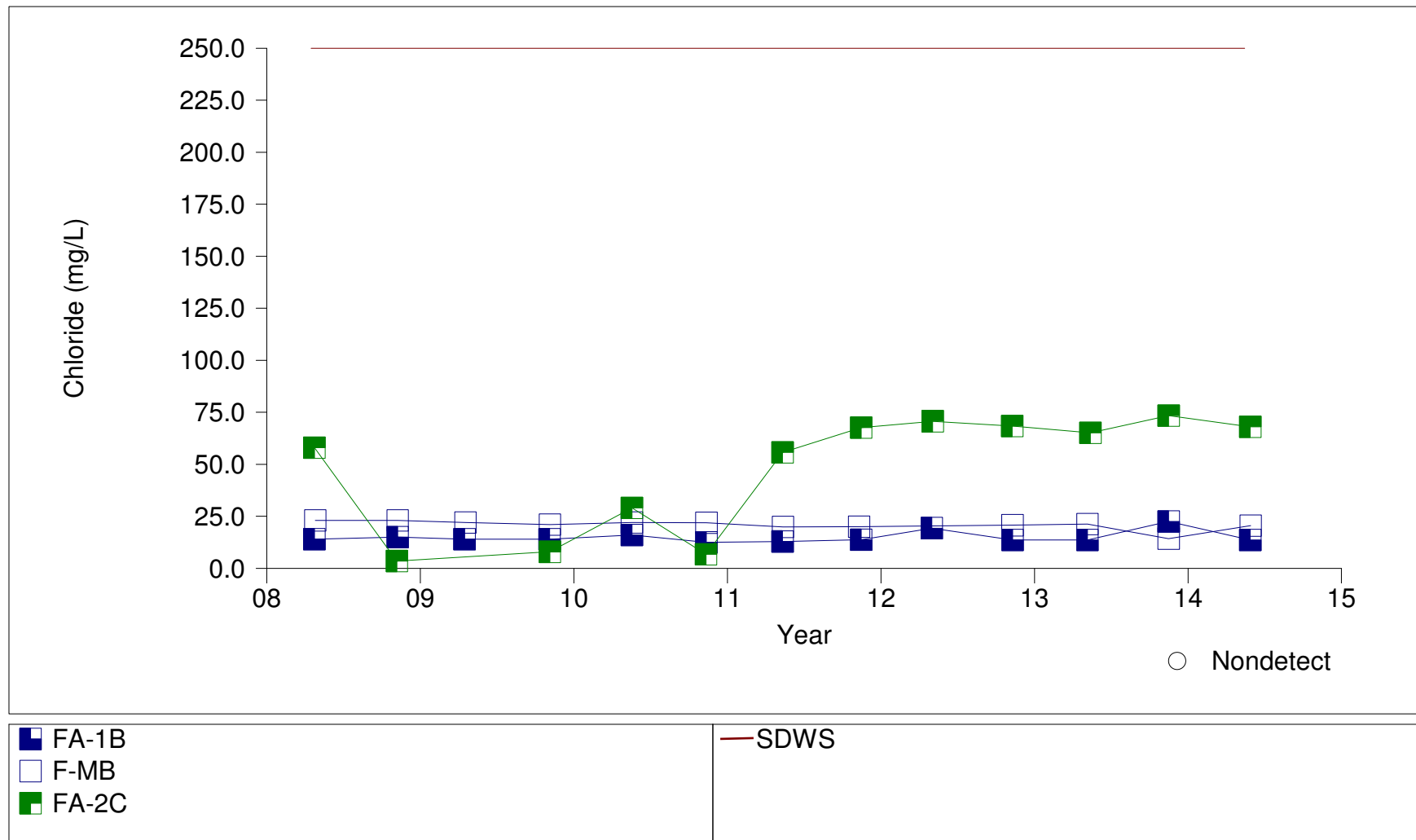
Time Series Plot for Chloride, Zone 6



Prepared by: HDR Engineering, Inc.

TOMOKA FARMS ROAD LANDFILL

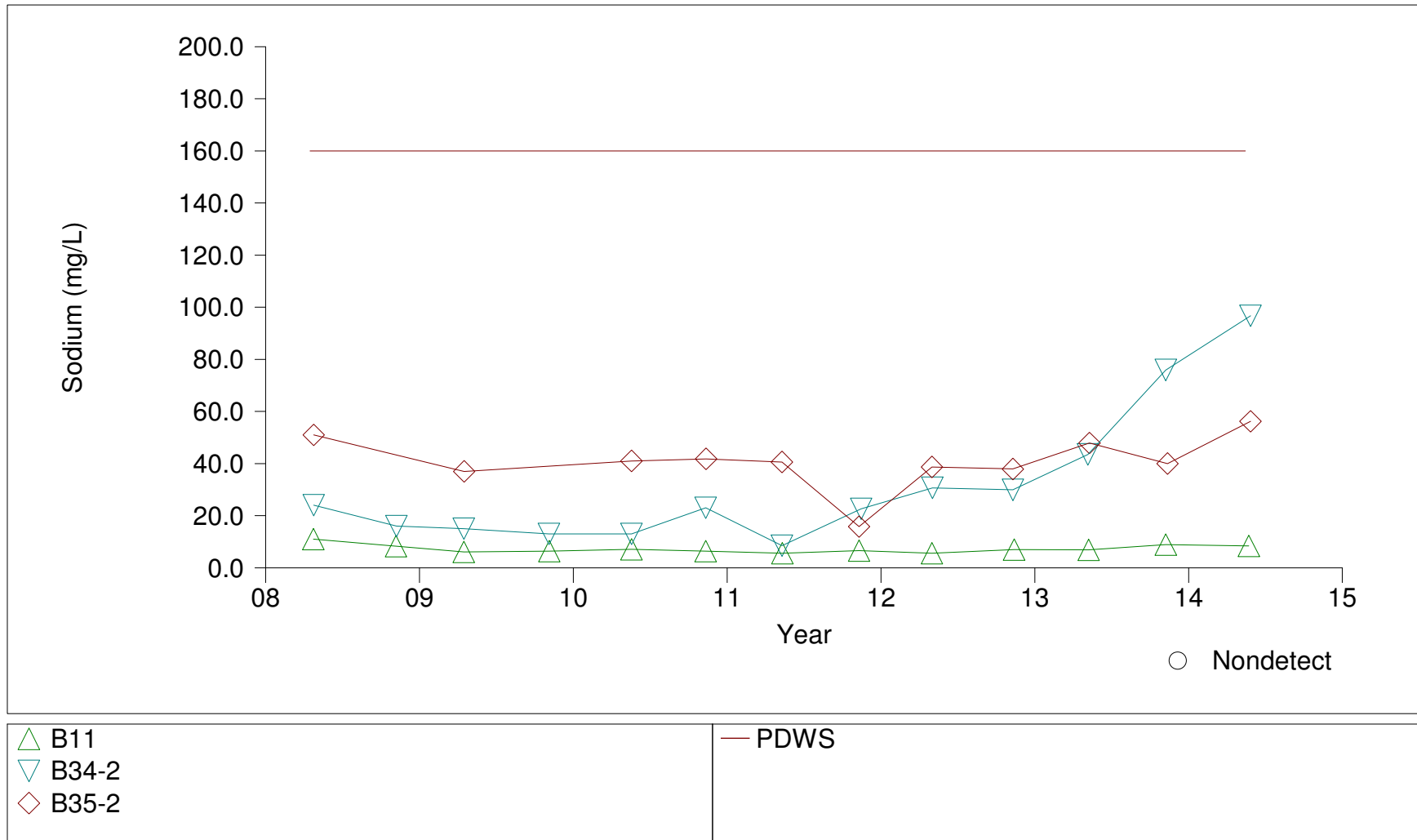
Time Series Plot for Chloride, Floridan



Prepared by: HDR Engineering, Inc.

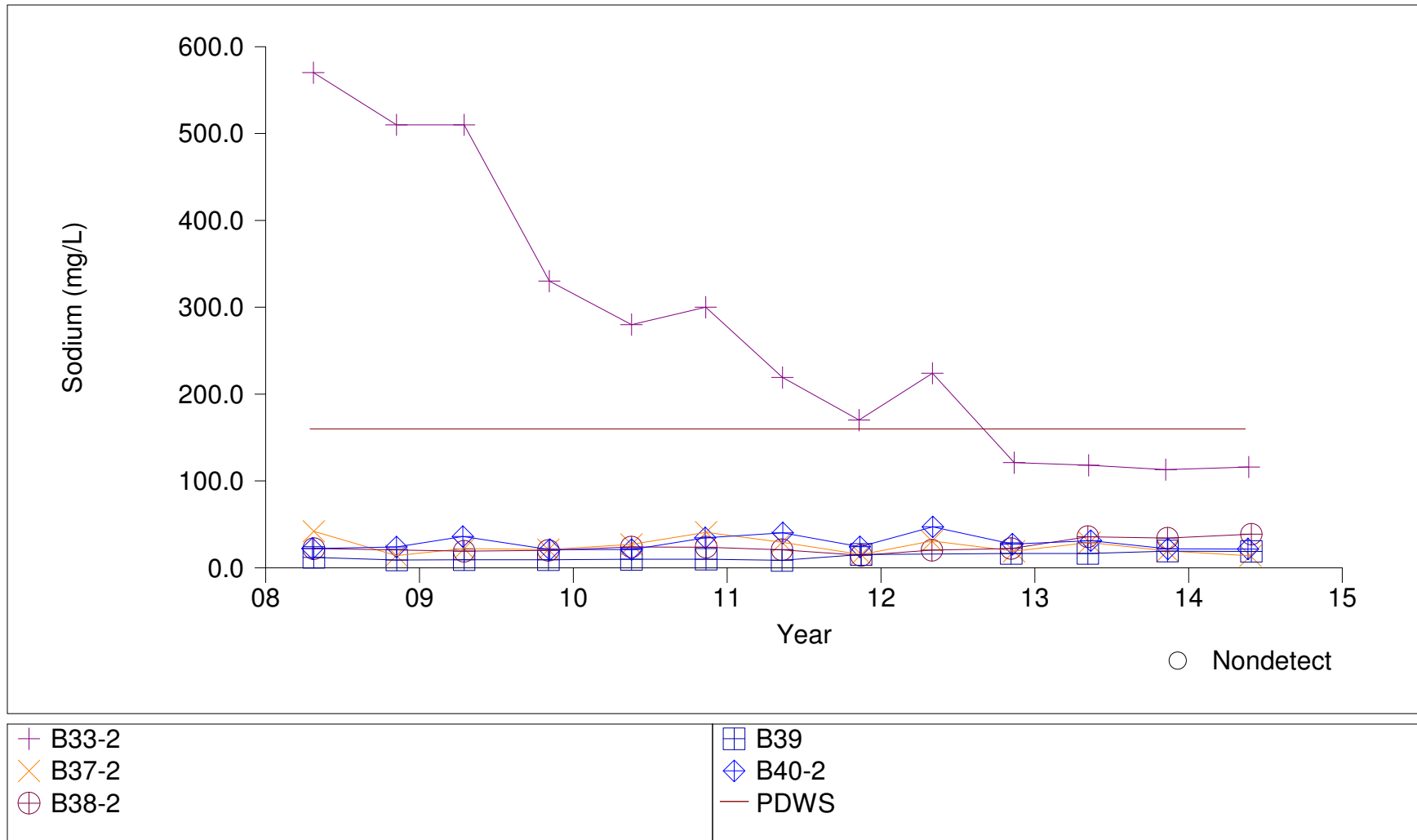
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 1-2 Background Wells



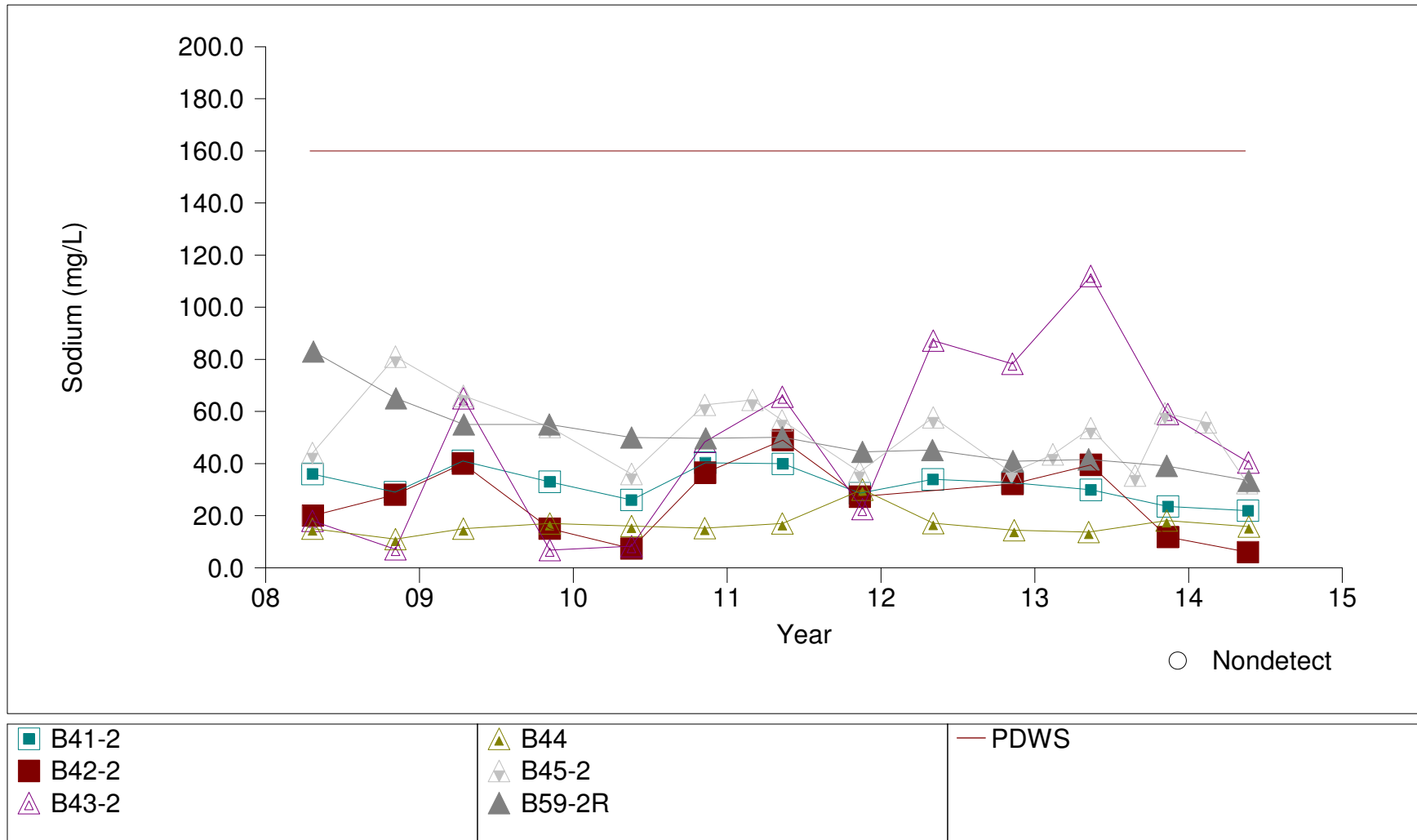
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 1-2



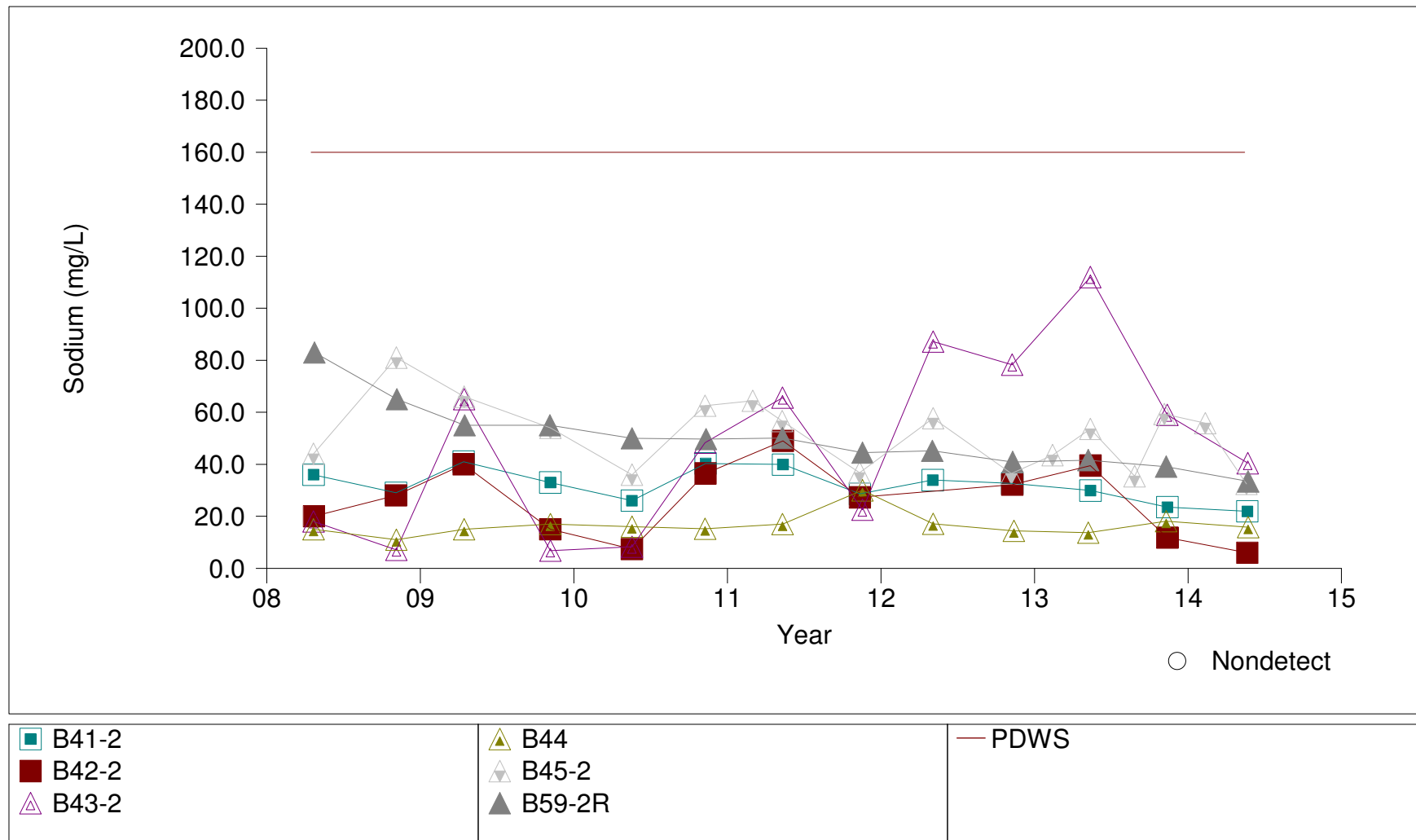
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Time Series Plot for Sodium, Zone 1-2



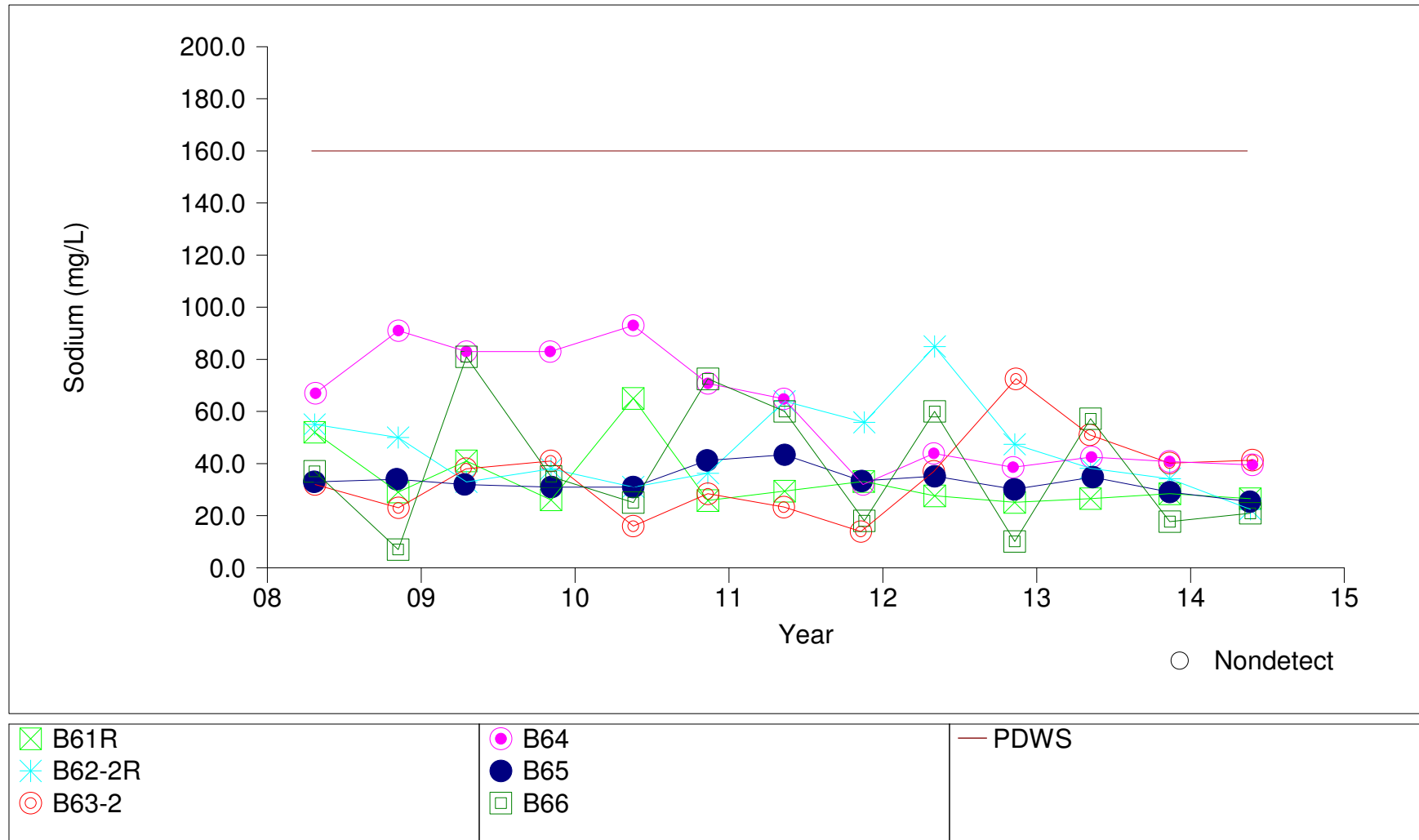
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 1-2



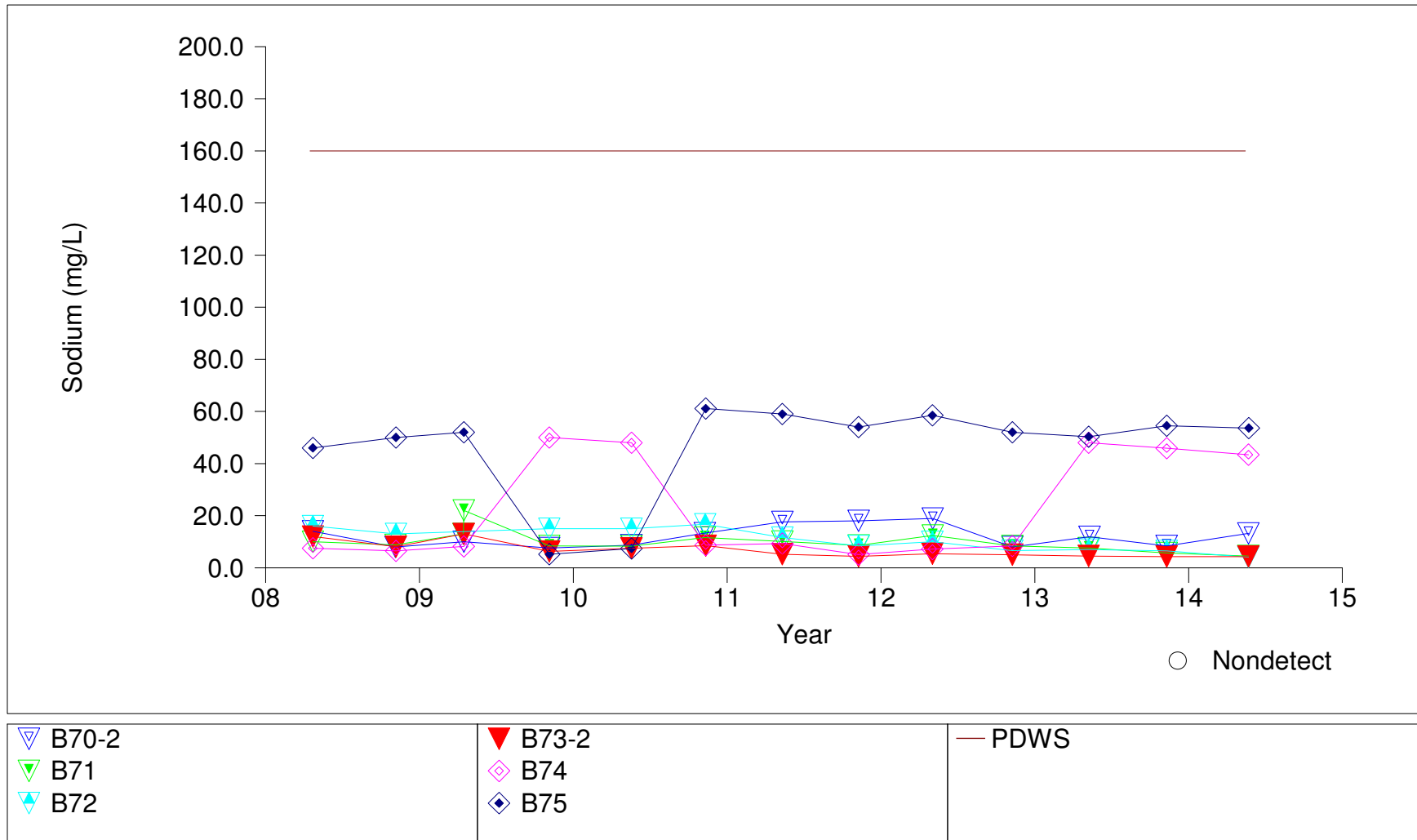
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 1-2



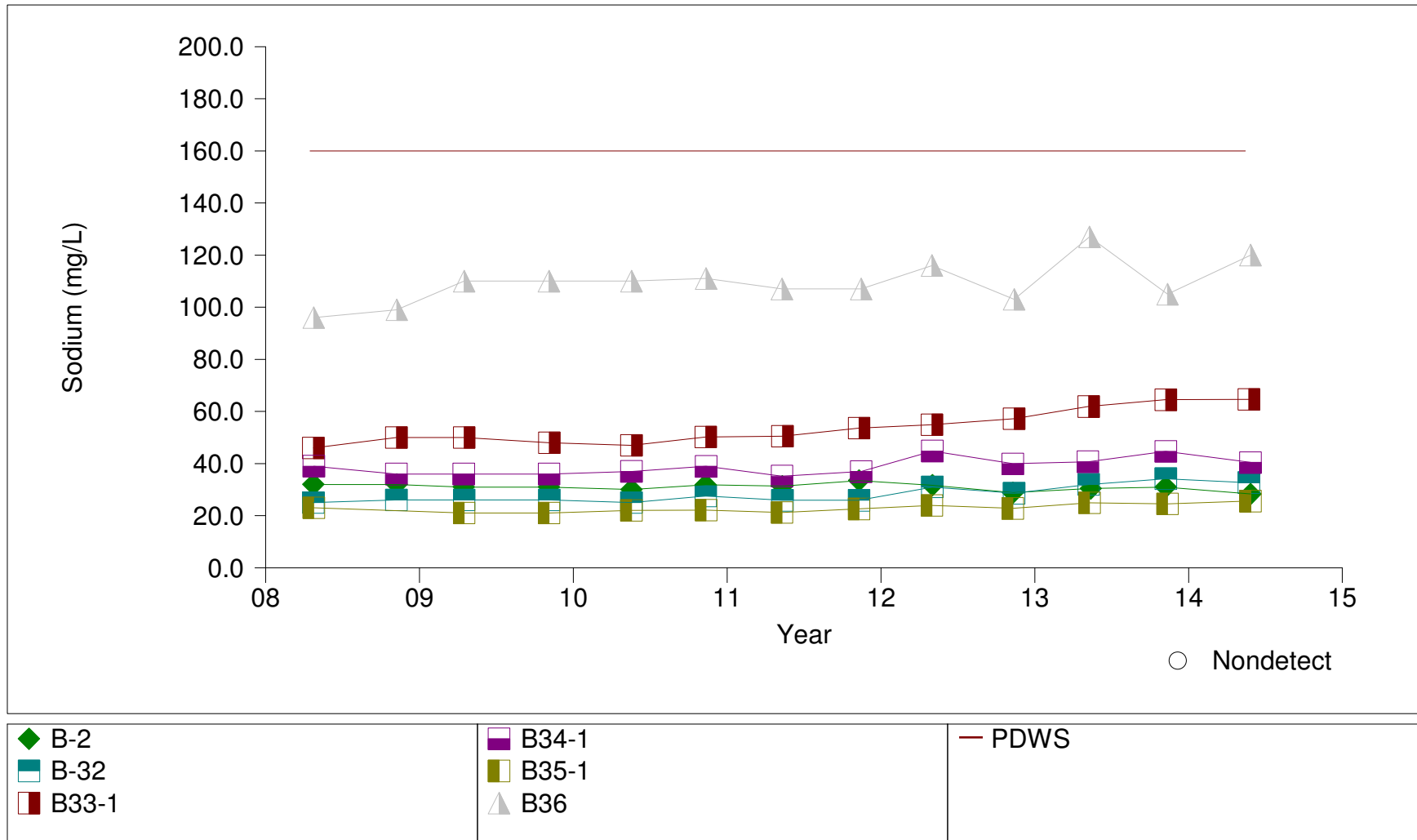
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 1-2



