Performance Efficiency Evaluation of the Club II Regional Stormwater Facility (RSF)

Final Report

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SECTION 1

INTRODUCTION

This document provides a summary of work efforts conducted by Environmental Research & Design, Inc. (ERD) for Seminole County (County) to conduct a performance efficiency evaluation of the Club II Regional Stormwater Facility (RSF). This facility was constructed by the County, with cooperative funding from the Florida Department of Environmental Protection (FDEP), to reduce pollutant loadings discharging into Lake Monroe from approximately 471 acres which currently have no existing stormwater treatment. The Club II RSF consists of an on-line wet detention pond which receives runoff inputs from watershed areas located west, south, and east of the pond.

Section 303(d) of the Clean Water Act requires states to submit lists of surface waterbodies that do not meet applicable water quality standards. These waterbodies are defined as "impaired waters" and total maximum daily loads (TMDLs) must be established for these waters on a prioritized schedule. Lake Monroe (WBID #2893D) has been designated as an "impaired water" due to elevated nutrient and TSI values. A nutrient TMDL for Lake Monroe was developed by FDEP during 2009. The Club II RSF was constructed to assist in reducing nutrient loadings to Lake Monroe in an effort to improve in-lake nutrient concentrations.

1.1 Project Description

A general location map for the Club II RSF is given on Figure 1-1. The Club II site is located in Seminole County between Celery Avenue and S.R. 46, south of Lake Monroe, within the Lake Monroe Planning Unit of the Middle St. Johns River Basin. The Club II pond originated as a borrow pit used for excavation of fill material for the construction of S.R. 417. Two separate borrow pits were excavated, including a 75-acre (@ CWL) area (referred to as the South Cell or Pond) and a 12-acre area (referred to as the North Cell or Pond).

During 2008, the two borrow pits were retrofitted into a stormwater treatment facility, referred to as the Club II RSF, to provide treatment for approximately 471 acres of residential areas, open space, pasture, and wooded areas. The borrow pits were regraded to provide adequate side slopes for safety and maintenance, and stormwater related infrastructure was installed to regulate water levels and discharge rates from the ponds. Construction drawings for the Club II RSF, prepared by Professional Engineering Consultants (PEC), are given in Appendix A. Stormwater inputs are initially directed into the 75-acre South Pond which is the subject of the work efforts discussed in this report. Excess water from the South Pond discharges through an outfall structure into the 12-acre North Pond for additional treatment. The North Pond is not included in the performance efficiency evaluation discussed in this report, although routine surface water monitoring was conducted in the pond by ERD for comparison with the South Pond. Discharges from the North Pond migrate through a vegetated conveyance system and discharge into the southeast lobe of Lake Monroe. General drainage patterns in the vicinity of the Club II pond are illustrated on Figure 1-2.

Figure 1-1. General Location Map for the Club II Regional Stormwater Facility.

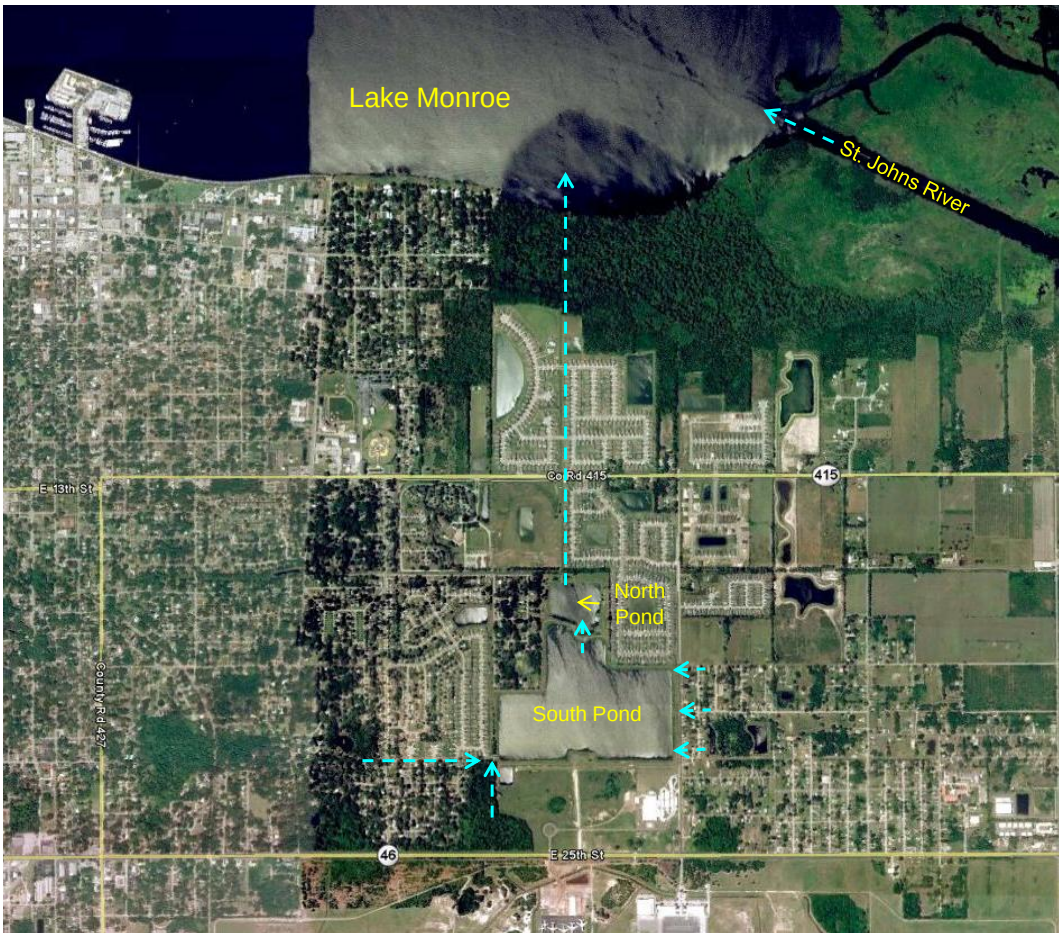


Figure 1-2. General Drainage Patterns in the Vicinity of the Club II Pond.

Inflows and outflows for the Club II RSF are illustrated on Figure 1-3. Primary inflow into the South Pond occurs through a rip-rap lined channel at the southwest corner of the pond. This channel receives significant inflows through a ditched drainage system which originates in the vicinity of S.R. 46. In addition, an underground stormsewer also discharges into the channel which originates as a discharge from Lake Gem and provides drainage for adjacent residential areas. Photographs of the primary inflow channel are given on Figure 1-4.

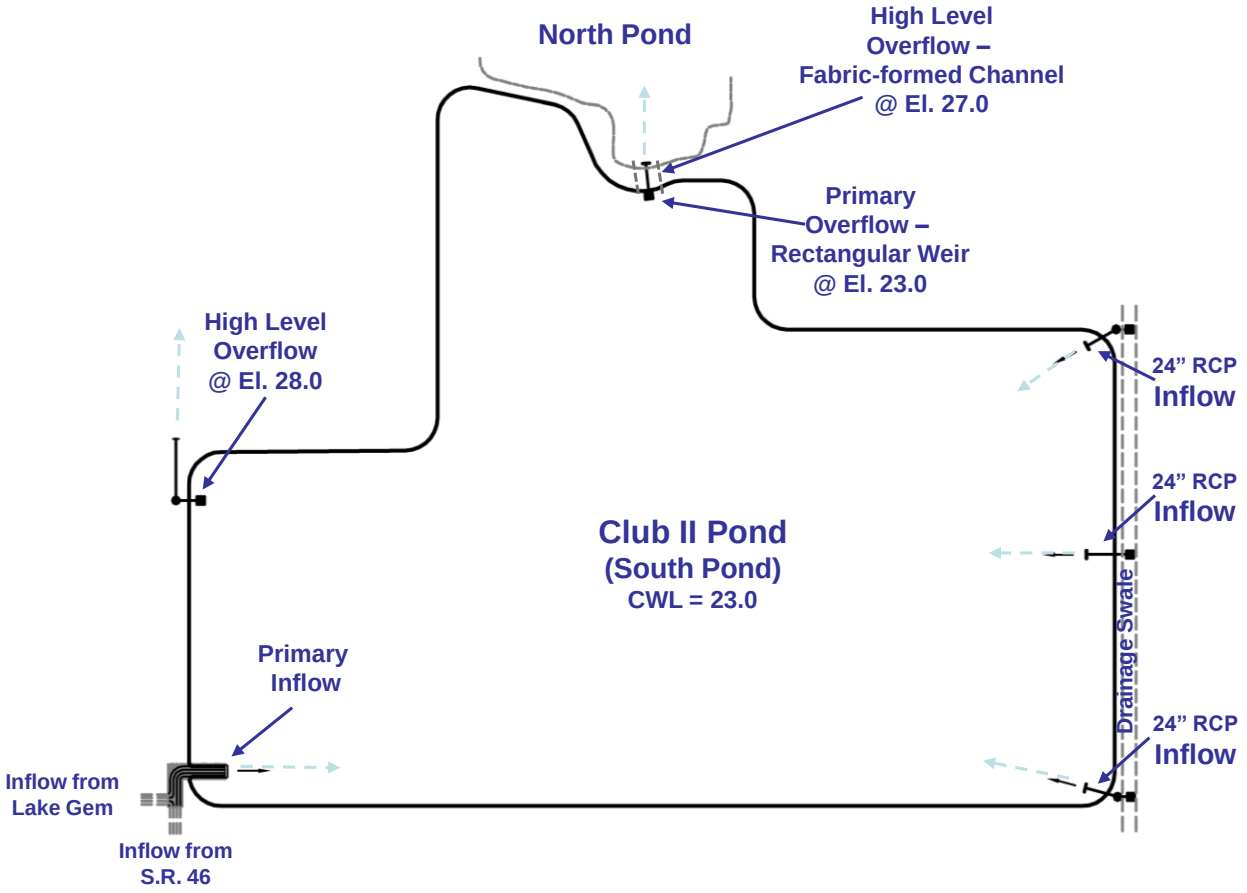


Figure 1-3. Inflows and Outflows for the Club II RSF.

In addition to the primary channel inflow, runoff inputs also enter the South Pond from a drainage swale along Brisson Avenue on the east side of the pond. Photographs of the drainage swale system are given on Figure 1-5. The drainage swale contains three separate inlet structures which convey runoff into the pond through 24-inch RCPs.

Discharges from the South Pond occur through an outfall structure located on the north lobe of the pond, with the discharges entering the North Pond. The outfall structure contains a 3-ft wide rectangular weir with a control elevation of 23.0 ft. A high level overflow weir is also provided which consists of a 15-ft wide concrete fabric form channel, constructed at an invert elevation of 27.0 ft. An additional high level overflow structure is located on the west side of the Club II pond, with an invert elevation of 28.0 ft.

Figure 1-4. Photographs of the Primary Inflow Channel.

a. Typical Swale Section Along Brisson Avenue

b. Typical Inlet Structure Along Swale

Figure 1-5. Photographs of the Drainage Swale System.

An approximate topographic contour map of the Club II South Pond is given on Figure 1-6. This map was developed by ERD using information collected from two different sources. First, contour lines between the top of bank (elevation ~30.0 ft) and elevation 10.0 were obtained from the construction drawings for the South Pond. However, the contour lines indicated on the construction drawings do not extend below an elevation of 10.0 ft. Based upon field measurements conducted by ERD, the pond depth appears to be approximately 23-24 ft, suggesting a bottom elevation of approximately 0 ft which corresponds with the approximate pond bottom elevation indicated on the construction drawings. Contour lines were extended from the last available contour on the construction drawings at the same 4:1 slope shown on the construction drawings for elevations less than 12 ft until a bottom elevation of 0.0 ft was reached.

Figure 1-6. Topographic Contour Map of the Club II South Pond.

Although the North Pond is not included as part of the performance efficiency evaluation, field measurements conducted in this pond by ERD indicate a similar water depth of approximately 23-24 ft. A north-south cross-section to the south and North Ponds is given on Figure 1-7, indicating relative water level elevations for the two ponds and outfall channel.

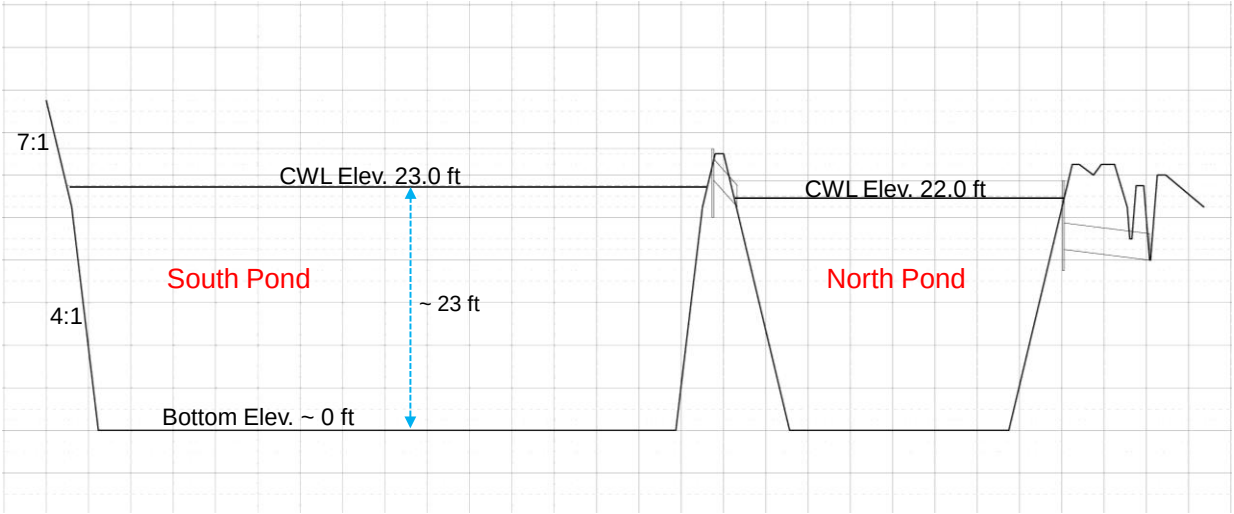


Figure 1-7. North-South Cross-Section to the South and North Ponds.

Stage-area-storage relationships for the South Pond are given on Table 1-1 based upon the topographic contour map provided on Figure 1-6. At the control water elevation of 23.0 ft, the South Pond has a surface area of approximately 75.2 acres with an approximate volume of 1501 ac-ft. This corresponds to a mean water depth of approximately 20.0 ft.

An outline of watershed areas discharging to the Club II RSF is given on Figure 1-8, based upon the delineation performed by PEC during the preliminary evaluation phase for the Club II RSF project. The drainage basin is divided into two separate sub-basins, with areas discharging through the southwest channel referred to as the First Avenue sub-basin, and areas discharging into the east side of the Club II RSF designated as the Brisson Avenue sub-basin. A tabular summary of land use in contributing sub-basins for the South Pond is given in Table 1-2. The First Avenue sub-basin is approximately 456.89 acres in size, with approximately 12.33 acres in the Brisson Avenue sub-basin. The single largest land use category in the sub-basin areas under existing conditions is open space which covers approximately 35% of the total area. An additional 32% of the basin area is covered by woods, with 26% in residential land use and 7% in commercial land use.

A summary of contributing sub-basins to the North Pond is given in Table 1-3. Direct runoff into the North Pond occurs only from a 2.05-acre wooded area located adjacent to the pond. Therefore, virtually all inputs into the North Pond originate as discharges from the South Pond.

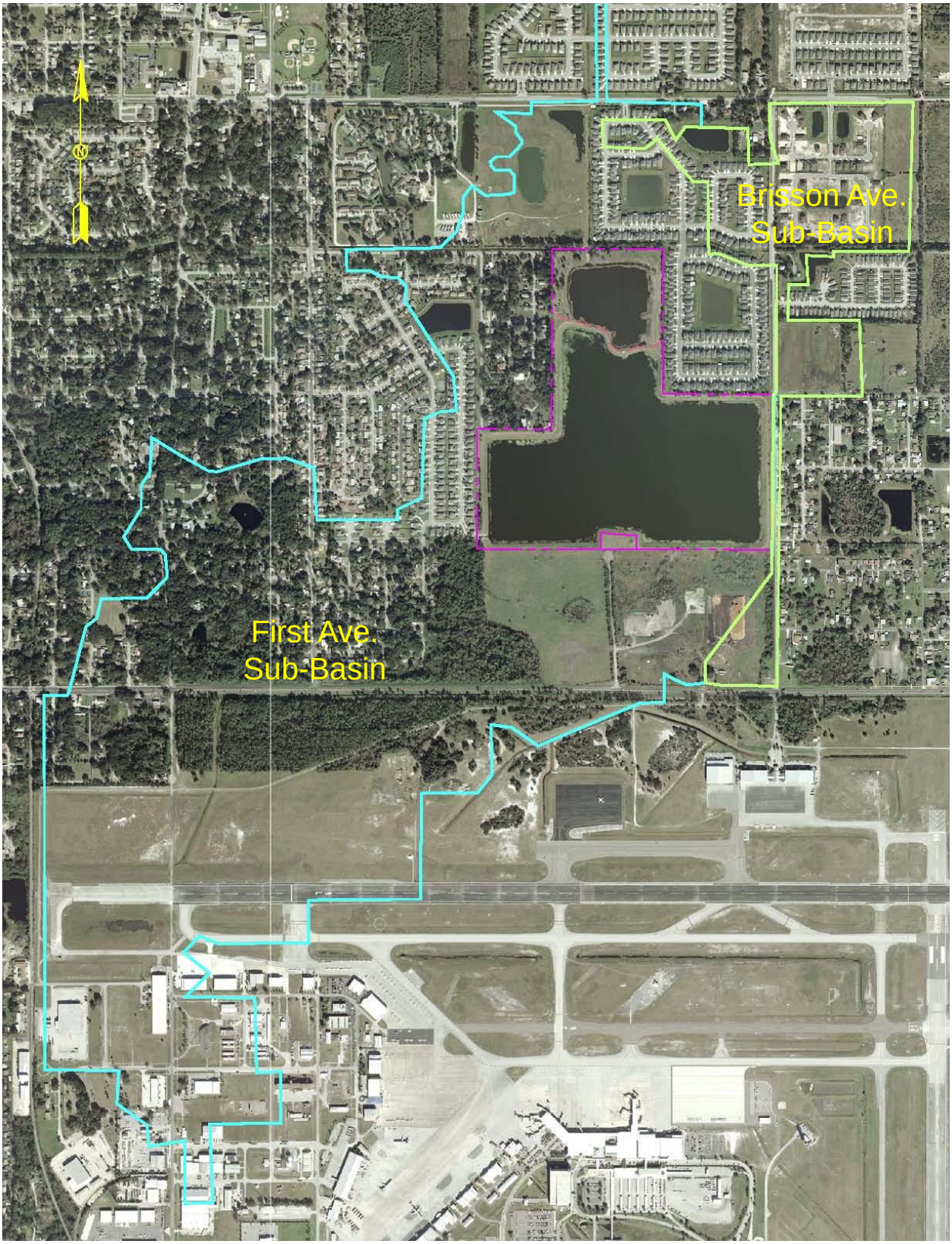


Figure 1-8. Outline of Watershed Areas Discharging to the Club II RSF.

TABLE 1-1

STAGE-AREA-STORAGE RELATIONSHIPS FOR THE SOUTH POND

ELEVATION (ft)	AREA (acres)	VOLUME (ac-ft)	ELEVATION (ft)	AREA (acres)	VOLUME (ac-ft)
26	79.0	1733	12	65.2	732
25	77.7	1654	11	64.1	668
24	76.5	1577	10	63.1	604
23	75.2	1501	9	62.6	541
22	74.0	1427	8	62.0	479
21	72.9	1353	7	61.5	417
20	72.0	1281	6	60.9	356
19	71.1	1209	5	60.4	295
18	70.2	1139	4	59.9	235
17	69.4	1069	3	59.3	176
16	68.5	1000	2	58.8	117
15	67.7	932	1	58.3	58.0
14	66.9	865	0	57.8	0
13	66.1	798			

TABLE 1-2

LAND USE IN CONTRIBUTING SUB-BASINS FOR THE SOUTH POND OF THE CLUB II RSF

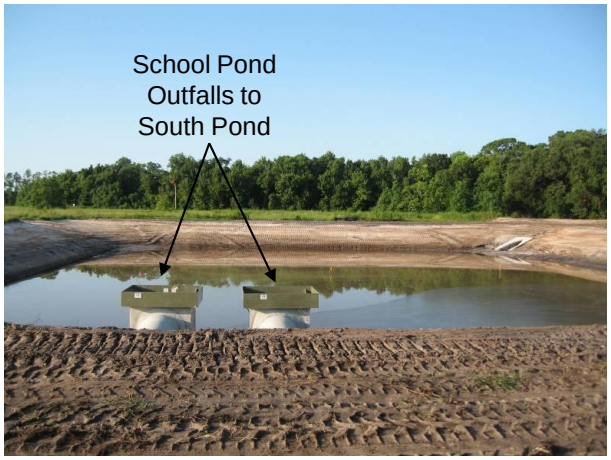
SUB-BASIN NUMBER	AREA (acres)				
	OPEN SPACE	WOODS	RESIDENTIAL	COMMERCIAL	TOTAL
First Avenue	156.13	148.93	117.23	34.60	456.89
Brisson Avenue	8.80	--	3.53	--	12.33
TOTAL:	**164.93**	**148.93**	**120.76**	**34.60**	**469.22**
Percent of Total:	**35**	**32**	**26**	**7**	**100**

TABLE 1-3

LAND USE IN CONTRIBUTING SUB-BASINS FOR THE NORTH POND OF THE CLUB II RSF

SUB-BASIN NUMBER	AREA (acres)				
	OPEN SPACE	WOODS	RESIDENTIAL	COMMERCIAL	TOTAL
North	--	2.05	--	--	2.05
TOTAL:	**0.00**	**2.05**	**0.00**	**0.00**	**2.05**

Construction activities for the Club II RSF were completed in early 2008, and field monitoring was initiated by ERD on December 1, 2008. During fall 2009, construction activities were initiated for a public school and bus storage facility located on the formerly vacant land immediately south of the South Pond. During construction, the South Pond was used as a receiving water for dewatering activities related to the on-site construction. A dedicated stormwater pond was constructed for the school site, with the discharges from the pond directed into the South Pond. These construction activities created isolated plumes of turbidity in near-shore waters along the south side of the South Pond, and on at least one occasion, resulted in turbid water throughout the entire South Pond. Photographs of construction activities and associated water quality problems for the southern school site are given on Figure 1-9. However, the volume of water discharged from the school site into the South Pond during the construction activities is thought to be relatively minimal with respect to the large water volume contained within the South Pond and is thought to have had a minimal impact on the performance efficiency evaluation. The construction activities added two additional inflows into the South Pond from the school site which are illustrated on Figure 1-10.



a. New School Pond Under Construction

b. New Inflows from School Pond

c. Construction in Vicinity of South Pond

d. Turbidity Impacts from Construction Activities

Figure 1-9. Construction Activities and Water Quality Issues Associated with the School Site Construction.

Figure 1-10. Additional Inflows into the South Pond from the School Site.

A variety of wildlife was observed in the vicinity of the Club II pond during the field monitoring program. The South Pond was home to several large alligators, migratory birds, and a variety of birds of prey. Photographs of wildlife in the vicinity of the South Pond are given on Figure 1-11.

Funding for design, construction, and monitoring of the Club II RSF was provided by multiple partners, including Seminole County, the St. Johns River Water Management District (SJRWMD), and the State of Florida through a Florida Forever Grant. A summary of expenditures by the participating partners is given on Table 1-4. Funding through the Florida Forever Program was provided by FDEP under Agreement No. S0163 in the amount of $501,271.

1.2 Work Efforts Performed by ERD

A Quality Assurance Project Plan (QAPP) was developed by ERD during July 2008 which provides details concerning the proposed field monitoring and laboratory analyses. The QAPP was reviewed and approved by FDEP. Monitoring equipment was installed at the Club II RSF site during November 2008. Routine monitoring was initiated on December 1, 2008 and was continued for a period of 24 months until November 30, 2010.

Figure 1-11. Photographs of Wildlife in the Vicinity of the South Pond.

TABLE 1-4

SUMMARY OF EXPENDITURES FOR THE CLUB II PROJECT

PROJECT FUNDING ACTIVITY		FLORIDA FOREVER ($)	MATCHING FUNDS ($)	OTHER FUNDS NOT MATCHED[1] ($)	MATCH SOURCE ($)
Task 0	Land Acquisition	--	--	1,000,000	Seminole County
Task 1	Preliminary Design and Construction Plans	--	--	50,000	SJRWMD
	Construction Plans and Permitting	75,000	--	--	--
Task 2	Borrow Pit Regrading	--	--	574,640.60	SJRWMD
	Construction	326,271	--	--	--
Task 3	Effectiveness Evaluation	100,000	50,000	--	Seminole County
Task 4	Project Administration	--	131,000	--	Seminole County
	TOTAL:	**$ 501,271**	**$ 181,000**	**$ 1,624,640.60**	
	TOTAL PROJECT COST:	**$ 2,306.911.60**			

1. Other funds contributed to the project by Seminole County and SJRWMD are non-required match

This report has been divided into four separate sections. Section 1 contains an introduction to the report, a description of the Club II RSF, and a brief summary of work efforts performed by ERD. Section 2 provides a detailed discussion of the methodologies used for field and laboratory evaluations. Section 3 includes a discussion of the hydrologic and water quality results, with a summary provided in Section 4. Appendices are attached which contain data and supporting documentation for the results and conclusions of this project.

SECTION 2

FIELD AND LABORATORY ACTIVITIES

Field and laboratory investigations were conducted by ERD over a 24-month period from December 2008-November 2010 to evaluate the effectiveness of the Club II RSF. Field monitoring was conducted at the inflows and outflow for the South Pond which included a continuous record of discharges into and out of the pond. Laboratory analyses were conducted on collected samples for general parameters and nutrients to assist in identifying concentration-based and mass removal efficiencies. Specific details of monitoring efforts conducted at the Club II RSF are given in the following sections.

2.1 Field Instrumentation and Monitoring

A schematic of monitoring locations used to evaluate the performance efficiency of the Club II RSF is given on Figure 2-1. Inflows into the South Pond were monitored at two locations. Monitoring Site 1 was located in the rip-rap lined inflow channel at the southwest corner of the pond. The second inflow monitoring site was located at one of the inflows from the swale drainage system adjacent to Brisson Avenue. Since the sub-basin area contributing to the drainage swale is relatively small compared with the large basin area discharging at Site 1, monitoring was conducted at only one of the three inflow locations, with the assumption that inflow characteristics at the remaining two sites would be relatively similar. The swale inflow site is referred to as Site 2. Discharges from the South Pond were monitored at the outfall structure which is referred to as Site 3. In addition, a water level recorder was installed adjacent to the outfall structure to provide a continuous record of water elevations within the South Pond. A rain gauge and evaporimeter were also installed adjacent to the outfall structure to provide information on rainfall inputs and evaporation losses. Details of these monitoring locations are given in the following sections.

2.1.1 Inflow Channel – Site 1

The primary inflow monitoring site for the South Pond (Site 1) was located in the rip-rap lined channel approximately 50 ft upstream from the pond. Photographs of monitoring equipment used at Site 1 are given on Figure 2-2. A Sigma automatic sequential refrigerated stormwater sampler with integral flow meter (Model 900MAX) was installed inside a large equipment shelter adjacent to the inflow channel. Sensor cables and sample tubing were extended from the equipment shelter through an underground 3-inch PVC conduit to the approximate midpoint of the channel. The 3-inch PVC casing was installed below the rock rip-rap for security and allowed sample tubing and flow sensors to be exchanged or replaced without repeated disturbance of the banks of the inflow channel.

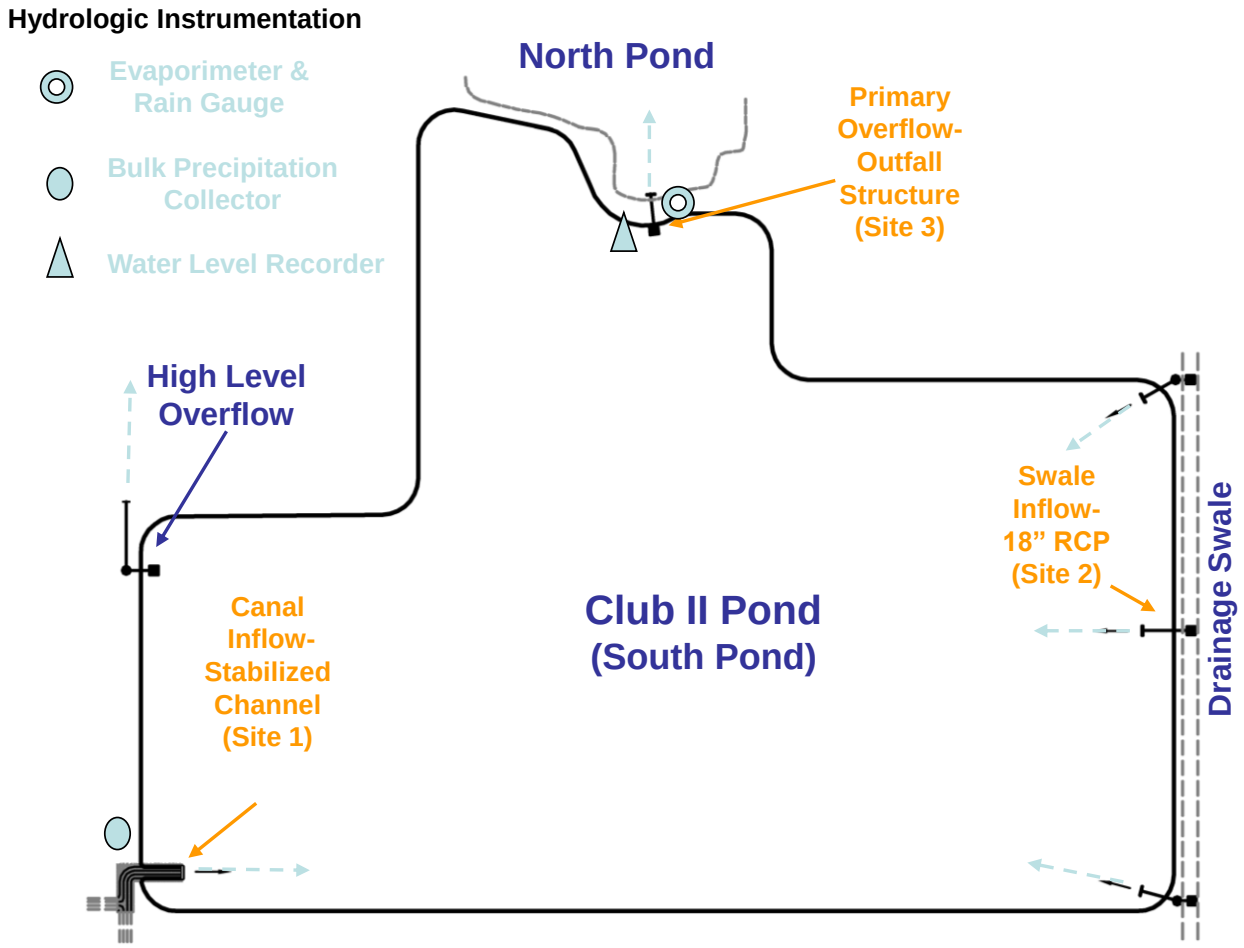


Figure 2-1. Monitoring Locations at the Club II RSF Site.

The autosampler provided a continuous measurement of discharges through the inflow channel into the South Pond under both storm event and baseflow conditions, as well as collect flow-weighted samples at the inflow over a wide range of flow conditions. The internal flow meter within the autosampler was programmed to provide a continuous record of discharges into the pond with measurements stored into internal memory at 10-minute intervals. The autosampler used at this site contained a single 20-liter polyethylene bottle and was programmed to collect samples in a flow-weighted mode, with 500-ml aliquots pumped into the collection bottle with every programmed increment of discharge. Power for operation of the refrigerated autosampler (120 VAC) was extended to the monitoring site from a City of Sanford wastewater lift station located approximately 425 ft west of the pond.

a. Equipment Housing for Inflow Monitoring Site

b. Refrigerated Autosampler Used for Inflow Monitoring

Figure 2-2. Monitoring Equipment at the Inflow Channel Site (Site 1).

Accurate measurements of discharge in the rip-rap lined inflow channel were difficult due to the irregular shape of the channel bottom resulting from placement of the rip-rap and turbulence and eddies created as a result of the irregular geometry. Therefore, to improve discharge measurements, ERD installed a concrete control section across the inflow channel adjacent to the equipment shelter. The control section was 8 inches in width and extended across the bottom of the inflow channel. The rip-rap in this area was removed from the channel to allow access to the earthen portion of the channel bottom. The concrete control section was extended approximately 1 ft into the existing channel bottom to prevent undermining of the section during high flow events. A 16-inch opening was left in the middle of the control section which was sufficient to contain flow discharges through the channel except during relatively large storm events. The velocity and depth sensors were placed on the channel bottom in the 16-inch opening and provided a continuous record of discharges at this site. Photographs of the weir structure are given on Figure 2-3.

a. Weir Structure formed and Poured with Concrete

b. Completed Weir Structure Used to Provide Constant Control Section for Flow Measurement

Figure 2-3. Photographs of the Weir Structure at Site 1.

2.1.2 Brisson Avenue Inflow - Site 2

As indicated on Figure 2-1, three separate inflows discharge into the South Pond from the Brisson Avenue swale system. Basin areas discharging into the swale system are similar throughout the length of the swale, and runoff characteristics should be relatively similar at each of the three inflow sites. Since the Brisson Avenue swale system represents a relatively minor input into the South Pond, inflow monitoring was conducted only at the middle inflow which is referred to as Site 2. Photographs of this monitoring site are given on Figure 2-4. An aluminum equipment shelter was installed adjacent to the fence line for the Club II pond which runs parallel to the Brisson Avenue drainage swale. A 3-inch PVC conduit was extended from the equipment shelter to the inflow grate for the inflow structure located in the drainage swale. The sample tubing and flow probes were run through the 3-inch PVC to the inlet structure and extended approximately 15 ft downstream in the 18-inch RCP.

a. Equipment Housing for Brisson Avenue Monitoring Site (Site 2)

b. Autosampler Used at Brisson Avenue Site

Figure 2-4. Monitoring Equipment Used at the Brisson Avenue Site (Site 2).

A Sigma automatic sequential stormwater sampler with integral flow meter (Model 900MAX) was installed inside of the aluminum equipment shelter. The flow probe and sample strainer were attached to a 4-inch wide x 0.5-inch thick x 4-ft long steel plate which was attached to the bottom flow line of the stormsewer pipe. The internal flow meter in the stormwater sampler was programmed to provide a continuous record of discharges through the 18-inch RCP, with measurements stored into internal memory at 10-minute intervals. The automatic sampler contained a single 20-liter polyethylene bottle and was programmed to collect samples in a flow-weighted mode, with 500-ml aliquots pumped into the collection bottle with every programmed increment of discharge. Since 120 VAC power was not available at the site, the automatic sampler was operated on 12-VDC batteries which were replaced on a periodic basis.

2.1.3 Outflow Structure – Site 3

Discharges from the South Pond were monitored at the outfall structure for the pond which is designated as Site 3. The outfall structure consists of a 5.5-ft x 4.5-ft rectangular box with a Reticuline grate and a 3-ft wide contracted rectangular weir with a crest elevation of 23.0 ft. A plastic equipment shelter was installed on top of the outfall structure and used to house the automatic stormwater sampler. A photograph of the equipment shelter used at the outflow monitoring site is given on Figure 2-5. The automatic sequential sampler used at this site was manufactured by Sigma (Model 900MAX). The depth sensor cable and sample tubing were extended from the rear of the equipment shelter and were mounted to the front of the outfall structure, approximately 6 inches below the crest elevation. The depth sensor was used to provide accurate readings of water level, with discharges over the weir calculated using the standard horizontal weir equation. Flow measurements recorded by the autosampler were verified manually by ERD during each weekly monitoring event by measuring discharge at the mitered end section which connects the outfall structure to the North Pond.

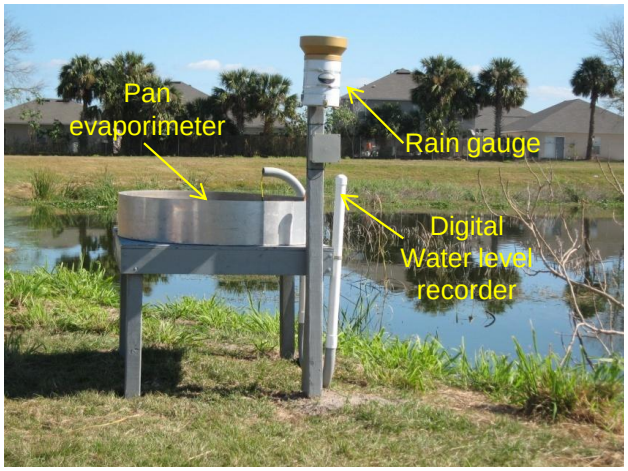
Figure 2-5. Equipment Shelter Used at the Outflow Monitoring Site.

The integral flow meter was programmed to provide a continuous record of discharges through the outfall structure, with measurements stored into internal memory at 10-minute intervals. The automatic sampler contained a single 20-liter polyethylene bottle, and was programmed to collect composite samples in a flow-weighted mode, with 500-ml aliquots pumped into the collection bottle with every programmed increment of discharge. Since 120-VAC power was not available at this site, the automatic sampler was operated on 12-VDC batteries which were replaced on a periodic basis.

2.1.4 Hydrologic Instrumentation

In addition to the inflow and outflow monitoring sites discussed previously, hydrologic instrumentation was also installed at the site to provide information on rainfall and evaporation during the field monitoring program. The hydrologic monitoring equipment was installed adjacent to the equipment shelter for the outfall structure. Photographs of hydrologic monitoring equipment used at the South Pond site are given on Figure 2-6.

a. Hydrologic Monitoring Equipment Adjacent to Outfall Structure



b. Pan Evaporimeter and Rain Gauge

Figure 2-6. Hydrologic Monitoring Equipment Used at the South Pond Site.

Rainfall was monitored using a continuous rainfall recorder which was attached to a 4-inch x 4-inch wooden post near the outfall structure. The location of the rainfall recorder is indicated on Figure 2-6. The rainfall recorder (Texas Electronics Model 1014-C) produced a continuous record of all rainfall which occurred at the site, with a resolution of 0.01 inch. Rainfall data were stored inside a digital storage device (Hobo Event Rainfall Logger) which was also attached to the wooden post inside a waterproof enclosure. The rainfall record is used to provide information on general rainfall characteristics in the vicinity of the monitoring sites and to assist in completing the hydrologic budget for the pond.

In addition to the rainfall recorder, a Class A pan evaporimeter was also installed adjacent to the pond outfall site. Measurements of water level within the evaporation pan were recorded on a continuous basis using a sensitive digital water level recorder. The recorded evaporation losses are corrected for measured rainfall and used to provide estimates of evaporation from the pond surface during the field monitoring program.

Although not visible in Figure 2-6, a digital water level recorder (Global Water Model WL16) was attached to the outfall structure to provide continuous measurements of water levels in the South Pond during the monitoring program. This information is used to assist in completing the hydrologic budget for the pond and to corroborate and verify elevations and corresponding discharge measurements recorded by the stormwater sampler at the outfall site.

2.1.5 Monitoring Activities

ERD field personnel visited the Club II RSF site at least once each week to retrieve collected stormwater, baseflow, and outflow samples and to download stored hydrologic data from the inflow and outflow automatic samplers as well as the additional hydrologic instrumentation. Readings of staff gauge levels were also conducted during each weekly visit using the fixed staff gauge installed in the pond by the County. Data collected during each weekly visit were evaluated for quality control purposes and, if acceptable, compiled into a continuous data set for use in evaluating the hydrologic performance efficiency of the system.

2.1.6 Groundwater Seepage

After reviewing the results of the initial year of field monitoring conducted from December 2008-November 2009, it became obvious that an additional significant inflow was occurring into the Club II South Pond which was not included in the field monitoring program. The most likely source of this inflow is groundwater seepage, and it was decided to install seepage meters in the South Pond for the remaining portion of the field monitoring program to quantify this input.

Field investigations were performed by ERD to evaluate the quantity and quality of shallow groundwater seepage entering the South Pond. Groundwater seepage was quantified using a series of underwater seepage meters installed at selected locations throughout the pond. Seepage meters provide a mechanism for direct measurement of groundwater inflow into a lake by isolating a portion of the lake bottom so that groundwater seeping up through the bottom sediments into the lake can be collected and characterized. Use of the direct seepage meter measurement technique avoids errors, assumptions, and extensive input data required when indirect techniques are used, such as the Gross Water Budget or Subtraction Method, as well as computer modeling and flow net analyses.

The seepage meter technique has been recommended by the U.S. Environmental Protection Agency (EPA) and has been established as an accurate and reliable technique in field and tank test studies (Lee, 1977; Erickson, 1981; Cherkauer and McBride, 1988; Belanger and Montgomery, 1992). With installation of adequate numbers of seepage meters and proper placement, seepage meters are a very effective tool to estimate groundwater-surface water interactions. One distinct advantage of seepage meters is that seepage meters can provide estimates of both water quantity and quality entering a lake system, whereas estimated methods can only provide information on water quantity.

2.1.6.1 Seepage Meter Construction and Locations

A schematic of a typical seepage meter installation used in the South Pond is given in Figure 2-7. Seepage meters were constructed from a 2-ft diameter aluminum container with a closed top and open bottom. Each seepage meter isolated a sediment area of approximately 3.14 ft^2. Seepage meters were inserted into the pond sediments to a depth of approximately 8-12 inches, isolating a portion of the pond bottom. Approximately 3 inches of water was trapped inside the seepage meter above the pond bottom.

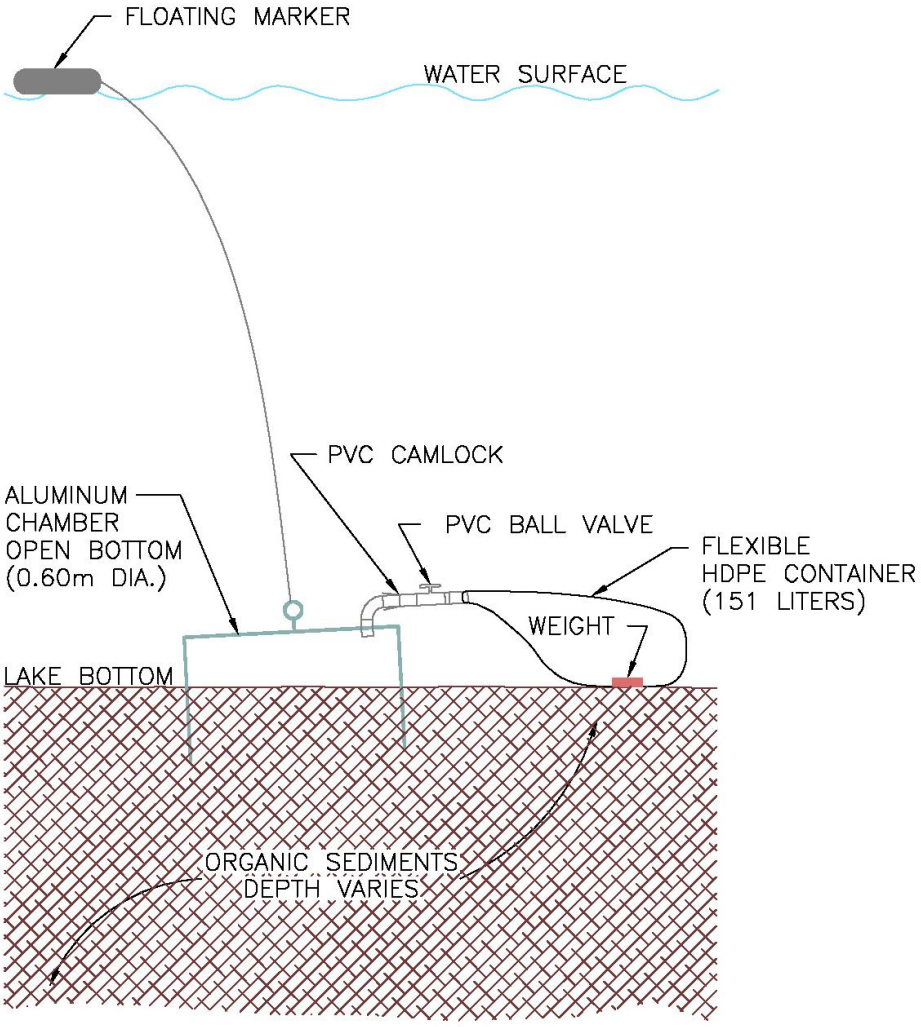


Figure 2-7. Typical Seepage Meter Installation.

A 0.75-inch PVC fitting was threaded into the top of each aluminum container. The 0.75-inch PVC fitting was attached to a female quick-disconnect PVC camlock fitting. A flexible polyethylene bag, with an approximate volume of 40 gallons, was attached to the seepage meters using a quick-disconnect PVC male camlock fitting with a terminal ball valve. Each of the collection bags was constructed of black polyethylene to prevent light penetration into the bag. Light could potentially stimulate photosynthetic activity within the sample prior to collection and result in an undesirable alteration of the chemical characteristics of the sample.

Prior to attachment to the seepage meter, all air was removed from inside the polyethylene collection bag, and the PVC ball valve was closed so that lake water would not enter the collection container prior to attachment to the seepage meter. A diver then connected the collection bag to the seepage meter using the PVC camlock fitting. After attaching the collection bag to the seepage meter, the PVC ball valve was then opened. As groundwater influx occurs into the open bottom of the seepage meter, it is collected inside the flexible polyethylene bag.

Each seepage meter was installed with a slight tilt toward the outlet point so that any gases which may be generated inside the seepage meter would exit into the collection container. A plastic-coated fishing weight was placed inside each of the collection bags to prevent the bags from floating up towards the water surface as a result of trapped gases. The location of each seepage meter was indicated by a floating marker in the lake which was attached to the seepage meter using a coated wire cable.

Five seepage meters were installed in the South Pond on July 7, 2010. Locations for the seepage meters are indicated on Figure 2-8. Since seepage inflow is typically the highest and most variable around the perimeter of a waterbody, the majority of the seepage meters were installed around the perimeter of the pond at a uniform water depth of approximately 5 ft. One seepage meter was also installed in the central portion of the pond.

Figure 2-8. Seepage Monitoring Sites in the Club II South Pond.

Following installation, collection bags were installed on each of the seepage meters, and the monitoring program was initiated. Each of the seepage meters was monitored on approximately a monthly to bi-monthly basis, depending on rainfall, from July 2009-February 2010. During each monitoring event, the volume of seepage collected was recorded, and samples were collected for analysis of seepage characteristics. Four separate seepage monitoring events were conducted for evaluation of seepage quantity and quality at each of the monitoring sites. A total of 20 samples was collected between the five sites over the 7-month monitoring program.

2.1.6.2 Seepage Meter Sampling Procedures

During the collection process, a diver was used to close the PVC ball valve and remove the collection bag from the seepage meter using the quick-disconnect camlock fitting. The collection bag was placed into the boat and the contents were emptied into a polyethylene container. The volume of seepage collected in the container was measured using either a 4-liter graduated cylinder or a 20-liter graduated polyethylene bucket, depending on the collected volume.

On some occasions, seepage meter samples were found to contain turbidity or particles originating from the sediments isolated within the seepage meter. Since these contaminants are not part of the seepage flow, all seepage meter samples collected for chemical analyses were field-filtered using a 0.45 micron disposable glass fiber filter typically used for filtration of groundwater samples. A new filter was used for each seepage sample. Seepage samples were filtered immediately following collection using a battery operated peristaltic pump at a flow rate of approximately 0.25 liter/minute. The filtered seepage sample was placed on ice for return to the ERD laboratory for further chemical analyses.

2.2 Field Measurements

During each weekly monitoring visit, vertical field profiles of pH, temperature, specific conductivity, dissolved oxygen, and oxidation-reduction potential (ORP) were conducted near the center of the South Pond and North Pond using a Hydrolab Datasonde 4a water quality monitor. Field measurements were conducted at depths of 0.25 m and 0.5 m, and continued at 0.5-m intervals to the pond bottom. This information is used to evaluate potential stratification and anoxic conditions in bottom portions of the wet detention pond.

Collection of surface water samples was also conducted in the South Pond and North Pond on a monthly basis during one of the weekly monitoring events. Separate surface water samples were collected at a depth of 0.5 m from the surface, 0.5 m from the bottom, and approximately mid-way in the water column. Each of these collected samples was analyzed separately for each of the parameters listed in Table 2-1 plus chlorophyll-a. Measurements of Secchi disk depth were also conducted during each monitoring event using a standard 10 cm diameter disk.

2.3 Laboratory Analyses

A summary of laboratory methods and MDLs for analyses conducted on water samples collected during this project is given in Table 2-1. All laboratory analyses were conducted in the ERD Laboratory which is NELAC-certified (No. E1031026). Details on field operations, laboratory procedures, and quality assurance methodologies are provided in the Quality Assurance Project Plan (QAPP), outlining the specific field and laboratory procedures to be conducted for this project, were submitted to and approved by FDEP prior to initiation of any field and laboratory activities.

TABLE 2-1

ANALYTICAL METHODS AND DETECTION LIMITS FOR LABORATORY ANALYSES

PARAMETER	METHOD OF ANALYSIS	METHOD DETECTION LIMITS (MDLs)[1]
pH	SM-21, Sec. 4500-H^+ B[2]	N/A
Conductivity	SM-21, Sec. 2510 B	0.2 μmho/cm
Alkalinity	SM-21, Sec. 2320 B	0.5 mg/l
Ammonia	SM-21, Sec. 4500-NH_3 G	0.005 mg/l
NO_x	SM-21, Sec. 4500-NO_3 F	0.005 mg/l
Total Nitrogen	SM-21, Sec. 4500-N C	0.01 mg/l
Ortho-P	SM-21, Sec. 4500-P F	0.001 mg/l
Total Phosphorus	SM-21, Sec. 4500-P B.5	0.001 mg/l
Turbidity	SM-21, Sec. 2130 B	0.3 NTU
Color	SM-21, Sec. 2120 C	1 Pt-Co Unit
TSS	SM-21, Sec. 2540 D	0.7 mg/l
Chlorophyll-a[3]	SM-21, Sec. 10200 H.1,2	1 mg/m^3

1. MDLs are calculated based on the EPA method of determining detection limits
2. Standard Methods for the Examination of Water and Wastewater, 21st Ed., 2005.
3. Measured on surface water samples only

2.4 Routine Data Analysis and Compilation

All data generated during this project, including hydrologic, hydraulic, and water quality information, were entered into a computerized database and double-checked for accuracy. Hydrologic and hydraulic information was tabulated and summarized on monthly intervals. This information is used to develop a hydrologic budget for the pond for use in evaluating system performance.

Data collected during this project were analyzed using a variety of statistical methods and software. Simple descriptive statistics were generated for runoff inflow, pond outflow, rainfall, and pond water levels to examine changes in water quality characteristics and system performance throughout the research period. The majority of these analyses were conducted using statistical procedures available in Excel.

Statistical procedures such as multiple regression or analysis of variance (ANOVA) were also conducted to examine predicted relationships between water quality characteristics and hydrologic or hydraulic factors, such as pond water elevation, antecedent dry period, cumulative event rainfall, and other variables. The majority of these analyses were conducted using the SAS (Statistical Analysis System) package.

Distribution patterns for the inflow, outflow, and bulk precipitation data sets were evaluated using both normal probability and log probability plots. These analyses indicated that the data most closely observe a log-normal distribution which is commonly observed with environmental data. As a result, statistical analyses were conducted using log transformations of each of the data sets. The data were then converted back to untransformed data at the completion of the statistical analyses.

SECTION 3

RESULTS

Field monitoring, sample collection, and laboratory analyses were conducted by ERD from December 1, 2008-November 30, 2010 to evaluate the hydraulic and pollutant removal efficiencies of the Club II RSF. A discussion of the results of these efforts is given in the following sections.

3.1 Site Hydrology

3.1.1 Rainfall

A continuous record of rainfall characteristics was collected at the Club II RSF site from December 1, 2008-November 30, 2010 using a tipping bucket rainfall collector with a resolution of 0.01 inch and a digital data logging recorder. The characteristics of individual rain events measured at the Club II RSF site are given in Table 3-1. Information is provided for event rainfall, event start time, event end time, event duration, average rainfall intensity, and antecedent dry period for each individual rain event measured at the monitoring site. For purposes of this analysis, average rainfall intensity is calculated as the total rainfall divided by the total event duration.

A total of 95.31 inches of rainfall fell in the vicinity of the Club II RSF site over the 730-day monitoring period from a total of 246 separate storm events. A summary of rainfall event characteristics measured at the Club II RSF rain gauge site from December 1, 2008-November 30, 2010 is given in Table 3-2. Individual rainfall amounts measured at the pond site range from 0.01-13.55 inches, with an average of 0.39 inches/event. Durations for individual events measured at the site range from 0.01-48.0 hours, with antecedent dry periods ranging from 0.1-29.5 days.

A comparison of measured and typical "average" rainfall in the vicinity of the Club II RSF site is given in Figure 3-1. Measured rainfall presented in this figure is based upon the field-measured rain events at the pond site presented in Table 3-1, summarized on a monthly basis. "Average" rainfall conditions are based upon historical average monthly rainfall recorded at the Sanford Airport over the 30-year period from 1971-2000. Historical average annual rainfall in the Sanford area is approximately 51.31 inches/year.

As seen in Figure 3-1, measured rainfall in the vicinity of the Club II RSF site was substantially greater than "normal" during May-June and December 2009 and during February-March 2010. Substantially lower than "normal" rainfall was observed December 2008-April 2009, August-November 2009, April-May 2010, July-August 2010, and October-November 2010, with approximately normal rainfall observed during the remaining months. A tabular comparison of measured and average rainfall for the Club II RSF site is given in Table 3-3.

TABLE 3-1

SUMMARY OF RAINFALL MEASURED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010

EVENT START		EVENT END		EVENT RAINFALL (inches)	DURATION (hours)	ANTECEDENT DRY PERIOD (days)	AVERAGE INTENSITY (inches/hour)
DATE	TIME	DATE	TIME				
11/30/08	12:48	11/30/08	15:04	0.56	2.26	---	0.25
11/30/08	19:51	12/1/08	3:06	0.08	7.26	0.2	0.01
12/2/08	3:50	12/2/08	4:16	0.11	0.44	1.0	0.25
12/11/08	11:08	12/12/08	3:09	0.75	16.03	9.3	0.05
12/12/08	7:08	12/12/08	7:08	0.01	---	0.2	---
12/12/08	11:54	12/12/08	11:54	0.01	---	0.2	---
12/18/08	8:33	12/18/08	8:33	0.01	---	5.9	---
12/25/08	16:00	12/25/08	16:00	0.01	---	7.3	---
12/26/08	6:53	12/26/08	6:53	0.01	---	0.6	---
1/7/09	11:33	1/7/09	11:42	0.06	0.15	12.2	0.39
1/13/09	14:15	1/13/09	16:58	0.12	2.73	6.1	0.04
1/20/09	0:02	1/20/09	0:02	0.01	---	6.3	---
1/29/09	13:16	1/30/09	22:41	0.90	33.41	9.6	0.03
1/31/09	3:31	1/31/09	3:31	0.02	---	0.2	---
1/31/09	8:35	1/31/09	8:35	0.01	---	0.2	---
1/31/09	16:12	1/31/09	16:12	0.01	---	0.3	---
1/31/09	23:10	1/31/09	23:10	0.01	---	0.3	---
2/1/09	9:41	2/1/09	9:41	0.01	---	0.4	---
2/1/09	15:59	2/1/09	15:59	0.02	---	0.3	72.00
2/2/09	1:21	2/2/09	1:21	0.01	---	0.4	---
2/2/09	9:15	2/2/09	9:15	0.01	---	0.3	---
2/2/09	17:04	2/2/09	17:04	0.01	---	0.3	---
2/2/09	20:16	2/3/09	19:22	0.16	23.10	0.1	0.01
2/3/09	22:34	2/3/09	22:34	0.01	---	0.1	---
2/4/09	4:00	2/4/09	4:00	0.02	---	0.2	---
2/4/09	8:57	2/4/09	8:57	0.02	---	0.2	---
2/4/09	15:11	2/4/09	15:11	0.01	---	0.3	---
2/4/09	23:28	2/4/09	23:28	0.01	---	0.3	---
2/5/09	9:15	2/5/09	20:24	0.35	11.14	0.4	0.03
2/15/09	20:13	2/15/09	20:13	0.01	---	10.0	---
2/19/09	12:44	2/19/09	12:44	0.01	---	3.7	---
3/1/09	11:27	3/1/09	11:37	0.05	0.16	9.9	0.31
3/2/09	10:14	3/2/09	10:14	0.01	---	0.9	---
3/23/09	1:04	3/23/09	1:14	0.06	0.18	20.6	0.34
3/23/09	4:46	3/23/09	12:10	0.17	7.41	0.1	0.02
3/29/09	5:49	3/29/09	8:22	0.05	2.54	5.7	0.02
3/29/09	11:24	3/29/09	12:36	0.18	1.20	0.1	0.15
3/31/09	19:23	3/31/09	20:01	0.18	0.63	2.3	0.28
4/1/09	15:53	4/1/09	23:57	0.54	8.05	0.8	0.07
4/2/09	4:30	4/2/09	4:30	0.01	---	0.2	---
4/2/09	10:03	4/2/09	10:03	0.02	---	0.2	---
4/3/09	0:50	4/3/09	6:06	0.05	5.26	0.6	0.01
4/3/09	9:28	4/3/09	12:02	0.07	2.56	0.1	0.03
4/6/09	14:33	4/6/09	14:43	0.08	0.18	3.1	0.45
4/14/09	10:13	4/14/09	13:24	0.45	3.20	7.8	0.14
4/20/09	14:55	4/20/09	15:34	0.08	0.64	6.1	0.12

TABLE 3-1 -- CONTINUED

SUMMARY OF RAINFALL MEASURED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010

EVENT START		EVENT END		EVENT RAINFALL (inches)	DURATION (hours)	ANTECEDENT DRY PERIOD (days)	AVERAGE INTENSITY (inches/hour)
DATE	TIME	DATE	TIME				
5/17/09	20:58	5/18/09	0:57	0.25	3.99	27.2	0.06
5/18/09	8:14	5/20/09	8:11	13.55	47.95	0.3	0.28
5/20/09	12:00	5/20/09	15:50	1.34	3.84	0.2	0.35
5/20/09	21:15	5/21/09	8:19	1.75	11.06	0.2	0.16
5/22/09	1:45	5/22/09	5:33	0.27	3.80	0.7	0.07
5/22/09	8:34	5/22/09	17:01	1.02	8.44	0.1	0.12
5/23/09	10:25	5/23/09	11:24	0.55	0.98	0.7	0.56
5/23/09	19:31	5/23/09	19:37	0.28	0.11	0.3	2.46
5/26/09	16:53	5/26/09	21:27	0.69	4.57	2.9	0.15
5/27/09	19:56	5/27/09	20:02	0.28	0.10	0.9	2.86
6/9/09	8:15	6/9/09	8:18	0.39	0.04	12.5	10.25
6/13/09	18:42	6/13/09	20:39	0.10	1.96	4.4	0.05
6/14/09	21:08	6/14/09	23:21	0.68	2.21	1.0	0.31
6/15/09	16:40	6/15/09	18:49	1.99	2.15	0.7	0.93
6/16/09	18:37	6/16/09	21:57	1.69	3.33	1.0	0.51
6/18/09	14:06	6/18/09	15:12	1.89	1.10	1.7	1.72
6/23/09	5:54	6/23/09	6:31	0.04	0.62	4.6	0.06
6/23/09	9:53	6/23/09	9:53	0.01	---	0.1	---
6/23/09	16:21	6/23/09	16:31	0.15	0.16	0.3	0.91
6/26/09	12:20	6/26/09	12:42	0.45	0.37	2.8	1.23
6/29/09	18:52	6/29/09	19:41	0.28	0.80	3.3	0.35
6/30/09	10:59	6/30/09	16:55	1.49	5.93	0.6	0.25
7/7/09	12:19	7/7/09	12:32	0.41	0.22	6.8	1.83
7/7/09	17:35	7/7/09	17:38	0.02	0.05	0.2	0.38
7/8/09	13:40	7/8/09	18:20	0.32	4.66	0.8	0.07
7/9/09	9:09	7/9/09	11:09	0.21	2.00	0.6	0.10
7/10/09	15:45	7/10/09	17:17	0.15	1.54	1.2	0.10
7/12/09	17:12	7/12/09	18:57	0.69	1.74	2.0	0.40
7/14/09	14:39	7/14/09	15:32	1.12	0.89	1.8	1.26
7/15/09	18:51	7/15/09	19:46	1.88	0.93	1.1	2.03
7/18/09	12:30	7/18/09	12:46	0.53	0.27	2.7	1.94
7/19/09	22:37	7/19/09	22:59	0.02	0.37	1.4	0.05
7/20/09	7:03	7/20/09	7:34	0.20	0.52	0.3	0.39
7/26/09	14:24	7/26/09	14:49	0.10	0.40	6.3	0.25
7/28/09	22:19	7/28/09	22:19	0.01	---	2.3	---
7/29/09	13:42	7/29/09	13:42	0.01	---	0.6	---
7/29/09	19:30	7/29/09	19:30	0.01	---	0.2	---
7/30/09	14:27	7/30/09	16:51	0.02	2.41	0.8	0.01
7/31/09	5:05	7/31/09	5:05	0.01	---	0.5	---
7/31/09	13:20	7/31/09	13:20	0.01	---	0.3	---
7/31/09	17:36	7/31/09	18:22	0.02	0.77	0.2	0.03
8/1/09	12:32	8/1/09	12:32	0.01	---	0.8	---
8/2/09	18:56	8/2/09	20:34	0.02	1.62	1.3	0.01
8/3/09	9:58	8/3/09	9:59	0.15	0.02	0.6	9.00
8/3/09	18:23	8/3/09	20:15	0.13	1.87	0.3	0.07

TABLE 3-1 -- CONTINUED

SUMMARY OF RAINFALL MEASURED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010

EVENT START		EVENT END		EVENT RAINFALL (inches)	DURATION (hours)	ANTECEDENT DRY PERIOD (days)	AVERAGE INTENSITY (inches/hour)
DATE	TIME	DATE	TIME				
8/4/09	16:10	8/4/09	16:22	0.21	0.20	0.8	1.06
8/5/09	16:33	8/5/09	16:33	0.01	---	1.0	---
8/6/09	16:08	8/6/09	19:14	0.05	3.09	1.0	0.02
8/7/09	17:40	8/7/09	17:40	0.01	---	0.9	---
8/12/09	17:49	8/12/09	17:49	0.01	---	5.0	---
8/13/09	18:24	8/13/09	20:41	0.82	2.28	1.0	0.36
8/14/09	13:07	8/14/09	13:57	0.65	0.83	0.7	0.78
8/15/09	18:09	8/15/09	19:29	0.07	1.34	1.2	0.05
8/15/09	22:47	8/15/09	23:07	0.16	0.33	0.1	0.48
8/18/09	13:45	8/18/09	13:47	0.02	0.03	2.6	0.58
8/20/09	21:22	8/20/09	22:52	0.25	1.50	2.3	0.17
8/21/09	15:19	8/21/09	15:19	0.01	---	0.7	---
8/22/09	20:16	8/22/09	20:16	0.01	---	1.2	---
8/23/09	18:19	8/23/09	18:19	0.01	---	0.9	---
8/25/09	22:50	8/25/09	22:50	0.01	---	2.2	---
8/31/09	18:35	8/31/09	18:35	0.01	---	5.8	---
9/3/09	21:41	9/3/09	21:41	0.01	---	3.1	---
9/4/09	8:22	9/4/09	8:22	0.03	---	0.4	---
9/5/09	19:36	9/5/09	19:37	0.05	0.01	1.5	6.21
9/8/09	23:39	9/8/09	23:39	0.01	---	3.2	---
9/12/09	19:36	9/12/09	22:04	0.05	2.47	3.8	0.02
9/13/09	15:23	9/13/09	16:11	0.39	0.79	0.7	0.49
9/13/09	19:58	9/13/09	20:04	0.03	0.09	0.2	0.32
9/18/09	10:11	9/18/09	10:11	0.01	---	4.6	---
9/21/09	5:40	9/21/09	9:03	0.35	3.39	2.8	0.10
9/22/09	12:01	9/22/09	14:32	0.04	2.52	1.1	0.02
9/26/09	22:35	9/27/09	1:10	2.12	2.59	4.3	0.82
9/27/09	13:21	9/27/09	13:40	0.08	0.32	0.5	0.25
9/29/09	18:25	9/29/09	18:32	0.02	0.12	2.2	0.17
10/12/09	11:51	10/12/09	11:51	0.01	---	12.7	---
10/15/09	16:13	10/15/09	16:13	0.01	---	3.2	---
10/16/09	9:51	10/16/09	9:51	0.01	---	0.7	---
10/27/09	18:57	10/27/09	18:57	0.01	---	11.4	---
10/28/09	9:05	10/28/09	9:05	0.01	---	0.6	---
10/28/09	12:26	10/28/09	13:52	0.03	1.43	0.1	0.02
10/30/09	8:47	10/30/09	9:19	0.41	0.53	1.8	0.78
10/30/09	23:23	10/30/09	23:23	0.01	---	0.6	---
11/9/09	12:18	11/9/09	12:26	0.03	0.13	9.5	0.23
11/10/09	20:11	11/10/09	21:23	0.23	1.19	1.3	0.19
11/11/09	7:06	11/11/09	7:06	0.01	---	0.4	---
11/11/09	23:46	11/11/09	23:46	0.01	---	0.7	---
11/25/09	10:19	11/25/09	15:09	0.56	4.85	13.4	0.12
11/25/09	22:52	11/25/09	23:42	0.03	0.84	0.3	0.04
12/2/09	22:09	12/3/09	3:24	0.44	5.24	6.9	0.08
12/4/09	7:27	12/5/09	10:02	3.09	26.58	1.2	0.12

TABLE 3-1 -- CONTINUED

SUMMARY OF RAINFALL MEASURED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010

EVENT START		EVENT END		EVENT RAINFALL (inches)	DURATION (hours)	ANTECEDENT DRY PERIOD (days)	AVERAGE INTENSITY (inches/hour)
DATE	TIME	DATE	TIME				
12/7/09	5:55	12/7/09	8:20	0.04	2.42	1.8	0.02
12/18/09	4:53	12/18/09	9:41	0.34	4.80	10.9	0.07
12/18/09	17:09	12/18/09	17:24	0.08	0.25	0.3	0.32
12/29/09	5:35	12/29/09	5:37	0.13	0.03	10.5	4.22
12/31/09	22:00	1/1/10	6:21	2.14	8.35	2.7	0.26
1/5/10	6:06	1/5/10	6:06	0.01	---	4.0	---
1/9/10	8:57	1/9/10	8:57	0.01	---	4.1	---
1/9/10	15:40	1/9/10	15:40	0.01	---	0.3	---
1/19/10	10:01	1/19/10	10:01	0.01	---	9.8	---
1/21/10	16:13	1/21/10	19:06	0.03	2.88	2.3	0.01
1/22/10	11:14	1/22/10	11:14	0.01	---	0.7	---
1/25/10	3:56	1/25/10	8:16	0.29	4.33	2.7	0.07
1/30/10	14:21	1/30/10	15:28	0.16	1.12	5.3	0.14
2/1/10	12:26	2/1/10	23:08	0.58	10.69	1.9	0.05
2/2/10	4:32	2/2/10	4:37	0.11	0.08	0.2	1.41
2/2/10	10:16	2/2/10	11:56	0.17	1.66	0.2	0.10
2/5/10	15:25	2/5/10	19:59	0.62	4.57	3.1	0.14
2/9/10	12:52	2/9/10	16:58	1.53	4.11	3.7	0.37
2/11/10	12:32	2/11/10	12:32	0.01	---	1.8	---
2/12/10	11:12	2/12/10	17:22	2.74	6.16	0.9	0.44
2/22/10	18:31	2/22/10	20:03	0.23	1.54	10.0	0.15
2/23/10	6:03	2/23/10	6:03	0.01	---	0.4	---
2/24/10	15:30	2/24/10	21:10	0.22	5.68	1.4	0.04
2/27/10	10:24	2/27/10	13:13	0.19	2.81	2.6	0.07
3/2/10	6:35	3/2/10	10:04	0.36	3.48	2.7	0.10
3/11/10	3:42	3/11/10	3:42	0.01	---	8.7	---
3/11/10	10:31	3/11/10	18:24	3.54	7.88	0.3	0.45
3/12/10	4:21	3/12/10	18:55	0.84	14.57	0.4	0.06
3/12/10	23:38	3/13/10	0:42	0.35	1.08	0.2	0.33
3/21/10	13:46	3/21/10	16:31	1.21	2.74	8.5	0.44
3/25/10	23:12	3/26/10	0:23	0.64	1.19	4.3	0.54
3/26/10	8:04	3/26/10	8:04	0.01	---	0.3	---
3/28/10	15:42	3/28/10	19:59	1.39	4.29	2.3	0.32
3/29/10	1:12	3/29/10	11:12	0.91	10.00	0.2	0.09
4/8/10	12:27	4/8/10	12:28	0.03	0.01	10.1	3.37
4/9/10	9:07	4/9/10	9:12	0.06	0.08	0.9	0.73
4/14/10	0:13	4/14/10	0:15	0.02	0.03	4.6	0.61
4/21/10	0:35	4/21/10	0:35	0.01	---	7.0	---
4/21/10	8:32	4/21/10	11:17	0.44	2.75	0.3	0.16
4/25/10	23:07	4/25/10	23:07	0.01	---	4.5	---
4/26/10	3:50	4/26/10	5:06	0.02	1.27	0.2	0.02
4/28/10	12:38	4/28/10	12:38	0.01	---	2.3	---
5/5/10	14:01	5/5/10	14:19	0.02	0.31	7.1	0.07
5/6/10	11:44	5/6/10	11:51	0.11	0.11	0.9	1.03
5/6/10	16:30	5/6/10	17:13	0.58	0.72	0.2	0.80

TABLE 3-1 -- CONTINUED

SUMMARY OF RAINFALL MEASURED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010

EVENT START		EVENT END		EVENT RAINFALL (inches)	DURATION (hours)	ANTECEDENT DRY PERIOD (days)	AVERAGE INTENSITY (inches/hour)
DATE	TIME	DATE	TIME				
5/7/10	8:10	5/7/10	8:10	0.04	0.00	0.6	36.00
5/17/10	7:12	5/17/10	8:48	0.16	1.60	10.0	0.10
5/17/10	12:31	5/17/10	15:51	0.78	3.32	0.2	0.23
5/18/10	20:05	5/18/10	20:05	0.01	---	1.2	---
5/20/10	11:17	5/20/10	11:17	0.01	---	1.6	---
5/29/10	16:20	5/29/10	16:20	0.01	---	9.2	---
5/31/10	15:22	5/31/10	15:25	0.05	0.05	2.0	1.05
6/1/10	20:46	6/1/10	21:16	0.44	0.50	1.2	0.88
6/2/10	3:51	6/2/10	3:51	0.01	---	0.3	---
6/2/10	20:19	6/2/10	20:32	0.07	0.21	0.7	0.33
6/3/10	17:06	6/3/10	18:13	0.12	1.12	0.9	0.11
6/4/10	9:13	6/4/10	9:13	0.01	---	0.6	---
6/4/10	12:22	6/4/10	12:29	0.02	0.12	0.1	0.17
6/4/10	16:35	6/4/10	18:37	0.26	2.03	0.2	0.13
6/7/10	12:02	6/7/10	12:11	0.50	0.15	2.7	3.31
6/7/10	17:55	6/7/10	19:25	0.44	1.50	0.2	0.29
6/17/10	16:52	6/17/10	19:55	1.47	3.04	9.9	0.48
6/18/10	15:05	6/18/10	17:45	0.36	2.67	0.8	0.14
6/19/10	20:19	6/19/10	22:06	1.11	1.79	1.1	0.62
6/20/10	15:55	6/20/10	18:40	1.42	2.75	0.7	0.52
6/21/10	14:17	6/21/10	15:19	1.34	1.04	0.8	1.29
6/22/10	12:36	6/22/10	12:43	0.02	0.12	0.9	0.17
6/26/10	9:42	6/26/10	9:42	0.01	---	3.9	---
7/2/10	8:42	7/2/10	8:42	0.01	---	6.0	---
7/2/10	16:20	7/2/10	23:04	0.47	6.73	0.3	0.07
7/3/10	15:46	7/3/10	19:40	1.34	3.91	0.7	0.34
7/4/10	18:44	7/4/10	20:27	0.81	1.72	1.0	0.47
7/5/10	21:09	7/5/10	21:32	0.20	0.38	1.0	0.52
7/6/10	13:00	7/6/10	13:00	0.01	---	0.6	---
7/14/10	16:42	7/14/10	17:40	0.17	0.97	8.2	0.17
7/14/10	23:54	7/14/10	23:54	0.01	---	0.3	---
7/15/10	15:48	7/15/10	17:48	0.09	1.99	0.7	0.05
7/28/10	15:14	7/28/10	21:56	1.09	6.71	12.9	0.16
7/29/10	18:07	7/29/10	21:12	0.18	3.08	0.8	0.06
8/1/10	17:14	8/1/10	20:49	0.29	3.58	2.8	0.08
8/7/10	10:51	8/7/10	14:57	0.05	4.10	5.6	0.01
8/8/10	7:33	8/8/10	7:33	0.01	---	0.7	---
8/8/10	13:16	8/8/10	15:37	0.20	2.35	0.2	0.09
8/8/10	22:09	8/9/10	0:43	0.03	2.56	0.3	0.01
8/9/10	10:05	8/9/10	13:00	0.10	2.91	0.4	0.03
8/9/10	16:13	8/9/10	16:29	0.02	0.28	0.1	0.07
8/9/10	20:28	8/9/10	20:28	0.01	---	0.2	---
8/11/10	15:37	8/11/10	19:11	0.41	3.57	1.8	0.12
8/21/10	0:08	8/21/10	0:11	0.05	0.05	9.2	0.93
8/23/10	11:05	8/23/10	11:10	3.81	0.08	2.5	47.96

TABLE 3-1 -- CONTINUED

SUMMARY OF RAINFALL MEASURED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010

EVENT START		EVENT END		EVENT RAINFALL (inches)	DURATION (hours)	ANTECEDENT DRY PERIOD (days)	AVERAGE INTENSITY (inches/hour)
DATE	TIME	DATE	TIME				
8/24/10	11:27	8/24/10	15:58	0.21	4.52	1.0	0.05
8/25/10	11:56	8/25/10	12:00	0.02	0.06	0.8	0.33
8/27/10	22:09	8/27/10	23:49	0.09	1.68	2.4	0.05
9/5/10	15:52	9/5/10	16:18	0.04	0.43	8.7	0.09
9/5/10	19:50	9/5/10	20:29	0.05	0.66	0.1	0.08
9/6/10	15:39	9/6/10	18:51	0.53	3.20	0.8	0.17
9/8/10	14:48	9/8/10	15:31	0.51	0.71	1.8	0.72
9/9/10	17:27	9/9/10	18:14	0.77	0.80	1.1	0.97
9/12/10	20:22	9/12/10	22:05	0.49	1.70	3.1	0.29
9/13/10	8:02	9/13/10	8:02	0.01	---	0.4	---
9/23/10	20:34	9/23/10	21:19	0.13	0.76	10.5	0.17
9/24/10	11:52	9/24/10	14:07	0.11	2.26	0.6	0.05
9/24/10	17:09	9/24/10	17:26	0.02	0.29	0.1	0.07
9/24/10	21:28	9/25/10	0:29	0.17	3.02	0.2	0.06
9/27/10	19:00	9/27/10	19:17	0.85	0.29	2.8	2.89
9/28/10	7:14	9/28/10	9:43	0.76	2.49	0.5	0.31
9/28/10	16:17	9/28/10	20:13	0.37	3.94	0.3	0.09
10/28/10	8:55	10/28/10	9:01	0.03	0.10	29.5	0.29
11/2/10	11:37	11/2/10	18:42	1.37	7.08	5.1	0.19
11/4/10	21:46	11/4/10	23:42	0.19	1.94	2.1	0.10
11/8/10	10:03	11/8/10	10:03	0.01	---	3.4	---
		TOTAL:		**95.31**			

TABLE 3-2

SUMMARY OF RAINFALL CHARACTERISTICS IN THE VICINITY OF THE CLUB II RSF FROM DECEMBER 2008-NOVEMBER 2010

PARAMETER	UNITS	MINIMUM VALUE	MAXIMUM VALUE	MEAN EVENT VALUE
Event Rainfall	inches	0.01	13.55	0.39
Event Duration	hours	0.01	48.0	3.01
Average Intensity	inches/hour	0.01	72.0	1.47
Antecedent Dry Period	days	0.13	29.5	2.79

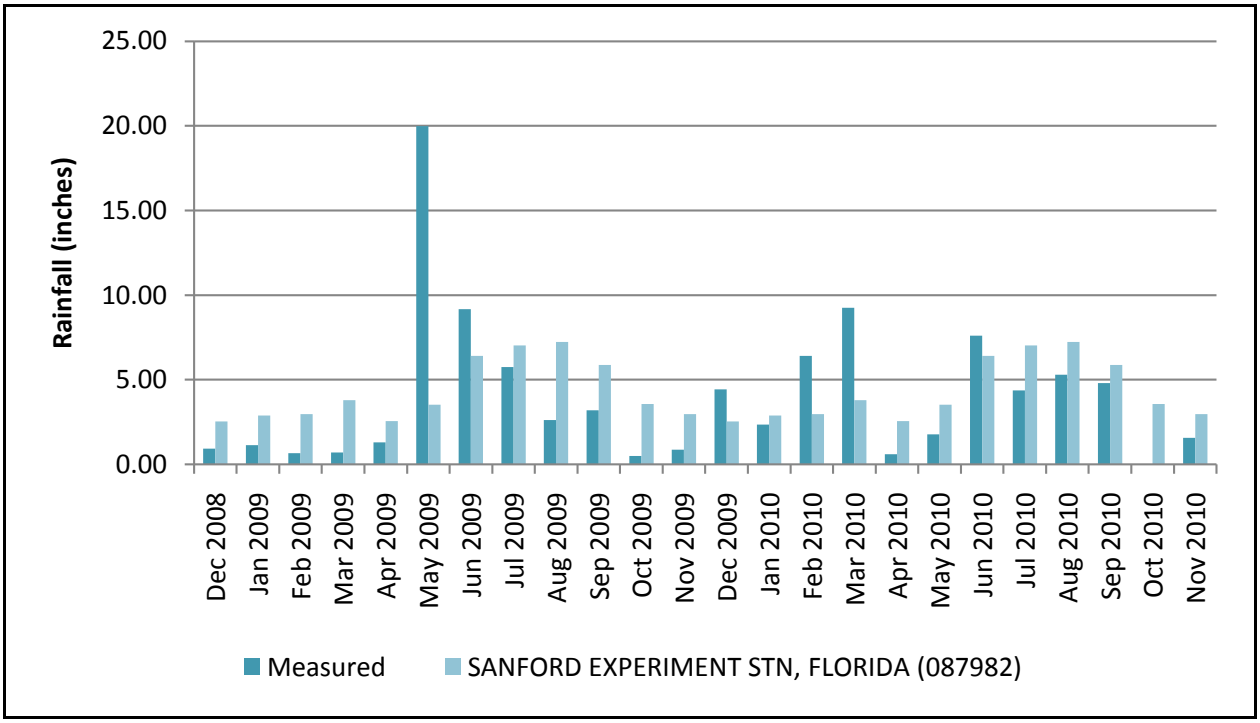


Figure 3-1. Comparison of Average and Measured Rainfall in the Vicinity of the Club II RSF Site.

TABLE 3-3

MEASURED AND AVERAGE RAINFALL FOR THE CLUB II RSF SITE

MONTH	MEAN MONTHLY RAINFALL[1] (inches)	MEASURED SITE RAINFALL[2] (inches)	MONTH	MEAN MONTHLY RAINFALL[1] (inches)	MEASURED SITE RAINFALL[2] (inches)
Dec 2008	2.53	0.93	Dec 2009	2.53	4.44
Jan 2009	2.88	1.14	Jan 2010	2.88	2.35
Feb 2009	2.96	0.66	Feb 2010	2.96	6.41
Mar 2009	3.80	0.70	Mar 2010	3.80	9.26
Apr 2009	2.55	1.30	Apr 2010	2.55	0.60
May 2009	3.53	19.98	May 2010	3.53	1.77
Jun 2009	6.41	9.16	Jun 2010	6.41	7.60
Jul 2009	7.02	5.74	Jul 2010	7.02	4.38
Aug 2009	7.23	2.62	Aug 2010	7.23	5.30
Sep 2009	5.88	3.19	Sep 2010	5.88	4.81
Oct 2009	3.56	0.50	Oct 2010	3.56	0.03
Nov 2009	2.96	0.87	Nov 2010	2.96	1.57
			TOTAL:	**102.62**	**95.31**

1. Measured at the Sanford Airport from 1971-2000
2. Measured at the Club II RSF site from December 2008-November 2010

The total rainfall of 95.31 inches measured at the Club II RSF site during the two-year monitoring program is slightly less than the "normal" rainfall which typically occurs on an annual basis in the Sanford area. Almost 20 inches of rainfall were recorded at the Club II RSF site during May 2009, with 13.55 inches contributed by a single event. Overall, the measured rainfall at the Club II RSF site of 95.31 inches during the field monitoring is approximately 7% less than the "normal" rainfall of 102.62 inches in the Sanford area over the 24-month monitoring period.

A summary of calculated hydrologic inputs to the Club II South Pond from direct precipitation is given in Table 3-4. These inputs were calculated by multiplying the measured total monthly rainfall times the pond area of 75.2 acres at the normal water level of 23.0 ft. Calculated hydrologic inputs from direct precipitation range from a low of 0.19 ac-ft during October 2010 to a high of 125.21 ac-ft during May 2009, with a total input of 597.3 ac-ft during the field monitoring program. The values summarized in Table 3-4 are utilized in a subsequent section to develop a hydrologic budget for the South Pond.

TABLE 3-4

SUMMARY OF HYDROLOGIC INPUTS TO THE CLUB II SOUTH POND SITE FROM DIRECT RAINFALL DURING THE PERIOD FROM DECEMBER 2008-NOVEMBER 2010

MONTH	RAINFALL (inches)	RAINFALL VOLUME[1] (ac-ft)	MONTH	RAINFALL (inches)	RAINFALL VOLUME[1] (ac-ft)
Dec 2008	0.93	5.83	Dec 2009	4.44	27.8
Jan 2009	1.14	7.14	Jan 2010	2.35	14.7
Feb 2009	0.66	4.14	Feb 2010	6.41	40.2
Mar 2009	0.70	4.39	Mar 2010	9.26	58.0
Apr 2009	1.30	8.15	Apr 2010	0.60	3.76
May 2009	19.98	125.2	May 2010	1.77	11.1
Jun 2009	9.16	57.4	Jun 2010	7.60	47.6
Jul 2009	5.74	36.0	Jul 2010	4.38	27.5
Aug 2009	2.62	16.4	Aug 2010	5.30	33.2
Sep 2009	3.19	20.0	Sep 2010	4.81	30.1
Oct 2009	0.50	3.13	Oct 2010	0.03	0.19
Nov 2009	0.87	5.45	Nov 2010	1.57	9.84
			TOTAL:	**95.31**	**597.3**

1. Based on a pond surface area of 75.2 acres

3.1.2 Water Level Elevations

Water surface elevations in the South Pond were monitored on a continuous basis from December 2008-November 2010 using a sensitive water level pressure transducer with a digital data logger. As discussed in Section 2, the water level recorder was attached to the outfall structure and was used to evaluate pond response to common rain events within the watershed and to assist in quantifying water discharges through the outfall structure.

A graphical summary of fluctuations in water levels in the Club II South Pond from December 2008-November 2010 is given on Figure 3-2. Total daily rainfall is also summarized on this figure to illustrate relationships between water surface elevations and monitored rainfall events. Manual staff gauge readings, corrected to correspond to the actual pond elevations, are also illustrated on Figure 3-2. In general, the weekly staff gauge readings appear to correspond extremely well with the monitored water level elevations.

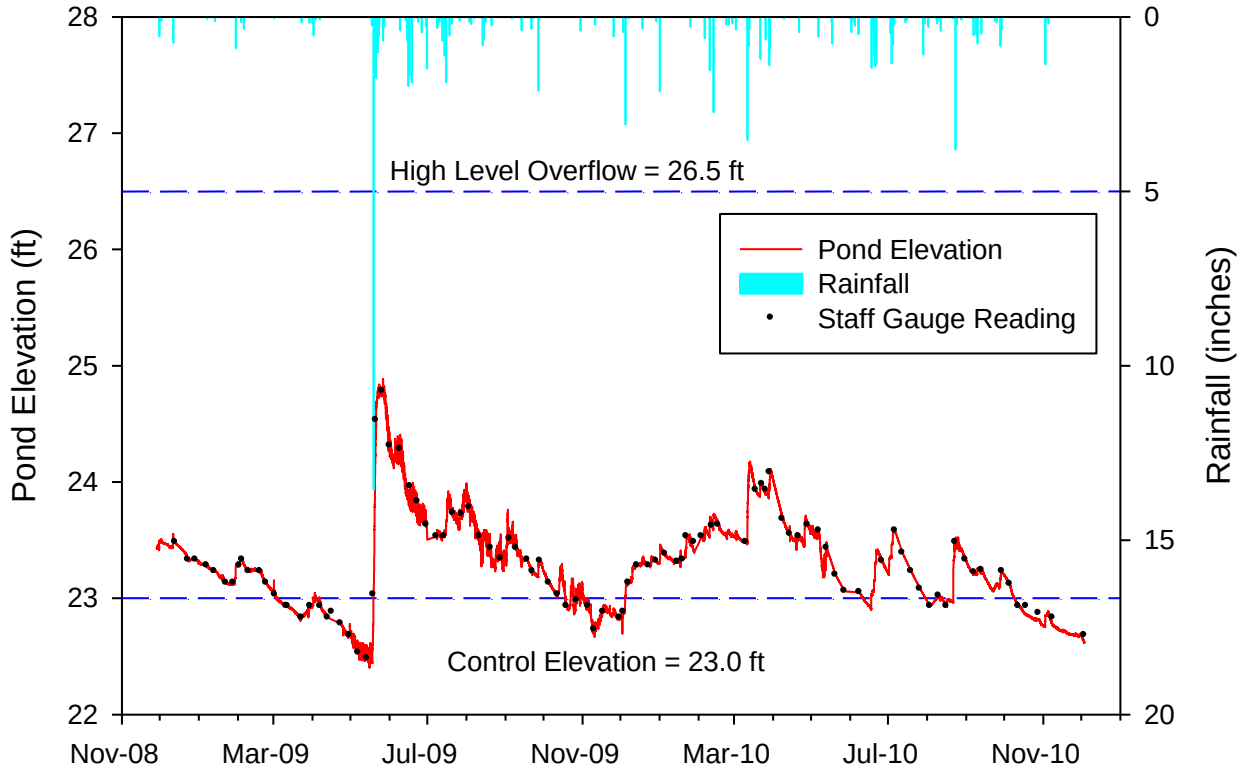


Figure 3-2. Fluctuations in Water Levels in the Club II South Pond from December 2008-November 2010.

As seen in Figure 3-2, water surface elevations within the pond respond relatively rapidly to significant rain events within the watershed, with a gradual drawdown occurring over a period of several weeks. A substantial increase in water surface elevation was observed in the South Pond during May 2009 in response to the 13.55-inch rain event which occurred from May 18-20. Another rapid increase in pond elevation was observed during March 2010 as a result of the 3.54-inch rain event which occurred on March 11. A similar rapid increase in water elevation was also observed during August 2010 as a result of a 3.81-inch rain event on August 23. However, in spite of the significant rain events observed during the field monitoring program, water level elevations within the pond did not exceed the high level overflow elevation of 26.5 ft at any time during the field monitoring program.

Measured minimum, maximum, and average water surface elevations during the monitoring program are summarized on Table 3-5. The minimum water elevation of 22.45 ft occurred during May 2009, immediately preceding the 13.55-inch storm event, which generated the maximum observed water elevation within the pond of 24.79 ft. The mean water elevation during the field monitoring program of 23.28 ft is approximately 3.4 inches higher than the control elevation of 23.0 ft. Overall, the water elevation within the South Pond exceeded the control elevation approximately 73% of the time during the field monitoring program (536 of 730 days).

TABLE 3-5

SUMMARY OF WATER LEVEL DATA FOR THE CLUB II SOUTH POND FROM DECEMBER 2008 – NOVEMBER 2010

PARAMETER	ELEVATION (ft)
Control Elevation	23.0
Measured Minimum Water Stage	22.45
Measured Maximum Water Stage	24.79
Mean Water Level	23.28
Percentage of Elevation > Control Elevation	73% (536 of 730 days)

3.1.3 Pond Inflow

3.1.3.1 Main Channel Inflow

A continuous inflow hydrograph was recorded at the primary channel inflow (Site 1) to the Club II pond over the period from December 1, 2008-November 30, 2010. In addition to the continuous inflow hydrograph, information was also generated on total daily inflow volume and cumulative inflow volume for the period of record.

A graphical summary of the monitored inflow hydrographs to the Club II pond at Site 1 is given on Figure 3-3. In general, inflows into the pond were typically 5 cfs or less throughout the majority of the field monitoring program. Significant peaks in inflow rates into the pond were observed at the inflow channel during May 2009, March 2010, and August 2010, each of which resulted from significant rain events within the watershed. Extended periods of low discharge also occurred on multiple occasions during the field monitoring program, corresponding with periods of low rainfall. Photographs of typical flow conditions within the primary inflow channel are given on Figure 3-4.

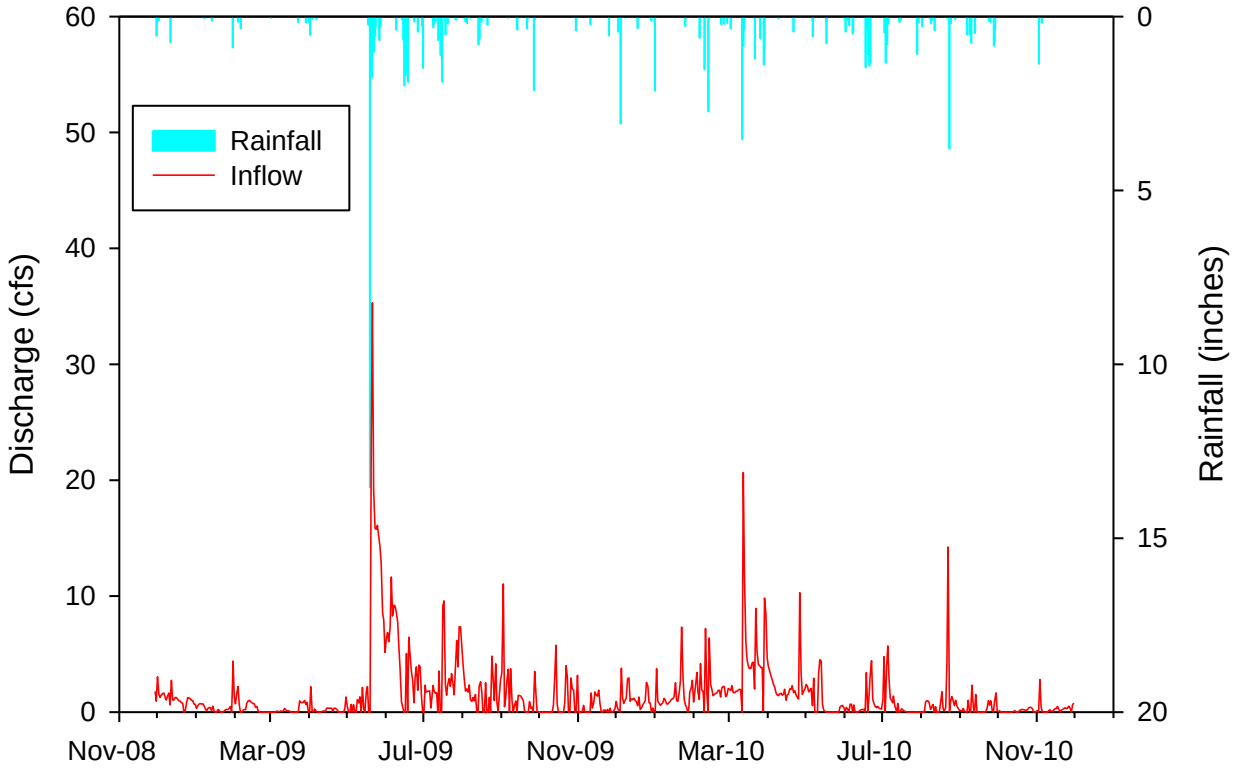


Figure 3-3. Inflow Hydrographs to the Club II Pond at Site 1 (Primary Inflow Channel).

Estimates of annual monthly inflows into the Club II South Pond from the primary inflow channel were generated by integrating the discharge hydrographs summarized on Figure 3-3 on a monthly basis. A summary of monthly inflow volumes into the Club II South Pond is given in Table 3-6. Monthly inflow volumes ranged from 0-201 ac-ft, with a total of 1084 ac-ft entering the South Pond from this site during the field monitoring program.

Low or No Inflow Conditions

Moderate Inflow Conditions

High Inflow Conditions

Figure 3-4. Photographs of Typical Flow Conditions within the Club II Pond Site 1.

TABLE 3-6

MONTHLY INFLOW VOLUMES TO THE CLUB II SOUTH POND FROM THE PRIMARY INFLOW CHANNEL (SITE 1) FROM DECEMBER 2008-NOVEMBER 2010

MONTH	MONTHLY INFLOW (ac-ft)	MONTH	MONTHLY INFLOW (ac-ft)
Dec 2008	36.2	Dec 2009	33.0
Jan 2009	14.0	Jan 2010	44.7
Feb 2009	12.6	Feb 2010	58.8
Mar 2009	7.16	Mar 2010	137
Apr 2009	6.93	Apr 2010	67.3
May 2009	201	May 2010	28.9
Jun 2009	133	Jun 2010	19.8
Jul 2009	92.4	Jul 2010	24.7
Aug 2009	49.2	Aug 2010	32.9
Sep 2009	42.1	Sep 2010	11.6
Oct 2009	28.0	Oct 2010	3.08
Nov 2009	0.00	Nov 2010	0.00
		TOTAL:	**1084**

A summary of runoff coefficient calculations for the inflow channel drainage basin is given on Table 3-7. As indicated on Table 1-2, the contributing drainage basin area which discharges through the primary inflow channel is approximately 456.9 acres. The measured rainfall during the 24-month field monitoring program was approximately 95.31 inches, corresponding to a rainfall volume of 3628.9 ac-ft over the basin area. As indicated on Table 3-6, the measured runoff volume which entered the Club II South Pond during the field monitoring program was approximately 1084 ac-ft. The calculated runoff coefficient (C value) is equal to the measured runoff volume divided by the total rainfall volume with a calculated value of 0.299. This value is typical of runoff coefficients normally observed in urban watershed areas.

TABLE 3-7

RUNOFF COEFFICIENT CALCULATIONS FOR THE INFLOW CHANNEL DRAINAGE BASIN

PARAMETER	VALUE
Basin Area	456.9 acres
Measured Rainfall[1]	95.31 inches
Rainfall Volume[2]	3629 ac-ft
Runoff Volume	1084 ac-ft
Calculated C Value	0.299

1. Measured at the Club II RSF site from December 2008-November 2010
2. Volume of rainfall which fell on basin area

3.1.3.2 Brisson Avenue Drainage Swale – Site 2

As discussed in Section 2, field monitoring was conducted at one of the three identical inflows into the South Pond from the Brisson Avenue drainage system on the east side of the pond. In general, runoff inflows into the pond from the swale drainage system occurred infrequently since the majority of the generated runoff was retained within the swale system with no discharge into the South Pond except under relatively extreme rain events. A continuous runoff hydrograph was generated for the monitored inflow pipe, and cumulative inflows to the pond were summarized on a monthly basis. The estimated monthly inflow at the monitoring site was then multiplied by 3 to reflect the three identical inflows. The resulting values are assumed to reflect monthly inflows into the South Pond from the Brisson Avenue drainage system.

A summary of monthly inflow volumes to the Club II South Pond from the Brisson Avenue drainage swale is given on Table 3-8. Inflows into the Club II pond from this source are extremely low in comparison to the monitored inflows through the primary inflow channel. Monthly inputs to the Club II South Pond from the Brisson Avenue drainage swale system were generally less than 1 ac-ft during the field monitoring program. Overall, the Brisson Avenue drainage swale contributed approximately 10 ac-ft of runoff into the South Pond, equivalent to approximately 1% of the inflow generated from the inflow channel.

A summary of runoff coefficient calculations for the Brisson Avenue drainage basin is given on Table 3-9. As indicated on Table 1-2, the basin area contributing to the Brisson Avenue drainage swale system is approximately 12.33 acres. Based upon the measured rainfall of 95.31 inches, the rainfall volume which fell on the drainage basin during the monitoring program is approximately 97.9 ac-ft. As indicated on Table 3-8, the measured runoff volume which discharged from this drainage basin during the field monitoring program was approximately 9.62 ac-ft, which corresponds to a calculated C value of 0.098. This value is typical of drainage systems which utilize roadside swales for conveyance and storage.

TABLE 3-8

MONTHLY INFLOW VOLUMES TO THE CLUB II SOUTH POND FROM THE BRISSON AVENUE DRAINAGE SWALE FROM DECEMBER 2008-NOVEMBER 2010

MONTH	MONTHLY INFLOW (ac-ft)	MONTH	MONTHLY INFLOW (ac-ft)
Dec 2008	0.10	Dec 2009	0.45
Jan 2009	0.12	Jan 2010	0.26
Feb 2009	0.07	Feb 2010	0.66
Mar 2009	0.07	Mar 2010	0.96
Apr 2009	0.13	Apr 2010	0.06
May 2009	2.07	May 2010	0.18
Jun 2009	0.95	Jun 2010	0.79
Jul 2009	0.59	Jul 2010	0.45
Aug 2009	0.27	Aug 2010	0.55
Sep 2009	0.33	Sep 2010	0.50
Oct 2009	0.00	Oct 2010	0.00
Nov 2009	0.00	Nov 2010	0.00
		TOTAL:	**9.62**

TABLE 3-9

RUNOFF COEFFICIENT CALCULATIONS FOR THE BRISSON AVENUE DRAINAGE BASIN

PARAMETER	VALUE
Basin Area	12.33 acres
Measured Rainfall[1]	95.31 inches
Rainfall Volume[2]	97.9 ac-ft
Runoff Volume	9.62 ac-ft
Calculated C Value	0.098

1. Measured at the Club II RSF site from December 2008-November 2010
2. Volume of rainfall which fell on basin area

3.1.4 Pond Outflow

Discharges from the Club II South Pond occurred through an outfall structure located on the north end of the pond. This outfall structure contained a 12-inch wide contracted rectangular weir which regulated discharges from the pond following common storm events. Discharges through the outfall structure were calculated using an independent stage-discharge relationship which was developed by ERD during the field monitoring program.

A graphical summary of discharge hydrographs measured at the pond outfall structure is given on Figure 3-5. The vast majority of measured discharge rates at the pond outfall are less than approximately 1 cfs, with the exception of discharges resulting from significant rain events or during periods of repetitive rain events. The maximum measured discharge from the South Pond was approximately 4 cfs which occurred as a result of the 13.55-inch rain event which occurred during May 2009. Relatively continuous discharges were observed at the outfall structure, with the exceptions of periods of extended dry conditions which occurred during March-April 2009, November 2009, and November 2010.

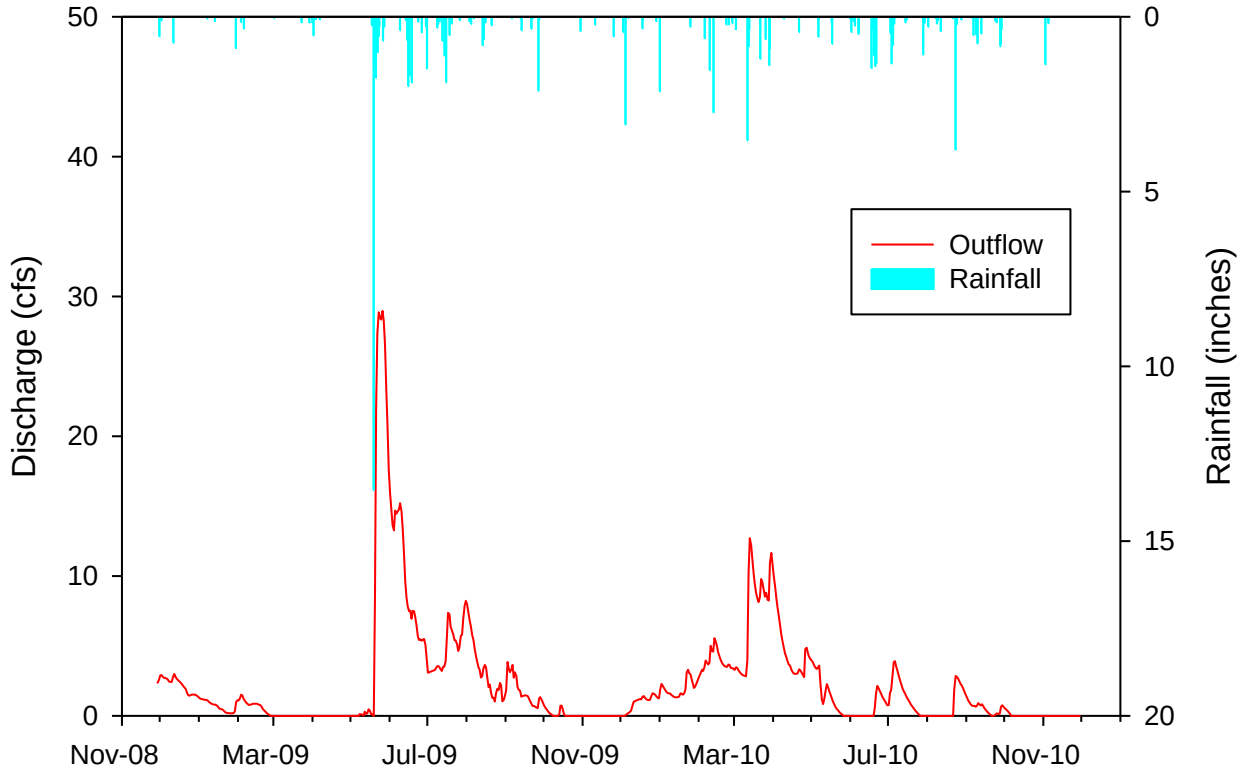


Figure 3-5. Discharge Hydrographs Through the South Pond Outfall.

A summary of monthly discharges from the Club II South Pond during the field monitoring program is given in Table 3-10. Monthly discharge volumes ranged from 0-291 ac-ft, with a total of 1,709 ac-ft discharged from the pond during the field monitoring program.

TABLE 3-10

MONTHLY DISCHARGES FROM THE SOUTH POND FROM DECEMBER 2008-NOVEMBER 2010

MONTH	MONTHLY DISCHARGES (ac-ft)	MONTH	MONTHLY DISCHARGES (ac-ft)
Dec 2008	68.4	Dec 2009	28.3
Jan 2009	21.5	Jan 2010	60.4
Feb 2009	20.0	Feb 2010	109
Mar 2009	0.00	Mar 2010	231
Apr 2009	0.00	Apr 2010	141
May 2009	291	May 2010	45.0
Jun 2009	289	Jun 2010	14.9
Jul 2009	149	Jul 2010	42.3
Aug 2009	102	Aug 2010	22.2
Sep 2009	53.0	Sep 2010	15.9
Oct 2009	4.49	Oct 2010	1.77
Nov 2009	0.00	Nov 2010	0.00
		TOTAL:	**1709**

3.1.5 Seepage Inputs

As discussed in Section 2, seepage measurements were conducted at five fixed locations in the South Pond over the period from July 2010-February 2011 to characterize the quantity and quality of seepage inputs into the South pond. Four separate monitoring events were conducted at each site over this period for measurement of seepage inputs and sample collection.

A complete listing of seepage meter field measurements conducted in the South Pond from July 2010-February 2011 is given in Appendix B. Information is provided on the date and time for each sample collection event, the volume of seepage sample collected, the seepage time interval between monitoring events, and the calculated mean seepage inflow over the collection period, in terms of liters/m^2-day. Comments and observations concerning sample collection and condition of the collection equipment are also provided.

A tabular summary of seepage inflows into the South Pond from July 2010-February 2011 is given on Table 3-11, including the range of measured values and the mean inflow rate. A graphical summary of mean seepage inflow rates at each of the monitoring sites during the monitoring program is given on Figure 3-6. Seepage measurements collected at Sites 1, 2, and 3 appear to be relatively similar, both in terms of the calculated mean values as well as the range of measured values. A slightly higher seepage inflow rate was monitored at Site 4 which was located along the western side of the pond, with a slightly lower seepage inflow observed in central portions of the pond. Overall, the mean seepage inflow rate from each of the five sites is 0.51 liters/m^2-day.

