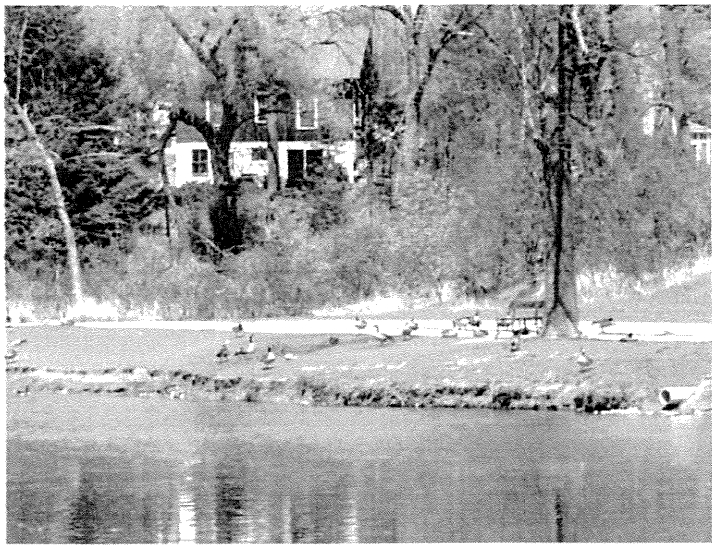
MILWAUKEE COUNTY
POND & LAGOON MANAGEMENT PLAN



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I. Executive Summary

Milwaukee County owns and maintains 68 ponds, lakes and lagoons (hereafter referred to as lagoons) within the County Parks System, County Grounds, and other facilities. Over the past few years, citizens and County Supervisors have raised concerns about the environmental quality of these water bodies. In response to these concerns, Milwaukee County authorized a study to develop a comprehensive lagoon management plan. The County sought and obtained financial assistance for the planning through two Wisconsin DNR Lake Management Planning grants. The purpose of the study is to assess the current environmental quality of the lagoons and recommend improvements consistent with the anticipated uses. The objectives of this plan are to:

- Evaluate basic water quality conditions in representative lagoons
- Identify and prioritize needs for lagoon improvements and set long-term goals
- Identify water quality management objectives
- Compare observed conditions to water quality objectives

Field investigations included the sampling of water quality from 18 lagoons and testing sediment from 13 lagoons. Water quality testing included basic water quality parameters, as well as bacteria for pre- and post-rainfall events. Sediments were tested for select heavy metals and pesticides. Not all lagoons could be tested due to budgetary constraints. The lagoons tested were selected to provide a representative sampling of all the lagoons.

Results of the testing indicate that most of the water bodies are in a eutrophic state. Large quantities of nutrients, e.g., phosphorous, are stored in sediments and provide a source of nutrients for growth of algae and noxious aquatic plants. These plants deter fishing and degrade aesthetic value. When compared to test results gathered from seven lagoons in the early 1980's, *there appears to be a trend toward increasing phosphorous levels in many of the lagoons*, most notably Jackson Park lagoon. This translates into higher algae levels and hence higher turbidity.

Results of bacteria testing found that *E. coli* bacteria were present in many lagoons at elevated levels. Some measurements exceeded the advisory levels established for swimming beaches. County ordinances, however, prohibit swimming in the lagoons and therefore the *E. coli* should not pose an imminent risk to human health. Wisconsin does not have a regulatory limit for recreational uses involving more casual contact, such as fishing and boating. States that have established bacteria limits for this type of use have adopted levels in the range of 1,000 CFU/100mL (average) or higher. In general, the County's lagoons appear to be below this criterion.

Sediment testing indicates the presence of some contaminants, such as heavy metals (mercury). While Wisconsin does not have regulatory limits for sediment, the observed concentrations (with a few exceptions) appear to be within guidelines developed by the WDNR.

Most of the park lagoons suffer from shoreline erosion and poor water quality. The erosion is a result of natural causes (e.g., wave action) combined with extensive human use, waterfowl grazing, and current turf management practices. Historically, Milwaukee County has not been proactive in reversing the trends of erosion and declining water quality. Studies conducted more than a decade ago identified many of the same issues. *Most of these issues persist and many have worsened.* This is likely the result of budgetary constraints and because the problem is complex and involves a variety of considerations, some of which have a significant level of uncertainty.

Rectifying all the issues identified in this and previous studies would be difficult from a fiscal standpoint, particularly given the uncertainties in the effectiveness of certain remedies. No action, however, will only result in continued degradation of water quality. The recommendation of this study is to consider the use of alternative remedies at three select sites (Dineen Park, Humboldt Park, and Jacobus Park) and evaluate the effectiveness of the alternative measures. These "pilot" projects propose the use of alternative solutions, including biologs, buffer gardens, and pond draining, to improve water conditions. Because the approaches are significantly different than means used in the past, they should be deployed on a limited basis to gauge the effect and public reaction to actions that may create significant differences in appearance of the lagoons. If effective, then consider implementing the measures on a broader scale. In this manner, the County can make progress with constrained funding and answer questions regarding the implementability and effectiveness of the measures.

Concurrent with the proposed actions encompassed in the pilot projects, the County should continue its efforts to reduce sedimentation of its streams and remove extensive silt accumulation in lagoons. Silt accumulation is a significant contributor to the deterioration of water quality and aesthetic value. Dredging accumulated sediments may help to remove a primary source of nutrients to nuisance aquatic plants. Streambank erosion control actions and dredging will help improve or preserve water quality.

The problems of water quality in the ponds and lagoons are complex. A coordinated effort between County resources, including the landscape architects, landscape services, engineering, parks maintenance, the natural areas manager, and the local community is essential to a successful outcome. Pilot programs should seek input from the local community to better define the anticipated outcome of each pilot and to assess the potential for community involvement in construction and/or maintenance of proposed measures.

II. Introduction

A. Background

Milwaukee County owns and manages nearly 15,000 acres of parkland including 68 ponds, lagoons and lakes ("lagoons") totaling over 120 acres of surface water. These lagoons have long been popular park features, enhancing park aesthetics while providing a variety of recreational opportunities including fishing, boating and ice-skating. In some instances, the lagoons provide stormwater detention, which improves water quality of receiving waters downstream. Some of the water bodies occurred naturally while others were manmade. Some are naturally fed while others are replenished with city or well water.

The 68 lagoons are located primarily within Milwaukee County parkland, with the remainder located on County-maintained grounds. Their locations are illustrated on Figure 1. These water bodies range in size from ¼ acre to over 15 acres in surface area, and have maximum depths ranging from 1 foot to more than 20 feet. All of the water bodies are accessible to the public and most are easily accessible via paved paths or by traversing cut lawns.

The importance of maintaining the water quality of the County's surface water resources has been recognized for a long time. Concerns about water quality and aesthetics have arisen in recent years as the degraded conditions of some lagoon shorelines have become more apparent. Residents have also expressed concern over the impact of poor water quality on fishing and on health implications of humans exposed to the water. In response to these concerns, the County Board authorized a study to develop a comprehensive management plan. The plan will assess the current environmental quality of the lagoons and recommend improvements consistent with the anticipated uses. The objectives of this plan are to:

- Evaluate basic water quality conditions in representative lagoons
- Identify and prioritize lagoon needs and set long-term goals
- Identify water quality management objectives
- Compare observed conditions to water quality objectives
- Recommend long-term and short-term actions (pilot projects)

This study and plan is funded in part through Lake Management Planning grants from the WDNR (LPL-891-03 and LPL-895-03). Technical assistance was also provided by the WDNR's water quality staff as well as staff from DATCP and Great Lakes Water Institute.

The remainder of this report includes the following:

- an inventory of existing conditions (Section III)
- a summary of the field investigations (Section IV)
- a discussion of problem issues and potential solutions (V)
- a proposed plan of action (Section VI)

B. Program Objectives

This plan summarizes recent and historical information gathered on water quality conditions in Milwaukee County's lagoons. The plan outlines an approach for short-term improvements and serves as a working document for long-term actions.

III. Inventory of Existing Conditions

A. Physical Characteristics

The lagoons owned by Milwaukee County are primarily located within the County Parks System, with the remainder located on the County Grounds and other facilities. They are diverse in many respects - ranging in size from ¼-acre to over 15 acres and in average depth from 2.5 feet to 15 feet. Some lagoons are naturally occurring while others were constructed as long as 100 years ago. The lagoons receive water from groundwater, groundwater wells, city water, stream inlets, storm sewer inlets, overland flow and surface precipitation. They discharge into storm sewers, streams, groundwater and evaporation. Some lagoons have low-head dams, culvert outlets and other flow regulating devices. Sediment thickness typically varies from 2 ft to 5 ft and is generally an organic muck composed of decaying plant matter. Shorelines found in this study include: hard armoring/riprap, turf mowed to the water edge, natural native plant growth, nuisance plant growth such as burdock, and bare eroding soil.

Table 1 provides a summary of the known physical characteristics for each lagoon. The table also identifies the lagoons where fishing is offered.

B. Intended Uses

The vast majority of lagoons are located in parks and other public areas. As such, most serve the purpose of recreational resource and aesthetic enhancement. Typical intended uses for the lagoons in this study include:

- Aesthetics
- Fishing
- Animal Habitat
- Ice Skating/Hockey
- Ice Fishing Clinics
- Paddle Boating (Veterans Park only)
- Model Boating
- Storm Water Retention/Detention

In the past, some lagoons had been used for sailing clinics and paddleboat rental was more extensive.

For many years Milwaukee County, in conjunction with the Wisconsin Council of Sport Fishing Organizations and the Wisconsin DNR, has offered children's fishing clinics at a number of its parks. The clinics instruct children on fishing techniques, equipment use, knot tying, safety rules and fish identification. In 2004, fishing clinics were held at the following parks:

Brown Deer Park
Greenfield Park
Humboldt Park *
McCarty Park*
McGovern Park*
Mitchell Park
Scout Lake Park*
Sheridan Park
Wilson Park*

(*Parks that also offered ice fishing clinics in 2004.)

The Milwaukee County Fish Hatchery located at the House of Correction in Franklin stocked a total of 44,400 fish in Milwaukee County park lagoons in 2004. The inmate–raised fish were a combination of species which included hybrid bluegill, yellow perch, black crappie, largemouth bass and rainbow trout. The fish were released during three main stocking episodes in February, April and May. The timing of the fish stocking is planned to encourage youth participation in fishing.

The first stocking of 2004 was in February in advance of ice fishing clinics held at McGovern, Humboldt, McCarty, Scout Lake and Wilson parks. In April, fish were released prior to spring fishing clinics at Brown Deer, Greenfield, Humboldt, McCarty, McGovern, Mitchell, Scout Lake, Sheridan and Wilson parks. A total of 8,200 fish were released. The organizers of the fishing clinics reported that the programs were a great success. Milwaukee County, the Wisconsin DNR and the Wisconsin Council of Sport Fishing Organizations present the clinics.

In June of 2004, the hatchery released fish prior to school summer recess. A total of 34,900 fish were released into 17 county park lagoons. Those parks were: Brown Deer, Dineen, Estabrook, Grant, Greenfield, Holler, Humboldt, Juneau, Kosciuszko, McCarty, McGovern, Mitchell, Saveland, Scout Lake, Sheridan, Washington and Wilson.

C. Previous Studies

Several studies have been performed that provide useful information regarding the characteristics of some of the lagoons. Table 2 summarizes the types of information included in the studies and the lagoons that were studied.

The *Surface Water Resources of Milwaukee County* [1] is the earliest known study that describes many lakes, ponds, lagoons and rivers in Milwaukee County. This report provides basic information about the physical properties of the lagoons and elaborates on the problems associated with the lagoons in the early 1960's.

The *Milwaukee Urban Lakes Initiative Project Management Plan* [2] was an EPA-funded project conducted in the early 1980's that studied seven Milwaukee County lagoons and elaborated in significant detail on their problems and solutions. The main problems listed by the report are external sediment and nutrient loading, winter oxygen levels, internal recycling of nutrients, aquatic plant growth and lack of a recreational fishery. The report gave recommendations for each problem on an individual lagoon basis.

The *Phase I Environmental Site Assessment of the Jackson Park Lagoon* [3] sought to identify possible sources of PCBs in the Jackson Park Lagoon sediment. The report did not reach any verifiable conclusions as to the source.

The *Lagoon Shoreline Assessment* [4] was an internal report completed in 2003 that studied the shoreline of over 40 Milwaukee County lagoons. The report cites human over-use, waterfowl overuse and turf management practices as contributing to shoreline erosion, poor water quality, and poor aesthetic appearance. The report recommends several ways to improve these problems.

The *Aquatic Plant Management Plan* [5] studied the aquatic plant growth of nineteen Milwaukee County lagoons. The 2003 report details the plant growth for each lagoon noting the presence of nuisance aquatic plants. The report recommends several ways to deal with excessive aquatic plant growth and proposes management areas for each lagoon.

The *Milwaukee County Streambank Assessment* [6] evaluated the stability of stream channels at 40 major streams, some of which feed into ponds and lagoons.

IV. Current Field Investigations

The Milwaukee County Department of Parks and Public Infrastructure (DPPI) - Environmental Services initiated the current study in June of 2003. Data collection began in August of 2003 and was completed in Spring of 2005. The study included research, visual surveys and in-depth analysis to determine factors contributing to the degraded lagoon conditions. This study identifies problem issues associated with the lagoons and gives potential solutions for each.

A. Methods

Visual surveys were undertaken at 40 lagoons in the study. The visual surveys were brief observations made during walks around each lagoon. These observations were recorded and photographs were taken. The parameters surveyed include:

- Water Recharge Source
- Water Discharge Location
- Surrounding Land Use
- Shoreline Conditions
- Water Quality/Appearance

Eighteen lagoons were chosen for water and sediment analysis. The 18 selected provide a representative pool of the 72 lagoons. Field investigations included measuring bacteria levels of pre- and post- runoff events, basic water quality, water contaminants, and sediment contaminants. The parameters tested include:

- Bacteria: *E. coli*
- Basic Water Quality: Alkalinity, Secchi disk, Chlorophyll *a*, Total phosphorous, Dissolved phosphorous (orthophosphorous), TSS, Turbidity, pH
- Contaminants in Water: Chlorides, Copper, Lead, Zinc
- Contaminants in Sediment: Metals (As, Ba, Hg, Cr, Cu, Pb, Ni, Zn), Total phosphorous, Percent solids, Sediment thickness

Bacteria. *E. coli* was tested to measure the degree of bacteria contamination of the waters. *E. coli* bacteria are not pathogenic, but are widely used as a surrogate measure for the presence of pathogens because they are easier to test for. While Wisconsin's regulations have been based on "fecal coliform" counts, the federal BEACH Act has prompted the state to change to using *E. coli* as the basis for beach water quality testing. The state is in the process of a rule change.

EPA has recommended that states use *E. coli* as an indicator to assess whether bacteria, viruses and other threats to human health may be present in the water. This type of *E.*

coli is not likely to make people ill by itself, but if found in high quantities it suggests that fecal matter is present and thus other disease-causing agents may be present.

Although the County lagoons do not have "beaches" and are not used for swimming, the swimming beach advisory is the principal water quality standard for bacteria in the state. EPA recommends that states advise beach visitors of possible health risks when *E. coli* counts exceed 235 CFU/100 mL (coliform forming units per 100 milliliters). In Wisconsin, a yellow "Caution" sign is posted at the beach when this standard is exceeded. The beach may be closed and a red "closed " sign posted when the *E. coli* count exceeds 1,000 CFU/100mL [7].

The notification effort is intended to help the public understand beach health risks and make informed choices about how to use recreational waters. Research has shown that the rate of infection for recreational bathers in water with an *E. coli* count of 235 CFU/100 mL is eight illnesses per 1,000 bathers. At the 1,000 CFU/100 mL level of *E Coli*, the rate of infection rises to 14 per 1,000 bathers [7].

A recent study by the City of Madison raises some doubts as to the correlations between *E. coli* and pathogens in water. The study report concludes that "...the assumption that elevated bacterial indicator levels predict the presence of pathogens in recreational waters may be false", and "Furthermore, most of the pathogen positive samples occurred at low indicator levels"[8]. This further emphasizes that the advisory levels should not be viewed as a clear delineator between safe and unsafe waters for bathing.

Testing basic water quality parameters (alkalinity, turbidity, TSS, etc.) helps provide a general indication of lagoon health. While these parameters typically do not have standards, significant changes to these parameters over time would signal deterioration (or improvement) in conditions affecting aquatic life.

Alkalinity provides a measurement of the buffering capacity of the water. Waters with low alkalinity are more prone to changes in pH, to which fish are sensitive.

Total suspended solids (TSS) is a measure of the amount of particulate matter in the water. TSS can cause problems for fish by clogging gills, reducing growth rates and lowering resistance to disease. TSS reduces light penetration and thus limits photosynthesis. As levels of TSS increase, a water body begins to lose its ability to support a diversity of aquatic life. Suspended solids absorb heat from sunlight, which increases water temperature and subsequently decreases levels of dissolved oxygen (warmer water holds less oxygen than cooler water). As less oxygen is produced by plants and algae, there is a further drop in dissolved oxygen levels. TSS can also destroy fish habitat because suspended solids settle to the bottom and can eventually blanket the lagoon bed. Suspended solids can smother the eggs of fish and aquatic insects and suffocate newly-hatched insect larvae. Bacteria can adhere to suspended solids and so they provide a transport mechanism for bacteria. There is no regulatory standard for TSS in surface water, but concentrations below 30 mg/l are generally considered good (water appears clear), while concentrations above 100 mg/l are considered high (water appears cloudy or dirty).

Turbidity is a measurement of the visual clarity of a water sample and indicates the presence of fine suspended particulate matter. The unit used to measure turbidity is NTU (nephelometric turbidity units) which measures the absorption and reflection of light when it is passed through a sample of water. Because particles can have a wide variety of sizes, shapes and densities, there is only an approximate relationship between the turbidity of a sample and the concentration of the particulate matter present (TSS). Since turbidity is a measure of the amount of particulate matter in water and because phosphorous in water is mostly present in the particulate form, the two variables are related. Fish that are dependent on sight for locating food are also at a great disadvantage when water clarity declines. A value of 50 NTU is considered indicative of turbid conditions [9].

Although nutrients such as **phosphorous** are vital to growth and reproduction in an ecosystem, in excess amounts they can interfere with these functions. In more than 80% of Wisconsin's lakes, phosphorous has been found to be the key nutrient affecting the amount of algae and weed growth. Accelerated growth of algae can lead to eutrophication of a water body. Phosphorous originates from a variety of sources, many of which are related to human activities. Major sources include human and animal wastes, soil erosion, detergents, septic systems and runoff from lawns. Because some lagoons are fed from city water that contains 1 to 2 ppm phosphorous, this is another potential source.

Phosphorous can stimulate complex reactions in lagoons. Soluble reactive phosphorous readily aids plant growth. Its concentration varies widely in most lagoons over short periods of time as plants take it up and release it. **Total phosphorous** is considered a better indicator of a lagoon's nutrient status because its levels remain more stable than soluble reactive phosphorous. WDNR guidance suggests that concentrations of total phosphorous below 20 ug/L for lakes and 30 ug/L for impoundments should be maintained to prevent nuisance algal blooms. Total phosphorous values greater than 30 ug/L are an indication of eutrophic conditions [10].

Large amounts of phosphorous can be stored in the sediments. Aquatic plants with roots extending into the sediments can obtain phosphorous for growth through root uptake. Phosphorous may be released to the water column when dissolved oxygen is depleted.

Chlorophyll *a* is a surrogate measure for algal biomass in lakes. Algae are an important part of aquatic food webs and are an integral part of a functioning ecosystem. Excess algal growth, however, can deplete dissolved oxygen concentrations and cause negative ecosystem effects such as fish kills.

Secchi depth is another means of measuring turbidity. It is measured using a secchi disk, lowered into the water and observing the depth at which it is no longer visible. Secchi disk depths less than 4 feet are considered to be indicative of poor water quality. [10]

The water and sediment analysis portion of the study was performed using standard procedures. Water samples for the bacteria and basic water quality parameters were collected about 12 inches below water surface using a 1-quart poly container attached to a telescoping extension pole. The sampler was rinsed several times with the lagoon water prior to sample collection. Water samples were taken near areas of common access (e.g., concrete platform). Sediment samples were collected using either a hand-held coring device or a clean shovel. The coring device, a 2-inch diameter clear plastic tube with handle, was used for collecting samples from softer sediments, while the shovel was used to collect firmer or rockier sediment samples. Sediment sampling locations are shown on the figures in Appendix A. Sediment depth was measured using painted piece of rebar that was pushed into the sediment (like an automobile oil level "dip stick"). Secchi depth was obtained using a standard Secchi disk. All samples that required lab analysis were kept on ice and sent to the State Lab of Hygiene in Madison, Wisconsin.

Because of budgetary constraints, not all lagoons were tested for every parameter. Lagoons that had greater potential for indirect human contact from fishing, or had a history of paddle boating and other recreational activities were sampled for bacteria. Lagoons with a history of nuisance aquatic plant growth were tested for basic water quality parameters. Lagoons that receive significant inflow from point sources, or have the potential to discharge water of questionable quality to receiving streams, were tested for water contaminants (chloride, zinc, lead, copper). Lagoons that have known sediment contamination, or are candidates for dredging in the near future, were tested for sediment contamination (including select heavy metals, pesticides and PCBs). Table 3 provides a summary of the parameters tested in each of the lagoons.

B. Results

The results of visual inspections are summarized in Table 4. Lab results are summarized in Tables 5, 6 and 7. Complete lab reports are provided in Appendix B.

Table 5 summarizes the results for bacteria and basic water quality testing and provides a comparison of the data to certain criteria. Tables 6 and 7 summarize results for water contaminants and sediment contaminants, respectively. The parameters listed in Tables 5, 6 and 7 do not have regulatory limits, and so the 'criteria' listed are values found in literature that represent poor water and sediment quality conditions. The 'criteria' provide a starting point for evaluation of the results.

<u>Some of the main observations from the water and sediment testing included</u>:

- *E. coli* concentrations ranged from 2 CFU per 100 mL (Veterans Park) to 4,900 CFU per 100 mL (Jackson Park)

- Total suspended solids ranged from less than 3.3 (Scout Lake) to 94 mg/L (McGovern Park)

- Total phosphorous concentrations ranged from 0.019 mg/L (Scout Lake) to 0.757 (Jackson Park). The first round of sampling detected some of the highest levels of phosphorus. This may have been due to the sample being collected late in the summer season, the proliferation of geese at this time, and that the sampling event was done after a precipitation event that was preceded by a long period of no rain.

- Chlorophyll *a* concentrations ranged from 6 (Scout Lake) to 278 (Jackson Park)

- Heavy metals and PCBs were detected in the sediment samples, but generally at levels below sediment quality criteria. The only exception to this was the concentration of mercury found in Greenfield Park lagoon sediment.

The first column in Table 5 lists the *E. coli* data. The comparison criterion is 1,000 CFU/100mL. Although the State of Wisconsin has regulatory limits for swimming beaches (200 CFU/100 mL), it has no limit for casual contact. The beach standard assumes full body contact bathing conditions, where a receptors' potential for ingestion is significant. This standard is not applicable or appropriate for the type of use at the lagoons. Some states do have standards for more casual contact (secondary contact). The limits are variable, but range around 1,000 CFU/100mL (geometric mean), and 2,000 CFU/100mL for a single sample. The WDNR publications list 1,000 CFU/100mL as the beach closing value. The WDNR has also established a maximum bacterial limit (fecal coliform) of 1,000 CFU/100mL for several creeks and rivers in southeastern Wisconsin (NR104.06). Therefore, a value of 1,000 CFU/100 was selected as a basis for comparison.

For TSS, the criterion listed is 100 mg/L. The 100 mg/L value is often used by the MMSD in their regulation of discharges to storm sewers. Literature often reports values of 100 mg/L to be excessive. South Dakota, for example, does have a water quality standard of 90 for 'marginal fish propagation waters'. The WDNR considers TSS values greater than 100 mg/L to be "muddy" [9].

While not a regulated limit, the UW-Extension publications [10] describe eutrophic waters as having total phosphorous greater than 0.03 mg/L, Chlorophyll *a* greater than 15 mg/L and secchi less than 4 feet. These values are listed as criterion for their respective parameters.

For turbidity, a value of 50 NTU was listed as a criterion. Wisconsin has no standard for turbidity. The Wisconsin DNR considers values greater than 50 NTU "turbid" [9]. Only Washington Park, Whitnall North, and Jackson Park exceeded this value.

Table 6 presents results of water contaminant testing. No water quality exceedences were observed from these tests.

Table 7 lists the results from sediment testing. There are no codified limits in Wisconsin for sediment quality. The WDNR has issued guidance, however. Three sets of criteria are provided for comparison of data. The first two sets are based on WDNR guidance on sediment quality criteria, "probable" and "threshold" effects levels [11]. The third set of criteria is the Canadian sediment quality guidelines [12]. When compared to the criteria, the samples that appear to have high levels of contaminants include:

- Jackson Park - PCBs and lead
- Whitnall North – mercury, copper and lead
- Humboldt – copper
- Greenfield - mercury

Sediment thickness testing indicated excessive siltation in a number of lagoons, including Whitnall Park, Dineen Park, and Kosciuszko. The siltation creates a poor habitat for fish, promotes growth of emergent plants, and degrades aesthetics. Sediment thickness profile maps are in Appendix C.

Over the past few years, the House of Corrections has performed limited testing of dissolved oxygen in select lagoons during the winter. The purpose of the testing was to determine if sufficient dissolved oxygen (DO) was present in the water to sustain the fish that would be stocked prior to fishing clinics. Results of these tests, shown in Table 8, indicate potentially problematic DO levels in McGovern and McCarty parks.

C. Analysis

Visual inspections of lagoons identified two recurrent problems: shoreline erosion and excessive aquatic plant growth. In some instances shorelines have eroded to the point that they are encroaching on the walking paths. At some lagoons the continued erosion could eliminate any remaining buffer space between the lagoon and the path within a few years.

The County routinely uses methods to control nuisance aquatic plant growth. It appears, however, that these controls have had marginal benefits. Species such as Eurasian milfoil and curly-leaved pondweed, for example, have multiplied extensively in several of the more popular lagoons, creating an unattractive appearance that is poorly suited for desirable fish populations and contributes to sediment buildup. Supplemental efforts need to be employed to sustain aesthetically pleasing and fishable environments.

Results of water quality testing indicate that many of the lagoons suffer from high levels of phosphorous. Many of the lagoons that have high phosphorous also have high Chlorophyll *a* and high turbidity. These parameters can be correlated, i.e., high phosphorous leads to algae growth which increases turbidity. Therefore, the high phosphorous levels are contributing to the more apparent problem of algal blooms and turbid waters.

Phosphorous levels appear high in many of the lagoons, especially Jackson, McCarty, Humboldt, Brown Deer and Greenfield parks lagoons, as well as Lake Evinrude. The high phosphorous values correlate with high Chlorophyll *a* values at these lagoons.

The majority of lagoons tested had single sample *E. coli* levels greater than 235 CFU per 100mL (US EPA recommended advisory standard for bathing waters). Eight of the 11 ponds tested for *E. coli* had at least one event with concentrations greater than the beach advisory value. The beach advisory actually applies not to a single measurement but to a geometric mean of five samples, and only Jackson Park and Greenfield Park would exceed a geometric mean of 235. Because County ordinances prohibit bathing in the lagoons, the observed levels should not present an imminent threat to human health. There is no standard in Wisconsin for recreational use (such as boating and fishing).

The presence of some *E. coli* is not an indication that the water is badly contaminated. Fecal coliform is widely found in the environment as well as in the feces of humans and other warm-blooded animals, including birds. Wood, for instance, can contain high levels of bacteria that tests positive for fecal coliforms, and could cause a high concentration but not pose a threat to human health [13]. Studies of inland Wisconsin State Park beach waters for 2002-2004 found *E. coli* levels periodically exceeded the swimming advisory in more than half of the lakes tested [14]. The study showed that concentrations of bacteria could change dramatically within a day, *sometimes as much as two orders of magnitude*.

Some studies suggest that water contamination with *E. coli* increases after rainfall events, due to runoff containing high levels of bacteria. Of the 10 locations with pre- and post-rain event sampling, seven showed significant increase, two were relatively unchanged, and one decreased in the post-rainfall event. The one that decreased was Dineen Park, perhaps due to the influent flow/washout. While a limited sample population, the results suggest that *E. coli* levels are typically in the 100-1,000 CFU/100 mL range. Fluctuations may be linked to the migratory season when bird populations are highest. Other studies suggest that other factors, such as wind speed and air temperature can have a major effect on bacteria concentrations in shoreline water [8].

The lagoons with better water quality were Humboldt Park, Mitchell Park, and Scout Lake. The lagoons with the poorest water quality were Jackson, Whitnall North, and Washington parks. The reasons for these differences are not clear, but may be due to factors such as water depth (Scout is significantly deeper), nutrient source, and water detention time.

Testing for pesticides and PCBs in sediment was performed at lagoons with previous history of contamination or potential need to dredge. PCBs were detected in Jackson Park sediments. The levels are below regulatory limits (TSCA) of 50 ppm, but within the range of the WDNR guidelines for sediment quality criteria. Sediment testing did not find other significant contamination, except at Greenfield Park lagoon, where an elevated level of mercury (10.2 mg/kg) was observed.

Earlier studies included testing for some of the same water quality parameters. Table 9 provides a historical comparison of the data for the five lagoons that had been previously tested as part of the 1981 study. The data indicate a general trend of increasing phosphorous and turbidity levels in the County's lagoons. Exceptions to this were Scout Lake and Humboldt Park lagoon, whose water quality appears to be relatively unchanged. Jackson Park appears to have deteriorated the worst, with phosphorous values increasing by nearly an order of magnitude, and solids, Chlorophyll *a* and bacteria counts all increasing significantly.

Historical data is available for only these seven lagoons and lakes. Causes of the increased TSS, phosphorous, Chlorophyll *a* and bacteria are not clear. For lagoons not fed by streams or creeks that would directly contribute silt and nutrients, factors such as increased geese/gull populations could be a significant contributor to phosphorous, which in turn generates higher Chlorophyll *a* and TSS.

V. Problem Issues and Potential Solutions

A. Issues

The following problem issues have been identified in Milwaukee County lagoons. These problems work to degrade the quality of the lagoons and negatively affect their intended uses.

1. Erosion

Erosion of shorelines increases the suspended solid loading, nutrient loading, sedimentation rate and potentially destabilizes park infrastructure. Erosion is caused by intensive access by humans, wave and ice motion, waterfowl egress, and lack of deep-rooted vegetation along the shoreline.

Table 10 summarizes the observations from the shoreline erosion assessment conducted in 2003 [4]. Many areas have been worn bare and compacted by park visitors. Current management practices often call for keeping the shoreline plant growth short to maintain visibility of the lagoon. Mowing the turf to the water edge has been a common practice. As a result, many lagoons have lost large quantities of buffering and shore stabilizing plants.

A large goose population can cause a variety of problems. As the geese climb on shore, they disturb the bank causing destabilization and erosion. Once on shore, geese graze the surrounding turf extremely short, thereby increasing the runoff into the lagoon. As the goose population increases, higher nutrient and fecal coliform loads associated with their feces also increases.

The resident population of Canadian Geese in Wisconsin has doubled in the last decade [15]. Unrestricted hunting, habitat loss and egg collection resulted in the disappearance of the Canadian goose from Wisconsin in the 1930's. It was reintroduced through a major stocking effort in the 1980's and the resident (non-migratory) population statewide has grown from a few thousand to over 80,000 birds.

2. Algae and Nuisance Aquatic Plants

Most of the lagoons studied suffer from aquatic plant problems. Invasive, non-native plant growth competes with native plant species, can harm or kill fish populations, and is aesthetically unpleasing. Table 11 summarizes aquatic plant problems encountered at Milwaukee County lagoons and the methods currently deployed to address them.

Eurasian water milfoil (EWM) is one of the major invasive species of concern in Wisconsin lakes and ponds. It was first observed in Wisconsin in the 1960's and has expanded significantly throughout the state in the late 1990s. It is problematic because it grows and regenerates readily, and can successfully out-compete most native aquatic plants. Over time, EWM can form huge stands with vast mats of surface foliage that shade out native aquatic plants and diminish the aesthetic value of the lagoons. Recreational activities such as fishing are also diminished on lakes infested with EWM. A variety of techniques have emerged for controlling EWM including mechanical cutting and harvesting in open areas, limited use of herbicide treatments and more recently the introduction of weevils as a biological control agent.

Nutrients such as phosphorous and nitrogen contribute to excessive algal and macrophyte growth in lagoons. High nutrient loadings come from runoff, waterfowl fecal matter, point sources, and resuspension of sediments. High levels of nutrients can cause excessive aquatic plant and algae growth that can harm or kill fish populations. Excessive algae growth and subsequent die-off can lead to oxygen depletion in winter and the low oxygen conditions enhance the release of phosphorous trapped in sediments.

3. Elevated Bacteria Concentrations

Elevated levels of *E. coli* are present in the majority of lagoons. Although swimming is prohibited in County lagoons, elevated levels of bacteria still represent a concern for indirect contact exposures, such as fishing (and to a limited extent, boating).

Because studies of bacteria levels in lakes are relatively recent, there are no clearly identified sources of bacteria in the lagoons. Potential sources include droppings from gulls and geese, stormwater runoff, litter, and others. Recent studies in Wisconsin and Illinois have focused on gulls and geese as primary sources of beach bacteria. The studies often use *E. coli* as the general indicator of bacteria levels.

Studies suggest that the elevated levels of bacteria *E. coli* are more likely derived from bird populations than from human waste. Gull feces, for example, have bacterial loads exceeding 340 million *E. coli* cells per gram. Studies by the Great Lakes Water Institute found *E. coli* from some parking lots, a common repose for gulls, exceeded 100,000 colonies per 100mL after a rain event [13].

4. Litter

Site surveys in 2003, 2004, and 2005 found the accumulation of litter to be prevalent throughout nearly all Milwaukee County ponds. Litter found in these ponds ranged from chip bags and 20-ounce soda bottles to picnic tables and garbage cans. The presence of litter is perhaps the most readily apparent problem from an aesthetics perspective.

5. Rough fish

Although a recent creel study has not been performed, the previous studies and recent water quality testing strongly suggest that rough fish predominate in most of the County lagoons. Rough fish such as goldfish and carp resuspend bottom sediment, increasing turbidity and reintroducing nutrients. Rough fish, being more tolerant of low oxygen levels and higher turbidity, will tend to out-compete the more desirable game fish when poor water quality persists. The potential for rough fish to survive the winter is greater than for stocked fish due to their greater tolerance for low winter dissolved oxygen conditions.

6. Siltation

Siltation can adversely affect water quality in several ways. The shallower the water, the easier light penetrates to the bottom, increasing the production of nuisance aquatic plants that grow from the bottom of the lagoon. Shallow water bodies warm up faster and so are a lower quality habitat for fish. Silt can contain nutrients such as phosphorus that provides an ongoing source of nutrients to nuisance aquatic plants.

B. Potential Solutions

The following paragraphs describe some possible solutions to the problem issues described previously. Many of the solutions are neither cheap nor simple to implement. The variety of solutions suggests there is no "one-size-fits-all". Multiple options are presented where possible, and it may be advantageous to attempt different solutions at different parks to gauge their cost-effectiveness and implementability.

1. Erosion

The effects of shoreline erosion can be mitigated using one or a combination of methods, including:

- Physically modifying the shoreline through regrading or shoreline armoring: Regrading alone is ineffective without vegetating the area with deep-rooted plants to stabilize the soil. Hard armoring includes placement of large rocks, quarry stone, or gabions along the shore. Armoring methods are reliable, but are high in capital cost. Hard armoring costs run in the range of $50 to $100 per foot of shoreline. Figure 2 illustrates an example of armoring. The principal advantages of armoring are that it has a high degree of effectiveness for erosion control, it can be aesthetically pleasing (depending on design), and has lower maintenance needs. The principal disadvantages are the relatively high cost, and does not provide the water quality benefits of shoreline plants (nutrient filtering, oxygen production, animal habitat).

- ♦ Use of fiber logs (bio-logs), live stakes or other bio-engineered techniques to stabilize the shoreline: Bio-engineered methods are relatively new design approaches to erosion control that use less expensive organic materials to create a more natural erosion barrier. Use of bio-logs have met with mixed success on lake shorelines, but should have a greater chance of success on lagoons where the wave action is less significant. Compared to hard armoring, their cost is significantly less, running about $30 to $50 per foot of shoreline. Figure 3 illustrates an example of the use of fiber logs.

- ♦ Replanting along the shoreline: In areas where grass extends to the shoreline, replant with deeper-rooted species such as prairie cordgrass, big bluestem, green bulrush, sawtooth sunflower, New England aster, redtop, slender rush, shrubby conquefoil, common mountain mint, water hemlock, foxtail, purple milkweed, pussy willow, and goldenrod species. Seed mixes are readily available and fairly inexpensive. Buffer strips of grass are typically recommended to be 10 to 20 feet wide to provide significant benefits. A buffer strip of 5 feet, however, will provide some erosion benefits. The cost of replanting is approximately $10 to $25 per square yard.

- ♦ Providing durable surfaces to common access points. At the more popular fishing locations, people trample the grasses to the extent they are unable to rebound. Reconstruction of these areas using stone paths or other durable surfaces allow access without enhancing soil erosion. An example is illustrated in Figure 4.

- ♦ Reducing the resident population of geese. Over the last seven years the Parks System has tried a number of control methods to curb the growth in the resident population and/or prompt them to relocate outside the parks. The methods used to date included egg addling, removing or affecting their feeding locations, use of border collies to impact their feeling of security, and changing their environment so they cannot easily move from the water to shoreline. Future actions will include use of chemical deterrents and relocation of birds.

The Parks System performed egg addling at a number of parks last year and found it to be effective. In Spring of 2004, parks employees addled over 1600 eggs and it is conceivable that an equivalent number of potential geese will be taken out of the resident population in 2005 if the process is continued as planned. Permits for addling are issued by the USDA. The parks included in this program are: Wilson, Humboldt, Jackson, Washington, Whitnall, Greenfield, Brown Deer, and McGovern. Most of the nests are located on the islands of the lagoons. The County Board approved this action in 2003.