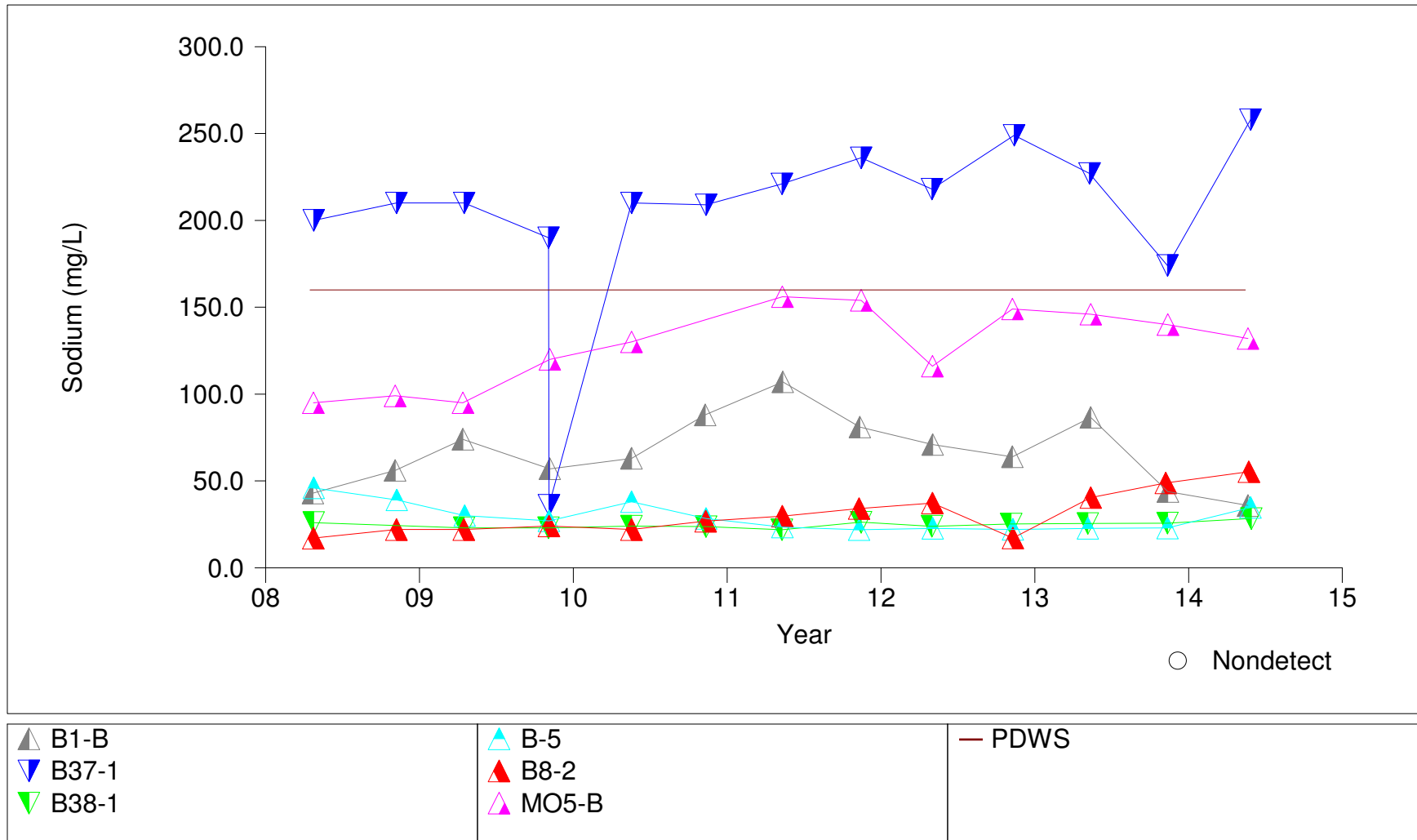
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 4 Background Wells



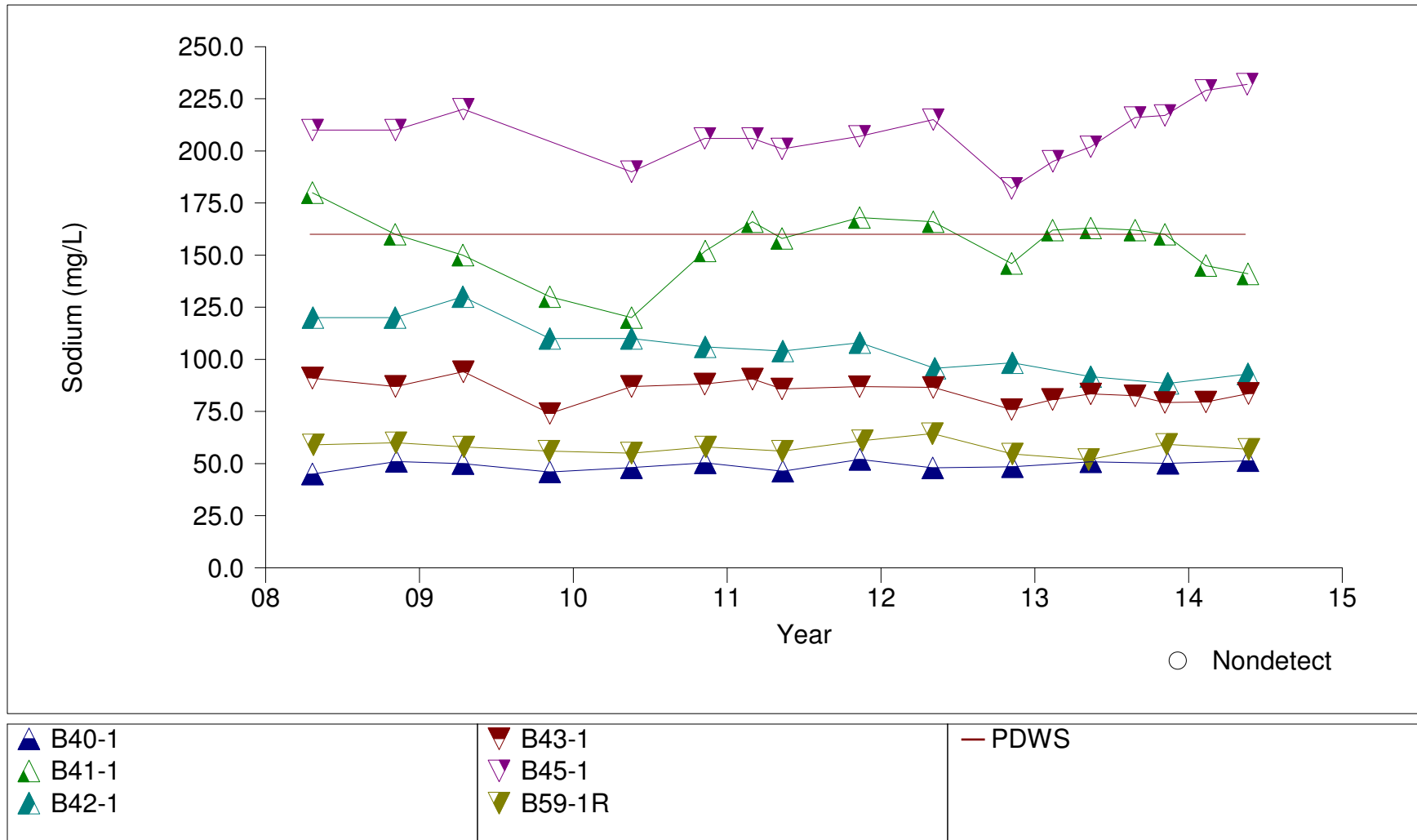
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 4



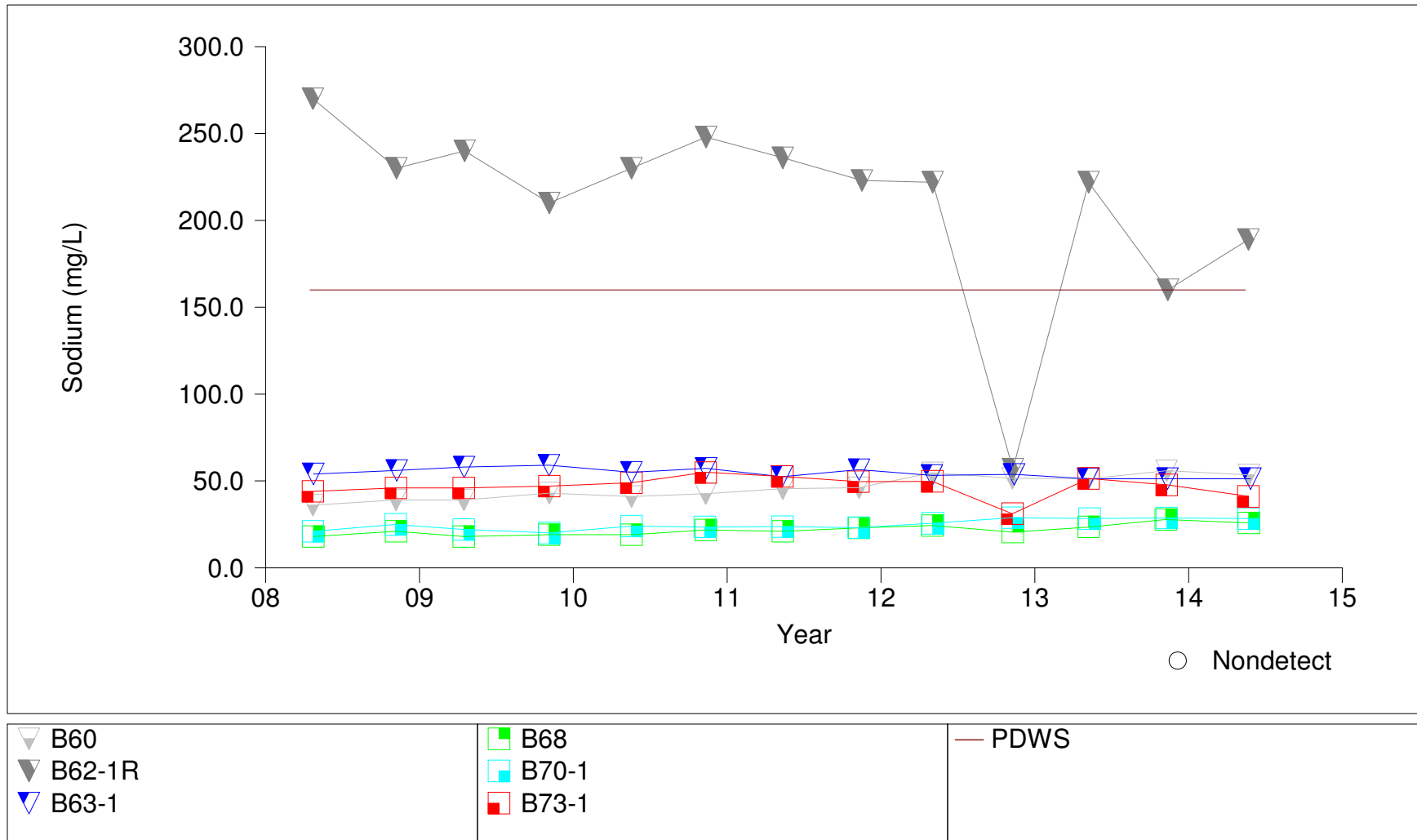
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 4



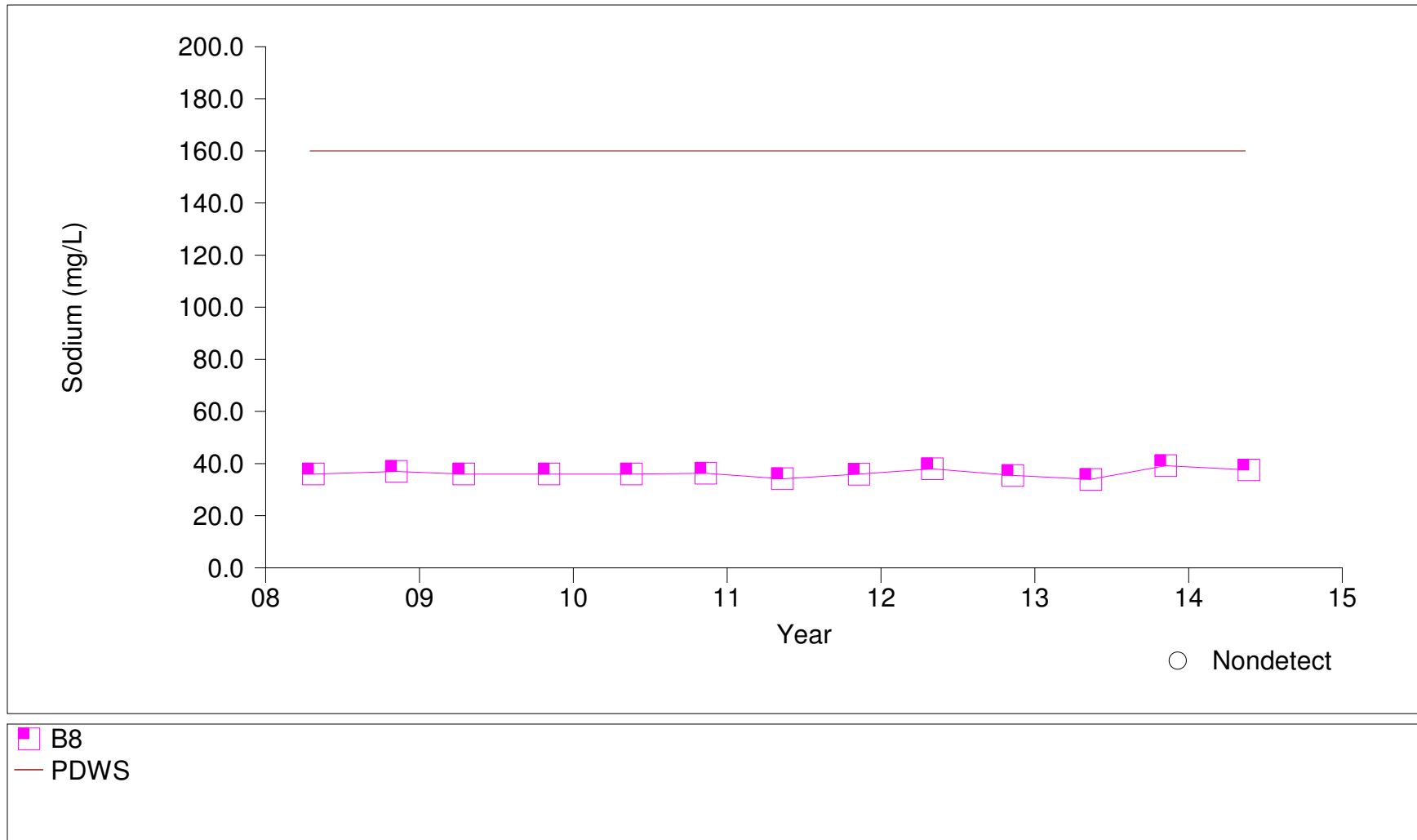
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 4



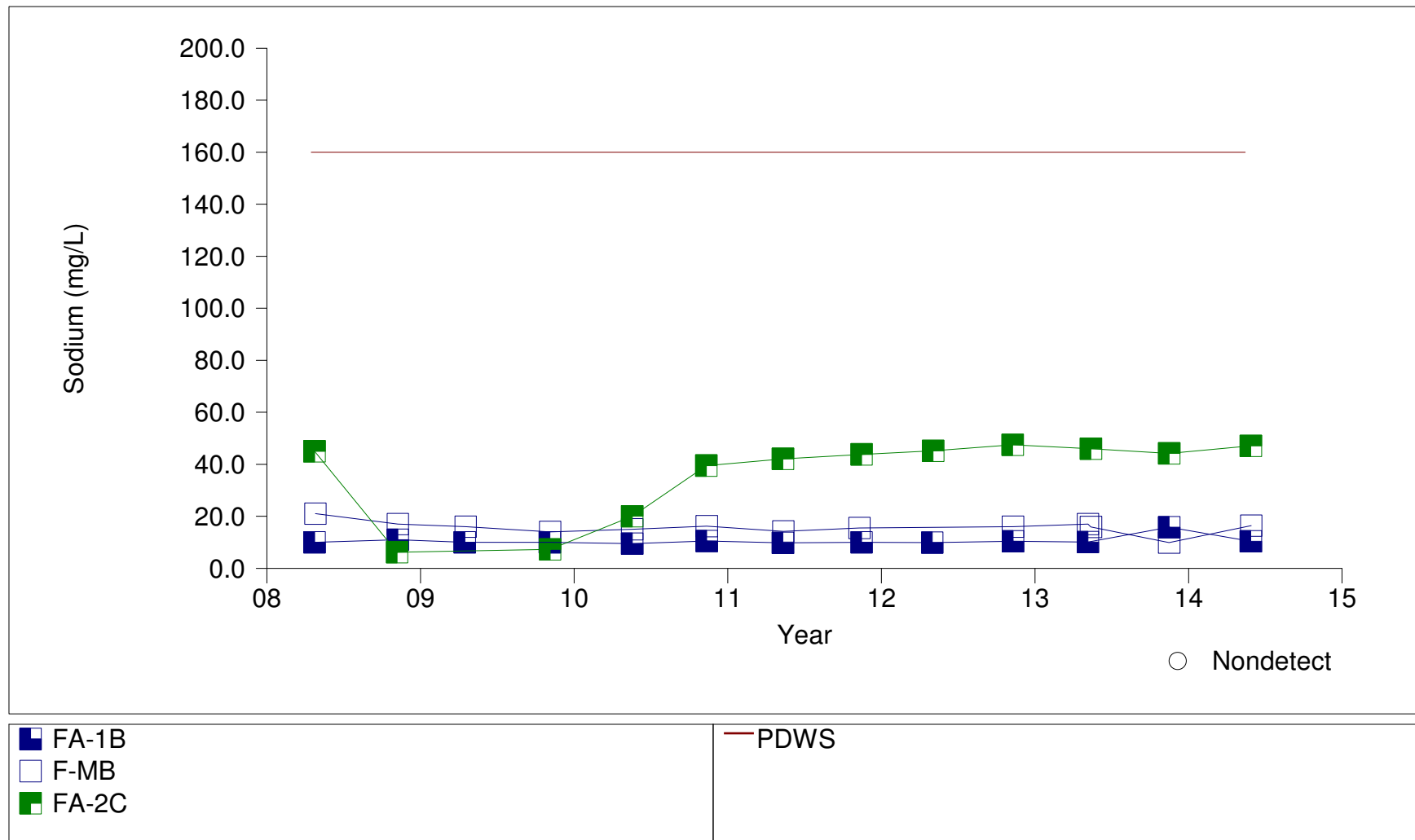
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sodium, Zone 6



TOMOKA FARMS ROAD LANDFILL

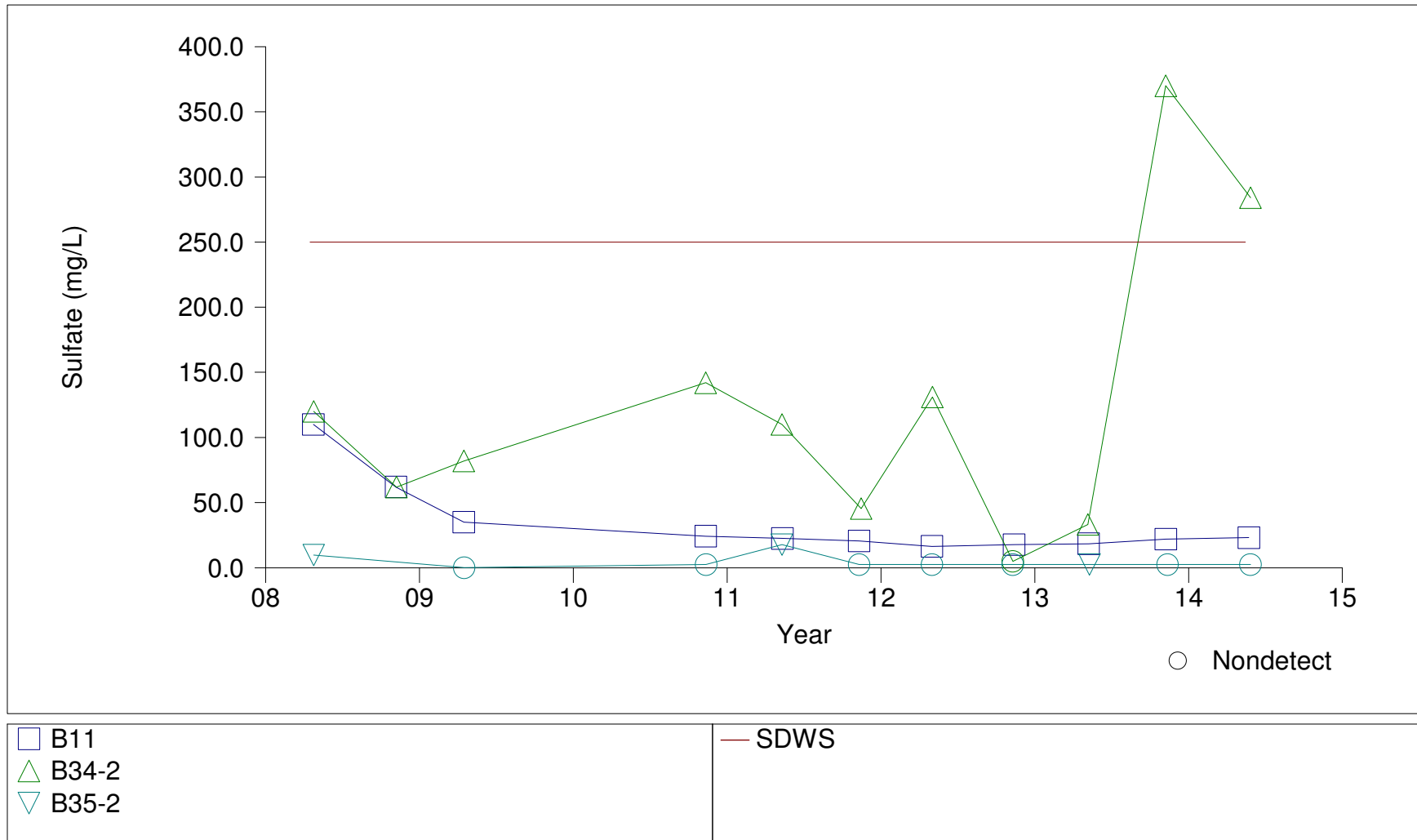
Time Series Plot for Sodium, Floridan Aquifer



Prepared by: HDR Engineering, Inc.

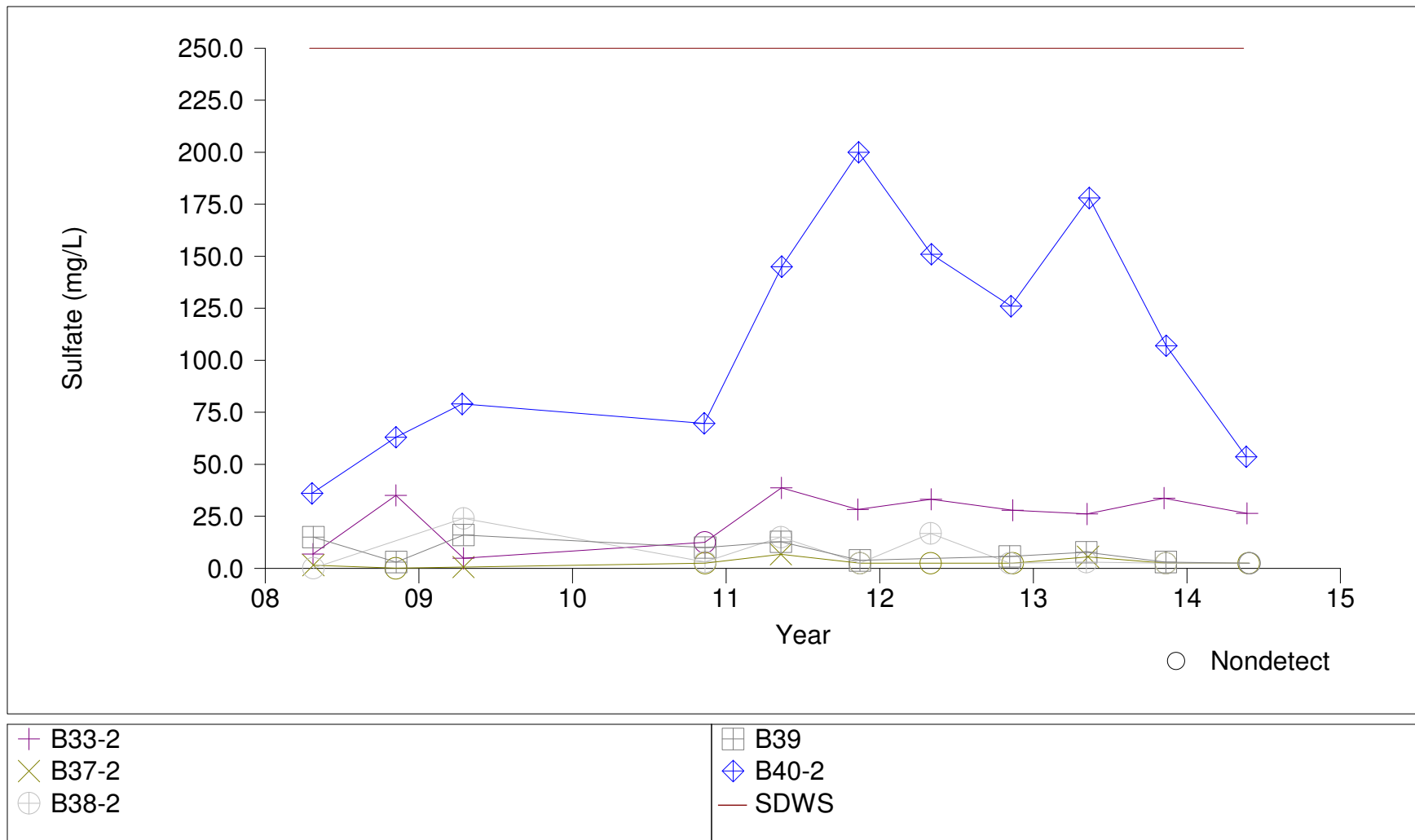
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Zone 1-2 Background Wells



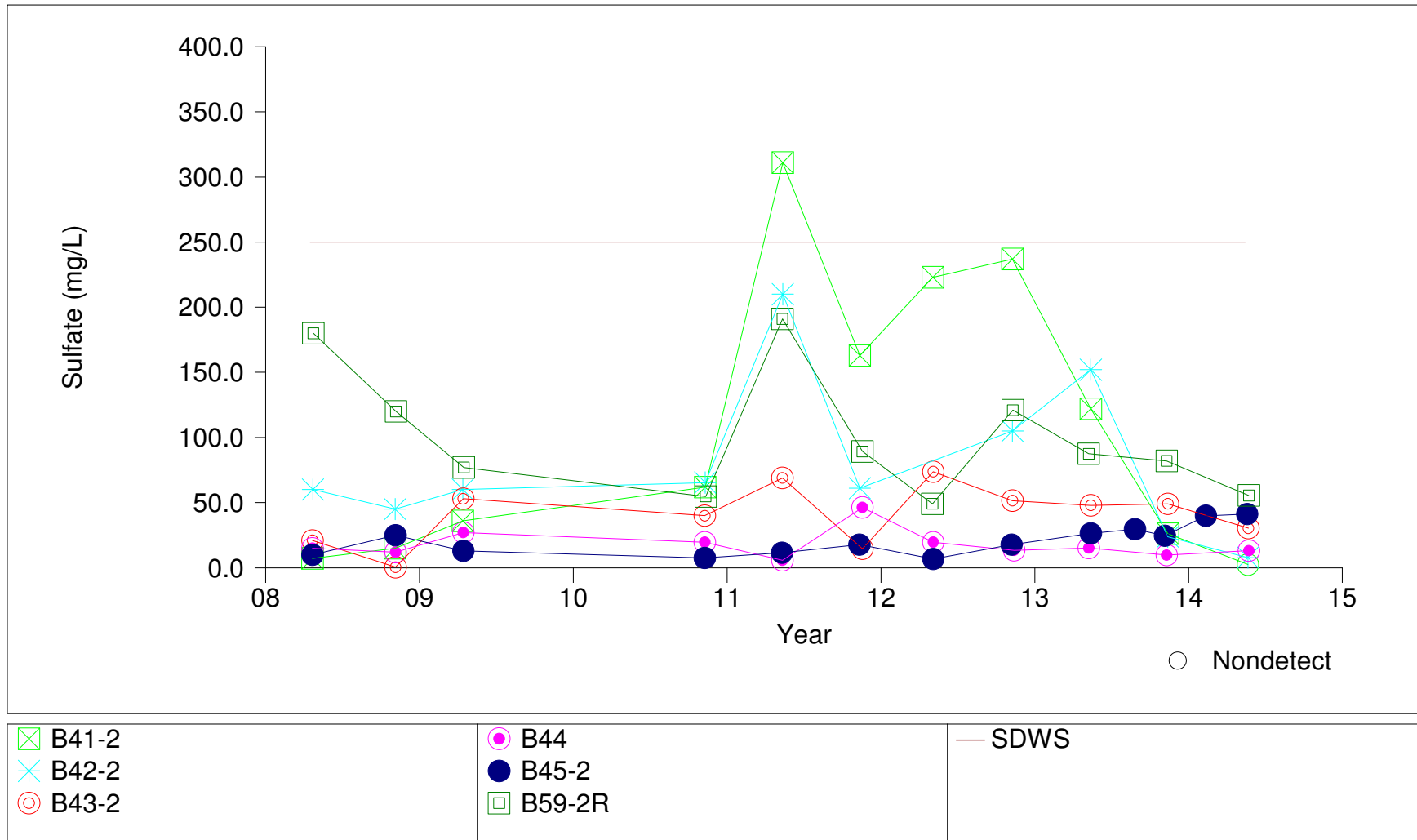
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Zone 1-2