TABLE 3-11

SUMMARY OF MEAN SEEPAGE INFLOWS INTO THE SOUTH POND FROM JULY 2010 - FEBRUARY 2011

SITE	RANGE OF VALUES (liters/m^2-day)	MEAN VALUE (liters/m^2-day)
1	0.35 – 0.88	0.46
2	0.19 – 0.88	0.43
3	0.31 – 1.09	0.44
4	0.76 – 1.56	0.94
5	0.15 – 0.68	0.30
	MEAN VALUE:	**0.51**

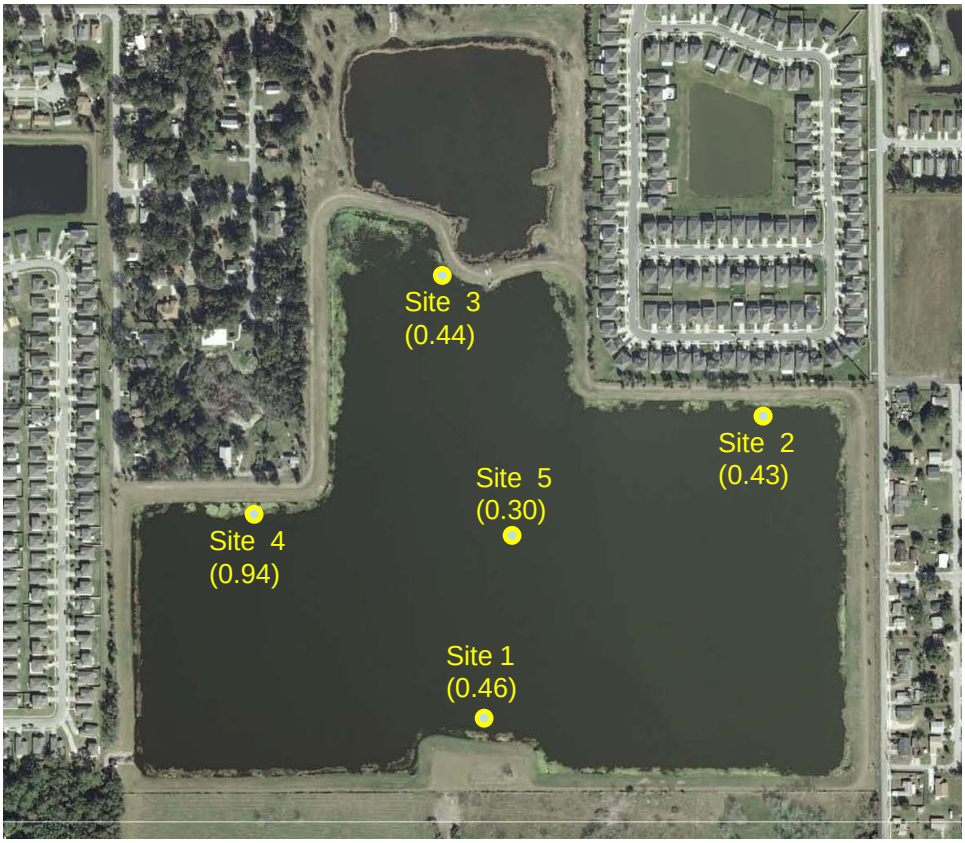


Figure 3-6. Mean Seepage Inflow Rates (liters/m^2-day) at the South Pond from July 2010-February 2011.

For purposes of estimating hydrologic inputs, seepage inputs into the pond are assumed to be similar to the overall mean seepage inflow value of 0.51 liters/m^2-day over an annual period. Since the field seepage monitoring program covered both wet and dry season conditions, this overall mean value appears to be a good estimate of mean annual seepage inputs.

A summary of calculated monthly seepage inputs to the South Pond over the period from December 2008-November 2010 is given on Table 3-12. Monthly seepage inputs are calculated my multiplying the overall mean seepage inflow value of 0.51 liters/m^2-day times the surface area of the South Pond (75.2 acres) times the number of days in each month of the monitoring program. Overall, seepage inputs into the South Pond contributed approximately 92.4 ac-ft during the 12-month monitoring program. This information is utilized in a subsequent section for estimation of a hydrologic budget for the pond.

TABLE 3-12

CALCULATED MONTHLY SEEPAGE INPUTS TO THE SOUTH POND FROM DECEMBER 2008-NOVEMBER 2010

MONTH	SEEPAGE INPUTS (ac-ft)	MONTH	SEEPAGE INPUTS (ac-ft)
Dec 2008	3.92	Dec 2009	3.92
Jan 2009	3.92	Jan 2010	3.92
Feb 2009	3.54	Feb 2010	3.54
Mar 2009	3.92	Mar 2010	3.92
Apr 2009	3.80	Apr 2010	3.80
May 2009	3.92	May 2010	3.92
Jun 2009	3.80	Jun 2010	3.80
Jul 2009	3.92	Jul 2010	3.92
Aug 2009	3.92	Aug 2010	3.92
Sep 2009	3.80	Sep 2010	3.80
Oct 2009	3.92	Oct 2010	3.92
Nov 2009	3.80	Nov 2010	3.80
		TOTAL:	**92.4**

3.1.6 Pond Evaporation

As discussed in Section 2, a Class A pan evaporimeter was installed adjacent to the South Pond outfall structure. Changes in water levels within the pan were recorded on a continuous basis and corrected for rainfall which occurred to obtain estimates of pan evaporation. Pan evaporation measurements can be converted into estimated lake surface evaporation rates by multiplying the standard conversion factor of 0.75.

A tabular summary of measured and "normal" pan evaporation rates at the Club II RSF site are given in Table 3-13. The field measured values reflect the actual pan evaporation rates measured during the field monitoring program. The "normal" pan evaporation rates are based upon National Weather Service (NWS) Bulletin No. 34 which provides estimates of evaporation rates in the Central Florida area. During the field monitoring program, measured pan evaporation at the Club II site was approximately 153.78 inches which is approximately 5% higher than the "normal" pan evaporation over this period of 146.30 inches.

TABLE 3-13

MEASURED AND "NORMAL" PAN EVAPORATION RATES AT THE CLUB II RSF SITE

MONTH	PAN EVAPORATION		MONTH	PAN EVAPORATION	
	FIELD MEASURED (inches)	ORLANDO (NWS) (inches)		FIELD MEASURED (inches)	ORLANDO (NWS) (inches)
Dec 2008	4.20	3.80	Dec 2009	4.20	3.80
Jan 2009	3.47	3.66	Jan 2010	5.71	3.66
Feb 2009	4.54	4.39	Feb 2010	4.24	4.39
Mar 2009	5.89	6.00	Mar 2010	7.31	6.00
Apr 2009	7.37	7.66	Apr 2010	5.24	7.66
May 2009	9.43	8.53	May 2010	8.43	8.53
Jun 2009	10.26	7.75	Jun 2010	9.52	7.75
Jul 2009	7.10	7.74	Jul 2010	7.92	7.74
Aug 2009	6.69	7.10	Aug 2010	6.47	7.10
Sep 2009	6.35	6.23	Sep 2010	7.66	6.23
Oct 2009	4.82	5.78	Oct 2010	6.63	5.78
Nov 2009	4.33	4.51	Nov 2010	6.00	4.51
			TOTAL:	**153.78**	**146.30**

A graphical comparison of measured and "normal" monthly pan evaporation at the Club II RSF site is given in Figure 3-7. In general, measured and "normal" pan evaporation were relatively similar throughout much of the field monitoring program. Higher than "normal" pan evaporation rates were measured at the Club II site during May-June 2009 and during January, March, and June 2010.

A summary of calculated monthly evaporation losses at the Club II pond during the monitoring program from December 2008-November 2010 is given on Table 3-14. Evaporation losses from the pond surface are calculated by multiplying the measured pan evaporation rates (summarized in Table 3-13) times the standard conversion factor of 0.75 which converts pan evaporation to lake surface surface evaporation, times the assumed surface water area of 75.2 acres. Evaporation losses from the pond surface ranged from a low of 16.29 ac-ft during January 2009 to a high of 48.22 ac-ft during June 2009. Overall, evaporation losses from the pond removed approximately 717 ac-ft of water during the field monitoring program.

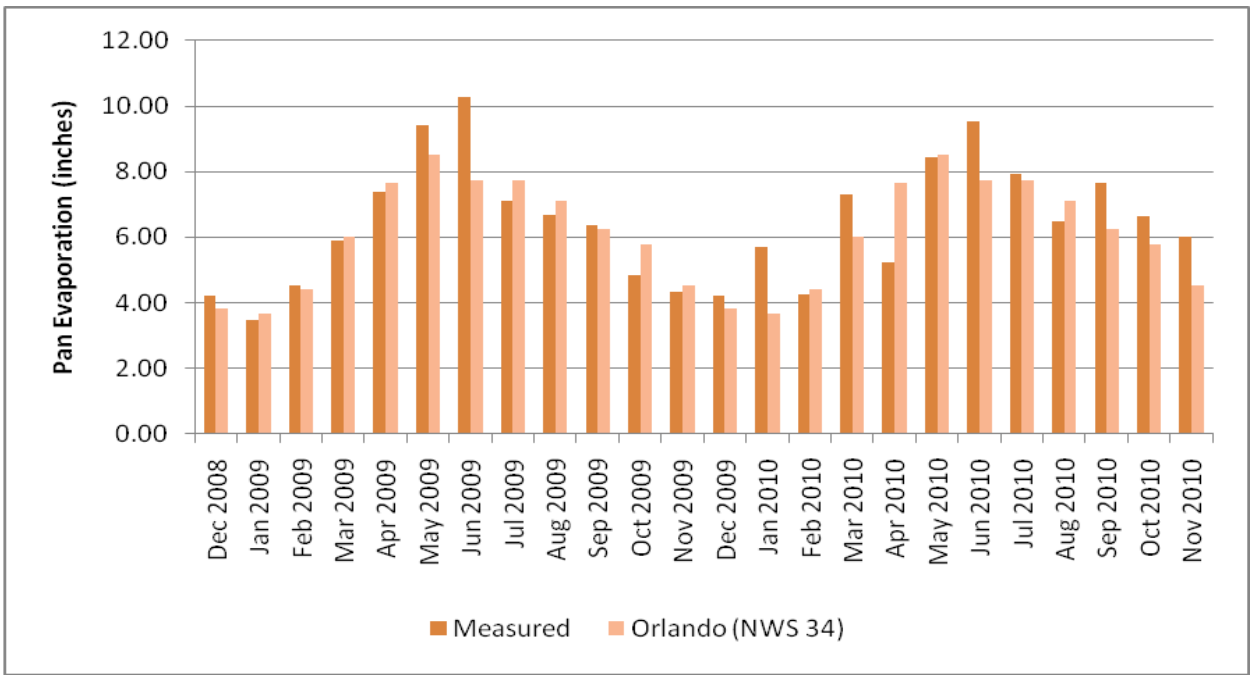


Figure 3-7. Comparison of Measured and "Normal" Monthly Pan Evaporation at the Club II RSF Site.

TABLE 3-14

CALCULATED MONTHLY EVAPORATION LOSSES AT THE CLUB II SOUTH POND FROM DECEMBER 2008-NOVEMBER 2010

MONTH	LAKE EVAPORATION (ac-ft)	MONTH	LAKE EVAPORATION (ac-ft)
Dec 2008	2.85	Dec 2009	2.85
Jan 2009	2.75	Jan 2010	2.75
Feb 2009	3.29	Feb 2010	3.29
Mar 2009	4.50	Mar 2010	4.50
Apr 2009	5.74	Apr 2010	5.74
May 2009	6.40	May 2010	6.40
Jun 2009	5.81	Jun 2010	5.81
Jul 2009	4.87	Jul 2010	5.81
Aug 2009	5.33	Aug 2010	5.33
Sep 2009	4.67	Sep 2010	4.67
Oct 2009	4.34	Oct 2010	4.34
Nov 2009	3.38	Nov 2010	3.38
		TOTAL:	**717**

3.1.7 Hydrologic Budget

A monthly hydrologic budget for the Club II South Pond from December 2008-November 2010 is given on Table 3-15. Inputs into the pond include direct rainfall, runoff inputs from the main channel and the Brisson Avenue drainage system, and measured groundwater seepage. Losses from the pond include evaporation and discharges through the pond outfall structure. Change in water storage during each month is also provided. In general, more water was discharged from the Club II pond each month than can be accounted for by the measured inputs. The observed differences between measured inputs and losses for a given month are assumed to be a result of an unidentified inflow. Potential sources for this unidentified inflow include upwelling of groundwater from deeper aquifer areas, additional runoff inflows from areas not included on the watershed delineations, and inflows related to construction activities on the adjacent school site, although the observed inflows from the school site were relatively limited in duration. As discussed in subsequent sections, the most likely candidate for this additional water input is upwelling from deeper aquifer sources based upon observed water quality characteristics within the South Pond.

A graphical comparison of hydrologic inputs and losses for the Club II South Pond is given on Figure 3-8. Approximately 46% of the hydrologic inputs into the pond during the field monitoring program occurred as a result of inflow through the primary inflow channel. Approximately 25% of the hydrologic inputs were contributed by direct rainfall, with 4% by groundwater seepage, and <1% by runoff inputs at Site 2. The unidentified inputs contributed approximately 25% of the inflows. Approximately 70% of the losses from the pond occurred as a result of discharges through the outfall structure, with 30% lost by evaporation from the pond surface.

3.1.8 Hydraulic Residence Time

An estimate of the annual detention time within the Club II South Pond was conducted by dividing the estimated pond volume of 1501 ac-ft (summarized in Table 1-1) by the sum of the total inputs during the field monitoring program (summarized in Table 3-15). Based upon this analysis, the mean annual residence time within the pond is approximately 1.27 years or 463 days. This residence time is relatively long for wet detention ponds which typically have residence times ranging from 50-100 days, expressed on an annual average basis. Hydraulic residence time calculations for the Club II South Pond are given in Table 3-16.

TABLE 3-15

MONTHLY HYDROLOGIC INPUTS AND LOSSES AT THE CLUB II SOUTH POND FROM DECEMBER 2008 - NOVEMBER 2010

MONTH	POND INPUTS (ac-ft)						POND LOSSES (ac-ft)			CHANGE IN STORAGE
	Direct Rainfall	Runoff Inflow		GW Seepage	Unid. Inflow	Total Inputs	Pond Evaporation	Outflow	Total Losses	
		Site 1	Site 2							
Dec 2008	5.83	36.2	0.10	3.92	28.5	74.6	19.74	68.4	88.1	-13.5
Jan 2009	7.08	14.0	0.12	3.92	10.2	35.4	16.29	21.5	37.8	-2.38
Feb 2009	4.20	12.6	0.07	3.54	4.59	25.0	21.32	20.0	41.3	-16.3
Mar 2009	4.39	7.16	0.07	3.92	3.01	18.6	27.66	0.00	27.7	-9.11
Apr 2009	8.15	6.93	0.13	3.80	-3.48	15.5	34.66	0.00	34.7	-19.1
May 2009	125	201	2.07	3.92	123	456	44.33	291	335	120
Jun 2009	57.4	133	0.95	3.80	83.4	279	48.22	289	337	-58.6
Jul 2009	36.0	92.4	0.59	3.92	79.0	212	27.99	149	177	35.2
Aug 2009	16.4	49.2	0.27	3.92	17.6	87.4	31.46	102	133	-45.6
Sep 2009	20.0	42.1	0.33	3.80	6.81	73.0	29.86	53.0	82.9	-9.85
Oct 2009	3.13	28.0	0.05	3.92	-22.7	12.4	22.65	4.49	27.1	-14.7
Nov 2009	5.45	0.00	0.00	3.80	-4.61	4.64	20.36	0.00	20.4	-15.7
Dec 2009	27.1	33.0	0.45	3.92	18.8	83.3	19.74	28.3	48.0	35.3
Jan 2010	15.5	44.7	0.26	3.92	35.8	100	26.86	60.4	87.2	12.9
Feb 2010	40.2	58.8	0.66	3.54	30.3	133	19.91	110	129	4.52
Mar 2010	58.0	137	0.96	3.92	102	302	34.38	231	265	36.8
Apr 2010	3.76	67.3	0.06	3.80	57.1	132	24.60	141	165	-33.4
May 2010	11.1	28.9	0.18	3.92	1.38	45.5	39.63	45.0	84.6	-39.2
Jun 2010	47.6	20.0	0.79	3.80	-0.26	71.7	44.72	14.9	59.6	12.1
Jul 2010	27.5	24.7	0.45	3.92	4.73	61.3	37.23	42.3	79.5	-18.2
Aug 2010	33.2	32.9	0.55	3.92	7.81	78.4	30.41	22.2	52.6	25.8
Sep 2010	30.1	11.6	0.50	3.80	-3.09	42.9	36.00	15.9	51.9	-8.99
Oct 2010	0.19	3.08	0.00	3.92	-6.88	0.31	31.16	1.77	32.9	-32.6
Nov 2010	9.84	0.00	0.00	3.80	8.51	22.2	28.20	0.00	28.2	-6.05
TOTALS:	**598**	**1084**	**9.62**	**92.4**	**582**	**2366**	**717**	**1709**	**2426**	**-60.5**

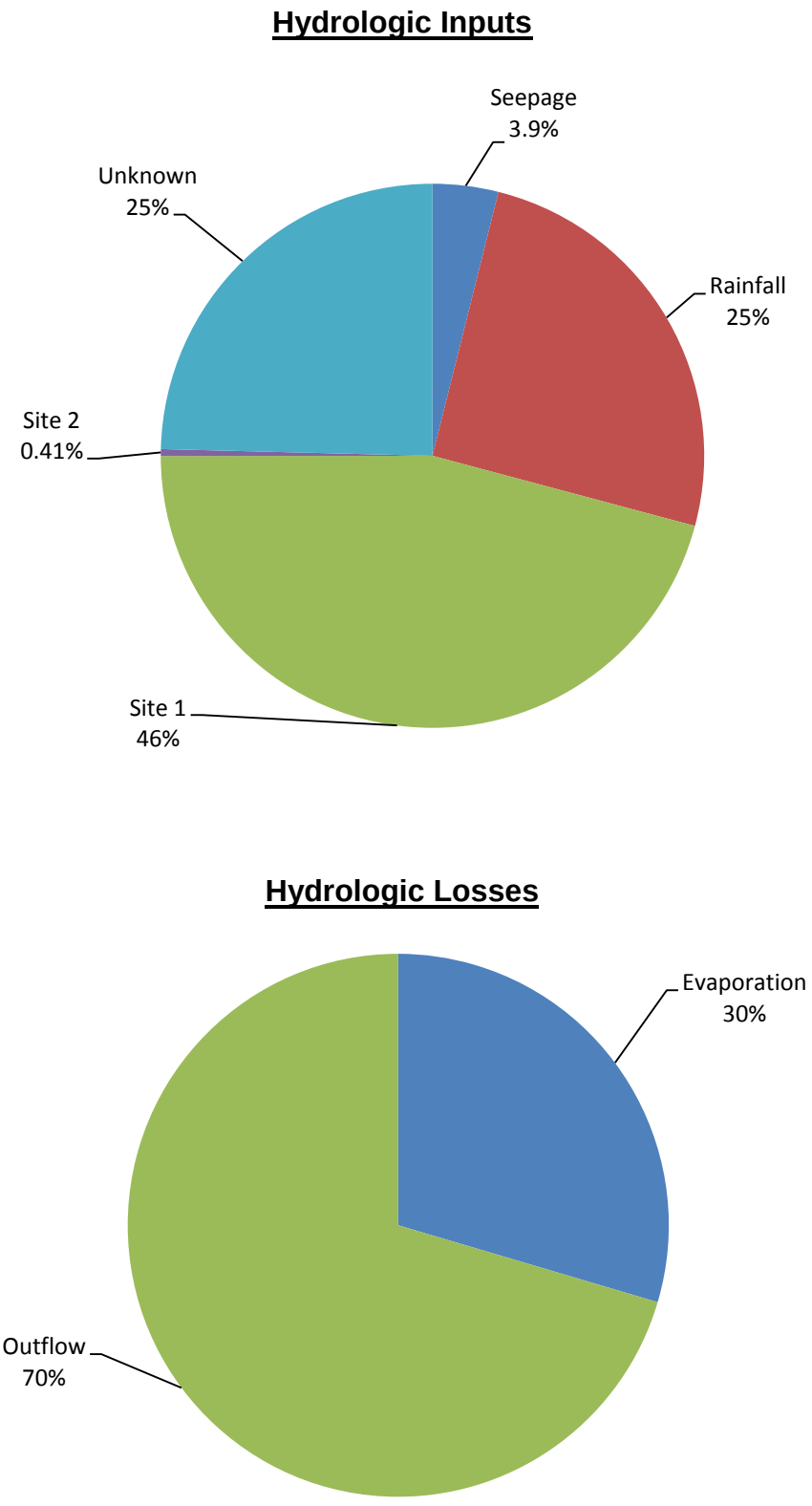


Figure 3-8. Hydrologic Inputs and Losses to the Club II South Pond.

TABLE 3-16

HYDRAULIC RESIDENCE TIME CALCULATIONS FOR THE CLUB II SOUTH POND

PARAMETER	VALUE
Hydrologic Inputs	2366 ac-ft
Time Interval	2.00 years
Pond Volume	1501 ac-ft
Residence Time	1.27 years 463 days

3.2 Surface Water Characteristics of the South and North Ponds

Vertical field profiles of pH, temperature, specific conductivity, dissolved oxygen, and oxidation-reduction potential (ORP) were conducted near the center of the South and North Ponds on approximately a weekly to biweekly basis during the field monitoring program. Field measurements were conducted at depths of 0.25 m and 0.5 m, and continued at 0.5-m intervals to the pond bottom. A total of 60 vertical field profiles was collected in the South Pond, with 59 vertical field profiles collected in the North Pond. A complete listing of vertical field profiles collected in the South and North Ponds is given in Appendix C.1. The vertical field profiles extended to a depth of approximately 7.5-8.5 m during the majority of the monitoring events.

Collection of surface water samples was also conducted in the South and North Ponds on a monthly basis, with separate surface water samples collected at top, middle, and bottom portions of the water column. Each of the collected samples was analyzed for general parameters, nutrients, and chlorophyll-a. A discussion of the results of the field monitoring and laboratory measurements is given in the following sections. A complete listing of laboratory analyses conducted on surface water samples collected from the South and North Ponds is given in Appendix C.2.

3.2.1 Vertical Field Profiles

3.2.1.1 Temperature

A graphical summary of vertical field profiles of temperature collected in the South and North Ponds is given in Figure 3-9. To simplify data presentation, the results are expressed on a seasonal basis, with the illustrated profiles reflecting the mean of temperature measurements conducted during fall, spring, summer, and winter conditions. For purposes of this analysis, "fall" conditions are assumed to be reflected by the months of October-December, with "winter" conditions reflected by profiles collected during January-March, "spring" conditions reflected by profiles collected during April-June, and "summer" conditions reflected by profiles collected during July-September.

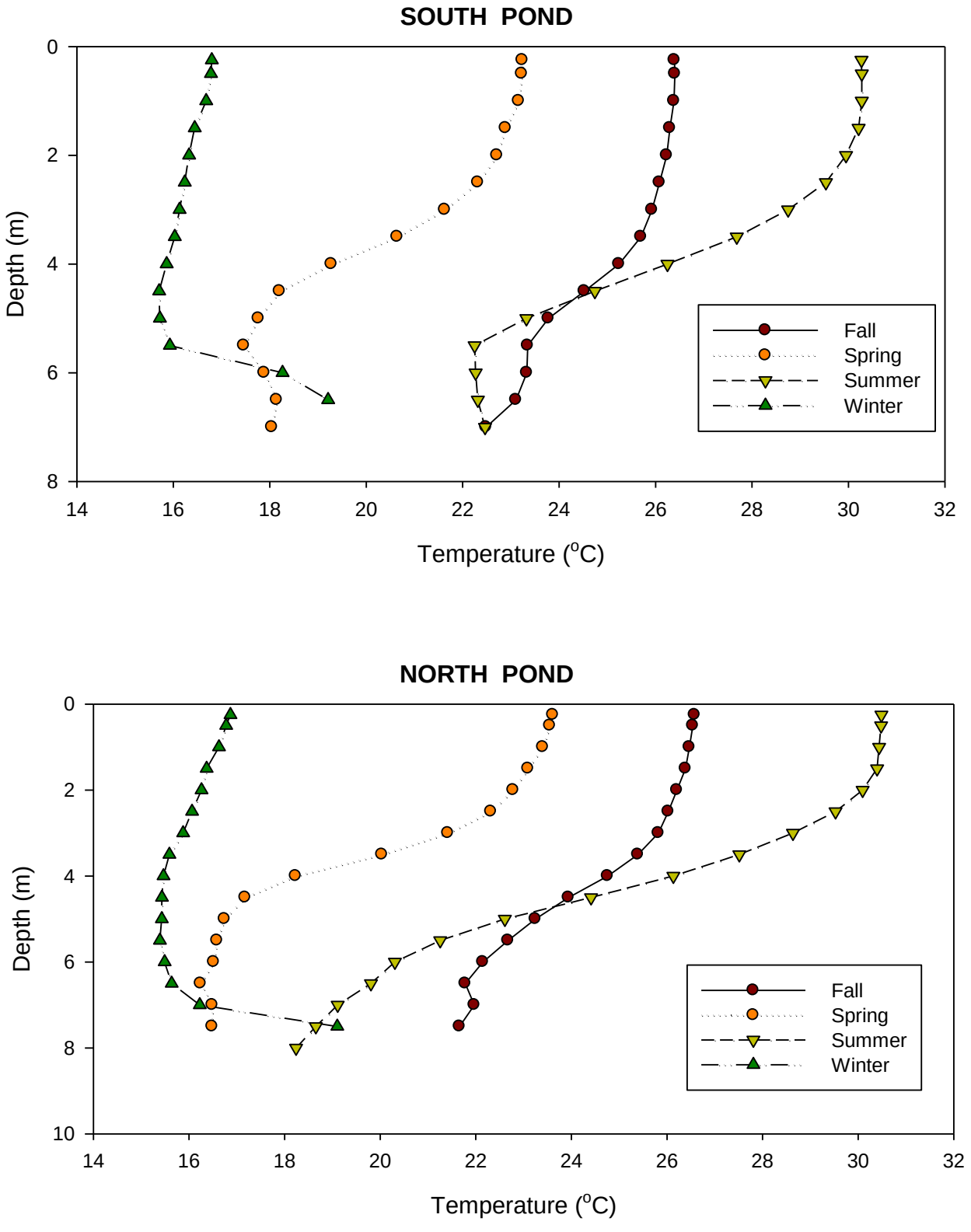


Figure 3-9. Seasonal Vertical Field Profiles of Temperature in the South and North Ponds.

No significant thermal stratification was observed in the South Pond during winter conditions. Temperature measurements within the pond collected during this period were relatively uniform from top to bottom, with the exception of an increase in temperature near the water-sediment interface due to influx of warmer groundwater during low water temperatures. A moderate amount of thermal stratification was observed during fall conditions, with a temperature difference of 3-4 ^{o}C between top and bottom measurements. However, relatively significant thermal stratification was observed in the South Pond during spring and summer conditions. During both periods, thermal stratification began to occur at water depths of approximately 2-3 m. During spring conditions, an average temperature change of approximately 4-5 ^{o}C was observed between top and bottom measurements, with more than an 8 ^{o}C difference in temperature between top and bottom measurements observed during summer conditions. The temperature profiles exhibited by the South Pond are typical of a mesotrophic lake system.

In the North Pond, isograde temperature conditions were observed only during winter conditions. Significant thermal stratification was observed in this pond during fall, spring, and summer conditions, with a slight increase in temperature at the water-sediment interface. During fall conditions, temperature differences between top and bottom measurements averaged approximately 4-5 ^{o}C, with a 6-7 ^{o}C difference in bottom and surface temperatures during spring conditions, and 12-13 ^{o}C difference in temperature during summer conditions. The temperature profiles exhibited by the North Pond appear to be more reflective of eutrophic lake conditions rather than the mesotrophic conditions exhibited in the South Pond. The degree of stratification observed in this waterbody may be due to the relatively small size of the North Pond and the reduced wind activity created by residential developments and large trees which surround the east and west sides of the pond.

3.2.1.2 pH

A compilation of mean seasonal vertical profiles of pH collected in the South and North Ponds is given in Figure 3-10. Relatively isograde pH conditions, with the exception of areas near the water-sediment interface, were observed during winter conditions in the South Pond with evidence of a slight metalimnetic maxima in pH at a depth of 1 m. However, a general trend of decreasing pH with increasing water depth was observed during the remaining seasons. Differences in measured pH values between top and bottom measurements ranged from approximately 1 pH unit during fall conditions, with a difference of approximately 1-1.5 pH unit during summer conditions, and approximately 1-1.5 pH units during spring conditions. This type of seasonal variability in pH is common in mesotrophic lakes.

Similar trends in pH measurements were observed in the North Pond as well. Relatively isograde pH conditions were observed to a depth of approximately 5 m during winter conditions, with decreases in pH with increasing water depth observed during the remaining periods. During fall conditions, a pH difference of approximately 1-1.5 units was observed between top and bottom measurements, with a difference of -1.5 units during spring conditions, and more than 1.5 units during summer conditions. A large portion of the variability in pH is related to the fluctuations in temperature and resulting stratification discussed previously.

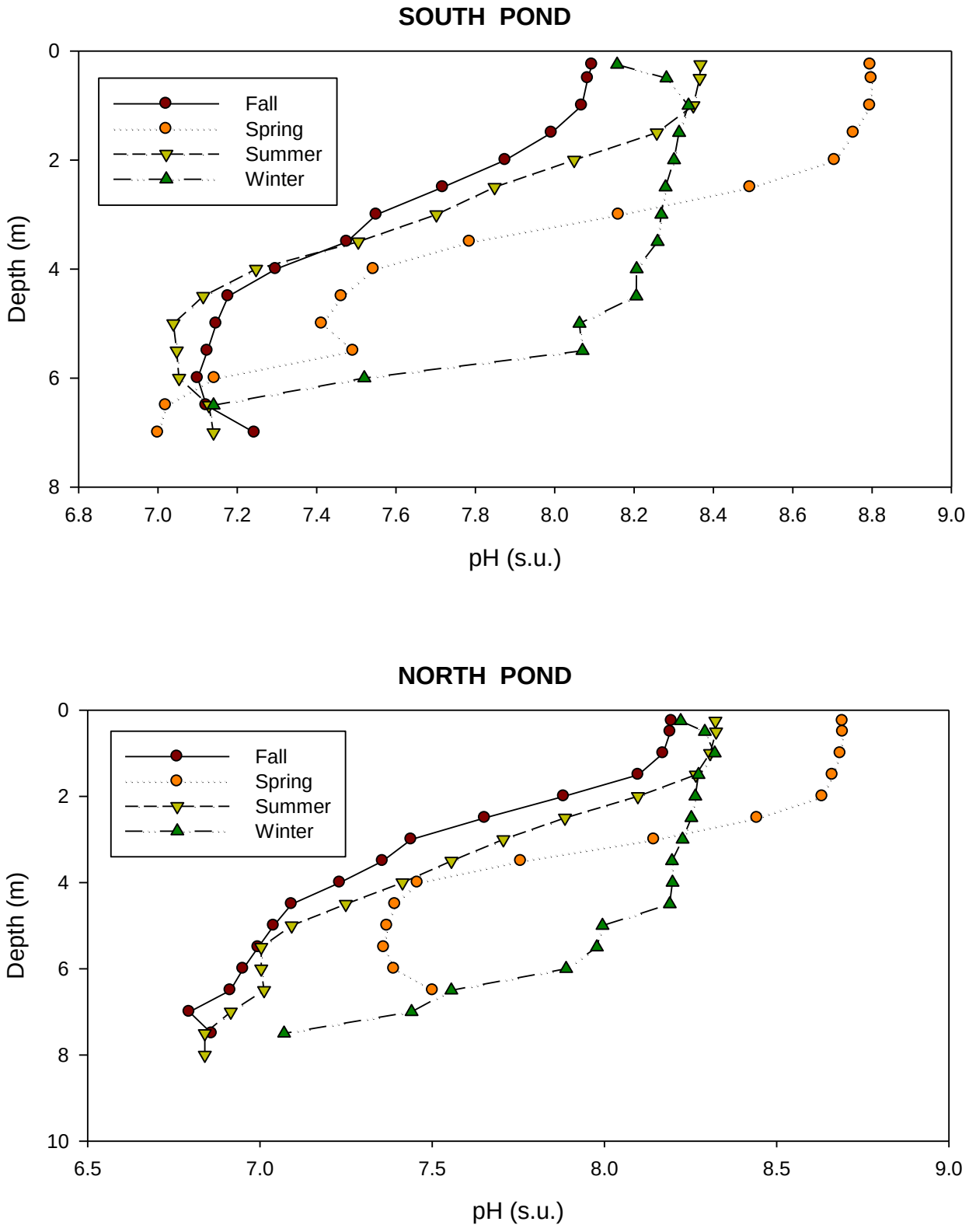


Figure 3-10. Seasonal Vertical Field Profiles of pH in the South and North Ponds.

3.2.1.3 Conductivity

A graphical compilation of seasonal conductivity profiles in the South and North Ponds is given in Figure 3-11. Relatively isograde conductivity conditions were observed to a depth of approximately 5 m during the winter season in the South Pond which correspond well with the isograde conditions observed for temperature and pH during this time. However, increases in conductivity with increasing water depth were observed in the South Pond during the remaining months. Increases in conductivity measurements appear to begin at a water depth of approximately 2-4 m, with an additional conductivity increase of approximately 10-30% from this depth to the sediment-water interface. In many waterbodies, the conductivity profiles exhibited by the South Pond on Figure 3-11 would be an indication of significant internal recycling from the sediments into the overlying water column. However, since the South Pond appears to have a measurable groundwater component, the observed increases in conductivity may also be related to high ionic strength groundwater which is infiltrating through the pond bottom and accumulating in lower layers of the pond during thermally stratified conditions.

In the North Pond, isograde conductivity conditions were also observed during winter conditions, with increases in conductivity observed in lower layers of the water column during the remaining seasons. The observed increases in specific conductivity in the North Pond appear to originate at water depths of approximately 2-3 m, with increases of approximately 20-50% observed from this depth to the water-sediment interface. The extent of increases in conductivity in lower portions of the water column in the North Pond appears to be more significant than observed in the South Pond. As discussed previously, these observed increases in conductivity are likely related to either significant internal recycling or influx of a high ionic strength groundwater through the pond bottom.

3.2.1.4 Dissolved Oxygen

A graphical compilation of seasonal vertical profiles of dissolved oxygen concentrations in the South and North Ponds is given in Figure 3-12. In general, decreases in dissolved oxygen with increasing water depth were observed in the South Pond throughout the entire monitoring program. However, during winter conditions, dissolved oxygen concentrations typically decreased from approximately 8-9 mg/l at the surface to an average of 5 mg/l near the water-sediment interface. Substantially more significant reductions in dissolved oxygen were observed during fall, winter, and summer conditions, with anoxic conditions observed near the water-sediment interface during each of these periods. On an average basis, dissolved oxygen concentrations in excess of 2 mg/l (generally considered to be the minimum level necessary to support aquatic life, if only for brief periods) occurred at a water depth of approximately 4 m during summer conditions and 6 m during fall and spring conditions.

A similar pattern of dissolved oxygen concentrations was observed in the North Pond. Good levels of dissolved oxygen were maintained throughout the water column in the pond during winter conditions, with a mean dissolved oxygen concentration of approximately 4 mg/l near the water-sediment interface. However, during the remaining seasons, reductions in dissolved oxygen with increasing water depth were commonly observed. Near-anoxic conditions were observed in the North Pond at a depth of approximately 4 m during summer conditions, a depth of 7 m during fall conditions, and 7-8 m during spring conditions. In general, the oxygen depletion in lower levels of the water column appears to be more severe in the North Pond than in the South Pond, which may be related to the small size and lack of significant wind-mixing activity in the North Pond.

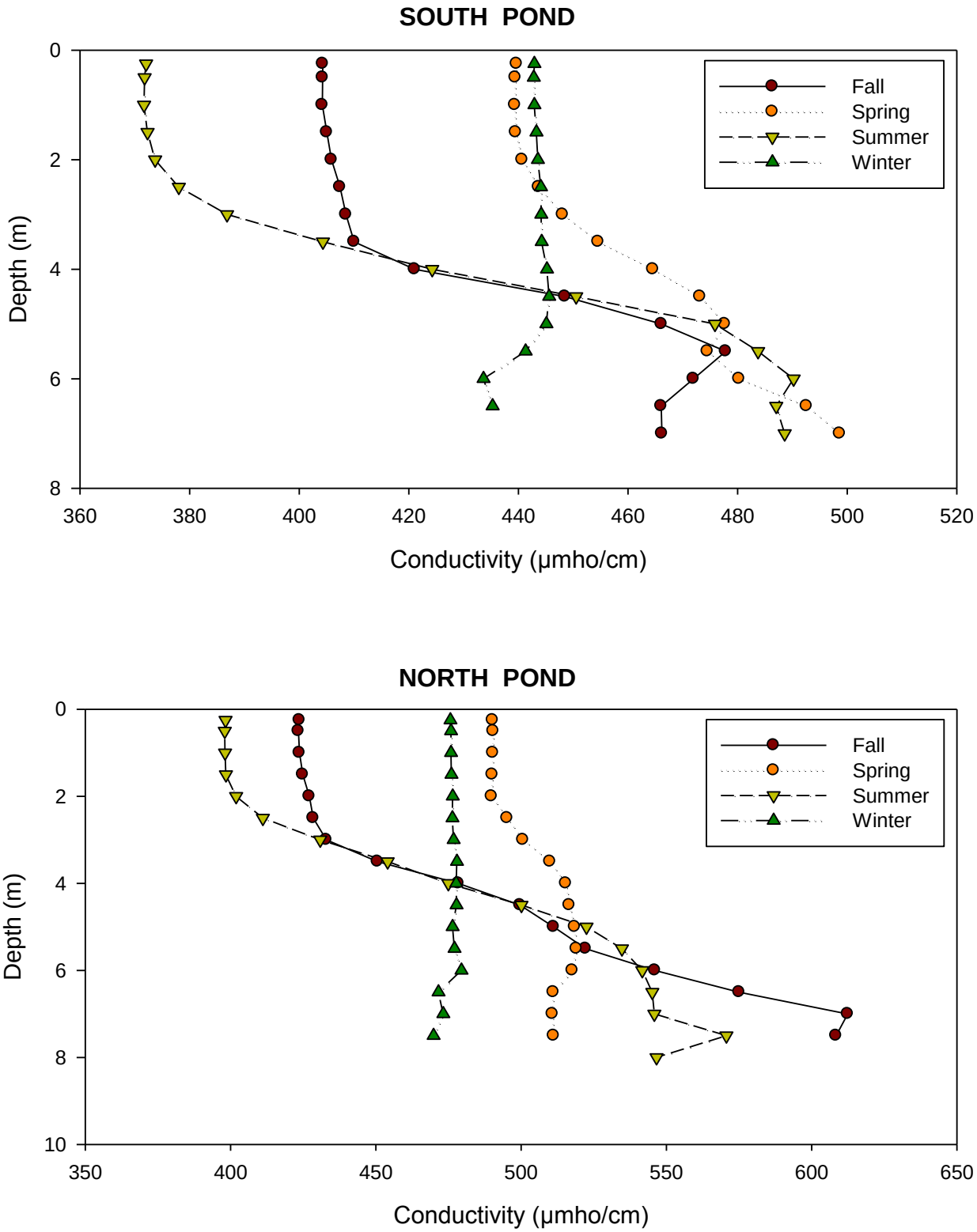


Figure 3-11. Seasonal Vertical Field Profiles of Conductivity in the South and North Ponds.

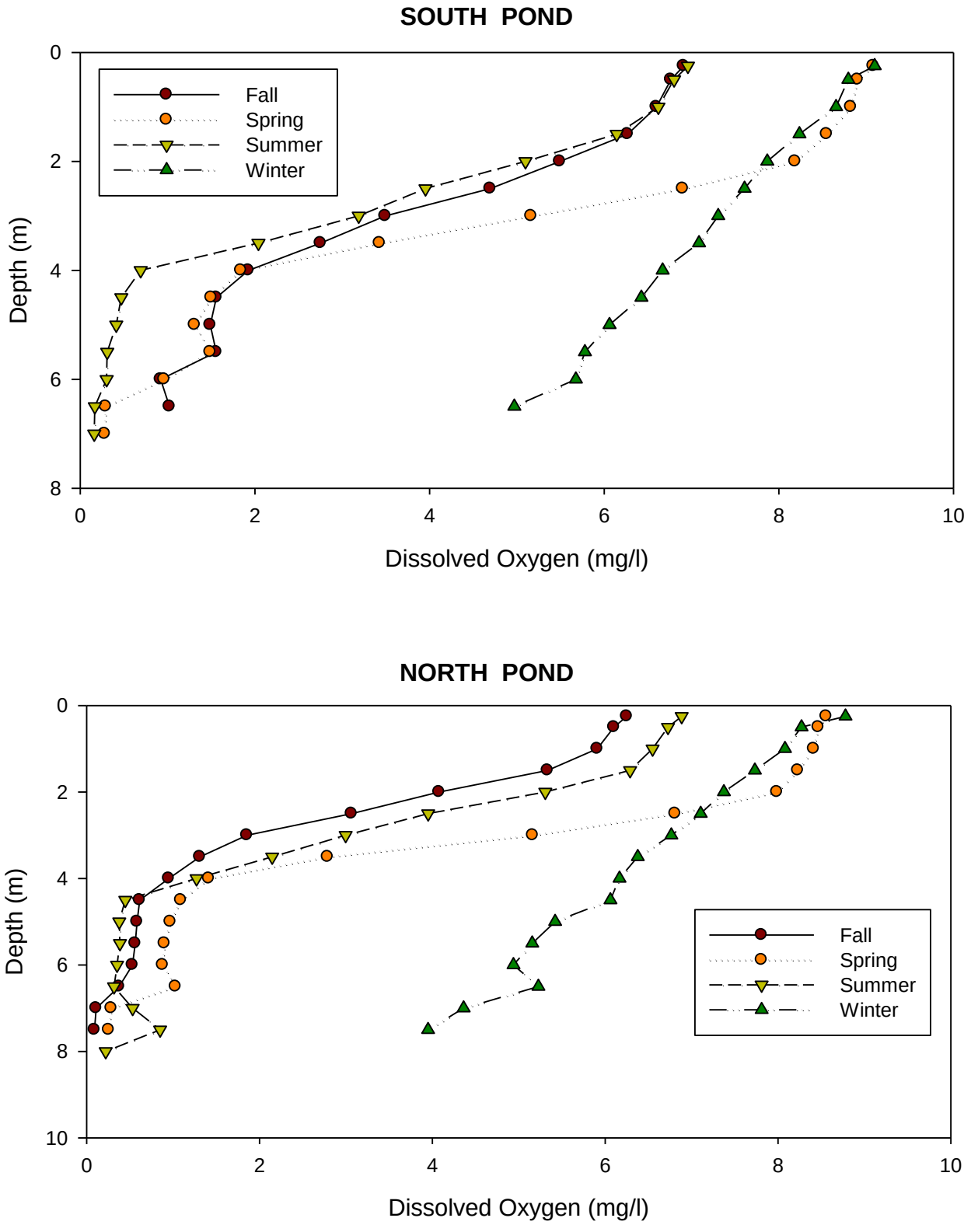


Figure 3-12. Seasonal Vertical Field Profiles of Dissolved Oxygen in the South and North Ponds.

3.2.1.5 Oxidation-Reduction Potential (ORP)

A graphical compilation of oxidation-reduction potential (ORP) measurements conducted in the South and North Ponds is given in Figure 3-13, summarized on a seasonal basis. In general, oxidized conditions were maintained within the South Pond at all times during winter conditions, and oxidized conditions were maintained within the water column to depths of approximately 4-5 m during the remaining seasons. However, reduced conditions were observed at depths in excess of 4 m during fall, spring, and summer conditions. The most severe level of reduced conditions was observed during the summer, with slightly less reduced conditions observed during fall and spring.

A similar pattern was observed for redox potential in the North Pond, with oxidized conditions observed at all times during winter conditions. However, on an average basis, reduced conditions were observed in the North Pond at water depths ranging from approximately 3-4 m during fall, spring, and summer conditions. Redox measurements in lower portions of the water column appear to be relatively similar during fall, spring, and summer conditions, in contrast to the substantially higher level of reduced conditions observed in the South Pond during the summer.

3.2.1.6 Secchi Disk Depth

A graphical summary of Secchi disk depth measured in the South and North Ponds during the field monitoring program is given in Figure 3-14. Measured Secchi disk depths in the two ponds were highly variable, with a moderate seasonal trend of lower Secchi disk depths during wet season conditions and greater Secchi disk depths during dry season conditions. This behavior is consistent with runoff inputs as the primary phosphorus loading mechanism to the ponds.

A tabular summary of Secchi disk measurements conducted in the South and North Ponds is given in Table 3-17. Measured Secchi disk depths in the South Pond range from 0.14-2.64 m, with an overall mean of 1.08 m. Secchi disk measurements in the North Pond were slightly better, ranging from 0.21-2.76 m and a mean value of 1.27 m. The measured Secchi disk depths in the two ponds are typical of mesotrophic lake systems.

TABLE 3-17

SUMMARY OF SECCHI DISK MEASUREMENTS IN THE SOUTH AND NORTH PONDS

POND	RANGE OF VALUES (m)	MEAN VALUE (m)
South	0.14 – 2.64	1.08
North	0.21 – 2.76	1.27

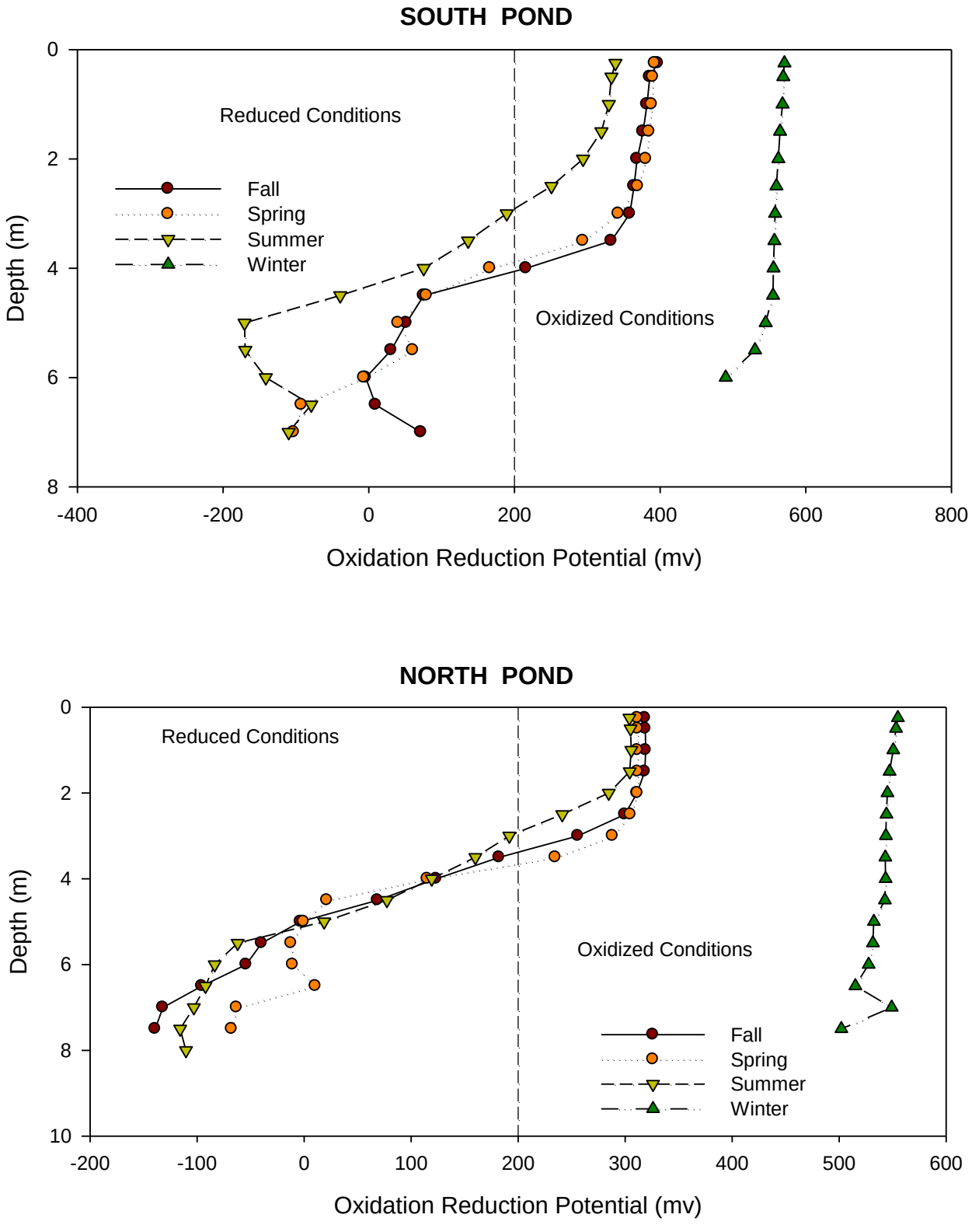


Figure 3-13. Seasonal Vertical Field Profiles of Oxidation-Reduction Potential (ORP) in the South and North Ponds.

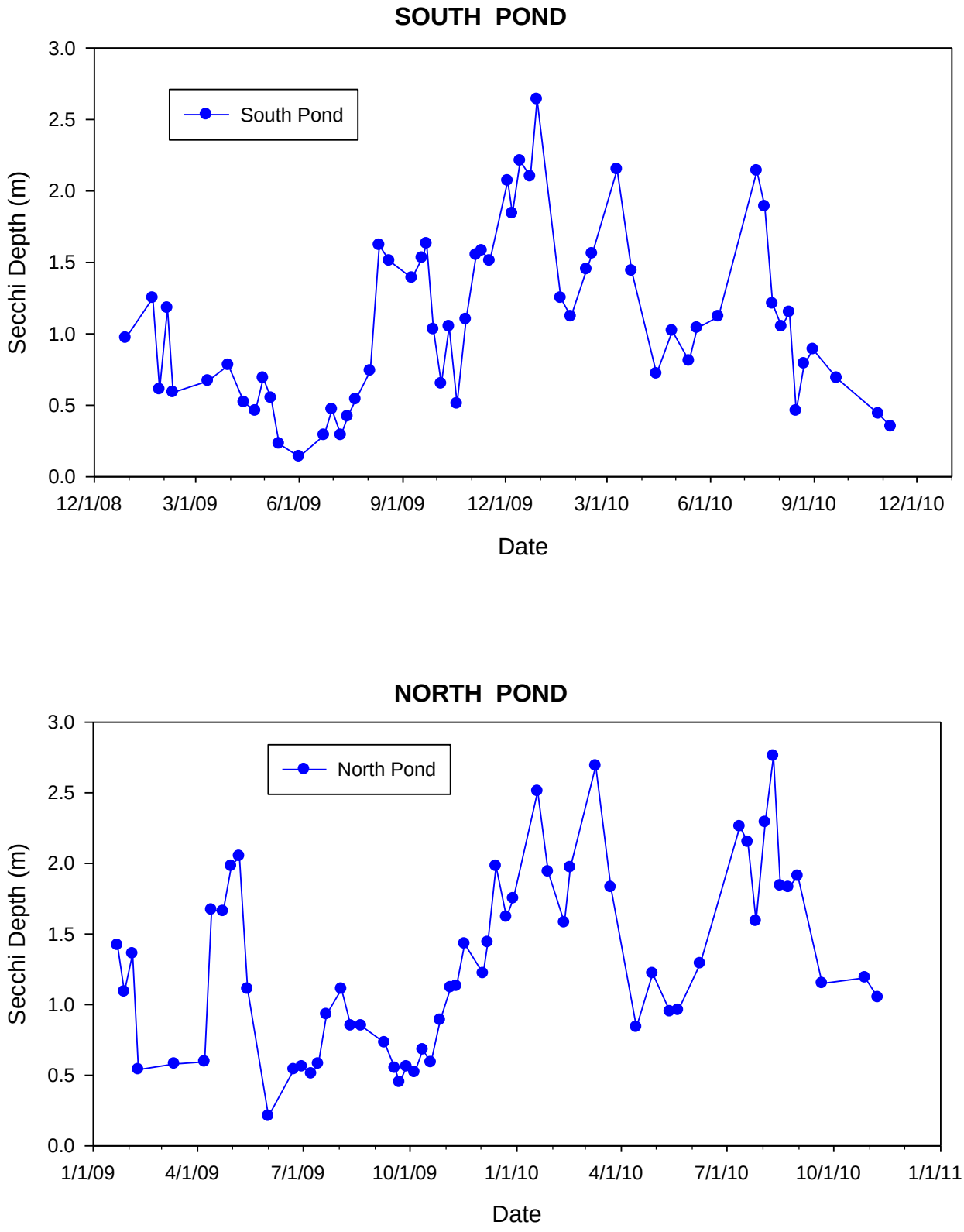


Figure 3-14. Measured Secchi Disk Depths in the South and North Ponds.

3.2.2 Water Quality Characteristics

3.2.2.1 South Pond

A tabular summary of mean characteristics of surface water samples collected in the South Pond is given in Table 3-18. Mean values are provided for each of the measured parameters in the top, middle, and bottom samples. A total of 23 separate samples was collected at each of the three depths during the field monitoring program. In general, measured alkalinity values appear to increase with increasing depth, with an increase of approximately 5% in concentration between the top and middle samples and a 30% increase between the middle and bottom samples. The observed increase in alkalinity near the bottom sediments is unusual since most waterbodies exhibit decreases in alkalinity, particularly near the water-sediment interface, as a result of sediment decomposition processes. The observed increase in alkalinity in the bottom samples suggests an influx of groundwater with elevated alkalinity values which originates from carbonate rock deposits beneath the pond. This influx may not necessarily occur in all areas of the pond and is likely restricted to areas of the pond bottom with more permeable connections with underground aquifer water. Based upon the measured alkalinity values, water within the pond appears to be extremely well buffered.

Measured nitrogen concentrations in water samples collected at the top and middle locations are similar to concentrations commonly observed in mesotrophic urban lakes. Relatively low levels of both ammonia and NO_x were observed in these samples. The dominant nitrogen species appears to be dissolved organic nitrogen which comprises approximately 60% of the total nitrogen measured. The observed concentrations of dissolved organic nitrogen are somewhat higher than observed in many urban lakes and are likely related to the highly colored inflows which enter the pond. In general, nitrogen concentrations appear to be relatively similar in both the top and middle samples. However, substantial increases in all measured nitrogen species were observed in the bottom samples with a 10-fold increase in ammonia concentrations. Increases in ammonia concentrations in lower portions of the water column are commonly observed in stratified lake systems as a result of decomposition processes in the sediments. However, an increase is also observed in NO_x concentrations which commonly decrease in lower layers of the water column as a result of denitrification processes, particularly in the anoxic environment which existed in these portions of the South Pond. The observed increase suggests that additional sources of NO_x may be entering the pond from a groundwater source. Overall, total nitrogen concentrations increase by a factor of approximately 2.5 between the middle and bottom samples, most of which occurs as a result of increases in ammonia.

Measured phosphorus concentrations appear to be relatively similar between the top and middle samples. Samples collected from each of these areas are characterized by low levels of SRP and dissolved organic nitrogen. Measured concentrations of particulate phosphorus appear to be normal or slightly elevated, presumably resulting from algal biomass within the water column. Overall, the measured mean total phosphorus concentrations ranging from 24-28 μg/l are typical of phosphorus concentrations commonly observed in mesotrophic lakes. Substantial increases in measured concentrations were observed in the bottom samples, particularly for SRP. SRP is the dominant phosphorus form released from sediments as a result of internal recycling which is a likely source for the observed increases in SRP. However, since it appears that additional nitrogen inputs are occurring into the pond as a result of groundwater inflow, the possibility of additional phosphorus inputs from a deep groundwater source cannot be ruled out.

TABLE 3-18

MEAN CHARACTERISTICS OF SURFACE WATER SAMPLES COLLECTED IN THE SOUTH POND

PARAMETER	UNITS	MEAN VALUE BY SAMPLE DEPTH		
		Top	Middle	Bottom
Alkalinity	mg/l	110	115	150
NH_3	µg/l	151	192	1975
NO_X	µg/l	97	93	117
Diss. Org. Nitrogen	µg/l	808	779	911
Particulate Nitrogen	µg/l	232	243	371
Total Nitrogen	µg/l	1288	1307	3375
SRP	µg/l	4	3	53
Diss. Org. Phosphorus	µg/l	4	4	11
Particulate Phosphorus	µg/l	20	16	22
Total Phosphorus	µg/l	28	24	86
Turbidity	NTU	5.0	4.2	44.7
Color	Pt-Co	32	30	145
Chlorophyll-a	mg/m^3	17.8	17.3	--
TN/TP Ratio	--	46	54	39
Number of Samples		23	23	23

Calculated total nitrogen/total phosphorus (TN/TP) ratios are provided near the bottom of Table 3-18. These ratios are commonly used in lake management studies to assist in identifying nutrient limitation in surface waterbodies. In general, TN/TP ratios in excess of approximately 20-30 indicate phosphorus-limited conditions within the waterbody. Based upon the calculated ratios for the South Pond, it appears that the South Pond exhibited phosphorus limitation during the monitoring program.

A graphical summary of measured concentrations of alkalinity in the South Pond during the field monitoring program is given on Figure 3-15. In general, alkalinity measurements at the top and middle monitoring sites were similar throughout the field monitoring program, with measured concentrations ranging from approximately 90-130 mg/l. Substantially elevated levels of alkalinity were observed in bottom portions of the South Pond during the period from April-October 2009 and April-October 2010. The measurements summarized on Figure 3-15 suggest a seasonal influence in bottom portions of the South Pond from a high alkalinity groundwater source.

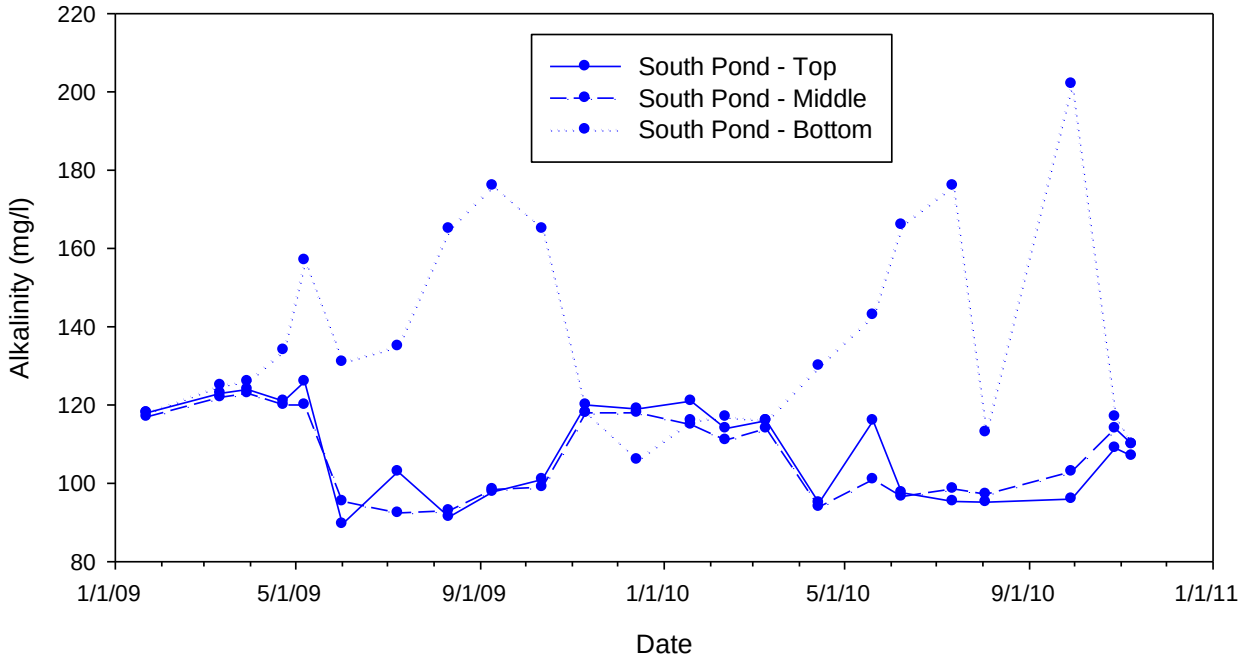


Figure 3-15. Summary of Measured Concentrations of Alkalinity in the South Pond.

A graphical summary of measured concentrations of ammonia and NO_x in the South Pond during the field monitoring program is given on Figure 3-16. In general, measured concentrations of ammonia were relatively low in value and similar in concentration at the top and middle monitoring sites. Periods of elevated ammonia concentrations were also observed in bottom portions of the water column, with a seasonal pattern similar to the elevated levels of alkalinity in bottom portions of the South Pond summarized in Figure 3-15. The observed substantial increases in ammonia in bottom portions of the pond are consistent with the release of ammonia as a result of decomposition processes under anoxic conditions, although an additional influx of ammonia from a groundwater source cannot be ruled out.

In general, measured NO_x concentrations in the South Pond were virtually identical at the top, middle, and bottom monitoring sites. A sharp increase in NO_x concentrations was observed during the period from December 2009-April 2010, with substantially increased concentrations observed throughout the entire water column. The origin of this sudden spike in NO_x concentrations was not known, although the most likely candidate is a surface inflow containing elevated NO_x levels.

A summary of measured concentrations of total nitrogen in the South Pond during the field monitoring program is given on Figure 3-17. Measured total nitrogen concentrations at the top and middle monitoring sites are virtually identical throughout the field monitoring program. Elevated concentrations of total nitrogen are observed on a seasonal basis in bottom portions of the South Pond which is due primarily to the substantial increases in ammonia observed in the bottom samples (see Figure 3-16).

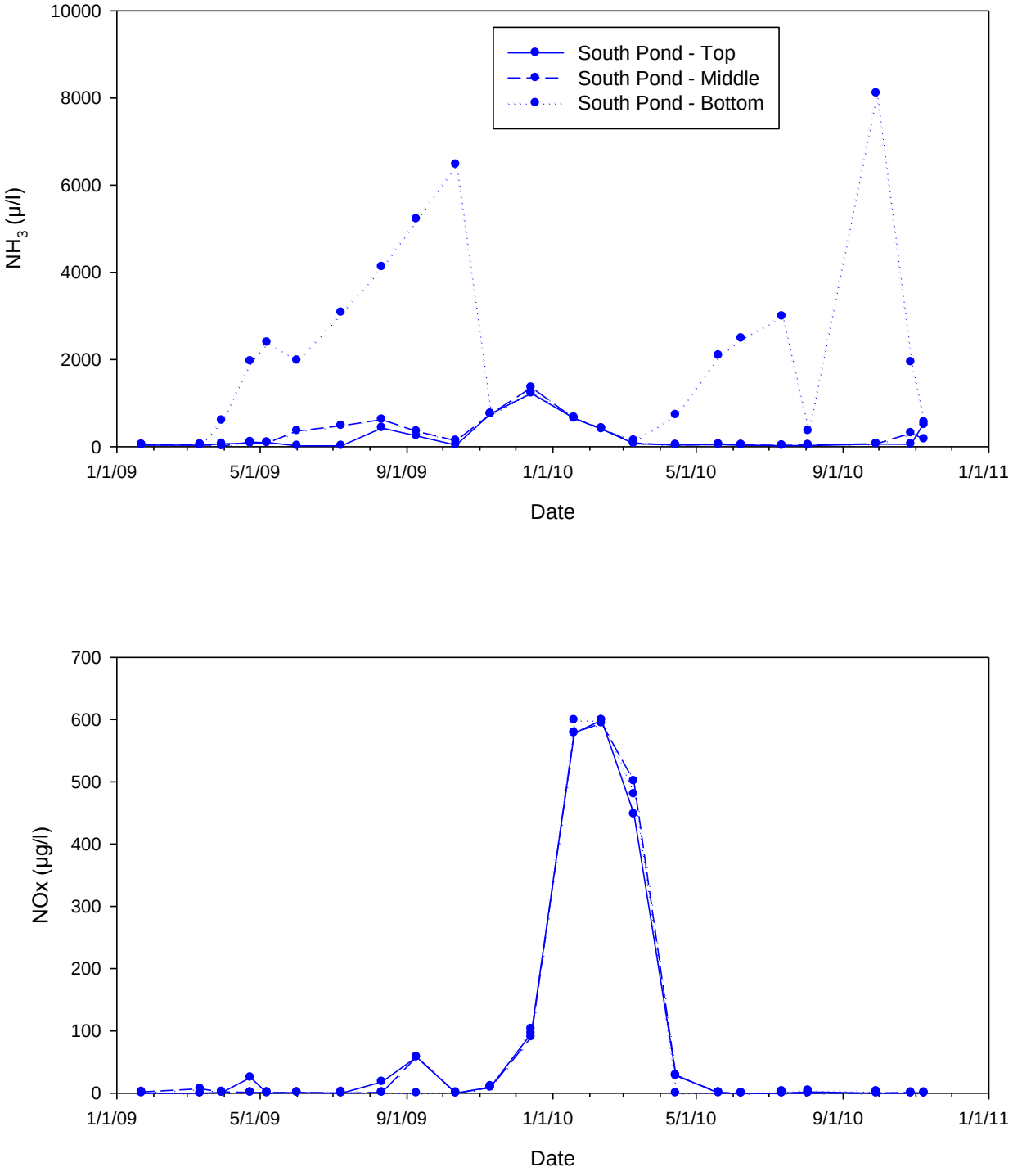


Figure 3-16. Summary of Measured Concentrations of Ammonia and NO_x in the South Pond.

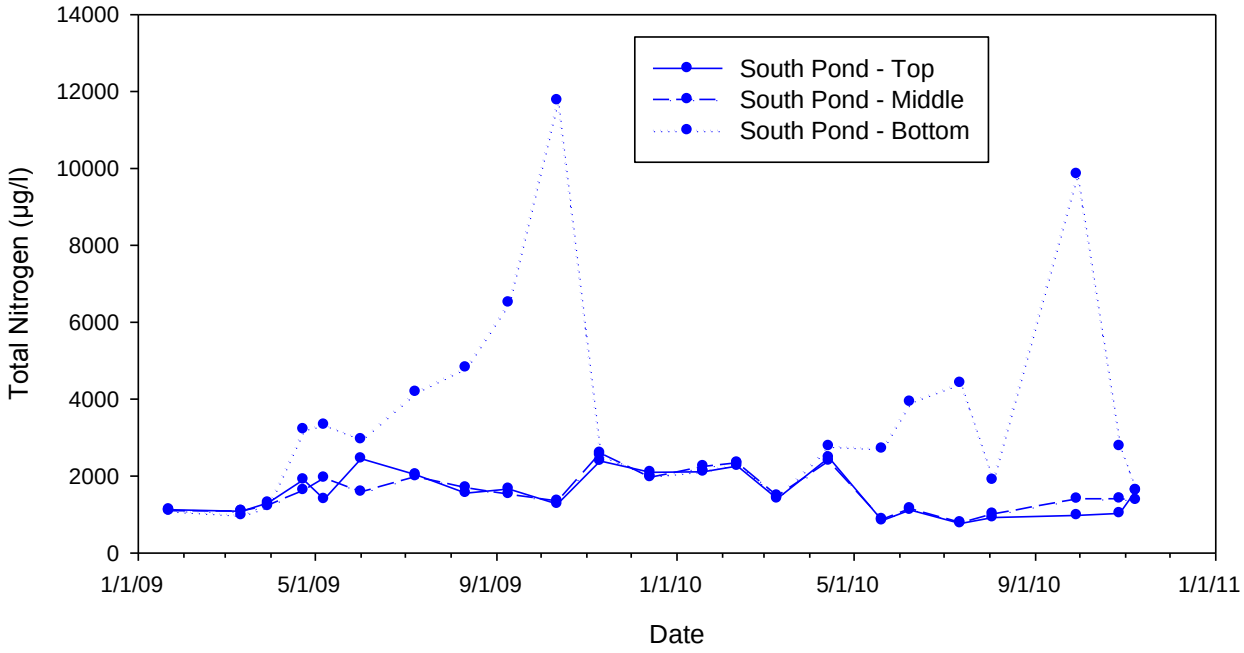


Figure 3-17. Summary of Measured Concentrations of Total Nitrogen in the South Pond.

A graphical summary of measured concentrations of SRP and total phosphorus in the South Pond during the field monitoring program is given on Figure 3-18. In general, SRP concentrations at the top and middle monitoring sites exhibit similar low concentrations. Periods of elevated SRP concentrations were observed in the bottom samples on a seasonal basis, similar to the seasonal trends exhibited by alkalinity and ammonia. The observed seasonal peaks in SRP in bottom portions of the pond suggest a significant level of internal recycling, although additional influx of SRP from a groundwater source is also possible.

A similar pattern appears to occur for concentrations of total phosphorus. Total phosphorus concentrations at the top and middle monitoring sites are virtually identical. Seasonal increases in total phosphorus occur which mimic closely the observed increases in SRP. SRP is the primary phosphorus form released as a result of internal recycling.

During the field monitoring program, central portions of the South Pond typically maintained relatively good water clarity with no evidence of significant algal blooms. However, water quality problems were frequently observed in shoreline areas of the South Pond, particularly along the northern and southern shorelines. Photographs of the observed water quality problems in the shoreline areas of the South Pond are given on Figure 3-19. Algal blooms in these areas were a relatively common occurrence, particularly along the southern shoreline of the pond which received inflows from construction activities related to the school site located south of the South Pond. A discussion of the chemical characteristics of inflows from the construction activities is given in a subsequent section. However, it is obvious that the inflows from the construction introduced additional nutrients into the South Pond which contributed to the observed algal blooms and water quality issues.

Algal blooms were also observed along the northern shoreline of the pond, particularly in the vicinity of the outfall structure. Several sources are possible for additional nutrient inflows in this area, including decomposition of the extensive vegetation that existed in this area prior to complete filling of the South Pond, and influx of shallow groundwater along the perimeter of the pond.

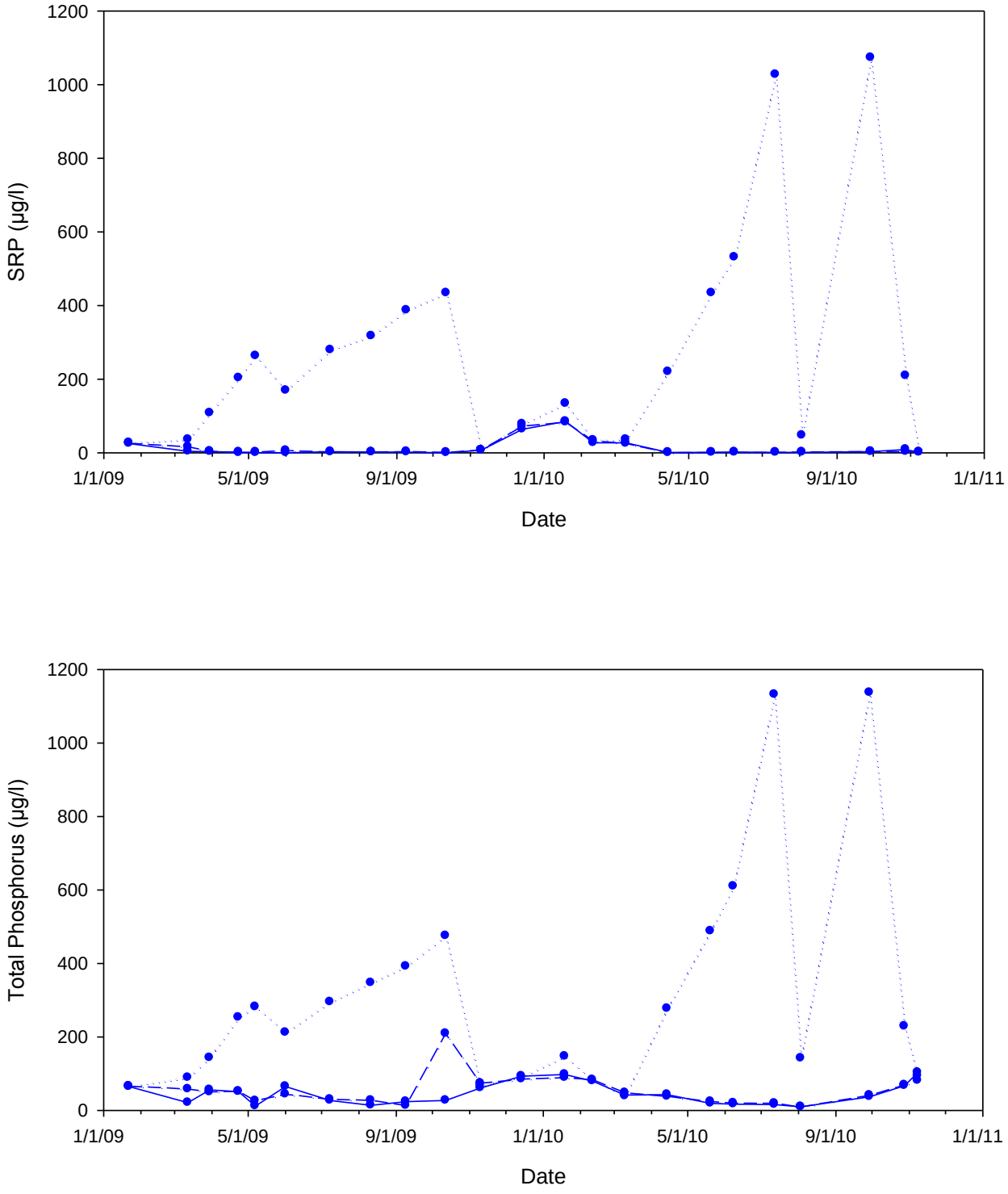


Figure 3-18. Summary of Measured Concentrations of SRP and Total Phosphorus in the South Pond.

Figure 3-19. Observed Water Quality Problems in Shoreline Areas of the South Pond.

3.2.2.2 North Pond

A tabular summary of mean characteristics of surface water samples collected in the North Pond is given on Table 3-19. Surface water within the North Pond was well buffered, with mean alkalinity values in excess of 100 mg/l. Measured alkalinity values are relatively similar at the top and middle sites, with a 30% increase in alkalinity in the bottom samples. Increases in alkalinity were also observed in the South Pond in the bottom samples and suggest that both the North and South Ponds are impacted by a high alkalinity groundwater source. Surface water within the North Pond was also moderately colored, with mean color concentrations ranging from 38-40 Pt-Co units. An increase in color concentrations was observed in the bottom samples, although substantially lower than observed in the South Pond.

TABLE 3-19

MEAN CHARACTERISTICS OF SURFACE WATER SAMPLES COLLECTED IN THE NORTH POND

PARAMETER	UNITS	MEAN VALUE BY SAMPLE DEPTH		
		Top	Middle	Bottom
Alkalinity	mg/l	108	107	137
NH_3	µg/l	194	263	2082
NO_X	µg/l	82	82	80
Diss. Org. Nitrogen	µg/l	935	880	901
Particulate Nitrogen	µg/l	371	398	441
Total Nitrogen	µg/l	1582	1623	3504
SRP	µg/l	13	14	265
Diss. Org. Phosphorus	µg/l	8	8	18
Particulate Phosphorus	µg/l	27	36	31
Total Phosphorus	µg/l	47	59	314
Turbidity	NTU	8.0	5	22.4
Color	Pt-Co	38	40	72
Chlorophyll-a	mg/m^3	23.7	17.3	--
TN/TP Ratio	--	34	28	11
Number of Samples		22	22	22

In general, measured nitrogen concentrations in the water column of the North Pond appear to be slightly higher than values measured in the South Pond. Moderately elevated concentrations of ammonia were observed in the top and middle samples, with relatively low levels of NO_x. The dominant nitrogen species in the North Pond is clearly dissolved organic nitrogen which comprises approximately 50-60% of the total measured nitrogen. Approximately 20-25% of the measured total nitrogen is contributed by particulate nitrogen. The measured total nitrogen concentrations in the top and middle samples are slightly elevated compared with values commonly observed in urban lakes.

A substantial increase in ammonia concentrations was observed in the bottom sample compared with values measured at the top and middle sites. Ammonia concentrations increased approximately 8-fold from the middle monitoring site to the bottom monitoring site. Measured concentrations in bottom samples for the remaining nitrogen species appear to be similar to values measured in the top and middle locations. However, total nitrogen concentrations more than doubled between the middle site and bottom site, primarily resulting from the substantial increases in ammonia. Release of ammonia is common in stratified lakes with anoxic sediments.

In general, measured concentrations of phosphorus species appear to be somewhat higher in the North Pond than observed in the South Pond. Relatively elevated levels of SRP, in excess of 10 μg/l, were observed at the top and middle sites. Relatively high concentrations of particulate phosphorus were also observed at these sites, presumably resulting from algal biomass. Overall, the observed total phosphorus concentrations (ranging from 47-59 μg/l) are typical of values observed in eutrophic lake systems.

A substantial increase in SRP concentration was observed in the North Pond bottom samples compared with the top and middle locations. A 2-fold increase in dissolved organic phosphorus was also observed in the bottom samples. Overall, the mean total phosphorus concentration of 314 μg/l in the bottom samples is approximately 5-6 times higher than concentrations measured in the top and middle sites.

Calculated TN/TP ratios for the North Pond are provided near the bottom of Table 3-19. The calculated ratios suggest that the North Pond is phosphorus-limited, at least at the top and middle sites.

A graphical summary of measured concentrations of alkalinity in the North Pond during the field monitoring program is given on Figure 3-20. In general, measured concentrations of alkalinity in the North Pond are very similar to corresponding measurements conducted in the South Pond. Alkalinity measurements at the top and middle monitoring sites are very similar during most of the monitoring events, ranging from approximately 80-130 mg/l. Elevated levels of alkalinity in bottom portions of the North Pond were observed over the period from March-December 2009 and from April-October 2011 which closely matches the period of elevated alkalinity measured in the South Pond. This behavior suggests that the processes resulting in increases in alkalinity in the bottom samples are similar within the two ponds.

A graphical summary of measured concentrations of ammonia and NO_x in the North Pond is given on Figure 3-21. In general, low levels of both ammonia and NO_x were observed in the North Pond during the field monitoring program. Measured ammonia concentrations were virtually identical at the top and middle monitoring locations, with substantially elevated ammonia concentrations observed in the bottom samples on a seasonal basis. The periods of elevated ammonia concentrations in bottom portions of the North Pond are virtually identical to the periods of elevated ammonia concentrations observed in the South Pond.

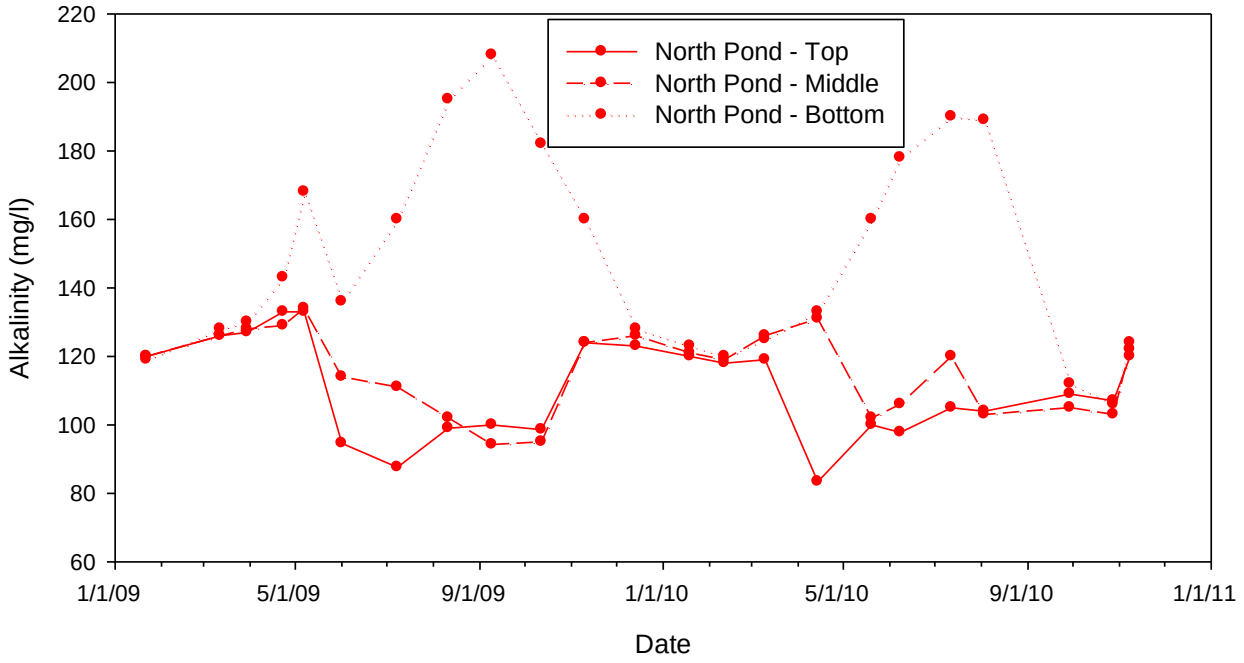


Figure 3-20. Summary of Measured Concentrations of Alkalinity in the North Pond.

With the exception of only one monitoring date, measured concentrations of NO_x were virtually identical at the top, middle, and bottom monitoring locations. A substantial increase in NO_x concentrations in the North pond was observed over the period from November 2009-April 2010 which mimics the elevated levels of NO_x observed in the South Pond over the same period. Similar shapes of the NO_x concentration plots for the two ponds suggest that a similar source has impacted both ponds and caused the observed elevated NO_x levels. This behavior eliminates external inputs as a source since the two ponds receive significantly different inputs. As a result, the elevated NO_x concentrations appear to be linked to a potential groundwater influx into the pond.

A graphical summary of measured concentrations of total nitrogen in the North Pond is given on Figure 3-22. In general, measured total nitrogen concentrations in the North Pond range from approximately 1000-2000 μg/l at the top and middle monitoring sites throughout the field monitoring program. Seasonal increases in total nitrogen in bottom portions of the pond were observed which appear to be closely related to the observed increases in ammonia.

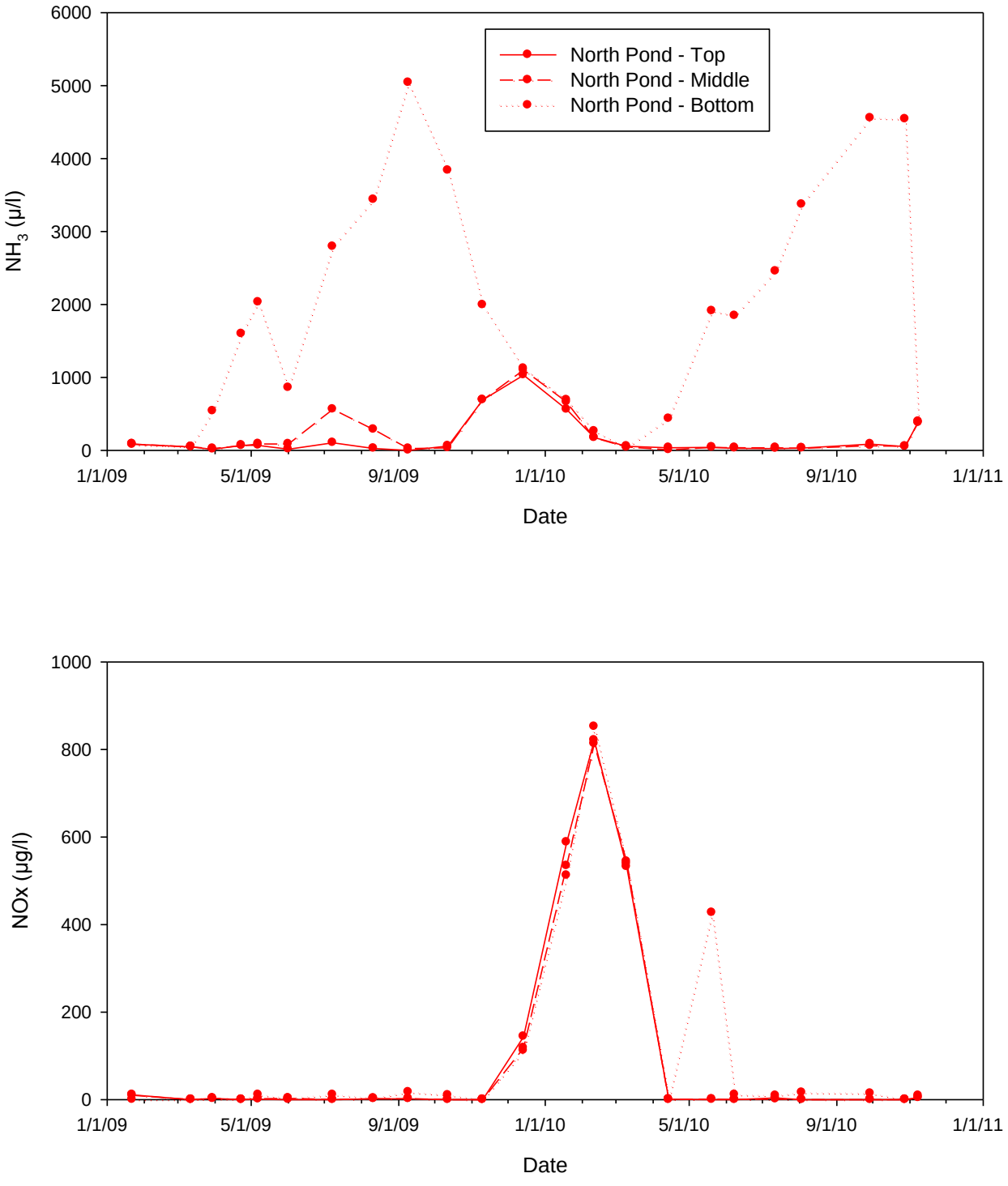


Figure 3-21. Summary of Measured Concentrations of Ammonia and NO_x in the North Pond.

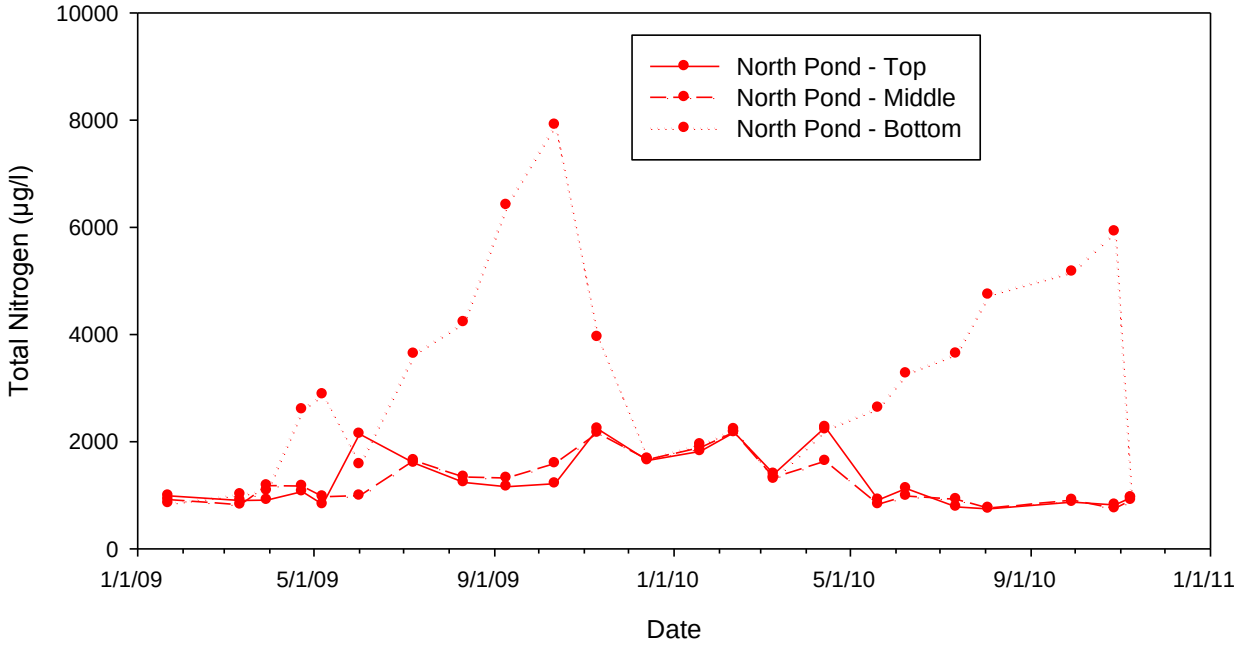


Figure 3-22. Summary of Measured Concentrations of Total Nitrogen in the North Pond.

A graphical summary of measured concentrations of SRP and total phosphorus in the North Pond is given on Figure 3-23. Measured SRP concentrations at the top and middle monitoring sites in the North Pond appear to be virtually identical throughout the field monitoring program. However, elevated levels of SRP were observed in bottom portions of the North Pond on a seasonal basis, although the observed concentrations in the North Pond appear to be somewhat lower than concentrations observed in bottom portions of the South Pond.

A similar pattern is also apparent for measured total phosphorus concentrations in the North Pond. Relatively similar total phosphorus concentrations were observed at the top and middle monitoring sites, with the majority of measured values ranging from approximately 10-50 µg/l. The observed seasonal increases in total phosphorus are related to the increases in SRP.

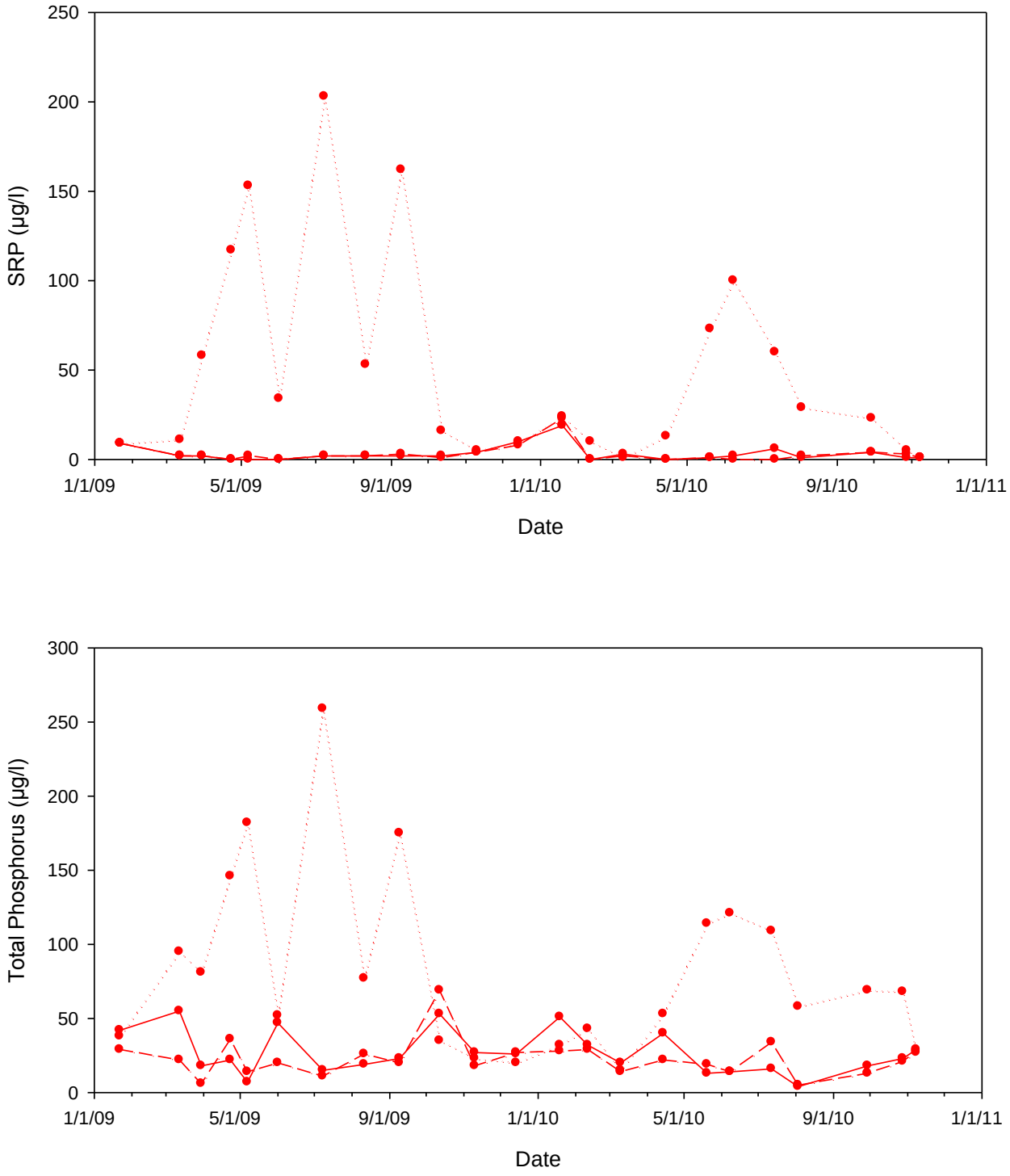


Figure 3-23. Summary of Measured Concentrations of SRP and Total Phosphorus in the North Pond.

3.3 Chemical Characteristics of Monitored Inputs and Outputs

A summary of sample collection activities conducted at the Club II RSF site from December 2008-November 2010 is given in Table 3-20. A total of 79 flow-weighted composite inflow samples was collected at the channel inflow site (Site 1), with 13 flow-weighted composite runoff samples collected from the Brisson Avenue drainage swale system, and 77 flow-weighted composite samples collected at the pond outfall. A total of 28 composite samples was collected to characterize bulk precipitation inputs, with 14 samples collected for groundwater seepage. A total of 69 surface water samples was collected in the South Pond, with 66 samples collected in the North Pond. A complete listing of the results of laboratory analyses conducted on inflow, outflow, bulk precipitation, groundwater seepage, and surface water samples is given in Appendix D.

TABLE 3-20

SUMMARY OF SAMPLE COLLECTION PERFORMED AT THE CLUB II RSF SITE

SAMPLE TYPE	NUMBER OF SAMPLES COLLECTED
Channel Inflow (Site 1)	79
Brisson Avenue (Site 2)	13
Pond Outfall (Site 3)	77
Pond Samples	South: 69; North: 66
Bulk Precipitation	58
Vertical Field Profiles	South: 60; North: 59
Groundwater Seepage	14

3.3.1 Pond Inflows

Direct inflows into the Club II wet detention pond were monitored at the primary channel inflow (Site 1) and the Brisson Avenue drainage swale system (Site 2). A complete listing of the characteristics of inflow samples collected at the primary channel inflow (Site 1) is given in Appendix D.1, with the characteristics of runoff inflows from the Brisson Avenue swale system (Site 2) provided in Appendix D.2. A discussion of the chemical characteristics of inflows at each of these sites is given in the following sections.

3.3.1.1 Channel Inflow (Site 1)

A statistical summary of the chemical characteristics of inflow samples collected at the channel inflow site (Site 1) from December 2008-November 2010 is given in Table 3-21. Inputs into the pond from the primary inflow channel were slightly acidic in pH, with a mean pH value of 6.54 and measured values ranging from 5.97-7.13. Measured pH values in this range are

slightly lower than commonly observed in urban drainage systems and are likely a result of the large wetland system immediately upstream from the pond which provides detention for the inflows prior to entering the pond. Inflows into the pond from the primary channel were poorly buffered, with a mean alkalinity of only 22.1 mg/l. The measured alkalinity values at this site are somewhat lower than alkalinity values commonly observed in urban areas and are also likely related to detention of the runoff inflows in the upstream wetland. Measured conductivity values also appear to be relatively low, with a mean conductivity of only 119 µmho/cm.

TABLE 3-21

SUMMARY OF LABORATORY MEASUREMENTS CONDUCTED ON PRIMARY CHANNEL INFLOW (SITE 1) SAMPLES COLLECTED FROM DECEMBER 2008-NOVEMBER 2010 (n = 79 samples)

PARAMETER	UNITS	MINIMUM VALUE	MAXIMUM VALUE	LOG-NORMAL MEAN
pH	s.u.	5.97	7.13	6.54
Conductivity	µmho/cm	87	364	119
Alkalinity	mg/l	14.6	39.4	22.1
NH_3	µg/l	2	258	28
NO_X	µg/l	2	433	18
Diss. Org N	µg/l	68	1381	601
Part N	µg/l	11	2747	219
Total N	µg/l	342	3183	1000
SRP	µg/l	1	137	10
Diss. Org P	µg/l	1	253	6
Part P	µg/l	3	447	30
Total P	µg/l	18	471	60
Turbidity	NTU	1.4	121	8.0
Color	Pt-Co	116	367	217
TSS	mg/l	1.0	217	15.0

Low levels of inorganic nitrogen species were observed at the primary channel inflow, with a mean ammonia concentration of only 28 µg/l and a mean NO_x concentration of 18 µg/l. The dominant nitrogen species present at this site was dissolved organic nitrogen which comprised approximately 60% of the measured total nitrogen. Particulate nitrogen concentrations measured at this site were somewhat lower than commonly observed in urban runoff, presumably due to settling of particulate matter in the upstream wetland prior to entering the pond. The overall mean total nitrogen concentration of 1000 µg/l is substantially lower than nitrogen levels commonly observed in urban runoff but typical of discharges from wetland systems.

Low levels of phosphorus species were observed in the primary channel inflow. The mean soluble reactive phosphorus (SRP) concentration of 10 μg/l is substantially lower than SRP concentrations commonly observed in urban runoff. The dominant phosphorus species measured at the site was particulate phosphorus which comprised approximately 50% of the total measured phosphorus. The mean total phosphorus concentration of 60 μg/l is substantially lower than total phosphorus concentrations commonly observed in urban areas and is also likely related to pre-treatment provided by the upstream wetland area. Low levels of TSS and turbidity were also measured at the primary inflow site, although inflow at this site was highly colored, with a mean color concentration of 217 Pt-Co units.

3.3.1.2 Brisson Avenue Drainage Swale (Site 2)

A summary of laboratory measurements conducted on Brisson Avenue drainage system inflow samples (Site 2) over the period from December 2008-November 2010 is given in Table 2-22. Runoff inputs from the swale drainage system were approximately neutral in pH, with a mean pH of approximately 6.68. Inflows from this site were poorly buffered, with a mean alkalinity of only 36.9 mg/l. Measured conductivity values at this site also appeared to be somewhat lower than values commonly observed in urban runoff.

Inflows from the Brisson Avenue drainage system were characterized by low levels of inorganic nitrogen species, with a mean ammonia concentration of 94 μg/l and a mean NO_x concentration of 33 μg/l. The dominant nitrogen species present at this site was dissolved organic nitrogen which comprised approximately 60% of the total measured nitrogen. Approximately 20% of the total nitrogen was comprised of particulate nitrogen, with the remainder contributed by ammonia and NO_x. The mean total nitrogen concentration of 2074 μg/l is typical of nitrogen concentrations commonly observed in urban runoff.

Elevated levels of phosphorus species were observed at this inflow, particularly for SRP and particulate phosphorus. The mean SRP concentration of 153 μg/l is approximately 15 times higher at this site than SRP concentrations measured in the primary channel inflow (Site 1). Approximately one-third of the total phosphorus was contributed by particulate phosphorus, with a mean concentration of 200 μg/l. The mean total phosphorus concentration of 601 μg/l is substantially higher than phosphorus concentrations commonly observed in urban runoff.

Low to moderate levels of TSS and turbidity were observed at this site, with a mean TSS concentration of 20.1 mg/l and a mean turbidity of 25.6 NTU. These values are slightly lower than concentrations commonly observed in urban runoff and may be related to pre-treatment provided by the swale drainage system. Inputs at this site were highly colored, with a mean color concentration of 159 Pt-Co units.

TABLE 3-22

SUMMARY OF LABORATORY MEASUREMENTS CONDUCTED ON BRISSON AVENUE INFLOW (SITE 2) SAMPLES COLLECTED FROM DECEMBER 2008-NOVEMBER 2010 (n = 13 samples)

PARAMETER	UNITS	MINIMUM VALUE	MAXIMUM VALUE	LOG-NORMAL MEAN
pH	s.u.	6.28	7.31	6.68
Conductivity	µmho/cm	70	261	174
Alkalinity	mg/l	10.6	89.8	36.9
NH_3	µg/l	19	282	94
NO_X	µg/l	3	582	33
Diss. Org N	µg/l	235	2647	1211
Part N	µg/l	107	1142	435
Total N	µg/l	827	3848	2074
SRP	µg/l	13	779	153
Diss. Org P	µg/l	5	663	44
Part P	µg/l	34	803	200
Total P	µg/l	294	1324	601
Turbidity	NTU	3.8	783	25.6
Color	Pt-Co	32	488	159
TSS	mg/l	3.1	596	20.1

3.3.1.3 Miscellaneous Inputs

In addition to the primary inflows discussed previously, multiple small additional inflows occurred into the South Pond during the field monitoring program as a result of the construction activities related to the school site on the south side of the pond. These inflows were primarily associated with dewatering activities related to construction of the on-site stormwater management systems. The observed inflows occurred during a relatively short period from February-April 2010 and consisted primarily of 4-6 inch diameter pipes fed by dewatering activities. Since these inflows represented relatively minor and highly variable hydrologic inputs, the volumetric inflow was not quantified by ERD. However, samples of the inflow into the pond were collected on a periodic basis at four separate inflows identified as Site 4, Site 5, Site 6, and Site 7. Each of these sites represents a temporary point of inflow from the school site to the south side of the South Pond.

A complete listing of the chemical characteristics of miscellaneous inflow samples collected over the period from February-April 2010 is given in Appendix D.3. A tabular summary of mean characteristics of miscellaneous inflows to the South Pond at each of the four sites is given on Table 3-23. A total of nine inflow samples was collected at Sites 4 and 5, with two samples collected at Sites 6 and 7. Inflows into the South Pond at Sites 4 and 5 were well buffered, with mean alkalinity values in excess of 100 mg/l, and characterized by elevated levels of NO_x and total nitrogen. Inflows at these sites were also highly colored, with elevated turbidity values.

TABLE 3-23

SUMMARY OF MEAN CHARACTERISTICS OF MISCELLANEOUS INFLOWS TO THE SOUTH POND FROM FEBRUARY – APRIL 2010

PARAMETER	UNITS	MEAN VALUE BY SITE			
		Site 4	Site 5	Site 6	Site 7
pH	s.u.	7.03	6.94	7.03	6.78
Conductivity	µmho/cm	323	406	224	161
Alkalinity	mg/l	103	144	45.3	41
NH_3	µg/l	102	146	73	37
NO_X	µg/l	765	499	12	20
Diss. Org. Nitrogen	µg/l	921	1011	1203	1007
Particulate Nitrogen	µg/l	205	102	162	342
Total Nitrogen	µg/l	2252	1894	1506	1451
SRP	µg/l	10	9	16	141
Diss. Org. Phosphorus	µg/l	10	8	65	49
Particulate Phosphorus	µg/l	48	46	96	54
Total Phosphorus	µg/l	73	69	179	254
Turbidity	NTU	61.7	61.3	12.6	2.9
Color	Pt-Co	169	137	122	228
Number of Samples		9	9	2	2

In contrast, inflows at Sites 6 and 7 were characterized by low levels of alkalinity and NO_x, with moderate levels of total nitrogen. However, these sites were characterized by substantially elevated levels of phosphorus species, with mean total phosphorus concentrations ranging from 179-254 µg/l. Inflows at these sites were also highly colored, although relatively low in turbidity.

The overall impacts of these inflows on the hydrologic and nutrient budgets for the South Pond are difficult to determine since it was not possible to quantify the inflow volumes. However, it is interesting to note that the observed increases in NO_x concentrations in the South Pond correspond closely to the period during which these miscellaneous inflows occurred, suggesting that these inflows may be the source of the elevated NO_x concentrations. However, at the very least, these inflows created areas of poor water quality characteristics and significant algal blooms along the south side of the South Pond.

3.3.2 Bulk Precipitation

A total of 58 bulk precipitation samples was collected at the Club II RSF site during the 24-month monitoring program. A complete listing of the characteristics of each of the monitored bulk precipitation samples is given in Appendix D.4.

A summary of laboratory measurements conducted on bulk precipitation samples collected at the Club II RSF site from December 2008-November 2010 is given on Table 3-24. Bulk precipitation samples were slightly acidic, with a mean pH value of approximately 5.83 which is typical of pH values commonly observed in urban precipitation. Bulk precipitation collected at the site was poorly buffered, with a mean alkalinity of only 3.4 mg/l, with extremely low conductivity values in most samples.

TABLE 3-24

SUMMARY OF LABORATORY MEASUREMENTS CONDUCTED ON BULK PRECIPITATION SAMPLES COLLECTED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010 (n = 28 samples)

PARAMETER	UNITS	MINIMUM VALUE	MAXIMUM VALUE	LOG-NORMAL MEAN
pH	s.u.	4.94	7.18	5.83
Conductivity	µmho/cm	6	226	26
Alkalinity	mg/l	0.1	30.0	3.4
NH_3	µg/l	6	5995	239
NO_X	µg/l	<3	6387	211
Diss. Org N	µg/l	2	4098	254
Part N	µg/l	4	1377	193
Total N	µg/l	137	8745	1315
SRP	µg/l	1	1017	26
Diss. Org P	µg/l	1	683	7
Part P	µg/l	1	291	17
Total P	µg/l	3	1812	77
Turbidity	NTU	0.8	9.6	2.0
Color	Pt-Co	1	121	7
TSS	mg/l	0.4	56	4.6

Measured nitrogen concentrations in the bulk precipitation samples ranged from low to elevated during the field monitoring program. Bulk precipitation collected at the site was characterized by moderate levels of ammonia, NO_x, dissolved organic nitrogen, and particulate nitrogen. In general, the mean total nitrogen concentration of 1315 µg/l measured in bulk precipitation at the site is similar to nitrogen concentrations measured by ERD at the Elder Creek site from April 2009-March 2010.

Measured total phosphorus concentrations in bulk precipitation were also low to moderate in value. The dominant phosphorus species in bulk precipitation was SRP which contributed approximately one-third of the total phosphorus measured at the site. The mean total phosphorus concentration of 77 µg/l in bulk precipitation is similar to phosphorus concentrations commonly observed in precipitation collected from urban areas and lower than the concentration measured at the Elder Creek site.

In general, bulk precipitation collected at the Club II pond site exhibited low concentrations for turbidity, color, and TSS, with values typical of precipitation measured in other parts of Central Florida.

3.3.3 Groundwater Seepage

A total of 14 groundwater seepage samples was collected at the Club II RSF site during the field monitoring program. A complete listing of the characteristics of the collected groundwater seepage samples is given in Appendix D.5. A summary of laboratory measurements conducted on groundwater seepage samples collected at the Club II South Pond is given in Table 3-25.

TABLE 3-25

SUMMARY OF LABORATORY MEASUREMENTS CONDUCTED ON GROUNDWATER SEEPAGE SAMPLES COLLECTED AT THE CLUB II RSF SITE FROM AUGUST 2010-FEBRUARY 2011 (n = 14 samples)

PARAMETER	UNITS	MINIMUM VALUE	MAXIMUM VALUE	LOG-NORMAL MEAN
pH	s.u.	7.05	8.19	7.52
Conductivity	µmho/cm	372	604	455
Alkalinity	mg/l	98.2	241	139
Total N	µg/l	1042	6116	1486
Total P	µg/l	16	829	58

Groundwater seepage entering the South Pond was neutral to slightly alkaline in pH, with a log-normal mean pH value of 7.52. Measured conductivity values in the seepage influx ranged from 372-604 µmho/cm, with an overall mean of 455 µmho/cm. Seepage inputs were well buffered, with an overall mean alkalinity of 139 mg/l.