In 2004 the County Board approved the Department to purchase Flight Control Plus for the 2005 season. In the Fall of 2004, the Department purchased 200 gallons of Flight Control Plus. Flight Control Plus is a chemical spray that is applied to turf areas that is safe for human contact. Once ingested it gives the geese a very upset stomach. One of its additional qualities is that once on the turf it emits an ultraviolet glow that is not perceptible to the human eye, but is to the geese. Birds remember how they felt when they ate the tainted grass and stay away from these areas. Because the chemical washes off grass in the rain, it must be re-applied after rain events.

The Parks System has also budgeted funds for working with U.S. Fish and Wildlife Service to relocate geese from our properties.

In 2004, the Department contracted with Wild Goose Chase that used highly trained Border Collies to chase geese. These dogs aggressively pursue the geese. The random nature of these visits made the geese edgy and took away their feeling of security. Once the geese feel their habitat is not secure they will move to other locations. This approach was effective as long as the Department could afford the service. These services were used on County golf courses and parks in 2004 and are planned to be used again in 2005.

During the lagoon surveys, County staff observed people feeding geese on numerous occasions. More vigorous enforcement of no-feeding ordinances, posting of signs, or educational efforts might help reduce this attraction.

2. Algae and Nuisance Aquatic Plants

High Nutrient Loadings

High levels of phosphorous and other organic debris contribute to large algae populations and to the growth of other nuisance aquatic plants. Phosphorous will be consumed by the algae and plants and then re-deposited into the sediments when these plants die off. Thus, the "bank" of nutrients continues to support plant growth year after year.

If the existing bank of nutrients is controlled, future loadings must also be controlled. These sources might include surface runoff from areas that have been fertilized. Some lagoons receive overland flow from grassed areas.

Excess nutrient loading is likely one of the most significant contributors to the degradation of water quality in lagoons, causing nuisance algal blooms, rapid aquatic weed growth and other symptoms of eutrophication. Methods that can be used to reduce internal nutrient recycling in shallow warm water lakes include:

- Dredging
- Phosphorous inactivation and precipitation
- Mechanical harvesting
- Reduce loadings from runoff and birds
- Controlled applications of fertilizers

Other sources of nutrient loadings, e.g., atmospheric deposition and groundwater inflows, are considered to be unmanageable from a practical standpoint.

The removal of phosphorous stored in the sediments can be accomplished through dredging. Other techniques have been used to contain the phosphorous (eg., placing liners over the sediment) or extracting phosphorous from sediment in-situ (such as is being done at Devil's Lake [www.wnrmag.com/stories/2004/jun04/devlake.htm]). However, these techniques are experimental and expensive.

Other methods of controlling the release of nutrients to plants include nutrient inactivation via the addition of chemicals (e.g., alum) to the sediment. Alum (aluminum hydroxide) has a high capacity to absorb phosphorous and make it unavailable to plants. It is relatively inexpensive and has a low toxicity to most forms of aquatic life. The most common technique of adding alum is via mixing into the water column. This method tends to only reduce algae growth since aquatic macrophytes receive most of their nutrients from the bottom sediments and not the water column. This method has been shown to be less effective in shallow lakes and injecting alum or aluminum sulfate into the sediment may be more effective. Unfortunately, there are no demonstrations of this technique in Wisconsin.

The use of alum to reduce algae may improve water clarity, thereby improving conditions for growth of macrophytes. Alum will not bind to new phosphorous entering the pond; therefore it is prudent to reduce nutrient inputs before treating the lagoon. DNR approval for the application of alum to a pond may be required if there is a potential for discharge of the chemical or the lagoon is a public waterway. Alum applications typically have limited time (2 to 3 years) over which it is effective.

Mechanical harvesting of the plant biomass is effective in preventing the return of the assimilated nutrients to the water column or sediments as the plants decompose. Since the growth of aquatic macrophytes requires the assimilation of both water column and sediment nutrients, harvesting effectively removes nutrients from both medias. Mechanisms for harvesting are described in greater detail later.

Some lagoons receive runoff from parking lots. Surface water runoff from parking areas can be a source of solids and undesirable chemicals (including phosphorous). Use of sediment traps (eg, Stormceptor) can help reduce silt deposition, but require maintenance. The volume of runoff from these area might be reduced through the use of porous pavements. Porous asphalt pavements consist of several inches of open graded asphalt mix over a deep base of larger sized stone. Alternative designs make use of paving bricks to create infiltrations strips, or drain water to bioretention cells.

Modification of fertilization methods is another means of limiting nutrient loading. According to Parks staff, fertilizers are not used near lagoons with the exception of golf course areas.

A reduction in the geese population should also reduce the phosphorous loadings to the lagoons by reducing the contribution from goose droppings, and by improving the amount of grass present along the shorelines that help to filter nutrients in runoff.

One other source of phosphorous could be from City water. Water from the City of Milwaukee contains phosphate (added) levels of 1.5 to 1.8 mg/L. Some lagoons, such as Humboldt and Jackson Park, use large amounts of City water to replenish water losses. Using an alternate source of water, such as groundwater from a dedicated well, would reduce this nutrient loading.

Algae and Nuisance Aquatic Plant Growth

A variety of methods are available, many of which have been employed by Milwaukee County, to control aquatic plant problems, including:

- Physical removal (mechanical harvesting, dredging, hand raking, hand pulling)
- Chemical treatment
- Use of dyes
- Aeration
- Draining/dewatering
- Biological controls

The selection of a method is based on the plant species, the size of the affected area, and availability of equipment to certain lagoons. In addition to the methods used in the past, other methods include: draining lagoons temporarily and introducing competing species. Each of these methods, and their potential for application, is described below.

Harvesting

Small scale mechanical harvesting on ponds can be an effective management tool. A variety of hand-held or boat-mounted devices are available from private firms. Removing the cut plants will help take nutrients out of the pond and limit algae growth.

Macrophtye harvesting was done more frequently by Milwaukee County in the 1960s and 1970s. Currently, harvesting is limited to marina areas, such as McKinley Marina. Harvesting in lagoons using machines was discontinued due to problems with maintenance of the harvesting machines, difficulties in operating the machine in shallow lagoons, and the high cost of labor and equipment to move the harvester from lagoon to lagoon. Past use of harvesting equipment in Milwaukee County Park System found that harvestors are difficult to launch and effectively operate in the shallow shoreline areas. Harvesting equipment typically requires 2 to 4 feet of water depth to launch the harvester.

Harvested material must be disposed of or composted for future use elsewhere. The transport and management of this material is a significant cost that must be included when considered.

Dredging

Dredging is an expensive and intensive lagoon management technique that can substantially change the condition of a lagoon. Dredging helps to control aquatic plants by removing the soft, nutrient rich sediment that has built up on the bottom of the lagoon. Dredging can also deepen the lagoon to the extent that light is not available for plant growth. Given that the depths must be extended to greater than 10 feet to prevent light penetration, and that the maximum depth of most lagoons is in the range of 4 to 6 feet, deepening the lagoons to prevent light penetration to the bottom is impractical for the majority of County lagoons.

Dredging may or may not help reduce an algae problem. If the lagoon has a firm bottom, dredging the soft muck may reduce nutrients for algae and provide more oxygen. However, if the lagoon does not have a hard bottom, the dredging may worsen the aquatic plant problems by exposing the sediments that contain more nutrients.

Dredged materials must be disposed of at a landfill or other WDNR-approved location. Permits would be required for dredging (s. 30.20, stats) and for disposal (NR346). Sampling and testing would need to conform to NR 347.04. Sediment disposal may also require a DNR Solid Waste Permit if dredged volumes exceed 3,000 cubic yards. Chap. 180.13 of the Wisc. Admin. Code requires that any dredging project over 3,000 cubic yards submit preliminary disposal plans to the WDNR for review. As part of the permitting process, it may be necessary to test the sediments to identify any contamination problems.

Conventional dredging operations can use any one or a combination of techniques such as draglines, backhoes, front end loaders bulldozers and dump trucks to dig out the bottom sediments. Hydraulic dredging uses pumps and hoses to pump the bottom material to containment areas. The material may have to dewater within the containment area for weeks or months before the site can be restored. Discharges of water from dredged sediment may require a WPDES permit

Dredging typically requires a permit from the WDNR and may require a permit from the Corps of Engineers. Chapter 30 permits are typically required if

* the lagoon is naturally existing
* the lagoon is connected to or within 500 feet of a navigable waterway
* the lagoon is fed from a stream or high capacity well
* excavation will be in a floodplain, wetland or shoreland zone

Chemical Controls

Chemical controls have been used in some Milwaukee County lagoons. Most aquatic herbicides used to control macrophyte growth have restrictions on using treated water for irrigation. Therefore, they cannot be used at golf courses where the lagoon water is used for irrigation.

To avoid toxicity to fish or other wildlife, chemical treatments are typically conducted in limited and controlled fashion. The chemicals that have been used by the County over the past few years are listed in Appendix D.

Recently, Aquathol and Cutrine-Plus have been chemicals of choice for nuisance plan control at the County lagoons.

Dyes

Water dyes reduce plant and algal growth by reducing the depth to which sunlight can penetrate into the water column. The effectiveness is variable and depends on hydraulic residence time. Dyes are available in a variety of colors, but the most popular is blue. The dyes are usually non-toxic, water-soluble and degrade over a period of weeks. Permits are required for the use of dyes that have USEPA registration numbers. Dyes are often used in conjunction with other management strategies and generally not a sole remedy. Lagoons with an occasional outflow are generally not suitable for dye applications due to discharging the colored water downstream causing complaints and possibly resulting in enforcement actions by the WDNR.

Dyes are simple to apply and low cost. However, they can also eliminate good macrophyte beds used by fish for spawning and nursery areas.

Raking and Hand-Pulling

Raking is often one of the more cost-effective methods of removing excess aquatic plants from a lagoon. A variety of devices have been invented to achieve this purpose. The greatest advantage to raking is that it allows the removal of plant material along with their stored nutrients. It also helps reduce the chance for oxygen depletion caused by plant decomposition. The drawback to raking is that it may be very labor intensive, and the harvested material must either be disposed of or composted for future use.

When raking or pulling, efforts should be made to remove the plant fragments from the water. Fragments of certain plants can re-root and form new beds of plants, compounding the problem. If the harvested plants are not removed they add nutrients to the water as they decompose and deplete the oxygen in the water. Removal of aquatic plants at the base can be accomplished through hand pulling without permit. The use of heavy equipment to remove plants (such as cattails) would require a Chapter 30 permit from the WDNR.

Aeration

Aeration units, such as fountains or air injectors, can be used to increase the amount of dissolved oxygen in the water. Increasing the dissolved oxygen may reduce the recycling of nutrients from the sediments. This makes the nutrients unavailable for algae growth or free floating plants like duckweed. Alternatively, aeration units also increase turbulence with the lagoon. Ponds that have silty bottoms could be adversely affected by higher turbulence, due to resuspension of the bottom sediments. Ultimately, aeration may have no effect on plant growth but may reduce the need for other algal control methods. Permits are required for the aeration of public lagoons, ponds and lakes.

Blower-type aerators and floating mechanical aerators could function year-round, which would be important for low-oxygen conditions, but this would mean no ice skating on the lagoon. Cascade systems require some topographic relief. Either of these systems could cost in excess of $100K, with floating mechanical aerators being the cheapest. As with any equipment with moving parts, regular maintenance of aerators is required.

Aeration can provide a competitive advantage for non-native plants and algae if operated annually. Aerators allow non-natives to grow when natives are dormant, giving a "head start" to non-natives in the spring.

Draining/Dewatering

Lagoon drawdown is considered an effective technique for the control of several nuisance macrophytes. The objective is to retard growth by destroying reproductive seeds and vegetative reproductive structures through exposure to drying and freezing conditions. The dried sediments are expected to have less tendency to release phosphorous back into the water. It also deepens the lagoon by allowing the sediments to compact. The degree of compaction will depend on the organic content of the sediment, and the timing and duration of the drawdown. Consolidation by as much as 20 to 30 percent are considered achievable in lagoons with mucky sediments [2].

Following drawdown, aquatic plants are controlled through drying, compacting and freezing. Winter and summer drawdowns are acceptable for wildlife ponds where fish are not an important component and drawdown is scheduled to minimize impacts to hibernating amphibians. Aquatic plants can return in abundance once the pond is refilled.

Species that are problematic in Milwaukee County ponds that could be controlled using this method include:

* Coontail (Certophyllum demersum)
* Elodea (Elodea sp.)
* Eurasian Water Milfoil [EWM] (myrcophyllum)

Typically, the impact of the drawdown lasts a few years, after which the plants may reestablish themselves. Other improvements of a lagoon drawdown include fish eradication, along with opportunities to improve shorelines and other structural features (dams), and deepen areas with the use of conventional earthmoving equipment.

Potential adverse effects of draining/drawdown include algae blooms after reflooding, and a reduction in the benthic organisms that are food for the fish. During the period of drawdown and dredging, resident fish populations will be lost. However, because of the degraded fish communities in the lagoon, this loss may be advantageous. The draining of the lagoon would facilitate a rough fish removal program by congregating fish into a small area for seining or chemical eradication. After reflooding, fish food organisms would quickly reestablish, and the stocking of desirable fish species could take place. Drawdown can be accomplished via gravity drainage and, depending on the relation of the base of the lagoon to adjoining waterway, the use of pumps or siphons.

Biological Controls

There are a number of biological agents being researched throughout the world for controlling aquatic plants, algae and even sediments. Research is being conducted in Wisconsin and in other states on the viability of a weevil (Euhrychiopsis levcontei) as a biological control agent for Eurasian water milfoil and on the ability of several species of beetles and weevils to repress purple loosestrife. The cost per weevil is high ($1 each) and permits are required form the DNR and DATCP to stock these insects [16].

Other possible biological controls include:

- Insects, such as the weevil (for plants)
- Fish that eat large amounts of plants
- Fungi that cause disease to plants
- Planting of beneficial macrophytes which will out-compete nuisance species and provide cover for fish and food organisms

All of the above are considered experimental, the ill effects of which are largely unknown. For this reason they are generally not a preferred option.

Other Methods

Recent studies have shown that bales of barley straw submerged in the lagoon and around the lagoon's perimeter can reduce the occurrence of algae [16]. This method seems to be more effective when used prior to large accumulations of algae as it does not kill algae that are already present. It may be better suited for smaller lagoons where navigation or shore fishing is not part of the planned use, and where aesthetics are not a major concern.

3. Elevated Bacteria Concentrations

Given the ubiquitous nature of bacteria in the environment, some bacteria will always be present in lagoon waters. The issue is more of what level is considered a threat to human health, and how might these levels be controlled.

Given their potential contribution to bacteria loadings, reducing the numbers of geese and gulls frequenting the park area would significantly reduce bacteria concentrations. Waterfowl are attracted to the ponds for several reasons: the lagoons provide an aquatic stop-off during migration, the shorelines are generally free of tall grasses where predators might hide, and the grassy areas adjacent to the shorelines provide a food source. In some instances park visitors still are feeding the birds, in violation of posted notices.

The County Parks System is currently implementing a goose reduction program (see earlier Section 1. on Erosion for discussion). Reduction in waterfowl might also be accomplished through the addition of taller grasses along shorelines. To some, the replacement of grassed lawns with tall grasses and aquatic plants is aesthetically displeasing. Careful attention must be given to the selection of plantings to maintain aesthetic value of the shoreline. Other cities and counties that have implemented similar changes have included an educational component to the project, e.g., signage to describe the purpose and benefit of the changes.

Milwaukee County currently disallows dogs in many of its parks. Allowing dogs to be walked in parks might reduce the presence of birds. More vigorous enforcement by the County of posted notices against feeding of geese may also help reduce the populations.

4. Litter

Removal of litter collected on the lagoon shoreline is labor intensive and often requires more routine efforts than available from parks staff. However, litter removal would provide the most evident improvement to park aesthetics, and so must be considered a high priority.
In most instances, litter is readily accessible to the labor forces assigned to the task. In some lagoons, the removal of litter is complicated by the aquatic plants growing along shorelines, and siltation of lagoons making it difficult to wade into the lagoons or to maneuver a boat in position to collect the debris.

At a few parks, the trash accumulation is a result of the receptacles being overturned or dumped into the lagoon. The vandalism of trash receptacles might be rectified through the use of a different style of receptacle. A receptacle with a heavy base and inner liner has been used elsewhere in Milwaukee County. The receptacles are attractive, but less prone to vandalism due to their weight. Figure 5 illustrates this example.

5. Rough fish

A creel census performed in the 1980s indicated that the fish populations in most lagoons tested had degraded over the course of a decade from sunfish, bass, pike and bluegills to largely goldfish, carp and catfish. The study concluded that "the illegal stocking of goldfish, along with such problems as limited water volume, winterkill conditions, competition for a limited food supply, addition of municipal chlorinated water to maintain water levels, and storm sewer and/or street runoff, have all favored the proliferation of the more tolerant rough fish species such as goldfish and carp"[2]. The study also concludes that intense fishing pressure tends to deplete the game fish populations before they reach maturity and reproduce.

Carp and goldfish via their feeding and spawning activities tend to resuspend organic and inorganic matter from the bottom of the water column resulting in severely turbid conditions. Resuspension of bottom materials and excretion by fish release phosphorous, providing an additional nutrient base for the growth of algae. The turbid water tends to reduce light transparency, thereby reducing macrophyte growth. Resuspended materials may cover fish eggs and reduce sight capabilities of some fish, increasing the competitive status of rough fish.

Rough fish can be eradicated via draining the lagoon or through the introduction of chemical toxicants. Rotenone is an example of an authorized pesticide in the state of Wisconsin that can be used for eradication. If draining is impractical, this chemical could be added in the fall and allowed to work over a period of a few days. Factors such as water temperature can affect the toxicity and so must be considered in the application. Toxicants are often applied after a partial drawdown to prevent release of the toxicant downstream. It should eliminate all fish species without having an adverse effect on aquatic plants and benthic invertebrates.

Following the time delay for detoxification, the lagoons could be restocked with more desirable fish species. The sources of the fish are in question, given the status of the County fish hatchery. In the event that the hatchery closes , fish stocking would be more difficult.

The County should periodically conduct a creel census (every 10 years). The census would provide information about the predominant species present, fishing pressure, demographics of anglers, and gauge the interests of the park users. The County might gain assistance from the WDNR to perform the census.

The low oxygen levels that are detrimental to desirable fish might be improved through the use of aerators. Aeration could be accomplished via a blower type system, floating mechanical aerator, or cascade-type system

6. Siltation

Once lagoons are heavily silted, it typically requires dredging to remediate the site. Several lagoons, such as Whitnall Park, Kosciuszko, and Dineen, have significant silt accumulation and should be dredged. Dredging is an expensive process and cost is the principal reason why dredging is not performed more often. Siltation can also be reduced through other means such as more rigorous enforcement of construction site erosion control plans, streambank stabilization, and construction of structures to capture sediment at lagoon inlets.

C. Consistency with Long-Term Use Plan

The long-term use of the lagoons is expected to remain essentially the same as current use; i.e., principally for aesthetic value and recreational (fishing) activities. Of lesser priority are providing wildlife habitat and improving water quality. However, these factors are so intermixed that they are difficult to separate. It might be possible, for example, to create and maintain a pond that has little algae problems but provides no wildlife habitat and no recreational fishing, by operating a closed-loop system with chemically treated water. A more natural environment, however, that provides for wildlife and native plants, should have greater aesthetic appeal and provide a superior fishing environment.

VI. Resource Management Plan

A. General Recommendations

The water quality goals for the lagoons should be to attain a trophic status between mesotrophic and eutrophic. This level of water quality should promote a good diversity in the aquatic plant and animal community, as well as aesthetic value and forage fish habitat.

While the County lagoons have a variety of problems, many of which are specific to a given lagoon, there are certain problems that are prevalent enough to warrant some general recommendations.

First, shoreline erosion is one of the more widespread problems at County lagoons. The common practice to mow grass short in areas adjacent to lagoons perpetuates the erosion process. This causes the root structure to be shallower and thus more appealing to geese as food sources. Alternative management practices need to be identified and deployed to mitigate this effect. As an example, if a buffer strip could be left un-mowed (or a higher cut) in areas where there is significant erosion along the shoreline, it would benefit in several ways, including stabilizing the soil by increased root structure, less foraging by geese on grass, the geese are less apt to traverse areas of tall grass due to concerns over predators, and the grass would act to reduce the overland flow of nutrients into the lagoon from runoff. Buffer width would depend on slope, soil characteristics, proximity of the shoreline to the walking path, etc. In general, the greater the buffer width, the more benefits it can provide to water quality as well as animal habitat and goose deterrent. This alternative, while a low-cost remedy, may be aesthetically objectionable. The creation of "buffer gardens" that include flowering plants is a variation of the buffer strip that might accomplish both goals of erosion control and aesthetic appeal.

Second, the County should pursue grants to help fund the stabilization of shorelines. Restoration actions should consider the introduction of native aquatic plants along shorelines that provide animal habitat and improve water quality. The WDNR offers Lake Management Grants for shoreline restoration in amounts up to $100,000. Urban non-point source grants might also be available for these purposes. The gradual erosion of shorelines, if left unattended, will lead to the deterioration of existing infrastructure, such as walking paths and bridges.

Third, water quality monitoring should continue to document conditions for both pre- and post-improvements. Many tests can be simple and low-cost, such as secchi readings, dissolved oxygen, phosphorous, and can be done by volunteers or interns. The Wisconsin DNR sponsors a "Self-Help" Citizen Lake Monitoring program. Monitoring is performed by citizens from the community. Training is provided by the Wisconsin DNR. This program has been in operation since 1986 to watch for long-term changes in lake water quality. Currently, only one of the County's lagoons or lakes (Scout Lake) is being monitored under this program.

B. Specific Recommendations

The issues and problems facing the County's lagoons are so extensive that it is impractical to attempt to remedy them all within a few years' time. Given the County's financial constraints, it is recommended that the County pursue several "pilot" projects. By undertaking these pilots, the County can evaluate the effectiveness of certain methods, determine the costs and effectiveness prior to using them on a larger scale. In addition, it may be possible to obtain financial assistance for pilot projects, further defraying the cost to the County. It is recommended that the following pilots be pursued:

- Shoreline stabilization at Dineen Park
- Shoreline repairs at Humboldt Park
- Fish and plant eradication at Jacobus Park

1. Dineen Park

Dineen Park is located in Milwaukee's northwest side. The park is about 75 acres in size and includes a community center, tennis courts, baseball diamonds, soccer fields and picnic areas. A swimming pool that is currently on the park property is planned to be removed in 2005. The par-3 golf course, located on the south side of the park, is currently closed. The lagoon is located in the northern portion of the park and is about 2-1/4 acres in size with a maximum depth of about 6 feet. The lagoon is fed from a creek at the south end and discharges over a dam located at its north end. The lagoon is used for fishing in the spring/summer/fall and for ice skating in the winter. Figure 6 presents an aerial view of the lagoon.

Problem issues at Dineen Park include:

- severe erosion of the western shoreline
- elevated levels of bacteria and nutrients in the water
- high turbidity
- monoculture of aquatic plants (cattails) along shoreline
- elevated algae levels
- silt build up at south end

Similar problems are present at other lagoons. These problems are complex, in that they relate to both physical and biological systems. Solutions require an understanding of various disciplines such as engineering, aquatic science, landscape architecture, facilities maintenance, and horticulture. From a practical standpoint, solutions must be within budgetary limits and must maintain the aesthetic value offered by the park in the past.

For Dineen Park, the western shoreline is the most severely eroded. Portions of shoreline are within a few feet of the walking path. Erosion control measures in these areas must consider the greater potential for their disturbance from people. For these areas, use of hard armoring (100-200 pound rock) is recommended to effectively mitigate the erosion that is encroaching on the path. This measure, however, is relatively expensive. A less expensive measure – using biologs with a buffer garden – could be implemented across a larger area where more space exists to create the buffer strip. The construction of both measures along the western bank will provide an opportunity to compare the effectiveness, cost, and aesthetic appeal of two principal shoreline erosion controls.

Figure 7 illustrates the proposed management pilot plan. The proposal includes planting of ground cover (a short, broad-leaved plant, such as bunchberry or a sedum species) between the walk and the armored shoreline. The ground cover will serve three main purposes: (1) help to capture and filter nutrients from overland flow, (2) help to deter geese from traversing this area, and (3) establish a greater root systems to help prevent erosion. For the biolog areas, a buffer strip of native grasses and flowers would be planted in a strip extending a few feet onto the shore.

Armoring would provide limited water quality benefits. The biolog areas, however, would include more aquatic plants that would improve water quality through filtering of nutrients and oxygen production. The plantings would include species such as bulrush, bluestem, asters, and sunflowers. To prevent monocultural growth of the predominant cattails, portions of existing cattails should be cut down to below the water level.

As part of the design of the measures, the County should gather input from the local community regarding the selection of plantings and other aesthetic arrangements. The County might also explore the interest of the local groups in performing routine maintenance (weed control) of the planted areas.

An inspection of topsoil in the area found the quality to be poor and thickness less than ½ inch. Prior to planting ground cover, the upper 6 inches of soil would be removed and replaced with topsoil. The proposed armored area would extend approximately 100 feet and the biolog/buffer strip would be 150 to 200 feet in length. The estimated cost is about $50,000 to $60,000 (see next section for details).

Siltation at the south end of the lagoon, where the creek feeds the lagoon, has caused the water depth to be too shallow for Parks employees to float a boat in this area to capture debris and litter along the shoreline. To better maintain the lagoon, it is recommended that this area be dredged in the near future. For the dredging to be effective, sources of upstream sedimentation need to be controlled concurrently. The Milwaukee County Stream Assessment [6] identified Dineen Creek as having extensive erosion in the creek at the north end of the golf course. Dredging is not included in the cost of this pilot.

Long-term monitoring of water quality should include testing for *E. Coli* twice per year and taking secchi disk readings monthly during the summer (or more often if possible). Long-term maintenance of the buffer gardens might be performed by community groups.

2. Humboldt Park

Humboldt Park is located on Milwaukee's southeast side, north of Oklahoma Ave. between Whitnall Ave. and S. Logan Ave. The park is approximately 70 acres in size and includes picnic areas, baseball diamonds, an amphitheater and a community center. The park was constructed in 1893 by the City of Milwaukee Park Commission as one of Milwaukee's first parks. It was designed by noted landscape architect Fredrick Law Olmstead. Figure 8 illustrates the site plan for the lagoon.

The lagoon is centrally located within the park and is about 4 acres in size. The maximum depth is about 5 feet. During lagoon construction, a layer of gray clay was used to seal the bottom of the lagoon to prevent water loss through the ground. The lagoon is fed largely from City water from a hydrant located along the eastern shoreline, and is used for fishing in the spring/summer/fall and for ice skating in the winter.

Surface water runoff reaches the lagoon only through sheet drainage and contributes less than 5% of the annual water input [2]. There are no inlet streams to the lagoon. The lagoon has two outlets. Water discharges through a surface drain connected to a storm system on the south side of the lagoon. Water also drains through a bottom drain located in the center of the lagoon, which discharges to the lily pond to the south.

Aside from the recreational value, the lagoon is enjoyed for its aesthetic value. The lagoon provides only limited wildlife habitat due to its high pedestrian traffic. Bird nesting occurs on the islands.

Water enters the lagoon through precipitation, surface runoff, and city water. City water is the major contributor to the water budget for the lagoon. Evaporation is the major output.

Principal problem issues at Humboldt Park include:

- significant shoreline erosion
- lack of vegetation along shoreline
- nuisance macrophytes

The erosion problems are most prevalent along the northern shoreline where no vegetation is present between the water and the walking path. Almost no buffer exists between the path and the lagoon in certain areas. Erosion is also prevalent along the eastern shoreline.

Humboldt Park Lagoon suffers from large amounts of Eurasian Water Milfoil and Curly-leaved pondweed. These macrophytes have grown to the extent that they are a nuisance to fishermen and detract from the lagoon aesthetics.

The proposed actions for this park include:

- widening the distance between the walking path and northern shoreline by adding fill and rock along a 200-foot segment of the northern shoreline
- creation of a shoreline buffer garden along eastern shoreline using biologs
- extensive hand raking to remove curly-leaved pondweed and Eurasian Water Milfoil

Figure 9 illustrates the areas to be managed. Figure 10 illustrates a typical cross-section of the proposed northern shoreline improvement. For the eastern shoreline, a buffer garden is proposed. The garden would be limited in extent (100 feet wide and 5 feet deep), to demonstrate the effectiveness and aesthetics impact. Plantings would include bluestem, bulrush, asters, and sunflowers. The taller plants would be more restrictive to fishermen interested in approaching the shoreline. To control access and reduce the amount of trampling of vegetation by fishermen, it is recommended that one or more stone fishing pier(s) (e.g., fieldstone) be constructed along the shore. The estimated costs of these actions is between $100,000 and $110,000.

As an alternative to hand raking, draining the lagoon for a winter season could be performed to kill the EWM. Use of the park in winter would be disrupted.

3. Jacobus Park

Jacobus Park is located in Wauwatosa, adjacent to the Menomonee River and Honey Creek Parkway. The park is about 14 acres in size and includes play areas, picnic areas, a four-season pavilion, softball fields and wading pool. The park was constructed in the 1930's. The lagoon is located in the northwestern portion of the park and is about a ¼-acre in size with a maximum depth of about 5 feet. The lagoon is fed largely from City water from a cascading waterfall located adjacent to the lagoon and hall. A natural area has been created along the northern shoreline. The lagoons is used for fishing in the spring/summer/fall and for ice skating in the winter. Figure 11 illustrates a site plan for the lagoon.

The principal problem issues at Jacobus Park include:

- high turbidity in water
- rough fish
- nuisance macrophytes

Turbidity may be the result of the population of bottom-feeding goldfish, since the TSS levels are high but dissolved phosphorous is low. Water clarity is surprisingly poor given the lagoon is replenished with City water. The fresh water, however, may be short-circuiting through the lagoon, leaving the majority in a stagnant condition. Dye tracer study could be performed to evaluate this condition and the potential value to re-directing water entering the lagoon from the waterfall.

The proposed pilot plan includes:

- Draining the lagoon to nearly dry conditions.
- Removal and disposal of all fish
- Removal of nuisance aquatic plants
- No action period
- Re-filling lagoon
- Re-stocking lagoon

Draining the lagoon would require shutting off the source of City water for a fall/winter season. During the fall and winter, the sediments would be allowed to dry and freeze. Dead fish would be removed after draining and disposed. It is anticipated that the freezing and desiccation would prevent the nuisance macrophytes from regenerating after refilling. Refilling could begin in the Spring of the following year. During the refilling, more desirable submergent aquatic plants could be planted to out-compete the undesirable species. Fish stocking could occur in the following winter or spring, to allow opportunity for fish food sources to propagate.

The estimated cost for implementing this action is between $20,000 and $30,000.

C. Funding

The cost for improvements to all of the County lagoons is substantial. Large-scale improvements will likely require funding assistance and volunteer efforts to attain the needed level of funding. Grants are available from the WDNR in the form of the Lake Protection Grants. These grants can provide up to $200,000 for construction activities. Applications are due May 1st of each year. This is a matching fund program.

Funding may also be available through the Urban Non-Point Source and Stormwater Construction Grant Program. The County has routinely applied for and received grants from this state program for projects that control deposition of solids into the streams and lakes. This is also a matching fund program.

Parks with historical significance (e.g., Washington and Humboldt) may be eligible for grants from the Wisconsin Historical Society and National Park Service, if the work is related to preservationist activities.

An important aspect of long-term management planning is the recognition of the significant amount of labor needed on a routine basis to maintain shorelines. This includes efforts to remove undesirable plants, particularly from natural buffer areas. It may be possible to solicit help from volunteer groups (e.g., neighborhood associations) to assist with routine maintenance of buffer gardens.

VII. References

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13. *Wisconsin Natural Resources Magazine.* June 2003, Vol 27, No. 3, p9.
14. Data provided by Toni Glymph, Environmental Toxicologist, Wisconsin DNR, Bureau of Watershed Management.
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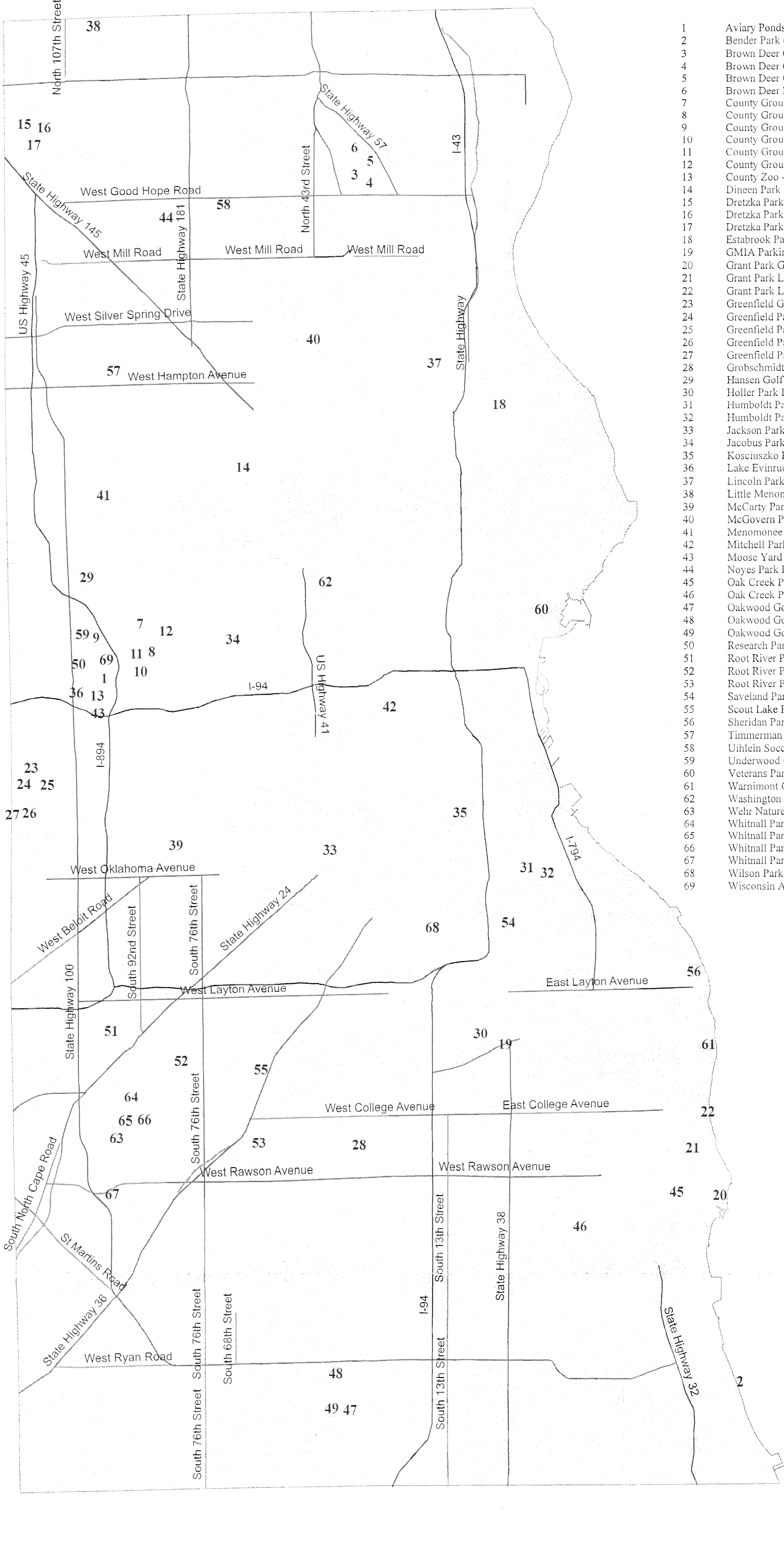
16. *Management of Aquatic Plants and Algae in Ponds, Part II.* WDNR Factsheet. May 9, 2003. (http://dnr.wi.gov/org/water/fhp/waterway/factsheets/aquaticplantbook/part2.shtml)



1	Aviary Ponds
2	Bender Park (2 dry basins)
3	Brown Deer Golf Lagoon Hole #1
4	Brown Deer Golf Lagoon Hole #16
5	Brown Deer Golf Lagoon Hole #18
6	Brown Deer Park Lagoon
7	County Grounds MMSD Ponds-Proposed
8	County Grounds Pond #1 (3 basins in series)
9	County Grounds Pond #10
10	County Grounds Pond #2 (3 basins in series)
11	County Grounds Pond #3 (3 basins in series)
12	County Grounds Pond 87th & Watertown Plank Road
13	County Zoo - Monkey Island
14	Dineen Park Lagoon
15	Dretzka Park Golf Course Pond - C
16	Dretzka Park Golf Course Pond - N
17	Dretzka Park Golf Course Pond - S
18	Estabrook Park Lagoon
19	GMIA Parking Structure
20	Grant Park Golf Course
21	Grant Park Lagoon (Central)
22	Grant Park Lagoon (North)
23	Greenfield Golf Course - east side of course
24	Greenfield Park Lagoon
25	Greenfield Park Lagoon-by entrance
26	Greenfield Park Lagoon - east of baseball diamond (N)
27	Greenfield Park Lagoon - east of baseball diamond (S)
28	Grobschmidt Park Pond - Mud Lake
29	Hansen Golf
30	Holler Park Lagoon
31	Humboldt Park Lagoon
32	Humboldt Park Lily Pond
33	Jackson Park Lagoon
34	Jacobus Park Lagoon
35	Kosciuszko Park Lagoon
36	Lake Evinrude
37	Lincoln Park (Milwaukee River)
38	Little Menomonee River Pkwy. (North Lake)
39	McCarty Park Lagoon
40	McGovern Park Lagoon
41	Menomonee River Parkway Pond
42	Mitchell Park Lagoon
43	Moose Yard
44	Noyes Park Pond
45	Oak Creek Parkway Pond
46	Oak Creek Parkway Pond
47	Oakwood Golf (Central)
48	Oakwood Golf (North)
49	Oakwood Golf (South)
50	Research Park - Pond 5 - S.E. of Research Park
51	Root River Parkway Pond
52	Root River Parkway Pond
53	Root River Parkway Pond - Anderson Lake
54	Saveland Park Lagoon
55	Scout Lake Park
56	Sheridan Park Lagoon
57	Timmerman Airfield Basin
58	Uihlein Soccer Park
59	Underwood Creek Detention Pond
60	Veterans Park Lagoon
61	Warnimont Golf
62	Washington Park Lagoon
63	Wehr Nature Center - Whitnall Park
64	Whitnall Park Arboretum Pond
65	Whitnall Park Arboretum Pond - North of Drive
66	Whitnall Park Arboretum Pond - South of Drive
67	Whitnall Park Golf Course Pond - #13 Fairway
68	Wilson Park Lagoon
69	Wisconsin Ave Park - Pond 7 - N.E. of Ball Diamond