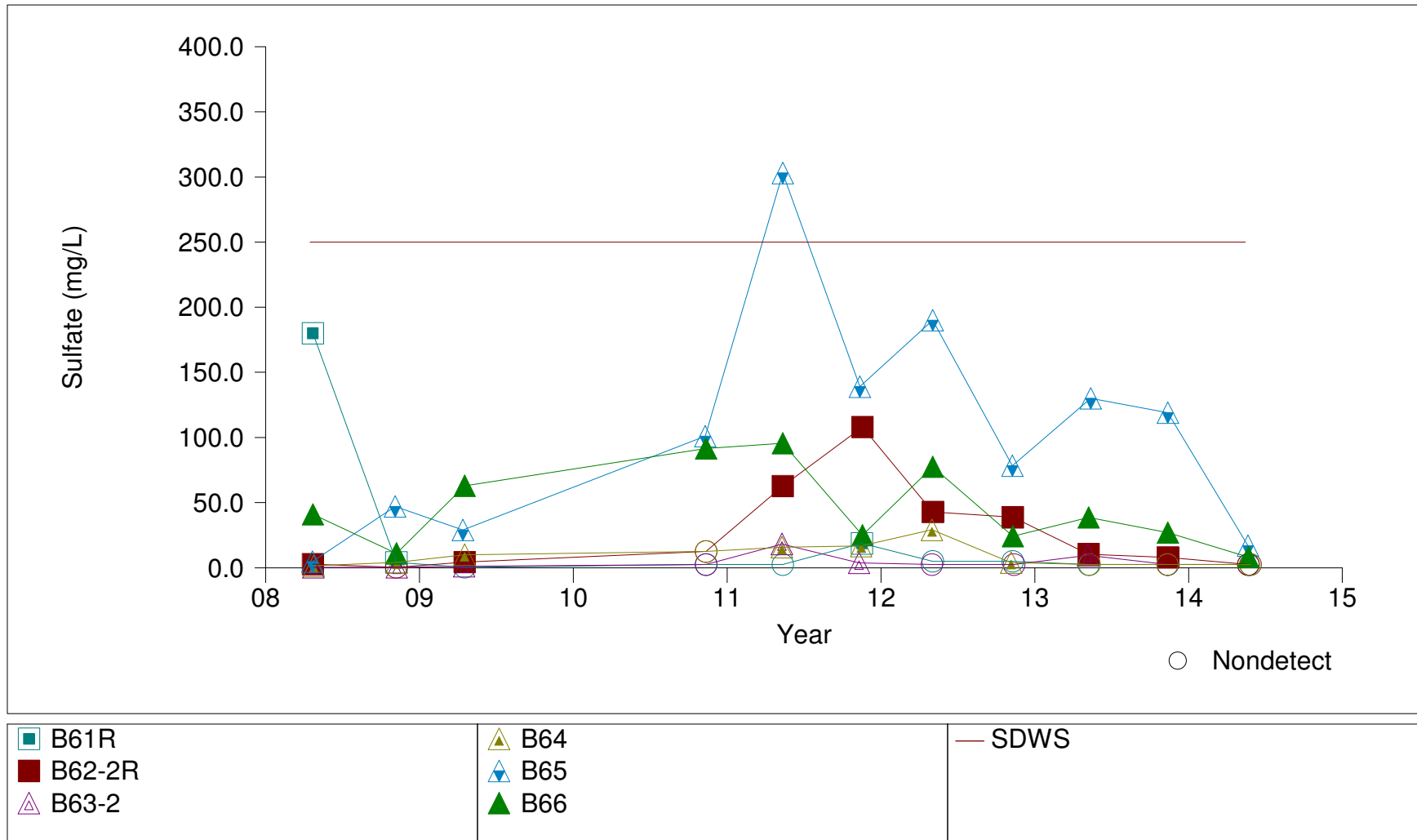
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Zone 1-2



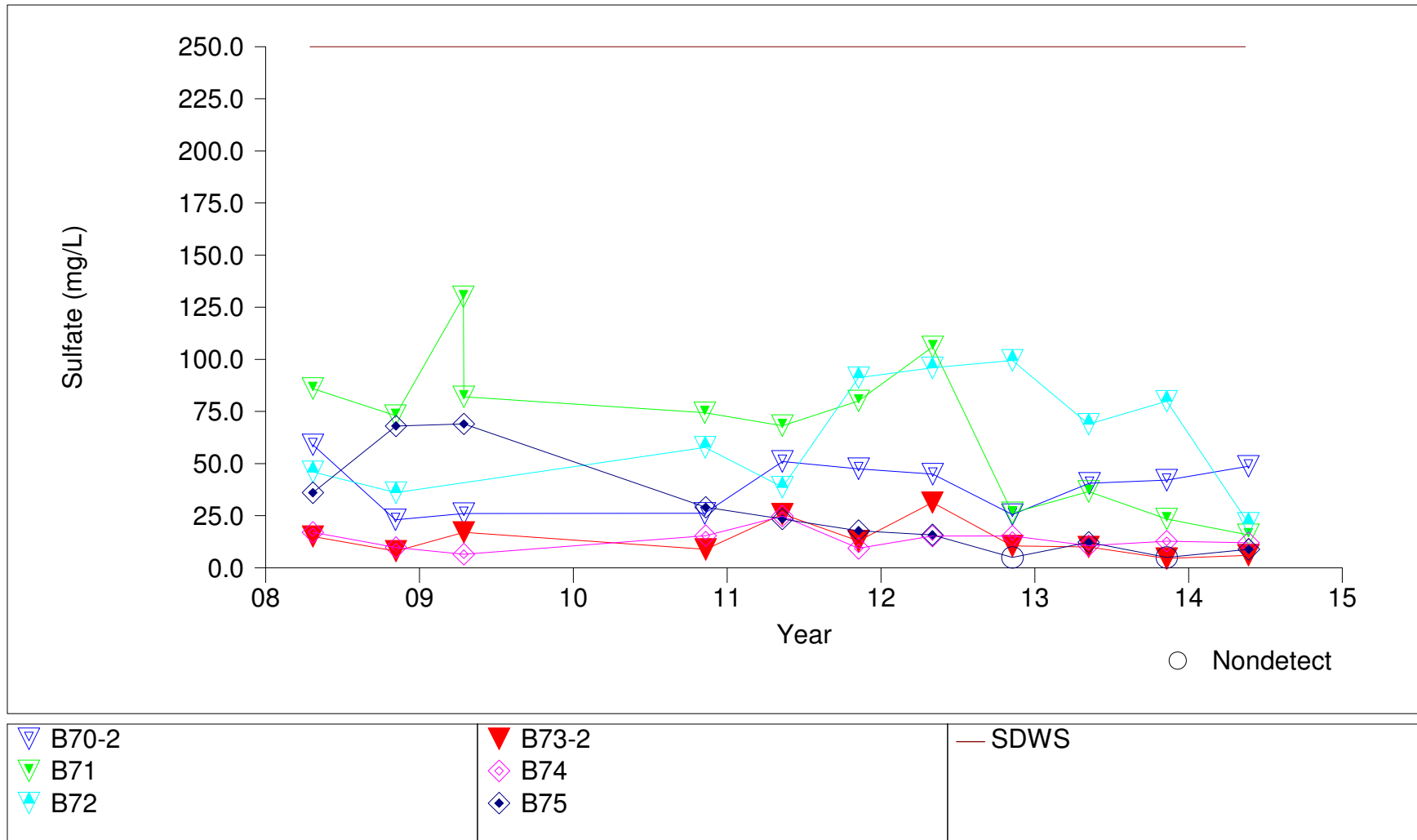
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Zone 1-2



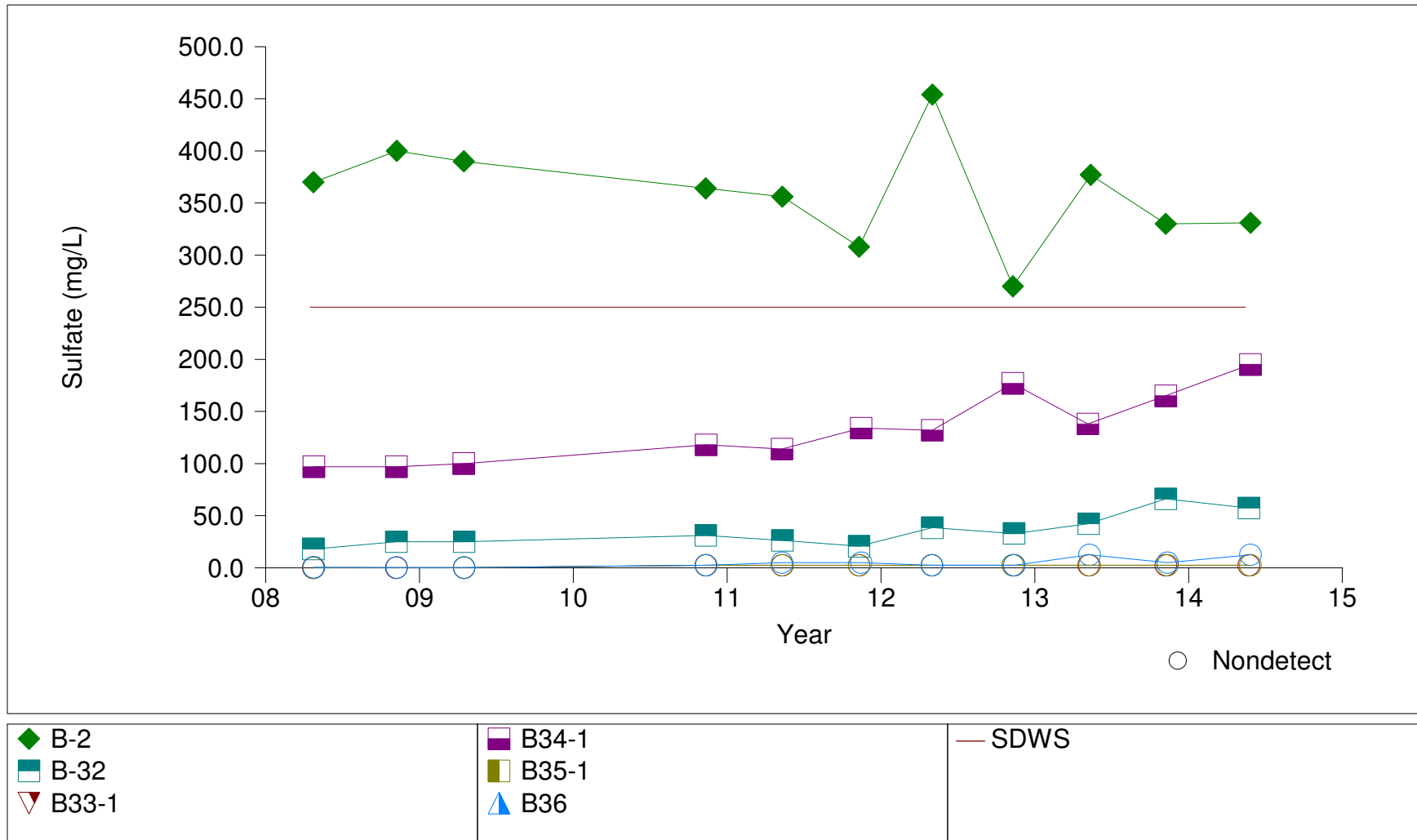
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Time Series Plot for Sulfate, Zone 1-2



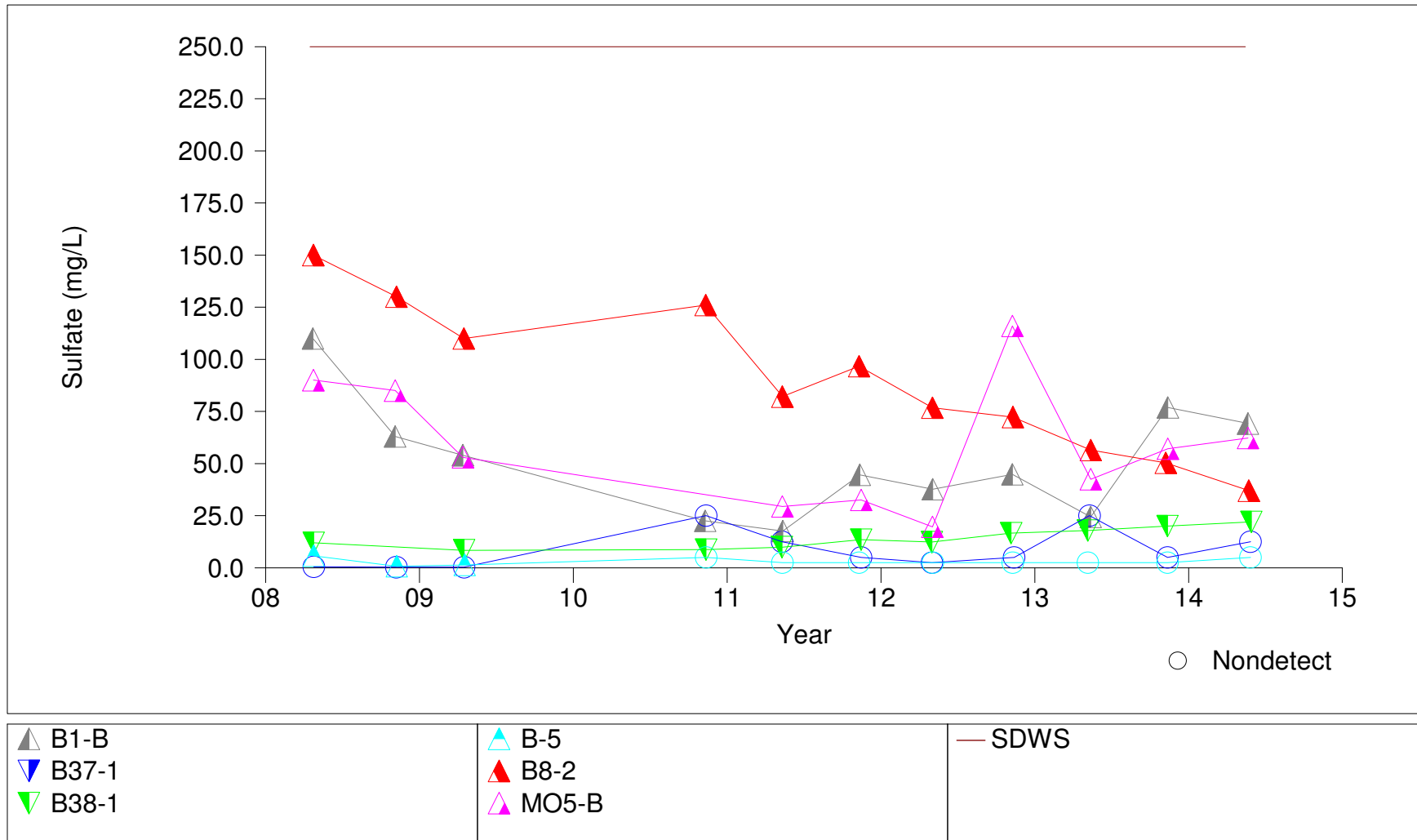
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Zone 4 Background Wells



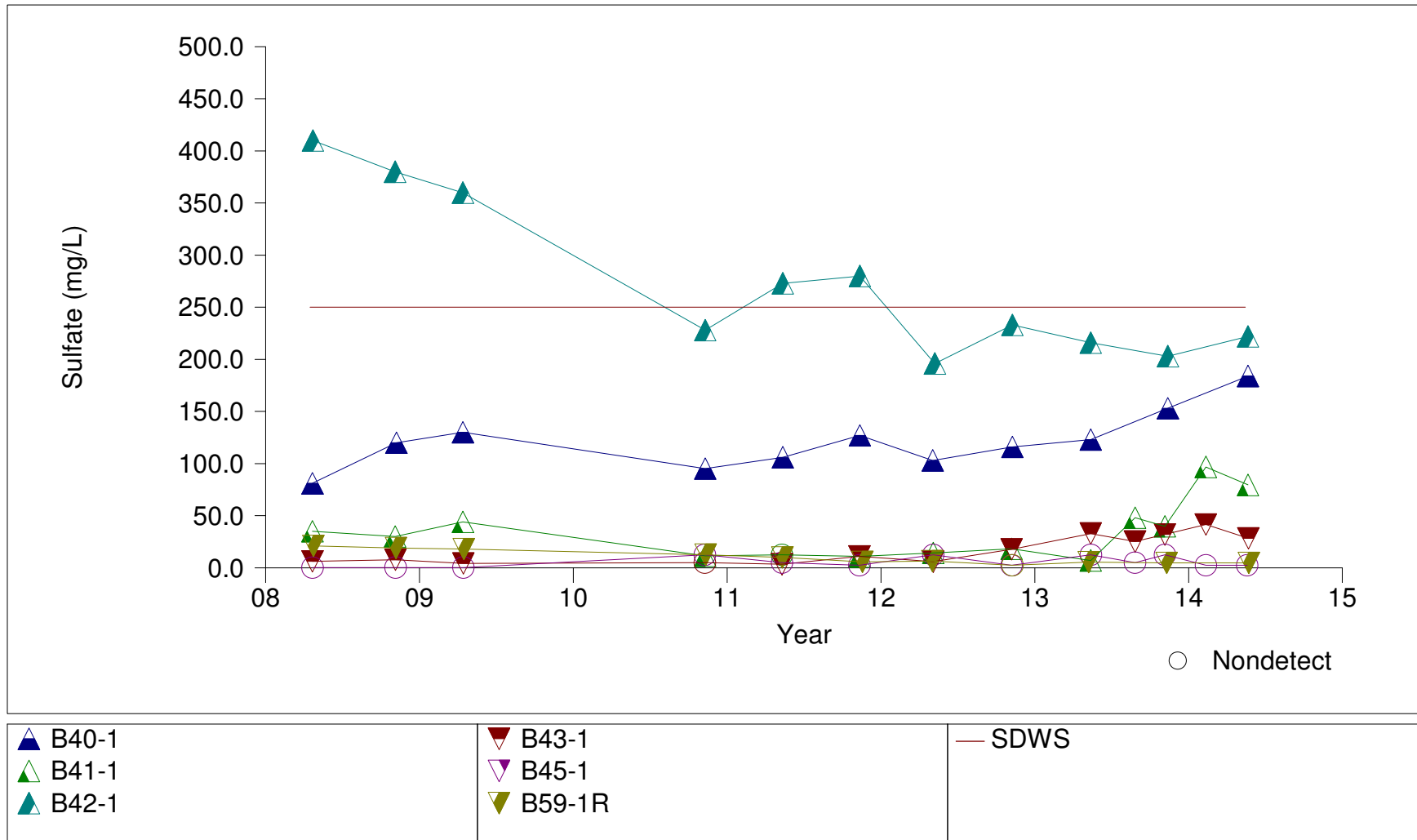
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Zone 4



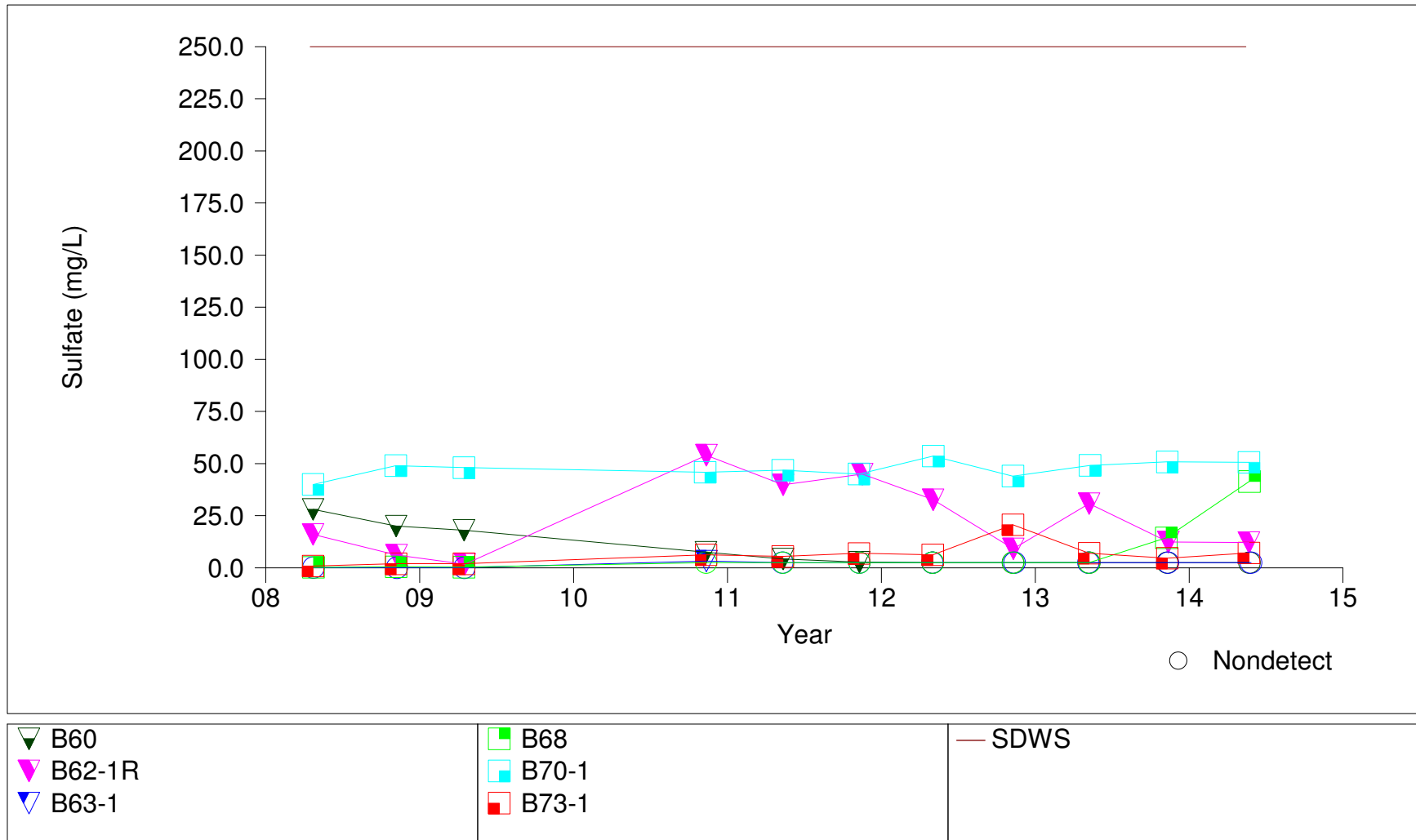
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Time Series Plot for Sulfate, Zone 4



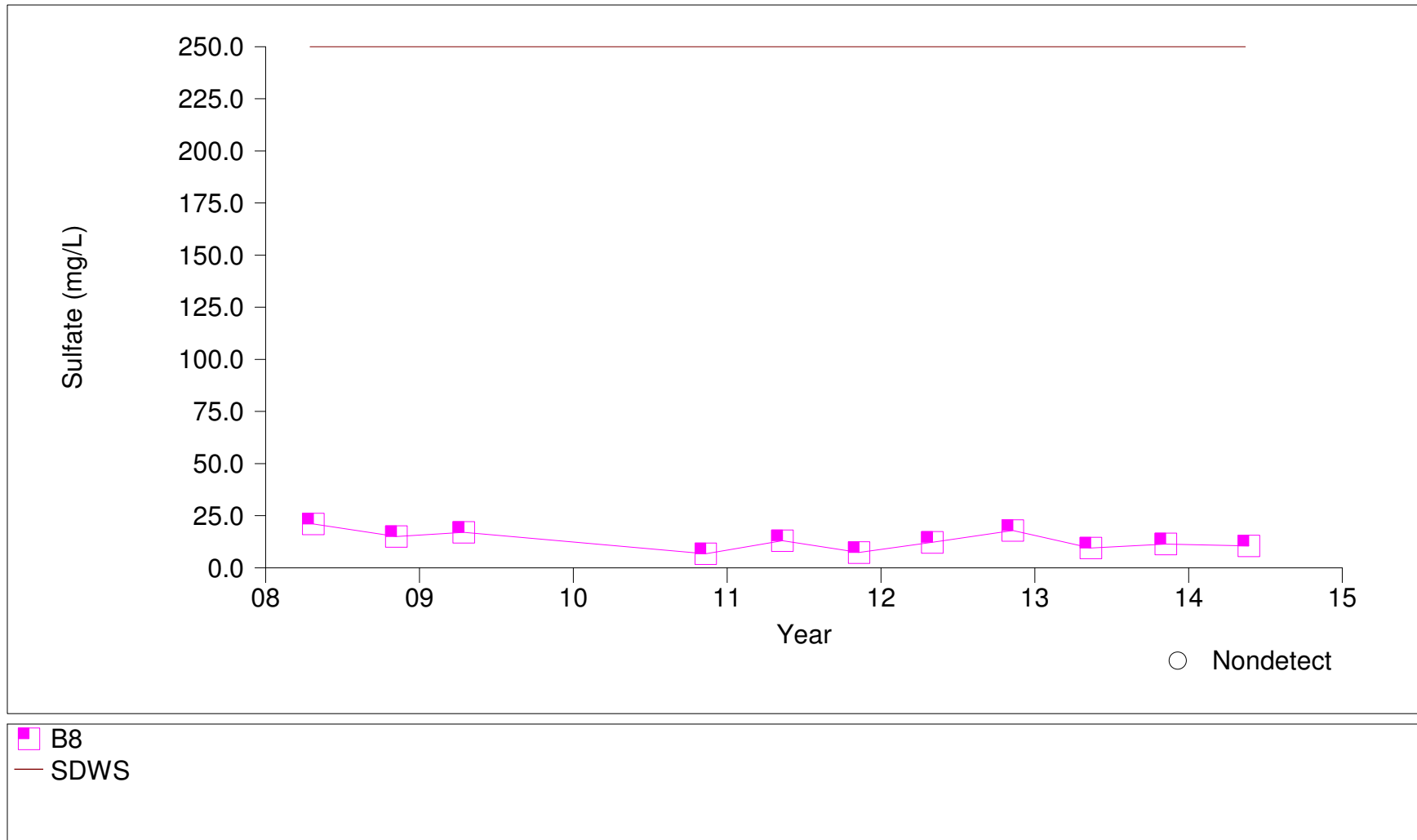
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Time Series Plot for Sulfate, Zone 4



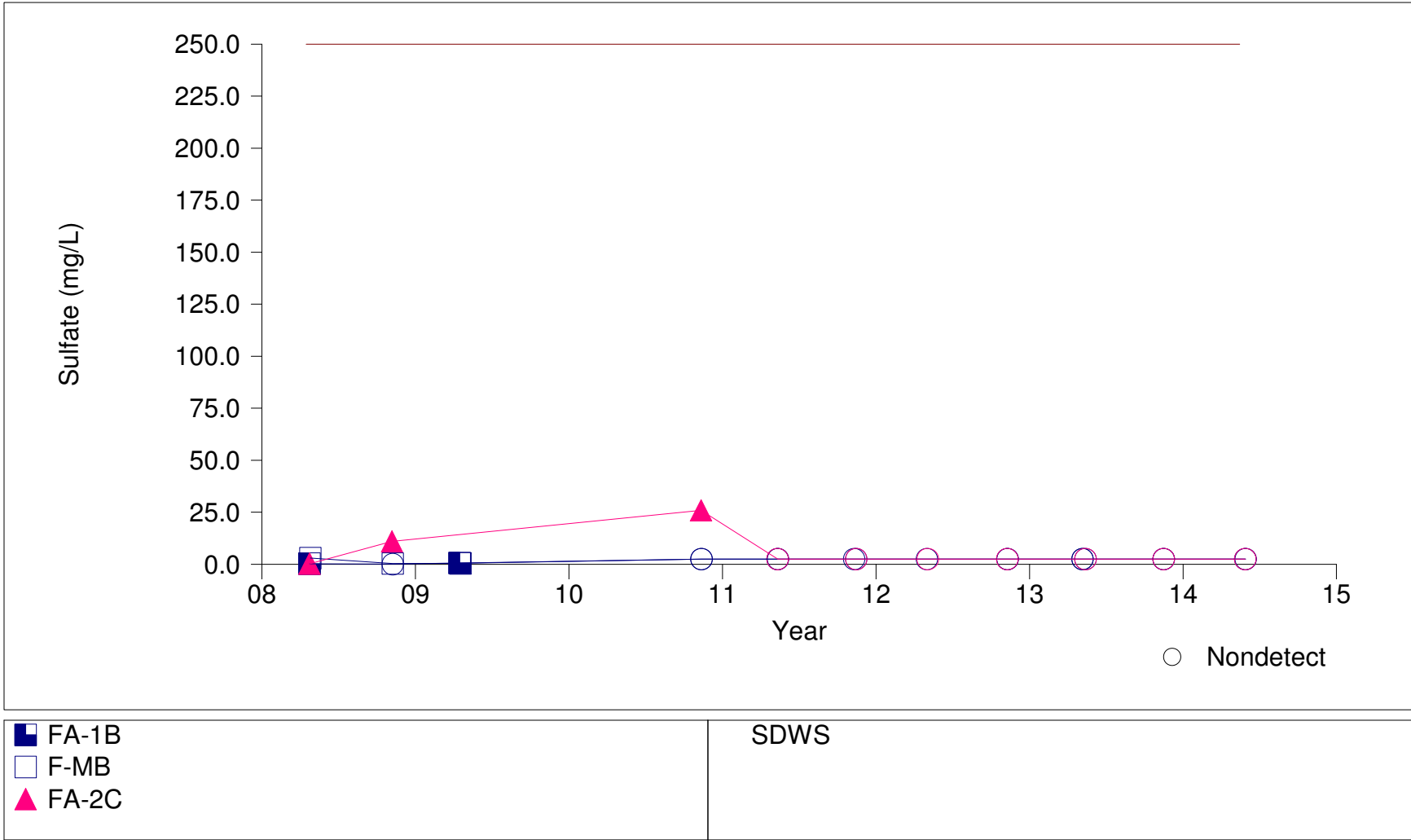
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Zone 6