Low to elevated concentrations of total nitrogen were measured in seepage inflow, with an overall mean total nitrogen concentration of 1486 µg/l. Low to elevated concentrations of total phosphorus were also observed, with an overall log-normal mean of 58 µg/l. The nutrient values summarized in Table 3-25 are assumed to be characteristic of seepage inputs into the South Pond.

3.3.4 Pond Outflow

A total of 77 flow-weighted composite outflow samples was collected at the Club II South Pond during the 24-month monitoring program. A complete listing of the characteristics of each of the individual outflow samples is given in Appendix D.5.

A summary of laboratory measurements conducted on pond outflow samples is given on Table 3-26. The collected outflow samples were slightly alkaline in pH, with a mean pH value of approximately 7.70. Discharges from the pond were well buffered, with a mean alkalinity of 100 mg/l, and conductivity values similar to those observed in other wet detention ponds.

TABLE 3-26

SUMMARY OF LABORATORY MEASUREMENTS CONDUCTED ON POND OUTFALL (SITE 3) SAMPLES COLLECTED AT THE CLUB II RSF SITE FROM DECEMBER 2008-NOVEMBER 2010

PARAMETER	UNITS	MINIMUM VALUE	MAXIMUM VALUE	LOG-NORMAL MEAN
pH	s.u.	7.12	8.89	7.70
Conductivity	µmho/cm	315	456	382
Alkalinity	mg/l	82.6	123	100
NH_3	µg/l	12	1392	89
NO_X	µg/l	2	1078	61
Diss. Org N	µg/l	196	1681	756
Part N	µg/l	40	1871	378
Total N	µg/l	771	3467	1617
SRP	µg/l	1	89	6
Diss. Org P	µg/l	1	111	7
Part P	µg/l	6	119	35
Total P	µg/l	17	216	57
Turbidity	NTU	0.3	32	4.5
Color	Pt-Co	26	66	40
TSS	mg/l	0.3	42	5.9

Discharges from the pond were characterized by low levels of inorganic nitrogen species, with a mean ammonia concentration of 89 µg/l and a mean NO_x concentration of 61 µg/l. Dissolved organic nitrogen appears to be the dominant nitrogen species in discharges from the pond, with a mean value of 756 µg/l comprising approximately 48% of the nitrogen in the discharge. Particulate nitrogen comprised approximately 20% of the total nitrogen discharged from the pond. The mean total nitrogen concentration of 1617 µg/l appears to be relatively high in value compared with discharge concentrations observed by ERD in other wet detention pond systems.

Relatively low levels of phosphorus species were observed in discharges from the South Pond. The mean SRP concentration of 6 µg/l is extremely low in value and similar to concentrations observed in discharges from other wet detention ponds. Dissolved organic phosphorus within the pond was low in value, with a mean of only 7 µg/l. The dominant phosphorus species within the pond appears to be particulate phosphorus, which comprised more than half of the total phosphorus measured in the discharges. The overall mean total phosphorus concentration of 57 µg/l is slightly higher than phosphorus concentrations commonly observed in discharges from wet detention ponds.

In general, relatively low levels of turbidity, color, and TSS were observed in discharges from the pond. Measured concentrations for these parameters are similar to values commonly observed in wet detention pond discharges.

3.3.5 Comparison of Inflow and Outflow Characteristics

Statistical comparisons of the chemical characteristics of inflow and outflow samples collected at the Club II pond site were developed for general parameters, nitrogen species, and phosphorus species in the form of Tukey box plots, also often called “box and whisker plots”. The bottom line of the box portion of each plot represents the lower quartile, with 25% of the data points falling below this value. The upper line of the box represents the 75% upper quartile, with 25% of the data falling above this value. The **blue** horizontal line within the box represents the median value, with 50% of the data falling both above and below this value. The **red** horizontal line within the box represents the mean of the data points. The vertical lines, also known as "whiskers", represent the 5 and 95 percentiles for the data sets. Individual values which fall outside of the 5-95 percentile range, sometimes referred to as “outliers”, are indicated as **red dots**. Box and whisker plots are provided for the channelized inflow canal (Site 1), the Brisson Avenue drainage system (Site 2), pond outflow, and bulk precipitation. Seepage measurements are also included for parameters which were included in the seepage analyses.

A statistical comparison of general parameters measured in significant inflows and outflow at the Club II South Pond site during the field monitoring program is given on Figure 3-24. In general, measured pH values in the pond inflows appear to be relatively consistent in value and neutral to slightly acidic in pH. Bulk precipitation samples were characterized by a substantially lower pH value. Relatively similar pH values were observed for the pond outflow and seepage inputs, both of which were characterized by slightly alkaline pH values.

Measured alkalinity values in the inflows and outflows were highly variable. Inflows monitored at Sites 1 and 2 were poorly buffered, with a relatively low degree of variability observed in alkalinity measurements at Site 1 and a higher degree of variability observed at Site 2. Bulk precipitation samples were poorly buffered. Measured alkalinity values in groundwater seepage samples were well buffered, with the majority of values in excess of 100 mg/l. However, a substantial increase in alkalinity is apparent in the outflow samples, with approximately a 2-3 fold increase in concentrations compared with the measured inflows at Sites 1 and 2.

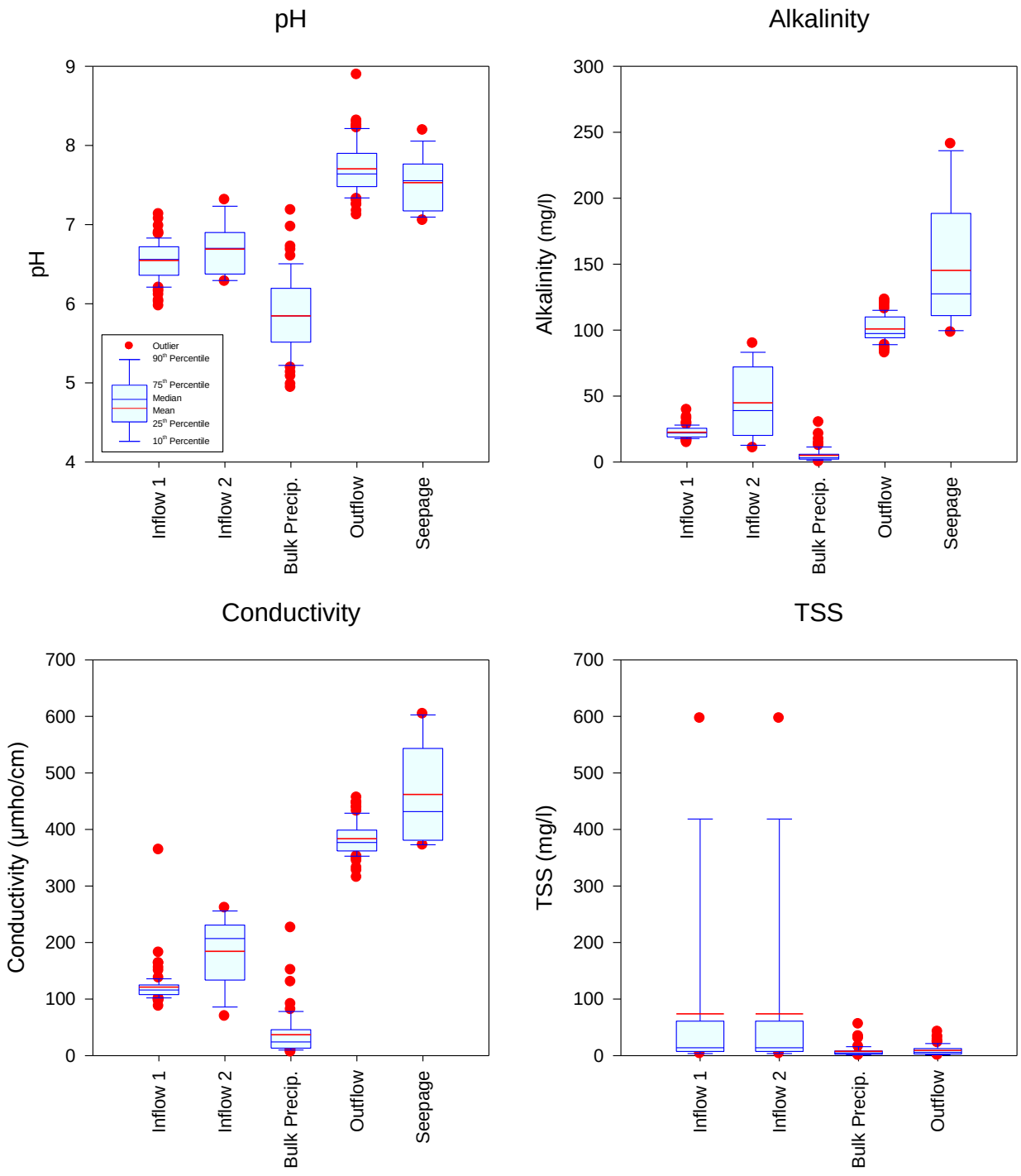


Figure 3-24. Statistical Comparison of General Parameters Measured in Significant Inflows and Outflows at the South Pond.

Moderate levels of conductivity were measured in the pond inflows at Sites 1 and 2, with low conductivity values in the bulk precipitation samples. Substantially higher conductivity values were observed in the groundwater seepage, with the majority of measurements ranging from approximately 400-550 μmho/cm. Conductivity measurements at the pond outflow were highly consistent, with an average of approximately 100 μmho/cm.

Measured TSS concentrations at Sites 1 and 2 were highly variable and characterized by a few highly elevated values. Measured TSS concentrations in bulk precipitation and in the pond outflow were typically low in value and consistent from event to event.

A statistical comparison of nitrogen species measured in the pond inflows and outflow is given on Figure 3-25. Low levels of ammonia were observed in each of the primary inflows at Sites 1 and 2. In contrast, highly variable concentrations of ammonia were observed in bulk precipitation throughout the monitoring program which was characterized by a handful of extremely elevated values. Relatively low concentrations of ammonia were observed at the pond outflow, although concentrations in excess of 1000 μg/l were observed during a few isolated events.

Extremely low levels of NO_x were measured at the canal inflow at Site 1 during the field monitoring program. Slightly higher concentrations of NO_x were measured at Site 2 along the Brisson Avenue drainage system. NO_x concentrations in bulk precipitation were highly variable, although the majority of measured concentrations were approximately 200 μg/l or less. Measured NO_x concentrations at the pond outfall were typically low in value, with a few elevated measurements in excess of 500 μg/l.

In general, particulate nitrogen concentrations were moderate in value at each of the measured inflows and outflows, with substantially elevated concentrations observed at each inflow and outflow site during a few monitored events.

Measured total nitrogen concentrations in the inflows and outflows were highly variable, with relatively consistent nitrogen concentrations observed at Site 1 and higher concentrations and a higher degree of variability observed at Site 2. A large degree of variability was observed in measured total nitrogen concentrations in bulk precipitation, with multiple monitoring events exhibiting total nitrogen concentrations in excess of 6000 μg/l. A relatively low degree of variability was observed in total nitrogen concentrations at the pond outfall, although a few elevated concentrations were also observed at this site.

A statistical comparison of phosphorus species measured in pond inflows and outflow samples is given on Figure 3-26. In general, extremely low levels of SRP were measured at the pond inflow at Site 1 and at the pond outflow. SRP concentrations measured at these sites exhibited low degree of variability. However, a substantially higher degree of variability as well as higher concentrations were observed for SRP at Site 2 and in bulk precipitation. A similar pattern is also apparent for dissolved organic phosphorus, with extremely low levels and a low degree of variability observed at Site 1 and the pond outfall, and higher concentrations combined with a high degree of variability observed at Site 2 and in bulk precipitation.

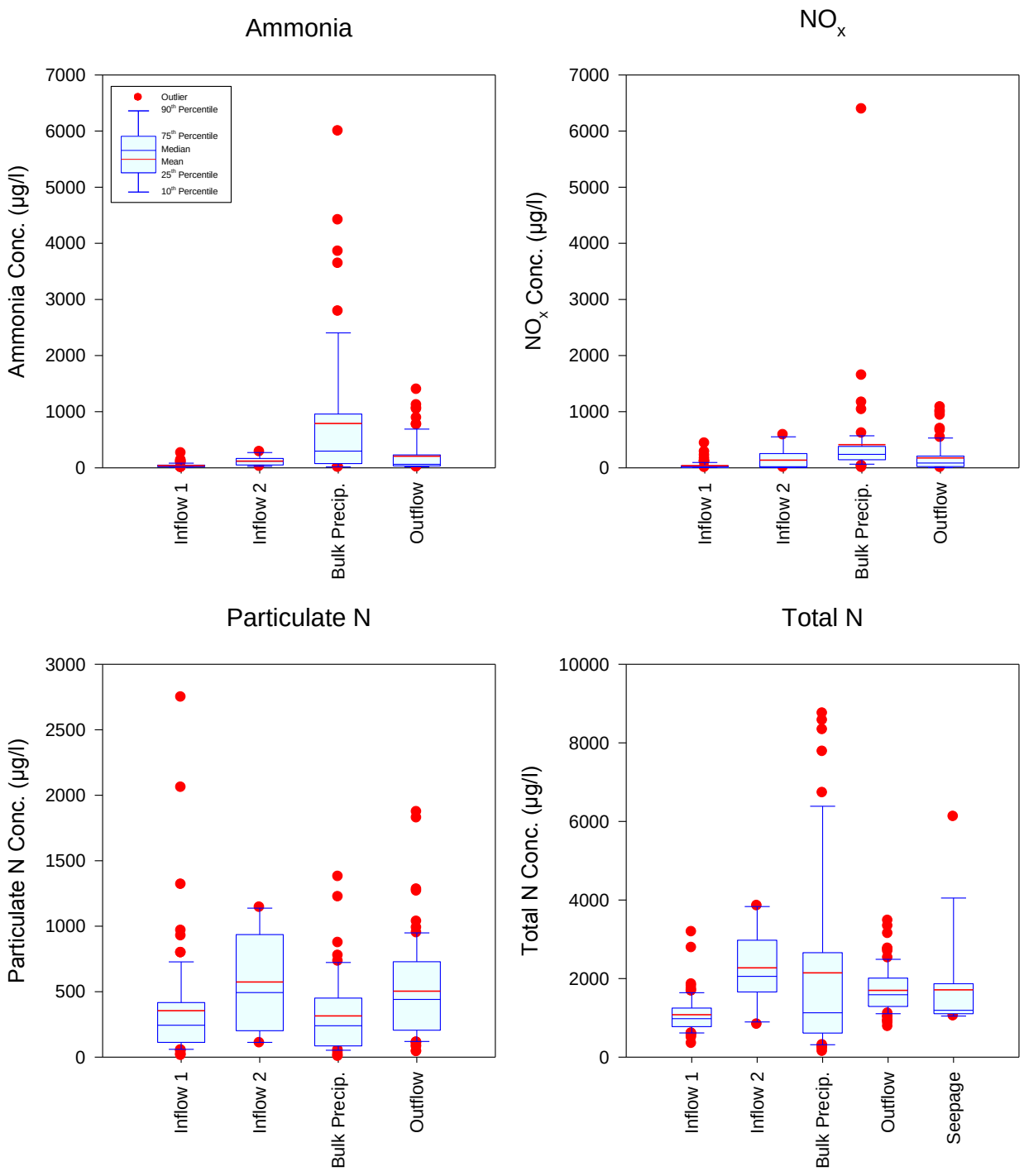


Figure 3-25. Statistical Comparison of Nitrogen Species Measured in Significant Inflows and Outflows at the South Pond.

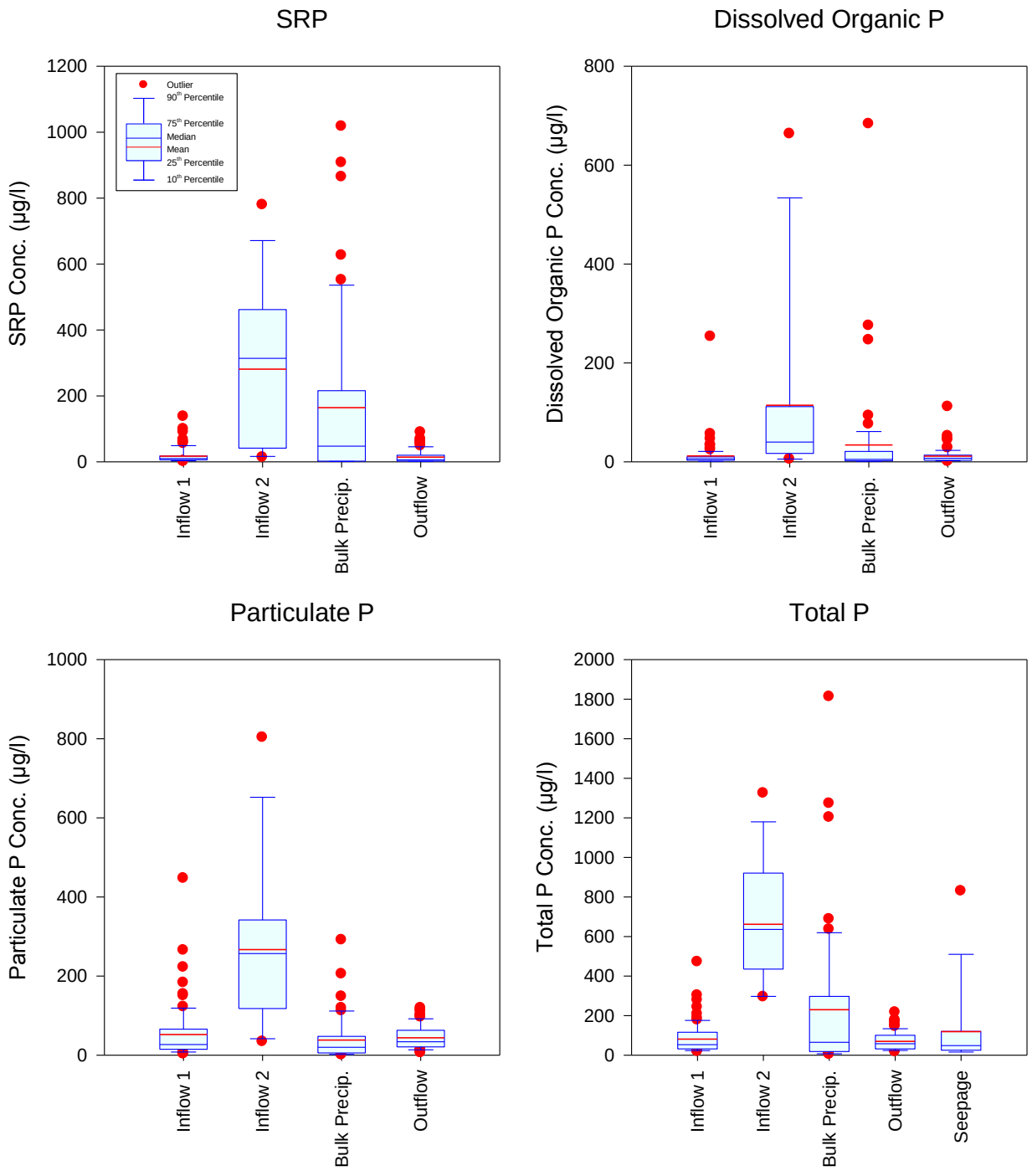


Figure 3-26. Statistical Comparison of Phosphorus Species Measured in Significant Inflows and Outflows at the South Pond.

Relatively low levels of particulate phosphorus were observed at the Site 1 inflow, in bulk precipitation, and the pond outfall. Higher concentrations and a higher degree of variability were observed for particulate phosphorus at Site 2. A similar pattern is apparent for measured total phosphorus concentrations. Total phosphorus concentrations measured at the Site 1 inflow and at the pond outfall were moderate in value with a low degree of variability. In contrast, total phosphorus concentrations measured at Site 2 and in bulk precipitation were characterized by a higher concentration as well as a substantially higher degree of variability. In general, total phosphorus concentrations in groundwater seepage were low in value, although several relatively elevated concentrations were observed in central portions of the pond.

A tabular comparison of weighted inflow and outflow concentrations at the Club II South Pond during the field monitoring program is given in Table 3-27. The weighted inflow concentrations are calculated using the measured inputs originating from the main channel inflow at Site 1, the Brisson Avenue drainage system at Site 2, bulk precipitation, and groundwater seepage. The relative significance of the measured inputs is based upon the percentage of the total hydrologic inputs contributed by each of the identified inputs, as summarized on Figure 3-8. Since the chemical characteristics of the unknown input are not known, this input is not included in the comparison of inflow and outflow concentrations. The analysis assumes that 61% of the identified hydrologic inputs into the pond occur through the primary inflow channel at Site 1, with 34% contributed by bulk precipitation, 5% by groundwater seepage, and 0.5% by the Brisson Avenue drainage system. The log-normal mean concentrations for each of the identified inputs are weighted according to the percentage of hydrologic inflow contributed by each identified source. Since only total nitrogen and total phosphorus were measured on the seepage inputs, this analysis assumes that one-third of the total nitrogen is comprised of ammonia, with one-third contributed by NO_x and one-third contributed by dissolved organic nitrogen, with concentrations of particulate nitrogen in the groundwater seepage assumed to be negligible. For phosphorus, it is assumed that approximately 50% of the total phosphorus is contributed by SRP, with the remaining 50% contributed by dissolved organic phosphorus. Weighted inflow concentrations for turbidity, color, and TSS do not include impacts from groundwater seepage since these parameters were not measured on the collected seepage samples.

On a concentration basis, increases in concentrations were observed within the pond for pH, conductivity, and alkalinity, based on a comparison of the measured inflow and outflow concentrations. Measured concentrations of both conductivity and alkalinity increased by a factor of approximately 3-4 times within the pond compared with the measured inputs, suggesting that the unknown inputs have a significant impact on the water quality characteristics within the pond. The most likely source for these additional inputs is an upwelling of groundwater from a deeper aquifer which contains elevated concentrations of both conductivity and alkalinity. These inflows likely occur in isolated pockets in areas of low permeability between the pond bottom and the aquifer layer and reflect an input in addition to the shallow groundwater seepage measured during the study. Increases in concentrations within the pond water were also observed for dissolved organic nitrogen, particulate nitrogen, and total nitrogen within the pond compared with the related inflow concentrations. In general, concentrations at the outfall increased by approximately 50% for each of these parameters. A 30% increase was also observed for particulate phosphorus. The observed increases in particulate phosphorus and particulate nitrogen are likely related to incorporation of the nutrient loadings into algal biomass which is then released through the outfall structure.

TABLE 3-27

COMPARISON OF WEIGHTED INFLOW AND OUTFLOW CONCENTRATIONS AT THE CLUB II SOUTH POND[1]

PARAMETER	UNITS	WEIGHTED INFLOW CONCENTRATION	OUTFLOW CONCENTRATION
pH	s.u.	6.40	7.70
Conductivity	µmho/cm	110	382
Alkalinity	mg/l	22.0	100
NH_3	µg/l	91	89
NO_X	µg/l	76	61
Diss. Org N	µg/l	521	756
Part N	µg/l	206	378
Total N	µg/l	1087	1617
SRP	µg/l	15	6
Diss. Org P	µg/l	7	7
Part P	µg/l	27	35
Total P	µg/l	65	57
Turbidity	NTU	6.4	4.5
Color	Pt-Co	162	40
TSS	mg/l	12.2	5.9

1. Based on measured inputs and outflows

The most obvious explanation for the apparent lack of concentration reductions within the South Pond is the additional significant unknown input which occurs into the pond other than the identified inputs from runoff, bulk precipitation, and groundwater seepage. Based upon the measured chemical characteristics of the pond water and the identified inputs, this additional input appears to be introducing water which is high in alkalinity and soluble nutrient species. This additional input appears to be influencing the observed concentrations within the pond, resulting in apparent increases in concentrations for many of the measured parameters compared with weighted inflow concentrations.

Another possible reason for the apparent lack of concentration reductions within the South Pond is that discharges through the outfall structure may not be representative of overall water quality within the pond. A comparison of mean outflow and pond water column concentrations in the Club II South Pond is given in Table 3-28. The outflow concentrations represent the log-normal mean values for the evaluated parameters during the field monitoring program. The listed pond concentrations reflect the mean of the top and middle samples collected in the South Pond on a biweekly basis. Water collected near the center of the pond appears to have somewhat lower mean concentrations for total nitrogen, particulate nitrogen, SRP, dissolved organic phosphorus, particulate phosphorus, and turbidity.

TABLE 3-28

COMPARISON OF OUTFLOW AND POND WATER COLUMN CONCENTRATIONS AT THE CLUB II SOUTH POND

PARAMETER	UNITS	OUTFLOW CONCENTRATION	POND CONCENTRATION
pH	s.u.	7.70	7.79
Conductivity	µmho/cm	382	438
Alkalinity	mg/l	100	113
NH_3	µg/l	89	171
NO_X	µg/l	61	95
Diss. Org N	µg/l	756	794
Part N	µg/l	378	237
Total N	µg/l	1617	1298
SRP	µg/l	6	3
Diss. Org P	µg/l	7	4
Part P	µg/l	35	18
Total P	µg/l	57	26
Turbidity	NTU	4.5	4.7
Color	Pt-Co	40	31
TSS	mg/l	5.9	17.5

As indicated on Figure 3-19, the northern and southern shoreline areas of the South Pond exhibited excess algal growth and other water quality problems throughout the field monitoring program. It appears that the observed water quality problems may have influenced the concentrations which discharged from the pond by allowing nutrients and particulate matter, which may not be present in central open portions of the pond, to discharge through the pond outfall. As indicated on Table 3-28, measured concentrations for particulate nitrogen and particulate phosphorus are substantially lower in value in central portions of the pond than observed in the outfall samples. As a result, the characteristics measured at the pond outflow may not be representative of overall water quality characteristics within the South Pond, and a more representative comparison of changes in inflow and outflow concentrations may be obtained by substituting the pond characteristics for the outflow concentrations.

3.4 Mass Inputs and Losses

Mass loadings were calculated for each of the evaluated inputs and losses at the Club II RSF site over the 24-month monitoring program from December 2008-December 2010. Mass inputs into the pond were calculated for inflows at Sites 1 and 2, bulk precipitation, and seepage inputs. Mass losses were calculated for discharges through the pond outfall structure.

Due to the large degree of variability in the hydrologic budget for the pond, mass inputs and losses were calculated on a monthly basis. Information on monthly hydrologic inputs and losses was obtained from the information provided in Table 3-15. Estimates of monthly water quality characteristics were calculated by averaging the water quality data provided in Appendix D for inflow samples, outflow samples, and bulk precipitation on a monthly basis. Samples with collection periods that extended into two months are assumed to be associated with the month representing the largest proportion of the time interval. If samples were not collected at a site during a monthly period for which measurable flow was recorded, the mean concentration for a given parameter is calculated as the mean of concentrations measured during the preceding and following monthly periods. Since groundwater seepage was monitored for only a small portion of the monitoring program, groundwater characteristics are assumed to be constant and equivalent to the mean characteristics summarized on Table 3-25.

A summary of mean monthly concentrations of measured parameters in pond inflow samples collected at Sites 1 and 2 is given on Table 3-29. Mean monthly concentrations are provided for species of nitrogen and phosphorus, as well as TSS. In general, a moderate to high degree of variability is apparent in monthly concentrations measured at the inflow channel at Site 1. In general, measured concentrations for many of the measured nitrogen and phosphorus species appear to be higher during wet season conditions than during dry season conditions. Due to the small number of samples collected at Site 2 along the Brisson Avenue drainage system, monthly values are only available for four months at this site during the monitoring program.

A summary of mean monthly concentrations of nutrients and TSS in bulk precipitation is given on Table 3-30. Monthly concentrations for species of both nitrogen and phosphorus appear to be highly variable throughout the monitoring program. The most elevated levels of both total nitrogen and total phosphorus in bulk precipitation appear to occur during spring and fall conditions, and may be related to leaf fall during these periods.

Mean monthly concentrations for measured parameters in the pond outflow are given on Table 3-31. Measured concentrations in the pond outfall appear to be more consistent in value than observed for the monitored inputs. The most elevated levels of both total nitrogen and total phosphorus appear to occur over the period from December 2009-March 2010 and are likely related to additional loadings into the pond during these periods.

Estimates of monthly mass loadings were calculated for each inflow/outflow and each evaluated parameter during the field monitoring program. Mass loadings were calculated by multiplying the mean monthly concentrations for the pond inflow samples at Sites 1 and 2 (summarized in Table 3-29), bulk precipitation (summarized in Table 3-30), and pond outflow (summarized in Table 3-31) times the estimated monthly hydrologic inputs/losses for each measured input and output (summarized in Table 3-15). A tabular summary of estimated monthly mass inputs into the pond from the primary inflow channel at Site 1 is given in Table 3-32, with monthly inputs from the Brisson Avenue drainage system (Site 2) summarized in Table 3-33, monthly inputs from bulk precipitation summarized in Table 3-34, monthly inputs from groundwater seepage summarized in Table 3-35, and mass losses through the pond outfall structure summarized in Table 3-36.

TABLE 3-29

MEAN MONTHLY CONCENTRATIONS FOR MEASURED PARAMETERS IN POND INFLOW SAMPLES AT SITES 1 AND 2

SITE	YEAR	MONTH	NH_3 (µg/l)	NO_X (µg/l)	DISS. ORG. N (µg/l)	PART. N (µg/l)	TOTAL N (µg/l)	SRP (µg/l)	DISS. ORG. P (µg/l)	PART. P (µg/l)	TOTAL P (µg/l)	TURB. (NTU)	TSS (mg/l)
1	2008	Dec.	37	62	446	254	798	7	70	63	139	7.3	16.4
	2009	Jan.	21	7	527	280	835	9	12	39	61	8.2	14.3
		Feb.	17	10	535	284	847	12	10	13	36	5.9	13.3
		March	107	21	499	466	1093	10	4	66	80	14.4	23.0
		April	83	13	455	277	828	30	6	4	40	10.8	1.0
		May	59	45	980	214	1298	91	18	35	144	7.5	9.8
		June	37	23	933	159	1151	35	3	26	64	9.1	15.9
		July	16	30	750	358	1155	11	5	60	76	34.4	41.7
		Aug.	101	11	540	1674	2325	8	10	272	290	43.4	120.7
		Sept.	32	13	853	445	1343	10	9	78	97	11.9	37.4
		Oct.	55	14	891	619	1580	13	24	79	116	21.3	45.8
		Nov.	No inflow										
		Dec.	48	56	454	328	885	2	8	49	60	11.8	26.0
	2010	Jan.	32	59	497	645	1232	7	3	88	98	11.7	26.3
		Feb.	20	13	680	132	844	5	5	19	30	6.9	12.5
		March	16	7	602	69	694	8	11	14	32	2.2	4.7
		April	51	6	745	141	943	9	6	22	37	3.1	8.1
		May	31	12	627	125	795	8	3	21	31	3.5	8.0
		June	55	232	812	591	1690	36	10	102	147	23.4	41.8
		July	27	20	722	108	877	12	5	12	29	8.2	16.9
		Aug.	46	35	516	190	787	19	20	18	56	5.7	10.6
		Sept.	30	155	437	238	859	11	3	18	32	7.1	10.2
		Oct.	67	50	497	285	899	26	11	27	64	18.0	30.0
		Nov.	No inflow										
	TOTAL:		**39**	**38**	**648**	**354**	**1080**	**17**	**12**	**52**	**81**	**12.2**	**24.4**
2	2009	May	115	187	1209	610	2120	414	88	151	653	38.4	26.7
		June	162	174	2046	871	3253	333	285	227	845	12.4	13.5
		July	73	27	1703	270	2073	52	26	541	618	368.7	250.9
		Dec.	175	40	235	377	827	13	24	257	294	25.0	6.4
	TOTAL:		**121**	**136**	**1441**	**574**	**2271**	**281**	**114**	**267**	**662**	**107.6**	**73.8**

TABLE 3-30

MEAN MONTHLY CONCENTRATIONS FOR MEASURED PARAMETERS IN BULK PRECIPITATION SAMPLES

YEAR	MONTH	NH_3 (µg/l)	NO_X (µg/l)	DISS. ORG. N (µg/l)	PART. N (µg/l)	TOTAL N (µg/l)	SRP (µg/l)	DISS. ORG. P (µg/l)	PART. P (µg/l)	TOTAL P (µg/l)	TURB. (NTU)	TSS (mg/l)
2008	Dec.	118	202	155	252	727	2	4	8	14	3.7	8.3
2009	Jan.	118	202	155	252	727	2	4	8	14	3.7	8.3
	Feb.	189	144	97	62	492	1	5	13	19	1.7	1.1
	March	4411	1160	1773	1222	8566	178	21	205	404	3.2	34.0
	April	152	368	345	263	1127	29	4	20	53	3.4	9.1
	May	135	442	457	172	1205	22	4	33	59	2.3	8.8
	June	36	151	208	185	579	59	22	12	93	2.8	7.4
	July	345	169	266	556	1336	34	6	46	85	2.5	7.6
	Aug.	95	204	224	282	805	15	4	34	52	2.0	5.1
	Sept.	840	64	1071	73	2048	274	39	31	344	1.3	2.2
	Oct.	1040	523	920	84	2567	347	5	31	383	2.2	5.7
	Nov.	869	482	1676	333	3360	335	3	33	371	3.0	1.5
	Dec.	418	1773	412	98	2701	160	16	24	200	1.3	2.3
2010	Jan.	357	186	791	212	1546	75	10	27	113	1.7	20.2
	Feb.	322	294	254	393	1262	35	5	13	53	4.8	7.0
	March	367	210	1470	244	2291	169	11	26	205	3.3	12.7
	April	2056	633	1370	217	4275	541	347	63	951	2.3	2.2
	May	3877	476	1665	350	6367	679	184	56	919	1.8	6.2
	June	2438	343	2208	273	5261	546	127	67	740	2.4	4.2
	July	284	20	536	150	990	17	27	18	62	1.4	1.4
	Aug.	1180	233	186	523	2122	179	19	116	314	1.8	8.2
	Sept.	1404	301	271	672	2648	284	6	12	302	1.2	3.6
	Oct.	2023	612	229	488	3352	52	31	22	105	2.6	7.3
	Nov.	2023	612	229	488	3352	52	31	22	105	2.6	7.3
TOTAL:		**790**	**413**	**656**	**314**	**2146**	**164**	**34**	**38**	**230**	**2.4**	**7.7**

TABLE 3-31

MEAN MONTHLY CONCENTRATIONS FOR MEASURED PARAMETERS IN POND OUTFLOW SAMPLES

YEAR	MONTH	NH_3 (µg/l)	NO_X (µg/l)	DISS. ORG. N (µg/l)	PART. N (µg/l)	TOTAL N (µg/l)	SRP (µg/l)	DISS. ORG. P (µg/l)	PART. P (µg/l)	TOTAL P (µg/l)	TURB. (NTU)	TSS (mg/l)
2008	Dec.	33	26	629	791	1479	5	18	65	88	11.4	11.6
2009	Jan.	46	38	608	737	1429	19	29	78	126	14.3	15.6
	Feb.	24	4	689	766	1483	24	6	59	89	19.6	19.1
	March	No outflow										
	April	No outflow										
	May	230	14	927	1075	2246	2	10	54	65	24.5	21.7
	June	876	35	1018	1003	2932	17	9	61	86	12.0	8.8
	July	316	43	1075	488	1922	7	5	48	60	3.1	5.8
	Aug.	90	167	870	342	1468	5	10	24	39	1.5	3.8
	Sept.	119	68	1111	253	1551	2	6	20	28	5.3	3.3
	Oct.	68	43	1038	452	1602	2	8	41	51	8.9	9.6
	Nov.	No outflow										
	Dec.	1019	344	508	181	2051	59	28	64	151	8.2	14.5
2010	Jan.	286	850	770	188	2094	54	19	41	115	2.6	5.1
	Feb.	144	710	967	503	2324	32	15	70	117	8.1	15.5
	March	50	306	712	353	1421	11	14	22	47	2.7	4.2
	April	294	99	1071	323	1787	8	12	62	82	10.6	17.2
	May	99	90	714	307	1210	7	5	25	37	2.2	3.1
	June	39	109	954	113	1214	8	13	23	43	3.0	2.6
	July	34	90	724	186	1035	3	4	29	36	3.0	3.5
	Aug.	44	175	738	644	1601	3	9	18	29	6.5	4.8
	Sept.	52	202	488	541	1282	13	4	26	43	4.8	5.3
	Oct.	110	117	607	520	1354	4	2	27	33	7.1	7.7
	Nov.	No outflow										
TOTAL:		**205**	**175**	**816**	**503**	**1700**	**14**	**11**	**44**	**70**	**8.0**	**9.1**

TABLE 3-32

CALCULATED MONTHLY MASS LOADINGS FROM THE INFLOW CHANNEL (SITE 1) TO THE CLUB II SOUTH POND

YEAR	MONTH	MONTHLY MASS INPUTS (kg)									
		NH_3	NO_X	DISS. ORG. N	PART. N	TOTAL N	SRP	DISS. ORG. P	PART. P	TOTAL P	TSS
2008	Dec.	1.6	2.8	19.9	11.4	35.7	0.3	3.1	2.8	6.2	731
2009	Jan.	0.4	0.1	9.1	4.9	14.5	0.2	0.2	0.7	1.1	248
	Feb.	0.3	0.2	8.3	4.4	13.1	0.2	0.2	0.2	0.6	206
	March	0.9	0.2	4.4	4.1	9.7	0.1	0.0	0.6	0.7	203
	April	0.7	0.1	3.9	2.4	7.1	0.3	0.1	0.0	0.3	8.5
	May	14.7	11.2	243	53.1	322	22.5	4.5	8.8	35.7	2439
	June	6.0	3.8	153	26.1	189	5.8	0.5	4.3	10.5	2605
	July	1.9	3.4	85.5	40.8	132	1.3	0.5	6.8	8.6	4750
	Aug.	6.1	0.6	32.8	102	141	0.5	0.6	16.5	17.6	7322
	Sept.	1.7	0.7	44.2	23.1	69.7	0.5	0.5	4.0	5.0	1941
	Oct.	1.9	0.5	30.7	21.3	54.5	0.5	0.8	2.7	4.0	1579
	Nov.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Dec.	1.9	2.3	18.5	13.3	36.0	0.1	0.3	2.0	2.4	1057
2010	Jan.	1.8	3.2	27.3	35.5	67.8	0.4	0.2	4.9	5.4	1446
	Feb.	1.5	0.9	49.3	9.6	61.3	0.4	0.4	1.4	2.2	905
	March	2.6	1.2	102	11.7	117	1.3	1.9	2.3	5.4	784
	April	4.3	0.5	61.8	11.7	78.2	0.7	0.5	1.8	3.0	674
	May	1.1	0.4	22.3	4.5	28.3	0.3	0.1	0.7	1.1	283
	June	1.3	5.6	19.8	14.4	41.2	0.9	0.2	2.5	3.6	1018
	July	0.8	0.6	22.0	3.3	26.7	0.4	0.1	0.4	0.9	516
	Aug.	1.9	1.4	21.0	7.7	32.0	0.8	0.8	0.7	2.3	430
	Sept.	0.4	2.2	6.2	3.4	12.3	0.2	0.0	0.3	0.5	145
	Oct.	0.3	0.2	1.9	1.1	3.4	0.1	0.0	0.1	0.2	114
	Nov.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL:		**53.9**	**42.3**	**987**	**409**	**1492**	**37.3**	**15.6**	**64.4**	**117**	**29,406**

TABLE 3-33

CALCULATED MONTHLY MASS LOADINGS FROM THE BRISSON AVENUE DRAINAGE SYSTEM (SITE 2) TO THE CLUB II SOUTH POND

YEAR	MONTH	MONTHLY MASS INPUTS (kg)									
		NH_3	NO_X	DISS. ORG. N	PART. N	TOTAL N	SRP	DISS. ORG. P	PART. P	TOTAL P	TSS
2008	Dec.	0.0	0.0	0.2	0.1	0.3	0.0	0.0	0.0	0.1	8.8
2009	Jan.	0.0	0.0	0.2	0.1	0.3	0.0	0.0	0.0	0.1	10.6
	Feb.	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.1	6.3
	March	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.1	6.6
	April	0.0	0.0	0.2	0.1	0.4	0.0	0.0	0.0	0.1	12.3
	May	0.3	0.5	3.1	1.6	5.4	1.1	0.2	0.4	1.7	68.0
	June	0.2	0.2	2.4	1.0	3.8	0.4	0.3	0.3	1.0	15.8
	July	0.1	0.0	1.2	0.2	1.5	0.0	0.0	0.4	0.5	184
	Aug.	0.0	0.0	0.5	0.2	0.8	0.1	0.0	0.1	0.2	24.7
	Sept.	0.0	0.1	0.6	0.2	0.9	0.1	0.0	0.1	0.3	30.1
	Oct.	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	4.7
	Nov.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Dec.	0.1	0.0	0.1	0.2	0.5	0.0	0.0	0.1	0.2	3.5
2010	Jan.	0.0	0.0	0.5	0.2	0.7	0.1	0.0	0.1	0.2	23.3
	Feb.	0.1	0.1	1.2	0.5	1.9	0.2	0.1	0.2	0.5	60.4
	March	0.1	0.2	1.7	0.7	2.7	0.3	0.1	0.3	0.8	87.3
	April	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.1	5.7
	May	0.0	0.0	0.3	0.1	0.5	0.1	0.0	0.1	0.1	16.7
	June	0.1	0.1	1.4	0.6	2.2	0.3	0.1	0.3	0.6	71.6
	July	0.1	0.1	0.8	0.3	1.3	0.2	0.1	0.1	0.4	41.3
	Aug.	0.1	0.1	1.0	0.4	1.5	0.2	0.1	0.2	0.4	49.9
	Sept.	0.1	0.1	0.9	0.4	1.4	0.2	0.1	0.2	0.4	45.3
	Oct.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	Nov.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL:		**1.5**	**1.7**	**16.7**	**6.9**	**26.8**	**3.4**	**1.4**	**3.0**	**7.8**	**777**

TABLE 3-34

CALCULATED MONTHLY MASS LOADINGS FROM BULK PRECIPITATION TO THE CLUB II SOUTH POND

YEAR	MONTH	MONTHLY MASS INPUTS (kg)									
		NH_3	NO_X	DISS. ORG. N	PART. N	TOTAL N	SRP	DISS. ORG. P	PART. P	TOTAL P	TSS
2008	Dec.	0.8	1.5	1.1	1.8	5.2	0.0	0.0	0.1	0.1	59.7
2009	Jan.	1.0	1.8	1.4	2.2	6.3	0.0	0.0	0.1	0.1	72.5
	Feb.	1.0	0.7	0.5	0.3	2.5	0.0	0.0	0.1	0.1	5.7
	March	23.9	6.3	9.6	6.6	46.3	1.0	0.1	1.1	2.2	184
	April	1.5	3.7	3.5	2.6	11.3	0.3	0.0	0.2	0.5	90.9
	May	20.8	68.2	70.5	26.6	186	3.4	0.6	5.1	9.1	1359
	June	2.5	10.7	14.7	13.1	41.0	4.2	1.5	0.8	6.5	526
	July	15.3	7.5	11.8	24.7	59.3	1.5	0.3	2.0	3.8	337
	Aug.	1.9	4.1	4.5	5.7	16.3	0.3	0.1	0.7	1.1	104
	Sept.	20.7	1.6	26.4	1.8	50.5	6.8	1.0	0.8	8.5	54.2
	Oct.	4.0	2.0	3.6	0.3	9.9	1.3	0.0	0.1	1.5	22.0
	Nov.	5.8	3.2	11.3	2.2	22.6	2.3	0.0	0.2	2.5	10.1
	Dec.	13.9	59.2	13.7	3.3	90.2	5.4	0.5	0.8	6.7	76.0
2010	Jan.	6.8	3.5	15.1	4.0	29.5	1.4	0.2	0.5	2.2	386
	Feb.	16.0	14.5	12.6	19.5	62.5	1.7	0.2	0.6	2.6	345
	March	26.2	15.0	105.2	17.5	164	12.1	0.8	1.8	14.7	907
	April	9.5	2.9	6.4	1.0	19.8	2.5	1.6	0.3	4.4	10.2
	May	53.0	6.5	22.8	4.8	87.1	9.3	2.5	0.8	12.6	84.8
	June	143.2	20.1	130	16.0	309	32.1	7.4	3.9	43.4	244
	July	9.6	0.7	18.1	5.1	33.5	0.6	0.9	0.6	2.1	47.4
	Aug.	48.3	9.6	7.6	21.4	86.9	7.3	0.8	4.8	12.9	335
	Sept.	52.2	11.2	10.1	25.0	98.4	10.6	0.2	0.5	11.2	134
	Oct.	0.5	0.1	0.1	0.1	0.8	0.0	0.0	0.0	0.0	1.7
	Nov.	24.5	7.4	2.8	5.9	40.7	0.6	0.4	0.3	1.3	88.6
TOTAL:		**503**	**262**	**503**	**212**	**1480**	**105**	**19.3**	**26.2**	**150**	**5484**

TABLE 3-35

CALCULATED MONTHLY MASS LOADINGS FROM SHALLOW GROUNDWATER SEEPAGE TO THE CLUB II SOUTH POND

YEAR	MONTH	MONTHLY MASS INPUTS (kg)									
		NH_3	NO_X	DISS. ORG. N	PART. N	TOTAL N	SRP	DISS. ORG. P	PART. P	TOTAL P	TSS
2008	Dec.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
2009	Jan.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Feb.	2.2	2.2	2.2	0.0	6.5	0.1	0.1	0.0	0.3	0.0
	March	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	April	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
	May	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	June	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
	July	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Aug.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Sept.	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
	Oct.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Nov.	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
	Dec.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
2010	Jan.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Feb.	2.2	2.2	2.2	0.0	6.5	0.1	0.1	0.0	0.3	0.0
	March	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	April	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
	May	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	June	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
	July	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Aug.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Sept.	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
	Oct.	2.4	2.4	2.4	0.0	7.2	0.1	0.1	0.0	0.3	0.0
	Nov.	2.3	2.3	2.3	0.0	7.0	0.1	0.1	0.0	0.3	0.0
TOTAL:		**56.4**	**56.4**	**56.4**	**0.0**	**169**	**3.3**	**3.3**	**0.0**	**6.6**	**0.0**

TABLE 3-36

CALCULATED MONTHLY MASS LOADINGS FROM DISCHARGES FROM THE CLUB II SOUTH POND THROUGH THE OUTFALL STRUCTURE

YEAR	MONTH	MONTHLY MASS INPUTS (kg)									
		NH_3	NO_X	DISS. ORG. N	PART. N	TOTAL N	SRP	DISS. ORG. P	PART. P	TOTAL P	TSS
2008	Dec.	2.8	2.2	53.0	66.7	125	0.4	1.5	5.4	7.4	974
2009	Jan.	1.2	1.0	16.1	19.5	37.9	0.5	0.8	2.1	3.3	414
	Feb.	0.6	0.1	17.0	18.9	36.5	0.6	0.1	1.4	2.2	470
	March	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	April	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	May	82.6	5.0	332	386	806	0.5	3.5	19.2	23.2	7795
	June	312	12.3	363	358	1046	6.0	3.1	21.6	30.7	3132
	July	58.0	7.8	197	89.5	353	1.2	0.9	8.9	11.0	1060
	Aug.	11.2	20.9	109	42.8	184	0.7	1.2	3.0	4.9	479
	Sept.	7.8	4.5	72.6	16.5	101	0.1	0.4	1.3	1.8	216
	Oct.	0.4	0.2	5.8	2.5	8.9	0.0	0.0	0.2	0.3	53.2
	Nov.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Dec.	35.5	12.0	17.7	6.3	71.4	2.1	1.0	2.2	5.3	505
2010	Jan.	21.3	63.3	57.3	14.0	156	4.0	1.4	3.1	8.5	381
	Feb.	19.4	95.5	130	67.7	313	4.3	2.1	9.5	15.8	2080
	March	14.3	86.9	202	100	404	3.0	4.1	6.3	13.3	1187
	April	51.0	17.2	186	56.1	310	1.4	2.0	10.7	14.1	2989
	May	5.5	5.0	39.6	17.0	67.1	0.4	0.2	1.4	2.0	171
	June	0.7	2.0	17.5	2.1	22.3	0.1	0.2	0.4	0.8	48.2
	July	1.8	4.7	37.7	9.7	53.9	0.1	0.2	1.5	1.9	180
	Aug.	1.2	4.8	20.2	17.6	43.8	0.1	0.2	0.5	0.8	130
	Sept.	1.0	4.0	9.6	10.6	25.1	0.2	0.1	0.5	0.8	104
	Oct.	0.2	0.3	1.3	1.1	3.0	0.0	0.0	0.1	0.1	16.8
	Nov.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL:		**629**	**350**	**1885**	**1303**	**4167**	**25.8**	**23.1**	**99.3**	**148**	**22,386**

A summary of the overall calculated mass inputs and losses at the Club II South Pond over the monitoring program from December 2008-November 2010 is given on Table 3-37. The values summarized in this table reflect the sum of the calculated monthly loadings discussed previously. Of the measured inputs, bulk precipitation appears to provide the largest pollutant contributions into the South Pond for ammonia, NO_x, SRP, dissolved organic phosphorus, and total phosphorus, with Site 1 providing the largest mass inputs for the remaining parameters. The mass inputs summarized in Table 3-37 do not include mass loadings from the unidentified additional inputs since the chemical characteristics of these inputs are not known.

TABLE 3-37

CALCULATED MASS INPUTS AND LOSSES AT THE CLUB II SOUTH POND FROM DECEMBER 2008-NOVEMBER 2010

PARAMETER	MASS INPUTS (kg)				OUTFALL LOSSES (kg)
	Site 1	Site 2	Groundwater Seepage	Bulk Precipitation	
NH_3	53.9	1.5	56.4	503	629
NO_x	42.3	1.7	56.4	262	350
Diss. Organic N	987	16.7	56.4	503	1885
Particulate N	409	6.9	0.0	212	1303
Total N	1492	26.8	169	1480	4167
SRP	37.3	3.4	3.3	105	25.8
Diss. Organic P	15.6	1.4	3.3	19.3	23.1
Particulate P	64.4	3.0	0.0	26.2	99.3
Total P	117	7.8	6.6	150	148
TSS	29,406	777	0.0	5484	22,386

3.5 Pond Performance Efficiency

Mass removal efficiencies in the Club II South Pond were calculated for TSS and each of the monitored species of nitrogen and phosphorus. Mass removal efficiencies were calculated for the entire 24-month monitoring program using the following equation:

$$Mass\ Removal = \frac{Input\ Mass - Outflow\ Mass}{Input\ Mass}\ x\ 100$$

A summary of mass inputs and losses and mass removal efficiencies for the Club II South Pond is given on Table 3-38. Mass inputs into the pond reflect the sum of the measured mass inputs summarized on Table 3-37, while mass losses from the pond reflect the outfall losses summarized on Table 3-37.

TABLE 3-38

ESTIMATED MASS REMOVAL EFFICIENCY FOR THE CLUB II SOUTH POND FROM DECEMBER 2008-NOVEMBER 2010[1]

PARAMETER	MEASURED MASS INPUTS (kg)	OUTFALL LOSSES (kg)	REMOVAL EFFICIENCY (%)
NH_3	615	629	-2
NO_x	362	350	3
Diss. Organic N	1563	1885	-21
Particulate N	628	1303	-107
Total N	3168	4167	-32
SRP	149	25.8	83
Diss. Organic P	39.6	23.1	42
Particulate P	93.6	99.3	-6
Total P	281	148	47
TSS	35,667	22,386	37

1. Efficiency does not include the unidentified mass loadings

In general, the Club II South Pond appears to exhibit a poor removal efficiency for a majority of the measured nitrogen species. Based upon the identified mass inputs, a net export was exhibited by the pond for ammonia, dissolved organic nitrogen, particulate nitrogen, and total nitrogen, with little change in mass loadings for NO_x. However, the inputs summarized on Table 3-38 do not include the additional loadings associated with the significant unidentified inputs which contributed 25% of the measured hydrologic inputs to the pond. Based upon the surface water monitoring program, evidence suggests that this additional source is likely related to a groundwater influx which contains elevated levels of nitrogen species. These additional unquantified inputs appear to mask the true removal efficiency achieved within the pond for nitrogen species.

In contrast, moderate removal efficiencies were achieved within the pond for SRP, dissolved organic phosphorus, and total phosphorus, although the observed removal efficiencies are substantially lower than efficiencies commonly observed for these parameters in stormwater management ponds. It appears that the additional unidentified inflows into the pond may also be contributing an influx of phosphorus species as well which appears to reduce the calculated removal efficiency for the system. It is interesting to note that particulate phosphorus concentrations appear to increase during migration through the pond, similar to the trend exhibited by particulate nitrogen, suggesting that some of the soluble nutrient inputs may be converting into algal biomass within the pond which is measured as particulate phosphorus and particulate nitrogen in the outfall samples.

The South Pond also exhibited a relatively low removal efficiency for TSS of approximately 37%. Removal of TSS in wet detention ponds, particularly ponds with relatively long residence times, is generally in the range of 80-95%. The relatively poor removal efficiency exhibited by the pond for TSS may also be associated with the generation of algal biomass and particulate matter within the pond.

Unfortunately, it appears that the true removal efficiency for the pond cannot be accurately determined due to the additional unidentified nutrient inputs which are presumed to be associated with an upwelling of groundwater from a deeper aquifer source. Based upon the surface water characteristics of the South Pond (summarized in Section 3.2), the South Pond exhibited physical and chemical characteristics which are similar to a natural lake or a wet detention pond with a long residence time. An extensive evaluation of the performance efficiencies of wet detention ponds for total phosphorus and total nitrogen was conducted by Harper and Baker (2007) as part of an FDEP-funded project in support of the proposed State-wide Stormwater Rule. This analysis indicated that the removal efficiencies of wet detention ponds are highly correlated with detention time, and relationships between removal efficiencies and detention times were developed by Harper and Baker for both total phosphorus and total nitrogen. A graphical summary of the relationships between removal efficiency and detention time in wet detention ponds for total phosphorus is given in Figure 3-27, and for total nitrogen in Figure 3-28. Based upon the mathematical relationships summarized in these figures, a wet detention pond with a residence time of 463 days (similar to that observed in the South Pond) would be expected to have a mass removal efficiency of approximately 43% for total nitrogen and 87% for total phosphorus. Since the results of the field monitoring program suggest that the South Pond functioned similar to a natural lake or wet pond with a long detention time, it is assumed that the South Pond achieved removal efficiencies similar to the values indicated by the predicted relationships summarized in Figures 3-27 and 3-28.

An estimate of the magnitude of the unidentified mass loadings of total nitrogen and total phosphorus to the South Pond was generated using the assumed pond mass removal efficiencies for total nitrogen and total phosphorus. A summary of this analysis is given on Table 3-39. For total nitrogen, mass discharges from the pond during the field monitoring program contained approximately 4167 kg of total nitrogen. Assuming that this outfall loading represents the net result of removal processes within the pond, and that approximately 43% of the total nitrogen was retained within the pond, the estimated total mass inputs required to obtain the measured outfall mass losses is approximately 7311 kg. A summary of this calculation is given below:

$$\text{Total Nitrogen Outfall Mass Loss} = \frac{4167 \text{ kg}}{(1 - 0.43)} = 7311 \text{ kg Total Nitrogen}$$

The sum of the measured total nitrogen inputs into the pond resulting from Site 1, Site 2, groundwater seepage, and bulk precipitation is 3168 kg (see Table 3-39) during the field monitoring program. Therefore, the unidentified mass inputs have to be equivalent to approximately 4143 kg of total nitrogen to generate the assumed input of 7311 kg. A similar process was also conducted for total phosphorus which indicated that the unidentified mass inputs contributed approximately 857 kg of total phosphorus during the field monitoring program.

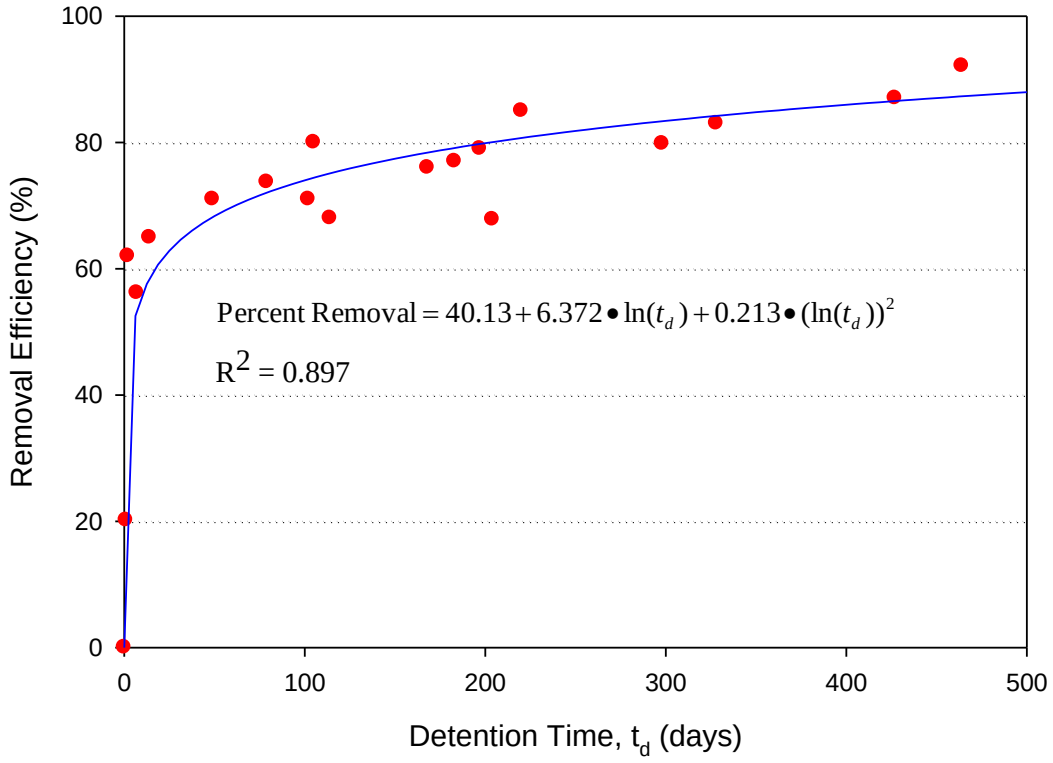


Figure 3-27. Removal Efficiency of Total Phosphorus in Wet Detention Ponds as a Function of Residence Time (Harper and Baker, 2007).

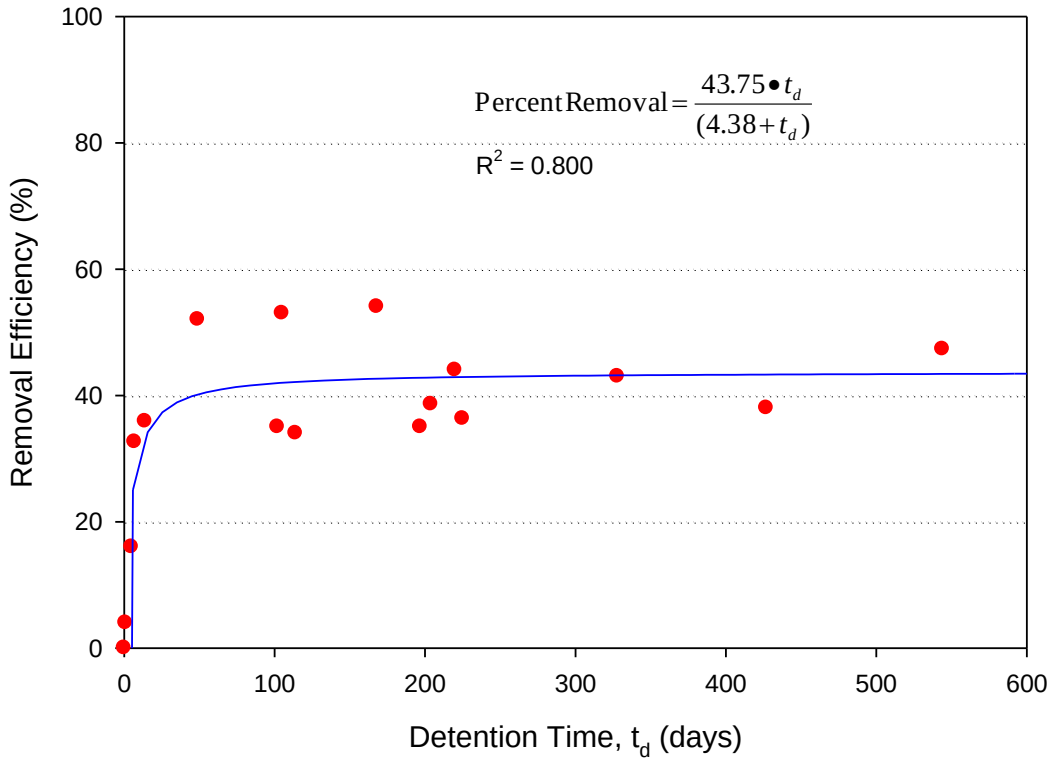


Figure 3-28. Removal Efficiency of Total Nitrogen in Wet Detention Ponds as a Function of Residence Time (Harper and Baker, 2007).

TABLE 3-39

ESTIMATED TOTAL AND UNIDENTIFIED MASS LOADINGS OF TOTAL NITROGEN AND TOTAL PHOSPHORUS TO THE CLUB II SOUTH POND

PARAMETER	OUTFALL LOSSES (kg)	ANTICIPATED POND MASS REMOVAL (%)	ESTIMATED TOTAL MASS INPUTS (kg)	MEASUED MASS INPUTS (kg)	UNIDENTIFIED MASS INPUTS (kg)
Total N	4167	43	7311	3168	4143
Total P	148	87	1138	281	857

The unidentified mass inputs for total nitrogen and total phosphorus (summarized on Table 3-39) reflect significant additional inputs into the pond which were not measured as part of the field monitoring protocol. The unidentified mass loadings of total nitrogen are approximately 31% greater than the sum of the measured mass inputs from all of the identified sources. For total phosphorus, the unidentified mass loadings are approximately 205% greater than the sum of the measured mass inputs from the measured sources. This analysis appears to indicate that the unidentified inputs contain relatively elevated levels of both total nitrogen and total phosphorus.

An estimate of the magnitude of total nitrogen and total phosphorus concentrations in the unidentified inflow was generated by dividing the calculated unidentified mass loadings by the total hydrologic inputs associated with the unidentified input. A summary of this analysis is given in Table 3-40. Based upon this analysis, the unidentified input is characterized by a mean total nitrogen concentration of approximately 1420 μg/l and a mean total phosphorus concentration of 294 μg/l. Nutrient concentrations in this range are not uncommon for deep groundwater sources.

TABLE 3-40

CALCULATED MEAN INFLOW CONCENTRATIONS OF TOTAL NITROGEN AND TOTAL PHOSPHORUS IN THE UNIDENTIFIED INFLOW

PARAMETER	UNIDENTIFIED MASS INPUTS (kg)	UNIDENTIFIED HYDROLOGIC INPUTS (ac-ft)	UNIDENTIFIED INPUT MEAN CONCENTRATION (μg/l)
Total N	4143	2366	1420
Total P	857	2366	294

A summary of estimated mass loadings of total nitrogen and total phosphorus to the South Pond by input source is given on Table 3-41. Input mass loadings for Site 1, Site 2, bulk precipitation, and groundwater seepage were obtained from the data summarized in Table 3-39. Inputs of total nitrogen and total phosphorus from the unidentified source were obtained from Table 3-40. Based upon this analysis, the unidentified source appears to contribute approximately 57% of the annual nitrogen loadings to the South Pond and approximately 75% of the annual mass loadings of total phosphorus to the South Pond. It appears obvious that the additional unidentified loadings have a significant impact on the hydrology and loading characteristics of the South Pond.

TABLE 3-41

SUMMARY OF ESTIMATED MASS LOADINGS OF TOTAL NITROGEN AND TOTAL PHOSPHORUS TO THE SOUTH POND BY SOURCE

SOURCE	TOTAL NITROGEN		TOTAL PHOSPHORUS	
	Mass Loading (kg)	Percent of Total (%)	Mass Loading (kg)	Percent of Total (%)
Site 1 – Primary Inflow Channel	1492	20	117	10
Site 2 – Brisson Avenue Swale	26.8	< 1	7.8	< 1
Bulk Precipitation	1480	20	150	13
Groundwater Seepage	169	2	6.6	< 1
Unidentified Source	4143	57	857	75
TOTALS:	**7311**	**100**	**1138**	**100**

3.6 Discussion

The results of the field monitoring program conducted on the Club II South Pond indicate that the pond achieved moderate removal efficiencies for total phosphorus and TSS, with a net export of total nitrogen at the outfall compared with the identified mass inputs. However, the quantified mass removal efficiencies are highly impacted by the additional unidentified inflow which appears to be contributing inputs of both nitrogen and phosphorus into the pond. Based upon the apparent high alkalinity values associated with this unidentified inflow, it appears that the inflow originates from a deeper groundwater source through a permeable connection between the pond bottom and the deeper aquifer water. The potential for a permeable connection between the pond bottom and the aquifer is enhanced given the origin of the pond as a former borrow pit area. The dredging operations used to extract the soil from the pit could have easily exposed or created an area of higher permeability between the pond bottom and aquifer. The hydrologic budget which was developed for the pond suggests that this additional unidentified inflow contributes approximately 25% of the measured inputs into the pond on an annual basis. Since areas of high inflow were not observed at the seepage monitoring sites, it appears that the inflow from the deeper aquifer source is limited to specific areas within the pond.

Based upon the observed physical and chemical characteristics of the Club II South Pond, the waterbody appears to function similar to a natural lake or wet detention pond with a long detention time. Based upon the calculated mean residence time of approximately 463 days, the South Pond would be expected to exhibit a mass removal of approximately 43% for total nitrogen and 87% for total phosphorus. This assumption was used to calculate the magnitude of the unidentified mass inputs which exceeds the sum of the measured mass inputs from runoff, bulk precipitation, and groundwater seepage. The mean inflow concentrations in the unidentified inflow are approximately 1420 μg/l for total nitrogen and 294 μg/l for total phosphorus, both of which are consistent with inputs from a deeper aquifer source.

Additional support for an unidentified deeper groundwater source into the pond is provided by the extreme spike on NO_x concentrations which occurred between November 2009 and May 2010, resulting in a significant increase in NO_x concentrations throughout the entire pond. Elevated concentrations of NO_x were not identified in any of the inflow samples collected during this period, suggesting that the source of additional NO_x is related to the unidentified hydrologic inflow. NO_x is a common contaminant in groundwater sources in the Central Florida area, and an influx of groundwater with elevated concentrations of NO_x could easily explain the observed peaks in NO_x concentrations.

The large significance of the unidentified mass inputs, presumably resulting from a deeper aquifer source, has not been previously observed by ERD in numerous BMP evaluations conducted throughout the State of Florida. Although additional hydrologic and mass inputs are sometimes suspected, the magnitude of the unidentified hydrologic and mass loadings entering the South Pond appear to be unusual. This evaluation suggests that additional hydrogeologic investigation should be conducted for ponds which are constructed from historic borrow pits, particularly in areas where the ambient piezometric elevations approach the proposed surface water elevation.

The unidentified hydrologic and mass loadings to the South Pond had a significant impact on the hydrologic and pollutant removal characteristics of the pond. As indicated on Figure 3-8, the unidentified inputs contributed 25% of the hydrologic inputs into the pond during the field monitoring program. Had these unidentified hydrologic inputs not been present, the detention time within the pond would have increased from the calculated value of 463 days to approximately 614 days. The additional detention time within the pond would have provided additional opportunities for removal of total nitrogen and total phosphorus, although the additional removals achieved at the longer detention time would be expected to be relatively minimal since the removal efficiency curves appear to be approaching asymptotic values at the extended detention time exhibited by the South Pond. As a result, the additional hydrologic inputs appear to have relatively little impact on the performance efficiency of the pond.

Although the anticipated performance efficiency of the pond would be minimally impacted by the additional unidentified hydrologic inputs, the additional mass loadings for total nitrogen and total phosphorus do have an impact on the quantity of loadings discharged to downstream waterbodies. If the additional inputs were not present, the pond would be removing approximately 87% of the mass loadings of total phosphorus contributed by Site 1, Site 2, bulk precipitation, and groundwater seepage, resulting in a low mass loading of total phosphorus discharging to downstream waterbodies. However, due to the additional mass loadings of total nitrogen and total phosphorus contributed by the unidentified source, the anticipated removal efficiencies are applied to a larger overall mass loading, which means that a larger mass of nutrients ultimately discharges from the pond.

3.7 Quality Assurance

Supplemental samples (such as equipment blanks and duplicate samples) were collected during the field monitoring program for quality assurance purposes. In addition, a number of supplemental laboratory analyses were performed to evaluate precision and accuracy of the collected data. Overall, more than 1000 additional laboratory analyses were conducted for quality assurance purposes. A summary of QA data collected as part of this project is given in Appendix E.

SECTION 4

SUMMARY

A field monitoring program was conducted by ERD from December 2008-November 2010 to evaluate the performance efficiency of the Club II stormwater treatment facility. The Club II facility consists of two interconnected wet detention ponds, identified as the South Pond and North Pond, which are designed to provide treatment for a 469-acre drainage basin, consisting of a combination of open space, woods, residential, and commercial land use activities. The Club II South Pond, which is the subject of the primary work efforts outlined in this report, has a surface area of approximately 75.2 acres at the control elevation of 23.0 ft, with a maximum water depth of approximately 23 ft.

Automatic samplers with integral flow meters were installed at two significant inflows to the South Pond, as well as the pond outfall, to provide a continuous record of hydraulic inputs and losses and to collect runoff and discharge samples in a flow-weighted mode. A recording rain gauge and evaporimeter were also installed at the monitoring sites. A water level recorder was installed inside the South Pond to assist in evaluating changes in water surface elevations.

Continuous inflow and outflow hydrographs were recorded at the Club II South Pond site at 10-minute intervals from December 1, 2008-November 30, 2010. During this period, approximately 46% of the hydrologic inputs into the pond originated through the primary inflow channel (Site 1), with less than 1% contributed by the Brisson Avenue drainage basin, 25% by direct rainfall, and 4% by groundwater seepage. An additional 25% of the measured hydrologic inputs into the pond originated from an unidentified source, thought to be upwelling from a deeper aquifer. Approximately 70% of the hydrologic inputs exited the pond through the outfall structure, with 30% lost to evaporation. The mean residence time in the pond during the 24-month field monitoring program was 463 days.

Over the 24-month monitoring program, a total of 92 composite inflow samples was collected, with 77 samples collected at the pond outfall, and 58 samples collected of bulk precipitation. A total of 60 vertical field profiles was collected in the South Pond, with an additional 59 vertical field profiles collected in the smaller North Pond. Surface water samples were also collected in the South and North Ponds, with 69 samples collected in the South Pond and 66 samples collected in the North Pond. Groundwater seepage inputs were also monitored over a period of approximately six months, with 14 separate samples collected during this time.

During the field monitoring program, both the North and South Ponds exhibited seasonal stratification in temperature, pH, conductivity, and dissolved oxygen. Adequate levels of dissolved oxygen were maintained within each of the two ponds to a water depth of approximately 4 m during most months of the year. Inflows into the South Pond from stormwater runoff and bulk precipitation were found to have relatively low levels of ammonia and NO_x, with moderate to elevated levels of particulate nitrogen. The primary channel inflow into the pond exhibited relatively low levels of phosphorus species, although substantially higher phosphorus concentrations were observed in inflows from the Brisson Avenue drainage swale.

The calculated mass removal efficiencies for the Club II South Pond are lower than normally observed in wet detention ponds. The apparent lack of effective removal efficiencies by the pond is related to the unidentified inputs which appear to be contributing substantial additional amounts of both nitrogen and phosphorus into the pond which are not included in the evaluated mass loadings. Based upon a comparison of wet detention ponds with similar detention times, mass removal efficiencies in the South Pond would be expected to be approximately 43% for total nitrogen and 87% for total phosphorus. Based upon these assumed removals, the unidentified mass inputs appear to have contributed 4143 kg of total nitrogen and 590 kg of total phosphorus during the field monitoring program. The calculated mean inflow concentrations in the unidentified inflow are approximately 1420 μg/l for total nitrogen and 294 μg/l for total phosphorus. In comparison with the measured inputs to the pond, the unidentified inputs appear to contribute more than 50% of the mass loadings for both total nitrogen and total phosphorus. The significance of the unidentified inputs from both a hydrologic and mass loading perspective has not been previously observed by ERD during numerous BMP evaluations within the State of Florida. This study suggests that hydrogeologic investigations should be conducted in future projects where a former deep borrow pit is converted to a wet pond to evaluate the potential significance of additional inflow, particularly in areas where the piezometric elevation is near the proposed pond surface water elevation.

APPENDICES

APPENDIX A

CONSTRUCTION DRAWINGS FOR THE CLUB II RSF

Prepared by Professional Engineering Consultants (PEC)

JOB FILE #	SHEET
SC-106	1

SEMINOLE COUNTY
PUBLIC WORKS DEPARTMENT
ROADS - STORMWATER DIVISION

PUBLIC WORKS DIRECTOR
Gary Johnson

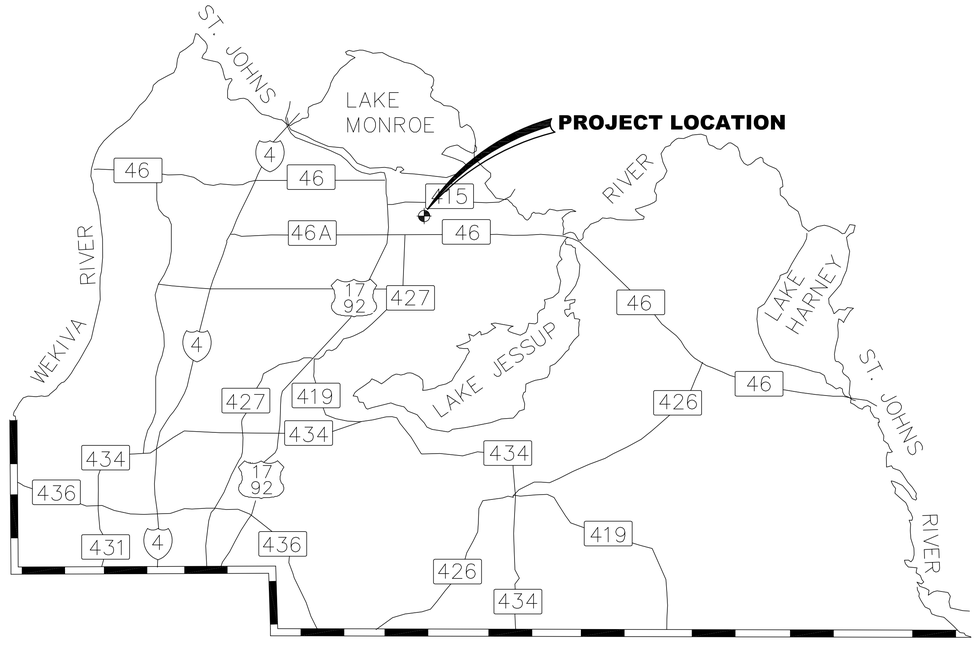
SEMINOLE COUNTY
FLORIDA'S NATURAL CHOICE

ROADS - STORMWATER DIVISION
STORMWATER MANAGER
Mark Flomerfelt

CLUB II REGIONAL STORMWATER FACILITY (RSF)
PHASE 1 DRAINAGE IMPROVEMENTS

INDEX OF PLANS

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
2	LOCATION MAP
3	GENERAL NOTES
4	OVERALL PLAN, SUPPLEMENTAL BENCHMARKS AND REFERENCE POINTS
5	STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
6	WETLAND AND/OR SURFACE WATER IMPACTS
7	NORTH-SOUTH CROSS SECTION AND HYDRAULIC PROFILE
8	CLUB II RSF NORTH CELL
9-11	CLUB II RSF SOUTH CELL
12-14	BRISSON AVENUE WEST SIDE
15	MISCELLANEOUS DETAILS



VICINITY MAP

** SEE ALSO LOCATION MAP NEXT SHEET **

* ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN CHANGED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

CONSTRUCTION COMPLETION DATE _____

FIELD VERIFIED BY _____

SUBMITTAL HISTORY		
BY	DATE	DESCRIPTION
GAT	8/08/05	90% SUBMITTAL TO SEMINOLE COUNTY
GAT	X/XX/05	100% SUBMITTAL TO SEMINOLE COUNTY

LENGTH OF PROJECT						
			SIDE STREETS		TOTAL	
	LIN.FT.	MILES	LIN.FT.	MILES	LIN.FT.	MILES
DRAINAGE IMPROVEMENTS	----	----	----	----	----	----
	----	----	----	----	----	----
NET LENGTH OF PROJECT	----	----	----	----	----	----
EXCEPTIONS	----	----	----	----	----	----
GROSS LENGTH OF PROJECT	----	----	----	----	----	----

100% PROGRESS PLANS
DATED: _____

PREPARED BY: PEC Professional Engineering Consultants
engineers planners surveyors

200 EAST ROBINSON STREET, SUITE 1560
ORLANDO, FLORIDA 32801
(407) 422-8062
BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE No. 3556

PLANS
APPROVED BY _____
David W. Hamstra, P.E. # 38652 DATE

CLUB II REGIONAL STORMWATER FACILITY (RSF) - PHASE 1 DRAINAGE IMPROVEMENTS

1" = 300'

CELERY KEY SUBDIVISION (UNDER CONSTRUCTION)

BASIN "04-06" OUTFALL

BASIN "04-07" OUTFALL

CENTRAL FL. AGRICULTURE AND RESEARCH CENTER (2700 E. CELERY AVENUE)

COUNTY ROAD 415 (CELERY AVENUE)

FUTURE NTM HOMES (NEW TRIBES MISSION)

NTM HOMES (NEW TRIBES MISSION)

CELERY LAKES SUBDIVISION (UNDER CONSTRUCTION)

WASHINGTON OAKS SUBDIVISION

CEDAR HILL SUBDIVISION (FUTURE)

ROSELAND PARK SUBDIVISION

NORTH CELL

SOUTH CELL

PALM POINT SUBDIVISION

LAKE GEM (JAMES L. GUINN PARK)

WYNNEWOOD SUBDIVISION

CLUB II RSF

ORLANDO SANFORD INTERNATIONAL AIRPORT

DISCLAIMER AND NOTES

1. PEC/PROFESSIONAL ENGINEERING CONSULTANTS, INC. OFFERS NO WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, FOR THE CONTENTS OR ACCURACY OF THE BASE MAPPING SHOWN HEREON. THE BASE MAPPING INFORMATION SHOWN HEREON WAS OBTAINED FROM SEMINOLE COUNTY. HOWEVER, IT SHOULD BE NOTED THAT THE BASE MAPPING HAS BEEN UPDATED IN NUMEROUS AREAS BY OBTAINING DIGITAL FILES FOR FUTURE/IMPENDING DEVELOPMENTS.
2. DO NOT USE THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY.

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

DAVID W. HAMSTRA, P.E. 38652

REV.	DATE	DESCRIPTION	APP'D BY

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Board of Professional Engineers Certificate No. 3556
Suite 1560, Eola Park Centre 200 East Robinson Street
Orlando, Florida 32801 pec@pecorlando.com
Tel (407) 422-8062 Fax (407) 849-9401

CLUB II REGIONAL STORMWATER FACILITY (RSF)

LOCATION MAP

S 32 T 19S R 31E

SEMINOLE COUNTY SANFORD

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	OCT 05

SHEET 2 / 15

2

DEFINITION:
WHEN USED IN THESE GENERAL NOTES, THE WORD "OWNER" SHALL HAVE THE INDICATED MEANING:

SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT
ROADS – STORMWATER DIVISION

EARTHWORK

EW–1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTAINENCE OF SLOPES AND EMBANKMENTS. THE CONTRACTOR SHALL REPAIR OR REMEDY DAMAGE TO SUCH IF CAUSED BY EROSION, CONTRACTOR ACTIVITIES OR LACK OF MAINTENANCE UNTIL THE PROJECT IS ACCEPTED BY THE OWNER.

EW–2. THE CONTRACTOR SHALL EXAMINE THE SITE, REVIEW THE PLANS, AND INDEPENDENTLY DETERMINE THE VOLUME OF EXCAVATION, FILL AND/OR BACKFILL REQUIRED TO PERFORM THE WORK.

EW–3. ALL FILL PLACED WITHIN PROPOSED ROAD RIGHT–OF–WAYS SHALL BE COMPACTED AS FOLLOWS:

* ROADWAY SHOULDERS (OUTSIDE PAVEMENT) 95% MAXIMUM DENSITY, AASHTO T–180.

* ROADWAY AREAS (UNDER PAVEMENT) 98% MAXIMUM DENSITY, AASHTO T–180.

EW–4. IN ALL AREAS WHICH REQUIRE FILL MATERIAL, THE CONTRACTOR WILL STRIP OR OTHERWISE REMOVE ALL VEGETATION AND OTHER DELETERIOUS MATERIAL BEFORE EMBANKMENT IS STARTED. IMMEDIATELY PRIOR TO THE PLACING OF FILL MATERIALS, THE ENTIRE AREA UPON WHICH FILL IS TO BE PLACED WILL BE SCARIFIED IN A DIRECTION APPROXIMATELY PARALLEL TO THE AXIS OF FILL, UNLESS DIRECTED OTHERWISE BY THE GEOTECHNICAL ENGINEER.

EW–5. UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER AND PRIOR TO THE PLACEMENT OF FILL, THE AREA TO BE FILLED WILL BE PROOF ROLLED. ANY AREA SHOWING SIGNS OF PUMPING, WEAVING OR OTHER FORMS OF INSTABILITY SHALL BE SELECTIVELY REMOVED AND REPLACED WITH COMPACTED SELECT FILL.

GEOMETRY & SURVEY

GS–1. ALL PAVEMENT DIMENSIONS SHOWN ARE TO THE EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.

GS–2. ALL INLET AND MANHOLE OFFSET DISTANCES SHOWN ARE MEASURED TO THE CENTERLINE OF THE STRUCTURE.

GS–3. PUBLIC LAND CORNERS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED OR DISTURBED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE PROJECT ENGINEER, WITHOUT DELAY, BY TELEPHONE. THE CONTRACTOR SHALL PROVIDE WRITTEN FOLLOW UP CONFIRMATION WITHIN FORTY–EIGHT (48) HOURS OF TELEPHONE NOTIFICATION.

GEOTECHNICAL & TESTING

GT–1. THE CONTRACTOR SHALL ENSURE THAT PROPER SOIL DENSITIES ARE ACHIEVED FOR THE PLACEMENT OF ALL STRUCTURES, OR COMPACTED EARTH. SOIL TESTING SHALL BE PROVIDED BY THE OWNER. THE CONTRACTOR SHALL COORDINATE WITH THE OWNERS CONSULTANT FOR SCHEDULING ALL TESTING PRIOR TO CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE FOR TESTING WORK IN ADVANCE OF CONSTRUCTION.

GT–2. ALL SOIL STRIPPINGS, DELETERIOUS AND UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER OR SPECIFIED ELSEWHERE IN THE PLANS FOR SELECT DISPOSAL. IN NO CASE WILL BURIAL OF DISPOSABLE MATERIAL BE ALLOWED.

REGULATORY & PERMITTING

RP–1. THE CONTRACTOR SHALL ENSURE THAT ALL REQUIRED PERMITS ARE IN HAND BEFORE PROCEEDING WITH THE CONSTRUCTION WORK. THE CONTRACTOR SHALL SATISFY AND ADHERE TO ALL APPLICABLE REQUIREMENTS OR SPECIAL CONDITIONS STATED WITHIN SAID PERMITS REGARDING THE CONSTRUCTION WORK OR MAINTENANCE OF IMPROVEMENTS PRIOR TO ACCEPTANCE BY THE OWNER.

RP–2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL INSPECTION CRITERIA AND SCHEDULES, AND FOR SIGNING FOR SAID INSPECTIONS.

REGULATORY & PERMITTING (CONTINUED)

RP–3. THE CONTRACTOR SHALL CONFORM AND ADHERE TO THE POLICIES ESTABLISHED BY THE OWNER FOR THE PRESERVATION OF ALL PUBLIC AND PRIVATE PROPERTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE AND INJURY TO PROPERTY OF ANY CHARACTER, DURING THE PROSECUTION OF THE WORK, RESULTING FROM ANY ACT, OMISSION, NEGLECT, OR MISCONDUCT IN HIS MANNER OR METHOD OF EXECUTING THE WORK, OR AT ANY TIME DUE TO DEFECTIVE WORK OR MATERIALS.

RP–4. THE CONTRACTOR SHALL COMPLY WITH ALL LEGAL LOAD RESTRICTIONS WHEN HAULING MATERIALS OR EQUIPMENT BEYOND THE LIMITS OF THE WORK. A SPECIAL PERMIT WILL NOT RELIEVE THE CONTRACTOR FROM ANY LIABILITY FOR DAMAGE OR INJURY WHICH MAY RESULT FROM MOVING EQUIPMENT OR MATERIAL.

RP–5. BEFORE COMMENCING WORK ON PRIVATE LANDS, WHERE SHOWN, THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM THE OWNER TO THERESO OCCUPY THE LAND FOR THE SOLE PURPOSE OF PROSECUTING THE WORK. THE CONTRACTOR SHALL USE ALL DUE CAUTION AND CARE TO PROTECT THE PROPERTY AT ALL TIMES AND IN ALL MANNER FROM HIS WORK AND TO LIMIT HIS ACTIVITES AS NECESSARY TO PERFORM THE WORK AS DESCRIBED BY THE CONTRACT DOCUMENTS. IF THE WORK IS INCOMPLETE AT THE END OF THE WORK DAY, HE SHALL SECURE THE WORK AREA AND MATERIALS TO PROVIDE FOR THE SAFETY OF ALL PERSONS, KNOWN OR UNKNOWN. SAFTEY SHALL BE FIRST CONSIDERATION AND THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

RP–6. (WHERE APPLICABLE) ABSOLUTELY NO WORK WILL BE ALLOWED WITHIN ANY CONSERVATION AREA, BUFFER AREA, MITIGATION AREA, OR DESIGNATED WETLAND AREA UNLESS SO SPECIFICALLY DESCRIBED BY THE PLANS AND GRANTED BY REASON OF PERMIT FROM THE GOVERNMENTAL ENTITY HAVING JURISDICTION OVER SAID AREA.

RP–7. STORMWATER POLLUTION PREVENTION PLAN
IF THE TOTAL AREA TO BE CLEARED IS EQUAL TO, OR EXCEEDS ONE (1) ACRE, THEN THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH EPA'S NPDES REGULATIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUBMITTING A NOTICE OF INTENT (NOI) TO EPA FORTY–EIGHT (48) HOURS PRIOR TO COMMENCING CONSTRUCTION.

UTILITY LOCATIONS

UL–1. THE LOCATION OF ALL EXISTING UTILITY SERVICES, FACILITIES, AND STRUCTURAL FEATURES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION AND ARE PROVIDED FOR THE CONVIENENCE OF THE CONTRACTOR. THE OWNER AND HIS REPRESENTATIVE DO NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF THE LOCATION INFORMATION PROVIDED. ANY INACCURACY OR OMISSION IN SUCH INFORMATION SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PROTECT SUCH EXISTING FEATURES FROM DAMAGE OR UNSCHEDULED INTERRUPTION OF SERVICES. SHOULD A DISCREPANCY ARISE BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS, WHICH WOULD APPRECIABLY AFFECT THE EXECUTION OF THESE PLANS, THE CONTRACTOR WILL HALT CONSTRUCTION AND NOTIFY THE OWNER IMMEDIATELY.

UL–2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND FOR NOTIFYING THE VARIOUS UTILITY COMPANIES TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATION, DISRUPTION OF SERVICE, OR CLARIFICATION OF ACTIVITY REGARDING SAID UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE UTILITY COMPANY AND THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY COMPANY DURING RELOCATION OPERATIONS. ANY DELAY OR INCONVIENENCE BY THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT.

UL–3. THE CONTRACTOR SHALL LOCATE AND VERIFY THE DEPTHS AND LOCATIONS OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF WORK, PRIOR TO ORDERING ANY STRUCTURES.

UL–4. PRIOR TO EXCAVATING IN THE VICINITY OF A GAS PIPELINE, THE CONTRACTOR SHALL NOTIFY THE GAS UTILITY OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF FLORIDA STATUTES, PROTECTION OF UNDERGROUND PIPELINES, F.S. 553.851, CH. 77–143.

UL–5. THE CONTRACTOR SHALL USE THE SERVICES OF SUNSHINE–ONE CALL UTILITY LOCATOR A MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK. (SUNSHINE–ONE CALL 1 (800) 432–4770)

MAINTENANCE OF TRAFFIC

MT–1. MAINTENANCE OF TRAFFIC: ACCESS FOR LOCAL TRAFFIC WITH DESTINATIONS WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED. IF DURING CONSTRUCTION ACCESS FOR LOCAL TRAFFIC IS CHANGED, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER A MINIMUM OF THREE (3) WORKING DAYS IN ADVANCE. IF DURING CONSTRUCTION ROAD CLOSURES ARE REQUIRED, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER A MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE.

MT–2. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL BARRICADES, WARNING SIGNS, AND MARKINGS FOR HAZARDS AND THE CONTROL OF TRAFFIC, IN REASONABLE CONFORMITY WITH THE U.S. DEPARTMENT OF TRANSPORTATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, OR AS DIRECTED BY THE OWNER, SUCH AS TO EFFECTIVELY PREVENT ACCIDENTS IN ALL PLACES WHERE THE WORK CAUSES OBSTRUCTION TO THE NORMAL TRAFFIC OR CONSTITUTES IN ANY WAY A HAZARD TO THE PUBLIC.

TRAFFIC CONTROL PLAN (TCP)

TP–1.

STORM WATER (DRAINAGE)

SW–1. ALL MANHOLES, INLETS, AND JUNCTION BOX STRUCTURES SHALL BE PRECAST AND IN ACCORDANCE WITH ASTM C–478 UNLESS SPECIFIED ELSEWHERE.

SW–2. ALL MANHOLES, INLETS, AND JUNCTION BOX STRUCTURES SHALL HAVE TRAFFIC BEARING FRAMES AND COVERS, OR GRATES MEETING HS–20 LOADING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED WITHIN THE PLANS.

SW–3. ALL REINFORCED CONCRETE PIPE SHALL BE OF THE CLASS AND BEDDING SPECIFIED BY THE F.D.O.T., ROADWAY AND TRAFFIC DESIGN STANDARDS, (F.D.O.T. INDEX 205).

SW–4. ALL PIPE JOINT CONNECTIONS SHALL BE WRAPPED WITH A FILTER FABRIC MATERIAL IN ACCORDANCE WITH F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS (F.D.OT. INDEX NO. 280).

SW–5. ALL EXISTING AND INSTALLED STORM SEWER LINES AND INLETS SHALL BE CLEANED OF DEBRIS AND ERODED MATERIALS AT THE LAST STAGE OF CONSTRUCTION, THE COST OF WHICH SHALL BE INCIDENTAL TO THE PROJECT CONSTRUCTION. BEFORE COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL BRING TO THE ATTENTION OF THE ENGINEER ALL EXISTING DRAINAGE PROBLEMS OR DRAINAGE PROBLEMS THAT WILL WILL BE CREATED BY THIS OPERATION.

PROJECT SUB-CONSULTANTS

SOUTHEASTERN SURVEYING & MAPPING CORP.
6500 All American Boulevard
Orlando, Florida 32810–4350
(407) 292–8580 fax (407) 292–0141
Cert. No. LB–2108

DEVO ENGINEERING
5500 ALHAMBRA DRIVE
Orlando, Florida 32808
(407) 290–2371 fax (407) 298–9011

ENVIRONMENTAL RESEARCH & DESIGN, INC.
3419 TRENTWOOD BOULEVARD, SUITE 101
Orlando, Florida 32812
(407) 855–9465 fax (407) 826–0419

LOTSPEICH and ASSOCIATES, INC.
2711 WEST FAIRBANKS AVENUE
Winter Park, Florida 32789–3314
(407) 740–8482 fax (407) 645–1305

PROJECT REPRESENATIVES

1. SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT
ROADS – STORMWATER DIVISION
177 BUSH LOOP
SANFORD, FL 32773 (407) 665–5943

MR. ED TORRES (PRINCIPAL ENGINEER / CAPITAL PROJECTS MANAGER)
MR. ROLANDO RAYMUNDO (PRINCIPAL ENGINEER / CAPITAL PROJECTS)

2. PEC/PROFESSIONAL ENGINEERING CONSULTANTS, INC.
STORMWATER MANAGEMENT DEPARTMENT
200 EAST ROBINSON STREET, SUITE 1560
ORLANDO, FL 32801 (407) 422–8062

MR. DAVID HAMSTRA, P.E. (STORMWATER DEPARTMENT MANAGER)
MR. GREG TEAGUE, P.E. (SENIOR PROJECT ENGINEER)

MISCELLANEOUS NOTES

MN–1. ALL WORK AND MATERIALS FURNISHED SHALL BE IN REASONABLE CONFORMITY WITH THE LINES, GRADES, PROFILES, CROSS–SECTIONS, DIMENSIONS, MATERIAL REQUIREMENTS, AND TESTING REQUIREMENTS SPECIFIED IN THE CONTRACT, PLANS OR SPECIFICATIONS.

MN–2. THE CONTRACTOR SHALL NOT EXCAVATE, REMOVE, OR OTHERWISE DISTURB ANY MATERIAL, STRUCTURE, OR PART OF A STRUCTURE WHICH IS LOCATED OUTSIDE THE LINES, GRADES, OR CONSTRUCTION LIMITS ESTABLISHED FOR THIS PROJECT, EXCEPT WHERE SUCH EXCAVATION, REMOVAL, OR DISTURBANCE IS PROVIDED FOR IN THE CONTRACT, PLANS, OR SPECIFICATIONS.

MN–3. THE CONTRACTOR SHALL EXAMINE THE SITE FOR ALL CONDITIONS WHICH MAY AFFECT HIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCOVERY, LOCATION AND IDENTIFICATION OF EXISTING UTILITIES, DRAINAGE SYSTEMS OR PHYSICAL STRUCTURES WITHIN THE LIMITS OF WORK. THE OWNER, HIS ENGINEER, AND ENGINEER'S CONSULTANT ASSUME NO RESPONSIBILITY FOR SUBSURFACE CONDITIONS OR FOR THE CONTRACTOR'S FAILURE TO IDENTIFY, LOCATE, AND PROTECT EXISTING FACILITIES ABOVE AND BELOW THE GROUND.

MN–4. THE CONTRACTOR SHALL REMOVE ALL WASTE MATERIAL FROM THE SITE AND DISPOSE OF IN AN APPROVED MANNER. BURNING ON SITE WILL NOT BE ALLOWED.

MN–5. THE CONTRACTOR SHALL CLEARLY MARK LIMITS OF WORK PRIOR TO CLEARING TO PROTECT ADJACENT AREAS FROM CONSTRUCTION ACTIVITIES.

MN–6. AS–BUILT DRAWINGS SHALL BE KEPT BY THE CONTRACTOR AND SUBMITTED TO THE OWNER UPON PROJECT COMPLETION, PRIOR TO FINAL CERTIFICATION OF SUBSTANTIAL COMPLETION BY THE ENGINEER. THESE AS–BUILT DRAWINGS SHALL COMPLY WITH THE FLORIDA ADMINISTRATIVE CODE (F.A.C.) FOR SURVEYORS.

MN–7. THE CONTRACTOR SHALL PROVIDE ALL SHEETING, SHORING, AND BRACING REQUIRED TO PROTECT ADJACENT STRUCTURES AND UTILITIES, OR TO MINIMIZE TRENCH WIDTH AS REQUIRED. SHEETING AND SHORING TO BE DESIGNED BY A STATE OF FLORIDA REGISTERED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR.

MN–8. ALL PERSONAL PROPERTY, EXCEPT MAILBOXES, WITHIN THE RIGHT–OF–WAY NOT RELOCATED BY THE PROPERTY OWNER(S) SHALL BE REMOVED BY THE CONTRACTOR AS NECESSARY TO CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE PLANS. MAIL BOXES SHALL BE RELOCATED BY THE CONTRACTOR IN ACCORDANCE WITH F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS (F.D.O.T. INDEX NO. 532).

MN–9. ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION EXISTING PRIOR TO COMMENCING CONSTRUCTION, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. COST TO BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION TO BE ALLOWED.

MN–10. APPARENT ERRORS, DISCREPANCIES OR OMISSIONS ON THE DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE BIDDING. NO EXTRA PAYMENT WILL BE ALLOWED FOR ANY WORK REQUIRED DUE TO MISUNDERSTANDING OF JOB OR SITE CONDITIONS AFFECTING THE WORK DESCRIBED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL NOT TAKE ADVANTAGE OF ANY APPARENT ERROR OR OMISSION IN THE DRAWINGS OR SPECIFICATIONS, AND THE ENGINEER SHALL BE PERMITTED TO MAKE CORRECTIONS AND INTERPRETATIONS AS MAY BE DEEMED NECESSARY FOR FULFILLMENT OF THE INTENT OF THE CONTRACT DOCUMENTS. THE TENDERING OF A PROPOSAL WILL ACKNOWLEDGE ACCEPTANCE OF THESE CONDITIONS BY THE BIDDER.

REV.	DATE	DESCRIPTION	APP'D BY	NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED
				DAVID W. HAMSTRA, P.E. 38852

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CLUB II REGIONAL STORMWATER FACILITY (RSF)
GENERAL NOTES
SEMINOLE COUNTY S 32 T 19S R 31E
SANFORD

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	JUL 05

SHEET 3 / 15

3

NTM/NEW TRIBES MISSION HOMES

EXIST. DITCH OUTFALL TO CELERY AVE (LAKE MONROE)

SEE DETAILS NEXT SHEET (3)

NORTH-SOUTH CROSS SECTION SEE SHEET 7

FF 21.8' FF 21.9' FF 22.1' FF 22.3' FF 22.6' FF 22.8' FF 23.0' FF 23.2' FF 23.3' FF 23.1' FF 23.0' FF 22.8' FF 22.7' FF 22.5'

FF 26.6' FF 27.8' FF 29.0' FF 29.1' FF 28.8' FF 28.5' FF 28.2' FF 27.9' FF 27.7' FF 27.4' FF 27.4' FF 27.7' FF 28.0' FF 28.2' FF 28.6' FF 28.8' FF 29.1' FF 29.4' FF 29.7'

FIRST DRIVE BASELINE

FIRST DR

FORMER RAILROAD

993.21'

BENCHMARK
STA 10+00. 78.7' L
BURROWS LANE BASELINE
SET P.K. NAIL & DISK
STAMPED SSMC TRAVERSE PT.
EL. 25.88'

PD-1
SEE SHEET 8

SEE DETAILS NEXT SHEET (1) (± 250 LF)

20' WIDE CONST. ACCESS

SEE DETAILS NEXT SHEET (2) (± 2,000 LF)

CLUB II RSF NORTH CELL

SEE DETAILS NEXT SHEET (1) (± 900 LF)

1290.94'

CELERY LAKES SUBDIVISION (UNDER CONSTRUCTION)

EXIST. DITCH OUTFALL TO CELERY AVE (LAKE MONROE)

PALM POINT SUBDIVISION

BURROWS LN

ROSEBERRY LN

BRISSON AVE

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

BURROWS LANE BASELINE
WEST LINE OF SW 1/4
SECTION 32, TWN 19S, RNG 31E

2nd DR

ROSELAND PARK SUBDIVISION

1612.37'

REFERENCE POINT
STA 17+32.6, 29.7' R
BURROWS LANE BASELINE
FOUND IR (ID PSM 3382)

REFERENCE POINT
STA 18+60.3, 30.0' R
BURROWS LANE BASELINE
FOUND 1/2" IR (NO ID)

3rd DR

30' DRAINAGE ESMT.

WASHINGTON OAKS SUBDIVISION

PARK

"LOW-LEVEL" OVERFLOW

PD-2
SEE SHEET 9

FOUND 1/4" PIN

993.33'

FOUND 4x4 CM
FOUND RR SPIKE

20th ST

PD-7
SEE SHEET 14

PROP. INFLOW (MIDWAY BASIN "04-07")

REFERENCE POINT
STA 25+76.6, 33.7' L
BURROWS LANE BASELINE
SANITARY MANHOLE
TOP EL. 31.00'

SEE DETAILS NEXT SHEET (2) (± 850 LF)

SEE DETAILS NEXT SHEET (3)

SOUTH ST

661.85'

PD-3
SEE SHEET 10

"HIGH-LEVEL" OVERFLOW

CEDAR HILL SUBDIVISION

CLUB II RSF SOUTH CELL

1387.73'

PROP. INFLOW (MIDWAY BASIN "04-07")

PD-6
SEE SHEET 13

21st ST

1074.65'

22.5' DRAINAGE ESMT.

25' RIGHT-OF-WAY

SEMINOLE COUNTY DRAINAGE EASEMENT

BRISSON AVENUE BASELINE (SEE SHEETS 12-14)

2651.74'

PRIVATE DRAINAGE EASEMENT

PROP. INFLOW (MIDWAY BASIN "04-06")

205.08'

PROP. INFLOW (MIDWAY BASIN "04-07")

24th ST

INFLOW FROM LAKE GEM

118.15'

1-ACRE PARCEL

124.74'

PD-5
SEE SHEET 12

LINGARD AVE

1106.03'

321.97'

1224.66'

PD-4
SEE SHEET 11

SEE DETAILS NEXT SHEET (2) (± 650 LF)

INFLOW FROM SR 46

1252.72'

EXISTING GATE AT SR 46

SOUTH LINE OF SW 1/4 SEC 32, TWN 19S, RNG 31E

FOUND RR SPIKE

1" = 150'

NOTES

1. AERIAL IMAGE DATED 2004 (www.labins.org).
2. "AS-BUILT" TOPOGRAPHIC SURVEY OF CLUB II BORROW PIT PREPARED BY MYDESIGNS - ENGINEERING, PLANNING, AND SURVEYING DATED NOVEMBER 2004.
3. DO NOT USE THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. HOWEVER, SEVERAL BENCHMARKS AND REFERENCE POINTS HAVE BEEN SHOWN TO SUPPLEMENT INFORMATION THAT COULD NOT BE SHOWN WITHIN THE PLAN COVERAGE FOR SOME OF THE PROPOSED IMPROVEMENTS (i.e., BURROWS LANE BASELINE).

REV.	DATE	DESCRIPTION	APP'D BY

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

DAVID W. HAMSTRA, P.E. 38852

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engineers planners surveyors
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CLUB II REGIONAL STORMWATER FACILITY (RSF)

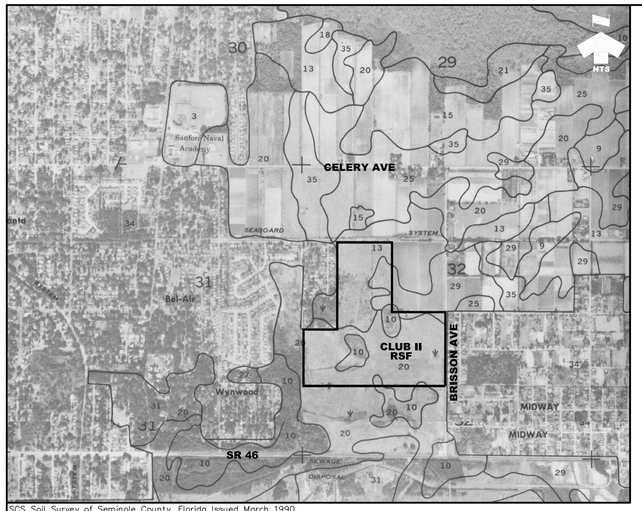
OVERALL PLAN, SUPPLEMENTAL BENCHMARKS AND REFERENCE POINTS

S. 32, T. 19S, R. 31E

SANFORD SEMINOLE COUNTY

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	JUL 05
SHEET	4 / 15

4



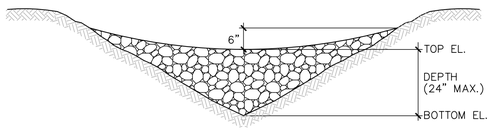
SCS Soil Survey of Seminole County, Florida Issued March 1990

- PLAN LOCATION: **Approximately 1,250–feet north of SR 46 and immediately west of Brisson Avenue.**
- DESCRIPTION OF CONSTRUCTION ACTIVITIES: **Installation of various drainage structures and associated earthwork and grading operations.**
- CONSTRUCTION SEQUENCE: Prior to beginning any phase, the Contractor shall install erosion and sediment control items as specified in the Technical Provisions. Applicable erosion control devices and implementation procedures are supplied in the contract documents and FDOT standard indexes. Environmental impacts within wetlands and/or sensitive water bodies are not proposed and are not anticipated to result from construction activities. However, and to insure that the quality of water discharged offsite will not degrade the receiving system, silt fences and other erosion and sediment controls will be utilized. Effective control of erosion and sedimentation depends on the proper use of a number of specific best management practices (BMP's). Each of these has a correct application, installation, and maintenance requirement. Improvements shall be limited to a maximum 1,000–lf segments and completed before starting next segment.