Figure 1
Lagoon, Pond and Lake Locations

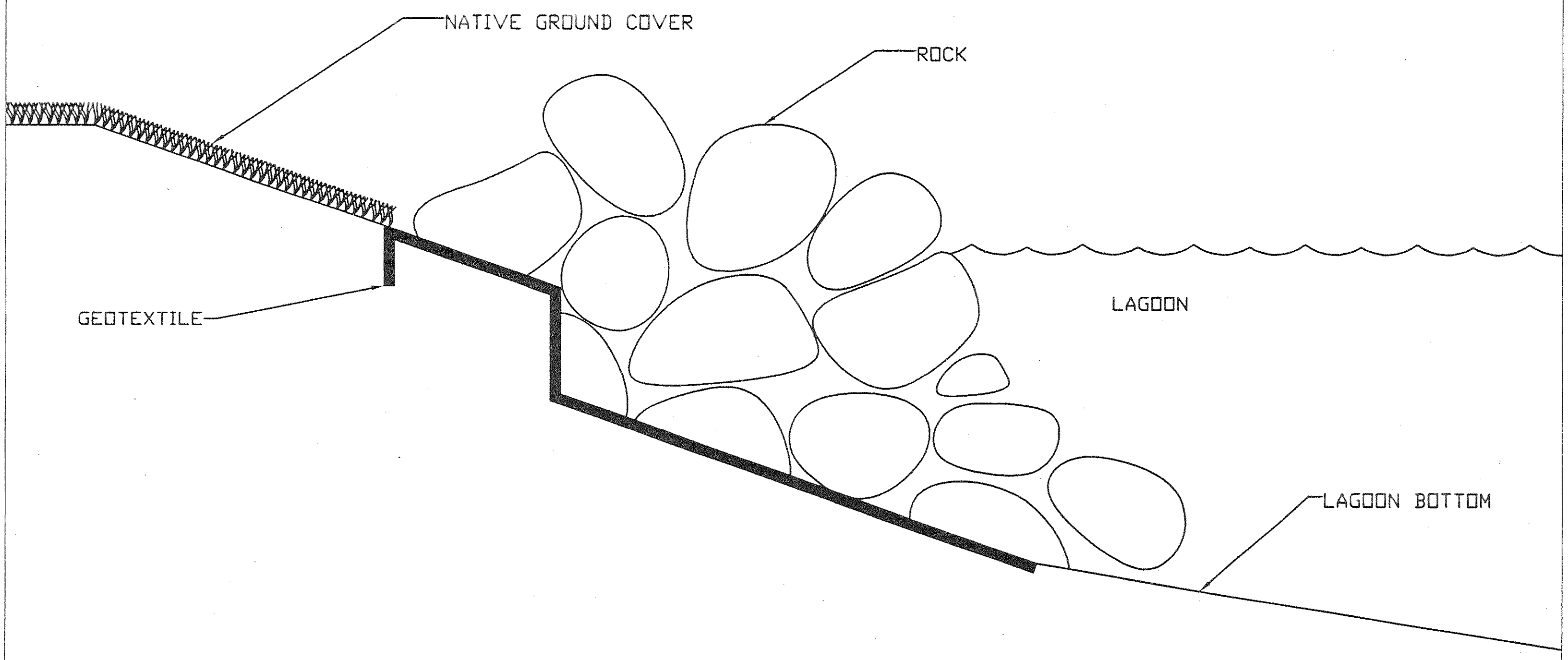


FIG. 2
ARMORING
CROSS-SECTION

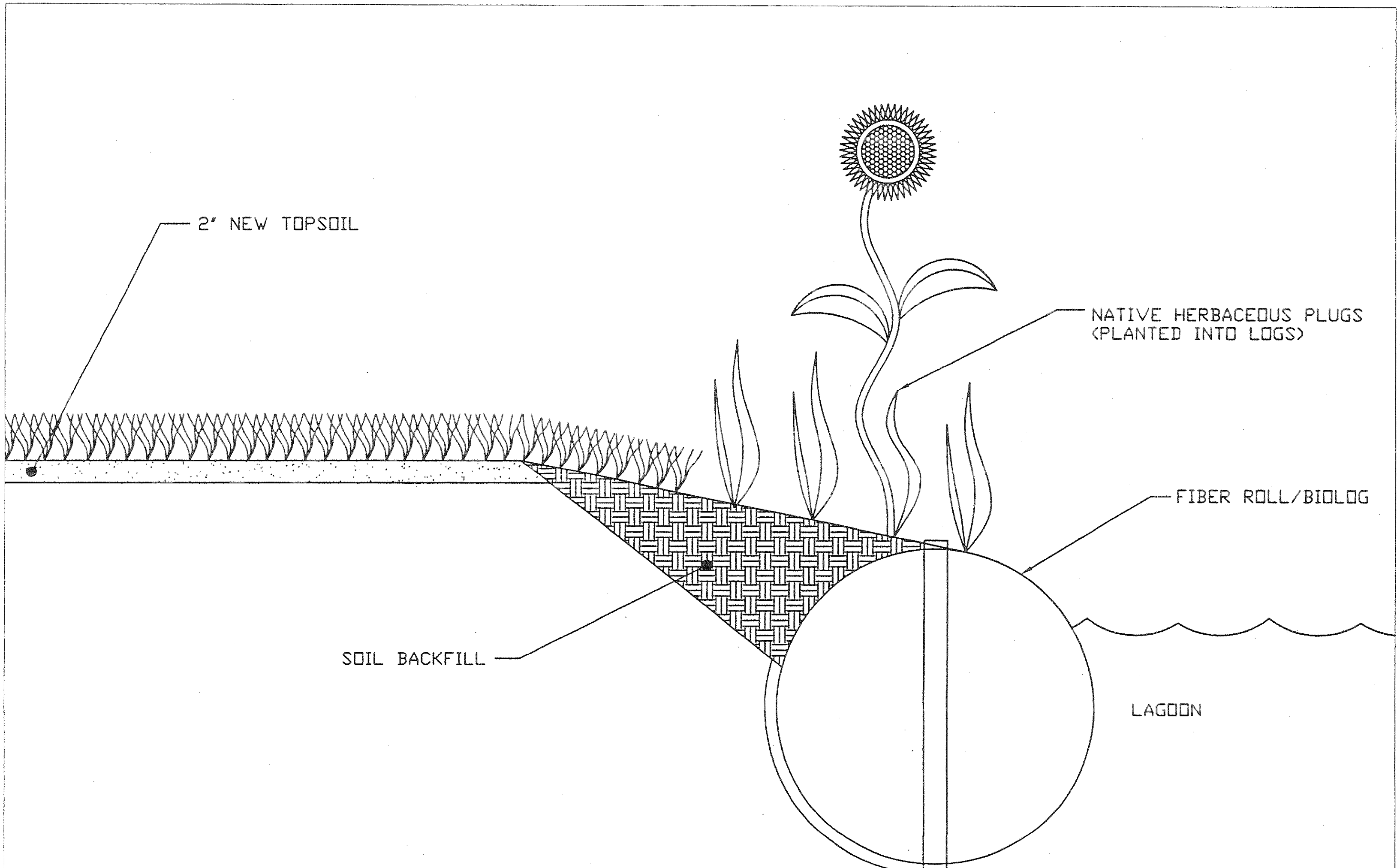


FIG. 3
BIOLOG
CROSS-SECTION

FIGURE 4 – SHORELINE FISHING AREA

FIGURE 5 – TRASH RECEPTACLE

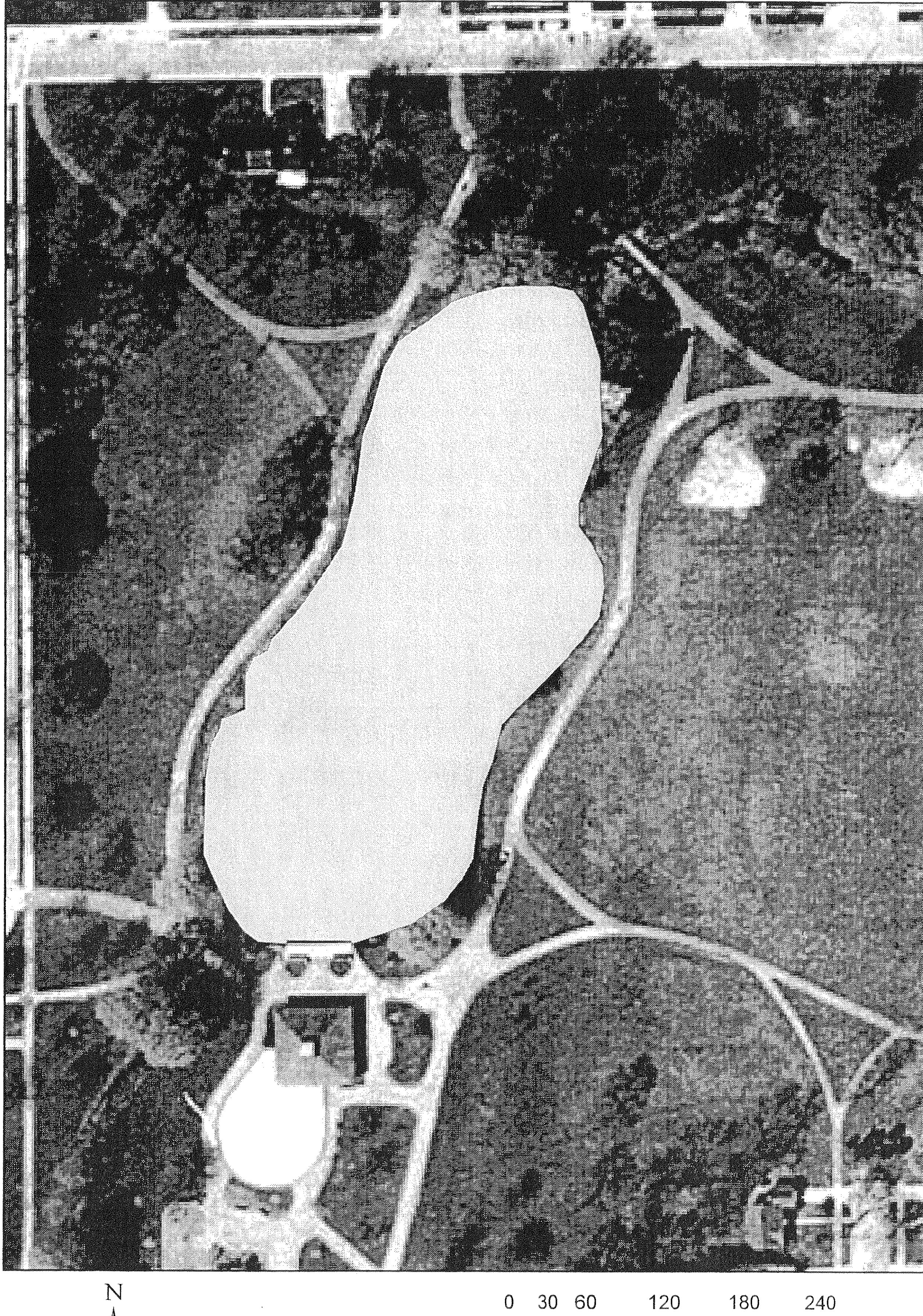


FIG. 6: DINEEN PARK LAGOON

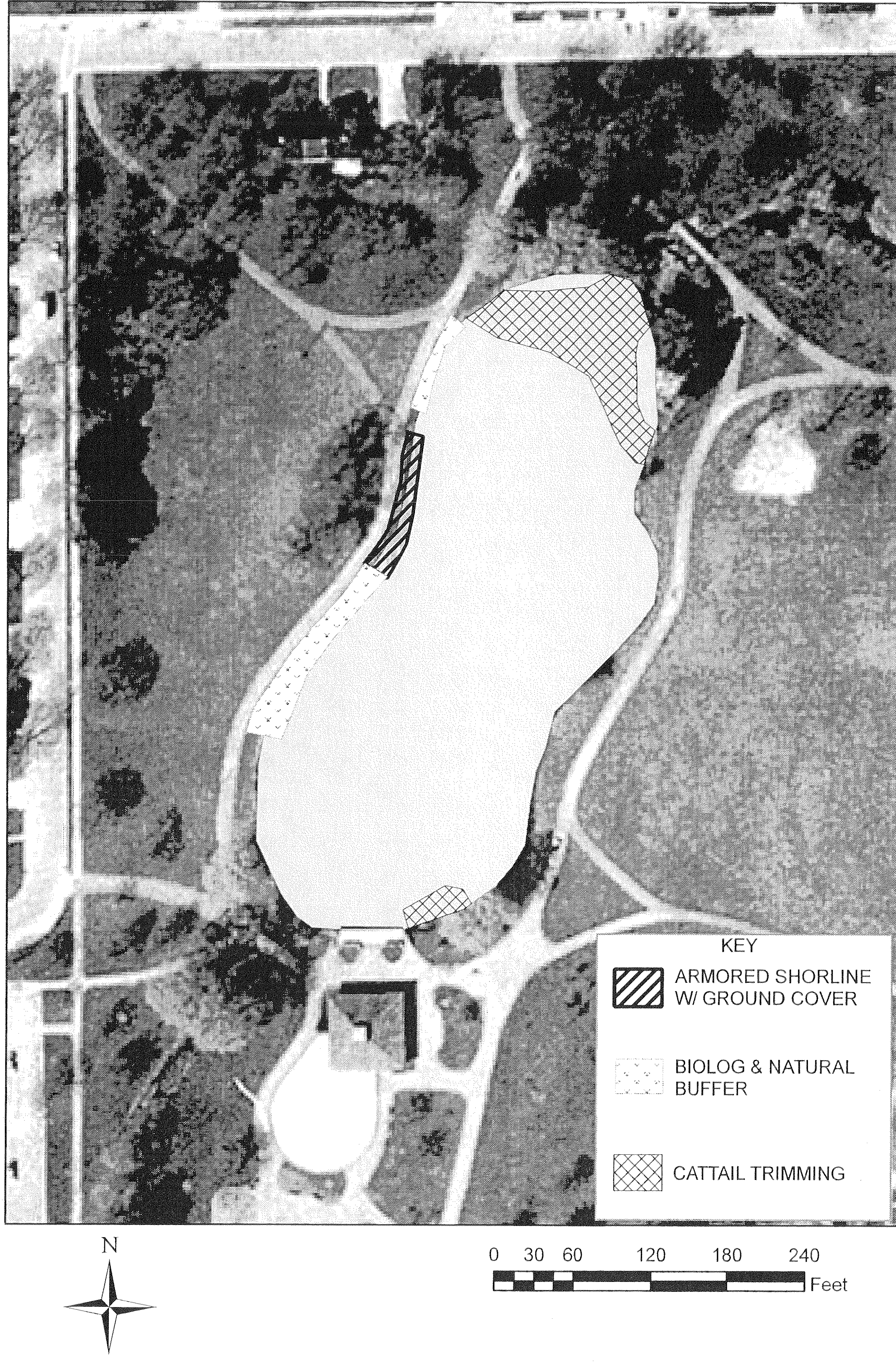


FIG. 7: DINEEN PARK LAGOON RECOMMENDATION

FIG. 8: HUMBOLDT PARK LAGOON

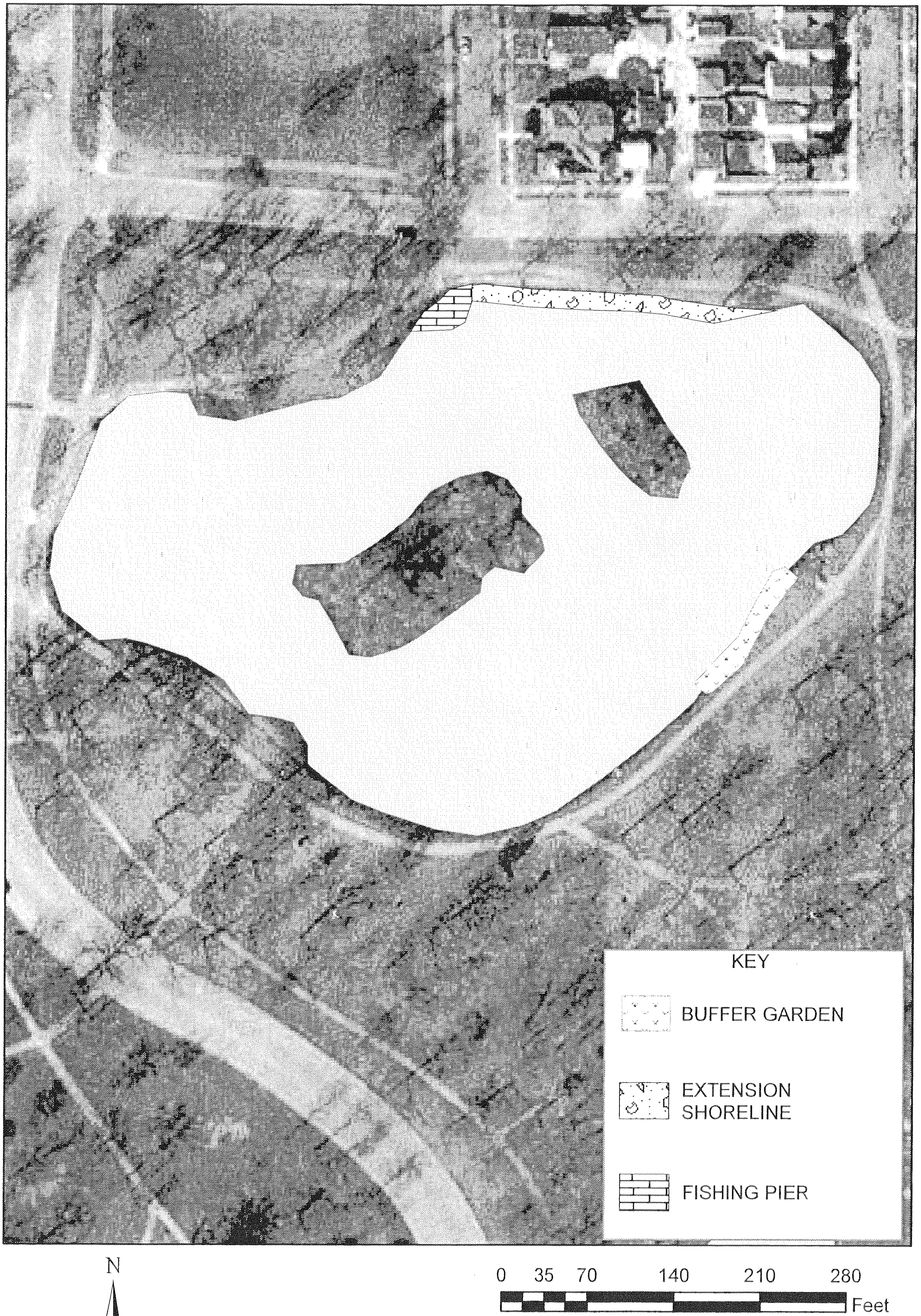


Fig. 9: HUMBOLDT PARK LAGOON RECOMMENDATION

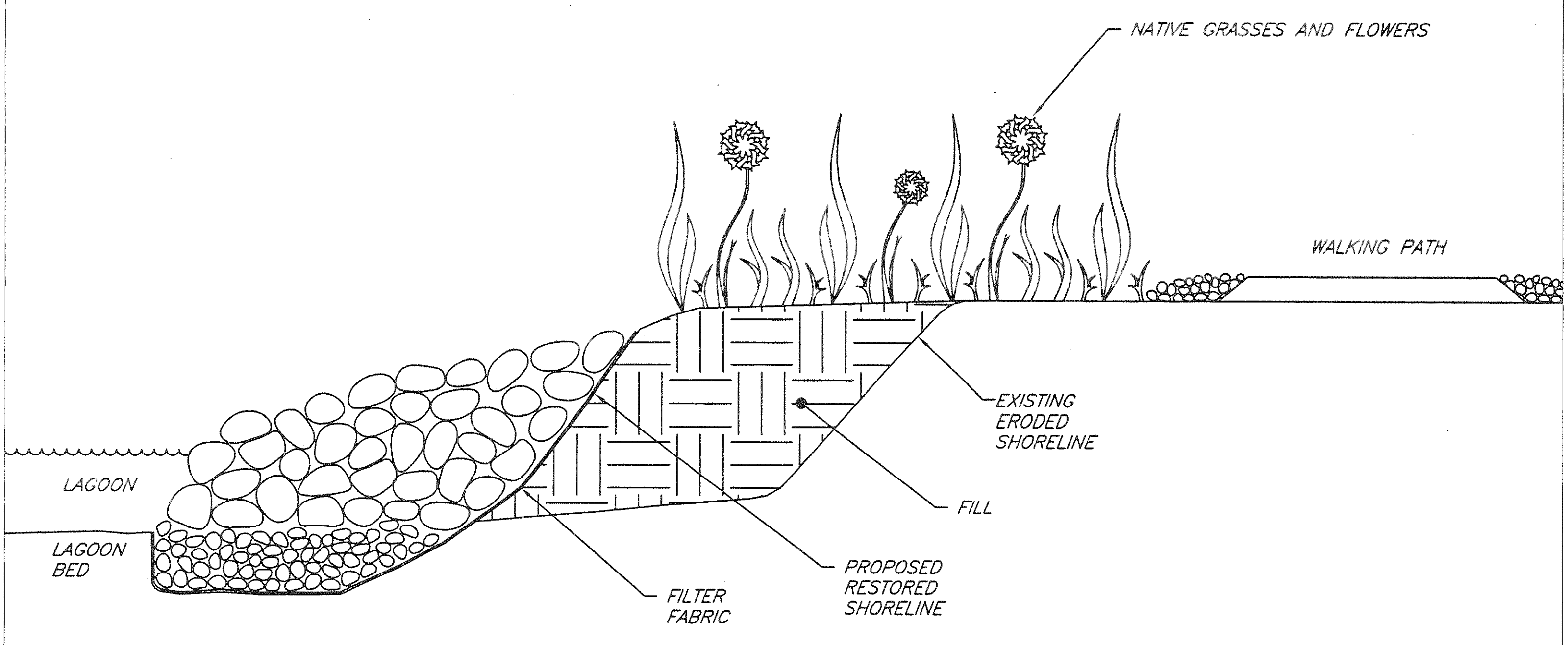


FIG. 10
HUMBOLDT PARK LAGOON
EXTENSION SHORLINE
CROSS-SECTION

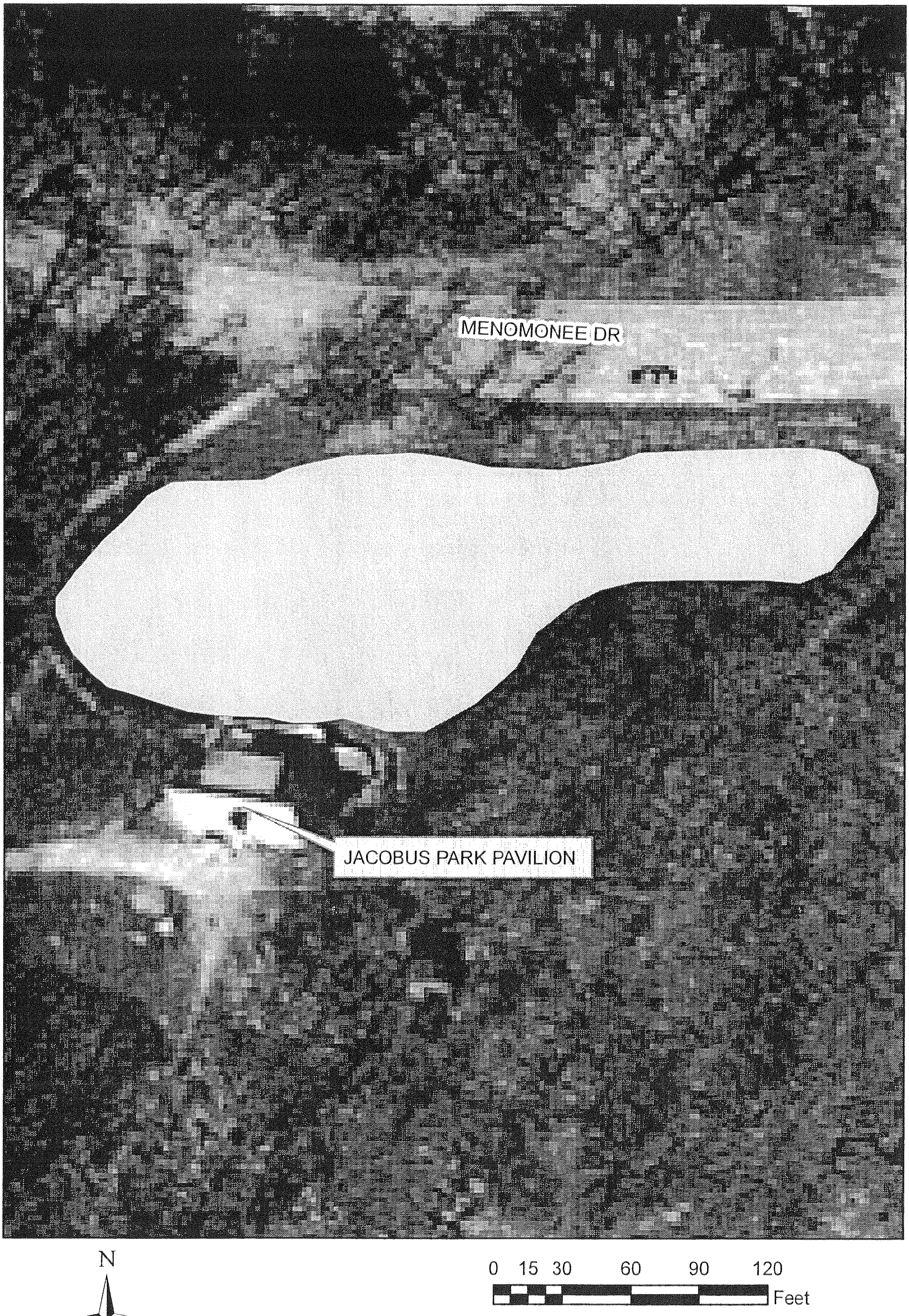


FIG. 11: JACOBUS PARK LAGOON

Table 1
PHYSICAL CHARACTERISTICS

Name	TN	R	Sec	Municipality	Surf Area (Acres)	Shoreline (mi)	Max Depth (ft.)	Water Source	Fish Stocking
Aviary Ponds	07	21	29	Wauwatosa	0.4	0.1		well, city	
Bender Park (2 dry basins)	05	22	25	Oak Creek	0.1	0.0	0	storm water	
Brown Deer Golf Lagoon Hole #1	08	21	13	Brown Deer	0.7	0.2		well	
Brown Deer Golf Lagoon Hole #16	08	21	13	Brown Deer	0.2	0.1		Brown Deer Creek	
Brown Deer Golf Lagoon Hole #18	08	21	13	Brown Deer	0.3	0.1		Brown Deer Creek	
Brown Deer Park Lagoon	08	21	13	Brown Deer	6.4	0.8	6	well	F
County Grounds MMSD Ponds-Proposed	07	21	21	Wauwatosa	0.2	0.1		NA	
County Grounds Pond #1 (3 basins in series)	07	21	28	Wauwatosa	2.1	0.3	8	storm water	
County Grounds Pond #10	07	21	29	Wauwatosa	1.3	0.4		storm water	
County Grounds Pond #2 (3 basins in series)	07	21	28	Wauwatosa	1.1	0.2	8	storm water	
County Grounds Pond #3 (3 basins in series)	07	21	28	Wauwatosa	0.6	0.1	8	storm water	
County Grounds Pond 87th & Watertown Plank Road	07	21	21	Wauwatosa	1.8	0.3		storm water	
County Zoo - Monkey Island	07	21	29	Wauwatosa	0.4	0.2		well, city	
Dineen Park Lagoon	07	21	10	Milwaukee	2.0	0.2	6	Dineen Park Creek	F
Dretzka Park Golf Course Pond - C	08	21	07	Milwaukee	2.6	0.3	8	Menomonee River	
Dretzka Park Golf Course Pond - N	08	21	07	Milwaukee	0.8	0.2	4	Menomonee River	
Dretzka Park Golf Course Pond - S	08	21	07	Milwaukee	1.1	0.3	4	Menomonee River	
Estabrook Park Lagoon	07	22	04	Shorewood	1.1	0.2	4	Milwaukee River	F
GMIA Parking Structure	06	22	28	Milwaukee	2.3	0.2	0-0.2	storm water	
Grant Park Golf Course	05	22	12	South Milwaukee	0.1	0.1	4	city	
Grant Park Lagoon (Central)	05	22	01	South Milwaukee	0.6	0.1		city	
Grant Park Lagoon (North)	05	22	01	South Milwaukee	0.4	0.1	6	city	
Greenfield Golf Course - east side of course	06	21	06	West Allis	0.4	0.1	3	storm water	
Greenfield Park Lagoon	06	21	06	West Allis	6.5	1.0	6	well/storm water	F
Greenfield Park Lagoon - east of baseball diamond (N)	06	21	06	West Allis	0.6	0.1	6		
Greenfield Park Lagoon - east of baseball diamond (S)	06	21	06	West Allis	0.2	0.1			
Greenfield Park Lagoon (by entrance)	06	21	06	West Allis	0.8	0.2		storm water, larger lagoon	
Grobschmidt Park Pond - Mud Lake	05	21	01	Franklin	19.1	0.9	17	storm water	
Hansen Golf	07	21	20	Wauwatosa	0.3	0.1		Underwood Creek	
Holler Park Lagoon	06	22	29	Milwaukee	0.3	0.1	5	storm water, maybe spring	F
Humboldt Park Lagoon	06	21	09	Milwaukee	4.0	0.5	5	city	F
Humboldt Park Lily Pond	06	22	09	Milwaukee	0.4	0.1		Humboldt Park Lagoon	
Jackson Park Lagoon	06	21	12	Milwaukee	8.7	0.7	5	city	
Jacobus Park Lagoon	07	21	27	Wauwatosa	0.5	0.2	4	city	
Kosciuszko Park Lagoon	06	22	05	Milwaukee	2.3	0.2	5	city	F
Lake Evinrude	07	21	32	Wauwatosa	4.7	0.5	5	city	
Lincoln Park (Milwaukee River)	08	22	32	Milwaukee	21.4	1.2		Milwaukee River	
Little Menomonee River Pkwy. (North Lake)	08	21	05	Milwaukee	4.2	0.8		Little Menomonee River	
McCarty Park Lagoon	06	21	09	West Allis	4.4	0.4	4	city	F

Table 1
PHYSICAL CHARACTERISTICS

Name	TN	R	Sec	Municipality	Surf Area (Acres)	Shoreline (mi)	Max Depth (ft.)	Water Source	Fish Stocking
McGovern Park Lagoon	08	21	35	Milwaukee	5.0	0.9	4	city	F
Menomonee River Parkway Pond.	07	21	08	Wauwatosa	2.0	0.4	4	storm water/Menomonee River ?	
Mitchell Park Lagoon	07	22	31	Milwaukee	2.9	0.3	6	city	F
Moose Yard	07	21	32	Wauwatosa	0.4	0.1		well	
Noyes Park Pond	08	21	21	Milwaukee	0.5	0.2	1	storm water	
Oak Creek Parkway Pond	05	22	11	South Milwaukee	4.8	0.7		Oak Creek	F
Oak Creek Parkway Pond	05	22	10	Oak Creek	3.0	0.4	10	storm water, Oak Creek?	
Oakwood Golf (Central)	05	21	25	Franklin	1.5	0.2		well	
Oakwood Golf (North)	05	21	25	Franklin	1.8	0.2		well	
Oakwood Golf (South)	05	21	25	Franklin	1.3	0.2		well	
Research Park - Pond 5 - S.E. of Research Park	07	21	29	Wauwatosa	2.1	0.4		storm water, Pond #7	
Root River Parkway Pond	06	21	33	Greendale	1.2	0.2	17	storm water	
Root River Parkway Pond	06	21	29	Greenfield	6.4	0.9		Root River	
Root River Parkway Pond - Anderson Lake	05	21	03	Franklin	7.6	0.7		Root River ?	
Saveland Park Lagoon	06	22	17	Milwaukee	0.3	0.1	6	city	F
Scout Lake Park	06	21	35	Greendale	7.8	0.4	15	Dale Creek -unnamed trib.	F
Sheridan Park Lagoon	06	22	24	Cudahy	1.5	0.2	4	city	F
Timmerman Airfield Basin	08	21	32	Milwaukee	6.0	0.4		Grantosa Creek	
Uihlein Soccer Park	08	21	22	Milwaukee	0.9	0.2			
Underwood Creek Detention Pond	07	21	20	Wauwatosa	1.8	0.2		storm water	
Veterans Park Lagoon	07	22	21	Milwaukee	15.0	1.2	4	storm water	F
Warnimont Golf	06	22	36	Cudahy	0.8	0.1		city	
Washington Park Lagoon	07	21	23	Milwaukee	11.6	0.1	6	city	F
Wehr Nature Center - Whitnall Park	05	21	05	Franklin	16.6	1.5		Tess Corners Creek	
Whitnall Park Arboretum Pond	06	21	32	Franklin	2.6	0.4		Whitnal Park Creek	
Whitnall Park Arboretum Pond - North of Drive	06	21	32	Hales Corners	0.8	0.2	4	Whitnal Park Creek	
Whitnall Park Arboretum Pond - South of Drive	06	21	32	Hales Corners	1.9	0.3	5	Whitnal Park Creek	
Whitnall Park Golf Course Pond - #13 Fairway	05	21	08	Franklin	0.3	0.1		storm water	
Wilson Park Lagoon	06	22	19	Milwaukee	8.6	0.8	5	well	F
Wisconsin Ave Park - Pond 7 - N.E. of Ball Diamond	07	21	29	Wauwatosa	1.1	0.2		storm water	

Table 2
Previous Reports – Lagoons Surveyed

	Brown Deer	Dineen	Greenfield	Humboldt	Jackson	Jacobus	Juneau/Veterans	Kosciuszko	Lake Evinrude	McCarty Park	McGovern Park	Mitchell Park	Saveland Park	Scout Lake	Sheridan Park	Washington Park	Whitnall	Wilson Park
Surface Water Resources of Milwaukee County (1964)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
WDNR Lake Survey Maps (1970,1981)	√		√	√	√	√	√	√	√			√		√	√	√	√	√
Milwaukee Urban Lakes Initiative Project Management Plan (1982)	√			√	√		√					√		√		√		
Jackson Park Phase I (1999)					√													
Lagoon Shoreline Assessment (2003)	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√
Aquatic Plant Management Plan (2003)	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√		√

Table 3
Testing Plan

	Brown Deer	Dineen	Greenfield	Humboldt	Jackson	Jacobus	Juneau/Veterans	Kosciuszko	Lake Evinrude	McCarty Park	McGovern Park	Mitchell Park	Saveland Park	Scout Lake	Sheridan Park	Washington Park	Whitnall	Wilson Park
Bacteria	√	√	√	√	√		√			√					√	√		√
Basic Water Quality	√		√	√	√	√			√	√	√	√	√	√	√	√		√
Water Contamination					√					√								√
Sediment Contamination		√	√	√	√	√		√			√	√		√	√	√	√	√

Table 4
PRELIMINARY SURVEY

Lagoon Name	Recharge	Discharge	Water Quality Appearance	Inspections Notes
Aviary Ponds	well, city	Lake Evinrude/Honey Creek		
Bender Park (2 dry basins)	storm water	none	dry	
Brown Deer Golf Lagoon Hole #1	well	course irrigation		
Brown Deer Golf Lagoon Hole #16	Brown Deer Creek	Brown Deer Creek		
Brown Deer Golf Lagoon Hole #18	Brown Deer Creek	Brown Deer Creek		
Brown Deer Park Lagoon	well	Brown Deer Creek	opaque	snails
County Grounds MMSD Ponds-Proposed				proposed
County Grounds Pond #1 (3 basins in series)	storm water	Honey Creek	cloudy	
County Grounds Pond #2 (3 basins in series)	storm water	Honey Creek	cloudy	
County Grounds Pond #3 (3 basins in series)	storm water	Honey Creek	cloudy	
County Grounds Pond #10	storm water	Underwood Creek		
County Grounds Pond 87th & Watertown Plank Road	storm water	Menomonee River	cloudy	garbage accumulation
County Zoo - Monkey Island	well, city	sanitary sewer		
Dineen Park Lagoon	Dineen Park Creek	Dineen Park Creek	cloudy	garbage
Dretzka Park Golf Course Pond - C	Menomonee River	Menomonee River		
Dretzka Park Golf Course Pond - N	Menomonee River	Menomonee River		
Dretzka Park Golf Course Pond - S	Menomonee River	Menomonee River		
Estabrook Park Lagoon	Milwaukee River	Milwaukee River	cloudy	
GMIA Parking Structure	storm water	Wilson Park Creek via SS	clear	wind-blown trash
Grant Park Golf Course	storm water	none	very clear	
Grant Park Lagoon (Central)	city		clear	turtles
Grant Park Lagoon (North)	city	storm water	very clear	
Greenfield Golf Course - east side of course	storm water	storm sewer		
Greenfield Park Lagoon	well, storm water	lagoon at entrance	cloudy	
Greenfield Park Lagoon - east of baseball diamond (N)				
Greenfield Park Lagoon - east of baseball diamond (S)				
Greenfield Park Lagoon-by entrance	strom water, larger lagoon	storm sewer	cloudy	scummy
Grobschmidt Park Pond - Mud Lake	storm water	East Branch Root River		brownish along banks
Hansen Golf	Underwood Creek	Underwood Creek	clear	
Holler Park Lagoon	storm water, maybe spring	Holmes Ave Creek via SS	clear	leaf litter on bottom
Humboldt Park Lagoon	city	Humboldt Lilly Pond	clear	
Humboldt Park Lily Pond	Humboldt Park Lagoon	storm water	cloudy	
Jackson Park Lagoon	city, storm water	Kinnickinic River	greenish algae	many grassless banks
Jacobus Park Lagoon	city	Menomonee River	cloudy	
Kosciuszko Park Lagoon	city	storm sewer	clear	trash/geese
Lake Evinrude	city	Honey Creek via SS		