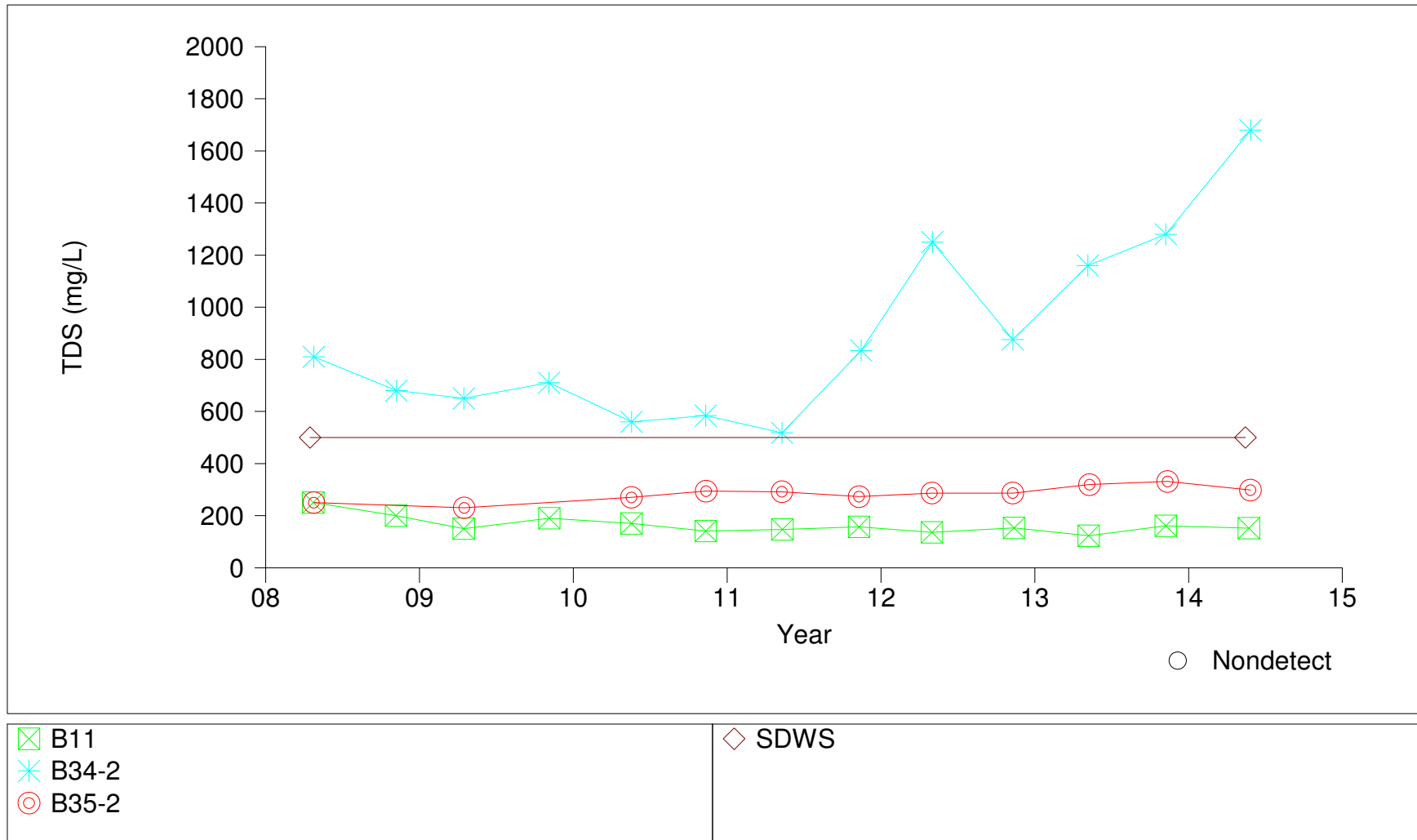
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Sulfate, Floridan Aquifer



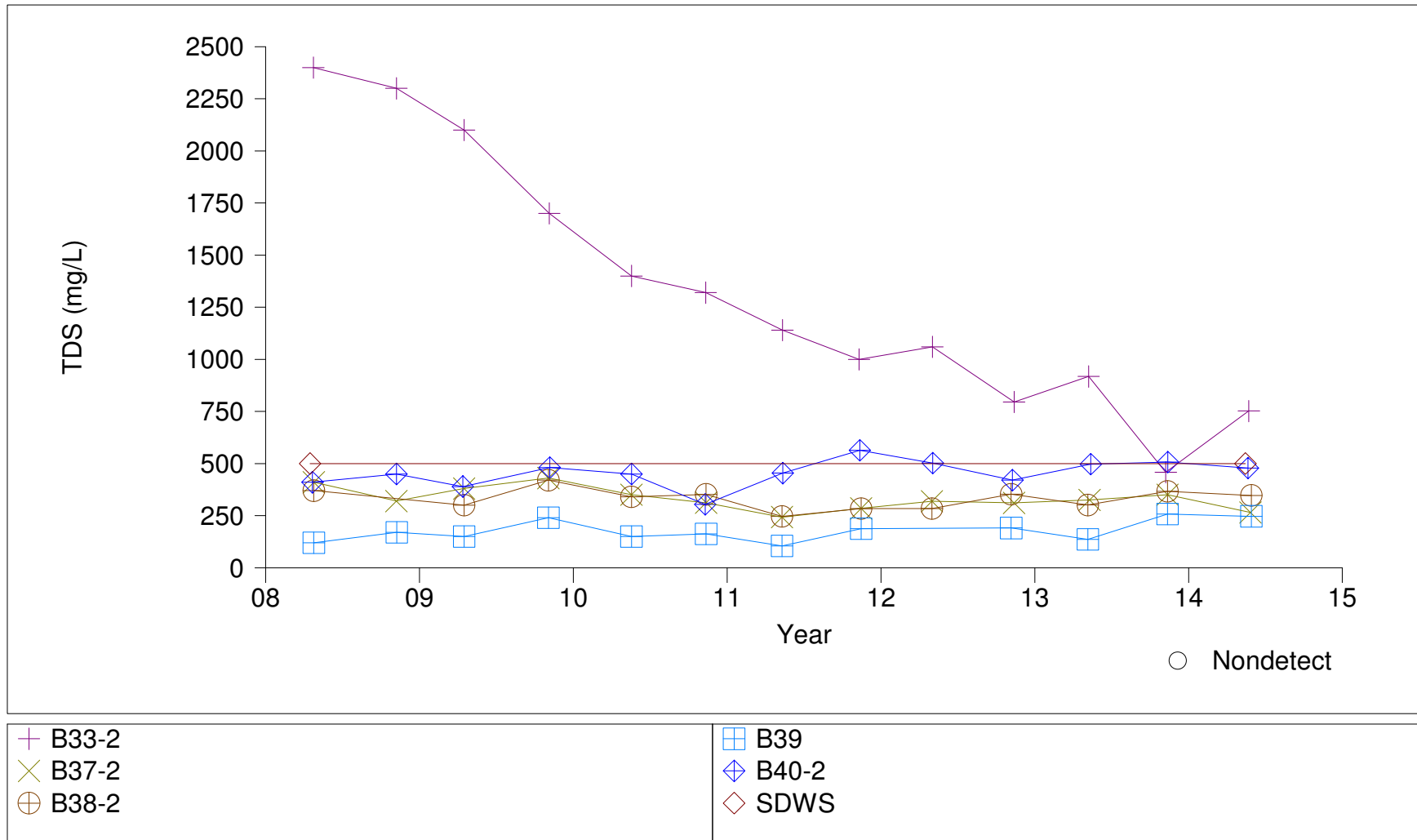
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 1-2 Background Wells



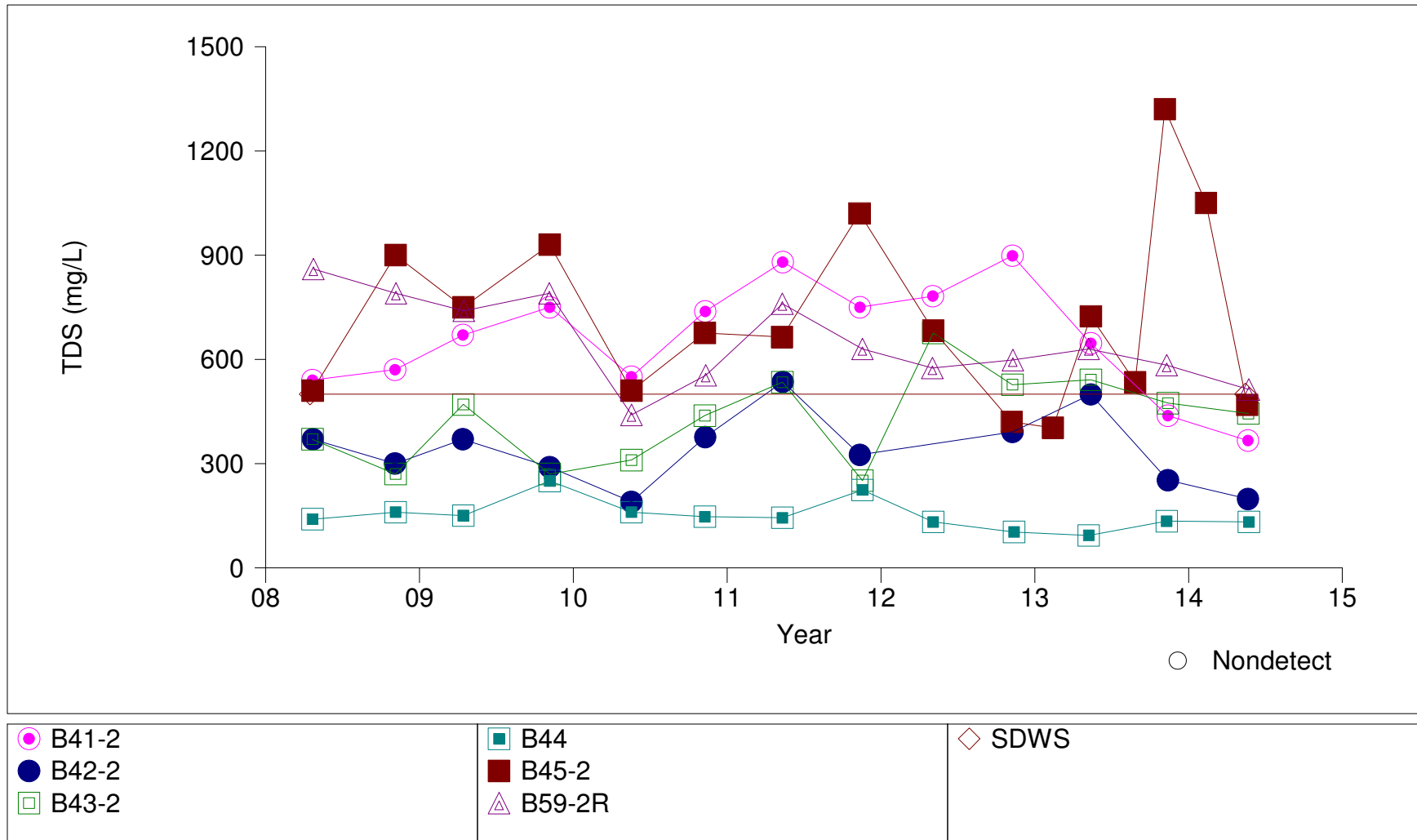
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 1-2



TOMOKA FARMS ROAD LANDFILL

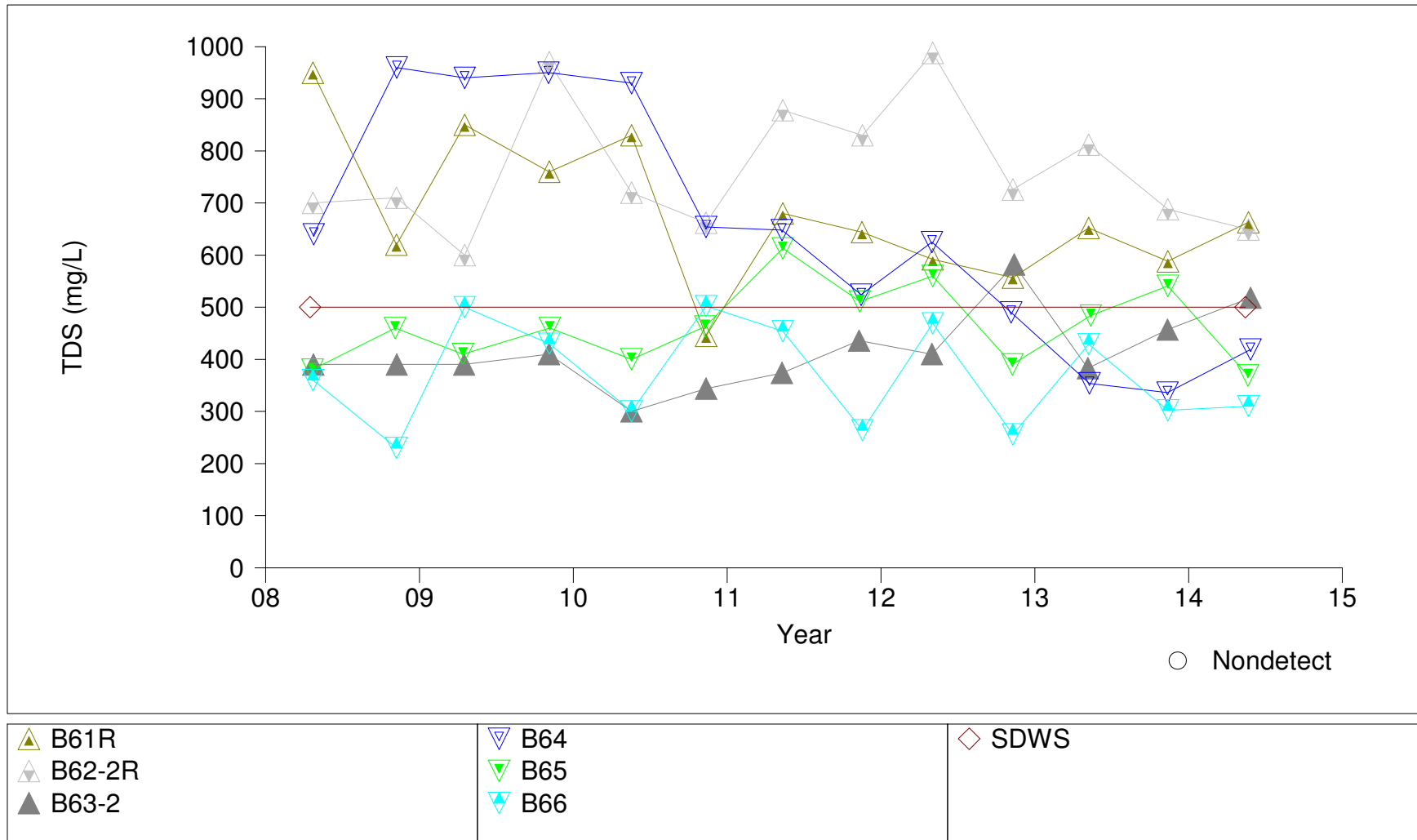
Time Series Plot for Total Dissolved Solids (TDS), Zone 1-2



Prepared by: HDR Engineering, Inc.

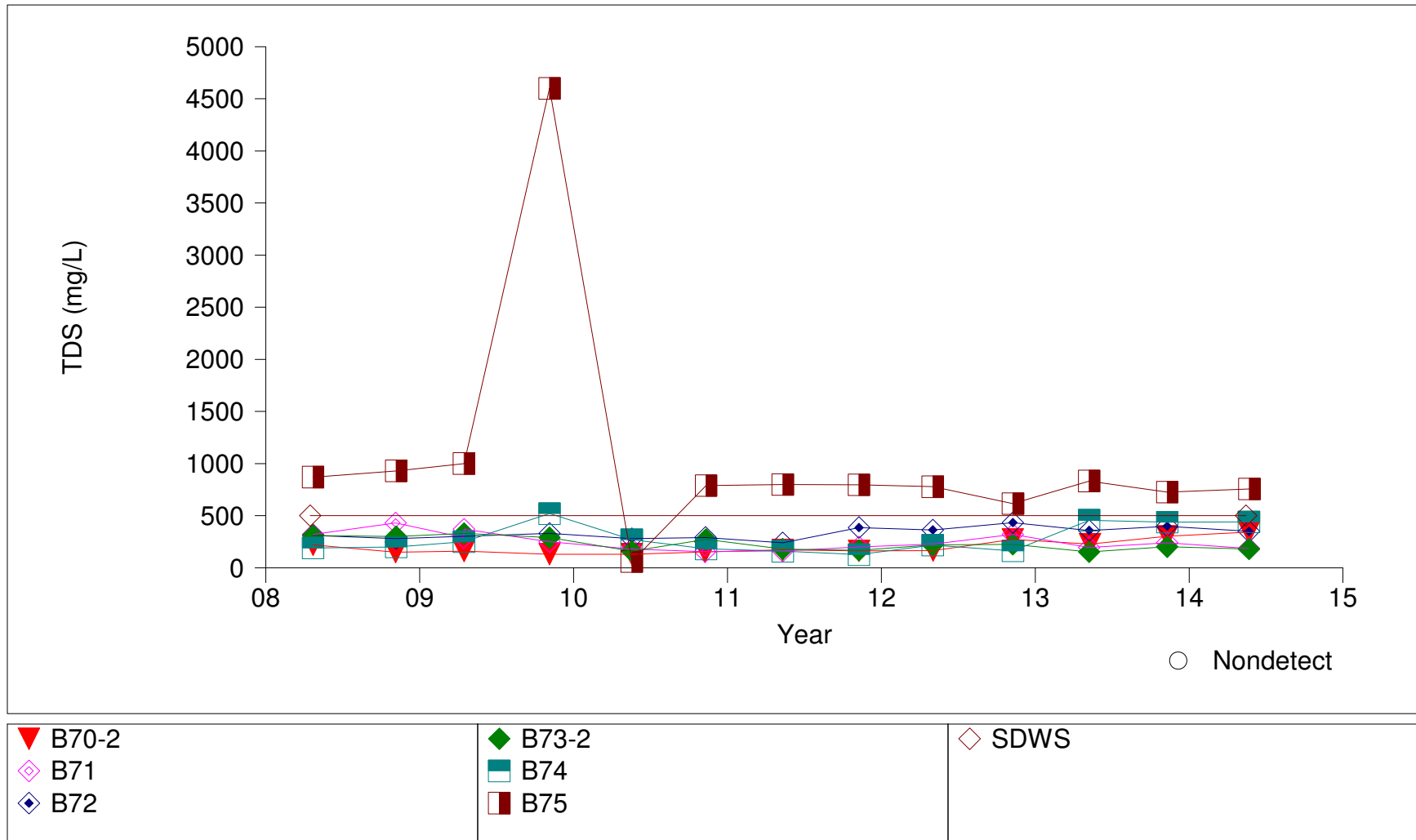
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 1-2



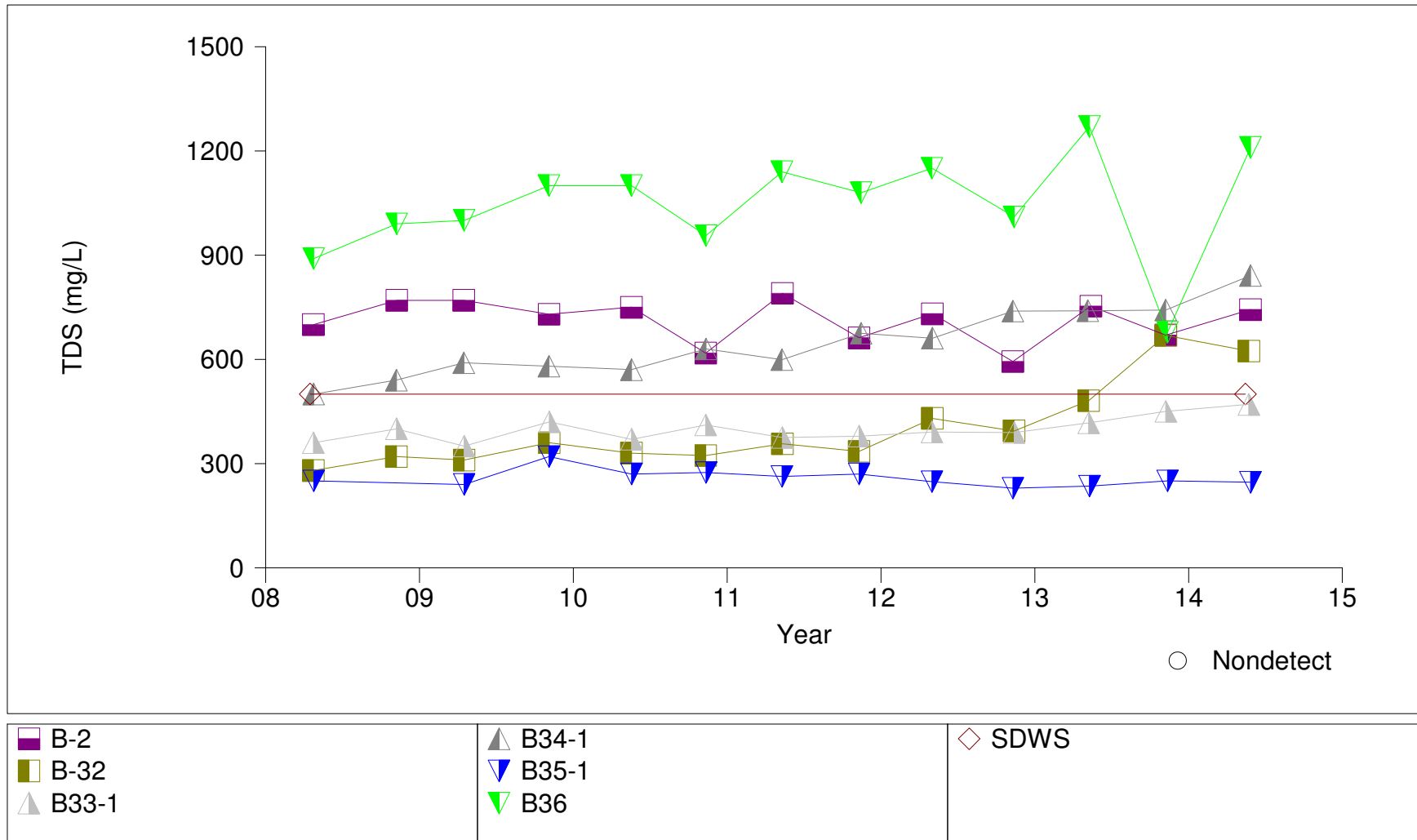
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 1-2



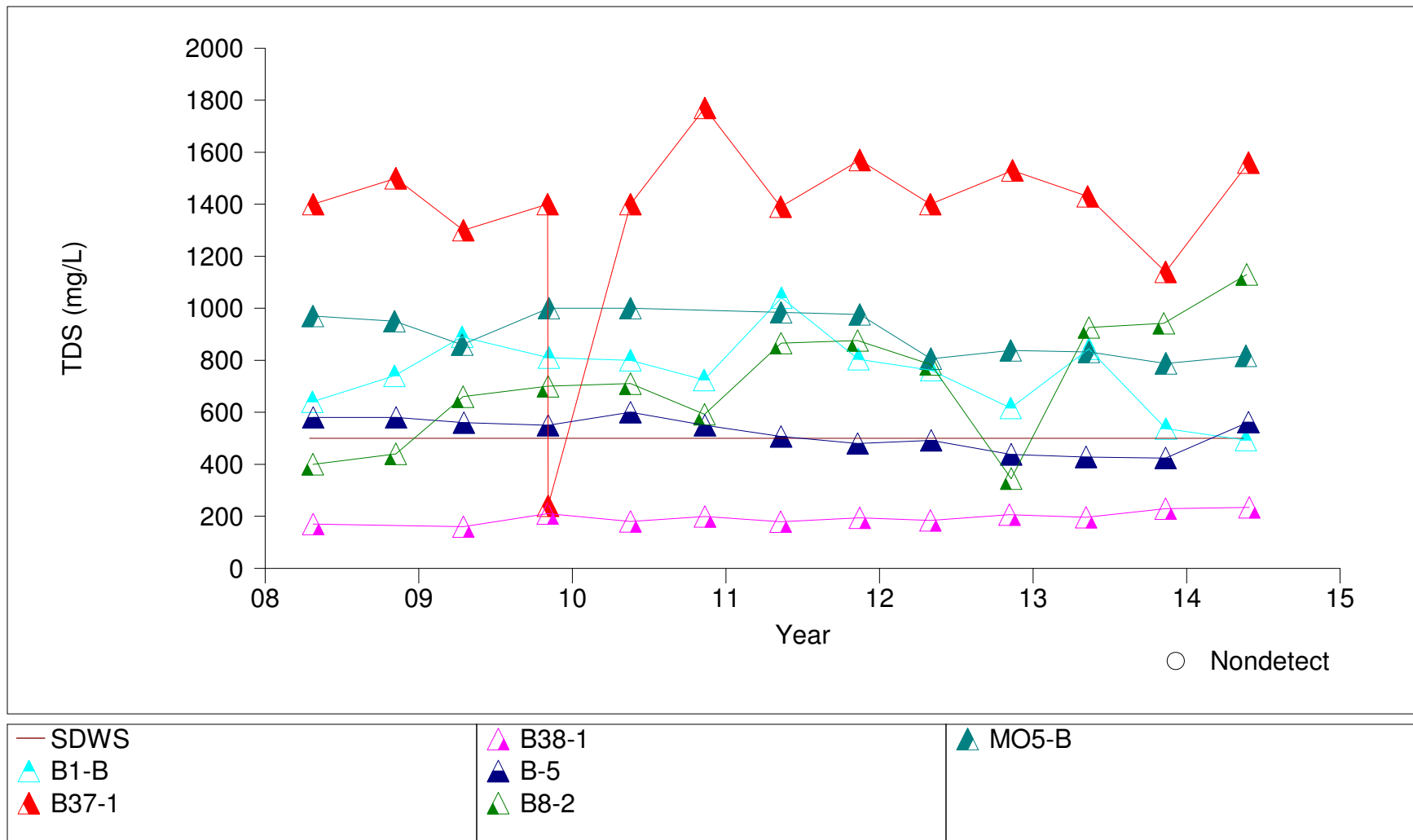
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 4 Background Wells



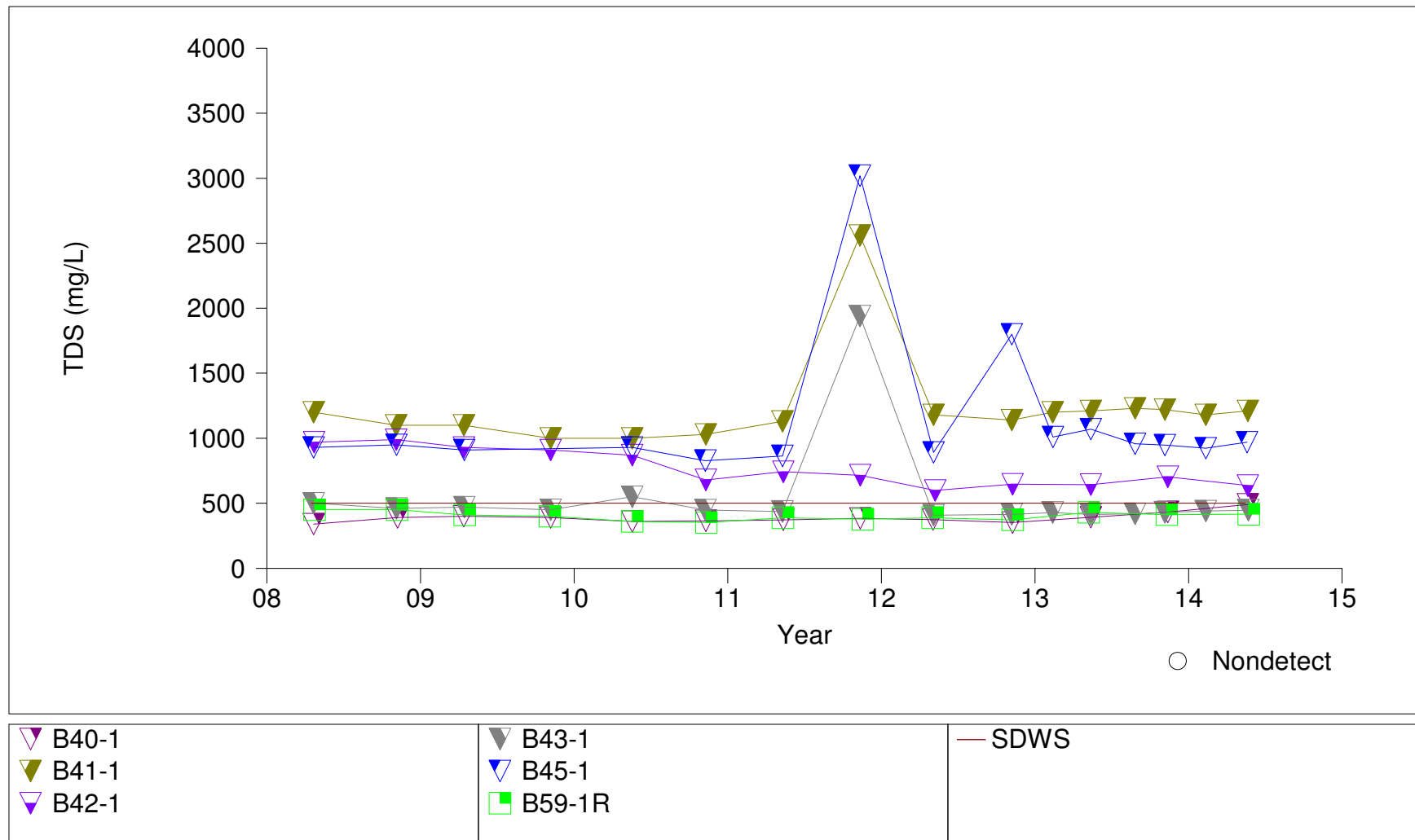
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 4



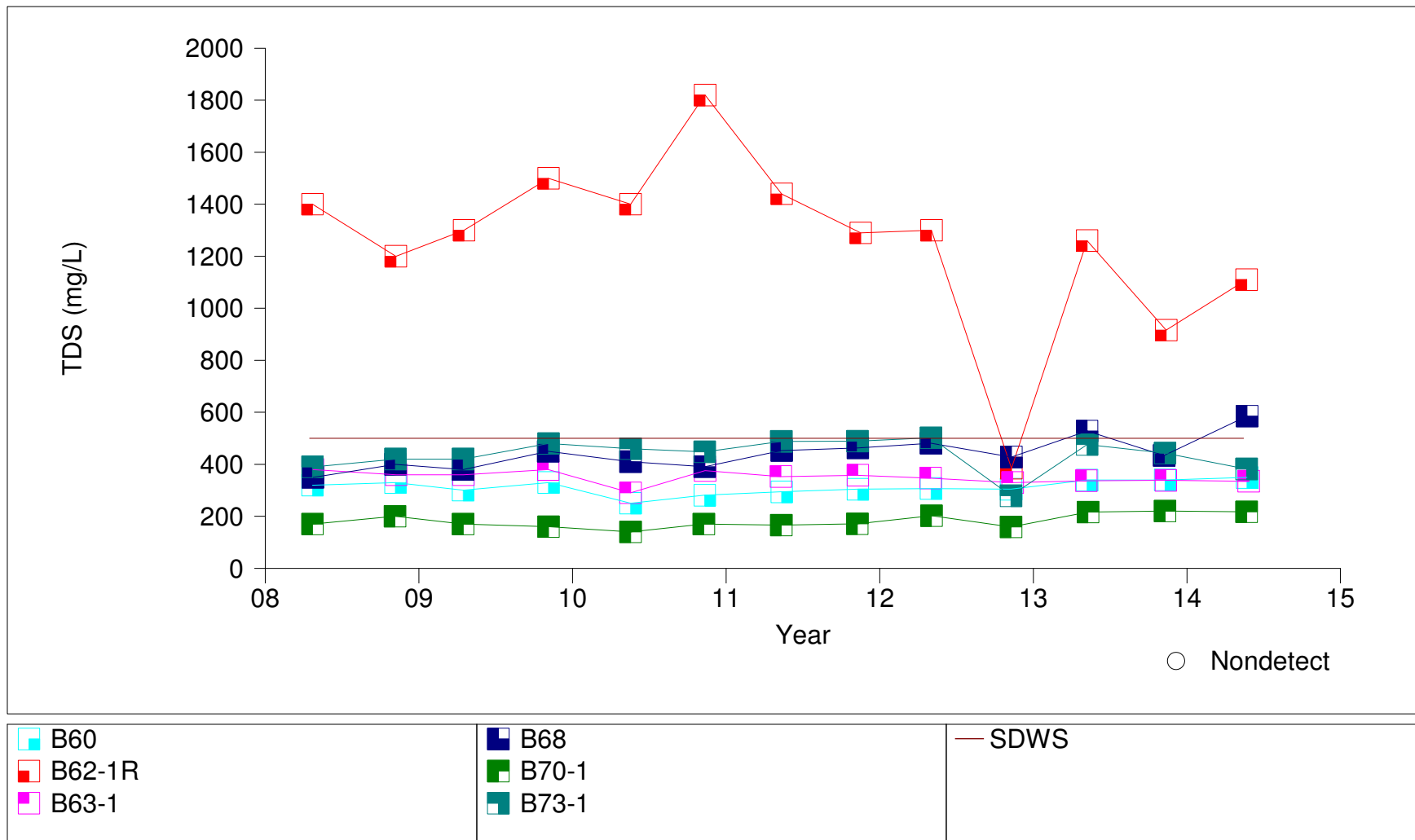
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 4



