

# ADDENDUM No. 1

## RFP No. 17-25

### Compost Facility Operations and Management

**Due: September 1, 2017 at 2:00 P.M. (local time)**

The following changes, additions, and/or deletions shall be made to the Request for Proposal for Compost Facilities Operations and Management, RFP No. 17-25, on which proposals will be received on/or before the date and time listed above.

The information contained herein shall take precedence over the original documents and all previous addenda (if any), and is appended thereto. **This Addendum includes one hundred and eighteen (118) pages.**

**The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.**

**The following forms provided within the RFP Document must be included in submitted proposal:**

- **Attachment B - Non-Discrimination Declaration of Compliance**
- **Attachment C - Living Wage Declaration of Compliance**
- **Attachment D - Vendor Conflict of Interest Disclosure Form**

**Proposals that fail to provide these completed forms listed above upon proposal opening will be rejected as non-responsive and will not be considered for award.**

#### I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in their review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

<b>Section/Page(s)</b>	<b>Change</b>
Section II, B. Objective, 5 Page 14	Remove: "Maintain the compost pad, compost equipment storage building and other site features."  Replace with: "Maintain the compost pad, compost equipment storage building and other site features. The site is provided in "as is" condition. Any defects in the compost pad and adjoining gravel roadway are the sole responsibility of the operator. The City will maintain the stormwater system, including the drainage ditches, culvert, and detention ponds."

Remove: "Maintain the Compost Facility, including re-grading of compost pads and other work areas, to ensure that no ponding occurs between windrows or on other areas of the site."

Replace with: "Maintain the Compost Facility, including re-grading of compost pads and other work areas, including the adjoining gravel roadway, to ensure that no ponding occurs between windrows or on other areas of the site. The site is provided in "as is" condition. Any defects in the compost pad and adjoining gravel roadway are the sole responsibility of the operator. The City will maintain the stormwater system, including the drainage ditches, culvert, and detention ponds."

Remove: "Contractor shall set rates for all incoming third-party waste. Contractor shall be responsible for invoicing all third-party customers. For use of the City's Compost Facility for this third-party tonnage, Contractor shall provide the City with a per ton credit on all third party tonnage, to be applied against service fees payable by the City. Amount of credit to the specified in the pricing form in Appendix B."

Replace with: "Contractor shall set rates for all incoming third-party waste. Contractor shall be responsible for invoicing all third-party customers. The Contractor is solely responsible for all customer accounts, billing, and collection of payments. The City scalehouse and City-employed scalehouse attendant may not be used for this task. City employees will not collect any payments on behalf of the Contractor. For use of the City's Compost Facility for this third-party tonnage, Contractor shall provide the City with a per ton credit on all third party tonnage, to be applied against service fees payable by the City. Amount of credit to be specified on the pricing form in Appendix B."

## II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Offerors are directed to take note in their review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1. In what year did compost operations begin on this property?

Answer 1. 1986-See RFP #17-25, Appendix C, MDEQ Registration, Question 17.

Question 2. Is the operator limited to only the City's hours of operation for its personnel?

Answer 2. No, the operator's personnel may be on-site for operations during additional hours. Site operations beyond the City's stated hours of operation must comply with any applicable Pittsfield Township noise restrictions, and it is the operator's responsibility to confirm and maintain such compliance. Note that the City's

scalehouse operator is on-site only during the hours identified in the RFP and material receiving and distribution is therefore restricted to those hours.

- Question 3. Does the City have any current concerns related to general site conditions and/or housekeeping conditions on-site as provided by the current contractor?  
Answer 3. The City's requirements for operation and maintenance of the site are listed in RFP #17-25, Section II.C. Vendors should identify any suggested improvements to site operations in their work plan.
- Question: 4. Are there any improvements the City would desire as related to general site conditions and/or housekeeping conditions on-site going forward?  
Answer 4. See response to Question 3.
- Question: 5. Can the operator reconfigure the drop off and composting areas?  
Answer 5. Yes, provided that no changes are made to existing site features. The work plan in the vendor's proposal should detail the handling and movement of material within the site and identify any proposed changes to areas of operation from current conditions. Any reconfiguration is subject to the City's approval, and it will be the operator's responsibility to update site maps to reflect the reconfiguration.
- Question 6. How many employees does the current contractor employ or provide for daily operations on-site?  
Answer 6. The number of personnel on-site at any one time is determined by the Contractor.
- Question 7. What will be the requirements of the current contractor with regard to the transitioning process should it be awarded to another firm?  
Answer 7. The current operator will continue to operate the site in accordance with its contract until the contract terminates on 28 January 2018. The awardee of the new contract must be able to accept material and begin operations on 29 January 2018.
- Question 8. During the previous contract period, were there any contract amendments issued by the City and what did they involve?  
Answer 8. See attached contract, entitled Operating and Management Contract Between the City of Ann Arbor and WeCare Organics, LLC, for the City of Ann Arbor Compost Facility, which includes Amendments 1, 2, and 3.
- Question 9. Can we get a copy of any correspondence issued to the City (or previous contractors) by DEQ for the past 5 years?  
Answer 9. Correspondence from the DEQ, if any, will not be provided as part of this RFP process.
- Question 10. Have there been any violations issued to the City (or previous contractors) by the DEQ with regard to this compost facility?  
Answer 10. No.
- Question 11. Are there any unresolved or outstanding regulatory concerns related to the property and/or the current operations?  
Answer 11. No.
- Question 12. When was the last DEQ site visit to the property? Are there available communications or site notes that are related to that visit that can be provided for review?  
Answer 12. The DEQ performed a site inspection on March 29, 2017.

- Question 13. Has the City received any local complaints related to odors or other nuisances from the site over the previous 5 year contract period?
- Answer 13. No
- Question 14. If the City has not been notified yet, is the City aware that the current site may be in violation of the DEQ's Section 324.11521(4)(c) of Part 115 3-year yard clippings accumulation rule?
- Answer 14. The facility was recently inspected by DEQ on March 29, 2017, and DEQ did not identify a violation of 324.11521(4)(c) of Part 115.
- Question 15. During the site visit, we noted significant amounts of foreign objects and pieces of inorganic debris within the existing windrows. Under the current contract, was pre-screening of all incoming materials part of the required work scope (i.e., associated with current contractor operations)?
- Answer 15. See attached contract, entitled Operating and Management Contract Between the City of Ann Arbor and WeCare Organics, LLC, for the City of Ann Arbor Compost Facility which includes Amendments 1, 2, and 3.
- Question 16. Are there any records of how much foreign materials was screened out and removed from incoming deliveries (i.e., % or quantity over some period of time)?
- Answer 16. No. Collection of this data is not a requirement of the contract.
- Question 17. What provisions are available to the operator for rejecting a load of materials delivered by the City trucks? (contaminants above a certain limit or potentially hazardous materials co-mingled into the material that may not become apparent until after the load has been examined)
- Answer 17. See RFP #17-25, Appendix A, Sample Contract, page 7, Section 4.05 Identification, Rejection, or Processing of Compostable Material Not Conforming to Solid Waste Rules and Regulations.
- Question: 18. How is the City or current operator going to deal with unground material dispersed throughout the 61,236 cubic yards (2016 DEQ Report) of material on the site? Grinding brush/woody material represents a significant expense (time, personnel, equipment, fuel) to a new operator without the benefit of having received any tipping. Would the City consider reimbursing the new operator for this service and expenditure?
- Answer 18. It is the proposer's responsibility to process material remaining at the site when the contract commences. The site will be turned over to the Contractor in an "as-is" condition at the start of the contract. The site is an active composting operation, and there will be material in various stages of processing when the new contract commences. Material on-site may include unprocessed brush and wood, recently-established windrows, partially-composted windrows, windrows with nearly finished compost, processed mulch, and finished compost. All material present on-site will be the responsibility of the new Contractor to manage, and may include contaminants until such time as they are screened prior to material being distributed.
- Question: 19. The City's Proposal Requirements, section K. stipulates "collect and dispose of all contaminant and residual waste materials from the Compost Facility at a permitted solid waste facility." Will the City guarantee that all of the contaminants will be removed from the site prior to a new operator taking control? (the windrows, as well as "overs" piles, and brush/wood piles visibly contain plastic, metal, concrete, glass, etc.) If not, will the City consider reimbursing the new operator for this service and expenditure?
- Answer 19. See response to Question 18.

- Question 20. The City's Proposal Requirements, section C. stipulates "Receive and process (e.g. grind) brush and woody materials delivered by the City and/or its agents." Will the City guarantee that, if a new operator is selected, all of the woody/brush material in the windrows, "overs pile" as well as in the brush/wood piles will be ground up prior to its occupancy? If not, will the City consider reimbursing the new operator for this service and expenditure?
- Answer 20. See response to Question 18.
- Question 21. Would the City consider a "one-time" removal of existing materials on site to allow for the new contractor to start with a "clean slate"?
- Answer 21. See response to Question 18.
- Question 22. What is the depth to groundwater on the property?
- Answer 22. The facility has operated as a compost site since 1986 and maintains an active DEQ registration. The depth to groundwater is not relevant to the Contractor's operation and maintenance of the facility under the contract.
- Question 23. Are there any groundwater monitoring wells located on the property? If so, are there sampling data available for review?
- Answer 23. There are no groundwater monitoring wells located on the compost site.
- Question 24. Which contractors have provided these operations for the City under previous contracts?
- Answer 24. The City and its employees were the previous operator of the site, until the current contract with WeCare Denali.
- Question 25. Have there been any previous concerns or problems related to stormwater runoff from the property? If so, what, and how were they addressed?
- Answer 25. See attached 2012 Storm Water Management Study. The stormwater system is the responsibility of the City.
- Question 26. Has there been any sampling or monitoring of stormwater runoff from the property? If so, are there sampling data available for review?
- Answer 26. See attached 2012 Storm Water Management Study.
- Question 27. Have there been any ponding problems on-site during the previous contract period?
- Answer 27. The on-site culvert located at the front pad occasionally becomes blocked. The City performs quarterly inspections of the culvert and services/maintains the culvert to restore flow as needed.
- Question 28. Have there been any flooding issues at the compost site. If so, when were the last couple of times there was a flooding problem at the site, and what were the causes?
- Answer 28. No.
- Question 29. Who do we contact to get a copy of Ann Arbor's storm surge video so we can include it in our employee training program if we are selected?
- Answer 29. The City does not have a "storm surge" video.
- Question 30. If there is a change in operator, will the City or current operator fix, or make provisions to fix, any existing defects in the pad, stormwater system, detention pond or drainage ditches prior to the new operator's occupancy?
- Answer 30. Maintenance of the compost pad and adjoining gravel roadway is the responsibility of the Contractor. Maintenance of the stormwater system,

including the detention pond and drainage ditches, is the responsibility of the City. RFP #17-25, Page 14, item 5 and page 15, item f, have been amended to provide this additional clarification of responsibilities of the City and the Contractor. The City is not aware of any defects or deficiencies in these site features that need to be fixed at this time.

Question 31. We noticed a significant algal bloom in the South Pad's detention pond as well as the pond adjacent to the maintenance building. What has been/is being done to clear up the issue?

Answer 31. See attached 2012 Stormwater Management Study. Maintenance of the detention basins is the responsibility of the City.

Question 32. Will the City consider improvements to the stormwater system?

Answer 32. The City has not identified the need for any improvements to the stormwater system at this time. If the proposer believes improvements are necessary, these improvements should be identified in the proposal. Maintenance of and improvements to the stormwater system are the responsibility of the City.

Question 33. How does the stormwater system co-mingle with the landfill's system? Are there historical data to ensure that the new operator will not inherit an undisclosed liability?

Answer 33. Stormwater from the compost site drains to the on-site detention basins, then flows north through the Swift Run drain towards the City's closed landfill. Any commingling of stormwater from the compost site and landfill is run-off only, and does not include any leachate from the landfill.

Question 34. Since this is a five-year contract, with up to an additional 10 years extension, nutrient loading represents a significant liability. Is or will the Operator be indemnified by the City for any water liability?

Answer 34. No.

Question 35. Is there a freshwater source in the pad area? If not, can a well be put in?

Answer 35. There is not a freshwater source on the pad. No wells may be drilled at the site.

Question 36. Are there fire hydrants located near the pad area?

Answer 36. No

Question 37. If a fire or other emergency should occur, what are the City's notification protocols?

Answer 37. Call 911, and contact the contract administrator. As required in Appendix A, Sample Contract, page 5, Section 2.01, item C, a Standard Operating Procedure (SOP) will be developed by the contractor.

Question 38. Is there any capacity to expand the facility? If so, would the City consider expanding the current site or creating a second location within the next contract period if participation and volume of operations warranted such need?

Answer 38. The City owns adjacent property which could be used in the future to expand the facility, but the City does not have any current plans to expand the Compost Facility.

Question 39. We noticed a lot of contaminants contained in the yard waste delivered to the site from City Trucks. What does the City do to educate, remove, and/or limit the amount of contamination coming from City residents?

Answer 39. See City website <http://www.a2gov.org/departments/trash-recycling/Pages/Compost.aspx>

- Question 40. How does the City propose educating/limiting contamination from the waste stream for food waste (plastic bags vs. compostable bags, plateware, etc.).
- Answer 40. See City website <http://www.a2gov.org/departments/trash-recycling/Pages/Compost.aspx>
- Question 41. Please confirm that the scale is operated by the City and not a third party operator?
- Answer 41. The scalehouse is currently operated by a City of Ann Arbor Employee.
- Question 42. How does Ann Arbor handle cash payments when paid on the site both when waste comes in and compost is sold?
- Answer 42. Cash payments are not received at the site or the scalehouse. Under the new contract, the Contractor will be solely responsible for all customer accounts, billing, and collection of payments. No payments will be accepted by the City at the scalehouse. Proposer must propose how they will accomplish this task. See RFP #17-25, Page 16, Item w, as amended.
- Question 43. What are the steps by which the “units” move between the compost site, the city scale and the “customer”?
- Answer 43. Currently, all incoming vehicles are required to first cross the City scale before entering the compost site. Each vehicle is provided a scalehouse ticket and directed to proceed to the compost site. Upon arrival at the compost site, the operator directs vehicles to the appropriate area of operations. When leaving the site, vehicles delivering material or removing material from the site are not required to scale out if they are being charged on a volume (cubic yard) basis. For loads charged on a tonnage basis, the vehicle is required to scale out if an empty weight is not on file. Vehicles with an empty weight on file at the scale (e.g., City collection trucks) are not required to scale out.
- RFP #17-25, Page 17, Item y identifies requirements for material flow under the new contract, which requires all incoming loaded vehicles (i.e., vehicles delivering organic waste to the site) to scale in and requires all outgoing loaded vehicles (i.e., vehicles removing mulch or compost from the site) to scale out.
- Question 44. When waste deliveries arrive at the scale, does the scale operator prepare a ticket with a copy handed to the customer delivering the waste to bring to the compost site along with the waste? If so, does the compost operator get a copy for its records?
- Answer 44. Customers receive a scalehouse ticket from the scalehouse operator upon crossing the scale. Copies of individual scalehouse tickets are retained by the City in the scalehouse and are available for Contractor review as needed. The City also provides a copy of the Excel scalehouse record for compost site activity to the contractor on a weekly or monthly basis as agreed between the Contractor and the City.
- Question 45. If a third party scales in and dumps the material, but then does not scale out, is the City liable for the missing tipping fees?
- Answer 45. No. It is the contractor’s responsibility to ensure that drivers scale in and out. The City will not be responsible for collecting tipping fees from third party customers. See RFP #17-25, Page 16, Item w, as amended.
- Question 46. If someone illegally dumps material near the entrance to the facility after hours, who is responsible for the cleanup and related costs?
- Answer 46. The Contractor is responsible for securing and maintaining the site during posted operating hours. Any cleanup and removal of material illegally dumped after hours will be the responsibility of the City.

- Question 47. Is there a daily scale report prepared at the scale for both waste deliveries and compost sales deliveries? Is it forwarded to the compost site operator daily, weekly or monthly? Is there a breakout between waste deliveries and compost sales?
- Answer 47. An Excel scalehouse record can be provided to the Contractor on a weekly or monthly basis, as agreed between the Contractor and the City. The record specifies the date, customer, weight or volume of the load, and type of material for each transaction.
- Question 48. We noticed a landscape contractor leave the facility (after being loaded with compost) without weighing out at the scalehouse. Can the operator put in an above ground scale at the site to help control inbound and outbound materials? Can the operator install additional gates or fencing to discourage after hours drop offs or pickups?
- Answer 48. See response to Question 43 regarding current operations and requirements for operations under the new contract. Vendors may propose additional site controls in their proposals which the City may consider but may not agree to. Any changes would be at the Contractor's expense.
- Question 49. Who charges the customer and records the revenue when waste is delivered to the site or compost is sold from the site, the scale operator or the compost site operator?
- Answer 49. The Contractor will be solely responsible for all customer accounts, billing, and collection of payments. No payments will be accepted by the City at the scalehouse. The City will provide the Excel scalehouse record detailing the material deliveries and distributions for the Contractor's use in billing its accounts. Proposer must propose how they will accomplish this task. See RFP #17-25, Page 16, Item w, as amended.
- Question 50. Please explain the process for reporting of City of Ann Arbor credits for waste and compost revenue?
- Answer 50. See RFP #17-25, page 17, Item z.
- Question 51. Can we obtain historical financial information (prior 5 years, on a monthly basis) from the incumbent (incremental to historical tonnage information provided for wastes received in RFP), including;
- i. waste in reporting: date, tonnage/cubic yards, city/third party/individual, amount per, total amount
  - ii. compost/mulch sales reporting: date, tonnage/cubic yards, City/third party, amount per, total amount, compost/mulch
  - iii. City of Ann Arbor fee schedule: date, detail of amounts paid/credited
  - iv. detailed monthly financials, including: revenue, cost of goods sold (including repairs, gas/fuel, salaries, benefits), operating expenses (including leasing costs, fees paid to Ann Arbor), contractors (including detail on any contractor with fees in excess of \$1000 for the year), government fees and licenses, detail broken out on any other annual fees by topic in excess of \$2,000)
  - v. Cap Ex expenditures, including; trucking and heavy equipment schedule, buildings, etc...
  - vi. Cash flow analysis
  - vii. Payroll, including detailed listing of employees, titles, salaries, benefits
- Answer 51. Historical financial information from the current Contractor is not reported to the City and is therefore not available.



Question 52. If we cannot obtain the incumbent's financial information, can we obtain historical financial information (prior 5 years, on a monthly basis) from the City including;

- i. waste in reporting: date, tonnage/cubic yards, city/third party/individual, amount per, total amount
- ii. compost/mulch sales reporting: date, tonnage/cubic yards, City/third party, amount per, total amount, compost/mulch
- iii. City of Ann Arbor fee schedule: date, detail of amounts paid/credited

Answer 52. See RFP #17-25, Appendix D, Historical, Compost Facility Tonnage Data for information available from the City.

Question 53. "The contracted operator sets and collects the tipping fees for all third party organic materials." However, it appears that third party landscapers bringing Ann Arbor resident's leaves and yard waste at the City's rate from September to December. Is this a requirement or can this fee structure be changed?

Answer 53. This is a requirement and cannot be changed. As stated in the RFP, residents and their contracted landscapers may deliver leaves at no charge to the resident or landscaper from September 1 to December 31, which is a component of the City's fall leaf program. The Contractor will bill the City for the tonnage of leaves delivered through this program at the City's tipping fee rate.

Question 54. Other than city residents, can the City provide a list of third-party purchasers of finished compost or mulch materials during the past contract period?

Answer 54. No, that information is not reported to the City by the current Contractor.

Question 55. Page 13 of the RFP references "Section II C below" but it isn't clear where this is? Where should we look for it?

Answer 55. Section II. C. begins on Page 15 of the RFP.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

DEC 29 2010

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**OPERATING AND MANAGEMENT CONTRACT  
BETWEEN THE CITY OF ANN ARBOR  
AND WECARE ORGANICS, LLC, FOR  
THE CITY OF ANN ARBOR COMPOST FACILITY**

THIS OPERATING AND MANAGEMENT CONTRACT ("Contract") is entered into on the 28 day of January, 2010, between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 100 N. Fifth Avenue, Ann Arbor, Michigan 48107 ("City"), and WeCare Organics, LLC, a New York partnership - limited liability company, 9289 Bonta Bridge Road, Jordan, NY 13080 ("Contractor").

**RECITALS**

In consideration of the mutual premises set forth below, the Contractor and the City agree as follows:

**ARTICLE I: DEFINITIONS**

**Section 1.01: Definitions**

For purposes of this Contract, the following words and phrases shall be given the following respective meanings:

"Business Day" means any Day occurring on Monday through Friday, except City Holidays.

"Compostable Material" means leaves, brush, tree limbs up to 6 inches in diameter and 4 feet in length, vegetative prunings, Christmas trees, and other garden or yard waste and other organic material as may be specified in the City's Solid Waste Rules and Regulations. "Compostable Material" does not include sludge, manure or chemically treated wood.

"Compost Site" means City-owned composting facility located at 4150 Platt Road, Ann Arbor, Michigan, including the Compost Maintenance Building.

"Contract Date" means the date of the signing of this Contract by the Parties.

"Contractors" means any contractor, subcontractor, and suppliers or material providers hired by Contractor.

"Event of Default" means any one of more of those events described in Article XII.

"Hazardous Waste" means any material or substance which, as of the Contract Date, and for the duration of this Operating and Management Contract (adopting any future changes in the statutory definitions of the following statutes or regulations or any newly promulgated statutes or regulations), and by reason of its composition or characteristics is (a) hazardous waste, substance or material as defined in the Solid Waste Disposal Act, 42 USC §6901 et seq., as amended, replaced or superseded, and the regulations implementing same, or (b) material the disposal of which is regulated by the Toxic Substances Control Act, 15 USC §2601, et seq., as amended, replaced or superseded, and the regulations implementing

same, (c) special nuclear or by-products material within the meaning of the Atomic Energy Act of 1954, (d) hazardous waste substance or material as defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 USC §6901 et seq. as amended, replaced or superseded, and the regulations implementing same or (e) treated as hazardous waste or substance or material under applicable Federal, State or local law. If any governmental agency or unit having appropriate jurisdiction shall determine that substances are hazardous or harmful to health when Processed at the Compost Site, then thereafter any substances or materials shall be Hazardous Waste for purposes of this Contract.

"Infectious Waste" means any of the following when not generated from a household or from a farm operation or agricultural business: (1) cultures and stocks of infectious agents and associated biologicals, including laboratory waste, biological production wastes, discarded live and attenuated vaccines, culture dishes, and related devices; (2) liquid human and animal waste, including blood and blood products and body fluids, but not including urine or materials stained with blood or body fluids; (3) pathological waste; (4) sharps; (5) contaminated wastes from animals that have been exposed to agents infectious to humans, these being primarily research animals, and (6) waste treated as Infectious Waste pursuant to Federal, State or local laws. If any governmental agency or unit having appropriate jurisdiction shall determine that substances are infectious then thereafter any substance shall be Infectious Waste for purposes of this Contract.

"Party" or "Parties" means either the City or the Contractor, as the context of the usage of the term may require.

"Registered City Representative" means any City employee, office or agent formally registered with the Contractor as a representative of the City with reasonable knowledge of Compost Site tour procedures.

"Revenue" means revenue generated by the sale of finished products made at the composting site.

"Solid Waste" means all solid materials or substances generally discarded or rejected as being spent, useless, worthless, or valueless to the owners at the time of the discard or rejection, including but not limited to garbage, refuse, industrial and commercial waste, demolition and other construction debris; excluding Hazardous Waste and Infectious Waste.

"Sludge" means any solid or semisolid waste that is generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility. "Sludge" also includes any other semisolid industrial waste.

"Subcontractor" means any subcontractor hired directly by Contractor.

"Tipping Fee" or "Tipfee" means the fees charged for Compostable Material tipped at the Compost Site

"Uncontrollable Circumstance" means:

(a) A catastrophe such as an act of God, hurricane, tornado, epidemic, landslide, lightning, earthquake, fire or explosion not caused by Contractor Fault or City Fault,

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flood or similar occurrence, an act of public enemy, war, blockade, insurrection, riot or civil disturbance, sabotage, or similar occurrence;

(b) The order, or injunction or judgment of any federal, State, or local court, administrative agency or governmental body or officer with jurisdiction in the City, including any exercise of the power of eminent domain, police power, condemnation or other taking by or on behalf of any public, quasi-public or private entity; excepting decisions interpreting federal, State and local laws; provided, however, that the order or judgment shall not arise in connection with or be related to the negligent or willful action or inaction of the Party;

(d) A Change in Law; provided that a change in law is not an Uncontrollable Circumstance during any period the City chooses to exercise legally available challenges to the applicability of the law at its cost and expense and indemnify the Contractor for any fines, penalties or other costs of noncompliance with the provision.

(e) The denial of an application for, failure to issue, or suspension, termination, interruption, imposition of a new condition in connection with the renewal or failure of renewal on or after the Contract Date of any governmental Permit if such denial, suspension, termination, interruption, imposition or failure is not also the result of a wrongful or negligent act or omission or a lack of reasonable diligence of the Party asserting an Uncontrollable Circumstance, provided that the contesting in good faith of any such denial, suspension, termination, interruption, imposition or failure shall not constitute or be construed as such a wrongful or negligent act or omission or lack of reasonable diligence; or

(f) The failure of any subcontractor or supplier to furnish materials or equipment for the System on the dates agreed to in connection with the performance of the Work if such failure is caused by an Uncontrollable Circumstance if and to the extent, and only so long as the affected party is not reasonably able to obtain substitute materials or equipment.

#### **Section 1.02: Terms Generally**

The words "include," "includes" and "including" shall be deemed to be followed by the phrase "without limitation," except as the context may otherwise require. The words "agree," "agreement," "approval" and "consent" shall be deemed to be followed by the phrase "which shall not be unreasonably withheld or unduly delayed" except as the context may otherwise require.

#### **Section 1.03: Notices Generally**

Unless specifically provided elsewhere in this Contract, at least fifteen (15) Days prior written notice shall be required to be given by one Party to the other Party of any breach of this Contract by the other Party or failure to fulfill any requirement of this Contract by a Party, in order to allow the Party receiving the notice to cure any breach, or to commence and diligently pursue the cure of any breach which cannot reasonably be cured during the fifteen-day period, or to allow the Party time to prepare for, question or contest the fact that any requirement of this Contract has not been fulfilled.

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**Section 1.04: Entirety of Contract**

This Contract, including the Exhibits, RFP No. 730A to the extent incorporated by reference, and the Contractor's Proposal dated August 9, 2010, to the extent incorporated by reference, constitutes the entire Contract between the Contractor and the City with respect to the operation and maintenance of the Compost Site, including marketing and sales.

The terms and provisions of RFP No. 730A, including Addenda 1 through 4, and the terms of Contractor's Proposal dated August 9, 2010, are incorporated as part of this Contract by reference; provided that in case of a conflict among the requirement(s) in any of the contract documents listed below, the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later:

- (1) Contract;
- (2) Addenda to RFP No. 730A in reverse chronological order;
- (3) RFP No. 730A;
- (4) Contractor's Proposal dated August 9, 2010.

**ARTICLE II: SCOPE OF SERVICES, OWNERSHIP, OPERATION AND MAINTENANCE OF THE COMPOST SITE**

**Section 2.01: Overall Responsibilities**

(a) Contractor shall, at its sole cost and expense, provide all management, supervision, personnel, materials, equipment, services, and supplies (other than Compostable Material after Acceptance) necessary to operate and maintain the Compost Site in accordance with the terms and provisions of this Contract, including in particular this Article II, and as set forth in attached Exhibit B, Scope of Services.

(b) Contractor shall, at its sole cost and expense, market or cause to be marketed all Products in accordance with the terms and provisions of this Contract, including in particular this Article II, and as set forth in attached Exhibit B, Scope of Services.

(c) The Contractor will provide the City a copy of its Standard Operating Procedures (SOP) at the request of the City.

**Section 2.02: Operating Hours - Receiving Hours, Processing Hours, Shipping Hours, and City Holidays**

(a) Contractor shall keep the Compost Site open for the receipt of Compostable Material from 8:30 a.m. to 4:00 p.m. each Monday through Friday and from 8:00 a.m. to 12:00 p.m. each Saturday April through June, excluding City Holidays.