Table 4
PRELIMINARY SURVEY

Lagoon Name	Recharge	Discharge	Water Quality Appearance	Inspections Notes
Lincoln Park (Milwaukee River)	Milwaukee River	Milwaukee River	clear	
Little Menomonee River Pkwy. (North Lake)	Little Menomonee River	Little Menomonee River		
McCarty Park Lagoon	city	Honey Creek		
McGovern Park Lagoon	city	storm sewer	cloudy	
Menomonee River Parkway Pond.	Storm water, Menomonee River	Menomonee River		
Mitchell Park Lagoon	city	storm water	green algae	trash accumulation, bank erosion
Moose Yard	well	Honey Creek via SS		
Noyes Park Pond	storm water			
Oak Creek Parkway Pond	Oak Creek	Oak Creek		green solids floating on surface
Oak Creek Parkway Pond	Oak Creek	Oak Creek	clear	
Oakwood Golf (Central)	well	course irrigation		
Oakwood Golf (North)	well	none		
Oakwood Golf (South)	well	none		
Research Park - Pond 5 - S.E. of Research Park	storm water, Pond #7	Underwood Creek via SS		
Root River Parkway Pond	storm water	Root River?	cloudy	
Root River Parkway Pond	Root River	Root River	a little cloudy	trash
Root River Parkway Pond - Anderson Lake	Root River?	Root River		
Saveland Park Lagoon	city	storm water	clear	
Scout Lake Park	Dale Creek -unnamed trib.	Dale Creek -unnamed trib.		
Sheridan Park Lagoon	city	none	clear	
Timmerman Airfield Basin	Grantosa Creek	Grantosa Creek		
Uihlein Soccer Park		Field Irrigation		
Underwood Creek Detention Pond	storm water	Underwood Creek		
Veterans Park Lagoon	storm water			
Warnimont Golf	city	storm water	algae	
Washington Park Lagoon	city	storm water	cloudy	goose feces, garbage
Wehr Nature Center - Whitnall Park	Tess Corners Creek	Tess Corners Creek	clear	
Whitnall Park Arboretum Pond	Whitnall Park Creek	Whitnall Park Creek	clear	
Whitnall Park Arboretum Pond - North of Drive	Whitnall Park Creek	Whitnall Park Creek	clear	silt accumulation
Whitnall Park Arboretum Pond - South of Drive	Whitnall Park Creek	Whitnall Park Creek	a little opaque	garbage, silt accumulation
Whitnall Park Golf Course Pond - #13 Fairway	storm water	none		
Wilson Park Lagoon	well		clear	
Wisconsin Ave Park - Pond 7 - N.E. of Ball Diamond	storm water	Research Park Pond # 5		

Table 5
BACTERIA AND BASIC WATER QUALITY RESULTS

	Sample Date	E Coli per 100 mL	TSS mg/L	Total P mg/L	Diss P mg/L	Turb NTU	Chlor A ug/L	Secchi ft	Trophic Status [a]
CRITERION		**1,000** [b]	**100** [c]	**0.030** [d]		**50** [e]	**15** [d]	**4** [d]	
Brown Deer Park	9/16/2003	>2,400	17	0.185	0.029	14	83	1.5	E
	6/7/2004	12	10	0.080	ND	8		2.1	
	6/15/2004	17	13	0.118	0.005	10			
	8/30/2004		22	0.134	ND	15	125		
Dineen Park	9/15/2003	390						>1.6	M/E
	6/7/2004	220	40	0.039	ND	13		>1.6	
	6/15/2004	99							
	8/30/2004		26	0.128	ND	24	43		
Greenfield Park	9/14/2003	1,300	19	0.127	0.024	15	72	-	E/H
	6/8/2004	61	12	0.085	ND	9	26	1.6	
	6/15/2004	920	16	0.112	ND	8			
	8/30/2004		20	0.156	ND	16	84		
Humboldt Park	9/17/2003	139.6	6	0.269	0.236	6	10	NT	M/E
	6/8/2004	2.0	5	0.135	0.072	6	2	>3.2	
	6/15/2004	11.0	3	0.200	0.119	5			
Jackson Park	9/16/2003	4,900	54	0.757	0.204	108	278	0.6	H
	6/8/2004	190	47	0.579	0.188	54	58	0.4	
	6/15/2004	1,700	31	0.457	0.186	35			
	8/30/2004		45	0.606	0.165	45	57		
Jacobus Park	9/16/2003		48	0.110	0.014	47	44	>1.6	E
	6/7/2004	19	13	0.052	ND	16		-	
	6/15/2004	310	37	0.084	ND	41			
	8/30/2004		40	0.063	ND	46	14		
Lake Evinrude	9/17/2003		7	0.500	0.423	4	30	>1.6	E/H
	6/23/2004		9	0.540	0.402	6	34	-	
	8/30/2004								
McCarty Park	9/16/2003	520	27	0.347	0.025	18	257	1.3	E/H
	6/8/2004	19	9	0.100	ND	9		>3.2	
	6/15/2004	160	25	0.125	0.003	23			
	8/30/2004		14	0.102	ND	9	65		
Mc Govern Park	9/15/2003		94	0.672	0.013	27	52	-	E/H
	6/7/2004		4	0.056	ND	5		>3.2	
	6/15/2004		5	0.047	ND	6			
	8/30/2004		21	0.119	ND	21	64		
Mitchell Park	9/16/2003		11	0.299	0.086	7	39	2.5	E
	6/7/2004		9	0.070	0.006	4		>3.2	
	6/15/2004		8	0.123	0.032	9			
	8/30/2004		8	0.123	0.028	6	16		

Table 5
BACTERIA AND BASIC WATER QUALITY RESULTS

	Sample Date	E Coli per 100 mL	TSS mg/L	Total P mg/L	Diss P mg/L	Turb NTU	Chlor A ug/L	Secchi ft	Trophic Status [a]
CRITERION		**1,000 [b]**	**100 [c]**	**0.030 [d]**		**50 [e]**	**15 [d]**	**4 [d]**	
Saveland Park	9/17/2003		20	0.234	0.059	22	21	>1.6	E
	6/8/2004		6	0.165	0.031	11	2		
Scout Lake	9/17/2003		<3.3	0.025	0.014	3	7	5.8	M
	6/8/2004		ND	0.019	ND	3	2	5.6	
	6/16/2004		3	0.032	0.003	11	3		
	8/31/2004		2	0.030	ND	3	9		
Sheridan Park	9/17/2003	325.5	16	0.058	0.041	10	25	>1.6	E
	6/8/2004	6.3	29	0.093	ND	29	46		
	6/16/2004	29.0	14	0.073	ND	16	12		
	8/31/2004		20	0.076	0.004	14	30		
Veterans Park (Juneau)	9/16/2003	100							
	6/7/2004	2							
	6/16/2004	21.0							
Washington Park	9/15/2003	1,600	61	0.310	0.068	76	105	0.5	H
	6/7/2004	61	10	0.090	ND	12		>2.3	
	6/15/2004	66	15	0.098	ND	13			
	8/30/2004		25	0.213	0.003	23	80		
Whitnall North	6/16/2004		62	0.172	0.029	57	8		E
Wilson Park	9/17/2003		28	0.069	0.019	18	37	>1.6	E
	6/8/2004		13	0.075	ND	8	33		
	6/16/2004	160	16	0.072	ND	11	12		
	8/31/2004		6	0.033	0.003	6	6		

Notes
Shaded cells indicate values exceeed comparison criterion
">" sign for secchi reading means hit bottom at that depth and was still visible

[a]: M = mesotrophic, E = eutrophic, H = hypertrophic
[b]: WDNR beach closing criterion
[c]: correspondence with the WDNR
[d]: Understanding Lake Data, WDNR Pub. # G3582
[e]: correspondence with the WDNR

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Table 6
WATER CONTAMINANT RESULTS

	Sample Date	Chloride mg/L	Zinc ug/L	Lead ug/L	Copper ug/L	pH	Alk mg/L CaCO3	Cond umhos
CRITERION		**395 [a]**				**6-9 [b]**	**>25 [c]**	
Brown Deer Park	9/16/2003							
	6/7/2004					8.35	161	552
	6/15/2004					8.06	160	552
	8/30/2004					7.89	192	729
Dineen Park	9/15/2003							
	6/7/2004					8.29	298	917
	6/15/2004							
	8/30/2004					7.83	169	518
Greenfield Park	9/14/2003					8.39	218	979
	6/8/2004					8.46	195	803
	6/15/2004					8.09	187	725
	8/30/2004					8.39	205	795
Humboldt Park	9/17/2003					8.73	105	285
	6/8/2004					9.72	71	178
	6/15/2004					9.39	71	180
	8/31/2004					8.22	117	332
Jackson Park	9/16/2003	65				8.54	113	466
	6/8/2004					9.29	125	458
	6/15/2004					8.83	116	423
	8/30/2004	49	ND	ND	1	8.83	111	401
Jacobus Park	9/16/2003					8.25	217	835
	6/7/2004					8.65	186	812
	6/15/2004					8.32	180	766
	8/30/2004					8.14	210	801
Lake Evinrude	9/17/2003					8.16	110	504
	6/23/2004					8.26	115	500
McCarty Park	9/16/2003	79				8.81	85	479
	6/8/2004					8.39	132	481
	6/15/2004					8.50	125	442
	8/30/2004	56	ND	ND	2	9.31	83	394
Mc Govern Park	9/0/2003							
	6/7/2004					8.12	179	759
	6/15/2004					8.16	173	751
	8/30/2004					8.03	145	761

Table 6
WATER CONTAMINANT RESULTS

	Sample Date	Chloride mg/L	Zinc ug/L	Lead ug/L	Copper ug/L	pH	Alk mg/L CaCO3	Cond umhos
CRITERION		**395 [a]**				**6-9 [b]**	**>25 [c]**	
Mitchell Park	9/16/2003					7.89	102	312
	6/7/2004					8.48	96	305
	6/15/2004					8.00	93	290
	8/30/2004					7.89	123	337
Saveland Park	9/17/2003					8.1	124	326
	6/8/2004					8.15	129	304
Scout Lake	9/17/2003					8.45	109	1680
	6/8/2004					8.84	126	802
	6/16/2004					8.5	125	762
	8/31/2004					7.64	113	278
Sheridan Park	9/17/2003					8.22	117	332
	6/8/2004					8.22	117	320
	6/16/2004					8.18	116	316
	8/31/2004					8.12	125	854
Washington Park	9/15/2003							
	6/7/2004					8.28	147	405
	6/15/2004					8.37	147	401
	8/30/2004					8.17	113	323
Whitnall North	6/16/2004					7.98	194	759
Wilson Park	9/17/2003	106				8.75	140	943
	6/8/2004					8.33	153	830
	6/16/2004					8.23	150	804
	8/31/2004	88.4	ND	ND	1	8.16	182	932

[a] Chronic toxicity criteira, Table 5, NR 105.06
[b] NR 104.02
[c] Understanding Lake Data, WDNR , Pub # G3582

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Table 7
SEDIMENT TESTING RESULTS [a]

	Sampling Date	P	As	Ba	Cu	Pb	Hg	% solids	Pesticides DDT	Pesticides DDD	Pesticides DDE	PCBs
Probable Effects Conc. [b]			33.0		150.0	130	1.100					0.676
Threshold Effects Conc. [c]			9.8		32.0	36	0.180					0.060
Canada ISQG [d]			5.9		35.7	35	0.170					0.034
Whitnall - north	9/30/2003	948	11	110	66.5	128	0.403	49.7				
Whitnall - south	9/30/2003	611	20	67.9	41.6	52	0.125	47.8				
Sheridan	10/8/2003	196	ND	13.4	8.8	8	0.023	70.2				
Sheridan (9/04)	9/8/2004		ND	16.8	8.2	3	0.204	71.6				
Jackson -east	10/8/2003	430	26	68.4	35.5	55	0.083	53.6	0.055	0.11	0.066	0.200
Jackson -west	10/8/2003	385	12	36	17.1	36	0.060	49.7	0.030	0.110	0.140	0.180
Jackson -east of bldg	10/8/2003	314	17	29.5	23.2	29	0.045	66.3	ND	0.018	0.012	0.036
Kosciusko	10/8/2003	310	23	36.5	18.6	16	0.026	64.9				
Humboldt	10/8/2003	428	12	44.9	89.9	26	0.049	47.8				
Scout Lake	10/8/2003	240	8	28.3	58.2	31	0.071	66.1	ND	ND	ND	ND
Greenfield	9/9/2004		ND	51.1	20.7	32	10.200	55.5				
McGovern	9/8/2004		ND	84.8	24.8	6	0.017	74.4				
Jacobus	9/8/2004		6	31.9	19.4	13	0.029	68.3				
Washington - south	9/9/2004	262	10	87.6	22.2	13	0.032	63.9				
Washington - north	9/9/2004		14	57.4	17.9	19	0.042	57.3				
Mitchell	9/8/2004		ND	12	4.7	46	ND	62.1				
Wilson - south	9/9/2004	240	ND	64.9	23.2	21	0.038	35.1				
Wilson - north	9/9/2004	273	ND	27.7	17.4	10	0.017	60.7				
Dineen	9/8/2004		ND	42.6	18.4	15	0.113	55.7				

[a] All chemical testing results are in mg/kg.
[b] Probable Effects Concentration, "Consensus- Based Sediment Quality Gudielines, Interim Guidance" Wisconsin DNR, 12/2003, Pub WT-732
[c] Threshold Effects Concentration, "Consensus- Based Sediment Quality Gudielines, Interim Guidance" Wisconsin DNR, 12/2003, Pub WT-732
[d] Canadian Sediment Quality Guidelines for Protection of Aquaitic Life - Freshwater (www.ccme.ca/assets/pdf/e1-06.pdf

Table 8
Dissolved Oxygen Levels (mg/L)

	Brown Deer	Humboldt	McCarty Park	McGovern Park	Scout Lake	Whitnall	Wilson Park
February 2003	1.5	21.0	9.4		11.0		5.0
February 2004		2.6	1.0	0.8	5.4		2.5
Oxygen solubility (50F)	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Min. DO criterion [a]	3.0	3.0	3.0	3.0	3.0	3.0	3.0

[a] NR 104.02 for forage fish

[b] Data provided by Milwaukee County HOC.

Table 9
HISTORICAL COMPARISON

	Secchi (ft)		TSS (mg/L)		Total P (mg/L)		Dissolved P (mg/L)		Chlorophyll A		Bacteria (CFU/100mL)	
	1981	'03/'04	1981	'03/'04	1981	'03/'04	1981	'03/'04	1981	'03/'04	1981	'03/'04
Brown Deer	0.5-1.3	1.5-2.1	1-12	10-22	30-280	80-185	4	5-29	6-34	83	73	12-2400
Humboldt	0.1-1.0	>3.2	1-110	3-6	10-450	135-269	4-127	72-236	2-450	2-10	101	2-140
Jackson	0.4-1.0	0.4-0.6	1-16	31-54	40-80	457-757	4-9	165-204	10-76	58-278	90-2000	190-4900
Mitchell	0.4-1.0	2.5	1-30	8-11	40-120	70-299	4	6-86	14-110	38	10-30	
Washington	0.5-2.3		0-10	10-61	20-120	90-310	4-31	3-68	2-35	105	20-30	66-1,600
Veterans											110-1,600	2-100
Scout Lake	0.4-1.7	5.6-5.8	0-17	2-3	20-80	19-32	4	3-14	2-23	3-7	20-340	NT

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Table 10
EROSION ASSESSMENT

Lagoon Name	Shoreline (mi)	Estim. Lin. Ft. Eroded	Shoreline Assessment Notes
Brown Deer Park Lagoon	0.8	250	Mowed to edge; slumping shoreline; invasive plants
Dineen Park Lagoon	0.2	500	Mowed to edge; slumping shoreline; geese
Dretzka Park Golf Course Pond C	0.3		Slumping shoreline, but some good buffer areas
Dretzka Park Golf Course Pond N	0.2		Slumping shoreline, but some good buffer areas
Estabrook Park Lagoon	0.2	100	Erosion near bridge
Grant Park Golf Course	0.1		Invasive species
Grant Park Lagoon (Central)	0.1		Good
Greenfield Park Lagoon	1.0	600	Mowed to edge; slumping shoreline; extensive erosion; geese
Greenfield Park Lagoon -right of S. 116th entranc	0.2		OK
Grobschmidt Park Pond - Mud Lake	0.9		OK
Hansen Golf	0.1		Erosion along creeks
Holler Park Lagoon	0.1	100	Major erosion by dam; slumping shoreline
Humboldt Park Lagoon	0.5	1203	Bare & compacted soil, limited buffer; mow to edge, threatened path
Jackson Park Lagoon	0.7	1700	Slumping shoreline & bare soil in areas w/no lannon stone
Jacobus Park Lagoon	0.2	50	Natural area too tall, mow-to-edge
Juneau/Veterans Park Lagoon	1.2	300	Areas of bare and eroding soil
Kosciuszko Park Lagoon	0.2	300	Bare & compacted soil, zero buffer, heavy human impact, threatened path
McCarty Park Lagoon	0.4	300	Slumping shoreline, muskrat holes, small natural area
McGovern Park Lagoon	0.9	950	Slumping shoreline, parking lot erosion, invasive plants
Menomonee River Parkway Pond.	0.4		Bare soil areas
Mitchell Park Lagoon	0.3	1100	Slumping shoreline, mowed-to-edge, exposed tree roots
Noyes Park Pond	0.2		OK
Oak Creek Parkway Pond at Mill Road	0.7	3200	Slumping shoreline, areas of bare & compacted soil, geese
Saveland Park Lagoon	0.1	300	mowed-to-edge, some slumped shoreline
Scout Lake Park	0.4		pockets of compacted soil
Sheridan Park Lagoon	0.2	775	Slumping shoreline, compacted soil, invasive plants
Washington Park Lagoon	1.1	4500	Bare/compacted soil, slumping shoreline, mow-to-edge, limited buffer
Whitnall Park Arboretum Pond - Mallard Lake	0.4		East shore is heavily compacted, signif soil loss from human overuse
Whitnall Park Arboretum Pond - North of Drive	0.2		Good vegetation buffer
Whitnall Park Arboretum Pond - South of Drive	0.3	380	Slumping shoreline, bare/eroded soil, grazed turf
Wilson Park Lagoon	0.8	1650	Slumping shoreline in localized areas, vegetation loss, grazed turf

Table 11
PROBLEM AQUATIC PLANTS

Lagoon Name	Surf Area (acres)	Shore (mi)	Depth (ft)	Problem Plants	Degree	Current Treatment Method
Brown Deer Park Lagoon	3.7	0.46	6	sago, CL pondweed, algae	2	Chem, Mech
Dineen Park Lagoon	2.36	0.28	6	algae, coontail	3	hand pull & rake
Estabrook Park Lagoon	1.13	0.2	5.5	algae	3	Chem
Greenfield Golf Course - east side of course	0.4		3	algae, duckweed, coontail	3	Chem
Greenfield Park Lagoon	5.1	0.5	5	CL pondweed, algae	1	Chem, Mech
Holler Park Lagoon	0.34		5	algae, elodea, sago	1	hand pull & rake, chem
Humboldt Park Lagoon	4.8	0.4	5	algae, EWM, CL pondweed	1	hand pull & rake, mech, chem
Jackson Park Lagoon	5.2 (8)	0.5	9 (5)	algae, coontail	1	mech
Jacobus Park Lagoon	0.66 (0.21)	0.17	5	algae, coontail	1	hand pull & rake, chem
Juneau/Veterans Park Lagoon	11 (16)	1	12 (4)	algae, EWM, elodea, CL pondweed	1	mech, chem
McCarty Park Lagoon	0.9 (4.4)	0.18	3 (4)	algae, CL pondweed	1	mech, chem
McGovern Park Lagoon	4.4	0.67	4	EWM, algae, coontail	2	mech, chem
Mitchell Park Lagoon	3.6	0.31	7.5 (6)	EWM, algae, CL pondweed, elodea	1	mech, chem
Saveland Park Lagoon	0.43	0.1	5.5	algae, CL pondweed	1	hand pull & rake, chem
Scout Lake Park	8	0.5	20 (15)	EWM, algae, sago, CL pondweed, coontail	2	mech, chem
Sheridan Park Lagoon	1.2 (1.8)	0.2	8 (4)	algae, EWM, elodea, CL pondweed, coontail	1	mech, chem
Washington Park Lagoon	11.7	0.8	6	EWM, algae	1	mech, chem
Whitnall Park Arboretum Pond - Mallard Lake	12.5	0.7	10			
Wilson Park Lagoon	7.2 (9)	0.6	5.3	EWM, algae	1	mech, chem

Notes:
Areas, shore and depths in from "Surface Water Resources of Milwaukee County", 1964. Values in parentheses from "Lagoon Shoreline Assessment", 2003.
CL pondweed = curlyleaf pondweed, EWM= eurasian water milfoil
Degree: 1= >50% of the surface area shown as high priority, 2= 25%-50% is high priority, 3 = < 25% is high priority
Mech = mechanical harvesting, Chem = chemical treatment

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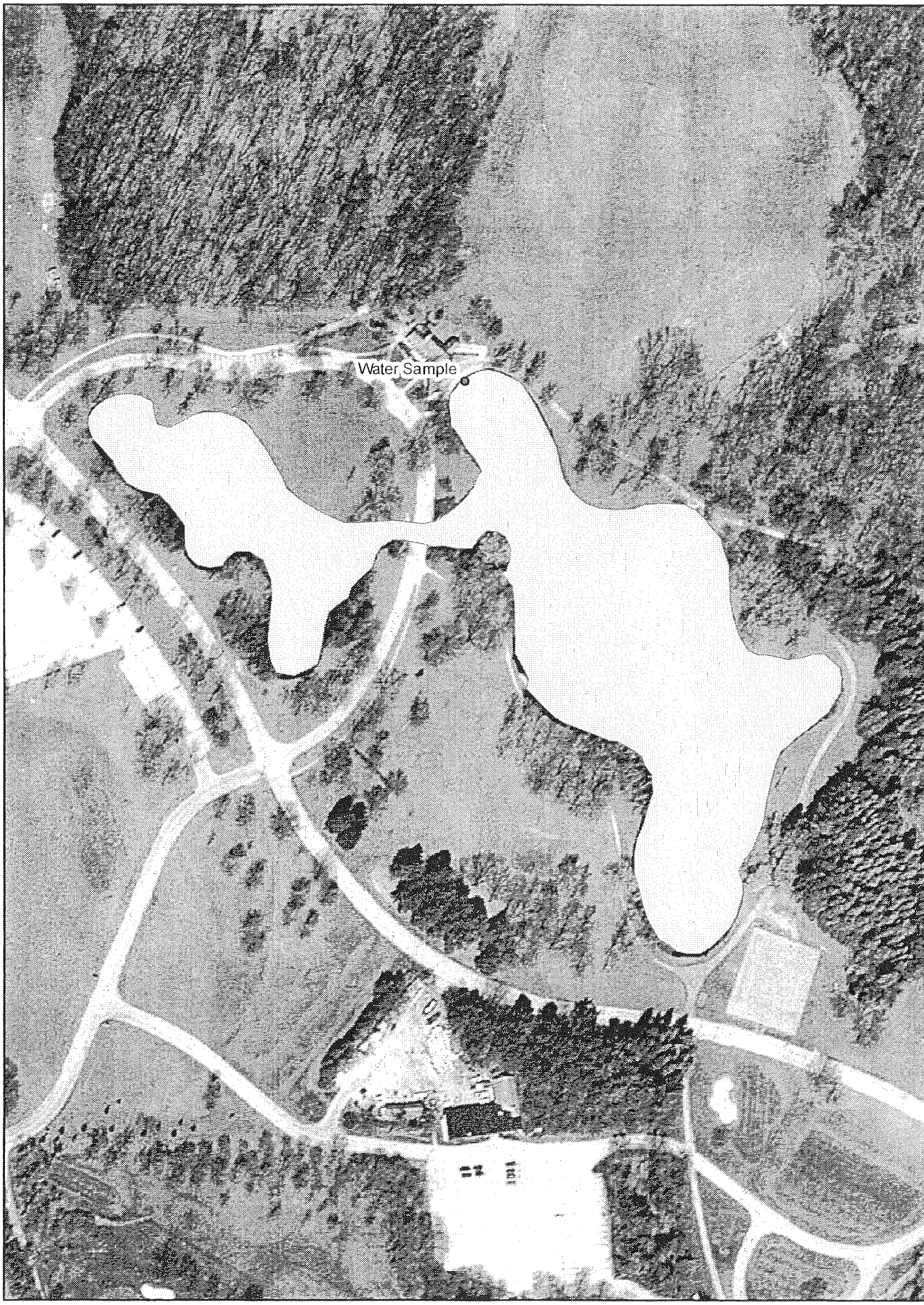
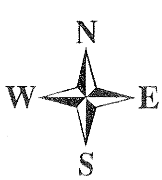
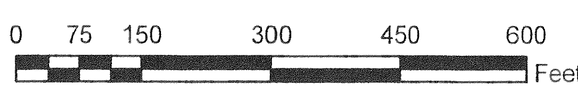
Appendix A