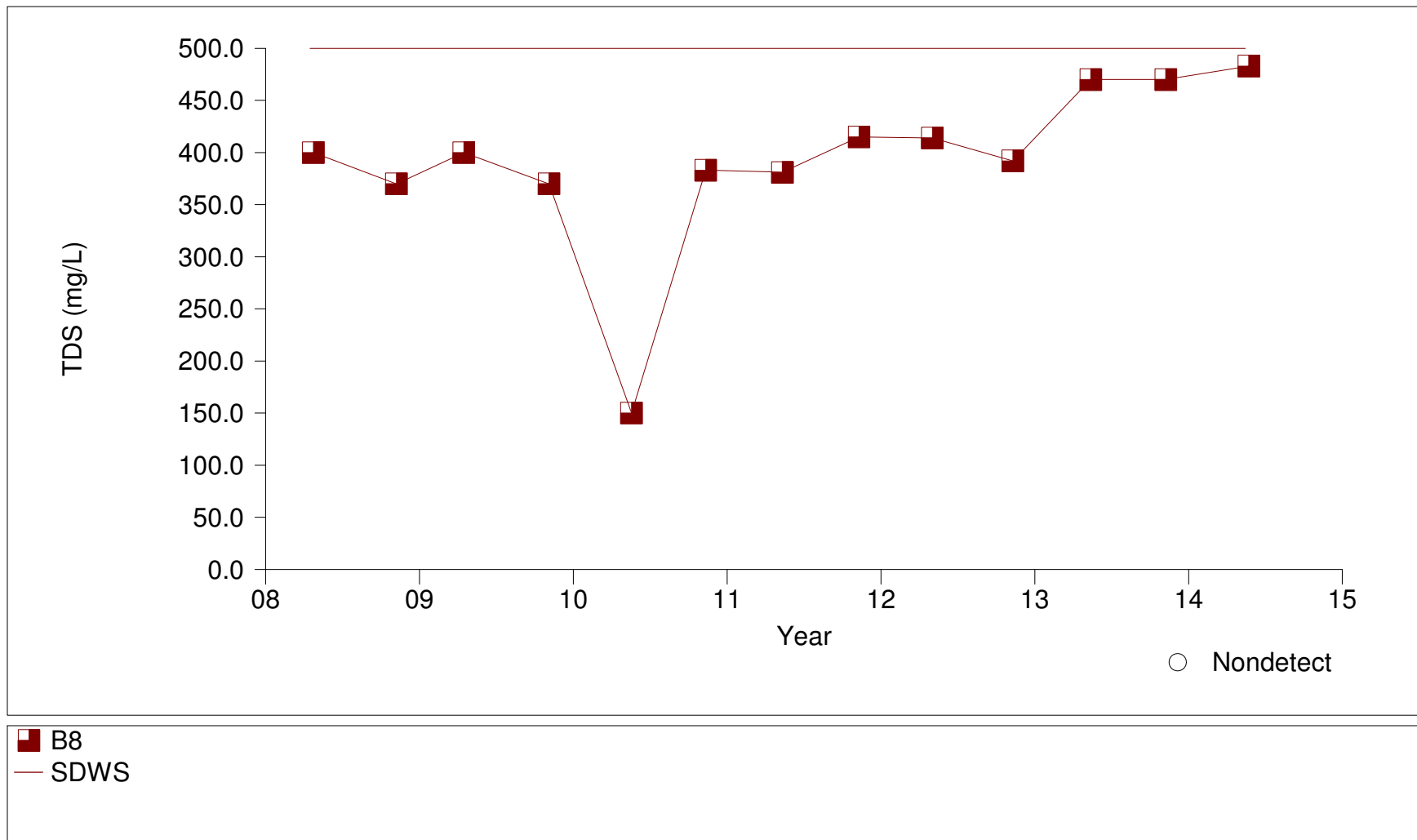
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 4



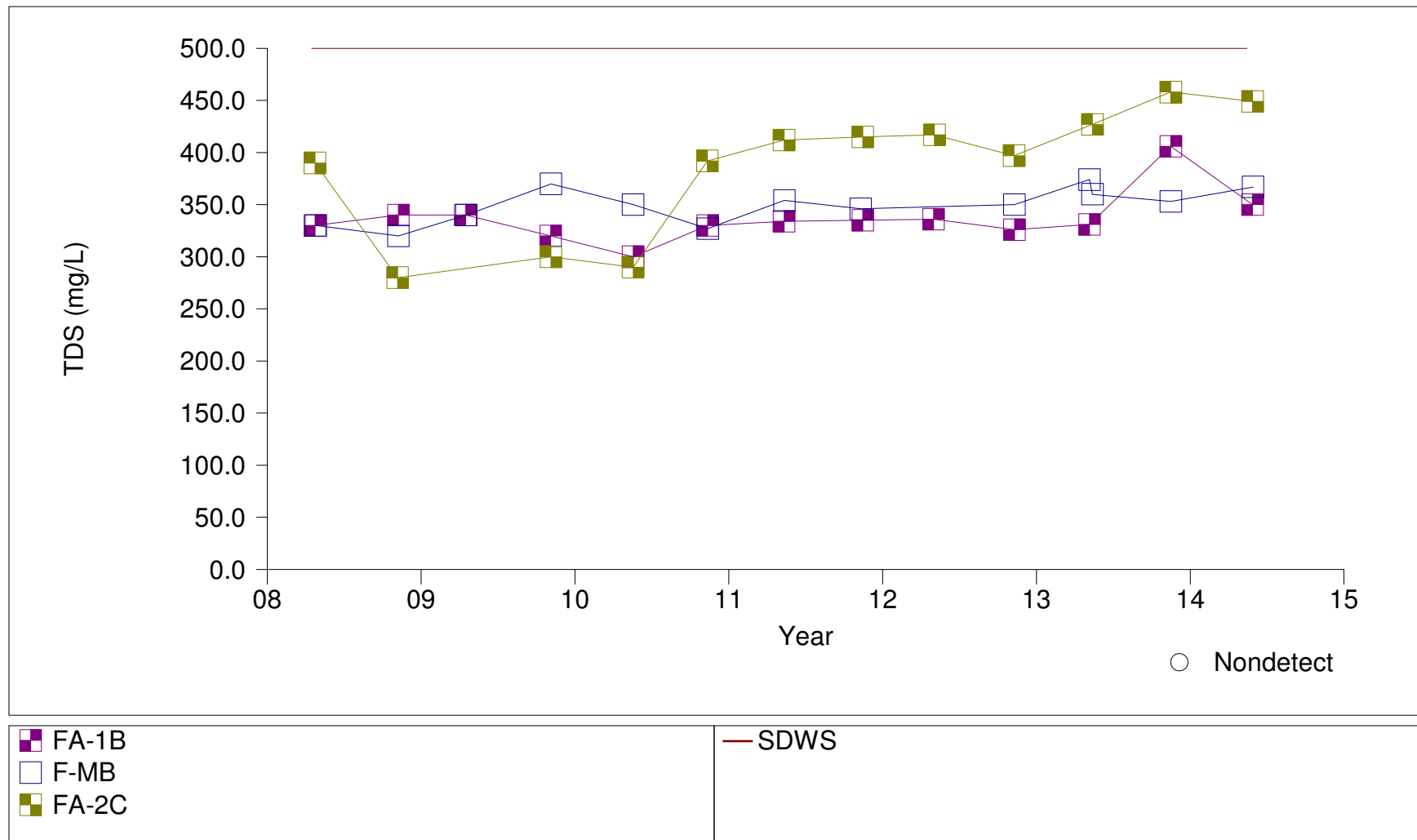
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Zone 6



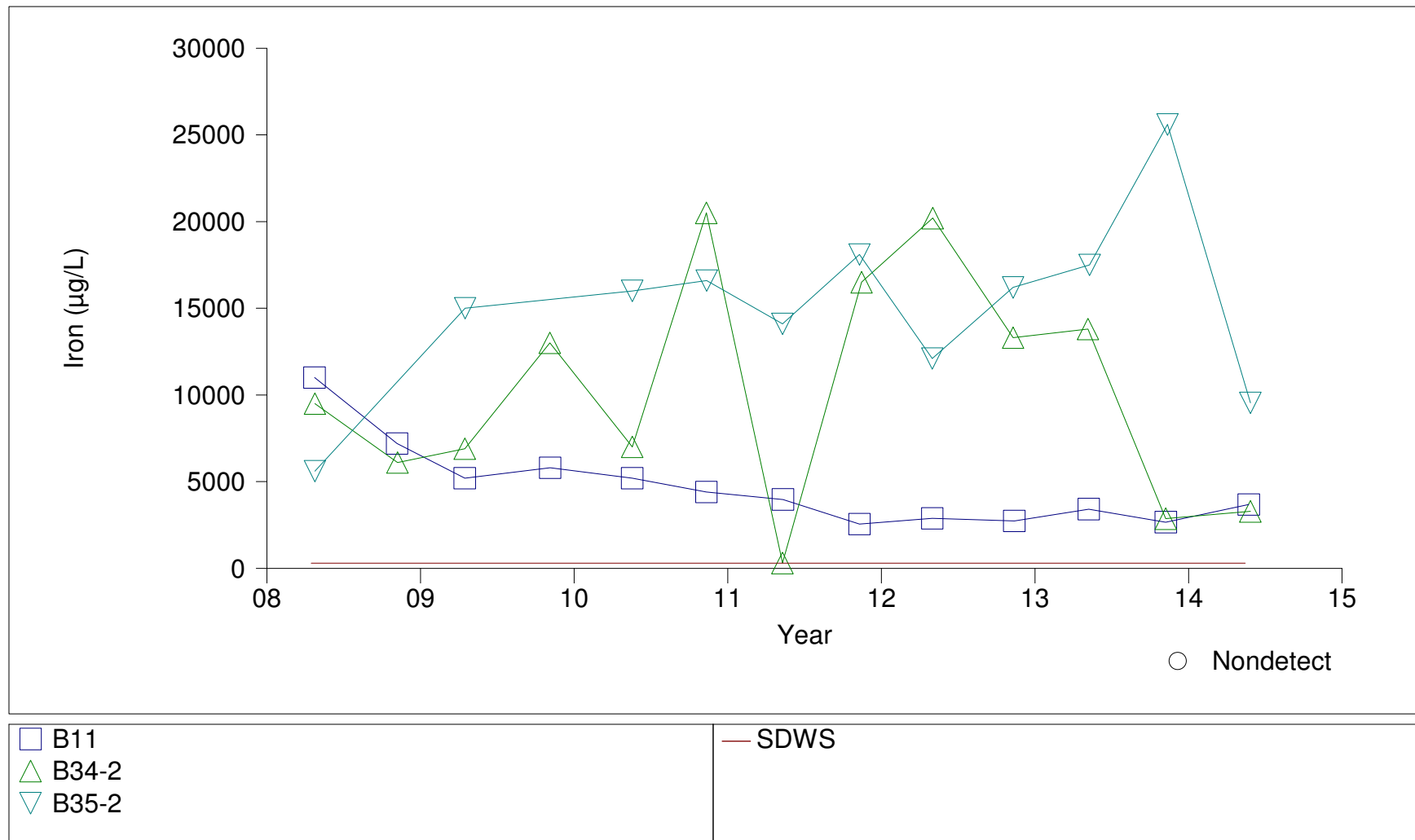
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Total Dissolved Solids (TDS), Floridan Aquifer



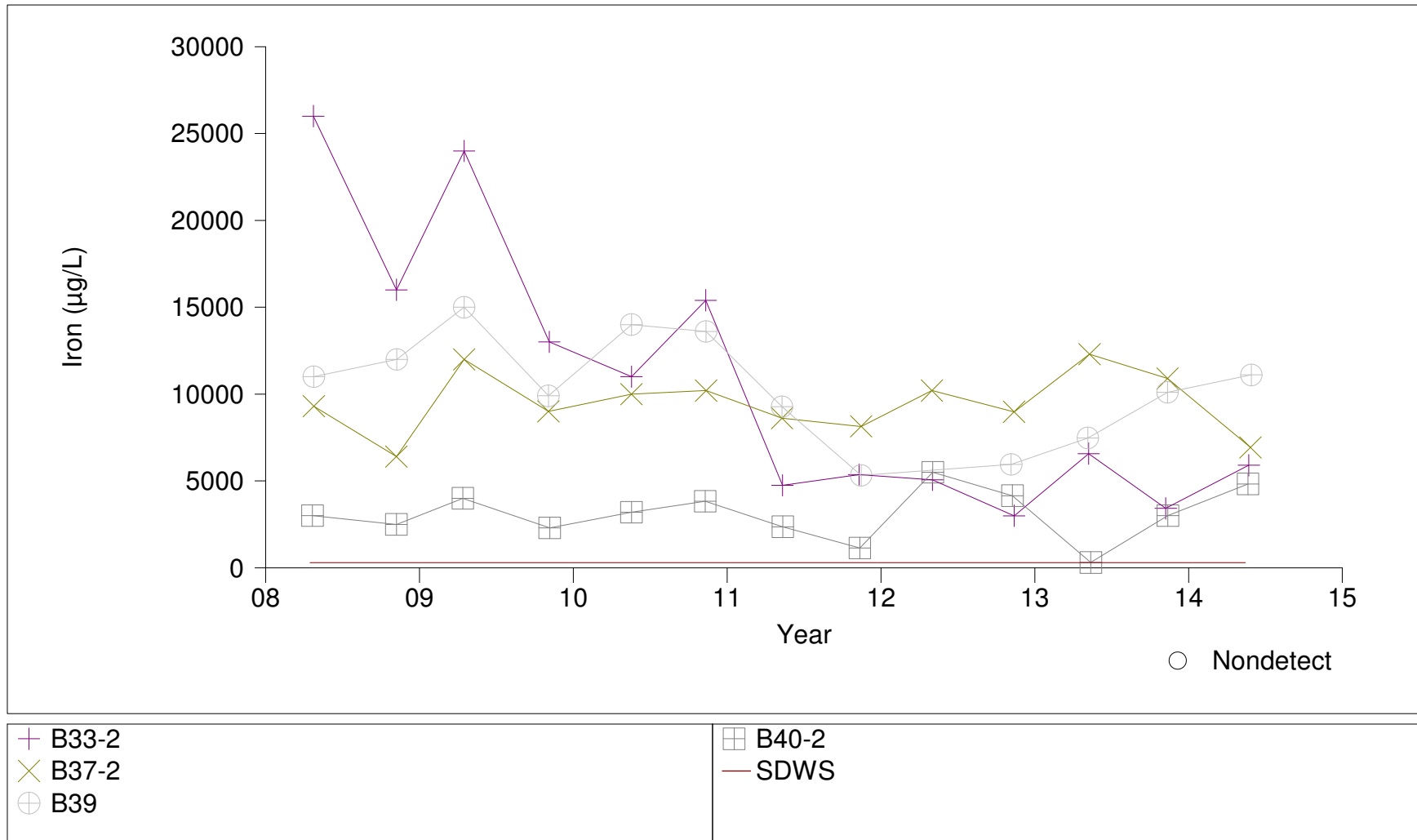
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Iron, Zone 1-2 Background Wells



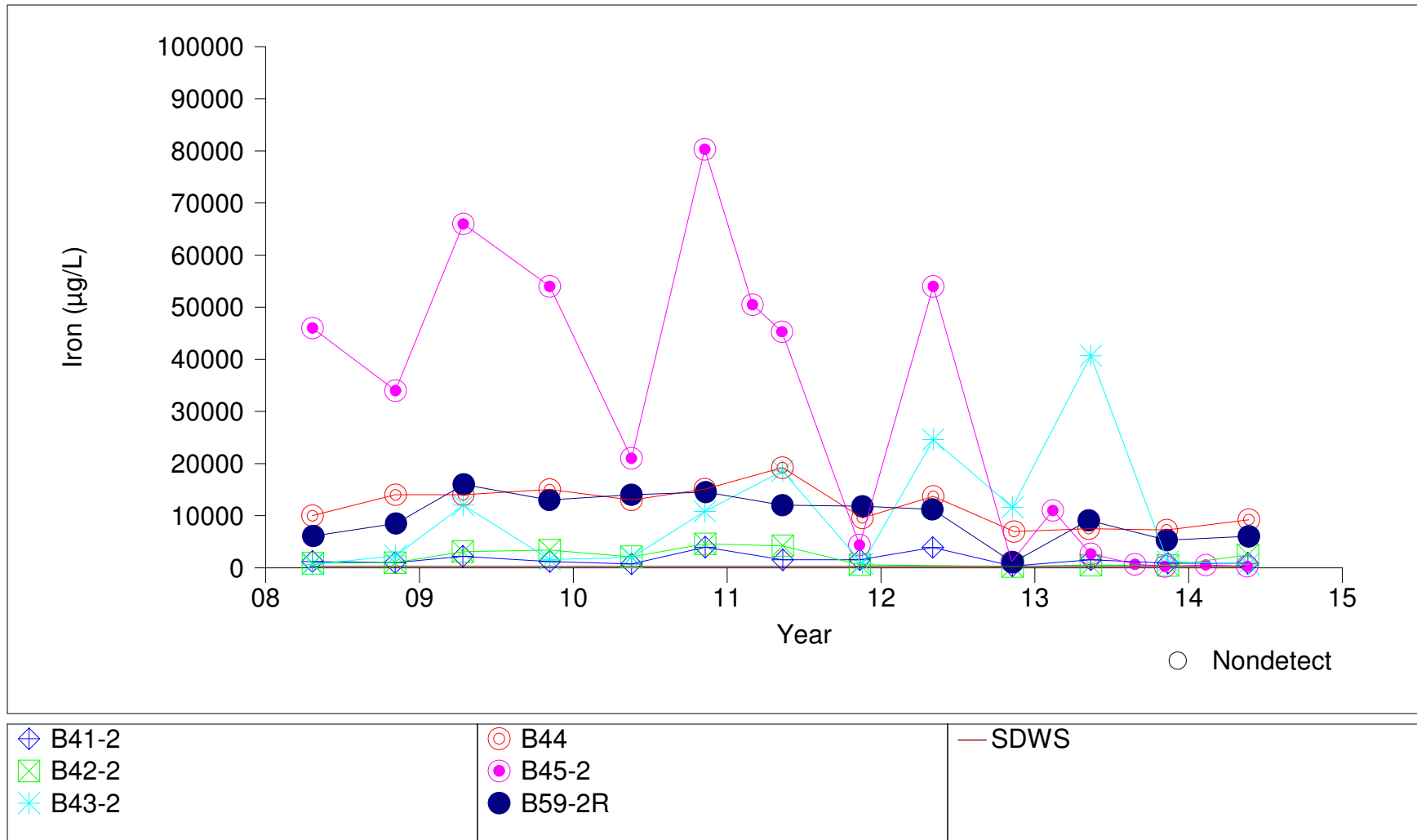
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Iron, Zone 1-2



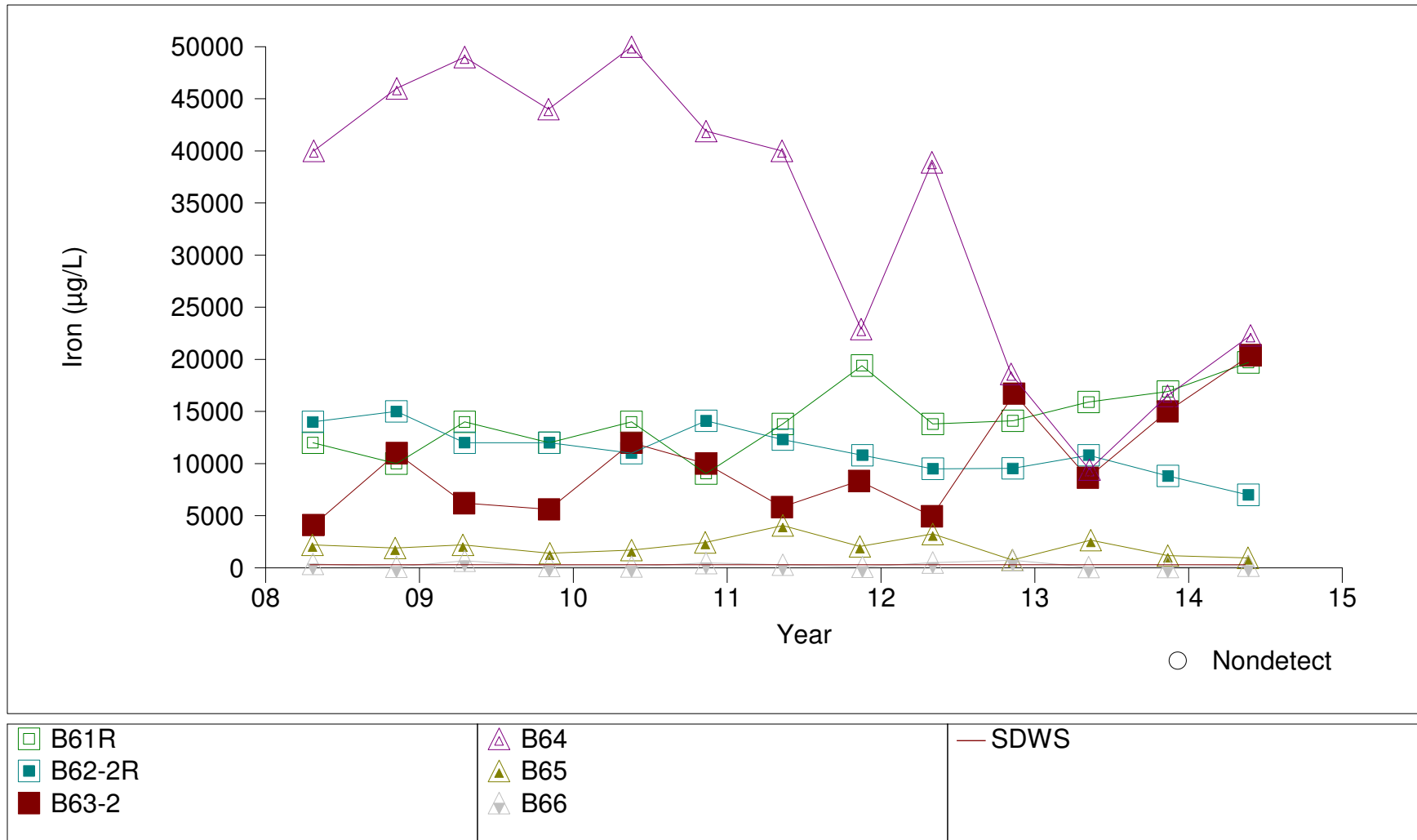
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Iron, Zone 1-2



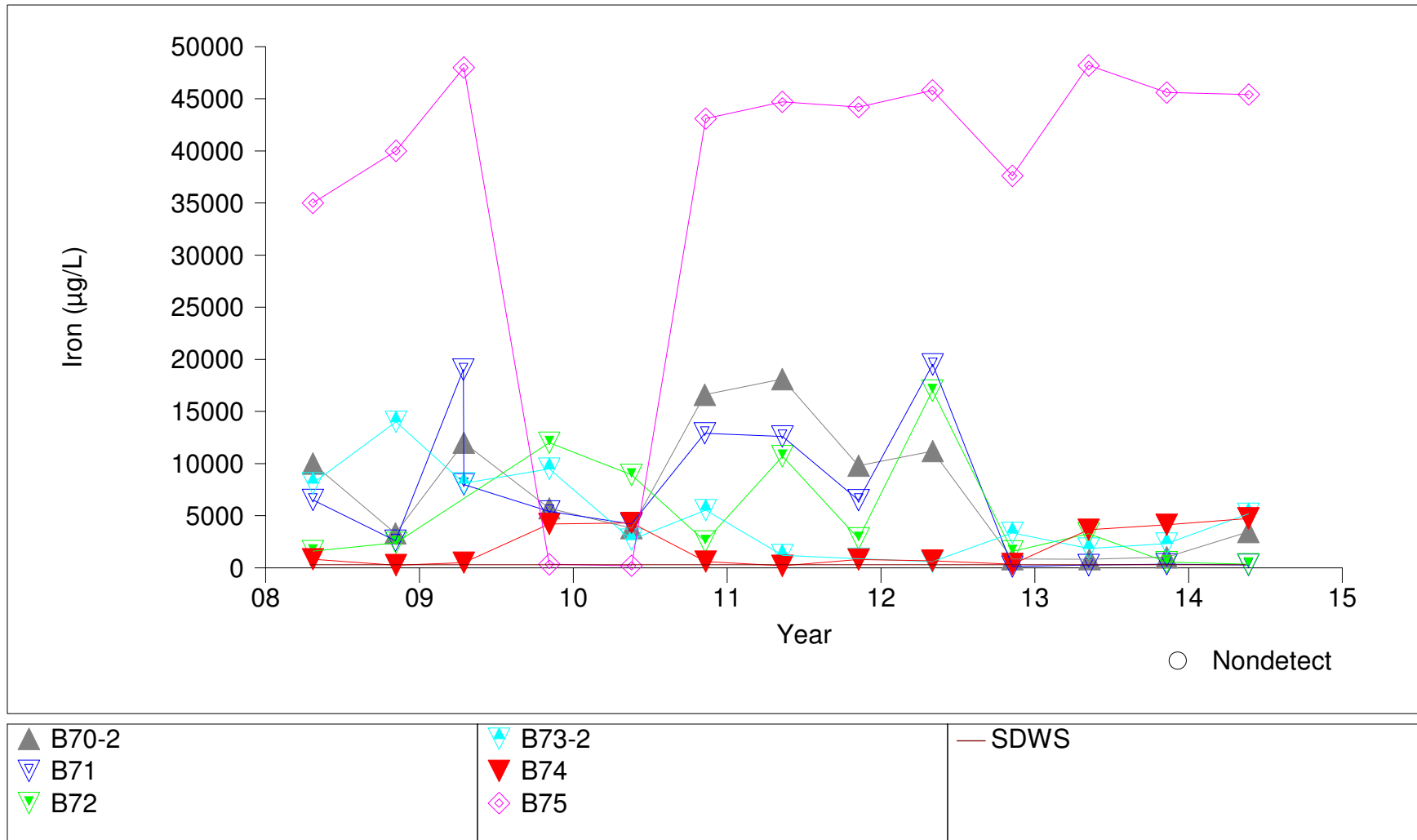
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Time Series Plot for Iron, Zone 1-2



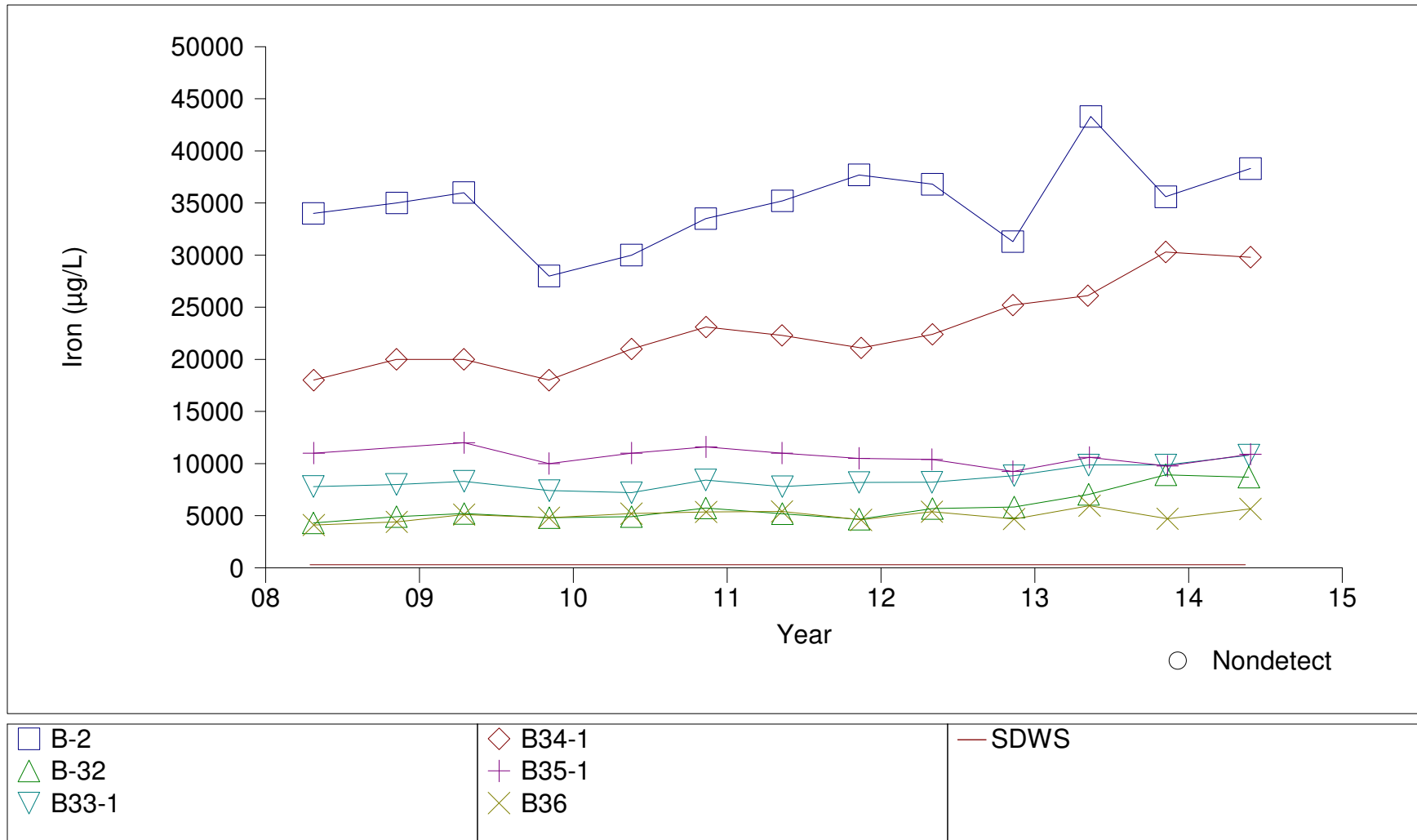
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Time Series Plot for Iron, Zone 1-2