(b) Contractor agrees to receive Compostable Material at the Compost Site at hours other than the hours specified in Section 2.05(a), if requested by the City. Contractor shall be paid for the Direct Costs of operating during the additional hours.

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(c) Contractor may ship products to purchasers at any time that a person designated by the City is on duty to weigh the shipment in accordance with Section 4.06 and that the shipment of the Products does not violate any State, local, municipal, or agency law, regulation, permit or ordinance restricting hours of Product shipment.

(d) Contractor may, after obtaining the prior approval of the City, ship Products to Purchasers when a City staff person is not on duty to weigh the shipment. In this event Contractor shall promptly provide to the City a verified weight ticket and corroborating weight record from the Purchaser.

**Section 2.03: Compost Maintenance Building**

Contractor will be responsible for full repair and maintenance to the City owned Compost Maintenance Building, except for damage from Uncontrollable Circumstances. Repair and maintenance will be done in a timely basis. The City will conduct quarterly inspections to determine that repair and maintenance is being done properly.

**Section 2:04: Maintenance of Entrance and Entrance Road**

The City will maintain the entrance and entrance roads on the City's property up to the Compost Site unless maintenance is required because of the acts or omissions of Contractor, reasonable wear and tear excepted.

**Section 2.05: Stormwater Control**

The contractor shall comply with the best management practices and requirements detailed in the City's Stormwater Pollution Prevention Plan (SWPPP), a copy of which is attached as Exhibit A. This plan is required by the Michigan Department of Environmental Quality as part of the City's NPDES Stormwater Permit. Contractor must comply with the inspection, reporting, training, record keeping and other requirements as detailed in the Plan, including its attached forms. In addition, the Contractor will be required to routinely inspect and maintain the inlets and outlets to the two detention ponds at the Compost Site. Inlets and Outlets must be kept free of debris that would restrict flow into or out of the pond.

**Section 2.06: Litter Control**

The Contractor shall operate the Compost Site in a manner which will limit the generation of litter to the greatest extent possible and shall take all steps necessary to collect and dispose of any litter generated by the Compost Site. Any fine levied against the Compost Site operation for litter violations shall be promptly paid by Contractor.

**ARTICLE III: TERM OF CONTRACT**

**Section 3.01: Life of Contract**

The term of this Contract shall commence on the effective date of the Contract.

The initial organics processing contract, should any be awarded, is anticipated to begin on February 1, 2011. The proposed term of the Contract for Compost Facility Operation

Services is for five (5) years with an option for one (1) two-year renewal on the same terms as year five (5) of the original Contract. The option to renew shall be at the City's sole discretion, subject to agreement by the Contractor. The City shall give the Contractor notice that it wants to exercise the renewal option on or before September 30, 2015. The Contractor shall give the City notice of its agreement to the renewal on or before October 31, 2015.

**ARTICLE IV: DELIVERY, PROCESSING AND DISPOSITION OF COMPOSTABLE MATERIAL**

**Section 4.01: Compost Testing**

Contractor will test finished compost according to the US Composting Council's STA standards. The cost of the compost testing will be the Contractor's responsibility. Contractor will promptly forward all test results to the City upon receipt of the results.

**Section 4.02: MDEQ Reporting Requirements**

Contractor will keep records as required by MDEQ. The City will have the ability to check these records upon request. Contractor will provide necessary information to City for completing annual MDEQ Composting Report, as well as MDEQ Facility Registration Form.

**Section 4.03: Radio Communications**

Contractor will provide radio communication system that will allow communications with the Scalehouse, or will purchase one of the City's existing radios for that use.

**Section 4.04: Identification, Rejection, or Processing of Compostable Material Not Conforming to Solid Waste Rules and Regulations**

(a) Prior to Unloading: Contractor, in its sole discretion, may inspect any vehicle delivering Compostable Material to the Compost Site. If during any vehicle inspection, Contractor determines that the vehicle is delivering Compostable Material not conforming to the Solid Waste Rules and Regulations, Contractor shall require hauler to remove the vehicle from the Compost Site. Contractor shall immediately notify the City of any rejection, stating the date and time of the rejection, the hauler and driver's name, the point of origin and the reason(s) for rejection and shall follow this with a report in writing of the same information delivered within two (2) days to the City.

(b-1) After Unloading – City Loads: If a load of Compostable Material delivered by or on behalf of the City is unloaded at the Compost Site and Contractor determines that the load contains Hazardous Waste, Infectious Waste, Sludge, or Compostable Material not conforming to Solid Waste Rules and Regulations, Contractor shall immediately notify the City's representative at the Compost Site, who shall confirm or deny Contractor's determination. If Contractor's determination is confirmed, the non-conforming portion of the load shall be disposed of and any Direct Costs associated with such disposal shall be charged to the City.

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(b-2) After Unloading – Third Party Loads: If a load of Compostable Material from a Third Party source is unloaded at the Compost Site and Contractor determines that the load contains Hazardous Waste, Infectious Waste, Sludge, or Compostable Material not conforming to Solid Waste Rules and Regulations, Contractor shall immediately notify the City’s representative at the Compost Site. The non-conforming portion of the load shall be disposed of. Any costs associated with such disposal shall not be the responsibility of the City.

(c) Nothing in this Contract shall be construed to mean that receiving Compostable Material, or the inadvertent receipt of Rejected Materials, Hazardous Waste or Infectious Waste at the Compost Site, creates on the part of the City or the Contractor any ownership interest in, or confers on the City or the Contractor any title to, Compostable Material, Solid Waste, Rejected Materials, Hazardous Waste or Infectious Waste.

(d) Inadvertent Deliveries of Non-Compostable Material: The City shall use reasonable efforts to deliver or cause to be delivered to the Compost Site only Compostable Material which conforms to Solid Waste Rules and Regulations. However, the Parties agree that any inadvertent delivery of material which does not conform to Solid Waste Rules and Regulations shall not constitute a breach of the City’s obligations.

**Section 4.05: Removal and Disposal of Process Residue**

(a) Contractor shall be responsible for the removal, transportation and disposal of all Process Residue to a location designated by the City or a location that has been approved by the City. Proof of disposal may be required. The cost and expense of the removal, transportation and disposal shall be paid by Contractor.

**Section 4.06: Weighing and Shipping Records**

(a) All weighing of vehicles delivering Compostable Material to the Compost Site and shipping Product from the Compost Site will be performed by the City. The City shall maintain the calibration of the scales at the scale house in accordance with the procedures established by the State of Michigan. Either the City or Contractor may, from time to time, require a revalidation of the tare weight of any vehicle. Each loaded vehicle entering or exiting the Compost Site shall be weighed, and the gross weight, tare weight, time of delivery and exit, nature of materials, and truck identification shall be accurately recorded on a weight record. Records of all weighing shall be maintained by the City.

(b) Incoming and outgoing loads of less than 2 cubic yards will use the City of Ann Arbor Drop-off station located at 2950 E. Ellsworth Road or at a location(s) designated by the City.

(c) The City shall provide Contractor with summaries on a monthly basis of all weigh tickets. Record copies shall be maintained by the City for a period of at least four (4) Operating Years following the Operating Year in which they were made.

**Section 4.07: City of Ann Arbor Resident Programs**



(a) The City is developing a compost program to provide free or reduced rate finished compost and/or mulch to residents of the City, not to exceed 1,000 cubic yards of finished compost and/or mulch per year at no charge and not to exceed 1,000 cubic yards of finished compost and/or mulch per year at 50% off the posted gate rate. The Contractor will make available to the City the cubic yards of finished compost and/or mulch required by the City for this program. The finished compost and/or mulch made available to residents through this program will be picked up at the Compost Site. If any additional operating hours are required for this, the City will reimburse the Contractor for the Direct Costs of these additional hours, as per Section 2.02(b) of this contract. If residents do not pick up the entire 1,000 cubic yards of either the no charge or 50% reduced rate finished compost and/or mulch, the Contractor agrees that the City may pick up and use for City purposes the remainder of each of the 1,000 cubic yards of finished compost and/or mulch at no charge or at the 50% reduced rate, respectively.

(b) The City may develop a residents program that allows for quantities less than 2 cubic yards of leaves or yard waste to be delivered to the Compost Site in accordance with Section 4.06(b). The City will provide the Contractor details of the program when developed.

## **ARTICLE V: PAYMENTS TO CONTRACTOR AND TO THE CITY**

### **Section 5.01: Compensation**

Payments by the City to Contractor and payments by Contractor to the City shall be made in accordance with the schedule of fees and rates shown in more detail in attached Exhibit C, Schedule of Fees and Rates.

### **Section 5.02: Payments to Contractor**

City will pay Contractor on a monthly basis, with payments made within 30 days after receipt of invoice. Contractor will invoice on a monthly basis, with billings based on tonnage information collected by the City.

### **Section 5.03: Payments to City**

Contractor will pay City on a monthly basis for revenues owed from merchant tonnages. The payment will be in the form of a check, and not a credit to other billings. The payments will be made within 30 days of receipt of a monthly invoice from the City.

### **Section 5.04: Late Payments.**

If either Party makes a payment or provides a credit more than thirty (30) Days after its due date or has withheld payment or credit of any amount in dispute, the prevailing Party shall be entitled to the late payment or disputed amount (or the portion determined to be due) plus interest on the amount to be paid from the date which the amount was due to the date of payment, at the interest rate equal to the Chase Manhattan (Bank) prime rate in effect from time to time during the period that the payment was withheld, plus one percent (1%).

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The date a bill or payment is overdue is computed by determining the date the party to whom payment is owed supplied the other party with all required documentation and information for the payment and then adding the contractual time period for payment of that particular bill or payment.

## **ARTICLE VI: SHUTDOWNS AND REDUCTIONS IN CAPACITY**

### **Section 6.01: Shutdowns or Reductions in Capacity Caused By Uncontrollable Circumstances**

(a) During periods of Uncontrollable Circumstances, the City and Contractor shall attempt to divert any Compostable Material that cannot be accepted by the Compost Site to an appropriate off-site composting location. When the Contractor resumes normal operation, the City shall within a reasonable time resume normal delivery of Compostable Material to the Compost Site. If the shutdown is due to the actions or omissions of the Contractor, its officials, employees or agents, Contractor will be responsible for any additional costs. Otherwise, City will pay additional costs.

(b) If the shutdown is due to the actions or omissions of a third party that delivers materials to the compost site pursuant to an arrangement with the Contractor, then the Contractor shall be responsible for any additional costs. Nothing in Section 7.02a shall preclude the City or Contractor from action against a third party to recover costs.

(b) The Contractor shall continue to be responsible for the security and protection of the Compost Site during the period of shutdown.

(c) After any shutdowns, Contractor and the City shall use their best efforts to resume normal operation of the Compost Site as soon as practicable.

(d) Notice of Uncontrollable Circumstances shall be provided in accordance with Article 14.01.

### **Section 6.02: Insurance Benefits**

If insurance benefits are paid as a result of any shutdown or reduction in capacity of the Compost Site, the benefits shall be paid for the benefit of each Party as its interest may appear, and the benefits shall correspondingly reduce any obligation either Party may have to the other.

### **Section 6.03: Covenant to Continue Work**

During resolution of any dispute under this Contract and subject to the provisions of Article VII, the Contractor and the City shall each continue to perform all of their respective obligations under this Contract without interruption or slow down.

## **ARTICLE VII: MARKETING**

### **Section 7.01: Reporting Requirements**

Contractor shall report monthly in writing as part of the Monthly Invoice regarding the marketing strategy used during the previous month, including any sales commitments for Products. Contractor shall respond to any reasonable inquiry of the City for additional information related to marketing if requested by the City.

## ARTICLE VIII: INSURANCE, SAFETY AND LOSS CONTROL

### Section 8.01: Contractor's Insurance

- A. The Contractor shall procure and maintain during the life of this contract, such insurance policies, including those set forth below, as will protect itself and the City from all claims for bodily injuries, death or property damage which may arise under this contract; whether the acts were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:
1. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:
    - Bodily Injury by Accident - \$500,000 each accident
    - Bodily Injury by Disease - \$500,000 each employee
    - Bodily Injury by Disease - \$500,000 each policy limit
  2. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, Collapse and Underground Coverage or Pollution. Further, the following minimum limits of liability are required:
    - \$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined
    - \$2,000,000 Per Job General Aggregate
    - \$1,000,000 Personal and Advertising Injury
  3. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

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4. Umbrella/Excess Liability Insurance shall be provided to apply in excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.
- B. Insurance required under 8.01.A.2 and 8.01.A.3 of this contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.
- C. In the case of all contracts involving on-site work, the Contractor shall provide to the City, before the commencement of any work under this contract, documentation demonstrating it has obtained the above mentioned policies. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Service Area/Unit at least ten days prior to the expiration date.
- D. Any insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.
- E. To the fullest extent permitted by law, for any loss not covered by insurance under this contract, the Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, to its proportionate extent, from any negligent, grossly negligent, reckless and/or intentional wrongful or tortious acts or omissions by the Contractor or its employees and agents occurring in the performance of this Agreement.

**Section 8.02: No Limitation**

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Nothing contained in this Article VIII or in this Contract shall be construed or deemed as limiting either Party's obligations under this Contract to pay damages or other costs and expenses as may be specifically provided for in other Articles of this Contract.

Nothing contained in this Article VIII or in this Contract shall be construed or deemed as limiting the City's governmental immunity.

## **ARTICLE IX: INDEMNIFICATION AND WAIVER**

### **Section 9.01: Indemnification**

The Parties acknowledge that this Contract contemplates the Contractor acting on behalf of the City and as its agent in connection with the operation and maintenance of the Compost Site to be owned by the City. Accordingly, the Contractor agrees, to the extent permitted by law, that it shall defend, indemnify and hold harmless the City, its officers, agents, servants, and employees against and from all suits, losses, demands, payments, actions, recoveries, judgments and costs of every kind and description and from all damages to which the City or any of its officers, agents, servants and employees may be subjected by reason of injury to the person or property of others resulting from the performance of the Contract. It shall further defend, indemnify and hold harmless the City, its officers, agents, servants and employees from all suits and actions of any kind or character whatsoever which may be brought or instituted by any subcontractor, material provider or laborer who has performed work or furnished materials in or about the Contract or by, or on account of, any claims or amount recovered for an infringement of patent, trademark or copyright.

### **Section 9.02: Payment and Defense**

Any obligation of a Party to act under this Article IX shall commence upon notice of any claim, charge or demand of potential liability, loss, fine, penalty or charge against any Contractor or City Indemnified Party. The Party responsible for payments under the indemnities contained in this Article IX may elect to defend any liability, loss, fine, penalty or charge with its counsel and may settle any matter by applying the settlement; provided however, no payment, confession of judgment, or acknowledgment of liability, loss, fine, penalty or charge shall be made against the City without its express written consent, and the City further reserves the right to select its own counsel in defense of the matter. Any obligation of a party to make payment under this Article IX shall become due and payable when and as any liability, loss, fine, penalty or charge incurred by the Contractor or City Indemnified Party becomes due and payable. Time is of the essence in the performance of the obligations under the Article IX.

### **Section 9.03: Survival**

This Article IX shall survive termination of this Contract.

## **ARTICLE X: EVENTS OF DEFAULT**

### **Section 10.01: Remedies for Default**

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Each Party shall have the right to terminate this Contract for cause where there is an Event of Default on the part of the other Party. Absent an Event of Default, neither Party may terminate this Contract and the Parties shall be limited to damages, reimbursement, and other relief explicitly provided by this Contract, unless the Contract otherwise specifically provides. If the City declares an Event of Default by Contractor, the City may elect not to immediately terminate this Contract but to collect damages in accordance with the Contract. The failure of the City to immediately terminate either Contract shall not prevent the City from later terminating Contract.

**Section 10.02: Events of Default by Contractor**

Each of the following shall constitute an Event of Default of the part of the Contractor:

(a) The failure by Contractor to fulfill, substantially in accordance with this Contract, any of Contractor's obligations under this Contract unless the failure or refusal can be excused or justified by an Uncontrollable Circumstance or default or failure or refusal to act by City. Such failure shall include but is not limited to the failure on the part of the Contractor to pay any undisputed amount required to be paid to the City under this Contract within thirty (30) Days after the amount becomes due and payable.

(b) Repeated substantial defaults or breaches of this Contract including representations, warranties or covenants by the Contractor. Despite each individual default or breach being eventually cured, such repeated substantial defaults or breaches constitutes an independent Event of Default for which the Contractor shall not have any further opportunity to cure the default.

(c) The filing against Contractor of an involuntarily petition for bankruptcy, reorganization, or insolvency under the Federal Bankruptcy Code or under the laws of any other jurisdiction, if the petition is not discharged and/or withdrawn within sixty (60) Days of the date of the filing. Promptly upon the filing of any petition for involuntary bankruptcy, Contractor shall provide the City with all of the pertinent details relating to the petition(s), Contractor's most recent audited and unaudited financial statements, and any other information and data which are available and, as promptly as practicable, the other information and data requested by the City and deemed necessary for review. If the City shall determine from its review, in its sole and absolute discretion, that the petition lacks merit or Contractor has sufficient assets to pay all of its liabilities as they become due, the City may forbear from declaring an Event of Default.

(d) Contractor ceasing to pay its debts, unless contested in good faith, as they mature, or the written admission by Contractor that it is insolvent or bankrupt, or the filing by Contractor of a voluntary petition under the Federal Bankruptcy Act or under the laws of any other jurisdiction, or the consent or acquiescence by Contractor to the appointment by a court of a receiver, liquidator, or City Treasurer for all or a substantial portion of its property or business, or the making by Contractor of any arrangements with it for the benefit of its creditors involving an assignment to a trustee, receiver or similar fiduciary, regardless of who designated, of all or a substantial portion of Contractor's property and assets.

No act shall constitute an Event of Default under Section 10.02 unless and until:

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(i) City has given written notice to the Contractor by certified mail, return receipt requested, specifying that a particular default or defaults exist which will, unless corrected, constitute a material breach of this Contract on the part of the Contractor, and

(ii) The Contractor has not corrected the default or has not taken adequate steps to promptly correct the same within thirty (30) Days from the date of receipt of the notice.

**Section 10.03: Events of Default by the City**

Each of the following shall constitute an Event of Default on the part of the City:

(a) The failure of the City to fulfill its obligations substantially in accordance with the terms of this Contract unless the failure or refusal can be excused or justified by an Uncontrollable Circumstance or default or failure or refusal to act by Contractor.

(b) The persistent and repeated failure on the part of the City to pay any undisputed amount required to be paid to Contractor under this Contract within thirty (30) Days after the amount becomes due and payable unless the failure or refusal can be excused or justified by an Uncontrollable Circumstance or default or failure or refusal to act by Contractor.

No act shall constitute an Event of Default under Section 10.03 unless and until:

(i) Contractor has given written notice to the City by certified mail, return receipt requested, specifying that a particular default or defaults exist which will, unless corrected, constitute a material breach of this Contract on the part of the City, and

(ii) The City has not corrected the default or has not taken adequate steps to promptly correct the same within thirty (30) Days from the date of receipt of the notice.

**ARTICLE XI: TERMINATION**

**Section 11.01: Mitigation**

Contractor and the City agree that in the event one Party terminates the other Party due to an Event of Default, the injured Party is entitled to all rights and benefits of this Contract; provided, however, that the injured Party is obligated, to the extent not detrimental to its interests, to mitigate its damages, costs and expenses.

**Section 11.02: Termination by the City**

If the City terminates this Contract for an Event of Default on the part of Contractor, Contractor shall:

(a) promptly vacate the Compost Site, if requested to do so by the City:

(b) pay to the City the actual quantifiable damages resulting from the breach and subsequent termination.

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(c) pay to the City liquidated damages for non-quantifiable damages in the amount of twenty-five thousand dollars, (\$25,000) in addition to any liquidated damages due the City for violation of Section 14.03 A. (Nondiscrimination) of this Contract.

**Section 11.03: Termination by Contractor**

If Contractor terminates this Contract for an Event of Default on the part of the City then the City shall:

(a) pay to the Contractor the payments, if any, due and payable, for all work performed to the date of termination.

(b) pay to the Contractor consequential damages incurred by Contractor in connection with the termination, including reasonable cancellation charges, if any, from Contractors, Subcontractors, major equipment vendors, or suppliers, but not including any overhead costs.

(c) Contractor shall pay the City all damages or payments otherwise due.

**ARTICLE XII: MICHIGAN FREEDOM OF INFORMATION ACT**

The Contractor understands that material submitted to the City is subject to disclosure under the Michigan Freedom of Information Act.

**ARTICLE XIII: REPRESENTATIONS**

**Section 13.01: Representations of the City**

The City represents that:

(a) The City is a Michigan municipal corporation and a home rule city. It is authorized to carry out the governmental functions and operations as contemplated by this Contract.

**Section 13.02: Representations of Contractor**

Contractor represents that:

(a) It is a partnership-limited liability company organized, validly existing, and in good standing under the laws of the State of New York and is authorized to do business in the State of Michigan.

(b) It has full power and authority to enter into, and be bound by, the terms and conditions of this Contract, and any documents, contract or instrument executed pursuant to them.

(c) It has been authorized to enter into the transactions contemplated by this Contract and no further corporate action is necessary.



(d) It has the power, authority and legal right to enter into and perform and be bound by the terms of this Contract. Further, the execution, delivery and performance of this Contract:

- (i) has been authorized,
- (ii) has the requisite approval of any necessary governmental bodies,
- (iii) will not violate any judgment, order, law or regulation, and
- (iv) does not constitute a default under any obligation or result in the creation of any lien, charge, or encumbrance to which Contractor is a Party of by which Contractor or its assets may be bound or affected.

(e) THERE ARE NO PENDING OR THREATENED ACTIONS OR PROCEEDINGS BEFORE ANY COURT OR ADMINISTRATIVE AGENCY THAT WOULD MATERIALLY AFFECT THE ABILITY OF CONTRACTOR TO PERFORM ITS OBLIGATIONS UNDER THIS CONTRACT.

#### ARTICLE XIV: MISCELLANEOUS

##### Section 14.01: Uncontrollable Circumstances

A. Except as provided in Article VI:

(I) Each Party to this Contract will be excused for failure or delay in performance of any act required herein by reason of an Uncontrollable Circumstance, except that no Party shall be excused from making payments required by this Contract as adjusted for output affected by the Uncontrollable Circumstance.

(II) Each Party shall assume the risk for all losses and damages directly incurred by them, except as otherwise explicitly set forth in this Contract, which arise out of an Uncontrollable Circumstance. Neither Party shall be entitled to recover from the other lost revenues due to any Uncontrollable Circumstance.

(III) The Party asserting that an Uncontrollable Circumstance exists shall, as a condition precedent to the right to claim the benefits resulting therefrom, notify the other Party of the Uncontrollable Circumstance promptly after becoming aware of the Uncontrollable Circumstance, and in any event not more than thirty (30) Days after its occurrence, and shall, within fifteen (15) Days of the initial notice, provide a written notice of: (i) all relevant information regarding the nature and duration of the Uncontrollable Circumstance; (ii) the effect, if any, on either Party's obligations under this Contract; and (iii) available means of mitigation or saving costs as a result of the event. Each Party shall continue to keep the other Party advised with respect to the anticipated impact of an Uncontrollable Circumstance. In the event notice is not given within the thirty (30) Day period, the Party which is affected by the Uncontrollable Circumstance shall lose all right to claim to be excused from performance in any way as a result of the Uncontrollable Circumstance.

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**Section 14.02: Compost Site Access**

During the term of this Contract, the City and its representatives, invitees and representatives of regulatory agencies shall have the right of access to the Compost Site provided that the visitation shall be conducted in a manner so as to minimize interference with Contractor's performance and operations and the invitees are accompanied by a Registered City Representative.

**Section 14.03: Compliance Requirements**

- A. **Nondiscrimination.** The Contractor agrees to comply with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the nondiscrimination provisions of Chapter 112 of the Ann Arbor City Code and to assure that applicants are employed and that employees are treated during employment in a manner that provides equal employment opportunity to all.
- B. **Living Wage.** The Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code and agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Contract a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Contract are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

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**Section 14.04: Assignment.**

This Contract shall be binding on Contractor and its successors and assigns. Neither Party to the Contract shall assign this Contract, or any document or instrument executed in connection to them without the written consent of the other. Notwithstanding the foregoing, the City is permitted to assign these Contracts, and any related documents and instruments to the State of Michigan or an agency of the State of Michigan.

**Section 14.05: Subcontracts, Assignment, and Default**

Contractor shall insure that all contracts and subcontracts with Contractors, Subcontractors, Suppliers, and Major Equipment Vendors are assignable to the City and contain appropriate penalties for default. In the event of a termination of Contractor by the City, copies of all the contracts or subcontractors shall be promptly delivered to the City. Additionally, Contractor shall use its best efforts to have the contracts and subcontracts include the best available warranties and guarantees of service, materials, and equipment, and each contract and subcontract shall provide that in the event the contract or subcontract is assigned to the City, the City shall have access to the Contractor's file relating to its work under the contract as Contractor had prior to assignment.

**Section 14.06: Notices**

All notices, requests and other communications shall be deemed sufficient and properly given if in writing and delivered in person to the following addresses or sent by certified or registered mail, postage prepaid with return receipt requested, at the addresses; provided, if the notices, demands, request, or other communications are sent by mail they shall be deemed as given on the third Day following the mailing which is not a Saturday, Sunday, or Day on which United States Mail is not delivered:

- (a) If to the City:

Solid Waste Manager  
City of Ann Arbor  
100 N. Fifth Avenue  
Ann Arbor, Michigan 48104

- (b) If to the Contractor:

WeCare Organics, LLC  
9289 Bonta Bridge Road  
Jordan, New York, 13080  
Attn: Jeffrey J. LeBlanc, President

Any Party may, by like notice, designate any further or different addresses to which subsequent notices shall be sent. Any notice signed on behalf of the notifying Party by a duly authorized attorney at law shall be valid and effective to the same extent as if signed on behalf of the Party by a duly authorized officer or employee.

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Any notice period which expires on a Saturday or Sunday or a day the City is not open for regular business, shall instead expire on the next Business Day.

**Section 14.07: Relationship of the Parties**

Neither Party to this Contract shall have any responsibility to perform services for or to assume contractual obligations which are the obligation of the other Party. Nothing in this Contract shall render either Party a partner, agent or representative of the other Party or create any fiduciary relationship between the Parties.

**Section 14.08: Waiver**

Unless otherwise specifically provided by the terms of this Contract, no delay or failure to exercise a right resulting from any breach of this Contract shall impair the right or be construed to be a waiver, so that right may be exercised from time to time and as may be deemed expedient. Any waiver is only effective if in writing and signed by the Party granting the waiver. If any provision, responsibility, warranty, or covenant contained in this Contract is breached by either Party and thereafter waived by the other Party, the waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach under this Contract.

**Section 14.09: Amendment.**

This document may not be amended except by written Amendment signed by the authorized representatives of all Parties.

**Section 14.10: Authorized Representative**

Each Party shall identify an authorized representative to be primarily responsible for the interests of that Party. The City Administrator's Designee shall be the City's representative under this Contract. The designated facility manager shall be Contractor's representative. The City and Contractor shall give notice to the other if either elects to change its authorized representative.

**Section 14.11: Contract Governed by Michigan Law**

This Contract shall be governed by the laws of the State of Michigan.

**Section 14.12: No Other Contract**

All negotiations, proposals and contracts prior to the date of this Contract are void. There are no contracts or understandings other than those written or specified in this Contract. This Contract constitutes the entire contract between the City and the Contractor with respect to the operation and maintenance of the Compost Site.

**Section 14.13: Successors and Assigns.**

This Contract shall be binding upon and inure to the benefit of the respective successors, assigns, administrators, and trustees of the City and Contractor.

**Section 14.14: Execution of Documents**

This Contract may be executed in any number of duplicate originals, any of which shall be regarded for all purposes as an original and all of which shall constitute by one and the same instrument.