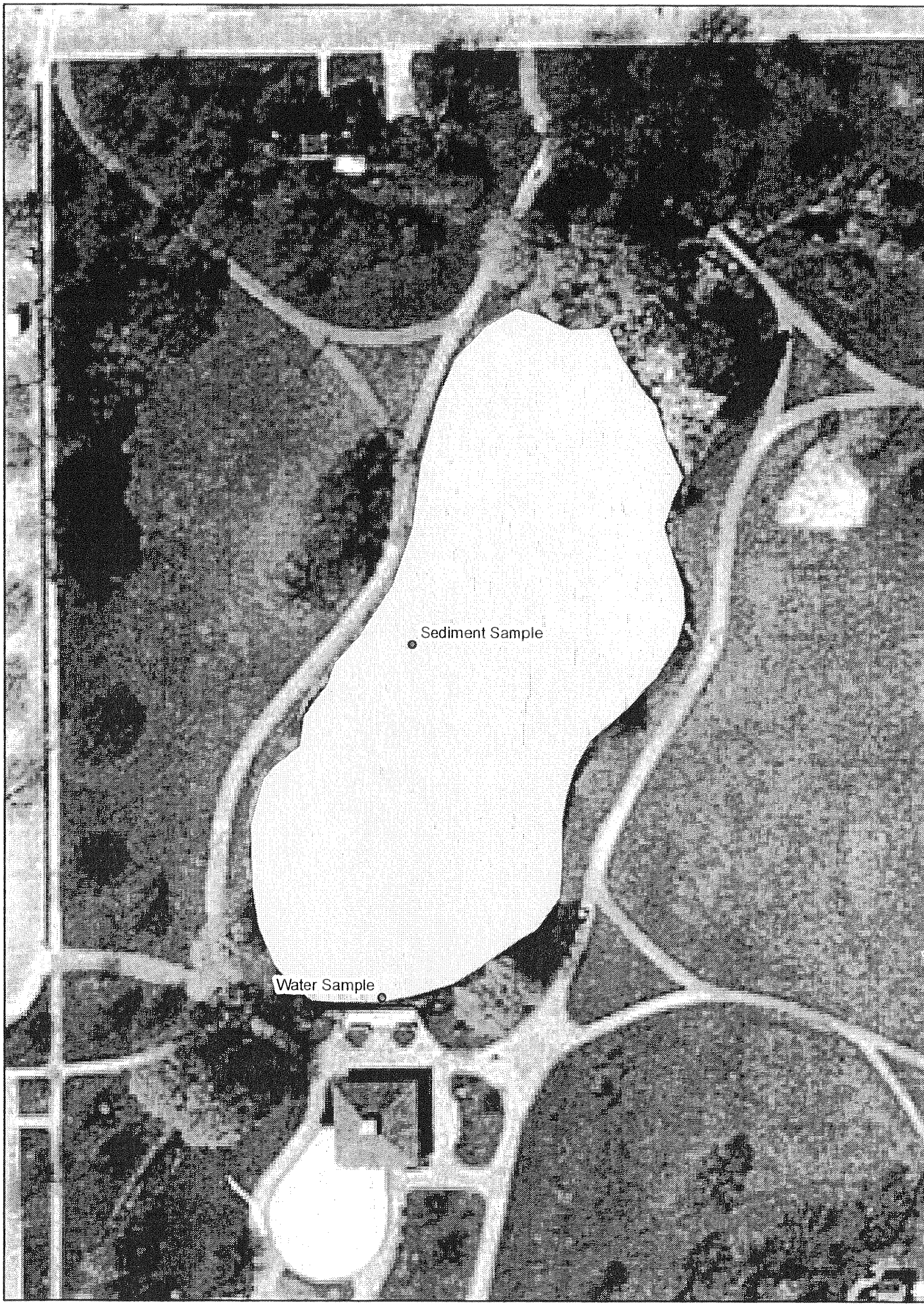
Sampling Locations



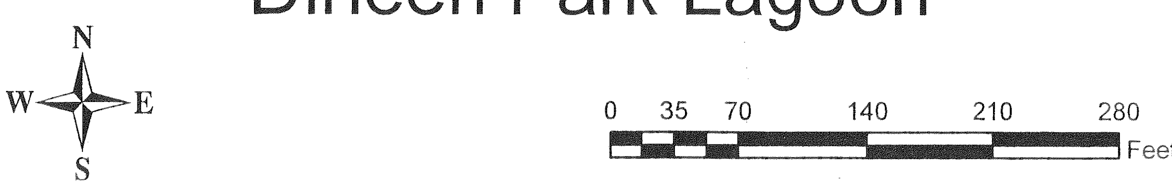
Brown Deer Park Lagoon

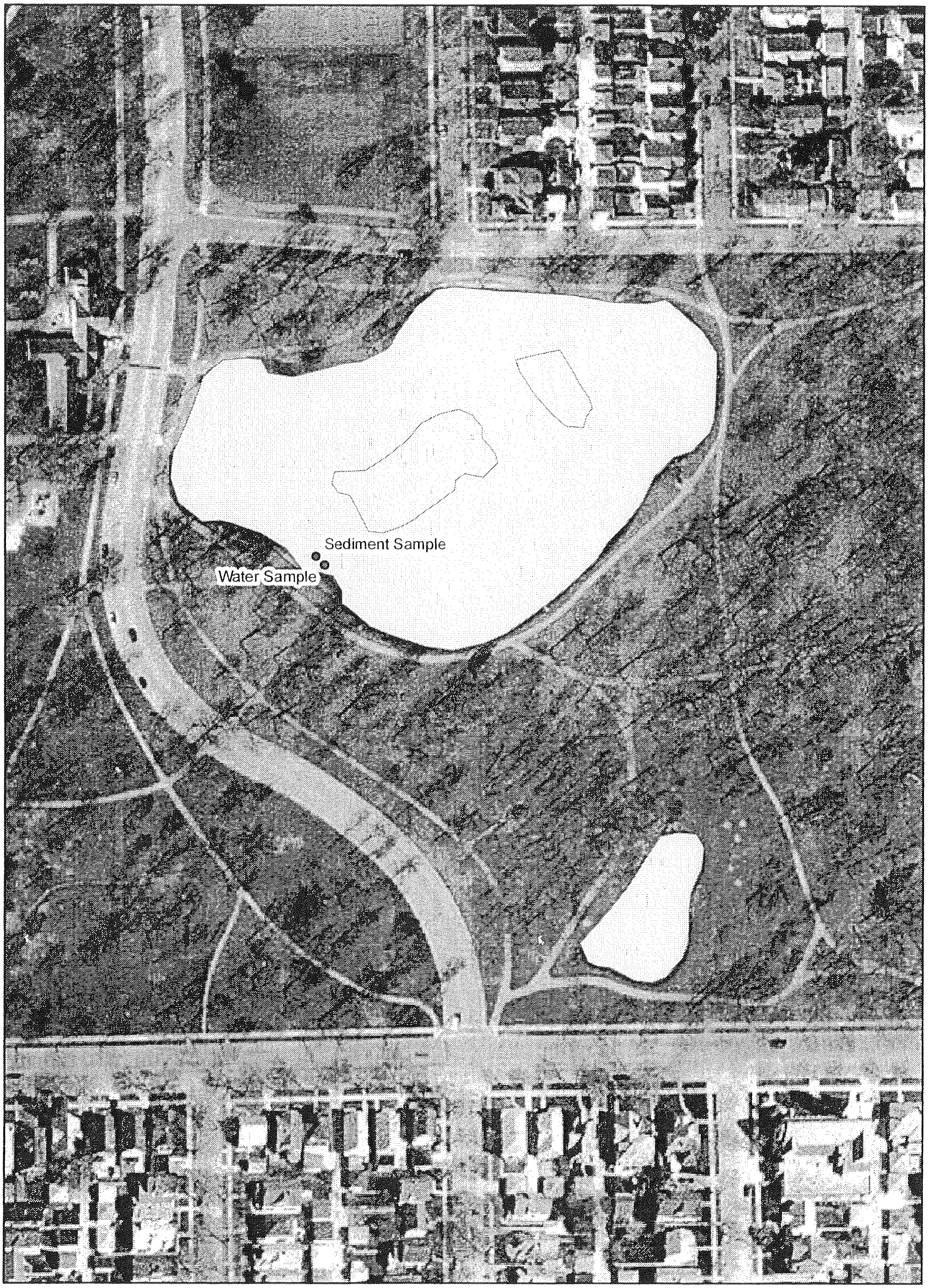




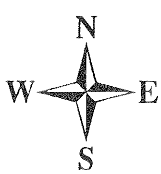


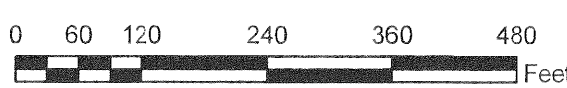
Dineen Park Lagoon



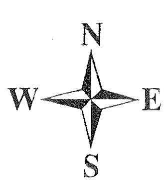


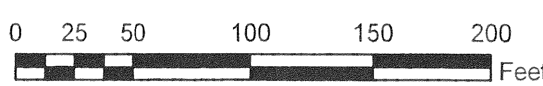
Humboldt Park Lagoon

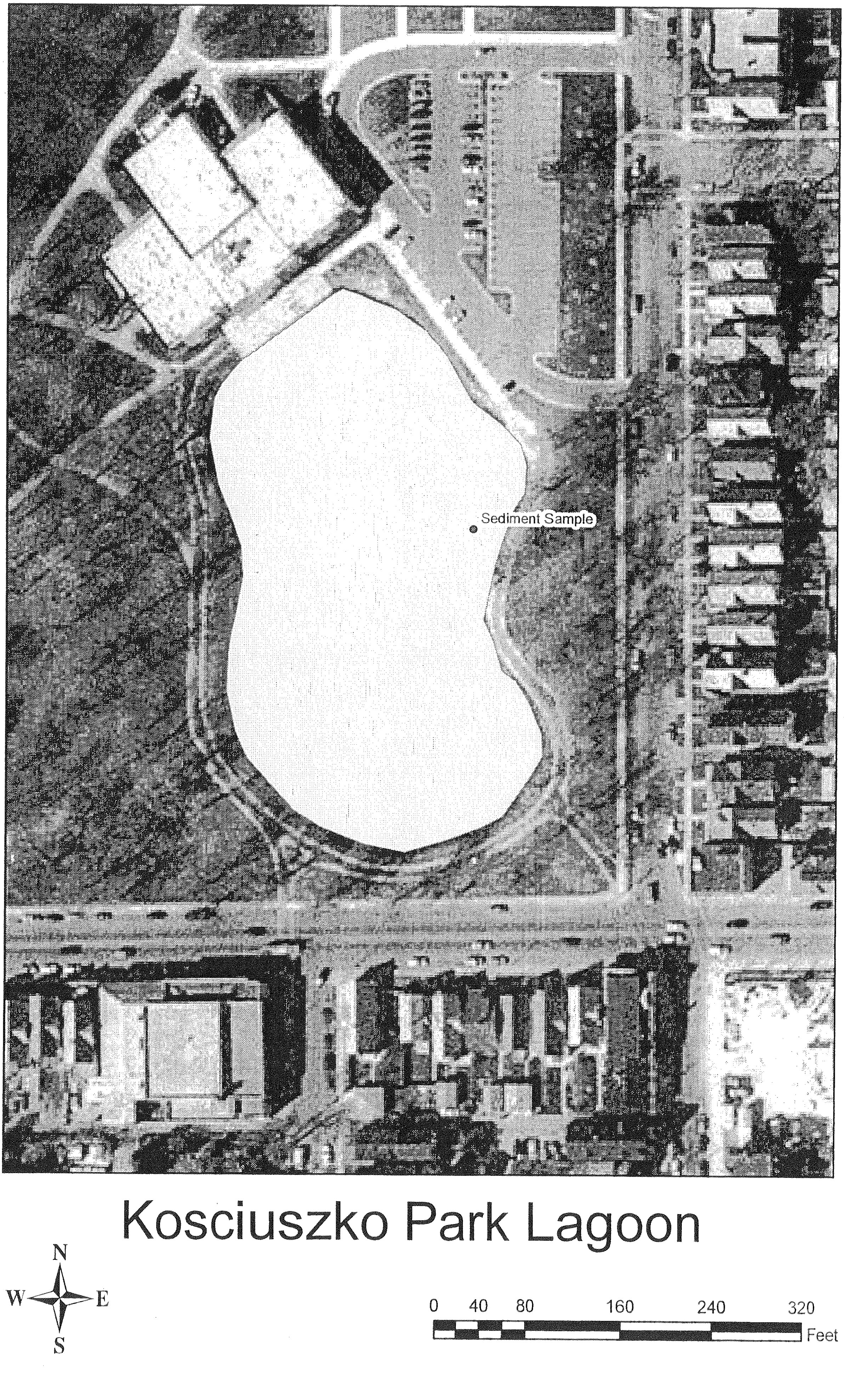




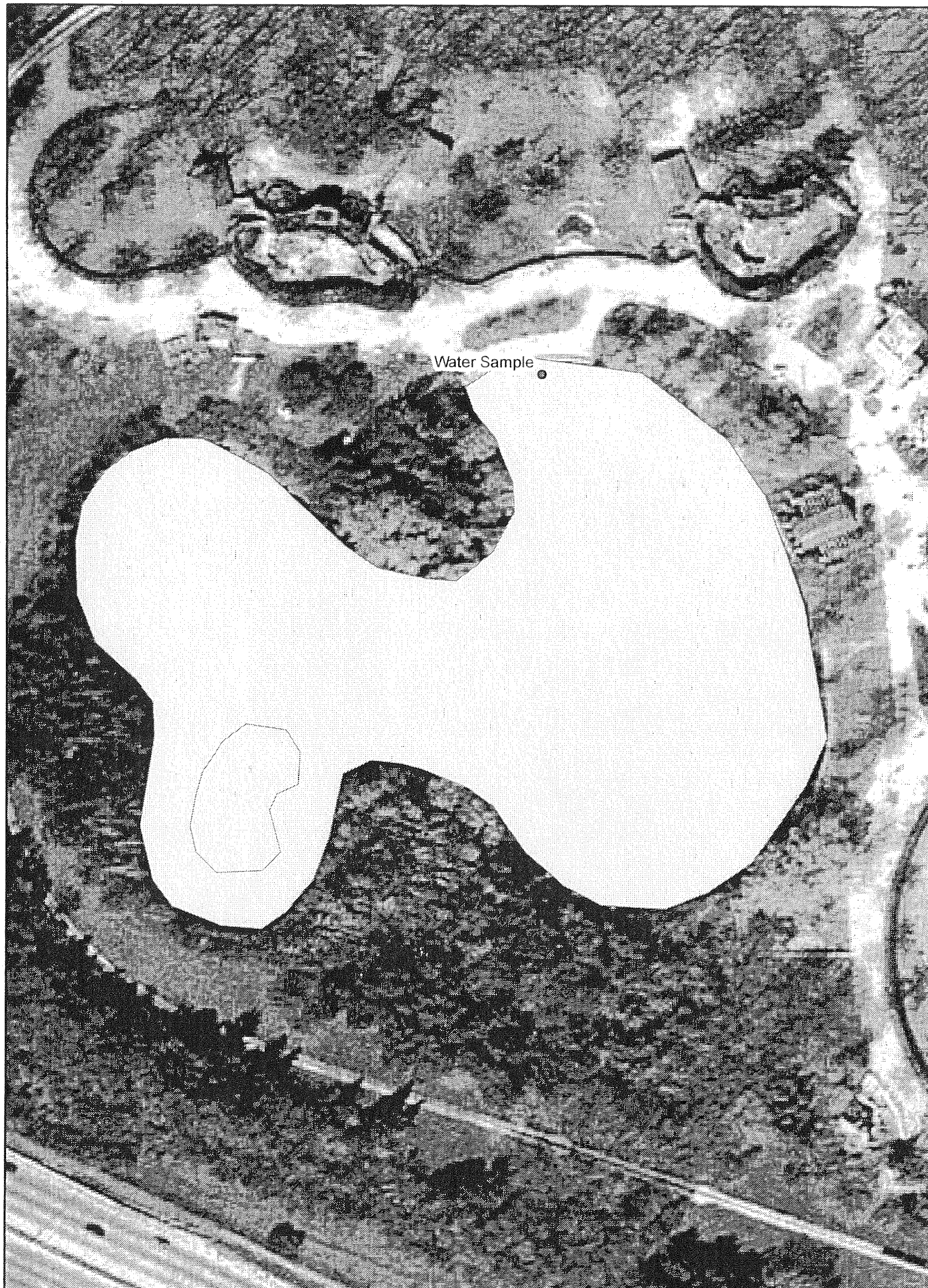
Jacobus Park Lagoon



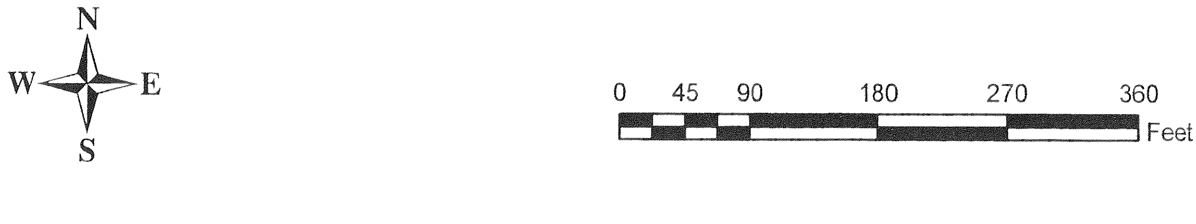


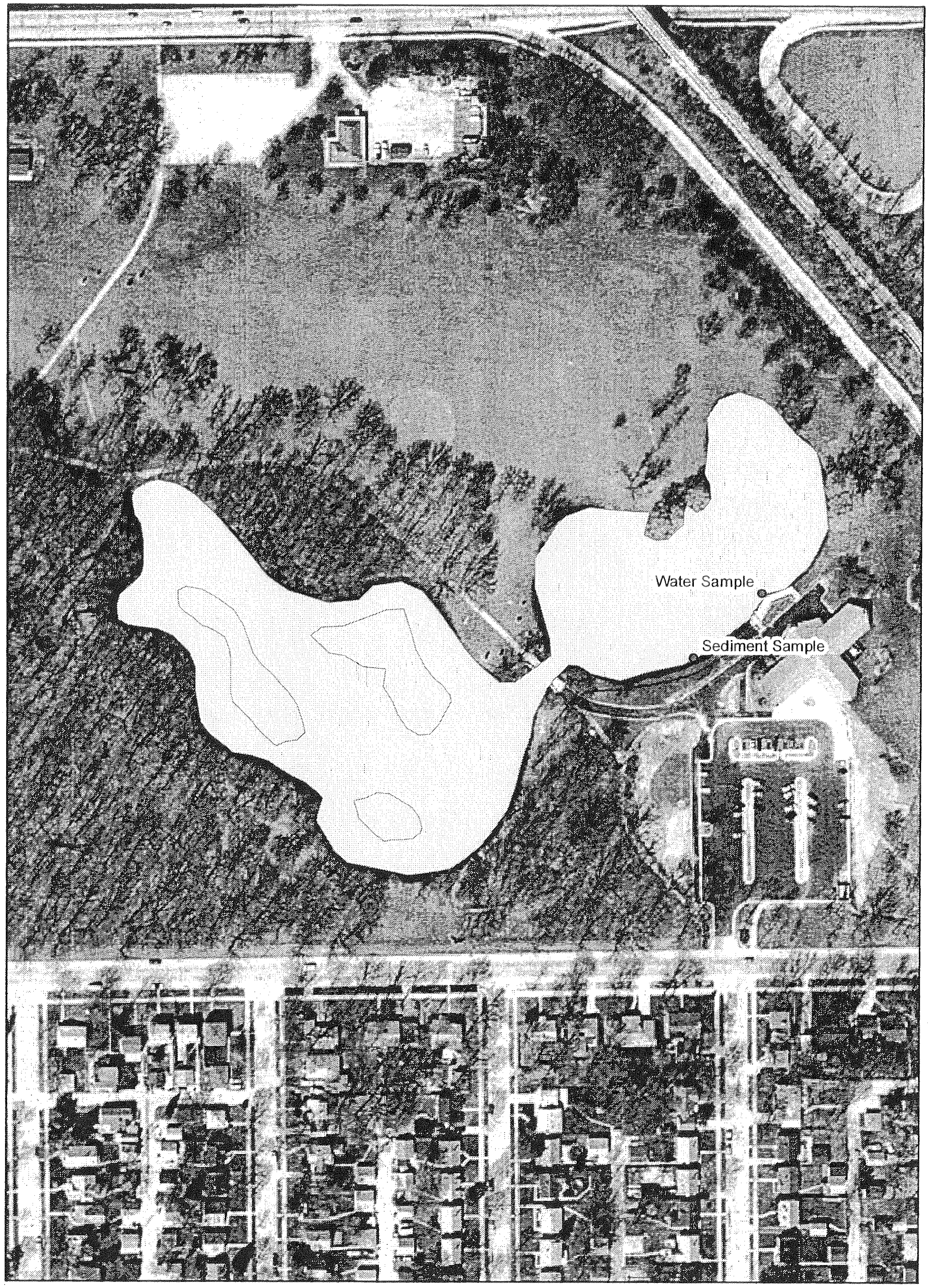


Kosciuszko Park Lagoon

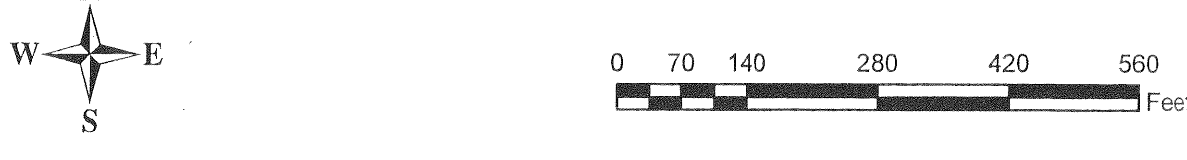


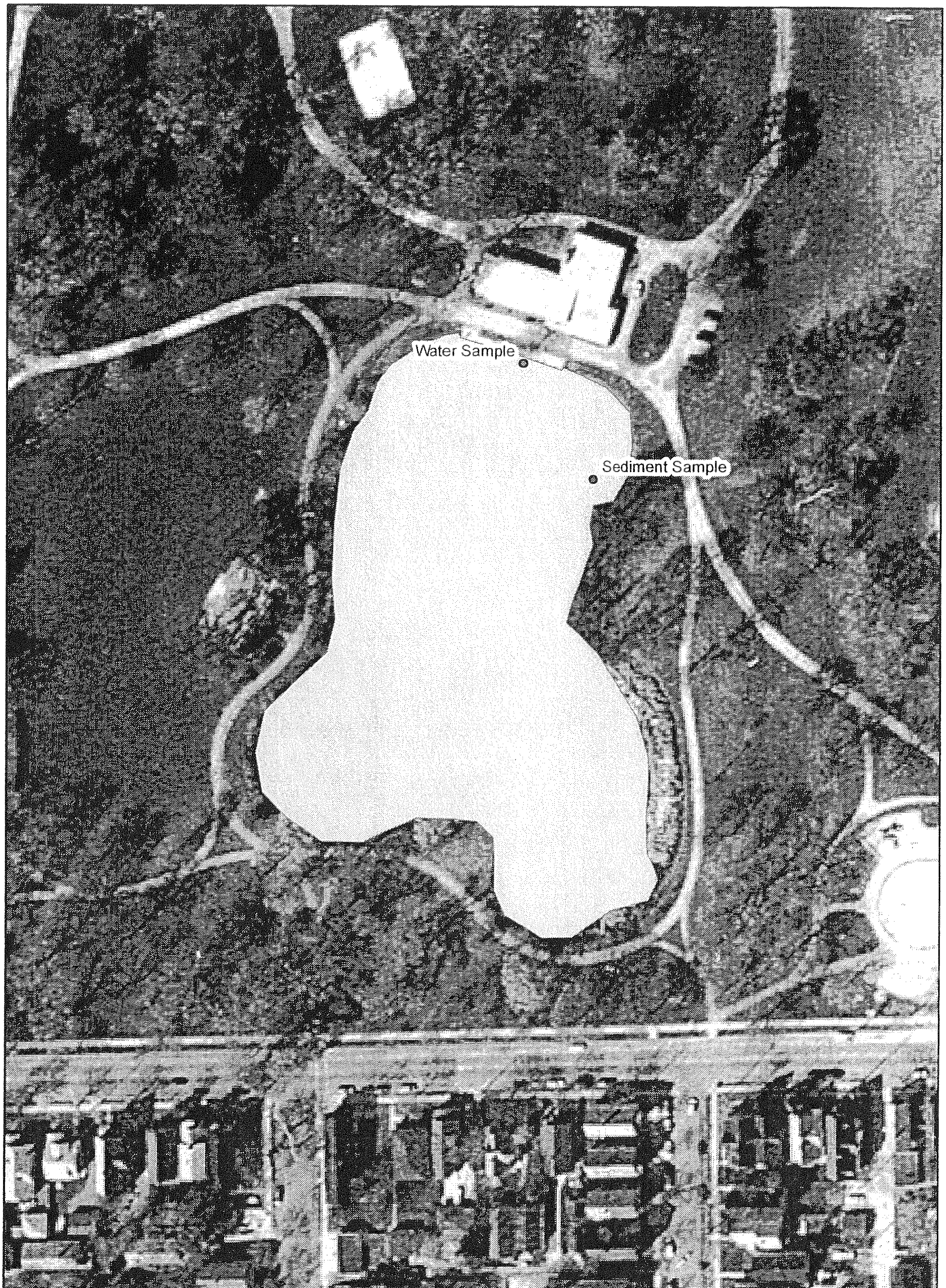
Lake Evinrude



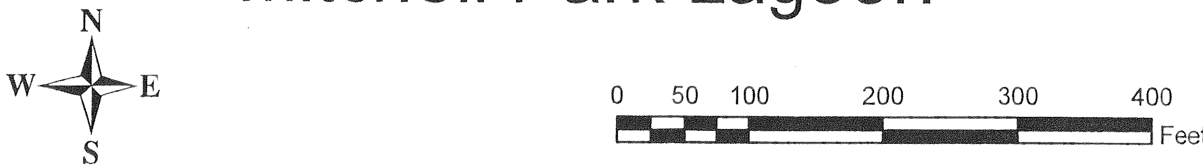


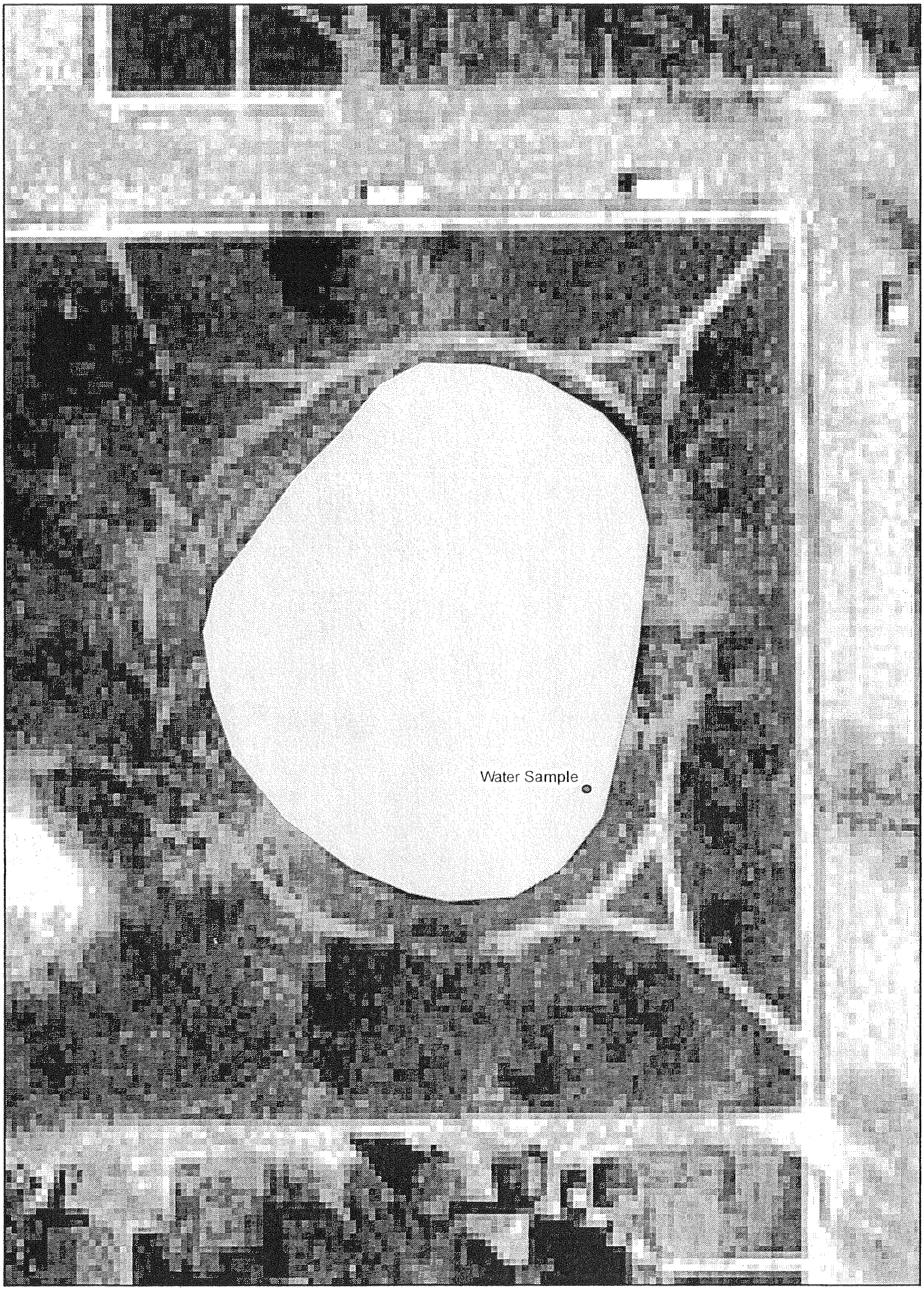
McGovern Park Lagoon



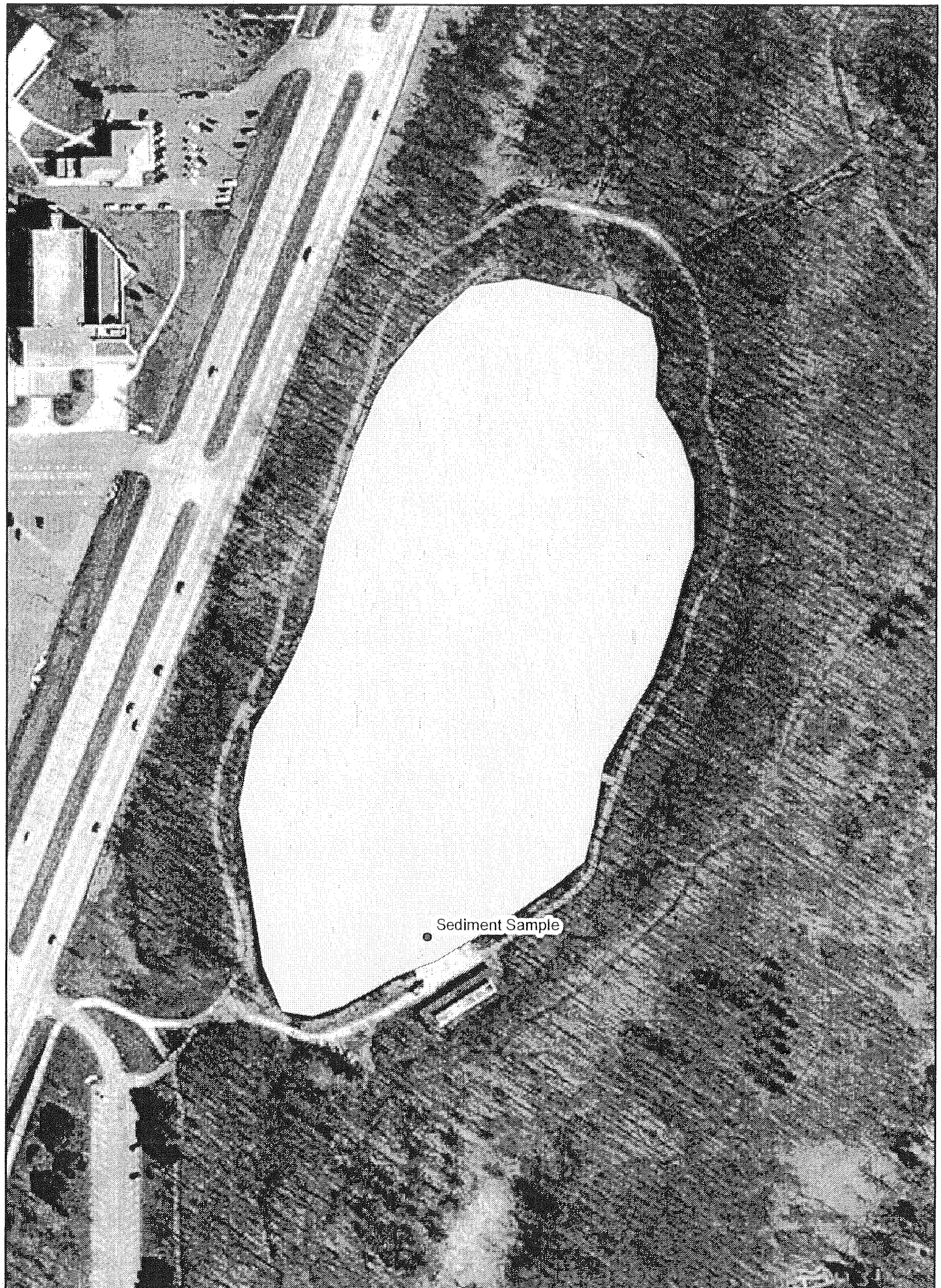


Mitchell Park Lagoon

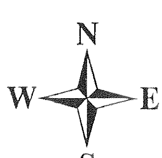


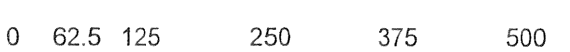


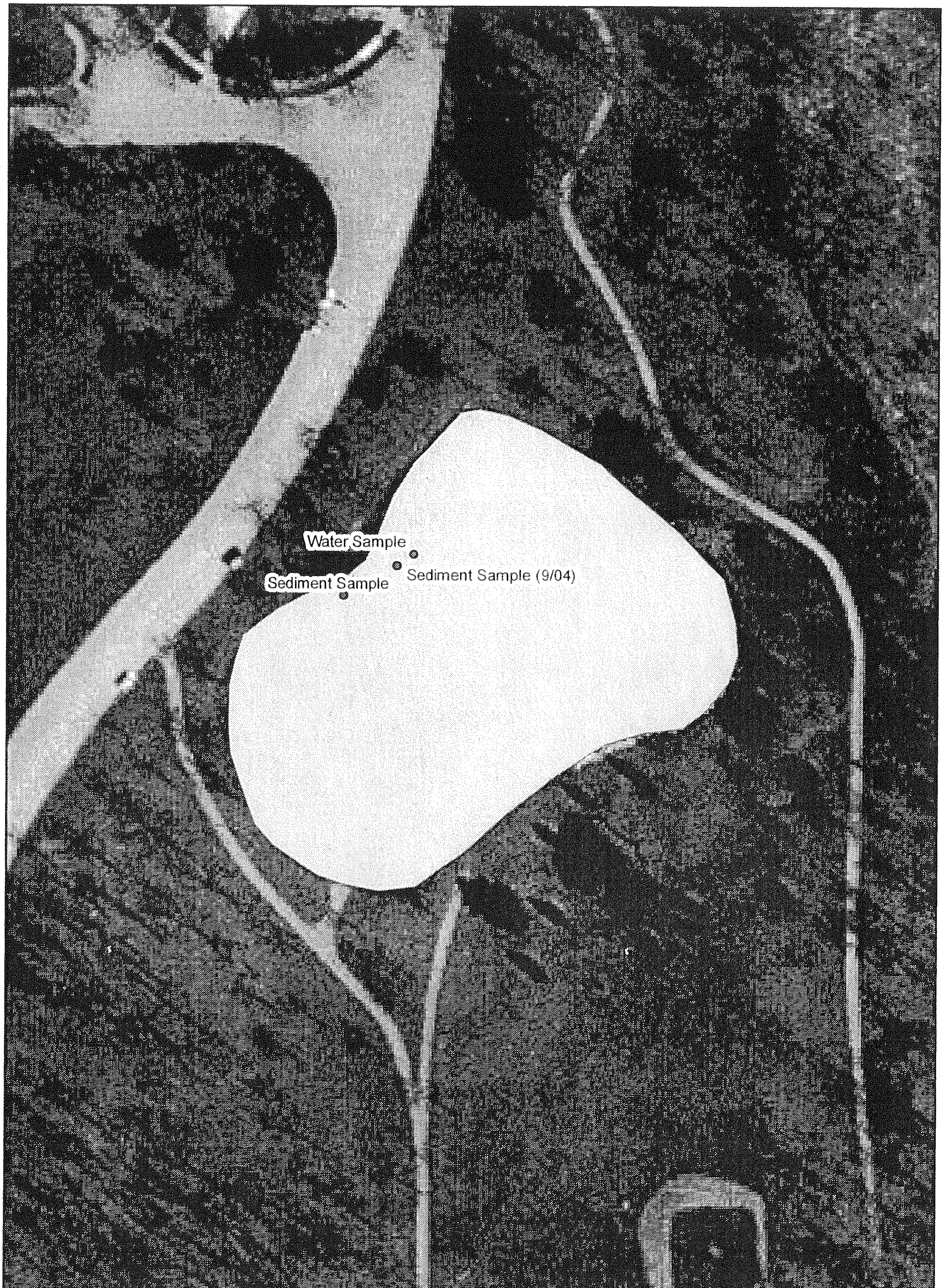
Saveland Park Lagoon



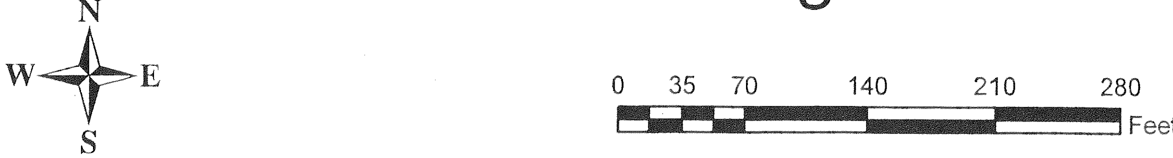
Scout Lake



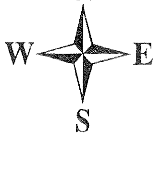


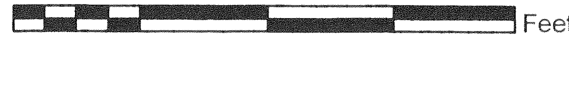


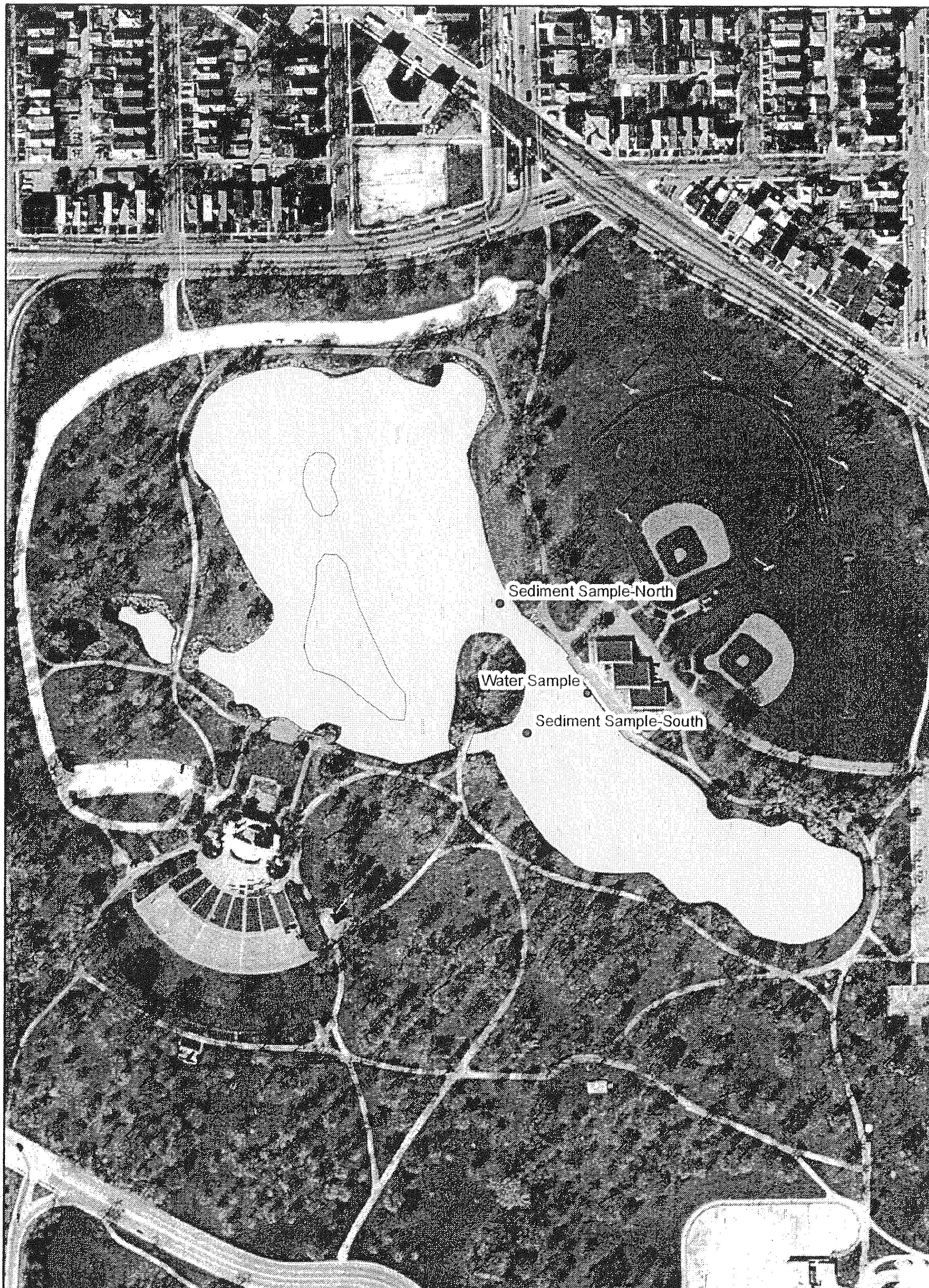
Sheridan Park Lagoon



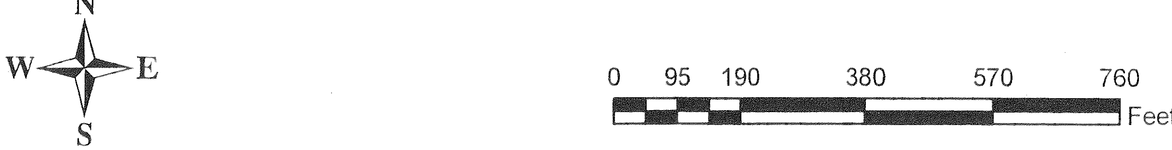
Veterans Park Lagoon

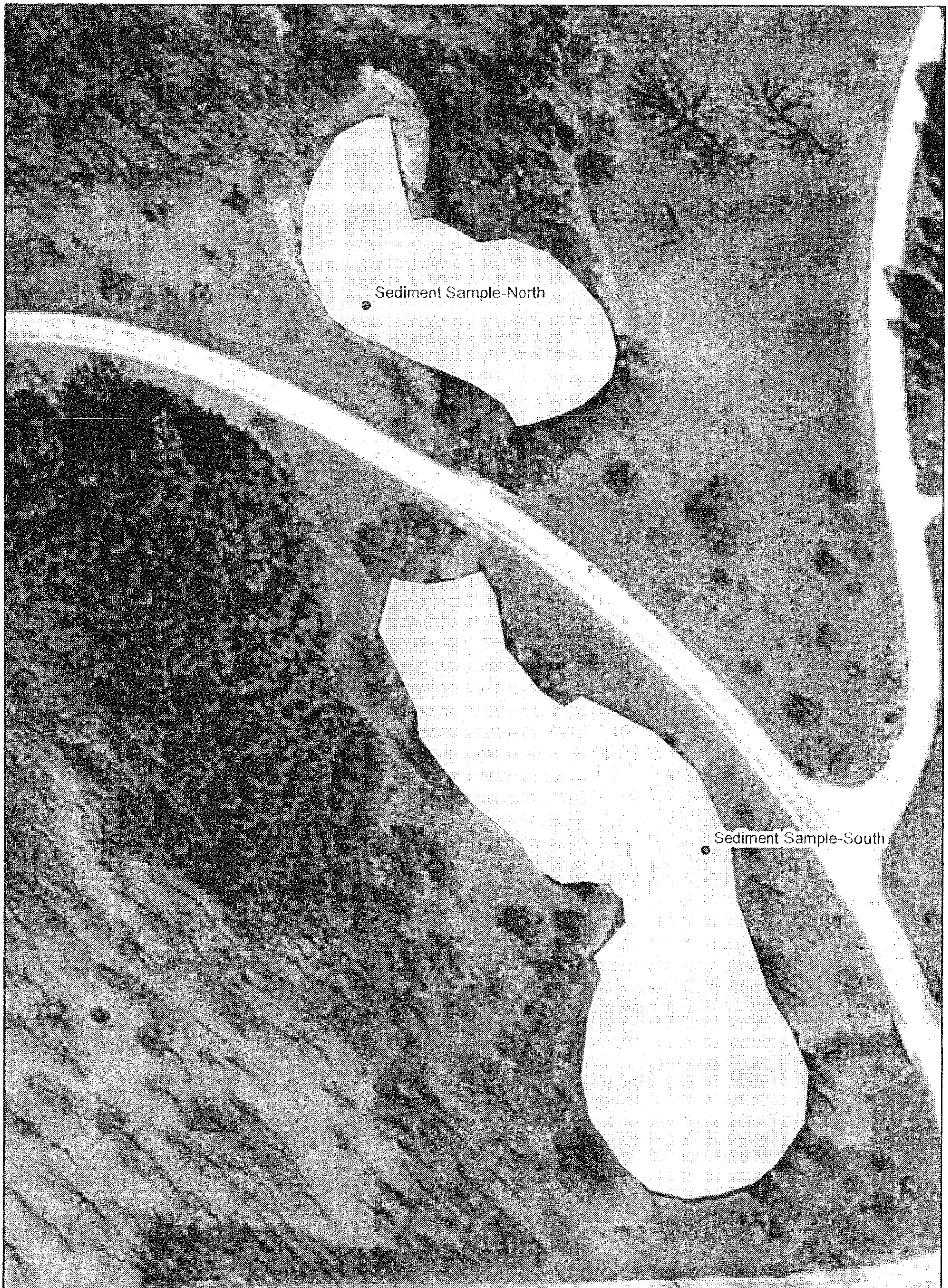




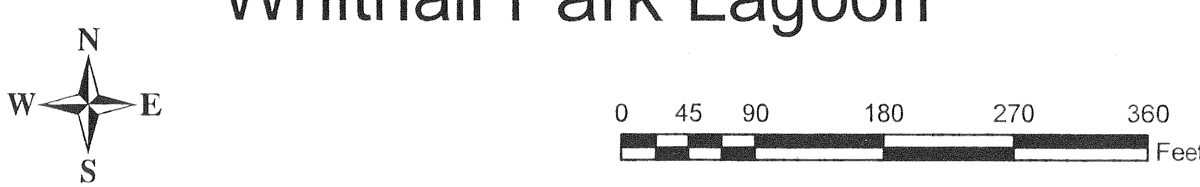


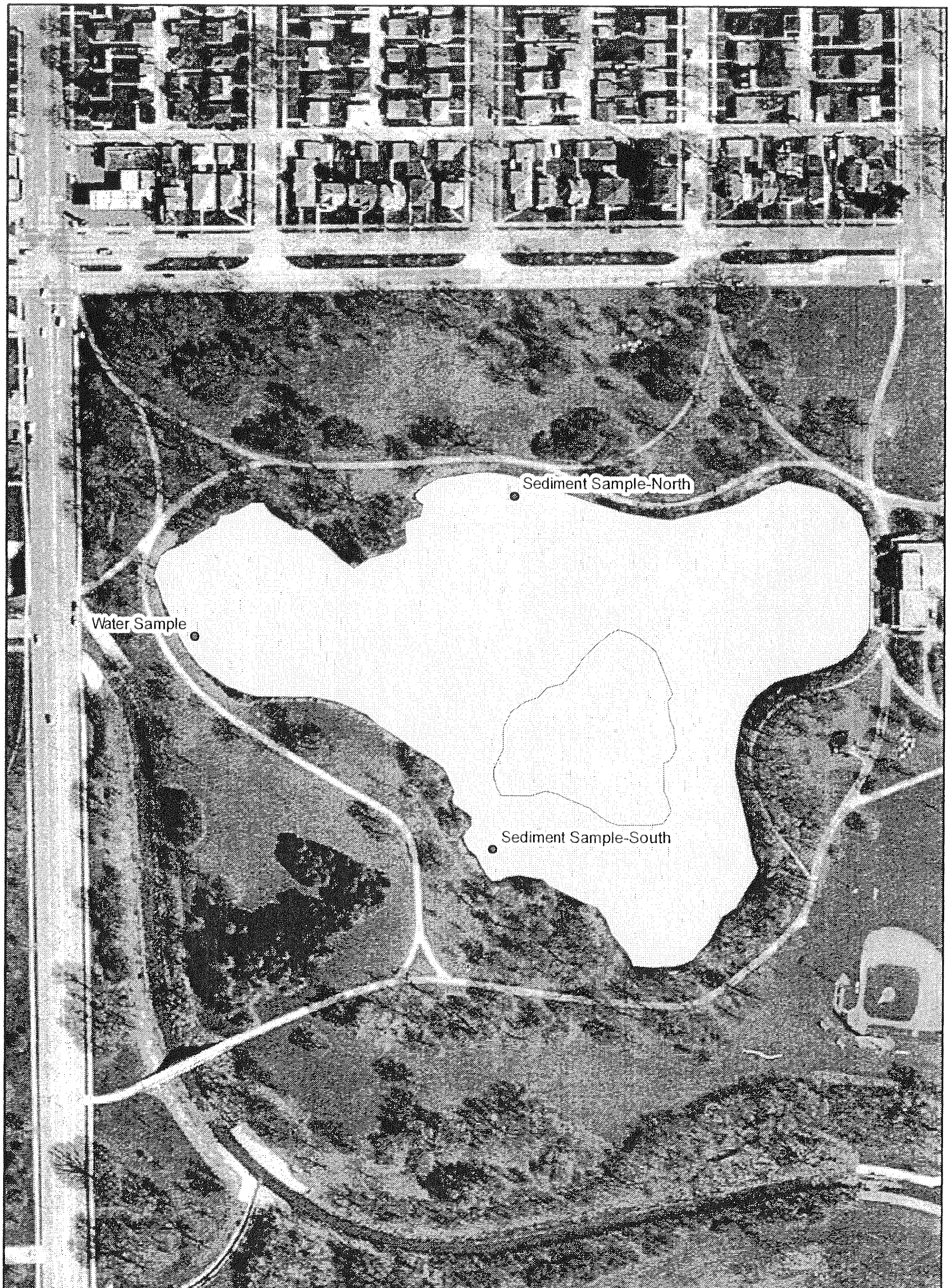
Washington Park Lagoon



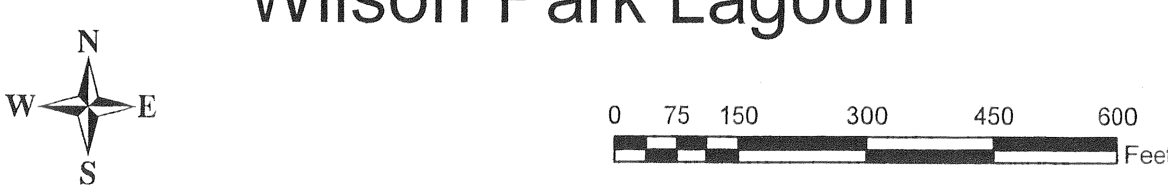


Whitnall Park Lagoon





Wilson Park Lagoon



Appendix B

Laboratory Reports

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
BO015979	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO015979	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	E COLI COLILERT QUANTITRAY MF	1600	PER 100 ML
BO015980	9/15/2003	DPLW0103	DINEEN PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO015980	9/15/2003	DPLW0103	DINEEN PARK LAGOON	E COLI COLILERT QUANTITRAY MF	390	PER 100 ML
BO015981	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	TEMPERATURE AT LAB	*ICED	C
BO015981	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	E COLI COLILERT QUANTITRAY MF	>2400.0	PER 100 ML
BO016555	9/14/2003	GPLW0103	GREENFIELD PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO016555	9/14/2003	GPLW0103	GREENFIELD PARK LAGOON	E COLI COLILERT QUANTITRAY MF	1300	PER 100 ML
BO016556	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO016556	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	E COLI COLILERT QUANTITRAY MF	520	PER 100 ML
BO016557	9/16/2003	JKLW0103	JACKSON PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO016557	9/16/2003	JKLW0103	JACKSON PARK LAGOON	E COLI COLILERT QUANTITRAY MF	4900	PER 100 ML
BO016558	9/16/2003	VPLW0103	VETERANS PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO016558	9/16/2003	VPLW0103	VETERANS PARK LAGOON	E COLI COLILERT QUANTITRAY MF	100	PER 100 ML
BO017131	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO017131	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	E COLI COLILERT QUANTITRAY MF	139.6	PER 100 ML
BO017132	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO017132	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	E COLI COLILERT QUANTITRAY MF	325.5	PER 100 ML
BO060809	6/7/2004	DPLW0104	DINEEN PARK	TEMPERATURE AT LAB	*ICED	C
BO060809	6/7/2004	DPLW0104	DINEEN PARK	E COLI COLILERT QUANTITRAY MF	220	PER 100 ML
BO060810	6/7/2004	VPLW0104	VETERANS PARK	TEMPERATURE AT LAB	*ICED	C
BO060810	6/7/2004	VPLW0104	VETERANS PARK	E COLI COLILERT QUANTITRAY MF	2	PER 100 ML
BO060811	6/7/2004	JBLW0104	JACOBUS PARK	TEMPERATURE AT LAB	*ICED	C
BO060811	6/7/2004	JBLW0104	JACOBUS PARK	E COLI COLILERT QUANTITRAY MF	19	PER 100 ML
BO060812	6/7/2004	WALW0104	WASHINGTON PARK	TEMPERATURE AT LAB	*ICED	C
BO060812	6/7/2004	WALW0104	WASHINGTON PARK	E COLI COLILERT QUANTITRAY MF	61	PER 100 ML
BO060813	6/7/2004	BDLW0104	BROWN DEER PARK	TEMPERATURE AT LAB	*ICED	C
BO060813	6/7/2004	BDLW0104	BROWN DEER PARK	E COLI COLILERT QUANTITRAY MF	12	PER 100 ML
BO061499	6/8/2004	GPLW0104	GREENFIELD PART	TEMPERATURE AT LAB	*ICED	C