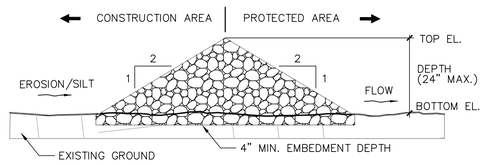
  The following suggested BMP's describe the sequence of construction activities:

  TASK I: Site Preparation
  - Installation of Pollution Controls: Erosion and sediment controls shall be installed in accordance with the SWPPP, Construction Plans and Technical Provisions.
  - Clearing and Grubbing: Clearing and grubbing consists of the complete removal and disposal of timber, brush, stumps, roots and all other obstructions resting on or protruding through the surface of the existing ground. In all areas where excavation is to be done and where the excavated material is to be used in the construction of embankment, roots and other debris will be removed to a depth of at least one (1) foot below the ground surface. A site dewatering system will also be installed as needed.
- TASK II Infrastructure Construction
  - Excavation, Filling and Compaction: These activities consist of the installation of water systems, sanitary sewer systems, excavation of stormwater management areas and installation of storm pipes and culverts, followed by backfill and compaction. Dewatering activities will take place as needed for each construction element.
  - Installation of Structures and Pipes: This task includes the installation of all piping and structures. Trench dewatering may be required and will consist of continuous pumping or a well point system, at the Contractors discretion. All structures and pipes shall have the appropriate pollution control features installed, in accordance with the construction plans, Technical Provisions, and FDOT Indices.
- TASK III: Finished Construction
  - Miscellaneous Construction: The remaining finish construction activities are to be completed under this task to achieve final completion. This task will include restoration (i.e., sod and/or seed) of any disturbed areas as necessary, followed by the removal of any remaining pollution controls.
- SOIL NUMBERS, NAMES AND HYDROLOGIC SOILS GROUPS (HSG): **Soil No. 10, Basinger–Samsula–Hontoon, HSG "B/D" & D". Soil No. 13, EauGallie–Immokalee, HSG "B/D", Soil No. 20, Myakka–EauGallie, HSG "B/D". Soil No. 29, St. Johns–EauGallie, HSG B/D. Because the former borrow pit is presently land–locked, water levels will fluctuate in response to seasonal rainfall, and would ultimately stabilize in the range of elevation 25– to 28–feet, NGVD. Recently surveyed water levels are presented later within these plans. Dewatering should be anticipated.**
- DEWATERING METHODS AND LOCATIONS: Dewatering shall be performed in accordance with Sections C455–4 and C455–6.2 of FDOT Supplemental Specifications to the 1991 Standard Specifications for Road and Bridge Construction (1994). The contractor is solely responsible for the dewatering method: well points, horizontal sock drains, or pumping from interior pumps. Where pumps are used to remove highly turbid waters from enclosed construction areas, the water shall be treated by one or more of the following methods prior to discharging into receiving waters: pumping into grassed swales or appropriate vegetated areas, sediment basins, or confined by an appropriate enclosure such as turbidity barriers when other methods are not considered appropriate. The water table shall be lowered to at least 2 feet below the base of the trench during excavation and backfilling.
- BMPs:
  - **Turbidity Barriers (refer to Overall Map for location)**
  - **Temporary Rock Check Dam (refer to Overall Map for location)**
  - **Silt Fence Type III (refer to Overall Map for location)**
- PERMANENT STABILIZATION: Permanent ground cover shall be installed within 7 days after final grading is completed.
- PERMANENT STORMWATER MANAGEMENT CONTROL: **The work zone will be restored to the existing condition once construction activities are complete. The placement and establishment of vegetative cover will ultimately provide permanent stormwater management control.**
- POTENTIAL POLLUTANTS DURING CONSTRUCTION:
  - Waste Disposal: The Contractor shall provide litter control and collection within the project boundaries during construction activities. Laborers shall patrol the site daily and pick up blowing debris and dispose of such material in an appropriate manner. Temporary fencing to contain litter at the working site may be required. All fertilizer, hydrocarbon, or other chemical containers shall be disposed of by the Contractor according to EPA's standard practices as detailed by the manufacturer.
  - Off–Site Vehicle Tracking: If necessary or applicable, this shall include but not be limited to the use of a water tanker to spray the activity area when dust becomes a problem, gravel entrances at each construction segment and staging area and/or periodic brooming of paved access streets adjacent to construction.
  - Sanitary Waste Disposal: Portable sanitary units shall be provided by the Contractor for use by workers throughout the duration of the project. Sanitary waste will be regularly collected from the portable units by a licensed sanitary waste management contractor.
  - Hazardous Waste: If a Contractor's operations encounter or expose any abnormal condition which may indicate the presence of a hazardous or toxic waste, the operations shall be discontinued in the vicinity of the abnormal conditions and the City shall be notified immediately. The presence of tanks or barrels, discolored earth, metal, wood, groundwater, etc.; visible fumes; abnormal odors; smoke; or other conditions which appear abnormal may be indicators of hazardous waste and shall be treated with extraordinary care. Disposal of the hazardous or toxic waste shall be conducted in accordance with the requirements of the Local, State or Federal agency having jurisdiction.
  - Fertilizers and Pesticides: Fertilizers will not be used in areas deemed environmentally sensitive (e.g., wetlands) to reduce the nutrient loading to surface waters entering these areas.
- INSPECTIONS:

  Construction site will be inspected for erosion problems daily and after each 0.50–inch rainfall event or greater. A rain gauge will be installed on–site. The Contractor shall designate a qualified person or persons to perform the following inspections:
  - Stabilization Measures: Areas used for stockpiling and disturbed areas exposed to precipitation will be inspected for evidence of pollutants being discharged to adjacent storm water systems. The County may direct the Contractor to provide immediate permanent or temporary erosion or pollution control measures to prevent potential contamination of any water body or impoundment and to prevent detrimental effects on property outside the project limits. Stockpile areas will not be placed within 250–ft. of any environmentally sensitive areas.
  - Structural Controls: All erosion and sediment control features shall be inspected on a regular basis to assure that the measures are positioned and anchored properly, effectively capturing sediments that may otherwise pollute adjacent receiving waters.
  - Discharge Points: All discharge points shall be periodically inspected to determine the effectiveness of the sediment and erosion control measures in preventing significant amounts of pollutants to be discharged to receiving waters.
  - Construction Entrance: That onsite soils or materials are not being transported off–site by construction traffic and BMP's are implemented.
- ADDITIONAL NOTES: Contractor is responsible for installing any additional erosion control measures if it becomes necessary to meet State and local standards.
- OPERATOR AND/OR RESPONSIBLE AUTHORITY: **Seminole County Roads – Stormwater Division**



FRONT VIEW



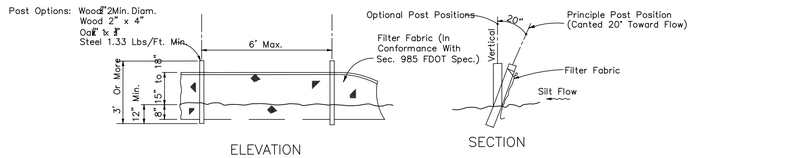
PROFILE VIEW

NOTES:

1. ROCK MATERIAL SHALL BE F.D.O.T. AGGREGRATE NO. 1 (2– TO 3–INCH DIAMETER) STONE.
2. EROSION CAUSED BY FLOWS AROUND THE EDGES OF THE DAM SHALL BE CORRECTED IMMEDIATELY.
3. THE CONTRACTOR WILL BE REQUIRED TO REMOVE SEDIMENTS UPSTREAM OF THE DAM WHEN:
   - THE ACCUMULATED SEDIMENT HAS REACHED ONE–HALF THE ORIGINAL HEIGHT OF THE DAM; OR
   - AT THE DIRECTION OF THE OWNER, ENGINEER OR CONSTRUCTION ADMINISTRATOR.
4. AT THE END OF CONSTRUCTION, THE CONTRACTOR WILL BE REQUIRED TO REMOVE THE ROCK CHECK DAM, ANY ACCUMULATED SEDIMENTS AND ROCK MATERIAL BOTH UPSTREAM AND DOWNSTREAM OF THE DAM.

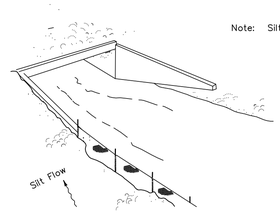
③ TEMPORARY ROCK CHECK DAM

NOT TO SCALE



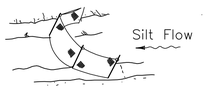
Note: Silt Fence to be paid for under the contract unit price for Staked Silt Fence (LF).

TYPE III SILT FENCE



Type III Silt Fence

Type III Silt Fence Protection Around Ditch Bottom Inlets.

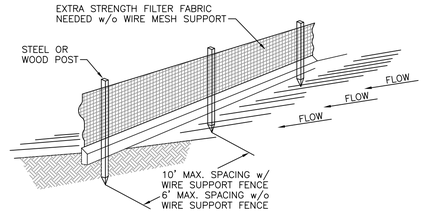


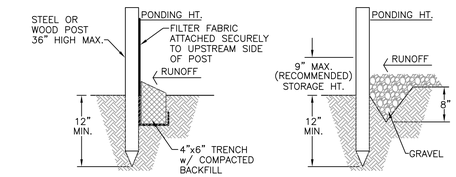
Type III Silt Fence

Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations and turbidity barriers used at permanent bodies of water.

② SILT FENCE APPLICATIONS (FDOT INDEX NO. 102)

NOT TO SCALE





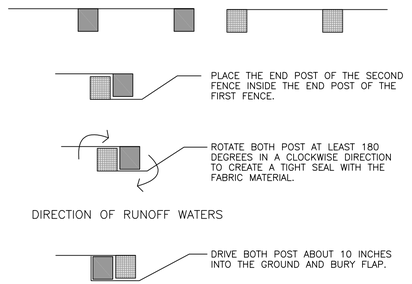
STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

ALTERNATE DETAIL
TRENCH WITH GRAVEL

NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF–SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

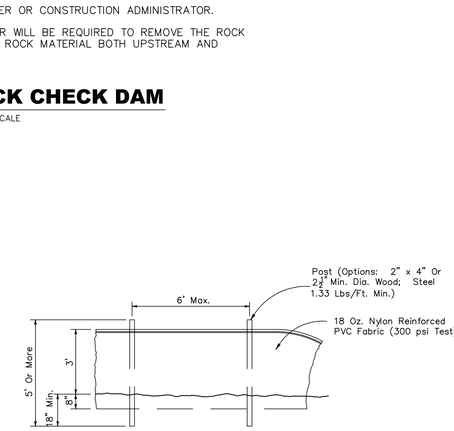
ATTACHING TWO SILT FENCES



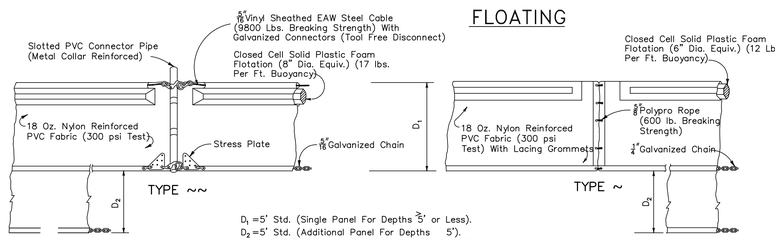
② SILT FENCE

NOT TO SCALE

STAKED



FLOATING



D_1 = 5' Std. (Single Panel For Depths 5' or Less).
D_2 = 5' Std. (Additional Panel For Depths 5').
Curtain To Reach Bottom Up To Depths Of 10 Feet. Two(2) Panels To Be Used For Depths Greater Than 10 Feet Unless Special Depth Curtains Specifically Called For In The Plans Or As Determined By The Engineer.

NOTICE: COMPONENTS OF TYPES ~ AND ~~ MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES ~ AND ~~ SHALL BE AS APPROVED BY THE ENGINEER.

NOTES:

1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
2. Number and spacing of anchors dependent on current velocities.
3. Deployment of barrier around pile locations may vary to accommodate construction operations.
4. Navigation may require segmenting barrier during construction operations.
5. For additional information see Section 104 of the Standard Specifications.

Note:
Turbidity barriers for flowing streams and tidal creeks may be either floating, or staked types or any combinations of types that will suit site conditions and meet erosion control and water quality requirements. The barrier type(s) will be at the Contractors option unless otherwise specified in the plans, however payment will be under the pay item(s) established in the plans for Floating Turbidity Barrier and/or Staked Turbidity Barrier. Posts in staked turbidity barriers to be installed in vertical position unless otherwise directed by the Engineer.

① TURBIDITY BARRIERS (FDOT INDEX NO. 103)

NOT TO SCALE

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED
DAVID M. HAMSTRA, P.E. 38652

REV.	DATE	DESCRIPTION	APP'D BY

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Tel (407) 422-8062 Fax (407) 849-9401

CLUB II REGIONAL STORMWATER FACILITY (RSF)

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

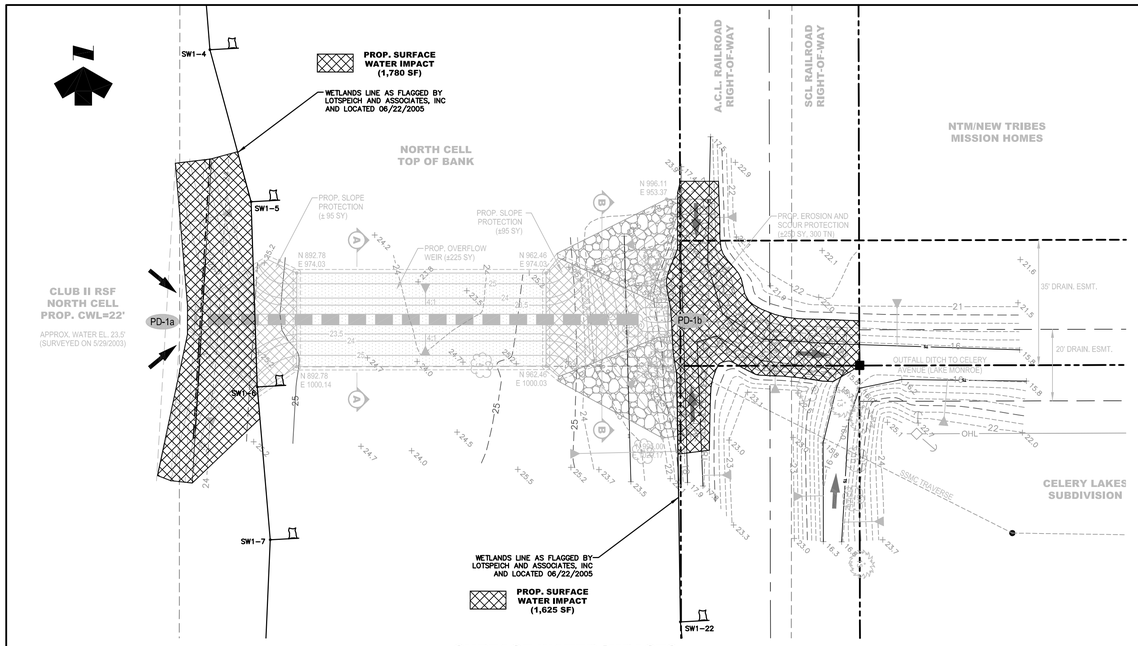
S. 32 T. 19S R. 31E

SEMINOLE COUNTY SANFORD

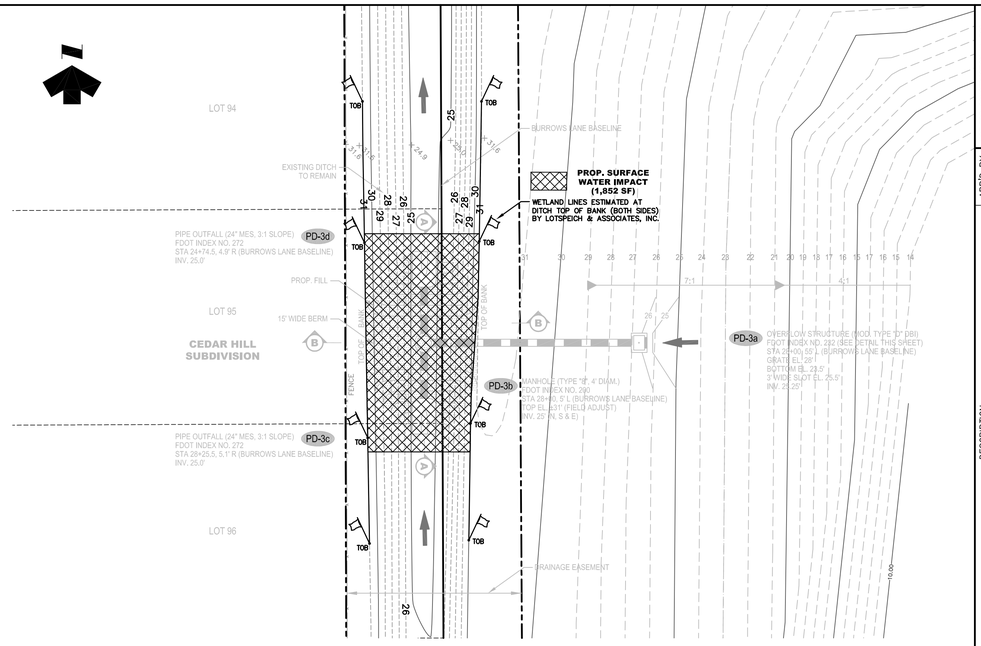
DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC–106
DATE	JUL 05

SHEET 5 / 15

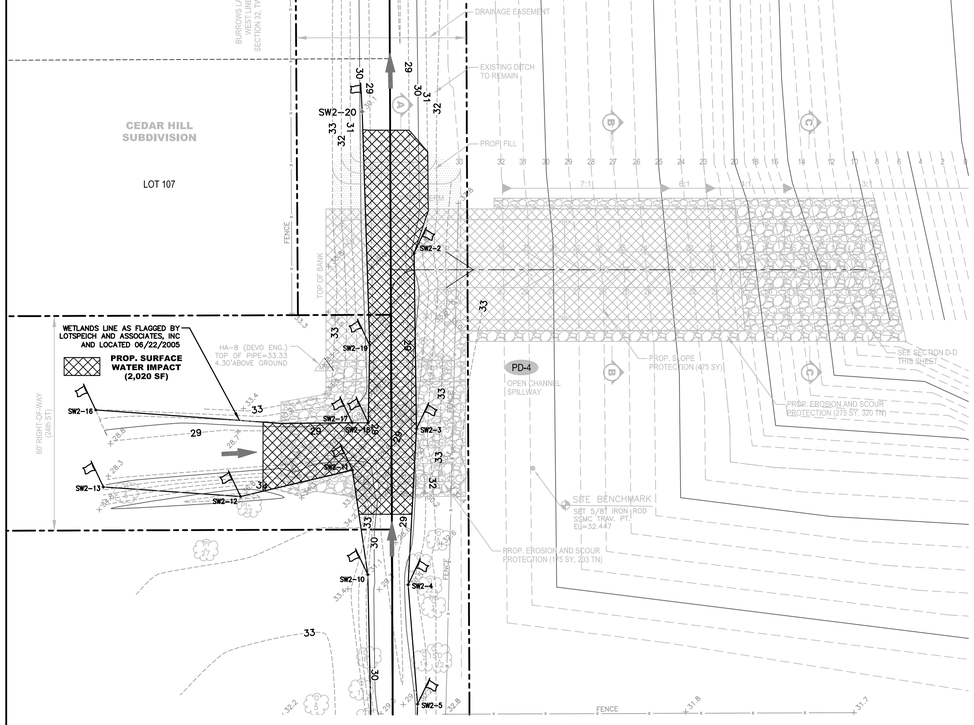
5



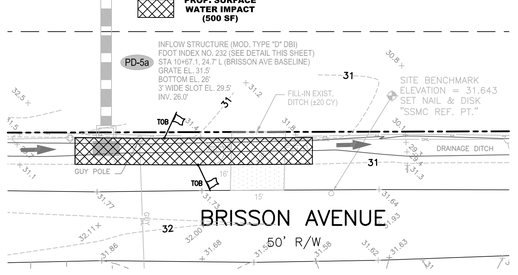
SURFACE WATER IMPACTS
STRUCTURE PD-1
SCALE: 1"=20'



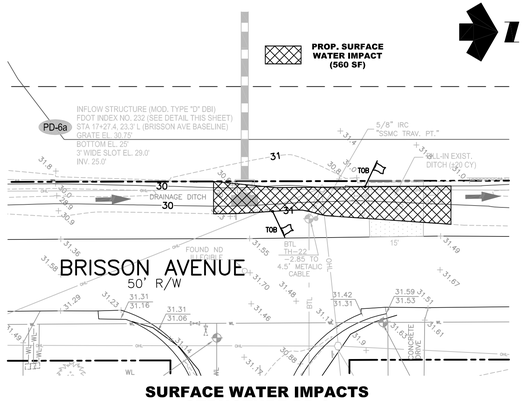
SURFACE WATER IMPACTS
STRUCTURE PD-3
SCALE: 1"=20'



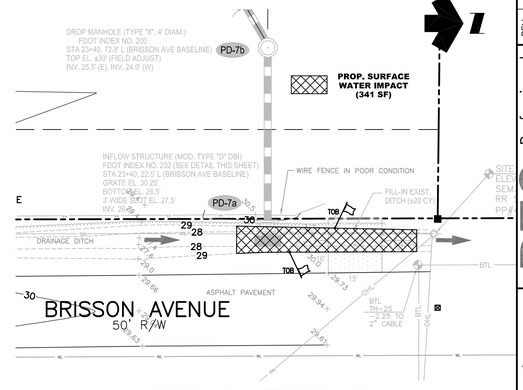
SURFACE WATER IMPACTS
STRUCTURE PD-4
SCALE: 1"=20'



SURFACE WATER IMPACTS
STRUCTURE PD-5
SCALE: 1"=20'



SURFACE WATER IMPACTS
STRUCTURE PD-6
SCALE: 1"=20'



SURFACE WATER IMPACTS
STRUCTURE PD-7
SCALE: 1"=20'

DAVID W. HAMSTRA, P.E. 38852
NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

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PEC Professional Engineering Consultants
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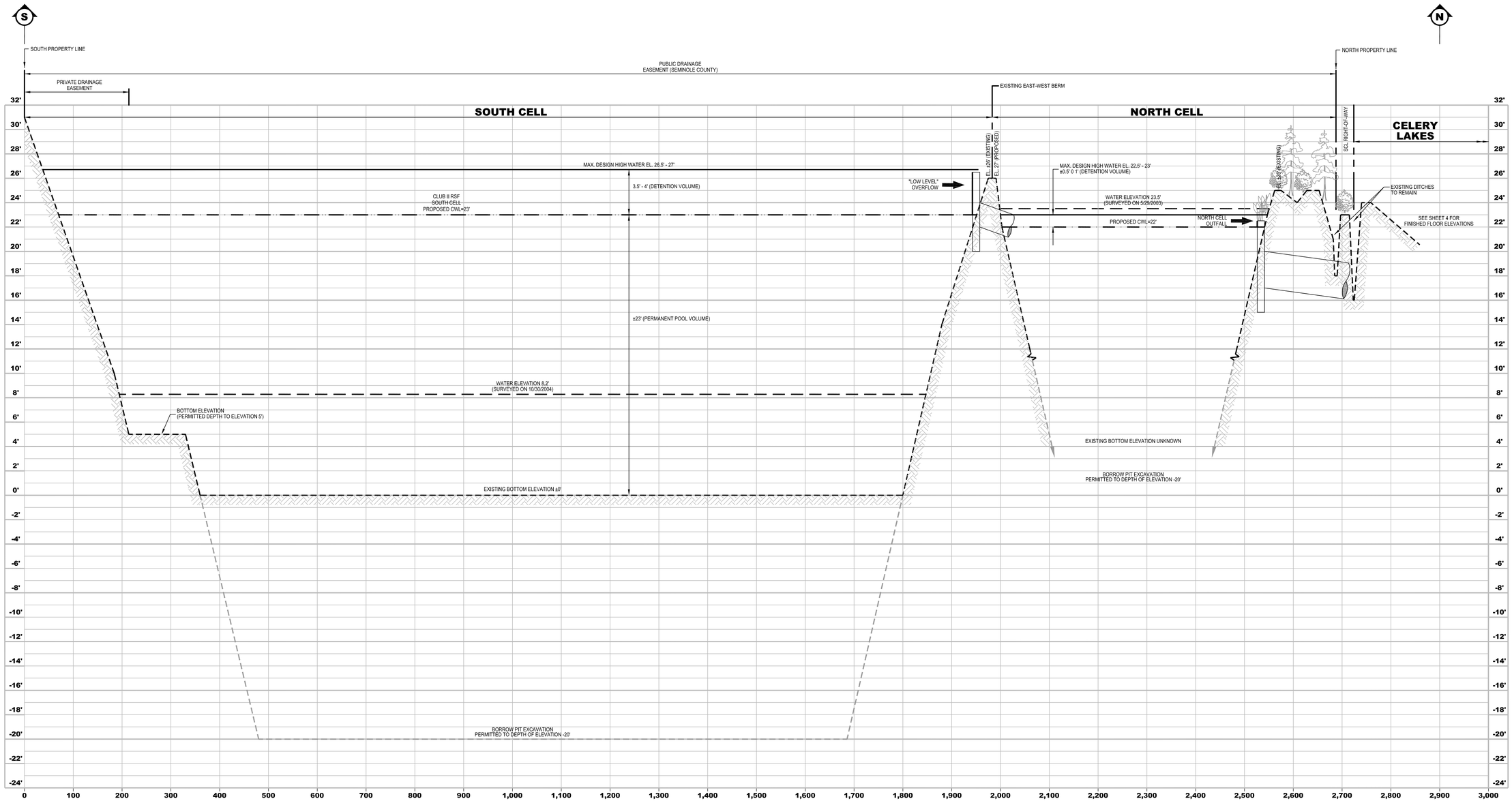
CLUB II REGIONAL STORMWATER FACILITY (RSF)

WETLAND AND/OR SURFACE WATER IMPACTS

SANFORD SEMINOLE COUNTY S. 32 T. 19S R. 31E

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	OCT 05
SHEET	6 / 15

6



NORTH-SOUTH CROSS SECTION AND HYDRAULIC PROFILE
SCALE: 1"=100' (H), 1"=4' (V)

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED
DAVID W. HAMSTRA, P.E. 38652

APP'D BY | DESCRIPTION | DATE | REV.

PEC Professional Engineering Consultants
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CLUB II REGIONAL STORMWATER FACILITY (RSF)

NORTH - SOUTH CROSS SECTION AND HYDRAULIC PROFILE

S 32, T 19S, R 31E
SEMINOLE COUNTY
SANFORD

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	JUL 05

SHEET 7 / 15

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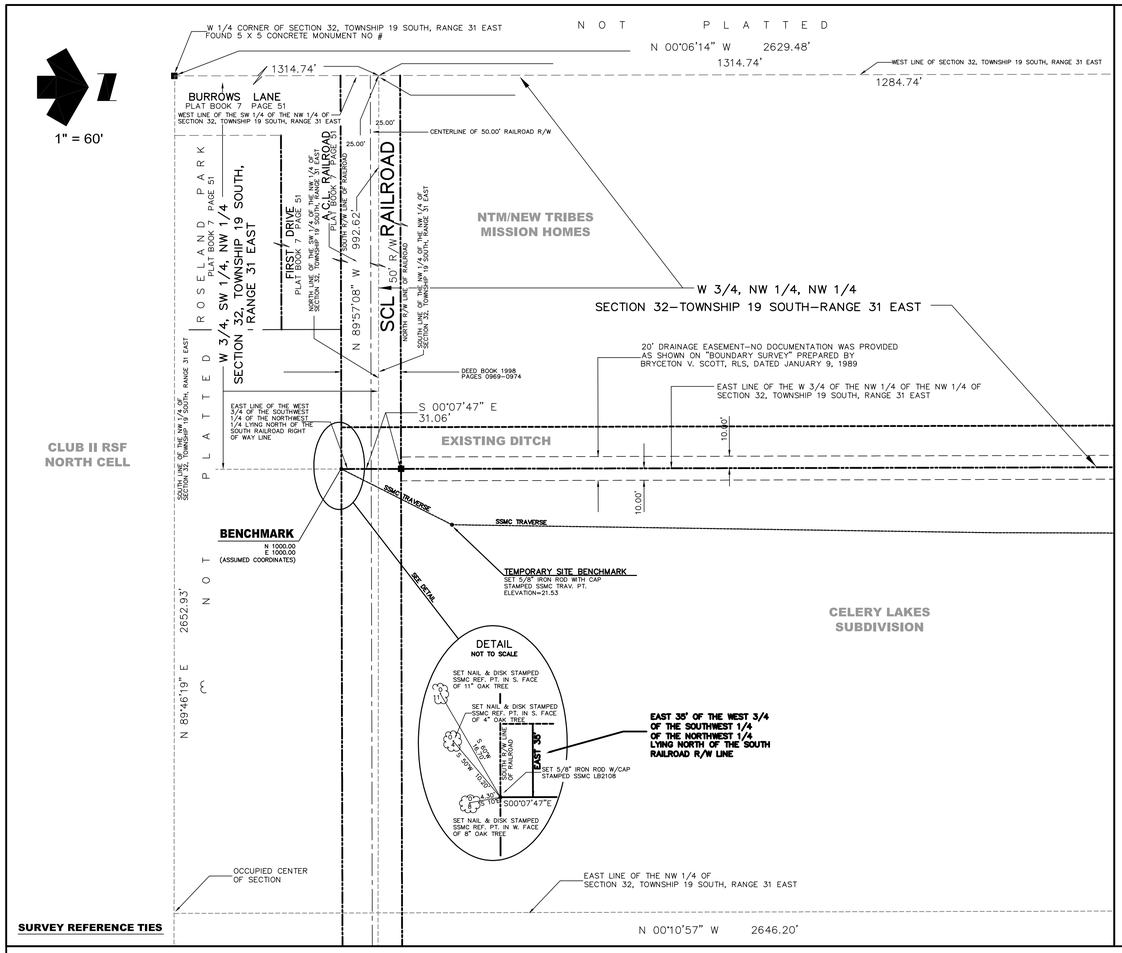
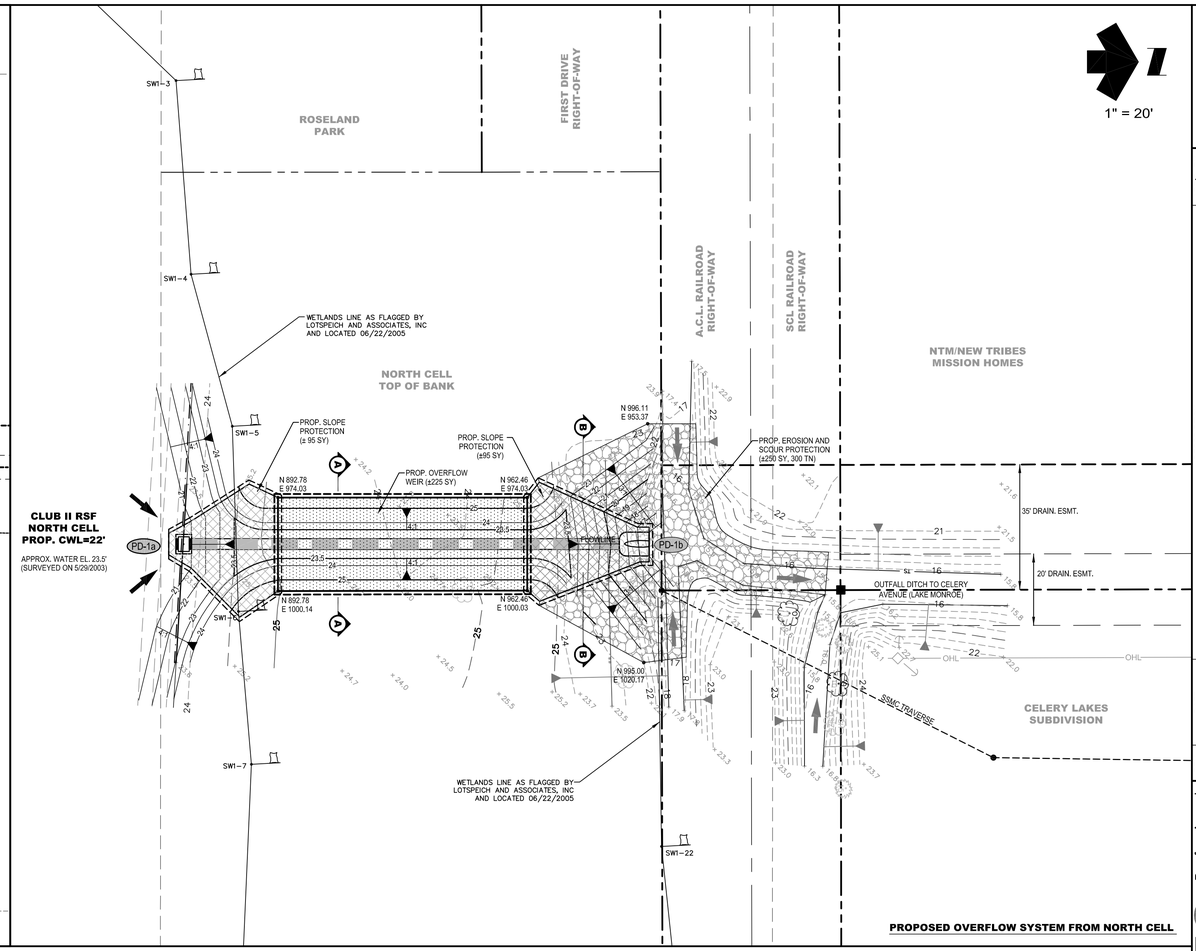
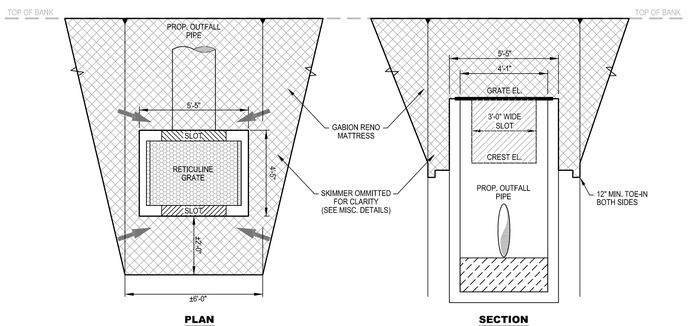
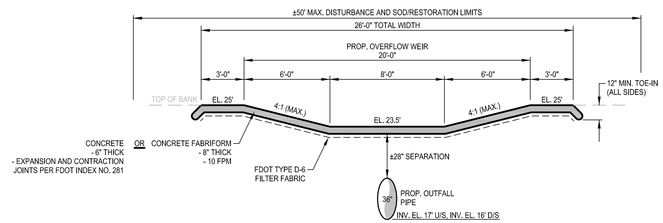




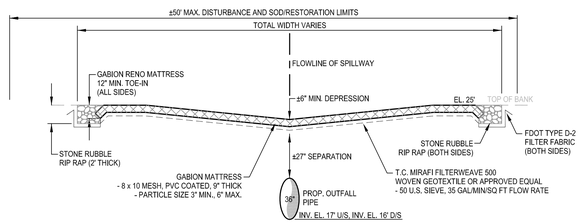


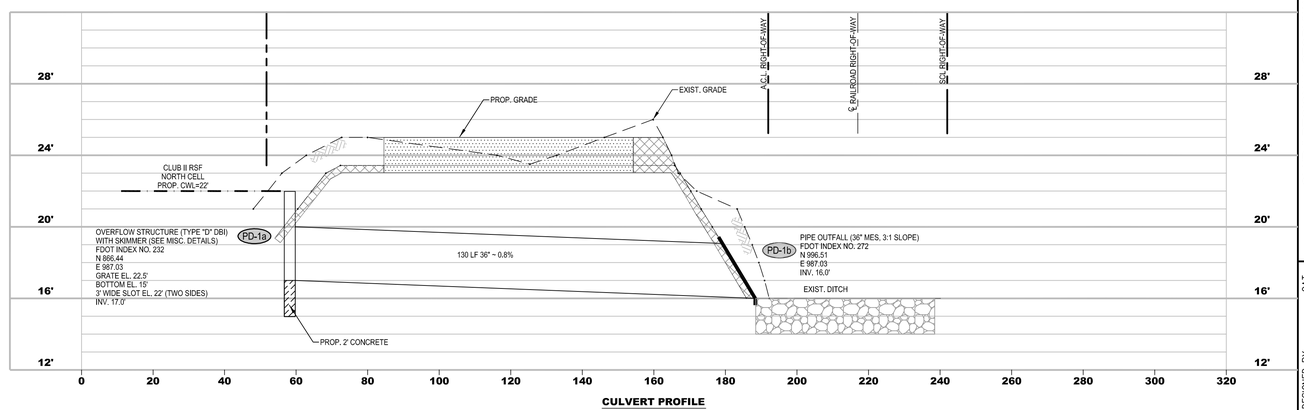
PD-1a **STRUCTURE DETAIL**
NOT TO SCALE

SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE





CULVERT PROFILE
SCALE: 1"=20' (H), 1"=4' (V)

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REV.	DATE	DESCRIPTION	APP'D BY
		NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED	DAVID W. HAMSTRA, P.E. 38852

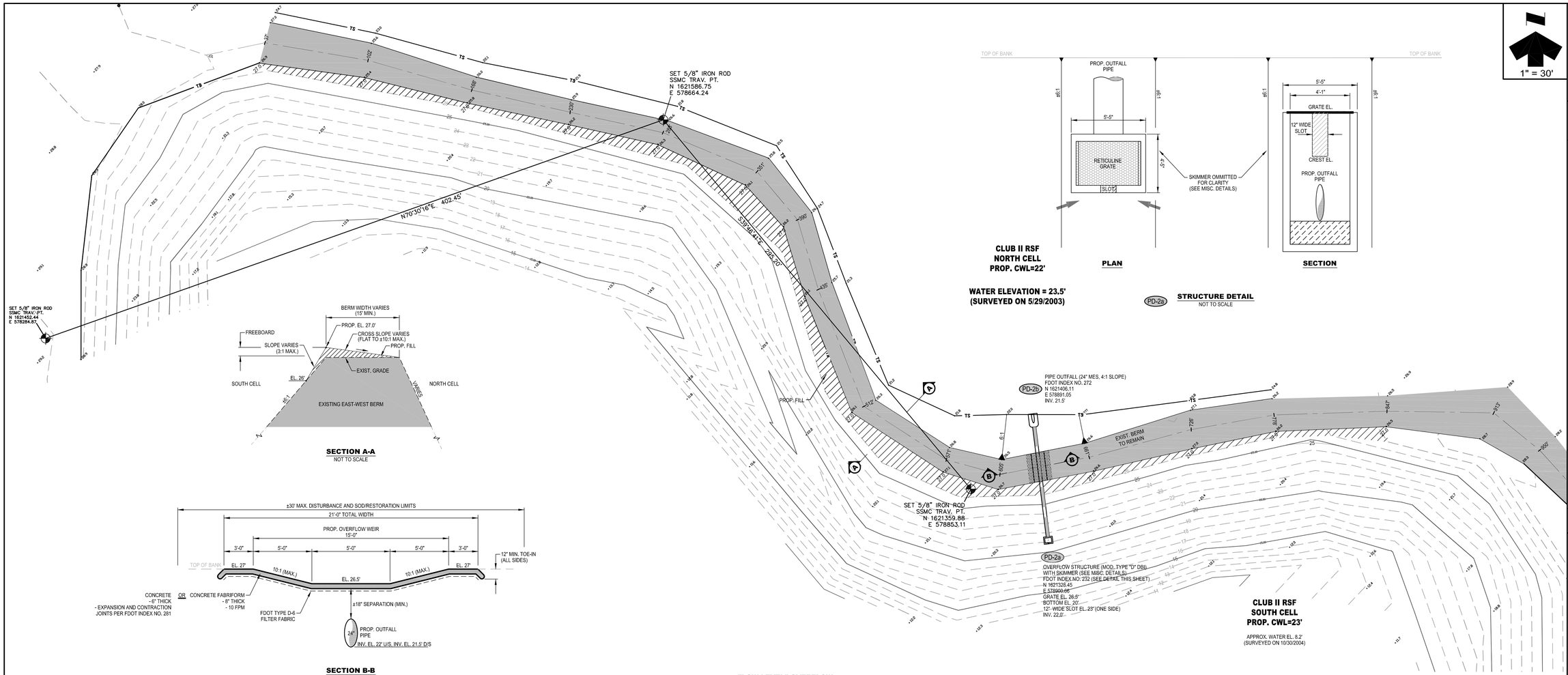
CLUB II REGIONAL STORMWATER FACILITY (RSF)

CLUB II RSF
NORTH CELL (OVERFLOW)

S. 32, T. 19S, R. 31E
SEMINOLE COUNTY
SANFORD

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	JUL 05
SHEET	8 / 15

8



SECTION A-A
NOT TO SCALE

SECTION B-B
NOT TO SCALE

CLUB II RSF
NORTH CELL
PROP. CWL=22'

PLAN

SECTION

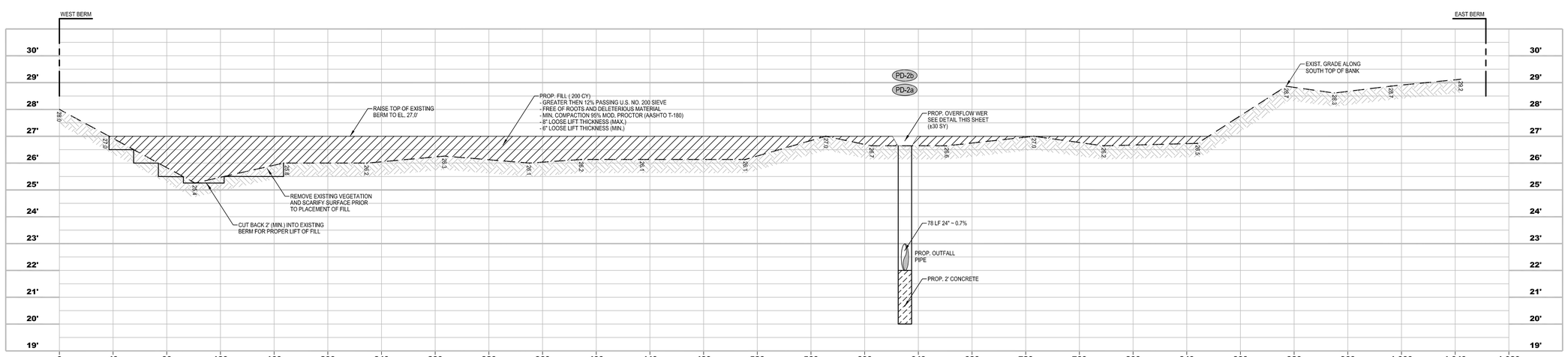
WATER ELEVATION = 23.5'
(SURVEYED ON 5/29/2003)

PD-2a **STRUCTURE DETAIL**
NOT TO SCALE

"LOW LEVEL" OVERFLOW
PROPOSED INTERCONNECT BETWEEN SOUTH CELL AND NORTH CELL

NOTES

1. CONTOURS OBTAINED FROM "AS-BUILT" TOPOGRAPHIC SURVEY OF CLUB II BORROW PIT PREPARED BY MYDESIGNS-ENGINEERING, PLANNING AND SURVEYING DATED NOVEMBER 2004.
2. TOP OF BANK, TOE OF SLOPE AND SPOT ELEVATIONS SURVEYED BY SOUTHEASTERN SURVEYING AND MAPPING CORPORATION IN JUNE 2005.



EAST-WEST BERM PROFILE
SCALE: 1"=40' (H), 1"=2' (V)

1" = 30'

DAVID W. HAMSTRA, P.E. 38852
NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

REV.	DATE	DESCRIPTION	APP'D BY

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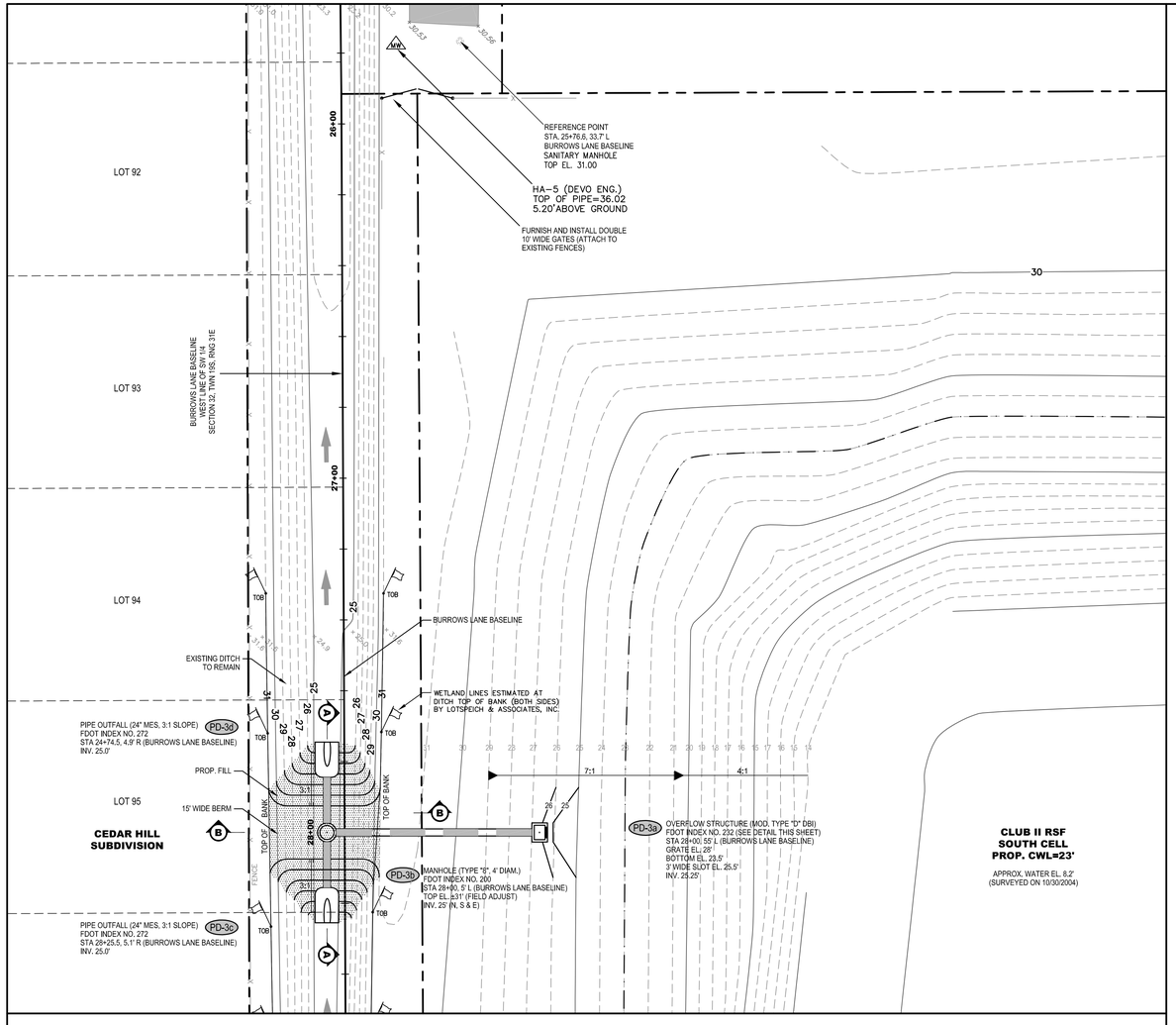
CLUB II REGIONAL STORMWATER FACILITY (RSF)

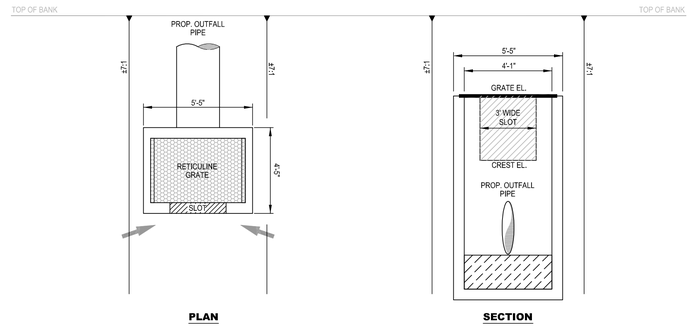
CLUB II RSF SOUTH CELL ("LOW – LEVEL" OVERFLOW)

S 32 T 19S R 31E
SANFORD SEMINOLE COUNTY

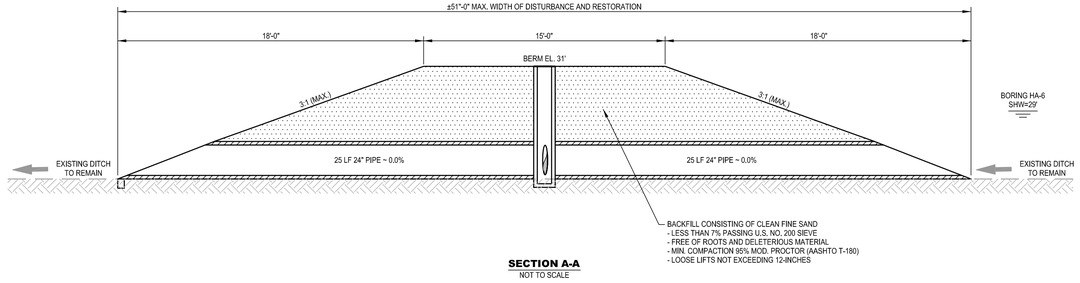
DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	JUL 05
SHEET	9 / 15

9

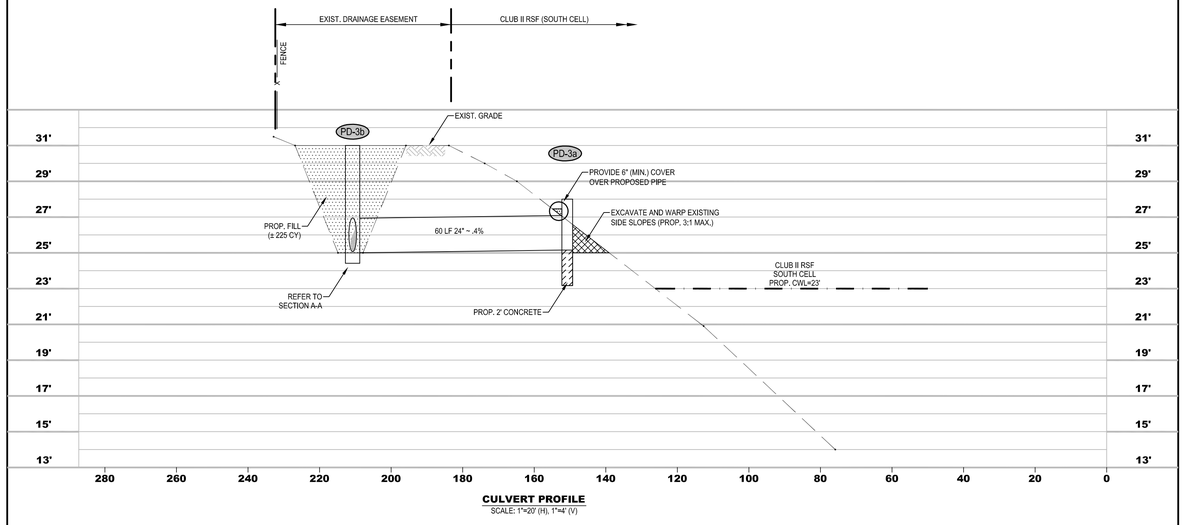




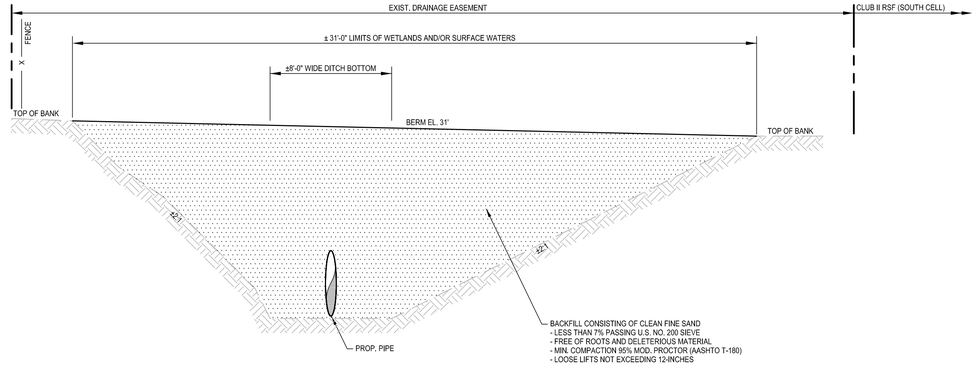
PD-3a **STRUCTURE DETAIL**
NOT TO SCALE



SECTION A-A
NOT TO SCALE



CULVERT PROFILE
SCALE: 1"=20' (H), 1"=4' (V)



SECTION B-B
NOT TO SCALE

1" = 20'

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED
DAVID W. HAMSTRA, P.E. 38852

REV.	DATE	DESCRIPTION	APP'D BY

PEC Professional Engineering Consultants
engineers planners surveyors
Board of Professional Engineers Certificate No. 3556
Suite 1540, Echo Park Centre 200 East Robinson Street
Orlando, Florida 32801 pec@peccentre.com
Tel (407) 422-8002 Fax (407) 849-9401

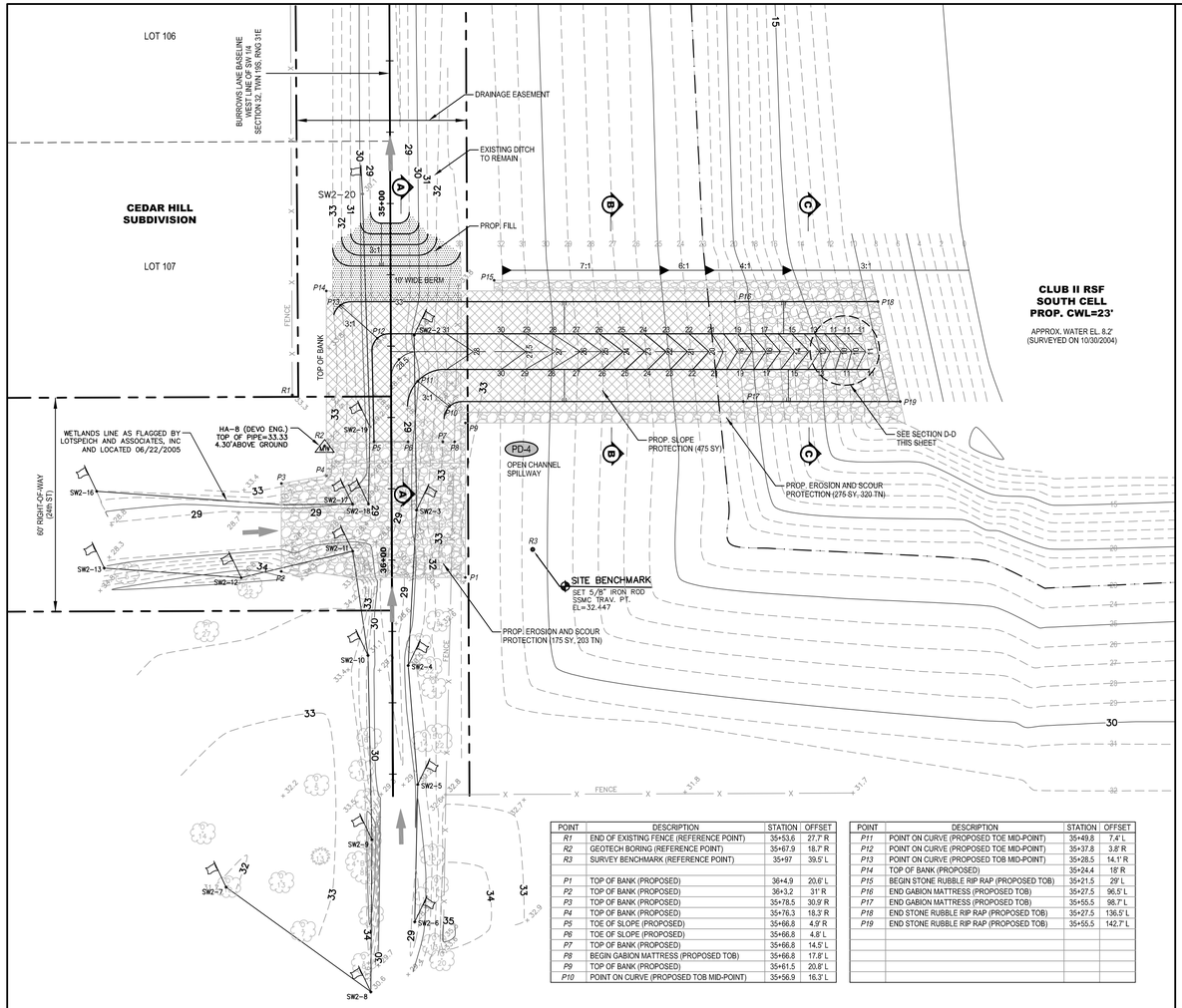
CLUB II REGIONAL STORMWATER FACILITY (RSF)

CLUB II RSF SOUTH CELL ("HIGH - LEVEL" OVERFLOW)

S 32 T 19S R 31E
SEMINOLE COUNTY
SANFORD

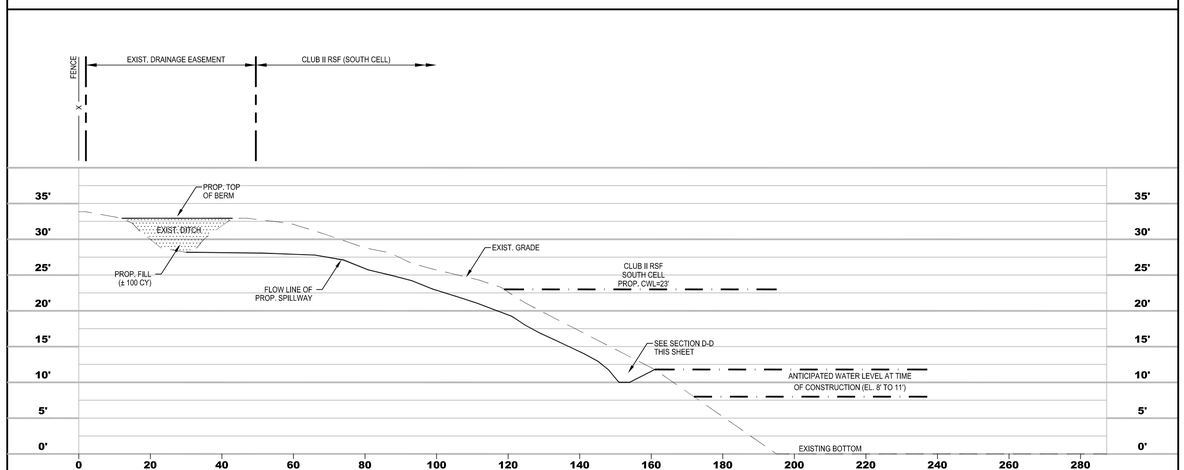
DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	AUG. 05
SHEET	10 / 15

10

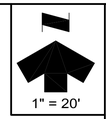


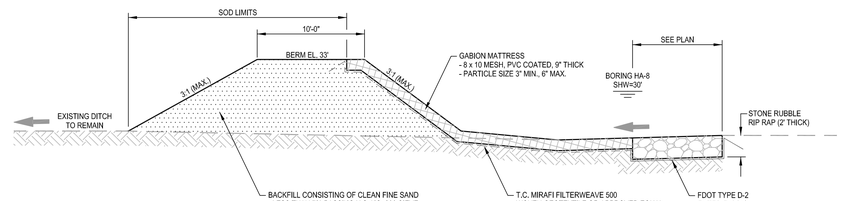
POINT	DESCRIPTION	STATION	OFFSET
R1	END OF EXISTING FENCE (REFERENCE POINT)	35+53.6	27.7' R
R2	GEOTECH BORING (REFERENCE POINT)	35+67.9	18.7' R
R3	SURVEY BENCHMARK (REFERENCE POINT)	35+97	39.5' L
P1	TOP OF BANK (PROPOSED)	36+4.9	20.6' L
P2	TOP OF BANK (PROPOSED)	36+3.2	31' R
P3	TOP OF BANK (PROPOSED)	35+78.5	30.9' R
P4	TOP OF BANK (PROPOSED)	35+76.3	18.3' R
P5	TOE OF SLOPE (PROPOSED)	35+66.8	4.9' R
P6	TOE OF SLOPE (PROPOSED)	35+66.8	4.8' L
P7	TOP OF BANK (PROPOSED)	35+66.8	14.5' L
P8	BEGIN GABION MATTRESS (PROPOSED TOB)	35+66.8	17.8' L
P9	TOP OF BANK (PROPOSED)	35+61.5	20.8' L
P10	POINT ON CURVE (PROPOSED TOB MID-POINT)	35+56.9	16.3' L

POINT	DESCRIPTION	STATION	OFFSET
P11	POINT ON CURVE (PROPOSED TOE MID-POINT)	35+49.8	7.4' L
P12	POINT ON CURVE (PROPOSED TOE MID-POINT)	35+37.8	3.8' R
P13	POINT ON CURVE (PROPOSED TOB MID-POINT)	35+28.5	14.1' R
P14	TOP OF BANK (PROPOSED)	35+24.4	18' R
P15	BEGIN STONE RUBBLE RIP RAP (PROPOSED TOB)	35+21.5	29' L
P16	END GABION MATTRESS (PROPOSED TOB)	35+27.5	96.5' L
P17	END GABION MATTRESS (PROPOSED TOB)	35+55.5	98.7' L
P18	END STONE RUBBLE RIP RAP (PROPOSED TOB)	35+27.5	136.5' L
P19	END STONE RUBBLE RIP RAP (PROPOSED TOB)	35+55.5	142.7' L

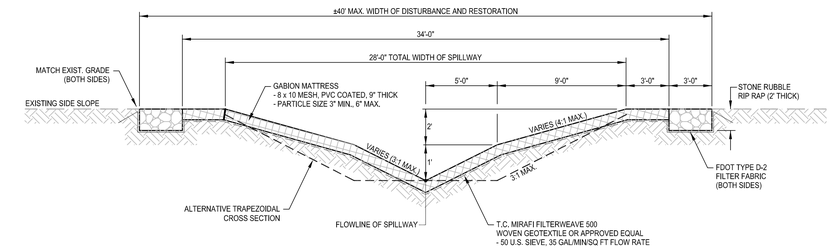


OPEN CHANNEL SPILLWAY PROFILE
SCALE: 1"=20' (H), 1"=10' (V)

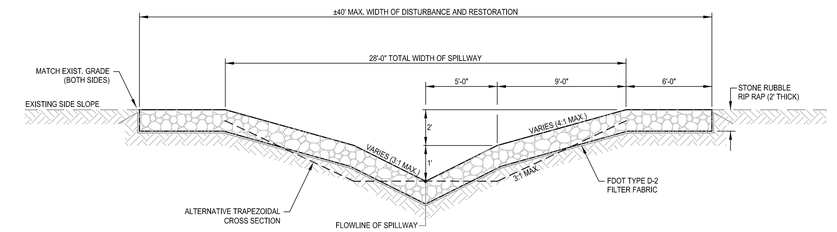




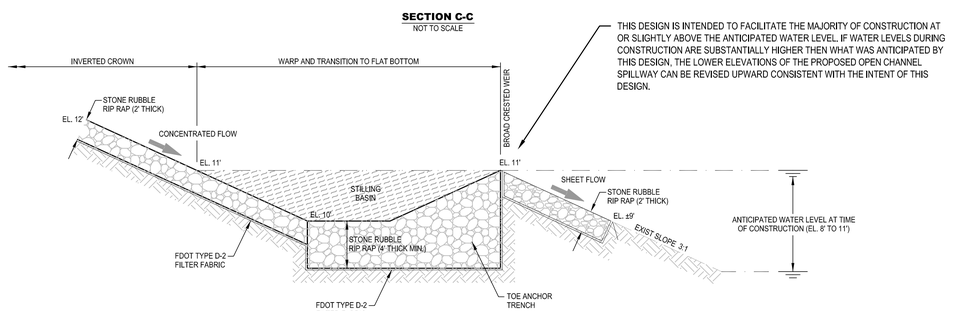
SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SECTION C-C
NOT TO SCALE



SECTION D-D
NOT TO SCALE

DAVID W. HAMSTRA, P.E. 38852
NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

REV.	DATE	DESCRIPTION	APP'D BY

PEC Professional Engineering Consultants
engineers planners surveyors
Board of Professional Engineers Certificate No. 3556
Suite 1540, Eola Park Centre 200 East Robinson Street
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Tel (407) 422-8042 Fax (407) 849-9401

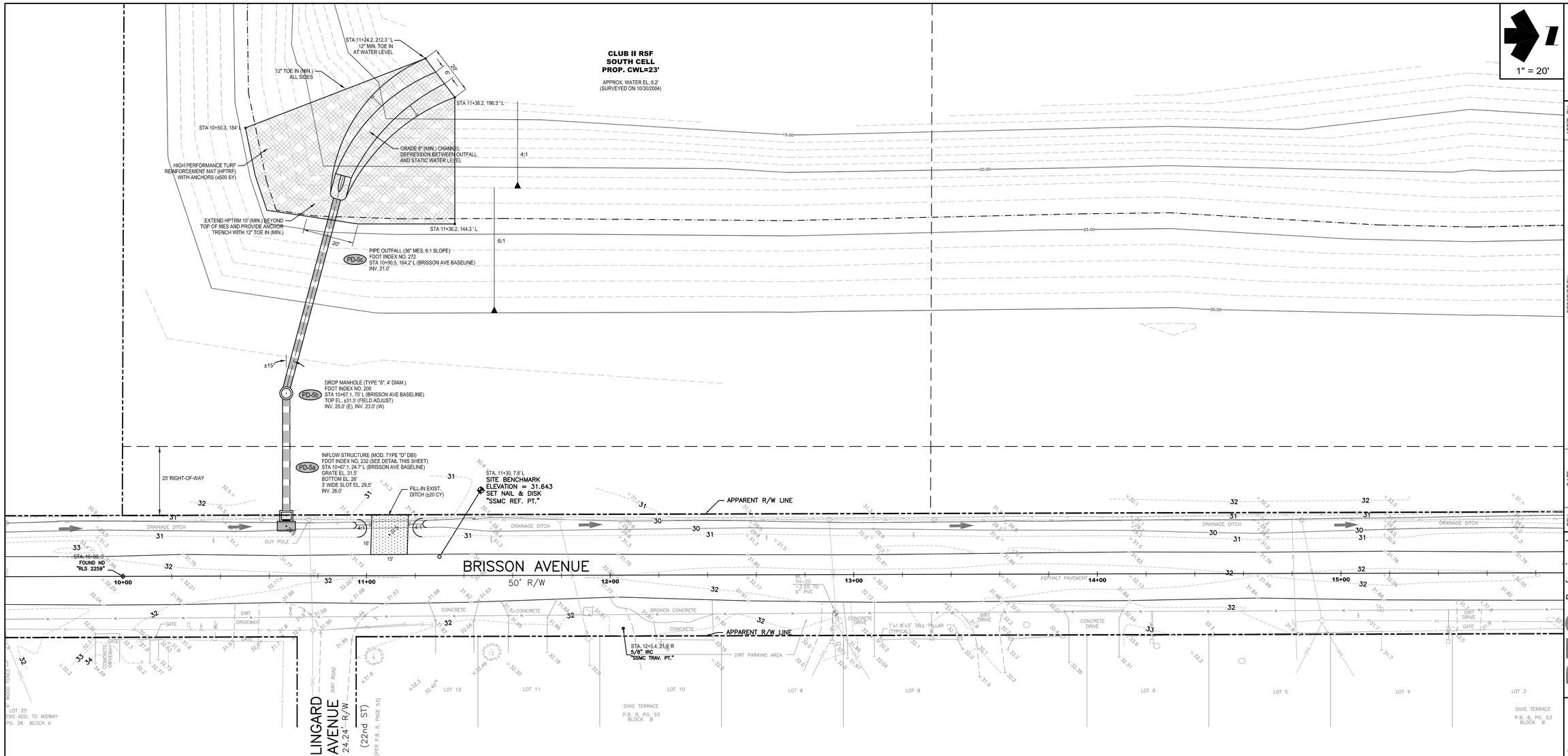
CLUB II REGIONAL STORMWATER FACILITY (RSF)

CLUB II RSF SOUTH CELL (OPEN CHANNEL INFLOW SPILLWAY)

S 32 T 19S R 31E
SANFORD SEMINOLE COUNTY

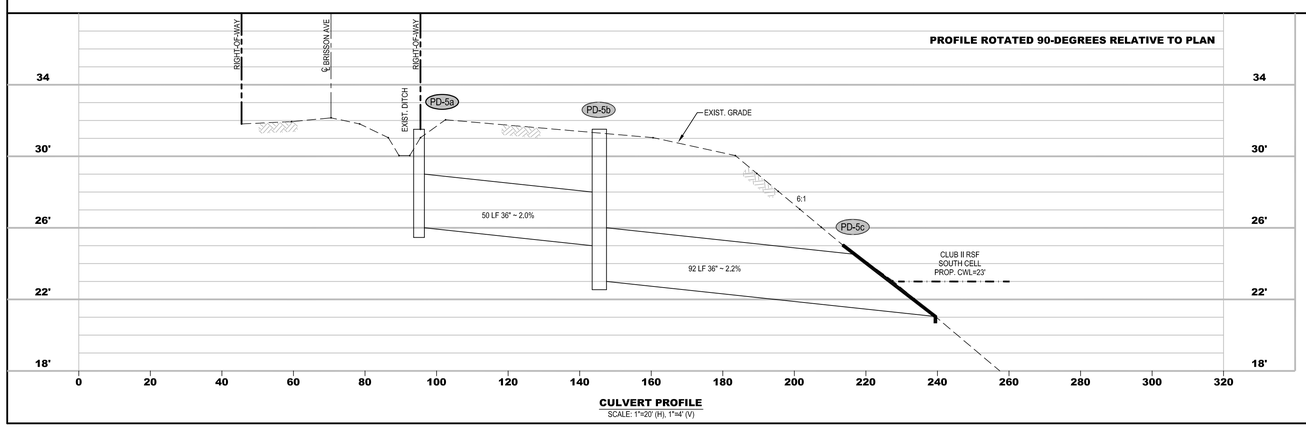
DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	AUG 05
SHEET	11 / 15

11

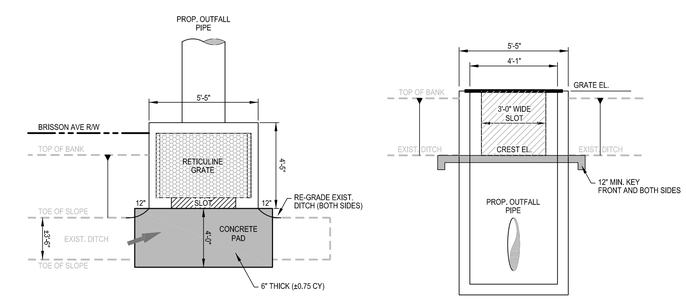


SITE PLAN NOTES

1. THE CONTRACTOR SHALL PROTECT WATER, SEWER AND OTHER UTILITY SERVICES LOCATED IN THE IMMEDIATE VICINITY OF THE PROPOSED CONSTRUCTION. CONTRACTOR WILL NOT PROCEED WITH WORK UNTIL ALL ACTIVITIES HAVE BEEN COORDINATED WITH THE UTILITY SERVICE PROVIDERS. NOTIFICATION MUST BE MADE AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
2. UNLESS OTHERWISE NOTED ON THIS PLAN, EXISTING UTILITIES, TREES, AND OTHER ABOVE GROUND FEATURES ARE TO REMAIN.



CULVERT PROFILE
SCALE: 1"=20' (H), 1"=4' (V)



PLAN

SECTION

PD-5a **STRUCTURE DETAIL**
NOT TO SCALE

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED
DAVID W. HAMSTRA, P.E. 38852

REV.	DATE	DESCRIPTION	APP'D BY

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Tel (407) 422-8062
pec@pecorline.com
Fax (407) 849-9401

CLUB II REGIONAL STORMWATER FACILITY (RSF)

BRISSON AVENUE
WEST SIDE

S 32 T 19S R 31E
SEMINOLE COUNTY
SANFORD

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	MAY 05

SHEET 12 OF 15

12

CLUB II RSF
SOUTH CELL
PROP. CWL=23'

APPROX. WATER EL. 8.2'
(SURVEYED ON 10/30/2004)

1" = 20'

12" MIN. TOE IN AT WATER LEVEL
20'
6'
STA 17+37.2, 207.4 ' L
GRADE 8" (MIN.) CHANNEL DEPRESSION BETWEEN OUTFALL AND STATIC WATER LEVEL
12" TOE IN (MIN.) ALL SIDES
HIGH PERFORMANCE TURF REINFORCEMENT MAT (HPTRF) WITH ANCHORS (±125 SY)
EXTEND HPTRM 10' (MIN.) BEYOND TOP OF MES AND PROVIDE ANCHOR TRENCH WITH 12" TOE IN (MIN.)
PD-6b
PIPE OUTFALL: (24" MES, 6:1 SLOPE)
FDOT INDEX NO. 272
STA 17+27.4, 156.3' L (BRISSON AVE BASELINE)
INV. 22.0'
STA 17+32.4, 138.3 ' L
10'
4:1
7:1
10.00
15.00
20.00
25.00
30.00
12" TOE IN (MIN.) ALL SIDES
STA 22+33.3, 135.2' L

STA. 16+2, 8' L
SITE BENCHMARK
ELEVATION = 31.643
SET NAIL & DISK
"SSMC REF. PT."

PD-6a
INFLOW STRUCTURE (MOD, TYPE "D" DBI)
FDOT INDEX NO. 232 (SEE DETAIL THIS SHEET)
STA 17+27.4, 23.3' L (BRISSON AVE BASELINE)
GRATE EL. 30.75'
BOTTOM EL. 25'
3' WIDE SLOT EL. 29.0'
INV. 25.0'

STA. 17+47.3, 14.5' L
5/8" IRC
"SSMC TRAV. PT."

FILL-IN EXIST. DITCH (±20 CY)

25' RIGHT-OF-WAY

APPARENT R/W LINE

25' RIGHT-OF-WAY

STA. 21+85.3, 7.6' L
SITE BENCHMARK
ELEVATION = 30.320
SET NAIL & DISK
"SSMC REF. PT."

DRAINAGE DITCH
ASPHALT PAVEMENT

STA. 17+27.4, 0'
FOUND ND ILLEGIBLE

BTL TH-22 2.85 @ 4.5' METALIC CABLE

BRISSON AVENUE
50' R/W

16+00 17+00 18+00 19+00 20+00 21+00 22+00

CONCRETE WALK
COMMUNITY MAILBOX
CONCRETE DRIVE APRON
DIRT DRIVE
CONCRETE DRIVE
CONCRETE PAD
WL TH-21 –3.35 TO 7" PVC
WL TH-23 –3.85 TO 9" PVC
WL TH-23 –3.20 9" PVC
STA. 22+24.8, 23.6' R
5/8" IRC
"SSMC TRAV. PT."

APPARENT R/W LINE

EAST TWENTY FIRST STREET
50' R/W

LOT 2 LOT 1 LOT 12 LOT 11 LOT 10 LOT 9 LOT 8 LOT 7 LOT 6 LOT 5 LOT 4 LOT 3

DIXIE TERRACE
P.B. B, PG. 53
BLOCK A

SITE PLAN NOTES

1. THE CONTRACTOR SHALL PROTECT WATER, SEWER AND OTHER UTILITY SERVICES LOCATED IN THE IMMEDIATE VICINITY OF THE PROPOSED CONSTRUCTION. CONTRACTOR WILL NOT PROCEED WITH WORK UNTIL ALL ACTIVITIES HAVE BEEN COORDINATED WITH THE UTILITY SERVICE PROVIDERS. NOTIFICATION MUST BE MADE AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
2. UNLESS OTHERWISE NOTED ON THIS PLAN, EXISTING UTILITIES, TREES, AND OTHER ABOVE GROUND FEATURES ARE TO REMAIN.

PROFILE ROTATED 90-DEGREES RELATIVE TO PLAN

RIGHT-OF-WAY
℄ BRISSON AVE
RIGHT-OF-WAY
EXIST. DITCH
PD-6a
EXIST. GRADE
7:1
PD-6b
133 LF 24" ~ 2.3%
CLUB II RSF
SOUTH CELL
PROP. CWL=23'
4:1
34
30'
26'
22'
18'
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320

CULVERT PROFILE
SCALE: 1"=20' (H), 1"=4' (V)

PROP. OUTFALL PIPE
5'-5"
BRISSON AVE R/W
TOP OF BANK
RETICULINE GRATE
-0'-3"
12"
SLOT
12"
RE-GRADE EXIST. DITCH (BOTH SIDES)
TOE OF SLOPE
EXIST. DITCH
-0'-2"
-0'-5"
CONCRETE PAD
TOE OF SLOPE
6" THICK (±0.5 CY)

PLAN

5'-5"
4'-1"
GRATE EL.
TOP OF BANK
3'-0" WIDE SLOT
EXIST. DITCH
CREST EL.
EXIST. DITCH
12" MIN. KEY FRONT AND BOTH SIDES
PROP. OUTFALL PIPE

SECTION

PD-6a **STRUCTURE DETAIL**
NOT TO SCALE

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED
DAVID W. HAMSTRA, P.E. 39852

REV.	DATE	DESCRIPTION	APP'D BY

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CLUB II REGIONAL STORMWATER FACILITY (RSF)

BRISSON AVENUE WEST SIDE

S. 32 T. 19S R. 31E
SEMINOLE COUNTY
SANFORD

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	MAY 05
SHEET	13
	15

13

CLUB II RSF
SOUTH CELL
PROP. CWL=23'

APPROX. WATER EL. 8.2'
(SURVEYED ON 10/30/2004)

STA 22+33.3, 230.1' L
12" MIN. TOE IN
AT WATER LEVEL

20'
6'

HIGH PERFORMANCE TURF
REINFORCEMENT MAT (HPTRF)
WITH ANCHORS (±1,100 SY)

GRADE 8" (MIN.) CHANNEL
DEPRESSION BETWEEN OUTFALL
AND STATIC WATER LEVEL

STA 23+44.2, 209.4' L

12" TOE IN (MIN.)
ALL SIDES

STA 23+34.4, 148' L

STA 22+33.3, 135.2' L

EXTEND HPTRM 10' (MIN.) BEYOND
TOP OF MES AND PROVIDE ANCHOR
TRENCH WITH 12" TOE IN (MIN.)

PIPE OUTFALL (24" MES, 6:1 SLOPE) PD-7c
FDOT INDEX NO. 272
STA 22+94.2, 153.1' L (BRISSON AVE BASELINE)
INV. 22.0'

±30°

DROP MANHOLE (TYPE "8", 4' DIAM.) PD-7b
FDOT INDEX NO. 200
STA 23+40, 72.8' L (BRISSON AVE BASELINE)
TOP EL. ±30' (FIELD ADJUST)
INV. 25.5' (E), INV. 24.0' (W)

10.00
15.00
20.00
25.00
30.00
4:1
7:1

25' RIGHT-OF-WAY

STA. 21+85.3, 7.6' L
SITE BENCHMARK
ELEVATION = 30.320
SET NAIL & DISK
"SSMC REF. PT."

APPARENT R/W LINE

INFLOW STRUCTURE (MOD. TYPE "D" DBI)
FDOT INDEX NO. 232 (SEE DETAIL THIS SHEET)
STA 23+40, 22.5' L (BRISSON AVE BASELINE)
GRATE EL. 30.25'
BOTTOM EL. 26.5'
3' WIDE SLOT EL. 27.5'
INV. 26.6' PD-7a

WIRE FENCE IN POOR CONDITION

FILL-IN EXIST.
DITCH (±20 CY)

STA. 23+86.4, 20.7' L
SITE BENCHMARK
ELEVATION = 31.433
SEM. CO. 508.67.01
RR SPIKE IN W FACE OF
PP#44474.544206

DRAINAGE DITCH
ASPHALT PAVEMENT
BTL

BRISSON AVENUE

50' R/W

19+00 20+00 21+00 22+00 23+00 24+00

CONCRETE WALK
COMMUNITY MAILBOX
CONCRETE DRIVE APRON
DIRT DRIVE
CONCRETE SLAB
2.25" TO 4" CABLE

5/8" IRC
"SSMC TRAV. PT."

STA. 22+24.6, 23.6' R
5/8" IRC
"SSMC TRAV. PT."

TH-24
3.20" TO
9" PVC

LOT 10 LOT 9 LOT 8 LOT 7 LOT 6 LOT 5 LOT 4 LOT 3 LOT 2 LOT 1

DIXIE TERRACE
P.B. 8, PG. 53
BLOCK A

EAST TWENTIETH
STREET
50' R/W

SITE PLAN NOTES

1. THE CONTRACTOR SHALL PROTECT WATER, SEWER AND OTHER UTILITY SERVICES LOCATED IN THE IMMEDIATE VICINITY OF THE PROPOSED CONSTRUCTION. CONTRACTOR WILL NOT PROCEED WITH WORK UNTIL ALL ACTIVITIES HAVE BEEN COORDINATED WITH THE UTILITY SERVICE PROVIDERS. NOTIFICATION MUST BE MADE AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
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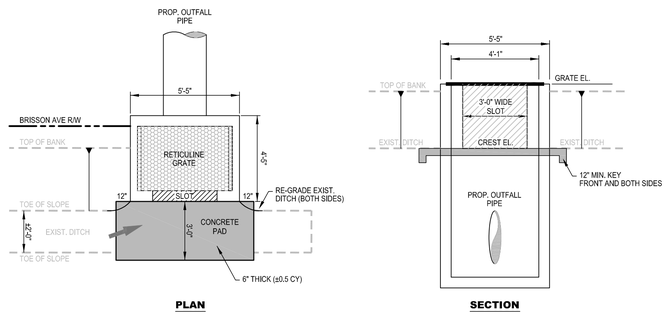
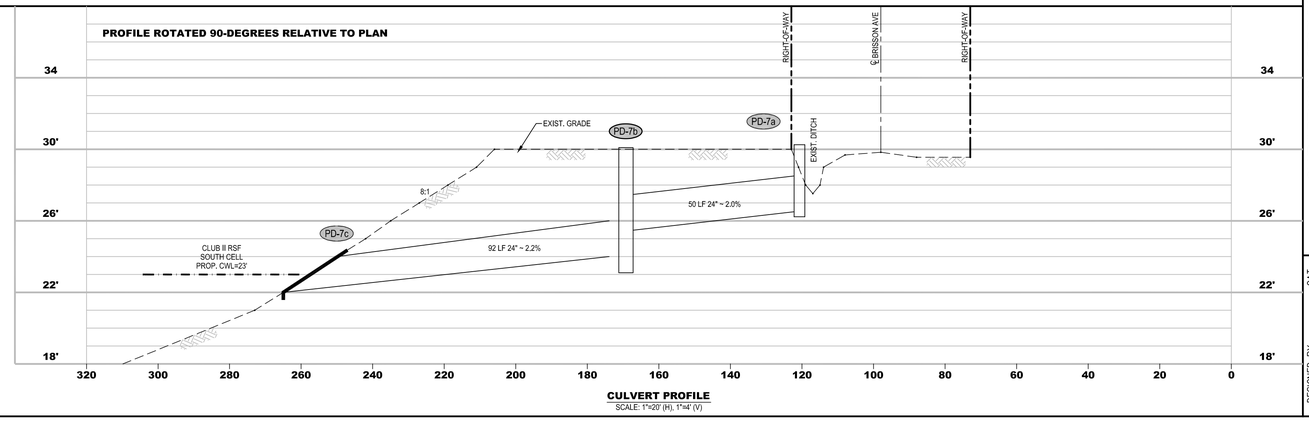


PLAN SECTION

PD-7a **STRUCTURE DETAIL**
NOT TO SCALE



CULVERT PROFILE
SCALE: 1"=20' (H), 1"=4' (V)

1" = 20'

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

DAVID W. HAMSTRA, P.E. 38652

REV.	DATE	DESCRIPTION	APP'D BY

PEC Professional Engineering Consultants
engineers planners surveyors
Board of Professional Engineers Certificate No. 3556
Suite 1500, Eola Park Centre 200 East Robinson Street
Orlando, Florida 32801 pec@peconline.com
Tel (407) 422-8062 Fax (407) 849-9401

CLUB II REGIONAL STORMWATER FACILITY (RSF)

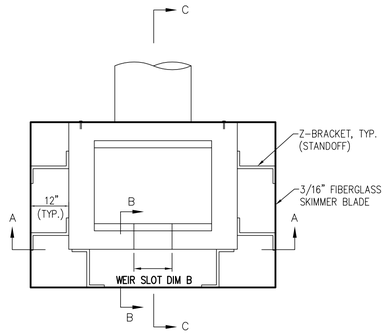
BRISSON AVENUE
WEST SIDE

S. 32 T. 19S R. 31E
SEMINOLE COUNTY
SANFORD

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	MAY 05

SHEET 14 / 15

14



PLAN

OVERFLOW STRUCTURE DATA

STRUCTURE No.	DIMENSIONS		ELEVATIONS (FT.)					
	A (IN.)	B (IN.)	1	2	3	4	5	6
PD-2a	24	12	27.0	27.0	26.5	23.0	22.5	22.0

COMPOSITE SKIMMER BLADES:

SKIMMER BLADES SHALL BE FABRICATED FROM STRUCTURAL FIBERGLASS FLAT PLATE AND FIBERGLASS ANGLES. ALL JOINTS WILL BE EPOXY BONDED AND BOLTED FOLLOWING ACCEPTABLE BONDING PROCEDURES AS SPECIFIED BY THE MANUFACTURER.

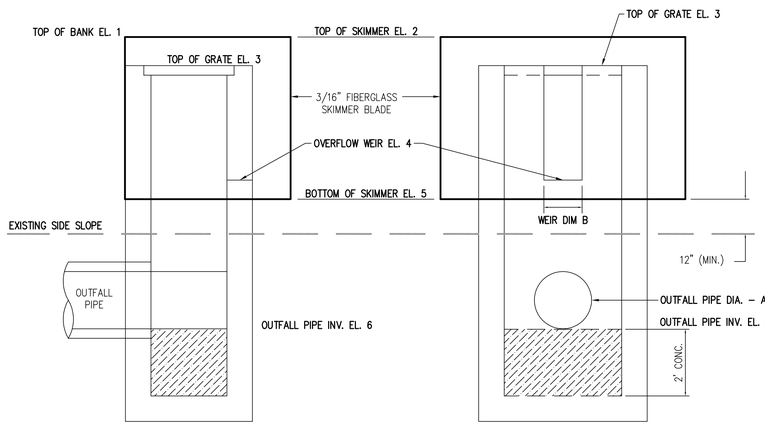
SUPPORT BRACKETS:

SUPPORT BRACKETS WILL BE FABRICATED FROM THE SAME GRADE OF STRUCTURAL FIBERGLASS AS THE SKIMMER BLADE AND WILL BE BONDED STRUCTURALLY AND BOLTED TO THE SKIMMER BLADE. 1/4"x2" DRIVE SPIKES (ENVIRONMENTAL COMPOSITES, INC. OR APPROVED EQUAL) SHALL ATTACH SKIMMER TO STRUCTURE.

PHYSICAL PROPERTIES:

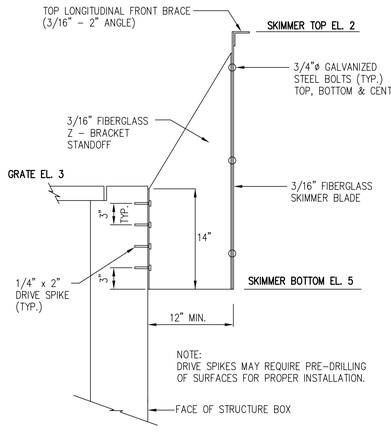
THE FIBERGLASS STRUCTURAL COMPOSITE MATERIALS SHALL EXHIBIT THE FOLLOWING PROPERTIES:

PROPERTY	TEST METHOD	UNIT	LONGITUDINAL	TRANSVERSE
TENSILE STRENGTH	ASTM D638	PSI	34,000	20,000
TENSILE MODULUS	ASTM D638	PSIx10^4	2.4	1.5
FLEXURAL STRENGTH	ASTM D790	PSI	34,000	30,000
FLEXURAL MODULUS	ASTM D790	PSIx10	1.6	0.8
IZOD IMPACT	ASTM D256	FT-LB/IN	30	15
COMP. STRENGTH	ASTM D695	PSI	35,000	20,000
COMP. MODULUS	ASTM D695	PSI	2.5	1.5
SHEAR STRENGTH	ASTM D732	PSI	12,000	12,000
COEFFICIENT OF THERMAL EXPANSION	ASTM D696	IN/IN °C	1.5	–
WATER ABSORPTION	ASTM D670	MAX. %	0.6	–



SECTION B - B

SECTION A - A



SECTION C - C

SKIMMER DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

DAVID W. HAMSTRA, P.E. 38652

APP'D BY: GAT

REV.	DATE	DESCRIPTION
1	X/XX/XX	X
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

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Suite 1450, Eola Park Centre 200 East Robinson Street
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Tel (407) 422-8042 Fax (407) 849-9401

CLUB II REGIONAL STORMWATER FACILITY (RSF)

MISCELLANEOUS DETAILS

SANFORD SEMINOLE COUNTY S 32 T 19S R 31E

DESIGNED BY:	GAT
DRAWN BY:	GAT
CHECKED BY:	DWH
APPROVED BY:	DWH
PROJ. No.	SC-106
DATE	AUG 05
SHEET	15 / 15

15

APPENDIX B

FIELD MEASUREMENTS OF SEEPAGE INPUTS TO THE SOUTH POND

Seepage Meter Field Measurements

Location: Club II Site: 1

Date Installed: 7/7/10 Chamber Diameter: 0.58 m Sediment Area Covered: 0.27 m^2

Date	Time Collected	Volume Collected (liters)	Previous Collection Event		Seepage Time (days)	Seepage (liters/m2-day)	Comments / Observations
			Date	Time			
7/7/10	13:05	-----	-----	-----	-----	-----	Bags Installed
8/30/10	12:20	6.5	7/7/10	13:05	54.0	0.45	Sample collected, bag in good condition
9/17/10	8:20	4.25	8/30/10	12:20	17.8	0.88	Sample collected, bag in good condition
10/25/10	12:11	6.25	9/17/10	8:20	38.2	0.61	Sample collected, bag in good condition
2/16/11	14:25	10.75	10/25/10	12:11	114.1	0.35	Sample collected, bag in good condition
				Mean Inflow:		**0.46**	

Seepage Meter Field Measurements

Location: Club II Site: 2

Date Installed: 7/7/10 Chamber Diameter: 0.58 m Sediment Area Covered: 0.27 m^2

Date	Time Collected	Volume Collected (liters)	Previous Collection Event		Seepage Time (days)	Seepage (liters/m2-day)	Comments / Observations
			Date	Time			
7/7/10	13:15	-----	-----	-----	-----	-----	Bags Installed
8/30/10	12:24	9.75	7/7/10	13:15	54.0	0.67	Sample collected, bag in good condition
9/17/10	8:25	4.25	8/30/10	12:24	17.8	0.88	Sample collected, bag in good condition
10/25/10	12:18	6.25	9/17/10	8:25	38.2	0.61	Sample collected, bag in good condition
2/16/11	14:35	6.00	10/25/10	12:18	114.1	0.19	Sample collected, bag in good condition
				Mean Inflow:		**0.43**	

Seepage Meter Field Measurements

Location: Club II Site: 3

Date Installed: 7/7/10 Chamber Diameter: 0.58 m Sediment Area Covered: 0.27 m^2

Date	Time Collected	Volume Collected (liters)	Previous Collection Event		Seepage Time (days)	Seepage (liters/m2-day)	Comments / Observations
			Date	Time			
7/7/10	13:25	-----	-----	-----	-----	-----	Bags Installed
8/30/10	12:28	6.25	7/7/10	13:25	54.0	0.43	Sample collected, bag in good condition
9/17/10	8:30	5.25	8/30/10	12:28	17.8	1.09	Sample collected, bag in good condition
10/25/10	12:25	5.75	9/17/10	8:30	38.2	0.56	Sample collected, bag in good condition
2/16/11	14:45	9.5	10/25/10	12:25	114.1	0.31	Sample collected, bag in good condition
				Mean Inflow:		**0.44**	

Seepage Meter Field Measurements

Location: Club II Site: 4

Date Installed: 7/7/10 Chamber Diameter: 0.58 m Sediment Area Covered: 0.27 m^2

Date	Time Collected	Volume Collected (liters)	Previous Collection Event		Seepage Time (days)	Seepage (liters/m2-day)	Comments / Observations
			Date	Time			
7/7/10	13:35	-----	-----	-----	-----	-----	Bags Installed
8/30/10	12:32	14.5	7/7/10	13:35	54.0	1.00	Sample collected, bag in good condition
9/17/10	8:40	7.5	8/30/10	12:32	17.8	1.56	Sample collected, bag in good condition
10/25/10	12:29	11.25	9/17/10	8:40	38.2	1.09	Sample collected, bag in good condition
2/16/11	14:55	23.5	10/25/10	12:29	114.1	0.76	Sample collected, bag in good condition
				Mean Inflow:		**0.94**	

Seepage Meter Field Measurements

Location: Club II Site: 5

Date Installed: 7/7/10 Chamber Diameter: 0.58 m Sediment Area Covered: 0.27 m^2

Date	Time Collected	Volume Collected (liters)	Previous Collection Event		Seepage Time (days)	Seepage (liters/m2-day)	Comments / Observations
			Date	Time			
7/7/10	13:45	-----	-----	-----	-----	-----	Bags Installed
8/30/10	12:37	6.25	7/7/10	13:45	54.0	0.43	Sample collected, bag in good condition
9/17/10	8:35	3.25	8/30/10	12:37	17.8	0.68	Sample collected, bag in good condition
10/25/10	12:39	3.75	9/17/10	8:35	38.2	0.36	Sample collected, bag in good condition
2/16/11	15:00	4.75	10/25/10	12:39	114.1	0.15	Sample collected, bag in good condition
				Mean Inflow:		**0.30**	

APPENDIX C

SURFACE WATER MEASUREMENTS COLLECTED IN THE SOUTH AND NORTH PONDS

C.1 Vertical Field Profiles
C.2 Water Quality Characteristics

C.1 Vertical Field Profiles

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	1/22/09	12:30	0.25	14.61	8.51	449	287	8.7	86	556	1.42
North Pond	1/22/09	12:31	0.50	14.57	8.76	449	287	8.2	81	558	1.42
North Pond	1/22/09	12:32	1.00	14.36	8.96	449	287	8.1	79	561	1.42
North Pond	1/22/09	12:33	1.50	14.29	9.01	450	288	8.2	80	560	1.42
North Pond	1/22/09	12:34	2.00	14.28	9.05	449	287	7.8	77	560	1.42
North Pond	1/22/09	12:35	2.50	14.26	9.07	449	288	7.6	74	559	1.42
North Pond	1/22/09	12:36	3.00	14.23	9.05	450	288	7.6	74	558	1.42
North Pond	1/22/09	12:37	3.50	14.22	9.05	450	288	7.5	73	558	1.42
North Pond	1/22/09	12:38	4.00	14.22	9.04	450	288	7.3	72	557	1.42
North Pond	1/22/09	12:39	4.50	14.20	9.01	450	288	7.4	72	557	1.42
North Pond	1/22/09	12:40	5.00	14.20	8.98	451	289	7.5	73	556	1.42
North Pond	1/22/09	12:41	5.50	14.15	8.95	451	289	7.2	71	554	1.42
North Pond	1/22/09	12:45	5.89	14.12	9.17	451	289	7.0	68	446	1.42
North Pond	1/28/09	10:51	0.25	17.71	9.49	509	326	10.6	111	600	1.09
North Pond	1/28/09	10:52	0.50	17.67	9.55	510	327	9.7	102	601	1.09
North Pond	1/28/09	10:52	1.00	17.49	9.62	511	327	9.8	102	602	1.09
North Pond	1/28/09	10:53	1.50	15.50	9.23	510	326	8.2	83	584	1.09
North Pond	1/28/09	10:54	2.00	14.95	9.18	511	327	6.4	64	581	1.09
North Pond	1/28/09	10:55	2.50	14.77	9.24	511	327	6.3	62	583	1.09
North Pond	1/28/09	10:55	3.00	14.74	9.23	512	328	5.8	57	582	1.09
North Pond	1/28/09	10:56	3.50	14.71	9.24	512	328	5.5	54	582	1.09
North Pond	1/28/09	10:56	4.00	14.69	9.27	512	328	5.3	52	584	1.09
North Pond	1/28/09	10:57	4.50	14.69	9.28	511	327	5.3	52	583	1.09
North Pond	1/28/09	10:58	5.00	14.69	9.30	511	327	5.3	52	583	1.09
North Pond	1/28/09	10:58	5.50	14.69	9.31	512	327	5.2	52	583	1.09
North Pond	1/28/09	10:59	6.00	14.69	9.31	512	328	5.2	51	582	1.09
North Pond	1/28/09	11:03	6.27	14.71	9.58	512	328	3.5	34	365	1.09
North Pond	2/4/09	12:44	0.25	15.02	9.06	508	325	7.9	78	634	1.36
North Pond	2/4/09	12:45	0.50	15.01	9.26	508	325	7.4	74	638	1.36
North Pond	2/4/09	12:46	1.00	15.00	9.34	508	325	7.3	73	641	1.36
North Pond	2/4/09	12:47	1.50	14.99	9.46	507	324	7.4	73	645	1.36
North Pond	2/4/09	12:48	2.00	14.97	9.57	508	325	7.1	71	646	1.36
North Pond	2/4/09	12:49	2.50	14.97	9.68	508	325	6.9	69	648	1.36
North Pond	2/4/09	12:50	3.00	14.98	9.76	508	325	7.0	69	650	1.36
North Pond	2/4/09	12:51	3.50	14.98	9.86	507	325	7.1	71	651	1.36
North Pond	2/4/09	12:54	4.00	14.97	9.92	508	325	7.1	71	652	1.36
North Pond	2/4/09	12:55	4.50	14.96	9.96	508	325	7.2	71	650	1.36
North Pond	2/4/09	12:56	4.83	14.97	9.94	507	324	6.9	69	645	1.36
North Pond	2/9/09	12:38	0.25	16.06	10.24	505	323	12.1	123	693	0.54
North Pond	2/9/09	12:39	0.50	15.41	10.46	506	324	12.0	120	697	0.54
North Pond	2/9/09	12:42	1.00	14.78	10.48	507	325	11.4	113	693	0.54
North Pond	2/9/09	12:43	1.50	14.24	10.31	508	325	10.3	100	686	0.54
North Pond	2/9/09	12:44	2.00	14.04	10.02	510	326	8.7	85	677	0.54
North Pond	2/9/09	12:45	2.50	14.02	10.07	510	327	8.6	83	679	0.54
North Pond	2/9/09	12:46	3.00	13.99	9.87	511	327	7.7	75	673	0.54
North Pond	2/9/09	12:47	3.50	13.98	9.85	512	328	7.4	72	673	0.54
North Pond	2/9/09	12:47	4.00	13.98	9.86	511	327	7.2	70	674	0.54
North Pond	2/9/09	12:48	4.50	13.97	9.83	512	328	7.3	71	673	0.54
North Pond	2/9/09	12:49	5.00	13.98	9.84	512	327	7.1	69	674	0.54
North Pond	2/9/09	12:50	5.50	13.97	9.80	512	328	7.2	70	672	0.54
North Pond	2/9/09	12:52	6.00	13.97	9.81	512	327	7.4	72	673	0.54
North Pond	2/9/09	12:53	6.20	14.00	9.82	511	327	6.6	64	672	0.54

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	3/12/09	14:40	0.25	24.23	8.36	541	346	8.9	107	238	0.58
North Pond	3/12/09	14:41	0.50	23.84	8.37	541	346	8.9	106	236	0.58
North Pond	3/12/09	14:42	1.00	22.53	8.39	539	345	9.3	107	238	0.58
North Pond	3/12/09	14:43	1.50	19.49	8.27	534	342	8.7	95	237	0.58
North Pond	3/12/09	14:44	2.00	17.85	8.19	528	338	7.5	79	236	0.58
North Pond	3/12/09	14:45	2.50	16.42	7.82	530	339	5.4	56	228	0.58
North Pond	3/12/09	14:45	3.00	16.17	7.72	530	339	4.8	48	225	0.58
North Pond	3/12/09	14:46	3.50	16.01	7.61	530	339	3.8	39	222	0.58
North Pond	3/12/09	14:46	4.00	15.89	7.41	530	339	1.6	16	217	0.58
North Pond	3/12/09	14:47	4.50	15.84	7.30	530	339	0.4	4	87	0.58
North Pond	3/12/09	14:47	5.00	15.80	7.30	530	339	0.3	3	57	0.58
North Pond	3/12/09	14:48	5.50	15.78	7.29	531	340	0.2	2	31	0.58
North Pond	3/12/09	14:48	6.00	15.78	7.28	531	340	0.1	1	17	0.58
North Pond	3/12/09	14:48	6.50	15.78	7.29	530	339	0.2	2	5	0.58
North Pond	3/12/09	14:49	6.79	15.80	7.28	530	339	0.1	1	-21	0.58
North Pond	3/30/09	10:01	0.25	21.32	8.56	536	343	8.8	100	356	0.53
North Pond	3/30/09	10:02	0.50	21.28	8.56	535	343	8.5	96	354	0.53
North Pond	3/30/09	10:02	1.00	21.21	8.53	536	343	8.4	95	354	0.53
North Pond	3/30/09	10:03	1.50	21.16	8.53	537	343	8.6	97	355	0.53
North Pond	3/30/09	10:04	2.00	21.14	8.51	537	343	8.6	97	355	0.53
North Pond	3/30/09	10:05	2.50	21.12	8.48	537	344	8.3	93	355	0.53
North Pond	3/30/09	10:06	3.00	21.06	8.44	538	344	8.0	90	354	0.53
North Pond	3/30/09	10:07	3.50	20.40	7.50	539	345	2.7	30	232	0.53
North Pond	3/30/09	10:08	4.00	16.94	7.13	531	340	0.4	4	1	0.53
North Pond	3/30/09	10:08	4.50	16.49	7.11	532	341	0.2	2	-16	0.53
North Pond	3/30/09	10:09	5.00	16.42	7.10	533	341	0.2	2	-23	0.53
North Pond	3/30/09	10:09	5.50	16.41	7.10	533	341	0.2	2	-26	0.53
North Pond	3/30/09	10:10	6.00	16.41	7.09	533	341	0.1	1	-29	0.53
North Pond	3/30/09	10:10	6.50	16.39	7.10	532	341	0.3	3	-31	0.53
North Pond	3/30/09	10:11	6.74	16.41	7.09	532	341	0.2	2	-34	0.53
			0.25	**18.16**	**9.04**	**508**	**325**	**9.5**	**101**	**513**	
			0.50	**17.96**	**9.16**	**508**	**325**	**9.1**	**96**	**514**	
			1.00	**17.56**	**9.22**	**508**	**325**	**9.0**	**95**	**515**	
			1.50	**16.61**	**9.14**	**507**	**325**	**8.5**	**88**	**511**	
			2.00	**16.21**	**9.09**	**507**	**325**	**7.7**	**79**	**509**	
			2.50	**15.93**	**9.06**	**508**	**325**	**7.2**	**73**	**509**	**0.92**
			3.00	**15.86**	**9.01**	**508**	**325**	**6.8**	**69**	**507**	
			3.50	**15.72**	**8.85**	**508**	**325**	**5.6**	**56**	**486**	
			4.00	**15.12**	**8.77**	**507**	**324**	**4.8**	**48**	**447**	
			4.50	**15.03**	**8.75**	**507**	**325**	**4.6**	**45**	**422**	
			5.00	**15.01**	**8.74**	**507**	**325**	**4.5**	**45**	**415**	
			5.50	**15.00**	**8.49**	**508**	**325**	**4.0**	**39**	**363**	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	4/7/09	10:12	0.25	21.30	8.58	538	345	8.4	94	233	0.66
North Pond	4/7/09	10:13	0.50	21.27	8.57	538	344	8.3	94	264	0.66
North Pond	4/7/09	10:14	1.00	21.17	8.55	538	344	8.2	92	279	0.66
North Pond	4/7/09	10:15	1.50	21.13	8.54	538	344	8.4	94	289	0.66
North Pond	4/7/09	10:16	2.00	21.11	8.53	538	344	8.2	93	297	0.66
North Pond	4/7/09	10:17	2.50	21.11	8.49	539	345	8.1	92	301	0.66
North Pond	4/7/09	10:17	3.00	21.05	8.45	539	345	7.9	89	305	0.66
North Pond	4/7/09	10:18	3.50	19.55	7.40	536	343	1.2	13	111	0.66
North Pond	4/7/09	10:19	4.00	16.88	7.13	533	341	0.3	3	2	0.66
North Pond	4/7/09	10:19	4.50	16.47	7.10	533	341	0.2	2	-11	0.66
North Pond	4/7/09	10:20	5.00	16.44	7.09	534	341	0.1	1	-20	0.66
North Pond	4/7/09	10:20	5.50	16.41	7.09	533	341	0.3	3	-26	0.66
North Pond	4/7/09	10:21	6.00	16.41	7.09	534	342	0.1	1	-29	0.66
North Pond	4/7/09	10:21	6.50	16.40	7.09	534	341	0.1	1	-32	0.66
North Pond	4/7/09	10:22	6.74	16.41	7.09	534	342	0.1	1	-36	0.66
North Pond	4/13/09	9:12	0.25	23.22	8.38	552	354	8.4	98	329	1.67
North Pond	4/13/09	9:13	0.50	23.21	8.37	553	354	8.2	97	330	1.67
North Pond	4/13/09	9:14	1.00	23.19	8.37	553	354	8.2	96	333	1.67
North Pond	4/13/09	9:15	1.50	23.04	8.36	550	352	8.2	96	335	1.67
North Pond	4/13/09	9:16	2.00	22.10	8.27	549	351	7.4	85	335	1.67
North Pond	4/13/09	9:17	2.50	21.11	8.02	551	352	5.4	61	327	1.67
North Pond	4/13/09	9:18	3.00	20.63	7.92	551	353	4.3	48	309	1.67
North Pond	4/13/09	9:19	3.50	20.01	7.66	552	353	2.1	23	293	1.67
North Pond	4/13/09	9:20	4.00	18.94	7.31	548	351	0.4	4	46	1.67
North Pond	4/13/09	9:20	4.50	17.75	7.18	544	348	0.2	2	-2	1.67
North Pond	4/13/09	9:21	5.00	17.18	7.16	544	348	0.2	2	-23	1.67
North Pond	4/13/09	9:21	5.50	17.02	7.16	544	348	0.2	2	-35	1.67
North Pond	4/13/09	9:22	6.00	16.97	7.17	544	348	0.2	2	-41	1.67
North Pond	4/13/09	9:23	6.50	16.94	7.17	544	348	0.1	1	-49	1.67
North Pond	4/13/09	9:24	6.83	16.95	7.19	544	348	0.1	1	-56	1.67
North Pond	4/23/09	9:51	0.25	23.49	8.45	551	352	8.2	96	357	1.66
North Pond	4/23/09	9:52	0.50	23.32	8.44	551	352	8.2	96	355	1.66
North Pond	4/23/09	9:53	1.00	23.23	8.43	551	353	7.8	92	355	1.66
North Pond	4/23/09	9:54	1.50	23.19	8.37	552	353	7.8	92	353	1.66
North Pond	4/23/09	9:55	2.00	23.15	8.34	551	353	7.2	84	354	1.66
North Pond	4/23/09	9:55	2.50	23.01	8.25	552	353	7.4	86	352	1.66
North Pond	4/23/09	9:56	3.00	22.65	7.88	554	354	5.1	59	341	1.66
North Pond	4/23/09	9:57	3.50	21.34	7.33	552	353	0.6	7	307	1.66
North Pond	4/23/09	9:58	4.00	19.86	7.21	545	349	0.7	8	-4	1.66
North Pond	4/23/09	9:59	4.50	18.31	7.09	544	348	0.5	5	-72	1.66
North Pond	4/23/09	9:59	5.00	17.83	7.09	545	349	0.3	3	-88	1.66
North Pond	4/23/09	10:00	5.50	17.53	7.08	545	349	0.2	2	-97	1.66
North Pond	4/23/09	10:00	6.00	17.42	7.09	544	348	0.3	3	-102	1.66
North Pond	4/23/09	10:01	6.47	17.39	7.09	544	348	0.2	3	-110	1.66