**Section 14.15: Severability**

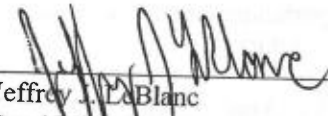
In the event that any provision of this Contract in any respect shall, for any reason, be determined to be invalid, illegal or unenforceable, the Parties shall negotiate in good faith for amendments, modifications or supplements of or to this Contract or other appropriate actions as shall, to the maximum extent practicable, implement and give effect to the intentions of the Parties as reflected in the Contract. The other terms of this Contract shall remain in full force and effect.

IN WITNESS of this Contract:

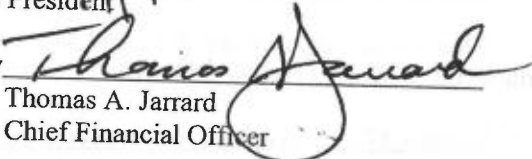
CITY OF ANN ARBOR

CONTRACTOR

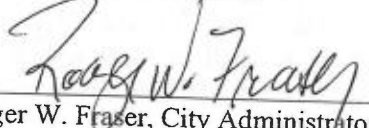
By   
John Hieftje, Mayor

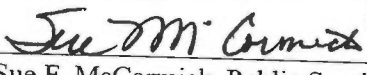
By   
Jeffrey J. LaBlanc  
Its President

By   
Jacqueline Beaudry, City Clerk

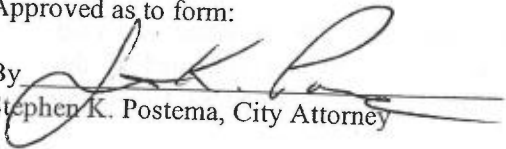
By   
Thomas A. Jarrard  
Its Chief Financial Officer

Approved as to Substance:

  
Roger W. Fraser, City Administrator

  
Sue F. McCormick, Public Services Area  
Administrator

Approved as to form:

By   
Stephen K. Postema, City Attorney

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**EXHIBIT A**

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP)  
City of Ann Arbor Municipal Compost Center  
(Attached)**

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP)  
City of Ann Arbor Municipal Compost Center**

**1. GENERAL FACILITY INFORMATION**

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**Name of Facility:** Ann Arbor Municipal Compost Center  
**Facility Address:** 4150 Platt Road, Ann Arbor, Michigan 48108

**1.1. FACILITY CONTACT**

**Name:** Rob Millett  
**Title:** Field Operations Supervisor – Compost Operations  
**Telephone:** 734-794-6350 ext. 43320  
**Mailing Address:** 4251 Stone School Road, Ann Arbor, MI 48108

**1.2. STORMWATER PROGRAM MANAGER**

**Name:** Molly Wade  
**Title:** Water Quality Manager  
**Telephone:** 734-794-6430 ext. 43702  
**Mailing Address:** 100 North Fifth Avenue, Ann Arbor, MI 48107

**1.3. PERMIT INFORMATION**

**Certificate of Coverage Number:** MIG610379  
**Effective Date of Coverage:** 2/20/09  
**Receiving Waters:** Permit: Huron River. Compost Center Site: Swift Run Creek

**1.4. BRIEF INDUSTRIAL ACTIVITY DESCRIPTION**

The City of Ann Arbor operates its citywide composting program from the Municipal Compost Center at 4150 Platt Road. Major activities at the center include receiving and unloading incoming compostable material, moving material to processing areas for composting, turning compost windrows, screening finished compost, and loading materials for delivery. The facility accepts compostable materials during the growing season (April-November).

## **2. OVERVIEW**

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### **2.1. INTRODUCTION**

This stormwater pollution prevention plan (SWPPP) covers the operations at the Ann Arbor Municipal Compost Center. A SWPPP is required because activities at the compost center have the potential to impact stormwater and degrade water quality in Swift Run.

## **3. SITE MAP**

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The facility covered by this Stormwater Pollution Prevention Plan is located at 4150 Platt Road, Ann Arbor, Michigan (Washtenaw County).

The attached site map (Figure 1) of the Municipal Compost Center shows the existing structural controls and drainage patterns.

## **4. SIGNIFICANT MATERIALS**

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Significant materials are those materials that could come into contact with stormwater and degrade or impair water quality.

### **4.1. INVENTORY OF EXPOSED SIGNIFICANT MATERIALS**

Sediments and nutrients are the only significant materials exposed to stormwater. The compost windrows, which are not covered or contained, are the main source of both sediments and nutrients. All stormwater runs overland into the following basins and discharge to Swift Run.

- Basin 1 captures stormwater from the area south of the railroad bed. Stormwater flows into a vegetated swale before entering the basin. Basin 1 is in good condition.
- Basin 2 captures stormwater from the area north of the railroad bed. Basin 2 would benefit from dredging in the near future.
- Basin 3 captures stormwater from the compost building roof and parking area.
- Basin 4 captures stormwater runoff from a smaller composting area, as well as runoff from the Materials Recovery Facility (MRF), which is covered under a separate industrial stormwater permit.

Several vehicles, including a compost turner, are stored at the parking area outside the compost facility building. Vehicle maintenance occurs indoors.

A truck and trailer is used to haul diesel fuel to equipment located at the compost site. There are spill kits on the truck. When not in use, the fuel trailer is stored indoors.

There are two dumpsters located in the composting area. The dumpsters contain refuse only and are covered.



## 4.2. LIST OF SIGNIFICANT SPILLS

### Significant Spills at the Municipal Compost Center in the past 3 years

There have been no significant spills of polluting materials at the compost center in the past three years.

### Reporting Significant Spills

Any significant spills that occur must be recorded on Form A-1 (see Appendix) within 14 days. The form should be kept on file with the SWPPP.

## 4.3. SUMMARY OF SAMPLING DATA

Stormwater discharge sampling is not required at the site. There is no stormwater discharge sampling data for the site.

## 5. NON-STRUCTURAL CONTROLS

### 5.1. PREVENTATIVE MAINTENANCE AND GOOD HOUSEKEEPING PROGRAM

Preventative maintenance involves the routine inspection, testing, and cleaning of facility equipment and operational systems. Good housekeeping procedures are necessary to maintain a clean, orderly facility. Implementing good housekeeping practices reduces the potential for pollutants to come into contact with stormwater.

The facility contact shall conduct a site walk-through every month to inspect areas with high potential for stormwater contamination and to ensure good housekeeping procedures are being implemented. The facility contact will maintain a log of inspection activities and corrective measures required (Form A-2).

**Table 1. Preventative Maintenance and Good Housekeeping**

Area or Equipment	Tasks
Compost windrows	Ensure windrows are neat.
Vegetated Buffers	Maintain buffers around detention basins and swales to slow flow and reduce sedimentation to pond. Post "no mowing" signs.
Detention basins	Dredge detention basins as needed to maintain functionality.

### 5.2. MATERIAL HANDLING & SPILL PREVENTION / CLEAN-UP PROCEDURES

If there is a compost spill, the material will be moved to a windrow as soon as possible.

**5.3. SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

There are no areas of soil erosion requiring sedimentation control measures at the compost center site.

**5.4. COMPREHENSIVE SITE INSPECTION**

The facility contact should perform a comprehensive site inspection every six months. The inspection shall include a review of the areas identified in the preventative maintenance and good housekeeping section of the SWPPP, as well as a review of any paperwork related to the SWPPP (Table 2).

The comprehensive site inspection requires a site walk-through. Over the course of the year, one of the two required walk-through inspections should occur during a wet weather event. The other should occur under dry weather conditions. Maintain a record of comprehensive site inspections on site (Form A-3).

**Table 2. Comprehensive site inspection**

Inspection Components	Tasks	Annual Report Requirements
Review routine preventative maintenance and good housekeeping reports (collected monthly)		Report any instances of non-compliance with the SWPPP and corrective measures taken.
Wet weather site walk-through (twice per year)	Visually inspect stormwater outfalls and receiving waters for color, turbidity, and suspended solids.	Report visual quality of stormwater discharge and probable sources of stormwater contamination.
Dry weather site walk-through (twice per year)	Visually inspect stormwater outfalls for non-stormwater discharges.	Report instances of dry weather flow, stains, sludge, odor, color, or other indications of a non-stormwater discharge.

**5.5. EMPLOYEE TRAINING PROGRAM**

An employee training program is required to inform appropriate personnel at all levels of responsibility of the components and goals of the SWPPP. To meet the training requirement, the facility contact will hold an annual training session for all users of the Municipal Compost Center. Training topics will include general stormwater management, stormwater permit requirements, pollution prevention, spill response, erosion control, and good housekeeping. Training may be combined with other field operations staff training exercises. Maintain a log of employee training including session date, topics covered, and attendees (Form A-4).

Upon hire, all users of the Municipal Compost Center will

- View the MDEQ employee training video "[Stormwater Employee Training](#)." This video explains the importance of preventing contamination from stormwater runoff and ways employees can be involved at municipal facilities. It is designed to meet the permit requirements for employee training.
- Receive a stormwater factsheet developed for field operations staff.

## 5.6. TMDL REQUIREMENTS

A TMDL (biota) was developed for Swift Run Creek in 2004. The TMDL reach stretches from Swift Run's confluence with the Huron River upstream to its intersection with Ellsworth Road, which is just downstream of the Municipal Compost Center.

Stormwater run-off from the Municipal Compost Center is contributing dissolved solids and nutrients to Swift Run. The City of Ann Arbor is working to manage pollutants in runoff from the site.

## 6. NON-STORMWATER DISCHARGES

Non-stormwater discharges are prohibited. There are no non-stormwater discharges at the Municipal Compost Center. Monitoring for non-stormwater discharges is part of the annual dry weather comprehensive site inspection.

### ANNUAL REVIEW

Review the SWPPP annually after it is developed, and maintain written summaries of the review (Form A-5). Based on the review, amend the SWPPP as needed to ensure continued compliance with the terms and conditions of the permit. Include information such as changes to the site plan, the significant materials on site, or the facility operation on the annual review form.

The annual review is to be retained on site. It does not need to be submitted to the MDEQ.

## 7. RECORD KEEPING AND REPORTING

Appendix A contains blank forms for record keeping and reporting associated with the SWPPP. Completed forms are to be kept on site and made available to the MDEQ upon request. All records should be retained for three years.

Table 3. Reporting requirements

REPORTING REQUIREMENTS	FREQUENCY	ASSOCIATED FORM
Significant Spills	As needed	A-1: List of Significant Spills
Preventative Maintenance and Good Housekeeping	Monthly	A-2: Preventative Maintenance and Good Housekeeping
Comprehensive Site Review	Every six months (two total per year – one wet weather, one dry weather)	A-3: Comprehensive Site Review
Employee Training	Annually	A-4: Employee Training
Annual SWPPP Review	Annually	A-5: Annual SWPPP Review

## 8. SWPPP CERTIFICATION

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The permit requires that the SWPPP shall be reviewed and signed by the Stormwater Program Manager and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The SWPPP shall be retained on-site at the facility which generates the stormwater discharge.

I certify under penalty of law that the stormwater drainage system in this SWPPP has been tested or evaluated for the presence of non-stormwater discharges either by me, or under my direction and supervision. I certify under penalty of law that this SWPPP has been developed in accordance with the General Permit and with good engineering practices. To the best of my knowledge and belief, the information submitted is true, accurate, and complete. At the time this plan was completed no unauthorized discharges were present. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

<b>PERMITTEE OR AUTHORIZED REPRESENTATIVE</b>
<b>Printed Name &amp; Title:</b> Molly Wade, Water Quality Manager
<b>Signature &amp; Date:</b>
<b>FACILITY CONTACT</b>
<b>Printed Name &amp; Title</b> Rob Millett, Field Operations Supervisor – Compost Operations
<b>Signature &amp; Date:</b>

**APPENDIX A**  
**RECORD KEEPING AND REPORTING FORMS**

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# FORM A-1: LIST OF SIGNIFICANT SPILLS

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Fill this table in AS SIGNIFICANT SPILLS OCCUR. Maintain the record on file with the SWPPP.

LOCATION & DATE	MATERIAL & VOLUME	CORRECTIVE ACTIONS TAKEN

## FORM A-2: PREVENTATIVE MAINTENANCE AND GOOD HOUSEKEEPING

Preventative Maintenance and Good Housekeeping inspections are required **MONTHLY**. Maintain a record of completed inspections on file with the SWPPP.

Date:		Time:	
Inspector			
Print:		Signature:	
Areas Inspected	Observation	Corrective Actions Taken	
<b>Compost Windrows</b> Are windrows neatly piled?			
<b>Vegetated Buffers</b> Are buffers around stormwater basins in good condition? Are "no mowing" signs posted?			
<b>Detention Basins</b> Do detention basins require dredging? Sheen observed? Excessive aquatic plant growth?			
<b>Other Areas</b>			

# FORM A-3: COMPREHENSIVE SITE INSPECTION

Comprehensive site inspections are required **EVERY SIX MONTHS**. One of the two inspections required per year must occur during wet weather conditions, and the other under dry weather conditions.

<b>Inspection Date:</b> ___ Wet weather ___ Dry weather		<b>Time:</b>			
INSPECTOR					
<b>Print:</b>		<b>Signature:</b>			
<b>Is the Facility in compliance with the General Permit and the SWPPP:</b>					
INSPECTION COMPONENTS	OBSERVATION			CORRECTIVE ACTIONS TAKEN	
<b>Significant Spills</b>					
Review spills log					
<b>Preventative Maintenance and Good Housekeeping Reports</b>					
Review of monthly reports					
<b>Wet weather walk through</b>					
Stormwater outfalls	Color				
	Turbidity	High	Med	Low	
	Suspended Solids	High	Med	Low	
Receiving waters	Color				
	Turbidity	High	Med	Low	
	Suspended Solids	High	Med	Low	
<b>Dry weather walk through</b>					
Stormwater outfalls	Dry weather flow	Y	N		
	Stains	Y	N		
	Sludge	Y	N		
	Odor	Y	N		
	Color				
	Other				
<b>Other</b>					



**FORM A-4: EMPLOYEE TRAINING RECORD**

Employee training should be conducted **ANNUALLY**. Maintain a record of training events on file with the SWPPP.

Date of Session:	
<b>TRAINER</b>	
Print:	Signature:
Topics Covered:	
<b>ATTENDEE NAME</b>	<b>ATTENDEE SIGNATURE</b>

# FORM A-5: ANNUAL SWPPP REVIEW

Complete a SWPPP Review **ANNUALLY**. Maintain the completed form on file with the SWPPP.

<b>Date of Review:</b>	
<b>REVIEWER</b>	
<b>Print:</b>	<b>Signature:</b>

## ANNUAL SWPPP REVIEW CHECKLIST

1) Facility general information and SWPPP contact information is current and accurate	Yes	No	
2) Site map is current and accurate	Yes	No	
3) Significant material inventory is current and accurate	Yes	No	
4) New exposures, processes and related controls have been documented	Yes	No	NA
5) Spills have been recorded and reported as appropriate	Yes	No	NA
6) Records of routine preventative maintenance, housekeeping and employee training are available in the SWPPP file	Yes	No	
7) Comprehensive site inspections have been completed, certified and filed in the SWPPP file	Yes	No	
8) Corrective actions noted in the inspection reports have been completed	Yes	No	
9) Stormwater Program Manager and Facility Contact are current	Yes	No	
10) Annual fees have been paid	Yes	No	
11) Permit renewal request has been processed	Yes	No	NA
12) SWPPP has been reviewed and signed by the Stormwater Program Manager and the Permittee or designated representative	Yes	No	
<b>ADDITIONAL COMMENTS</b>			

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**EXHIBIT B**

**SCOPE OF SERVICES**

Contractor will be responsible for compost operation and marketing/sales services for the City's Compost Site, which is described more specifically in Section II: Technical Specifications, 2.1 Background, of RFP No. 730A.

The services the Contractor will provide are described more specifically in Section II: Technical Specifications, 2.2 Scope of Services/Specifications, of RFP No. 730A.

Contractor will utilize key staff members and will provide the services as specified more particularly in Forms A-3 and A-4 and related attachments of Contractor's Proposal dated August 9, 2010, and submitted in response to RFP No. 730A.

Contractor will not use chemical additives to the compost or mulch except as necessary to colorize finished mulch product. Any product used to colorize finished mulch must be pre-approved by the City before use at the site.

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**EXHIBIT C**

**SCHEDULE OF FEES AND RATES**

**I. Compost Processing Services Costs and Revenue Share**

The Contractor will pay to the City according to the rates on lines (E) and (H) of attached Form A-10 (revised) of Contractor's Proposal dated August 9, 2010, for incoming non-City tonnages and for sales of finished compost products. If the contract is extended for an additional two years as per Section 3.01, the rates paid by the Contractor in years 6 and 7 will be those that are shown for year 5.

The City will pay to the Contractor according to the rates on line (B) of attached Form A-10 (revised) of Contractor's Proposal dated August 9, 2010, for incoming City tonnages. If the contract is extended for an additional two years as per Section 3.01, the rates paid by the City in years 6 and 7 will be those that are shown for year 5.

**II. Compost Equipment Purchase and/or Lease Costs**

The Contractor is responsible for providing all equipment necessary to perform all of the Services at the Compost Site.

The Contractor has the option to purchase certain equipment from the City, listed on the attached Form A-9 of Contractor's Proposal dated August 9, 2010, but excluding the two light duty trucks and snow plow, for use at the Compost Site.

The City has obtained appraisals both for the sale of the equipment and for lease of the equipment to the Contractor.

If the City and Contractor agree on a sale price on one or more of the pieces of equipment listed, the City and Contractor will take whatever steps are necessary for each to consummate the sale. Any such sale must be completed on or before July 1, 2011.

For any of the listed equipment that the Contractor has not purchased from the City, the Contractor and the City agree to the Contractor leasing the equipment at a lease rate to be paid by the Contractor to the City on a monthly basis for a period starting February 1, 2011, and ending no later than June 30, 2011. The lease rates for the equipment are shown in Attachment A. The City and the Contractor agree to the following terms and conditions:

- Contractor will initially lease all nine pieces of equipment shown in Attachment A.
- Contractor will have the ability to terminate the lease on any piece(s) of equipment after having given the City minimum 30 days written notice.
- City will invoice on the first of each month with payment due within 30 days.

- 
- City will maintain insurance on the equipment.
  - Both parties will complete a joint equipment assessment at the beginning of the lease and complete a review at the end of the lease (or sooner if a piece of equipment is not leased the full period). Normal wear and tear is excepted. While the equipment is being leased, repair/damage cost beyond normal wear and tear shall be paid for or repaired by the Contractor.

Nothing herein requires the City to agree to sell any of the equipment to the Contractor.

**Attachment A: Form A-10 (revised)**

**Composting Processing Services Cost and Revenue Share**

The Cost Proposal table must be filled out in full in order to have the cost proposals evaluated as part of the Contractor selection process. The material volumes used in this table should be reasonable estimates of anticipated volumes by the Proposer. *City quantities are estimates only based on past performance and are no guarantee of future quantities.*

Material (per year)	Yr. 1	Y. 2	Yr. 3	Yr. 4	Yr. 5
(A) Total City Leaves and Yard Debris (tons/yr)*	9,000	9,000	9,000	9,000	9,000
(B) Tipfee (\$/ton)	\$19.00	\$19.00	\$18.00	\$18.00	\$17.50
(C) Total City Cost (\$/yr) = A x B	\$171,000	\$171,000	\$162,000	\$162,000	\$157,500
(D) Projected Incoming Merchant Tons (tons/yr) **	21,000	21,000	21,000	21,000	21,000
(E) City Share of Incoming Merchant income (\$/ton)	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
(F) Payment to City - Incoming Material (\$/yr) = D x E	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
(G) Outgoing Material - Projected Market Sales (tons) **	30,000	30,000	30,000	30,000	30,000
(H) City Share of Outgoing Materials sales (\$/ton)	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50
(I) Payment to City - Outgoing Materials (\$/yr) = G x H	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
<b>Total Share to City (\$/yr) = F + I</b>	<b>\$36,000</b>	<b>\$36,000</b>	<b>\$36,000</b>	<b>\$36,000</b>	<b>\$36,000</b>

\*Quantities include a small quantity of Source Separated Organics. Note that starting in 2010, fall leaves will no longer be collected separately and will instead be collected with yard debris in compost carts or paper yard debris bags

\*\* Merchant and Market quantities are considered estimates and are used to compare cost proposals.

**Attachment A: Form A-9  
Compost Equipment Purchase Costs**

<b>Equipment</b>	<b>Model/Type/ Acquisition Date</b>	<b>Purchase Price (\$)</b>	<b>Proposed Contract Purchase Price (\$)</b>
Tub Grinder	Morbark 1200XL, 2003	\$372,550	Not Applicable
Windrow Turner	Scarab 18HYD 525D5, 2004	\$259,856	Not Applicable
Front End Loader	John Deere 624J, 2005	\$181,300	Not Applicable
Front End Loader	John Deere 624J, 2007	\$151,950	Not Applicable
Dump Truck	Ford F8000, 1995	\$ 71,785	Not Applicable
Dump Truck	Ford LT8513, 1997	\$ 76,808	Not Applicable
Light Duty Truck	F-250 4X4 Crew Cab, 2008	\$ 23,380	Not Applicable
Light Duty Truck	GMC 1500, 2006	\$ 12,757	Not Applicable
Snow Plow	Western 7.5 Pro Poly Ultra, 2007	\$ 3,899	Not Applicable
Compost Screener	Erin 300 Compost Screen, 1999	\$188,470	Not Applicable
Air Compressor	Sullair 185DPQJD, Air Compressor, 2006	\$ 10,251	Not Applicable
		<b>TOTAL</b>	Not Applicable

Note: WeCare Organics, LLC would be interested in purchasing all of the compost equipment based on 3rd Party Appraisal and based on mutually acceptable terms and conditions between the City of Ann Arbor and WeCare Organics, LLC

**EXHIBIT C  
ATTACHMENT A**

<b>Asset #</b>	<b>Description</b>	<b>Anticipated Life</b>	<b>Appraised Value</b>	<b>Monthly Lease Cost*</b>
4819	2006 Sullair 185DPQJD Compress	10	\$ 7,000.00	\$ 110.00
8502	1997 FORD LOUISVILLE LT8513	10	\$ 19,000.00	\$ 160.00
8594	1995 FORD LT8000 DUMP	10	\$ 15,000.00	\$ 130.00
8595	1996 FORD LT8000 TANDEM	10	\$ 17,000.00	\$ 140.00
8770	2007 John Deere 624J Loader	10	\$ 129,400.00	\$ 1,770.00
8779	2005 John Deere 624J Loader	10	\$ 121,500.00	\$ 1,490.00
8783	1999 ERIN 300 Compost Screen	8	\$ 105,000.00	\$ 1,090.00
8784	2003 Morbark 1200XL Tub Grinde	10	\$ 230,000.00	\$ 1,920.00
8785	2004 Scarab 18HYD-525-D5	10	\$ 240,000.00	\$ 2,540.00

\* Lease price does not include Fuel or Maintenance/Repair cost

Both parties will do an equipment assessment at the time of equipment transfer.





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**AMENDMENT NUMBER 1 TO  
OPERATING AND MANAGEMENT CONTRACT  
BETWEEN THE CITY OF ANN ARBOR  
AND WECARE ORGANICS, LLC, FOR  
THE CITY OF ANN ARBOR COMPOST FACILITY**

The City of Ann Arbor, a municipal corporation, 100 N. Fifth Avenue, Ann Arbor, Michigan 48107-8647 ("City") and WeCare Organics, LLC, a New York partnership - limited liability company, 9289 Bonta Bridge Road, Jordan, NY 13080 ("Contractor") agree to amend the Operating and Management Contract for the City of Ann Arbor Compost Facility, ("the Agreement") made and entered into by the parties on the 28<sup>th</sup> day of January, 2011

**WHEREAS**, the Contractor has been paying a rental rate on the city-owned compost equipment that allows the City to recuperate its cost; and

**WHEREAS**, the Contractor has requested a 90 day extension on the current rental period, which expires June 30, 2011, in order to better coordinate leases with their other facilities; and

**WHEREAS**, this amendment allows additional extensions to be approved administratively if needed;

**THEREFORE**, the Contractor and the City agree to amend the agreement, as follows:

1. Article V: Payments to the Contractor and to the City, Section 5.01: Compensation, is amended to read as follows:

Payments by the City to Contractor and payments by Contractor to the City shall be made in accordance with the schedule of fees and rates shown in more detail in attached First Amended Exhibit C, Schedule of Fees and Rates.

2. Exhibit C, Schedule of Fees and Rates, is amended and replaced by First Amended Exhibit C, attached hereto. Form A-10 (revised), Form A-9 and Attachment A to Exhibit C are not changed and are now attached to First Amended Exhibit C.

Unless specifically amended above, all terms and conditions of the original contract entered into between the parties on the 28<sup>th</sup> day of January, 2011, are to apply to this amendment and are made a part of this amendment as though expressly rewritten, incorporated, and included herein.

This amendment to the agreement between the parties shall be binding on the heirs, successors and assigns of the parties.

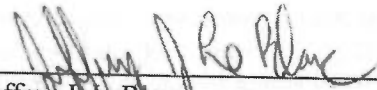
Dated this August 8, 2011

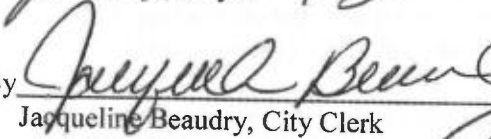
**IN WITNESS WHEREOF**, the authorized representatives of the Parties hereto have fully executed this instrument on the day and year first above written.

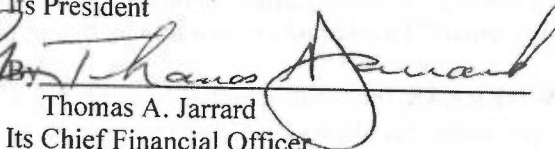
CITY OF ANN ARBOR

CONTRACTOR

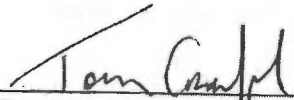
By   
John Hieftje, Mayor

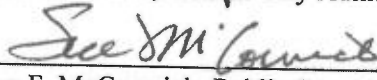
By   
Jeffrey J. LeBlanc  
Its President

By   
Jacqueline Beaudry, City Clerk

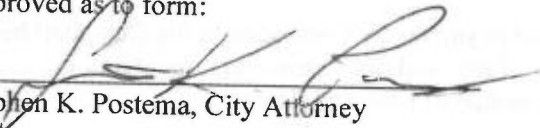
By   
Thomas A. Jarrard  
Its Chief Financial Officer

Approved as to Substance:

  
Tom Crawford, Interim City Administrator

  
Sue F. McCormick, Public Services Area  
Administrator

Approved as to form:

By   
\* Stephen K. Postema, City Attorney

---

FIRST AMENDED EXHIBIT C

**SCHEDULE OF FEES AND RATES**

I. Compost Processing Services Costs and Revenue Share

The Contractor will pay to the City according to the rates on lines (E) and (H) of attached Form A-10 (revised) of Contractor's Proposal dated August 9, 2010, for incoming non-City tonnages and for sales of finished compost products. If the contract is extended for an additional two years as per Section 3.01, the rates paid by the Contractor in years 6 and 7 will be those that are shown for year 5.

The City will pay to the Contractor according to the rates on line (B) of attached Form A-10 (revised) of Contractor's Proposal dated August 9, 2010, for incoming City tonnages. If the contract is extended for an additional two years as per Section 3.01, the rates paid by the City in years 6 and 7 will be those that are shown for year 5.

II. Compost Equipment Purchase and/or Lease Costs

The Contractor is responsible for providing all equipment necessary to perform all of the Services at the Compost Site.

The Contractor has the option to purchase certain equipment from the City, listed on the attached Form A-9 of Contractor's Proposal dated August 9, 2010, but excluding the two light duty trucks and snow plow, for use at the Compost Site.

The City has obtained appraisals both for the sale of the equipment and for lease of the equipment to the Contractor.

If the City and Contractor agree on a sale price on one or more of the pieces of equipment listed, the City and Contractor will take whatever steps are necessary for each to consummate the sale. Any such sale must be completed on or before ~~June 30, 2011.~~ September 30, 2011. Any additional extensions can be authorized by the City Administrator if needed.