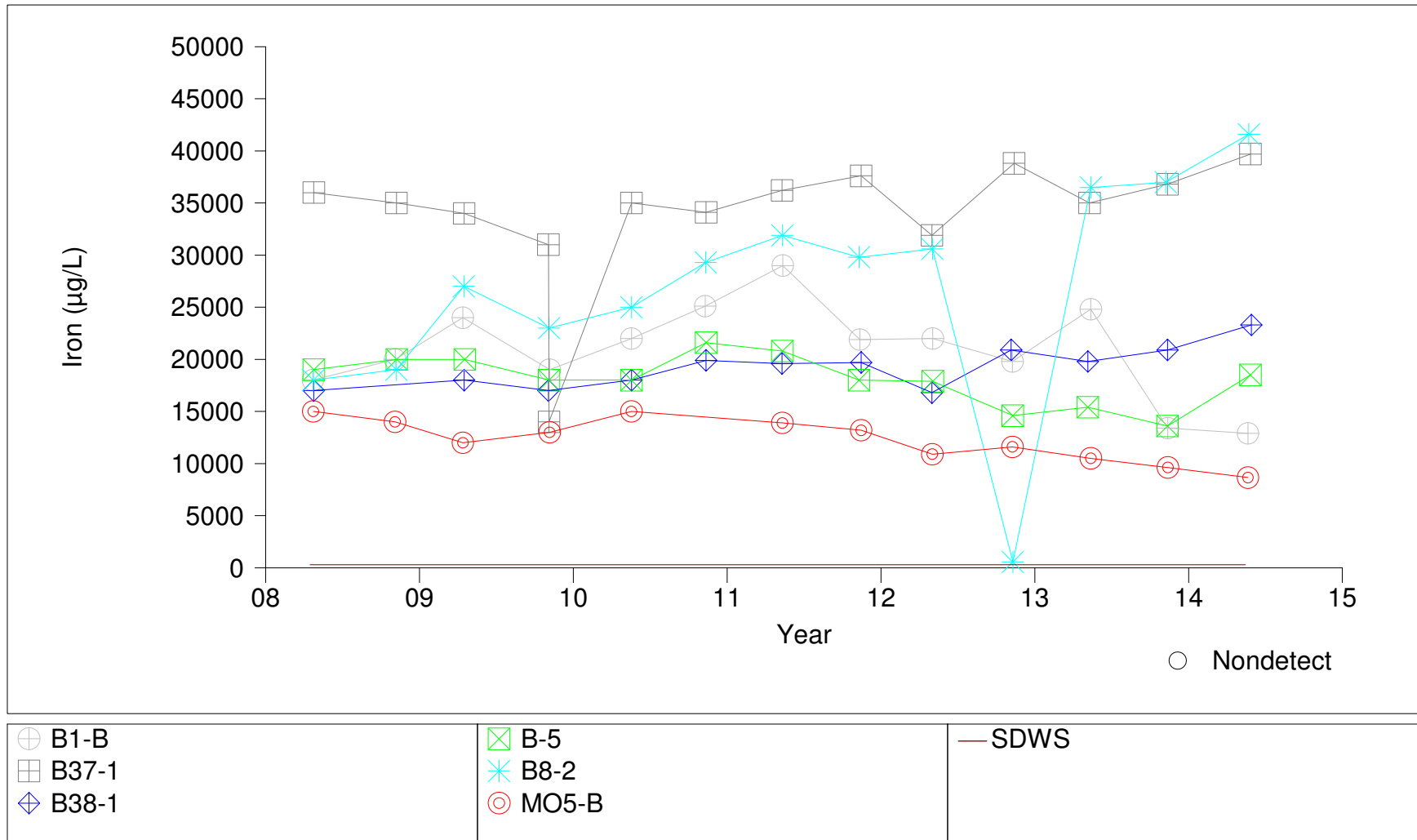
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Iron, Zone 4 Background Wells



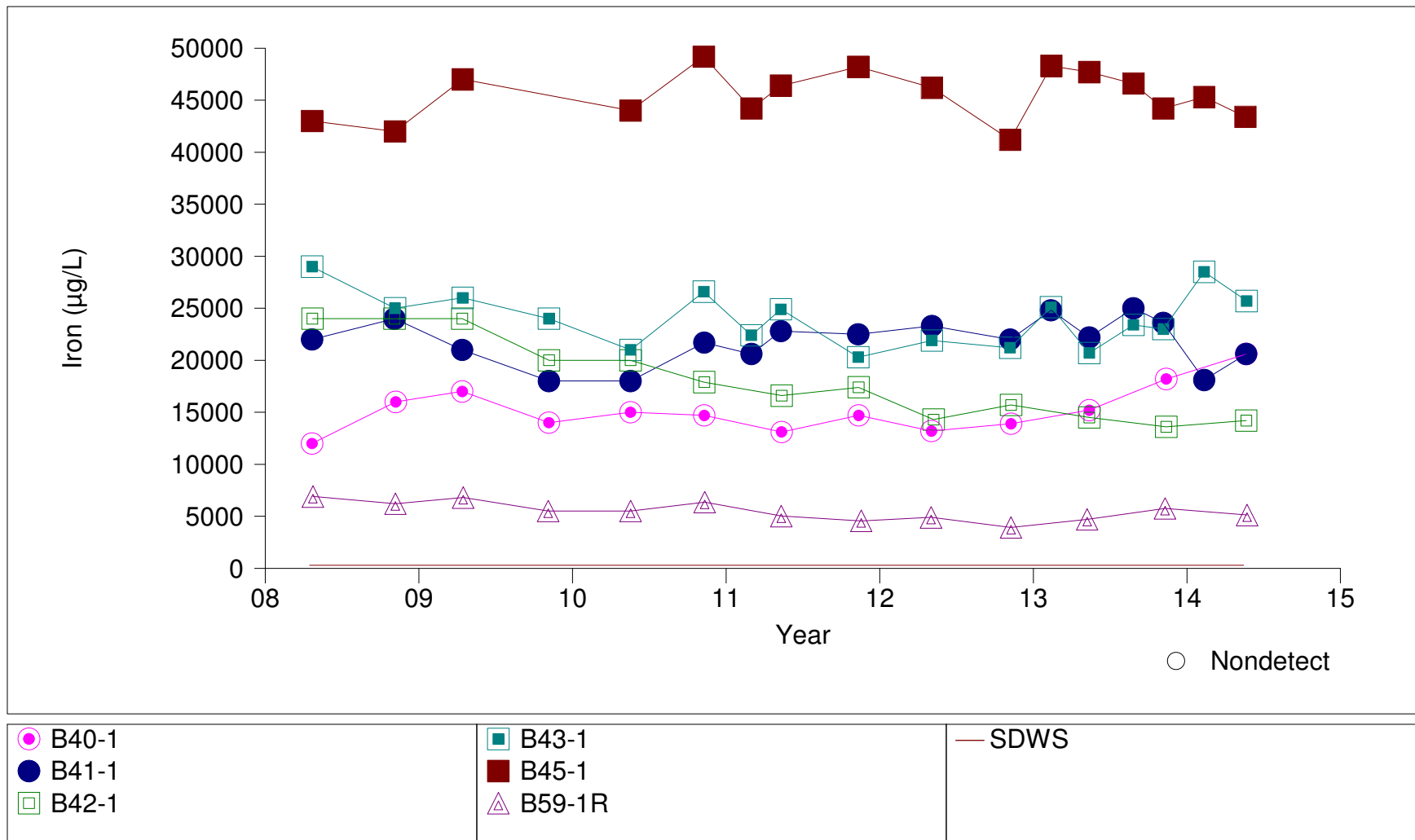
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Iron, Zone 4



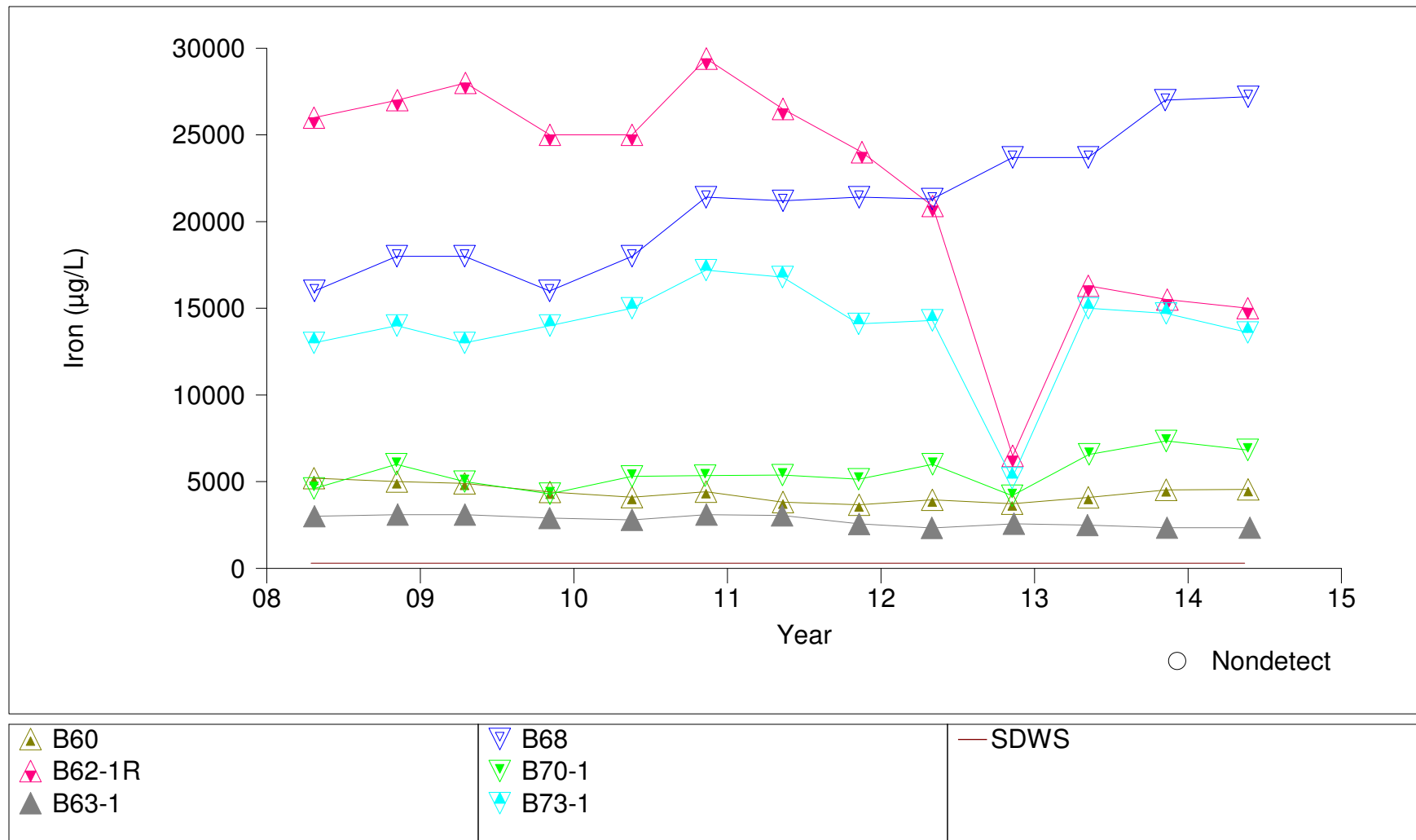
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Time Series Plot for Iron, Zone 4



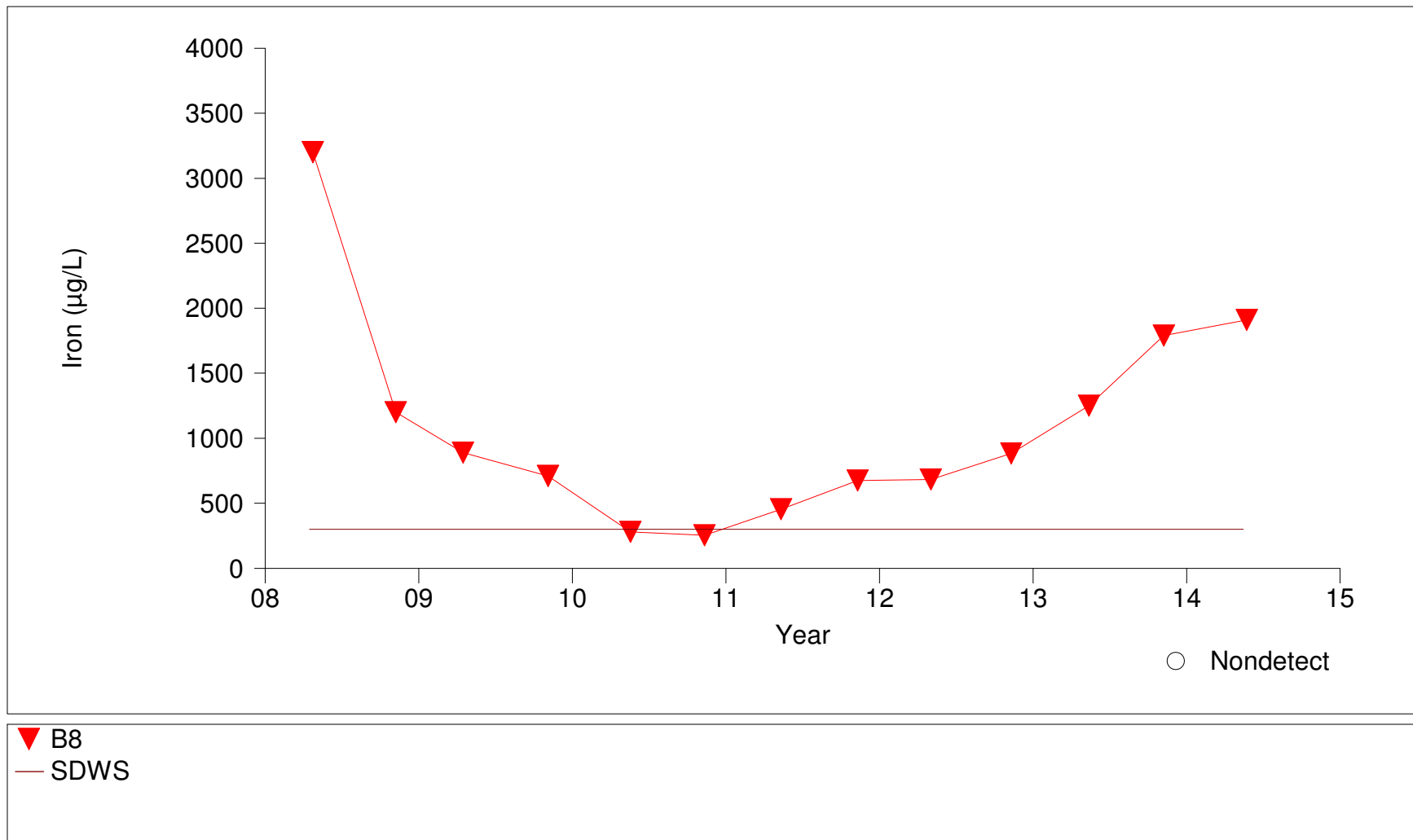
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Time Series Plot for Iron, Zone 4



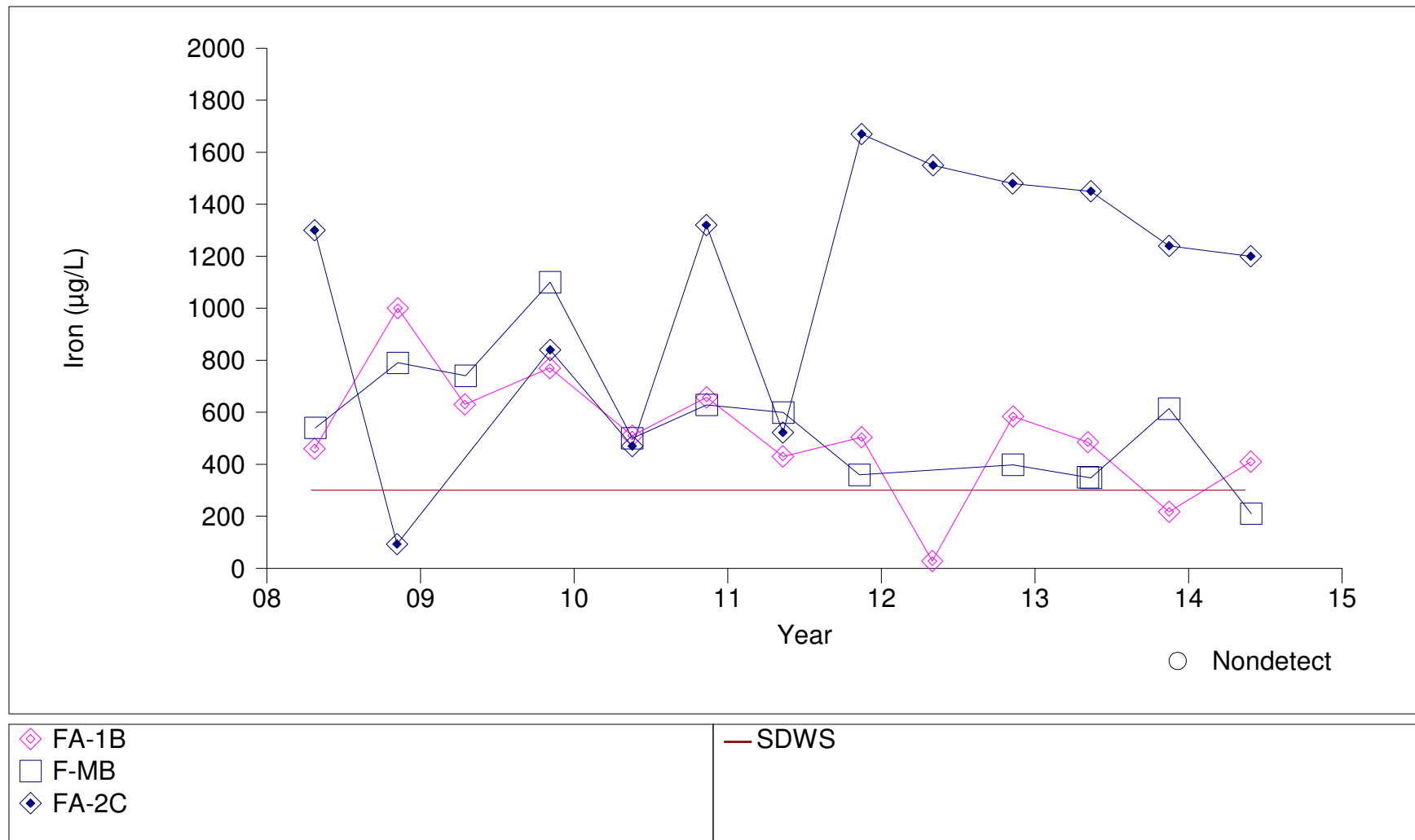
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Iron, Zone 6



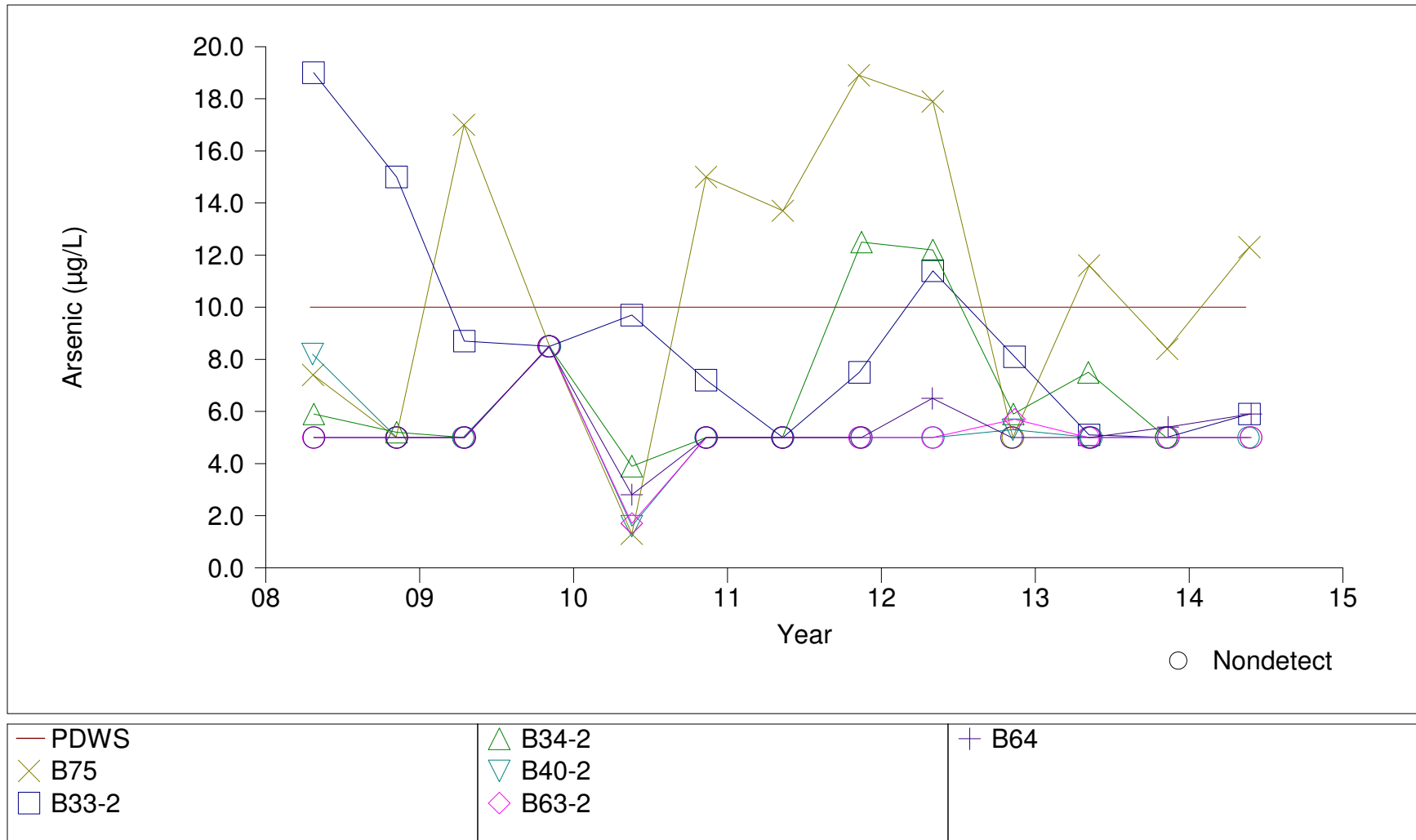
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Iron, Floridan Aquifer



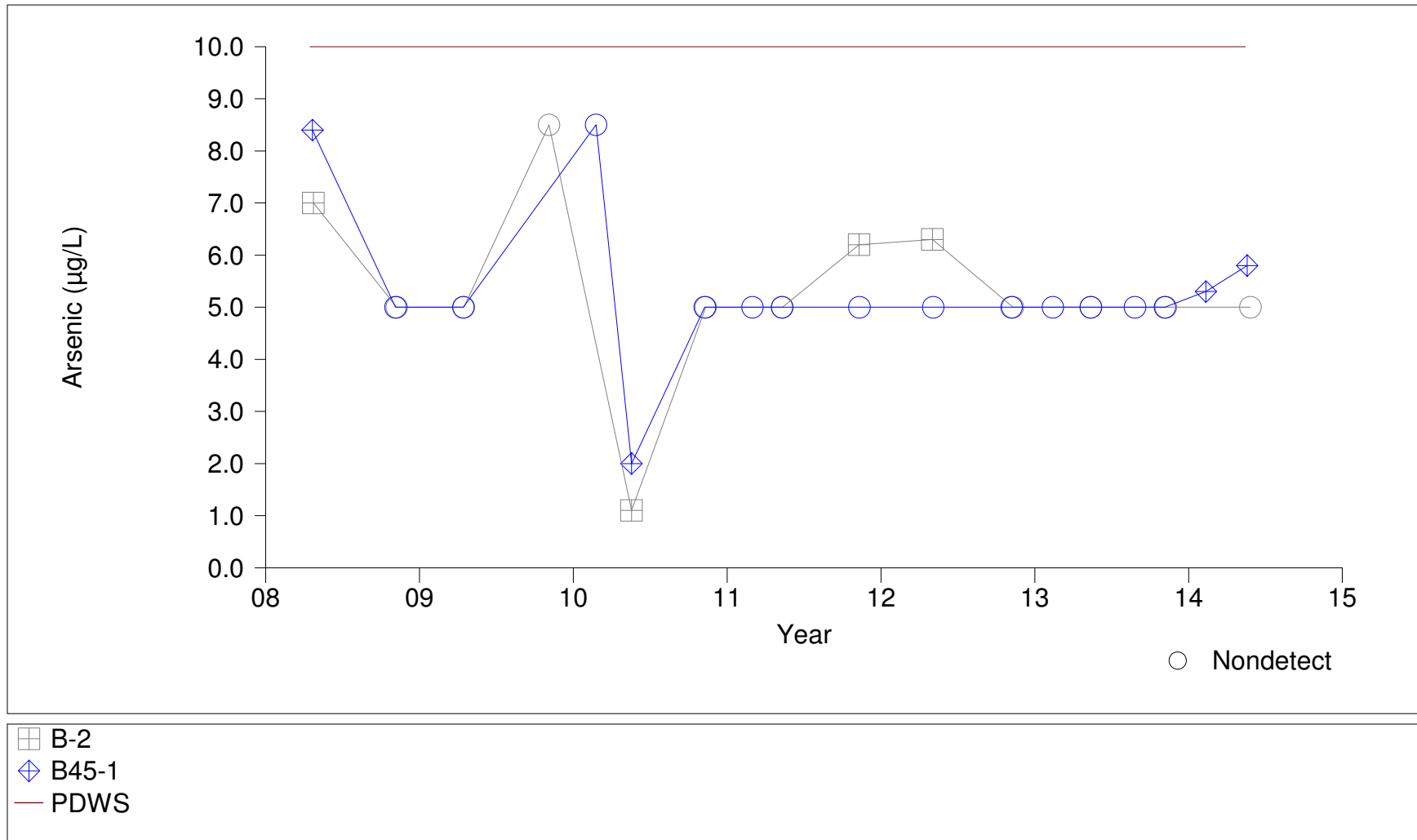
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Arsenic, Zone 1-2



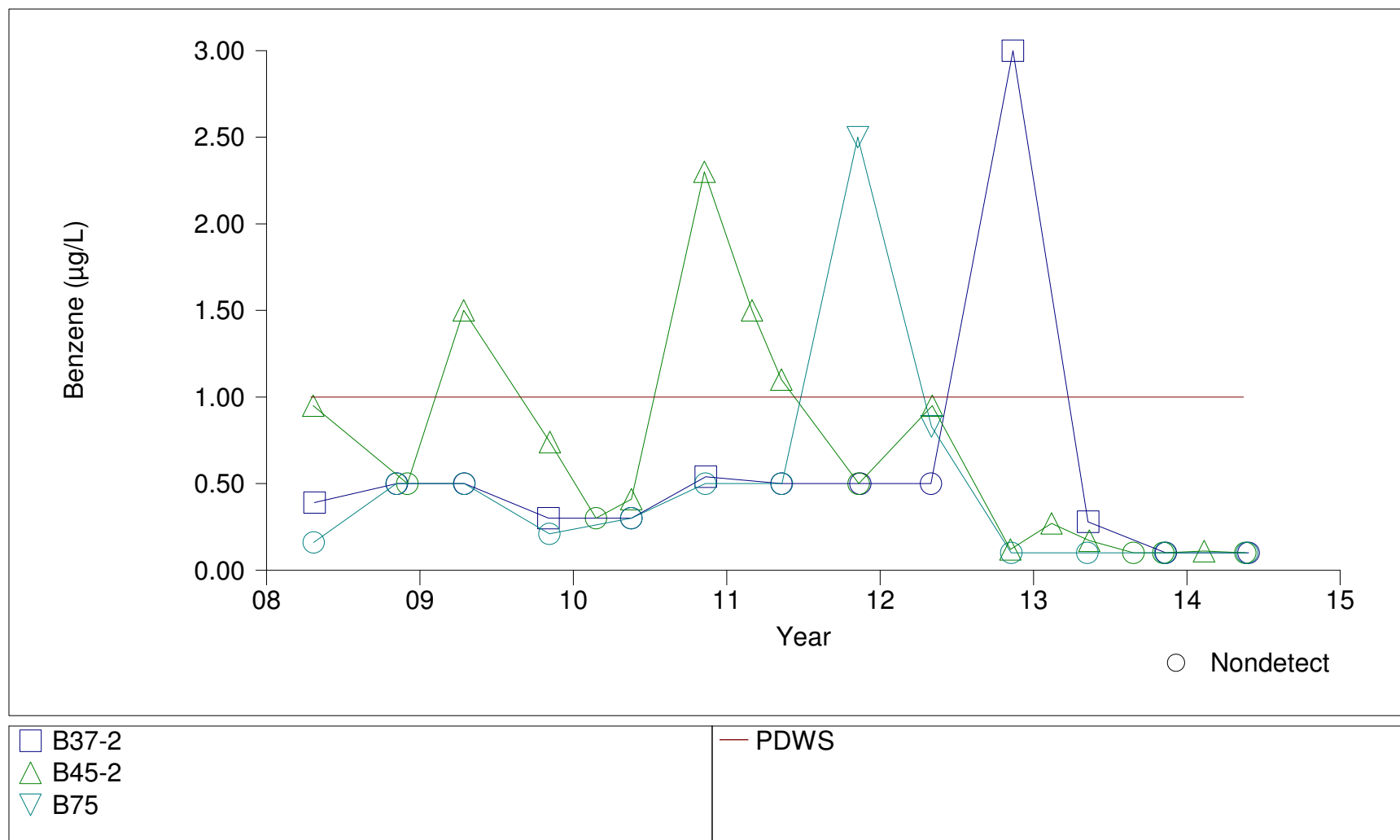
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Arsenic, Zone 4