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	4/30/09	9:48	0.25	25.14	8.36	558	357	7.5	92	333	1.98
North Pond	4/30/09	9:49	0.50	25.15	8.36	559	357	7.4	91	332	1.98
North Pond	4/30/09	9:50	1.00	25.11	8.34	559	357	7.1	86	332	1.98
North Pond	4/30/09	9:51	1.50	25.06	8.32	559	358	7.4	90	331	1.98
North Pond	4/30/09	9:52	2.00	24.97	8.24	560	359	6.9	83	329	1.98
North Pond	4/30/09	9:53	2.50	24.82	8.27	558	357	6.9	84	331	1.98
North Pond	4/30/09	9:54	3.00	24.07	8.31	551	353	6.7	80	333	1.98
North Pond	4/30/09	9:55	3.50	22.35	7.65	548	351	2.8	32	159	1.98
North Pond	4/30/09	9:55	4.00	20.43	7.10	545	349	0.6	7	128	1.98
North Pond	4/30/09	9:56	4.50	18.80	7.04	541	346	0.4	5	-29	1.98
North Pond	4/30/09	9:56	5.00	18.10	7.04	542	347	0.4	4	-55	1.98
North Pond	4/30/09	9:57	5.50	17.78	7.06	544	348	0.3	3	-77	1.98
North Pond	4/30/09	9:57	6.00	17.67	7.07	544	348	0.3	3	-87	1.98
North Pond	4/30/09	9:58	6.50	17.64	7.08	543	348	0.2	2	-94	1.98
North Pond	4/30/09	9:58	7.00	17.60	7.08	543	348	0.2	2	-100	1.98
North Pond	4/30/09	9:59	7.50	17.59	7.09	543	348	0.2	2	-106	1.98
North Pond	4/30/09	9:59	7.84	17.63	7.07	543	347	0.2	2	-113	1.98
North Pond	5/7/09	9:38	0.25	26.74	8.18	568	363	7.2	90	324	2.05
North Pond	5/7/09	9:39	0.50	26.73	8.18	568	364	6.9	87	322	2.05
North Pond	5/7/09	9:39	1.00	26.71	8.16	568	363	6.8	85	320	2.05
North Pond	5/7/09	9:40	1.50	26.67	8.14	568	364	6.7	83	320	2.05
North Pond	5/7/09	9:41	2.00	26.65	8.13	569	364	6.5	81	319	2.05
North Pond	5/7/09	9:41	2.50	26.55	8.06	569	364	6.1	77	316	2.05
North Pond	5/7/09	9:42	3.00	25.09	7.72	562	359	3.1	38	305	2.05
North Pond	5/7/09	9:43	3.50	23.33	7.45	554	354	0.8	9	295	2.05
North Pond	5/7/09	9:43	4.00	20.85	7.04	541	346	0.3	4	155	2.05
North Pond	5/7/09	9:44	4.50	19.19	7.01	541	346	0.3	3	-72	2.05
North Pond	5/7/09	9:44	5.00	18.31	7.06	545	349	0.3	3	-89	2.05
North Pond	5/7/09	9:45	5.50	18.06	7.08	546	350	0.2	2	-100	2.05
North Pond	5/7/09	9:46	6.00	17.92	7.09	546	349	0.2	2	-107	2.05
North Pond	5/7/09	9:46	6.50	17.88	7.10	545	349	0.1	2	-109	2.05
North Pond	5/7/09	9:46	6.52	17.85	7.10	546	350	0.1	2	-110	2.05
North Pond	5/14/09	8:22	0.25	27.80	8.44	560	358	8.2	105	301	1.11
North Pond	5/14/09	8:23	0.50	27.82	8.43	560	359	8.0	103	304	1.11
North Pond	5/14/09	8:24	1.00	27.82	8.40	561	359	7.9	101	305	1.11
North Pond	5/14/09	8:24	1.50	27.83	8.38	561	359	7.9	101	306	1.11
North Pond	5/14/09	8:25	2.00	27.82	8.36	561	359	8.0	101	308	1.11
North Pond	5/14/09	8:26	2.50	27.53	8.02	564	361	5.3	68	297	1.11
North Pond	5/14/09	8:27	3.00	26.15	7.34	560	358	0.8	10	263	1.11
North Pond	5/14/09	8:27	3.50	24.12	7.25	549	352	0.5	6	209	1.11
North Pond	5/14/09	8:28	4.00	21.82	7.03	541	346	0.4	4	66	1.11
North Pond	5/14/09	8:28	4.50	19.90	6.94	536	343	0.4	4	-47	1.11
North Pond	5/14/09	8:29	5.00	18.61	6.96	540	345	0.3	3	-72	1.11
North Pond	5/14/09	8:29	5.50	18.31	6.99	542	347	0.3	3	-85	1.11
North Pond	5/14/09	8:30	6.00	18.18	7.01	542	347	0.3	3	-91	1.11
North Pond	5/14/09	8:31	6.39	18.11	7.04	543	347	0.1	1	-100	1.11
			0.25	**24.62**	**8.40**	**555**	**355**	**8.0**	**96**	**313**	
			0.50	**24.58**	**8.39**	**555**	**355**	**7.9**	**94**	**318**	
			1.00	**24.54**	**8.38**	**555**	**355**	**7.7**	**92**	**321**	
			1.50	**24.49**	**8.35**	**555**	**355**	**7.7**	**93**	**322**	
			2.00	**24.30**	**8.31**	**555**	**355**	**7.4**	**88**	**323**	
			2.50	**24.02**	**8.19**	**556**	**356**	**6.6**	**78**	**321**	
			3.00	**23.27**	**7.94**	**553**	**354**	**4.6**	**54**	**309**	**1.52**
			3.50	**21.78**	**7.46**	**548**	**351**	**1.3**	**15**	**229**	
			4.00	**19.80**	**7.14**	**542**	**347**	**0.4**	**5**	**65**	
			4.50	**18.40**	**7.06**	**540**	**345**	**0.3**	**3**	**-39**	
			5.00	**17.75**	**7.07**	**542**	**347**	**0.2**	**3**	**-58**	
			5.50	**17.52**	**7.08**	**542**	**347**	**0.2**	**2**	**-70**	
			6.00	**17.43**	**7.09**	**542**	**347**	**0.2**	**2**	**-76**	
			6.50	**17.39**	**7.10**	**542**	**347**	**0.2**	**2**	**-82**	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	6/1/09	9:36	0.25	27.96	9.29	404	259	11.7	149	320	0.21
North Pond	6/1/09	9:37	0.50	27.83	9.27	404	259	11.4	145	322	0.21
North Pond	6/1/09	9:38	1.00	27.74	9.15	407	260	10.3	131	319	0.21
North Pond	6/1/09	9:39	1.50	27.57	9.02	410	262	8.8	111	317	0.21
North Pond	6/1/09	9:40	2.00	27.08	8.63	430	275	6.1	77	304	0.21
North Pond	6/1/09	9:41	2.50	26.07	7.71	455	291	3.2	40	266	0.21
North Pond	6/1/09	9:42	3.00	24.96	7.36	485	310	1.8	22	251	0.21
North Pond	6/1/09	9:42	3.50	24.24	7.29	497	318	0.8	10	221	0.21
North Pond	6/1/09	9:43	4.00	23.51	7.26	508	325	0.6	7	84	0.21
North Pond	6/1/09	9:43	4.50	22.47	7.17	524	335	0.5	6	39	0.21
North Pond	6/1/09	9:44	5.00	21.18	7.08	541	346	0.4	5	14	0.21
North Pond	6/1/09	9:44	5.50	20.06	7.05	549	351	0.4	4	1	0.21
North Pond	6/1/09	9:45	6.00	19.53	7.05	551	352	0.4	4	-8	0.21
North Pond	6/1/09	9:45	6.50	19.29	7.07	551	353	0.3	3	-16	0.21
North Pond	6/1/09	9:47	6.86	19.12	7.09	552	353	0.3	3	-41	0.21
North Pond	6/23/09	8:59	0.25	31.72	7.64	390	250	3.1	43	255	0.54
North Pond	6/23/09	9:00	0.50	31.73	7.62	390	249	2.8	38	251	0.54
North Pond	6/23/09	9:00	1.00	31.71	7.59	390	249	2.6	35	249	0.54
North Pond	6/23/09	9:01	1.50	31.34	7.37	390	250	0.9	12	213	0.54
North Pond	6/23/09	9:01	2.00	28.94	7.51	411	263	0.4	6	20	0.54
North Pond	6/23/09	9:02	2.50	26.68	7.45	452	289	0.3	4	-11	0.54
North Pond	6/23/09	9:02	3.00	25.23	7.31	491	314	0.3	3	-31	0.54
North Pond	6/23/09	9:03	3.50	24.09	7.26	511	327	0.2	2	-44	0.54
North Pond	6/23/09	9:03	4.00	22.89	7.20	528	338	0.2	3	-57	0.54
North Pond	6/23/09	9:04	4.50	21.83	7.14	545	349	0.2	2	-72	0.54
North Pond	6/23/09	9:05	5.00	21.24	7.14	553	354	0.2	2	-80	0.54
North Pond	6/23/09	9:05	5.50	20.66	7.13	560	359	0.2	2	-87	0.54
North Pond	6/23/09	9:06	6.00	20.34	7.14	563	360	0.2	2	-94	0.54
North Pond	6/23/09	9:06	6.50	20.18	7.14	564	361	0.1	2	-98	0.54
North Pond	6/23/09	9:06	6.62	20.15	7.15	565	362	0.1	1	-100	0.54
North Pond	6/30/09	8:07	0.25	29.97	8.04	393	252	4.9	65	252	0.56
North Pond	6/30/09	8:08	0.50	29.99	8.04	393	252	4.9	64	255	0.56
North Pond	6/30/09	8:09	1.00	29.99	8.00	393	252	4.6	61	258	0.56
North Pond	6/30/09	8:10	1.50	29.99	7.92	393	252	4.6	61	259	0.56
North Pond	6/30/09	8:11	2.00	29.60	7.31	401	257	0.7	9	226	0.56
North Pond	6/30/09	8:11	2.50	27.84	7.34	440	282	0.2	3	19	0.56
North Pond	6/30/09	8:12	3.00	25.29	7.19	490	313	0.3	3	-16	0.56
North Pond	6/30/09	8:12	3.50	24.15	7.15	509	326	0.1	2	-31	0.56
North Pond	6/30/09	8:13	4.00	23.05	7.08	525	336	0.1	2	-45	0.56
North Pond	6/30/09	8:13	4.50	21.91	7.03	544	348	0.1	1	-59	0.56
North Pond	6/30/09	8:14	5.00	21.04	7.02	556	356	0.2	3	-67	0.56
North Pond	6/30/09	8:14	5.50	20.75	7.03	558	357	0.2	2	-73	0.56
North Pond	6/30/09	8:15	6.00	20.48	7.04	561	359	0.2	2	-79	0.56
North Pond	6/30/09	8:15	6.50	20.32	7.05	564	361	0.2	2	-85	0.56
North Pond	6/30/09	8:16	6.58	20.34	7.06	565	361	0.2	2	-92	0.56

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	7/8/09	9:06	0.25	29.25	8.07	402	257	5.5	72	286	0.51
North Pond	7/8/09	9:06	0.50	29.25	8.04	402	257	5.5	72	285	0.51
North Pond	7/8/09	9:07	1.00	29.22	8.02	402	257	5.3	70	285	0.51
North Pond	7/8/09	9:08	1.50	29.20	7.96	403	258	5.2	68	285	0.51
North Pond	7/8/09	9:08	2.00	29.14	7.90	403	258	4.8	62	283	0.51
North Pond	7/8/09	9:09	2.50	28.02	7.26	413	264	0.5	6	123	0.51
North Pond	7/8/09	9:10	3.00	26.13	7.24	478	306	0.3	4	-4	0.51
North Pond	7/8/09	9:10	3.50	24.57	7.18	509	326	0.2	2	-38	0.51
North Pond	7/8/09	9:11	4.00	23.15	7.13	529	338	0.1	2	-54	0.51
North Pond	7/8/09	9:11	4.50	22.01	7.08	548	351	0.3	3	-69	0.51
North Pond	7/8/09	9:12	5.00	21.32	7.08	559	358	0.2	2	-81	0.51
North Pond	7/8/09	9:13	5.50	20.94	7.08	563	360	0.2	2	-87	0.51
North Pond	7/8/09	9:13	6.00	20.70	7.08	566	362	0.1	1	-92	0.51
North Pond	7/8/09	9:14	6.50	20.47	7.08	568	364	0.1	1	-95	0.51
North Pond	7/8/09	9:15	6.72	20.43	7.08	570	365	0.2	2	-101	0.51
North Pond	7/14/09	10:20	0.25	30.13	8.32	402	257	7.1	94	285	0.58
North Pond	7/14/09	10:22	0.50	29.99	8.37	401	257	6.7	89	287	0.58
North Pond	7/14/09	10:22	1.00	29.60	8.30	401	257	6.4	84	285	0.58
North Pond	7/14/09	10:23	1.50	29.57	8.19	402	257	6.1	80	281	0.58
North Pond	7/14/09	10:24	2.00	28.70	7.40	407	261	2.1	27	246	0.58
North Pond	7/14/09	10:25	2.50	28.09	7.27	415	265	0.4	5	193	0.58
North Pond	7/14/09	10:25	3.00	26.81	7.26	454	291	0.3	4	-15	0.58
North Pond	7/14/09	10:26	3.50	24.85	7.23	507	325	0.2	3	-63	0.58
North Pond	7/14/09	10:27	4.00	23.47	7.19	528	338	0.2	2	-80	0.58
North Pond	7/14/09	10:27	4.50	22.35	7.17	544	348	0.2	2	-93	0.58
North Pond	7/14/09	10:28	5.00	21.58	7.15	555	355	0.2	2	-103	0.58
North Pond	7/14/09	10:28	5.50	21.12	7.15	562	360	0.2	2	-109	0.58
North Pond	7/14/09	10:29	6.00	20.85	7.16	565	362	0.2	2	-113	0.58
North Pond	7/14/09	10:29	6.50	20.63	7.15	569	364	0.2	2	-116	0.58
North Pond	7/14/09	10:30	6.65	20.61	7.15	570	365	0.2	2	-122	0.58
North Pond	7/21/09	8:58	0.25	29.24	7.79	404	259	4.4	57	275	0.93
North Pond	7/21/09	8:59	0.50	29.24	7.78	404	259	4.3	56	274	0.93
North Pond	7/21/09	9:00	1.00	29.21	7.76	404	259	4.1	53	274	0.93
North Pond	7/21/09	9:01	1.50	29.21	7.72	404	259	4.1	53	276	0.93
North Pond	7/21/09	9:01	2.00	29.19	7.60	404	259	3.0	40	272	0.93
North Pond	7/21/09	9:02	2.50	28.54	7.21	421	269	0.4	5	31	0.93
North Pond	7/21/09	9:03	3.00	26.88	7.19	455	291	0.3	4	-29	0.93
North Pond	7/21/09	9:03	3.50	25.11	7.17	503	322	0.2	3	-65	0.93
North Pond	7/21/09	9:04	4.00	23.44	7.14	532	340	0.3	3	-87	0.93
North Pond	7/21/09	9:05	4.50	22.33	7.11	549	351	0.2	2	-99	0.93
North Pond	7/21/09	9:05	5.00	21.75	7.12	557	357	0.2	2	-107	0.93
North Pond	7/21/09	9:06	5.50	21.29	7.12	564	361	0.2	2	-112	0.93
North Pond	7/21/09	9:06	6.00	21.16	7.13	565	362	0.2	2	-115	0.93
North Pond	7/21/09	9:07	6.50	21.01	7.13	567	363	0.1	2	-118	0.93
North Pond	7/21/09	9:08	6.65	20.97	7.13	567	363	0.1	1	-120	0.93
North Pond	8/3/09	8:41	0.25	30.76	8.42	396	254	7.6	102	268	1.11
North Pond	8/3/09	8:41	0.50	30.76	8.43	396	254	7.5	101	273	1.11
North Pond	8/3/09	8:42	1.00	30.76	8.41	396	253	7.3	98	276	1.11
North Pond	8/3/09	8:43	1.50	30.76	8.39	396	254	7.4	99	279	1.11
North Pond	8/3/09	8:44	2.00	30.23	7.81	401	256	5.1	68	260	1.11
North Pond	8/3/09	8:45	2.50	29.59	7.34	407	261	1.6	21	237	1.11
North Pond	8/3/09	8:45	3.00	28.54	7.17	430	275	0.4	5	137	1.11
North Pond	8/3/09	8:46	3.50	26.21	7.10	491	314	0.2	3	-13	1.11
North Pond	8/3/09	8:46	4.00	24.53	7.09	526	337	0.2	3	-75	1.11
North Pond	8/3/09	8:47	4.50	23.08	7.09	547	350	0.2	2	-91	1.11
North Pond	8/3/09	8:48	5.00	22.11	7.10	560	358	0.2	2	-102	1.11
North Pond	8/3/09	8:48	5.50	21.78	7.10	564	361	0.2	2	-107	1.11
North Pond	8/3/09	8:49	6.00	21.46	7.12	566	362	0.1	1	-113	1.11
North Pond	8/3/09	8:49	6.50	21.26	7.12	570	365	0.1	1	-116	1.11
North Pond	8/3/09	8:50	6.87	21.15	7.12	571	365	0.2	2	-122	1.11

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	8/11/09	9:06	0.25	31.11	8.46	385	246	6.9	94	292	0.85
North Pond	8/11/09	9:07	0.50	31.14	8.46	384	246	6.8	92	295	0.85
North Pond	8/11/09	9:08	1.00	31.12	8.44	384	246	6.7	92	298	0.85
North Pond	8/11/09	9:08	1.50	31.11	8.37	384	246	6.6	89	298	0.85
North Pond	8/11/09	9:09	2.00	30.63	7.81	388	248	4.1	56	280	0.85
North Pond	8/11/09	9:10	2.50	29.99	7.25	395	253	0.4	5	241	0.85
North Pond	8/11/09	9:11	3.00	28.82	7.11	420	269	0.3	4	161	0.85
North Pond	8/11/09	9:11	3.50	26.91	7.10	463	297	0.3	3	73	0.85
North Pond	8/11/09	9:12	4.00	24.79	7.09	511	327	0.2	2	-67	0.85
North Pond	8/11/09	9:13	4.50	23.25	7.08	533	341	0.2	3	-94	0.85
North Pond	8/11/09	9:13	5.00	22.30	7.08	545	348	0.1	2	-106	0.85
North Pond	8/11/09	9:14	5.50	21.79	7.09	550	352	0.2	2	-115	0.85
North Pond	8/11/09	9:14	6.00	21.50	7.09	552	353	0.1	1	-120	0.85
North Pond	8/11/09	9:15	6.50	21.39	7.10	554	355	0.2	3	-122	0.85
North Pond	8/11/09	9:16	6.78	21.31	7.10	555	355	0.2	2	-128	0.85
North Pond	8/20/09	8:25	0.25	30.01	8.14	391	250	5.8	76	283	0.85
North Pond	8/20/09	8:26	0.50	30.06	8.14	391	250	5.7	76	288	0.85
North Pond	8/20/09	8:27	1.00	30.07	8.12	391	250	5.7	75	290	0.85
North Pond	8/20/09	8:28	1.50	30.05	8.10	391	250	5.4	71	293	0.85
North Pond	8/20/09	8:29	2.00	30.06	8.06	391	250	5.4	72	294	0.85
North Pond	8/20/09	8:31	2.50	30.06	8.07	392	251	5.3	71	297	0.85
North Pond	8/20/09	8:32	3.00	29.14	7.20	412	263	0.4	5	108	0.85
North Pond	8/20/09	8:33	3.50	27.13	7.14	472	302	0.3	3	61	0.85
North Pond	8/20/09	8:33	4.00	25.12	7.09	517	331	0.3	3	-78	0.85
North Pond	8/20/09	8:34	4.50	23.52	7.09	538	344	0.2	2	-108	0.85
North Pond	8/20/09	8:35	5.00	22.35	7.08	552	353	0.2	2	-117	0.85
North Pond	8/20/09	8:35	5.50	21.92	7.09	556	356	0.2	2	-121	0.85
North Pond	8/20/09	8:36	6.00	21.63	7.09	559	358	0.2	2	-125	0.85
North Pond	8/20/09	8:37	6.50	21.43	7.09	562	360	0.2	2	-128	0.85
North Pond	8/20/09	8:37	7.00	21.27	7.09	566	362	0.2	2	-130	0.85
North Pond	8/20/09	8:38	7.08	21.28	7.09	565	362	0.2	2	-132	0.85
			0.25	**30.02**	**8.24**	**396**	**254**	**6.3**	**83**	**280**	
			0.50	**30.00**	**8.24**	**396**	**254**	**6.2**	**81**	**281**	
			1.00	**29.94**	**8.20**	**396**	**254**	**5.9**	**78**	**282**	
			1.50	**29.87**	**8.12**	**397**	**254**	**5.4**	**71**	**278**	
			2.00	**29.29**	**7.78**	**404**	**259**	**3.5**	**46**	**243**	
			2.50	**28.32**	**7.43**	**421**	**269**	**1.4**	**18**	**155**	
			3.00	**26.87**	**7.23**	**457**	**292**	**0.5**	**6**	**62**	**0.68**
			3.50	**25.25**	**7.18**	**496**	**317**	**0.3**	**3**	**11**	
			4.00	**23.77**	**7.14**	**522**	**334**	**0.2**	**3**	**-51**	
			4.50	**22.53**	**7.11**	**541**	**346**	**0.2**	**3**	**-72**	
			5.00	**21.65**	**7.09**	**553**	**354**	**0.2**	**2**	**-83**	
			5.50	**21.15**	**7.09**	**558**	**357**	**0.2**	**2**	**-90**	
			6.00	**20.85**	**7.10**	**561**	**359**	**0.2**	**2**	**-95**	
			6.50	**20.66**	**7.10**	**563**	**361**	**0.2**	**2**	**-99**	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	9/9/09	9:49	0.25	29.59	8.69	394	252	6.5	86	332	0.73
North Pond	9/9/09	9:50	0.50	29.59	8.67	394	252	6.5	85	333	0.73
North Pond	9/9/09	9:51	1.00	29.56	8.63	394	252	6.5	85	335	0.73
North Pond	9/9/09	9:52	1.50	29.53	8.52	394	252	6.3	83	336	0.73
North Pond	9/9/09	9:52	2.00	29.48	8.30	396	254	5.4	71	330	0.73
North Pond	9/9/09	9:53	2.50	29.36	7.45	399	255	2.4	31	296	0.73
North Pond	9/9/09	9:54	3.00	28.99	7.20	405	259	0.7	9	179	0.73
North Pond	9/9/09	9:55	3.50	27.58	7.34	479	306	0.5	6	97	0.73
North Pond	9/9/09	9:56	4.00	25.91	7.24	533	341	0.4	5	-38	0.73
North Pond	9/9/09	9:56	4.50	24.11	7.12	553	354	0.3	4	-72	0.73
North Pond	9/9/09	9:57	5.00	22.93	7.10	564	361	0.3	3	-86	0.73
North Pond	9/9/09	9:58	5.50	22.24	7.10	571	365	0.3	3	-93	0.73
North Pond	9/9/09	9:58	6.00	21.90	7.12	573	367	0.3	3	-100	0.73
North Pond	9/9/09	9:59	6.50	21.62	7.12	578	370	0.2	3	-104	0.73
North Pond	9/9/09	9:59	6.86	21.54	7.12	579	371	0.2	2	-110	0.73
North Pond	9/18/09	10:04	0.25	29.69	8.82	387	247	7.7	101	256	0.55
North Pond	9/18/09	10:05	0.50	29.65	8.80	387	247	7.6	100	258	0.55
North Pond	9/18/09	10:06	1.00	29.56	8.79	387	248	7.4	97	262	0.55
North Pond	9/18/09	10:07	1.50	29.54	8.77	388	248	7.2	95	264	0.55
North Pond	9/18/09	10:08	2.00	29.36	8.41	392	251	5.6	74	252	0.55
North Pond	9/18/09	10:08	2.50	29.18	7.94	396	253	4.0	52	227	0.55
North Pond	9/18/09	10:09	3.00	28.74	7.37	411	263	0.8	10	168	0.55
North Pond	9/18/09	10:09	3.50	27.89	7.24	454	291	0.2	3	44	0.55
North Pond	9/18/09	10:10	4.00	26.08	7.10	519	332	0.3	3	-93	0.55
North Pond	9/18/09	10:10	4.50	24.30	6.98	549	351	0.2	2	-128	0.55
North Pond	9/18/09	10:11	5.00	23.27	6.96	560	358	0.2	2	-137	0.55
North Pond	9/18/09	10:11	5.50	22.43	6.95	566	362	0.2	2	-143	0.55
North Pond	9/18/09	10:12	6.00	21.98	6.95	572	366	0.2	2	-144	0.55
North Pond	9/18/09	10:12	6.50	21.67	6.96	576	369	0.2	2	-144	0.55
North Pond	9/18/09	10:13	6.70	21.62	6.96	577	369	0.1	1	-146	0.55
North Pond	9/22/09	11:40	0.25	30.96	8.91	390	250	9.1	122	262	0.45
North Pond	9/22/09	11:40	0.50	30.63	8.97	389	249	9.6	128	268	0.45
North Pond	9/22/09	11:41	1.00	30.62	8.97	388	248	9.5	127	269	0.45
North Pond	9/22/09	11:42	1.50	30.42	8.93	390	249	8.7	116	269	0.45
North Pond	9/22/09	11:43	2.00	29.69	8.08	403	258	4.1	54	235	0.45
North Pond	9/22/09	11:44	2.50	29.34	7.32	403	258	0.3	4	189	0.45
North Pond	9/22/09	11:44	3.00	28.88	7.30	415	265	0.2	3	134	0.45
North Pond	9/22/09	11:45	3.50	27.72	7.13	466	298	0.1	1	16	0.45
North Pond	9/22/09	11:46	4.00	26.24	7.03	528	338	0.2	2	-124	0.45
North Pond	9/22/09	11:47	4.50	24.52	6.95	559	358	0.2	2	-148	0.45
North Pond	9/22/09	11:47	5.00	23.48	6.92	570	365	0.1	1	-153	0.45
North Pond	9/22/09	11:48	5.50	22.50	6.92	580	371	0.1	1	-156	0.45
North Pond	9/22/09	11:49	6.00	22.08	6.93	583	373	0.1	1	-158	0.45
North Pond	9/22/09	11:49	6.50	21.78	6.93	587	376	0.1	2	-159	0.45
North Pond	9/22/09	11:50	6.88	21.56	6.92	592	379	0.1	2	-159	0.45
North Pond	9/28/09	9:21	0.25	29.13	8.53	397	254	6.0	79	268	0.56
North Pond	9/28/09	9:22	0.50	29.10	8.48	396	253	5.6	73	271	0.56
North Pond	9/28/09	9:23	1.00	29.09	8.48	396	253	5.5	72	274	0.56
North Pond	9/28/09	9:24	1.50	29.08	8.45	396	253	5.4	70	276	0.56
North Pond	9/28/09	9:25	2.00	29.10	8.46	396	253	5.4	70	278	0.56
North Pond	9/28/09	9:26	2.50	29.11	8.45	396	253	5.5	71	280	0.56
North Pond	9/28/09	9:27	3.00	28.79	7.39	421	269	1.3	17	168	0.56
North Pond	9/28/09	9:28	3.50	27.67	7.01	460	294	0.2	3	25	0.56
North Pond	9/28/09	9:28	4.00	26.25	6.91	523	335	0.2	3	-94	0.56
North Pond	9/28/09	9:29	4.50	24.68	6.84	560	358	0.1	1	-133	0.56
North Pond	9/28/09	9:30	5.00	23.47	6.81	574	367	0.2	2	-146	0.56
North Pond	9/28/09	9:30	5.50	22.53	6.80	584	374	0.1	1	-153	0.56
North Pond	9/28/09	9:31	6.00	22.06	6.81	589	377	0.2	3	-155	0.56
North Pond	9/28/09	9:32	6.50	21.84	6.81	592	379	0.2	2	-157	0.56
North Pond	9/28/09	9:33	6.78	21.72	6.81	595	380	0.2	2	-159	0.56

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	10/5/09	10:33	0.25	27.90	8.18	413	265	6.4	82	292	0.52
North Pond	10/5/09	10:34	0.50	27.89	8.19	414	265	6.5	83	294	0.52
North Pond	10/5/09	10:35	1.00	27.89	8.19	414	265	6.4	81	296	0.52
North Pond	10/5/09	10:36	1.50	27.89	8.18	415	265	6.3	80	296	0.52
North Pond	10/5/09	10:37	2.00	27.85	8.11	416	266	5.8	74	295	0.52
North Pond	10/5/09	10:38	2.50	27.80	8.01	417	267	5.4	69	294	0.52
North Pond	10/5/09	10:39	3.00	27.70	7.70	419	268	2.9	37	273	0.52
North Pond	10/5/09	10:40	3.50	27.34	7.35	432	276	0.3	4	38	0.52
North Pond	10/5/09	10:41	4.00	26.43	7.00	506	324	0.2	2	-77	0.52
North Pond	10/5/09	10:41	4.50	24.84	6.90	566	362	0.2	2	-122	0.52
North Pond	10/5/09	10:42	5.00	23.55	6.88	582	372	0.2	2	-136	0.52
North Pond	10/5/09	10:43	5.50	22.63	6.87	592	379	0.2	2	-141	0.52
North Pond	10/5/09	10:43	6.00	22.21	6.88	594	380	0.2	3	-143	0.52
North Pond	10/5/09	10:44	6.50	21.87	6.87	599	383	0.1	2	-146	0.52
North Pond	10/5/09	10:44	6.81	21.78	6.88	601	385	0.1	1	-147	0.52
North Pond	10/12/09	10:06	0.25	29.66	8.68	404	259	8.8	116	275	0.68
North Pond	10/12/09	10:07	0.50	29.65	8.67	404	258	8.7	115	287	0.68
North Pond	10/12/09	10:07	1.00	29.60	8.65	404	259	8.6	113	301	0.68
North Pond	10/12/09	10:08	1.50	29.47	8.51	406	260	7.5	99	305	0.68
North Pond	10/12/09	10:09	2.00	29.06	8.13	411	263	5.4	70	298	0.68
North Pond	10/12/09	10:10	2.50	28.31	7.62	412	264	2.7	34	279	0.68
North Pond	10/12/09	10:11	3.00	27.89	7.28	411	263	0.7	9	232	0.68
North Pond	10/12/09	10:12	3.50	27.29	7.31	432	276	0.2	3	26	0.68
North Pond	10/12/09	10:12	4.00	26.30	7.03	488	312	0.3	3	-107	0.68
North Pond	10/12/09	10:13	4.50	25.13	6.94	554	355	0.2	3	-147	0.68
North Pond	10/12/09	10:13	5.00	23.78	6.91	575	368	0.1	1	-163	0.68
North Pond	10/12/09	10:14	5.50	22.87	6.91	586	375	0.2	2	-170	0.68
North Pond	10/12/09	10:15	6.00	22.34	6.90	591	378	0.2	3	-173	0.68
North Pond	10/12/09	10:15	6.50	21.97	6.90	597	382	0.2	3	-175	0.68
North Pond	10/12/09	10:16	6.83	21.78	6.90	601	385	0.2	2	-177	0.68
North Pond	10/19/09	10:12	0.25	23.89	7.30	443	284	2.4	28	259	0.59
North Pond	10/19/09	10:13	0.50	23.87	7.31	443	283	2.2	26	257	0.59
North Pond	10/19/09	10:13	1.00	23.91	7.29	442	283	2.1	25	254	0.59
North Pond	10/19/09	10:14	1.50	23.90	7.27	443	283	1.9	22	253	0.59
North Pond	10/19/09	10:15	2.00	23.91	7.28	442	283	1.8	21	250	0.59
North Pond	10/19/09	10:15	2.50	23.90	7.28	442	283	1.9	22	249	0.59
North Pond	10/19/09	10:16	3.00	23.89	7.29	443	283	1.8	22	249	0.59
North Pond	10/19/09	10:16	3.50	23.90	7.30	443	283	1.8	22	247	0.59
North Pond	10/19/09	10:17	4.00	23.88	7.29	443	284	1.5	18	246	0.59
North Pond	10/19/09	10:17	4.50	23.86	7.29	443	283	1.6	18	245	0.59
North Pond	10/19/09	10:18	5.00	23.84	7.29	444	284	1.4	17	242	0.59
North Pond	10/19/09	10:18	5.50	23.78	7.17	450	288	1.1	13	-70	0.59
North Pond	10/19/09	10:19	6.00	22.47	6.87	586	375	0.5	6	-150	0.59
North Pond	10/19/09	10:19	6.50	22.02	6.85	597	382	0.4	5	-159	0.59
North Pond	10/19/09	10:20	6.76	21.89	6.85	601	385	0.3	4	-163	0.59
North Pond	10/27/09	9:10	0.25	26.01	8.93	430	275	11.2	139	342	0.89
North Pond	10/27/09	9:10	0.50	26.02	8.93	430	275	11.1	137	342	0.89
North Pond	10/27/09	9:11	1.00	25.41	8.72	435	278	9.6	118	338	0.89
North Pond	10/27/09	9:12	1.50	24.88	8.16	444	284	5.3	64	323	0.89
North Pond	10/27/09	9:13	2.00	24.31	7.30	446	286	0.4	4	295	0.89
North Pond	10/27/09	9:14	2.50	23.79	7.22	452	289	0.2	2	277	0.89
North Pond	10/27/09	9:14	3.00	23.57	7.24	452	289	0.3	4	92	0.89
North Pond	10/27/09	9:15	3.50	23.48	7.25	453	290	0.2	2	23	0.89
North Pond	10/27/09	9:15	4.00	23.40	7.25	453	290	0.3	3	17	0.89
North Pond	10/27/09	9:16	4.50	23.31	7.21	455	291	0.1	2	-7	0.89
North Pond	10/27/09	9:16	5.00	23.18	7.15	464	297	0.2	2	-32	0.89
North Pond	10/27/09	9:17	5.50	23.02	7.10	475	304	0.2	3	-51	0.89
North Pond	10/27/09	9:18	6.00	22.71	6.99	513	328	0.1	2	-92	0.89
North Pond	10/27/09	9:18	6.50	22.22	6.90	589	377	0.1	1	-117	0.89
North Pond	10/27/09	9:18	7.00	21.87	6.87	604	386	0.1	1	-132	0.89
North Pond	10/27/09	9:19	7.50	21.66	6.86	608	389	0.1	1	-139	0.89
North Pond	10/27/09	9:20	7.92	21.60	6.85	613	392	0.2	2	-161	0.89

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	11/5/09	10:37	0.25	23.55	7.47	463	296	2.5	30	310	1.12
North Pond	11/5/09	10:38	0.50	23.57	7.47	463	296	2.3	27	304	1.12
North Pond	11/5/09	10:39	1.00	23.57	7.45	463	296	2.3	27	300	1.12
North Pond	11/5/09	10:40	1.50	23.56	7.44	464	297	2.1	25	297	1.12
North Pond	11/5/09	10:41	2.00	23.54	7.43	464	297	2.0	23	294	1.12
North Pond	11/5/09	10:42	2.50	23.53	7.40	465	297	1.6	18	291	1.12
North Pond	11/5/09	10:43	3.00	23.53	7.40	465	298	1.8	21	289	1.12
North Pond	11/5/09	10:44	3.50	23.51	7.36	466	298	1.4	16	249	1.12
North Pond	11/5/09	10:45	4.00	23.49	7.30	468	299	0.7	8	235	1.12
North Pond	11/5/09	10:46	4.50	23.35	7.12	472	302	0.1	2	-100	1.12
North Pond	11/5/09	10:46	5.00	23.14	6.98	483	309	0.1	1	-135	1.12
North Pond	11/5/09	10:47	5.50	22.95	6.91	500	320	0.2	2	-148	1.12
North Pond	11/5/09	10:48	6.00	22.70	6.84	530	339	0.2	3	-160	1.12
North Pond	11/5/09	10:49	6.49	22.30	6.76	595	381	0.1	1	-172	1.12
North Pond	11/10/09	9:45	0.25	22.96	7.30	475	304	1.8	21	305	1.13
North Pond	11/10/09	9:46	0.50	22.96	7.30	474	304	1.6	19	302	1.13
North Pond	11/10/09	9:46	1.00	22.96	7.29	474	304	1.6	18	300	1.13
North Pond	11/10/09	9:47	1.50	22.95	7.29	474	304	1.5	17	298	1.13
North Pond	11/10/09	9:48	2.00	22.96	7.29	475	304	1.5	17	297	1.13
North Pond	11/10/09	9:49	2.50	22.95	7.29	475	304	1.2	14	295	1.13
North Pond	11/10/09	9:49	3.00	22.95	7.29	475	304	1.2	14	294	1.13
North Pond	11/10/09	9:50	3.50	22.95	7.29	475	304	1.2	14	293	1.13
North Pond	11/10/09	9:51	4.00	22.94	7.28	475	304	1.0	11	291	1.13
North Pond	11/10/09	9:51	4.50	22.88	7.25	475	304	0.3	3	259	1.13
North Pond	11/10/09	9:52	5.00	22.82	7.20	477	305	0.3	4	-15	1.13
North Pond	11/10/09	9:52	5.50	22.79	7.17	480	307	0.2	2	-45	1.13
North Pond	11/10/09	9:53	6.00	22.75	7.14	482	309	0.2	2	-63	1.13
North Pond	11/10/09	9:53	6.50	22.63	6.97	507	325	0.1	1	-90	1.13
North Pond	11/10/09	9:54	7.00	22.07	6.72	621	397	0.1	1	-132	1.13
North Pond	11/10/09	9:54	7.19	22.02	6.71	624	399	0.2	2	-152	1.13
North Pond	11/17/09	10:55	0.25	21.80	7.51	469	300	4.2	48	388	1.43
North Pond	11/17/09	10:55	0.50	21.73	7.51	468	300	4.1	47	386	1.43
North Pond	11/17/09	10:56	1.00	21.69	7.51	468	300	4.0	45	384	1.43
North Pond	11/17/09	10:57	1.50	21.64	7.50	468	299	3.8	43	382	1.43
North Pond	11/17/09	10:58	2.00	21.57	7.40	468	300	2.4	27	378	1.43
North Pond	11/17/09	10:59	2.50	21.46	7.37	468	300	1.8	21	376	1.43
North Pond	11/17/09	11:00	3.00	21.44	7.36	469	300	1.7	19	375	1.43
North Pond	11/17/09	11:01	3.50	21.42	7.35	469	300	1.6	18	374	1.43
North Pond	11/17/09	11:01	4.00	21.42	7.35	469	300	1.5	17	373	1.43
North Pond	11/17/09	11:02	4.50	21.41	7.35	470	301	1.4	16	373	1.43
North Pond	11/17/09	11:02	5.00	21.41	7.36	469	300	1.5	16	373	1.43
North Pond	11/17/09	11:03	5.50	21.40	7.36	470	301	1.6	18	373	1.43
North Pond	11/17/09	11:04	6.00	21.40	7.36	470	301	1.3	15	370	1.43
North Pond	11/17/09	11:05	6.50	21.40	7.35	470	301	1.3	15	309	1.43
North Pond	12/3/09	11:46	0.25	21.36	7.67	472	302	7.0	79	436	1.22
North Pond	12/3/09	11:46	0.50	21.30	7.67	472	302	6.7	76	438	1.22
North Pond	12/3/09	11:47	1.00	21.18	7.67	472	302	6.5	73	442	1.22
North Pond	12/3/09	11:48	1.50	21.06	7.65	473	302	6.2	70	445	1.22
North Pond	12/3/09	11:48	2.00	21.02	7.66	473	303	6.1	69	448	1.22
North Pond	12/3/09	11:49	2.50	20.95	7.61	474	303	5.5	62	449	1.22
North Pond	12/3/09	11:50	3.00	20.74	7.54	474	303	4.7	53	450	1.22
North Pond	12/3/09	11:51	3.50	20.30	7.46	474	304	3.7	41	451	1.22
North Pond	12/3/09	11:51	4.00	20.08	7.42	474	304	2.9	32	453	1.22
North Pond	12/3/09	11:52	4.50	20.03	7.41	475	304	2.8	31	455	1.22
North Pond	12/3/09	11:53	5.00	19.97	7.41	475	304	2.6	29	457	1.22
North Pond	12/3/09	11:53	5.50	19.96	7.41	475	304	2.5	27	459	1.22
North Pond	12/3/09	11:54	6.00	19.96	7.41	474	304	2.4	27	460	1.22
North Pond	12/3/09	11:55	6.50	19.96	7.41	474	304	2.4	27	454	1.22
North Pond	12/3/09	11:55	6.57	19.96	7.41	474	303	2.4	27	423	1.22

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	12/7/09	11:41	0.25	19.35	7.55	466	298	7.3	79	439	1.44
North Pond	12/7/09	11:41	0.50	19.15	7.55	466	298	6.6	71	438	1.44
North Pond	12/7/09	11:42	1.00	19.06	7.55	466	298	5.9	64	437	1.44
North Pond	12/7/09	11:42	1.50	19.03	7.55	466	298	5.7	61	437	1.44
North Pond	12/7/09	11:43	2.00	19.00	7.55	467	299	5.7	61	438	1.44
North Pond	12/7/09	11:43	2.50	19.00	7.55	466	298	5.3	57	439	1.44
North Pond	12/7/09	11:44	3.00	19.00	7.55	466	298	5.2	56	440	1.44
North Pond	12/7/09	11:44	3.50	19.00	7.55	467	299	5.0	54	441	1.44
North Pond	12/7/09	11:45	4.00	19.00	7.55	467	299	5.0	53	442	1.44
North Pond	12/7/09	11:46	4.50	19.00	7.55	467	299	4.9	52	444	1.44
North Pond	12/7/09	11:46	5.00	19.00	7.55	468	299	4.9	53	445	1.44
North Pond	12/7/09	11:47	5.50	18.99	7.56	468	299	4.9	53	447	1.44
North Pond	12/7/09	11:47	6.00	19.00	7.55	467	299	4.7	50	448	1.44
North Pond	12/7/09	11:48	6.30	19.00	7.54	468	299	4.4	48	405	1.44
North Pond	12/14/09	12:34	0.25	21.25	7.01	469	300	6.8	77	508	
North Pond	12/14/09	12:35	0.50	21.08	7.05	469	300	6.3	71	508	
North Pond	12/14/09	12:36	1.00	20.78	7.10	468	300	6.4	72	507	
North Pond	12/14/09	12:36	1.50	20.64	7.06	468	299	6.0	67	505	
North Pond	12/14/09	12:37	2.00	20.22	7.05	469	300	5.6	62	505	
North Pond	12/14/09	12:38	2.50	19.68	7.00	468	300	5.1	56	504	
North Pond	12/14/09	12:39	3.00	19.40	7.00	468	300	4.8	52	505	
North Pond	12/14/09	12:39	3.50	19.23	7.00	469	300	4.6	50	505	
North Pond	12/14/09	12:40	4.00	19.17	7.01	469	300	4.5	49	506	
North Pond	12/14/09	12:41	4.50	19.13	7.02	469	300	4.4	47	506	
North Pond	12/14/09	12:41	5.00	19.11	7.02	469	300	4.2	46	506	
North Pond	12/14/09	12:42	5.50	19.12	7.04	469	300	3.9	42	507	
North Pond	12/14/09	12:43	6.00	19.11	7.05	469	300	4.0	43	508	
North Pond	12/14/09	12:44	6.50	19.11	7.05	470	301	4.1	44	508	
North Pond	12/14/09	12:45	7.00	19.10	7.06	470	301	4.0	43	506	
North Pond	12/14/09	12:45	7.50	19.10	7.07	470	301	4.0	43	502	
North Pond	12/14/09	12:46	7.96	19.11	7.05	470	301	3.3	36	436	
North Pond	12/23/09	12:44	0.25	17.75	7.77	476	305	8.5	90	477	
North Pond	12/23/09	12:45	0.50	17.76	7.85	476	305	7.0	73	475	
North Pond	12/23/09	12:46	1.00	17.61	7.85	476	304	6.5	68	474	
North Pond	12/23/09	12:47	1.50	17.49	7.84	476	305	6.5	68	475	
North Pond	12/23/09	12:48	2.00	17.47	7.84	476	305	6.2	65	474	
North Pond	12/23/09	12:49	2.50	17.46	7.85	476	305	6.2	65	474	
North Pond	12/23/09	12:50	3.00	17.45	7.85	476	305	6.1	64	473	
North Pond	12/23/09	12:51	3.50	17.44	7.85	476	304	6.2	65	473	
North Pond	12/23/09	12:52	4.00	17.43	7.86	475	304	6.3	66	473	
North Pond	12/23/09	12:53	4.50	17.44	7.86	475	304	6.3	65	473	
North Pond	12/23/09	12:54	5.00	17.43	7.86	475	304	6.3	66	473	
North Pond	12/23/09	12:55	5.50	17.42	7.86	475	304	6.2	65	473	
North Pond	12/23/09	12:56	6.00	17.42	7.86	474	303	6.3	65	472	
North Pond	12/23/09	12:57	6.50	17.41	7.86	474	303	6.0	63	472	
North Pond	12/23/09	12:58	7.00	17.42	7.86	474	303	6.0	63	471	
North Pond	12/23/09	12:59	7.41	17.42	7.87	473	303	6.2	64	462	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	12/29/09	12:42	0.25	16.66	7.77	474	303	7.1	73	421	
North Pond	12/29/09	12:43	0.50	16.65	7.78	473	303	6.7	69	422	
North Pond	12/29/09	12:43	1.00	16.54	7.77	473	303	6.5	66	423	
North Pond	12/29/09	12:44	1.50	16.51	7.78	473	303	6.3	65	423	
North Pond	12/29/09	12:45	2.00	16.49	7.78	474	303	6.6	67	424	
North Pond	12/29/09	12:46	2.50	16.44	7.78	473	303	6.4	66	424	
North Pond	12/29/09	12:46	3.00	16.43	7.78	473	303	6.2	63	425	
North Pond	12/29/09	12:47	3.50	16.43	7.79	473	303	6.4	66	426	
North Pond	12/29/09	12:48	4.00	16.41	7.79	473	303	6.2	63	426	
North Pond	12/29/09	12:49	4.50	16.41	7.78	473	303	6.4	65	426	
North Pond	12/29/09	12:49	5.00	16.42	7.78	473	303	6.4	66	426	
North Pond	12/29/09	12:50	5.50	16.41	7.79	473	303	6.4	65	427	
North Pond	12/29/09	12:51	6.00	16.41	7.79	473	303	6.1	63	428	
North Pond	12/29/09	12:51	6.50	16.41	7.78	473	303	6.3	64	428	
North Pond	12/29/09	12:53	6.84	16.41	7.78	473	303	6.0	61	329	
			0.25	**24.47**	**8.01**	**439**	**281**	**6.5**	**78**	**348**	
			0.50	**24.41**	**8.01**	**439**	**281**	**6.2**	**75**	**349**	
			1.00	**24.31**	**7.99**	**439**	**281**	**5.9**	**72**	**350**	
			1.50	**24.22**	**7.93**	**440**	**281**	**5.4**	**65**	**349**	
			2.00	**24.06**	**7.75**	**442**	**283**	**4.4**	**52**	**343**	
			2.50	**23.89**	**7.57**	**443**	**283**	**3.5**	**40**	**334**	
			3.00	**23.71**	**7.41**	**446**	**286**	**2.5**	**28**	**297**	
			3.50	**23.32**	**7.35**	**462**	**295**	**2.1**	**23**	**233**	
			4.00	**22.78**	**7.28**	**485**	**311**	**1.9**	**21**	**183**	
			4.50	**22.15**	**7.22**	**501**	**321**	**1.8**	**20**	**145**	
			5.00	**21.68**	**7.20**	**508**	**325**	**1.8**	**19**	**120**	
			5.50	**21.32**	**7.18**	**513**	**329**	**1.7**	**19**	**95**	
			6.00	**21.03**	**7.15**	**528**	**338**	**1.7**	**18**	**84**	
			6.50	**20.83**	**7.13**	**540**	**346**	**1.6**	**18**	**72**	
			7.00	**20.67**	**7.09**	**559**	**358**	**1.5**	**16**	**31**	
North Pond	1/19/10	10:52	0.25	14.96	7.82	468	299	9.5	94	700	
North Pond	1/19/10	10:53	0.50	14.96	7.81	468	300	9.3	93	684	
North Pond	1/19/10	10:54	1.00	14.95	7.80	469	300	9.3	92	667	
North Pond	1/19/10	10:54	1.50	14.95	7.81	469	300	9.1	90	654	
North Pond	1/19/10	10:55	2.00	14.90	7.81	469	300	9.1	91	646	
North Pond	1/19/10	10:56	2.50	13.44	7.57	470	301	7.9	76	652	
North Pond	1/19/10	10:56	3.00	11.80	7.51	470	301	7.2	67	654	
North Pond	1/19/10	10:57	3.50	11.41	7.57	471	302	7.2	66	648	
North Pond	1/19/10	10:58	4.00	11.32	7.50	471	302	7.1	65	651	
North Pond	1/19/10	10:59	4.50	11.27	7.50	472	302	6.9	63	647	
North Pond	1/19/10	11:00	5.00	11.26	7.50	472	302	6.5	60	642	
North Pond	1/19/10	11:01	5.50	11.26	7.51	472	302	6.5	60	639	
North Pond	1/19/10	11:01	6.00	11.26	7.51	472	302	6.4	59	637	
North Pond	1/19/10	11:02	6.50	11.26	7.51	472	302	6.3	58	633	
North Pond	1/19/10	11:04	6.93	11.27	7.49	472	302	6.4	58	624	
North Pond	1/28/10	11:59	0.25	16.61	8.03	467	299	10.0	103	713	
North Pond	1/28/10	12:00	0.50	16.63	8.05	466	298	9.6	99	694	
North Pond	1/28/10	12:00	1.00	16.54	8.04	466	298	9.5	97	677	
North Pond	1/28/10	12:01	1.50	16.43	7.99	467	299	9.1	93	666	
North Pond	1/28/10	12:02	2.00	16.42	7.98	466	298	8.9	91	656	
North Pond	1/28/10	12:03	2.50	16.35	7.99	466	298	9.0	92	647	
North Pond	1/28/10	12:04	3.00	16.14	7.94	466	299	8.5	87	643	
North Pond	1/28/10	12:05	3.50	13.60	7.49	478	306	5.4	52	661	
North Pond	1/28/10	12:06	4.00	12.46	7.44	476	305	4.3	41	663	
North Pond	1/28/10	12:06	4.50	12.23	7.40	477	305	3.2	30	662	
North Pond	1/28/10	12:07	5.00	12.19	7.39	477	305	3.1	29	659	
North Pond	1/28/10	12:08	5.50	12.18	7.39	476	305	2.9	27	656	
North Pond	1/28/10	12:09	6.00	12.16	7.41	476	305	3.0	28	652	
North Pond	1/28/10	12:09	6.50	12.15	7.39	476	305	3.2	29	651	
North Pond	1/28/10	12:10	7.00	12.15	7.40	476	305	3.1	29	647	
North Pond	1/28/10	12:11	7.04	12.17	7.36	476	304	2.9	27	573	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
North Pond	2/11/10	13:25	0.25	14.29	7.97	461	295	9.2	90	414	
North Pond	2/11/10	13:26	0.50	14.30	8.00	461	295	8.8	86	411	
North Pond	2/11/10	13:27	1.00	14.22	7.99	461	295	8.8	86	411	
North Pond	2/11/10	13:28	1.50	14.21	7.87	462	296	8.5	83	418	
North Pond	2/11/10	13:28	2.00	14.21	7.94	463	296	8.5	83	413	
North Pond	2/11/10	13:29	2.50	14.19	7.90	462	296	8.5	83	414	
North Pond	2/11/10	13:30	3.00	14.19	7.91	463	296	8.4	82	417	
North Pond	2/11/10	13:31	3.50	14.17	7.92	462	296	8.5	83	417	
North Pond	2/11/10	13:32	4.00	14.16	7.99	462	296	8.5	83	413	
North Pond	2/11/10	13:33	4.50	14.12	7.94	463	296	8.3	81	414	
North Pond	2/11/10	13:34	5.00	13.73	7.35	475	304	2.6	25	435	
North Pond	2/11/10	13:35	5.50	13.37	7.18	483	309	0.5	5	436	
North Pond	2/11/10	13:35	6.00	13.28	7.18	483	309	0.4	4	420	
North Pond	2/11/10	13:36	6.50	13.27	7.20	483	309	0.3	3	366	
North Pond	2/16/10	13:58	0.25	13.63	7.99	461	295	9.5	92	403	
North Pond	2/16/10	13:59	0.50	13.61	8.00	461	295	9.2	89	403	
North Pond	2/16/10	13:59	1.00	13.64	7.99	461	295	9.3	90	402	
North Pond	2/16/10	14:00	1.50	13.45	7.99	461	295	9.2	88	403	
North Pond	2/16/10	14:01	2.00	13.41	8.00	461	295	9.1	88	402	
North Pond	2/16/10	14:01	2.50	13.30	7.97	461	295	9.1	87	403	
North Pond	2/16/10	14:02	3.00	13.32	7.96	461	295	8.9	83	404	
North Pond	2/16/10	14:02	3.50	13.19	7.92	461	295	8.5	81	406	
North Pond	2/16/10	14:03	4.00	13.18	7.92	461	295	8.4	80	406	
North Pond	2/16/10	14:04	4.50	13.17	7.93	460	295	8.7	83	406	
North Pond	2/16/10	14:05	5.00	13.17	7.95	460	295	8.5	82	406	
North Pond	2/16/10	14:05	5.50	13.17	7.94	460	294	8.5	81	407	
North Pond	2/16/10	14:06	6.00	13.14	7.90	461	295	8.5	81	408	
North Pond	2/16/10	14:08	6.50	13.15	7.89	461	295	8.3	79	356	
North Pond	2/16/10	14:11	6.54	13.15	7.86	460	295	7.9	76	311	
North Pond	3/10/10	11:44	0.25	16.46	8.55	447	286	11.7	120	690	
North Pond	3/10/10	11:44	0.50	16.38	8.57	447	286	11.5	118	673	
North Pond	3/10/10	11:46	1.00	16.26	8.58	446	285	11.0	113	656	
North Pond	3/10/10	11:46	1.50	16.06	8.59	447	286	11.3	114	647	
North Pond	3/10/10	11:47	2.00	15.07	8.65	445	285	11.8	118	643	
North Pond	3/10/10	11:48	2.50	14.72	8.66	447	286	12.2	121	641	
North Pond	3/10/10	11:50	3.00	14.48	8.54	448	287	11.1	109	644	
North Pond	3/10/10	11:51	3.50	14.25	8.38	452	289	9.4	92	649	
North Pond	3/10/10	11:52	4.00	14.12	8.18	454	290	7.9	77	657	
North Pond	3/10/10	11:53	4.50	14.04	8.08	454	291	7.3	71	662	
North Pond	3/10/10	11:54	5.00	14.03	7.98	455	291	6.6	64	665	
North Pond	3/10/10	11:55	5.50	14.01	7.89	455	291	6.1	59	668	
North Pond	3/10/10	11:56	6.00	14.00	7.87	455	291	6.2	60	668	
North Pond	3/10/10	11:57	6.50	13.98	7.87	455	291	6.4	62	665	
North Pond	3/10/10	11:59	6.90	13.99	7.78	454	290	5.2	51	580	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
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Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	12/29/08	9:50	0.25	19.89	8.70	445	285	11.8	129	528	0.97
South Pond	12/29/08	9:51	0.50	19.89	9.04	445	285	10.9	119	534	0.97
South Pond	12/29/08	9:53	1.00	19.58	9.19	446	286	11.0	121	536	0.97
South Pond	12/29/08	9:54	1.50	19.19	9.05	448	287	9.8	107	527	0.97
South Pond	12/29/08	9:55	2.00	19.06	9.02	449	288	9.9	107	524	0.97
South Pond	12/29/08	9:56	2.50	18.61	8.62	452	290	7.5	80	505	0.97
South Pond	12/29/08	9:56	3.00	17.96	8.37	454	290	5.5	58	493	0.97
South Pond	12/29/08	9:57	3.50	17.68	8.37	454	290	4.9	51	493	0.97
South Pond	12/29/08	9:58	4.00	17.63	8.32	455	291	3.6	37	491	0.97
South Pond	12/29/08	9:59	4.50	17.62	8.34	456	292	3.3	34	491	0.97
South Pond	12/29/08	10:00	5.00	17.62	8.37	456	292	3.0	32	490	0.97
South Pond	12/29/08	10:00	5.50	17.62	8.39	455	291	3.0	32	487	0.97
South Pond	12/29/08	10:06	5.77	17.63	8.61	455	291	2.7	28	320	0.97
South Pond	1/22/09	14:07	0.25	15.54	7.42	504	322	7.7	78	497	1.25
South Pond	1/22/09	14:08	0.50	15.48	7.73	504	322	7.5	75	503	1.25
South Pond	1/22/09	14:09	1.00	15.06	8.01	502	321	7.5	74	511	1.25
South Pond	1/22/09	14:10	1.50	14.72	8.24	502	322	7.2	71	515	1.25
South Pond	1/22/09	14:11	2.00	14.62	8.44	503	322	7.1	70	519	1.25
South Pond	1/22/09	14:12	2.50	14.61	8.57	503	322	7.0	69	521	1.25
South Pond	1/22/09	14:13	3.00	14.59	8.66	503	322	6.8	67	523	1.25
South Pond	1/22/09	14:14	3.50	14.58	8.71	503	322	6.7	66	525	1.25
South Pond	1/22/09	14:14	4.00	14.58	8.76	503	322	6.5	64	525	1.25
South Pond	1/22/09	14:15	4.50	14.58	8.80	503	322	6.6	65	526	1.25
South Pond	1/22/09	14:16	5.00	14.57	8.83	504	323	6.7	66	527	1.25
South Pond	1/22/09	14:20	5.49	14.57	9.01	503	322	6.0	60	459	1.25
South Pond	1/28/09	9:58	0.25	17.41	8.98	455	291	11.5	120	620	0.61
South Pond	1/28/09	9:59	0.50	17.40	9.57	455	291	11.6	121	628	0.61
South Pond	1/28/09	10:01	1.00	17.36	9.89	455	291	11.4	119	632	0.61
South Pond	1/28/09	10:02	1.50	15.94	9.52	457	293	9.3	95	612	0.61
South Pond	1/28/09	10:03	2.00	15.10	9.36	459	294	7.6	76	604	0.61
South Pond	1/28/09	10:04	2.50	14.69	9.29	459	294	6.8	67	599	0.61
South Pond	1/28/09	10:05	3.00	14.47	9.35	459	294	6.5	64	600	0.61
South Pond	1/28/09	10:07	3.50	14.42	9.35	460	294	6.1	59	599	0.61
South Pond	1/28/09	10:08	4.00	14.41	9.36	460	294	5.9	58	599	0.61
South Pond	1/28/09	10:09	4.50	14.41	9.37	460	294	5.9	58	599	0.61
South Pond	1/28/09	10:10	5.00	14.41	9.38	460	294	5.9	58	599	0.61
South Pond	1/28/09	10:11	5.50	14.40	9.39	460	294	5.9	58	594	0.61
South Pond	1/28/09	10:12	5.55	14.41	9.40	460	294	5.8	57	590	0.61
South Pond	2/4/09	12:02	0.25	14.83	8.91	457	292	9.1	89	660	1.18
South Pond	2/4/09	12:03	0.50	14.84	9.20	456	292	8.3	82	662	1.18
South Pond	2/4/09	12:04	1.00	14.85	9.28	456	292	8.1	80	662	1.18
South Pond	2/4/09	12:05	1.50	14.84	9.43	456	292	7.9	78	664	1.18
South Pond	2/4/09	12:06	2.00	14.83	9.53	456	292	8.0	79	666	1.18
South Pond	2/4/09	12:07	2.50	14.82	9.62	456	292	7.9	78	667	1.18
South Pond	2/4/09	12:08	3.00	14.80	9.68	456	292	7.9	78	666	1.18
South Pond	2/4/09	12:09	3.50	14.77	9.74	456	292	7.9	78	667	1.18
South Pond	2/4/09	12:10	4.00	14.75	9.76	456	292	8.1	80	667	1.18
South Pond	2/4/09	12:11	4.50	14.76	9.80	456	292	7.9	79	667	1.18
South Pond	2/4/09	12:13	4.91	14.70	9.89	455	291	7.9	77	668	1.18

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	2/9/09	11:54	0.25	15.37	10.58	451	289	12.2	122	722	0.59
South Pond	2/9/09	11:56	0.50	15.29	10.68	450	288	12.4	123	720	0.59
South Pond	2/9/09	11:57	1.00	14.90	10.65	453	290	12.1	120	717	0.59
South Pond	2/9/09	11:58	1.50	14.20	10.41	454	291	10.7	104	708	0.59
South Pond	2/9/09	11:59	2.00	13.97	10.13	455	291	9.3	91	699	0.59
South Pond	2/9/09	12:00	2.50	13.85	10.05	456	292	8.7	85	696	0.59
South Pond	2/9/09	12:01	3.00	13.79	10.01	457	292	8.3	81	696	0.59
South Pond	2/9/09	12:02	3.50	13.72	9.93	458	293	7.9	76	692	0.59
South Pond	2/9/09	12:03	4.00	13.71	9.90	458	293	7.8	75	690	0.59
South Pond	2/9/09	12:04	4.50	13.72	9.92	458	293	7.7	74	690	0.59
South Pond	2/9/09	12:05	5.00	13.72	9.88	458	293	7.6	73	689	0.59
South Pond	2/9/09	12:07	5.50	13.79	9.87	457	293	6.7	65	687	0.59
South Pond	3/12/09	13:43	0.25	23.37	8.69	478	306	9.7	114	289	0.67
South Pond	3/12/09	13:44	0.50	23.18	8.68	478	306	10.2	119	287	0.67
South Pond	3/12/09	13:45	1.00	22.83	8.65	478	306	9.9	116	285	0.67
South Pond	3/12/09	13:46	1.50	19.51	8.26	478	306	7.3	81	279	0.67
South Pond	3/12/09	13:47	2.00	18.57	8.18	478	306	6.6	70	278	0.67
South Pond	3/12/09	13:48	2.50	17.27	7.91	477	306	5.1	53	273	0.67
South Pond	3/12/09	13:49	3.00	16.47	7.68	478	306	3.5	36	268	0.67
South Pond	3/12/09	13:50	3.50	16.14	7.50	479	307	1.6	16	265	0.67
South Pond	3/12/09	13:51	4.00	16.06	7.48	479	307	1.1	11	265	0.67
South Pond	3/12/09	13:51	4.50	16.06	7.46	480	307	0.9	9	264	0.67
South Pond	3/12/09	13:52	5.00	16.02	7.45	480	307	0.7	7	264	0.67
South Pond	3/12/09	13:52	5.50	16.02	7.45	480	307	0.7	7	263	0.67
South Pond	3/12/09	13:55	5.73	16.01	7.50	481	308	0.6	6	119	0.67
South Pond	3/30/09	8:46	0.25	21.00	8.42	478	306	8.5	96	492	0.85
South Pond	3/30/09	8:46	0.50	21.01	8.41	477	305	8.1	91	490	0.85
South Pond	3/30/09	8:47	1.00	21.01	8.37	476	305	8.1	91	487	0.85
South Pond	3/30/09	8:48	1.50	21.01	8.35	476	305	7.9	89	486	0.85
South Pond	3/30/09	8:49	2.00	21.01	8.33	477	305	7.9	89	484	0.85
South Pond	3/30/09	8:50	2.50	21.01	8.32	477	305	8.0	89	484	0.85
South Pond	3/30/09	8:51	3.00	21.01	8.31	477	305	7.9	88	482	0.85
South Pond	3/30/09	8:52	3.50	21.00	8.31	476	305	7.8	88	480	0.85
South Pond	3/30/09	8:53	4.00	19.04	7.27	479	307	0.6	6	72	0.85
South Pond	3/30/09	8:54	4.50	17.16	7.14	481	308	0.2	2	3	0.85
South Pond	3/30/09	8:55	5.00	16.74	7.12	484	310	0.2	2	-12	0.85
South Pond	3/30/09	8:55	5.30	16.71	7.13	485	310	0.2	2	-22	0.85
			0.25	**18.20**	**8.81**	**467**	**299**	**10.1**	**107**	**544**	
			0.50	**18.16**	**9.04**	**466**	**299**	**9.8**	**104**	**546**	
			1.00	**17.94**	**9.15**	**467**	**299**	**9.7**	**103**	**547**	
			1.50	**17.06**	**9.04**	**467**	**299**	**8.6**	**89**	**542**	
			2.00	**16.74**	**9.00**	**468**	**300**	**8.0**	**83**	**539**	
			2.50	**16.41**	**8.91**	**469**	**300**	**7.3**	**75**	**535**	
			3.00	**16.16**	**8.87**	**469**	**300**	**6.6**	**67**	**533**	**0.87**
			3.50	**16.04**	**8.84**	**469**	**300**	**6.1**	**62**	**532**	
			4.00	**15.74**	**8.69**	**470**	**301**	**4.8**	**47**	**473**	
			4.50	**15.47**	**8.69**	**471**	**301**	**4.6**	**46**	**463**	
			5.00	**15.40**	**8.70**	**471**	**301**	**4.5**	**45**	**461**	
			5.50	**15.52**	**8.54**	**473**	**303**	**3.8**	**37**	**411**	
			6.00	**15.86**	**9.02**	**462**	**296**	**5.3**	**53**	**438**	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	4/7/09	8:57	0.25	21.00	8.47	477	305	7.6	86	252	0.71
South Pond	4/7/09	8:58	0.50	21.01	8.45	476	305	7.7	86	279	0.71
South Pond	4/7/09	8:59	1.00	21.01	8.43	476	305	7.7	87	297	0.71
South Pond	4/7/09	9:00	1.50	21.01	8.41	476	305	7.6	86	306	0.71
South Pond	4/7/09	9:01	2.00	21.02	8.39	476	305	7.9	89	313	0.71
South Pond	4/7/09	9:02	2.50	21.01	8.37	476	305	7.7	86	318	0.71
South Pond	4/7/09	9:03	3.00	21.01	8.34	477	305	7.6	86	322	0.71
South Pond	4/7/09	9:04	3.50	21.00	8.32	477	305	7.6	86	323	0.71
South Pond	4/7/09	9:05	4.00	19.26	7.31	481	308	0.7	7	44	0.71
South Pond	4/7/09	9:05	4.50	17.03	7.14	482	308	0.4	5	-15	0.71
South Pond	4/7/09	9:06	5.00	16.73	7.12	484	310	0.3	3	-26	0.71
South Pond	4/7/09	9:07	5.49	16.69	7.12	485	311	0.3	3	-33	0.71
South Pond	4/13/09	8:31	0.25	22.66	8.97	464	297	11.9	138	412	0.52
South Pond	4/13/09	8:31	0.50	22.66	8.96	464	297	11.7	136	412	0.52
South Pond	4/13/09	8:33	1.00	22.65	8.95	464	297	11.5	133	411	0.52
South Pond	4/13/09	8:34	1.50	22.63	8.93	464	297	11.5	133	410	0.52
South Pond	4/13/09	8:35	2.00	22.51	8.85	466	298	10.6	123	407	0.52
South Pond	4/13/09	8:36	2.50	21.41	7.95	477	305	5.3	60	374	0.52
South Pond	4/13/09	8:37	3.00	20.24	7.63	479	307	3.1	34	365	0.52
South Pond	4/13/09	8:38	3.50	19.89	7.52	480	307	1.6	18	361	0.52
South Pond	4/13/09	8:38	4.00	19.75	7.45	481	308	0.6	7	359	0.52
South Pond	4/13/09	8:39	4.50	19.57	7.43	482	309	0.3	3	212	0.52
South Pond	4/13/09	8:40	5.00	18.89	7.28	493	316	0.3	4	56	0.52
South Pond	4/13/09	8:40	5.50	18.38	7.22	501	321	0.2	2	18	0.52
South Pond	4/13/09	8:42	5.74	18.01	7.21	509	326	0.3	3	-33	0.52
South Pond	4/23/09	9:04	0.25	22.92	8.67	468	300	8.5	100	453	0.46
South Pond	4/23/09	9:05	0.50	22.94	8.63	469	300	8.7	102	441	0.46
South Pond	4/23/09	9:05	1.00	22.91	8.61	469	300	8.4	98	424	0.46
South Pond	4/23/09	9:06	1.50	22.87	8.57	468	300	7.9	92	395	0.46
South Pond	4/23/09	9:07	2.00	22.84	8.55	469	300	8.0	93	389	0.46
South Pond	4/23/09	9:08	2.50	22.82	8.51	470	301	7.8	91	398	0.46
South Pond	4/23/09	9:10	3.00	22.38	7.99	474	303	4.7	55	388	0.46
South Pond	4/23/09	9:11	3.50	22.04	7.50	476	305	1.7	19	357	0.46
South Pond	4/23/09	9:11	4.00	21.16	7.32	479	306	0.5	6	120	0.46
South Pond	4/23/09	9:12	4.50	19.88	7.18	489	313	0.3	4	-10	0.46
South Pond	4/23/09	9:13	5.00	19.36	7.14	497	318	0.3	3	-53	0.46
South Pond	4/23/09	9:13	5.50	19.05	7.12	500	320	0.3	3	-75	0.46
South Pond	4/23/09	9:14	6.00	18.85	7.10	505	323	0.3	3	-90	0.46
South Pond	4/23/09	9:15	6.50	18.71	7.09	507	325	0.2	2	-100	0.46
South Pond	4/23/09	9:15	7.00	18.57	7.06	517	331	0.2	2	-111	0.46
South Pond	4/23/09	9:16	7.12	18.56	7.06	519	332	0.2	2	-117	0.46
South Pond	4/30/09	9:04	0.25	24.56	8.47	473	303	8.1	97	535	0.69
South Pond	4/30/09	9:05	0.50	24.57	8.44	473	303	7.6	92	534	0.69
South Pond	4/30/09	9:06	1.00	24.56	8.40	473	303	7.8	94	533	0.69
South Pond	4/30/09	9:07	1.50	24.55	8.36	473	303	7.5	90	532	0.69
South Pond	4/30/09	9:08	2.00	24.55	8.33	474	303	7.8	94	531	0.69
South Pond	4/30/09	9:08	2.50	24.55	8.31	473	303	7.1	86	532	0.69
South Pond	4/30/09	9:09	3.00	24.50	8.19	474	303	6.6	79	529	0.69
South Pond	4/30/09	9:10	3.50	23.59	7.33	478	306	0.8	9	468	0.69
South Pond	4/30/09	9:11	4.00	21.69	7.25	478	306	0.5	6	149	0.69
South Pond	4/30/09	9:12	4.50	20.31	7.13	490	313	0.4	4	0	0.69
South Pond	4/30/09	9:12	5.00	19.49	7.06	500	320	0.3	4	-22	0.69
South Pond	4/30/09	9:13	5.50	19.24	7.04	504	323	0.3	3	-41	0.69
South Pond	4/30/09	9:13	5.52	19.27	7.05	504	322	0.3	3	-50	0.69

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	5/7/09	8:36	0.25	26.82	8.65	478	306	8.3	103	364	0.55
South Pond	5/7/09	8:37	0.50	26.82	8.65	477	306	8.0	100	358	0.55
South Pond	5/7/09	8:38	1.00	26.83	8.60	477	305	8.1	102	352	0.55
South Pond	5/7/09	8:39	1.50	26.80	8.58	477	306	8.1	101	351	0.55
South Pond	5/7/09	8:40	2.00	26.69	8.54	478	306	7.5	94	320	0.55
South Pond	5/7/09	8:41	2.50	25.92	7.93	482	308	4.7	57	277	0.55
South Pond	5/7/09	8:42	3.00	25.01	7.39	482	309	0.7	8	258	0.55
South Pond	5/7/09	8:42	3.50	23.24	7.30	482	308	0.5	6	-32	0.55
South Pond	5/7/09	8:43	4.00	21.65	7.22	486	311	0.4	4	-78	0.55
South Pond	5/7/09	8:43	4.50	20.29	7.13	499	319	0.3	4	-98	0.55
South Pond	5/7/09	8:44	5.00	19.82	7.11	505	323	0.3	3	-108	0.55
South Pond	5/7/09	8:44	5.50	19.69	7.10	507	324	0.3	3	-112	0.55
South Pond	5/7/09	8:45	6.00	19.51	7.09	510	326	0.2	3	-116	0.55
South Pond	5/7/09	8:47	6.27	19.41	7.09	513	328	0.3	3	-126	0.55
South Pond	5/14/09	7:47	0.25	27.63	8.79	450	288	10.3	131	353	0.23
South Pond	5/14/09	7:48	0.50	27.63	8.79	449	287	10.4	132	350	0.23
South Pond	5/14/09	7:49	1.00	27.63	8.75	449	287	10.0	127	349	0.23
South Pond	5/14/09	7:50	1.50	27.64	8.69	450	288	10.1	128	346	0.23
South Pond	5/14/09	7:51	2.00	27.43	8.33	463	296	7.0	89	329	0.23
South Pond	5/14/09	7:52	2.50	26.35	7.37	487	312	0.7	9	230	0.23
South Pond	5/14/09	7:53	3.00	25.01	7.28	487	312	0.4	5	12	0.23
South Pond	5/14/09	7:54	3.50	23.54	7.22	487	311	0.3	4	-30	0.23
South Pond	5/14/09	7:54	4.00	21.45	7.09	500	320	0.3	4	-62	0.23
South Pond	5/14/09	7:55	4.50	20.84	7.05	504	322	0.2	2	-74	0.23
South Pond	5/14/09	7:55	5.00	20.29	7.03	509	326	0.2	2	-83	0.23
South Pond	5/14/09	7:57	5.45	20.04	7.06	511	327	0.2	2	-99	0.23
			0.25	**24.27**	**8.67**	**468**	**300**	**9.1**	**109**	**395**	
			0.50	**24.27**	**8.65**	**468**	**300**	**9.0**	**108**	**395**	
			1.00	**24.27**	**8.62**	**468**	**299**	**8.9**	**107**	**394**	
			1.50	**24.25**	**8.59**	**468**	**300**	**8.8**	**105**	**390**	
			2.00	**24.17**	**8.50**	**471**	**301**	**8.1**	**97**	**382**	
			2.50	**23.68**	**8.07**	**477**	**306**	**5.5**	**65**	**355**	
			3.00	**23.03**	**7.80**	**479**	**307**	**3.8**	**44**	**312**	**0.53**
			3.50	**22.22**	**7.53**	**480**	**307**	**2.1**	**24**	**241**	
			4.00	**20.83**	**7.27**	**484**	**310**	**0.5**	**6**	**89**	
			4.50	**19.65**	**7.18**	**491**	**314**	**0.3**	**4**	**2**	
			5.00	**19.10**	**7.12**	**498**	**319**	**0.3**	**3**	**-39**	
			5.50	**18.85**	**7.11**	**501**	**321**	**0.2**	**3**	**-57**	
			6.00	**18.91**	**7.11**	**507**	**324**	**0.3**	**3**	**-72**	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	6/1/09	8:59	0.25	27.75	9.41	371	237	12.2	156	401	0.14
South Pond	6/1/09	9:00	0.50	27.68	9.36	372	238	11.6	147	394	0.14
South Pond	6/1/09	9:01	1.00	27.60	9.28	373	239	10.6	135	389	0.14
South Pond	6/1/09	9:02	1.50	27.16	8.79	380	243	7.2	91	374	0.14
South Pond	6/1/09	9:03	2.00	26.06	7.45	392	251	1.9	23	337	0.14
South Pond	6/1/09	9:04	2.50	25.01	7.20	396	253	0.8	9	305	0.14
South Pond	6/1/09	9:05	3.00	24.11	7.18	405	259	0.6	7	220	0.14
South Pond	6/1/09	9:05	3.50	23.67	7.17	411	263	0.5	6	103	0.14
South Pond	6/1/09	9:06	4.00	23.12	7.17	426	273	0.4	5	52	0.14
South Pond	6/1/09	9:07	4.50	22.64	7.15	445	285	0.4	4	33	0.14
South Pond	6/1/09	9:07	5.00	22.10	7.13	464	297	0.3	4	22	0.14
South Pond	6/1/09	9:08	5.50	21.89	7.13	471	302	0.3	3	15	0.14
South Pond	6/1/09	9:08	6.00	21.75	7.13	475	304	0.3	3	13	0.14
South Pond	6/1/09	9:09	6.50	21.52	7.14	483	309	0.2	3	5	0.14
South Pond	6/1/09	9:09	6.91	21.43	7.16	485	311	0.2	2	-2	0.14
South Pond	6/23/09	8:20	0.25	31.32	8.61	362	232	5.0	68	402	0.29
South Pond	6/23/09	8:21	0.50	31.34	8.60	362	232	4.8	65	396	0.29
South Pond	6/23/09	8:22	1.00	31.34	8.55	362	232	4.6	62	391	0.29
South Pond	6/23/09	8:23	1.50	30.62	7.68	364	233	0.9	11	294	0.29
South Pond	6/23/09	8:23	2.00	28.67	7.40	361	231	0.5	6	27	0.29
South Pond	6/23/09	8:24	2.50	26.66	7.32	397	254	0.4	5	-14	0.29
South Pond	6/23/09	8:24	3.00	24.60	7.18	429	275	0.3	4	-42	0.29
South Pond	6/23/09	8:25	3.50	23.67	7.15	446	285	0.3	3	-52	0.29
South Pond	6/23/09	8:26	4.00	22.91	7.15	462	295	0.2	3	-63	0.29
South Pond	6/23/09	8:26	4.50	22.56	7.15	468	300	0.2	3	-70	0.29
South Pond	6/23/09	8:27	5.00	22.25	7.16	475	304	0.2	2	-77	0.29
South Pond	6/23/09	8:27	5.50	22.14	7.17	477	305	0.2	2	-80	0.29
South Pond	6/23/09	8:27	6.00	22.09	7.17	481	308	0.2	2	-83	0.29
South Pond	6/23/09	8:28	6.33	22.06	7.10	483	309	0.2	2	-88	0.29
South Pond	6/30/09	7:44	0.25	29.74	7.71	373	239	4.2	55	352	0.47
South Pond	6/30/09	7:45	0.50	29.76	7.69	373	239	4.0	53	348	0.47
South Pond	6/30/09	7:46	1.00	29.80	7.66	373	239	3.9	51	345	0.47
South Pond	6/30/09	7:47	1.50	29.75	7.62	372	238	3.7	49	343	0.47
South Pond	6/30/09	7:47	2.00	29.76	7.59	372	238	3.7	48	342	0.47
South Pond	6/30/09	7:48	2.50	28.53	7.16	388	248	0.5	6	24	0.47
South Pond	6/30/09	7:48	3.00	25.04	7.06	430	275	0.3	3	-1	0.47
South Pond	6/30/09	7:49	3.50	23.44	7.03	453	290	0.2	3	-9	0.47
South Pond	6/30/09	7:50	4.00	22.84	7.02	465	298	0.3	3	-16	0.47
South Pond	6/30/09	7:50	4.50	22.53	7.04	471	301	0.3	4	-20	0.47
South Pond	6/30/09	7:51	5.00	22.28	7.05	475	304	0.1	2	-28	0.47
South Pond	6/30/09	7:51	5.50	22.11	7.06	480	307	0.2	2	-34	0.47
South Pond	6/30/09	7:52	6.00	22.06	7.08	482	308	0.3	3	-42	0.47
South Pond	6/30/09	7:52	6.50	22.01	7.09	483	309	0.1	2	-50	0.47
South Pond	6/30/09	7:53	6.60	22.01	7.08	484	310	0.3	3	-62	0.47
South Pond	7/8/09	8:18	0.25	29.12	8.24	375	240	6.2	80	302	0.29
South Pond	7/8/09	8:19	0.50	29.14	8.24	375	240	6.1	80	289	0.29
South Pond	7/8/09	8:19	1.00	29.15	8.21	375	240	6.1	80	299	0.29
South Pond	7/8/09	8:20	1.50	29.14	8.17	375	240	6.0	78	296	0.29
South Pond	7/8/09	8:21	2.00	29.14	8.16	375	240	5.8	76	303	0.29
South Pond	7/8/09	8:22	2.50	28.98	7.45	378	242	1.6	21	251	0.29
South Pond	7/8/09	8:23	3.00	26.96	7.09	402	257	0.4	5	-14	0.29
South Pond	7/8/09	8:23	3.50	24.75	7.07	446	285	0.3	4	-44	0.29
South Pond	7/8/09	8:24	4.00	23.00	7.06	470	301	0.3	3	-58	0.29
South Pond	7/8/09	8:24	4.50	22.55	7.05	476	305	0.3	3	-63	0.29
South Pond	7/8/09	8:25	5.00	22.35	7.07	480	307	0.2	2	-71	0.29
South Pond	7/8/09	8:25	5.50	22.18	7.08	484	310	0.2	2	-75	0.29
South Pond	7/8/09	8:26	6.00	22.11	7.09	487	312	0.3	3	-80	0.29
South Pond	7/8/09	8:26	6.39	22.09	7.08	491	314	0.1	2	-84	0.29

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	7/14/09	9:40	0.25	29.47	9.19	364	233	10.7	141	360	0.42
South Pond	7/14/09	9:41	0.50	29.40	9.18	363	232	10.3	135	356	0.42
South Pond	7/14/09	9:42	1.00	29.31	9.13	364	233	9.8	128	354	0.42
South Pond	7/14/09	9:43	1.50	29.30	9.06	364	233	8.9	117	352	0.42
South Pond	7/14/09	9:44	2.00	28.89	8.37	371	238	6.0	78	335	0.42
South Pond	7/14/09	9:45	2.50	28.28	7.52	379	242	2.6	33	317	0.42
South Pond	7/14/09	9:45	3.00	27.42	7.19	390	250	0.4	5	-34	0.42
South Pond	7/14/09	9:46	3.50	25.44	7.10	442	283	0.3	4	-77	0.42
South Pond	7/14/09	9:46	4.00	24.02	7.11	463	296	0.3	3	-89	0.42
South Pond	7/14/09	9:47	4.50	22.94	7.11	476	305	0.3	3	-97	0.42
South Pond	7/14/09	9:47	5.00	22.47	7.13	482	308	0.2	3	-101	0.42
South Pond	7/14/09	9:48	5.50	22.35	7.15	484	309	0.2	3	-106	0.42
South Pond	7/14/09	9:48	6.00	22.27	7.16	486	311	0.2	3	-110	0.42
South Pond	7/14/09	9:49	6.50	22.21	7.16	487	312	0.2	2	-114	0.42
South Pond	7/14/09	9:50	7.00	22.13	7.16	489	313	0.2	2	-116	0.42
South Pond	7/14/09	9:50	7.15	22.15	7.14	498	319	0.2	2	-118	0.42
South Pond	7/21/09	8:22	0.25	29.16	7.86	377	241	2.5	33	334	0.54
South Pond	7/21/09	8:23	0.50	29.15	7.86	377	241	2.3	29	330	0.54
South Pond	7/21/09	8:24	1.00	29.17	7.85	376	241	2.2	28	327	0.54
South Pond	7/21/09	8:24	1.50	29.18	7.81	376	240	2.2	29	325	0.54
South Pond	7/21/09	8:25	2.00	29.11	7.65	376	241	1.1	14	318	0.54
South Pond	7/21/09	8:26	2.50	28.58	7.28	382	244	0.3	4	30	0.54
South Pond	7/21/09	8:26	3.00	27.06	7.13	399	255	0.3	4	-43	0.54
South Pond	7/21/09	8:27	3.50	25.80	7.10	429	275	0.3	4	-75	0.54
South Pond	7/21/09	8:28	4.00	23.73	7.07	474	303	0.2	3	-93	0.54
South Pond	7/21/09	8:28	4.50	22.97	7.08	483	309	0.2	3	-99	0.54
South Pond	7/21/09	8:29	5.00	22.70	7.10	486	311	0.2	2	-104	0.54
South Pond	7/21/09	8:29	5.50	22.56	7.11	488	312	0.2	3	-108	0.54
South Pond	7/21/09	8:30	6.00	22.45	7.13	490	314	0.3	3	-111	0.54
South Pond	7/21/09	8:31	6.50	22.40	7.13	491	314	0.1	2	-113	0.54
South Pond	7/21/09	8:32	6.89	22.37	7.15	492	315	0.2	2	-120	0.54
South Pond	8/3/09	8:18	0.25	30.61	8.19	375	240	7.3	98	339	0.74
South Pond	8/3/09	8:18	0.50	30.67	8.18	374	240	7.1	96	335	0.74
South Pond	8/3/09	8:19	1.00	30.69	8.18	374	239	7.1	95	332	0.74
South Pond	8/3/09	8:20	1.50	30.77	8.16	373	239	7.1	96	331	0.74
South Pond	8/3/09	8:21	2.00	30.53	7.66	375	240	4.7	63	318	0.74
South Pond	8/3/09	8:22	2.50	29.60	7.16	376	241	0.4	6	302	0.74
South Pond	8/3/09	8:22	3.00	28.96	7.12	378	242	0.3	4	134	0.74
South Pond	8/3/09	8:23	3.50	26.81	7.06	426	272	0.3	4	-30	0.74
South Pond	8/3/09	8:23	4.00	25.29	7.05	459	294	0.2	2	-62	0.74
South Pond	8/3/09	8:24	4.50	23.64	7.06	482	308	0.3	3	-80	0.74
South Pond	8/3/09	8:25	5.00	23.16	7.09	488	312	0.3	3	-90	0.74
South Pond	8/3/09	8:25	5.50	23.01	7.11	490	314	0.3	3	-97	0.74
South Pond	8/3/09	8:25	6.00	22.90	7.12	492	315	0.2	3	-101	0.74
South Pond	8/3/09	8:26	6.50	22.84	7.13	493	316	0.2	2	-104	0.74
South Pond	8/3/09	8:27	6.97	22.80	7.14	494	316	0.2	2	-112	0.74
South Pond	8/11/09	8:20	0.25	31.05	7.72	370	237	5.1	68	327	1.62
South Pond	8/11/09	8:21	0.50	31.05	7.71	369	236	5.0	67	325	1.62
South Pond	8/11/09	8:22	1.00	31.09	7.70	369	236	4.8	65	323	1.62
South Pond	8/11/09	8:23	1.50	31.08	7.67	369	236	4.8	65	298	1.62
South Pond	8/11/09	8:24	2.00	30.77	7.33	370	237	2.3	31	224	1.62
South Pond	8/11/09	8:24	2.50	30.21	7.12	368	236	0.4	6	210	1.62
South Pond	8/11/09	8:25	3.00	29.39	7.10	372	238	0.3	4	144	1.62
South Pond	8/11/09	8:25	3.50	27.19	7.03	408	261	0.3	3	29	1.62
South Pond	8/11/09	8:26	4.00	24.96	7.04	459	294	0.2	2	-47	1.62
South Pond	8/11/09	8:27	4.50	23.62	7.08	475	304	0.2	2	-60	1.62
South Pond	8/11/09	8:27	5.00	23.22	7.10	480	307	0.3	3	-73	1.62
South Pond	8/11/09	8:28	5.50	23.12	7.11	481	308	0.3	3	-83	1.62
South Pond	8/11/09	8:29	6.00	23.03	7.12	482	309	0.2	3	-93	1.62
South Pond	8/11/09	8:29	6.50	22.91	7.12	485	311	0.1	1	-97	1.62
South Pond	8/11/09	8:30	7.00	22.80	7.12	488	312	0.1	1	-104	1.62
South Pond	8/11/09	8:31	7.42	22.73	7.12	492	315	0.1	2	-116	1.62

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	8/20/09	7:50	0.25	29.94	7.65	374	239	4.5	59	353	1.51
South Pond	8/20/09	7:51	0.50	29.98	7.63	374	239	4.4	59	351	1.51
South Pond	8/20/09	7:52	1.00	29.99	7.62	374	239	4.3	57	350	1.51
South Pond	8/20/09	7:53	1.50	29.99	7.60	374	239	4.2	56	349	1.51
South Pond	8/20/09	7:54	2.00	30.00	7.58	374	240	4.1	55	350	1.51
South Pond	8/20/09	7:55	2.50	30.00	7.57	374	239	4.1	55	348	1.51
South Pond	8/20/09	7:56	3.00	30.00	7.59	375	240	4.1	55	348	1.51
South Pond	8/20/09	7:57	3.50	28.14	7.08	409	262	0.5	6	39	1.51
South Pond	8/20/09	7:58	4.00	26.03	7.07	453	290	0.3	3	-70	1.51
South Pond	8/20/09	7:59	4.50	23.93	7.08	477	305	0.2	3	-100	1.51
South Pond	8/20/09	7:59	5.00	23.42	7.09	481	308	0.2	2	-108	1.51
South Pond	8/20/09	8:00	5.50	23.22	7.11	483	309	0.2	2	-114	1.51
South Pond	8/20/09	8:01	6.00	23.04	7.11	487	311	0.2	2	-118	1.51
South Pond	8/20/09	8:02	6.36	23.02	7.13	485	310	0.2	2	-123	1.51
South Pond	9/9/09	8:56	0.25	29.53	8.16	384	246	5.7	75	464	1.39
South Pond	9/9/09	8:57	0.50	29.51	8.13	384	246	5.6	74	422	1.39
South Pond	9/9/09	8:58	1.00	29.52	8.11	384	246	5.5	73	380	1.39
South Pond	9/9/09	8:59	1.50	29.52	8.05	384	246	5.5	72	366	1.39
South Pond	9/9/09	9:00	2.00	29.52	8.03	384	246	5.5	72	336	1.39
South Pond	9/9/09	9:00	2.50	29.54	8.04	384	246	5.5	73	343	1.39
South Pond	9/9/09	9:02	3.00	29.29	7.33	387	248	1.5	19	346	1.39
South Pond	9/9/09	9:03	3.50	28.38	7.19	394	252	0.6	8	204	1.39
South Pond	9/9/09	9:03	4.00	27.15	7.05	437	280	0.4	5	54	1.39
South Pond	9/9/09	9:04	4.50	25.17	7.08	488	312	0.4	4	-31	1.39
South Pond	9/9/09	9:05	5.00	23.91	7.10	500	320	0.3	4	-49	1.39
South Pond	9/9/09	9:05	5.50	23.50	7.11	504	323	0.3	3	-57	1.39
South Pond	9/9/09	9:06	6.00	23.31	7.12	508	325	0.3	3	-65	1.39
South Pond	9/9/09	9:07	6.50	23.07	7.13	511	327	0.3	3	-70	1.39
South Pond	9/9/09	9:07	7.00	22.92	7.14	514	329	0.2	3	-75	1.39
South Pond	9/9/09	9:08	7.38	22.82	7.11	525	336	0.2	2	-84	1.39
South Pond	9/18/09	9:37	0.25	29.62	8.08	383	245	6.1	80	286	1.53
South Pond	9/18/09	9:38	0.50	29.61	8.07	383	245	5.8	76	283	1.53
South Pond	9/18/09	9:39	1.00	29.63	7.99	382	245	5.9	77	281	1.53
South Pond	9/18/09	9:40	1.50	29.62	7.98	383	245	5.8	76	281	1.53
South Pond	9/18/09	9:41	2.00	29.58	7.83	383	245	5.1	67	274	1.53
South Pond	9/18/09	9:42	2.50	29.33	7.50	385	246	3.8	50	265	1.53
South Pond	9/18/09	9:43	3.00	29.02	7.28	386	247	1.8	23	257	1.53
South Pond	9/18/09	9:43	3.50	28.76	7.19	389	249	0.6	7	250	1.53
South Pond	9/18/09	9:44	4.00	27.68	6.99	420	268	0.2	3	14	1.53
South Pond	9/18/09	9:44	4.50	26.09	6.93	470	301	0.1	2	-118	1.53
South Pond	9/18/09	9:45	5.00	24.29	6.95	497	318	0.2	2	-133	1.53
South Pond	9/18/09	9:46	5.50	23.60	6.96	505	323	0.1	1	-137	1.53
South Pond	9/18/09	9:47	5.67	23.44	6.97	511	327	0.1	1	-141	1.53
South Pond	9/22/09	11:17	0.25	30.68	8.31	389	249	8.1	109	280	1.63
South Pond	9/22/09	11:17	0.50	30.67	8.33	388	249	7.9	106	278	1.63
South Pond	9/22/09	11:18	1.00	30.50	8.27	388	248	7.3	98	282	1.63
South Pond	9/22/09	11:19	1.50	30.35	8.23	388	248	7.4	99	275	1.63
South Pond	9/22/09	11:20	2.00	30.30	8.17	388	248	7.0	93	273	1.63
South Pond	9/22/09	11:21	2.50	30.19	7.97	389	249	6.1	81	266	1.63
South Pond	9/22/09	11:21	3.00	29.65	7.41	391	250	3.0	40	248	1.63
South Pond	9/22/09	11:22	3.50	29.03	7.17	395	253	0.3	4	217	1.63
South Pond	9/22/09	11:23	4.00	27.73	6.97	423	271	0.2	3	174	1.63
South Pond	9/22/09	11:23	4.50	25.98	6.91	484	310	0.1	2	-134	1.63
South Pond	9/22/09	11:24	5.00	24.46	6.91	507	325	0.1	2	-150	1.63
South Pond	9/22/09	11:25	5.50	23.76	6.92	516	330	0.2	2	-154	1.63
South Pond	9/22/09	11:26	5.76	23.69	6.93	517	331	0.1	1	-155	1.63

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	9/28/09	8:48	0.25	29.15	8.28	389	249	7.5	97	277	1.03
South Pond	9/28/09	8:49	0.50	29.14	8.25	388	248	7.2	95	295	1.03
South Pond	9/28/09	8:50	1.00	29.13	8.25	388	249	7.1	92	301	1.03
South Pond	9/28/09	8:51	1.50	29.16	8.24	388	248	7.0	91	302	1.03
South Pond	9/28/09	8:52	2.00	29.16	8.22	388	249	7.0	92	304	1.03
South Pond	9/28/09	8:53	2.50	29.15	8.22	389	249	7.0	91	305	1.03
South Pond	9/28/09	8:54	3.00	29.18	8.23	388	249	6.8	89	305	1.03
South Pond	9/28/09	8:55	3.50	29.17	8.23	389	249	7.0	91	306	1.03
South Pond	9/28/09	8:56	4.00	27.84	6.91	420	269	0.5	6	-2	1.03
South Pond	9/28/09	8:57	4.50	26.16	6.80	484	310	0.3	4	-102	1.03
South Pond	9/28/09	8:58	5.00	24.62	6.80	514	329	0.1	2	-127	1.03
South Pond	9/28/09	8:58	5.50	23.87	6.79	526	337	0.2	2	-135	1.03
South Pond	9/28/09	8:59	6.00	23.56	6.80	531	340	0.2	2	-143	1.03
South Pond	9/28/09	9:00	6.50	23.30	6.80	537	344	0.2	3	-147	1.03
South Pond	9/28/09	9:01	6.95	23.03	6.79	544	348	0.2	2	-152	1.03
			0.25	**29.78**	**8.26**	**376**	**240**	**6.5**	**86**	**344**	
			0.50	**29.78**	**8.25**	**376**	**240**	**6.3**	**83**	**339**	
			1.00	**29.76**	**8.22**	**375**	**240**	**6.1**	**80**	**335**	
			1.50	**29.66**	**8.08**	**376**	**241**	**5.4**	**71**	**322**	
			2.00	**29.35**	**7.80**	**378**	**242**	**4.2**	**55**	**288**	
			2.50	**28.77**	**7.50**	**383**	**245**	**2.6**	**34**	**227**	
			3.00	**27.74**	**7.30**	**395**	**253**	**1.5**	**20**	**144**	**0.89**
			3.50	**26.48**	**7.20**	**418**	**268**	**0.9**	**11**	**66**	
			4.00	**25.10**	**7.05**	**448**	**287**	**0.3**	**3**	**-16**	
			4.50	**23.91**	**7.04**	**475**	**304**	**0.3**	**3**	**-72**	
			5.00	**23.17**	**7.05**	**487**	**312**	**0.2**	**2**	**-84**	
			5.50	**22.87**	**7.06**	**492**	**315**	**0.2**	**2**	**-90**	
			6.00	**22.75**	**7.07**	**494**	**316**	**0.2**	**2**	**-95**	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	10/5/09	10:03	0.25	27.99	8.32	396	253	8.5	108	349	0.65
South Pond	10/5/09	10:04	0.50	28.01	8.29	397	254	8.4	108	344	0.65
South Pond	10/5/09	10:05	1.00	27.99	8.27	397	254	8.1	104	343	0.65
South Pond	10/5/09	10:06	1.50	27.98	8.24	398	255	8.0	103	340	0.65
South Pond	10/5/09	10:07	2.00	27.96	8.22	399	255	7.8	100	338	0.65
South Pond	10/5/09	10:08	2.50	27.92	8.16	400	256	7.6	97	334	0.65
South Pond	10/5/09	10:09	3.00	27.66	7.61	404	259	4.2	54	320	0.65
South Pond	10/5/09	10:10	3.50	27.47	7.38	406	260	2.2	27	313	0.65
South Pond	10/5/09	10:11	4.00	27.22	7.23	410	263	0.4	5	164	0.65
South Pond	10/5/09	10:12	4.50	26.58	6.96	454	290	0.2	3	-78	0.65
South Pond	10/5/09	10:12	5.00	24.94	6.85	519	332	0.2	2	-117	0.65
South Pond	10/5/09	10:13	5.50	24.14	6.84	531	340	0.2	2	-128	0.65
South Pond	10/5/09	10:14	5.98	23.60	6.83	541	346	0.3	4	-137	0.65
South Pond	10/12/09	9:16	0.25	29.38	8.92	382	245	8.3	109	621	1.05
South Pond	10/12/09	9:18	0.50	29.42	8.90	382	245	8.6	112	609	1.05
South Pond	10/12/09	9:19	1.00	29.43	8.90	383	245	8.4	111	598	1.05
South Pond	10/12/09	9:20	1.50	29.43	8.83	384	246	9.0	118	594	1.05
South Pond	10/12/09	9:21	2.00	29.36	8.68	385	246	7.7	100	590	1.05
South Pond	10/12/09	9:21	2.50	28.27	7.40	398	255	2.7	35	582	1.05
South Pond	10/12/09	9:22	3.00	27.90	7.22	400	256	0.5	6	583	1.05
South Pond	10/12/09	9:23	3.50	27.62	7.19	403	258	0.2	3	532	1.05
South Pond	10/12/09	9:24	4.00	27.01	7.16	414	265	0.2	2	53	1.05
South Pond	10/12/09	9:24	4.50	26.21	6.97	460	295	0.2	3	-105	1.05
South Pond	10/12/09	9:25	5.00	25.09	6.88	504	323	0.3	3	-147	1.05
South Pond	10/12/09	9:25	5.50	24.42	6.86	528	338	0.2	2	-161	1.05
South Pond	10/12/09	9:26	6.00	23.85	6.84	543	348	0.3	3	-167	1.05
South Pond	10/12/09	9:26	6.35	23.60	6.85	548	350	0.1	1	-172	1.05
South Pond	10/19/09	9:37	0.25	23.94	7.14	428	274	1.0	13	51	0.51
South Pond	10/19/09	9:37	0.50	23.97	7.14	429	274	0.8	10	-20	0.51
South Pond	10/19/09	9:38	1.00	23.95	7.13	428	274	0.6	8	-6	0.51
South Pond	10/19/09	9:39	1.50	23.95	7.11	428	274	0.4	5	-20	0.51
South Pond	10/19/09	9:39	2.00	23.97	7.08	428	274	0.4	5	-50	0.51
South Pond	10/19/09	9:40	2.50	23.98	7.10	428	274	0.6	7	-55	0.51
South Pond	10/19/09	9:41	3.00	23.97	7.11	429	275	0.3	4	-56	0.51
South Pond	10/19/09	9:41	3.50	23.98	7.12	429	274	0.5	6	-57	0.51
South Pond	10/19/09	9:42	4.00	23.97	7.13	429	275	0.5	5	-55	0.51
South Pond	10/19/09	9:42	4.50	23.97	7.14	429	274	0.4	5	-59	0.51
South Pond	10/19/09	9:43	5.00	23.97	7.14	429	275	0.4	5	-60	0.51
South Pond	10/19/09	9:43	5.50	23.93	7.16	427	273	0.5	5	-50	0.51
South Pond	10/19/09	9:43	6.00	23.92	7.16	427	273	0.4	4	-43	0.51
South Pond	10/19/09	9:44	6.50	23.91	7.17	426	273	0.4	4	-42	0.51
South Pond	10/19/09	9:44	6.93	23.78	6.79	534	342	0.4	5	-126	0.51
South Pond	10/27/09	8:42	0.25	25.69	8.66	413	264	11.5	141	487	1.10
South Pond	10/27/09	8:43	0.50	25.70	8.65	413	264	11.5	141	484	1.10
South Pond	10/27/09	8:45	1.00	25.66	8.62	414	265	11.2	137	479	1.10
South Pond	10/27/09	8:46	1.50	24.65	7.87	422	270	7.0	85	459	1.10
South Pond	10/27/09	8:47	2.00	24.31	7.35	425	272	2.2	27	446	1.10
South Pond	10/27/09	8:47	2.50	24.11	7.25	427	273	0.4	5	430	1.10
South Pond	10/27/09	8:48	3.00	23.88	7.26	428	274	0.3	4	399	1.10
South Pond	10/27/09	8:48	3.50	23.65	7.26	428	274	0.2	2	309	1.10
South Pond	10/27/09	8:49	4.00	23.54	7.27	428	274	0.2	3	166	1.10
South Pond	10/27/09	8:49	4.50	23.47	7.25	430	275	0.2	2	38	1.10
South Pond	10/27/09	8:50	5.00	23.43	7.25	431	276	0.2	2	3	1.10
South Pond	10/27/09	8:51	5.46	23.41	7.24	432	277	0.3	3	-21	1.10