For any of the listed equipment that the Contractor has not purchased from the City, the Contractor and the City agree to the Contractor leasing the equipment at a lease rate to be paid by the Contractor to the City on a monthly basis for a period starting January 1, 2011, and ending no later than ~~June 30, 2011.~~ September 30, 2011. Additional extensions can be authorized by the City Administrator if needed. The lease rates for the equipment are shown in Attachment A. The City and the Contractor agree to the following terms and conditions:

- Contractor will initially lease all nine pieces of equipment shown in Attachment A.
- Contractor will have the ability to terminate the lease on any piece(s) of equipment after having given the City minimum 30 days written notice.

- 
- City will invoice on the first of each month with payment due within 30 days.
  - City will maintain insurance on the equipment.
  - Both parties will complete a joint equipment assessment at the beginning of the lease and complete a review at the end of the lease (or sooner if a piece of equipment is not leased the full period). Normal wear and tear is excepted. While the equipment is being leased, repair/damage cost beyond normal wear and tear shall be paid for or repaired by the Contractor.

Nothing herein requires the City to agree to sell any of the equipment to the Contractor.

AMENDMENT NUMBER TWO TO  
OPERATING AND MANAGEMENT CONTRACT  
BETWEEN WECARE ORGANICS, LLC,  
AND THE CITY OF ANN ARBOR

The City of Ann Arbor, a Michigan municipal corporation, with offices at 301 W. Huron Avenue, Ann Arbor, Michigan 48107-8647 ("City") and WeCare Organics, LLC ("Contractor"), a New York limited liability company, having its offices at 9289 Bonta Bridge Road, Jordan, NY 13080 agree to amend the Operating and Management Contract for the City of Ann Arbor Compost Facility ("the Agreement") made and entered into by the parties on January 28, 2011, and amended on August 8, 2011 as follows:

- 1) Article I, Section 1.01: Definitions, is amended to amend "Compostable Material" and add a definition of "Food Waste" that reads as follows:

"Compostable Material" means leaves, brush, tree limbs up to 6 inches in diameter and 4 feet in length, vegetative prunings, Christmas trees, Food Waste, and other garden or yard waste and other organic material as may be specified in the City's Solid Waste Rules and Regulations. "Compostable Material" does not include sludge, manure or chemically treated wood.

"Food Waste" means food and food by-products collected through the residential seasonal curbside collection program that are deemed acceptable to process on the Compost Site by the Michigan Department of Environmental Quality, and as further defined in City regulations.

- 2) Article V, Section 5.01: Compensation, is amended to read as follows:

Payments by the City to Contractor and payments by Contractor to the City shall be made in accordance with the schedule of fees and rates shown in more detail in attached First Amended Exhibit C, Schedule of Fees and Rates.

Starting January 1, 2014, the City will pay the Contractor an additional \$14,950.00 per calendar year for processing all Food Waste that meet the following requirements: a) are deemed acceptable to process on the Compost Site by the Michigan Department of Environmental Quality; and b) are collected from residences during the seasonal collection of Compostable Material (approximately April through December 15th). For Billing Purposes the program will begin January 1, 2014.

The City shall pay the \$14,950.00 in 10 equal monthly installments of \$1,495.00 in March through December of each year, beginning March 2014.

The Food Waste collection program may be terminated by either Party with a minimum of 30 days written notice. Monthly payments will be paid up to the effective date of termination, including a pro rata portion of the last monthly payment if termination is not effective on the first day of a month.

All terms, conditions, and provisions of the original agreement between the parties executed January 28, 2011, as amended on August 8, 2011, unless specifically amended above, are to



apply to this second amendment and are made a part of this second amendment as though expressly rewritten, incorporated, and included herein.

This second amendment to the agreement between the parties shall be binding on the heirs, successors and assigns of the parties.

Dated this February 11, 2014  
~~December 2, 2013.~~

**For Contractor**

By Michael A. Michlan  
Senior Vice President  
WeCare Organics LLC 1/4/14

**Approved as to form and content**

Stephen K. Postema  
Stephen K. Postema, City Attorney

**For City of Ann Arbor**

By John Heiftje  
John Heiftje, Mayor  
By Jacqueline Beaudry  
Jacqueline Beaudry, City Clerk

**Approved as to substance**

Steven D. Powers  
Steven D. Powers, City Administrator  
Craig Hupy  
Craig Hupy, Public Services Administrator





AMENDMENT NUMBER THREE TO  
OPERATING AND MANAGEMENT CONTRACT  
BETWEEN WECARE ORGANICS, LLC,  
AND THE CITY OF ANN ARBOR

The City of Ann Arbor, a Michigan municipal corporation, with offices at 301 W. Huron Avenue, Ann Arbor, Michigan 48107-8647 ("City") and WeCare Organics, LLC ("Contractor"), a New York limited liability company, having its offices at 9289 Bonta Bridge Road, Jordan, NY 13080 agree to amend the Operating and Management Contract for the City of Ann Arbor Compost Facility ("the Agreement") made and entered into by the parties on January 28, 2011, amended by amendment #1 on August 8, 2011, amendment #2 on February 11, 2014, and notice to extend on July 15, 2015, as follows on this 22nd day of March, 2016.

- 1) Article I, Section 1.01: Definitions, is amended to amend the definition of "Compostable Material," and to add definitions of "Post Consumer Food Waste," and "Compostable Manmade Material" and to read as follows:

"Compostable Material" means leaves, brush, tree limbs up to 6 inches in diameter and 4 feet in length, vegetative prunings, Christmas trees, Food Waste, Post Consumer Food Waste, Compostable Manmade Material, other garden or yard waste, and other organic material as may be specified in the City's Solid Waste Rules and Regulations. "Compostable Material" does not include sludge, manure, or chemically treated wood.

Either Party may terminate Post Consumer Food Waste and/or Compostable Manmade Material as Compostable Material accepted for processing at the Compost Site with a minimum of 30 days written notice to the other Party.

"Post Consumer Food Waste" means post consumer food and food by-products that (1) are from properties that are not properties (residential and non-residential) from which the collection is done by the City or the City's agent, representative, or contractor, and (2) are acceptable to process on the Compost Site based on compliance with all Michigan Department of Environmental Quality regulations, and as further defined in City regulations.

The Contractor and the City each reserves the right to limit or decline acceptance at any time of Post Consumer Food Waste based upon characterization, odor, impact on process and/or it is determined to negatively impact the composting program.

"Compostable Manmade Material" means material that (1) is from properties that are not properties (residential and non-residential) from which the collection is done by the City or the City's agent, representative, or contractor, and (2) the entire product will completely break down into organic matter, will breakdown within 180 days, and the microorganisms present in compost will consume the material at the same rate as they would natural materials (i.e., food scraps, soiled paper, leaves, etc.). To satisfy the requirements of (2), materials must meet one of the following criteria:

- a. The product packaging or the specific product includes the BPI logo;
- b. The product packaging or the specific product includes the phrase "meets ASTM standards for compostability";
- c. The product packaging or the specific product has been designated "Certified Compostable" by the Biodegradable Products Institute (BPI).

*mw*

Compostable Manmade Material also must be acceptable to process on the Compost Site based on compliance with all Michigan Department of Environmental Quality regulations, and as further defined in City regulations.

The Contractor and the City each reserves the right to limit or decline acceptance at any time of Compostable Manmade Material based upon characterization, odor, impact on process and/or it is determined to negatively impact the composting program.

- 2) Article V, Section 5.01: Compensation, is amended to add the following paragraphs at the end:

For purposes of First Amended Exhibit C, Schedule of Fees and Rates, including Attachment A: Form A-10 (revised), Compostable Manmade Material and Post Consumer Food Waste are included as Merchant Tons.

All terms, conditions, and provisions of the original agreement between the parties executed January 28, 2011, as amended by amendment #1 on August 8, 2011, amendment #2 on February 11, 2014, and notice to extend on July 27, 2015, unless specifically amended above, apply to this Third Amendment and are made a part of this Third Amendment as though expressly rewritten, incorporated, and included herein.

This Third Amendment to the agreement between the Parties shall be binding on the heirs, successors and assigns of the Parties.

**For Contractor**

By Michael Nicholson  
Michael Nicholson,  
Senior Vice President

**For City of Ann Arbor**

By Christopher Taylor  
Christopher Taylor, Mayor

By Jacqueline Beaudry  
Jacqueline Beaudry, City Clerk

Approved as to form and content

Stephen K. Postema  
Stephen K. Postema, City Attorney

Approved as to substance

Tom Crawford  
Tom Crawford, Interim City Administrator

Craig A. Hupy  
Craig A. Hupy, PE, Public Services  
Administrator

*Handwritten initials*

# STORMWATER MANAGEMENT STUDY

for

**The Ann Arbor Compost Facility**  
Operated by WeCare Organics, Inc.

Prepared for:

**The City of Ann Arbor**  
100 N. Fifth Avenue  
Ann Arbor, Michigan 48105

Prepared by:



605 S. Main Street, Suite 1  
Ann Arbor, Michigan 48104  
734-222-9690  
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**Draft: January 18, 2012**  
**Final: March 2, 2012**

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## EXECUTIVE SUMMARY

In 2009, the Michigan Department of Natural Resources and Environment, now the Michigan Department of Environmental Quality (MDEQ), performed a routine inspection of the Ann Arbor Compost Facility to evaluate compliance with the Ann Arbor NPDES stormwater permit. This inspection resulted in the MDEQ's request that the City reduce the facility's nutrient loading to Swift Run. Swift Run is part of the Middle Huron River and the Middle Huron Initiative, an effort by communities and organizations in this area to reduce nutrient loading to the Huron River and to Ford and Belleville Lakes. Both Ford and Belleville lakes have phosphorus Total Maximum Daily Loads (TMDLs). Swift Run is also listed on the Section 303(d) list as an impaired water and has a TMDL of 80 mg/L for total suspended solids (TSS).

In response to the MDEQ inspection, the City of Ann Arbor (the City) decided to evaluate stormwater management and water quality at the Compost Facility. The 60-acre Compost Facility is part of a larger 270-acre city site. The Compost Facility ponds are part of an overall stormwater system for this site. This report documents the methods, findings and recommendations of this evaluation for the Compost Facility and this entire site. The overall goal of the study was to evaluate the water quality impact of the Compost Facility and surrounding site on Swift Run. Dry and wet weather hydrologic and water quality data were collected for 10 sampling events between April and October, 2011. Samples were analyzed for nutrients, suspended solids and *E. coli*. Other parameters, such as dissolved oxygen and conductivity were also measured with hand probes. The hydrologic information was used to help calibrate a hydrologic and hydraulic model of the entire site.

The Swift Run data collected on site was compared to data collected by the Huron River Watershed Council (HRWC) at the mouth of Swift Run between 2008 and 2011. Based on this comparison, we have found that the Ann Arbor municipal site does not contribute nutrients, suspended solids or *E. coli* to Swift Run at a rate greater than the rest of the Swift Run watershed.

In order to have some idea of the potential quality of runoff directly off the compost rows, we compared the Ann Arbor facility runoff to other facilities in the literature. In a study done to evaluate the potential reuse of Compost Facility runoff, runoff water quality from four different facilities was tested (E&A Environmental Consultants, 1997). By comparison with the facility having the *least* concentrated runoff from that study, the pond water quality of the Ann Arbor Compost Facility is quite dilute. Assuming that runoff through the Ann Arbor compost approximates the quality found from these other facilities, the current compost facilities – including the pads, ponds and swales – are providing treatment before any water reaches Swift Run.

Based on seven months of primarily wet weather sampling, the Ann Arbor Compost Facility is meeting the mean annual Swift Run TMDL TSS target of 80 mg/L. Based on comparison of Compost Facility pond water quality with other Compost Facility runoff water quality, we also believe that the compost pads and ponds are already providing at

least the 57% - 58% phosphorus reduction required of non-point source loads to Ford and Belleville Lakes.

The MDEQ had requested the City plug the Compost Facility pond outlets and perhaps use the pond water for irrigation. While the City could install an irrigation system, if that was the only route of release for compost pad runoff they would also need to construct temporary storage with at least four months of winter holding time. In order to store this much water, the north pond would have to be increased roughly six times in size and the south pond would have to double in size.

We believe plugging the pond outlets is not a feasible option. While the ponds appear to be providing adequate treatment in terms of existing Swift Run water quality, we believe the City can voluntarily set the bar higher, particularly for phosphorus and organic nitrogen. We offer several recommendations to improve site water quality, including:

1. Expand the north pond to the extent practicable. We estimate the north pond can be upsized approximately 37%. Build a small berm around the pond and raise the water level up to a foot higher. Re-build the outlet structure to lower mid-range outflow rates.
2. Provide phosphorus, TKN and *E.coli* removal on compost pond outlets using shallow off-line treatment basins with a substrate mix of Ann Arbor water treatment plant residuals to adsorb particulate and dissolved phosphorus and nitrify/denitrify organic nitrogen and nitrates.
3. Provide native grass buffers around the compost ponds to discourage geese usage.
4. Create a 20-foot wide multi-species riparian buffer along the ditch on the agricultural land.
5. During the growing season, there is clearly a significant amount of algae growth in the ponds and slower moving portions of Swift Run. This algae and other settled solids have been collecting in the ponds and ditches for years now. We recommend the City institutes a pond/water course management regime to ensure buildup of organic material does not become a problem in the future.

We estimate the City can remove anywhere from 50% to 80% of the current nutrient load and provide up to a two order magnitude reduction of *E. coli* loads to Swift Run by implementing these recommendations. Estimated capital costs for implementing all these voluntary improvements, including engineering and testing is approximately \$439,000. Annual recurring costs, not including wetland substrate replacement, could range from about \$46,000 to \$76,000, depending on the cost of disposing of accumulated sediments. Substrate replacement costs for the wetlands (once the phosphorus adsorption sites are saturated) would roughly be \$57,700 for the north pond and \$69,600 for the south pond. The projected replacement frequency of this substrate



is estimated to be roughly 11 years and 5 years for the north and south ponds, respectively.

## INTRODUCTION

### BACKGROUND

The Ann Arbor Compost Facility in Pittsfield Charter Township sits south of Ellsworth Road and west of Platt Road, as shown on **Figure 1**. The 60-acre site is located at the headwaters of Swift Run, a tributary of the Huron River. The Compost Facility lies within a 270-acre site which includes a decommissioned and capped landfill, a recycling center, and their associated facilities, all shown on **Figure 2**. Resource Recycling Systems, Inc. (RRS) was contracted by the City of Ann Arbor in 2006-07 to develop plans for a 17-acre compost pad expansion to accommodate high intensity compost operations. This expansion was constructed and is included in the 60-acre total, which along with the adjacent recycling center, is operated by WeCare Organics, Inc.



**FIGURE 1. SITE LOCATION**

**Figure 3** provides a general overview of the existing stormwater system. As shown on the figure, Swift Run flows south to north under Morgan Road and receives flow from the South Compost Pad Pond, which drains runoff from the South Compost Pad. Swift Run then continues through a series of culverts before receiving additional flow from the North Compost Pad Pond and passing through the Maintenance Barn Pond. Additional runoff enters from the Agricultural Field Swale and the Transfer Station Pond. Swift Run then flows into the Landfill Pond, which drains through a culvert under Ellsworth Road, leaving the site.



FIGURE 2. SITE LAYOUT

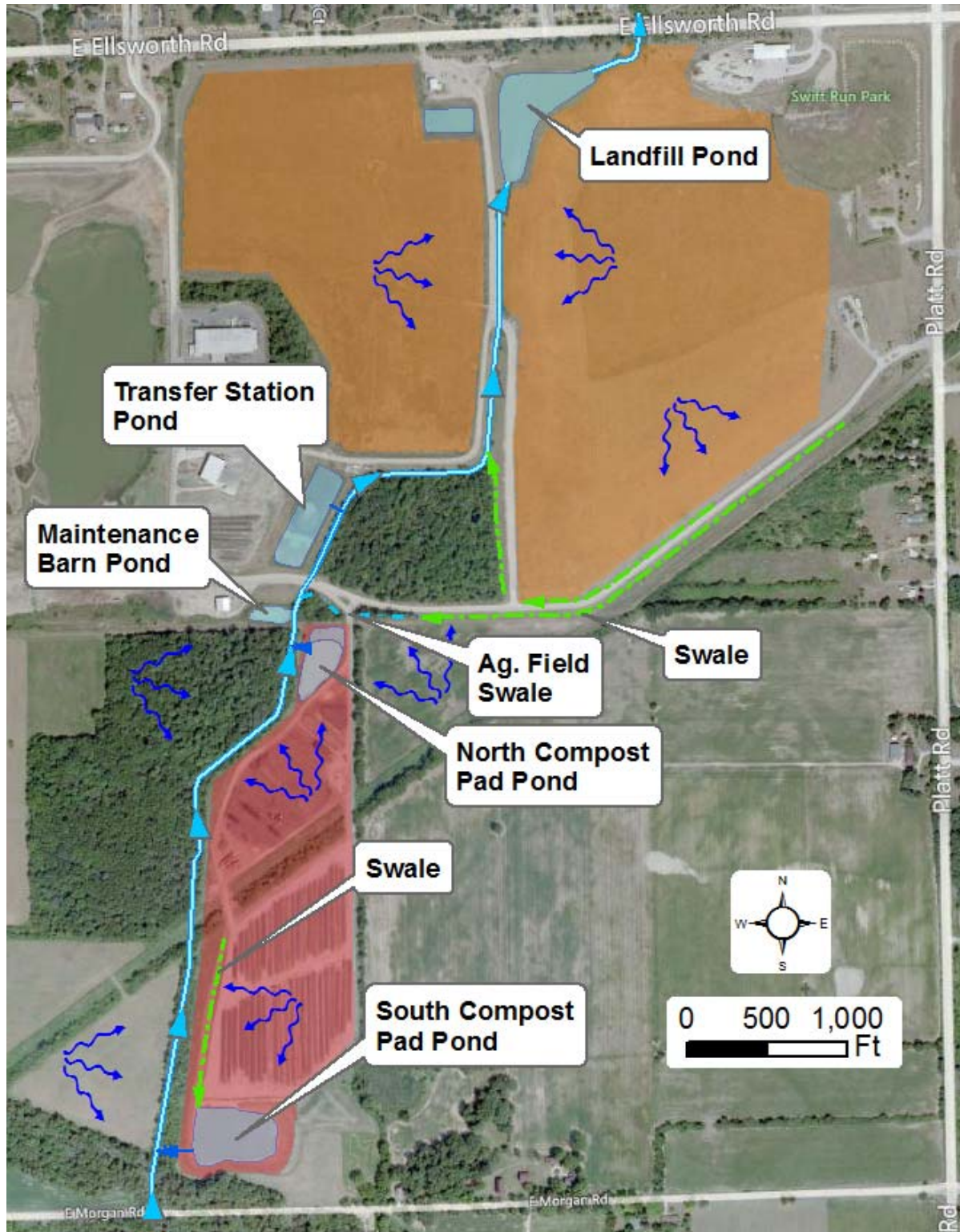


FIGURE 3. STORMWATER SYSTEM LAYOUT

## **OBJECTIVES**

The goal of this study is threefold: (1) determine how much runoff is generated at the Compost Facility; (2) determine if the site is contributing to the impaired water quality in Swift Run due to excessive runoff, pollutant loading, or some combination thereof; and (3) determine what improvements, if any, should be made at the site to improve water quality of pond effluent to Swift Run.

To determine the amount of runoff generated at the Compost Facility, a dynamic, hydrologic and hydraulic (H/H) model was developed to simulate the hydrologic progression of precipitation, infiltration/evaporation, runoff, pond storage and stream flow. To determine whether the site is contributing to the impaired water quality in Swift Run, and if so, by what means, targeted dry and wet weather water quality monitoring data was combined with flows from the H/H model and compared with water quality data collected by the Huron River Watershed Council (HRWC) at the mouth of Swift Run. The modeling tools, water quality data and associated stormwater treatment research and applications were used to develop a set of recommendations to help the City reach its water quality objectives.

## **EXISTING CONDITIONS ASSESSMENT**

### **METHODS**

#### ***Site Survey***

To accurately determine runoff patterns and volume across the site, a detailed survey was performed by a Professional Surveyor. This process began with an aerial topographic survey, which is accurate to within 0.4 feet. Then, a detailed survey of the site features was performed with a total station survey instrument. This included shooting cross sections of the Swift Run channel, all culvert and pipe inverts and diameters, bathymetry of all ponds, approximate sediment depths and other pertinent topographic data. The survey is included as a full-size plan sheet (36"x48") in **Appendix A** and furnished to the City in an AutoCAD file format.

In addition to performing a detailed survey, other existing site data was collected and used as appropriate. This included the Swift Run Service Center plan set as prepared by RRS in 2004, as-built drawings of the Ellsworth Road storm sewer system, and site data available from the Michigan Geographic Data Library website. The combination of these data sources allowed for an accurate picture of the existing hydrologic conditions, which is further discussed in the Hydrologic/Hydraulic Model section below.

#### ***Water Quality Sampling***

The objectives of our sampling plan were to gather enough data to define how the overall facility affects water quality in Swift Run seasonally, how each pad affects water

quality, and the relationship of water quality in the ponds to the outflow to Swift Run for baseflow and wet weather conditions.

shows the six sampled locations: upstream (US), downstream of the South Compost Pad Pond (P1), downstream of the North Compost Pad Pond (P2), agricultural field swale (AG), between the Transfer Station Pond and the Landfill Pond (P3), and downstream (DS). At each location, samples were analyzed for temperature (Temp.), pH, conductivity (Cond.), dissolved oxygen (DO), *E. coli* (EC), total phosphorus (TP), total inorganic nitrogen (TN), total kjeldahl nitrogen (TKN) and total suspended solids (TSS). EC, TP, and TSS were analyzed by the Ann Arbor Water Treatment Plant Laboratory, TIN and TKN were analyzed by RTI Laboratories, and Cond., DO, Temp., and pH were measured on site with hand probes. Pond water samples were also taken and tested for bacterial and fungal populations to assess the potential use of leachate for soil amendment applications, such as compost tea.

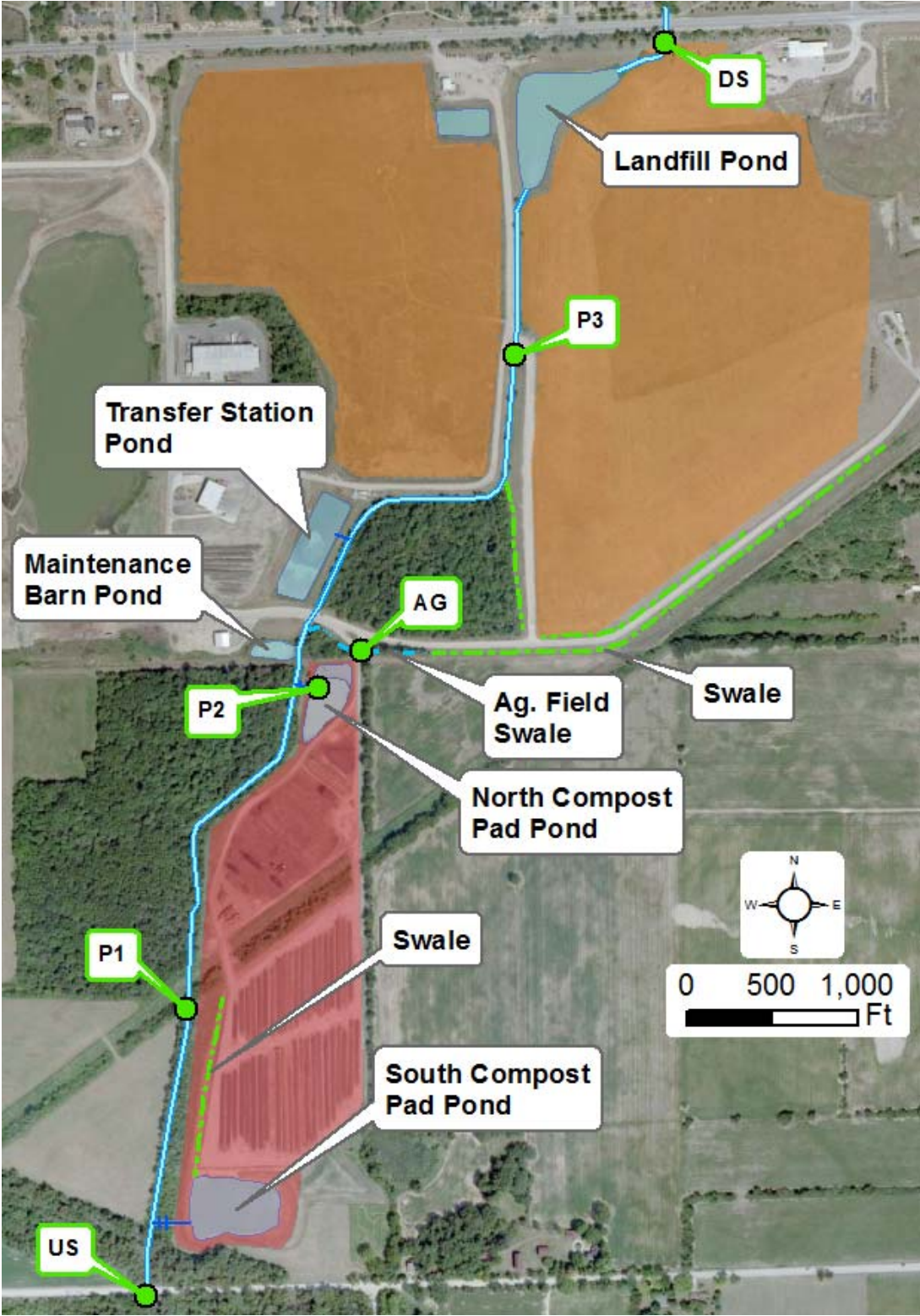


FIGURE 4. SAMPLING SITES



The primary focus in the sampling regime was to isolate all locations of interest, including each compost pad pond and the agricultural field swale. Water samples were collected during ten sampling events between March 21<sup>st</sup> and October 20<sup>th</sup>, 2011. During each sampling event, samples were grabbed sequentially at each station, starting upstream and working downstream, with a complete circuit taking between an hour to 1.5 hours. During some of the wet weather events at least two complete circuits of sampling were conducted at each station. As much as possible, we tried to grab samples when it was raining, as those were the periods when the ponds were contributing their maximum pollutant loads. Both ponds drain by gravity, with flow rates dictated by head over the outlet pipe. With the relatively small watersheds and small times of concentration, the lag between rainfall and runoff is very short. This means the pond water heights peak quickly then initially drop quickly but then drain ever more slowly as the head over the outlet pipes drops.

While there were ten total sampling events, not every site was sampled for every event and not every sample was analyzed for all constituents. Each site was sampled eight to nine times over the course of the study, with a total of 53 separate samples collected. Two of the samples at each site were dry weather samples collected during a period that had at least three days prior without any rain. A total of 237 separate analyses were run on these samples, not counting water quality parameters measured with probes in the field.

**Table 1** displays the sample days and associated rainfall depths. See **Appendix B** for tabular data of collected samples.