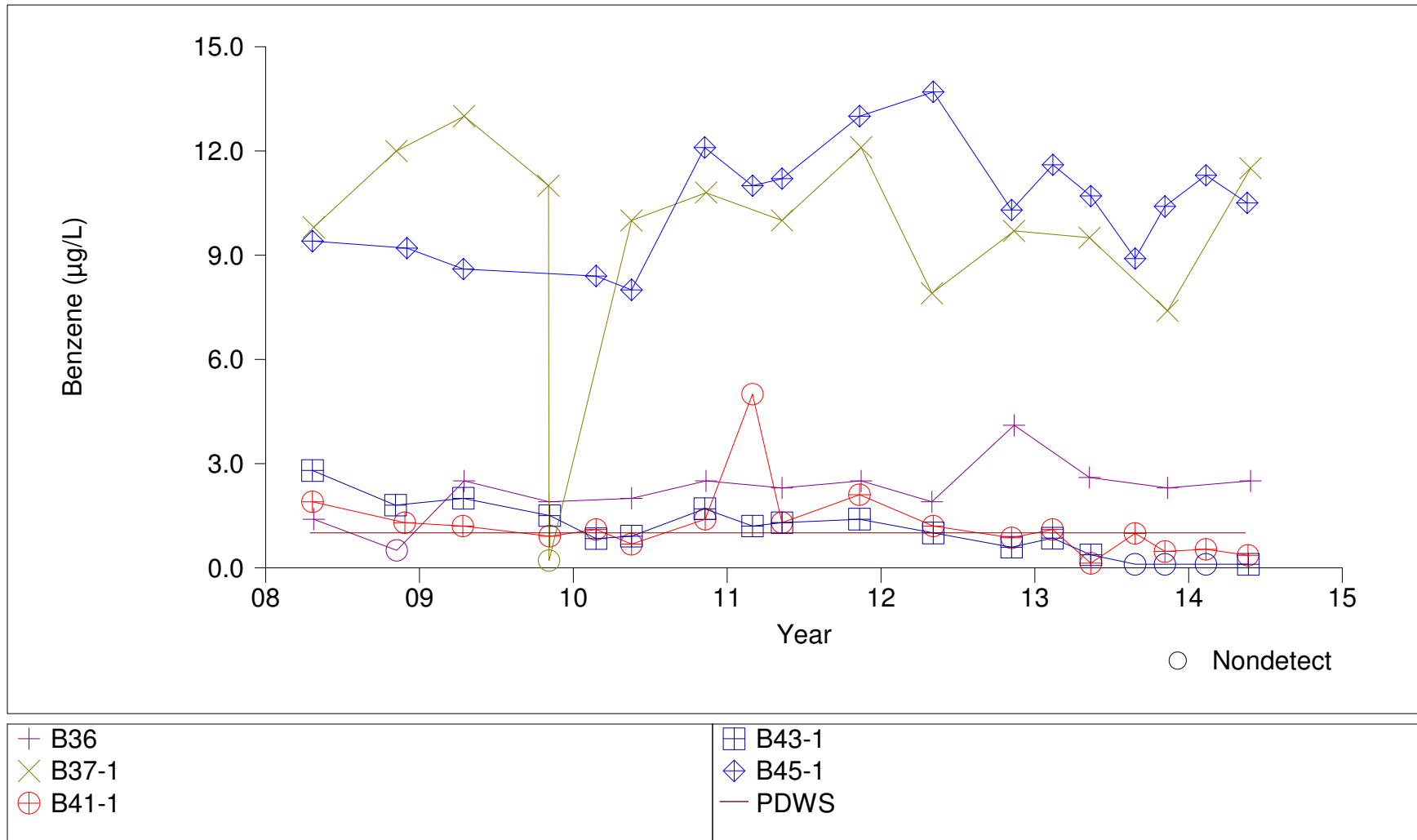
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Benzene, Zone 1-2



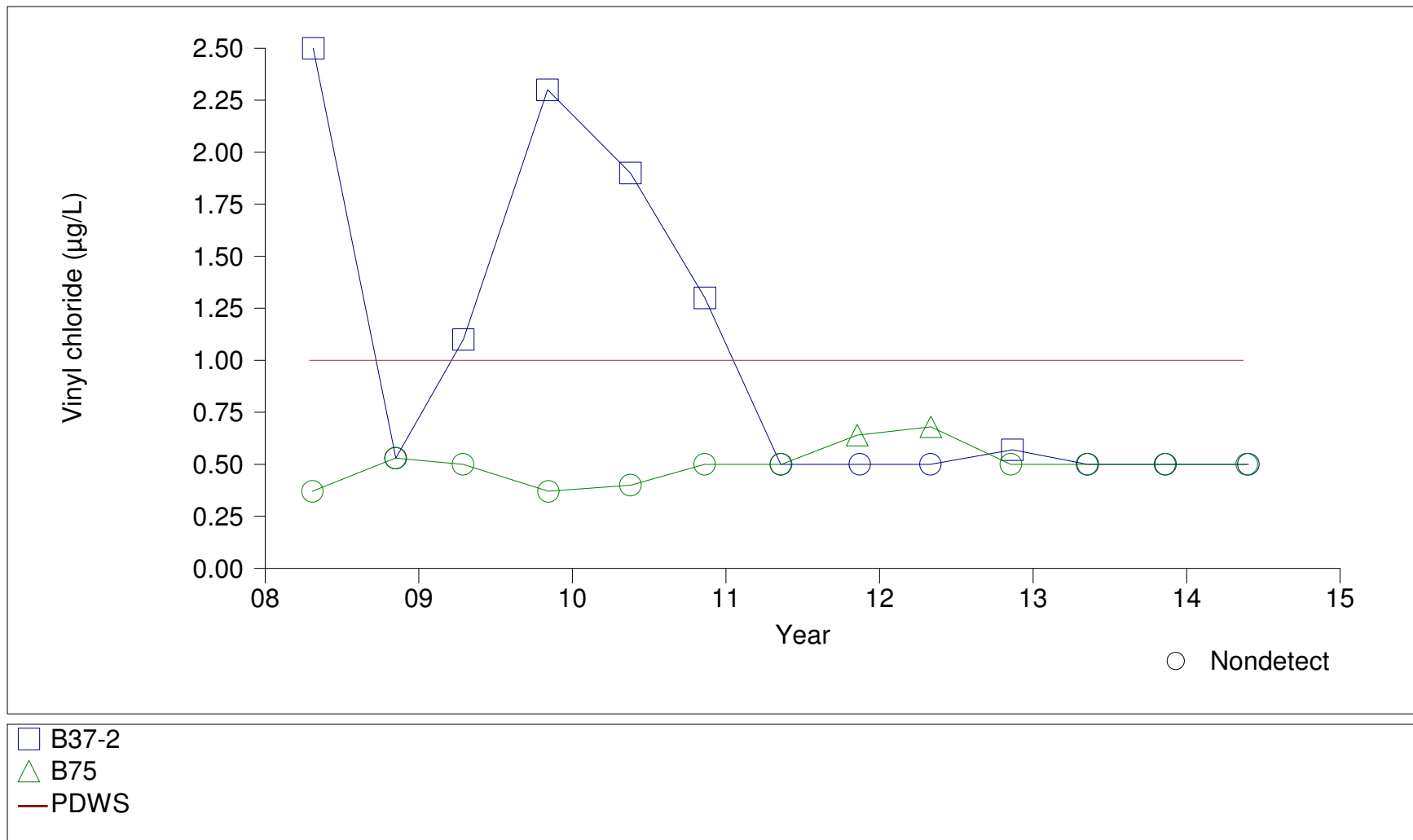
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Time Series Plot for Benzene, Zone 4



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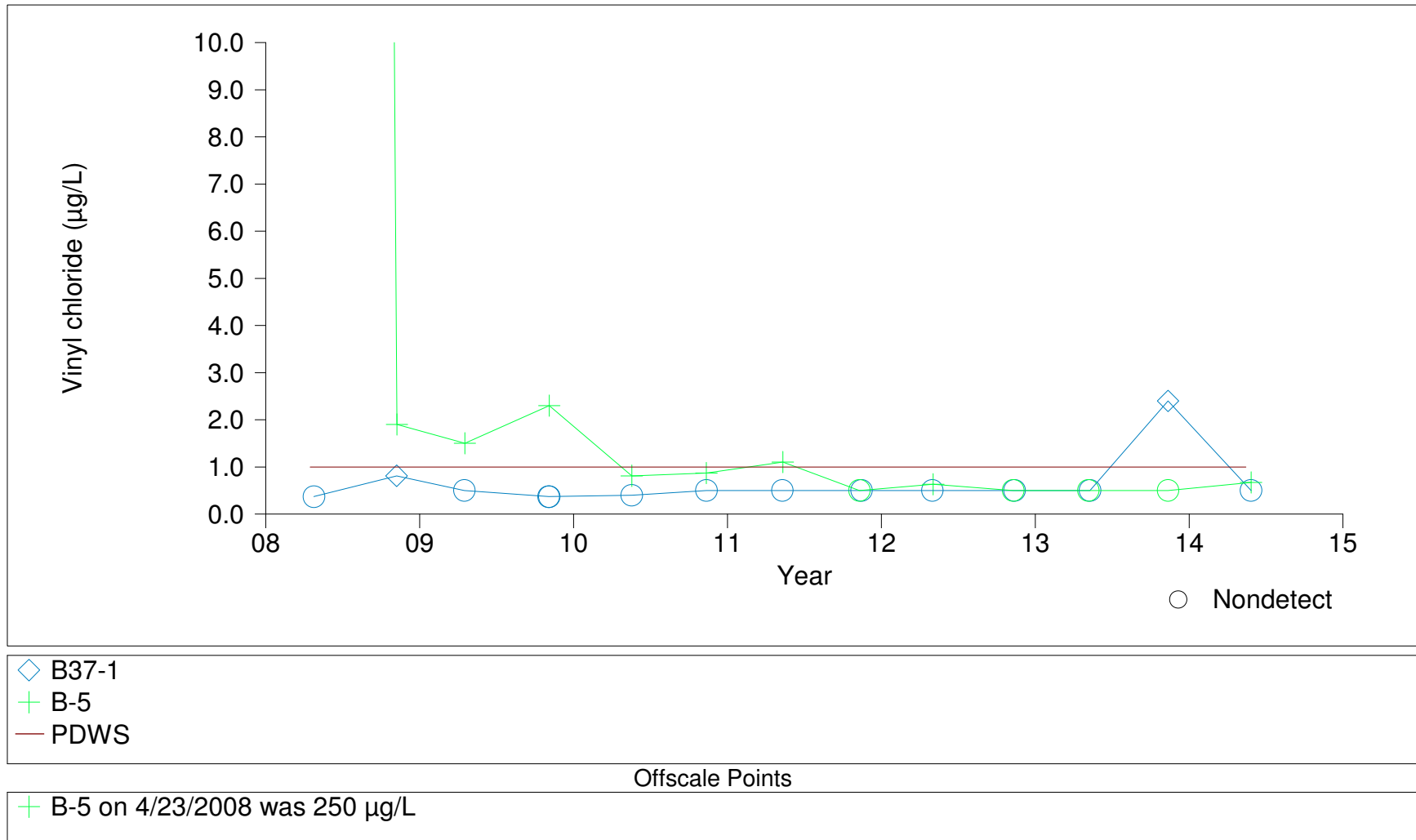
Time Series Plot for Vinyl chloride, Zone 1-2



Prepared by: HDR Engineering, Inc.

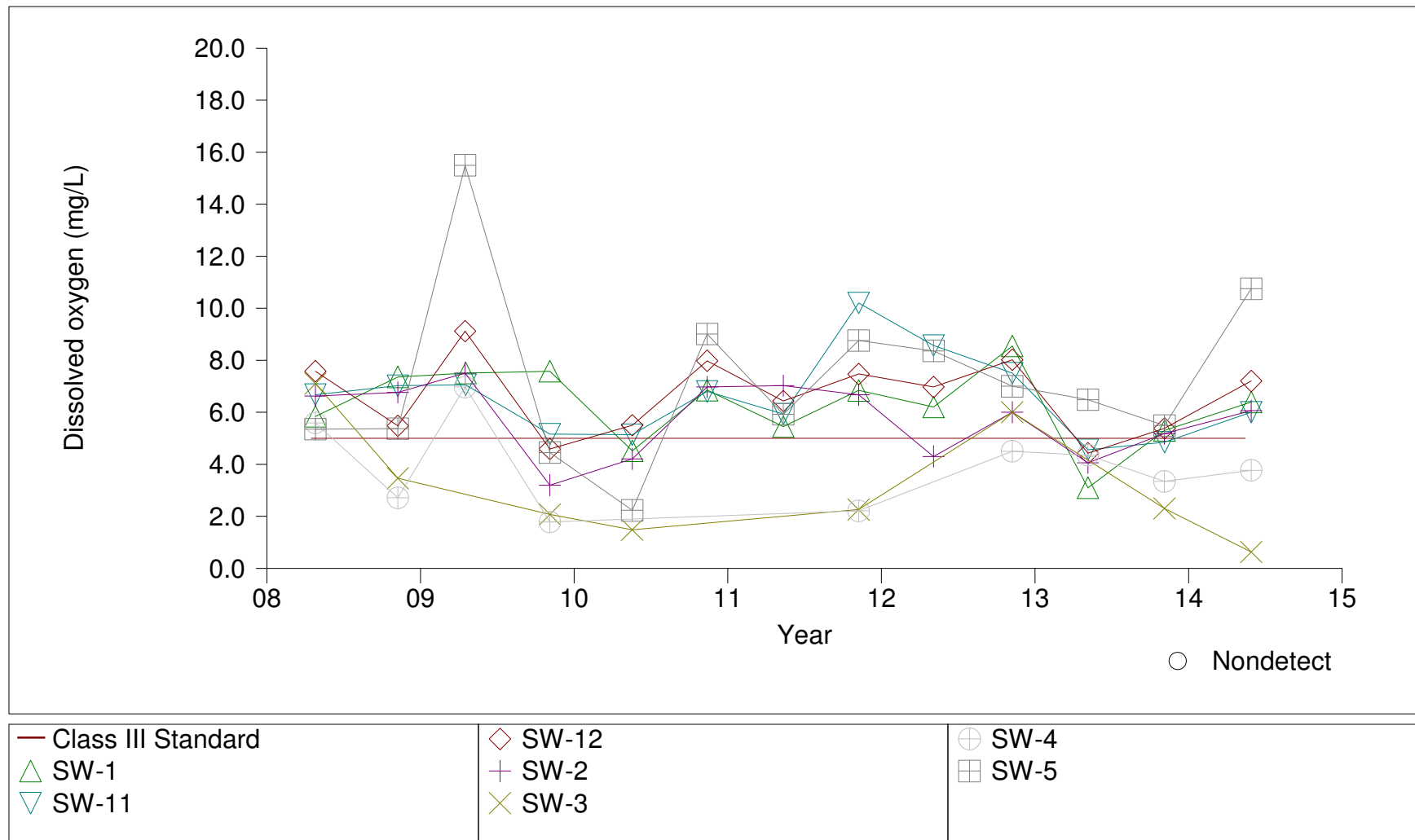
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Vinyl chloride, Zone 4



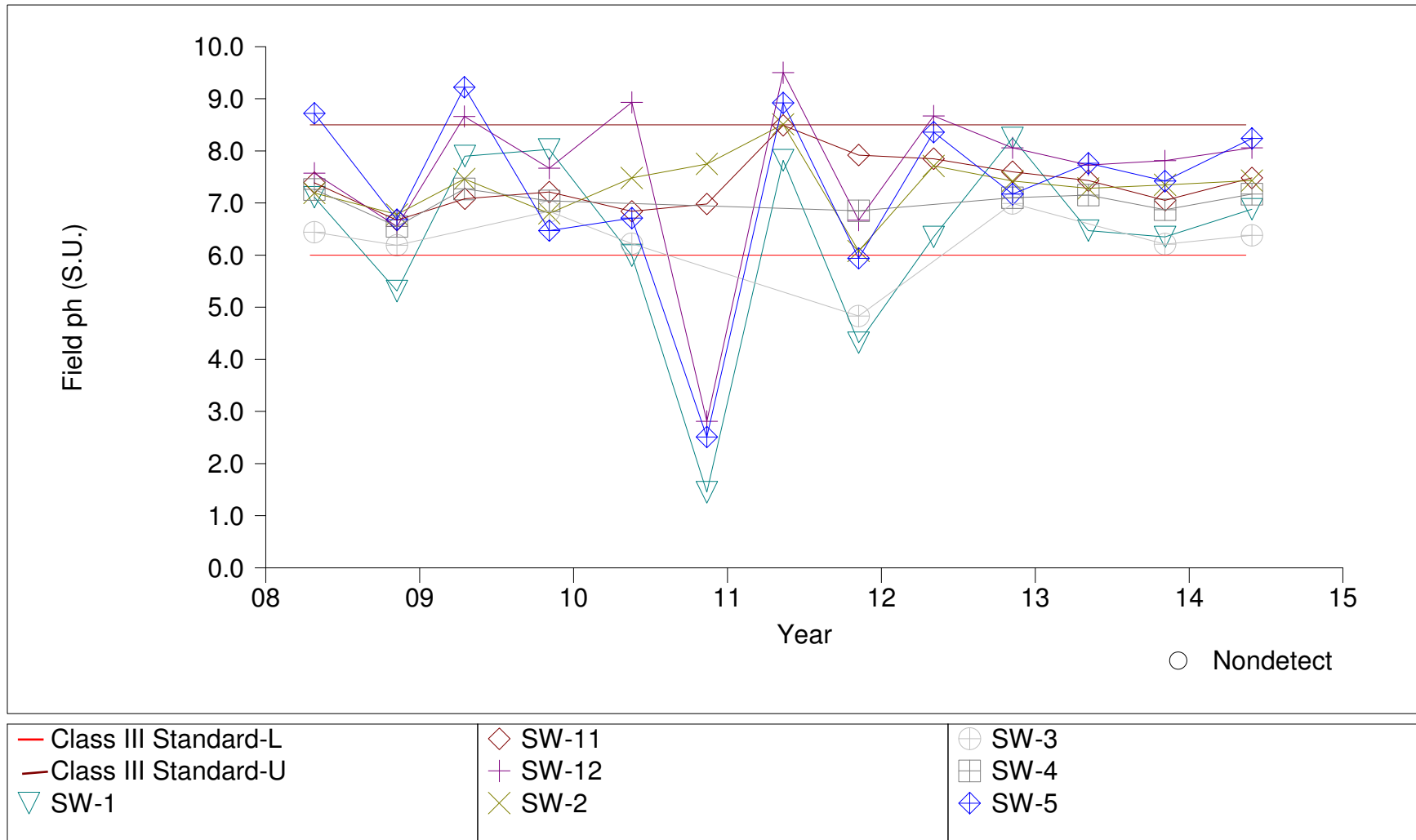
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Dissolved oxygen



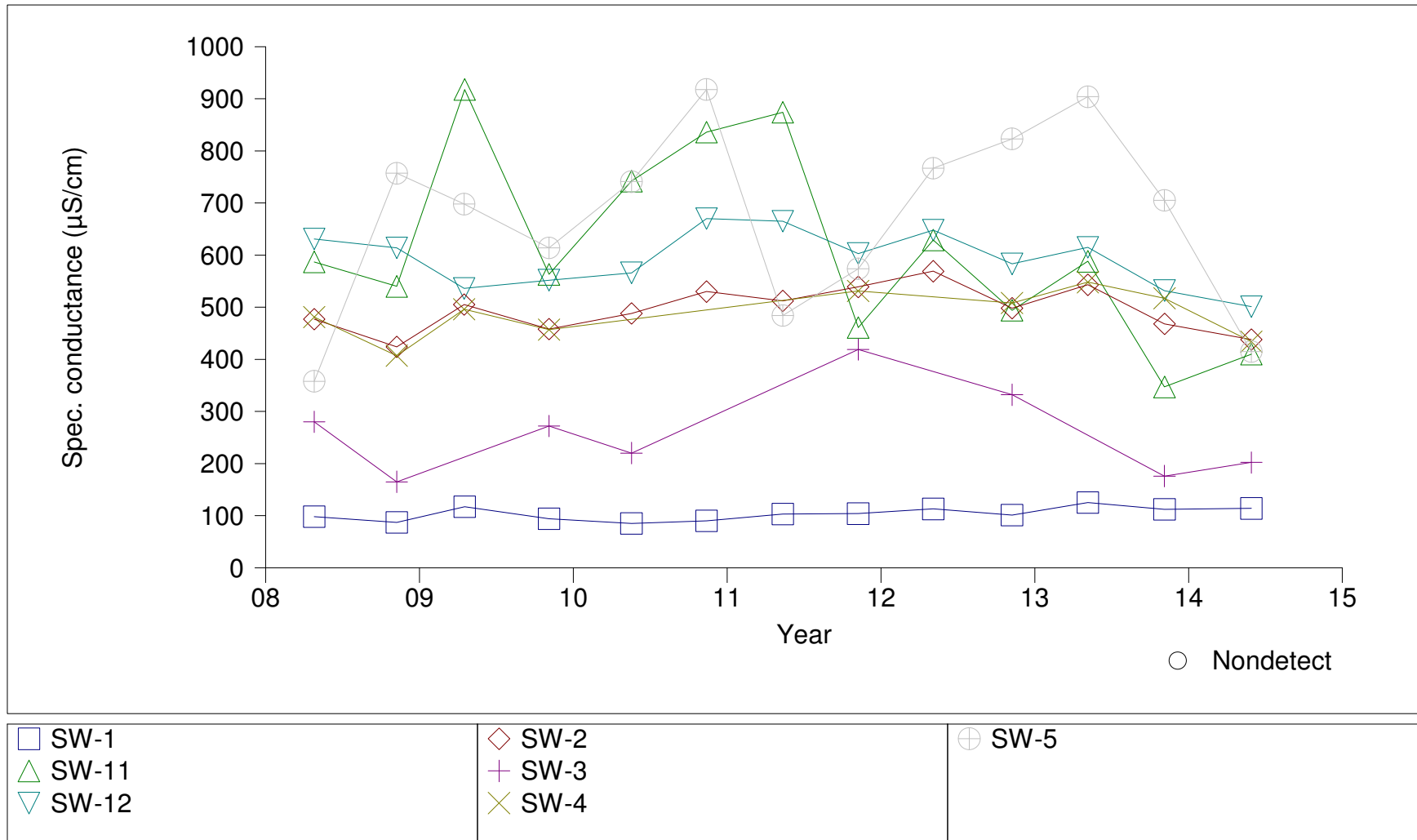
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Field pH



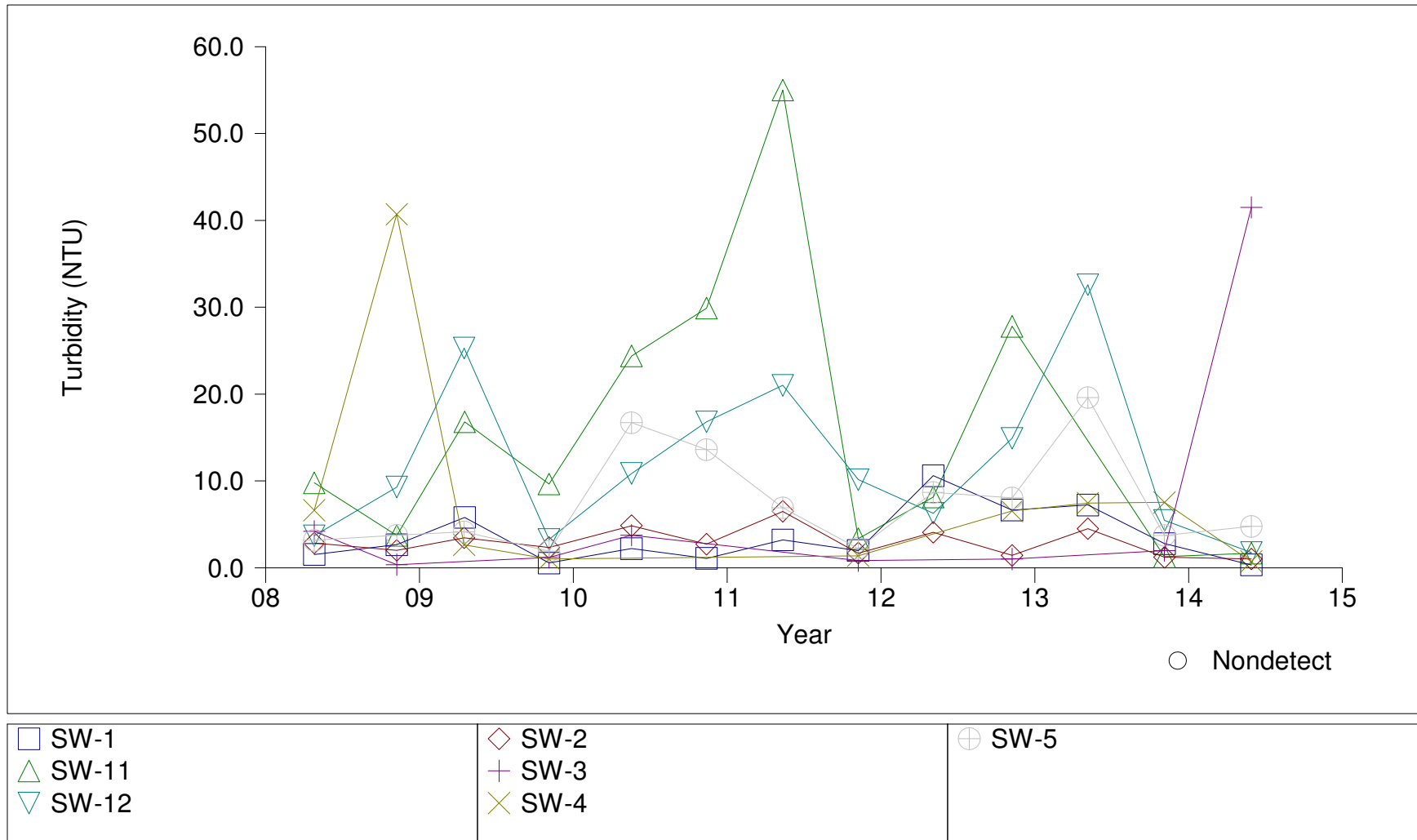
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Specific Conductance



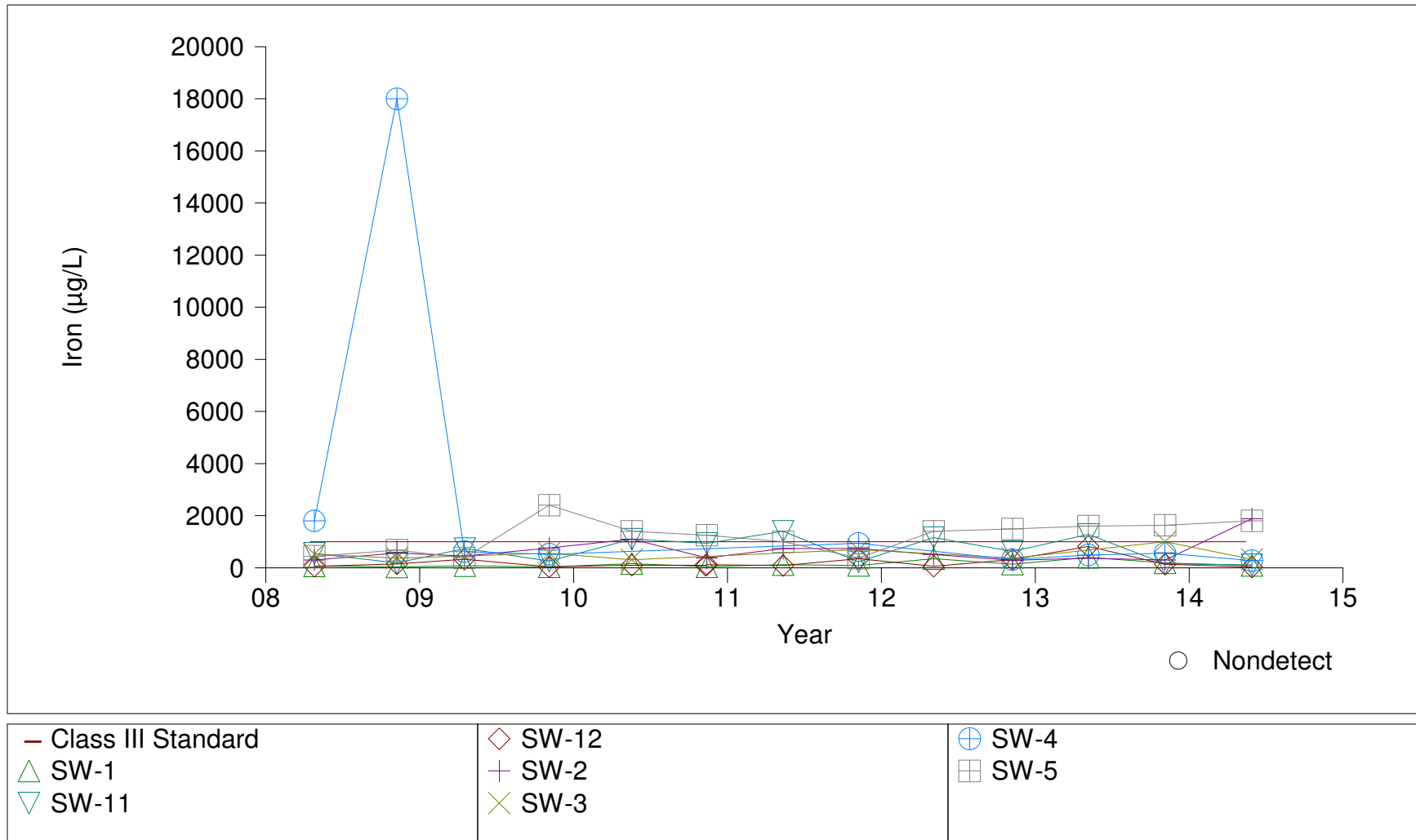
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Turbidity



TOMOKA FARMS ROAD LANDFILL

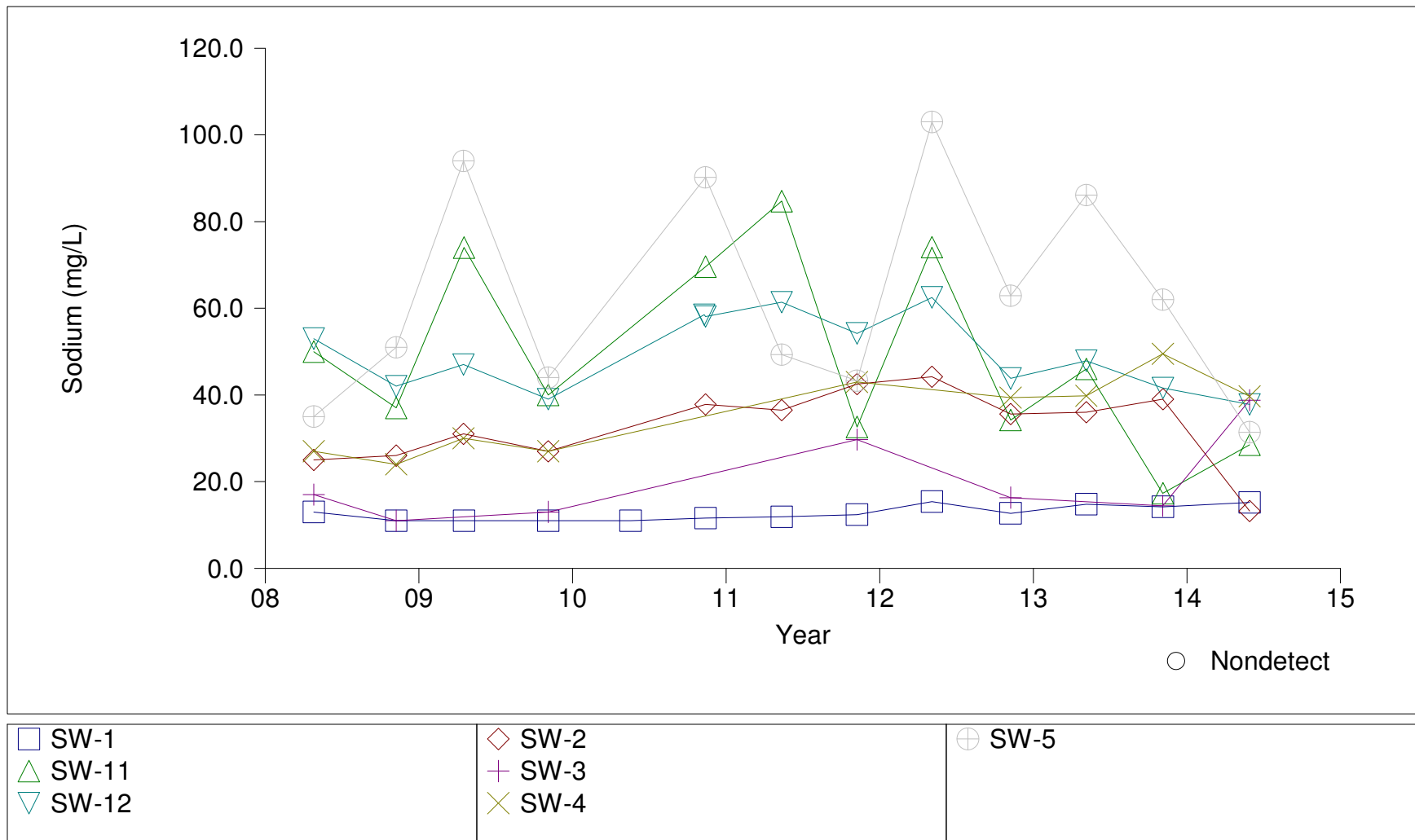
Time Series Plot for Surface Water Iron



Prepared by: HDR Engineering, Inc.