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	11/5/09	10:02	0.25	23.56	7.30	442	283	2.0	23	475	1.55
South Pond	11/5/09	10:03	0.50	23.57	7.31	442	283	1.9	22	469	1.55
South Pond	11/5/09	10:04	1.00	23.56	7.31	441	282	1.6	18	465	1.55
South Pond	11/5/09	10:04	1.50	23.55	7.31	441	282	1.6	18	462	1.55
South Pond	11/5/09	10:05	2.00	23.54	7.30	441	282	1.5	18	458	1.55
South Pond	11/5/09	10:06	2.50	23.51	7.30	442	283	1.4	17	454	1.55
South Pond	11/5/09	10:07	3.00	23.50	7.31	442	283	1.2	14	453	1.55
South Pond	11/5/09	10:08	3.50	23.49	7.31	442	283	1.4	16	451	1.55
South Pond	11/5/09	10:08	4.00	23.50	7.31	442	283	1.3	16	449	1.55
South Pond	11/5/09	10:09	4.50	23.49	7.32	442	283	1.2	14	447	1.55
South Pond	11/5/09	10:10	5.00	23.50	7.31	442	283	1.3	15	382	1.55
South Pond	11/5/09	10:10	5.50	23.47	7.28	445	284	1.0	12	144	1.55
South Pond	11/5/09	10:11	6.00	23.46	7.22	444	284	0.8	9	36	1.55
South Pond	11/5/09	10:12	6.50	23.45	7.21	446	285	0.6	7	-22	1.55
South Pond	11/5/09	10:12	7.00	23.38	7.05	452	289	0.3	2	-124	1.55
South Pond	11/5/09	10:13	7.25	23.36	6.87	482	308	0.2	2	-142	1.55
South Pond	11/10/09	9:01	0.25	22.86	7.55	444	284	5.7	67	377	1.58
South Pond	11/10/09	9:01	0.50	22.86	7.55	444	284	5.4	63	371	1.58
South Pond	11/10/09	9:02	1.00	22.85	7.54	444	284	5.3	61	367	1.58
South Pond	11/10/09	9:03	1.50	22.86	7.55	444	284	5.2	61	365	1.58
South Pond	11/10/09	9:04	2.00	22.85	7.55	444	284	5.2	61	363	1.58
South Pond	11/10/09	9:05	2.50	22.85	7.55	444	284	5.2	61	360	1.58
South Pond	11/10/09	9:06	3.00	22.86	7.55	444	284	5.1	60	359	1.58
South Pond	11/10/09	9:06	3.50	22.86	7.55	444	284	5.0	58	358	1.58
South Pond	11/10/09	9:07	4.00	22.85	7.53	444	284	4.7	55	356	1.58
South Pond	11/10/09	9:08	4.50	22.85	7.54	444	284	4.7	55	355	1.58
South Pond	11/10/09	9:09	5.00	22.84	7.53	444	284	4.8	56	354	1.58
South Pond	11/10/09	9:10	5.50	22.83	7.53	444	284	4.8	56	349	1.58
South Pond	11/10/09	9:13	5.74	22.84	6.98	532	340	0.6	7	-51	1.58
South Pond	11/17/09	10:20	0.25	21.36	7.87	432	276	7.7	87	463	1.51
South Pond	11/17/09	10:21	0.50	21.37	7.86	432	276	7.5	85	460	1.51
South Pond	11/17/09	10:22	1.00	21.36	7.86	431	276	7.5	85	458	1.51
South Pond	11/17/09	10:23	1.50	21.35	7.84	431	276	7.3	83	456	1.51
South Pond	11/17/09	10:24	2.00	21.33	7.82	431	276	7.1	80	454	1.51
South Pond	11/17/09	10:25	2.50	21.32	7.81	431	276	6.9	78	453	1.51
South Pond	11/17/09	10:26	3.00	21.31	7.81	431	276	6.8	77	453	1.51
South Pond	11/17/09	10:26	3.50	21.28	7.76	432	276	6.8	77	450	1.51
South Pond	11/17/09	10:27	4.00	21.23	7.64	432	277	5.7	64	448	1.51
South Pond	11/17/09	10:28	4.50	21.20	7.59	432	277	5.2	58	447	1.51
South Pond	11/17/09	10:29	5.00	21.17	7.55	433	277	4.5	50	447	1.51
South Pond	11/17/09	10:30	5.50	21.16	7.54	433	277	4.4	50	447	1.51
South Pond	11/17/09	10:31	6.00	21.16	7.54	433	277	4.4	50	446	1.51
South Pond	11/17/09	10:31	6.50	21.15	7.55	433	277	4.5	50	439	1.51
South Pond	11/17/09	10:32	7.00	21.16	7.54	433	277	4.4	49	414	1.51
South Pond	11/17/09	10:35	7.15	21.16	7.45	438	280	4.2	48	278	1.51
South Pond	12/3/09	11:19	0.25	20.95	7.58	436	279	8.1	91	484	2.07
South Pond	12/3/09	11:20	0.50	20.93	7.58	436	279	7.2	80	486	2.07
South Pond	12/3/09	11:21	1.00	20.89	7.59	437	280	6.7	75	487	2.07
South Pond	12/3/09	11:21	1.50	20.83	7.59	438	280	6.5	72	489	2.07
South Pond	12/3/09	11:22	2.00	20.69	7.56	438	280	6.0	67	488	2.07
South Pond	12/3/09	11:23	2.50	20.63	7.55	439	281	5.5	62	490	2.07
South Pond	12/3/09	11:23	3.00	20.60	7.55	438	281	5.2	58	491	2.07
South Pond	12/3/09	11:24	3.50	20.53	7.53	439	281	4.9	54	492	2.07
South Pond	12/3/09	11:25	4.00	20.37	7.50	440	281	4.2	47	492	2.07
South Pond	12/3/09	11:25	4.50	20.20	7.46	440	282	3.6	40	492	2.07
South Pond	12/3/09	11:26	5.00	20.10	7.42	440	281	2.9	32	490	2.07
South Pond	12/3/09	11:27	5.50	20.06	7.41	439	281	2.8	31	489	2.07
South Pond	12/3/09	11:27	5.66	20.05	7.41	440	282	2.6	29	372	2.07

Club II Stormwater Treatment Area
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Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	12/7/09	11:20	0.25	19.01	7.60	432	277	6.4	69	519	1.84
South Pond	12/7/09	11:21	0.50	18.97	7.60	433	277	6.2	67	518	1.84
South Pond	12/7/09	11:21	1.00	18.90	7.60	432	276	5.9	64	519	1.84
South Pond	12/7/09	11:22	1.50	18.89	7.60	431	276	5.8	62	519	1.84
South Pond	12/7/09	11:22	2.00	18.86	7.60	432	277	5.7	62	519	1.84
South Pond	12/7/09	11:23	2.50	18.84	7.61	432	277	5.8	62	519	1.84
South Pond	12/7/09	11:23	3.00	18.83	7.61	432	276	5.7	61	520	1.84
South Pond	12/7/09	11:24	3.50	18.83	7.61	431	276	5.6	61	520	1.84
South Pond	12/7/09	11:24	4.00	18.83	7.62	433	277	5.6	61	521	1.84
South Pond	12/7/09	11:25	4.50	18.82	7.62	433	277	5.6	60	521	1.84
South Pond	12/7/09	11:25	5.00	18.82	7.61	433	277	5.6	60	521	1.84
South Pond	12/7/09	11:26	5.52	18.81	7.57	433	277	5.1	55	372	1.84
South Pond	12/14/09	11:52	0.25	20.39	7.12	434	278	6.9	77	530	
South Pond	12/14/09	11:53	0.50	20.34	7.11	434	278	6.8	75	528	
South Pond	12/14/09	11:54	1.00	20.31	7.16	433	277	6.6	73	526	
South Pond	12/14/09	11:55	1.50	20.20	7.20	433	277	6.6	73	526	
South Pond	12/14/09	11:56	2.00	20.16	7.17	433	277	6.2	68	525	
South Pond	12/14/09	11:56	2.50	20.07	7.18	434	278	6.1	68	523	
South Pond	12/14/09	11:57	3.00	19.70	7.15	434	278	6.2	68	523	
South Pond	12/14/09	11:58	3.50	19.50	7.14	434	278	5.5	60	522	
South Pond	12/14/09	11:59	4.00	19.33	7.14	434	278	5.6	61	522	
South Pond	12/14/09	12:00	4.50	19.24	7.12	434	278	5.3	58	521	
South Pond	12/14/09	12:01	5.00	19.23	7.13	434	278	5.0	54	522	
South Pond	12/14/09	12:02	5.50	19.23	7.13	435	278	5.0	54	522	
South Pond	12/14/09	12:02	6.00	19.22	7.15	434	278	4.7	51	523	
South Pond	12/14/09	12:03	6.50	19.21	7.14	435	279	5.0	54	522	
South Pond	12/14/09	12:05	6.65	19.22	7.14	435	278	4.5	48	503	
South Pond	12/23/09	12:09	0.25	17.65	7.86	435	279	7.1	75	498	
South Pond	12/23/09	12:10	0.50	17.65	7.88	435	279	6.9	73	498	
South Pond	12/23/09	12:11	1.00	17.61	7.88	435	279	6.8	71	496	
South Pond	12/23/09	12:12	1.50	17.38	7.87	435	278	6.6	69	495	
South Pond	12/23/09	12:13	2.00	17.35	7.88	435	278	6.3	66	496	
South Pond	12/23/09	12:14	2.50	17.33	7.89	435	278	6.7	70	497	
South Pond	12/23/09	12:15	3.00	17.33	7.89	435	278	6.6	69	496	
South Pond	12/23/09	12:16	3.50	17.32	7.89	435	278	6.4	67	496	
South Pond	12/23/09	12:17	4.00	17.32	7.90	435	278	6.5	68	495	
South Pond	12/23/09	12:18	4.50	17.31	7.90	435	278	6.4	67	495	
South Pond	12/23/09	12:18	5.00	17.32	7.90	435	278	6.3	65	495	
South Pond	12/23/09	12:20	5.50	17.31	7.90	435	279	6.5	68	493	
South Pond	12/23/09	12:22	6.00	17.31	7.89	433	277	6.6	69	458	
South Pond	12/23/09	12:23	6.06	17.31	7.88	433	277	6.6	69	458	

Club II Stormwater Treatment Area
Vertical Profiles in South and North Ponds
December 2008 - November 2009

Site	Date	Time	Depth (m)	Temp. (°C)	pH (s.u.)	Cond. (µmho/cm)	TDS (mg/l)	Diss. O_2 (mg/l)	Diss. O_2 (% sat.)	ORP (mv)	Secchi (m)
South Pond	12/29/09	12:11	0.25	16.25	7.70	436	279	7.6	78	427	
South Pond	12/29/09	12:12	0.50	16.27	7.70	436	279	7.2	74	427	
South Pond	12/29/09	12:13	1.00	16.26	7.70	436	279	7.2	73	428	
South Pond	12/29/09	12:14	1.50	16.25	7.70	437	279	7.1	73	428	
South Pond	12/29/09	12:14	2.00	16.24	7.70	436	279	6.9	70	428	
South Pond	12/29/09	12:15	2.50	16.22	7.73	437	280	6.9	71	430	
South Pond	12/29/09	12:16	3.00	16.21	7.71	437	280	6.9	71	428	
South Pond	12/29/09	12:17	3.50	16.20	7.71	437	280	6.9	70	429	
South Pond	12/29/09	12:17	4.00	16.19	7.73	437	280	6.9	71	429	
South Pond	12/29/09	12:18	4.50	16.17	7.72	437	280	7.0	71	430	
South Pond	12/29/09	12:19	5.00	16.16	7.72	437	279	6.8	70	430	
South Pond	12/29/09	12:19	5.50	16.13	7.73	437	279	6.7	68	430	
South Pond	12/29/09	12:20	5.59	16.14	7.75	437	280	6.9	71	427	
			0.25	**22.42**	**7.80**	**426**	**273**	**6.7**	**78**	**440**	
			0.50	**22.42**	**7.80**	**426**	**273**	**6.5**	**76**	**431**	
			1.00	**22.40**	**7.80**	**426**	**273**	**6.3**	**73**	**430**	
			1.50	**22.28**	**7.73**	**427**	**273**	**5.9**	**68**	**426**	
			2.00	**22.22**	**7.66**	**427**	**273**	**5.2**	**60**	**421**	
			2.50	**22.09**	**7.54**	**429**	**275**	**4.7**	**53**	**418**	
			3.00	**21.98**	**7.48**	**429**	**275**	**4.1**	**45**	**414**	
			3.50	**21.89**	**7.45**	**430**	**275**	**3.8**	**42**	**401**	
			4.00	**21.78**	**7.43**	**431**	**276**	**3.5**	**38**	**337**	
			4.50	**21.63**	**7.38**	**439**	**281**	**3.3**	**36**	**292**	
			5.00	**21.38**	**7.36**	**448**	**287**	**3.2**	**35**	**277**	
			5.50	**21.24**	**7.35**	**452**	**289**	**3.1**	**34**	**241**	
			6.00	**21.16**	**7.28**	**466**	**298**	**2.8**	**30**	**186**	

C.2 Water Quality Characteristics

Club II Stormwater Treatment Area
North and South Pond Surface Water Samples
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Cond. (µmho/cm)	Alkalinity (mg/l)	NH3 (µg/l)	NOX (µg/l)	Dis Org N (µg/l)	Part N (µg/l)	TN (µg/l)	SRP (µg/l)	Dis Org P (µg/l)	Part P (µg/l)	TP (µg/l)	Turbidity (NTU)	Color (Pt-Co)	Chyl-a (mg/m^3)
North - Top	Surface Water	1/22/09	7.75	483	120	85	11	607	286	989	9	2	31	42	5	42	17.6
North - Top	Surface Water	3/12/09	7.99	508	126	47	3	665	190	905	2	10	43	55	8	38	8.3
North - Top	Surface Water	3/30/09	7.97	515	127	14	3	687	206	910	2	4	12	18	8	40	9.0
North - Top	Surface Water	4/23/09	8.09	515	133	70	3	833	167	1073	1	1	21	23	4	33	23.3
North - Top	Surface Water	5/7/09	8.15	539	133	68	3	664	94	829	1	2	5	8	2	24	2.3
North - Top	Surface Water	6/1/09	9.25	409	95	15	3	831	1297	2146	1	3	44	48	30	43	35.2
North - Top	Surface Water	7/8/09	7.59	387	88	103	3	1005	495	1606	2	1	12	15	7	44	5.2
North - Top	Surface Water	8/11/09	8.31	370	99	26	3	829	381	1239	2	8	9	19	4	41	4.7
North - Top	Surface Water	9/9/09	8.32	393	100	3	3	877	281	1163	2	3	18	23	2	36	59.8
North - Top	Surface Water	10/12/09	8.17	391	99	59	3	837	319	1218	2	9	42	53	5	33	76.2
North - Top	Surface Water	11/10/09	7.33	443	124	692	3	1320	227	2242	4	1	22	27	2	41	6.7
North - Top	Surface Water	12/14/09	7.62	443	123	1031	144	1016	342	2533	10	9	26	45	2	33	2.4
		average	**8.05**	**450**	**114**	**184**	**15**	**848**	**357**	**1404**	**3**	**4**	**24**	**31**	**6.6**	**37**	**20.9**
		min	**7.33**	**370**	**87.6**	**3**	**3**	**607**	**94**	**829**	**1**	**1**	**5**	**8**	**1.5**	**24**	**2.3**
		max	**9.25**	**539**	**133**	**1031**	**144**	**1320**	**1297**	**2533**	**10**	**10**	**44**	**55**	**30.4**	**44**	**76.2**
		median	**8.04**	**443**	**122**	**64**	**3**	**832**	**284**	**1190**	**2**	**3**	**22**	**25**	**4.8**	**39**	**8.7**
		log-normal mean	**8.03**	**446**	**113**	**57**	**4**	**828**	**286**	**1307**	**2**	**3**	**20**	**27**	**4.5**	**37**	**11.3**
North - Middle	Surface Water	1/22/09	7.69	485	120	86	10	596	225	917	9	1	19	29	4	x	4.9
North - Middle	Surface Water	3/12/09	7.70	506	126	45	3	651	127	826	2	15	5	22	11	x	29.4
North - Middle	Surface Water	3/30/09	7.90	532	128	24	3	844	307	1178	2	1	3	6	10	x	26.9
North - Middle	Surface Water	4/23/09	7.69	516	129	62	3	785	323	1173	1	1	35	37	5	28	30.4
North - Middle	Surface Water	5/7/09	7.91	550	134	88	3	670	213	974	2	1	11	14	2	25	27.6
North - Middle	Surface Water	6/1/09	7.25	470	114	85	3	629	271	988	1	8	12	21	4	28	10.6
North - Middle	Surface Water	7/8/09	7.26	436	111	561	3	824	265	1653	2	1	9	12	9	37	8.8
North - Middle	Surface Water	8/11/09	7.34	404	102	285	3	791	262	1341	2	6	18	26	5	39	27.6
North - Middle	Surface Water	9/9/09	7.47	389	94	24	3	824	470	1321	3	5	12	20	2	35	8.4
North - Middle	Surface Water	10/12/09	7.29	382	95	34	3	846	711	1594	1	16	52	69	6	31	31.8
North - Middle	Surface Water	11/10/09	7.36	451	124	690	3	1293	178	2164	4	1	13	18	2	41	4.4
North - Middle	Surface Water	12/14/09	7.61	445	126	1101	118	899	323	2441	8	9	22	39	2	34	1.3
		average	**7.54**	**464**	**117**	**257**	**13**	**804**	**306**	**1381**	**3**	**5**	**18**	**26**	**5.4**	**33**	**17.7**
		min	**7.25**	**382**	**94.2**	**24**	**3**	**596**	**127**	**826**	**1**	**1**	**3**	**6**	**2.0**	**25**	**1.3**
		max	**7.91**	**550**	**134**	**1101**	**118**	**1293**	**711**	**2441**	**9**	**16**	**52**	**69**	**11.2**	**41**	**31.8**
		median	**7.54**	**461**	**122**	**86**	**3**	**808**	**268**	**1249**	**2**	**3**	**13**	**22**	**4.7**	**34**	**18.8**
		log-normal mean	**7.54**	**461**	**116**	**113**	**4**	**788**	**279**	**1307**	**2**	**3**	**14**	**22**	**4.5**	**33**	**12.4**
North - Bottom	Surface Water	1/22/09	7.79	478	119	77	11	660	100	848	9	19	10	38	6.4	x	7.6
North - Bottom	Surface Water	3/12/09	7.61	491	128	50	3	636	327	1016	11	24	60	95	7.0	x	1.3
North - Bottom	Surface Water	3/30/09	7.15	514	130	537	3	311	236	1087	58	11	12	81	6.5	x	11.9
North - Bottom	Surface Water	4/23/09	7.23	502	143	1595	3	963	41	2602	117	16	13	146	68.4	40	7.2
North - Bottom	Surface Water	5/7/09	7.31	537	168	2029	11	576	262	2878	153	19	10	182	79.8	38	3.6
North - Bottom	Surface Water	6/1/09	7.17	511	136	857	3	559	157	1576	34	9	9	52	13.2	35	2.0
North - Bottom	Surface Water	7/8/09	6.94	543	160	2791	11	801	33	3636	203	1	55	259	98.3	38	2.3
North - Bottom	Surface Water	8/11/09	7.38	539	195	3435	3	363	424	4225	53	13	11	77	113	199	7.5
North - Bottom	Surface Water	9/9/09	7.93	369	98	246	58	1232	126	1662	2	3	19	24	2.9	46	21.8
North - Bottom	Surface Water	10/12/09	6.89	535	182	3836	10	3598	466	7910	16	9	10	35	94.1	486	13.9
North - Bottom	Surface Water	11/10/09	7.40	488	160	1992	3	1569	387	3951	5	1	17	23	8.8	70	5.0
North - Bottom	Surface Water	12/14/09	7.73	445	128	1121	112	1333	266	2832	9	8	18	35	3.9	34	0.9
		average	**7.38**	**496**	**146**	**1547**	**19**	**1050**	**235**	**2852**	**56**	**11**	**20**	**87**	**41.9**	**110**	**7.1**
		min	**6.89**	**369**	**97.8**	**50**	**3**	**311**	**33**	**848**	**2**	**1**	**9**	**23**	**2.9**	**34**	**0.9**
		max	**7.93**	**543**	**195**	**3836**	**112**	**3598**	**466**	**7910**	**203**	**24**	**60**	**259**	**113.0**	**486**	**21.8**
		median	**7.35**	**507**	**140**	**1358**	**7**	**731**	**249**	**2717**	**25**	**10**	**13**	**65**	**11.0**	**40**	**6.1**
		log-normal mean	**7.37**	**493**	**143**	**836**	**7**	**831**	**179**	**2325**	**25**	**8**	**16**	**65**	**19.0**	**65**	**4.8**

Club II Stormwater Treatment Area
North and South Pond Surface Water Samples
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Cond. (µmho/cm)	Alkalinity (mg/l)	NH3 (µg/l)	NOX (µg/l)	Dis Org N (µg/l)	Part N (µg/l)	TN (µg/l)	SRP (µg/l)	Dis Org P (µg/l)	Part P (µg/l)	TP (µg/l)	Turbidity (NTU)	Color (Pt-Co)	Chyl-a (mg/m^3)
South - Top	Surface Water	1/22/09	7.82	433	118	35	3	722	368	1128	25	8	32	65	4.5	x	11.3
South - Top	Surface Water	3/12/09	8.07	450	123	33	3	993	61	1090	4	6	11	21	4.7	x	27.7
South - Top	Surface Water	3/30/09	7.97	494	124	65	3	818	422	1308	3	26	27	56	4.1	x	26.8
South - Top	Surface Water	4/23/09	7.73	449	121	75	25	987	820	1907	2	4	45	51	12.8	33	6.8
South - Top	Surface Water	5/7/09	8.62	452	126	95	3	848	453	1399	1	2	10	13	6.3	30	59.4
South - Top	Surface Water	6/1/09	9.31	391	90	20	3	863	1568	2454	1	8	57	66	44.2	56	122
South - Top	Surface Water	7/8/09	8.01	350	103	17	3	1065	953	2038	3	2	22	27	14.7	56	18.2
South - Top	Surface Water	8/11/09	7.78	362	91	430	18	1051	58	1557	2	3	9	14	1.5	50	15.3
South - Top	Surface Water	9/9/09	7.22	542	208	5040	17	1228	128	6413	162	1	13	176	2.9	298	8.3
South - Top	Surface Water	10/12/09	8.75	361	101	34	3	1087	150	1274	1	21	6	28	7.9	39	15.2
South - Top	Surface Water	11/10/09	7.54	422	120	755	10	1439	188	2392	7	1	53	61	2.4	38	8.5
South - Top	Surface Water	12/14/09	7.47	414	119	1223	96	1225	201	2745	64	13	44	121	1.0	33	7.5
		average	**8.02**	**427**	**120**	**652**	**15**	**1027**	**448**	**2142**	**23**	**8**	**27**	**58**	**8.9**	**70**	**27.3**
		min	**7.22**	**350**	**89.6**	**17**	**3**	**722**	**58**	**1090**	**1**	**1**	**6**	**13**	**1.0**	**30**	**6.8**
		max	**9.31**	**542**	**208**	**5040**	**96**	**1439**	**1568**	**6413**	**162**	**26**	**57**	**176**	**44.2**	**298**	**122**
		median	**7.90**	**428**	**120**	**70**	**3**	**1022**	**285**	**1732**	**3**	**5**	**25**	**54**	**4.6**	**39**	**15.3**
		log-normal mean	**8.00**	**423**	**118**	**123**	**6**	**1009**	**279**	**1866**	**5**	**5**	**21**	**44**	**5.2**	**51**	**17.7**
South - Middle	Surface Water	1/22/09	7.76	441	117	40	3	661	398	1102	26	8	32	66	8	x	14
South - Middle	Surface Water	3/12/09	7.59	456	122	46	7	765	273	1091	16	1	42	59	3	x	17
South - Middle	Surface Water	3/30/09	7.95	469	123	12	3	813	421	1249	4	1	46	51	4	x	15
South - Middle	Surface Water	4/23/09	7.49	446	120	105	3	1352	172	1632	1	38	14	53	4	35	27
South - Middle	Surface Water	5/7/09	7.80	463	120	84	3	1049	819	1955	2	1	24	27	4	32	29
South - Middle	Surface Water	6/1/09	7.19	396	95	357	3	795	437	1592	6	6	32	44	5	47	28
South - Middle	Surface Water	7/8/09	7.18	379	92	478	3	999	512	1992	2	1	27	30	8	62	5
South - Middle	Surface Water	8/11/09	7.35	362	93	620	3	921	153	1697	2	3	22	27	4	56	45
South - Middle	Surface Water	9/9/09	7.99	383	98	347	58	989	136	1530	3	2	8	13	2	47	17
South - Middle	Surface Water	10/12/09	7.29	371	99	135	3	1019	195	1352	1	12	196	209	16	41	5
South - Middle	Surface Water	11/10/09	7.51	420	118	745	9	1403	438	2595	7	1	66	74	3	38	3
South - Middle	Surface Water	12/14/09	7.54	414	118	1241	92	1333	245	2911	71	22	87	180	1	33	3
		average	**7.55**	**417**	**110**	**351**	**16**	**1008**	**350**	**1725**	**12**	**8**	**50**	**69**	**5.2**	**43**	**17.4**
		min	**7.18**	**362**	**92.4**	**12**	**3**	**661**	**136**	**1091**	**1**	**1**	**8**	**13**	**1.4**	**32**	**2.9**
		max	**7.99**	**469**	**123**	**1241**	**92**	**1403**	**819**	**2911**	**71**	**38**	**196**	**209**	**15.7**	**62**	**45.2**
		median	**7.53**	**417**	**118**	**241**	**3**	**994**	**336**	**1612**	**4**	**3**	**32**	**52**	**4.1**	**41**	**16.2**
		log-normal mean	**7.55**	**415**	**109**	**176**	**5**	**982**	**304**	**1648**	**5**	**3**	**35**	**52**	**4.2**	**42**	**12.4**
South - Bottom	Surface Water	1/22/09	7.73	441	118	44	3	659	391	1097	27	13	25	65	7	x	35
South - Bottom	Surface Water	3/12/09	7.64	457	125	50	3	702	226	981	36	3	50	89	3	x	1
South - Bottom	Surface Water	3/30/09	7.15	471	126	599	3	498	119	1219	108	13	22	143	3	x	3
South - Bottom	Surface Water	4/23/09	7.05	453	134	1958	3	1039	216	3216	203	1	49	253	23	38	10
South - Bottom	Surface Water	5/7/09	7.34	501	157	2387	3	891	51	3332	263	10	9	282	29	38	2
South - Bottom	Surface Water	6/1/09	7.08	453	131	1976	3	653	321	2953	169	34	9	212	34	48	19
South - Bottom	Surface Water	7/8/09	6.98	467	135	3076	3	1081	23	4183	279	7	9	295	54	47	1
South - Bottom	Surface Water	8/11/09	7.18	471	165	4121	3	212	485	4821	317	1	29	347	59	45	8
South - Bottom	Surface Water	9/9/09	7.05	483	176	5220	3	1274	16	6513	387	3	2	392	2	50	45
South - Bottom	Surface Water	10/12/09	6.67	497	165	6473	3	3254	2040	11770	434	2	39	475	67	323	76
South - Bottom	Surface Water	11/10/09	7.54	420	118	746	11	1450	333	2540	7	3	58	68	2	38	7
South - Bottom	Surface Water	12/14/09	7.62	444	106	1257	103	1388	222	2970	78	11	26	115	2	33	3
		average	**7.25**	**463**	**138**	**2326**	**12**	**1092**	**370**	**3799**	**192**	**8**	**27**	**228**	**23.6**	**73**	**17.4**
		min	**6.67**	**420**	**106.0**	**44**	**3**	**212**	**16**	**981**	**7**	**1**	**2**	**65**	**1.5**	**33**	**0.7**
		max	**7.73**	**501**	**176**	**6473**	**103**	**3254**	**2040**	**11770**	**434**	**34**	**58**	**475**	**66.8**	**323**	**76.0**
		median	**7.17**	**462**	**133**	**1967**	**3**	**965**	**224**	**3093**	**186**	**5**	**26**	**233**	**14.8**	**45**	**7.6**
		log-normal mean	**7.25**	**463**	**136**	**1141**	**4**	**896**	**178**	**2976**	**119**	**5**	**20**	**187**	**10.5**	**52**	**7.0**

APPENDIX D

CHEMICAL CHARACTERISTICS OF INFLOW AND OUTFLOW SAMPLES

D.1 Main Channel (Site 1)
D.2 Brisson Avenue Drainage Swale (Site 2)
D.3 Miscellaneous Inputs to the South Pond
D.4 Bulk Precipitation
D.5 Pond Outflow (Site 3)

D.1 Main Channel (Site 1)

Club II Stormwater Treatment Area
Site 1 Inflow Samples
December 2008 - November 2009

Site	Sample Type	Composite Period	pH (s.u.)	Cond. (µmho/cm)	Alkalinity (mg/l)	NH3 (µg/l)	NOX (µg/l)	Dis Org N (µg/l)	Part N (µg/l)	TN (µg/l)	SRP (µg/l)	Dis Org P (µg/l)	Part P (µg/l)	TP (µg/l)	Turbidity (NTU)	Color (Pt-Co)	TSS (mg/l)
Site #1	Inflow Composite	12/01/08-12/05/08	6.71	125	25.6	68	3	485	92	648	5	1	13	19	3.8	x	6.2
Site #1	Inflow Composite	12/5 - 12/13/08	6.51	126	23.6	11	73	481	382	947	12	6	41	59	10.6	x	23.9
Site #1	Inflow Composite	12/13/08-12/22/08	6.78	121	19.6	41	110	392	356	899	7	20	150	177	8.2	x	23.2
Site #1	Inflow Composite	12/23/08-12/29/08	6.88	112	22.0	26	9	476	187	698	3	253	46	302	6.5	x	12.1
Site #1	Inflow Composite	12/29/08-01/07/09	6.69	117	18.0	20	11	495	413	939	7	33	1	41	6.4	x	11.9
Site #1	Inflow Composite	01/07/09-01/13/09	6.83	97	18.8	11	6	558	260	835	8	8	26	42	8.5	x	14.4
Site #1	Inflow Composite	01/13/09 - 01/22/09	6.76	101	17.8	36	5	534	205	780	8	4	17	29	7.4	x	11.9
Site #1	Inflow Composite	01/23/09-01/28/09	6.82	108	14.6	20	5	529	220	774	12	10	6	28	8.5	x	13.7
Site #1	Inflow Composite	01/28/09-02/02/09	6.73	128	22.8	17	8	520	304	849	11	7	116	134	10.3	x	19.8
Site #1	Inflow Composite	02/02/09 - 02/09/09	6.83	115	23.8	16	17	480	103	616	15	1	26	42	5.9	x	11.6
Site #1	Inflow Composite	02/09/09-02/18/09	6.65	112	19.2	19	17	583	35	654	11	8	3	22	3.1	x	5.9
Site #1	Inflow Composite	02/18/09-02/23/09	6.75	126	21.6	30	3	7	22	62	3	27	9	39	2.7	x	19.0
Site #1	Inflow Composite	02/23/09 - 03/02/09	6.81	122	16.4	3	3	573	377	955	20	5	15	40	12.0	x	16.5
Site #1	Inflow Composite	03/02/09 - 03/11/09	7.13	182	39.4	107	21	499	466	1093	10	4	66	80	14.4	x	23.0
Site #1	Inflow Composite	3/30/09-04/07/09	6.45	114	17.6	83	13	655	77	828	30	6	4	40	10.8	274	1.0
Site #1	Inflow Composite	05/18/09 - 05/19/09	6.65	99	15.5	21	95	596	442	1154	60	24	42	126	10.5	91	23.5
Site #1	Inflow Composite	05/19/09 - 05/21/09	6.28	113	15.6	35	41	821	182	1079	99	10	38	147	15.2	173	11.5
Site #1	Inflow Composite	05/21/09 -05/22/09	6.55	163	19.2	76	46	1092	62	1276	67	13	22	102	5.5	243	4.6
Site #1	Inflow Composite	05/21/09 - 05/26/09	6.67	163	25.4	116	29	1381	113	1639	137	34	37	208	2.5	313	3.2
Site #1	Inflow Composite	5/26/09 - 6/01/09	6.98	150	32.6	48	15	1008	271	1342	90	9	38	137	3.7	305	6.4
Site #1	Inflow Composite	06/01/09-06/09/09	6.71	134	27.8	85	6	941	141	1173	55	5	28	88	9.2	307	9.0
Site #1	Inflow Composite	06/09/09-06/17/09	6.47	132	28.0	53	20	788	118	979	49	1	15	65	12.3	238	23.8
Site #1	Inflow Composite	06/17/09-06/23/09	6.70	136	27.8	5	32	1003	209	1249	18	5	24	47	6.1	149	16.0
Site #1	Inflow Composite	06/23/09-06/30/09	6.72	135	25.0	3	35	1003	166	1207	18	1	37	56	8.7	270	14.6
Site #1	Inflow Composite	06/30/09-07/08/09	6.56	137	25.8	31	34	383	113	561	12	5	20	37	17.6	133	19.0
Site #1	Inflow Composite	07/08/09-/07/14/09	6.88	122	24.2	3	66	721	384	1174	18	1	122	141	121	241	108
Site #1	Inflow Composite	07/14/09-07/21/09	7.07	124	28.0	29	21	627	260	937	7	6	26	39	10.3	244	21.1
Site #1	Inflow Composite	07/21/09-07/28/09	6.54	117	24.0	9	25	1156	238	1428	10	2	11	23	4.7	274	13.1
Site #1	Inflow Composite	07/28/09-08/03/09	6.83	117	28.0	10	4	868	795	1677	9	10	119	138	18.5	293	47.2
Site #1	Inflow Composite	08/03/09-08/11/09	6.65	125	23.2	28	16	598	965	1607	6	8	154	168	36.7	247	124
Site #1	Inflow Composite	08/11/09-08/20/09	6.79	108	21.4	30	3	405	2747	3185	9	15	447	471	81.9	275	217
Site #1	Inflow Composite	08/20/08-08/28/08	6.44	105	19.6	86	3	718	924	1731	4	16	222	242	43.3	291	123
Site #1	Inflow Composite	08/28/09-09/04/09	6.63	119	20.2	258	20	441	2058	2777	12	1	265	278	11.6	260	18.8
Site #1	Inflow Composite	09/04/09-09/09/09	6.51	121	27.4	16	23	865	661	1565	10	1	64	75	10.7	249	39.3
Site #1	Inflow Composite	09/09/09-09/18/09	6.50	106	20.8	23	3	733	417	1176	1	10	73	84	5.2	279	32.8
Site #1	Inflow Composite	09/18/09-09/22/09	6.90	117	24.0	48	23	697	309	1077	22	9	89	120	16.3	325	37.5
Site #1	Inflow Composite	09/22/09-09/28/09	6.34	108	19.4	41	5	1115	393	1554	8	16	84	108	15.5	319	40.0
Site #1	Inflow Composite	09/28/09-10/05/09	6.33	110	20.8	58	9	724	728	1519	10	1	107	118	21.7	261	51.2
Site #1	Inflow Composite	10/05/09-10/12/09	6.72	117	27.4	53	29	1095	511	1688	21	56	39	116	23.5	367	31.6
Site #1	Inflow Composite	10/12/09-10/19/09	6.52	113	22.4	55	5	854	618	1532	9	14	91	114	18.7	267	54.6
Site #1	Inflow Composite	12/7/09	6.29	134	18.2	33	25	669	586	1313	2	9	7	18	3.1	164	3.1
Site #1	Inflow Composite	12/07/09-12/14/09	6.41	132	17.8	83	47	451	447	1028	3	8	57	68	13.8	181	33.6
Site #1	Inflow Composite	12/14/09-12/23/09	6.36	122	17.8	34	53	496	795	1378	1	14	70	85	23.4	127	55.5
Site #1	Inflow Composite	12/23/09-12/29/09	6.60	109	19.0	40	98	484	19	641	3	1	23	27	6.8	144	11.7
		average	**6.66**	**122.6**	**22.4**	**44**	**26**	**682**	**436**	**1187**	**21**	**16**	**66**	**103**	**15.8**	**243**	**32.0**
		min	**6.28**	**97.4**	**14.6**	**3**	**3**	**7**	**19**	**62**	**1**	**1**	**1**	**18**	**2.5**	**91**	**1.0**
		max	**7.13**	**182.0**	**39.4**	**258**	**110**	**1381**	**2747**	**3185**	**137**	**253**	**447**	**471**	**121.0**	**367**	**217**
		median	**6.68**	**120.0**	**21.8**	**32**	**19**	**613**	**307**	**1124**	**10**	**8**	**38**	**82**	**10.4**	**261**	**19.0**
		log-normal mean	**6.65**	**121.6**	**21.9**	**29**	**15**	**595**	**271**	**1055**	**11**	**6**	**36**	**76**	**10.5**	**193**	**19.2**

Club II Stormwater Treatment Area
Site 2 Inflow Samples
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Cond. (µmho/cm)	Alkalinity (mg/l)	NH3 (µg/l)	NOX (µg/l)	Dis Org N (µg/l)	Part N (µg/l)	TN (µg/l)	SRP (µg/l)	Dis Org P (µg/l)	Part P (µg/l)	TP (µg/l)	Turbidity (NTU)	Color (Pt-Co)	TSS (mg/l)
Site #2	SW	5/19/09	6.49	118	17.0	128	203	690	372	1393	331	49	124	504	74.7	87	47.3
Site #2	SW	5/21/09	6.43	111	23.4	88	19	977	962	2046	314	37	285	636	117	159	74.7
Site #2	SW	5/22/09	6.32	175	39.0	37	5	1459	877	2378	455	88	206	749	9.3	239	12.0
Site #2	SW	5/26/09	6.65	248	71.8	60	10	2647	1131	3848	779	340	205	1324	14.7	488	13.9
Site #2	BF	6/1/09	6.91	261	73.2	76	13	2156	561	2806	469	57	112	638	4.5	404	8.3
Site #2	BF	6/9/09	6.70	226	67.0	282	5	1948	910	3145	509	135	290	934	10.3	445	14.7
Site #2	BF	6/17/09	6.73	236	72.4	127	505	2033	1142	3807	21	663	280	964	22.5	480	17.5
Site #2	SW	07/15/09-07/16/09	6.89	149	42.6	157	74	1921	120	2272	72	32	803	907	783	230	596
Site #2	BF	7/28/09	6.28	207	15.8	19	3	703	196	921	34	6	25	65	6.4	80	4.3
Site #2	BF	07/28/09-08/03/09	6.83	169	29.2	42	5	1485	493	2025	49	40	394	483	317	125	152
Site #2	BF	12/7/09	6.31	207	10.6	175	40	842	377	1434	13	24	57	94	25.0	32	6.4
		average	**6.59**	**192**	**42.0**	**108**	**80**	**1533**	**649**	**2370**	**277**	**134**	**253**	**663**	**126**	**252**	**86.1**
		min	**6.28**	**111**	**10.6**	**19**	**3**	**690**	**120**	**921**	**13**	**6**	**25**	**65**	**4.5**	**32**	**4.3**
		max	**6.91**	**261**	**73.2**	**282**	**505**	**2647**	**1142**	**3848**	**779**	**663**	**803**	**1324**	**783**	**488**	**596**
		median	**6.65**	**207**	**39.0**	**88**	**13**	**1485**	**561**	**2272**	**314**	**49**	**206**	**638**	**22.5**	**230**	**14.7**
		log-normal mean	**6.59**	**185**	**34.5**	**84**	**20**	**1390**	**529**	**2181**	**136**	**62**	**179**	**500**	**32.9**	**188**	**25.6**
Site #2A	SW	5/19/09	7.11	70	32	117	304	471	107	999	244	5	53	302	11	58	9
Site #2A	SW	5/21/09	7.31	222	90	259	582	1007	208	2056	361	10	34	405	4	71	3

Club II Stormwater Treatment Area
Site 3 Outflow Samples
December 2008 - November 2009

Site	Sample Type	Composite Period	pH (s.u.)	Cond. (µmho/cm)	Alkalinity (mg/l)	NH3 (µg/l)	NOX (µg/l)	Dis Org N (µg/l)	Part N (µg/l)	TN (µg/l)	SRP (µg/l)	Dis Org P (µg/l)	Part P (µg/l)	TP (µg/l)	Turbidity (NTU)	Color (Pt-Co)	TSS (mg/l)
Site #3	Pond Outflow	12/01/08-12/05/08	8.09	419	102	12	3	685	948	1648	3	3	77	83	16.1	x	15.1
Site #3	Pond Outflow	12/5 - 12/13/08	7.86	439	102	14	3	602	758	1377	6	1	52	59	12.5	x	10.6
Site #3	Pond Outflow	12/13/08-12/22/08	7.95	409	106	72	94	568	329	1063	5	46	114	165	5.8	x	5.6
Site #3	Pond Outflow	12/23/08-12/29/08	7.89	432	106	34	5	659	728	1426	5	223	15	243	11.2	x	14.9
Site #3	Pond Outflow	12/29/08-01/07/09	7.81	448	102	20	3	10	1620	1653	6	7	102	115	15.8	x	20.4
Site #3	Pond Outflow	01/07/09-01/13/09	7.99	360	113	17	21	644	835	1517	22	6	78	106	16.3	x	18.9
Site #3	Pond Outflow	01/13/09 - 01/22/09	7.91	414	116	140	5	639	421	1205	37	1	43	81	7.6	x	7.0
Site #3	Pond Outflow	01/23/09-01/28/09	8.08	425	115	31	157	483	1034	1705	8	111	97	216	22.2	x	22.5
Site #3	Pond Outflow	01/28/09-02/02/09	8.04	418	114	23	3	665	575	1266	21	19	50	90	9.6	x	9.4
Site #3	Pond Outflow	02/02/09 - 02/09/09	7.94	415	121	21	3	629	530	1183	30	3	58	91	8.2	x	10.5
Site #3	Pond Outflow	02/09/09-02/18/09	8.22	398	120	17	6	631	949	1603	15	2	89	106	26.0	x	20.3
Site #3	Pond Outflow	02/18/09-02/23/09	8.31	438	118	43	3	9	62	117	19	3	58	80	24.0	x	24.5
Site #3	Pond Outflow	02/23/09 - 03/02/09	8.07	445	123	15	3	758	721	1497	31	16	30	77	20.3	x	21.0
Site #3	Pond Outflow	5/19/09	7.51	456	108	523	38	1893	2280	4734	1	10	421	432	29.5	54	41.8
Site #3	Pond Outflow	05/19/09 - 05/21//09	8.29	416	100	82	7	1032	986	2107	1	1	62	64	20.2	32	13.7
Site #3	Pond Outflow	05/21/09 - 05/26/09	8.25	397	92.6	261	9	1024	769	2063	3	8	55	66	20.5	44	12.6
Site #3	Pond Outflow	5/26/09 - 6/01/09	8.25	381	89.0	55	3	757	1266	2081	1	20	54	75	27.6	51	18.8
Site #3	Pond Outflow	06/01/09-06/09/09	7.40	372	88.6	670	3	789	1871	3333	1	6	111	118	32.3	58	17.9
Site #3	Pond Outflow	06/09/09-06/17/09	7.49	362	84.8	763	3	879	1825	3470	12	7	81	100	20.4	60	12.5
Site #3	Pond Outflow	06/17/09-06/23/09	7.52	344	84.2	1040	19	1479	599	3137	3	10	45	58	3.0	65	7.5
Site #3	Pond Outflow	06/23/09-06/30/09	7.32	368	86.4	15	22	2181	542	2760	9	3	17	29	3.2	66	4.4
Site #3	Pond Outflow	06/30/09-07/08/09	7.57	365	86.4	456	83	658	60	1257	7	3	12	22	2.9	56	5.2
Site #3	Pond Outflow	07/08/09-/07/14/09	7.54	357	90.0	329	14	1019	843	2205	6	2	78	86	5.5	49	10.2
Site #3	Pond Outflow	07/15/09-07/21/09	7.89	361	91.6	533	8	1007	441	1989	1	10	35	46	4.0	55	5.7
Site #3	Pond Outflow	07/21/09-07/28/09	7.83	357	95.2	217	743	1903	357	3220	19	3	21	43	1.1	55	4.7
Site #3	Pond Outflow	07/28/09-08/03/09	7.25	359	82.6	46	646	1140	188	2020	1	7	96	104	2.1	51	3.1
Site #3	Pond Outflow	08/04/09-08/11/09	7.81	357	89.2	495	71	940	205	1711	2	5	22	29	1.8	49	4.8
Site #3	Pond Outflow	08/11/09-08/20/09	7.83	349	92.2	14	487	529	813	1843	11	16	39	66	1.1	53	4.8
Site #3	Pond Outflow	08/20/08-08/28/08	7.66	377	94.0	37	262	1084	205	1588	1	13	28	42	1.4	54	4.7
Site #3	Pond Outflow	08/28/09-09/04/09	7.99	363	96.8	258	184	928	143	1513	7	5	6	18	1.8	48	1.0
Site #3	Pond Outflow	09/04/09-09/09/09	7.48	359	89.2	232	85	1098	307	1722	4	2	16	22	3.1	45	1.6
Site #3	Pond Outflow	09/09/09-09/18/09	7.41	372	95.4	197	60	922	254	1433	1	5	29	35	2.1	47	3.5
Site #3	Pond Outflow	09/18/09-09/22/09	7.95	391	99.8	23	84	1140	174	1421	1	12	18	31	2.5	46	2.7
Site #3	Pond Outflow	09/22/09-09/28/09	7.64	376	96.6	24	44	1285	276	1629	2	3	17	22	13.3	43	5.4
Site #3	Pond Outflow	09/28/09-10/05/09	7.12	365	97.4	37	3	777	425	1242	2	1	14	17	3.0	53	4.9
Site #3	Pond Outflow	10/05/09-10/12/09	7.59	353	99.4	127	53	1067	1176	2423	2	14	81	97	22.9	41	15.1
Site #3	Pond Outflow	10/12/09-10/19/09	7.30	362	101	39	4	941	356	1340	1	9	29	39	0.3	66	8.8
Site #3	Pond Outflow	12/7/09	7.25	399	107	1114	102	395	241	1852	58	28	91	177	18.3	37	33.1
Site #3	Pond Outflow	12/14/09	7.17	391	100	1392	126	409	186	2113	59	36	88	183	1.0	36	1.6
Site #3	Pond Outflow	12/15/09-12/22/09	7.32	398	109	1059	400	615	110	2184	65	44	61	170	4.7	34	7.8
Site #3	Pond Outflow	12/24/09-12/29/09	7.69	378	111	883	529	513	191	2116	5	11	79	95	1.5	32	2.6
		average	**7.74**	**389**	**100**	**278**	**107**	**863**	**649**	**1897**	**12**	**18**	**63**	**93**	**10.9**	**49**	**11.2**
		min	**7.12**	**344**	**82.6**	**12**	**3**	**9**	**60**	**117**	**1**	**1**	**6**	**17**	**0.3**	**32**	**1.0**
		max	**8.31**	**456**	**123**	**1392**	**743**	**2181**	**2280**	**4734**	**65**	**223**	**421**	**432**	**32.3**	**66**	**41.8**
		median	**7.81**	**378**	**100**	**72**	**21**	**777**	**530**	**1705**	**5**	**7**	**54**	**80**	**7.6**	**50**	**8.8**
		log-normal mean	**7.74**	**388**	**100**	**99**	**23**	**671**	**460**	**1710**	**5**	**7**	**45**	**71**	**6.3**	**48**	**8.2**

D.2 Brisson Avenue Drainage Swale (Site 2)

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Site #2	Runoff	5/19/09	6.49	118	17	128	203	690	372	1393	331	49	124	504	74.7	87	47.3
Site #2	Runoff	5/21/09	6.43	111	23	88	19	977	962	2046	314	37	285	636	117	159	74.7
Site #2	Runoff	5/22/09	6.32	175	39	37	5	1459	877	2378	455	88	206	749	9.3	239	12.0
Site #2	Runoff	5/26/09	6.65	248	72	60	10	2647	1131	3848	779	340	205	1324	14.7	488	13.9
Site #2	Runoff	5/19/09	7.11	70	32	117	304	471	107	999	244	5	53	302	10.8	58	8.9
Site #2	Runoff	5/21/09	7.31	222	90	259	582	1007	208	2056	361	10	34	405	3.8	71	3.1
Site #2	Runoff	6/1/09	6.91	261	73	76	13	2156	561	2806	469	57	112	638	4.5	404	8.3
Site #2	Runoff	6/9/09	6.70	226	67	282	5	1948	910	3145	509	135	290	934	10.3	445	14.7
Site #2	Runoff	6/17/09	6.73	236	72	127	505	2033	1142	3807	21	663	280	964	22.5	480	17.5
Site #2	Runoff	07/15/09-07/16/09	6.89	149	43	157	74	1921	120	2272	72	32	803	907	783	230	596
Site #2	Runoff	7/28/09	6.28	207	16	19	3	1703	196	1921	34	6	425	465	6.4	80	4.3
Site #2	Runoff	07/28/09-08/03/09	6.83	169	29	42	5	1485	493	2025	49	40	394	483	317	125	152
Site #2	Runoff	12/7/09	6.31	207	11	175	40	235	377	827	13	24	257	294	25.0	32	6.4
	Average Value:		**6.69**	**185**	**44.9**	**121**	**136**	**1441**	**574**	**2271**	**281**	**114**	**267**	**662**	**108**	**223**	**73.8**
	Minimum Value:		**6.28**	**70**	**10.6**	**19**	**3**	**235**	**107**	**827**	**13**	**5**	**34**	**294**	**3.8**	**32**	**3.1**
	Maximum Value:		**7.31**	**261**	**89.8**	**282**	**582**	**2647**	**1142**	**3848**	**779**	**663**	**803**	**1324**	**783**	**488**	**596**
	Log-Normal Mean:		**6.68**	**174**	**36.9**	**94**	**33**	**1211**	**435**	**2074**	**153**	**44**	**200**	**601**	**25.6**	**159**	**20.1**
	No. of Samples		**13**														

D.3 Miscellaneous Inputs to the South Pond

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Project	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Club II	Bulk Precip.	01/29/09 - 02/2/09	6.01	40	4.0	118	202	155	252	727	2	4	8	14	3.7	12	8.3
Club II	Bulk Precip.	2/2/09 - 2/28/09	5.90	30	3.2	189	144	97	62	492	1	5	13	19	1.7	10	1.1
Club II	Bulk Precip.	2/28/09 - 3/30/09	6.97	226	30.0	4411	1160	1773	1222	8566	178	21	205	404	3.2	9	34.0
Club II	Bulk Precip.	03/30/09-04/6/09	5.61	29	2.6	175	354	173	240	942	5	2	38	45	2.8	8	12.5
Club II	Bulk Precip.	4/6/09 - 4/14/09	6.24	38	6.0	128	381	517	286	1312	53	5	2	60	4.0	9	5.6
Club II	Bulk Precip.	4/14/09 - 5/18/09	6.17	151	5.8	348	1644	1609	576	4177	106	7	148	261	6.4	14	30.0
Club II	Bulk Precip.	5/18/09 - 5/19/09	5.55	23	2.2	13	30	175	58	276	1	1	1	3	2.0	3	6.0
Club II	Bulk Precip.	5/19/09 - 5/21/09	5.94	18	3.2	11	27	189	24	251	1	1	4	6	1.2	2	2.4
Club II	Bulk Precip.	5/21/09 - 5/25/09	5.50	10	2.4	58	136	246	64	504	1	3	2	6	0.8	2	1.2
Club II	Bulk Precip.	5/25/09 - 5/29/09	5.08	12	1.4	243	372	64	139	818	1	7	10	18	1.2	3	4.4
Club II	Bulk Precip.	5/29/09 - 6/09/09	5.32	10	2.6	35	167	71	61	334	1	7	1	9	1.2	2	4.1
Club II	Bulk Precip.	6/09/09 - 6/17/09	5.28	11	2.2	81	1	356	187	625	225	76	9	310	2.1	4	5.7
Club II	Bulk Precip.	6/17/09 - 6/23/09	5.13	10	1.2	6	141	148	103	398	1	3	20	24	2.1	6	4.4
Club II	Bulk Precip.	6/23/09 - 6/30/09	5.56	14	2.6	20	296	255	387	958	8	1	18	27	5.8	4	15.5
Club II	Bulk Precip.	6/30/09 - 7/08/09	5.66	11	3.2	103	73	106	54	336	1	1	22	24	1.9	6	5.4
Club II	Bulk Precip.	7/08/09 - 7/12/09	5.88	11	2.8	16	196	174	297	683	1	2	12	15	3.9	4	5.0
Club II	Bulk Precip.	7/14/09 - 7/21/09	5.25	10	1.6	52	156	97	181	486	2	2	36	40	1.7	3	8.4
Club II	Bulk Precip.	7/21/09 - 7/26/09	6.29	21	5.6	1131	257	890	1377	3655	150	23	47	220	0.9	9	7.7
Club II	Bulk Precip.	7/26/09 - 8/02/09	7.18	17	4.2	421	164	62	872	1519	14	1	111	126	4.0	3	11.5
Club II	Bulk Precip.	8/02/09 - 8/06/09	4.94	10	0.8	14	184	2	9	209	1	2	3	6	1.3	3	0.7
Club II	Bulk Precip.	8/6/09 - 8/18/09	5.70	14	2.0	152	247	101	379	879	18	5	23	46	2.1	4	4.5
Club II	Bulk Precip.	8/18/08 - 8/25/08	5.19	19	0.1	167	282	297	381	1127	12	5	46	63	1.9	5	7.1
Club II	Bulk Precip.	8/25/09 - 9/04/09	4.98	15	1.0	48	102	496	359	1005	29	3	62	94	2.8	13	8.6
Club II	Bulk Precip.	9/4/09 - 9/27/09	6.18	27	7.0	840	64	1071	73	2048	274	39	31	344	1.3	27	2.2
Club II	Bulk Precip.	9/27/09 - 11/5/09	6.72	62	8.4	1040	523	920	84	2567	347	5	31	383	2.2	32	5.7
Club II	Bulk Precip.	11/5/09 - 11/25/09	6.35	46	5.8	869	482	1676	333	3360	335	3	33	371	3.0	10	1.5
Club II	Bulk Precip.	11/25/09 - 12/2/09	5.52	24	2.2	213	326	976	133	1648	61	1	3	65	1.7	4	3.0
Club II	Bulk Precip.	12/2/09 - 12/07/09	5.52	7	1.8	41	89	3	4	137	5	5	2	12	0.8	6	2.2
Club II	Bulk Precip.	12/7/09 - 12/18/09	6.06	91	2.6	42	6387	204	88	6721	97	22	24	143	1.3	1	2.4
Club II	Bulk Precip.	12/18/09 - 12/25/09	6.25	37	7.4	1375	290	464	168	2297	478	35	68	581	1.4	6	1.5
Club II	Bulk Precip.	12/25/09 - 1/1/10	5.80	14	1.2	270	169	107	52	598	43	14	7	64	1.1	19	0.4
Club II	Bulk Precip.	1/1/10 - 1/22/10	6.24	31	5.8	489	132	2115	472	3208	182	14	72	268	2.5	6	55.5
Club II	Bulk Precip.	1/22/10 - 2/2/10	5.48	24	3.2	312	256	151	112	831	1	2	3	6	1.5	3	4.8
Club II	Bulk Precip.	2/2/10 - 02/9/10	5.95	14	3.8	322	201	214	96	833	1	7	1	9	3.9	4	4.3
Club II	Bulk Precip.	2/9/10 - 2/12/10	5.54	10	2.4	170	200	131	600	1101	7	1	2	10	1.0	2	0.8
Club II	Bulk Precip.	2/12/10 - 3/2/10	5.87	26	4.6	474	480	416	483	1853	96	7	36	139	9.6	14	15.8
Club II	Bulk Precip.	3/2/10 - 3/13/10	5.70	6	2.0	9	90	85	119	303	4	3	4	11	2.0	2	7.5
Club II	Bulk Precip.	3/13/10 - 3/21/10	5.90	24	4.0	416	271	1614	215	2516	44	10	28	82	4.0	4	9.0
Club II	Bulk Precip.	3/21/10 - 3/25/10	6.26	50	12.4	937	416	4098	429	5880	626	8	53	687	5.9	17	31.5
Club II	Bulk Precip.	3/25/10 - 3/29/10	5.33	11	1.6	104	64	83	214	465	1	21	18	40	1.3	3	2.7
Club II	Bulk Precip.	3/29/10 - 4/21/10	6.68	130	14.4	3637	1033	2711	390	7771	1017	683	112	1812	3.1	11	3.0
Club II	Bulk Precip.	4/21/10 - 4/28/10	5.32	15	2.0	474	233	28	43	778	65	11	13	89	1.4	9	1.4
Club II	Bulk Precip.	4/28/10 - 5/07/10	6.60	81	21.2	5995	529	1864	357	8745	864	275	63	1202	1.0	49	4.4
Club II	Bulk Precip.	5/7/10 - 5/20/10	6.13	60	10.4	1758	422	1466	343	3989	494	93	48	635	2.5	19	8.0
Club II	Bulk Precip.	5/20/10 - 6/08/10	6.41	53	17.2	3852	385	3606	486	8329	907	246	119	1272	3.2	121	5.9
Club II	Bulk Precip.	6/8/10 - 6/26/10	5.84	38	1.8	1023	300	810	59	2192	185	7	15	207	1.5	13	2.4
Club II	Bulk Precip.	6/26/10 - 7/06/10	5.62	26	3.4	284	20	536	150	990	17	27	18	62	1.4	6	1.4
Club II	Bulk Precip.	7/6/10 - 8/10/10	5.75	57	6.2	1698	207	68	774	2747	273	31	291	595	2.6	20	9.9
Club II	Bulk Precip.	8/10/10 - 8/16/10	6.25	47	7.0	1463	322	12	288	2085	213	23	48	284	1.8	11	13.0
Club II	Bulk Precip.	8/16/10 - 8/23/10	5.50	18	2.6	378	171	479	507	1535	51	2	10	63	1.1	6	1.6
Club II	Bulk Precip.	8/23/10 - 9/7/10	6.07	58	3.4	2786	421	527	710	4444	551	13	3	567	1.4	43	3.5
Club II	Bulk Precip.	9/7/10 - 9/13/10	5.97	37	4.0	608	189	247	731	1775	137	2	22	161	0.8	24	3.9
Club II	Bulk Precip.	9/13/10 - 9/29/10	5.85	45	4.2	819	292	38	576	1725	164	3	12	179	1.4	8	3.4
Club II	Bulk Precip.	9/29/10 - 11/8/10	5.68	75	7.8	202	612	229	488	3588	52	31	22	105	2.6	31	7.3
	Average Value		**5.85**	**37**	**5.0**	**756**	**413**	**648**	**318**	**2173**	**156**	**34**	**38**	**228**	**2.4**	**12**	**7.7**
	Minimum Value		**4.94**	**6**	**0.1**	**6**	**1**	**2**	**4**	**137**	**1**	**1**	**1**	**3**	**0.8**	**1**	**0.4**
	Maximum Value		**7.18**	**226**	**30.0**	**5995**	**6387**	**4098**	**1377**	**8745**	**1017**	**683**	**291**	**1812**	**9.6**	**121**	**55.5**
	Log-Normal Mean:		**5.83**	**26**	**3.4**	**239**	**211**	**254**	**193**	**1315**	**26**	**7**	**17**	**77**	**2.0**	**7**	**4.6**
	No. of Samples		**54**														

D.4 Bulk Precipitation

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Site # 4	Inflow	2/11/10	7.28	370	121	159	509	1861	269	2798	6	11	84	101	124	200	11.6
Site # 4	Inflow	2/16/10	7.00	373	124	156	615	1426	462	2659	12	4	50	66	84.7	196	7.5
Site # 4	Inflow	3/10/10	7.37	530	196	182	725	750	53	1710	15	2	39	56	17.7	95	7.8
Site # 4	Inflow	3/12/10	6.56	117	37.2	26	210	596	301	1133	12	59	165	236	150	147	55.2
Site # 4	Inflow	3/18/10	6.90	484	174	175	717	290	810	1992	7	6	25	38	45.4	121	9.8
Site # 4	Inflow	3/23/10	7.03	378	123	122	1565	1283	90	3060	16	4	36	56	83.5	208	5.8
Site # 4	Inflow	3/26/10	7.00	345	98.4	65	1027	1030	49	2171	9	21	53	83	61.4	198	4.1
Site # 4	Inflow	3/29/10	6.91	175	45.4	40	1222	820	552	2634	10	51	47	108	62.5	195	15.3
Site #4	Inflow	4/21/10	7.25	402	129	185	1336	1280	167	2968	9	5	23	37	31.9	206	3.4
	Average Value:		**7.03**	**353**	**116**	**123**	**881**	**1037**	**306**	**2347**	**11**	**18**	**58**	**87**	**73.5**	**174**	**13.4**
	Minimum Value:		**6.56**	**117**	**37.2**	**26**	**210**	**290**	**49**	**1133**	**6**	**2**	**23**	**37**	**17.7**	**95**	**3.4**
	Maximum Value:		**7.37**	**530**	**196**	**185**	**1565**	**1861**	**810**	**3060**	**16**	**59**	**165**	**236**	**150**	**208**	**55.2**
	Log-Normal Mean:		**7.03**	**323**	**103**	**102**	**765**	**921**	**205**	**2252**	**10**	**10**	**48**	**73**	**61.7**	**169**	**9.2**
	No. of Samples		**9**														

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Site # 5	Inflow	2/11/10	6.96	435	166	165	242	1796	300	2503	5	7	111	123	131	141	10
Site # 5	Inflow	2/16/10	6.74	466	188	185	487	1815	274	2761	10	6	113	129	115	151	54
Site # 5	Inflow	3/10/10	7.38	527	188	160	681	820	74	1735	15	4	12	31	20	92	9
Site # 5	Inflow	3/12/10	6.70	293	100	101	509	892	330	1832	11	15	143	169	124	144	42
Site # 5	Inflow	3/18/10	6.94	492	174	204	719	1191	9	2123	7	10	17	34	43	124	8
Site # 5	Inflow	3/23/10	6.76	419	156	159	703	1131	42	2035	13	7	38	58	78	158	10
Site # 5	Inflow	3/26/10	6.94	414	137	151	679	863	145	1838	10	7	45	62	63	161	4
Site # 5	Inflow	3/29/10	6.92	283	97	91	410	436	330	1267	9	16	54	79	56	165	17
Site #5	Inflow	4/21/10	7.11	394	126	138	333	916	32	1419	9	7	28	44	29	119	5
	Average Value:		**6.94**	**414**	**148**	**150**	**529**	**1096**	**171**	**1946**	**10**	**9**	**62**	**81**	**73**	**139**	**18**
	Minimum Value:		**6.70**	**283**	**97.4**	**91**	**242**	**436**	**9**	**1267**	**5**	**4**	**12**	**31**	**20**	**92**	**4**
	Maximum Value:		**7.38**	**527**	**188**	**204**	**719**	**1815**	**330**	**2761**	**15**	**16**	**143**	**169**	**131**	**165**	**54**
	Log-Normal Mean:		**6.94**	**406**	**144**	**146**	**499**	**1011**	**102**	**1894**	**9**	**8**	**46**	**69**	**61**	**137**	**12**
	No. of Samples		**9**														

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Site # 6	Inflow	3/12/10	6.94	229	44.6	109	29	1324	81	1543	10	74	99	183	18.8	48	10.3
Site # 6	Inflow	3/29/10	7.13	220	46.0	49	5	1093	323	1470	25	57	93	175	8.5	312	5.0
Average Value:			**7.04**	**225**	**45.3**	**79**	**17**	**1209**	**202**	**1507**	**18**	**66**	**96**	**179**	**13.7**	**180**	**7.7**
Minimum Value:			**6.94**	**220**	**44.6**	**49**	**5**	**1093**	**81**	**1470**	**10**	**57**	**93**	**175**	**8.5**	**48**	**5.0**
Maximum Value:			**7.13**	**229**	**46.0**	**109**	**29**	**1324**	**323**	**1543**	**25**	**74**	**99**	**183**	**18.8**	**312**	**10.3**
Log-Normal Mean:			**7.03**	**224**	**45.3**	**73**	**12**	**1203**	**162**	**1506**	**16**	**65**	**96**	**179**	**12.6**	**122**	**7.2**
No. of Samples			**2**														

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Site	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Site # 7	Inflow	3/12/10	6.68	135	29.0	38	68	932	209	1247	218	38	58	314	4.9	154	3.6
Site # 7	Inflow	3/29/10	6.88	192	56.8	37	6	1087	559	1689	91	63	51	205	1.7	339	17.6
	Average Value:		**6.78**	**164**	**42.9**	**38**	**37**	**1010**	**384**	**1468**	**155**	**51**	**55**	**260**	**3.3**	**247**	**10.6**
	Minimum Value:		**6.68**	**135**	**29.0**	**37**	**6**	**932**	**209**	**1247**	**91**	**38**	**51**	**205**	**1.7**	**154**	**3.6**
	Maximum Value:		**6.88**	**192**	**56.8**	**38**	**68**	**1087**	**559**	**1689**	**218**	**63**	**58**	**314**	**4.9**	**339**	**17.6**
	Log-Normal Mean:		**6.78**	**161**	**40.6**	**37**	**20**	**1007**	**342**	**1451**	**141**	**49**	**54**	**254**	**2.9**	**228**	**8.0**
	No. of Samples		**2**														

D.5 Pond Outflow (Site 3)

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Project	Site	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Club II	Site #3	Outflow	12/01/08 - 12/05/08	8.09	419	102	12	3	685	948	1648	3	3	77	83	16.1	43	15.1
Club II	Site #3	Outflow	12/5/08 - 12/13/08	7.86	439	102	14	3	602	758	1377	6	1	52	59	12.5	41	10.6
Club II	Site #3	Outflow	12/13/08 - 12/22/08	7.95	409	106	72	94	568	729	1463	5	46	114	165	5.8	35	5.6
Club II	Site #3	Outflow	12/23/08 - 12/29/08	7.89	432	106	34	5	659	728	1426	5	23	15	43	11.2	38	14.9
Club II	Site #3	Outflow	12/29/08 - 1/07/09	7.81	448	102	20	3	610	820	1453	6	7	102	115	15.8	45	20.4
Club II	Site #3	Outflow	1/7/09 - 1/13/09	7.99	360	113	17	21	644	835	1517	22	6	78	106	16.3	49	18.9
Club II	Site #3	Outflow	1/13/09 - 1/22/09	7.91	414	116	140	5	639	421	1205	37	1	63	101	7.6	53	7.0
Club II	Site #3	Outflow	1/23/09 - 1/28/09	8.08	425	115	31	157	483	1034	1705	8	111	97	216	22.2	48	22.5
Club II	Site #3	Outflow	01/28/09-02/02/09	8.04	418	114	23	3	665	575	1266	21	19	50	90	9.6	45	9.4
Club II	Site #3	Outflow	02/02/09 - 02/09/09	7.94	415	121	21	3	627	530	1181	30	3	58	91	8.2	40	10.5
Club II	Site #3	Outflow	02/09/09-02/18/09	8.22	398	120	17	6	631	949	1603	15	2	89	106	26.0	39	20.3
Club II	Site #3	Outflow	02/18/09-02/23/09	8.31	438	118	43	3	744	862	1652	19	3	58	80	24.0	46	24.5
Club II	Site #3	Outflow	02/23/09 - 03/02/09	8.07	445	123	15	3	755	721	1494	31	16	30	77	20.3	48	21.0
Club II	Site #3	Outflow	5/14/09-5/19/09	7.51	456	108	523	38	893	1280	2734	1	10	42	53	29.5	54	41.8
Club II	Site #3	Outflow	05/19/09 - 05/21//09	8.29	416	100	82	7	1032	986	2107	1	1	63	65	20.2	32	13.7
Club II	Site #3	Outflow	05/21/09 - 05/26/09	8.25	397	92.6	261	9	1024	769	2063	3	8	55	66	20.5	44	12.6
Club II	Site #3	Outflow	5/26/09 - 6/01/09	8.25	381	89.0	55	2	757	1266	2080	1	20	54	75	27.6	51	18.8
Club II	Site #3	Outflow	06/01/09-06/09/09	7.40	372	88.6	670	3	786	1871	3330	1	6	111	118	32.3	58	17.9
Club II	Site #3	Outflow	06/09/09-06/17/09	7.49	362	84.8	763	3	876	1825	3467	12	7	81	100	20.4	60	12.5
Club II	Site #3	Outflow	06/17/09-06/23/09	7.52	344	84.2	1040	19	1479	599	3137	3	10	45	58	3.0	65	7.5
Club II	Site #3	Outflow	06/23/09-06/30/09	7.32	368	86.4	515	22	1681	542	2760	9	3	17	29	3.2	66	4.4
Club II	Site #3	Outflow	06/30/09-07/08/09	7.57	365	86.4	456	83	1106	612	2257	7	3	12	22	2.9	56	5.2
Club II	Site #3	Outflow	07/08/09-/07/14/09	7.54	357	90.0	329	14	1019	843	2205	6	2	78	86	5.5	49	10.2
Club II	Site #3	Outflow	07/15/09-07/21/09	7.89	361	91.6	533	8	1007	441	1989	1	10	35	46	4.0	55	5.7
Club II	Site #3	Outflow	07/21/09-07/28/09	7.83	357	95.2	217	43	1103	357	1720	19	3	21	43	1.1	55	4.7
Club II	Site #3	Outflow	07/28/09-08/03/09	7.25	359	82.6	46	65	1140	188	1439	1	7	96	104	2.1	51	3.1
Club II	Site #3	Outflow	08/04/09-08/11/09	7.81	357	89.2	50	71	940	205	1266	2	5	22	29	1.8	49	4.8
Club II	Site #3	Outflow	08/11/09-08/20/09	7.83	349	92.2	14	149	529	813	1505	11	16	39	66	1.1	53	4.8
Club II	Site #3	Outflow	08/20/08-08/28/08	7.66	377	94.0	37	262	1084	205	1588	1	13	28	42	1.4	54	4.7
Club II	Site #3	Outflow	08/28/09-09/04/09	7.99	363	96.8	258	184	928	143	1513	7	5	6	18	1.8	48	1.0
Club II	Site #3	Outflow	09/04/09-09/09/09	7.48	359	89.2	232	85	1098	307	1722	4	2	16	22	3.1	45	1.6
Club II	Site #3	Outflow	09/09/09-09/18/09	7.41	372	95.4	197	60	922	254	1433	1	5	29	35	2.1	47	3.5
Club II	Site #3	Outflow	09/18/09-09/22/09	7.95	391	100	23	84	1140	174	1421	1	12	18	31	2.5	46	2.7
Club II	Site #3	Outflow	09/22/09-09/28/09	7.64	376	96.6	24	44	1285	276	1629	2	3	17	22	13.3	43	5.4
Club II	Site #3	Outflow	09/28/09-10/05/09	7.12	365	97.4	37	33	1147	425	1642	2	1	14	17	3.0	53	4.9
Club II	Site #3	Outflow	10/05/09-10/12/09	7.59	353	99.4	127	53	1067	576	1823	2	14	81	97	23.5	41	15.1
Club II	Site #3	Outflow	10/12/09-10/19/09	7.30	362	101	39	44	901	356	1340	1	9	29	39	0.3	66	8.8
Club II	Site #3	Outflow	12/2/09-12/7/09	7.25	399	107	1114	102	395	241	1852	58	28	91	177	18.3	37	33.1
Club II	Site #3	Outflow	1/7/09-12/14/09	7.17	391	100	1392	126	266	180	1964	59	17	49	125	1.0	36	1.6
Club II	Site #3	Outflow	12/15/09-12/22/09	7.32	398	109	1059	400	615	110	2184	65	44	22	131	4.7	34	7.8
Club II	Site #3	Outflow	12/24/09-12/29/09	7.69	378	111	883	529	513	191	2116	55	11	79	145	1.5	32	2.6
Club II	Site #3	Outflow	12/29/09 - 01/05/10	7.60	392	113	769	492	856	212	2329	48	19	51	118	1.9	52	2.1
Club II	Site #3	Outflow	1/5/10-1/19/10	7.69	396	110	309	692	762	123	1886	69	52	25	146	1.8	33	2.4
Club II	Site #3	Outflow	01/19/10-01/22/10	7.61	375	112	184	1010	851	207	2252	89	13	70	172	5.9	34	6.0
Club II	Site #3	Outflow	01/22/10-01/28/10	7.47	428	114	110	1078	783	180	2151	39	4	29	72	3.0	33	14.8
Club II	Site #3	Outflow	01/28/10-02/02/10	7.53	418	113	60	980	596	216	1852	27	7	31	65	0.3	34	0.3
Club II	Site #3	Outflow	02/03/10-02/11/10	7.49	418	113	141	932	1012	437	2522	24	29	39	92	8.2	33	9.8
Club II	Site #3	Outflow	02/11/10-02/16/10	7.35	414	122	228	660	1197	396	2481	26	10	71	107	3.6	34	12.0
Club II	Site #3	Outflow	02/16/10-03/10/10	7.54	399	115	63	539	691	676	1969	45	7	101	153	12.6	33	24.6
Club II	Site #3	Outflow	03/10/10-03/18/10	7.59	384	110	94	398	549	533	1574	22	10	11	43	2.5	40	1.5
Club II	Site #3	Outflow	03/18/10-03/23/10	7.77	381	110	42	368	757	320	1487	18	7	35	60	3.9	41	9.1
Club II	Site #3	Outflow	03/23/10-03/26/10	8.21	392	111	29	248	731	258	1266	1	23	20	44	2.2	48	3.8
Club II	Site #3	Outflow	03/26/10-03/29/10	8.22	388	111	36	208	811	302	1357	1	17	22	40	2.1	48	2.3
Club II	Site #3	Outflow	03/29/10-04/08/10	8.89	332	89.0	95	56	1587	218	1956	2	10	119	131	27.6	44	33.2
Club II	Site #3	Outflow	04/08/10-04/14/10	7.49	366	90.6	486	130	1318	755	2689	19	20	80	119	11.1	36	28.3
Club II	Site #3	Outflow	04/12/10-04/21/10	7.49	375	95.8	401	116	925	198	1640	4	7	26	37	2.0	40	5.8

Club II Stormwater Treatment Area
Results of Laboratory Analyses
December 2008 - November 2009

Project	Site	Sample Type	Date Collected	pH (s.u.)	Conductivity (µmho/cm)	Alkalinity (mg/l)	NH_3 (µg/l)	NO_X (µg/l)	Diss. Org N (µg/l)	Part N (µg/l)	Total N (µg/l)	SRP (µg/l)	Diss. Org P (µg/l)	Part P (µg/l)	Total P (µg/l)	Turbidity (NTU)	Color (PCU)	TSS (mg/l)
Club II	Site #3	Outflow	04/21/10-04/28/10	7.50	369	98.4	193	94	454	122	863	7	10	22	39	1.5	39	1.6
Club II	Site #3	Outflow	04/28/10-05/07/10	7.34	382	97.4	92	135	946	111	1284	4	4	19	27	0.3	39	1.5
Club II	Site #3	Outflow	05/07/10 - 05/13/10	7.66	379	94.8	114	33	765	102	1014	3	3	18	24	2.2	38	3.6
Club II	Site #3	Outflow	05/13/10-05/20/10	7.41	375	96.6	68	84	888	206	1246	3	7	34	44	4.6	34	3.4
Club II	Site #3	Outflow	05/20/10-05/27/10	7.67	376	97.4	122	108	257	809	1296	18	4	30	52	1.7	34	3.8
Club II	Site #3	Outflow	05/27/10-06/08/10	8.10	327	96.8	35	99	1007	183	1324	14	5	39	58	4.5	30	3.0
Club II	Site #3	Outflow	6/8/10 - 6/26/10	7.62	368	96.6	43	119	900	42	1104	1	21	6	28	1.5	29	2.3
Club II	Site #3	Outflow	06/26/10-07/06/10	7.45	347	101	46	23	806	40	915	3	10	11	24	1.3	31	1.3
Club II	Site #3	Outflow	07/06/10-07/12/10	7.52	352	92.6	23	36	636	76	771	1	3	24	28	1.1	29	2.6
Club II	Site #3	Outflow	07/12/10-07/19/10	7.38	315	96.8	30	51	761	84	926	2	1	26	29	7.1	30	1.1
Club II	Site #3	Outflow	07/19/10-07/26/10	7.86	362	94.4	21	227	923	285	1456	6	6	48	60	4.0	31	10.0
Club II	Site #3	Outflow	7/26/10-8/3/10	7.73	380	101	52	115	494	444	1105	2	2	35	39	1.3	31	2.3
Club II	Site #3	Outflow	8/3/10 - 8/10/10	7.85	373	96.2	24	235	398	542	1199	2	3	21	26	5.3	30	3.4
Club II	Site #3	Outflow	8/10/10 - 8/16/10	7.61	447	97.4	48	88	270	775	1181	2	9	12	23	6.4	27	3.8
Club II	Site #3	Outflow	8/16/10 - 8/23/10	7.47	383	96.2	52	177	1160	644	2033	4	15	19	38	13.2	28	10.4
Club II	Site #3	Outflow	8/23/10 - 8/31/10	7.48	353	95.0	52	201	1124	615	1992	2	7	21	30	1.0	29	1.4
Club II	Site #3	Outflow	8/31/10 - 9/7/10	7.82	369	97.4	74	274	915	542	1805	4	2	23	29	3.4	30	3.2
Club II	Site #3	Outflow	9/7/10 - 9/13/10	7.80	360	89.8	49	212	470	472	1203	17	2	11	30	2.8	26	2.0
Club II	Site #3	Outflow	9/13/10 - 9/21/10	7.34	371	91.0	51	272	196	496	1015	8	4	46	58	6.4	34	9.0
Club II	Site #3	Outflow	9/21/10 - 9/29/10	7.39	370	94.8	32	50	370	653	1105	22	6	25	53	6.4	33	7.1
Club II	Site #3	Outflow	9/29/10 - 10/5/10	7.83	377	100	110	117	607	520	1354	4	2	27	33	7.1	33	7.7
			Average Value	**7.70**	**384**	**101**	**205**	**175**	**816**	**503**	**1700**	**14**	**11**	**44**	**70**	**8.0**	**42**	**9.1**
			Minimum Value	**7.12**	**315**	**82.6**	**12**	**2**	**196**	**40**	**771**	**1**	**1**	**6**	**17**	**0.3**	**26**	**0.3**
			Maximum Value	**8.89**	**456**	**123**	**1392**	**1078**	**1681**	**1871**	**3467**	**89**	**111**	**119**	**216**	**32.3**	**66**	**41.8**
			Log-Normal Mean:	**7.70**	**382**	**100**	**89**	**61**	**756**	**378**	**1617**	**6**	**7**	**35**	**57**	**4.5**	**40**	**5.9**
			No. of Samples	**77**														

APPENDIX E

QUALITY ASSURANCE DATA

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

PARAMETER	UNITS	SAMPLE ID	SAMPLE DESCRIPTION	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED	REPEAT 1	REPEAT 2	MEAN	s	% RELATIVE STD. DEVIATION (RSD)	ACCEPTANCE RANGE (% RSD)
pH	s.u.	08-3258	Site 1 F.D.	12/05/08	12/05/08	12/08/08	6.00	6.12	6.10	0.1	1.4	0-2
pH	s.u.	08-3262	Site 3	12/01/08 - 12/05/08	12/08/08	12/08/08	8.09	8.10	8.10	0.0	0.1	0-2
pH	s.u.	08-3492	South Pond Bottom	12/29/09	12/29/08	12/23/08	7.58	7.60	7.59	0.0	0.2	0-2
pH	s.u.	09-0034	Site 1 F.D.	12/29/08 - 01/07/09	01/07/09	01/12/09	6.67	6.65	6.66	0.0	0.2	0-2
pH	s.u.	09-0100	Site 3	01/07/09 - 01/13/09	01/13/09	01/14/09	7.99	8.03	8.01	0.0	0.4	0-2
pH	s.u.	09-0221	Site 3	01/13/09 - 01/22/09	01/23/09	01/26/09	7.91	7.93	7.92	0.0	0.2	0-2
pH	s.u.	09-0256	Site 3	01/23/09 - 01/28/09	01/28/09	01/29/09	8.08	8.05	8.07	0.0	0.3	0-2
pH	s.u.	09-0311	Site 1	01/28/09 - 02/02/09	02/02/09	02/03/09	6.73	6.72	6.73	0.0	0.1	0-2
pH	s.u.	09-0385	Rain	02/02/09	02/09/09	02/10/09	5.90	5.89	5.90	0.0	0.1	0-2
pH	s.u.	09-0564	Site 3	02/09/09 - 02/18/09	02/18/09	02/20/09	8.22	8.21	8.22	0.0	0.1	0-2
pH	s.u.	09-0899	Site #1	03/02/09 - 03/11/09	03/11/09	03/12/09	7.13	7.15	7.14	0.0	0.2	0-2
pH	s.u.	09-0908	North Pond Bottom	03/12/09	03/12/09	03/16/09	7.61	7.63	7.62	0.0	0.2	0-2
pH	s.u.	09-1179	North Pond Middle	03/30/09	03/30/09	04/13/09	7.90	7.92	7.91	0.0	0.2	0-2
pH	s.u.	09-1681	Site 2A	05/19/09	05/19/09	05/20/09	7.11	7.12	7.12	0.0	0.1	0-2
pH	s.u.	09-1733	Rain	05/22/09 - 05/25/09	05/26/09	05/27/09	5.50	5.52	5.51	0.0	0.3	0-2
pH	s.u.	09-1784	Site 1	05/26/09 - 06/01/09	06/01/09	06/03/09	6.98	7.00	6.99	0.0	0.2	0-2
pH	s.u.	09-1888	Rain	06/01/09 - 06/09/09	06/09/09	06/17/09	5.32	5.31	5.32	0.0	0.1	0-2
pH	s.u.	09-2113	North Bottom	07/08/09	07/08/09	07/13/09	6.94	6.96	6.95	0.0	0.2	0-2
pH	s.u.	09-2196	Rain	07/08/09 - 07/12/09	07/14/09	07/15/09	5.88	5.90	5.89	0.0	0.2	0-2
pH	s.u.	09-2400	Site #3 SB	08/03/09	08/03/09	08/04/09	6.79	6.82	6.81	0.0	0.3	0-2
pH	s.u.	09-2518	Site #1	08/03/09-08/11/09	08/11/09	08/12/09	6.65	6.66	6.66	0.0	0.1	0-2
pH	s.u.	09-2825	Rain	08/20/08-08/25/08	08/28/09	08/28/09	5.19	5.23	5.21	0.0	0.5	0-2
pH	s.u.	09-2974	Rain Equipment Blank	09/04/09	09/04/09	09/04/09	5.70	5.73	5.72	0.0	0.4	0-2
pH	s.u.	09-3019	FCEB	09/09/09	09/09/09	09/10/09	5.58	5.60	5.59	0.0	0.3	0-2
pH	s.u.	09-3276	Site #3 / Outflow	09/09/09-09/18/09	09/18/09	09/18/09	7.41	7.44	7.43	0.0	0.3	0-2
pH	s.u.	09-3632	Site #1	10/05/09 - 10/12/09	10/12/09	10/14/09	6.72	6.70	6.71	0.0	0.2	0-2
pH	s.u.	09-3725	Site #3	10/12/09 - 10/19/09	10/20/09	10/20/09	7.30	7.29	7.30	0.0	0.1	0-2
pH	s.u.	09-3887	Rain Equipment Blank	11/05/09	11/05/09	11/05/09	5.00	5.01	5.01	0.0	0.1	0-2
pH	s.u.	09-3915	North - Bottom	11/10/09	11/10/09	11/13/09	7.40	7.41	7.41	0.0	0.1	0-2
pH	s.u.	09-4198	Rain Field Dup	12/4 - 12/7/09	12/07/09	12/16/09	5.51	5.52	5.52	0.0	0.1	0-2
pH	s.u.	09-4282	North Pond Bottom	12/14/09	12/14/09	12/18/09	7.73	7.70	7.72	0.0	0.3	0-2
pH	s.u.	10-0877	Site #3	4/8- 4/14/10	04/14/10	04/16/10	7.49	7.51	7.50	0.0	0.2	0-2
pH	s.u.	10-0646	Rain Field Dup	3/11 - 3/13/10	03/13/10	03/23/10	5.71	5.72	5.72	0.0	0.1	0-2
pH	s.u.	10-0581	Site #7	3/12/10	03/12/10	03/18/10	6.68	6.67	6.68	0.0	0.1	0-2
pH	s.u.	10-1128	Site #3	5/7 - 5/13/10	05/13/10	05/17/10	7.66	7.68	7.67	0.0	0.2	0-2
pH	s.u.	10-0022	Rain	1/5/10	01/05/10	01/11/10	5.71	5.71	5.71	0.0	0.0	0-2
pH	s.u.	10-0076	Site #1	1/5 - 1/19/10	01/19/10	01/22/10	6.53	6.52	6.53	0.0	0.1	0-2
pH	s.u.	10-1360	Site #1	5/27 - 6/8/10	06/09/10	06/09/10	6.34	6.37	6.36	0.0	0.3	0-2
pH	s.u.	10-0531	Site #3 Blank	3/10/10	03/10/10	03/15/10	5.72	5.73	5.73	0.0	0.1	0-2
pH	s.u.	10-2621	Rain Blank	10/5/10	10/06/10	10/06/10	5.68	5.69	5.69	0.0	0.1	0-2
pH	s.u.	10-0363	Site #3 Field Dup	2/3 - 2/11/10	02/11/10	02/17/10	7.55	7.56	7.56	0.0	0.1	0-2
pH	s.u.	10-0243	Site #1	1/28 - 2/2/10	02/02/10	02/08/10	6.43	6.42	6.43	0.0	0.1	0-2
pH	s.u.	10-2832	SP5	10/25/10	10/25/10	11/03/10	7.14	7.10	7.12	0.0	0.4	0-2
pH	s.u.	10-1727	Site #3	7/6 - 7/12/10	07/13/10	07/13/10	7.52	7.49	7.51	0.0	0.3	0-2
pH	s.u.	10-1197	Site #1	5/13 - 5/20/10	05/20/10	05/24/10	6.33	6.35	6.34	0.0	0.2	0-2
pH	s.u.	10-1365	Rain Blank	6/8/10	6/8/10	06/09/10	5.83	5.82	5.83	0.0	0.1	0-2
pH	s.u.	10-1637	Rain	6/26 - 7/6/10	07/06/10	07/07/10	5.62	5.60	5.61	0.0	0.3	0-2
pH	s.u.	10-1637	Rain Blank	6/26 - 7/6/10	07/06/10	07/07/10	5.47	5.48	5.48	0.0	0.1	0-2
pH	s.u.	10-1200	Rain	5/13 - 5/20/10	05/20/10	05/24/10	6.13	6.15	6.14	0.0	0.2	0-2
pH	s.u.	10-1267	Site #3	5/20 - 5/27/10	05/27/10	06/01/10	7.67	7.64	7.66	0.0	0.3	0-2
pH	s.u.	10-0524	North Bottom	3/10/10	3/10/10	03/15/10	7.65	7.67	7.66	0.0	0.2	0-2
pH	s.u.	10-2600	Rain	9/21 – 9/29/10	09/29/10	10/05/10	5.83	5.82	5.83	0.0	0.1	0-2
pH	s.u.	10-1932	Site #3	7/26 - 8/3/10	08/03/10	08/05/10	7.73	7.70	7.72	0.0	0.3	0-2
pH	s.u.	10-0914	Rain	4/21/10	4/21/10	04/26/10	6.68	6.70	6.69	0.0	0.2	0-2
pH	s.u.	10-2617	Site #1	9/29 – 10/5/10	10/06/10	10/06/10	6.47	6.50	6.49	0.0	0.3	0-2
pH	s.u.	10-0751	Rain	3/28 - 3/29/10	03/29/10	04/06/10	5.33	5.35	5.34	0.0	0.3	0-2
pH	s.u.	10-0381	Site #1	2/11 - 2/16/10	02/16/10	02/22/10	6.57	6.57	6.57	0.0	0.0	0-2
pH	s.u.	10-1081	Rain Blank	5/9/10	5/9/10	05/11/10	5.40	5.40	5.40	0.0	0.0	0-2
pH	s.u.	10-2896	South Bottom	10/28/10	10/28/10	11/08/10	6.89	6.91	6.90	0.0	0.2	0-2
pH	s.u.	10-2900	North Bottom	10/28/10	10/28/10	11/08/10	6.99	7.02	7.01	0.0	0.3	0-2
pH	s.u.	10-2999	South Top	11/8/10	11/8/10	11/10/10	7.58	7.61	7.60	0.0	0.3	0-2
pH	s.u.	10-3010	Rain	11/8/10	11/8/10	11/10/10	5.71	5.69	5.70	0.0	0.2	0-2
pH	s.u.	11-0580	SP1	02/16/11	02/17/11	02/17/11	7.69	7.73	7.71	0.0	0.4	0-2
pH	s.u.	11-0584	SP5	02/16/11	02/17/11	02/17/11	7.81	7.83	7.82	0.0	0.2	0-2

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

PARAMETER	UNITS	SAMPLE ID	SAMPLE DESCRIPTION	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED	REPEAT 1	REPEAT 2	MEAN	s	% RELATIVE STD. DEVIATION (RSD)	ACCEPTANCE RANGE (% RSD)
Alkalinity	mg/l	08-3258	Site 1 F.D.	12/05/08	12/05/08	12/08/08	6.00	6.20	6	0.1	2.3	0-4
Alkalinity	mg/l	08-3261	Site 3	12/1 - 12/5/08	12/05/09	12/08/08	15.10	14.70	15	0.3	1.9	0-4
Alkalinity	mg/l	08-3488	Site 3	12/23 - 12/29/8	12/29/08	12/29/08	14.90	15.00	15	0.1	0.5	0-4
Alkalinity	mg/l	08-3262	Rain Blank	12/05/08	12/08/08	12/08/08	1.0	1.0	1	0.0	0.0	0-4
Alkalinity	mg/l	08-3492	South Pond Bottom	12/29/09	12/29/08	01/06/09	102	100	101	1.4	1.4	0-4
Alkalinity	mg/l	09-0034	Site 1 F.D.	12/29/08 - 01/07/09	01/07/09	01/12/09	20.0	20.0	20	0.0	0.0	0-4
Alkalinity	mg/l	09-0100	Site 3	01/07/09 - 01/13/09	01/13/09	01/14/09	113	113	113	0.0	0.0	0-4
Alkalinity	mg/l	09-0221	Site 3	01/13/09 - 01/22/09	01/23/09	01/26/09	116	116	116	0.0	0.0	0-4
Alkalinity	mg/l	09-0256	Site 3	01/23/09 - 01/28/09	01/28/09	01/29/09	115	114	115	0.7	0.6	0-4
Alkalinity	mg/l	09-0311	Site 1	01/28/09 - 02/02/09	02/02/09	02/03/09	22.8	23.0	23	0.1	0.6	0-4
Alkalinity	mg/l	09-0385	Rain	02/02/09	02/09/09	02/10/09	3.2	3.0	3	0.1	2.5	0-4
Alkalinity	mg/l	09-0564	Site 3	02/9/09 - 02/18/09	02/18/09	02/20/09	120	119.0	120	0.7	0.6	0-4
Alkalinity	mg/l	09-0899	Site #1	03/02/09 - 03/02/09	03/11/09	03/12/09	39.4	39.2	39	0.1	0.4	0-4
Alkalinity	mg/l	09-0908	North Pond Bottom	03/12/09	03/12/09	03/16/09	128	127.0	128	0.7	0.6	0-4
Alkalinity	mg/l	09-1179	North Pond Middle	03/30/09	03/30/09	04/13/09	128	128.0	128	0.0	0.0	0-4
Alkalinity	mg/l	09-1681	Site 2A	05/19/09	05/19/09	05/20/09	31.8	32.0	32	0.1	0.4	0-4
Alkalinity	mg/l	09-1733	Rain	05/22/09 - 05/25/09	05/26/09	05/27/09	2.4	2.4	2	0.0	0.0	0-4
Alkalinity	mg/l	09-1784	Site 1	05/26/09 - 06/01/09	06/01/09	06/03/09	32.6	33.0	33	0.3	0.9	0-4
Alkalinity	mg/l	09-1888	Rain	06/01/09 - 06/09/09	06/09/09	06/17/09	2.6	2.6	3	0.0	0.0	0-4
Alkalinity	mg/l	09-2113	North Bottom	07/08/09	07/08/09	07/13/09	160	160	160	0.0	0.0	0-4
Alkalinity	mg/l	09-2196	Rain	07/08/09 - 07/12/09	07/14/09	07/15/09	2.8	2.8	3	0.0	0.0	0-4
Alkalinity	mg/l	09-2400	Site #3 SB		08/03/09	08/04/09	0.6	0.6	1	0.0	0.0	0-4
Alkalinity	mg/l	09-2518	Site #1	08/03/09 - 08/11/09	08/11/09	08/12/09	23.2	23.6	23	0.3	1.2	0-4
Alkalinity	mg/l	09-2825	Rain	08/20/08-08/25/08	08/28/09	08/28/09	0.1	0.2	0	0.0	2.9	0-4
Alkalinity	mg/l	09-2974	Rain Equipment Blank	09/04/09	09/04/09	09/04/09	0.4	0.4	0	0.0	0.0	0-4
Alkalinity	mg/l	09-3019	FCEB	09/09/09	09/09/09	09/10/09	0.6	0.6	1	0.0	0.0	0-4
Alkalinity	mg/l	09-3276	Site #3 / Outflow	09/09/09-09/18/09	09/18/09	09/18/09	95.4	98.8	97	2.4	2.5	0-4
Alkalinity	mg/l	09-3632	Site #1	10/05/09 - 10/12/09	10/12/09	10/14/09	27.4	26.6	27	0.6	2.1	0-4
Alkalinity	mg/l	09-3725	Site #3	10/12/09 - 10/19/09	10/20/09	10/20/09	101	100	101	0.7	0.7	0-4
Alkalinity	mg/l	09-3887	Rain Equipment Blank	11/05/09	11/05/09	11/05/09	0.4	0.4	0	0.0	0.0	0-4
Alkalinity	mg/l	09-3915	North - Bottom	11/10/09	11/10/09	11/13/09	160	160	160	0.0	0.0	0-4
Alkalinity	mg/l	10-0646	Rain Field Dup	3/11 - 3/13/10	03/13/10	03/23/10	2	2	2	0.0	0.0	0-4
Alkalinity	mg/l	10-0581	Site #7	03/12/10	03/12/10	03/18/10	29	29	29	0.1	0.5	0-4
Alkalinity	mg/l	10-0076	Site #1	1/5 - 1/9/09	01/09/09	01/22/10	19	19	19	0.0	0.0	0-4
Alkalinity	mg/l	10-1365	Rain Blank	06/08/10	06/08/10	06/09/10	1	1	1	0.0	0.0	0-4
Alkalinity	mg/l	10-2617	Site #1	9/29 – 10/5/10	10/05/10	10/06/10	28	29	29	0.6	2.0	0-4
Alkalinity	mg/l	10-2600	Rain	9/21 – 9/29/10	09/29/10	10/05/10	8	8	8	0.1	1.8	0-4
Alkalinity	mg/l	10-1197	Site #1	5/13 - 5/20/10	05/20/10	05/24/10	10	10	10	0.1	1.4	0-4
Alkalinity	mg/l	10-1360	Site #1	5/27 - 6/8/10	06/08/10	06/09/10	19	20	20	0.3	1.4	0-4
Alkalinity	mg/l	10-2621	Rain Blank	10/05/10	10/05/10	10/06/10	0	0	0	0.0	0.0	0-4
Alkalinity	mg/l	10-1129	Site #3	5/7 - 5/13/10	05/13/10	05/17/10	95	95	95	0.4	0.4	0-4
Alkalinity	mg/l	10-1267	Site #3	5/20 - 5/27/10	05/27/10	06/01/10	97	97	97	0.6	0.6	0-4
Alkalinity	mg/l	10-0877	Site #3	4/8 - 4/14/10	04/14/10	04/16/10	91	91	91	0.4	0.5	0-4
Alkalinity	mg/l	10-0531	Site #3 Blank	03/10/10	03/10/10	03/15/10	1	1	1	0.0	0.0	0-4
Alkalinity	mg/l	10-0381	Site #1	2/11 - 2/16/10	02/16/10	02/22/10	23	22	23	0.1	0.6	0-4
Alkalinity	mg/l	10-1637	Rain	6/26 - 7/6/10	07/06/10	07/07/10	3	3	3	0.0	0.0	0-4
Alkalinity	mg/l	10-0524	North Middle	03/10/10	03/10/10	03/15/10	125	124	125	0.7	0.6	0-4
Alkalinity	mg/l	10-0914	Rain	04/21/10	04/21/10	04/26/10	14	15	15	0.1	1.0	0-4
Alkalinity	mg/l	10-1932	Site #3	7/26 - 8/3/10	08/03/10	08/05/10	101	101	101	0.0	0.0	0-4
Alkalinity	mg/l	10-0751	Rain	3/28 - 3/29/10	03/29/10	04/06/10	2	2	2	0.0	0.0	0-4
Alkalinity	mg/l	10-1082	Rain Blank	05/09/10	05/09/10	05/11/10	0	0	0	0.0	0.0	0-4
Alkalinity	mg/l	10-0363	Site #3 Field Dup	2/3 - 2/11/10	02/11/10	02/17/10	112	112	112	0.0	0.0	0-4
Alkalinity	mg/l	10-0243	Site #1	1/28 - 2/2/10	02/02/10	02/08/10	22	22	22	0.3	1.3	0-4
Alkalinity	mg/l	10-1727	Site #3	7/6 - 7/12/10	07/12/10	07/13/10	93	92	92	0.3	0.3	0-4
Alkalinity	mg/l	10-1640	Rain Blank	6/26 - 7/6/10	07/06/10	07/07/10	0	0	0	0.0	0.0	0-4
Alkalinity	mg/l	10-0022	Site #3 Blank	01/05/10	01/05/10	01/11/10	1	1	1	0.0	0.0	0-4
Alkalinity	mg/l	10-2832	SP5	10/25/10	10/25/10	11/03/10	199	199	199	0.0	0.0	0-4
Alkalinity	mg/l	10-2896	South Bottom	10/28/10	10/28/10	11/08/10	117	117	117	0.0	0.0	0-4
Alkalinity	mg/l	10-2900	North Bottom	10/28/10	10/28/10	11/08/10	106	107	107	0.7	0.7	0-4
Alkalinity	mg/l	10-2999	South Top	11/08/10	11/08/10	11/10/10	107	106	107	0.7	0.7	0-4
Alkalinity	mg/l	10-3010	Rain Blank	11/08/10	11/08/10	11/10/10	1	1	1	0.0	0.0	0-4
Alkalinity	mg/l	11-0580	SP1	02/16/11	02/16/11	02/17/11	130	129	130	0.7	0.5	0-4
Alkalinity	mg/l	11-0584	SP5	02/16/11	02/16/11	02/17/11	128	128	128	0.0	0.0	0-4

Sample Duplicate Recovery

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Spec. Cond.	µmho/cm	08-3257	Site 1	12/01/08 - 12/05/08	12/08/08	12/10/08	125	124	125	0.7	0.6	0-4
Spec. Cond.	µmho/cm	08-3492	South Pond Bottom	12/29/08	12/29/08	12/29/08	442	441	442	0.7	0.2	0-4
Spec. Cond.	µmho/cm	09-0039	Rain Equipment Blank	01/07/09	01/07/09	01/13/09	2.2	2.2	2	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-0100	Site 3	01/07/09 - 01/13/09	01/13/09	01/13/09	360	358	359	1.4	0.4	0-4
Spec. Cond.	µmho/cm	09-0213	South Pond Middle	01/22/09	01/23/09	02/09/09	441	438	440	2.1	0.5	0-4
Spec. Cond.	µmho/cm	09-0221	Site #3	01/13/09 - 01/22/09	01/23/09	02/09/09	414	414	414	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-0256	Site #3	01/23/09-01/28/09	01/28/09	02/09/09	425	426	426	0.7	0.2	0-4
Spec. Cond.	µmho/cm	09-0319	Rain Equipment Blank	02/02/09	02/02/09	02/09/09	2.2	2.2	2	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-0385	Rain	02/02/09	02/09/09	02/24/09	30.4	31.4	31	0.7	2.3	0-4
Spec. Cond.	µmho/cm	09-0563	Site 1	02/09/09 - 02/13/09	02/18/09	02/24/09	112	114	113	1.4	1.3	0-4
Spec. Cond.	µmho/cm	09-0635	Site #3	02/18/09-02/23/09	02/23/09	03/10/09	438	438	438	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-0908	North Pond Bottom	03/12/09	03/12/09	03/27/09	491	489	490	1.4	0.3	0-4
Spec. Cond.	µmho/cm	09-1181	North Pond Rain	03/30/09	03/30/09	04/21/09	226	224	225	1.4	0.6	0-4
Spec. Cond.	µmho/cm	09-1279	Rain	03/31/09-04/06/09	03/30/09	04/21/09	28.7	28.8	29	0.1	0.2	0-4
Spec. Cond.	µmho/cm	09-1418	Rain	04/14/09	04/16/09	04/21/09	37.7	37.7	38	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-1514	North Pond Bottom	04/23/09	04/23/09	05/05/09	502	502	502	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-1593	FCEB	05/07/09	05/07/09	05/12/09	2.2	2.0	2	0.1	3.7	0-4
Spec. Cond.	µmho/cm	09-1684	Rain Field Dup	05/18/09 - 05/19/09	05/19/09	05/26/09	22.3	22.4	22	0.1	0.3	0-4
Spec. Cond.	µmho/cm	09-1719	Site 3	05/19/09 - 05/21/09	05/21/09	05/26/09	416	415	416	0.7	0.2	0-4
Spec. Cond.	µmho/cm	09-1724	Site 2	05/22/09	05/22/09	05/26/09	175	174	175	0.7	0.4	0-4
Spec. Cond.	µmho/cm	09-1733	Rain	05/22/09 - 05/25/09	05/26/09	06/19/09	10.1	10.2	10	0.1	0.7	0-4
Spec. Cond.	µmho/cm	09-1779	South Pond Bottom	06/01/09	06/01/09	06/19/09	453	454	454	0.7	0.2	0-4
Spec. Cond.	µmho/cm	09-1789	Rain	05/26/09 - 05/29/09	06/01/09	06/19/09	11.9	12.1	12	0.1	1.2	0-4
Spec. Cond.	µmho/cm	09-1884	Site 1	06/09/09	06/09/09	06/23/09	134	134	134	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-1973	Site 3	06/09/09 - 06/17/09	06/17/09	06/23/09	11.4	11.4	11	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-2114	Site #1 / Inflow	06/30/09 - 07/08/09	07/08/09	07/27/09	137	136	137	0.7	0.5	0-4
Spec. Cond.	µmho/cm	09-2398	Site #3 / Outflow F.D.	07/28/09 - 08/03/09	08/03/09	08/10/09	359	359	359	0.0	0.0	0-4
Spec. Cond.	µmho/cm	09-3432	Site #3 / Outflow	09/22/09-09/28/09	09/28/09	10/06/09	376	379	378	2.1	0.6	0-4
Spec. Cond.	µmho/cm	10-1634	Site #1	6/26 - 7/6/10	07/06/10	07/15/10	133	131	132	1.4	1.1	0-4
Spec. Cond.	µmho/cm	10-1721	South Pond Btm	07/12/10	07/12/10	07/15/10	472	471	472	0.7	0.1	0-4
Spec. Cond.	µmho/cm	10-1929	North Top	08/03/10	08/03/10	08/13/10	412	410	411	1.4	0.3	0-4
Spec. Cond.	µmho/cm	10-2057	Rain	8/10 - 8/16/10	08/16/10	08/27/10	47	47	47	0.1	0.3	0-4
Spec. Cond.	µmho/cm	10-2298	Rain	8/31 - 9/7/10	09/07/10	09/21/10	58	58	58	0.2	0.4	0-4
Spec. Cond.	µmho/cm	10-2359	Site #1	9/7 - 9/13/10	09/13/10	10/08/10	100	99	100	0.6	0.6	0-4
Spec. Cond.	µmho/cm	10-2600	Rain	9/21- 9/29/10	09/29/10	10/14/10	45	45	45	0.2	0.5	0-4
Spec. Cond.	µmho/cm	10-2610	South Top F.D.	09/30/10	09/30/10	10/14/10	350	351	351	0.7	0.2	0-4
Spec. Cond.	µmho/cm	10-2832	SP5	10/25/10	10/25/10	11/16/10	559	556	558	2.1	0.4	0-4
Spec. Cond.	µmho/cm	10-2900	North Bottom	10/28/10	10/28/10	11/16/10	535	537	536	1.4	0.3	0-4
Spec. Cond.	µmho/cm	10-3000	South Top F.D.	11/08/10	11/08/10	11/30/10	394	393	394	0.7	0.2	0-4
Spec. Cond.	µmho/cm	11-0584	SP5	02/16/11	02/16/11	02/17/11	383	383	383	0.0	0.0	0-4