**TABLE 1. DATES OF WATER QUALITY SAMPLING**

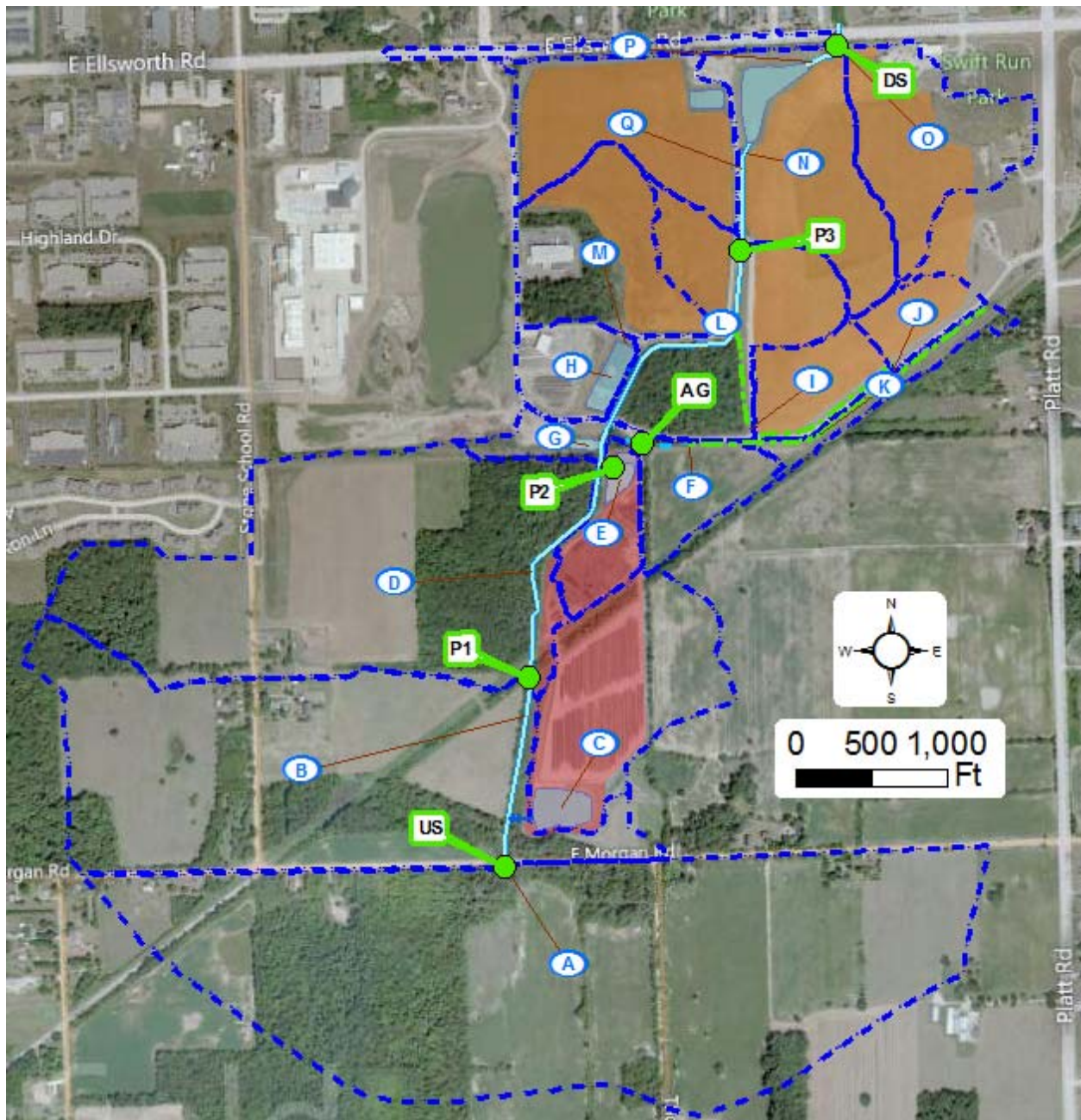
Date	Rainfall (in)	Maximum Hourly Intensity (in/hr)
4/21/2011	0	--
4/22/2011	0.08	0.06
4/25/2011	0.44	0.16
5/15/2011	0.76	0.35
5/25/2011	1.82	0.85
7/22/2011	0	--
7/28/2011	7.41	3.00
7/29/2011	1.25	0.84
10/20/2011	2.16" from 10/19 & 0.28" on 10/20	0.16

### **Hydrologic/Hydraulic Model**

The USEPA's freeware Stormwater Management Model (SWMM v.5.0.021) was used to continuously simulate runoff rates and volumes, and the hydraulics of the ponds and Swift Run receiving that runoff. Before creating a model of the site, the data collected as part of the site survey was compiled into a database to organize the model inputs. This was done in two steps: (1) determine the drainage characteristics of the entire site,

including delineated sub-areas, or subcatchments, and their respective parameters, and (2) collect rainfall data to generate a continuous rainfall hyetograph over the entire evaluation period of April through October, 2011. **Figure 5** shows the site's subcatchments contributing runoff to Swift Run.

**Table 2** can be used to cross reference specific model parameters for each subcatchment.



**FIGURE 5. SUBCATCHMENT AREAS (BROWN LINES INDICATE WHERE RUNOFF FROM EACH SUBCATCHMENT ENTERS THE SWIFT RUN HYDRAULIC MODEL)**

**TABLE 2. SUBCATCHMENT PARAMETERS**

Area	Area (ac)	% Slope	% Impervious	Impervious n-Value	Pervious n-Value
A	169	0.63	1	0.020	0.247
B	110	3.00	25	0.002	0.050
C	30	1.00	80	0.002	0.050
D	110	1.15	5	0.020	0.251
E	15	1.00	95	0.007	0.053
F	35	2.00	30	0.010	0.100
G	8	2.45	50	0.120	0.198
H	8	2.32	80	0.007	0.103
I	11	8.00	10	0.012	0.150
J	15	15.00	15	0.010	0.100
K	20	1.50	15	0.010	0.100
L	32	5.70	15	0.016	0.236
M	24	5.00	18	0.012	0.227
N	27	5.15	17	0.006	0.150
O	32	4.00	30	0.015	0.100
P	6	10.67	59	0.011	0.150
Q	28	7.80	15	0.013	0.200

Most of the soils on site are clay or silty clay with a low hydraulic conductivity. Model conductivities ranged between 0.01 to 0.08 inches/hour.

After entering all model inputs, the model was calibrated to fine tune its behavior by comparing field-observed and model-generated water surface elevations. To this end, water surface elevations were measured almost every time a water quality sample was grabbed at the sampling sites. Water elevations were also measured at the culvert just downstream of the Maintenance Barn Pond. The model was calibrated over a continuous period (April 4 – October 30, 2011). A representative calibration graph is shown on

**Figure 6** below. All other calibration graphs can be seen in **Appendix C**. SWMM model summary input and output data can be found in **Appendix D**.

We did not institute a rigorous calibration process such as trying to find the lowest possible deviation of data to model as a sum of squares fit. We found that the inter-relationship of the model components – subwatershed to pond, pond to channel and so on – were so tightly linked that when we optimized the fit at one location, we sacrificed the fit somewhere else. We therefore used a visual, qualitative comparison of fit at each location and tried to find the best overall fit of parameters for the entire system. The calibration does appear to be reasonable on this basis (refer to **Appendix C**).

The site with the most difficult fit was the road crossing at the Maintenance Barn. However, this location is plagued by several circumstances. First off, the Maintenance Barn pond is “in-line” with Swift Run and the storage and inflow/outflow characteristics may not be captured well in the model. Secondly, the twin culverts under the road are partially blocked by very light, fluffy sediment. The actual hydraulic characteristics of these culverts are not only difficult to simulate, but with this light sediment the actual

proportion of culvert blocked could change between events, particularly during large events that could mobilize this fine sediment.

One other model result to make note of – during the two largest events in May and July, the model showed backflow from Swift Run into the ponds. This backflow occurred over a very short period of time, and may be an artifact of the model. That is to say, the floodplain may be modeled at too high an elevation or is not wide enough in the model to keep water surface elevations low enough to prevent backflow. We did try adjusting floodplain characteristics to see if that prevented the backflow but to no avail. Again, it may be a problem with the model or it may be a real phenomenon. However, if it is a real phenomenon, it likely occurs rarely, lasts for a very brief time, and probably has little overall effect on pond performance or impact on Swift Run.

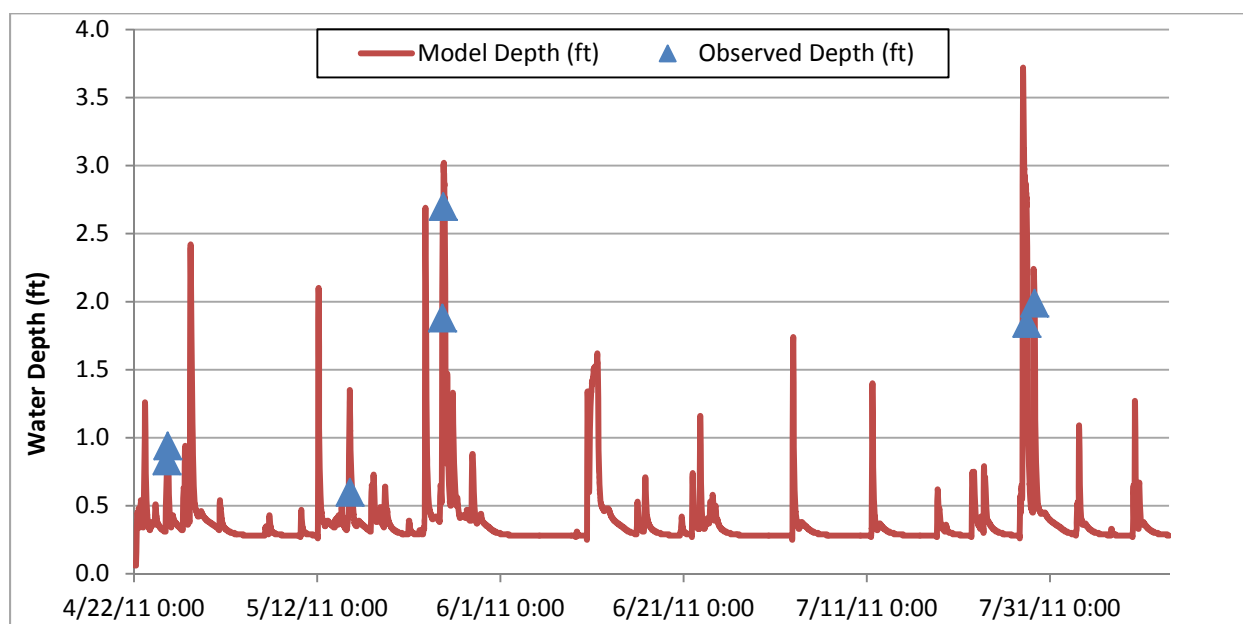


FIGURE 6. CONTINUOUS MODEL CALIBRATION CURVE AT P3

## RESULTS

### Site Conditions

During the site survey, several issues with the site were brought to light (refer to **Appendix E** for pictures of the site). The first issue is related to the series of three culverts which Swift Run flows through between the compost pad ponds. The furthest upstream of these is a 36" diameter clay culvert with a broken off bell-end which has become embedded within the sediment where the pipe meets the channel bottom and impedes flow. This pipe is also laid on an inverted slope with the downstream end of the pipe 0.64 feet higher than the upstream end.

Another concern raised during the survey is the debris and/or sediment in culverts throughout the reach. While the depth of sediment varied for each culvert, capacity of several culverts is definitely impacted during large events. Specifically, the set of three culverts previously discussed contain enough sediment and are small enough that they are regularly overtopped. If Compost Facility operations are not affected by this flooding, it may be at least partly a blessing rather than a problem. Any overbank flooding will help with settling solids and capturing nutrients on the floodplain.

Finally, the bathymetric survey proved difficult at times due to the depth of sediment/sludge at the channel bottom. While this sludge can be moved during high flows, it still has a hydraulic impact on conveyance of water and reduces storage volume during large events. **Figure 7** shows sediment depths throughout Swift Run and the adjoining ponds.

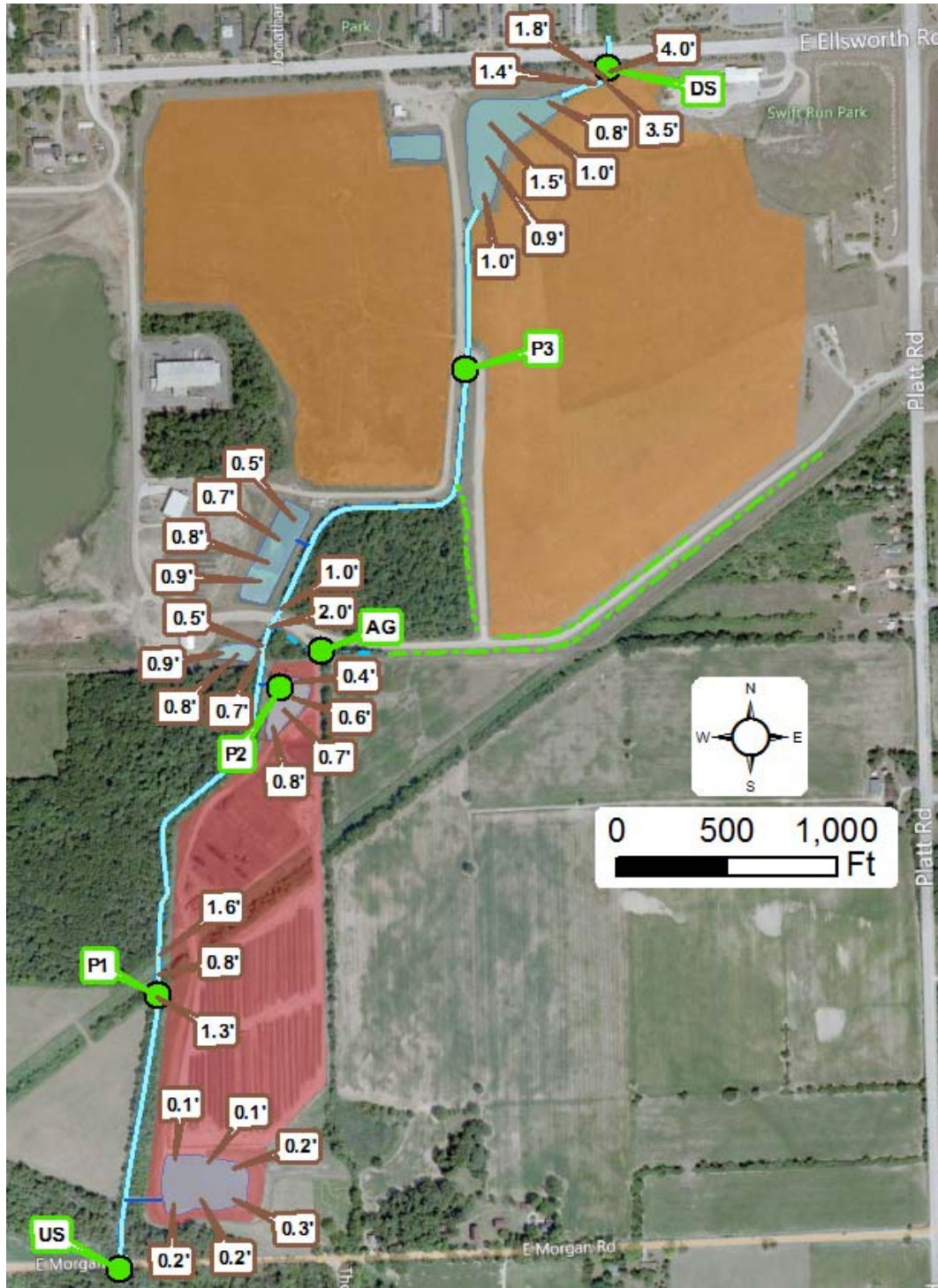


FIGURE 7. SEDIMENT DEPTHS

## **Water Quality**

To determine if the Compost Facility is contributing to water quality impairments in Swift Run, constituent concentrations and flows from the compost site were compared against data collected at the mouth of Swift Run by the HRWC and to the TSS and phosphorus TMDL target concentrations. The pond data was also compared to other studies of compost facility runoff to help understand the relative water quality of the Ann Arbor facility runoff compared to other facilities.

The HRWC has collected flow data at the mouth of Swift Run since 2008, including collection of continuously recorded stage data using pressure transducers in 2010 and 2011. Water quality monitoring there has included *E.coli* (EC), nitrite (NO<sub>2</sub>), nitrate (NO<sub>3</sub>), total phosphorus (TP) and Total Suspended Solids (TSS), collected mostly in the spring and early summer of 2008 through 2011. Approximately 50 samples were analyzed for these constituents over this period. The sampling usually occurred on a set weekly schedule and did not specifically target wet weather periods, although some samples were grabbed during rain events. Three ammonia analyses were done in May and June of 2008, but were not used for comparison here due to the small sample size.

In **Figures 8** and **10** through **12** below, minimum, maximum, and average concentrations/counts for TIN, TSS, TP and EC at each Compost Facility sample site are compared with the HRWC data taken at the mouth of Swift Run. **Figure 9** summarizes the maximum, minimum and average concentrations of TKN for the Compost Facility sites. TKN is the sum of ammonia and organic nitrogen concentrations, including digestible organic solids and was not collected by HRWC at the mouth of Swift Run.

If we think of the Compost Facility, its ponds and the other City of Ann Arbor ponds on the site as one system, the system at its outlet is, except for EC, not contributing pollutants at a concentration or average area unit load higher than the rest of Swift Run. The EC counts are higher at the outlet of the site than the mouth of Swift Run but we believe these counts are caused by an animal rather than human source. One potential source of EC could be geese that congregate in and around the grassed areas of the ponds.

Except for the agricultural ditch, all site TIN concentrations are at or lower than TIN concentrations at the mouth of Swift Run. The agricultural (ag) ditch TIN is probably mostly fertilizer-laden runoff from the corn field. There is however, enrichment of organic nitrogen (TKN) in the ponds. The P2 samples, taken directly from the north pad pond, show relatively high TKN concentrations (**Figure 9**). However, the actual mass of TKN delivered to Swift Run from the compost pad ponds is relatively low, as the concentrations at the sites immediately below the pond outfalls usually showed concentration increases of 0.5 mg/L or less (refer to **Figure 13** below).

Again except for the ag ditch, most of the TSS concentrations on and within the site are at or below the TMDL target of 80 mg/L. The average TSS concentration of each of the sites is below the TMDL target, which is an average target. Everything going off site is



below the TMDL target. The highest concentrations on site occurred during the highest observed flows on site, including TSS concentrations from upstream at 380 mg/L. The ponds are still doing what adequately sized ponds are good at, which is settling solids.

The two locations with the highest TP concentrations are P2 and the ag ditch. P2 represents the north pond and probably is an indicator of concentrations in P1. It should be noted again that the relative mass loading of TP to Swift Run from the ponds and the ag ditch is not that high, as the increase in TP downstream of these inputs is on average less than 0.2 mg/L.

Sampling on Huron River tributaries by the Huron River Watershed Council in 2010 found the median, 25<sup>th</sup> percentile, and 75<sup>th</sup> percentile phosphorus concentrations for all samples was 0.05 mg/L, 0.027 mg/L and 0.103 mg/L, respectively. These samples were taken twice weekly every month during both dry and wet weather events. The Compost Facility samples are somewhat high in relation to these overall tributary concentrations.

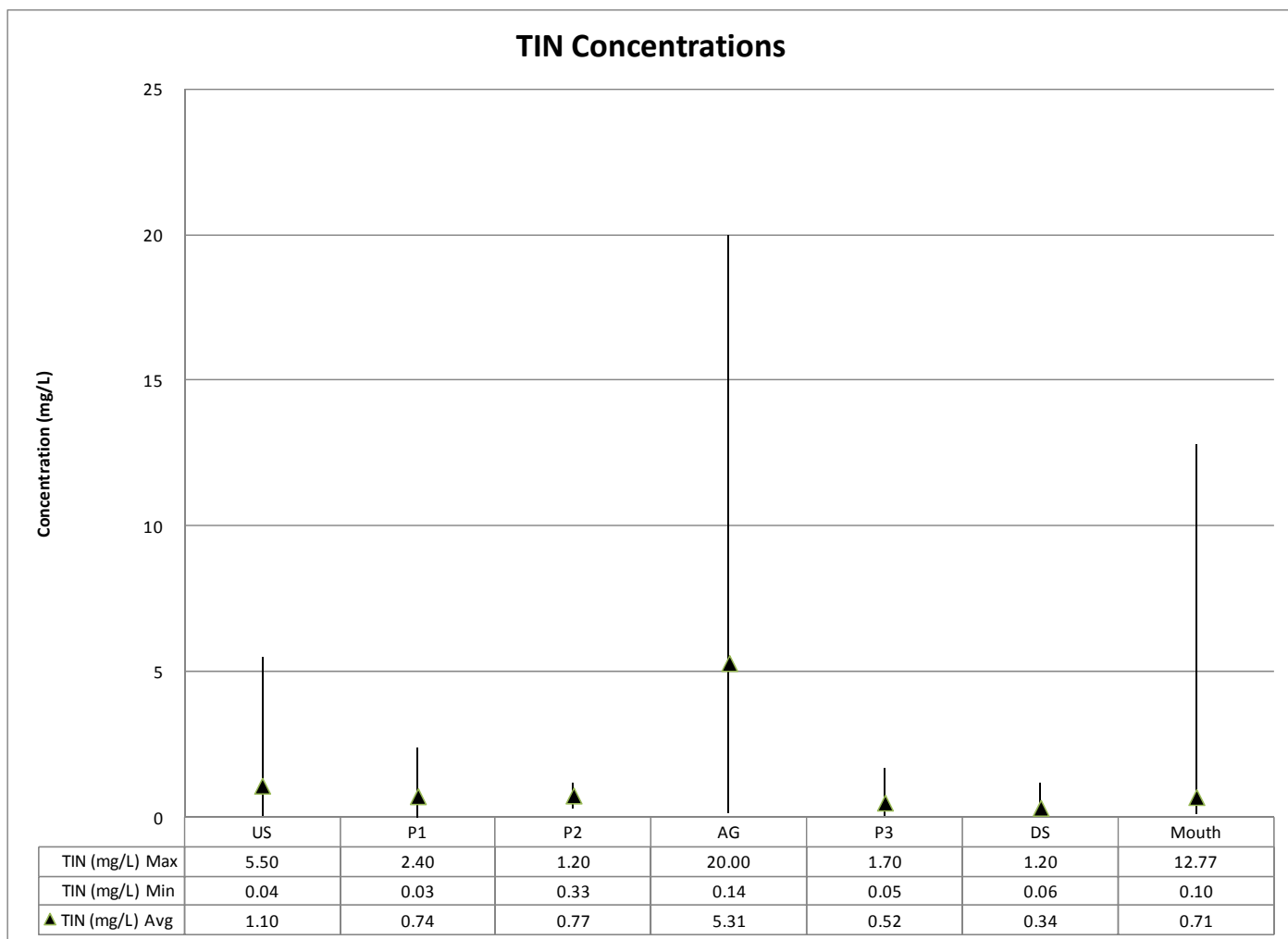
However, when we compared Ann Arbor Compost Facility runoff, specifically samples from the north pad pond, with runoff from other yard waste composting facilities, the Ann Arbor facility concentrations are generally lower. For instance, an evaluation of compost facility runoff for beneficial reuse (E&A Environmental Consultants, Inc., 1997) reported total solids between 1,100 mg/L and 19,600 mg/L, ammonia between 32 ,g/L and 1,600 mg/L and total phosphorus between 4 mg/L and 170 mg/L. Even if we limit the comparison to the facility with the lowest concentrations, by comparison the Ann Arbor pond samples are very dilute (See **Table 3** below).

**TABLE 3. COMPARISON OF ANN ARBOR COMPOST FACILITY TREATMENT POND AND WASHINGTON STATE UNIVERSITY COMPOST RUNOFF WATER QUALITY (IN MG/L)**

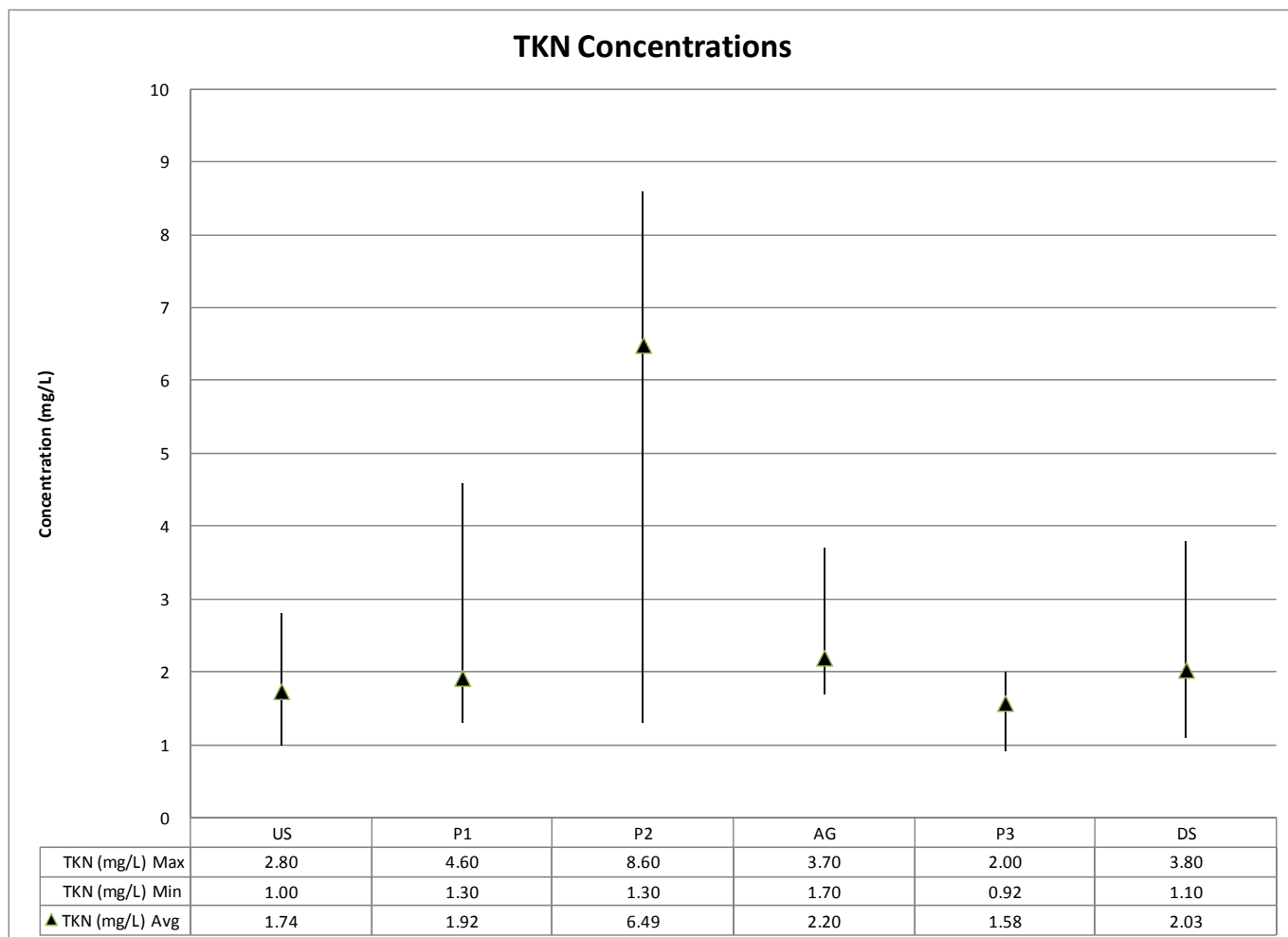
Facility	TSS	TP	TN
Washington State Univ.*	1,100 – 2,400	4.4 -12	16 - 133
Ann Arbor Compost Facility – North Pond	20 - 136	1.04 – 1.92	1.66 – 9.8

\*Source: Evaluation of Compost Facility Runoff for Beneficial Reuse; E&A Environmental Consultants, 1997. Web address: <http://www.cwc.org/organics/org981rpt.pdf>

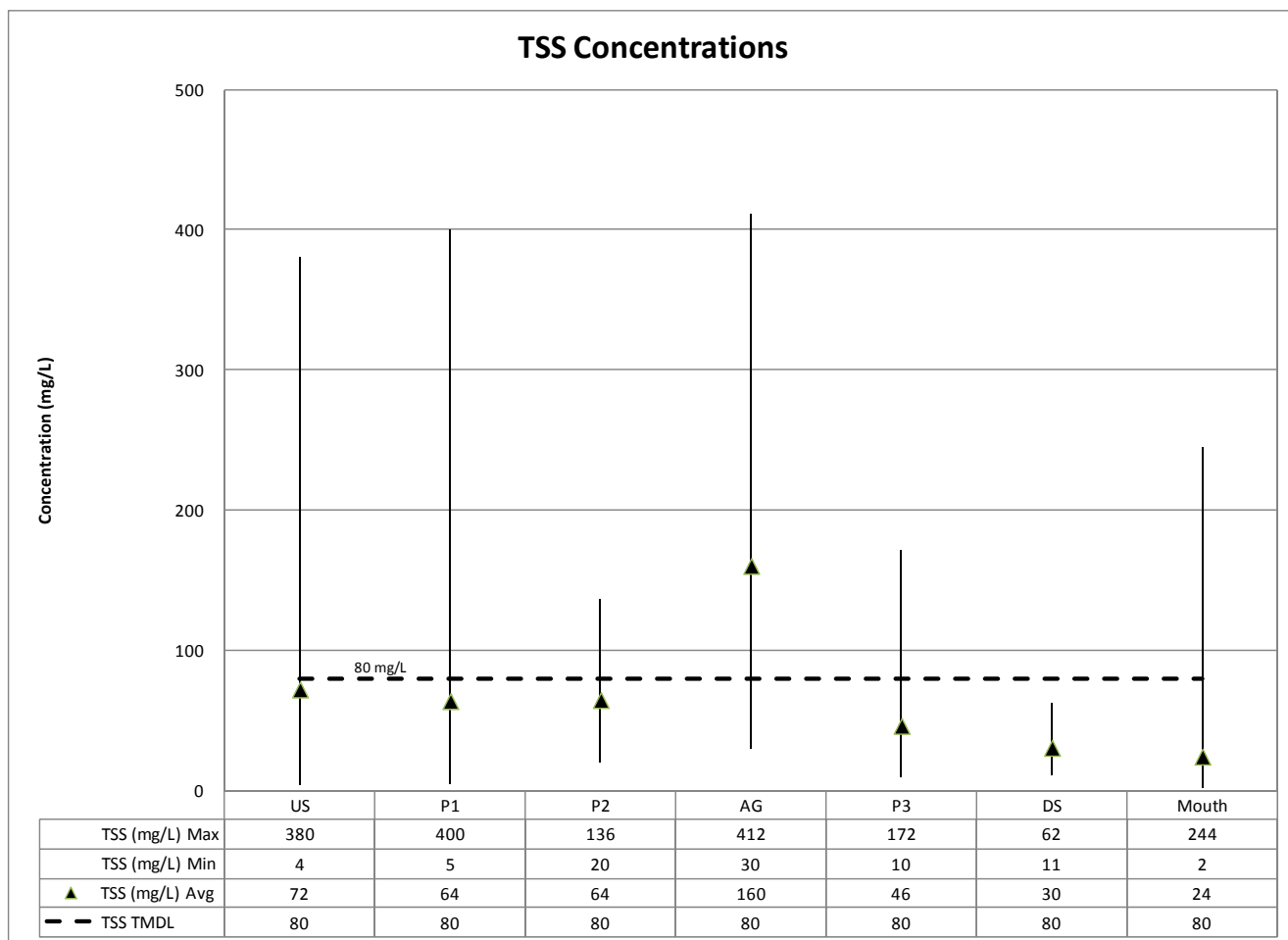
Although we did not grab samples of untreated, compost runoff, we think it is instructive to compare our pond water samples with runoff water quality from other similar composting facilities. We believe untreated Ann Arbor compost runoff probably more closely resembles the runoff samples from other facilities than it does the water in the compost pad ponds. We believe the Ann Arbor Compost Facility stormwater BMPs – the ponds, the underdrain on the north pad, and the 1,000-ft long vegetated swale on the south pond – are providing significant treatment to the compost runoff.