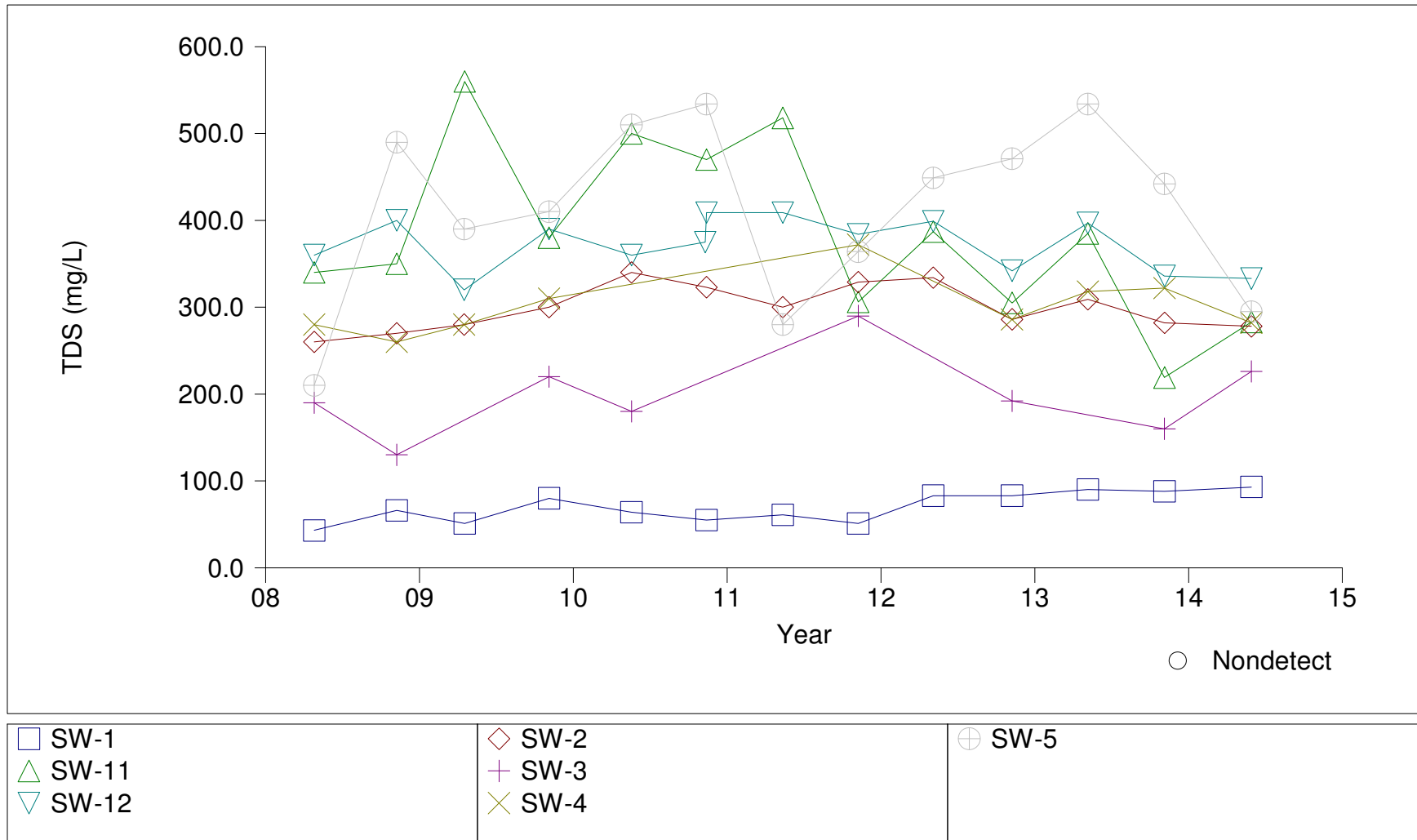
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Sodium



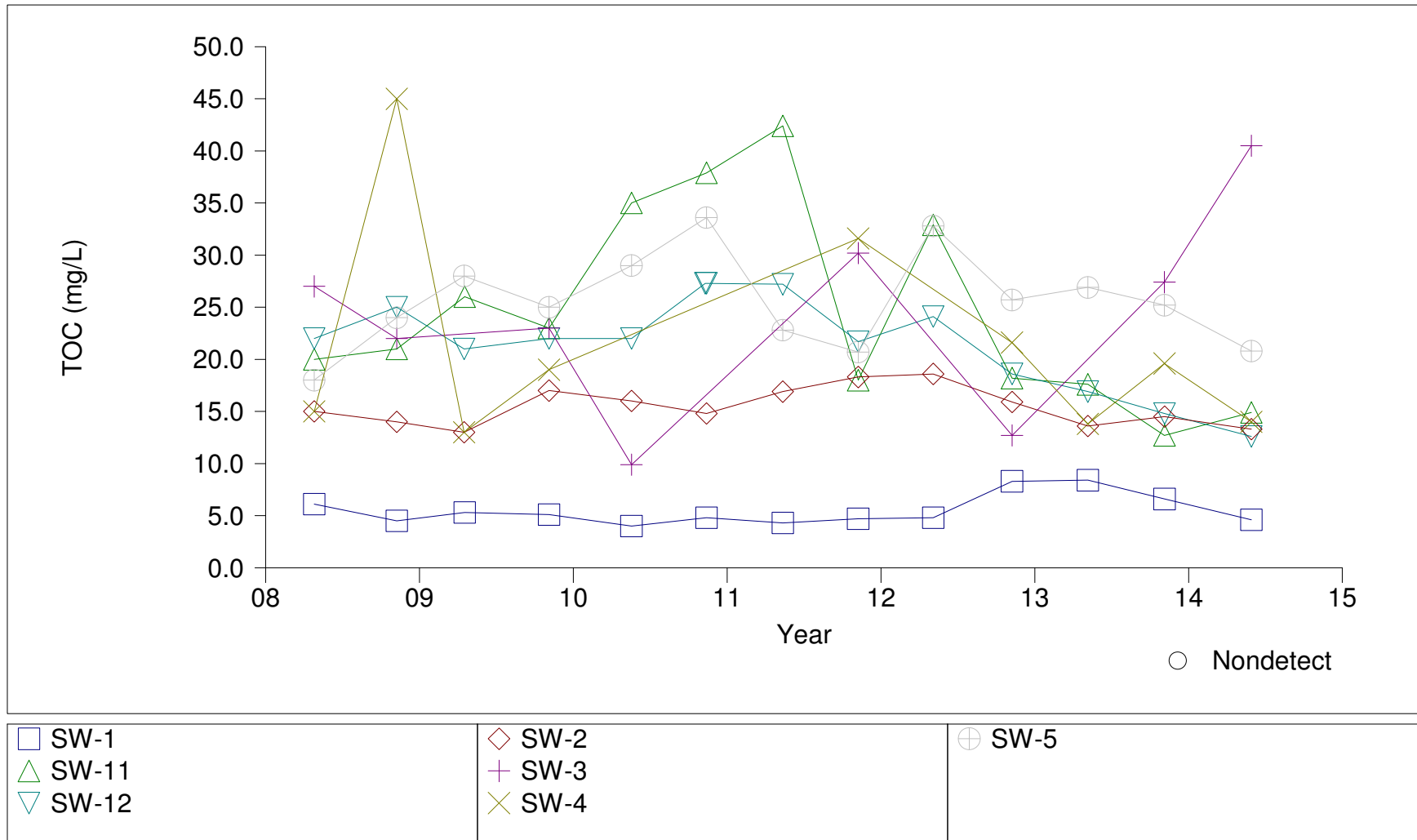
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Total Dissolved Solids (TDS)



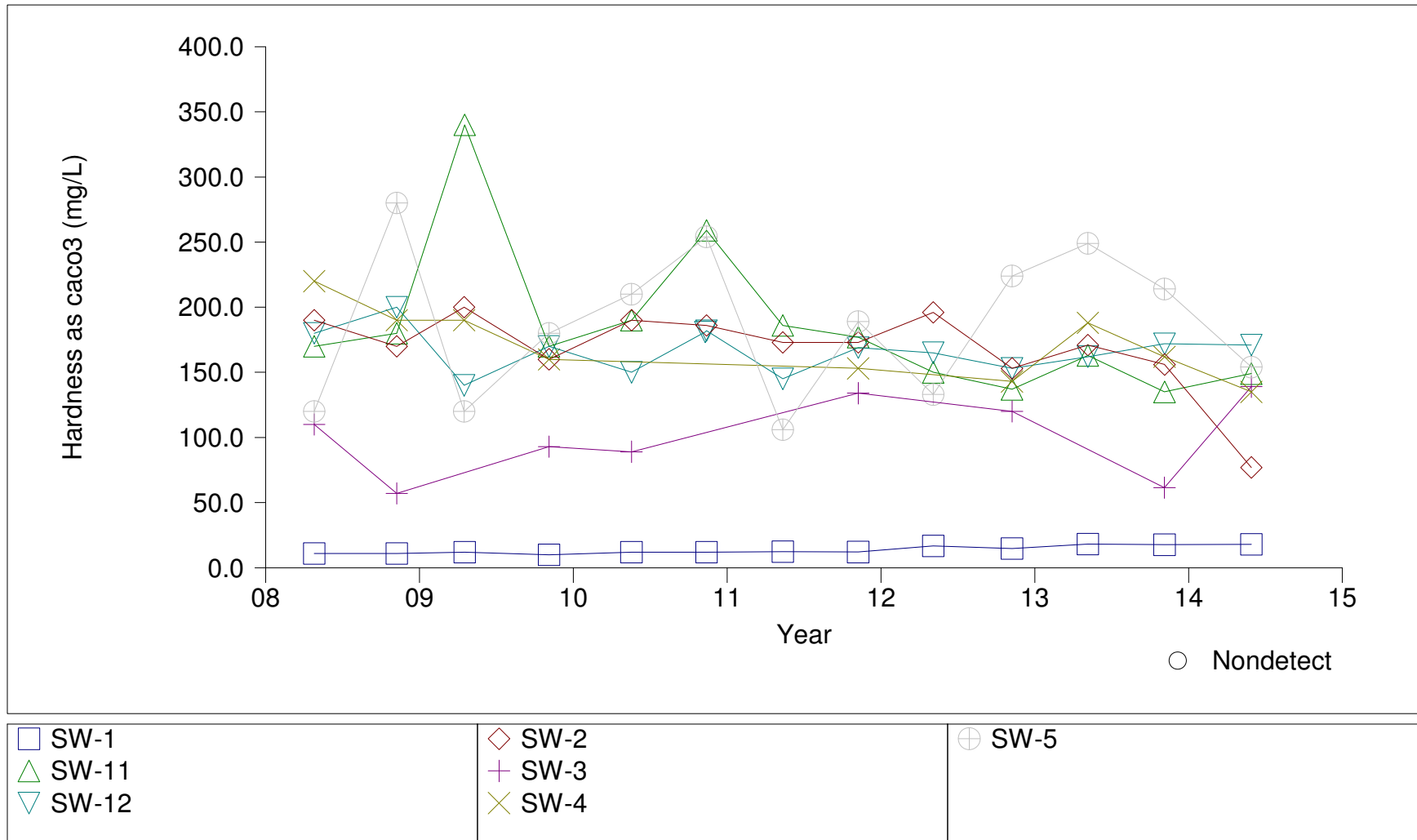
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Total Organic Carbon (TOC)



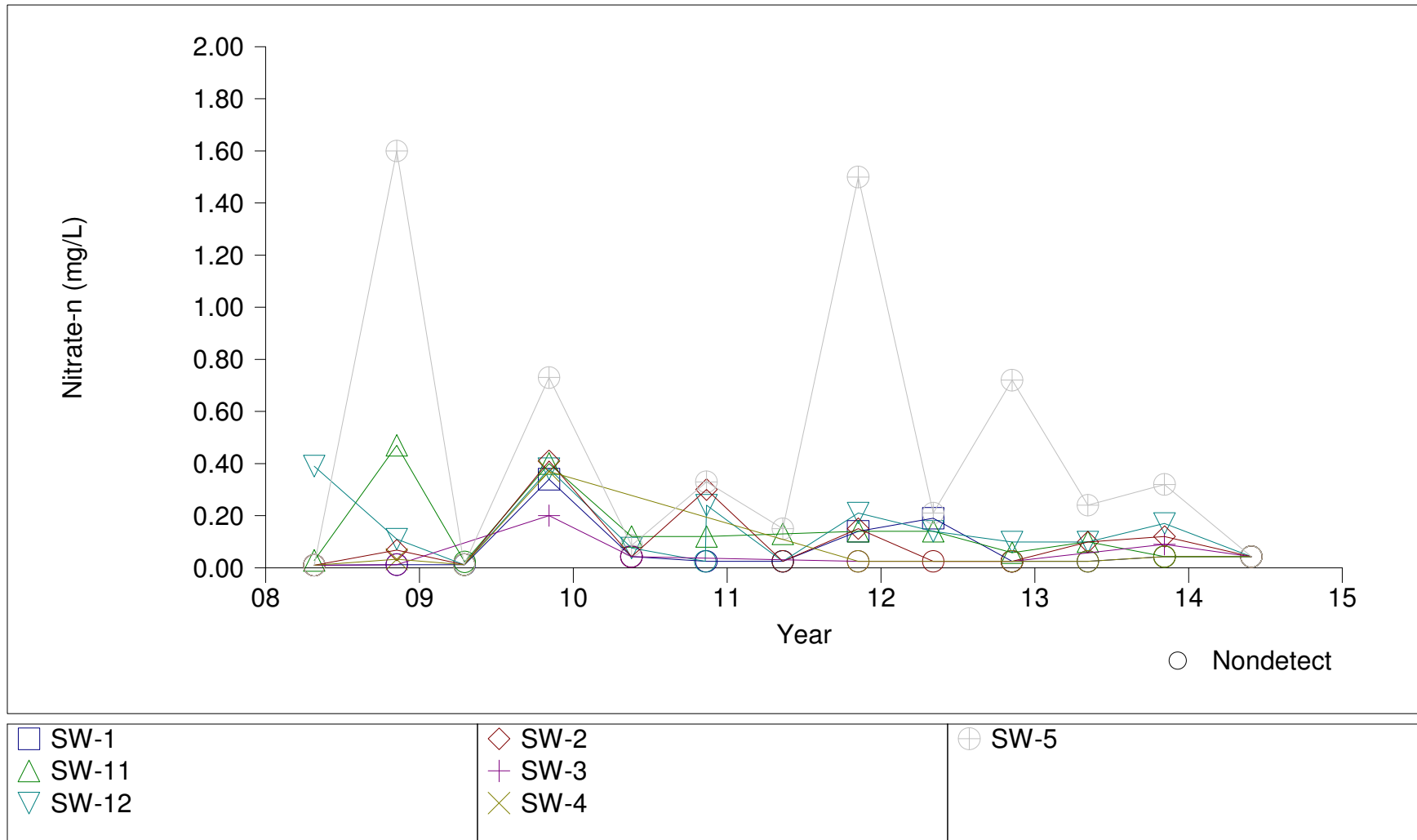
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Time Series Plot for Surface Water Hardness



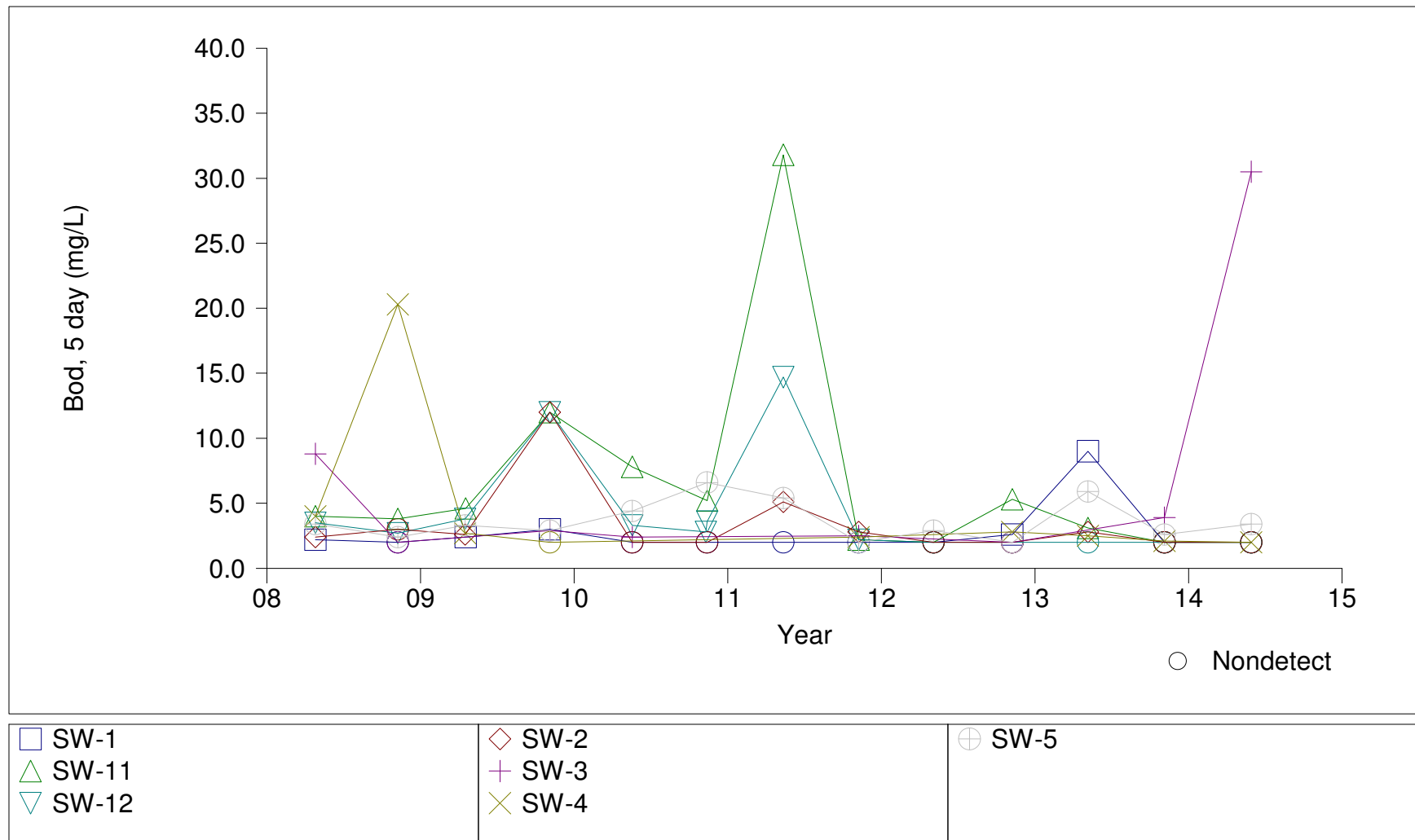
TOMOKA FARMS ROAD LANDFILL

Time Series Plot for Surface Water Nitrate-N



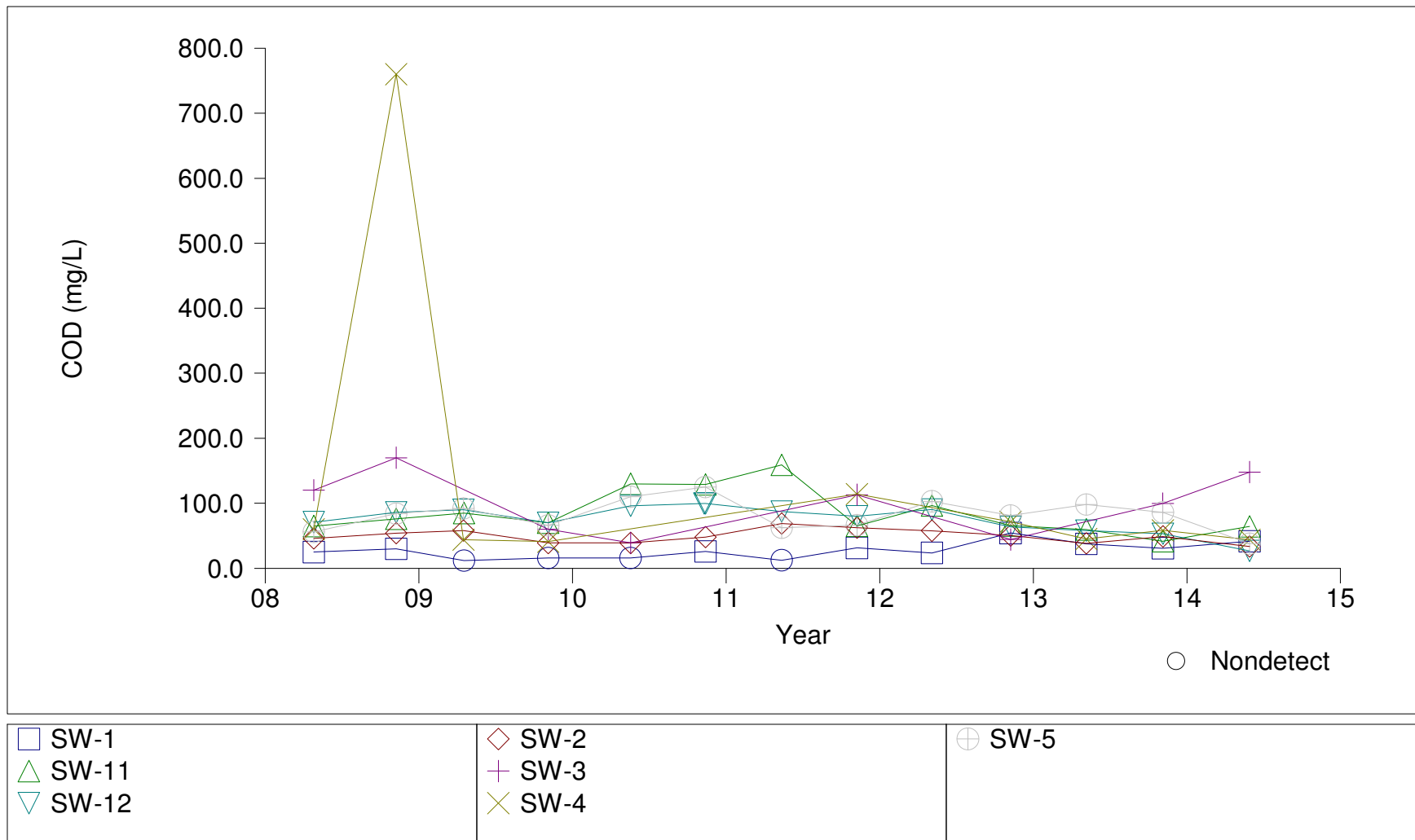
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Time Series Plot for Surface Water Bod, 5 day



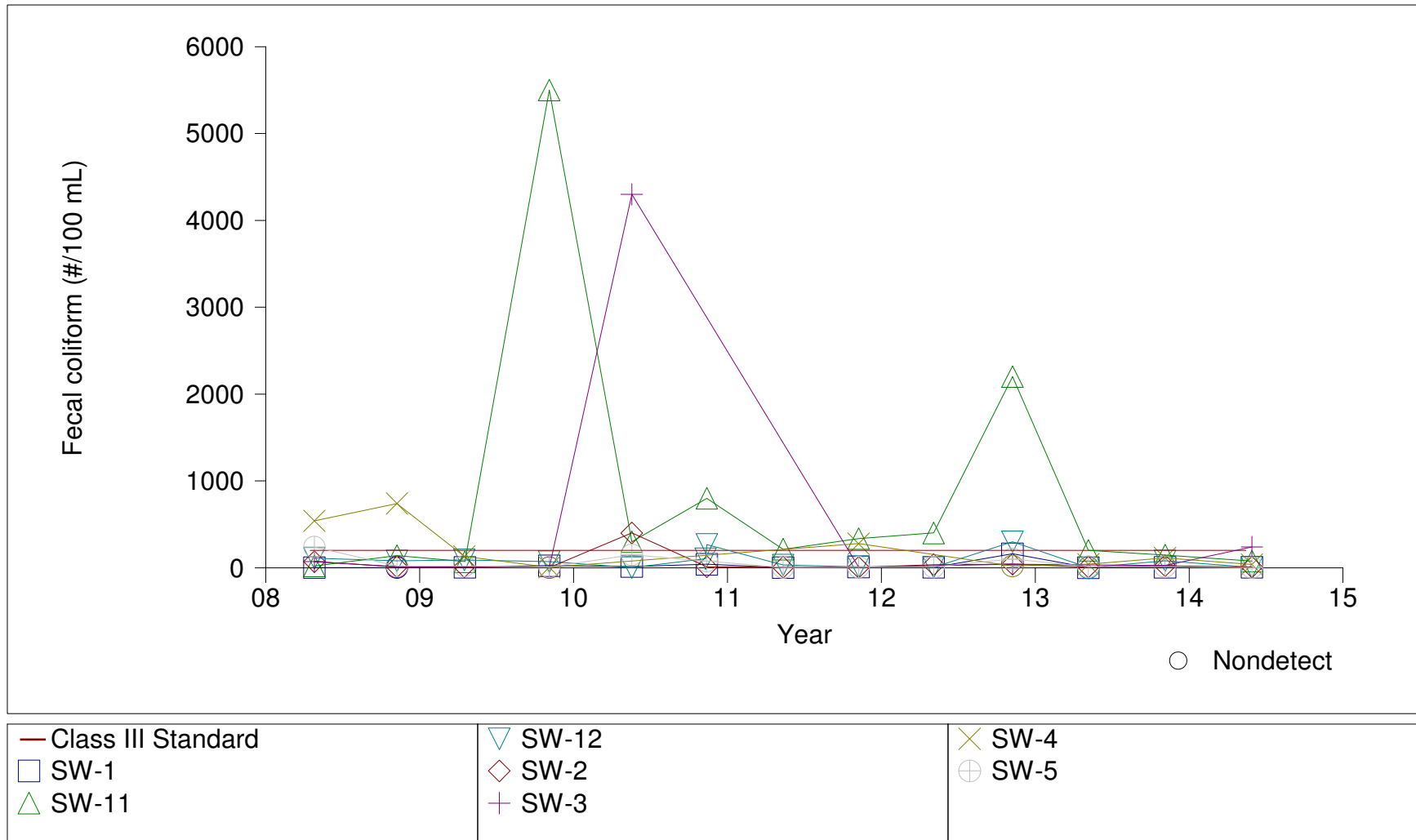
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Time Series Plot for Surface Water COD



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Time Series Plot for Surface Water Fecal coliform



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