Sample Duplicate Recovery

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Turbidity	NTU	08-3258	Site 1 F.D.	12/01/08 - 12/05/08	12/08/08	12/08/08	4.1	4.0	4.1	0.1	1.7	0-4
Turbidity	NTU	08-3492	South Pond Bottom	12/29/08	12/29/08	12/29/08	6.1	5.9	6.0	0.1	2.4	0-4
Turbidity	NTU	09-0100	Site 3	01/07/09 - 01/13/09	01/13/09	01/13/09	16.3	16.2	16.3	0.1	0.4	0-4
Turbidity	NTU	09-0220	Site 1	01/13/09 - 01/22/09	01/23/09	01/23/09	7.4	7.5	7.5	0.1	0.9	0-4
Turbidity	NTU	09-0256	Site 3	01/23/09 - 01/28/09	01/28/09	01/29/09	22.2	21.8	22.0	0.3	1.3	0-4
Turbidity	NTU	09-0312	Site 1 F.D.	02/02/09	02/02/09	02/03/09	10.8	10.9	10.9	0.1	0.7	0-4
Turbidity	NTU	09-0319	Rain Blank	02/02/09	02/02/09	02/03/09	0.1	0.1	0.1	0.0	0.0	0-4
Turbidity	NTU	09-0385	Rain	02/02/09	02/09/09	02/10/09	1.7	1.7	1.7	0.0	0.0	0-4
Turbidity	NTU	09-0564	Site 3	02/09/09 - 02/18/09	02/18/09	02/19/09	26.0	26.2	26.1	0.1	0.5	0-4
Turbidity	NTU	09-0635	Site #3	02/18/09 - 02/23/09	02/23/09	02/23/09	24.0	24.3	24.2	0.2	0.9	0-4
Turbidity	NTU	09-0899	Site #1	03/02/09 - 03/11/09	03/11/09	03/12/09	14.4	14.3	14.4	0.1	0.5	0-4
Turbidity	NTU	09-0908	North Pond Bottom	03/12/09	03/12/09	03/13/09	7.0	6.9	7.0	0.1	1.0	0-4
Turbidity	NTU	09-1181	Rain	03/30/09	03/30/09	04/09/09	3.2	3.2	3.2	0.0	0.0	0-4
Turbidity	NTU	09-1275	Site 1	03/30/09 - 04/07/09	03/30/09	04/09/09	10.8	10.9	10.9	0.1	0.7	0-4
Turbidity	NTU	09-1681	Site 2A	05/19/09	05/19/09	05/20/09	10.8	10.7	10.8	0.1	0.7	0-4
Turbidity	NTU	09-1724	Site 2	05/22/09	05/22/09	05/24/09	9.3	9.2	9.3	0.1	0.8	0-4
Turbidity	NTU	09-1733	Rain	05/22/09 - 05/25/09	05/26/09	05/27/09	0.8	0.8	0.8	0.0	0.0	0-4
Turbidity	NTU	09-1784	Site 1 Inflow	05/26/09 - 06/01/09	06/01/09	06/02/09	3.7	3.8	3.8	0.1	1.9	0-4
Turbidity	NTU	09-1973	Rain	06/09/09 - 06/17/09	06/17/09	06/18/09	2.1	2.0	2.1	0.1	3.4	0-4
Turbidity	NTU	09-2114	Site #1	06/30/09 - 07/08/09	07/08/09	07/10/09	17.6	17.4	17.5	0.1	0.8	0-4
Turbidity	NTU	09-2196	Rain	07/08/09 - 07/14/09	07/14/09	07/15/09	3.9	3.8	3.9	0.1	1.8	0-4
Turbidity	NTU	09-3633	Site #3	10/12/09	10/12/09	10/14/09	23.5	22.9	23.2	0.4	1.8	0-4
Turbidity	NTU	09-4081	Rain	11/25/09	11/30/09	12/02/09	3.0	3.0	3.0	0.0	0.0	0-4
Turbidity	NTU	09-2402	Rain Equipment Blank	08/03/09	08/03/09	08/05/09	0.1	0.1	0.1	0.0	0.0	0-4
Turbidity	NTU	09-2714	Rain	08/13/09-08/18/09	08/21/09	08/21/09	2.1	2.0	2.1	0.1	3.4	0-4
Turbidity	NTU	09-2825	Rain	08/20/08-08/25/08	08/28/09	08/28/09	1.9	2.0	2.0	0.1	3.6	0-4
Turbidity	NTU	09-3019	FCEB	09/09/09	09/09/09	09/11/09	0.1	0.1	0.1	0.0	0.0	0-4
Turbidity	NTU	09-4284	Site #3	12/14/09	12/14/09	12/16/09	1.0	1.0	1.0	0.0	0.0	0-4
Turbidity	NTU	10-0019	Rain	01/01/10	01/01/10	01/06/10	1.1	1.1	1.1	0.0	0.0	0-4
Turbidity	NTU	10-0076	Site #1	1/5 - 1/19/10	01/19/10	01/20/10	6.9	6.8	6.9	0.1	1.0	0-4
Turbidity	NTU	10-0349	South Bottom	02/11/10	02/11/10	02/12/10	3.4	3.4	3.4	0.0	0.0	0-4
Turbidity	NTU	10-0366	Rain	2/5 - 2/9/10	02/09/10	02/12/10	3.9	3.9	3.9	0.0	0.0	0-4
Turbidity	NTU	10-0382	Site #3	2/11 - 2/16/10	02/16/10	02/18/10	3.6	3.6	3.6	0.0	0.0	0-4
Turbidity	NTU	10-0525	Site #1	2/16 - 3/10/10	03/10/10	03/12/10	12.6	12.5	12.6	0.1	0.6	0-4
Turbidity	NTU	10-0734	Rain	03/25/10	03/25/10	03/27/10	5.9	6.0	6.0	0.1	1.2	0-4
Turbidity	NTU	10-0843	Site #3	3/29 - 4/8/10	04/08/10	04/09/10	27.6	27.3	27.5	0.2	0.8	0-4
Turbidity	NTU	10-0877	Site #3	4/8 - 4/14/10	04/14/10	04/15/10	11.1	11.3	11.2	0.1	1.3	0-4
Turbidity	NTU	10-0910	Site #3	4/12 - 4/21/10	04/21/10	04/22/10	2.0	2.0	2.0	0.0	0.0	0-4
Turbidity	NTU	10-0914	Rain	04/21/10	04/21/10	04/22/10	3.1	3.1	3.1	0.0	0.0	0-4
Turbidity	NTU	10-1082	Rain Blank	05/07/10	05/07/10	05/09/10	0.0	0.0	0.0	0.0	0.0	0-4
Turbidity	NTU	10-1129	Site #3	5/7 - 5/13/10	05/13/10	05/14/10	2.2	2.3	2.3	0.1	3.1	0-4
Turbidity	NTU	10-1197	Site #1	5/13 - 5/20/10	05/20/10	05/22/10	4.4	4.5	4.5	0.1	1.6	0-4
Turbidity	NTU	10-1200	Rain	5/13 - 5/20/10	05/20/10	05/22/10	2.5	2.6	2.6	0.1	2.8	0-4
Turbidity	NTU	10-1360	Site #1	5/27 - 6/8/10	06/08/10	06/09/10	19.7	20.1	19.9	0.3	1.4	0-4
Turbidity	NTU	10-1365	Rain Blank	06/08/10	06/08/10	06/09/10	0.0	0.0	0.0	0.0	0.0	0-4
Turbidity	NTU	10-1637	Rain	6/26 - 7/6/10	07/06/10	07/07/10	1.4	1.4	1.4	0.0	0.0	0-4
Turbidity	NTU	10-1640	Rain Equipment Blank	07/06/10	07/06/10	07/07/10	0.3	0.3	0.3	0.0	0.0	0-4
Turbidity	NTU	10-1727	Site #3	7/6 - 7/12/10	07/12/10	07/13/10	1.1	1.1	1.1	0.0	0.0	0-4
Turbidity	NTU	10-1932	Site #3	7/26 - 8/3/10	08/03/10	08/04/10	1.3	1.3	1.3	0.0	0.0	0-4
Turbidity	NTU	10-1935	Rain Equipment Blank	08/03/10	08/03/10	08/04/10	0.0	0.0	0.0	0.0	0.0	0-4
Turbidity	NTU	10-2254	Site #3	8/23 - 8/31/10	08/31/10	09/02/10	1.0	1.0	1.0	0.0	0.0	0-4
Turbidity	NTU	10-2298	Rain	8/31 - 9/7/10	09/07/10	09/08/10	1.4	1.4	1.4	0.0	0.0	0-4
Turbidity	NTU	10-2361	Rain	9/7 - 9/13/10	09/13/10	09/14/10	0.8	0.8	0.8	0.0	0.0	0-4
Turbidity	NTU	10-2616	North Bottom	09/30/10	09/30/10	10/03/10	91.1	89.1	90.1	1.4	1.6	0-4
Turbidity	NTU	10-3007	Rain	9/27 - 11/8/10	11/08/10	11/09/10	2.6	2.7	2.7	0.1	2.7	0-4

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

PARAMETER	UNITS	SAMPLE ID	SAMPLE DESCRIPTION	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED	REPEAT 1	REPEAT 2	MEAN	s	% RELATIVE STD. DEVIATION (RSD)	ACCEPTANCE RANGE (% RSD)
TSS	mg/l	08-3258	Site 1 F.D.	12/05/08	12/08/08	12/08/08	6.0	6.2	6.1	0.1	2.3	0-5
TSS	mg/l	08-3261	Site 3	12/01/08 - 12/05/08	12/08/08	12/08/08	15.1	14.7	14.9	0.3	1.9	0-5
TSS	mg/l	08-3488	Site 3	12/23/08 - 12/29/08	12/29/08	12/29/08	14.9	15.0	15.0	0.1	0.5	0-5
TSS	mg/l	09-0039	Rain Equipment Blank	01/07/09	01/07/09	01/09/09	<0.7	<0.7	0.0	0.0	0.0	0-5
TSS	mg/l	09-0100	Site 3	01/07/09 - 01/13/09	01/13/09	01/14/09	18.9	18.7	18.8	0.1	0.8	0-5
TSS	mg/l	09-0221	Site #3	01/13/09 - 01/22/09	01/23/09	01/23/09	7.0	7.2	7.1	0.1	2.0	0-5
TSS	mg/l	09-0255	Site 1	01/23/09 - 01/28/09	01/28/09	01/29/09	13.7	13.9	13.8	0.1	1.0	0-5
TSS	mg/l	09-0311	Site 1	01/28/09 - 02/02/09	02/02/09	02/04/09	19.8	19.9	19.9	0.1	0.4	0-5
TSS	mg/l	09-0318	Rain F.D.	01/29/09 - 02/02/09	02/02/09	02/04/09	8.5	8.3	8.4	0.1	1.7	0-5
TSS	mg/l	09-0384	Site 3 F.D.	02/02/09 - 02/09/09	02/09/09	02/10/09	10.6	10.6	10.6	0.0	0.0	0-5
TSS	mg/l	09-0564	Site #3	02/09/09 - 02/18/09	02/18/09	02/23/09	20.3	19.8	20.1	0.4	1.8	0-5
TSS	mg/l	09-0635	Site #3	02/18/09-02/23/09	02/23/09	02/25/09	24.5	24.0	24.3	0.4	1.5	0-5
TSS	mg/l	09-0715	Rain Equipment Blank	03/02/09	03/02/09	03/03/09	<0.7	<0.7	0.0	0.0	0.0	0-5
TSS	mg/l	09-0899	Site 1	03/02/09 - 03/11/09	03/11/09	03/16/09	23.0	22.3	22.7	0.5	2.2	0-5
TSS	mg/l	09-1681	Site 2A	05/19/09	05/19/09	05/20/09	8.9	9.0	9.0	0.1	0.8	0-5
TSS	mg/l	09-1717	Site 2	05/21/09	05/21/09	05/22/09	74.7	73.0	73.9	1.2	1.6	0-5
TSS	mg/l	09-1972	Site 3	06/09/09 - 06/17/09	06/17/09	06/19/09	12.5	13.1	12.8	0.4	3.3	0-5
TSS	mg/l	09-1991	Rain	06/18/09 - 06/23/09	06/23/09	06/24/09	4.4	4.6	4.5	0.1	3.1	0-5
TSS	mg/l	09-2194	Site #1 Field Dup	07/08/09 - 07/14/09	07/14/09	07/16/09	108	109	109	0.7	0.7	0-5
TSS	mg/l	09-2196	Rain	07/08/09 - 07/12/09	07/14/09	07/16/09	5.0	5.0	5.0	0.0	0.0	0-5
TSS	mg/l	09-2304	Rain	07/26/09	07/28/09	08/07/09	7.7	7.6	7.7	0.1	0.9	0-5
TSS	mg/l	09-2402	Rain Equipment Blank	08/03/09	08/03/09	08/13/09	<0.7	<0.7	0.0	0.0	0.0	0-5
TSS	mg/l	09-2521	Rain	08/03/09-08/06/09	08/11/09	08/14/09	<0.7	<0.7	0.0	0.0	0.0	0-5
TSS	mg/l	09-2714	Rain	08/13/09-08/18/09	08/21/09	08/27/09	4.5	4.5	4.5	0.0	0.0	0-5
TSS	mg/l	09-3328	Site #3	09/18/09 - 09/22/09	09/22/09	09/28/09	2.7	2.5	2.6	0.1	4.1	0-5
TSS	mg/l	09-3529	Site #1 SB	10/05/09	10/05/09	10/05/09	<0.7	<0.7	0.0	0.0	0.0	0-5
TSS	mg/l	09-3633	Site #3	10/05/09 - 10/12/09	10/12/09	10/13/09	15.1	14.1	14.6	0.7	4.8	0-5
TSS	mg/l	09-3884	Rain	10/27/09 - 11/05/09	11/05/09	11/05/09	5.7	5.3	5.5	0.2	4.5	0-5
TSS	mg/l	10-0017	Site #1	12/29 - 1/5/10	1/5/10	01/08/10	21.8	22.2	22.0	0.3	1.3	0-5
TSS	mg/l	10-0366	Rain	2/5 - 2/9/10	02/09/10	02/12/10	4.3	4.2	4.3	0.1	1.7	0-5
TSS	mg/l	10-0381	Site #1	2/11 - 2/16/10	2/16/10	02/19/10	6.7	6.6	6.7	0.1	1.1	0-5
TSS	mg/l	10-0646	Rain Field Dup	3/11 - 3/13/10	03/13/10	03/19/10	3.0	3.0	3.0	0.0	0.0	0-5
TSS	mg/l	10-0734	Rain	03/25/10	03/25/10	03/28/10	31.5	30.0	30.8	1.1	3.4	0-5
TSS	mg/l	10-0910	Site #3	4/12 - 4/21/10	04/21/10	04/22/10	5.8	6.2	6.2	0.3	4.6	0-5
TSS	mg/l	10-1082	Rain Blank	05/09/10	05/09/10	05/11/10	0.3	0.3	0.3	0.0	0.0	0-5
TSS	mg/l	10-1129	Site #3	5/7 - 5/13/10	05/13/10	05/14/10	3.8	4.0	3.9	0.1	3.6	0-5
TSS	mg/l	10-1267	Site #3	5/20 - 5/27/10	05/27/10	05/28/10	3.8	3.8	3.8	0.0	0.0	0-5
TSS	mg/l	10-1640	Rain	6/26 - 7/6/10	7/6/10	07/07/10	0.3	0.3	0.3	0.0	0.0	0-5
TSS	mg/l	10-2298	Rain	9/31 - 9/7/10	09/07/10	09/09/10	3.5	3.2	3.3	0.2	6.5	0-5
TSS	mg/l	10-2361	Rain	9/7 - 9/13/10	09/13/10	09/14/10	3.9	3.7	3.8	0.1	3.7	0-5
TSS	mg/l	10-2618	Site #3	9/29 - 10/5/10	10/05/10	10/06/10	7.7	8.2	8.0	0.4	4.4	0-5

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

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SRP	µg/l	08-3262	Rain Equipment Blank	12/05/08	12/08/08	12/10/08	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	08-3470	Site # 3 Field Dup	12/13/08-12/22/08	12/24/08	12/24/08	6	6	6	0.0	0.0	0-5
SRP	µg/l	08-3492	South Pond Bottom	12/29/08	12/29/08	12/31/08	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-0220	Site #1	01/13/09 - 01/22/09	01/23/09	01/23/09	8	8	8	0.0	0.0	0-5
SRP	µg/l	09-0312	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/04/09	11	12	12	0.6	4.9	0-5
SRP	µg/l	09-0715	Rain Equipment Blank	03/02/09	03/02/09	03/04/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-0908	North Pond Bottom	03/12/09	03/12/09	03/13/09	11	11	11	0.0	0.0	0-5
SRP	µg/l	09-1180	North Pond Bottom	03/30/09	03/30/09	03/31/09	58	57	58	0.7	1.2	0-5
SRP	µg/l	09-1279	Rain	03/31/09-04/06/09	03/30/09	04/09/09	5	5	5	0.0	0.0	0-5
SRP	µg/l	09-1514	North Pond Bottom	04/23/09	04/23/09	04/24/09	117	123	120	4.2	3.5	0-5
SRP	µg/l	09-1596	North Pond Bottom	05/07/09	05/07/09	05/08/09	153	156	155	2.1	1.4	0-5
SRP	µg/l	09-1653	Site #1 Sampler Blank	05/14/09	05/14/09	05/15/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-1682	Site #3 Outflow	05/19/09	05/19/09	05/20/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-1720	Rain	05/19/09 - 05/21/09	05/21/09	05/22/09	1	0	0	0.0	1.4	0-5
SRP	µg/l	09-1733	Rain	05/22/09 - 05/25/09	05/26/09	05/28/09	1	0	0	0.0	1.4	0-5
SRP	µg/l	09-1784	Site #1 / Inflow	05/26/09 - 06/01/09	06/01/09	06/03/09	90	94	92	2.8	3.1	0-5
SRP	µg/l	09-1972	Site #3/Outflow	06/09/09-06/17/09	06/17/09	06/19/09	12	13	13	0.6	4.5	0-5
SRP	µg/l	09-1991	Rain	06/18/09-06/23/09	06/23/09	06/24/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-2111	North Top	07/08/09	07/08/09	07/10/09	2	2	2	0.0	0.0	0-5
SRP	µg/l	09-2120	Rain	06/30/09-07/08/09	07/08/09	07/10/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-2519	Site #1/ Inflow Field Dup	08/03/09-08/11/09	08/11/09	08/13/09	7	8	8	0.4	4.6	0-5
SRP	µg/l	09-3019	FCEB	09/09/09	09/09/09	09/11/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-3276	Site #3 / Outflow	09/09/09-09/18/09	09/18/09	09/21/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-3328	Site #3 / Outflow	09/18/09-09/22/09	09/22/09	09/23/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-3532	Rain Equipment Blank	10/05/09	10/05/09	10/07/09	<1	<1	0	0.0	0.0	0-5
SRP	µg/l	09-3631	North - Bottom	10/12/09	10/12/09	10/14/09	16	15	16	0.7	4.6	0-5
SRP	µg/l	09-3884	Rain	10/27/09-11/05/09	11/05/09	11/06/09	347	351	349	2.8	0.8	0-5
SRP	µg/l	09-4081	Rain	11/25/09	11/30/09	12/02/09	335	340	338	3.5	1.0	0-5
SRP	µg/l	10-076	Site # 1	01/19/10	01/19/10	01/20/10	4	3	3	0.1	2.0	0-5
SRP	µg/l	10-0349F	South Pond - Bottom	02/11/10	02/11/10	02/12/10	34	35	35	0.7	2.0	0-5
SRP	µg/l	10-382	Site # 3	02/11/10-02/16/10	02/17/10	02/17/10	26	26	26	0.0	0.0	0-5
SRP	µg/l	10-0523F	North - Middle	03/10/10	03/10/10	03/12/10	2	2	2	0.0	0.0	0-5
SRP	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	03/26/10	1	2	1	0.1	4.9	0-5
SRP	µg/l	10-0843F	Site # 3	03/29/10-04/08/10	04/08/10	04/09/10	2	2	2	0.0	0.0	0-5
SRP	µg/l	10-0877f	Site # 3	04/08/10-04/14/10	04/14/10	04/16/10	19	19	19	0.0	0.0	0-5
SRP	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	04/16/10	21	21	28	0.0	0.0	0-5
SRP	µg/l	10-0912F	Site #4	04/21/10	04/21/10	04/21/10	9	10	10	0.7	7.4	0-5
SRP	µg/l	10-1082F	Rain Equipment Blank	05/07/10	05/07/10	05/07/10	0	0	0	0.0	0.0	0-5
SRP	µg/l	10-1196F	North - Bottom	05/20/10	05/20/10	05/21/10	73	75	74	1.4	1.9	0-5
SRP	µg/l	10-1200F	Rain	05/13/10-05/20/10	05/20/10	05/21/10	494	498	496	2.8	0.6	0-5
SRP	µg/l	10-1359F	North - Bottom	06/08/10	06/08/10	06/09/10	100	100	100	0.0	0.0	0-5
SRP	µg/l	10-1365F	Rain Equipment Blank	06/08/10	06/08/10	06/09/10	1	1	1	0.0	0.0	0-5
SRP	µg/l	10-1639F	Site #3 Sampler Blank	06/26/10-07/06/10	07/06/10	07/08/10	0	0	0	0.0	0.0	0-5
SRP	µg/l	10-1726F	Site # 1	07/06/10-07/12/10	07/12/10	07/14/10	7	8	8	0.7	9.4	0-5
SRP	µg/l	10-1923F	PCEB	08/03/10	08/03/10	08/04/10	1	1	1	0.0	0.0	0-5
SRP	µg/l	10-1933F	Site # 1 Sampler Blank	08/03/10	08/03/10	08/04/10	1	1	1	0.0	0.0	0-5
SRP	µg/l	10-1935F	Rain Equipment Blank	08/03/10	08/03/10	08/04/10	1	1	1	0.0	0.0	0-5
SRP	µg/l	10-2254F	Site # 3	8/23/10 - 8/31/10	08/31/10	09/01/10	2	2	2	0.0	0.0	0-5
SRP	µg/l	10-2299F	Site # 1 Sampler Blank	09/07/10	09/07/10	09/08/10	0	0	-1	0.0	0.0	0-5
SRP	µg/l	10-2616F	North Pond - Bottom	09/29/10	10/01/10	10/01/10	23	23	23	0.0	0.0	0-5
SRP	µg/l	10-3007F	Rain	9/27/10 - 11/8/10	11/08/10	11/21/10	520	554	537	24.0	4.5	0-5

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NOX-N	µg/l	08-3262	Rain Equipment Blank	12/05/08	12/08/08	12/10/08	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	08-3470	Site # 3 Field Dup	12/13/08-12/22/08	12/24/08	12/24/08	94	90	92	2.8	3.1	0-4
NOX-N	µg/l	08-3492	South Pond Bottom	12/29/08	12/29/08	12/31/08	15	14	15	0.4	2.9	0-4
NOX-N	µg/l	09-0220	Site #1	01/13/09 - 01/22/09	01/23/09	01/23/09	5	5	5	0.0	0.0	0-4
NOX-N	µg/l	09-0312	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/04/09	8	8	8	0.0	0.0	0-4
NOX-N	µg/l	09-0715	Rain Equipment Blank	03/02/09	03/02/09	03/04/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-0908	North Pond Bottom	03/12/09	03/12/09	03/13/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-1180	North Pond Bottom	03/30/09	03/30/09	03/31/09	2	2	2	0.0	0.0	0-4
NOX-N	µg/l	09-1279	Rain	03/31/09-04/06/09	03/30/09	04/09/09	354	350	352	2.8	0.8	0-4
NOX-N	µg/l	09-1514	North Pond Bottom	04/23/09	04/23/09	04/24/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-1596	North Pond Bottom	05/07/09	05/07/09	05/08/09	11	12	11	0.1	0.6	0-4
NOX-N	µg/l	09-1653	Site #1 Sampler Blank	05/14/09	05/14/09	05/15/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-1682	Site #3 Outflow	05/19/09	05/19/09	05/20/09	38	39	39	0.7	1.8	0-4
NOX-N	µg/l	09-1720	Rain	05/19/09 - 05/21/09	05/21/09	05/22/09	27	28	28	0.7	2.6	0-4
NOX-N	µg/l	09-1733	Rain	05/22/09 - 05/25/09	05/26/09	05/28/09	136	140	138	2.8	2.0	0-4
NOX-N	µg/l	09-1784	Site #1 / Inflow	05/26/09 - 06/01/09	06/01/09	06/03/09	15	16	15	0.6	3.7	0-4
NOX-N	µg/l	09-1972	Site #3/Outflow	06/09/09-06/17/09	06/17/09	06/19/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-1991	Rain	06/18/09-06/23/09	06/23/09	06/24/09	141	145	143	2.8	2.0	0-4
NOX-N	µg/l	09-2111	North Top	07/08/09	07/08/09	07/10/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-2120	Rain	06/30/09-07/08/09	07/08/09	07/10/09	73	74	74	0.7	1.0	0-4
NOX-N	µg/l	09-2519	Site #1/ Inflow Field Dup	08/03/09-08/11/09	08/11/09	08/13/09	17	18	17	0.6	3.6	0-4
NOX-N	µg/l	09-3019	FCEB	09/09/09	09/09/09	09/11/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-3276	Site #3 / Outflow	09/09/09-09/18/09	09/18/09	09/21/09	60	59	60	0.7	1.2	0-4
NOX-N	µg/l	09-3328	Site #3 / Outflow	09/18/09-09/22/09	09/22/09	09/23/09	84	80	82	2.8	3.4	0-4
NOX-N	µg/l	09-3532	Rain Equipment Blank	10/05/09	10/05/09	10/07/09	<5	<5	0	0.0	0.0	0-4
NOX-N	µg/l	09-3631	North - Bottom	10/12/09	10/12/09	10/14/09	10	9	9	0.1	0.7	0-4
NOX-N	µg/l	09-3884	Rain	10/27/09-11/05/09	11/05/09	11/06/09	523	513	518	7.1	1.4	0-4
NOX-N	µg/l	09-4081	Rain	11/25/09	11/30/09	12/02/09	482	477	480	3.5	0.7	0-4
NOX-N	µg/l	10-076	Site # 1	01/19/10	01/19/10	01/20/10	39	38	39	0.7	1.8	0-4
NOX-N	µg/l	10-0349F	South Pond - Bottom	02/11/10	02/11/10	02/12/10	599	595	597	2.8	0.5	0-4
NOX-N	µg/l	10-382	Site # 3	02/11/10-02/16/10	02/17/10	02/17/10	660	634	647	18.4	2.8	0-4
NOX-N	µg/l	10-0523F	North - Middle	03/10/10	03/10/10	03/12/10	544	564	554	14.1	2.6	0-4
NOX-N	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	03/26/10	11	12	11	0.1	0.6	0-4
NOX-N	µg/l	10-0843F	Site # 3	03/29/10-04/08/10	04/08/10	04/09/10	56	57	57	0.7	1.3	0-4
NOX-N	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	04/16/10	28	27	28	0.7	2.6	0-4
NOX-N	µg/l	10-0877f	Site # 3	04/08/10-04/14/10	04/14/10	04/16/10	130	136	133	4.2	3.2	0-4
NOX-N	µg/l	10-0912F	Site #4	04/21/10	04/21/10	04/21/10	1336	1320	1328	11.3	0.9	0-4
NOX-N	µg/l	10-1082F	Rain Equipment Blank	05/07/10	05/07/10	05/07/10	0	0	0	0.0	0.0	0-4
NOX-N	µg/l	10-1196F	North - Bottom	05/20/10	05/20/10	05/21/10	8	7	8	0.7	9.4	0-4
NOX-N	µg/l	10-1200F	Rain	05/13/10-05/20/10	05/20/10	05/21/10	422	418	420	2.8	0.7	0-4
NOX-N	µg/l	10-1359F	North - Bottom	06/08/10	06/08/10	06/09/10	11	10	11	0.7	6.7	0-4
NOX-N	µg/l	10-1365F	Rain Equipment Blank	06/08/10	06/08/10	06/09/10	0	0	0	0.0	0.0	0-4
NOX-N	µg/l	10-1639F	Site #3 Sampler Blank	06/26/10-07/06/10	07/06/10	07/08/10	0	0	0	0.0	0.0	0-4
NOX-N	µg/l	10-1726F	Site # 1	07/06/10-07/12/10	07/12/10	07/14/10	28	28	28	0.0	0.0	0-4
NOX-N	µg/l	10-1923F	PCEB	08/03/10	08/03/10	08/04/10	0	0	0	0.1	141.4	0-4
NOX-N	µg/l	10-1933F	Site # 1 Sampler Blank	08/03/10	08/03/10	08/04/10	0	0	0	0.0	0.0	0-4
NOX-N	µg/l	10-1935F	Rain Equipment Blank	08/03/10	08/03/10	08/04/10	1	1	1	0.0	0.0	0-4
NOX-N	µg/l	10-2254F	Site # 3	8/23/10 - 8/31/10	08/31/10	09/01/10	201	206	204	3.5	1.7	0-4
NOX-N	µg/l	10-2299F	Site # 1 Sampler Blank	09/07/10	09/07/10	09/08/10	-1	-1	-1	0.0	0.0	0-4
NOX-N	µg/l	10-2616F	North Pond - Bottom	09/29/10	10/01/10	10/01/10	14	14	14	0.0	0.0	0-4
NOX-N	µg/l	10-3007F	Rain	9/27/10 - 11/8/10	11/08/10	11/21/10	612	585	599	19.1	3.2	0-4

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

PARAMETER	UNITS	SAMPLE ID	SAMPLE DESCRIPTION	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED	REPEAT 1	REPEAT 2	MEAN	s	% RELATIVE STD. DEVIATION (RSD)	ACCEPTANCE RANGE (% RSD)
Ammonia	µg/l	08-3261	Site #3	12/01/08-12/05/08	12/08/08	01/06/09	12	11	12	0.7	6.1	0-10
Ammonia	µg/l	08-3470	Site # 3 Field Dup	12/13/08-12/22/08	12/24/08	01/07/09	67	69	68	1.4	2.1	0-10
Ammonia	µg/l	08-3492	South Pond Bottom	12/29/08	12/29/08	01/07/09	69	71	70	1.4	2.0	0-10
Ammonia	µg/l	09-0100	Site #3	01/07/09-01/13/09	01/13/09	01/19/09	17	17	17	0.0	0.0	0-10
Ammonia	µg/l	09-0217	North Pond Top	01/22/09	01/23/09	02/17/09	85	86	86	0.7	0.8	0-10
Ammonia	µg/l	09-0256	Site #3	01/23/09-01/28/09	01/28/09	02/18/09	31	34	33	2.1	6.5	0-10
Ammonia	µg/l	09-0312	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/18/09	16	15	16	0.7	4.6	0-10
Ammonia	µg/l	09-0713	Site #3	02/23/09 - 03/02/09	03/02/09	03/11/09	15	15	15	0.0	0.0	0-10
Ammonia	µg/l	09-0907	North Pond Middle	03/12/09	03/12/09	04/14/09	45	48	47	2.1	4.6	0-10
Ammonia	µg/l	09-1180	North Pond Bottom	03/30/09	03/30/09	04/16/09	537	546	542	6.4	1.2	0-10
Ammonia	µg/l	09-1418	Rain	04/14/09	04/16/09	04/17/09	128	130	129	1.4	1.1	0-10
Ammonia	µg/l	09-1513	North Pond Middle	04/23/09	04/23/09	05/12/09	62	60	61	1.4	2.3	0-10
Ammonia	µg/l	09-1592	South Pond Bottom	05/07/09	05/07/09	05/12/09	2387	2404	2396	12.0	0.5	0-10
Ammonia	µg/l	09-1683	Rain	05/18/09 - 05/19/09	05/19/09	05/28/09	13	13	13	0.0	0.0	0-10
Ammonia	µg/l	09-1731	Site #2	05/26/09	05/26/09	06/16/09	60	62	61	1.4	2.3	0-10
Ammonia	µg/l	09-1778	outh Pond Middle Field Du	06/01/09	06/01/09	06/16/09	356	349	353	4.9	1.4	0-10
Ammonia	µg/l	09-1789	Rain	5/26/09 - 5/29/09	06/01/09	06/16/09	243	239	241	2.8	1.2	0-10
Ammonia	µg/l	09-1989	Site #3/Outflow	06/17/09-06/23/09	06/23/09	06/29/09	1040	1010	1025	21.2	2.1	0-10
Ammonia	µg/l	09-2109	South Bottom	07/08/09	07/08/09	07/22/09	3076	3124	3100	33.9	1.1	0-10
Ammonia	µg/l	09-2119	Site #3 Sampler Blank	07/08/09	07/08/09	07/22/09	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	09-2399	Site #3/Outflow Field Dup	07/28/09-08/03/09	08/03/09	08/18/09	48	50	49	1.4	2.9	0-10
Ammonia	µg/l	09-2518	Site #1/Inflow	08/03/09-08/11/09	08/11/09	08/19/09	28	25	27	2.1	8.0	0-10
Ammonia	µg/l	09-3020	North - Top	09/09/09	09/09/09	09/23/09	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	09-3532	Rain Equipment Blank	10/05/09	10/05/09	10/28/09	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	09-3626	South Pond - Middle	10/12/09	10/12/09	10/29/09	135	137	136	1.4	1.0	0-10
Ammonia	µg/l	09-3913	North - Top	11/10/09	11/10/09	11/30/09	692	699	696	4.9	0.7	0-10
Ammonia	µg/l	09-3433	Rain	09/22/09-09/27/09	09/28/09	10/14/09	840	835	838	3.5	0.4	0-10
Ammonia	µg/l	09-4081	Rain	11/25/09	11/30/09	12/18/09	869	888	879	13.4	1.5	0-10
Ammonia	µg/l	09-4449P	Site #3	12/15/09-12/22/09	12/23/09	01/14/10	1059	1067	1063	5.7	0.5	0-10
Ammonia	µg/l	09-4472P	Site #1	12/23/09-12/29/09	12/30/09	01/14/10	36	40	38	2.8	7.4	0-10
Ammonia	µg/l	10-0019P	Rain	01/01/10	01/05/10	01/15/10	270	275	273	3.5	1.3	0-10
Ammonia	µg/l	10-0076P	Site # 1	01/19/10	01/19/10	02/09/10	28	29	29	0.7	2.5	0-10
Ammonia	µg/l	10-0348P	South Pond - Middle F.D.	02/11/10	02/11/10	03/01/10	395	390	393	3.5	0.9	0-10
Ammonia	µg/l	10-0523P	North - Middle	03/10/10	03/10/10	03/24/10	46	43	45	2.1	4.8	0-10
Ammonia	µg/l	10-0734P	Rain	03/25/10	03/26/10	04/12/10	937	929	933	5.7	0.6	0-10
Ammonia	µg/l	10-0845P	Site # 3 Sampler Blank	04/08/10	04/08/10	04/16/10	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	10-0869P	South Pond - Middle	04/14/10	04/14/10	04/16/10	32	30	31	1.4	4.6	0-10
Ammonia	µg/l	10-0912P	Site #4	04/21/10	04/21/10	04/29/10	185	183	184	1.4	0.8	0-10
Ammonia	µg/l	10-0965P	Rain	04/21/10-04/28/10	04/28/10	04/30/10	474	483	479	6.4	1.3	0-10
Ammonia	µg/l	10-1080P	Site # 1 Sampler Blank	05/07/10	05/07/10	05/12/10	44	39	42	3.5	8.5	0-10
Ammonia	µg/l	10-1194P	North - Top	05/20/10	05/20/10	06/02/10	42	45	44	2.1	4.9	0-10
Ammonia	µg/l	10-1128P	Site #1	05/07 - 05/13/10	05/13/10	06/02/10	33	29	31	2.8	9.1	0-10
Ammonia	µg/l	10-1267P	Site # 3	05/20/10-05/27/10	05/27/10	06/02/10	122	116	119	4.2	3.6	0-10
Ammonia	µg/l	10-1351P	PCEB	06/08/10	06/08/10	06/09/10	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	10-1361P	Site # 3	05/27/10-06/08/10	06/08/10	06/09/10	35	36	36	0.7	2.0	0-10
Ammonia	µg/l	10-1365P	Rain Equipment Blank	06/08/10	06/08/10	06/09/10	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	10-1640P	Rain Equipment Blank	06/26/10-07/06/10	07/06/10	07/15/10	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	10-1724P	North - Middle	07/12/10	07/12/10	07/15/10	36	35	36	0.7	2.0	0-10
Ammonia	µg/l	10-1932P	Site #3	08/03/10	08/03/10	08/19/10	52	46	49	3.5	7.2	0-10
Ammonia	µg/l	10-2254P	Site # 3	8/23/10 - 8/31/10	08/31/10	09/28/10	221	249	235	19.8	8.4	0-10
Ammonia	µg/l	10-2619P	Site # 1 Sampler Blank	10/05/10	10/06/10	12/08/10	31	31	31	0.0	0.0	0-10
Ammonia	µg/l	10-2598P	Site # 1	9/21/10 - 9/29/10	09/29/10	12/08/10	33	29	31	2.1	6.9	0-10
Ammonia	µg/l	10-2609P	South Pond - Top	09/29/10	10/01/10	12/08/10	58	55	57	2.1	3.8	0-10
Ammonia	µg/l	10-2893P	South Pond Top	10/28/10	10/28/10	12/15/10	56	59	58	2.1	3.7	0-10
Ammonia	µg/l	10-2998P	PCEB	11/08/10	11/08/10	12/17/10	0	0	0	0.0	0.0	0-10
Ammonia	µg/l	10-3008P	Site #1 Sampler Blank	11/08/10	11/08/10	12/17/10	5	4	4	0.4	8.3	0-10

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

PARAMETER	UNITS	SAMPLE ID	SAMPLE DESCRIPTION	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED	REPEAT 1	REPEAT 2	MEAN	s	% RELATIVE STD. DEVIATION (RSD)	ACCEPTANCE RANGE (% RSD)
Total N	µg/l	08-3470f	Site # 3 Field Dup	12/13/08-12/22/08	12/24/08	01/13/09	728	733	731	3.5	0.5	0-6
Total N	µg/l	08-3488	Site # 3	12/23/08-12/29/08	12/29/08	01/13/09	1426	1428	1427	1.4	0.1	0-6
Total N	µg/l	08-3492f	South Pond Bottom	12/29/08	12/29/08	01/13/09	721	733	727	8.5	1.2	0-6
Total N	µg/l	09-0034	Site # 1 Field Dup	12/29/08-01/07/09	1/7/2009	01/15/09	923	930	927	4.9	0.5	0-6
Total N	µg/l	09-0037f	Site #3	12/29/08-01/07/09	1/7/2009	01/15/09	1653	1733	1693	56.6	3.3	0-6
Total N	µg/l	09-0100	Site #3	01/07/09-01/13/09	1/13/2009	01/20/09	1517	1556	1537	27.6	1.8	0-6
Total N	µg/l	09-0215f	South Pond Bottom	01/22/09	01/23/09	01/27/09	704	688	696	11.3	1.6	0-6
Total N	µg/l	09-0216	FCEB	01/22/09	01/23/09	01/27/09	0	0	0	0.0	0.0	0-6
Total N	µg/l	09-0256f	Site #3	01/23/09-01/28/09	01/28/09	01/29/09	671	673	672	1.4	0.2	0-6
Total N	µg/l	09-0312	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/10/09	800	799	800	0.7	0.1	0-6
Total N	µg/l	09-0385f	Rain	02/02/09	02/09/09	02/25/09	430	463	447	23.3	5.2	0-6
Total N	µg/l	09-0634	Site #1	02/18/09-02/23/09	2/23/2009	03/06/09	60	63	62	2.1	3.4	0-6
Total N	µg/l	09-0713	Site #3	02/23/09 - 03/02/09	03/02/09	03/18/09	1494	1473	1484	14.8	1.0	0-6
Total N	µg/l	09-0899f	Site #1	03/02/09 - 03/11/09	03/11/09	03/19/09	627	651	639	17.0	2.7	0-6
Total N	µg/l	09-0903	South Pond Bottom	3/12/2009	3/12/2009	04/24/09	978	988	983	7.1	0.7	0-6
Total N	µg/l	09-0904f	FCEB	3/12/2009	3/12/2009	04/24/09	0	0	0	0.0	0.0	0-6
Total N	µg/l	09-1175f	outh Pond Middle Field Du	3/30/2009	3/30/2009	04/20/09	844	893	869	34.6	4.0	0-6
Total N	µg/l	09-1176	South Pond Bottom	3/30/2009	3/30/2009	04/20/09	1217	1252	1235	24.7	2.0	0-6
Total N	µg/l	09-1275	Site #1	3/30/09-04/07/09	4/7/2009	05/05/09	828	818	823	7.1	0.9	0-6
Total N	µg/l	09-1279f	Rain	03/31/09-04/06/09	4/7/2009	05/05/09	702	646	674	39.6	5.9	0-6
Total N	µg/l	09-1418	Rain	04/14/09	04/16/09	05/07/09	1312	1300	1306	8.5	0.6	0-6
Total N	µg/l	09-1670	Rain	05/17/09 - 05/18/09	05/18/09	06/09/09	4177	4155	4166	15.6	0.4	0-6
Total N	µg/l	09-1776	South Pond Top	06/01/09	06/01/09	06/24/09	2452	2335	2394	82.7	3.5	0-6
Total N	µg/l	09-2038	Site #1/Inflow	06/23/09-06/30/09	06/30/09	07/09/09	1204	1199	1202	3.5	0.3	0-6
Total N	µg/l	09-2825	Rain	08/20/08-08/25/08	08/28/09	09/26/09	1127	1103	1115	17.0	1.5	0-6
Total N	µg/l	09-3022	North - Bottom	09/09/09	09/09/09	11/12/09	6413	6300	6357	79.9	1.3	0-6
Total N	µg/l	09-3633	Site #3/Outflow	10/05/09-10/12/09	10/12/09	11/09/09	2423	2480	2452	40.3	1.6	0-6
Total N	µg/l	09-3908	South Pond - Top	11/10/09	11/10/09	12/15/09	2392	2300	2346	65.1	2.8	0-6
Total N	µg/l	09-4200f	Site #2 Sampler Blank	12/07/09	12/07/09	02/02/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	09-4194f	Site #1	12/07/09	12/07/09	02/02/10	443	429	436	9.9	2.3	0-10
Total N	µg/l	09-4283p	Site #1	12/07/09-12/14/09	12/14/09	02/04/10	1031	1033	1032	1.4	0.1	0-10
Total N	µg/l	09-4281f	North - Middle	12/14/09	12/14/09	02/04/10	1664	1681	1673	12.0	0.7	0-10
Total N	µg/l	09-4475f	Rain	12/25/09	12/30/09	02/04/10	2129	2145	2137	11.3	0.5	0-10
Total N	µg/l	09-4448p	Site #1	12/14/09-12/23/09	12/23/09	02/04/10	1378	1284	1331	66.5	5.0	0-10
Total N	µg/l	10-071P	South Pond - Bottom	01/19/10	01/19/10	02/11/10	2131	2129	2130	1.4	0.1	0-10
Total N	µg/l	10-073FP	North - Top	01/19/10	01/19/10	02/11/10	1772	1783	1778	7.8	0.4	0-10
Total N	µg/l	10-018FP	Site #3	12/29/09 - 01/05/10	01/05/10	02/12/10	2117	2175	2146	41.0	1.9	0-10
Total N	µg/l	10-153FP	Site # 1	01/19/10-01/22/10	01/22/10	02/15/10	606	570	588	25.5	4.3	0-10
Total N	µg/l	10-245FP	Rain	01/30/10-02/02/10	02/03/10	02/16/10	719	711	715	5.7	0.8	0-10
Total N	µg/l	10-0347p	South Pond - Middle	02/11/10	02/11/10	02/22/10	2243	2344	2294	71.4	3.1	0-10
Total N	µg/l	10-0348f	South Pond - Middle F.D.	02/11/10	02/11/10	02/22/10	2135	2167	2151	22.6	1.1	0-10
Total N	µg/l	10-0361FP	Site # 1	02/03/10-02/11/10	02/12/10	02/22/10	996	938	967	41.0	4.2	0-10
Total N	µg/l	10-0365FP	Site # 5	02/11/10	02/12/10	02/22/10	2503	2333	2418	120.2	5.0	0-10
Total N	µg/l	10-0070P	South Pond - Middle F.D.	01/19/10	01/19/10	03/05/10	1991	2004	1998	9.2	0.5	0-10
Total N	µg/l	10-0068FP	South Pond - Top	01/19/10	01/19/10	03/05/10	1949	1926	1938	16.3	0.8	0-10
Total N	µg/l	10-0518P	South Pond - Middle	03/10/10	03/10/10	03/29/10	1488	1606	1547	83.4	5.4	0-10
Total N	µg/l	10-0519FP	South Pond - Middle F.D.	03/10/10	03/10/10	03/29/10	1257	1270	1264	9.2	0.7	0-10
Total N	µg/l	10-0529P	Rain	02/22/10-03/02/10	03/10/10	03/30/10	1853	1782	1818	50.2	2.8	0-10
Total N	µg/l	10-0644FP	Site # 5	03/18/10	03/18/10	04/05/10	2114	1956	2035	111.7	5.5	0-10
Total N	µg/l	10-0671FP	Rain	03/21/10	03/23/10	04/08/10	2301	2330	2316	20.5	0.9	0-10
Total N	µg/l	10-0734FP	Rain	03/25/10	03/26/10	04/15/10	5451	5404	5428	33.2	0.6	0-10
Total N	µg/l	10-0747FP	Site # 4	03/29/10	03/29/10	04/15/10	862	857	860	3.5	0.4	0-10
Total N	µg/l	10-0843P	Site # 3	03/29/10-04/08/10	04/08/10	04/23/10	1956	1819	1888	96.9	5.1	0-10
Total N	µg/l	10-0877FP	Site # 3	04/08/10-04/14/10	04/14/10	04/26/10	2934	3073	3004	98.3	3.3	0-10
Total N	µg/l	10-0868P	South Pond - Top	04/14/10	04/14/10	04/26/10	2479	2680	2580	142.1	5.5	0-10
Total N	µg/l	10-0869FP	South Pond - Middle	04/14/10	04/14/10	04/26/10	1434	1279	1357	109.6	8.1	0-10
Total N	µg/l	10-0912P	Site #4	04/21/10	04/21/10	04/27/10	2968	2973	2971	3.5	0.1	0-10
Total N	µg/l	10-0965FP	Rain	04/21/10-04/28/10	04/28/10	05/06/10	675	657	666	12.7	1.9	0-10
Total N	µg/l	10-1080FP	Site # 1 Sampler Blank	05/07/10	05/07/10	05/20/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-1192P	South Pond - Bottom	05/20/10	05/20/10	06/01/10	2708	2699	2704	6.4	0.2	0-10
Total N	µg/l	10-1193FP	FCEB	05/20/10	05/20/10	06/01/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-1199FP	Site # 3 F.D.	05/13/10-05/20/10	05/20/10	06/04/10	1068	1065	1067	2.1	0.2	0-10
Total N	µg/l	10-1266FP	Site # 1	05/20/10-05/27/10	05/27/10	06/07/10	924	754	839	120.2	14.3	0-10
Total N	µg/l	10-1352FP	South Pond - Top	06/08/10	06/08/10	06/10/10	912	916	914	2.8	0.3	0-10
Total N	µg/l	10-1362P	Rain	05/27/10-06/08/10	06/08/10	06/10/10	8329	8255	8292	52.3	0.6	0-10
Total N	µg/l	10-1351P	PCEB	06/08/10	06/08/10	06/10/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-1638FP	Site #1 Sampler Blank	06/26/10-07/06/10	07/06/10	07/13/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-1717FP	PCEB	07/12/10	07/12/10	07/26/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-1727P	Site # 3	07/06/10-07/12/10	07/12/10	07/26/10	770	729	750	29.0	3.9	0-10
Total N	µg/l	10-1874FP	Site #3	07/19/10-07/26/10	07/26/10	08/11/10	1171	1135	1153	25.5	2.2	0-10
Total N	µg/l	10-1926P	South Pond - Middle	08/03/10	08/03/10	08/16/10	813	765	789	33.9	4.3	0-10
Total N	µg/l	10-1927FP	South Pond - Bottom	08/03/10	08/03/10	08/16/10	324	373	349	34.6	9.9	0-10
Total N	µg/l	10-1935P	Rain Equipment Blank	08/03/10	08/03/10	08/16/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-2057FP	Rain	8/10/10 - 8/16/10	08/16/10	08/20/10	1097	1252	1175	109.6	9.3	0-10
Total N	µg/l	10-2131FP	Rain	8/16/10 - 8/23/10	08/23/10	10/07/10	1028	972	1000	39.6	4.0	0-10

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

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Total N	µg/l	10-2254FP	Site # 3	8/23/10 - 8/31/10	08/31/10	11/29/10	59	59	59	0.0	0.0	0-10
Total N	µg/l	10-2301P	Rain Equipment Blank	09/07/10	09/07/10	12/02/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-2598FP	Site # 1	9/21/10 - 9/29/10	9/29/2010	12/27/10	1086	1025	1056	43.1	4.1	0-10
Total N	µg/l	10-2608FP	PCEB	09/29/10	09/29/10	12/28/10	0	0	0	0.0	0.0	0-10
Total N	µg/l	10-2618P	Site # 3	9/29/10 - 10/5/10	10/05/10	12/28/10	1354	1332	1343	15.6	1.2	0-10
Total N	µg/l	10-2829P	SP 3	10/25/10	10/25/10	01/06/11	1080	1064	1072	11.3	1.1	0-10

Sample Duplicate Recovery

For Club II Samples Collected From December 2008 to February 2011

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Total P	µg/l	08-3470f	Site # 3 Field Dup	12/13/08-12/22/08	12/24/08	01/13/09	65	64	65	0.7	1.1	0-5
Total P	µg/l	08-3488	Site # 3	12/23/08-12/29/08	12/29/08	01/13/09	243	253	248	7.1	2.9	0-5
Total P	µg/l	08-3492f	South Pond Bottom	12/29/08	12/29/08	01/13/09	139	149	144	7.1	4.9	0-5
Total P	µg/l	09-0034	Site # 1 Field Dup	12/29/08-01/07/09	01/07/09	01/15/09	40	43	41	1.8	4.3	0-5
Total P	µg/l	09-0037f	Site #3	12/29/08-01/07/09	01/07/09	01/15/09	13	14	14	0.6	4.7	0-5
Total P	µg/l	09-0100	Site #3	01/07/09-01/13/09	01/13/09	01/20/09	106	103	105	2.1	2.0	0-5
Total P	µg/l	09-0215f	South Pond Bottom	01/22/09	01/23/09	01/27/09	40	43	41	1.8	4.3	0-5
Total P	µg/l	09-0216	FCEB	01/22/09	01/23/09	01/27/09	0	0	0	0.0	0.0	0-5
Total P	µg/l	09-0256f	Site #3	01/23/09-01/28/09	01/28/09	01/29/09	119	118	119	0.7	0.6	0-5
Total P	µg/l	09-0312	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/10/09	55	52	54	2.1	4.0	0-5
Total P	µg/l	09-0385f	Rain	02/02/09	02/09/09	02/25/09	5	5	5	0.0	0.0	0-5
Total P	µg/l	09-0634	Site #1	02/18/09-02/23/09	02/23/09	03/06/09	39	38	39	0.7	1.8	0-5
Total P	µg/l	09-0713	Site #3	02/23/09 - 03/02/09	03/02/09	03/18/09	77	77	77	0.0	0.0	0-5
Total P	µg/l	09-0899f	Site #1	03/02/09 - 03/11/09	03/11/09	03/19/09	14	14	14	0.0	0.0	0-5
Total P	µg/l	09-1175f	outh Pond Middle Field Du	03/30/09	03/30/09	04/20/09	5	5	5	0.0	0.0	0-5
Total P	µg/l	09-1176	South Pond Bottom	03/30/09	03/30/09	04/20/09	143	145	144	1.4	1.0	0-5
Total P	µg/l	09-0903	South Pond Bottom	03/12/09	03/12/09	04/24/09	89	87	88	1.4	1.6	0-5
Total P	µg/l	09-0904f	FCEB	03/12/09	03/12/09	04/24/09	0	0	0	0.0	0.0	0-5
Total P	µg/l	09-1275	Site #1	3/30/09-04/07/09	03/30/09	05/05/09	40	38	39	1.4	3.6	0-5
Total P	µg/l	09-1279f	Rain	03/31/09-04/06/09	03/30/09	05/05/09	7	7	7	0.0	0.0	0-5
Total P	µg/l	09-1418	Rain	04/14/09	04/16/09	05/07/09	60	59	60	0.7	1.2	0-5
Total P	µg/l	09-1670	Rain	05/17/09 - 05/18/09	05/18/09	06/09/09	261	251	256	7.1	2.8	0-5
Total P	µg/l	09-1776	South Pond Top	06/01/09	06/01/09	06/24/09	65	66	66	0.7	1.1	0-5
Total P	µg/l	09-2038	Site #1/Inflow	06/23/09-06/30/09	06/30/09	07/09/09	56	55	56	0.7	1.3	0-5
Total P	µg/l	09-2825	Rain	08/20/08-08/25/08	08/28/09	09/26/09	63	60	62	2.1	3.4	0-5
Total P	µg/l	09-3022	North - Bottom	09/09/09	09/09/09	11/12/09	175	170	173	3.5	2.0	0-5
Total P	µg/l	09-3633	Site #3/Outflow	10/05/09-10/12/09	10/12/09	11/09/09	97	100	99	2.1	2.2	0-5
Total P	µg/l	09-3908	South Pond - Top	11/10/09	11/10/09	12/15/09	61	60	61	0.7	1.2	0-5
Total P	µg/l	09-4200f	Site #2 Sampler Blank	12/07/09	12/07/09	02/02/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	09-4194f	Site #1	12/07/09	12/07/09	02/02/10	11	12	12	0.7	6.1	0-5
Total P	µg/l	09-4283p	Site #1	12/07/09-12/14/09	12/14/09	02/04/10	73	74	74	0.7	1.0	0-5
Total P	µg/l	09-4281f	North - Middle	12/14/09	12/14/09	02/04/10	13	12	13	0.7	5.7	0-5
Total P	µg/l	09-4475f	Rain	12/25/09	12/30/09	02/04/10	413	427	420	9.9	2.4	0-5
Total P	µg/l	09-4448p	Site #1	12/14/09-12/23/09	12/23/09	02/04/10	84	80	82	2.8	3.4	0-5
Total P	µg/l	10-071P	South Pond - Bottom	01/19/10	01/19/10	02/11/10	107	113	110	4.0	3.6	0-5
Total P	µg/l	10-073FP	North - Top	01/19/10	01/19/10	02/11/10	9	9	9	0.0	0.0	0-5
Total P	µg/l	10-018FP	Site #3	12/29/09 - 01/05/10	01/05/10	02/12/10	67	71	69	2.8	4.1	0-5
Total P	µg/l	10-153FP	Site # 1	01/19/10-01/22/10	01/22/10	02/15/10	13	13	13	0.0	0.0	0-5
Total P	µg/l	10-245FP	Rain	01/30/10-02/02/10	02/03/10	02/16/10	1	1	1	0.0	0.0	0-5
Total P	µg/l	10-0347p	South Pond - Middle	02/11/10	02/11/10	02/22/10	78	83	81	3.5	4.4	0-5
Total P	µg/l	10-0348f	South Pond - Middle F.D.	02/11/10	02/11/10	02/22/10	54	53	54	0.7	1.3	0-5
Total P	µg/l	10-0361FP	Site # 1	02/03/10-02/11/10	02/12/10	02/22/10	34	31	32	1.5	4.6	0-5
Total P	µg/l	10-0365FP	Site # 5	02/11/10	02/12/10	02/22/10	12	12	12	0.0	0.0	0-5
Total P	µg/l	10-0070P	South Pond - Middle F.D.	01/19/10	01/19/10	03/05/10	73	74	74	0.7	1.0	0-5
Total P	µg/l	10-0068FP	South Pond - Top	01/19/10	01/19/10	03/05/10	52	53	53	0.7	1.3	0-5
Total P	µg/l	10-0518P	South Pond - Middle	03/10/10	03/10/10	03/29/10	56	60	58	2.8	4.9	0-5
Total P	µg/l	10-0519FP	South Pond - Middle F.D.	03/10/10	03/10/10	03/29/10	12	13	13	0.4	3.3	0-5
Total P	µg/l	10-0529P	Rain	02/22/10-03/02/10	03/10/10	03/30/10	139	137	138	1.4	1.0	0-5
Total P	µg/l	10-0644FP	Site # 5	03/18/10	03/18/10	04/05/10	17	16	17	0.7	4.3	0-5
Total P	µg/l	10-0671FP	Rain	03/21/10	03/23/10	04/08/10	42	44	43	1.4	3.3	0-5
Total P	µg/l	10-0734FP	Rain	03/25/10	03/26/10	04/15/10	614	627	621	9.2	1.5	0-5
Total P	µg/l	10-0747FP	Site # 4	03/29/10	03/29/10	04/15/10	61	61	61	0.0	0.0	0-5
Total P	µg/l	10-0843P	Site # 3	03/29/10-04/08/10	04/08/10	04/23/10	131	129	130	1.4	1.1	0-5
Total P	µg/l	10-0877FP	Site # 3	04/08/10-04/14/10	04/14/10	04/26/10	39	41	40	1.4	3.5	0-5
Total P	µg/l	10-0868P	South Pond - Top	04/14/10	04/14/10	04/26/10	43	44	44	0.7	1.6	0-5
Total P	µg/l	10-0869FP	South Pond - Middle	04/14/10	04/14/10	04/26/10	11	10	10	0.1	0.7	0-5
Total P	µg/l	10-0912P	Site #4	04/21/10	04/21/10	04/27/10	37	40	39	2.1	5.5	0-5
Total P	µg/l	10-0965FP	Rain	04/21/10-04/28/10	04/28/10	05/06/10	76	75	76	0.7	0.9	0-5
Total P	µg/l	10-1080FP	Site # 1 Sampler Blank	05/07/10	05/07/10	05/20/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-1192P	South Pond - Bottom	05/20/10	05/20/10	06/01/10	488	490	489	1.4	0.3	0-5
Total P	µg/l	10-1193FP	FCEB	05/20/10	05/20/10	06/01/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-1199FP	Site # 3 F.D.	05/13/10-05/20/10	05/20/10	06/04/10	14	13	14	0.7	5.2	0-5
Total P	µg/l	10-1266FP	Site # 1	05/20/10-05/27/10	05/27/10	06/07/10	10	9	9	0.1	0.7	0-5
Total P	µg/l	10-1352FP	South Pond - Top	06/08/10	06/08/10	06/10/10	2	2	2	0.0	0.0	0-5
Total P	µg/l	10-1362P	Rain	05/27/10-06/08/10	06/08/10	06/10/10	1272	1265	1269	4.9	0.4	0-5
Total P	µg/l	10-1351P	PCEB	06/08/10	06/08/10	06/10/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-1638FP	Site #1 Sampler Blank	06/26/10-07/06/10	07/06/10	07/13/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-1717FP	PCEB	07/12/10	07/12/10	07/26/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-1727P	Site # 3	07/06/10-07/12/10	07/12/10	07/26/10	8	8	8	0.0	0.0	0-5
Total P	µg/l	10-1874FP	Site #3	07/19/10-07/26/10	07/26/10	08/11/10	12	12	12	0.0	0.0	0-5
Total P	µg/l	10-1926P	South Pond - Middle	08/03/10	08/03/10	08/16/10	9	8	8	0.1	0.8	0-5
Total P	µg/l	10-1927FP	South Pond - Bottom	08/03/10	08/03/10	08/16/10	48	50	49	1.4	2.9	0-5
Total P	µg/l	10-1935P	Rain Equipment Blank	08/03/10	08/03/10	08/16/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-2057FP	Rain	8/10/10 - 8/16/10	08/16/10	08/20/10	236	252	244	11.3	4.6	0-5
Total P	µg/l	10-2131FP	Rain	8/16/10 - 8/23/10	08/23/10	10/07/10	0	0	0	0.0	0.0	0-5

Sample Duplicate Recovery

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Total P	µg/l	10-2254FP	Site # 3	8/23/10 - 8/31/10	08/31/10	11/29/10	1546	1604	1575	41.0	2.6	0-5
Total P	µg/l	10-2301P	Rain Equipment Blank	09/07/10	09/07/10	12/02/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-2598FP	Site # 1	9/21/10 - 9/29/10	9/29/2010	12/27/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-2608FP	PCEB	09/29/10	09/29/10	12/28/10	0	0	0	0.0	0.0	0-5
Total P	µg/l	10-2618P	Site # 3	9/29/10 - 10/5/10	10/05/10	12/28/10	33	30	31	1.5	4.7	0-5
Total P	µg/l	10-2829P	SP 3	10/25/10	10/25/10	01/06/11	43	46	45	1.8	4.1	0-5

Sample Duplicate Recovery

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Color	PCU	09-3622	Site #4	10/02/09-10/09/09	10/09/09	10/09/09	38	40	39	1.4	3.6	0-5
Color	PCU	09-3722	Site #4	10/9/2009-10/16/09	10/16/09	10/16/09	36	37	37	0.7	1.9	0-5
Color	PCU	09-3841	Site #4	10/22/09-10/30/09	10/30/09	10/30/09	30	30	30	0.0	0.0	0-5
Color	PCU	09-3955	Rain	11/10/09	11/12/09	11/13/09	5	5	5	0.0	0.0	0-5
Color	PCU	09-4068	Site #4	11/16/09-11/24/09	11/24/09	11/25/09	34	34	34	0.0	0.0	0-5
Color	PCU	09-4167	Rain	12/1/09-12/3/09	12/04/09	12/04/09	7	7	7	0.0	0.0	0-5
Color	PCU	09-4213	Rain Blank	12/07/09	12/08/09	12/08/09	0	0	0	0.0	0.0	0-5
Color	PCU	10-010F	Rain Blank	01/04/10	01/04/10	01/05/10	0.1	0.1	0	0.0	0.0	0-5
Color	PCU	10-169F	Rain	01/24/10-01/25/10	01/25/10	01/26/10	35	35	35	0.0	0.0	0-5
Color	PCU	10-275F	Site #4	02/01/10-02/03/10	02/04/10	02/04/10	27	27	27	0.0	0.0	0-5
Color	PCU	10-281F	Rain Blank	02/03/10	02/04/10	02/04/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-454F	Rain	02/16/10-02/24/10	02/26/10	02/26/10	11	11	11	0.0	0.0	0-5
Color	PCU	10-473F	Rain	02/27/10-03/02/10	03/04/10	03/05/10	3	3	3	0.0	0.0	0-5
Color	PCU	10-593F	Rain EB	03/13/10	03/15/10	03/16/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-721F	Site #3	03/13/10-03/24/10	03/25/10	03/26/10	21	21	21	0.0	0.0	0-5
Color	PCU	10-754F	Site #3	03/26/10-03/29/10	03/30/10	03/30/10	28	28	28	0.0	0.0	0-5
Color	PCU	10-281F	Rain Blank	02/03/10	02/04/10	02/04/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-454F	Rain	02/16/10-02/24/10	02/26/10	02/26/10	11	11	11	0.0	0.0	0-5
Color	PCU	10-473F	Rain	02/27/10-03/02/10	03/04/10	03/05/10	3	3	3	0.0	0.0	0-5
Color	PCU	10-593F	Rain EB	03/13/10	03/15/10	03/16/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-721F	Site #3	03/13/10-03/24/10	03/25/10	03/26/10	21	21	21	0.0	0.0	0-5
Color	PCU	10-754F	Site #3	03/26/10-03/29/10	03/30/10	03/30/10	28	28	28	0.0	0.0	0-5
Color	PCU	10-0021F	Site #2 Blank	01/05/10	01/05/10	01/05/10	1	1	1	0.0	0.0	0-5
Color	PCU	10-0076F	Site #1	01/05/10-01/19/10	01/19/10	01/19/10	119	119	119	0.0	0.0	0-5
Color	PCU	10-0349F	S. Pond Bottom	02/11/10	02/11/10	02/12/10	33	33	33	0.0	0.0	0-5
Color	PCU	10-0366F	Rain	02/05/10-02/09/10	02/09/10	02/12/10	4	4	4	0.0	0.0	0-5
Color	PCU	10-0382F	Site #3	02/11/10-02/16/10	02/16/10	02/17/10	34	34	34	0.0	0.0	0-5
Color	PCU	10-0525F	Site #1	02/16/10-03/10/10	03/10/10	03/11/10	123	123	123	0.0	0.0	0-5
Color	PCU	10-0580F	Site #6	03/12/10	03/12/10	03/12/10	48	48	48	0.0	0.0	0-5
Color	PCU	10-0732F	Site #4	03/25/10	03/25/10	03/26/10	198	198	198	0.0	0.0	0-5
Color	PCU	10-0734F	Rain	03/25/10	03/25/10	03/26/10	17	17	17	0.0	0.0	0-5
Color	PCU	10-0843F	Site #3	03/29/10-04/08/10	04/08/10	04/08/10	44	43	44	0.7	1.6	0-5
Color	PCU	10-0877F	Site #3	04/08/10-04/14/10	04/14/10	04/16/10	36	36	36	0.0	0.0	0-5
Color	PCU	10-0910F	Site #3	04/12/10-04/21/10	04/21/10	04/21/10	40	40	40	0.0	0.0	0-5
Color	PCU	10-0914F	Rain	04/21/10	04/21/10	04/21/10	111	111	111	0.0	0.0	0-5
Color	PCU	10-0965F	Rain	04/21/10-04/28/10	04/28/10	04/28/10	9	9	9	0.0	0.0	0-5
Color	PCU	10-1082F	Rain Blank	05/07/10	05/07/10	05/07/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-1197F	Site #1	05/13/10-05/20/10	05/20/10	05/21/10	219	219	219	0.0	0.0	0-5
Color	PCU	10-1200F	Rain	05/13/10-05/20/10	05/20/10	05/21/10	19	19	19	0.0	0.0	0-5
Color	PCU	10-1267F	Site #3	05/20/10-05/27/10	05/27/10	05/28/10	34	34	34	0.0	0.0	0-5
Color	PCU	10-1360F	Site #1	05/27/10-06/08/10	06/08/10	06/10/10	241	247	244	4.2	1.7	0-5
Color	PCU	10-1639F	Site #3 SB	06/26-07/06/10	07/06/10	07/07/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-1640F	Rain Equip. Blank	06/26-07/06/10	07/06/10	07/07/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-1726F	Site #1	07/06-07/12/10	07/12/10	07/13/10	210	210	210	0.0	0.0	0-5
Color	PCU	10-1932F	Site #3	07/26-08/03/10	08/03/10	08/05/10	31	31	31	0.0	0.0	0-5
Color	PCU	10-2254F	Site #3	08/23-08/31/10	08/31/10	09/02/10	29	28	29	0.7	2.5	0-5
Color	PCU	10-2300F	Site #3 SB	09/07/10	09/07/10	09/09/10	0	0	0	0.0	0.0	0-5
Color	PCU	10-2361F	Rain	09/07-09/13/10	09/13/10	09/13/10	24	23	24	0.7	3.0	0-5
Color	PCU	10-2598F	Site #1	09/21-09/29/10	09/29/10	09/30/10	31	31	31	0.0	0.0	0-5
Color	PCU	10-2616F	N. Pond Bottom	09/30/10	09/30/10	10/01/10	411	408	410	2.1	0.5	0-5

Matrix Spike Recovery Study

For Club II Samples Collected From December 2008 - February 2011

PARAMETERS	UNITS	SAMPLE ID	SAMPLE DESCRIPTION	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED	INITIAL CONC.	INITIAL VOLUME (ml)	SPIKE CONC.	SPIKE VOLUME ADDED (ml)	Dilution Factor	THEOR. CONC.	ACTUAL CONC.	PERCENT RECOVERY	ACCEPTANCE RANGE
Alkalinity	mg/l	09-3725	Site #3	10/12 - 10/19/09	10/19/09	10/20/09	100	50	1000	0.4	1	108	109	101%	91-105
Alkalinity	mg/l	09-4198	Rain Field Dup	12/4 - 12/7/09	12/07/09	12/16/09	2	50	1000	0.4	1	10	10	102%	91-105
Alkalinity	mg/l	09-4282	North Pond Bottom	12/14/09	12/14/09	12/18/09	128	50	1000	0.4	1	136	137	101%	91-105
Alkalinity	mg/l	10-0022	Rain	01/05/10	01/05/10	01/11/10	0.6	50	1000	0.3	1	7	6.8	103%	91-105
Alkalinity	mg/l	10-0531	Site #3 Blank	03/10/10	03/10/10	03/15/10	0.8	50	1000	0.3	1	7	7.0	103%	91-105
Alkalinity	mg/l	10-0581	Site #7	03/12/10	03/12/10	03/18/10	29.2	50	1000	0.3	1	35	35.4	101%	91-105
Alkalinity	mg/l	10-0751	Rain	3/28 - 3/29/10	03/29/09	04/06/10	1.6	50	1000	0.3	1	8	8	103%	91-105
Alkalinity	mg/l	10-0877	Site #3	4/8 - 4/14/10	04/14/10	04/16/10	91.2	50	1000	0.2	1	95	96	100%	91-105
Alkalinity	mg/l	10-0914	Rain	04/21/10	04/21/10	04/26/10	14.6	50	1000	0.2	1	19	18	98%	91-105
Alkalinity	mg/l	10-1082	Rain Blank	05/09/10	05/09/10	05/11/10	0.4	50	1000	0.2	1	4	4.6	105%	91-105
Alkalinity	mg/l	10-1129	Site #3	5/7 - 5/13/10	05/13/10	05/17/10	94.8	50	1000	0.2	1	99	100.0	101%	91-105
Alkalinity	mg/l	10-1200	Rain	5/13 - 5/20/10	05/20/10	05/24/10	10.4	50	1000	0.2	1	14	14.6	101%	91-105
Alkalinity	mg/l	10-1365	Rain Blank	06/08/10	06/08/10	06/09/10	0.6	50	1000	0.2	1	5	4.8	104%	91-105
Alkalinity	mg/l	10-1637	Rain	6/26 - 7/6/10	07/06/10	07/07/10	3.4	50	1000	0.4	1	11	11.8	104%	91-105
Alkalinity	mg/l	10-2617	Site #1	9/29 - 10/5/10	10/05/10	10/06/10	28.2	50	1000	0.6	1	40	40.6	101%	91-105
Alkalinity	mg/l	10-2832	SP5	10/25/10	10/25/10	01/03/10	199	50	1000	0.6	1	211	210.0	100%	91-105
Alkalinity	mg/l	10-2896	South Bottom	10/28/10	10/28/10	11/08/10	117	50	1000	0.6	1	129	129.0	100%	91-105
Alkalinity	mg/l	10-2999	South Top	11/08/10	11/08/10	11/10/10	107	50	1000	0.6	1	119	120.0	101%	91-105
Turbidity	NTU	09-2514	FCEB	08/11/09	08/11/09	08/13/09	0.5	50	4000	0.25	1	20.5	19.3	94%	87 - 104
Turbidity	NTU	09-4081	Rain	11/25/09	11/25/09	12/02/09	3	50	4000	0.375	1	33	33.2	101%	87 - 104
Turbidity	NTU	10-0382	Site #3	2/11 - 2/16/10	02/06/10	02/18/10	3.6	50	4000	0.25	1	23.6	23.9	101%	87 - 104
Turbidity	NTU	10-0734	Rain	03/25/10	03/25/10	03/27/10	6	50	4000	0.25	1	26	26.4	102%	87 - 104
Turbidity	NTU	10-0877	Site #3	4/8 - 4/14/10	04/14/10	04/15/10	11.3	50	4000	0.125	1	21.3	21.1	99%	87 - 104
Turbidity	NTU	10-0914	Rain	04/21/10	04/21/10	04/22/10	3.1	50	4000	0.125	1	13.1	12.9	98%	87 - 104
Turbidity	NTU	10-1082	Rain Blank	05/07/10	05/07/10	05/09/10	0	50	4000	0.125	1	10	9.8	98%	87 - 104
Turbidity	NTU	10-1129	Site #3	5/7 - 5/13/10	05/13/10	05/14/10	2.3	50	4000	0.125	1	12.3	11.8	96%	87 - 104
Turbidity	NTU	10-1200	Rain	5/13 - 5/20/10	05/20/10	05/22/10	2.5	50	4000	0.125	1	12.5	12.6	101%	87 - 104
Turbidity	NTU	10-1267	Site #3	5/20 - 5/27/10	05/27/10	05/28/10	1.7	50	4000	0.125	1	11.7	11.3	97%	87 - 104
Turbidity	NTU	10-1365	Rain Blank	06/08/10	06/08/10	06/09/10	0	50	4000	0.125	1	10	10.5	105%	87 - 104
Turbidity	NTU	10-1637	Rain	6/26 - 7/6/10	07/06/10	07/07/10	1.4	50	4000	0.5	1	41.4	40.9	99%	87 - 104
Turbidity	NTU	10-1935	Rain Blank	08/03/10	08/03/10	08/04/10	0	50	4000	0.5	1	40	39.9	100%	87 - 104
Turbidity	NTU	10-2361	Rain	9/7 - 9/13/10	09/13/10	09/14/10	0.8	25	1000	0.25	1	10.8	10.7	99%	87 - 104
Turbidity	NTU	10-2616	North Bottom	09/30/10	09/30/10	10/02/10	91.1	25	1000	0.25	1	101.1	102.0	101%	87 - 104

Matrix Spike Recovery Study

For Club II Samples Collected From

December 2008 - February 2011

PARAMETERS	UNITS	SAMPLE ID	SAMPLE DESCRIPTION	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED	INITIAL CONC.	INITIAL VOLUME (ml)	SPIKE CONC.	SPIKE VOLUME ADDED (ml)	Dilution Factor	THEOR. CONC.	ACTUAL CONC.	PERCENT RECOVERY	ACCEPTANCE RANGE
SRP	µg/l	09-0220	Site #1	01/13/09 - 01/22/09	01/23/09	01/23/09	8	10	10000	0.200	1	208	209	100%	90-110
SRP	µg/l	09-0312	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/04/09	11	10	10000	0.200	1	211	218	97%	90-110
SRP	µg/l	09-0715	Rain Equipment Blank	03/02/09	03/02/09	03/04/09	0	10	10000	0.400	1	406	410	99%	90-110
SRP	µg/l	09-1180	North Pond Bottom	03/30/09	03/30/09	03/31/09	58	10	10000	0.200	1	258	267	97%	90-110
SRP	µg/l	09-1596	North Pond Bottom	05/07/09	05/07/09	05/08/09	153	10	10000	0.200	1	353	356	99%	90-110
SRP	µg/l	09-1682	Site #3 Outflow	05/19/09	05/19/09	05/20/09	0	10	10000	0.250	1	250	228	110%	90-110
SRP	µg/l	09-1720	Rain	05/19/09 - 05/21/09	05/21/09	05/22/09	0	10	10000	0.500	1	500	497	101%	90-110
SRP	µg/l	09-1733	Rain	05/22/09 - 05/25/09	05/26/09	05/28/09	0	10	10000	0.200	1	200	214	93%	90-110
SRP	µg/l	09-2120	Rain	06/30/09-07/08/09	07/08/09	07/10/09	0	10	10000	0.100	1	100	100	100%	90-110
SRP	µg/l	09-2519	Site #1/ Inflow Field Dup	08/03/09-08/11/09	08/11/09	08/13/09	8	10	10000	0.200	1	208	220	95%	90-110
SRP	µg/l	09-3909	outh Pond - Top Field Du	11/10/09	11/10/09	11/11/09	6	10	10000	0.400	1	406	391	104%	90-110
SRP	µg/l	09-4198	Rain Field Dup	12/04/09-12/07/09	12/07/09	12/09/09	5	10	10000	0.500	1	505	547	92%	90-110
SRP	µg/l	09-4449F	Site #3	12/15/09-12/22/09	12/23/09	12/24/09	65	5	10000	0.200	1	465	478	97%	90-110
SRP	µg/l	10-076f	Site # 1	01/19/10	01/19/10	01/20/10	3	10	20000	0.400	1	737	803	92%	90-110
SRP	µg/l	10-382f	Site # 3	02/11/10-02/16/10	02/17/10	02/17/10	26	10	5000	0.300	1	176	176	100%	90-110
SRP	µg/l	10-0439F	Site #3	12/15/09-12/22/09	12/23/09	02/25/10	4	10	20000	0.100	1	200	204	98%	90-110
SRP	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	03/26/10	1	10	20000	0.100	1	215	201	107%	90-110
SRP	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	04/16/10	35	10	20000	0.100	1	229	235	97%	90-110
SRP	µg/l	10-1082F	Rain Equipment Blank	05/07/10	05/07/10	05/07/10	0	10	20000	0.200	1	421	400	105%	90-110
SRP	µg/l	10-1200F	Rain	05/13/10-05/20/10	05/20/10	05/21/10	494	10	20000	0.200	1	833	894	93%	90-110
SRP	µg/l	10-1359F	North - Bottom	06/08/10	06/08/10	06/09/10	100	10	20000	0.200	1	512	500	102%	90-110
SRP	µg/l	10-1365F	Rain Equipment Blank	06/08/10	06/08/10	06/09/10	0	10	20000	0.200	1	440	400	110%	90-110
SRP	µg/l	10-1639F	Site #3 Sampler Blank	06/26/10-07/06/10	07/06/10	07/08/10	0	10	20000	0.050	1	110	100	110%	90-110
SRP	µg/l	10-1923F	PCEB	08/03/10	08/03/10	08/04/10	0	10	20000	0.500	1	972	1001	97%	90-110
SRP	µg/l	10-1935F	Rain Equipment Blank	08/03/10	08/03/10	08/04/10	0	10	20000	0.500	1	961	1001	96%	90-110
SRP	µg/l	10-2254F	Site # 3	8/23/10 - 8/31/10	08/31/10	09/01/10	2	10	20000	0.100	1	203	202	100%	90-110
SRP	µg/l	10-2616F	North Pond - Bottom	09/29/10	10/01/10	10/01/10	23	10	20000	0.150	1	332	323	103%	90-110

Matrix Spike Recovery Study

For Club II Samples Collected From

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NOX-N	µg/l	09-0220f	Site #1	01/13/09 - 01/22/09	01/23/09	01/23/09	5	10	100000	0.015	1	155	151	97%	92-111
NOX-N	µg/l	09-0312f	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/04/09	6	10	100000	0.015	1	156	159	102%	92-111
NOX-N	µg/l	09-0715f	Rain Equipment Blank	03/02/09	03/02/09	03/04/09	0	10	100000	0.030	1	300	315	105%	92-111
NOX-N	µg/l	09-1180f	North Pond Bottom	03/30/09	03/30/09	03/31/09	0	10	100000	0.300	1	3000	2931	98%	92-111
NOX-N	µg/l	09-1596f	North Pond Bottom	05/07/09	05/07/09	05/08/09	11	10	100000	0.100	1	1011	974	96%	92-111
NOX-N	µg/l	09-1682f	Site #3 Outflow	05/19/09	05/19/09	05/20/09	38	10	100000	0.100	1	1038	1068	103%	92-111
NOX-N	µg/l	09-1720f	Rain	05/19/09 - 05/21/09	05/21/09	05/22/09	27	10	100000	0.100	1	1027	1073	104%	92-111
NOX-N	µg/l	09-1733f	Rain	05/22/09 - 05/25/09	05/26/09	05/28/09	136	10	100000	0.200	1	2136	2067	97%	92-111
NOX-N	µg/l	09-2120f	Rain	06/30/09-07/08/09	07/08/09	07/10/09	73	10	100000	0.125	1	1323	1380	104%	92-111
NOX-N	µg/l	09-2519f	Site #1/ Inflow Field Dup	08/03/09-08/11/09	08/11/09	08/13/09	17	10	100000	0.300	1	3017	3045	101%	92-111
NOX-N	µg/l	09-3019f	FCEB	09/09/09	09/09/09	09/11/09	1	10	100000	0.100	1	1001	1055	105%	92-111
NOX-N	µg/l	09-4449F	Site #3	12/15/09-12/22/09	12/23/09	12/24/09	400	10	100000	0.250	1	2900	2813	97%	92-111
NOX-N	µg/l	10-076f	Site # 1	01/19/10	01/19/10	01/20/10	33	10	22600	0.2	1	448	485	92%	92-111
NOX-N	µg/l	10-382f	Site # 3	02/11/10-02/16/10	02/17/10	02/17/10	634	10	22600	0.1	1	851	860	99%	92-111
NOX-N	µg/l	10-0439F	Site #3	12/15/09-12/22/09	12/23/09	02/25/10	9	10	22600	0.1	1	250	235	106%	92-111
NOX-N	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	03/26/10	11	10	22600	0.1	1	217	237	92%	92-111
NOX-N	µg/l	10-0877f	Site # 3	04/08/10-04/14/10	04/14/10	04/16/10	130	10	22600	0.05	1	250	243	103%	92-111
NOX-N	µg/l	10-0730F	Site # 1	03/23/10-03/26/10	03/26/10	04/16/10	28	10	22600	0.1	1	239	254	94%	92-111
NOX-N	µg/l	10-1082F	Rain Equipment Blank	05/07/10	05/07/10	05/07/10	0	10	22600	0.2	1	414	452	92%	92-111
NOX-N	µg/l	10-1200F	Rain	05/13/10-05/20/10	05/20/10	05/21/10	422	10	22600	0.2	1	833	874	95%	92-111
NOX-N	µg/l	10-1359F	North - Bottom	06/08/10	06/08/10	06/09/10	11	10	22600	0.2	1	448	463	97%	92-111
NOX-N	µg/l	10-1365F	Rain Equipment Blank	06/08/10	06/08/10	06/09/10	0	10	22600	0.2	1	481	452	106%	92-111
NOX-N	µg/l	10-1639F	Site #3 Sampler Blank	06/26/10-07/06/10	07/06/10	07/08/10	0	10	22600	0.1	1	250	226	111%	92-111
NOX-N	µg/l	10-1923F	PCEB	08/03/10	08/03/10	08/04/10	0	10	22600	0.1	1	232	227	102%	92-111
NOX-N	µg/l	10-1935F	Rain Equipment Blank	08/03/10	08/03/10	08/04/10	0	10	22600	0.1	1	228	227	100%	92-111
NOX-N	µg/l	10-2254F	Site # 3	8/23/10 - 8/31/10	08/31/10	09/01/10	201	10	22600	0.1	1	451	427	106%	92-111
NOX-N	µg/l	10-2616F	North Pond - Bottom	09/29/10	10/01/10	10/01/10	14	10	22600	0.15	1	363	353	103%	92-111

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Total N	µg/l	08-3492f	South Pond Bottom	12/29/08	12/29/08	01/13/09	721	5	100000	0.040	1	1521	1517	100%	90-110
Total N	µg/l	08-3470	Site # 3 Field Dup	12/13/08-12/22/08	12/24/08	01/13/09	728	5	100000	0.040	1	1528	1544	101%	90-110
Total N	µg/l	09-0034	Site # 1 Field Dup	12/29/08-01/07/09	01/07/09	01/15/09	730	5	100000	0.040	1	1530	1537	100%	90-110
Total N	µg/l	09-0100	Site #3	01/07/09-01/13/09	01/13/09	01/20/09	1517	5	100000	0.040	1	2317	2105	91%	90-110
Total N	µg/l	09-0215F	South Pond Bottom	01/22/09	01/23/09	01/27/09	704	5	100000	0.040	1	1504	1401	93%	90-110
Total N	µg/l	09-0256F	Site #3	01/23/09-01/28/09	01/28/09	01/29/09	671	5	100000	0.040	1	1471	1376	94%	90-110
Total N	µg/l	09-0312F	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/10/09	563	5	100000	0.020	1	963	948	98%	90-110
Total N	µg/l	09-0385F	Rain	02/02/09	02/09/09	02/25/09	430	5	100000	0.030	1	1030	1026	100%	90-110
Total N	µg/l	09-0713F	Site #3	02/23/09 - 03/02/09	03/02/09	03/18/09	773	5	100000	0.100	1	2773	2751	99%	90-110
Total N	µg/l	09-0899F	Site #1	03/02/09 - 03/11/09	03/11/09	03/19/09	627	5	100000	0.100	1	2627	2585	98%	90-110
Total N	µg/l	09-1175	uth Pond Middle Field D	03/30/09	03/30/09	04/20/09	744	5	100000	0.100	1	2744	2638	96%	90-110
Total N	µg/l	09-0903	South Pond Bottom	03/12/09	03/12/09	04/24/09	978	5	100000	0.050	1	1978	1892	96%	90-110
Total N	µg/l	09-1279f	Rain	03/31/09-04/06/09	03/30/09	05/05/09	646	5	100000	0.100	1	2646	2533	96%	90-110
Total N	µg/l	09-1596f	North Pond Bottom	05/07/09	05/07/09	06/03/09	2616	5	100000	0.025	1	3116	2838	91%	90-110
Total N	µg/l	09-1655b	Site #3 Sampler Blank	05/14/09	05/14/09	06/08/09	0	5	100000	0.050	1	1013	990	98%	90-110
Total N	µg/l	09-1684	Rain Field Dup	05/18/09 - 05/19/09	05/19/09	06/09/09	348	5	100000	0.050	1	1348	1351	100%	90-110
Total N	µg/l	09-1784	Site #1 / Inflow	5/26/09 - 6/01/09	06/01/09	06/21/09	1342	5	100000	0.050	1	2342	2151	92%	90-110
Total N	µg/l	09-2041f	Rain	06/23/09-06/30/09	06/30/09	07/09/10	571	5	100000	0.020	1	971	959	99%	90-110
Total N	µg/l	09-1971f	Site #2	06/17/09	06/17/09	07/16/09	2665	5	100000	0.020	1	3065	3093	101%	90-110
Total N	µg/l	09-2106	South Top	07/08/09	07/08/09	07/20/09	2035	5	100000	0.020	1	2435	2376	98%	90-110
Total N	µg/l	09-2194f	Site #1/Inflow Field Dup	07/08/09-/07/14/09	07/14/09	08/12/09	787	5	100000	0.020	1	1187	1076	91%	90-110
Total N	µg/l	09-3327	Site #1 / Inflow	09/18/09-09/22/09	09/22/09	09/29/09	1322	5	100000	0.020	1	1722	1680	98%	90-110
Total N	µg/l	09-2520	Site #3/Outflow	08/04/09-08/11/09	08/11/09	10/27/09	1711	5	100000	0.100	1	3711	3725	100%	90-110
Total N	µg/l	09-3629	North - Top	10/12/09	10/12/09	11/09/09	1215	5	100000	0.150	1	4215	3835	91%	90-110
Total N	µg/l	09-3022F	North - Bottom	09/09/09	09/09/09	11/12/09	6285	5	100000	0.100	1	8285	8719	105%	90-110
Total N	µg/l	09-3913	North - Top	11/10/09	11/10/09	12/15/09	2134	5	100000	0.150	1	5134	5381	105%	90-110
Total N	µg/l	09-1279F	Rain	03/31/09-04/06/09	03/30/09	05/05/09	646	5	50000	0.200	1	2646	2533	96%	90-110
Total N	µg/l	09-4200f	Site #2 Sampler Blank	12/07/09	12/07/09	02/02/10	0	5	226000	0.05	1	2132	2260	92%	90-110
Total N	µg/l	09-4281f	North - Middle	12/14/09	12/14/09	02/04/10	1664	5	226000	0.05	1	3820	3924	97%	90-110
Total N	µg/l	09-4475f	Rain	12/25/09	12/30/09	02/04/10	2129	5	226000	0.05	1	4438	4389	101%	90-110
Total N	µg/l	10-073FP	North - Top	01/19/10	01/19/10	02/11/10	1772	5	226000	0.05	1	3954	4032	98%	90-110
Total N	µg/l	10-018FP	Site #3	12/29/09 - 01/05/10	01/05/10	02/12/10	2117	5	226000	0.05	1	4287	4377	98%	90-110
Total N	µg/l	10-245FP	Rain	01/30/10-02/02/10	02/03/10	02/16/10	719	5	226000	0.05	1	2981	2979	100%	90-110
Total N	µg/l	10-0347P	South Pond - Middle	02/11/10	02/11/10	02/22/10	2243	5	226000	0.05	1	4937	4503	110%	90-110
Total N	µg/l	10-0365FP	Site # 5	02/11/10	02/12/10	02/22/10	2503	5	226000	0.05	1	5181	4763	109%	90-110
Total N	µg/l	10-0070P	outh Pond - Middle F.D	01/19/10	01/19/10	03/05/10	1991	5	226000	0.05	1	4396	4251	103%	90-110
Total N	µg/l	10-0518P	South Pond - Middle	03/10/10	03/10/10	03/29/10	1488	5	226000	0.05	1	3719	3748	99%	90-110
Total N	µg/l	10-0529P	Rain	02/22/10-03/02/10	03/10/10	03/30/10	1853	5	226000	0.05	1	3940	4113	96%	90-110
Total N	µg/l	10-0843P	Site # 3	03/29/10-04/08/10	04/08/10	04/23/10	1956	5	226000	0.05	1	4213	4216	100%	90-110
Total N	µg/l	10-0868P	South Pond - Top	04/14/10	04/14/10	04/26/10	2479	5	226000	0.10	1	6678	6999	95%	90-110
Total N	µg/l	10-0912P	Site #4	04/21/10	04/21/10	04/27/10	2968	5	226000	0.05	1	5091	5228	97%	90-110
Total N	µg/l	10-0965FP	Rain	04/21/10-04/28/10	04/28/10	05/06/10	675	5	226000	0.05	1	2935	2935	100%	90-110

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Total N	µg/l	10-1192P	South Pond - Bottom	05/20/10	05/20/10	06/01/10	2708	5	226000	0.05	1	5322	4968	107%	90-110
Total N	µg/l	10-1352FP	South Pond - Top	06/08/10	06/08/10	06/10/10	912	5	226000	0.10	1	5792	5432	107%	90-110
Total N	µg/l	10-0877FP	Site # 3	04/08/10-04/14/10	04/14/10	06/24/10	2934	5	226000	0.04	1	4574	4742	96%	90-110
Total N	µg/l	10-1199FP	Site # 3 F.D.	05/13/10-05/20/10	05/20/10	06/24/10	1068	5	226000	0.05	1	3479	3328	105%	90-110
Total N	µg/l	10-1638FP	Site #1 Sampler Blank	06/26/10-07/06/10	07/06/10	07/13/10	0	5	226000	0.10	1	4944	4520	109%	90-110
Total N	µg/l	10-1727P	Site # 3	07/06/10-07/12/10	07/12/10	07/26/10	770	5	226000	0.10	1	5364	5290	101%	90-110
Total N	µg/l	10-1926P	South Pond - Middle	08/03/10	08/03/10	08/16/10	1013	5	11300	0.02	1	1143	1058.2	108%	90-110
Total N	µg/l	10-1935P	Rain Equipment Blank	08/03/10	08/03/10	08/16/10	0	5	11300	0.06	1	217	213	102%	90-110
Total N	µg/l	10-2301P	Rain Equipment Blank	09/07/10	09/07/10	12/02/10	0	5	22600	0.20	1	905	976	93%	90-110
Total N	µg/l	10-2618P	Site # 3	9/29/10 - 10/5/10	10/05/10	12/28/10	1354	5	22600	0.40	1	3179	3162	101%	90-110
Total N	µg/l	10-2829P	SP 3	10/25/10	10/25/10	01/06/11	1080	5	22600	0.20	1	1960	1984	99%	90-110

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Total P	µg/l	08-3470	Site # 3 Field Dup	12/13/08-12/22/08	12/24/08	01/13/09	65	5	20000	0.080	1	385	398	103%	94-106
Total P	µg/l	09-0034	Site # 1 Field Dup	12/29/08-01/07/09	01/07/09	01/15/09	40	5	20000	0.115	1	500	496	99%	94-106
Total P	µg/l	09-0100	Site #3	01/07/09-01/13/09	01/13/09	01/20/09	106	5	20000	0.115	1	566	556	98%	94-106
Total P	µg/l	09-0215F	South Pond Bottom	01/22/09	01/23/09	01/27/09	4	5	20000	0.100	1	404	407	101%	94-106
Total P	µg/l	09-0256F	Site #3	01/23/09-01/28/09	01/28/09	01/29/09	8	5	20000	0.100	1	408	387	95%	94-106
Total P	µg/l	09-0312F	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/10/09	17	5	20000	0.050	1	217	211	97%	94-106
Total P	µg/l	09-0385F	Rain	02/02/09	02/09/09	02/25/09	0	5	20000	0.050	1	200	201	101%	94-106
Total P	µg/l	09-0634	Site #1	02/18/09-02/23/09	02/23/09	03/06/09	39	5	20000	0.050	1	239	231	97%	94-106
Total P	µg/l	09-0713F	Site #3	02/23/09 - 03/02/09	03/02/09	03/18/09	17	5	20000	0.100	1	417	414	99%	94-106
Total P	µg/l	09-0899F	Site #1	03/02/09 - 03/11/09	03/11/09	03/19/09	0	5	20000	0.100	1	400	386	97%	94-106
Total P	µg/l	09-1175	uth Pond Middle Field D	03/30/09	03/30/09	04/20/09	0	5	20000	0.100	1	400	388	97%	94-106
Total P	µg/l	09-0903	South Pond Bottom	03/12/09	03/12/09	04/24/09	89	5	20000	0.050	1	289	275	95%	94-106
Total P	µg/l	09-1279f	Rain	03/31/09-04/06/09	03/30/09	05/05/09	0	5	20000	0.100	1	400	395	99%	94-106
Total P	µg/l	09-1596f	North Pond Bottom	05/07/09	05/07/09	06/03/09	117	5	20000	0.050	1	317	326	103%	94-106
Total P	µg/l	09-1655b	Site #3 Sampler Blank	05/14/09	05/14/09	06/08/09	0	5	20000	0.05	1	200	187.0	94%	94-106
Total P	µg/l	09-1684	Rain Field Dup	05/18/09 - 05/19/09	05/19/09	06/09/09	0	5	20000	0.05	1	200	189.0	95%	94-106
Total P	µg/l	09-1784	Site #1 / Inflow	5/26/09 - 6/01/09	06/01/09	06/21/09	137	5	20000	0.05	1	337	333.0	99%	94-106
Total P	µg/l	09-2041f	Rain	06/23/09-06/30/09	06/30/09	07/09/10	7	5	50000	0.05	1	507	515.0	102%	94-106
Total P	µg/l	09-1971f	Site #2	06/17/09	06/17/09	07/16/09	691	5	50000	0.025	1	941	958	102%	94-106
Total P	µg/l	09-2106	South Top	07/08/09	07/08/09	07/20/09	27	5	50000	0.025	1	277	261	94%	94-106
Total P	µg/l	09-2194f	Site #1/Inflow Field Dup	07/08/09-/07/14/09	07/14/09	08/12/09	8	5	50000	0.050	1	508	488	96%	94-106
Total P	µg/l	09-3327	Site #1 / Inflow	09/18/09-09/22/09	09/22/09	09/29/09	60	5	50000	0.050	1	565	598	105%	94-106
Total P	µg/l	09-2520	Site #3/Outflow	08/04/09-08/11/09	08/11/09	10/27/09	29	5	50000	0.050	1	529	514	97%	94-106
Total P	µg/l	09-3629	North - Top	10/12/09	10/12/09	11/09/09	53	5	50000	0.050	1	553	529	96%	94-106
Total P	µg/l	09-3022F	North - Bottom	09/09/09	09/09/09	11/12/09	98	5	50000	0.050	1	598	580	97%	94-106
Total P	µg/l	09-3913	North - Top	11/10/09	11/10/09	12/15/09	27	5	50000	0.050	1	527	505	96%	94-106
Total P	µg/l	09-1279f	Rain	03/31/09-04/06/09	03/30/09	05/05/09	0	5	10000	0.200	1	400	395	99%	94-106
Total P	µg/l	09-4200f	Site #2 Sampler Blank	12/07/09	12/07/09	02/02/10	21	5	50000	0.05	1	512	521	98%	94-106
Total P	µg/l	09-4281f	North - Middle	12/14/09	12/14/09	02/04/10	13	5	50000	0.05	1	478	513	93%	94-106
Total P	µg/l	09-4475f	Rain	12/25/09	12/30/09	02/04/10	413	5	50000	0.05	1	905	913	99%	94-106
Total P	µg/l	10-073FP	North - Top	01/19/10	01/19/10	02/11/10	9	5	50000	0.05	1	530	509	104%	94-106
Total P	µg/l	10-018FP	Site #3	12/29/09 - 01/05/10	01/05/10	02/12/10	71	5	50000	0.05	1	589	571	103%	94-106
Total P	µg/l	10-245FP	Rain	01/30/10-02/02/10	02/03/10	02/16/10	0	5	50000	0.05	1	515.0	500	103%	94-106
Total P	µg/l	10-0347P	South Pond - Middle	02/11/10	02/11/10	02/22/10	78	5	50000	0.05	1	587.0	578	102%	94-106
Total P	µg/l	10-0365FP	Site # 5	02/11/10	02/12/10	02/22/10	12	5	50000	0.05	1	505.0	512	99%	94-106
Total P	µg/l	10-0070P	outh Pond - Middle F.D	01/19/10	01/19/10	03/05/10	73	5	50000	0.05	1	569.0	573	99%	94-106
Total P	µg/l	10-0518P	South Pond - Middle	03/10/10	03/10/10	03/29/10	56	5	50000	0.05	1	605	586	105%	94-106
Total P	µg/l	10-0529P	Rain	02/22/10-03/02/10	03/10/10	03/30/10	139	5	50000	0.05	1	659	639	104%	94-106
Total P	µg/l	10-0843P	Site # 3	03/29/10-04/08/10	04/08/10	04/23/10	131	5	50000	0.05	1	675	631	105%	94-106
Total P	µg/l	10-0868P	South Pond - Top	04/14/10	04/14/10	04/26/10	43	5	50000	0.05	1	573	543	106%	94-106
Total P	µg/l	10-0912P	Site #4	04/21/10	04/21/10	04/27/10	37	5	50000	0.05	1	560	537	104%	94-106
Total P	µg/l	10-0965FP	Rain	04/21/10-04/28/10	04/28/10	05/06/10	76	5	50000	0.50	1	4881	5076	96%	94-106

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Total P	µg/l	10-1192P	South Pond - Bottom	05/20/10	05/20/10	06/01/10	488	5	50000	0.10	1	1453	1488	98%	94-106
Total P	µg/l	10-1199FP	Site # 3 F.D.	05/13/10-05/20/10	05/20/10	06/04/10	14	5	50000	0.10	1	997	1014	98%	94-106
Total P	µg/l	10-1352FP	South Pond - Top	06/08/10	06/08/10	06/10/10	2	5	50000	0.05	1	518	502	103%	94-106
Total P	µg/l	10-0877FP	Site # 3	04/08/10-04/14/10	04/14/10	06/24/10	39	5	50000	0.10	1	1033	1039	99%	94-106
Total P	µg/l	10-1638FP	Site #1 Sampler Blank	06/26/10-07/06/10	07/06/10	07/13/10	0	5	50000	0.05	1	471	500	94%	94-106
Total P	µg/l	10-1727P	Site # 3	07/06/10-07/12/10	07/12/10	07/26/10	8	5	50000	0.06	1	581	608	96%	94-106
Total P	µg/l	10-1926P	South Pond - Middle	08/03/10	08/03/10	08/16/10	9	5	50000	0.01	1	100	99	101%	94-106
Total P	µg/l	10-1935P	Rain Equipment Blank	08/03/10	08/03/10	08/16/10	0	5	50000	0.01	1	82	80	103%	94-106
Total P	µg/l	10-2301P	Rain Equipment Blank	09/07/10	09/07/10	12/02/10	5	5	20000	0.1	1	386.0	405	95%	94-106
Total P	µg/l	10-2618P	Site # 3	9/29/10 - 10/5/10	10/05/10	12/28/10	33	5	20000	0.15	1	638.0	633	101%	94-106
Total P	µg/l	10-2829P	SP 3	10/25/10	10/25/10	01/06/11	43	5	20000	0.175	1	696.0	743	94%	94-106

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Ammonia	µg/l	09-0217p	North Pond Top	01/22/09	01/23/09	02/17/09	85	10	100000	0.100	1	1085	1015	94%	80-120
Ammonia	µg/l	09-0256p	Site #3	01/23/09-01/28/09	01/28/09	02/18/09	31	10	100000	0.125	1	1281	1241	97%	80-120
Ammonia	µg/l	09-0312p	Site #1 Field Dup	01/28/09-02/02/09	02/02/09	02/18/09	25	10	100000	0.100	1	1025	982	96%	80-120
Ammonia	µg/l	09-0907	North Pond Middle	03/12/09	03/12/09	04/14/09	45	10	100000	0.100	1	1045	1138	109%	80-120
Ammonia	µg/l	09-1180	North Pond Bottom	03/30/09	03/30/09	04/16/09	537	10	100000	0.150	1	2037	1750	86%	80-120
Ammonia	µg/l	09-1592	South Pond Bottom	05/07/09	05/07/09	05/12/09	2387	10	100000	0.100	1	3387	3304	98%	80-120
Ammonia	µg/l	09-1683	Rain	05/18/09 - 05/19/09	05/19/09	05/28/09	13	10	100000	0.100	1	1013	1002	99%	80-120
Ammonia	µg/l	09-1778	uth Pond Middle Field D	06/01/09	06/01/09	06/16/09	356	10	100000	0.100	1	1356	1318	97%	80-120
Ammonia	µg/l	09-2119b	Site #3 Sampler Blank	07/08/09	07/08/09	07/22/09	3	10	100000	0.100	1	1003	966	96%	80-120
Ammonia	µg/l	09-3913P	North - Top	11/10/09	11/10/09	11/30/09	692	10	100000	0.200	1	2692	2772	103%	80-120
Ammonia	µg/l	09-4198P	Rain Field Dup	12/04/09-12/07/09	12/07/09	12/18/09	20	10	100000	0.100	1	1020	1025	100%	80-120
Ammonia	µg/l	09-4472P	Site #1	12/23/09-12/29/09	12/30/09	01/14/10	34	10	100000	0.100	1	1038	1034	100%	80-120
Ammonia	µg/l	10-0076P	Site # 1	01/19/10	01/19/10	01/15/10	28	10	100000	0.100	1	903	1028	88%	80-120
Ammonia	µg/l	10-0348P	South Pond - Middle F.D	02/11/10	02/11/10	03/01/10	395	10	100000	0.100	1	1254	1395	90%	80-120
Ammonia	µg/l	10-0869P	South Pond - Middle	04/14/10	04/14/10	04/16/10	32	10	10000	0.300	1	328	332	99%	80-120
Ammonia	µg/l	10-0912P	Site #4	04/21/10	04/21/10	04/29/10	185	10	100000	0.200	1	1952	2185	89%	80-120
Ammonia	µg/l	10-1128P	Site #1	05/07 - 05/13/10	05/13/10	06/02/10	33	10	100000	0.100	1	987	1033	96%	80-120
Ammonia	µg/l	10-1351P	PCEB	06/08/10	06/08/10	06/09/10	0	10	10000	0.300	1	335	300	112%	80-120
Ammonia	µg/l	10-1365P	Rain Equipment Blank	06/08/10	06/08/10	06/09/10	1	9.5	10000	0.200	1	206	212	97%	80-120
Ammonia	µg/l	10-1640P	Rain Equipment Blank	06/26/10-07/06/10	07/06/10	07/15/10	1	10	10000	0.150	1	164	151	109%	80-120
Ammonia	µg/l	10-1724P	North - Middle	07/12/10	07/12/10	07/15/10	36	10	10000	0.100	1	123	136	90%	80-120
Ammonia	µg/l	10-1783P	Site #1	07/19/10-07/26/10	07/26/10	08/02/10	2045	10	10000	0.100	1	1913	2145	89%	80-120
Ammonia	µg/l	10-2254P	Site # 3	8/23/10 - 8/31/10	08/31/10	08/28/10	221	10	10000	0.100	1	355	321	111%	80-120
Ammonia	µg/l	10-2609P	South Pond - Top	09/29/10	10/01/10	12/08/10	58	10	10000	0.400	1	477	458	104%	80-120
Ammonia	µg/l	10-2893P	South Pond Top	10/28/10	10/28/10	12/15/10	56	10	10000	0.150	1	172	206	83%	80-120
Ammonia	µg/l	10-2998P	PCEB	11/08/10	11/08/10	12/17/10	0	10	10000	1.500	1	1580	1500	105%	80-120
Color	PCU	09-1280	Rain Blank	04/07/09	04/07/09	07/30/09	0	25	500	1.000	1	20	20	100%	80-120
Color	PCU	09-1655	Site 3 SB	0514/09	0514/09	07/30/09	0	25	500	1.000	1	20	20	100%	80-120
Color	PCU	09-1785	Site 1 SB	06/01/09	06/01/09	07/28/09	1	25	500	1.000	1	21	19	90%	80-120
Color	PCU	09-1973	Rain	6/9/09-6/17/09	06/17/09	07/23/09	4	25	500	1.000	1	24	23	96%	80-120
Color	PCU	09-1991	Rain	6/18/09-6/23/09	06/23/09	07/23/09	6	25	500	1.000	1	26	25	96%	80-120
Color	PCU	09-2516	N. Middle	08/11/09	08/11/09	08/12/09	40	25	500	1.000	5	140	134	96%	80-120
Color	PCU	09-4201	Site 3 Blank	12/07/09	12/07/09	12/08/09	0	25	500	1.000	1	20	20	100%	80-120
Color	PCU	09-4450	Rain	12/18/09	12/18/09	12/24/09	0	25	500	1.000	1	20	21	105%	80-120

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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE (%)
Alkalinity	mg/l	LCS	10/20/09	10/20/09	10.8	10.6	98%	91 - 109
Alkalinity	mg/l	LCS	12/16/09	12/16/09	10.8	10.8	100%	91 - 109
Alkalinity	mg/l	LCS	12/18/09	12/18/09	11.0	11.2	102%	91 - 109
Alkalinity	mg/l	LCS	01/11/10	01/11/10	10.6	10.4	98%	91 - 109
Alkalinity	mg/l	LCS	03/15/10	03/15/10	10.8	11.0	102%	91 - 109
Alkalinity	mg/l	LCS	03/18/10	03/18/10	10.6	10.8	102%	91 - 109
Alkalinity	mg/l	LCS	04/06/10	04/06/10	10.6	10.6	100%	91 - 109
Alkalinity	mg/l	LCS	04/16/10	04/16/10	11.0	11.2	102%	91 - 109
Alkalinity	mg/l	LCS	04/26/10	04/26/10	10.6	10.8	102%	91 - 109
Alkalinity	mg/l	LCS	05/11/10	05/11/10	11.0	11.2	102%	91 - 109
Alkalinity	mg/l	LCS	05/17/10	05/17/10	8.6	8.4	98%	91 - 109
Alkalinity	mg/l	LCS	05/24/10	05/24/10	8.8	8.6	98%	91 - 109
Alkalinity	mg/l	LCS	06/09/10	06/09/10	8.8	8.0	92%	91 - 109
Alkalinity	mg/l	LCS	07/07/10	07/07/10	8.8	8.8	100%	91 - 109
Alkalinity	mg/l	LCS	10/06/10	10/06/10	8.6	8.2	95%	91 - 109
Alkalinity	mg/l	LCS	01/03/10	01/03/10	8.6	8.8	102%	91 - 109
Alkalinity	mg/l	LCS	11/08/10	11/08/10	8.6	8.4	98%	91 - 109
Alkalinity	mg/l	LCS	11/10/10	11/10/10	8.4	8.4	100%	91 - 109
Turbidity	NTU	LCS	08/13/09	08/13/09	20.2	20.9	103%	87 - 104
Turbidity	NTU	LCS	12/02/09	12/02/09	20.2	20.5	101%	87 - 104
Turbidity	NTU	LCS	02/18/10	02/18/10	20.2	20.9	103%	87 - 104
Turbidity	NTU	LCS	03/27/10	03/27/10	20.3	20.7	102%	87 - 104
Turbidity	NTU	LCS	04/15/10	04/15/10	20.2	20.6	102%	87 - 104
Turbidity	NTU	LCS	04/22/10	04/22/10	20.2	20.4	101%	87 - 104
Turbidity	NTU	LCS	05/09/10	05/09/10	20.3	21.0	103%	87 - 104
Turbidity	NTU	LCS	05/14/10	05/14/10	20.2	21.1	104%	87 - 104
Turbidity	NTU	LCS	05/22/10	05/22/10	30.2	31.2	103%	87 - 104
Turbidity	NTU	LCS	05/28/10	05/28/10	30.2	30.6	101%	87 - 104
Turbidity	NTU	LCS	06/09/10	06/09/10	30.2	30.4	101%	87 - 104
Turbidity	NTU	LCS	07/07/10	07/07/10	30.1	29.7	99%	87 - 104
Turbidity	NTU	LCS	08/04/10	08/04/10	30.1	30.0	100%	87 - 104
Turbidity	NTU	LCS	09/14/10	09/14/10	30.1	30.0	100%	87 - 104
Turbidity	NTU	LCS	10/02/10	10/02/10	31.2	31.9	102%	87 - 104