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
BO061499	6/8/2004	GPLW0104	GREENFIELD PART	E COLI COLILERT QUANTITRAY MF	61	PER 100 ML
BO061500	6/8/2004	MCLW0104	MCCARTY PARK	TEMPERATURE AT LAB	*ICED	C
BO061500	6/8/2004	MCLW0104	MCCARTY PARK	E COLI COLILERT QUANTITRAY MF	19	PER 100 ML
BO061501	6/8/2004	JKLW0104	JACKSON PARK	TEMPERATURE AT LAB	*ICED	C
BO061501	6/8/2004	JKLW0104	JACKSON PARK	E COLI COLILERT QUANTITRAY MF	190	PER 100 ML
BO061502	6/8/2004	HPLW0104	HUMBOLDT PART	TEMPERATURE AT LAB	*ICED	C
BO061502	6/8/2004	HPLW0104	HUMBOLDT PART	E COLI COLILERT QUANTITRAY MF	2	PER 100 ML
BO061503	6/8/2004	SHLW0104	SHERIDAN PARK	TEMPERATURE AT LAB	*ICED	C
BO061503	6/8/2004	SHLW0104	SHERIDAN PARK	E COLI COLILERT QUANTITRAY MF	6.3	PER 100 ML
BO063338	6/15/2004	BDLW0204	BROWN DEER PARK	TEMPERATURE AT LAB	*ICED	C
BO063338	6/15/2004	BDLW0204	BROWN DEER PARK	E COLI COLILERT QUANTITRAY MF	17	PER 100 ML
BO063339	6/15/2004	GPLW0204	GREENFIELD PARK	TEMPERATURE AT LAB	*ICED	C
BO063339	6/15/2004	GPLW0204	GREENFIELD PARK	E COLI COLILERT QUANTITRAY MF	920	PER 100 ML
BO063340	6/15/2004	JBLW0204	JACOBUS PARK	TEMPERATURE AT LAB	*ICED	C
BO063340	6/15/2004	JBLW0204	JACOBUS PARK	E COLI COLILERT QUANTITRAY MF	310	PER 100 ML
BO063341	6/15/2004	WALW0204	WASHINGTON PARK	TEMPERATURE AT LAB	*ICED	C
BO063341	6/15/2004	WALW0204	WASHINGTON PARK	E COLI COLILERT QUANTITRAY MF	66	PER 100 ML
BO063342	6/15/2004	DPLW0204	DINEEN PARK	TEMPERATURE AT LAB	*ICED	C
BO063342	6/15/2004	DPLW0204	DINEEN PARK	E COLI COLILERT QUANTITRAY MF	99	PER 100 ML
BO063343	6/15/2004	MCLW0204	MCCARTHY PARK	TEMPERATURE AT LAB	*ICED	C
BO063343	6/15/2004	MCLW0204	MCCARTHY PARK	E COLI COLILERT QUANTITRAY MF	160	PER 100 ML
BO063344	6/15/2004	JKLW0204	JACKSON PARK	TEMPERATURE AT LAB	*ICED	C
BO063344	6/15/2004	JKLW0204	JACKSON PARK	E COLI COLILERT QUANTITRAY MF	1700	PER 100 ML
BO063345	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	TEMPERATURE AT LAB	*ICED	C
BO063345	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	E COLI COLILERT QUANTITRAY MF	11	PER 100 ML
BO063858	6/16/2004	WILW0204	WILSON PARK	TEMPERATURE AT LAB	*ICED	C
BO063858	6/16/2004	WILW0204	WILSON PARK	E COLI COLILERT QUANTITRAY MF	160	PER 100 ML
BO063859	6/16/2004	VPLW0204	VETERAN'S PARK	TEMPERATURE AT LAB	*ICED	C
BO063859	6/16/2004	VPLW0204	VETERAN'S PARK	E COLI COLILERT QUANTITRAY MF	21	PER 100 ML
BO063860	6/16/2004	SHLW0204	SHERIDAN PARK	TEMPERATURE AT LAB	*ICED	C
BO063860	6/16/2004	SHLW0204	SHERIDAN PARK	E COLI COLILERT QUANTITRAY MF	29	PER 100 ML
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	CONDUCTIVITY AT 25C	568	UMHOS/CM
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	TEMPERATURE AT LAB	ICED	C

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	PHOSPHATE ORTHO DISS	ND	MG/L
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	SAMPLE SIZE LITERS	200	ML
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	TURBIDITY, LAB NEPHELOMETRIC	2.8	NTU
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	CHLOROPHYLL A, FLUORESCENCE	1.73	UG/L
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	CONDUCTIVITY AT 25C	481	UMHOS/CM
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	TEMPERATURE AT LAB	ICED	C
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	PH LAB	8.39	SU
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	ALKALINITY TOTAL CACO3	132	MG/L
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	RESIDUE TOTAL NFLT (TOTAL SUS	9	MG/L
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	PHOSPHORUS TOTAL	0.1	MG/L
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO024041	6/8/2004	MCLW0104	MCCARTY PARK	TURBIDITY, LAB NEPHELOMETRIC	9.3	NTU
IO024042	6/8/2004	JKLW0104	JACKSON PARK	CONDUCTIVITY AT 25C	458	UMHOS/CM
IO024042	6/8/2004	JKLW0104	JACKSON PARK	TEMPERATURE AT LAB	ICED	C
IO024042	6/8/2004	JKLW0104	JACKSON PARK	PH LAB	9.29	SU
IO024042	6/8/2004	JKLW0104	JACKSON PARK	ALKALINITY TOTAL CACO3	125	MG/L
IO024042	6/8/2004	JKLW0104	JACKSON PARK	RESIDUE TOTAL NFLT (TOTAL SUS	47	MG/L
IO024042	6/8/2004	JKLW0104	JACKSON PARK	PHOSPHORUS TOTAL	0.579	MG/L
IO024042	6/8/2004	JKLW0104	JACKSON PARK	PHOSPHATE ORTHO DISS	0.188	MG/L
IO024042	6/8/2004	JKLW0104	JACKSON PARK	SAMPLE SIZE LITERS	200	ML
IO024042	6/8/2004	JKLW0104	JACKSON PARK	TURBIDITY, LAB NEPHELOMETRIC	54.2	NTU
IO024042	6/8/2004	JKLW0104	JACKSON PARK	CHLOROPHYLL A, FLUORESCENCE	58.1	UG/L
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	CONDUCTIVITY AT 25C	803	UMHOS/CM
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	TEMPERATURE AT LAB	ICED	C
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	PH LAB	8.46	SU
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	ALKALINITY TOTAL CACO3	195	MG/L
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	RESIDUE TOTAL NFLT (TOTAL SUS	12	MG/L
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	PHOSPHORUS TOTAL	0.085	MG/L
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	SAMPLE SIZE LITERS	200	ML
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	TURBIDITY, LAB NEPHELOMETRIC	9.1	NTU
IO024043	6/8/2004	GPLW0104	GREENFIELD PARK	CHLOROPHYLL A, FLUORESCENCE	26.2	UG/L
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	CONDUCTIVITY AT 25C	552	UMHOS/CM

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	PH LAB	7.77	SU
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	ALKALINITY TOTAL CACO3	117	MG/L
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	RESIDUE TOTAL NFLT (TOTAL SUS	17	MG/L
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	PHOSPHORUS TOTAL	0.185	MG/L
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	PHOSPHORUS TOTAL DISS	0.029	MG/L
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	SAMPLE SIZE LITERS	100	ML
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	TURBIDITY, LAB NEPHELOMETRIC	13.5	NTU
IO006992	9/15/2003	BDLW0103	BROWN DEER PARK BOATHOUSE LAGO	CHLOROPHYLL A, FLUORESCENCE	83.1	UG/L
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	CONDUCTIVITY AT 25C	318	UMHOS/CM
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	PH LAB	8.26	SU
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	ALKALINITY TOTAL CACO3	89	MG/L
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	61	MG/L
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	PHOSPHORUS TOTAL	0.31	MG/L
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	PHOSPHORUS TOTAL DISS	0.068	MG/L
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	SAMPLE SIZE LITERS	50	ML
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	75.9	NTU
IO006993	9/15/2003	WPLW0103	WASHINGTON PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	105	UG/L
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	CONDUCTIVITY AT 25C	479	UMHOS/CM
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	PH LAB	8.81	SU
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	ALKALINITY TOTAL CACO3	85	MG/L
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	27	MG/L
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	PHOSPHORUS TOTAL	0.347	MG/L
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	PHOSPHORUS TOTAL DISS	0.025	MG/L
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	CHLORIDE	78.6	MG/L
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	SAMPLE SIZE LITERS	100	ML
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	18.4	NTU
IO007355	9/16/2003	MCLW0103	MCCARTY PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	257	UG/L
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	CONDUCTIVITY AT 25C	835	UMHOS/CM
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	PH LAB	8.25	SU
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	ALKALINITY TOTAL CACO3	217	MG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	48	MG/L
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	PHOSPHORUS TOTAL	0.11	MG/L
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	PHOSPHORUS TOTAL DISS	0.014	MG/L
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	SAMPLE SIZE LITERS	200	ML
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	46.6	NTU
IO007356	9/16/2003	JBLW0103	JACOBUS PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	44.1	UG/L
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	CONDUCTIVITY AT 25C	312	UMHOS/CM
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	PH LAB	7.89	SU
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	ALKALINITY TOTAL CACO3	102	MG/L
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	11	MG/L
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	PHOSPHORUS TOTAL	0.299	MG/L
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	PHOSPHORUS TOTAL DISS	0.086	MG/L
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	SAMPLE SIZE LITERS	100	ML
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	7.1	NTU
IO007357	9/16/2003	MILW0103	MITCHELL PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	38.5	UG/L
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	CONDUCTIVITY AT 25C	979	UMHOS/CM
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	PH LAB	8.39	SU
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	ALKALINITY TOTAL CACO3	218	MG/L
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	19	MG/L
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	PHOSPHORUS TOTAL	0.127	MG/L
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	PHOSPHORUS TOTAL DISS	0.024	MG/L
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	SAMPLE SIZE LITERS	100	ML
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	14.9	NTU
IO007358	9/16/2003	GPLW0103	GREENFIELD PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	72	UG/L
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	CONDUCTIVITY AT 25C	466	UMHOS/CM
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	PH LAB	8.54	SU
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	ALKALINITY TOTAL CACO3	113	MG/L
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	54	MG/L
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	PHOSPHORUS TOTAL	0.757	MG/L
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	PHOSPHORUS TOTAL DISS	0.204	MG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	CHLORIDE	65.3	MG/L
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	SAMPLE SIZE LITERS	10	ML
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	108	NTU
IO007359	9/16/2003	JKLW0103	JACKSON PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	278	UG/L
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	CONDUCTIVITY AT 25C	332	UMHOS/CM
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	PH LAB	8.22	SU
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	ALKALINITY TOTAL CACO3	117	MG/L
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	16	MG/L
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	PHOSPHORUS TOTAL	0.058	MG/L
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	PHOSPHORUS TOTAL DISS	0.041	MG/L
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	SAMPLE SIZE LITERS	100	ML
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	10.3	NTU
IO007649	9/17/2003	SHLW0103	SHERIDAN PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	24.9	UG/L
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	CONDUCTIVITY AT 25C	326	UMHOS/CM
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	PH LAB	8.1	SU
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	ALKALINITY TOTAL CACO3	124	MG/L
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	20	MG/L
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	PHOSPHORUS TOTAL	*0.234	MG/L
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	PHOSPHORUS TOTAL DISS	*0.059	MG/L
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	SAMPLE SIZE LITERS	100	ML
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	21.5	NTU
IO007650	9/17/2003	SVLW0103	SAVELAND PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	21	UG/L
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	CONDUCTIVITY AT 25C	1680	UMHOS/CM
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	TEMPERATURE AT LAB	ICED	C
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	PH LAB	8.45	SU
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	ALKALINITY TOTAL CACO3	109	MG/L
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	RESIDUE TOTAL NFLT (TOTAL SUS	*<3.33	MG/L
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	PHOSPHORUS TOTAL	0.025	MG/L
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	PHOSPHORUS TOTAL DISS	0.014	MG/L
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	SAMPLE SIZE LITERS	200	ML
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	TURBIDITY, LAB NEPHELOMETRIC	3	NTU

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO007651	9/17/2003	SLLW0103	SCOUT LAKE	CHLOROPHYLL A, FLUORESCENCE	6.52	UG/L
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	CONDUCTIVITY AT 25C	504	UMHOS/CM
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	TEMPERATURE AT LAB	ICED	C
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	PH LAB	8.16	SU
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	ALKALINITY TOTAL CACO3	110	MG/L
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	RESIDUE TOTAL NFLT (TOTAL SUS	7	MG/L
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	PHOSPHORUS TOTAL	0.5	MG/L
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	PHOSPHORUS TOTAL DISS	0.423	MG/L
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	SAMPLE SIZE LITERS	100	ML
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	TURBIDITY, LAB NEPHELOMETRIC	4.4	NTU
IO007653	9/17/2003	LELW0103	LAKE EVINRUDE - Z00	CHLOROPHYLL A, FLUORESCENCE	30.3	UG/L
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	CONDUCTIVITY AT 25C	943	UMHOS/CM
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	PH LAB	8.75	SU
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	ALKALINITY TOTAL CACO3	140	MG/L
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	28	MG/L
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	PHOSPHORUS TOTAL	0.069	MG/L
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	PHOSPHORUS TOTAL DISS	0.019	MG/L
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	CHLORIDE	106	MG/L
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	SAMPLE SIZE LITERS	100	ML
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	18.3	NTU
IO007654	9/17/2003	WPLW0103	WILSON PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	37.2	UG/L
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	CONDUCTIVITY AT 25C	285	UMHOS/CM
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	PH LAB	8.73	SU
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	ALKALINITY TOTAL CACO3	105	MG/L
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	6	MG/L
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	PHOSPHORUS TOTAL	0.269	MG/L
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	PHOSPHORUS TOTAL DISS	0.236	MG/L
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	SAMPLE SIZE LITERS	200	ML
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	5.8	NTU
IO007655	9/17/2003	HPLW0103	HUMBOLDT PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	9.63	UG/L
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	CONDUCTIVITY AT 25C	405	UMHOS/CM

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	TEMPERATURE AT LAB	ICED	C
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	PH LAB	8.28	SU
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	ALKALINITY TOTAL CACO3	147	MG/L
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	RESIDUE TOTAL NFLT (TOTAL SUS	10	MG/L
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	PHOSPHORUS TOTAL	0.091	MG/L
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	TURBIDITY, LAB NEPHELOMETRIC	11.9	NTU
IO023789	6/7/2004	WALW0104	WASHINGTON PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	CONDUCTIVITY AT 25C	552	UMHOS/CM
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	TEMPERATURE AT LAB	ICED	C
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	PH LAB	8.35	SU
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	ALKALINITY TOTAL CACO3	161	MG/L
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	RESIDUE TOTAL NFLT (TOTAL SUS	10	MG/L
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	PHOSPHORUS TOTAL	0.08	MG/L
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	TURBIDITY, LAB NEPHELOMETRIC	8.1	NTU
IO023790	6/7/2004	BDLW0104	BROWN DEER PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO023791	6/7/2004	MILW0104	MITCHELL PARK	CONDUCTIVITY AT 25C	305	UMHOS/CM
IO023791	6/7/2004	MILW0104	MITCHELL PARK	TEMPERATURE AT LAB	ICED	C
IO023791	6/7/2004	MILW0104	MITCHELL PARK	PH LAB	8.48	SU
IO023791	6/7/2004	MILW0104	MITCHELL PARK	ALKALINITY TOTAL CACO3	96	MG/L
IO023791	6/7/2004	MILW0104	MITCHELL PARK	RESIDUE TOTAL NFLT (TOTAL SUS	9	MG/L
IO023791	6/7/2004	MILW0104	MITCHELL PARK	PHOSPHORUS TOTAL	0.07	MG/L
IO023791	6/7/2004	MILW0104	MITCHELL PARK	PHOSPHATE ORTHO DISS	0.006	MG/L
IO023791	6/7/2004	MILW0104	MITCHELL PARK	TURBIDITY, LAB NEPHELOMETRIC	4.1	NTU
IO023791	6/7/2004	MILW0104	MITCHELL PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	CONDUCTIVITY AT 25C	759	UMHOS/CM
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	TEMPERATURE AT LAB	ICED	C
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	PH LAB	8.12	SU
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	ALKALINITY TOTAL CACO3	179	MG/L
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	RESIDUE TOTAL NFLT (TOTAL SUS	4	MG/L
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	PHOSPHORUS TOTAL	0.056	MG/L
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	PHOSPHATE ORTHO DISS	ND	MG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	TURBIDITY, LAB NEPHELOMETRIC	5.1	NTU
IO023792	6/7/2004	MGLW0104	MCGOVERN PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO023793	6/7/2004	DPLW0104	DINEEN	CONDUCTIVITY AT 25C	917	UMHOS/CM
IO023793	6/7/2004	DPLW0104	DINEEN	TEMPERATURE AT LAB	ICED	C
IO023793	6/7/2004	DPLW0104	DINEEN	PH LAB	8.29	SU
IO023793	6/7/2004	DPLW0104	DINEEN	ALKALINITY TOTAL CACO3	298	MG/L
IO023793	6/7/2004	DPLW0104	DINEEN	RESIDUE TOTAL NFLT (TOTAL SUS	40	MG/L
IO023793	6/7/2004	DPLW0104	DINEEN	PHOSPHORUS TOTAL	0.039	MG/L
IO023793	6/7/2004	DPLW0104	DINEEN	PHOSPHATE ORTHO DISS	ND	MG/L
IO023793	6/7/2004	DPLW0104	DINEEN	TURBIDITY, LAB NEPHELOMETRIC	12.6	NTU
IO023793	6/7/2004	DPLW0104	DINEEN	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	CONDUCTIVITY AT 25C	812	UMHOS/CM
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	TEMPERATURE AT LAB	ICED	C
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	PH LAB	8.65	SU
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	ALKALINITY TOTAL CACO3	186	MG/L
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	RESIDUE TOTAL NFLT (TOTAL SUS	13	MG/L
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	PHOSPHORUS TOTAL	0.052	MG/L
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	TURBIDITY, LAB NEPHELOMETRIC	16.4	NTU
IO023794	6/7/2004	JBLW0104	JACOBUS PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	CONDUCTIVITY AT 25C	178	UMHOS/CM
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	TEMPERATURE AT LAB	ICED	C
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	PH LAB	9.72	SU
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	ALKALINITY TOTAL CACO3	71	MG/L
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	RESIDUE TOTAL NFLT (TOTAL SUS	5	MG/L
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	PHOSPHORUS TOTAL	0.135	MG/L
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	PHOSPHATE ORTHO DISS	0.072	MG/L
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	SAMPLE SIZE LITERS	200	ML
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	TURBIDITY, LAB NEPHELOMETRIC	5.7	NTU
IO024036	6/8/2004	HPLW0104	HUMBOLDT PARK	CHLOROPHYLL A, FLUORESCENCE	1.93	UG/L
IO024037	6/8/2004	WILW0104	WILSON PARK	CONDUCTIVITY AT 25C	830	UMHOS/CM
IO024037	6/8/2004	WILW0104	WILSON PARK	TEMPERATURE AT LAB	ICED	C
IO024037	6/8/2004	WILW0104	WILSON PARK	PH LAB	8.33	SU

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO024037	6/8/2004	WILW0104	WILSON PARK	ALKALINITY TOTAL CACO3	153	MG/L
IO024037	6/8/2004	WILW0104	WILSON PARK	RESIDUE TOTAL NFLT (TOTAL SUS	13	MG/L
IO024037	6/8/2004	WILW0104	WILSON PARK	PHOSPHORUS TOTAL	0.075	MG/L
IO024037	6/8/2004	WILW0104	WILSON PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO024037	6/8/2004	WILW0104	WILSON PARK	SAMPLE SIZE LITERS	200	ML
IO024037	6/8/2004	WILW0104	WILSON PARK	TURBIDITY, LAB NEPHELOMETRIC	7.8	NTU
IO024037	6/8/2004	WILW0104	WILSON PARK	CHLOROPHYLL A, FLUORESCENCE	32.9	UG/L
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	CONDUCTIVITY AT 25C	320	UMHOS/CM
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	TEMPERATURE AT LAB	ICED	C
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	PH LAB	8.22	SU
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	ALKALINITY TOTAL CACO3	117	MG/L
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	RESIDUE TOTAL NFLT (TOTAL SUS	29	MG/L
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	PHOSPHORUS TOTAL	0.093	MG/L
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	SAMPLE SIZE LITERS	200	ML
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	TURBIDITY, LAB NEPHELOMETRIC	28.5	NTU
IO024038	6/8/2004	SHLW0104	SHERIDAN PARK	CHLOROPHYLL A, FLUORESCENCE	46.2	UG/L
IO024039	6/8/2004	SVLW0104	SAVELAND	CONDUCTIVITY AT 25C	304	UMHOS/CM
IO024039	6/8/2004	SVLW0104	SAVELAND	TEMPERATURE AT LAB	ICED	C
IO024039	6/8/2004	SVLW0104	SAVELAND	PH LAB	8.15	SU
IO024039	6/8/2004	SVLW0104	SAVELAND	ALKALINITY TOTAL CACO3	129	MG/L
IO024039	6/8/2004	SVLW0104	SAVELAND	RESIDUE TOTAL NFLT (TOTAL SUS	6	MG/L
IO024039	6/8/2004	SVLW0104	SAVELAND	PHOSPHORUS TOTAL	0.165	MG/L
IO024039	6/8/2004	SVLW0104	SAVELAND	PHOSPHATE ORTHO DISS	0.031	MG/L
IO024039	6/8/2004	SVLW0104	SAVELAND	SAMPLE SIZE LITERS	200	ML
IO024039	6/8/2004	SVLW0104	SAVELAND	TURBIDITY, LAB NEPHELOMETRIC	10.8	NTU
IO024039	6/8/2004	SVLW0104	SAVELAND	CHLOROPHYLL A, FLUORESCENCE	2.39	UG/L
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	CONDUCTIVITY AT 25C	802	UMHOS/CM
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	TEMPERATURE AT LAB	ICED	C
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	PH LAB	8.84	SU
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	ALKALINITY TOTAL CACO3	126	MG/L
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	RESIDUE TOTAL NFLT (TOTAL SUS	ND	MG/L
IO024040	6/8/2004	SCLW0104	SCOUT LAKE	PHOSPHORUS TOTAL	0.019	MG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	TEMPERATURE AT LAB	ICED	C
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	PH LAB	8.06	SU
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	ALKALINITY TOTAL CACO3	160	MG/L
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	RESIDUE TOTAL NFLT (TOTAL SUS	13	MG/L
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	PHOSPHORUS TOTAL	0.118	MG/L
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	PHOSPHATE ORTHO DISS	0.005	MG/L
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	TURBIDITY, LAB NEPHELOMETRIC	10	NTU
IO024913	6/15/2004	BDLW0204	BROWN DEER PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024914	6/15/2004	JKLW0204	JACKSON PARK	CONDUCTIVITY AT 25C	423	UMHOS/CM
IO024914	6/15/2004	JKLW0204	JACKSON PARK	TEMPERATURE AT LAB	ICED	C
IO024914	6/15/2004	JKLW0204	JACKSON PARK	PH LAB	8.83	SU
IO024914	6/15/2004	JKLW0204	JACKSON PARK	ALKALINITY TOTAL CACO3	116	MG/L
IO024914	6/15/2004	JKLW0204	JACKSON PARK	RESIDUE TOTAL NFLT (TOTAL SUS	31	MG/L
IO024914	6/15/2004	JKLW0204	JACKSON PARK	PHOSPHORUS TOTAL	0.457	MG/L
IO024914	6/15/2004	JKLW0204	JACKSON PARK	PHOSPHATE ORTHO DISS	0.186	MG/L
IO024914	6/15/2004	JKLW0204	JACKSON PARK	TURBIDITY, LAB NEPHELOMETRIC	35.1	NTU
IO024914	6/15/2004	JKLW0204	JACKSON PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	CONDUCTIVITY AT 25C	725	UMHOS/CM
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	TEMPERATURE AT LAB	ICED	C
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	PH LAB	8.09	SU
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	ALKALINITY TOTAL CACO3	187	MG/L
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	RESIDUE TOTAL NFLT (TOTAL SUS	16	MG/L
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	PHOSPHORUS TOTAL	0.112	MG/L
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	TURBIDITY, LAB NEPHELOMETRIC	8	NTU
IO024915	6/15/2004	GPLW0204	GREENFIELD PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	CONDUCTIVITY AT 25C	751	UMHOS/CM
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	TEMPERATURE AT LAB	ICED	C
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	PH LAB	8.16	SU
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	ALKALINITY TOTAL CACO3	173	MG/L
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	RESIDUE TOTAL NFLT (TOTAL SUS	5	MG/L
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	PHOSPHORUS TOTAL	0.047	MG/L
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	PHOSPHATE ORTHO DISS	ND	MG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	TURBIDITY, LAB NEPHELOMETRIC	5.6	NTU
IO024916	6/15/2004	MGLW0204	MCGOVERN PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	CONDUCTIVITY AT 25C	766	UMHOS/CM
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	TEMPERATURE AT LAB	ICED	C
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	PH LAB	8.32	SU
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	ALKALINITY TOTAL CACO3	180	MG/L
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	RESIDUE TOTAL NFLT (TOTAL SUS	37	MG/L
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	PHOSPHORUS TOTAL	0.084	MG/L
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	TURBIDITY, LAB NEPHELOMETRIC	41.4	NTU
IO024917	6/15/2004	JBLW0204	JACOBUS PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	CONDUCTIVITY AT 25C	442	UMHOS/CM
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	TEMPERATURE AT LAB	ICED	C
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	PH LAB	8.5	SU
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	ALKALINITY TOTAL CACO3	125	MG/L
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	RESIDUE TOTAL NFLT (TOTAL SUS	25	MG/L
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	PHOSPHORUS TOTAL	0.125	MG/L
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	PHOSPHATE ORTHO DISS	0.003	MG/L
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	TURBIDITY, LAB NEPHELOMETRIC	23.4	NTU
IO024918	6/15/2004	MCLW0204	MCCARTY PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024919	6/15/2004	MILW0204	MITCHELL PARK	CONDUCTIVITY AT 25C	290	UMHOS/CM
IO024919	6/15/2004	MILW0204	MITCHELL PARK	TEMPERATURE AT LAB	ICED	C
IO024919	6/15/2004	MILW0204	MITCHELL PARK	PH LAB	8	SU
IO024919	6/15/2004	MILW0204	MITCHELL PARK	ALKALINITY TOTAL CACO3	93	MG/L
IO024919	6/15/2004	MILW0204	MITCHELL PARK	RESIDUE TOTAL NFLT (TOTAL SUS	8	MG/L
IO024919	6/15/2004	MILW0204	MITCHELL PARK	PHOSPHORUS TOTAL	0.123	MG/L
IO024919	6/15/2004	MILW0204	MITCHELL PARK	PHOSPHATE ORTHO DISS	0.032	MG/L
IO024919	6/15/2004	MILW0204	MITCHELL PARK	TURBIDITY, LAB NEPHELOMETRIC	8.5	NTU
IO024919	6/15/2004	MILW0204	MITCHELL PARK	CHLOROPHYLL A, FLUORESCENCE	**	UG/L
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	CONDUCTIVITY AT 25C	180	UMHOS/CM
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	PH LAB	9.39	SU
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	ALKALINITY TOTAL CACO3	71	MG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description		Result valu	Units
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS		3	MG/L
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	PHOSPHORUS TOTAL		0.2	MG/L
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	PHOSPHATE ORTHO DISS		0.119	MG/L
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC		4.5	NTU
IO024920	6/15/2004	HPLW0204	HUMBOLDT PARK LAGOON	CHLOROPHYLL A, FLUORESCENCE	**		UG/L
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	CONDUCTIVITY AT 25C		401	UMHOS/CM
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	TEMPERATURE AT LAB	ICED		C
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	PH LAB		8.37	SU
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	ALKALINITY TOTAL CACO3		147	MG/L
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	RESIDUE TOTAL NFLT (TOTAL SUS		15	MG/L
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	PHOSPHORUS TOTAL		0.098	MG/L
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	PHOSPHATE ORTHO DISS	ND		MG/L
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	TURBIDITY, LAB NEPHELOMETRIC		12.6	NTU
IO024921	6/15/2004	WALW0204	WASHINGTON PARK	CHLOROPHYLL A, FLUORESCENCE	**		UG/L
IO025188	6/16/2004	WILW0204	WILSON PARK	CONDUCTIVITY AT 25C		804	UMHOS/CM
IO025188	6/16/2004	WILW0204	WILSON PARK	TEMPERATURE AT LAB	ICED		C
IO025188	6/16/2004	WILW0204	WILSON PARK	PH LAB		8.23	SU
IO025188	6/16/2004	WILW0204	WILSON PARK	ALKALINITY TOTAL CACO3		150	MG/L
IO025188	6/16/2004	WILW0204	WILSON PARK	RESIDUE TOTAL NFLT (TOTAL SUS		16	MG/L
IO025188	6/16/2004	WILW0204	WILSON PARK	PHOSPHORUS TOTAL		0.072	MG/L
IO025188	6/16/2004	WILW0204	WILSON PARK	PHOSPHATE ORTHO DISS	ND		MG/L
IO025188	6/16/2004	WILW0204	WILSON PARK	SAMPLE SIZE LITERS		200	ML
IO025188	6/16/2004	WILW0204	WILSON PARK	TURBIDITY, LAB NEPHELOMETRIC		11.3	NTU
IO025188	6/16/2004	WILW0204	WILSON PARK	CHLOROPHYLL A, FLUORESCENCE		11.7	UG/L
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	CONDUCTIVITY AT 25C		759	UMHOS/CM
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	TEMPERATURE AT LAB	ICED		C
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	PH LAB		7.98	SU
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	ALKALINITY TOTAL CACO3		194	MG/L
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS		62	MG/L
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	PHOSPHORUS TOTAL		0.172	MG/L
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	PHOSPHATE ORTHO DISS		0.029	MG/L
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	SAMPLE SIZE LITERS		200	ML
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	TURBIDITY, LAB NEPHELOMETRIC		57.4	NTU

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IO025189	6/16/2004	WPLW0104	WHITNALL PARK - NORTH LAGOON	CHLOROPHYLL A, FLUORESCENCE	8.3	UG/L
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	CONDUCTIVITY AT 25C	762	UMHOS/CM
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	TEMPERATURE AT LAB	ICED	C
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	PH LAB	8.5	SU
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	ALKALINITY TOTAL CACO3	125	MG/L
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	RESIDUE TOTAL NFLT (TOTAL SUS	3	MG/L
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	PHOSPHORUS TOTAL	0.032	MG/L
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	PHOSPHATE ORTHO DISS	0.003	MG/L
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	SAMPLE SIZE LITERS	200	ML
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	TURBIDITY, LAB NEPHELOMETRIC	11.3	NTU
IO025190	6/16/2004	SCLW0204	SCOUT LAKE	CHLOROPHYLL A, FLUORESCENCE	3	UG/L
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	CONDUCTIVITY AT 25C	316	UMHOS/CM
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	TEMPERATURE AT LAB	ICED	C
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	PH LAB	8.18	SU
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	ALKALINITY TOTAL CACO3	116	MG/L
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	RESIDUE TOTAL NFLT (TOTAL SUS	14	MG/L
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	PHOSPHORUS TOTAL	0.073	MG/L
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	SAMPLE SIZE LITERS	200	ML
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	TURBIDITY, LAB NEPHELOMETRIC	15.9	NTU
IO025191	6/16/2004	SHLW0204	SHERIDAN PARK	CHLOROPHYLL A, FLUORESCENCE	12.4	UG/L
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	CONDUCTIVITY AT 25C	500	UMHOS/CM
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	TEMPERATURE AT LAB	ICED	C
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	PH LAB	8.26	SU
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	ALKALINITY TOTAL CACO3	115	MG/L
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	RESIDUE TOTAL NFLT (TOTAL SUS	9	MG/L
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	PHOSPHORUS TOTAL	*0.54	MG/L
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	PHOSPHATE ORTHO DISS	0.402	MG/L
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	SAMPLE SIZE LITERS	200	ML
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	TURBIDITY, LAB NEPHELOMETRIC	6.2	NTU
IO025969	6/23/2004	LEL0104	LAKE EVINRUDE	CHLOROPHYLL A, FLUORESCENCE	33.5	UG/L
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	CONDUCTIVITY AT 25C	394	UMHOS/CM
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	TEMPERATURE AT LAB	ICED	C

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	PH LAB	9.31	SU
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	ALKALINITY TOTAL CACO3	83	MG/L
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	14	MG/L
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	PHOSPHORUS TOTAL	0.102	MG/L
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
IP006286	8/30/2004	MCLW0105	MCCARTY PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	9.4	NTU
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	CONDUCTIVITY AT 25C	401	UMHOS/CM
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	PH LAB	8.83	SU
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	ALKALINITY TOTAL CACO3	111	MG/L
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	45	MG/L
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	PHOSPHORUS TOTAL	0.606	MG/L
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	PHOSPHATE ORTHO DISS	0.165	MG/L
IP006287	8/30/2004	JKLW0105	JACKSON PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	44.9	NTU
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	CONDUCTIVITY AT 25C	337	UMHOS/CM
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	PH LAB	7.89	SU
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	ALKALINITY TOTAL CACO3	123	MG/L
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	8	MG/L
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	PHOSPHORUS TOTAL	0.123	MG/L
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	PHOSPHATE ORTHO DISS	0.028	MG/L
IP006288	8/30/2004	MILW0105	MITCHELL PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	5.8	NTU
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	CONDUCTIVITY AT 25C	761	UMHOS/CM
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	PH LAB	8.03	SU
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	ALKALINITY TOTAL CACO3	145	MG/L
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	21	MG/L
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	PHOSPHORUS TOTAL	0.119	MG/L
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
IP006289	8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	20.6	NTU
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	CONDUCTIVITY AT 25C	729	UMHOS/CM
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	PH LAB	7.89	SU