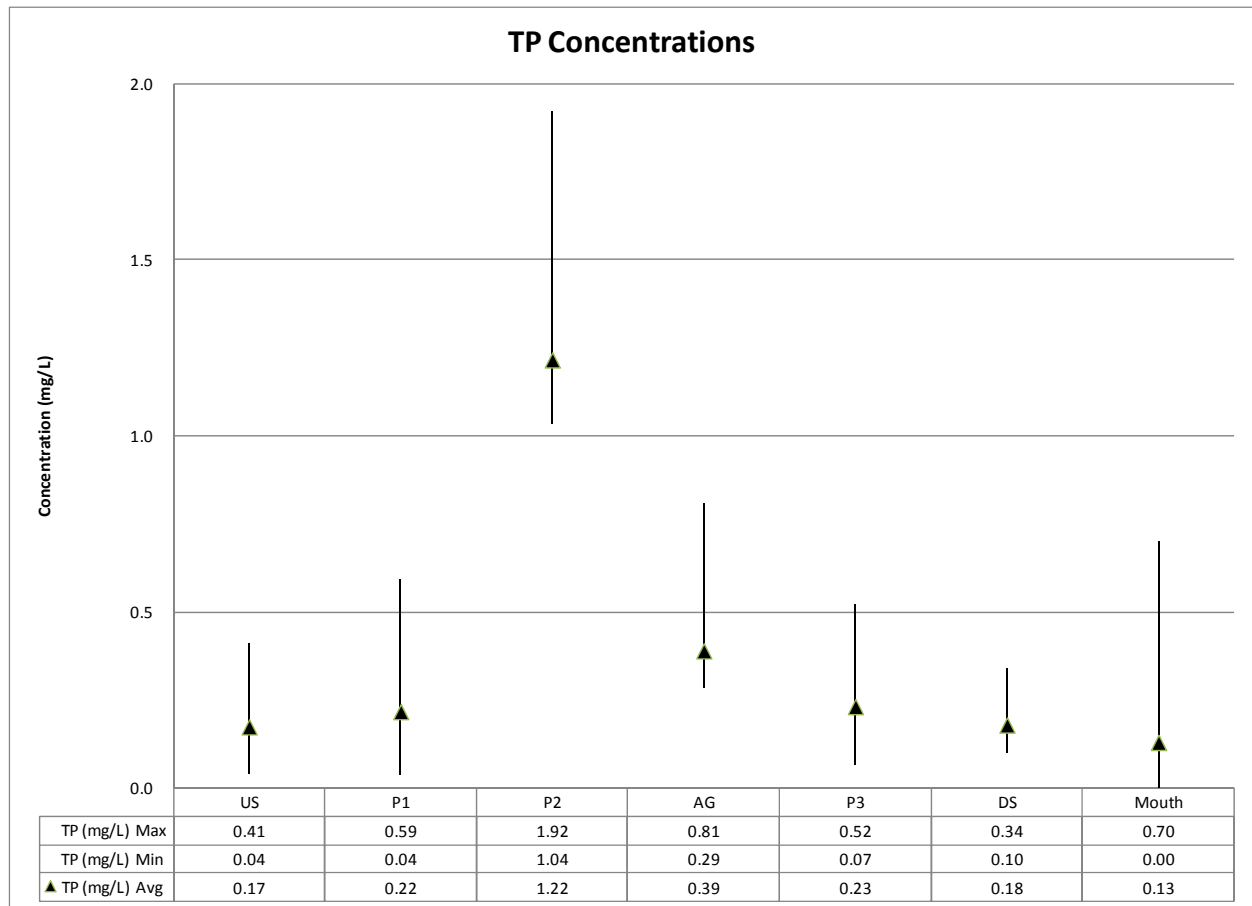
**FIGURE 8. SWIFT RUN TIN CONCENTRATIONS AT COMPOST FACILITY VS. MOUTH**



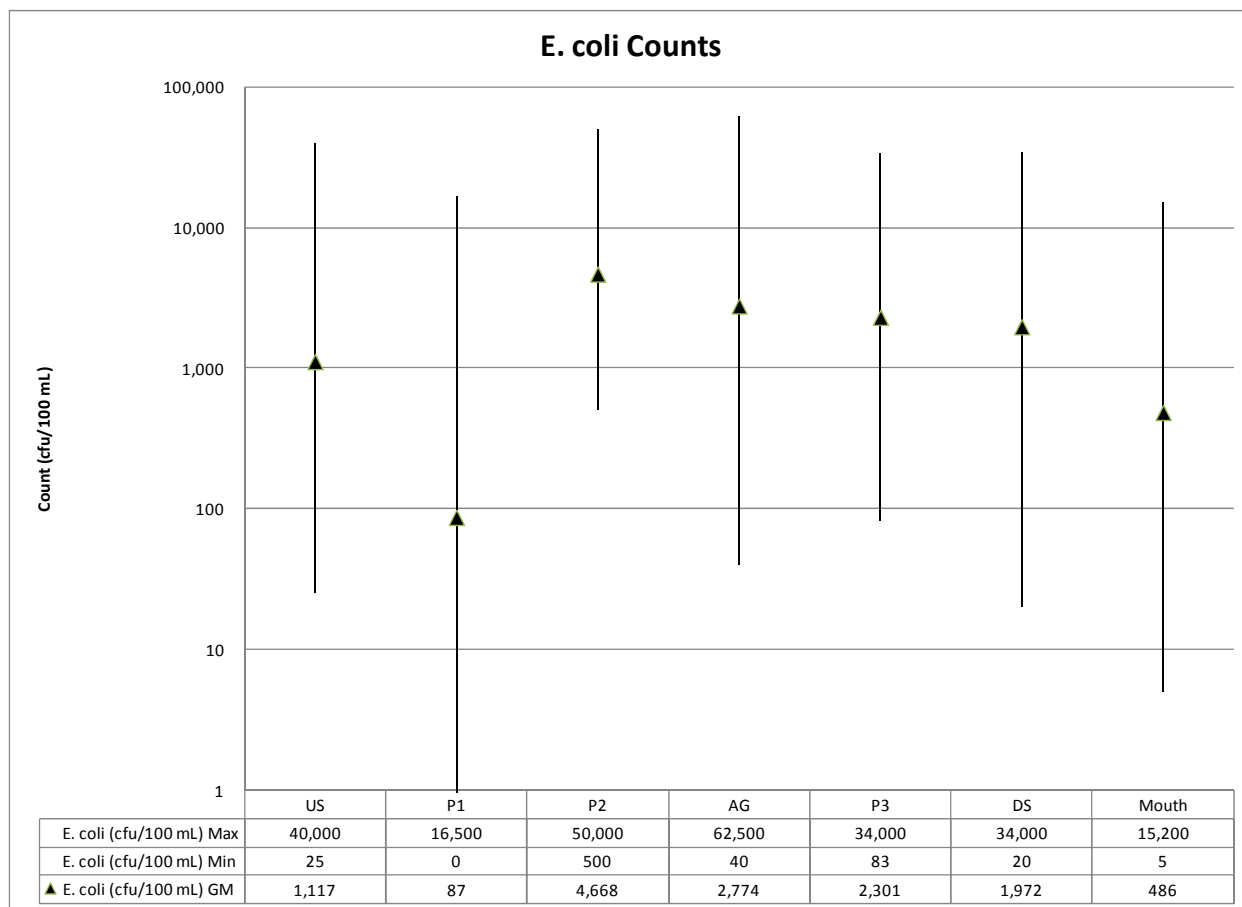
**FIGURE 9. SWIFT RUN TKN CONCENTRATIONS AT COMPOST FACILITY**



**FIGURE 10. SWIFT RUN TSS CONCENTRATIONS AT COMPOST FACILITY VS. MOUTH**



**FIGURE 11. SWIFT RUN TP CONCENTRATIONS AT COMPOST FACILITY VS. MOUTH**



**FIGURE 12. SWIFT RUN E. COLI COUNTS AT COMPOST FACILITY VS. MOUTH**

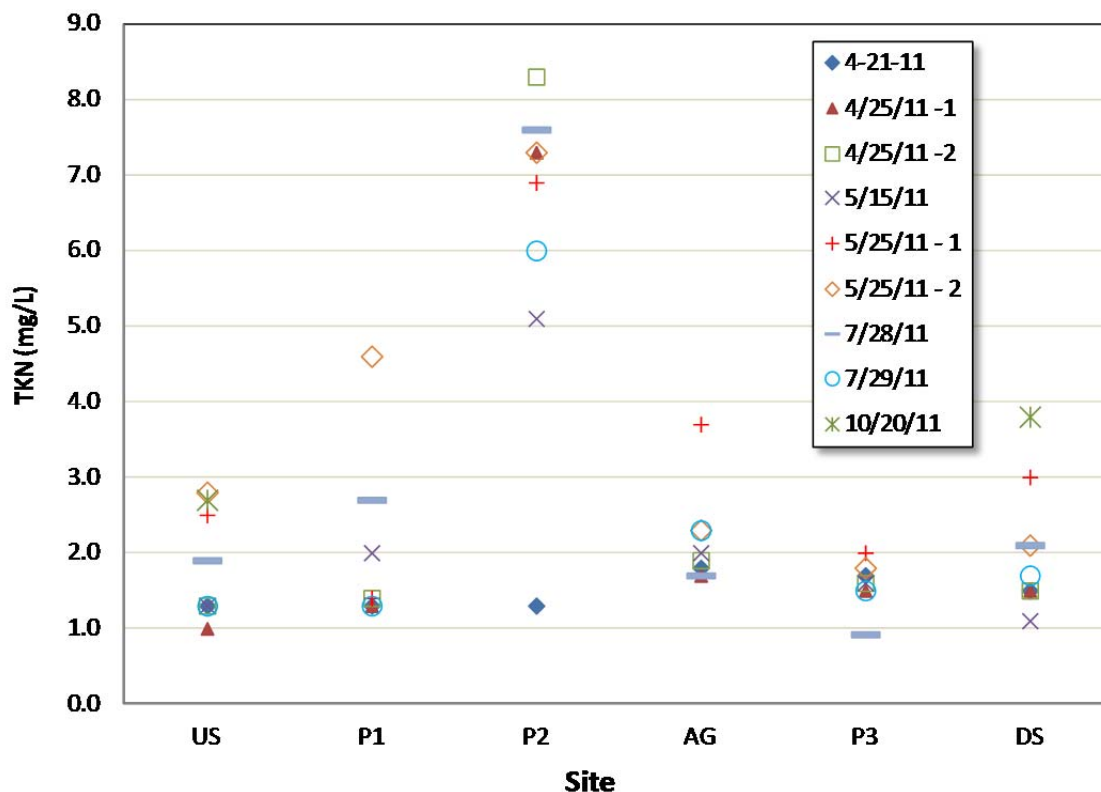


FIGURE 13. TKN EVENT CONCENTRATIONS BY SITE

In addition to the sample data shown above, water samples of the North and South Compost Pad Ponds were sent out to be tested for feasibility of beneficial reuse. The results of these tests are shown in **Table 4**. They show lower microorganism results than would be expected for compost tea. Put another way, the pond water cannot be used as a compost tea supplement in its current condition.

TABLE 4. BENEFICIAL REUSE TEST RESULTS FOR POND WATER

	North Compost Pad Pond	South Compost Pad Pond	Expected Range
Active Bacterial (µg/mL)	4.1	3.33	10 - 150
Total Bacterial (µg/mL)	125	45.5	150 - 3000
Active Fungal (µg/mL)	0	0	2 - 10
Total Fungal (µg/mL)	0	0	2 - 20
Total Fungi : Total Bacteria	0	0	0.01 - 0.1
Active Fungi : Total Fungi	-	-	0.1 - 0.25
Active Bacteria : Total Bacteria	0.03	0.07	0.1 - 0.25
Active Fungi : Active Bacteria	0	0	0.9 - 1.1

## CONCLUSIONS

This evaluation demonstrates that the Ann Arbor Compost Facility and the larger municipal facility around it, is meeting its NPDES permit requirements and the TMDL load reductions for the Swift Run and Ford and Belleville Lake TMDLs. This conclusion was demonstrated by comparing the data collected in this study with 1) data collected by the Huron River Watershed Council (HRWC) at the mouth of Swift Run between 2008 and 2011; 2) Huron River tributary sampling by the HRWC and 3) runoff water quality data from other compost facilities. Based on these comparisons, we have found that the larger municipal site does not contribute nutrients, suspended solids or *E.coli* to Swift Run at a rate greater than the rest of the Swift Run watershed. Still, there is some evidence that some phosphorus, total kjeldahl nitrogen (TKN) and *E.coli* enrichment of Swift Run from the compost ponds and the leased agricultural area on this site. However, this nutrient enrichment is on the same order as other urban and agricultural runoff in the Ann Arbor area.

Based on seven months of primarily wet weather sampling, the Ann Arbor Compost Facility is meeting the mean annual Swift Run TMDL TSS target of 80 mg/L at each sampling location and at the outlet for the entire site. During the most extreme events sampled, the Compost Facility did experienced short-lived spikes of TSS that exceeded the mean annual target; however, these transient spikes only occurred during peak rainfall intensities. The upstream, off-site area also showed TSS concentration spikes well above the TMDL annual target during these same peak rainfall periods. Perhaps most significantly, all samples taken at the outlet of the last pond on the City's site were below the 80 mg/L target. The City's facility is not only meeting its own target, but in fact, is also treating the off-site upstream area sufficiently to always meet the annual standard.

The Ford and Belleville Lakes' phosphorus TMDL requires non-point source phosphorus load reductions of 57% in April and 58% from May through September. Even assuming that the untreated Ann Arbor compost runoff had phosphorus concentrations half the concentrations of the most dilute literature values, the current facilities are still potentially removing phosphorus at a rate equal to or greater than the 57% to 58% removal rate required by the Ford and Belleville Lakes' TMDL.



## RECOMMENDATIONS

Although the compost ponds do appear to be providing reasonable water quality treatment, we recommend and know that the City of Ann Arbor is interested in voluntarily improving pond performance. While the stormwater system appears to be doing a particularly good job with settling solids and by association any solids-associated constituents, TKN and phosphorus are enriched in the compost ponds and in the ag ditch. Some nutrient enrichment is occurring in Swift Run on site due to the compost facilities. In addition, the magnitude of nutrient enrichment from the ag ditch is about equal to the enrichment from just one Compost Facility pond. It is hard to judge the extent of *E.coli* enrichment, as the variation of concentrations on site are on the order of variation upstream and at the mouth.

Nutrient enrichment during the growing season leads to algae blooms both in the ponds and in the Swift Run channel on site. This algae bloom actually serves to capture some of the dissolved nutrients both in the ponds and in the channel as the rapidly growing algae takes up nutrients, particularly during its luxury uptake phase. As the growing season winds down however, this algae dies and sinks to the bottom of both the ponds and channel. We believe most of the sediment sitting in the ponds and channel is a mixture of dead and dying organic material.

During the 2009 site visit, the MDEQ noted that the water exiting the compost ponds is “highly nutrient laden and must not discharge to waters of the state.” They noted that an alternative discussed on site was to plug the pond outlets and use any excess water for irrigation purposes. However, we would contend that while the compost pond water does contain excess nutrients, the ponds are not discharging at a concentration or mass rate that exceeds other urban or agricultural runoff in the Ann Arbor area. In fact, the ponds do appear to meeting the goals of the Swift Run and Ford and Belleville Lakes’ TMDLs.

Further, we believe plugging the pond outlets is not a practical solution either. If an irrigation system was the only route of release for compost pad runoff, the City would also need to construct temporary storage with at least four months of winter holding time. Based on the current pond total storage volume, our estimated SWMM runoff for the model period from April to October, 2011 and a pro-rated runoff number for typical December through March precipitation, the ponds would have to be significantly increased in storage volume to contain the runoff. The North pond would have to be about six times larger and the south pond size would have to roughly double in size (see **Table 5** below).

In addition, irrigation cannot occur when soils or the compost itself is saturated. Even with increased pond storage, there might still be circumstances when all the pond storage is occupied. Some releases from the ponds might still be necessary. Some kind of pond outlet, at least an emergency outlet, would have to be retained.

**TABLE 5. TOTAL CURRENT COMPOST POND STORAGE AND STORAGE NEEDS IF PLUGGED**

	Units	North Pond	South Pond
<b>Total Storage Volume</b>	Ac-ft	3.39	18.17
	Ft <sup>3</sup> * 10 <sup>6</sup>	0.15	0.79
<b>SWMM-Estimated Outflow (Apr - Oct, 2011)</b>	Ft <sup>3</sup> * 10 <sup>6</sup>	1.56	2.62
<b>Approx. Winter Storage Needed (Dec. - March)</b>	Ft <sup>3</sup> * 10 <sup>6</sup>	0.91	1.53
<b>New Storage Needed/Current Storage</b>	Unitless	6.2	1.9

Instead of plugging the ponds and developing an irrigation system, we think the system could be improved in a more cost-effective manner that would concentrate the additional nutrient removal in treatment wetland systems and not enrich all the surrounding soils with additional phosphorus. In addition, we have added a series of recommendations to deal with the ag ditch, the potential goose problem and the solids that are accumulating in the ponds and in Swift Run itself on site. These recommendations follow below:

### North Pond

1. Enlarge the North Compost Pond. On **Figure 14**, we show an approximately 37% increase in pond area and volume. This would decrease the drainage area to pond ratio from its current value of 15 down to 11. This same ratio for the south pond is about eight currently.
2. In addition, we recommend raising the North compost pond mean water level by a half-foot to one foot by creating a one foot-high berm and adding one or more low flow orifices at this new elevation. Final number, size and elevation of orifices should be optimized to decrease average outflow rates at the design stage. This combination of changes also creates more head differential between the pond and Swift Run and will help drive flow through the proposed outlet treatment wetlands recommended in item #4 below. This new outlet configuration also creates a lower mid-range set of flows so that a larger proportion of outflow volume receives longer holding times in these treatment wetlands.
3. Create a 10-ft to 20-ft native plant herbaceous buffer around the entire north pond. It would probably be best to plant a set of hardy grass perennials, such as big bluestem, little bluestem, etc. Rather than creating a gravel drive over that buffer for access, we would recommend driving right over the buffer as needed. This will cause some compaction, etc. but the perennials may be able to tough it out. Any effort to decrease geese habitat around the ponds will be beneficial.

4. Create two off-line vertical upflow wetland treatment cells on either side of the current pond outlet line with a combined area of approximately 11,750 SF and a working depth of about 1.25-feet (see **Figure 14**). We recommend that the substrate of these wetland cells be a combination of sand/pea stone and Ann Arbor Water Treatment Plant residuals (WTRs). The off-line system would permit flows up to some maximum flow, probably somewhere between 0.5 cfs and 1.5 cfs through the system, with higher flows bypassed through the pond outlet pipe. Water would enter from the bottom of the wetland through perforated header pipe and exit through another perforated header pipe with water level controlled by a vertical stand pipe. This would allow the system to develop some anaerobic areas to facilitate denitrification. The outlet on the wetland would be outfitted with a backflow preventer so that any backwater effect from Swift Run would not back up through the wetlands.

In **Appendix F** we have included some of the research used to develop this recommendation. As part of the design phase for this recommendation, we would advise running some column tests to test the phosphorus adsorption capacity of a variety of substrate mixes using Ann Arbor WTRs at proportions of 15%, 25% and 35%. Each column should be planted with hardstem and softstem bulrush.

Testing should determine for each mix:

- a. Total phosphorus adsorption capacity; i.e., the column should be loaded with several year's worth of simulated pond water, scaled to the column area (See references **Appendix F**)
- b. Adsorption kinetics
- c. Hydraulic conductivity at start of test and conclusion of test

### **South Pond**

1. Create a 10-ft to 20-ft native grass buffer around the entire south pond, in the same manner as the north pond.
2. Create two off-line wetland treatment cells on either side of the current outlet line with a combined area of approximately 10,000 SF and a working depth of about 2.0-feet (**Figure 14**). Details are the same for item #4 above and just to be clear, only one set of column tests would need to be run to develop the ideal substrate for both ponds.

### **Agricultural Field**

We believe a 20-ft wide multi-species riparian buffer along the entire north edge of the agricultural field will help improve soil quality, soil water holding capacity and infiltration along that edge. It will also help capture solids in runoff and in time, as the rhizosphere develops and deepens, prove effective for intercepting dissolved nutrients as well (refer to **Figure 14**). For more information on these kinds of systems refer to the Iowa State University Riparian Systems Multi-Species Management system website: <http://www.buffer.forestry.iastate.edu/HTML/flexible.html>

Because the clay soils appear to be fairly heavy in this field, a strategy for planting may be to start with native grasses for the first few years. The grasses typically have a better chance of establishing. After a few years, the grasses will have helped add more carbon to the soil and create richer, more porous upper soil layers. At that point the City could start adding other herbaceous, shrub and tree species to continue to build a robust aboveground buffer and rooting zone.

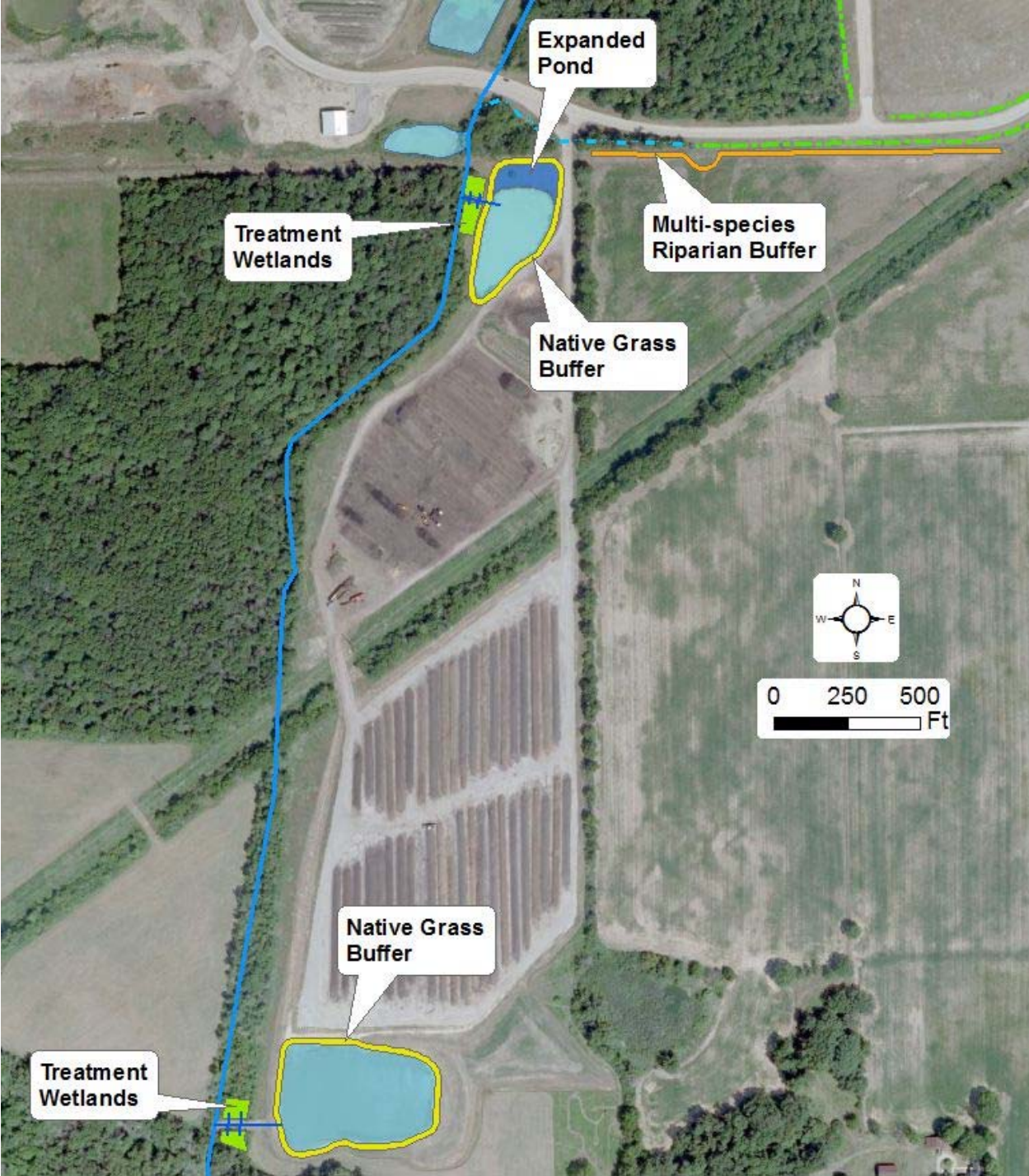
### Other Facility Ponds and Swift Run Channel on Site

Lastly, we recommend that the City institute a systematic management system for removing settled solids in all the ponds and within Swift Run itself, as it runs on site. For cost purposes, it would make sense that the City target one component of the system a year for hydraulic dredging. We would recommend starting in the compost ponds and then moving to the last pond on the site, the pond with the deepest solids layers (refer back to **Figure 7**). For reference purposes, we have estimated sediment volumes by pond and channel on site (see **Table 6** below).