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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE (%)
SRP	µg/l	LCS	01/23/09	01/23/09	200	191	96%	90-110
SRP	µg/l	LCS	02/04/09	02/04/09	200	198	99%	90-110
SRP	µg/l	LCS	03/04/09	03/04/09	200	197	99%	90-110
SRP	µg/l	LCS	03/31/09	03/31/09	200	203	102%	90-110
SRP	µg/l	LCS	05/08/09	05/08/09	200	211	106%	90-110
SRP	µg/l	LCS	05/20/09	05/20/09	200	212	106%	90-110
SRP	µg/l	LCS	05/22/09	05/22/09	200	218	109%	90-110
SRP	µg/l	LCS	05/28/09	05/28/09	2500	2278	91%	90-110
SRP	µg/l	LCS	07/10/09	07/10/09	500	486	97%	90-110
SRP	µg/l	LCS	08/13/09	08/13/09	100	107	107%	90-110
SRP	µg/l	LCS	11/11/09	11/11/09	100	110	110%	90-110
SRP	µg/l	LCS	12/09/09	12/09/09	102	112	110%	90-110
SRP	µg/l	LCS	12/24/09	12/24/09	450	461	102%	90-110
SRP	µg/l	LCS	01/20/10	01/20/10	450	447	99%	90-110
SRP	µg/l	LCS	02/17/10	02/17/10	250	238	95%	90-110
SRP	µg/l	LCS	02/25/10	02/25/10	450	435	97%	90-110
SRP	µg/l	LCS	03/26/10	03/26/10	450	472	105%	90-110
SRP	µg/l	LCS	04/16/10	04/16/10	450	490	109%	90-110
SRP	µg/l	LCS	04/16/10	04/16/10	450	441	98%	90-110
SRP	µg/l	LCS	05/07/10	05/07/10	450	460	102%	90-110
SRP	µg/l	LCS	05/21/10	05/21/10	450	464	103%	90-110
SRP	µg/l	LCS	06/09/10	06/09/10	450	461	102%	90-110
SRP	µg/l	LCS	06/09/10	06/09/10	250	247	99%	90-110
SRP	µg/l	LCS	07/08/10	07/08/10	250	247	99%	90-110
SRP	µg/l	LCS	08/04/10	08/04/10	250	233	93%	90-110
SRP	µg/l	LCS	08/04/10	08/04/10	250	235	94%	90-110
SRP	µg/l	LCS	09/01/10	09/01/10	250	236	94%	90-110
SRP	µg/l	LCS	10/01/10	10/01/10	250	229	92%	90-110
NOX-N	µg/l	LCS	01/23/09	01/23/09	150	155	103%	85-115
NOX-N	µg/l	LCS	02/04/09	02/04/09	150	166	111%	85-115
NOX-N	µg/l	LCS	03/04/09	03/04/09	250	257	103%	85-115
NOX-N	µg/l	LCS	03/31/09	03/31/09	150	148	99%	85-115
NOX-N	µg/l	LCS	05/08/09	05/08/09	150	151	101%	85-115
NOX-N	µg/l	LCS	05/20/09	05/20/09	150	163	109%	85-115
NOX-N	µg/l	LCS	05/22/09	05/22/09	25	28	112%	85-115
NOX-N	µg/l	LCS	05/28/09	05/28/09	150	164	109%	85-115
NOX-N	µg/l	LCS	07/10/09	07/10/09	100	87	87%	85-115
NOX-N	µg/l	LCS	08/13/09	08/13/09	500	488	98%	85-115
NOX-N	µg/l	LCS	09/11/09	09/11/09	500	489	98%	85-115
NOX-N	µg/l	LCS	12/24/09	12/24/09	1000	999	100%	85-115
NOX-N	µg/l	LCS	01/20/10	01/20/10	600	600	100%	85-115
NOX-N	µg/l	LCS	02/17/10	02/17/10	600	604	101%	85-115
NOX-N	µg/l	LCS	02/25/10	02/25/10	3500	3525	101%	85-115
NOX-N	µg/l	LCS	03/26/10	03/26/10	3500	3267	93%	85-115
NOX-N	µg/l	LCS	04/16/10	04/16/10	4500	4297	95%	85-115
NOX-N	µg/l	LCS	04/16/10	04/16/10	4500	4303	96%	85-115
NOX-N	µg/l	LCS	05/07/10	05/07/10	4500	4306	96%	85-115
NOX-N	µg/l	LCS	05/21/10	05/21/10	1000	976	98%	85-115
NOX-N	µg/l	LCS	06/09/10	06/09/10	1000	899	90%	85-115
NOX-N	µg/l	LCS	06/09/10	06/09/10	181	164	91%	85-115
NOX-N	µg/l	LCS	07/08/10	07/08/10	181	158	87%	85-115
NOX-N	µg/l	LCS	08/04/10	08/04/10	181	157	87%	85-115
NOX-N	µg/l	LCS	08/04/10	08/04/10	181	171	95%	85-115
NOX-N	µg/l	LCS	09/01/10	09/01/10	1808	1789	99%	85-115
NOX-N	µg/l	LCS	10/01/10	10/01/10	181	164	91%	85-115

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For Club II Samples Collected From December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE (%)
Total N	µg/l	LCS	01/13/09	01/13/09	5000	4687	94%	90-110
Total N	µg/l	LCS	01/13/09	01/13/09	4000	4184	105%	90-110
Total N	µg/l	LCS	01/15/09	01/15/09	5600	5515	98%	90-110
Total N	µg/l	LCS	01/20/09	01/20/09	3000	2923	97%	90-110
Total N	µg/l	LCS	01/27/09	01/27/09	3000	2948	98%	90-110
Total N	µg/l	LCS	01/29/09	01/29/09	3000	3174	106%	90-110
Total N	µg/l	LCS	02/10/09	02/10/09	3000	3129	104%	90-110
Total N	µg/l	LCS	02/25/09	02/25/09	3000	3066	102%	90-110
Total N	µg/l	LCS	03/18/09	03/18/09	4000	3927	98%	90-110
Total N	µg/l	LCS	03/19/09	03/19/09	4000	4186	105%	90-110
Total N	µg/l	LCS	04/20/09	04/20/09	2000	1918	96%	90-110
Total N	µg/l	LCS	04/24/09	04/24/09	3000	3156	105%	90-110
Total N	µg/l	LCS	05/05/09	05/05/09	3000	3303	110%	90-110
Total N	µg/l	LCS	06/03/09	06/03/09	3000	3145	105%	90-110
Total N	µg/l	LCS	06/08/09	06/08/09	3000	3160	105%	90-110
Total N	µg/l	LCS	06/09/09	06/09/09	3000	2774	92%	90-110
Total N	µg/l	LCS	06/21/09	06/21/09	3000	2738	91%	90-110
Total N	µg/l	LCS	07/09/10	07/09/10	3000	2793	93%	90-110
Total N	µg/l	LCS	07/16/09	07/16/09	3500	3399	97%	90-110
Total N	µg/l	LCS	07/20/09	07/20/09	3500	3847	110%	90-110
Total N	µg/l	LCS	08/12/09	08/12/09	3500	3778	108%	90-110
Total N	µg/l	LCS	09/29/09	09/29/09	3500	3531	101%	90-110
Total N	µg/l	LCS	10/27/09	10/27/09	3000	3194	106%	90-110
Total N	µg/l	LCS	11/09/09	11/09/09	3500	3602	103%	90-110
Total N	µg/l	LCS	11/12/09	11/12/09	3000	3153	105%	90-110
Total N	µg/l	LCS	12/15/09	12/15/09	3000	3210	107%	90-110
Total N	µg/l	LCS	05/05/09	05/05/09	3000	3169	106%	90-110
Total N	µg/l	LCS	02/02/10	02/02/10	3000	3156	105%	90-110
Total N	µg/l	LCS	02/04/10	02/04/10	4000	4092	102%	90-110
Total N	µg/l	LCS	02/04/10	02/04/10	4000	4395	110%	90-110
Total N	µg/l	LCS	02/11/10	02/11/10	4000	4119	103%	90-110
Total N	µg/l	LCS	02/12/10	02/12/10	4000	3883	97%	90-110
Total N	µg/l	LCS	02/16/10	02/16/10	4520	4539	100%	90-110
Total N	µg/l	LCS	02/22/10	02/22/10	4520	4609	102%	90-110
Total N	µg/l	LCS	02/22/10	02/22/10	4520	4488	99%	90-110
Total N	µg/l	LCS	03/05/10	03/05/10	4520	4663	103%	90-110
Total N	µg/l	LCS	03/29/10	03/29/10	4972	5347	108%	90-110
Total N	µg/l	LCS	03/30/10	03/30/10	4520	4631	102%	90-110
Total N	µg/l	LCS	04/23/10	04/23/10	4520	4596	102%	90-110
Total N	µg/l	LCS	04/26/10	04/26/10	4068	4058	100%	90-110
Total N	µg/l	LCS	04/27/10	04/27/10	4520	4554	101%	90-110
Total N	µg/l	LCS	05/06/10	05/06/10	4520	4767	105%	90-110
Total N	µg/l	LCS	06/01/10	06/01/10	4520	4967	110%	90-110
Total N	µg/l	LCS	06/10/10	06/10/10	3616	3947	109%	90-110
Total N	µg/l	LCS	06/24/10	06/24/10	3616	3970	110%	90-110
Total N	µg/l	LCS	06/24/10	06/24/10	4520	4656	103%	90-110
Total N	µg/l	LCS	07/13/10	07/13/10	5424	5154	95%	90-110
Total N	µg/l	LCS	07/26/10	07/26/10	5424	5158	95%	90-110
Total N	µg/l	LCS	08/16/10	08/16/10	904	843	93%	90-110
Total N	µg/l	LCS	08/16/10	08/16/10	904	897	99%	90-110
Total N	µg/l	LCS	12/02/10	12/02/10	904	920	102%	90-110
Total N	µg/l	LCS	12/28/10	12/28/10	904	880	97%	90-110
Total N	µg/l	LCS	01/06/11	01/06/11	4520	4871	108%	90-110

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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE (%)
Total P	µg/l	LCS	01/13/09	01/13/09	1130	1180	104%	90-110
Total P	µg/l	LCS	01/15/09	01/15/09	1356	1409	104%	90-110
Total P	µg/l	LCS	01/20/09	01/20/09	6328	5932	94%	90-110
Total P	µg/l	LCS	01/27/09	01/27/09	1356	1408	104%	90-110
Total P	µg/l	LCS	01/29/09	01/29/09	400	418	105%	90-110
Total P	µg/l	LCS	02/10/09	02/10/09	400	408	102%	90-110
Total P	µg/l	LCS	02/25/09	02/25/09	400	400	100%	90-110
Total P	µg/l	LCS	03/06/09	03/06/09	1000	955	96%	90-110
Total P	µg/l	LCS	03/18/09	03/18/09	1000	955	96%	90-110
Total P	µg/l	LCS	03/19/09	03/19/09	1000	1014	101%	90-110
Total P	µg/l	LCS	04/20/09	04/20/09	1000	961	96%	90-110
Total P	µg/l	LCS	04/24/09	04/24/09	500	474	95%	90-110
Total P	µg/l	LCS	05/05/09	05/05/09	500	451	90%	90-110
Total P	µg/l	LCS	06/03/09	06/03/09	500	504	101%	90-110
Total P	µg/l	LCS	06/08/09	06/08/09	400	406	102%	90-110
Total P	µg/l	LCS	06/09/09	06/09/09	400	396	99%	90-110
Total P	µg/l	LCS	06/21/09	06/21/09	400	398	100%	90-110
Total P	µg/l	LCS	07/09/10	07/09/10	400	390	98%	90-110
Total P	µg/l	LCS	07/16/09	07/16/09	652	615	94%	90-110
Total P	µg/l	LCS	07/20/09	07/20/09	652	606	93%	90-110
Total P	µg/l	LCS	08/12/09	08/12/09	652	615	94%	90-110
Total P	µg/l	LCS	09/29/09	09/29/09	652	618	95%	90-110
Total P	µg/l	LCS	10/27/09	10/27/09	1000	922	92%	90-110
Total P	µg/l	LCS	11/09/09	11/09/09	1000	961	96%	90-110
Total P	µg/l	LCS	11/12/09	11/12/09	1000	1090	109%	90-110
Total P	µg/l	LCS	12/15/09	12/15/09	1000	935	94%	90-110
Total P	µg/l	LCS	05/05/09	05/05/09	1000	977	98%	90-110
Total P	µg/l	LCS	02/02/10	02/02/10	1200	1138	95%	90-110
Total P	µg/l	LCS	02/04/10	02/04/10	1400	1401	100%	90-110
Total P	µg/l	LCS	02/04/10	02/04/10	1300	1264	97%	90-110
Total P	µg/l	LCS	02/11/10	02/11/10	1300	1345	103%	90-110
Total P	µg/l	LCS	02/12/10	02/12/10	1000	983	98%	90-110
Total P	µg/l	LCS	02/16/10	02/16/10	1000	1072	107%	90-110
Total P	µg/l	LCS	02/22/10	02/22/10	1000	937	94%	90-110
Total P	µg/l	LCS	02/22/10	02/22/10	1000	965	97%	90-110
Total P	µg/l	LCS	03/05/10	03/05/10	1000	1031	103%	90-110
Total P	µg/l	LCS	03/29/10	03/29/10	652	673	103%	90-110
Total P	µg/l	LCS	03/30/10	03/30/10	652	675	104%	90-110
Total P	µg/l	LCS	04/23/10	04/23/10	652	704	108%	90-110
Total P	µg/l	LCS	04/26/10	04/26/10	652	700	107%	90-110
Total P	µg/l	LCS	04/27/10	04/27/10	652	697	107%	90-110
Total P	µg/l	LCS	05/06/10	05/06/10	300	279	93%	90-110
Total P	µg/l	LCS	06/01/10	06/01/10	300	292	97%	90-110
Total P	µg/l	LCS	06/04/10	06/04/10	300	283	94%	90-110
Total P	µg/l	LCS	06/10/10	06/10/10	300	289	96%	90-110
Total P	µg/l	LCS	06/24/10	06/24/10	300	275	92%	90-110
Total P	µg/l	LCS	07/13/10	07/13/10	300	288	96%	90-110
Total P	µg/l	LCS	07/26/10	07/26/10	300	309	103%	90-110
Total P	µg/l	LCS	08/16/10	08/16/10	200	214	107%	90-110
Total P	µg/l	LCS	08/16/10	08/16/10	200	206	103%	90-110
Total P	µg/l	LCS	12/02/10	12/02/10	250	264	106%	90-110
Total P	µg/l	LCS	12/28/10	12/28/10	300	284	95%	90-110
Total P	µg/l	LCS	01/06/11	01/06/11	200	197	99%	90-110

Laboratory Control Standard Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE (%)
Ammonia	µg/l	LCS	02/17/09	02/17/09	3000	3048	102%	80-120
Ammonia	µg/l	LCS	02/18/09	02/18/09	3000	3069	102%	80-120
Ammonia	µg/l	LCS	02/18/09	02/18/09	3000	3061	102%	80-120
Ammonia	µg/l	LCS	04/14/09	04/14/09	3000	3115	104%	80-120
Ammonia	µg/l	LCS	04/16/09	04/16/09	3000	3311	110%	80-120
Ammonia	µg/l	LCS	05/12/09	05/12/09	3000	3246	108%	80-120
Ammonia	µg/l	LCS	05/28/09	05/28/09	3000	3264	109%	80-120
Ammonia	µg/l	LCS	06/16/09	06/16/09	3000	3280	109%	80-120
Ammonia	µg/l	LCS	07/22/09	07/22/09	1100	1101	100%	80-120
Ammonia	µg/l	LCS	11/30/09	11/30/09	1100	1185	108%	80-120
Ammonia	µg/l	LCS	12/18/09	12/18/09	1100	1193	108%	80-120
Ammonia	µg/l	LCS	01/14/10	01/14/10	1000	958	96%	80-120
Ammonia	µg/l	LCS	01/15/10	01/15/10	1000	940	94%	80-120
Ammonia	µg/l	LCS	03/01/10	03/01/10	1000	957	96%	80-120
Ammonia	µg/l	LCS	04/16/10	04/16/10	1000	941	94%	80-120
Ammonia	µg/l	LCS	04/29/10	04/29/10	150	149	99%	80-120
Ammonia	µg/l	LCS	06/02/10	06/02/10	150	155	103%	80-120
Ammonia	µg/l	LCS	06/09/10	06/09/10	150	158	105%	80-120
Ammonia	µg/l	LCS	06/09/10	06/09/10	150	155	103%	80-120
Ammonia	µg/l	LCS	07/15/10	07/15/10	150	157	105%	80-120
Ammonia	µg/l	LCS	07/15/10	07/15/10	150	148	99%	80-120
Ammonia	µg/l	LCS	08/02/10	08/02/10	150	151	101%	80-120
Ammonia	µg/l	LCS	08/28/10	08/28/10	150	148	99%	80-120
Ammonia	µg/l	LCS	12/08/10	12/08/10	150	150	100%	80-120
Ammonia	µg/l	LCS	12/15/10	12/15/10	150	152	101%	80-120
Ammonia	µg/l	LCS	12/17/10	12/17/10	1500	1557	104%	80-120
Color	PCU	LCS	07/30/09	07/30/09	10	10	100%	85-115%
Color	PCU	LCS	07/30/09	07/30/09	10	10	100%	85-115%
Color	PCU	LCS	07/28/09	07/28/09	40	42	105%	85-115%
Color	PCU	LCS	07/23/09	07/23/09	40	42	105%	85-115%
Color	PCU	LCS	07/23/09	07/23/09	40	42	105%	85-115%
Color	PCU	LCS	08/12/09	08/12/09	10	10	100%	85-115%
Color	PCU	LCS	12/08/09	12/08/09	10	11	110%	85-115%
Color	PCU	LCS	12/24/09	12/24/09	20	19	95%	85-115%

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Alkalinity	mg/l	CCV	12/08/08	12/08/08	10.4	10.4	100%	91-105%
Alkalinity	mg/l	CCV	12/08/08	12/08/08	10.6	10.6	100%	91-105%
Alkalinity	mg/l	CCV	12/29/08	12/29/08	10.8	10.8	100%	91-105%
Alkalinity	mg/l	CCV	12/08/08	12/08/08	10.8	10.8	100%	91-105%
Alkalinity	mg/l	CCV	01/06/09	01/06/09	10.6	11.0	104%	91-105%
Alkalinity	mg/l	CCV	01/12/09	01/12/09	10.6	10.4	98%	91-105%
Alkalinity	mg/l	CCV	01/14/09	01/14/09	10.8	10.6	98%	91-105%
Alkalinity	mg/l	CCV	01/26/09	01/26/09	10.8	10.6	98%	91-105%
Alkalinity	mg/l	CCV	01/29/09	01/29/09	10.8	11.0	102%	91 - 105
Alkalinity	mg/l	CCV	02/03/09	02/03/09	10.8	10.8	100%	91 - 105
Alkalinity	mg/l	CCV	02/10/09	02/10/09	10.8	10.6	98%	91 - 105
Alkalinity	mg/l	CCV	02/20/09	02/20/09	11.0	10.8	98%	91 - 105
Alkalinity	mg/l	CCV	03/12/09	03/12/09	10.8	10.8	100%	91 - 105
Alkalinity	mg/l	CCV	03/16/09	03/16/09	10.8	10.6	98%	91 - 105
Alkalinity	mg/l	CCV	04/13/09	04/13/09	10.8	10.8	100%	91 - 105
Alkalinity	mg/l	CCV	05/20/09	05/20/09	11.0	10.8	98%	91 - 105
Alkalinity	mg/l	CCV	05/27/09	05/27/09	8.8	8.6	98%	91 - 105
Alkalinity	mg/l	CCV	06/03/09	06/03/09	8.6	8.6	100%	91 - 105
Alkalinity	mg/l	CCV	06/17/09	06/17/09	8.4	8.2	98%	91 - 105
Alkalinity	mg/l	CCV	07/13/09	07/13/09	8.8	8.4	95%	91 - 105
Alkalinity	mg/l	CCV	07/15/09	07/15/09	8.4	8.6	102%	91 - 105
Alkalinity	mg/l	CCV	08/04/09	08/04/09	8.6	8.2	95%	91 - 105
Alkalinity	mg/l	CCV	08/12/09	08/12/09	8.4	8.4	100%	91 - 105
Alkalinity	mg/l	CCV	08/28/09	08/28/09	8.6	8.6	100%	91 - 105
Alkalinity	mg/l	CCV	09/04/09	09/04/09	8.6	8.6	100%	91 - 105
Alkalinity	mg/l	CCV	09/10/09	09/10/09	8.6	8.8	102%	91 - 105
Alkalinity	mg/l	CCV	09/18/09	09/18/09	8.4	8.6	102%	91 - 105
Alkalinity	mg/l	CCV	10/14/09	10/14/09	8.6	8.6	100%	91 - 105
Alkalinity	mg/l	CCV	10/20/09	10/20/09	8.6	8.8	102%	91 - 105
Alkalinity	mg/l	CCV	11/05/09	11/05/09	8.4	8.2	98%	91 - 105
Alkalinity	mg/l	CCV	11/13/09	11/13/09	4.4	4.24	96%	91 - 105
Alkalinity	mg/l	CCV	03/23/10	03/23/10	4.6	4.6	100%	91 - 105
Alkalinity	mg/l	CCV	03/18/10	03/18/10	4.4	4.4	100%	91 - 105
Alkalinity	mg/l	CCV	01/22/10	01/22/10	4.6	4.8	104%	91 - 105
Alkalinity	mg/l	CCV	06/09/10	06/09/10	4.8	4.8	100%	91 - 105
Alkalinity	mg/l	CCV	10/06/10	10/06/10	4.6	4.4	96%	91 - 105
Alkalinity	mg/l	CCV	10/05/10	10/05/10	4.4	4.4	100%	91 - 105
Alkalinity	mg/l	CCV	05/24/10	05/24/10	12.6	13	103%	91 - 105
Alkalinity	mg/l	CCV	06/09/10	06/09/10	12.4	12.8	103%	91 - 105
Alkalinity	mg/l	CCV	10/06/10	10/06/10	12.4	12.2	98%	91 - 105
Alkalinity	mg/l	CCV	05/17/10	05/17/10	12.4	12.2	98%	91 - 105
Alkalinity	mg/l	CCV	06/01/10	06/01/10	12.4	12.6	102%	91 - 105
Alkalinity	mg/l	CCV	04/16/10	04/16/10	12.4	12.2	98%	91 - 105
Alkalinity	mg/l	CCV	03/15/10	03/15/10	12.8	12.6	98%	91 - 105
Alkalinity	mg/l	CCV	02/22/10	02/22/10	12.8	13.0	102%	91 - 105
Alkalinity	mg/l	CCV	07/07/10	07/07/10	4.2	4.04	96%	91 - 105
Alkalinity	mg/l	CCV	03/15/10	03/15/10	4.4	4.6	105%	91 - 105
Alkalinity	mg/l	CCV	04/26/10	04/26/10	4.4	4.24	96%	91 - 105
Alkalinity	mg/l	CCV	08/05/10	08/05/10	4.4	4.24	96%	91 - 105
Alkalinity	mg/l	CCV	04/06/10	04/06/10	4.4	4.245	96%	91 - 105

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Alkalinity	mg/l	CCV	05/11/10	05/11/10	4.4	4.6	105%	91 - 105
Alkalinity	mg/l	CCV	02/17/10	02/17/10	4.4	4.24	96%	91 - 105
Alkalinity	mg/l	CCV	02/08/10	02/08/10	4.4	4.4	100%	91 - 105
Alkalinity	mg/l	CCV	07/13/10	07/13/10	4.4	4.6	105%	91 - 105
Alkalinity	mg/l	CCV	07/07/10	07/07/10	4.4	4.6	105%	91 - 105
Alkalinity	mg/l	CCV	01/11/10	01/11/10	4.4	4.6	105%	91 - 105
Alkalinity	mg/l	CCV	11/03/10	11/03/10	8.4	8.2	98%	91 - 105
Alkalinity	mg/l	CCV	11/08/10	11/08/10	8.6	8.8	102%	91 - 105
Alkalinity	mg/l	CCV	11/08/10	11/08/10	8.4	8.8	105%	91 - 105
Alkalinity	mg/l	CCV	11/10/10	11/10/10	8.4	8.6	102%	91 - 105
Alkalinity	mg/l	CCV	11/10/10	11/10/10	8.6	9	105%	91 - 105
Alkalinity	mg/l	CCV	02/17/11	02/17/11	8.4	8.6	102%	91 - 105
Alkalinity	mg/l	CCV	02/17/11	02/17/11	8.6	8.4	98%	91 - 105
Turbidity	NTU	CCV	12/08/08	12/08/08	40.2	38.5	96%	87 - 104
Turbidity	NTU	CCV	12/29/08	12/29/08	20.3	19.7	97%	87 - 104
Turbidity	NTU	CCV	01/13/09	01/13/09	20.2	20.6	102%	87 - 104
Turbidity	NTU	CCV	01/23/09	01/23/09	20.2	20.7	102%	87 - 104
Turbidity	NTU	CCV	01/29/09	01/29/09	40.3	40.8	101%	87 - 104
Turbidity	NTU	CCV	02/03/09	02/03/09	40.2	40	100%	87 - 104
Turbidity	NTU	CCV	02/03/09	02/03/09	20.3	19.6	97%	87 - 104
Turbidity	NTU	CCV	02/10/09	02/10/09	20.2	19.7	98%	87 - 104
Turbidity	NTU	CCV	02/19/09	02/19/09	20.3	20	99%	87 - 104
Turbidity	NTU	CCV	02/23/09	02/23/09	20.3	19.8	98%	87 - 104
Turbidity	NTU	CCV	03/12/09	03/12/09	20.2	19.7	98%	87 - 104
Turbidity	NTU	CCV	03/13/09	03/13/09	20.3	19.5	96%	87 - 104
Turbidity	NTU	CCV	04/09/09	04/09/09	20.2	19.5	97%	87 - 104
Turbidity	NTU	CCV	04/09/09	04/09/09	20.2	19.9	99%	87 - 104
Turbidity	NTU	CCV	05/20/09	05/20/09	20.3	18.8	93%	87 - 104
Turbidity	NTU	CCV	05/24/09	05/24/09	20.3	19.1	94%	87 - 104
Turbidity	NTU	CCV	05/27/09	05/27/09	40.3	39.6	98%	87 - 104
Turbidity	NTU	CCV	06/02/09	06/02/09	20.2	20.5	101%	87 - 104
Turbidity	NTU	CCV	06/18/09	06/18/09	10.2	9.8	96%	87 - 104
Turbidity	NTU	CCV	07/10/09	07/10/09	10.2	9.2	90%	87 - 104
Turbidity	NTU	CCV	07/15/09	07/15/09	10.2	9.7	95%	87 - 104
Turbidity	NTU	CCV	10/14/09	10/14/09	10.2	9.7	95%	87 - 104
Turbidity	NTU	CCV	12/02/09	12/02/09	10.2	9.4	92%	87 - 104
Turbidity	NTU	CCV	08/05/09	08/05/09	10.2	9.6	94%	87 - 104
Turbidity	NTU	CCV	08/21/09	08/21/09	10.2	10.7	105%	87 - 104
Turbidity	NTU	CCV	08/28/09	08/28/09	10	9.7	97%	87 - 104
Turbidity	NTU	CCV	09/11/09	09/11/09	10	9.5	95%	87 - 104
Turbidity	NTU	CCV	12/16/09	12/16/09	20	20	100%	87 - 104
Turbidity	NTU	CCV	01/06/10	01/06/10	20.2	19.7	98%	87 - 104
Turbidity	NTU	CCV	01/20/10	01/20/10	20.4	19.4	95%	87 - 104
Turbidity	NTU	CCV	02/12/10	02/12/10	10.1	9.9	98%	87 - 104
Turbidity	NTU	CCV	02/12/10	02/12/10	10.1	10	99%	87 - 104
Turbidity	NTU	CCV	02/18/10	02/18/10	10.3	9.6	93%	87 - 104
Turbidity	NTU	CCV	03/12/10	03/12/10	10.3	9.8	95%	87 - 104
Turbidity	NTU	CCV	03/27/10	03/27/10	10.4	10.1	97%	87 - 104
Turbidity	NTU	CCV	04/09/10	04/09/10	10.3	9.8	95%	87 - 104
Turbidity	NTU	CCV	04/15/10	04/15/10	10.3	10	97%	87 - 104

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Turbidity	NTU	CCV	04/22/10	04/22/10	40.5	41.3	102%	87 - 104
Turbidity	NTU	CCV	04/22/10	04/22/10	40.2	40.6	101%	87 - 104
Turbidity	NTU	CCV	05/09/10	05/09/10	40.2	40.1	100%	87 - 104
Turbidity	NTU	CCV	05/14/10	05/14/10	40.3	39.6	98%	87 - 104
Turbidity	NTU	CCV	05/22/10	05/22/10	40.3	38.6	96%	87 - 104
Turbidity	NTU	CCV	05/22/10	05/22/10	40.3	39.9	99%	87 - 104
Turbidity	NTU	CCV	06/09/10	06/09/10	40.4	39.7	98%	87 - 104
Turbidity	NTU	CCV	06/09/10	06/09/10	40.3	39.3	98%	87 - 104
Turbidity	NTU	CCV	07/07/10	07/07/10	40.5	39.1	97%	87 - 104
Turbidity	NTU	CCV	07/07/10	07/07/10	40.5	39.1	97%	87 - 104
Turbidity	NTU	CCV	07/13/10	07/13/10	40.2	40.9	102%	87 - 104
Turbidity	NTU	CCV	08/04/10	08/04/10	40.5	40.1	99%	87 - 104
Turbidity	NTU	CCV	08/04/10	08/04/10	40.1	39.8	99%	87 - 104
Turbidity	NTU	CCV	09/02/10	09/02/10	40.1	39.7	99%	87 - 104
Turbidity	NTU	CCV	09/08/10	09/08/10	40.1	40.8	102%	87 - 104
Turbidity	NTU	CCV	09/14/10	09/14/10	40.2	39.8	99%	87 - 104
Turbidity	NTU	CCV	10/03/10	10/03/10	40.2	39.3	98%	87 - 104
Turbidity	NTU	CCV	11/09/10	11/09/10	40.2	40.2	100%	87 - 104
SRP	µg/l	CCV	12/10/08	12/10/08	200	186	93%	92 - 111
SRP	µg/l	CCV	12/24/08	12/24/08	200	199	100%	92 - 111
SRP	µg/l	CCV	12/31/08	12/31/08	200	200	100%	92 - 111
SRP	µg/l	CCV	01/23/09	01/23/09	200	210	105%	92 - 111
SRP	µg/l	CCV	02/04/09	02/04/09	150	151	101%	92 - 111
SRP	µg/l	CCV	03/04/09	03/04/09	150	142	95%	92 - 111
SRP	µg/l	CCV	03/13/09	03/13/09	100	95	95%	92 - 111
SRP	µg/l	CCV	03/31/09	03/31/09	100	105	105%	92 - 111
SRP	µg/l	CCV	04/09/09	04/09/09	100	109	109%	92 - 111
SRP	µg/l	CCV	04/24/09	04/24/09	100	100	100%	92 - 111
SRP	µg/l	CCV	05/08/09	05/08/09	100	102	102%	92 - 111
SRP	µg/l	CCV	05/15/09	05/15/09	500	496	99%	92 - 111
SRP	µg/l	CCV	05/20/09	05/20/09	100	110	110%	92 - 111
SRP	µg/l	CCV	05/22/09	05/22/09	125	116	93%	92 - 111
SRP	µg/l	CCV	05/28/09	05/28/09	125	118	94%	92 - 111
SRP	µg/l	CCV	06/03/09	06/03/09	100	90	90%	92 - 111
SRP	µg/l	CCV	06/19/09	06/19/09	100	102	102%	92 - 111
SRP	µg/l	CCV	06/24/09	06/24/09	100	108	108%	92 - 111
SRP	µg/l	CCV	07/10/09	07/10/09	100	95	95%	92 - 111
SRP	µg/l	CCV	07/10/09	07/10/09	225	216	96%	92 - 111
SRP	µg/l	CCV	08/13/09	08/13/09	225	226	100%	92 - 111
SRP	µg/l	CCV	09/11/09	09/11/09	225	222	99%	92 - 111
SRP	µg/l	CCV	09/21/09	09/21/09	225	230	102%	92 - 111
SRP	µg/l	CCV	09/23/09	09/23/09	200	212	106%	92 - 111
SRP	µg/l	CCV	10/07/09	10/07/09	200	220	110%	92 - 111
SRP	µg/l	CCV	10/14/09	10/14/09	200	207	104%	92 - 111
SRP	µg/l	CCV	11/06/09	11/06/09	200	219	110%	92 - 111
SRP	µg/l	CCV	12/02/09	12/02/09	250	241	96%	92 - 111
SRP	µg/l	CCV	01/20/10	01/20/10	100	102	102%	92 - 111
SRP	µg/l	CCV	02/12/10	02/12/10	100	107	107%	92 - 111
SRP	µg/l	CCV	02/17/10	02/17/10	100	106	106%	92 - 111
SRP	µg/l	CCV	03/12/10	03/12/10	100	101	101%	92 - 111

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
SRP	µg/l	CCV	03/26/10	03/26/10	100	109	109%	92 - 111
SRP	µg/l	CCV	04/09/10	04/09/10	100	107	107%	92 - 111
SRP	µg/l	CCV	04/16/10	04/16/10	500	554	111%	92 - 111
SRP	µg/l	CCV	04/16/10	04/16/10	100	104	104%	92 - 111
SRP	µg/l	CCV	04/21/10	04/21/10	100	109	109%	92 - 111
SRP	µg/l	CCV	05/07/10	05/07/10	110	117	106%	92 - 111
SRP	µg/l	CCV	05/21/10	05/21/10	110	112	102%	92 - 111
SRP	µg/l	CCV	05/21/10	05/21/10	110	113	103%	92 - 111
SRP	µg/l	CCV	06/09/10	06/09/10	110	113	103%	92 - 111
SRP	µg/l	CCV	06/09/10	06/09/10	110	108	98%	92 - 111
SRP	µg/l	CCV	07/08/10	07/08/10	110	105	95%	92 - 111
SRP	µg/l	CCV	07/14/10	07/14/10	110	118	107%	92 - 111
SRP	µg/l	CCV	08/04/10	08/04/10	110	121	110%	92 - 111
SRP	µg/l	CCV	08/04/10	08/04/10	110	118	107%	92 - 111
SRP	µg/l	CCV	08/04/10	08/04/10	100	98	98%	92 - 111
SRP	µg/l	CCV	09/01/10	09/01/10	100	105	105%	92 - 111
SRP	µg/l	CCV	09/08/10	09/08/10	100	101	101%	92 - 111
SRP	µg/l	CCV	10/01/10	10/01/10	100	109	109%	92 - 111
SRP	µg/l	CCV	11/21/10	11/21/10	100	106	106%	92 - 111
NOX-N	µg/l	CCV	12/10/08	12/10/08	2000	1847	92%	85 - 115
NOX-N	µg/l	CCV	12/24/08	12/24/08	2000	2004	100%	85 - 115
NOX-N	µg/l	CCV	12/31/08	12/31/08	10	10	100%	85 - 115
NOX-N	µg/l	CCV	01/23/09	01/23/09	200	177	89%	85 - 115
NOX-N	µg/l	CCV	02/04/09	02/04/09	1000	998	100%	85 - 115
NOX-N	µg/l	CCV	03/04/09	03/04/09	1000	100	10%	85 - 115
NOX-N	µg/l	CCV	03/13/09	03/13/09	1000	1041	104%	85 - 115
NOX-N	µg/l	CCV	03/31/09	03/31/09	1000	945	95%	85 - 115
NOX-N	µg/l	CCV	04/09/09	04/09/09	1000	950	95%	85 - 115
NOX-N	µg/l	CCV	04/24/09	04/24/09	1000	917	92%	85 - 115
NOX-N	µg/l	CCV	05/08/09	05/08/09	1000	950	95%	85 - 115
NOX-N	µg/l	CCV	05/15/09	05/15/09	2000	1929	96%	85 - 115
NOX-N	µg/l	CCV	05/20/09	05/20/09	2000	1910	96%	85 - 115
NOX-N	µg/l	CCV	05/22/09	05/22/09	2000	1910	96%	85 - 115
NOX-N	µg/l	CCV	05/28/09	05/28/09	2000	1928	96%	85 - 115
NOX-N	µg/l	CCV	06/03/09	06/03/09	2000	1950	98%	85 - 115
NOX-N	µg/l	CCV	06/19/09	06/19/09	2000	1938	97%	85 - 115
NOX-N	µg/l	CCV	06/24/09	06/24/09	1500	1635	109%	85 - 115
NOX-N	µg/l	CCV	07/10/09	07/10/09	1500	1627	108%	85 - 115
NOX-N	µg/l	CCV	07/10/09	07/10/09	2000	2080	104%	85 - 115
NOX-N	µg/l	CCV	08/13/09	08/13/09	1000	945	95%	85 - 115
NOX-N	µg/l	CCV	09/11/09	09/11/09	1000	988	99%	85 - 115
NOX-N	µg/l	CCV	09/21/09	09/21/09	1000	1006	101%	85 - 115
NOX-N	µg/l	CCV	09/23/09	09/23/09	1000	997	100%	85 - 115
NOX-N	µg/l	CCV	10/07/09	10/07/09	1000	981	98%	85 - 115
NOX-N	µg/l	CCV	10/14/09	10/14/09	1000	969	97%	85 - 115
NOX-N	µg/l	CCV	11/06/09	11/06/09	1000	1061	106%	85 - 115
NOX-N	µg/l	CCV	12/02/09	12/02/09	1250	1236	99%	85 - 115
NOX-N	µg/l	CCV	01/20/10	01/20/10	1000	996	100%	85 - 115
NOX-N	µg/l	CCV	02/12/10	02/12/10	1000	931	97%	85 - 115
NOX-N	µg/l	CCV	02/17/10	02/17/10	2000	1797	90%	85 - 115

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
NOX-N	µg/l	CCV	03/12/10	03/12/10	2000	1877	94%	85 - 115
NOX-N	µg/l	CCV	03/26/10	03/26/10	700	700	100%	85 - 115
NOX-N	µg/l	CCV	04/09/10	04/09/10	2000	1923	96%	85 - 115
NOX-N	µg/l	CCV	04/16/10	04/16/10	2000	1907	95%	85 - 115
NOX-N	µg/l	CCV	04/16/10	04/16/10	2000	1920	96%	85 - 115
NOX-N	µg/l	CCV	04/21/10	04/21/10	1000	985	99%	85 - 115
NOX-N	µg/l	CCV	05/07/10	05/07/10	1000	1092	109%	85 - 115
NOX-N	µg/l	CCV	05/21/10	05/21/10	2000	1942	97%	85 - 115
NOX-N	µg/l	CCV	05/21/10	05/21/10	2000	1950	98%	85 - 115
NOX-N	µg/l	CCV	06/09/10	06/09/10	2000	2078	104%	85 - 115
NOX-N	µg/l	CCV	06/09/10	06/09/10	1000	1021	102%	85 - 115
NOX-N	µg/l	CCV	07/08/10	07/08/10	1000	1001	100%	85 - 115
NOX-N	µg/l	CCV	07/14/10	07/14/10	1000	1034	103%	85 - 115
NOX-N	µg/l	CCV	08/04/10	08/04/10	1000	1005	101%	85 - 115
NOX-N	µg/l	CCV	08/04/10	08/04/10	1000	1032	103%	85 - 115
NOX-N	µg/l	CCV	08/04/10	08/04/10	1000	990	99%	85 - 115
NOX-N	µg/l	CCV	09/01/10	09/01/10	1000	1015	102%	85 - 115
NOX-N	µg/l	CCV	09/08/10	09/08/10	1000	1019	102%	85 - 115
NOX-N	µg/l	CCV	10/01/10	10/01/10	1000	1000	100%	85 - 115
NOX-N	µg/l	CCV	11/21/10	11/21/10	1000	997	100%	85 - 115
Ammonia	µg/l	CCV	01/06/09	01/06/09	822	768	93%	90 - 110
Ammonia	µg/l	CCV	01/07/09	01/07/09	822	785	95%	90 - 110
Ammonia	µg/l	CCV	01/07/09	01/07/09	500	457	91%	90 - 110
Ammonia	µg/l	CCV	01/19/09	01/19/09	500	476	95%	90 - 110
Ammonia	µg/l	CCV	02/17/09	02/17/09	400	382	96%	90 - 110
Ammonia	µg/l	CCV	02/18/09	02/18/09	400	389	97%	90 - 110
Ammonia	µg/l	CCV	02/18/09	02/18/09	400	386	97%	90 - 110
Ammonia	µg/l	CCV	03/11/09	03/11/09	500	493	99%	90 - 110
Ammonia	µg/l	CCV	04/14/09	04/14/09	500	545	109%	90 - 110
Ammonia	µg/l	CCV	04/16/09	04/16/09	500	531	106%	90 - 110
Ammonia	µg/l	CCV	04/17/09	04/17/09	500	500	100%	90 - 110
Ammonia	µg/l	CCV	05/12/09	05/12/09	500	536	107%	90 - 110
Ammonia	µg/l	CCV	05/12/09	05/12/09	500	547	109%	90 - 110
Ammonia	µg/l	CCV	05/28/09	05/28/09	500	531	106%	90 - 110
Ammonia	µg/l	CCV	06/16/09	06/16/09	500	501	100%	90 - 110
Ammonia	µg/l	CCV	06/16/09	06/16/09	500	510	102%	90 - 110
Ammonia	µg/l	CCV	06/16/09	06/16/09	500	534	107%	90 - 110
Ammonia	µg/l	CCV	06/29/09	06/29/09	500	509	102%	90 - 110
Ammonia	µg/l	CCV	07/22/09	07/22/09	500	515	103%	90 - 110
Ammonia	µg/l	CCV	07/22/09	07/22/09	500	519	104%	90 - 110
Ammonia	µg/l	CCV	08/18/09	08/18/09	1000	945	95%	90 - 110
Ammonia	µg/l	CCV	08/19/09	08/19/09	1000	940	94%	90 - 110
Ammonia	µg/l	CCV	09/23/09	09/23/09	1000	941	94%	90 - 110
Ammonia	µg/l	CCV	10/28/09	10/28/09	1000	952	95%	90 - 110
Ammonia	µg/l	CCV	10/29/09	10/29/09	1000	941	94%	90 - 110
Ammonia	µg/l	CCV	11/30/09	11/30/09	100	105	105%	90 - 110
Ammonia	µg/l	CCV	10/14/09	10/14/09	100	106	106%	90 - 110
Ammonia	µg/l	CCV	12/18/09	12/18/09	100	107	107%	90 - 110
Ammonia	µg/l	CCV	01/14/10	01/14/10	100	101	101%	90 - 110
Ammonia	µg/l	CCV	01/14/10	01/14/10	100	106	106%	90 - 110

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Ammonia	µg/l	CCV	01/15/10	01/15/10	100	95	95%	90 - 110
Ammonia	µg/l	CCV	02/09/10	02/09/10	100	97	97%	90 - 110
Ammonia	µg/l	CCV	03/01/10	03/01/10	100	99	99%	90 - 110
Ammonia	µg/l	CCV	03/24/10	03/24/10	100	97	97%	90 - 110
Ammonia	µg/l	CCV	04/12/10	04/12/10	100	99	99%	90 - 110
Ammonia	µg/l	CCV	04/16/10	04/16/10	1000	1042	104%	90 - 110
Ammonia	µg/l	CCV	04/16/10	04/16/10	100	102	102%	90 - 110
Ammonia	µg/l	CCV	04/29/10	04/29/10	100	96	96%	90 - 110
Ammonia	µg/l	CCV	04/30/10	04/30/10	100	103	103%	90 - 110
Ammonia	µg/l	CCV	05/12/10	05/12/10	100	98	98%	90 - 110
Ammonia	µg/l	CCV	06/02/10	06/02/10	100	106	106%	90 - 110
Ammonia	µg/l	CCV	06/02/10	06/02/10	100	104	104%	90 - 110
Ammonia	µg/l	CCV	06/02/10	06/02/10	100	105	105%	90 - 110
Ammonia	µg/l	CCV	06/09/10	06/09/10	100	100	100%	90 - 110
Ammonia	µg/l	CCV	06/09/10	06/09/10	100	100	100%	90 - 110
Ammonia	µg/l	CCV	06/09/10	06/09/10	100	100	100%	90 - 110
Ammonia	µg/l	CCV	07/15/10	07/15/10	100	98	98%	90 - 110
Ammonia	µg/l	CCV	07/15/10	07/15/10	100	104	104%	90 - 110
Ammonia	µg/l	CCV	08/19/10	08/19/10	100	105	105%	90 - 110
Ammonia	µg/l	CCV	09/28/10	09/28/10	100	102	102%	90 - 110
Ammonia	µg/l	CCV	12/08/10	12/08/10	100	93	93%	90 - 110
Ammonia	µg/l	CCV	12/08/10	12/08/10	100	96	96%	90 - 110
Ammonia	µg/l	CCV	12/08/10	12/08/10	100	98	98%	90 - 110
Ammonia	µg/l	CCV	12/15/10	12/15/10	100	92	92%	90 - 110
Ammonia	µg/l	CCV	12/17/10	12/17/10	100	90	90%	90 - 110
Ammonia	µg/l	CCV	12/17/10	12/17/10	80	80	100%	90 - 110
Total N	µg/l	CCV	01/13/09	01/13/09	1000	945	95%	90 - 110
Total N	µg/l	CCV	01/13/09	01/13/09	1000	911	91%	90 - 110
Total N	µg/l	CCV	01/13/09	01/13/09	1000	1013	101%	90 - 110
Total N	µg/l	CCV	01/15/09	01/15/09	1000	998	100%	90 - 110
Total N	µg/l	CCV	01/15/09	01/15/09	1000	972	97%	90 - 110
Total N	µg/l	CCV	01/20/09	01/20/09	1000	1055	106%	90 - 110
Total N	µg/l	CCV	01/27/09	01/27/09	1000	1043	104%	90 - 110
Total N	µg/l	CCV	01/27/09	01/27/09	1000	1064	106%	90 - 110
Total N	µg/l	CCV	01/29/09	01/29/09	600	602	100%	90 - 110
Total N	µg/l	CCV	02/10/09	02/10/09	600	560	93%	90 - 110
Total N	µg/l	CCV	02/25/09	02/25/09	400	395	99%	90 - 110
Total N	µg/l	CCV	03/06/09	03/06/09	5424	5392	99%	90 - 110
Total N	µg/l	CCV	03/18/09	03/18/09	7232	6826	94%	90 - 110
Total N	µg/l	CCV	03/19/09	03/19/09	1000	952	95%	90 - 110
Total N	µg/l	CCV	04/24/09	04/24/09	1000	905	91%	90 - 110
Total N	µg/l	CCV	04/24/09	04/24/09	8000	8363	105%	90 - 110
Total N	µg/l	CCV	04/20/09	04/20/09	8000	8473	106%	90 - 110
Total N	µg/l	CCV	04/20/09	04/20/09	8000	8426	105%	90 - 110
Total N	µg/l	CCV	05/05/09	05/05/09	8000	7800	98%	90 - 110
Total N	µg/l	CCV	05/05/09	05/05/09	8000	8345	104%	90 - 110
Total N	µg/l	CCV	05/07/09	05/07/09	1000	958	96%	90 - 110
Total N	µg/l	CCV	06/09/09	06/09/09	1000	977	98%	90 - 110
Total N	µg/l	CCV	06/24/09	06/24/09	1000	995	100%	90 - 110
Total N	µg/l	CCV	07/09/09	07/09/09	2500	2599	104%	90 - 110

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Total N	µg/l	CCV	09/26/09	09/26/09	2200	2222	101%	90 - 110
Total N	µg/l	CCV	11/12/09	11/12/09	2500	2599	104%	90 - 110
Total N	µg/l	CCV	11/09/09	11/09/09	3000	2988	100%	90 - 110
Total N	µg/l	CCV	12/15/09	12/15/09	2500	2274	91%	90 - 110
Total N	µg/l	CCV	02/02/10	02/02/10	2000	2130	107%	90 - 110
Total N	µg/l	CCV	02/02/10	02/02/10	2500	2604	104%	90 - 110
Total N	µg/l	CCV	02/04/10	02/04/10	2500	2570	103%	90 - 110
Total N	µg/l	CCV	02/04/10	02/04/10	2000	2208	110%	90 - 110
Total N	µg/l	CCV	02/04/10	02/04/10	2000	2154	108%	90 - 110
Total N	µg/l	CCV	02/04/10	02/04/10	2000	2058	103%	90 - 110
Total N	µg/l	CCV	02/11/10	02/11/10	2000	2046	102%	90 - 110
Total N	µg/l	CCV	02/11/10	02/11/10	2400	2346	98%	90 - 110
Total N	µg/l	CCV	02/12/10	02/12/10	2400	2256	94%	90 - 110
Total N	µg/l	CCV	02/15/10	02/15/10	2400	2585	108%	90 - 110
Total N	µg/l	CCV	02/16/10	02/16/10	2400	2482	103%	90 - 110
Total N	µg/l	CCV	02/22/10	02/22/10	8000	8830	110%	90 - 110
Total N	µg/l	CCV	02/22/10	02/22/10	4000	4240	106%	90 - 110
Total N	µg/l	CCV	02/22/10	02/22/10	8000	8644	108%	90 - 110
Total N	µg/l	CCV	02/22/10	02/22/10	4000	4318	108%	90 - 110
Total N	µg/l	CCV	03/05/10	03/05/10	8000	8773	110%	90 - 110
Total N	µg/l	CCV	03/05/10	03/05/10	8000	8692	109%	90 - 110
Total N	µg/l	CCV	03/29/10	03/29/10	2000	2037	102%	90 - 110
Total N	µg/l	CCV	03/29/10	03/29/10	2000	2049	102%	90 - 110
Total N	µg/l	CCV	03/30/10	03/30/10	2000	1801	90%	90 - 110
Total N	µg/l	CCV	04/05/10	04/05/10	2000	2135	107%	90 - 110
Total N	µg/l	CCV	04/08/10	04/08/10	2000	2065	103%	90 - 110
Total N	µg/l	CCV	04/15/10	04/15/10	2000	2004	100%	90 - 110
Total N	µg/l	CCV	04/15/10	04/15/10	2000	2139	107%	90 - 110
Total N	µg/l	CCV	04/23/10	04/23/10	2000	2178	109%	90 - 110
Total N	µg/l	CCV	04/26/10	04/26/10	2000	2056	103%	90 - 110
Total N	µg/l	CCV	04/26/10	04/26/10	2000	2150	108%	90 - 110
Total N	µg/l	CCV	04/26/10	04/26/10	2000	1905	95%	90 - 110
Total N	µg/l	CCV	04/27/10	04/27/10	2000	1945	97%	90 - 110
Total N	µg/l	CCV	05/06/10	05/06/10	2000	1985	99%	90 - 110
Total N	µg/l	CCV	05/20/10	05/20/10	2000	2161	108%	90 - 110
Total N	µg/l	CCV	06/01/10	06/01/10	2000	2179	109%	90 - 110
Total N	µg/l	CCV	06/01/10	06/01/10	2000	2182	109%	90 - 110
Total N	µg/l	CCV	06/04/10	06/04/10	2000	2117	106%	90 - 110
Total N	µg/l	CCV	06/07/10	06/07/10	2000	2133	107%	90 - 110
Total N	µg/l	CCV	06/10/10	06/10/10	2000	2145	107%	90 - 110
Total N	µg/l	CCV	06/10/10	06/10/10	2000	2177	109%	90 - 110
Total N	µg/l	CCV	06/10/10	06/10/10	2000	2087	104%	90 - 110
Total N	µg/l	CCV	07/13/10	07/13/10	2000	2129	106%	90 - 110
Total N	µg/l	CCV	07/26/10	07/26/10	2000	2144	107%	90 - 110
Total N	µg/l	CCV	07/26/10	07/26/10	2000	2170	109%	90 - 110
Total N	µg/l	CCV	08/11/10	08/11/10	2000	1812	91%	90 - 110
Total N	µg/l	CCV	08/16/10	08/16/10	2000	1803	90%	90 - 110
Total N	µg/l	CCV	08/16/10	08/16/10	2000	1850	93%	90 - 110
Total N	µg/l	CCV	08/16/10	08/16/10	2000	1935	97%	90 - 110
Total N	µg/l	CCV	08/20/10	08/20/10	2000	2151	108%	90 - 110

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Total N	µg/l	CCV	10/07/10	10/07/10	2000	2161	108%	90 - 110
Total N	µg/l	CCV	11/29/10	11/29/10	2000	2120	106%	90 - 110
Total N	µg/l	CCV	12/02/10	12/02/10	2000	1975	99%	90 - 110
Total N	µg/l	CCV	12/27/10	12/27/10	2000	2189	109%	90 - 110
Total N	µg/l	CCV	12/28/10	12/28/10	2000	2208	110%	90 - 110
Total N	µg/l	CCV	12/28/10	12/28/10	2000	2025	101%	90 - 110
Total N	µg/l	CCV	01/06/11	01/06/11	2000	2148	107%	90 - 110
Total P	µg/l	CCV	01/13/09	01/13/09	500	485	97%	90 - 110
Total P	µg/l	CCV	01/13/09	01/13/09	500	491	98%	90 - 110
Total P	µg/l	CCV	01/13/09	01/13/09	500	468	94%	90 - 110
Total P	µg/l	CCV	01/15/09	01/15/09	500	464	93%	90 - 110
Total P	µg/l	CCV	01/15/09	01/15/09	500	533	107%	90 - 110
Total P	µg/l	CCV	01/20/09	01/20/09	500	454	91%	90 - 110
Total P	µg/l	CCV	01/27/09	01/27/09	500	487	97%	90 - 110
Total P	µg/l	CCV	01/27/09	01/27/09	500	456	91%	90 - 110
Total P	µg/l	CCV	01/29/09	01/29/09	500	504	101%	90 - 110
Total P	µg/l	CCV	02/10/09	02/10/09	500	478	96%	90 - 110
Total P	µg/l	CCV	02/25/09	02/25/09	500	479	96%	90 - 110
Total P	µg/l	CCV	03/06/09	03/06/09	500	469	94%	90 - 110
Total P	µg/l	CCV	03/18/09	03/18/09	500	484	97%	90 - 110
Total P	µg/l	CCV	03/19/09	03/19/09	200	189	95%	90 - 110
Total P	µg/l	CCV	04/20/09	04/20/09	200	201	101%	90 - 110
Total P	µg/l	CCV	04/20/09	04/20/09	200	180	90%	90 - 110
Total P	µg/l	CCV	04/24/09	04/24/09	200	197	99%	90 - 110
Total P	µg/l	CCV	04/24/09	04/24/09	200	208	104%	90 - 110
Total P	µg/l	CCV	05/05/09	05/05/09	200	195	98%	90 - 110
Total P	µg/l	CCV	05/05/09	05/05/09	200	209	105%	90 - 110
Total P	µg/l	CCV	05/07/09	05/07/09	1400	1339	96%	90 - 110
Total P	µg/l	CCV	06/09/09	06/09/09	600	567	95%	90 - 110
Total P	µg/l	CCV	06/24/09	06/24/09	1600	1559	97%	90 - 110
Total P	µg/l	CCV	07/09/09	07/09/09	1000	948	95%	90 - 110
Total P	µg/l	CCV	09/26/09	09/26/09	1000	943	94%	90 - 110
Total P	µg/l	CCV	11/12/09	11/12/09	2000	2201	110%	90 - 110
Total P	µg/l	CCV	11/09/09	11/09/09	2000	2195	110%	90 - 110
Total P	µg/l	CCV	12/15/09	12/15/09	2000	2206	110%	90 - 110
Total P	µg/l	CCV	02/02/10	02/02/10	1100	1113	101%	90 - 110
Total P	µg/l	CCV	02/02/10	02/02/10	1000	922	92%	90 - 110
Total P	µg/l	CCV	02/04/10	02/04/10	1000	973	97%	90 - 110
Total P	µg/l	CCV	02/04/10	02/04/10	2000	2078	104%	90 - 110
Total P	µg/l	CCV	02/04/10	02/04/10	1000	917	92%	90 - 110
Total P	µg/l	CCV	02/04/10	02/04/10	1000	1072	107%	90 - 110
Total P	µg/l	CCV	02/11/10	02/11/10	1000	990	99%	90 - 110
Total P	µg/l	CCV	02/11/10	02/11/10	200	184	92%	90 - 110
Total P	µg/l	CCV	02/12/10	02/12/10	200	208	104%	90 - 110
Total P	µg/l	CCV	02/15/10	02/15/10	200	194	97%	90 - 110
Total P	µg/l	CCV	02/16/10	02/16/10	200	208	104%	90 - 110
Total P	µg/l	CCV	02/22/10	02/22/10	200	197	99%	90 - 110
Total P	µg/l	CCV	02/22/10	02/22/10	200	205	103%	90 - 110
Total P	µg/l	CCV	02/22/10	02/22/10	200	195	98%	90 - 110
Total P	µg/l	CCV	02/22/10	02/22/10	200	193	97%	90 - 110

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Total P	µg/l	CCV	03/05/10	03/05/10	200	193	97%	90 - 110
Total P	µg/l	CCV	03/05/10	03/05/10	200	204	102%	90 - 110
Total P	µg/l	CCV	03/29/10	03/29/10	200	212	106%	90 - 110
Total P	µg/l	CCV	03/29/10	03/29/10	200	196	98%	90 - 110
Total P	µg/l	CCV	03/30/10	03/30/10	200	196	98%	90 - 110
Total P	µg/l	CCV	04/05/10	04/05/10	200	182	91%	90 - 110
Total P	µg/l	CCV	04/08/10	04/08/10	200	185	93%	90 - 110
Total P	µg/l	CCV	04/15/10	04/15/10	200	194	97%	90 - 110
Total P	µg/l	CCV	04/15/10	04/15/10	200	201	101%	90 - 110
Total P	µg/l	CCV	04/23/10	04/23/10	200	193	97%	90 - 110
Total P	µg/l	CCV	04/26/10	04/26/10	200	198	99%	90 - 110
Total P	µg/l	CCV	04/26/10	04/26/10	200	202	101%	90 - 110
Total P	µg/l	CCV	04/26/10	04/26/10	200	204	102%	90 - 110
Total P	µg/l	CCV	04/27/10	04/27/10	200	195	98%	90 - 110
Total P	µg/l	CCV	05/06/10	05/06/10	200	201	101%	90 - 110
Total P	µg/l	CCV	05/20/10	05/20/10	200	191	96%	90 - 110
Total P	µg/l	CCV	06/01/10	06/01/10	200	199	100%	90 - 110
Total P	µg/l	CCV	06/01/10	06/01/10	200	195	98%	90 - 110
Total P	µg/l	CCV	06/04/10	06/04/10	1500	1526	102%	90 - 110
Total P	µg/l	CCV	06/07/10	06/07/10	200	187	94%	90 - 110
Total P	µg/l	CCV	06/10/10	06/10/10	200	196	98%	90 - 110
Total P	µg/l	CCV	06/10/10	06/10/10	200	186	93%	90 - 110
Total P	µg/l	CCV	06/10/10	06/10/10	200	207	104%	90 - 110
Total P	µg/l	CCV	07/13/10	07/13/10	200	188	94%	90 - 110
Total P	µg/l	CCV	07/26/10	07/26/10	200	195	98%	90 - 110
Total P	µg/l	CCV	07/26/10	07/26/10	200	204	102%	90 - 110
Total P	µg/l	CCV	08/11/10	08/11/10	200	196	98%	90 - 110
Total P	µg/l	CCV	08/16/10	08/16/10	200	210	105%	90 - 110
Total P	µg/l	CCV	08/16/10	08/16/10	200	184	92%	90 - 110
Total P	µg/l	CCV	08/16/10	08/16/10	200	205	103%	90 - 110
Total P	µg/l	CCV	08/20/10	08/20/10	200	208	104%	90 - 110
Total P	µg/l	CCV	10/07/10	10/07/10	200	207	104%	90 - 110
Total P	µg/l	CCV	11/29/10	11/29/10	200	194	97%	90 - 110
Total P	µg/l	CCV	12/02/10	12/02/10	200	200	100%	90 - 110
Total P	µg/l	CCV	12/27/10	12/27/10	200	199	100%	90 - 110
Total P	µg/l	CCV	12/28/10	12/28/10	200	203	102%	90 - 110
Total P	µg/l	CCV	12/28/10	12/28/10	200	200	100%	90 - 110
Total P	µg/l	CCV	01/06/11	01/06/11	200	197	99%	90 - 110
Color	PCU	CCV	10/09/09	10/09/09	25	25	100%	85 - 115
Color	PCU	CCV	10/16/09	10/16/09	25	24	96%	85 - 115
Color	PCU	CCV	10/30/09	10/30/09	25	24	96%	85 - 115
Color	PCU	CCV	11/13/09	11/13/09	25	24	96%	85 - 115
Color	PCU	CCV	11/25/09	11/25/09	25	24	96%	85 - 115
Color	PCU	CCV	12/04/09	12/04/09	10	10	100%	85 - 115
Color	PCU	CCV	12/08/09	12/08/09	10	10	100%	85 - 115
Color	PCU	CCV	01/05/10	01/05/10	10	11	110%	85 - 115
Color	PCU	CCV	01/26/10	01/26/10	10	10	100%	85 - 115
Color	PCU	CCV	02/04/10	02/04/10	10	10	100%	85 - 115
Color	PCU	CCV	02/04/10	02/04/10	10	10	100%	85 - 115
Color	PCU	CCV	02/26/10	02/26/10	10	11	110%	85 - 115

Continuing Calbration Verification Recovery

For Club II Samples Collected From

December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	THEOR. CONC.	ACTUAL CONC.	% RECOVERY	ACCEPTANCE RANGE
Color	PCU	CCV	03/05/10	03/05/10	10	11	110%	85 - 115
Color	PCU	CCV	03/16/10	03/16/10	10	11	110%	85 - 115
Color	PCU	CCV	03/26/10	03/26/10	10	11	110%	85 - 115
Color	PCU	CCV	03/30/10	03/30/10	10	11	110%	85 - 115
Color	PCU	CCV	02/04/10	02/04/10	10	10	100%	85 - 115
Color	PCU	CCV	02/26/10	02/26/10	10	10	100%	85 - 115
Color	PCU	CCV	03/05/10	03/05/10	10	10	100%	85 - 115
Color	PCU	CCV	03/16/10	03/16/10	10	10	100%	85 - 115
Color	PCU	CCV	03/26/10	03/26/10	10	10	100%	85 - 115
Color	PCU	CCV	03/30/10	03/30/10	10	11	110%	85 - 115
Color	PCU	CCV	01/05/10	01/05/10	10	10	100%	85 - 115
Color	PCU	CCV	01/19/10	01/19/10	20	20	100%	85 - 115
Color	PCU	CCV	02/12/10	02/12/10	20	20	100%	85 - 115
Color	PCU	CCV	02/12/10	02/12/10	20	20	100%	85 - 115
Color	PCU	CCV	02/17/10	02/17/10	20	20	100%	85 - 115
Color	PCU	CCV	03/11/10	03/11/10	20	20	100%	85 - 115
Color	PCU	CCV	03/12/10	03/12/10	20	20	100%	85 - 115
Color	PCU	CCV	03/26/10	03/26/10	20	20	100%	85 - 115
Color	PCU	CCV	03/26/10	03/26/10	20	20	100%	85 - 115
Color	PCU	CCV	04/08/10	04/08/10	20	20	100%	85 - 115
Color	PCU	CCV	04/16/10	04/16/10	20	20	100%	85 - 115
Color	PCU	CCV	04/21/10	04/21/10	20	20	100%	85 - 115
Color	PCU	CCV	04/21/10	04/21/10	20	20	100%	85 - 115
Color	PCU	CCV	04/28/10	04/28/10	40	40	100%	85 - 115
Color	PCU	CCV	05/07/10	05/07/10	40	40	100%	85 - 115
Color	PCU	CCV	05/21/10	05/21/10	40	40	100%	85 - 115
Color	PCU	CCV	05/21/10	05/21/10	40	40	100%	85 - 115
Color	PCU	CCV	05/28/10	05/28/10	40	40	100%	85 - 115
Color	PCU	CCV	06/10/10	06/10/10	40	40	100%	85 - 115
Color	PCU	CCV	07/07/10	07/07/10	40	40	100%	85 - 115
Color	PCU	CCV	07/07/10	07/07/10	40	40	100%	85 - 115
Color	PCU	CCV	07/13/10	07/13/10	40	40	100%	85 - 115
Color	PCU	CCV	08/05/10	08/05/10	40	40	100%	85 - 115
Color	PCU	CCV	09/02/10	09/02/10	40	40	100%	85 - 115
Color	PCU	CCV	09/09/10	09/09/10	40	40	100%	85 - 115
Color	PCU	CCV	09/13/10	09/13/10	40	40	100%	85 - 115
Color	PCU	CCV	09/30/10	09/30/10	40	40	100%	85 - 115
Color	PCU	CCV	10/01/10	10/01/10	40	40	100%	85 - 115

Method Blank Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Alkalinity	mg/l	Method Blank	12/08/08	12/08/08	<0.5	<0.5
Alkalinity	mg/l	Method Blank	12/08/08	12/08/08	<0.5	<0.5
Alkalinity	mg/l	Method Blank	12/29/08	12/29/08	<0.5	<0.5
Alkalinity	mg/l	Method Blank	12/08/08	12/08/08	<0.5	<0.5
Alkalinity	mg/l	Method Blank	01/06/09	01/06/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	01/12/09	01/12/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	01/14/09	01/14/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	01/26/09	01/26/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	01/29/09	01/29/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/03/09	02/03/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/10/09	02/10/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/20/09	02/20/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	03/12/09	03/12/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	03/16/09	03/16/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	04/13/09	04/13/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	05/20/09	05/20/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	05/27/09	05/27/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	06/03/09	06/03/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	06/17/09	06/17/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	07/13/09	07/13/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	07/15/09	07/15/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	08/04/09	08/04/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	08/12/09	08/12/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	08/28/09	08/28/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	09/04/09	09/04/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	09/10/09	09/10/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	09/18/09	09/18/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	10/14/09	10/14/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	10/20/09	10/20/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	11/05/09	11/05/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	11/13/09	11/13/09	<0.5	<0.5
Alkalinity	mg/l	Method Blank	03/23/10	03/23/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	03/18/10	03/18/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	01/22/10	01/22/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	06/09/10	06/09/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	10/06/10	10/06/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	10/05/10	10/05/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	05/24/10	05/24/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	06/09/10	06/09/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	10/06/10	10/06/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	05/17/10	05/17/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	06/01/10	06/01/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	04/16/10	04/16/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	03/15/10	03/15/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/22/10	02/22/10	<0.5	<0.5

Method Blank Recovery

For Club II Samples Collected From
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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Alkalinity	mg/l	Method Blank	07/07/10	07/07/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	03/15/10	03/15/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	04/26/10	04/26/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	08/05/10	08/05/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	04/06/10	04/06/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	05/11/10	05/11/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/17/10	02/17/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/08/10	02/08/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	07/13/10	07/13/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	07/07/10	07/07/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	01/11/10	01/11/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	11/03/10	11/03/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	11/08/10	11/08/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	11/08/10	11/08/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	11/10/10	11/10/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	11/10/10	11/10/10	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/17/11	02/17/11	<0.5	<0.5
Alkalinity	mg/l	Method Blank	02/17/11	02/17/11	<0.5	<0.5
Spec. Cond.	µmho/cm	Method Blank	12/10/08	12/10/08	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	12/29/08	12/29/08	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	01/13/09	01/13/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	01/13/09	01/13/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	02/09/09	02/09/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	02/09/09	02/09/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	02/09/09	02/09/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	02/09/09	02/09/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	02/24/09	02/24/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	02/24/09	02/24/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	03/10/09	03/10/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	03/27/09	03/27/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	04/21/09	04/21/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	04/21/09	04/21/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	04/21/09	04/21/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	05/05/09	05/05/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	05/12/09	05/12/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	05/26/09	05/26/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	05/26/09	05/26/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	05/26/09	05/26/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	06/19/09	06/19/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	06/19/09	06/19/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	06/19/09	06/19/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	06/23/09	06/23/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	06/23/09	06/23/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	07/27/09	07/27/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	08/10/09	08/10/09	<0.2	<0.2

Method Blank Recovery

For Club II Samples Collected From
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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Spec. Cond.	µmho/cm	Method Blank	10/06/09	10/06/09	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	07/15/10	07/15/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	07/15/10	07/15/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	08/13/10	08/13/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	08/27/10	08/27/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	09/21/10	09/21/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	10/08/10	10/08/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	10/14/10	10/14/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	10/14/10	10/14/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	11/16/10	11/16/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	11/16/10	11/16/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	11/30/10	11/30/10	<0.2	<0.2
Spec. Cond.	µmho/cm	Method Blank	02/17/11	02/17/11	<0.2	<0.2
Turbidity	NTU	Method Blank	12/08/08	12/08/08	<0.1	<0.1
Turbidity	NTU	Method Blank	12/29/08	12/29/08	<0.1	<0.1
Turbidity	NTU	Method Blank	01/13/09	01/13/09	<0.1	<0.1
Turbidity	NTU	Method Blank	01/23/09	01/23/09	<0.1	<0.1
Turbidity	NTU	Method Blank	01/29/09	01/29/09	<0.1	<0.1
Turbidity	NTU	Method Blank	02/03/09	02/03/09	<0.1	<0.1
Turbidity	NTU	Method Blank	02/03/09	02/03/09	<0.1	<0.1
Turbidity	NTU	Method Blank	02/10/09	02/10/09	<0.1	<0.1
Turbidity	NTU	Method Blank	02/19/09	02/19/09	<0.1	<0.1
Turbidity	NTU	Method Blank	02/23/09	02/23/09	<0.1	<0.1
Turbidity	NTU	Method Blank	03/12/09	03/12/09	<0.1	<0.1
Turbidity	NTU	Method Blank	03/13/09	03/13/09	<0.1	<0.1
Turbidity	NTU	Method Blank	04/09/09	04/09/09	<0.1	<0.1
Turbidity	NTU	Method Blank	04/09/09	04/09/09	<0.1	<0.1
Turbidity	NTU	Method Blank	05/20/09	05/20/09	<0.1	<0.1
Turbidity	NTU	Method Blank	05/24/09	05/24/09	<0.1	<0.1
Turbidity	NTU	Method Blank	05/27/09	05/27/09	<0.1	<0.1
Turbidity	NTU	Method Blank	06/02/09	06/02/09	<0.1	<0.1
Turbidity	NTU	Method Blank	06/18/09	06/18/09	<0.1	<0.1
Turbidity	NTU	Method Blank	07/10/09	07/10/09	<0.1	<0.1
Turbidity	NTU	Method Blank	07/15/09	07/15/09	<0.1	<0.1
Turbidity	NTU	Method Blank	10/14/09	10/14/09	<0.1	<0.1
Turbidity	NTU	Method Blank	12/02/09	12/02/09	<0.1	<0.1
Turbidity	NTU	Method Blank	08/05/09	08/05/09	<0.1	<0.1
Turbidity	NTU	Method Blank	08/21/09	08/21/09	<0.1	<0.1
Turbidity	NTU	Method Blank	08/28/09	08/28/09	<0.1	<0.1
Turbidity	NTU	Method Blank	09/11/09	09/11/09	<0.1	<0.1
Turbidity	NTU	Method Blank	12/16/09	12/16/09	<0.1	<0.1
Turbidity	NTU	Method Blank	01/06/10	01/06/10	<0.1	<0.1
Turbidity	NTU	Method Blank	01/20/10	01/20/10	<0.1	<0.1
Turbidity	NTU	Method Blank	02/12/10	02/12/10	<0.1	<0.1
Turbidity	NTU	Method Blank	02/12/10	02/12/10	<0.1	<0.1

Method Blank Recovery

For Club II Samples Collected From
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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Turbidity	NTU	Method Blank	02/18/10	02/18/10	<0.1	<0.1
Turbidity	NTU	Method Blank	03/12/10	03/12/10	<0.1	<0.1
Turbidity	NTU	Method Blank	03/27/10	03/27/10	<0.1	<0.1
Turbidity	NTU	Method Blank	04/09/10	04/09/10	<0.1	<0.1
Turbidity	NTU	Method Blank	04/15/10	04/15/10	<0.1	<0.1
Turbidity	NTU	Method Blank	04/22/10	04/22/10	<0.1	<0.1
Turbidity	NTU	Method Blank	04/22/10	04/22/10	<0.1	<0.1
Turbidity	NTU	Method Blank	05/09/10	05/09/10	<0.1	<0.1
Turbidity	NTU	Method Blank	05/14/10	05/14/10	<0.1	<0.1
Turbidity	NTU	Method Blank	05/22/10	05/22/10	<0.1	<0.1
Turbidity	NTU	Method Blank	05/22/10	05/22/10	<0.1	<0.1
Turbidity	NTU	Method Blank	06/09/10	06/09/10	<0.1	<0.1
Turbidity	NTU	Method Blank	06/09/10	06/09/10	<0.1	<0.1
Turbidity	NTU	Method Blank	07/07/10	07/07/10	<0.1	<0.1
Turbidity	NTU	Method Blank	07/07/10	07/07/10	<0.1	<0.1
Turbidity	NTU	Method Blank	07/13/10	07/13/10	<0.1	<0.1
Turbidity	NTU	Method Blank	08/04/10	08/04/10	<0.1	<0.1
Turbidity	NTU	Method Blank	08/04/10	08/04/10	<0.1	<0.1
Turbidity	NTU	Method Blank	09/02/10	09/02/10	<0.1	<0.1
Turbidity	NTU	Method Blank	09/08/10	09/08/10	<0.1	<0.1
Turbidity	NTU	Method Blank	09/14/10	09/14/10	<0.1	<0.1
Turbidity	NTU	Method Blank	10/03/10	10/03/10	<0.1	<0.1
Turbidity	NTU	Method Blank	11/09/10	11/09/10	<0.1	<0.1
TSS	mg/l	Method Blank	12/08/08	12/08/08	<0.7	<0.7
TSS	mg/l	Method Blank	12/08/08	12/08/08	<0.7	<0.7
TSS	mg/l	Method Blank	12/29/08	12/29/08	<0.7	<0.7
TSS	mg/l	Method Blank	01/09/09	01/09/09	<0.7	<0.7
TSS	mg/l	Method Blank	01/14/09	01/14/09	<0.7	<0.7
TSS	mg/l	Method Blank	01/23/09	01/23/09	<0.7	<0.7
TSS	mg/l	Method Blank	01/29/09	01/29/09	<0.7	<0.7
TSS	mg/l	Method Blank	02/04/09	02/04/09	<0.7	<0.7
TSS	mg/l	Method Blank	02/04/09	02/04/09	<0.7	<0.7
TSS	mg/l	Method Blank	02/10/09	02/10/09	<0.7	<0.7
TSS	mg/l	Method Blank	02/23/09	02/23/09	<0.7	<0.7
TSS	mg/l	Method Blank	02/25/09	02/25/09	<0.7	<0.7
TSS	mg/l	Method Blank	03/03/09	03/03/09	<0.7	<0.7
TSS	mg/l	Method Blank	03/16/09	03/16/09	<0.7	<0.7
TSS	mg/l	Method Blank	05/20/09	05/20/09	<0.7	<0.7
TSS	mg/l	Method Blank	05/22/09	05/22/09	<0.7	<0.7
TSS	mg/l	Method Blank	06/19/09	06/19/09	<0.7	<0.7
TSS	mg/l	Method Blank	06/24/09	06/24/09	<0.7	<0.7
TSS	mg/l	Method Blank	07/16/09	07/16/09	<0.7	<0.7
TSS	mg/l	Method Blank	07/16/09	07/16/09	<0.7	<0.7
TSS	mg/l	Method Blank	08/07/09	08/07/09	<0.7	<0.7
TSS	mg/l	Method Blank	08/13/09	08/13/09	<0.7	<0.7

Method Blank Recovery

For Club II Samples Collected From
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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
TSS	mg/l	Method Blank	08/14/09	08/14/09	<0.7	<0.7
TSS	mg/l	Method Blank	08/27/09	08/27/09	<0.7	<0.7
TSS	mg/l	Method Blank	09/28/09	09/28/09	<0.7	<0.7
TSS	mg/l	Method Blank	10/05/09	10/05/09	<0.7	<0.7
TSS	mg/l	Method Blank	10/13/09	10/13/09	<0.7	<0.7
TSS	mg/l	Method Blank	11/05/09	11/05/09	<0.7	<0.7
TSS	mg/l	Method Blank	01/08/10	01/08/10	<0.7	<0.7
TSS	mg/l	Method Blank	02/12/10	02/12/10	<0.7	<0.7
TSS	mg/l	Method Blank	02/19/10	02/19/10	<0.7	<0.7
TSS	mg/l	Method Blank	03/19/10	03/19/10	<0.7	<0.7
TSS	mg/l	Method Blank	03/28/10	03/28/10	<0.7	<0.7
TSS	mg/l	Method Blank	04/22/10	04/22/10	<0.7	<0.7
TSS	mg/l	Method Blank	05/11/10	05/11/10	<0.7	<0.7
TSS	mg/l	Method Blank	05/14/10	05/14/10	<0.7	<0.7
TSS	mg/l	Method Blank	05/28/10	05/28/10	<0.7	<0.7
TSS	mg/l	Method Blank	07/07/10	07/07/10	<0.7	<0.7
TSS	mg/l	Method Blank	09/09/10	09/09/10	<0.7	<0.7
TSS	mg/l	Method Blank	09/14/10	09/14/10	<0.7	<0.7
TSS	mg/l	Method Blank	10/06/10	10/06/10	<0.7	<0.7
SRP	µg/l	Method Blank	12/10/08	12/10/08	<1	<1
SRP	µg/l	Method Blank	12/24/08	12/24/08	<1	<1
SRP	µg/l	Method Blank	12/31/08	12/31/08	<1	<1
SRP	µg/l	Method Blank	01/23/09	01/23/09	<1	<1
SRP	µg/l	Method Blank	02/04/09	02/04/09	<1	<1
SRP	µg/l	Method Blank	03/04/09	03/04/09	<1	<1
SRP	µg/l	Method Blank	03/13/09	03/13/09	<1	<1
SRP	µg/l	Method Blank	03/31/09	03/31/09	<1	<1
SRP	µg/l	Method Blank	04/09/09	04/09/09	<1	<1
SRP	µg/l	Method Blank	04/24/09	04/24/09	<1	<1
SRP	µg/l	Method Blank	05/08/09	05/08/09	<1	<1
SRP	µg/l	Method Blank	05/15/09	05/15/09	<1	<1
SRP	µg/l	Method Blank	05/20/09	05/20/09	<1	<1
SRP	µg/l	Method Blank	05/22/09	05/22/09	<1	<1
SRP	µg/l	Method Blank	05/28/09	05/28/09	<1	<1
SRP	µg/l	Method Blank	06/03/09	06/03/09	<1	<1
SRP	µg/l	Method Blank	06/19/09	06/19/09	<1	<1
SRP	µg/l	Method Blank	06/24/09	06/24/09	<1	<1
SRP	µg/l	Method Blank	07/10/09	07/10/09	<1	<1
SRP	µg/l	Method Blank	07/10/09	07/10/09	<1	<1
SRP	µg/l	Method Blank	08/13/09	08/13/09	<1	<1
SRP	µg/l	Method Blank	09/11/09	09/11/09	<1	<1
SRP	µg/l	Method Blank	09/21/09	09/21/09	<1	<1
SRP	µg/l	Method Blank	09/23/09	09/23/09	<1	<1
SRP	µg/l	Method Blank	10/07/09	10/07/09	<1	<1
SRP	µg/l	Method Blank	10/14/09	10/14/09	<1	<1

Method Blank Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
SRP	µg/l	Method Blank	11/06/09	11/06/09	<1	<1
SRP	µg/l	Method Blank	12/02/09	12/02/09	<1	<1
SRP	µg/l	Method Blank	01/20/10	01/20/10	<1	<1
SRP	µg/l	Method Blank	02/12/10	02/12/10	<1	<1
SRP	µg/l	Method Blank	02/17/10	02/17/10	<1	<1
SRP	µg/l	Method Blank	03/12/10	03/12/10	<1	<1
SRP	µg/l	Method Blank	03/26/10	03/26/10	<1	<1
SRP	µg/l	Method Blank	04/09/10	04/09/10	<1	<1
SRP	µg/l	Method Blank	04/16/10	04/16/10	<1	<1
SRP	µg/l	Method Blank	04/16/10	04/16/10	<1	<1
SRP	µg/l	Method Blank	04/21/10	04/21/10	<1	<1
SRP	µg/l	Method Blank	05/07/10	05/07/10	<1	<1
SRP	µg/l	Method Blank	05/21/10	05/21/10	<1	<1
SRP	µg/l	Method Blank	05/21/10	05/21/10	<1	<1
SRP	µg/l	Method Blank	06/09/10	06/09/10	<1	<1
SRP	µg/l	Method Blank	06/09/10	06/09/10	<1	<1
SRP	µg/l	Method Blank	07/08/10	07/08/10	<1	<1
SRP	µg/l	Method Blank	07/14/10	07/14/10	<1	<1
SRP	µg/l	Method Blank	08/04/10	08/04/10	<1	<1
SRP	µg/l	Method Blank	08/04/10	08/04/10	<1	<1
SRP	µg/l	Method Blank	08/04/10	08/04/10	<1	<1
SRP	µg/l	Method Blank	09/01/10	09/01/10	<1	<1
SRP	µg/l	Method Blank	09/08/10	09/08/10	<1	<1
SRP	µg/l	Method Blank	10/01/10	10/01/10	<1	<1
SRP	µg/l	Method Blank	11/21/10	11/21/10	<1	<1
NOX-N	µg/l	Method Blank	12/10/08	12/10/08	<5	<5
NOX-N	µg/l	Method Blank	12/24/08	12/24/08	<5	<5
NOX-N	µg/l	Method Blank	12/31/08	12/31/08	<5	<5
NOX-N	µg/l	Method Blank	01/23/09	01/23/09	<5	<5
NOX-N	µg/l	Method Blank	02/04/09	02/04/09	<5	<5
NOX-N	µg/l	Method Blank	03/04/09	03/04/09	<5	<5
NOX-N	µg/l	Method Blank	03/13/09	03/13/09	<5	<5
NOX-N	µg/l	Method Blank	03/31/09	03/31/09	<5	<5
NOX-N	µg/l	Method Blank	04/09/09	04/09/09	<5	<5
NOX-N	µg/l	Method Blank	04/24/09	04/24/09	<5	<5
NOX-N	µg/l	Method Blank	05/08/09	05/08/09	<5	<5
NOX-N	µg/l	Method Blank	05/15/09	05/15/09	<5	<5
NOX-N	µg/l	Method Blank	05/20/09	05/20/09	<5	<5
NOX-N	µg/l	Method Blank	05/22/09	05/22/09	<5	<5
NOX-N	µg/l	Method Blank	05/28/09	05/28/09	<5	<5
NOX-N	µg/l	Method Blank	06/03/09	06/03/09	<5	<5
NOX-N	µg/l	Method Blank	06/19/09	06/19/09	<5	<5
NOX-N	µg/l	Method Blank	06/24/09	06/24/09	<5	<5
NOX-N	µg/l	Method Blank	07/10/09	07/10/09	<5	<5
NOX-N	µg/l	Method Blank	07/10/09	07/10/09	<5	<5

Method Blank Recovery

For Club II Samples Collected From
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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
NOX-N	µg/l	Method Blank	08/13/09	08/13/09	<5	<5
NOX-N	µg/l	Method Blank	09/11/09	09/11/09	<5	<5
NOX-N	µg/l	Method Blank	09/21/09	09/21/09	<5	<5
NOX-N	µg/l	Method Blank	09/23/09	09/23/09	<5	<5
NOX-N	µg/l	Method Blank	10/07/09	10/07/09	<5	<5
NOX-N	µg/l	Method Blank	10/14/09	10/14/09	<5	<5
NOX-N	µg/l	Method Blank	11/06/09	11/06/09	<5	<5
NOX-N	µg/l	Method Blank	12/02/09	12/02/09	<5	<5
NOX-N	µg/l	Method Blank	01/20/10	01/20/10	<5	<5
NOX-N	µg/l	Method Blank	02/12/10	02/12/10	<5	<5
NOX-N	µg/l	Method Blank	02/17/10	02/17/10	<5	<5
NOX-N	µg/l	Method Blank	03/12/10	03/12/10	<5	<5
NOX-N	µg/l	Method Blank	03/26/10	03/26/10	<5	<5
NOX-N	µg/l	Method Blank	04/09/10	04/09/10	<5	<5
NOX-N	µg/l	Method Blank	04/16/10	04/16/10	<5	<5
NOX-N	µg/l	Method Blank	04/16/10	04/16/10	<5	<5
NOX-N	µg/l	Method Blank	04/21/10	04/21/10	<5	<5
NOX-N	µg/l	Method Blank	05/07/10	05/07/10	<5	<5
NOX-N	µg/l	Method Blank	05/21/10	05/21/10	<5	<5
NOX-N	µg/l	Method Blank	05/21/10	05/21/10	<5	<5
NOX-N	µg/l	Method Blank	06/09/10	06/09/10	<5	<5
NOX-N	µg/l	Method Blank	06/09/10	06/09/10	<5	<5
NOX-N	µg/l	Method Blank	07/08/10	07/08/10	<5	<5
NOX-N	µg/l	Method Blank	07/14/10	07/14/10	<5	<5
NOX-N	µg/l	Method Blank	08/04/10	08/04/10	<5	<5
NOX-N	µg/l	Method Blank	08/04/10	08/04/10	<5	<5
NOX-N	µg/l	Method Blank	08/04/10	08/04/10	<5	<5
NOX-N	µg/l	Method Blank	09/01/10	09/01/10	<5	<5
NOX-N	µg/l	Method Blank	09/08/10	09/08/10	<5	<5
NOX-N	µg/l	Method Blank	10/01/10	10/01/10	<5	<5
NOX-N	µg/l	Method Blank	11/21/10	11/21/10	<5	<5
Ammonia	µg/l	Method Blank	01/06/09	01/06/09	<5	<5
Ammonia	µg/l	Method Blank	01/07/09	01/07/09	<5	<5
Ammonia	µg/l	Method Blank	01/07/09	01/07/09	<5	<5
Ammonia	µg/l	Method Blank	01/19/09	01/19/09	<5	<5
Ammonia	µg/l	Method Blank	02/17/09	02/17/09	<5	<5
Ammonia	µg/l	Method Blank	02/18/09	02/18/09	<5	<5
Ammonia	µg/l	Method Blank	02/18/09	02/18/09	<5	<5
Ammonia	µg/l	Method Blank	03/11/09	03/11/09	<5	<5
Ammonia	µg/l	Method Blank	04/14/09	04/14/09	<5	<5
Ammonia	µg/l	Method Blank	04/16/09	04/16/09	<5	<5
Ammonia	µg/l	Method Blank	04/17/09	04/17/09	<5	<5
Ammonia	µg/l	Method Blank	05/12/09	05/12/09	<5	<5
Ammonia	µg/l	Method Blank	05/12/09	05/12/09	<5	<5
Ammonia	µg/l	Method Blank	05/28/09	05/28/09	<5	<5

Method Blank Recovery

For Club II Samples Collected From
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PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Ammonia	µg/l	Method Blank	06/16/09	06/16/09	<5	<5
Ammonia	µg/l	Method Blank	06/16/09	06/16/09	<5	<5
Ammonia	µg/l	Method Blank	06/16/09	06/16/09	<5	<5
Ammonia	µg/l	Method Blank	06/29/09	06/29/09	<5	<5
Ammonia	µg/l	Method Blank	07/22/09	07/22/09	<5	<5
Ammonia	µg/l	Method Blank	07/22/09	07/22/09	<5	<5
Ammonia	µg/l	Method Blank	08/18/09	08/18/09	<5	<5
Ammonia	µg/l	Method Blank	08/19/09	08/19/09	<5	<5
Ammonia	µg/l	Method Blank	09/23/09	09/23/09	<5	<5
Ammonia	µg/l	Method Blank	10/28/09	10/28/09	<5	<5
Ammonia	µg/l	Method Blank	10/29/09	10/29/09	<5	<5
Ammonia	µg/l	Method Blank	11/30/09	11/30/09	<5	<5
Ammonia	µg/l	Method Blank	10/14/09	10/14/09	<5	<5
Ammonia	µg/l	Method Blank	12/18/09	12/18/09	<5	<5
Ammonia	µg/l	Method Blank	01/14/10	01/14/10	<5	<5
Ammonia	µg/l	Method Blank	01/14/10	01/14/10	<5	<5
Ammonia	µg/l	Method Blank	01/15/10	01/15/10	<5	<5
Ammonia	µg/l	Method Blank	02/09/10	02/09/10	<5	<5
Ammonia	µg/l	Method Blank	03/01/10	03/01/10	<5	<5
Ammonia	µg/l	Method Blank	03/24/10	03/24/10	<5	<5
Ammonia	µg/l	Method Blank	04/12/10	04/12/10	<5	<5
Ammonia	µg/l	Method Blank	04/16/10	04/16/10	<5	<5
Ammonia	µg/l	Method Blank	04/16/10	04/16/10	<5	<5
Ammonia	µg/l	Method Blank	04/29/10	04/29/10	<5	<5
Ammonia	µg/l	Method Blank	04/30/10	04/30/10	<5	<5
Ammonia	µg/l	Method Blank	05/12/10	05/12/10	<5	<5
Ammonia	µg/l	Method Blank	06/02/10	06/02/10	<5	<5
Ammonia	µg/l	Method Blank	06/02/10	06/02/10	<5	<5
Ammonia	µg/l	Method Blank	06/02/10	06/02/10	<5	<5
Ammonia	µg/l	Method Blank	06/09/10	06/09/10	<5	<5
Ammonia	µg/l	Method Blank	06/09/10	06/09/10	<5	<5
Ammonia	µg/l	Method Blank	06/09/10	06/09/10	<5	<5
Ammonia	µg/l	Method Blank	07/15/10	07/15/10	<5	<5
Ammonia	µg/l	Method Blank	07/15/10	07/15/10	<5	<5
Ammonia	µg/l	Method Blank	08/19/10	08/19/10	<5	<5
Ammonia	µg/l	Method Blank	09/28/10	09/28/10	<5	<5
Ammonia	µg/l	Method Blank	12/08/10	12/08/10	<5	<5
Ammonia	µg/l	Method Blank	12/08/10	12/08/10	<5	<5
Ammonia	µg/l	Method Blank	12/08/10	12/08/10	<5	<5
Ammonia	µg/l	Method Blank	12/15/10	12/15/10	<5	<5
Ammonia	µg/l	Method Blank	12/17/10	12/17/10	<5	<5
Ammonia	µg/l	Method Blank	12/17/10	12/17/10	<5	<5
Total N	µg/l	Method Blank	01/13/09	01/13/09	<10	<10
Total N	µg/l	Method Blank	01/13/09	01/13/09	<10	<10
Total N	µg/l	Method Blank	01/13/09	01/13/09	<10	<10

Method Blank Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Total N	µg/l	Method Blank	01/15/09	01/15/09	<10	<10
Total N	µg/l	Method Blank	01/15/09	01/15/09	<10	<10
Total N	µg/l	Method Blank	01/20/09	01/20/09	<10	<10
Total N	µg/l	Method Blank	01/27/09	01/27/09	<10	<10
Total N	µg/l	Method Blank	01/27/09	01/27/09	<10	<10
Total N	µg/l	Method Blank	01/29/09	01/29/09	<10	<10
Total N	µg/l	Method Blank	02/10/09	02/10/09	<10	<10
Total N	µg/l	Method Blank	02/25/09	02/25/09	<10	<10
Total N	µg/l	Method Blank	03/06/09	03/06/09	<10	<10
Total N	µg/l	Method Blank	03/18/09	03/18/09	<10	<10
Total N	µg/l	Method Blank	03/19/09	03/19/09	<10	<10
Total N	µg/l	Method Blank	04/24/09	04/24/09	<10	<10
Total N	µg/l	Method Blank	04/24/09	04/24/09	<10	<10
Total N	µg/l	Method Blank	04/20/09	04/20/09	<10	<10
Total N	µg/l	Method Blank	04/20/09	04/20/09	<10	<10
Total N	µg/l	Method Blank	05/05/09	05/05/09	<10	<10
Total N	µg/l	Method Blank	05/05/09	05/05/09	<10	<10
Total N	µg/l	Method Blank	05/07/09	05/07/09	<10	<10
Total N	µg/l	Method Blank	06/09/09	06/09/09	<10	<10
Total N	µg/l	Method Blank	06/24/09	06/24/09	<10	<10
Total N	µg/l	Method Blank	07/09/09	07/09/09	<10	<10
Total N	µg/l	Method Blank	09/26/09	09/26/09	<10	<10
Total N	µg/l	Method Blank	11/12/09	11/12/09	<10	<10
Total N	µg/l	Method Blank	11/09/09	11/09/09	<10	<10
Total N	µg/l	Method Blank	12/15/09	12/15/09	<10	<10
Total N	µg/l	Method Blank	02/02/10	02/02/10	<10	<10
Total N	µg/l	Method Blank	02/02/10	02/02/10	<10	<10
Total N	µg/l	Method Blank	02/04/10	02/04/10	<10	<10
Total N	µg/l	Method Blank	02/04/10	02/04/10	<10	<10
Total N	µg/l	Method Blank	02/04/10	02/04/10	<10	<10
Total N	µg/l	Method Blank	02/04/10	02/04/10	<10	<10
Total N	µg/l	Method Blank	02/11/10	02/11/10	<10	<10
Total N	µg/l	Method Blank	02/11/10	02/11/10	<10	<10
Total N	µg/l	Method Blank	02/12/10	02/12/10	<10	<10
Total N	µg/l	Method Blank	02/15/10	02/15/10	<10	<10
Total N	µg/l	Method Blank	02/16/10	02/16/10	<10	<10
Total N	µg/l	Method Blank	02/22/10	02/22/10	<10	<10
Total N	µg/l	Method Blank	02/22/10	02/22/10	<10	<10
Total N	µg/l	Method Blank	02/22/10	02/22/10	<10	<10
Total N	µg/l	Method Blank	02/22/10	02/22/10	<10	<10
Total N	µg/l	Method Blank	03/05/10	03/05/10	<10	<10
Total N	µg/l	Method Blank	03/05/10	03/05/10	<10	<10
Total N	µg/l	Method Blank	03/29/10	03/29/10	<10	<10
Total N	µg/l	Method Blank	03/29/10	03/29/10	<10	<10
Total N	µg/l	Method Blank	03/30/10	03/30/10	<10	<10

Method Blank Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Total N	µg/l	Method Blank	04/05/10	04/05/10	<10	<10
Total N	µg/l	Method Blank	04/08/10	04/08/10	<10	<10
Total N	µg/l	Method Blank	04/15/10	04/15/10	<10	<10
Total N	µg/l	Method Blank	04/15/10	04/15/10	<10	<10
Total N	µg/l	Method Blank	04/23/10	04/23/10	<10	<10
Total N	µg/l	Method Blank	04/26/10	04/26/10	<10	<10
Total N	µg/l	Method Blank	04/26/10	04/26/10	<10	<10
Total N	µg/l	Method Blank	04/26/10	04/26/10	<10	<10
Total N	µg/l	Method Blank	04/27/10	04/27/10	<10	<10
Total N	µg/l	Method Blank	05/06/10	05/06/10	<10	<10
Total N	µg/l	Method Blank	05/20/10	05/20/10	<10	<10
Total N	µg/l	Method Blank	06/01/10	06/01/10	<10	<10
Total N	µg/l	Method Blank	06/01/10	06/01/10	<10	<10
Total N	µg/l	Method Blank	06/04/10	06/04/10	<10	<10
Total N	µg/l	Method Blank	06/07/10	06/07/10	<10	<10
Total N	µg/l	Method Blank	06/10/10	06/10/10	<10	<10
Total N	µg/l	Method Blank	06/10/10	06/10/10	<10	<10
Total N	µg/l	Method Blank	06/10/10	06/10/10	<10	<10
Total N	µg/l	Method Blank	07/13/10	07/13/10	<10	<10
Total N	µg/l	Method Blank	07/26/10	07/26/10	<10	<10
Total N	µg/l	Method Blank	07/26/10	07/26/10	<10	<10
Total N	µg/l	Method Blank	08/11/10	08/11/10	<10	<10
Total N	µg/l	Method Blank	08/16/10	08/16/10	<10	<10
Total N	µg/l	Method Blank	08/16/10	08/16/10	<10	<10
Total N	µg/l	Method Blank	08/16/10	08/16/10	<10	<10
Total N	µg/l	Method Blank	08/20/10	08/20/10	<10	<10
Total N	µg/l	Method Blank	10/07/10	10/07/10	<10	<10
Total N	µg/l	Method Blank	11/29/10	11/29/10	<10	<10
Total N	µg/l	Method Blank	12/02/10	12/02/10	<10	<10
Total N	µg/l	Method Blank	12/27/10	12/27/10	<10	<10
Total N	µg/l	Method Blank	12/28/10	12/28/10	<10	<10
Total N	µg/l	Method Blank	12/28/10	12/28/10	<10	<10
Total N	µg/l	Method Blank	01/06/11	01/06/11	<10	<10
Total P	µg/l	Method Blank	01/13/09	01/13/09	<1	<1
Total P	µg/l	Method Blank	01/13/09	01/13/09	<1	<1
Total P	µg/l	Method Blank	01/13/09	01/13/09	<1	<1
Total P	µg/l	Method Blank	01/15/09	01/15/09	<1	<1
Total P	µg/l	Method Blank	01/15/09	01/15/09	<1	<1
Total P	µg/l	Method Blank	01/20/09	01/20/09	<1	<1
Total P	µg/l	Method Blank	01/27/09	01/27/09	<1	<1
Total P	µg/l	Method Blank	01/27/09	01/27/09	<1	<1
Total P	µg/l	Method Blank	01/29/09	01/29/09	<1	<1
Total P	µg/l	Method Blank	02/10/09	02/10/09	<1	<1
Total P	µg/l	Method Blank	02/25/09	02/25/09	<1	<1
Total P	µg/l	Method Blank	03/06/09	03/06/09	<1	<1

Method Blank Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Total P	µg/l	Method Blank	03/18/09	03/18/09	<1	<1
Total P	µg/l	Method Blank	03/19/09	03/19/09	<1	<1
Total P	µg/l	Method Blank	04/20/09	04/20/09	<1	<1
Total P	µg/l	Method Blank	04/20/09	04/20/09	<1	<1
Total P	µg/l	Method Blank	04/24/09	04/24/09	<1	<1
Total P	µg/l	Method Blank	04/24/09	04/24/09	<1	<1
Total P	µg/l	Method Blank	05/05/09	05/05/09	<1	<1
Total P	µg/l	Method Blank	05/05/09	05/05/09	<1	<1
Total P	µg/l	Method Blank	05/07/09	05/07/09	<1	<1
Total P	µg/l	Method Blank	06/09/09	06/09/09	<1	<1
Total P	µg/l	Method Blank	06/24/09	06/24/09	<1	<1
Total P	µg/l	Method Blank	07/09/09	07/09/09	<1	<1
Total P	µg/l	Method Blank	09/26/09	09/26/09	<1	<1
Total P	µg/l	Method Blank	11/12/09	11/12/09	<1	<1
Total P	µg/l	Method Blank	11/09/09	11/09/09	<1	<1
Total P	µg/l	Method Blank	12/15/09	12/15/09	<1	<1
Total P	µg/l	Method Blank	02/02/10	02/02/10	<1	<1
Total P	µg/l	Method Blank	02/02/10	02/02/10	<1	<1
Total P	µg/l	Method Blank	02/04/10	02/04/10	<1	<1
Total P	µg/l	Method Blank	02/04/10	02/04/10	<1	<1
Total P	µg/l	Method Blank	02/04/10	02/04/10	<1	<1
Total P	µg/l	Method Blank	02/04/10	02/04/10	<1	<1
Total P	µg/l	Method Blank	02/11/10	02/11/10	<1	<1
Total P	µg/l	Method Blank	02/11/10	02/11/10	<1	<1
Total P	µg/l	Method Blank	02/12/10	02/12/10	<1	<1
Total P	µg/l	Method Blank	02/15/10	02/15/10	<1	<1
Total P	µg/l	Method Blank	02/16/10	02/16/10	<1	<1
Total P	µg/l	Method Blank	02/22/10	02/22/10	<1	<1
Total P	µg/l	Method Blank	02/22/10	02/22/10	<1	<1
Total P	µg/l	Method Blank	02/22/10	02/22/10	<1	<1
Total P	µg/l	Method Blank	02/22/10	02/22/10	<1	<1
Total P	µg/l	Method Blank	03/05/10	03/05/10	<1	<1
Total P	µg/l	Method Blank	03/05/10	03/05/10	<1	<1
Total P	µg/l	Method Blank	03/29/10	03/29/10	<1	<1
Total P	µg/l	Method Blank	03/29/10	03/29/10	<1	<1
Total P	µg/l	Method Blank	03/30/10	03/30/10	<1	<1
Total P	µg/l	Method Blank	04/05/10	04/05/10	<1	<1
Total P	µg/l	Method Blank	04/08/10	04/08/10	<1	<1
Total P	µg/l	Method Blank	04/15/10	04/15/10	<1	<1
Total P	µg/l	Method Blank	04/15/10	04/15/10	<1	<1
Total P	µg/l	Method Blank	04/23/10	04/23/10	<1	<1
Total P	µg/l	Method Blank	04/26/10	04/26/10	<1	<1
Total P	µg/l	Method Blank	04/26/10	04/26/10	<1	<1
Total P	µg/l	Method Blank	04/26/10	04/26/10	<1	<1
Total P	µg/l	Method Blank	04/27/10	04/27/10	<1	<1

Method Blank Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Total P	µg/l	Method Blank	05/06/10	05/06/10	<1	<1
Total P	µg/l	Method Blank	05/20/10	05/20/10	<1	<1
Total P	µg/l	Method Blank	06/01/10	06/01/10	<1	<1
Total P	µg/l	Method Blank	06/01/10	06/01/10	<1	<1
Total P	µg/l	Method Blank	06/04/10	06/04/10	<1	<1
Total P	µg/l	Method Blank	06/07/10	06/07/10	<1	<1
Total P	µg/l	Method Blank	06/10/10	06/10/10	<1	<1
Total P	µg/l	Method Blank	06/10/10	06/10/10	<1	<1
Total P	µg/l	Method Blank	06/10/10	06/10/10	<1	<1
Total P	µg/l	Method Blank	07/13/10	07/13/10	<1	<1
Total P	µg/l	Method Blank	07/26/10	07/26/10	<1	<1
Total P	µg/l	Method Blank	07/26/10	07/26/10	<1	<1
Total P	µg/l	Method Blank	08/11/10	08/11/10	<1	<1
Total P	µg/l	Method Blank	08/16/10	08/16/10	<1	<1
Total P	µg/l	Method Blank	08/16/10	08/16/10	<1	<1
Total P	µg/l	Method Blank	08/16/10	08/16/10	<1	<1
Total P	µg/l	Method Blank	08/20/10	08/20/10	<1	<1
Total P	µg/l	Method Blank	10/07/10	10/07/10	<1	<1
Total P	µg/l	Method Blank	11/29/10	11/29/10	<1	<1
Total P	µg/l	Method Blank	12/02/10	12/02/10	<1	<1
Total P	µg/l	Method Blank	12/27/10	12/27/10	<1	<1
Total P	µg/l	Method Blank	12/28/10	12/28/10	<1	<1
Total P	µg/l	Method Blank	12/28/10	12/28/10	<1	<1
Total P	µg/l	Method Blank	01/06/11	01/06/11	<1	<1
Color	PCU	Method Blank	10/09/09	10/09/09	<1	<1
Color	PCU	Method Blank	10/16/09	10/16/09	<1	<1
Color	PCU	Method Blank	10/30/09	10/30/09	<1	<1
Color	PCU	Method Blank	11/13/09	11/13/09	<1	<1
Color	PCU	Method Blank	11/25/09	11/25/09	<1	<1
Color	PCU	Method Blank	12/04/09	12/04/09	<1	<1
Color	PCU	Method Blank	12/08/09	12/08/09	<1	<1
Color	PCU	Method Blank	01/05/10	01/05/10	<1	<1
Color	PCU	Method Blank	01/26/10	01/26/10	<1	<1
Color	PCU	Method Blank	02/04/10	02/04/10	<1	<1
Color	PCU	Method Blank	02/04/10	02/04/10	<1	<1
Color	PCU	Method Blank	02/26/10	02/26/10	<1	<1
Color	PCU	Method Blank	03/05/10	03/05/10	<1	<1
Color	PCU	Method Blank	03/16/10	03/16/10	<1	<1
Color	PCU	Method Blank	03/26/10	03/26/10	<1	<1
Color	PCU	Method Blank	03/30/10	03/30/10	<1	<1
Color	PCU	Method Blank	02/04/10	02/04/10	<1	<1
Color	PCU	Method Blank	02/26/10	02/26/10	<1	<1
Color	PCU	Method Blank	03/05/10	03/05/10	<1	<1
Color	PCU	Method Blank	03/16/10	03/16/10	<1	<1
Color	PCU	Method Blank	03/26/10	03/26/10	<1	<1

Method Blank Recovery

For Club II Samples Collected From
December 2008 to February 2011

PARAMETERS	UNITS	SAMPLE DESCRIPTION	DATE PREPPED	DATE ANALYZED	ACTUAL CONC.	ACCEPTANCE RANGE
Color	PCU	Method Blank	03/30/10	03/30/10	<1	<1
Color	PCU	Method Blank	01/05/10	01/05/10	<1	<1
Color	PCU	Method Blank	01/19/10	01/19/10	<1	<1
Color	PCU	Method Blank	02/12/10	02/12/10	<1	<1
Color	PCU	Method Blank	02/12/10	02/12/10	<1	<1
Color	PCU	Method Blank	02/17/10	02/17/10	<1	<1
Color	PCU	Method Blank	03/11/10	03/11/10	<1	<1
Color	PCU	Method Blank	03/12/10	03/12/10	<1	<1
Color	PCU	Method Blank	03/26/10	03/26/10	<1	<1
Color	PCU	Method Blank	03/26/10	03/26/10	<1	<1
Color	PCU	Method Blank	04/08/10	04/08/10	<1	<1
Color	PCU	Method Blank	04/16/10	04/16/10	<1	<1
Color	PCU	Method Blank	04/21/10	04/21/10	<1	<1
Color	PCU	Method Blank	04/21/10	04/21/10	<1	<1
Color	PCU	Method Blank	04/28/10	04/28/10	<1	<1
Color	PCU	Method Blank	05/07/10	05/07/10	<1	<1
Color	PCU	Method Blank	05/21/10	05/21/10	<1	<1
Color	PCU	Method Blank	05/21/10	05/21/10	<1	<1
Color	PCU	Method Blank	05/28/10	05/28/10	<1	<1
Color	PCU	Method Blank	06/10/10	06/10/10	<1	<1
Color	PCU	Method Blank	07/07/10	07/07/10	<1	<1
Color	PCU	Method Blank	07/07/10	07/07/10	<1	<1
Color	PCU	Method Blank	07/13/10	07/13/10	<1	<1
Color	PCU	Method Blank	08/05/10	08/05/10	<1	<1
Color	PCU	Method Blank	09/02/10	09/02/10	<1	<1
Color	PCU	Method Blank	09/09/10	09/09/10	<1	<1
Color	PCU	Method Blank	09/13/10	09/13/10	<1	<1
Color	PCU	Method Blank	09/30/10	09/30/10	<1	<1
Color	PCU	Method Blank	10/01/10	10/01/10	<1	<1