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	ALKALINITY TOTAL CACO3	192	MG/L
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	22	MG/L
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	PHOSPHORUS TOTAL	0.134	MG/L
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
IP006290	8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	14.8	NTU
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	CONDUCTIVITY AT 25C	323	UMHOS/CM
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	PH LAB	8.17	SU
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	ALKALINITY TOTAL CACO3	113	MG/L
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	25	MG/L
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	PHOSPHORUS TOTAL	0.213	MG/L
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	PHOSPHATE ORTHO DISS	0.003	MG/L
IP006291	8/30/2004	WALW0105	WASHINGTON PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	22.5	NTU
IP006292	8/30/2004	DPLW0105	DINEEN PARK	CONDUCTIVITY AT 25C	518	UMHOS/CM
IP006292	8/30/2004	DPLW0105	DINEEN PARK	TEMPERATURE AT LAB	ICED	C
IP006292	8/30/2004	DPLW0105	DINEEN PARK	PH LAB	7.83	SU
IP006292	8/30/2004	DPLW0105	DINEEN PARK	ALKALINITY TOTAL CACO3	169	MG/L
IP006292	8/30/2004	DPLW0105	DINEEN PARK	RESIDUE TOTAL NFLT (TOTAL SUS	26	MG/L
IP006292	8/30/2004	DPLW0105	DINEEN PARK	PHOSPHORUS TOTAL	0.128	MG/L
IP006292	8/30/2004	DPLW0105	DINEEN PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IP006292	8/30/2004	DPLW0105	DINEEN PARK	TURBIDITY, LAB NEPHELOMETRIC	23.9	NTU
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	CONDUCTIVITY AT 25C	795	UMHOS/CM
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	PH LAB	8.39	SU
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	ALKALINITY TOTAL CACO3	205	MG/L
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	20	MG/L
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	PHOSPHORUS TOTAL	0.156	MG/L
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
IP006293	8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	15.5	NTU
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	CONDUCTIVITY AT 25C	801	UMHOS/CM
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	TEMPERATURE AT LAB	ICED	C
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	PH LAB	8.14	SU
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	ALKALINITY TOTAL CACO3	210	MG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result valu	Units
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	RESIDUE TOTAL NFLT (TOTAL SUS	40	MG/L
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	PHOSPHORUS TOTAL	0.063	MG/L
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	PHOSPHATE ORTHO DISS	ND	MG/L
IP006294	8/30/2004	JBLW0105	JACOBUS PARK	TURBIDITY, LAB NEPHELOMETRIC	46.1	NTU
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	CONDUCTIVITY AT 25C	854	UMHOS/CM
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	TEMPERATURE AT LAB	ICED	C
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	PH LAB	8.12	SU
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	ALKALINITY TOTAL CACO3	125	MG/L
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	RESIDUE TOTAL NFLT (TOTAL SUS	20	MG/L
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	PHOSPHORUS TOTAL	0.076	MG/L
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	PHOSPHATE ORTHO DISS	0.004	MG/L
IP006501	8/31/2004	SHLW0105	SHERIDAN PARK	TURBIDITY, LAB NEPHELOMETRIC	14.3	NTU
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	CONDUCTIVITY AT 25C	278	UMHOS/CM
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	TEMPERATURE AT LAB	ICED	C
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	PH LAB	7.64	SU
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	ALKALINITY TOTAL CACO3	113	MG/L
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	RESIDUE TOTAL NFLT (TOTAL SUS	2	MG/L
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	PHOSPHORUS TOTAL	0.03	MG/L
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	PHOSPHATE ORTHO DISS	ND	MG/L
IP006502	8/31/2004	SCLW0105	SCOUT LAKE	TURBIDITY, LAB NEPHELOMETRIC	2.7	NTU
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	CONDUCTIVITY AT 25C	932	UMHOS/CM
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	PH LAB	8.16	SU
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	ALKALINITY TOTAL CACO3	182	MG/L
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL SUS	6	MG/L
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	PHOSPHORUS TOTAL	0.033	MG/L
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	PHOSPHATE ORTHO DISS	0.003	MG/L
IP006504	8/31/2004	WILW0105	WILSON PARK LAGOON	TURBIDITY, LAB NEPHELOMETRIC	5.9	NTU

Sample Collected (St	Field #	Sample Location	DNR Parameter Description	Result valu	Units
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	CONDUCTIVITY AT 25C	394	UMHOS/CM
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	PH LAB	9.31	SU
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	ALKALINITY TOTAL CACO3	83	MG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL S	14	MG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	PHOSPHORUS TOTAL	0.102	MG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	CHLORIDE	55.8	MG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	ZINC TOTAL REC	ND	UG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	LEAD TOTAL REC	ND	UG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	COPPER TOT REC	2	UG/L
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	SAMPLE SIZE LITERS	200	ML
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	9.4	NTU
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	DIG TOTAL REC SW846 3005A	COMPLETE	
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	DIG TOTAL REC AA FURN SM30	COMPLETE	
8/30/2004	MCLW0105	MCCARTY PARK LAGOON	CHLOROPHYLL A, FLUORESCE	65.3	UG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	CONDUCTIVITY AT 25C	401	UMHOS/CM
8/30/2004	JKLW0105	JACKSON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/30/2004	JKLW0105	JACKSON PARK LAGOON	PH LAB	8.83	SU
8/30/2004	JKLW0105	JACKSON PARK LAGOON	ALKALINITY TOTAL CACO3	111	MG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL S	45	MG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	PHOSPHORUS TOTAL	0.606	MG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	PHOSPHATE ORTHO DISS	0.165	MG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	CHLORIDE	48.6	MG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	ZINC TOTAL REC	ND	UG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	LEAD TOTAL REC	ND	UG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	COPPER TOT REC	1	UG/L
8/30/2004	JKLW0105	JACKSON PARK LAGOON	SAMPLE SIZE LITERS	100	ML
8/30/2004	JKLW0105	JACKSON PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	44.9	NTU
8/30/2004	JKLW0105	JACKSON PARK LAGOON	DIG TOTAL REC SW846 3005A	COMPLETE	
8/30/2004	JKLW0105	JACKSON PARK LAGOON	DIG TOTAL REC AA FURN SM30	COMPLETE	
8/30/2004	JKLW0105	JACKSON PARK LAGOON	CHLOROPHYLL A, FLUORESCE	56.5	UG/L
8/30/2004	MILW0105	MITCHELL PARK LAGOON	CONDUCTIVITY AT 25C	337	UMHOS/CM
8/30/2004	MILW0105	MITCHELL PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/30/2004	MILW0105	MITCHELL PARK LAGOON	PH LAB	7.89	SU
8/30/2004	MILW0105	MITCHELL PARK LAGOON	ALKALINITY TOTAL CACO3	123	MG/L

Sample Collected (St	Field #	Sample Location	DNR Parameter Description	Result valu	Units
8/30/2004	MILW0105	MITCHELL PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL S	8	MG/L
8/30/2004	MILW0105	MITCHELL PARK LAGOON	PHOSPHORUS TOTAL	0.123	MG/L
8/30/2004	MILW0105	MITCHELL PARK LAGOON	PHOSPHATE ORTHO DISS	0.028	MG/L
8/30/2004	MILW0105	MITCHELL PARK LAGOON	SAMPLE SIZE LITERS	200	ML
8/30/2004	MILW0105	MITCHELL PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	5.8	NTU
8/30/2004	MILW0105	MITCHELL PARK LAGOON	CHLOROPHYLL A, FLUORESCE	15.6	UG/L
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	CONDUCTIVITY AT 25C	761	UMHOS/CM
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	PH LAB	8.03	SU
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	ALKALINITY TOTAL CACO3	145	MG/L
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL S	21	MG/L
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	PHOSPHORUS TOTAL	0.119	MG/L
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	SAMPLE SIZE LITERS	100	ML
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	20.6	NTU
8/30/2004	MGLW0105	MCGOVERN PARK LAGOON	CHLOROPHYLL A, FLUORESCE	64.2	UG/L
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	CONDUCTIVITY AT 25C	729	UMHOS/CM
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	PH LAB	7.89	SU
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	ALKALINITY TOTAL CACO3	192	MG/L
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL S	22	MG/L
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	PHOSPHORUS TOTAL	0.134	MG/L
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	SAMPLE SIZE LITERS	100	ML
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	14.8	NTU
8/30/2004	BDLW0105	BROWN DEER PARK LAGOON	CHLOROPHYLL A, FLUORESCE	125	UG/L
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	CONDUCTIVITY AT 25C	323	UMHOS/CM
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	PH LAB	8.17	SU
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	ALKALINITY TOTAL CACO3	113	MG/L
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL S	25	MG/L
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	PHOSPHORUS TOTAL	0.213	MG/L
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	PHOSPHATE ORTHO DISS	0.003	MG/L
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	SAMPLE SIZE LITERS	100	ML
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	22.5	NTU
8/30/2004	WALW0105	WASHINGTON PARK LAGOON	CHLOROPHYLL A, FLUORESCE	80	UG/L

Sample Collected (St	Field #	Sample Location	DNR Parameter Description	Result valu	Units
8/30/2004	DPLW0105	DINEEN PARK	CONDUCTIVITY AT 25C	518	UMHOS/CM
8/30/2004	DPLW0105	DINEEN PARK	TEMPERATURE AT LAB	ICED	C
8/30/2004	DPLW0105	DINEEN PARK	PH LAB	7.83	SU
8/30/2004	DPLW0105	DINEEN PARK	ALKALINITY TOTAL CACO3	169	MG/L
8/30/2004	DPLW0105	DINEEN PARK	RESIDUE TOTAL NFLT (TOTAL !	26	MG/L
8/30/2004	DPLW0105	DINEEN PARK	PHOSPHORUS TOTAL	0.128	MG/L
8/30/2004	DPLW0105	DINEEN PARK	PHOSPHATE ORTHO DISS	ND	MG/L
8/30/2004	DPLW0105	DINEEN PARK	SAMPLE SIZE LITERS	100	ML
8/30/2004	DPLW0105	DINEEN PARK	TURBIDITY, LAB NEPHELOMETI	23.9	NTU
8/30/2004	DPLW0105	DINEEN PARK	CHLOROPHYLL A, FLUORESCE	42.5	UG/L
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	CONDUCTIVITY AT 25C	795	UMHOS/CM
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	PH LAB	8.39	SU
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	ALKALINITY TOTAL CACO3	205	MG/L
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL !	20	MG/L
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	PHOSPHORUS TOTAL	0.156	MG/L
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	PHOSPHATE ORTHO DISS	ND	MG/L
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	SAMPLE SIZE LITERS	100	ML
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	15.5	NTU
8/30/2004	GPLW0105	GREENFIELD PARK LAGOON	CHLOROPHYLL A, FLUORESCE	83.8	UG/L
8/30/2004	JBLW0105	JACOBUS PARK	CONDUCTIVITY AT 25C	801	UMHOS/CM
8/30/2004	JBLW0105	JACOBUS PARK	TEMPERATURE AT LAB	ICED	C
8/30/2004	JBLW0105	JACOBUS PARK	PH LAB	8.14	SU
8/30/2004	JBLW0105	JACOBUS PARK	ALKALINITY TOTAL CACO3	210	MG/L
8/30/2004	JBLW0105	JACOBUS PARK	RESIDUE TOTAL NFLT (TOTAL !	40	MG/L
8/30/2004	JBLW0105	JACOBUS PARK	PHOSPHORUS TOTAL	0.063	MG/L
8/30/2004	JBLW0105	JACOBUS PARK	PHOSPHATE ORTHO DISS	ND	MG/L
8/30/2004	JBLW0105	JACOBUS PARK	SAMPLE SIZE LITERS	100	ML
8/30/2004	JBLW0105	JACOBUS PARK	TURBIDITY, LAB NEPHELOMETI	46.1	NTU
8/30/2004	JBLW0105	JACOBUS PARK	CHLOROPHYLL A, FLUORESCE	13.6	UG/L
8/31/2004	SHLW0105	SHERIDAN PARK	CONDUCTIVITY AT 25C	854	UMHOS/CM
8/31/2004	SHLW0105	SHERIDAN PARK	TEMPERATURE AT LAB	ICED	C
8/31/2004	SHLW0105	SHERIDAN PARK	PH LAB	8.12	SU
8/31/2004	SHLW0105	SHERIDAN PARK	ALKALINITY TOTAL CACO3	125	MG/L
8/31/2004	SHLW0105	SHERIDAN PARK	RESIDUE TOTAL NFLT (TOTAL !	20	MG/L
8/31/2004	SHLW0105	SHERIDAN PARK	PHOSPHORUS TOTAL	0.076	MG/L

Sample Collected (St	Field #	Sample Location	DNR Parameter Description	Result valu	Units
8/31/2004	SHLW0105	SHERIDAN PARK	PHOSPHATE ORTHO DISS	0.004	MG/L
8/31/2004	SHLW0105	SHERIDAN PARK	SAMPLE SIZE LITERS	100	ML
8/31/2004	SHLW0105	SHERIDAN PARK	TURBIDITY, LAB NEPHELOMETI	14.3	NTU
8/31/2004	SHLW0105	SHERIDAN PARK	CHLOROPHYLL A, FLUORESCE	29.7	UG/L
8/31/2004	SCLW0105	SCOUT LAKE	CONDUCTIVITY AT 25C	278	UMHOS/CM
8/31/2004	SCLW0105	SCOUT LAKE	TEMPERATURE AT LAB	ICED	C
8/31/2004	SCLW0105	SCOUT LAKE	PH LAB	7.64	SU
8/31/2004	SCLW0105	SCOUT LAKE	ALKALINITY TOTAL CACO3	113	MG/L
8/31/2004	SCLW0105	SCOUT LAKE	RESIDUE TOTAL NFLT (TOTAL !	2	MG/L
8/31/2004	SCLW0105	SCOUT LAKE	PHOSPHORUS TOTAL	0.03	MG/L
8/31/2004	SCLW0105	SCOUT LAKE	PHOSPHATE ORTHO DISS	ND	MG/L
8/31/2004	SCLW0105	SCOUT LAKE	SAMPLE SIZE LITERS	200	ML
8/31/2004	SCLW0105	SCOUT LAKE	TURBIDITY, LAB NEPHELOMETI	2.7	NTU
8/31/2004	SCLW0105	SCOUT LAKE	CHLOROPHYLL A, FLUORESCE	9.12	UG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	CONDUCTIVITY AT 25C	932	UMHOS/CM
8/31/2004	WILW0105	WILSON PARK LAGOON	TEMPERATURE AT LAB	ICED	C
8/31/2004	WILW0105	WILSON PARK LAGOON	PH LAB	8.16	SU
8/31/2004	WILW0105	WILSON PARK LAGOON	ALKALINITY TOTAL CACO3	182	MG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	RESIDUE TOTAL NFLT (TOTAL !	6	MG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	PHOSPHORUS TOTAL	0.033	MG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	PHOSPHATE ORTHO DISS	0.003	MG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	CHLORIDE	88.4	MG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	ZINC TOTAL REC	ND	UG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	LEAD TOTAL REC	ND	UG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	COPPER TOT REC	1	UG/L
8/31/2004	WILW0105	WILSON PARK LAGOON	SAMPLE SIZE LITERS	200	ML
8/31/2004	WILW0105	WILSON PARK LAGOON	TURBIDITY, LAB NEPHELOMETI	5.9	NTU
8/31/2004	WILW0105	WILSON PARK LAGOON	DIG TOTAL REC SW846 3005A	COMPLETE	
8/31/2004	WILW0105	WILSON PARK LAGOON	DIG TOTAL REC AA FURN SM30	COMPLETE	
8/31/2004	WILW0105	WILSON PARK LAGOON	CHLOROPHYLL A, FLUORESCE	6.06	UG/L

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units	LOD
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	TEMPERATURE AT LAB	ICED	C	
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	PHOSPHORUS	948	MG/KG	9.9
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	ARSENIC	11	MG/KG	5
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	BARIUM	110	MG/KG	0.2
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	CADMIUM	1.4	MG/KG	0.6
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	CHROMIUM	31.2	MG/KG	0.5
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	COPPER	66.5	MG/KG	0.5
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	LEAD	128	MG/KG	3
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	ZINC	306	MG/KG	2
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	SOLIDS PERCENT	49.7	%	
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	MERCURY	0.403	MG/KG	0.015
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	PREP DIG SOLIDS 750.1 SW846 305	COMPLETE		
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	PREP SAMPLE HANDLING	COMPLETE		
IO009060	9/30/2003	WPLSO103	WHITNALL PARK LAGOON - NORTH	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	TEMPERATURE AT LAB	ICED	C	
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	PHOSPHORUS	611	MG/KG	9.9
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	ARSENIC	20	MG/KG	5
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	BARIUM	67.9	MG/KG	0.2
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	CADMIUM	ND	MG/KG	0.6
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	CHROMIUM	24.1	MG/KG	0.5
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	COPPER	41.6	MG/KG	0.5
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	LEAD	52	MG/KG	3
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	ZINC	205	MG/KG	2
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	SOLIDS PERCENT	47.8	%	
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	MERCURY	0.125	MG/KG	0.015
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	PREP DIG SOLIDS 750.1 SW846 305	COMPLETE		
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	PREP SAMPLE HANDLING	COMPLETE		
IO009061	9/30/2003	WPLSO203	WHITNALL PARK LAGOON - SOUTH	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	TEMPERATURE AT LAB	ICED	C	
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	PHOSPHORUS	196	MG/KG	9.9
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	ARSENIC	ND	MG/KG	5
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	BARIUM	13.4	MG/KG	0.2
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	CHROMIUM	8.2	MG/KG	0.5

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units	LOD
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	COPPER	8.8	MG/KG	0.5
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	LEAD	8	MG/KG	3
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	NICKEL	9	MG/KG	2
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	ZINC	28	MG/KG	2
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	SOLIDS PERCENT	70.2	%	
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	MERCURY	0.023	MG/KG	0.015
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	PREP DIG SOLIDS 750.1 SW846 30Ę	COMPLETE		
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	PREP SAMPLE HANDLING	COMPLETE		
IO009734	10/8/2003	SHLS0103	SHERIDAN PARK LAGOON	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	TEMPERATURE AT LAB	ICED	C	
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	PHOSPHORUS	430	MG/KG	9.9
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	ARSENIC	26	MG/KG	5
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	BARIUM	68.4	MG/KG	0.2
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	CHROMIUM	26.2	MG/KG	0.5
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	COPPER	35.5	MG/KG	0.5
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	LEAD	55	MG/KG	3
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	NICKEL	18	MG/KG	2
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	ZINC	117	MG/KG	2
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	SOLIDS PERCENT	53.6	%	
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	MERCURY	0.083	MG/KG	0.015
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	PREP DIG SOLIDS 750.1 SW846 30Ę	COMPLETE		
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	PREP SAMPLE HANDLING	COMPLETE		
IO009735	10/8/2003	JKLS0203	JACKSON PARK LAGOON - EAST E	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	TEMPERATURE AT LAB	ICED	C	
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	PHOSPHORUS	385	MG/KG	9.9
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	ARSENIC	12	MG/KG	5
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	BARIUM	36	MG/KG	0.2
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	CHROMIUM	16.6	MG/KG	0.5
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	COPPER	17.1	MG/KG	0.5
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	LEAD	36	MG/KG	3
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	NICKEL	13	MG/KG	2
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	ZINC	52	MG/KG	2
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	SOLIDS PERCENT	49.7	%	

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units	LOD
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	MERCURY	0.06	MG/KG	0.015
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	PREP DIG SOLIDS 750.1 SW846 305	COMPLETE		
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	PREP SAMPLE HANDLING	COMPLETE		
IO009736	10/8/2003	JKLS0303	JACKSON PARK LAGOON - WEST E	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	TEMPERATURE AT LAB	ICED	C	
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	PHOSPHORUS	314	MG/KG	9.9
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	ARSENIC	17	MG/KG	5
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	BARIUM	29.5	MG/KG	0.2
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	CHROMIUM	20.2	MG/KG	0.5
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	COPPER	23.2	MG/KG	0.5
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	LEAD	29	MG/KG	3
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	NICKEL	13	MG/KG	2
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	ZINC	49	MG/KG	2
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	SOLIDS PERCENT	66.3	%	
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	MERCURY	0.045	MG/KG	0.015
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	PREP DIG SOLIDS 750.1 SW846 305	COMPLETE		
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	PREP SAMPLE HANDLING	COMPLETE		
IO009737	10/8/2003	JKLS0103	JACKSON PARK LAGOON - EAST O	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	TEMPERATURE AT LAB	ICED	C	
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	PHOSPHORUS	310	MG/KG	9.9
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	ARSENIC	23	MG/KG	5
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	BARIUM	36.5	MG/KG	0.2
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	CHROMIUM	15.8	MG/KG	0.5
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	COPPER	18.6	MG/KG	0.5
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	LEAD	16	MG/KG	3
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	NICKEL	16	MG/KG	2
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	ZINC	47	MG/KG	2
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	SOLIDS PERCENT	64.9	%	
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	MERCURY	0.026	MG/KG	0.015
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	PREP DIG SOLIDS 750.1 SW846 305	COMPLETE		
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	PREP SAMPLE HANDLING	COMPLETE		
IO009738	10/8/2003	KPLS0103	KOSCIUSZKO PARK LAGOON	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	TEMPERATURE AT LAB	ICED	C	

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units	LOD
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	PHOSPHORUS	428	MG/KG	9.9
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	ARSENIC	12	MG/KG	5
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	BARIUM	44.9	MG/KG	0.2
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	CHROMIUM	27.7	MG/KG	0.5
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	COPPER	89.9	MG/KG	0.5
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	LEAD	26	MG/KG	3
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	NICKEL	20	MG/KG	2
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	ZINC	56	MG/KG	2
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	SOLIDS PERCENT	47.8	%	
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	MERCURY	0.049	MG/KG	0.015
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	PREP DIG SOLIDS 750.1 SW846 30	COMPLETE		
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	PREP SAMPLE HANDLING	COMPLETE		
IO009739	10/8/2003	HPLS0103	HUMBOLD PARK LAGOON	PREP MERCURY AT 60 DEG C	COMPLETE		
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	TEMPERATURE AT LAB	ICED	C	
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	PHOSPHORUS	240	MG/KG	9.9
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	ARSENIC	8	MG/KG	5
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	BARIUM	28.3	MG/KG	0.2
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	CHROMIUM	26.3	MG/KG	0.5
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	COPPER	58.2	MG/KG	0.5
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	LEAD	31	MG/KG	3
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	NICKEL	17	MG/KG	2
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	ZINC	98	MG/KG	2
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	SOLIDS PERCENT	66.1	%	
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	MERCURY	0.071	MG/KG	0.015
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	PREP DIG SOLIDS 750.1 SW846 30	COMPLETE		
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	PREP SAMPLE HANDLING	COMPLETE		
IO009740	10/8/2003	SCLS0103	SCOUT LAKE LAGOON - CONCRET	PREP MERCURY AT 60 DEG C	COMPLETE		
OO000904	10/8/2003	JKLSO103	JACKSON PARK LAGOON-EAST OF	TEMPERATURE AT LAB	ICED		
OO000904	10/8/2003	JKLSO103	JACKSON PARK LAGOON-EAST OF	DDT P P	ND	UG/G, DR	0.014
OO000904	10/8/2003	JKLSO103	JACKSON PARK LAGOON-EAST OF	DDD P P	0.018	UG/G, DR	0.01
OO000904	10/8/2003	JKLSO103	JACKSON PARK LAGOON-EAST OF	DDE P P	0.012	UG/G, DR	0.005
OO000904	10/8/2003	JKLSO103	JACKSON PARK LAGOON-EAST OF	PCB 1254	0.036	UG/G, DR	0.024
OO000904	10/8/2003	JKLSO103	JACKSON PARK LAGOON-EAST OF	PREP, SOXHLET EXTRACTION FO	COMPLETE		

Sample/ Labslip ID	Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units	LOD
OO000905	10/8/2003	JKLSO203	JACKSON PARK LAGOON - EASTEI	TEMPERATURE AT LAB	ICED		
OO000905	10/8/2003	JKLSO203	JACKSON PARK LAGOON - EASTEI	DDT P P	0.055	UG/G, DR'	0.014
OO000905	10/8/2003	JKLSO203	JACKSON PARK LAGOON - EASTEI	DDD P P	0.11	UG/G, DR'	0.01
OO000905	10/8/2003	JKLSO203	JACKSON PARK LAGOON - EASTEI	DDE P P	0.066	UG/G, DR'	0.005
OO000905	10/8/2003	JKLSO203	JACKSON PARK LAGOON - EASTEI	PCB 1254	0.2	UG/G, DR'	0.024
OO000905	10/8/2003	JKLSO203	JACKSON PARK LAGOON - EASTEI	PREP, SOXHLET EXTRACTION FOF	COMPLETE		
OO000906	10/8/2003	JKLSO303	JACKSON PARK LAGOON-WEST EI	TEMPERATURE AT LAB	ICED		
OO000906	10/8/2003	JKLSO303	JACKSON PARK LAGOON-WEST EI	DDT P P	0.03	UG/G, DR'	0.014
OO000906	10/8/2003	JKLSO303	JACKSON PARK LAGOON-WEST EI	DDD P P	0.11	UG/G, DR'	0.01
OO000906	10/8/2003	JKLSO303	JACKSON PARK LAGOON-WEST EI	DDE P P	0.14	UG/G, DR'	0.005
OO000906	10/8/2003	JKLSO303	JACKSON PARK LAGOON-WEST EI	PCB 1254	0.18	UG/G, DR'	0.024
OO000906	10/8/2003	JKLSO303	JACKSON PARK LAGOON-WEST EI	PREP, SOXHLET EXTRACTION FOF	COMPLETE		
OO000907	10/8/2003	SCLS0103	SCOUT LAKE LAGOON-CONCRETE	TEMPERATURE AT LAB	ICED		
OO000907	10/8/2003	SCLS0103	SCOUT LAKE LAGOON-CONCRETE	DDT P P	ND	UG/G, DR'	0.014
OO000907	10/8/2003	SCLS0103	SCOUT LAKE LAGOON-CONCRETE	DDD P P	ND	UG/G, DR'	0.01
OO000907	10/8/2003	SCLS0103	SCOUT LAKE LAGOON-CONCRETE	DDE P P	ND	UG/G, DR'	0.005
OO000907	10/8/2003	SCLS0103	SCOUT LAKE LAGOON-CONCRETE	PCB	ND	UG/G, DR'	0.024
OO000907	10/8/2003	SCLS0103	SCOUT LAKE LAGOON-CONCRETE	PREP, SOXHLET EXTRACTION FOF	COMPLETE		

Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units
9/9/2004	SHLS0105	SHERIDAN PARK	ARSENIC	ND	MG/KG
9/9/2004	SHLS0105	SHERIDAN PARK	BARIUM	16.8	MG/KG
9/9/2004	SHLS0105	SHERIDAN PARK	CADMIUM	ND	MG/KG
9/9/2004	SHLS0105	SHERIDAN PARK	CHROMIUM	10.4	MG/KG
9/9/2004	SHLS0105	SHERIDAN PARK	COPPER	8.2	MG/KG
9/9/2004	SHLS0105	SHERIDAN PARK	LEAD	3	MG/KG
9/9/2004	SHLS0105	SHERIDAN PARK	ZINC	39	MG/KG
9/9/2004	SHLS0105	SHERIDAN PARK	SOLIDS PERCENT	71.6	%
9/9/2004	SHLS0105	SHERIDAN PARK	MERCURY	0.204	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	ARSENIC	ND	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	BARIUM	64.9	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	CADMIUM	ND	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	CHROMIUM	18.3	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	COPPER	23.2	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	LEAD	21	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	ZINC	80	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	SOLIDS PERCENT	35.1	%
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	MERCURY	0.038	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	ARSENIC	ND	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	BARIUM	27.7	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	CADMIUM	ND	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	CHROMIUM	11	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	COPPER	17.4	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	LEAD	10	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	ZINC	49	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	SOLIDS PERCENT	60.7	%
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	MERCURY	0.017	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	ARSENIC	10	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	BARIUM	87.6	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	CADMIUM	ND	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	CHROMIUM	25	MG/KG

Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	COPPER	22.2	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	LEAD	13	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	ZINC	113	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	SOLIDS PERCENT	63.9	%
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH	MERCURY	0.032	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	ARSENIC	6	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	BARIUM	31.9	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	CADMIUM	ND	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	CHROMIUM	13.5	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	COPPER	19.4	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	LEAD	13	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	ZINC	58	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	SOLIDS PERCENT	68.3	%
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	MERCURY	0.029	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	ARSENIC	ND	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	BARIUM	12	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	CADMIUM	ND	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	CHROMIUM	5.4	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	COPPER	4.7	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	LEAD	46	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	ZINC	25	MG/KG
9/8/2004	MILS0105	MITCHELL PARK LAGOON	SOLIDS PERCENT	62.1	%
9/8/2004	MILS0105	MITCHELL PARK LAGOON	MERCURY	ND	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	ARSENIC	ND	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	BARIUM	84.8	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	CADMIUM	ND	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	CHROMIUM	24.3	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	COPPER	24.8	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	LEAD	6	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	ZINC	57	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	SOLIDS PERCENT	74.4	%

Sample Collected (Start) Date	Field #	Sample Location	DNR Parameter Description	Result value	Units
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	MERCURY	0.017	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	ARSENIC	ND	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	BARIUM	42.6	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	CADMIUM	ND	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	CHROMIUM	18.5	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	COPPER	18.4	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	LEAD	15	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	ZINC	80	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	SOLIDS PERCENT	55.7	%
9/8/2004	DDLS0105	DINEEN PARK LAGOON	MERCURY	0.113	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	ARSENIC	ND	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	BARIUM	51.1	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	CADMIUM	1.5	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	CHROMIUM	67	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	COPPER	20.7	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	LEAD	32	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	ZINC	59	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	SOLIDS PERCENT	55.5	%
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	MERCURY	10.2	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	ARSENIC	14	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	BARIUM	57.4	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	CADMIUM	ND	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	CHROMIUM	12.9	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	COPPER	17.9	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	LEAD	19	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	ZINC	63	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	SOLIDS PERCENT	57.3	%
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH	MERCURY	0.042	MG/KG

Sample Collected (Start) Date	Field #	Sample Location	)NR Parameter Descriptio	Result	value	Units
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	TEMPERATURE AT LAB	ICED		C
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	PHOSPHORUS		240	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	ARSENIC	ND		MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	BARIUM		64.9	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	CADMIUM	ND		MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	CHROMIUM		18.3	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	COPPER		23.2	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	LEAD		21	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	ZINC		80	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	SOLIDS PERCENT		35.1	%
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	MERCURY		0.038	MG/KG
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	PREP DIG SOLIDS 750.1	COMPLETE		
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	PREP SAMPLE HANDLI	COMPLETE		
9/9/2004	WILS0205	WILSON PARK LAGOON - SOUTH BANK	PREP MERCURY AT 60	COMPLETE		
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	TEMPERATURE AT LAB	ICED		C
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	PHOSPHORUS		273	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	ARSENIC	ND		MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	BARIUM		27.7	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	CADMIUM	ND		MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	CHROMIUM		11	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	COPPER		17.4	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	LEAD		10	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	ZINC		49	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	SOLIDS PERCENT		60.7	%
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	MERCURY		0.017	MG/KG
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	PREP DIG SOLIDS 750.1	COMPLETE		
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	PREP SAMPLE HANDLI	COMPLETE		
9/9/2004	WILS0105	WILSON PARK LAGOON - NORTH BANK	PREP MERCURY AT 60	COMPLETE		
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	TEMPERATURE AT LAB	ICED		C
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	PHOSPHORUS		262	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	ARSENIC		10	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	BARIUM		87.6	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	CADMIUM	ND		MG/KG

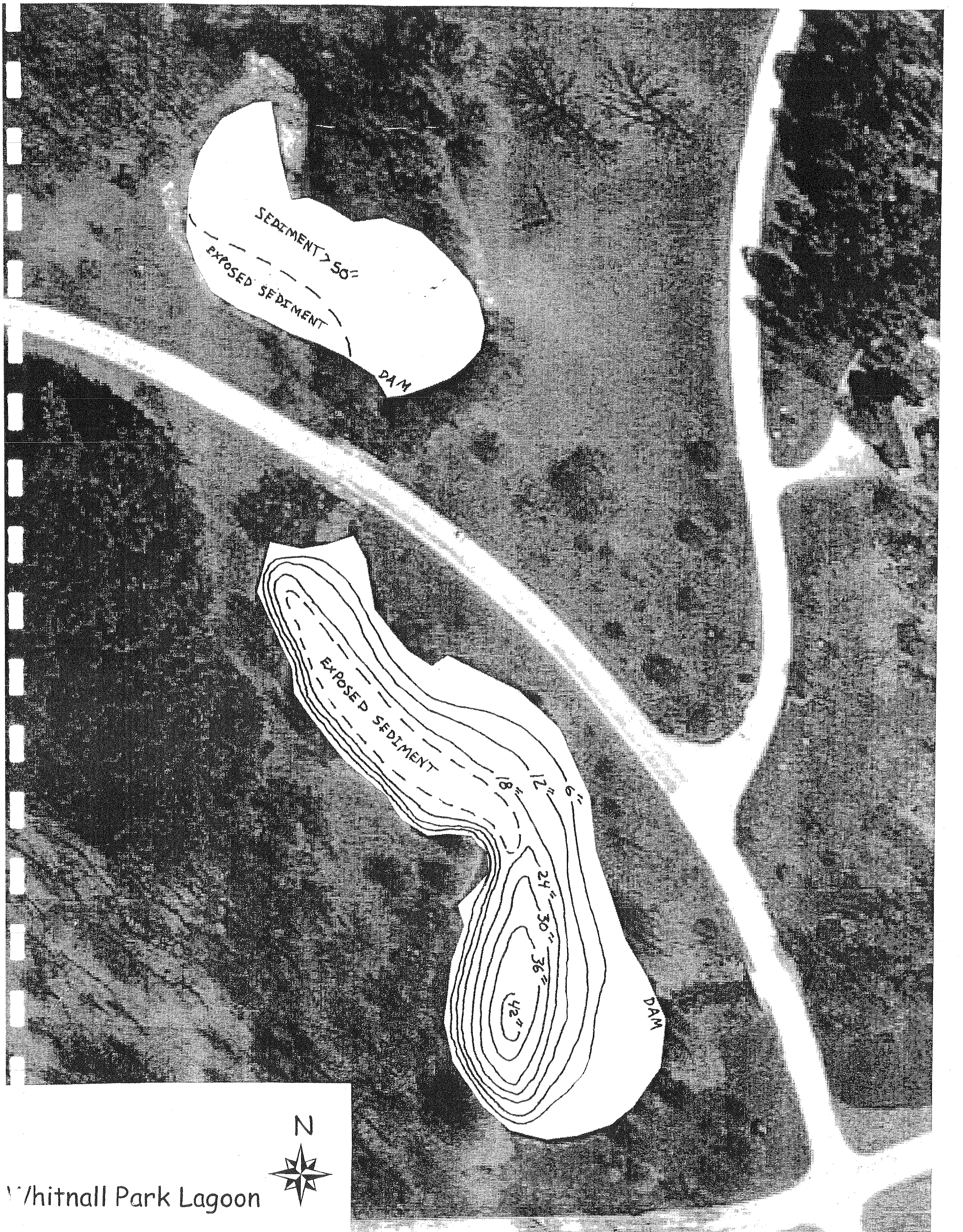
Sample Collected (Start) Date	Field #	Sample Location	)NR Parameter Descriptio	Result value	Units
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	CHROMIUM	25	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	COPPER	22.2	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	LEAD	13	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	ZINC	113	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	SOLIDS PERCENT	63.9	%
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	MERCURY	0.032	MG/KG
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	PREP DIG SOLIDS 750.1	COMPLETE	
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	PREP SAMPLE HANDLII	COMPLETE	
9/9/2004	WAL0205	WASHINGTON PARK LAGOON - SOUTH E	PREP MERCURY AT 60	COMPLETE	
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	TEMPERATURE AT LAB	ICED	C
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	PHOSPHORUS	245	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	ARSENIC	6	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	BARIUM	31.9	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	CADMIUM	ND	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	CHROMIUM	13.5	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	COPPER	19.4	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	LEAD	13	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	ZINC	58	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	SOLIDS PERCENT	68.3	%
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	MERCURY	0.029	MG/KG
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	PREP DIG SOLIDS 750.1	COMPLETE	
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	PREP SAMPLE HANDLII	COMPLETE	
9/8/2004	JBLS0105	JACOBUS PARK LAGOON	PREP MERCURY AT 60	COMPLETE	
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	TEMPERATURE AT LAB	ICED	C
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	PHOSPHORUS	523	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	ARSENIC	ND	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	BARIUM	84.8	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	CADMIUM	ND	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	CHROMIUM	24.3	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	COPPER	24.8	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	LEAD	6	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	ZINC	57	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	SOLIDS PERCENT	74.4	%