Depending on the quality of the material, it may be good enough – if free of toxics – with organic carbon, nitrogen and phosphorus to be used as fertilizer or mixed with compost. The City should do toxics testing on any settled solids prior to removal.

**TABLE 6. ESTIMATED SEDIMENT VOLUMES IN PONDS AND SWIFT RUN CHANNEL ON ANN ARBOR SITE**

<b>Location</b>	<b>Volume Range (cyd)</b>
South Pad Pond:	730 - 1,455
North Pad Pond:	910 - 1,825
Maintenance Barn Pond:	410 - 820
Near culverts downstream of Maintenance Barn Pond:	40 - 80
Transfer Station Pond:	2,045 - 4,095
Landfill Pond:	4,875 - 9,755
DS area before Ellsworth:	115 - 225
<b>Total Volume:</b>	<b>9,125 - 18,255</b>



**FIGURE 14. RECOMMENDED SITE IMPROVEMENTS FOR THE ANN ARBOR COMPOST FACILITY**

We believe implementation of these recommendations can result in an additional capture of 50% of the total annual compost pond and ag field nutrient loads. In addition, if the City chooses to hold open the contingency of irrigation, removals could be even greater. This section summarizes our rationale for projected removals and summarizes planning level costs for our recommended improvements.

Using the rainfall data from the SWMM calibration from April, 2012 to October 2012, we modified the north pond per the recommendations in items # 1 and #2 above and re-ran the model. We then summarized the pond outflow rates in 15-minute increments over the entire period. **Figure 15** below is a cumulative histogram of the volumetric contribution of each of the flow increments.

For instance, for the south pond, 60% of the total outflow volume leaves the pond at a rate of 0.45 cfs or less. For the north pond, 60% of the total outflow volume occurs during flows 1.0 cfs or less. Based on these outflow rates and the total proposed size of the treatment wetlands, we then projected holding times.

**Figure 16** below summarizes the minimum holding time by percentage of total outflow volume. So for instance, 60% of the total volume of outflow from the south pond occurs at a rate of 0.45 cfs or less. At a flow rate of 0.45 cfs in the proposed south pond treatment wetland areas, the minimum holding time is nine hours. For the north pond, the minimum holding time for 48% of the total annual outflow volume is six hours.

By creating these treatment wetlands as offline basins, we can limit maximum flow rates to achieve target contact times. Based on the stormwater/bioretention literature (see **Appendix F** for references) and projected contact times between 6-hours and 40-hours, we believe we can capture between 50% to 80% of the pond outlet phosphorus load and 30% to 60% of the pond's TKN load. In addition, with the 20-ft wide multi-species buffer in the ag field we can potentially capture 80%-90% of the nutrient runoff loads as well.

Phosphorus removal is primarily based on physical adsorption to the substrate. Based on Lucas and Greenaway's work (2010) and review of projected holding times, a reasonable planning-level adsorption rate using the WTR-soil mixture is 1.4 g of phosphorus per 1 kg of substrate. Using the projected volume of the wetlands and assuming a bulk density of the material at 2 g/cm<sup>3</sup>, the total adsorption capacity is 756 kg and 773 kg in the north and south ponds, respectively.

Applying the average outflow concentrations and pro-rating the SWMM calibration pond outflows over an entire year, phosphorus loads would be approximately 111 kg (244 lbs) and 186 kg (410 lbs) from the north and south ponds, respectively. Assuming a roughly 60% removal in the north pond and 80% removal in the south pond, the lifetime of each pond's adsorption capacity would be eleven and five years, respectively. The final adsorption capacity would be subject to column testing, final wetland design and any other pond improvements. These numbers are presented here for planning purposes.

We have put together a summary of proposed costs for these improvements. We have categorized them into up front capital costs (**Table 7** below) and recurring costs (**Table 8**). These are planning level costs and are subject to change as more detailed information on this project is developed.

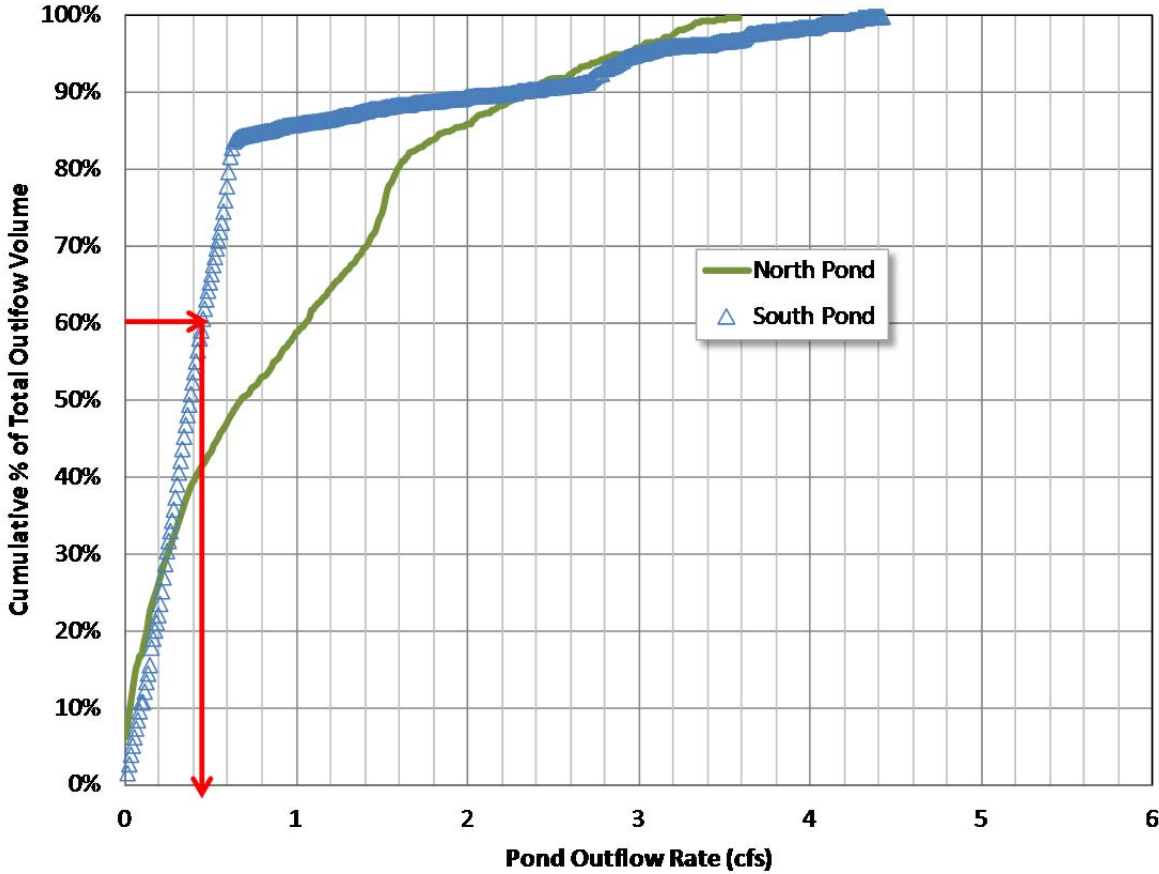


FIGURE 15. CUMULATIVE PERCENTAGE OF TOTAL POND OUTFLOW VOLUME BY OUTFLOW RATE

(For example: approximately 60% of the total outflow volume flows out of the South Pond at a rate of 0.45 cfs or less)

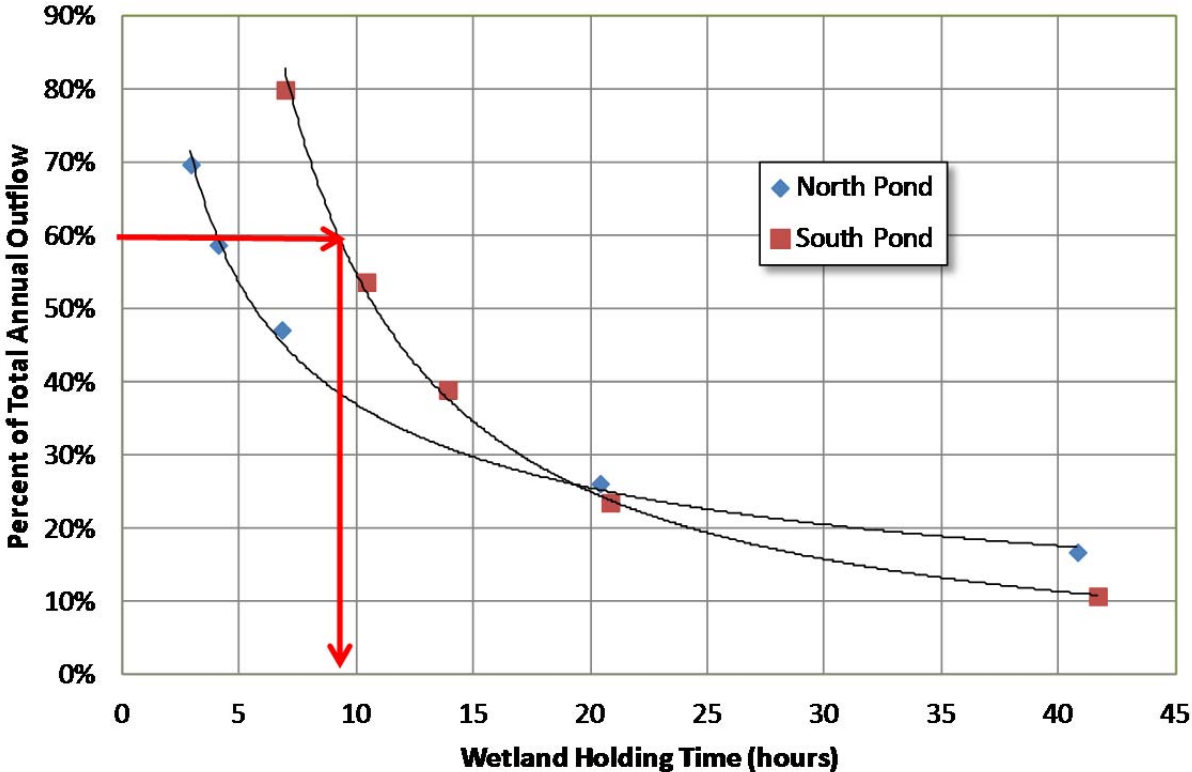


FIGURE 16. PROJECTED MINIMUM HOLDING TIMES AS A PERCENTAGE OF TOTAL ANNUAL OUTFLOW VOLUME

(For example: 60% of the total annual outflow volume of the south pond will receive at least nine hours of holding time in the proposed design)



TABLE 7. APPROXIMATE CAPITAL COSTS FOR RECOMMENDED IMPROVEMENTS

item	Unit	Amount	Cost per Unit	Total Cost
<b>North Pond Enlargement</b>	CY	2,000	\$60	\$120,000
<b>Pond Berm</b>	CY	106	\$40	\$4,222
<b>North Pond Native Grass Buffer</b>	ac	0.20	\$2,500	\$500
<b>North Pond Outlet Improvements</b>	ea	1	\$5,000	\$5,000
<b>North Pond Wetland Cells</b>				
Clearing and grubbing	ea	1	\$3,000	\$3,000
Excavation & grading	CY	544	\$50	\$27,199
Piping, appurtenances	Ea	1	\$16,000	\$16,000
Water Plant Residuals (handling)	CY	136	\$30	\$4,080
Sand	CY	408	\$35	\$14,280
Plants	ea.	3,917	\$5	\$17,625
<b>Multi-species riparian buffer</b>	ac	0.55	\$7,000	\$3,857
<b>South Pond Native Grass Buffer</b>	ac	0.51	\$2,000	\$1,010
<b>South Pond Wetland Cells</b>				
Clearing and grubbing	ea	1	\$3,000	\$3,000
Excavation	CY	741	\$40	\$29,630
Piping, appurtenances	Ea	1	\$16,000	\$16,000
Water Plant Residuals (handling)	CY	185	\$30	\$5,556
Sand	CY	556	\$35	\$19,444
Plants	ea.	3,333	\$5	\$15,000
			<b>Subtotal</b>	\$305,402
			<b>Engineering &amp; Column testing</b>	\$76,351
			<b>Contingency @ 15%</b>	\$57,263
			<b>TOTAL</b>	\$439,016

**TABLE 8. RECURRING COSTS FOR PROPOSED IMPROVEMENTS**

<b>item</b>	<b>Unit</b>	<b>Amount</b>	<b>Cost per Unit</b>	<b>Total Cost</b>
<b>Buffer and Pond Maintenance</b>	ea	@2% capitol		\$6,108
<b>Dredging (on an annual basis)</b>				
Hydraulic dredge -dispose on site	CY	1,000	\$40	\$40,000
Hydraulic dredge -landfill disposal	CY	1,000	\$70	\$70,000
<b>Replacement of wetland substrate</b>				
<b>North Pond (repalcement in 11 yrs)</b>				
Substrate disposal	CY	544	\$40	\$21,759
Water Plant Residuals (handling)	CY	136	\$30	\$4,080
Sand	CY	408	\$35	\$14,280
Plants	ea.	3,917	\$5	\$17,625
			Subtotal	\$57,744
<b>South Pond (replacement in 5yrs)</b>				
Substrate disposal	CY	741	\$40	\$29,630
Water Plant Residuals (handling)	CY	185	\$30	\$5,556
Sand	CY	556	\$35	\$19,444
Plants	ea.	3,333	\$5	\$15,000
			Subtotal	\$69,630

# **Appendix A - Site Survey**

# Appendix B - Water Quality Data

Date	Site	Time	Stage [ft]	Temp. [°F]	DO [mg/L]	pH	Conduct [µs]	TN	TP	TSS	Ecoli
4/21/2011	US	12:10	0.30	46.0	9.60	6.6	390	1-US	2-US	2-US	3-US
4/21/2011	P1	12:39	0.37	45.7	11.25	7.1	570	4-P1	5-P1	5-P1	6-P1
4/21/2011	P2	13:05	0.50	48.9	14.30	9.1	1,330	7-P2	8-P2	8-P2	9-P2
4/21/2011	AG	13:48	0.75	55.8	11.64	7.9	430	10-AG	11-AG	11-AG	12-AG
4/21/2011	P3	14:17	0.52	48.4	12.54	7.7	660	13-P3	14-P3	14-P3	15-P3
4/21/2011	DS	14:42	4.86	50.3	12.18	7.4	700	16-DS	17-DS	17-DS	18-DS
4/22/2011	US	16:02	0.32	44.2	9.85	8.3	440	19-US	20-US	21-US	-
4/22/2011	P1	16:30	0.39	44.3	10.12	6.9	590	22-P1	23-P1	24-P1	-
4/22/2011	P2	16:47	-	45.6	14.93	9	1,340	25-P2	26-P2	27-P2	-
4/25/2011	US	12:14	0.36	51.4	8.83	7.3	390	28-US	29-US	30-US	31-US
4/25/2011	P1	12:43	0.54	52.4	6.82	6.4	460	32-P1	33-P1	34-P1	35-P1
4/25/2011	P2	13:09	0.07	53.5	11.60	9.2	1,440	36-P2	37-P2	38-P2	39-P2
4/25/2011	AG	13:32	1.63	51.6	8.97	7.1	260	40-AG	41-AG	42-AG	43-AG
4/25/2011	P3	14:05	0.83	51.9	8.90	7.6	610	44-P3	45-P3	46-P3	47-P3
4/25/2011	DS	14:35	4.67	51.8	10.22	7.9	590	48-DS	49-DS	50-DS	51-DS
4/25/2011	US	15:21	0.40	51.1	8.52	7.6	350	52-US	53-US	54-US	55-US
4/25/2011	P1	15:40	0.56	52.1	7.78	7.4	450	56-P1	57-P1	58-P1	59-P1
4/25/2011	P2	15:59	0.09	53.3	13.35	9.2	1,160	60-P2	61-P2	62-P2	63-P2
4/25/2011	AG	16:17	1.60	52.2	8.98	7.9	320	64-AG	65-AG	66-AG	67-AG
4/25/2011	P3	16:34	0.94	51.8	9.17	7.7	610	68-P3	69-P3	70-P3	71-P3
4/25/2011	DS	16:48	4.56	52.4	9.91	7.9	600	72-DS	73-DS	74-DS	75-DS
5/15/2011	US	11:59	0.33	52.7	8.23	7.9	750	73-US	74-US	75-US	75-US
5/15/2011	P1	12:39	0.30	53.6	3.77	7.7	670	77-P1	78-P1	79-P1	80-P1
5/15/2011	P2	13:01	0.00	58.6	5.04	8.8	1,090	81-P2	82-P2	83-P2	84-P2
5/15/2011	AG	13:28	0.71	51.4	7.96	7.9	540	85-S1	86-S1	87-S1	88-S1
5/15/2011	P3	13:55	0.60	51.9	7.67	7.9	680	89-P3	90-P3	91-P3	92-P3
5/15/2011	DS	14:21	0.39	57.4	8.39	8.2	490	93-DS	94-DS	95-DS	96-DS
5/25/2011	US	15:09	0.84	58.3	8.87	8.1	280	97-US	98-US	99-US	100-US
5/25/2011	P1	15:26	0.82	59.8	7.13	7.9	290	101-P1	102-P1	103-P1	104-P1
5/25/2011	P2	15:40	0.74	64.6	7.95	8.7	950	105-P2	106-P2	107-P2	108-P2
5/25/2011	AG	15:52	1.55	60.3	8.45	8.1	310	109-AG	110-AG	111-AG	112-AG
5/25/2011	P3	16:07	1.88	59.5	8.12	7.7	400	113-P3	114-P3	115-P3	116-P3
5/25/2011	DS	16:20	2.90	61.6	8.09	7.9	390	117-DS	118-DS	119-DS	120-DS
5/25/2011	US	17:25	0.96	59.9	6.99	7.9	210	121-US	122-US	123-US	124-US
5/25/2011	P1	17:44	1.29	59.7	7.66	7.9	240	125-P1	126-P1	127-P1	128-P1
5/25/2011	P2	17:59	-	63.4	7.24	8.4	810	129-P2	130-P2	131-P2	132-P2
5/25/2011	AG	18:12	1.71	59.9	8.59	7.9	230	133-AG	134-AG	135-AG	136-AG
5/25/2011	P3	18:25	2.70	59.1	7.85	7.8	290	137-P3	138-P3	139-P3	140-P3
5/25/2011	DS	18:40	2.30	61.9	7.72	7.9	420	141-DS	142-DS	143-DS	144-DS
7/28/2011	US	9:24	1.20	71.1	-	8.9	160	145-US	146-US	147-US	148-US
7/28/2011	P1	9:53	1.30	72.6	-	7.9	280	149-P1	150-P1	151-P1	152-P1
7/28/2011	P2	10:16	-	73.5	-	7.7	440	153-P2	154-P2	155-P2	156-P2
7/28/2011	AG	10:35	1.27	72.6	-	7.4	130	157-AG	158-AG	159-AG	160-AG

Date	Site	Time	Stage [ft]	Temp. [°F]	DO [mg/L]	pH	Conduct [µs]	TN	TP	TSS	Ecoli
7/28/2011	P3	10:56	1.84	74.3	-	7.5	350	161-P3	162-P3	163-P3	164-P3
7/28/2011	DS	11:26	2.11	75.2	-	8.2	290	165-DS	166-DS	167-DS	168-DS
7/29/2011	US	6:30	1.10	71.6	5.20	7.7	180	169-US	170-US	171-US	172-US
7/29/2011	P1	6:54	1.48	72.4	-	7.4	300	173-P1	174-P1	175-P1	176-P1
7/29/2011	P2	7:11	-	73.7	-	7.5	480	177-P2	178-P2	179-P2	180-P2
7/29/2011	AG	7:26	1.38	71.9	-	7.5	260	181-AG	182-AG	183-AG	184-AG
7/29/2011	P3	7:40	1.99	72.1	-	7.5	360	185-P3	186-P3	187-P3	188-P3
7/29/2011	DS	7:53	2.15	73.5	-	7.5	320	189-DS	190-DS	191-DS	192-DS
10/20/2011	US	12:08	0.34	50.1	5.55	7.8	460	193-US	194-US	195-US	196-US
10/20/2011	DS	12:29	0.86	50.3	8.61	8.2	610	197-DS	198-DS	199-DS	200-DS

Sample ID	Collection Date	TIN (mg/L)	TKN (mg/L)	TSS (mg/L)	TP (mg/L)	E. coli (cfu/100 mL)
1-US	4/21/2011	0.170	1.3			
2-US	4/21/2011			4.0	0.067	
3-US	4/21/2011					25
4-P1	4/21/2011	ND	1.3			
5-P1	4/21/2011			5.0	0.085	
6-P1	4/21/2011					29
7-P2	4/21/2011	ND	1.3			
8-P2	4/21/2011			20.0	1.230	
9-P2	4/21/2011					500
10-AG	4/21/2011	7.200	1.8			
11-AG	4/21/2011			68.0	0.285	
12-AG	4/21/2011					143
13-P3	4/21/2011	0.120	1.7			
14-P3	4/21/2011			10.0	0.125	
15-P3	4/21/2011					83
16-DS	4/21/2011	0.059	1.5			
17-DS	4/21/2011			11.0	0.098	
18-DS	4/21/2011					20
19-US	4/22/2011	0.045	1.3			
20-US	4/22/2011				0.109	
21-US	4/22/2011			42.0		
22-P1	4/22/2011	ND	1.3			
23-P1	4/22/2011				0.069	
24-P1	4/22/2011			5.0		
25-P2	4/22/2011	ND	8.6			
26-P2	4/22/2011				1.190	
27-P2	4/22/2011			48.0		
28-US	4/25/2011	0.044	1.0			
29-US	4/25/2011				0.040	
30-US	4/25/2011			9.5		
31-US	4/25/2011					146
32-P1	4/25/2011	ND	1.3			
33-P1	4/25/2011				0.038	
34-P1	4/25/2011			4.5		
35-P1	4/25/2011					0
36-P2	4/25/2011	ND	7.3			
37-P2	4/25/2011				1.080	
38-P2	4/25/2011			63.0		
39-P2	4/25/2011					confluent growth
40-AG	4/25/2011	20.000	1.7			

Sample ID	Collection Date	TIN (mg/L)	TKN (mg/L)	TSS (mg/L)	TP (mg/L)	E. coli (cfu/100 mL)
41-AG	4/25/2011				0.385	
42-AG	4/25/2011			90.0		
43-AG	4/25/2011					95
44-P3	4/25/2011	ND	1.5			
45-P3	4/25/2011				0.128	
46-P3	4/25/2011			25.0		
47-P3	4/25/2011					290
48-DS	4/25/2011	0.061	1.5			
49-DS	4/25/2011				0.123	
50-DS	4/25/2011			29.0		
51-DS	4/25/2011					700
52-US	4/25/2011	0.053	1.3			
53-US	4/25/2011				0.069	
54-US	4/25/2011			28.0		
55-US	4/25/2011					200
56-P1	4/25/2011	ND	1.4			
57-P1	4/25/2011				0.053	
58-P1	4/25/2011			9.0		
59-P1	4/25/2011					110
60-P2	4/25/2011	ND	8.3			
61-P2	4/25/2011				1.080	
62-P2	4/25/2011			68.0		
63-P2	4/25/2011					TNTC
64-AG	4/25/2011	6.500	1.9			
65-AG	4/25/2011				0.302	
66-AG	4/25/2011			109.0		
67-AG	4/25/2011					40
68-P3	4/25/2011	ND	1.6			
69-P3	4/25/2011				0.066	
70-P3	4/25/2011			13.0		
71-P3	4/25/2011					310
72-DS	4/25/2011	0.062	1.5			
73-DS	4/25/2011				0.101	
74-DS	4/25/2011			29.0		
75-DS	4/25/2011					1100
73-US	5/15/2011	0.100	1.3			
74-US	5/15/2011				0.115	
75-US	5/15/2011			23.0		
76-US	5/15/2011					156
77-P1	5/15/2011	0.034	2.0			
78-P1	5/15/2011				0.314	
79-P1	5/15/2011			10.0		
80-P1	5/15/2011					100

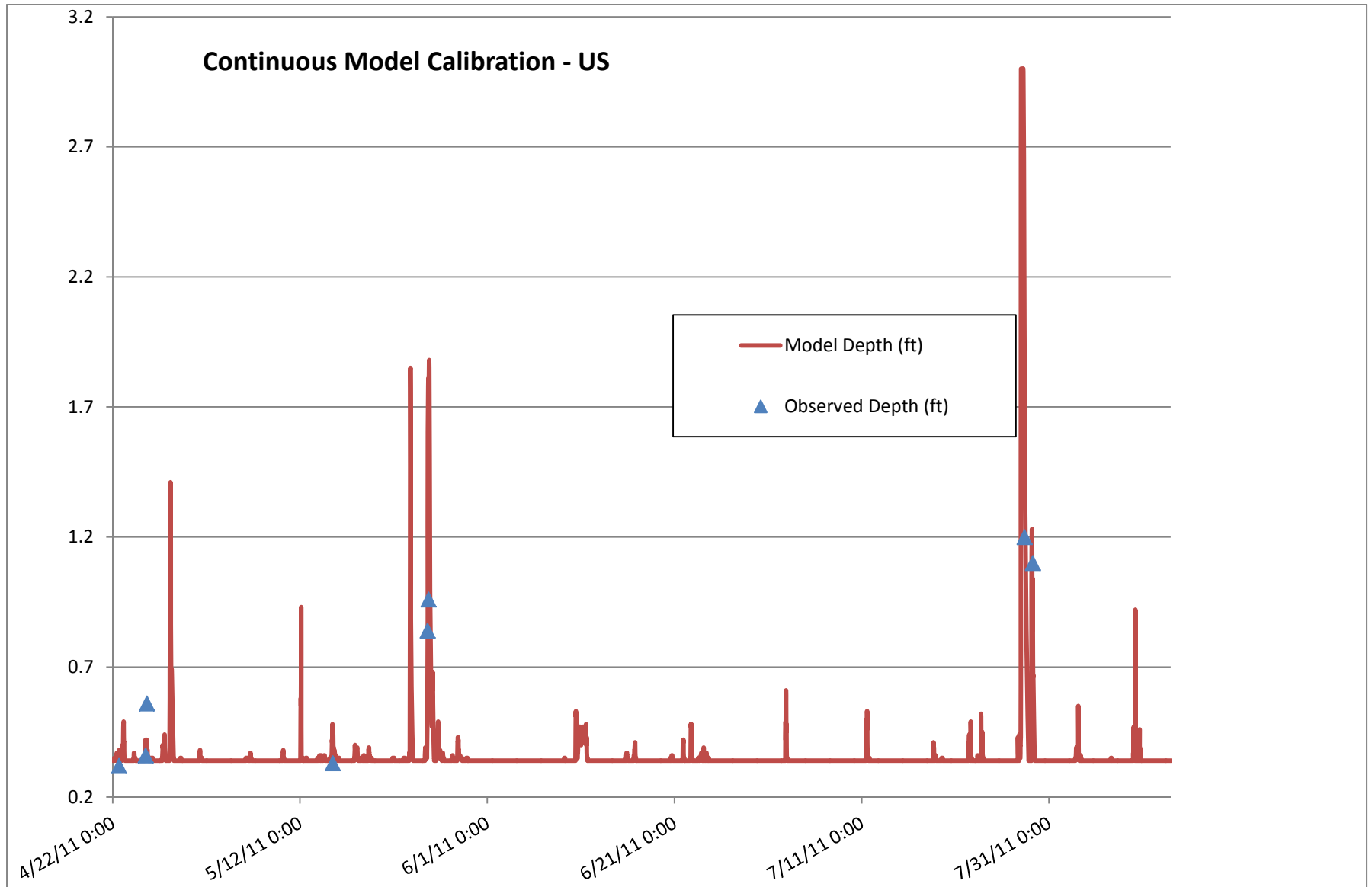


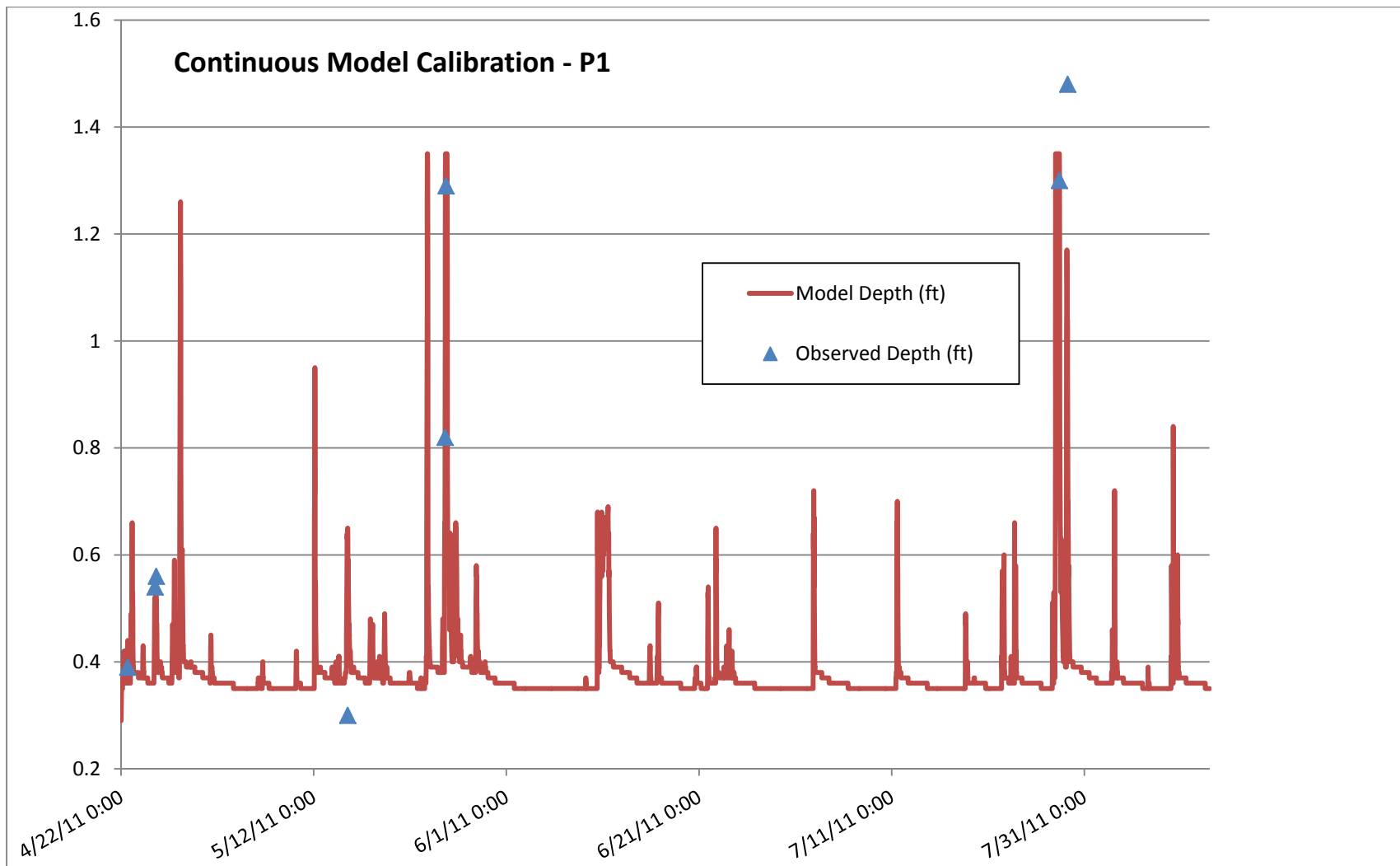
Sample ID	Collection Date	TIN (mg/L)	TKN (mg/L)	TSS (mg/L)	TP (mg/L)	E. coli (cfu/100 mL)
81-P2	5/15/2011	ND	5.1			
82-P2	5/15/2011				1.260	
83-P2	5/15/2011			25.0		
84-P2	5/15/2011					1000
85-S1	5/15/2011	0.140	2.0			
86-S1	5/15/2011				0.342	
87-S1	5/15/2011			30.0		
88-S1	5/15/2011					62500
89-P3	5/15/2011	0.046	1.6			
90-P3	5/15/2011				0.322	
91-P3	5/15/2011			22.0		
92-P3	5/15/2011					3700
93-DS	5/15/2011	0.430	1.1			
94-DS	5/15/2011				0.131	
95-DS	5/15/2011			18.0		
96-DS	5/15/2011					4600
97-US	5/25/2011	0.093	2.5			
98-US	5/25/2011				0.249	
99-US	5/25/2011			380.0		
100-US	5/25/2011					1867
101-P1	5/25/2011	0.075	1.4			
102-P1	5/25/2011				0.167	
103-P1	5/25/2011			46.0		
104-P1	5/25/2011					7583
105-P2	5/25/2011	ND	6.9			
106-P2	5/25/2011				1.036	
107-P2	5/25/2011			64.0		
108-P2	5/25/2011					19000
109-AG	5/25/2011	0.150	3.7			
110-AG	5/25/2011				0.314	
111-AG	5/25/2011			412.0		
112-AG	5/25/2011					13571
113-P3	5/25/2011	0.092	2.0			
114-P3	5/25/2011				0.178	
115-P3	5/25/2011			18.0		
116-P3	5/25/2011					10857
117-DS	5/25/2011	0.130	3.0			
118-DS	5/25/2011				0.180	
119-DS	5/25/2011			44.0		
120-DS	5/25/2011					5833

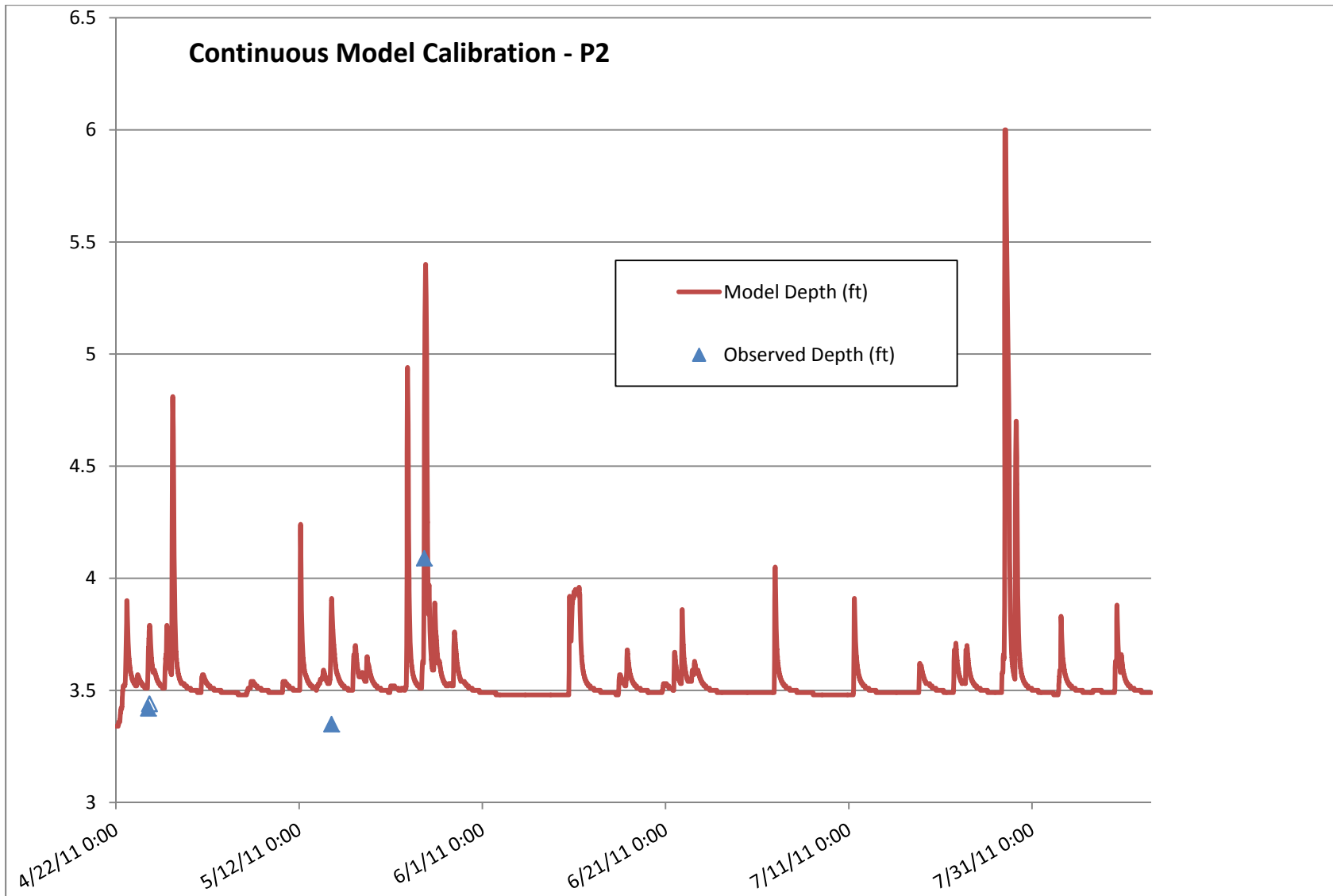
Sample ID	Collection Date	TIN (mg/L)	TKN (mg/L)	TSS (mg/L)	TP (mg/L)	E. coli (cfu/100 mL)
121-US	5/25/2011	0.280	2.8			
122-US	5/25/2011				0.202	
123-US	5/25/2011			64.0		
124-US	5/25/2011					4100
125-P1	5/25/2011	0.190	4.6			
126-P1	5/25/2011				0.590	
127-P1	5/25/2011			400.0		
128-P1	5/25/2011					tntc
129-P2	5/25/2011	ND	7.3			
130-P2	5/25/2011				1.035	
131-P2	5/25/2011			68.0		
132-P2	5/25/2011					50000
133-AG	5/25/2011	0.160	2.3			
134-AG	5/25/2011				0.286	
135-AG	5/25/2011			268.0		
136-AG	5/25/2011					30000
137-P3	5/25/2011	0.150	1.8			
138-P3	5/25/2011				0.221	
139-P3	5/25/2011			172.0		
140-P3	5/25/2011					33500
141-DS	5/25/2011	0.095	2.1			
142-DS	5/25/2011				0.156	
143-DS	5/25/2011			24.0		
144-DS	5/25/2011					12143
145-US	7/28/2011	5.500	1.9			
146-US	7/28/2011				0.410	
147-US	7/28/2011			93.0		
148-US	7/28/2011					10100
149-P1	7/28/2011	2.400	2.7			
150-P1	7/28/2011				0.351	
151-P1	7/28/2011			64.0		
152-P1	7/28/2011					16500
153-P2	7/28/2011	1.200	7.6			
154-P2	7/28/2011				1.110	
155-P2	7/28/2011			88.0		
156-P2	7/28/2011					conluent growth
157-AG	7/28/2011	5.100	1.7			
158-AG	7/28/2011				0.810	
159-AG	7/28/2011			204.0		
160-AG	7/28/2011					9750

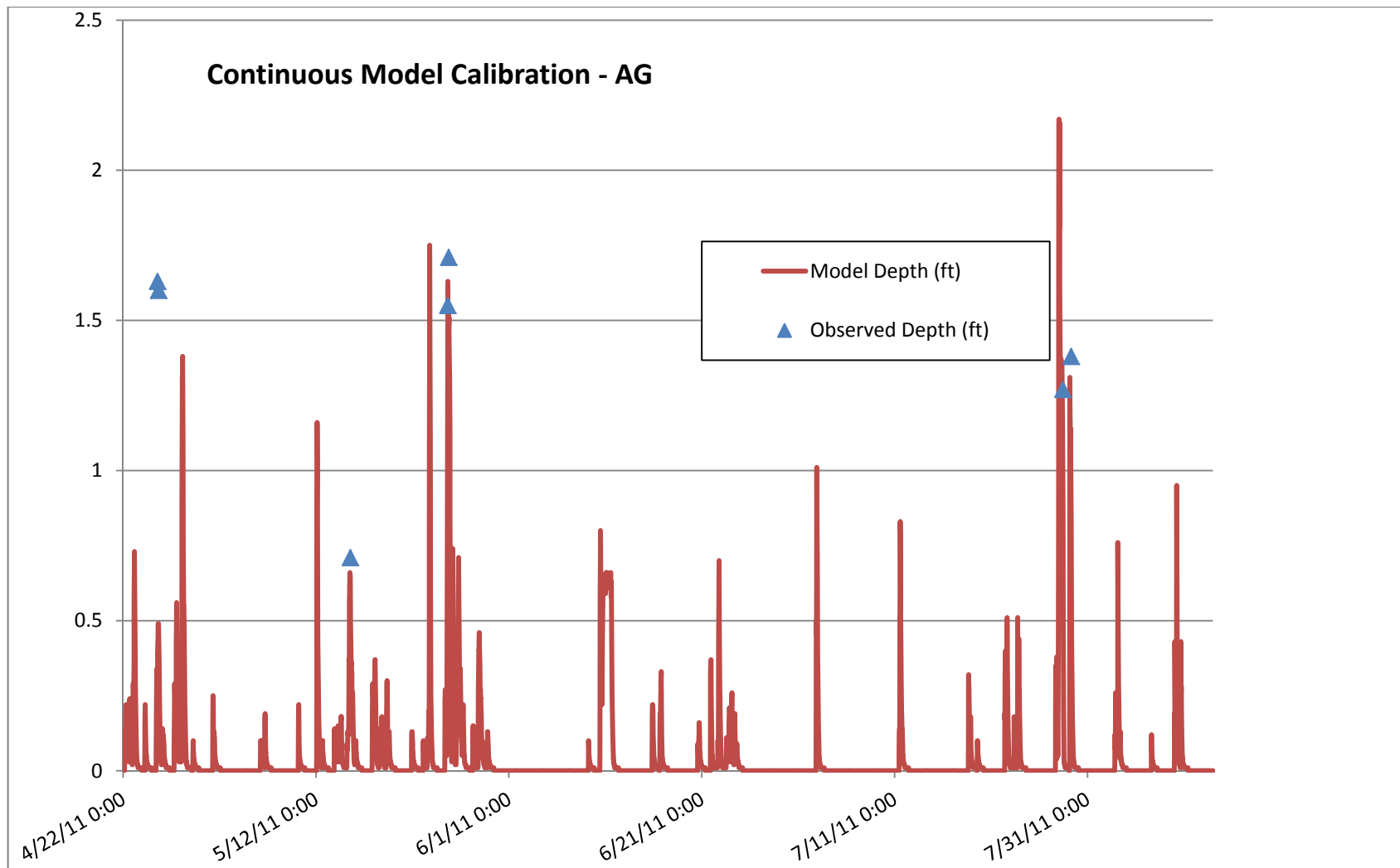
Sample ID	Collection Date	TIN (mg/L)	TKN (mg/L)	TSS (mg/L)	TP (mg/L)	E. coli (cfu/100 mL)
161-P3	7/28/2011	1.700	0.9			
162-P3	7/28/2011				0.520	
163-P3	7/28/2011			66.0		
164-P3	7/28/2011					confluent growth
165-DS	7/28/2011	0.680	2.1			
166-DS	7/28/2011				0.340	
167-DS	7/28/2011			62.0		
168-DS	7/28/2011					confluent growth
169-US	7/29/2011	3.600	1.3			
170-US	7/29/2011				0.254	
171-US	7/29/2011			52.0		
172-US	7/29/2011					7667
173-P1	7/29/2011	1.000	1.3			
174-P1	7/29/2011				0.290	
175-P1	7/29/2011			30.0		
176-P1	7/29/2011					9667
177-P2	7/29/2011	0.330	6.0			
178-P2	7/29/2011				1.920	
179-P2	7/29/2011			136.0		
180-P2	7/29/2011					TNTC
181-AG	7/29/2011	3.200	2.3			
182-AG	7/29/2011				0.396	
183-AG	7/29/2011			100.0		
184-AG	7/29/2011					26000
185-P3	7/29/2011	1.000	1.5			
186-P3	7/29/2011				0.294	
187-P3	7/29/2011			42.0		
188-P3	7/29/2011					34000
189-DS	7/29/2011	1.200	1.7			
190-DS	7/29/2011				0.314	
191-DS	7/29/2011			44.0		
192-DS	7/29/2011					34000
193-US	10/20/2011	ND	2.7			
194-US	10/20/2011				0.228	
195-US	10/20/2011			24.0		
196-US	10/20/2011					40000
197-DS	10/20/2011	ND	3.8			
198-DS	10/20/2011				0.172	
199-DS	10/20/2011			12.0		
200-DS	10/20/2011					1340

# **Appendix C - SWMM Model Calibration Graphs**

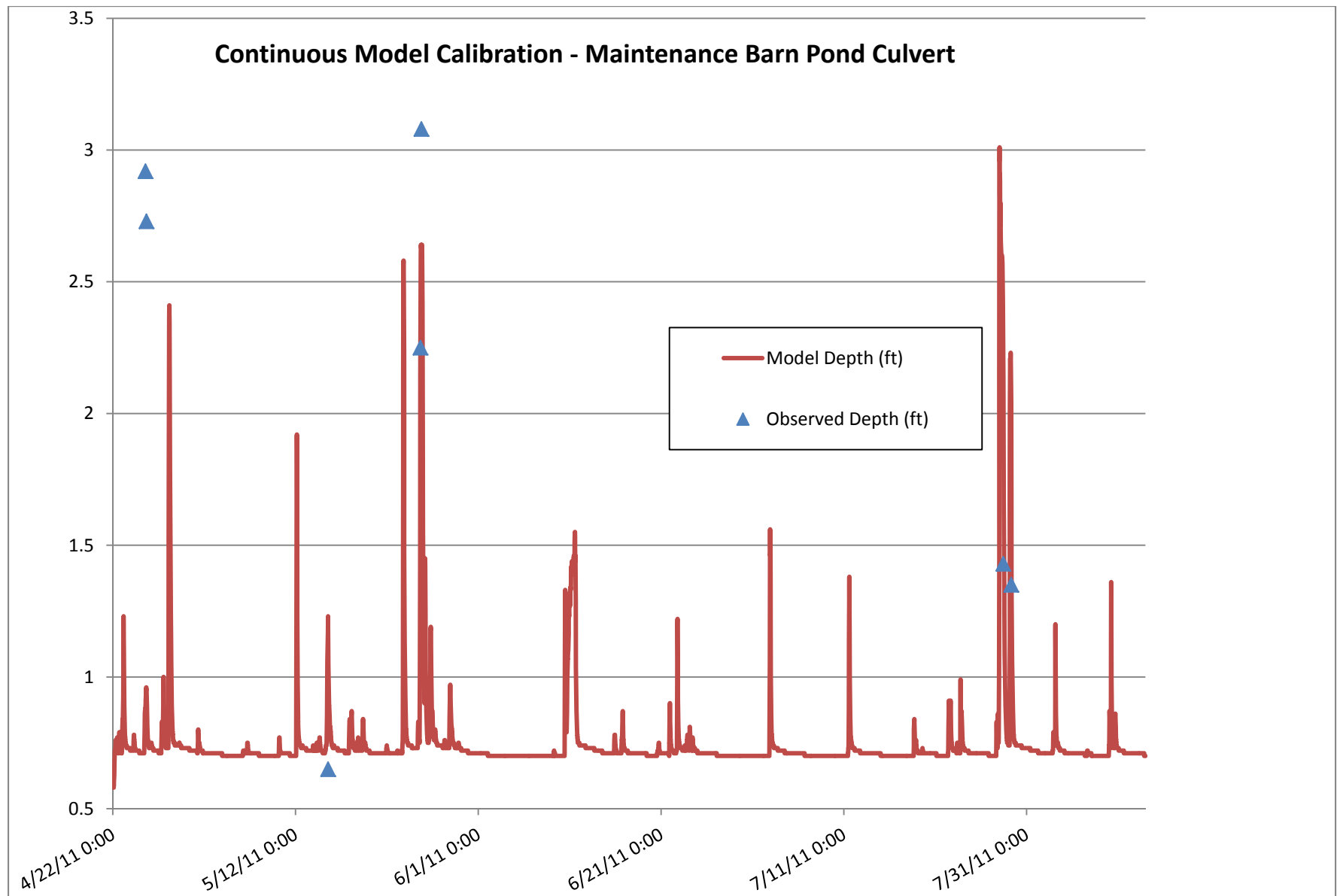


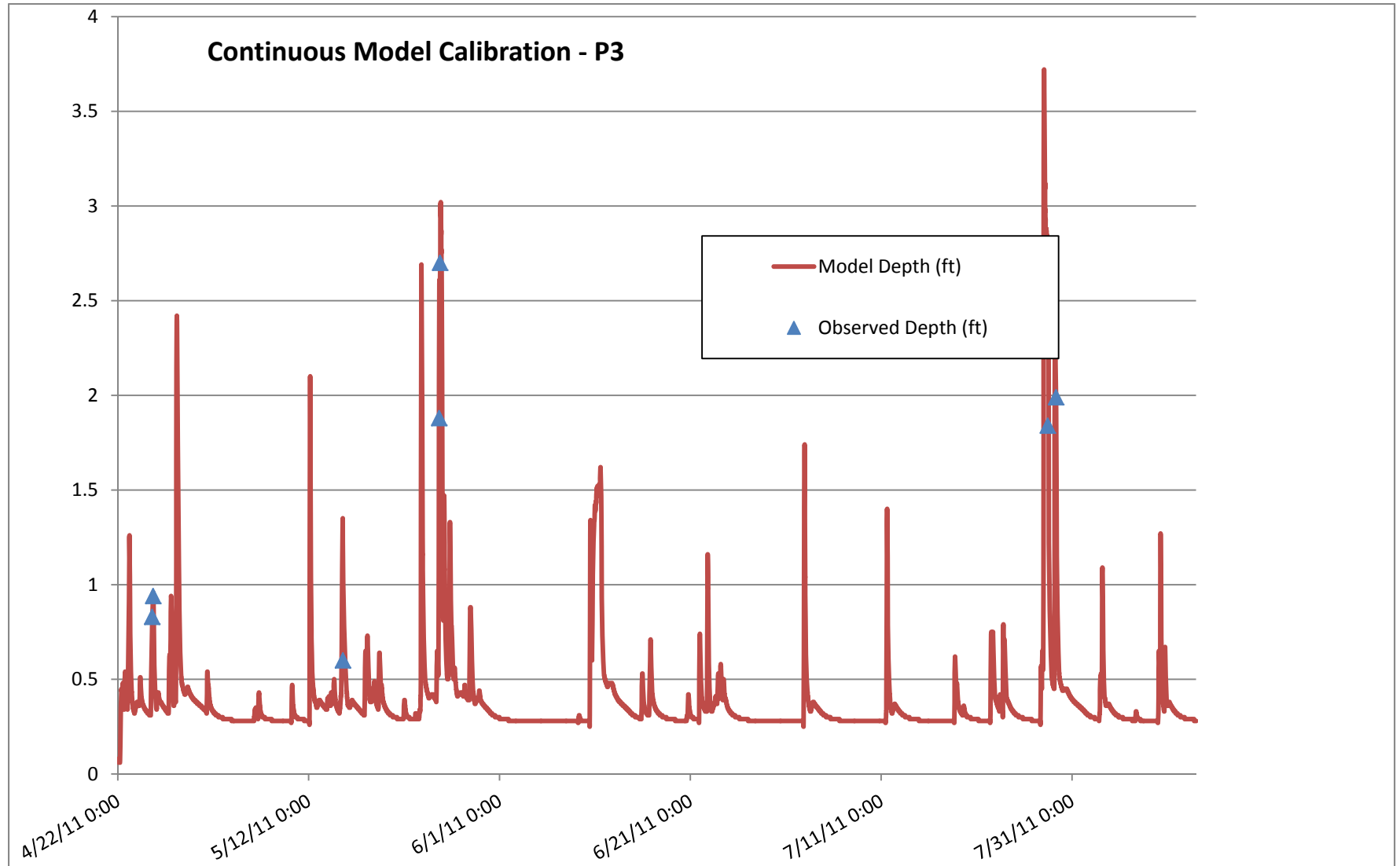


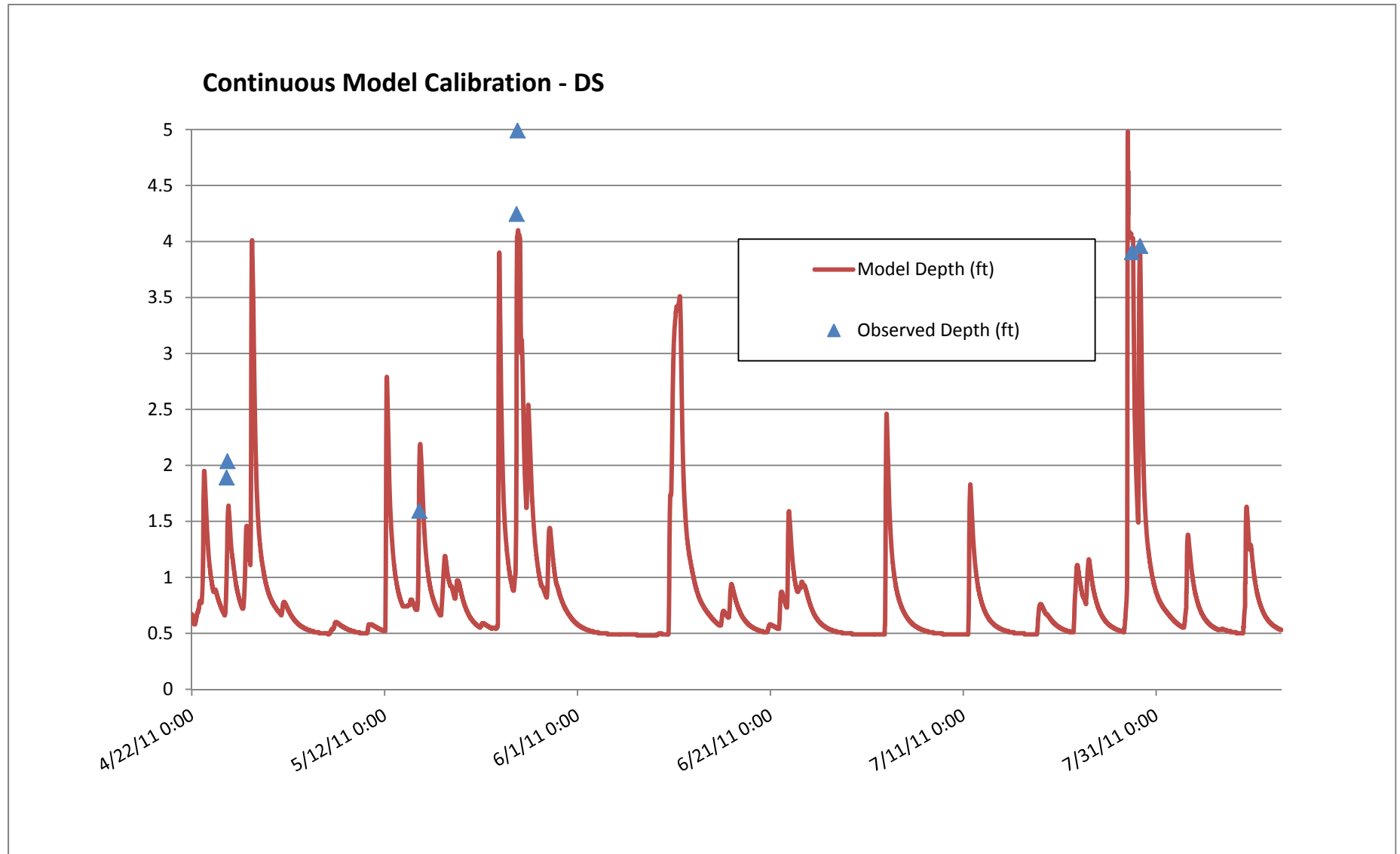












# **Appendix D - SWMM Model Summary Input and Output Tables**

# Appendix E - Site Photographs

# **Appendix F - Stormwater Nutrient Control References**