Sample Collected (Start) Date	Field #	Sample Location	)NR Parameter Descriptio	Result value	Units
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	MERCURY	0.017	MG/KG
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	PREP DIG SOLIDS 750.1	COMPLETE	
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	PREP SAMPLE HANDLI	COMPLETE	
9/8/2004	MGLS0105	MCGOVERN PARK LAGOON	PREP MERCURY AT 60	COMPLETE	
9/8/2004	DDLS0105	DINEEN PARK LAGOON	TEMPERATURE AT LAB	ICED	C
9/8/2004	DDLS0105	DINEEN PARK LAGOON	PHOSPHORUS	376	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	ARSENIC	ND	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	BARIUM	42.6	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	CADMIUM	ND	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	CHROMIUM	18.5	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	COPPER	18.4	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	LEAD	15	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	ZINC	80	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	SOLIDS PERCENT	55.7	%
9/8/2004	DDLS0105	DINEEN PARK LAGOON	MERCURY	0.113	MG/KG
9/8/2004	DDLS0105	DINEEN PARK LAGOON	PREP DIG SOLIDS 750.1	COMPLETE	
9/8/2004	DDLS0105	DINEEN PARK LAGOON	PREP SAMPLE HANDLI	COMPLETE	
9/8/2004	DDLS0105	DINEEN PARK LAGOON	PREP MERCURY AT 60	COMPLETE	
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	TEMPERATURE AT LAB	ICED	C
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	PHOSPHORUS	335	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	ARSENIC	ND	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	BARIUM	51.1	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	CADMIUM	1.5	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	CHROMIUM	67	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	COPPER	20.7	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	LEAD	32	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	ZINC	59	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	SOLIDS PERCENT	55.5	%
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	MERCURY	10.2	MG/KG
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	PREP DIG SOLIDS 750.1	COMPLETE	
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	PREP SAMPLE HANDLI	COMPLETE	
9/9/2004	GPLS0105	GREENFIELD PARK LAGOON	PREP MERCURY AT 60	COMPLETE	
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	TEMPERATURE AT LAB	ICED	C

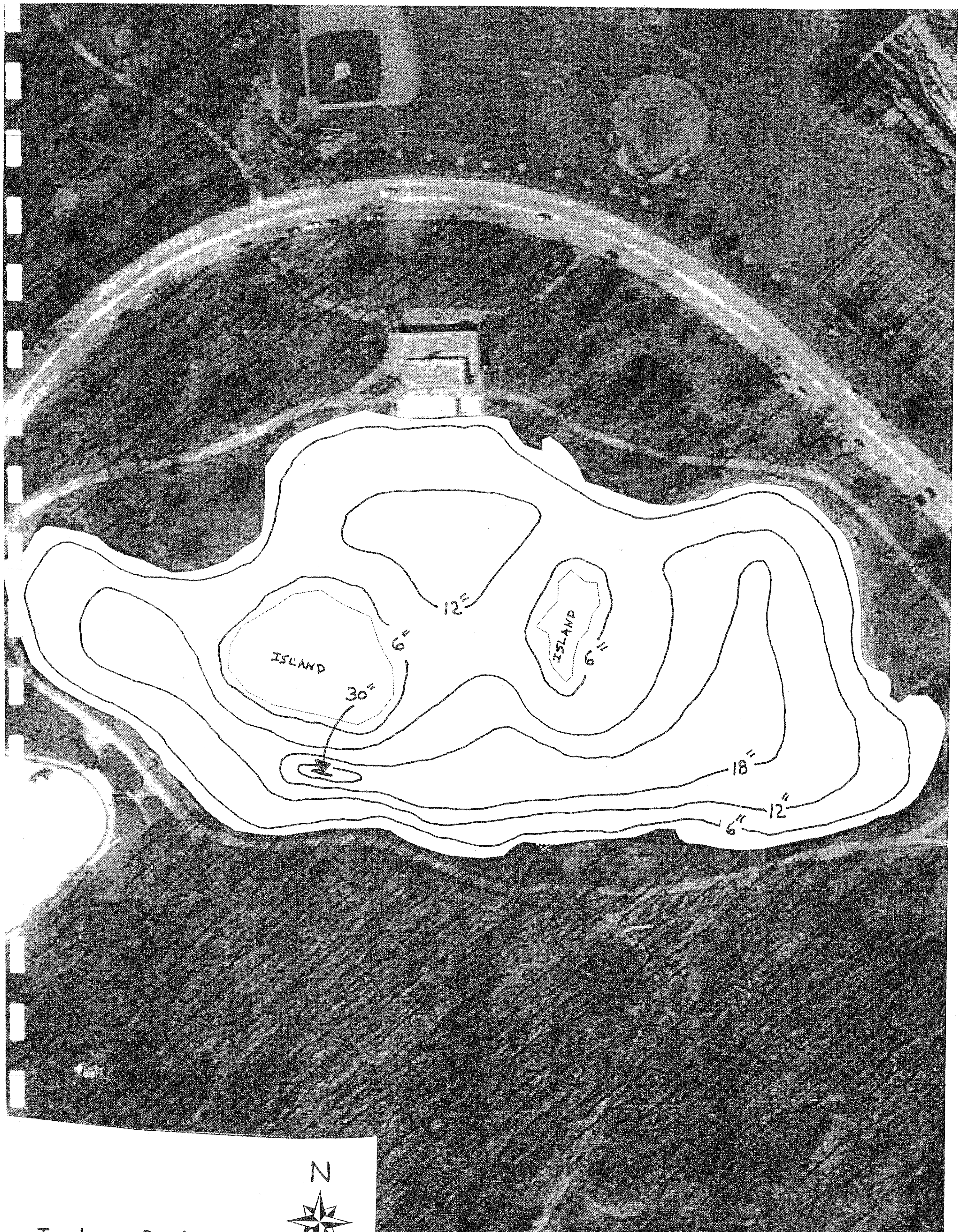
Sample Collected (Start) Date	Field #	Sample Location	)NR Parameter Descriptio	Result value	Units
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	PHOSPHORUS	304	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	ARSENIC	14	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	BARIUM	57.4	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	CADMIUM	ND	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	CHROMIUM	12.9	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	COPPER	17.9	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	LEAD	19	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	ZINC	63	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	SOLIDS PERCENT	57.3	%
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	MERCURY	0.042	MG/KG
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	PREP DIG SOLIDS 750.1	COMPLETE	
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	PREP SAMPLE HANDLII	COMPLETE	
9/9/2004	WALS0105	WASHINGTON PARK LAGOON - NORTH E	PREP MERCURY AT 60	COMPLETE	

Appendix C

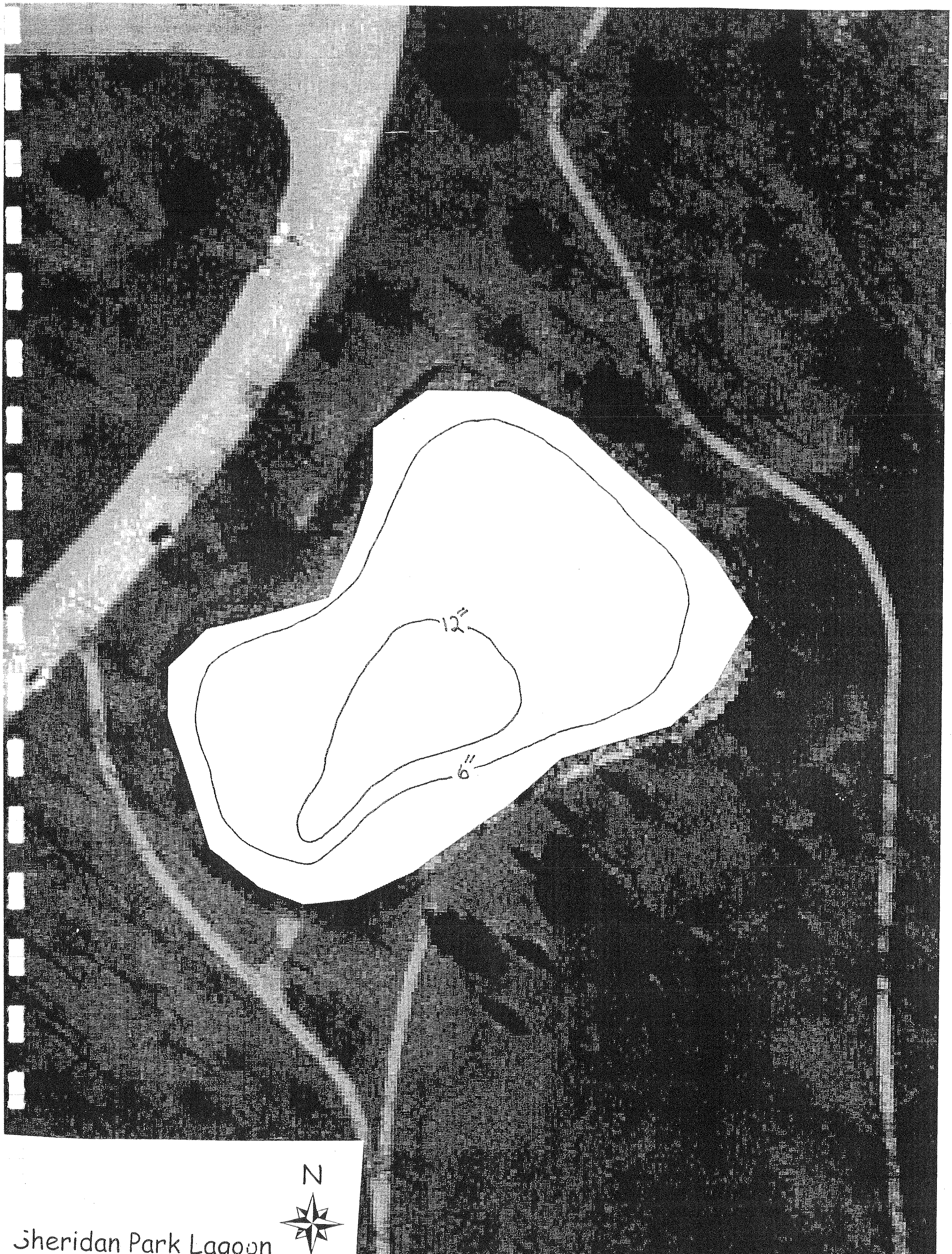
Sediment Thickness Profiles



\/hitnall Park Lagoon



Jackson Park Lagoon



Sheridan Park Lagoon

Jacobus Park Lagoon

Appendix D

Chemicals Used in Lagoons

Chemicals Used in Lagoons
2002-2004

Lagoon	Year	Chemical Applied	Amount (gal.)	Target
Brown Deer Golf Lagoon Hole #1	2003	Aquathol	2	Pondweed, Milfoil
Brown Deer Golf Lagoon Hole #1	2003	Cutrine	0.5	Algae
Brown Deer Park Lagoon	2002	Cutrine Plus	0.8	Algae
Brown Deer Park Lagoon	2002	Reward	1.5	Sago/Curlyleaf
Brown Deer Park Lagoon	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
Brown Deer Park Lagoon	2004	Aquathol K	2.5	Pondweed, Milfoil
Brown Deer Park Lagoon	2004	Cutrine Plus	0.5	
Dineen Park Lagoon	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
Estabrook Park Lagoon	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
Grant Park Golf Course	2002	VectoLex CG	0.2 (lbs)	Mosquito Larva
Grant Park Lagoon North	2002	VectoLex CG	0.3 (lbs)	Mosquito Larva
Greenfield Park Lagoon	2002	Aquathol K	6	Curlyleaf
Greenfield Park Lagoon	2002	Cutrine Plus	3	Curlyleaf
Greenfield Park Lagoon	2002	VectoLex CG	0.9 (lbs)	Mosquito Larva
Holler Park Lagoon	2002	VectoLex CG	0.2 (lbs)	Mosquito Larva
Humboldt Park Lagoon	2002	Aquathol K	2.5	Curlyleaf
Humboldt Park Lagoon	2002	Cutrine Plus	10.1	Pondweed, Algae
Humboldt Park Lagoon	2002	VectoLex CG	0.5 (lbs)	Mosquito Larva
Humboldt Park Lagoon	2003	Aquathol	5	Pondweed, Milfoil
Humboldt Park Lagoon	2003	Cutrine	12.5	Algae
Humboldt Park Lagoon	2004	Cutrine	1	Algae
Humboldt Park Lagoon	2004	Reward	4	Pondweed, Milfoil
Jacobus Park Lagoon	2002	Aquathol K	0.8	Curlyleaf
Jacobus Park Lagoon	2002	Cutrine Plus	0.5	Algae
Jacobus Park Lagoon	2002	VectoLex CG	0.3 (lbs)	Mosquito Larva
Jacobus Park Lagoon	2003	Aquathol	0.5	Pondweed, Milfoil
Jacobus Park Lagoon	2003	Cutrine	0.5	Algae
Kosciuszko Park Lagoon	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
Lake Evinrude	2002	Aquaprep	0.3	Algae
Lake Evinrude	2002	Cutrine Plus	20.5	Algae
Lake Evinrude	2002	Cygnet	0.3	Algae
McCarty Park Lagoon	2002	Aquathol K	2.5	Curlyleaf
McCarty Park Lagoon	2002	Cleargate	5.5	Algae
McCarty Park Lagoon	2002	Cutrine Plus	5.3	Pondweed, Algae
McCarty Park Lagoon	2003	Aquathol	1	Pondweed, Milfoil
McCarty Park Lagoon	2003	Cutrine	6	Algae
McCarty Park Lagoon	2004	Aquathol K	3.5	Pondweed, Milfoil
McCarty Park Lagoon	2004	Cutrine Plus	4	Algae

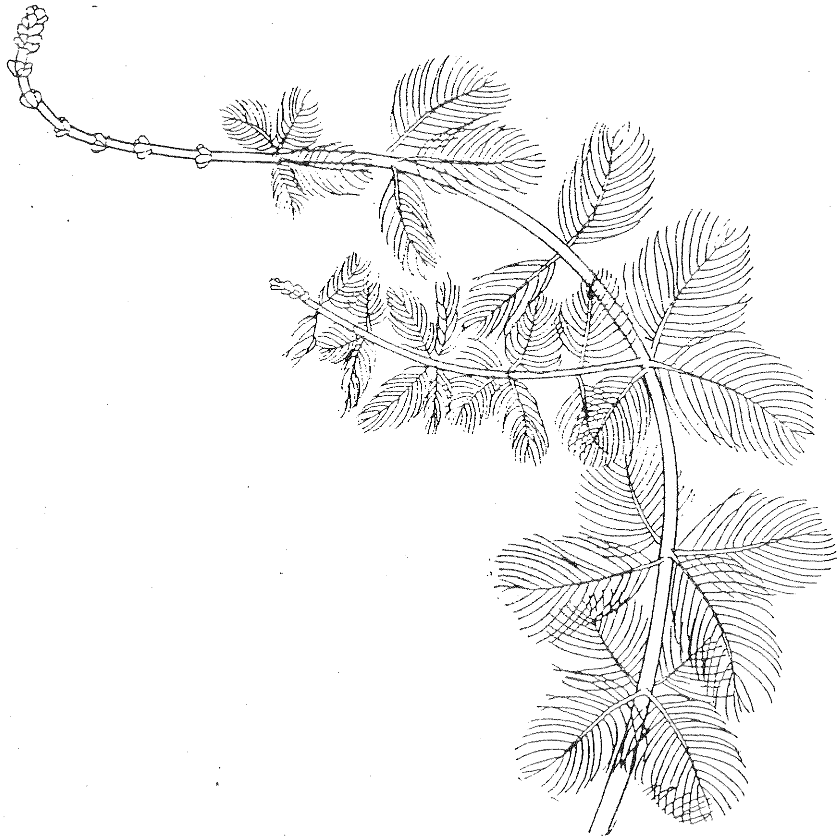
Chemicals Used in Lagoons
2002-2004

Lagoon	Year	Chemical Applied	Amount (gal.)	Target
McGovern Park Lagoon	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
McGovern Park Lagoon	2003	Aquathol	2.5	Pondweed, Milfoil
McGovern Park Lagoon	2003	Cutrine	0.5	Algae
McGovern Park Lagoon	2004	Cutrine	1.5	Algae
McGovern Park Lagoon	2004	Reward	3.5	Pondweed, Milfoil
Mitchell Park Lagoon	2002	Aquathol K	1	Curlyleaf
Mitchell Park Lagoon	2002	Cutrine Plus	2	Algae, Milfoil
Mitchell Park Lagoon	2002	Reward	1.5	Elodea
Mitchell Park Lagoon	2002	Reward	1.3	Duckweed
Mitchell Park Lagoon	2002	VectoLex CG	0.3 (lbs)	Mosquito Larva
Mitchell Park Lagoon	2003	Aquathol	1	Pondweed, Milfoil
Mitchell Park Lagoon	2003	Cutrine	0.5	Algae
Mitchell Park Lagoon	2004	Aquathol K	2	Pondweed, Milfoil
Mitchell Park Lagoon	2004	Cutrine	2	Algae
Noyes Park Pond	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
Oak Creek Parkway Pond	2002	VectoLex CG	0.2 (lbs)	Mosquito Larva
Saveland Park Lagoon	2002	Aquathol K	0.8	Curlyleaf
Saveland Park Lagoon	2002	Cutrine Plus	0.5	Algae
Saveland Park Lagoon	2002	Cutrine Plus	0.5	Algae
Saveland Park Lagoon	2002	VectoLex CG	0.2 (lbs)	Mosquito Larva
Scout Lake	2002	Aquathol K	4	Curlyleaf
Scout Lake	2002	Aquathol K	4.3	Stargrass/Coontail
Scout Lake	2002	Cutrine Plus	0.8	Algae
Scout Lake	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
Scout Lake	2003	Aquathol	2	Pondweed, Milfoil
Scout Lake	2003	Cutrine	0.5	Algae
Scout Lake	2003	Reward	1	Pondweed, Milfoil
Scout Lake	2004	Reward	2	Pondweed, Milfoil
Sheridan Parks Lagoon	2002	Aquathol K	1.3	Curlyleaf
Sheridan Parks Lagoon	2002	Cutrine Plus	0.8	Algae
Sheridan Parks Lagoon	2002	Reward	0.8	Curlyleaf
Sheridan Parks Lagoon	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva
Veterans Park Lagoon	2002	Aquathol K	4.3	Curlyleaf
Veterans Park Lagoon	2002	Aquathol K	1	Curlyleaf
Veterans Park Lagoon	2003	Aquathol	12	Pondweed, Milfoil
Veterans Park Lagoon	2003	Cutrine	3	Algae
Veterans Park Lagoon	2004	Aquathol K	12.5	Pondweed, Milfoil
Veterans Park Lagoon	2004	Cutrine	1	Algae
Warnimont Golf	2002	VectoLex CG	0.2 (lbs)	Mosquito Larva
Washington Park Lagoon	2002	VectoLex CG	0.6 (lbs)	Mosquito Larva

Appendix E

Aquatic Plant Fact Sheets

Myriophyllum spicatum
Eurasian water milfoil



Description: Eurasion water milfoil has long, spaghetti-like stems, sometimes 2 or more meters in length, that emerge from roots and rhizomes. Stems often branch repeatedly at the water's surface, creating a canopy of floating stems and foliage. Leaves are divided like a feather, with a short stalk and about 14 – 20 pairs of threadlike leaflets.

Origin and Range: Exotic; originated in Europe and Asia; distribution in Wisconsin is primarily in the south, but spreading north; range includes most of the U.S

Habitat: Eurasian water milfoil is usually found in water 1 to 4 meters deep. It can grow in a variety of sediments, but is most productive in fine textured, inorganic sediment. Low light and high water temperature promote canopy formation. Some shoots may overwinter and others develop from sprouts on the rootstalk. Growth can begin early in the spring when water temperatures are still cool (about 59 degrees F). Plants growing in shallow water can reach the surface within a few weeks, while those growing in deeper water may not reach the surface until late in the growing season. After flowering and fruit production, portions of the stem break apart in fragments. These fragments can float to new locations and take root. If the first flowering cycle occurs early in the growing season, it may be repeated in the fall. Its fast growing shoots and extensive canopy formation can obstruct recreation and navigation. EWM often crowns and shades native plants giving it a competitive advantage.

Value: Waterfowl graze on fruit and foliage to a limited extent. Milfoil beds provide invertebrate habitat, but studies have shown mixed stands of pondweeds and wild celery have higher diversity and numbers of invertebrates.

Ceratophyllum demersum
Coontail

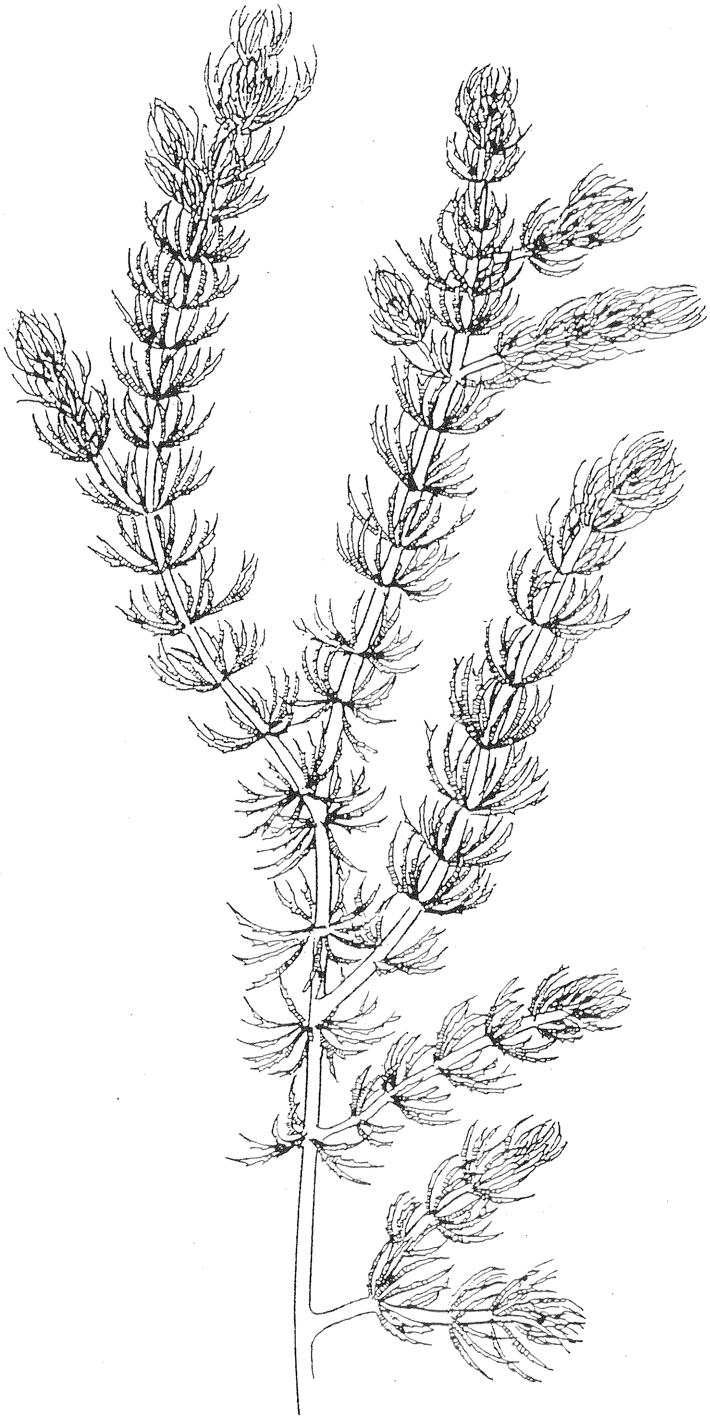
Description: Coontail has long, trailing stems that lack true roots. However, the plant may be loosely anchored to the sediment by pale modified leaves. The leaves are stiff and arranged in whorls of 5 – 12 at a node. Each leaf is forked once or twice. The leaf divisions have teeth along the margins that are tipped with a small spine. Whorls of leaves are usually more closely spaced near the ends of branches, creating the raccoon tail appearance. Flowers are tiny and hidden in the axils of leaves.

Origin and Range: Native; common throughout Wisconsin; range includes most of the United States

Habitat: Coontail is tolerant of low light conditions and will grow in water several meters deep. Because it is not rooted, it can drift between depth zones. A tolerance for cool water and low light conditions allows coontail to overwinter as an evergreen plant, continuing photosynthesis at a reduced rate. Vigorous growth resumes in spring. New plants are formed primarily by stem fragments, because seeds rarely develop.

Value: The whorls of leaves offer prime habitat for a host of critters, particularly during the winter when many other plants are reduced to roots and rhizomes. Both foliage and fruit of coontail are grazed by waterfowl. Bushy stems of coontail harbor many invertebrates and provides important shelter and foraging opportunities for fish.

Note: Coontail has the capacity to grow at nuisance levels. Management strategies are often designed to reduce the amount of coontail present in a water body. However, reduction and not elimination should be the goal, because coontail does offer good habitat.



Elodea canadensis
Common Waterweed, Elodea

Description: Elodea is a native, submersed plant with entire – opposite or whorled leaves. It has slender stems that emerge from a shallow rootstalk. The small, lance shaped leaves attach directly to the stem. Leaves are in whorls of three, or occasionally only two and tend to be more crowded toward the tip stems.

Origin and Range: Native; common in Wisconsin; range includes most of the U.S.

Habit: Elodea is found in water depths ranging from ankle deep to several meters deep. It is most abundant on fine sediments enriched with organic matter. The plants overwinter as an evergreen. In the spring, fresh green shoots develop on the ends of the stems. The plant spreads mainly by stem fragments. The branching stems often form a tangled may that can become a nuisance.

Value: The branching stems of elodea offer valuable shelter and grazing opportunities for fish, although very dense stands can obstruct fish movement. It also provides food for muskrats and waterfowl. They can eat the plant itself or feed on a wide variety of invertebrates that use the plant as habitat.

2 x life-size

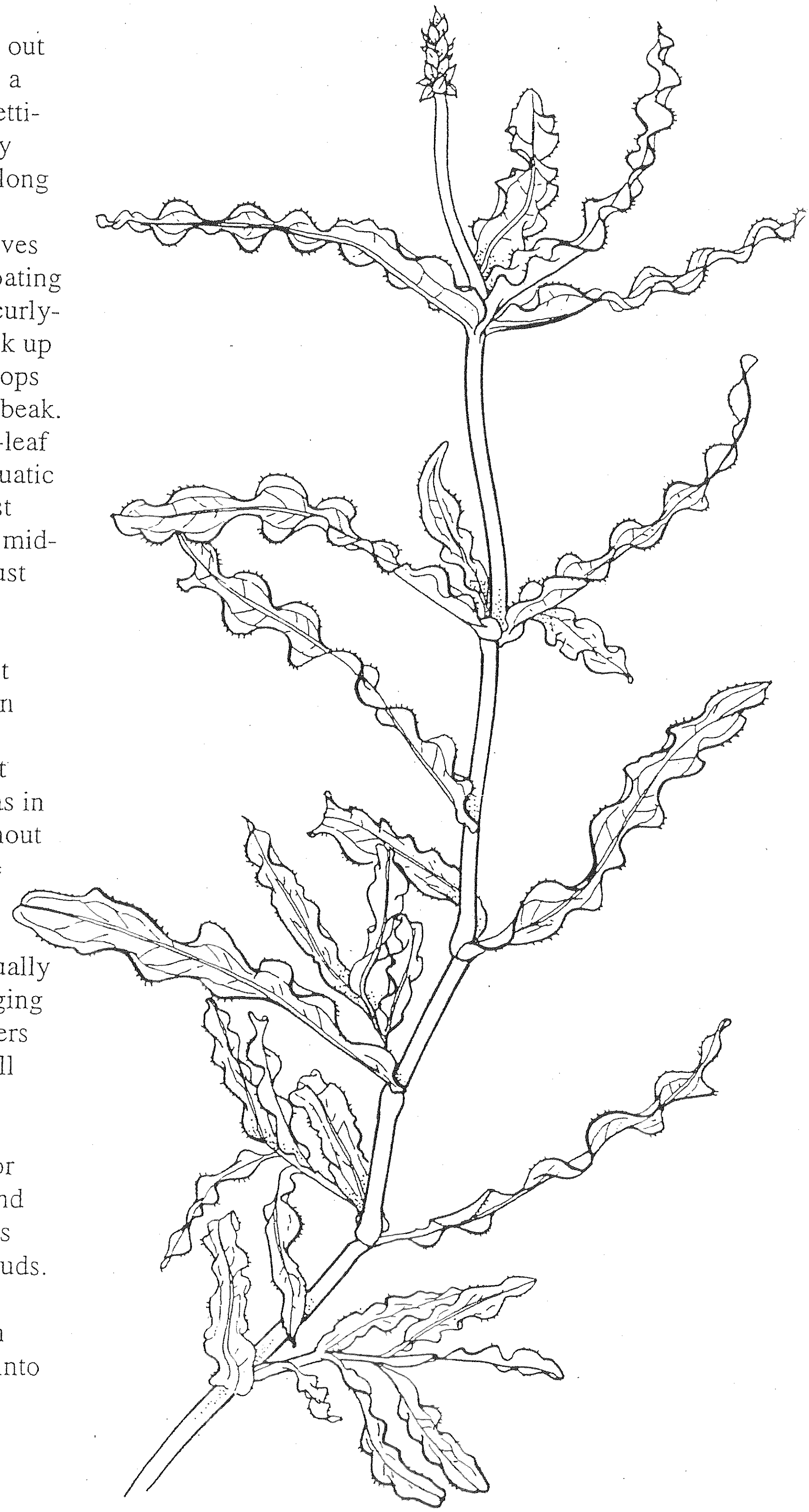
Potamogeton crispus
Curly-leaf pondweed

Description: The slightly flattened stems of curly-leaf pondweed grow out of a slender rhizome. Although it is a submersed aquatic plant, the spaghetti-like stems often reach the surface by mid-June. Submersed leaves are oblong and attach directly to the stem in an alternate pattern. Margins of the leaves are wavy and finely serrated. No floating leaves are produced. In the spring, curly-leaf produces flower spikes that stick up above the water surface. Fruit develops that have three ridges and a conical beak. The cool water adaptations of curly-leaf set it apart from other Wisconsin aquatic plants. It grows under ice while most plants are dormant, but dies back in mid-July when other aquatic plants are just reaching peak growth.

Origin and Range: Exotic; The first confirmed specimen of this European exotic in the U.S. was collected in Delaware in the mid-1800s. The first record of curly-leaf in Wisconsin was in 1905, and it is now common throughout the state. Range includes most of the U.S.

Habitat: Curly-leaf pondweed is usually found in soft sediments in water ranging from less that a meter to several meters deep. It can tolerate low light and will grow in turbid water.

Value: Curly-leaf provides habitat for fish and invertebrates in the winter and spring when most other aquatic plants are reduced to rhizomes and winter buds. However, the midsummer die-off of curly-leaf pondweed creates a sudden loss of habitat and releases nutrients into the water that can trigger algal blooms and create turgid water conditions.



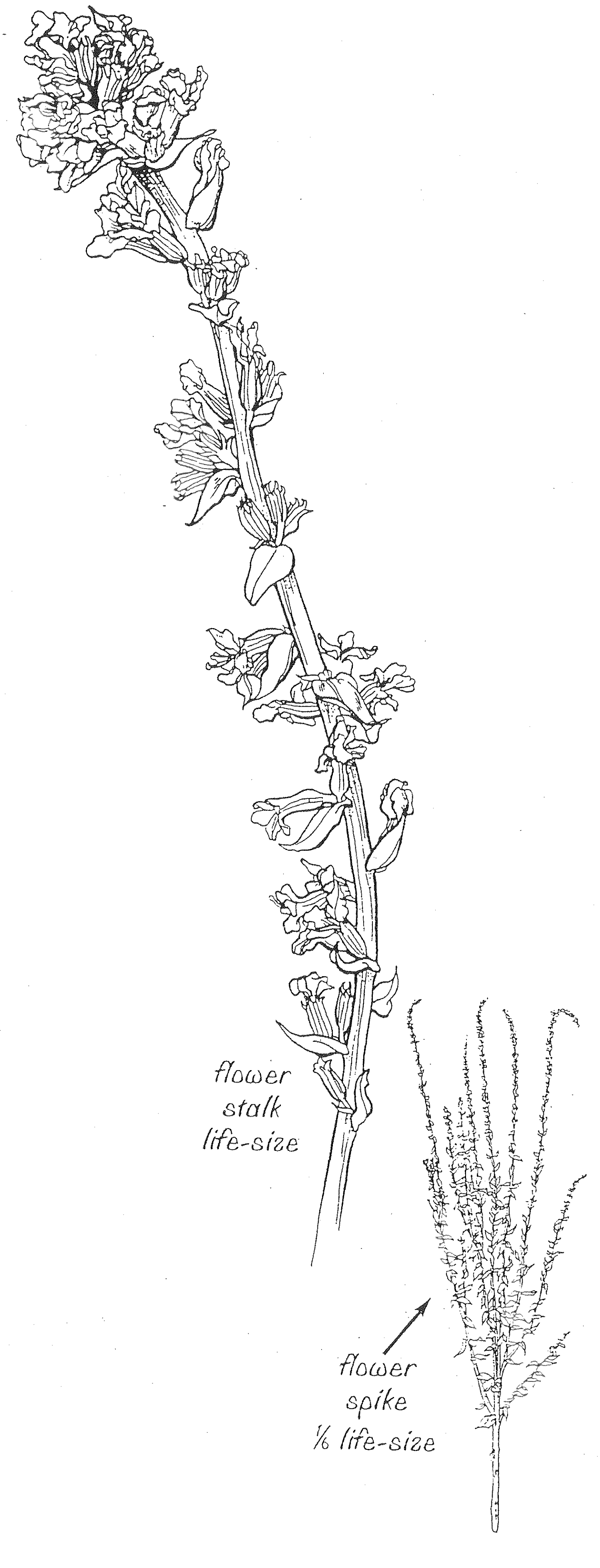
Lythrum salicaria
Purple loosestrife

Description: Purple loosestrife has angled stems that emerge from a woody rootstalk. Leaves are lance-shaped, attach directly to the stem, and often have fine hairs on the surface. The leaves may be opposite, in whorls of three, or sometimes spiraled around the stem. Clusters of magenta flowers are produced in leaf axils of a terminal spike. Flowering usually starts in mid-July and continues through September. Purple loosestrife
is a hardy perennial that survives the winter.

Origin and Range: Exotic; originated in Europe and temperate regions of Asia. It is currently widespread in Wisconsin and has become a problem in many locations.

Habitat: Purple loosestrife can be found in a wide variety of sites from moist soil to shallow water. Disturbed sites create an opening for germination of seeds and expansion of new colonies.

Value: Purple loosestrife has little wildlife value. The seeds are low in nutrition, and the roots are too woody. The flowers are attractive to insects. They produce nectar and are regularly visited by honeybees.



Appendix F

Cost Estimates

DINEEN PARK

Capital Cost Items	Quantity	Units	Unit Price	Total Cost	Notes
Shoreline Armoring					
Permitting		LS	$1,000	$1,000	
Tracking Pad		LS	$1,500	$1,500	
Pond draining / dewatering		LS	$2,200	$2,200	1 day of 2-man crew; siphon
Shoreline Trimming/Prep	2	Day	$1,950	$3,900	2-man crew with hoe
Filter fabric	100	SY	$5	$500	
Small stone	30	ton	$50	$1,500	
Large stone	111	ton	$100	$11,100	
Topsoil	23	CY	$40	$900	
Ground cover	89	SY	$20	$1,800	
Decorative stone/bench		LS	$2,500	$2,500	
Restoration		LS	$3,000	$3,000	
					$29,900
Biolog Shoreline					
Permitting		LS	$0	$0	included in armoring
Tracking Pad		LS	$0	$0	
Pond draining / dewatering		LS	$0	$0	
Cattails cutting		LS	$2,080	$2,080	
Shoreline Trimming/Prep	2	Day	$1,950	$3,900	2-man crew with hoe
Biologs	150	LF	$40	$6,000	
Plantings	750	SF	$3	$2,300	
Watering	6	Ea	$100	$600	
Restoration		LS	$1,500	$1,500	
					$16,380
Construction Subtotal				$46,000	
General Mobe/Demobe				$2,300	@ 5% of subtotal
Construction Contingency				$5,000	H&S/Bid/Scope - 10 percent contingency
Bonds/Insurance				$2,000	@4% of subtotal
Construction Total				$55,000	

Prep by SMK 5/20/05

HUMBOLDT PARK

Capital Cost Items	Quantity	Units	Unit Price	Total Cost	Notes
Shoreline Extension & Armoring					
Permitting		LS	$2,500	$1,000	
Tracking Pad		LS	$1,500	$1,500	
Pond draining / dewatering		LS	$2,200	$2,200	1 day of 2-man crew; siphon
Shoreline Trimming/Prep	2	Day	$1,950	$3,900	2-man crew with hoe
Filter fabric	250	SY	$5	$1,250	
Small stone	74	ton	$50	$3,700	
Large stone	278	ton	$100	$27,800	
Fill material	148	CY	$20	$3,000	
Ground cover/plantings	222	SY	$20	$4,400	
Outcropping stone fishing spot		LS	$14,000	$14,000	10x20 area, outcropping stone
Restoration		LS	$3,000	$3,000	
					$65,750
Buffer Garden					
Shoreline Trimming/Prep	2	Day	$1,950	$3,900	2-man crew with hoe
Biologs	100	LF	$40	$4,000	
Plantings	500	SF	$4	$2,000	
Watering	6	Ea	$100	$600	
Signage		LS	$2,000	$2,000	
Restoration		LS	$1,500	$1,500	
					$14,000
Milfoil Raking					
Raking	5	day	$1,660	$8,300	3-man crew
Disposal		LS	$500	$500	
					$8,800
Construction Subtotal				$89,000	
General Mobe/Demobe				$4,500	@ 5% of subtotal
Construction Contingency				$9,000	H&S/Bid/Scope - 10 percent contingency
Bonds/Insurance				$4,000	@4% of subtotal
Construction Total				$107,000	

Prep by SMK 5/4/05

JACOBUS PARK

Capital Cost Items	Quantity	Units	Unit Price	Total Cost	Notes
Permitting		LS	$2,000	$2,000	
Pond draining / dewatering		LS	$7,500	$7,500	draining & periodic pumping
Raking/clearing	2	Day	$2,830	$5,660	4-man crew with hand equip
Disposal		LS	$3,000	$3,000	
Restoration		LS	$1,500	$1,500	
Construction Subtotal				$18,000	
General Mobe/Demobe				$900	@ 5% of subtotal
Construction Contingency				$2,000	H&S/Bid/Scope - 10 percent contingency
Bonds/Insurance				$1,000	@4% of subtotal
Construction Total				$22,000	

Prep by SMK 5/20/05